COMPLETE REVISION HISTORY TO THE 2015 I-CODES®

Successful Changes and Public Comments

ICC
INTERNATIONAL CODE COUNCIL®

Complete Revision History to the 2015 I-Codes: Successful Changes with Public Comments: 2015 IBC

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INTRODUCTION

Why did IBC/2015 section 308.3.3 change from the 2012 edition? This Complete Revision History to the 2015 I-Codes: Successful Changes with Public Comments: 2015 IBC has been compiled to provide the answers to such questions.

This Complete Revision History to the 2015 I-Codes: Successful Changes with Public Comments: 2015 IBC provides the published documentation for each successful code change in the IBC/2015 since the 2012 edition. Each changed code section is listed in the Table of Changes which contains three headings. The first heading is 2015 IBC" which lists the section number in the 2015 code. If (new) appears after the section number it indicates that the section is new in 2015. If (deleted) is indicated in 2015 it means that the section no longer exists and the second column 2012 IBC will show the section number that was deleted. Also, the second heading will indicate if a section number has changed from 2012 to 2015. If there is nothing indicated in the 2012 column, the section number remained the same. The third heading lists the code change number(s) which affected that particular section. The published material for each change is contained in the Documentation section.

HOW TO USE THE HANDBOOK

This Complete Revision History to the 2015 I-Codes: Successful Changes with Public Comments: 2015 IBC makes it possible for the reader to examine, in one location, all published information about a particular code change. For any given change, the text of the proposed change, committee actions and modifications, assembly actions, successful public comments, and final action can be found by using the following steps:

1. Locate the code section in the Table of Changes using the 2015 IBC section number.
2. Note the corresponding proposed code change number(s) from the list.
3. Locate the proposed code change number (listed in numerical order under the appropriate year and letter designation) in the Documentation section to read the complete chronological documentation of the proposed change.

SOURCE DOCUMENTS

The code development cycle (see page vii) involves the publication of four documents, the result of 1) public submittal of proposed changes, 2) a public hearing and committee/assembly actions, 3) submittal of public comments to the committee or assembly actions, and 4) final action results. Under each code change number in the Documentation section of this handbook, material corresponding to that individual proposed change has been drawn from each of these four publications. One code change cycle occurred between published editions of the 2012 and 2015 IBC; therefore, the Documentation section of this handbook contains material collected from the following published documents:

Unsuccessful proposed changes have not been included since they do not directly affect the final content of the code section.

2012 Documentation

2012 Proposed Changes to the International Codes
2012 Report of the Committee Action Hearing on the International Codes
2012 Public Comments Agenda on the International Codes
Final Action on 2012 Proposed Changes to the International Codes

2013 Documentation

2013 Proposed Changes to the International Codes
2013 Report of the Committee Action Hearing on the International Codes
2013 Public Comments Agenda on the International Codes
Final Action on 2013 Proposed Changes to the International Codes

Code Change No: G28-12

Code change numbers are identified with a letter and a year designation. For instance, **G28-12** is proposed change number **28** to the International Building Code General (G) and was submitted in the **2012** code change cycle. (See Code Change Numbers on page iv for a discussion of code committees)

Original Proposal

This is the proposal as published in the 2012 Proposed Changes to the International Codes. It includes the section number(s), proponent's name, who they are representing, the text of the proposed change and their reason for the change. This is a change to IBC Section 304.1.

Public Hearing Results

This is the result of the Committee Action Hearing held to consider the change, as published in the 2012 Report of the Committee Action Hearing to the International Codes. It includes the committee's action (Disapproved) and reason for the action and also identifies if there was an assembly motion (none).

Public Comments

This is text of any submitted public comments, as published in the 2012 Public Comment Agenda to the International Codes. It includes the public commenter's name and affiliation, the requested action to be considered at the Final Action Hearing (Approved as Modified) and the reason.

Final Hearing Results

This is the action taken by the eligible voting members of the ICC at the Final Action Hearing, as published in the Final Action on 2012 Proposed Changes to the International Codes. The Final Action was AMPC which means the eligible voting members of ICC overturned the committee's action and approved the change based on the submitted public comment.

CODE CHANGE NUMBERS

The following is the legend for code change numbers, along with the applicable committee and the committee's primary area of responsibility relative to the IBC.

Prefix	Code Committee	Primary IBC Chapters Affected
E	IBC Means of Egress Committee	Chapters 10, 11, Appendix E
F	IFC Committee	Chapters 3, 4, 8, 9, 27
FS	IBC Fire Safety Committee	Chapters 7, 8, 9, 14, 26
G	IBC General Committee	Chapters 1-6, 12, 13, 27-33, Appendices A, B, C, D, K
P	IPC Code Committee	Chapter 29
S	IBC Structural Committee	Chapters 15-25, Appendices F, G, H, I, J, L, M

Although most changes to the IBC are found under proposed change numbers beginning with an E, FS, G, or S, some changes to the IBC are published within a proposed change to the other *International Codes,* and therefore are found under a proposed code change number beginning with one of the other letters listed above. Use the table of contents to locate appropriate sections by year and letter designation.

CODE SECTION NUMBER DIFFERENCES

For editorial reasons, some code section numbers in the 2015 edition have changed from the 2012 edition. The numbering of code sections is an editorial task which takes place outside of the normal code development cycle, and is necessary to avoid duplicate or non-sequential section numbers.

The Table of Changes typically references the 2012 code section numbers that have been deleted. (See Introduction)

In most cases the section numbers have not changed from the 2012 to the 2015 edition. However, the reader should remember that it is always the 2012 code section numbers which appear in the material contained in the Documentation section. This is due to proposed changes which have as their basis, a section number in the 2012 edition. Since an attempt to correlate code sections by number may lead to confusion, the user is advised to rely on the section content rather than the numbers to locate and compare parallel sections in the two editions.

ABBREVIATIONS FOR ACTIONS

In the Documentation section, the following abbreviations are used to signify committee or final action:

Legend for 2012 and 2013 Code Change Cycle Documentation:

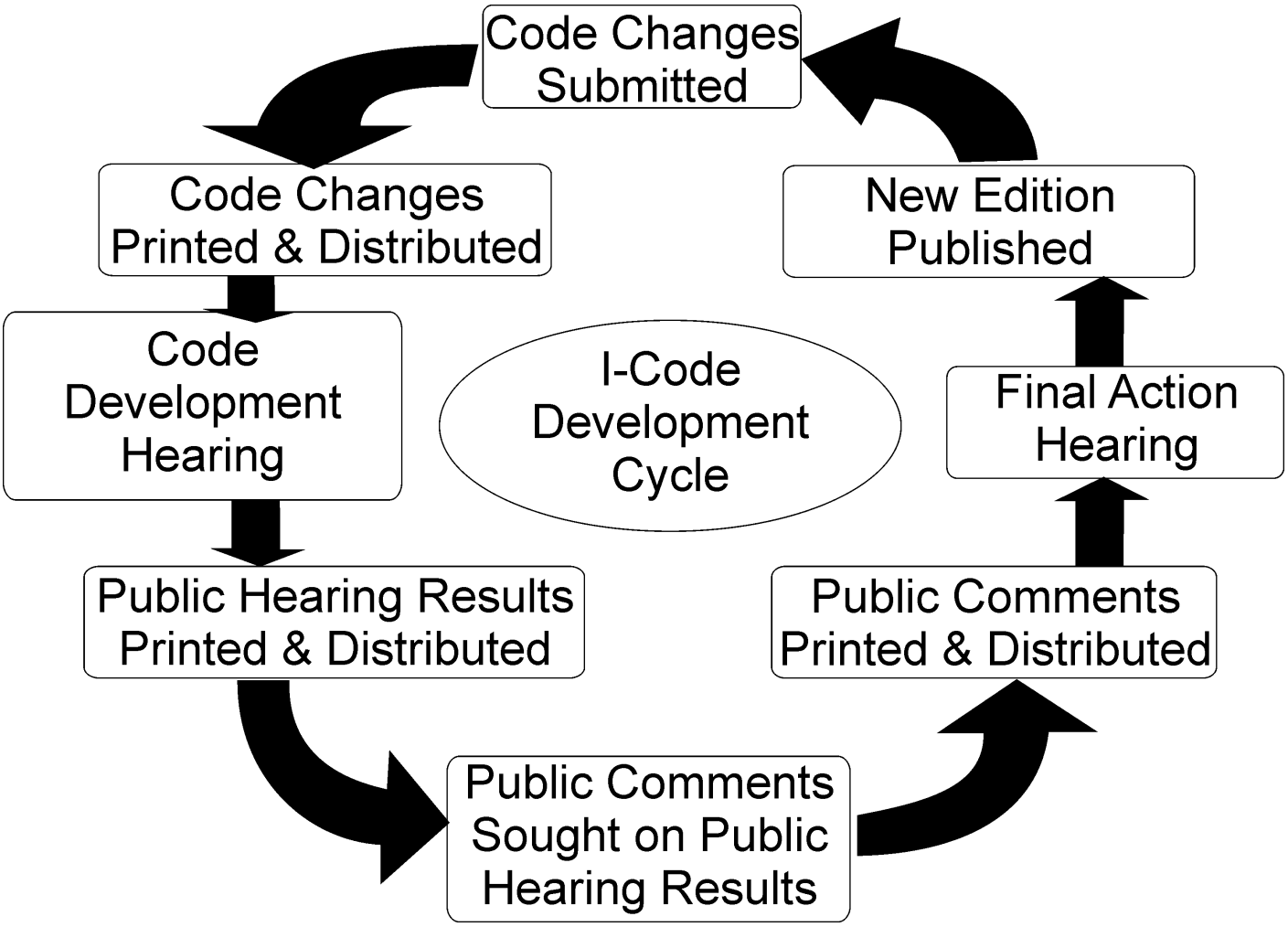
AS	=	Approved as Submitted
D	=	Disapproved
AM	=	Approved as Modified by the Code Committee
AMPC	=	Approved as Modified by a Public Comment
WP	=	Withdrawn by Proponent

CODE CORRELATION COMMITTEE

During the course of the code development process, there are editorial issues, issues related to code correlation problems arising from code changes, and issues related to the appropriate committee that should consider certain topics. These issues are placed before the ICC Code Correlation Committee for resolution. During the development of the 2015 Code, from 2012 to 2014, the Code Correlation Committee met 2 times to discuss and resolve these issues. Code Correlation Committee actions are posted on the ICC website in the Code Development Section.

ICC CODE DEVELOPMENT PROCESS

The following depicts the key steps in ICC's Code Development Process:



The procedures governing ICC Code Development are entitled Code Development Process for the International Codes. These procedures are updated periodically and therefore not included here. To obtain the current version, visit ICC's website at www.iccsafe.org.

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[F] 415.8.1.7 (New)		G88-12
[F] 415.8.2.1.1		G101-12
[F] 415.9.1.1.1	[F] 415.8.2.1.1	G101-12
[F] 415.11.3.2	[F] 415.10.3.2	G12-13
[F] 415.11.5.8	[F] 415.10.5.8	G12-13
[F] 415.11.6.4	[F] 415.10.6.4	G13-13 AMPC
[F] 415.11.10	[F] 415.10.10	G12-13
[F] 415.11.10.1	[F] 415.10.10.1	G12-13
[F] 419.6		CCC 12-G-10
420		G31-12 Part I
420.1		G31-12 Part I
420.4 (New)		G31-12 Part I
420.4.1 (New)		G31-12 Part I
[F] 420.5	[F] 420.6	G31-12 Part I
420.6 (New)		G31-12 Part I
[F] 421		G14-13
[F] 421.1		G14-13
[F] 421.2		G14-13
[F] 421.3		G14-13
[F] 421.4		G14-13
[F] 421.4.1		G14-13
Deleted	[F] 421.4.1.1	G14-13
[F] 421.5		G14-13
[F] 421.6		G14-13
[F] 421.6.1		G14-13
[F] 421.6.2 (New)		G14-13
[F] 421.6.3	[F] 421.6.2	G14-13
[F] 421.6.4	[F] 421.6.3	G14-13
[F] 421.7		G14-13
[F] 421.8		F59-13
422.3		G71-12
422.3.1 (New)		G68-12
422.3.2	422.4	CCC 12-G11
422.3.3	422.5	CCC 12-G11
423.1		G94-12, G95-12
423.3 (New)		G94-12, G95-12
423.4 (New)		G94-12
424.2		G84-12
425.1	407.10	G78-12
[F] 426 (New)		G15-13
[F] 426.1	[F] 415.8.1	G15-13
[F] 426.1.1	[F] 415.8.1.1	G101-12, G15-13
[F] 426.1.2	[F] 415.8.1.2	G15-13
[F] 426.1.3	[F] 415.8.1.3	G15-13
[F] 426.1.4	[F] 415.8.1.4	G15-13
[F] 426.1.5	[F] 415.8.1.5	G15-13
[F] 426.1.6	[F] 415.8.1.6	G15-13

CHAPTER 5
GENERAL BUILDING HEIGHTS AND AREAS

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
[F] 501.2		F43-13 Part II, G16-13
Deleted	Table 503	G101-12
503.1		G101-12, G104-12 AMPC
503.1.1		G101-12
503.1.2		G101-12
504		G101-12
504.1		G101-12
504.1.1 (New)		G101-12
504.1.2 (New)		G101-12
Deleted	504.2	G101-12
504.2 (New)		G101-12
504.3 (New)		G101-12
Table 504.3 (New)		G31-12, G101-12
504.4 (New)		G101-12
Table 504.4 (New)		G31-12, G101-12
505.2.3		E7-12
506 - 506.3.3 (New)	506 thru 506.5.2	CCC 12-G-12, G101-12
507.1		G115-12, G116-12
507.1.1 (New)		G116-12
507.1.2	507.5	CCC12-6-14
507.2	507.3	G115-12, G116-12
507.4		CCC12-6-13
507.5.2	507.5	CCC 12-G14
507.8		G101-12, G121-12
507.8.1		G101-12
507.8.1.1		G101-12
507.8.4		G101-12
507.9 (New)		G119-12 AMPC3
Deleted	508.2.1	G101-12
508.2.1	508.22	G101-12
Deleted	508.2.2	G101-12
508.2.2 (New)		G101-12, G126-12
Deleted	508.2.3	G101-12
508.2.3 (New)		G101-12
Table 508.4		G128-12
Table 509		G130-12
Table 509.1		G14-13
510.2		G101-12, G133-12, G134-12
510.8		G138-12

CHAPTER 6
TYPES OF CONSTRUCTION

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
Table 601		G140-12
Table 602		G59-12
602.4		G141-12, G142-12 Part I
Table 602.4		G141-12
602.4.1 (New)		G142-12 Part I
602.4.2 (New)		G142-12 Part I
602.4.3	602.4.1	G142-12 Part I
602.4.4	602.4.2	G142-12, G143-12
602.4.5	602.4.3	G142-12Part I
602.4.6	602.4.4	G142-12 Part I
602.4.6.1 (New)		G142-12 Part I
602.4.6.2 (New)		G142-12 Part I
602.4.7	602.4.5	G142-12 Part I
602.4.8	602.4.6	G142-12 Part I

CHAPTER 7
FIRE AND SMOKE PROTECTION FEATURES

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
702.1		FS106-12, FS128-12
703.2		CCC 12-FS1
703.2.3		FS4-12
703.2.4 (New)		CCC 12-FS1
703.3		FS6-12 AMPC 1,2
703.7		FS11-12
704.2		CCC 12-FS7, CCC 12-FS8
704.4.2 (New)		FS12-12
704.4		CCC 12-FS8, FS12-12
704.4.1		FS13-12
705.2		FS14-12
Table 705.2		FS16-12 AMPC
705.2.3		FS19-12
705.3		FS20-12 AMPC
705.6		FS22-12 AMPC 1,2,3
Table 705.8		FS20-12 AMPC, FS23-12
705.8.5		FS24-12
706.2		FS22-12 AMPC 1,2,3
707.3.3		E7-12
707.5		FS28-12
707.5.1		E7-12, FS28-12. FS52-12
707.6		E2-12, FS29-12
707.7.1		E2-12, E7-12, FS29-12
707.9		FS30-12
708.1		CCC 12-FS12, FS34-12
709.1		FS35-12
709.4		FS36-12, FS37-12 AMPC
709.4.1 (New)		FS37-12 AMPC
709.4.2 (New)		FS37-12 AMPC
709.5		FS40-12, G31-12 Part I
709.5.1 (New)		FS40-12
710.5.2.2.1 (New)		FS43-12
711.1		FS50-12
711.2 (New)		FS50-12
711.2.1	711.2	FS50-12
711.2.2	711.4	FS50-12
711.2.3 (New)		FS50-12
711.2.4	711.3	FS34-12, FS50-12
711.2.4.1 (New)		FS50-12
711.2.4.2 (New)		FS50-12
711.2.4.3 (New)		FS34-12, FS50-12
711.2.4.4 (New)		FS50-12
711.2.4.5 (New)		FS50-12
711.2.4.6 (New)		FS50-12
711.2.5	711.3.1	FS50-12
711.2.6	711.3.3	FS50-12
711.3 (New)		FS50-12
711.3.1 (New)		FS50-12
711.3.2 (New)		FS50-12
711.4		E7-12
Deleted	711.5	FS50-12
Deleted	711.7	FS50-12
Deleted	711.9	FS50-12
712.1		E7-12, FS50-12
712.1.3		FS50-12
712.1.3.2		FS50-12
712.1.4		FS50-12
712.1.5 (New)		FS50-12
712.1.5.1	711.6	FS50-12

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2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
712.1.5.2	711.4.1	FS50-12
712.1.6	712.1.5	FS50-12
712.1.7	712.1.6	FS50-12
712.1.8	712.1.7	E7-12, FS50-12, G54-12
712.1.9	712.1.8	FS50-12
712.1.10	712.1.9	FS50-12
712.1.10.1 (New)		FS50-12
712.1.10.2	712.1.15	FS50-12
712.1.10.3	712.1.16	FS50-12
Deleted	712.1.11	FS50-12
712.1.11	712.1.10	FS50-12
712.1.12		FS50-12
712.1.13		FS50-12
712.1.13.1	711.8	FS46-12, FS50-12
712.1.13.2	711.3.2	FS50-12
Deleted	712.1.11	FS50-12
712.1.15 (New)		FS50-12
712.1.16	712.1.18	FS50-12
Deleted	712.1.17	FS50-12
713.1		E2-12, E7-12, FS52-11
713.11		FS55-12
713.13		FS60-12
713.13.1		FS57-12, FS60-12
713.13.2		FS60-12
713.13.3		FS60-12
713.13.4		FS60-12
713.14.1 (New)		FS67-12
713.14.2 (New)		FS67-12
713.14.3	713.14.1.1	FS61-12, FS67-12, FS71-12
713.14.4 (New)		FS71-12
713.14.5 (New)		FS71-12
713.14.6 (New)		FS71-12
713.14.7 (New)		FS71-12
714.3.2		FS74-12 AMPC1
714.4		FS50-12
Deleted	714.4.1	FS50-12
714.4.1	714.4.1.1	FS50-12
714.4.1.1	714.4.1.1.1	FS50-12
714.4.1.2	714.4.1.1.2	FS50-12, FS75-12
714.4.2	714.4.1.2	FS50-12, FS76-12
714.4.3	714.4.1.3	FS50-12
714.4.4	714.5	FS50-12
714.5	714.4.2	FS50-12
714.5.1	714.4.2.1	FS50-12
714.5.2	714.4.2.2	FS50-12
715.4.2 (New)		FS77-12
716.2		FS83-12
716.3.1 (New)		FS84-12
716.3.2 (New)		FS84-12
Table 716.5		E2-12, FS85-12, G51-12
716.5.2		FS87-12
716.5.5.1		FS91-12
716.5.7.1.1		FS92-12
716.5.7.5 (New)		FS93-12
716.5.8.1		FS94-12 AMPC
716.5.8.2		FS94-12 AMPC
716.5.8.3		FS94-12 AMPC
Deleted	716.5.8.3.1	FS84-12

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
716.5.8.4		FS95-12
716.5.9		FS96-12
716.5.9.3		FS97-12, FS98-12
716.6.3		FS95-12
716.6.8		FS84-12
717.1.1 (New)		FS100-12
717.3.1		FS104-12, FS106-12
717.3.2.4 (New)		FS106-12
717.3.3.2		FS108-12 AMPC1,2
717.3.3.5 (New)		FS106-12
717.5		FS106-12
717.5.2		FS29-12
717.5.4.1		FS106-12
717.5.5		FS114-12 AMPC1,2
717.6.2.1		FS115-12
717.6.3		FS116-12
718.2.4		E2-12
720.2		FS120-12, FS121-12
720.3		FS120-12, FS121-12
720.4		FS120-12, FS121-12
Table 721.1(3)		FS122-12, FS123-12, FS124-12
720.6		FS120-12
722.2.2.1		FS125-12
722.5.1.2.1		FS126-12
722.6.1.2		FS127-12 AMPC
Deleted	722.6.3	FS130-12
Deleted	722.6.3.1	FS130-12
Deleted	722.6.3.2	FS130-12
Deleted	722.6.3.3	FS130-12
Deleted	722.6.3.4	FS130-12
Figure 722.5.1(2)		FS126-12
Figure 722.5.1(3)		FS126-12
Table 722.6.2(3)		FS128-12
Table 722.6.2(4)		FS129-12
Deleted	Figure 722.6.3(1)	FS130-12
Deleted	Figure 722.6.3(2)	FS130-12

CHAPTER 8
INTERIOR FINISHES

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
803.3		FS132-12
803.9		E2-12

CHAPTER 9
FIRE PROTECTION SYSTEMS

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
901.5		ADM22-13, S90-12 Part III
[F] 901.8		F115-13
902		F144-13
[F] 903.2.1		F118-13, F120-13
[F] 903.2.1.1		F118-13, F120-13
[F] 903.2.1.2		F118-13, F120-13
[F] 903.2.1.3		F118-13, F120-13
[F] 903.2.1.4		F118-13, F120-13

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
[F] 903.2.1.6 (New)		F124-13
[F] 903.2.6		G31-12 Part III
[F] 903.2.8.1		G31-12 Part II
[F] 903.2.8.2 (New)		G31-12 Part II
[F] 903.2.8.3 (New)		G31-12 Part II
[F] 903.2.8.3.1 (New)		G31-12 Part II
[F] 903.2.8.3.2 (New)		G31-12 Part II
[F] 903.2.8.4	[F] 903.2.8.2	G31-12 Part II
[F] 903.2.9		F128-13
[F] 903.2.9.1		F128-13
[F] 903.2.11.3		F131-13, F132-13
[F] 903.3.1.1.2 (New)		F133-13
[F] 903.3.1.2		F134-13, F135-13
[F] 903.3.1.2.1		F136-13
[F] 903.3.1.2.2 (New)		F137-13
[F] 903.3.1.3		G31-12 Part II
Deleted	[F] 903.3.5.1.1	F138-13
[F] 903.3.5.2	[F] 903.3.5.1.2	F138-13
[F] 903.3.7 (New)		F141-13
[F] 903.3.8 (New)		F138-13
[F] 903.3.8.1 (New)		F138-13
[F] 903.3.8.2 (New)		F138-13
[F] 903.3.8.3 (New)		F138-13
[F] 903.3.8.4 (New)		F138-13
[F] 903.3.8.5 (New)		F138-13
[F] 903.4		F138-13
[F] 904.2		F144-13
[F] 904.2.1 (New)		F144-13
[F] 904.2.2	[F] 904.2.1	F144-13
[F] 904.5		ADM43-13 Part II
[F] 904.6		ADM43-13 Part II
[F] 904.7		ADM43-13 Part II
[F] 904.8		ADM43-13 Part II
[F] 904.9		ADM43-13 Part II
[F] 904.10		ADM43-13 Part II
[F] 904.12 thru [F] 904.12.1.4		F144-13
[F] 904.12.2 thru [F] 904.12.2.3		F144-13
[F] 904.13 thru [F] 904.13.2		F146-13
[F] 905.3.3		E2-12 Part III
[F] 905.2		F141-13
[F] 905.3.3		E2-12
[F] 905.4		E2-12 Part III, F148-13
[F] 905.4.1		E2-12 Part III
[F] 906.2		G71-12 Part II
[F] Table 906.3(1)		G71-12 Part II
[F] Table 906.3(2)		G71-12 Part II
[F] 907.1.2		F152-13
[F] 907.2.3		F157-13, F158-13
[F] 907.2.6		F160-13, G71-12 Part II
[F] 907.2.6.1		G31-12 Part II
[F] 907.2.6.2		F348-13
[F] 907.2.9.3		F161-13
[F] 907.2.10.1		G71-12 Part II
[F] 907.2.11.2		F163-13
[F] 907.2.11.3 (New)		F359-13
[F] 907.2.11.4 (New)		F359-13
[F] 907.2.11.5	[F] 907.2.11.3	F359-13
[F] 907.2.11.6	[F] 907.2.11.4	F59-13
[F] 907.2.11.7 (New)		F163-13
[F] 907.2.13.2		E2-12, Part III

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
[F] 907.2.14		F167-13
[F] 907.2.22.1(New)		F168-13
[F] 907.2.22.2 (New)		F168-13
[F] 907.4.2.1		F170-13
[F] 907.5.2.1		F160-13
[F] 907.5.2.2		E2-12, Part III
[F] 907.5.2.2.5		F59-13
[F] 907.5.2.3		F160-13
[F] 907.5.2.3.1	[F] 907.5.2.3.2	F171-13
[F] 907.5.2.3.2	[F] 907.5.2.3.3	F171-13
[F] Table 907.5.2.3.3	Table 907.5.2.3.2	F171-13
[F] 907.5.2.3.3	[F] 907.5.2.3.4	F171-13
[F] 907.6		F173-F174-13
[F] 907.6.3 (New)		F174-13
[F] 907.6.4	[F] 907.6.3	F174-13
[F] 907.6.4.1	[F] 907.6.3.1	F174-13
[F] 907.6.4.2	[F] 907.6.3.2	F174-13
[F] 907.6.5	[F] 907.6.4	F174-13
[F] 907.6.6	[F] 907.6.5	F174-13
[F] 907.6.6.1	[F] 907.6.5.1	F174-13
[F] 907.6.6.2	[F] 907.6.5.2	F174-13
[F] 907.6.6.3 (New)		F174-13
[F] 909.4.6		F184-13
[F] 909.4.7 (New)		F185-13
[F] 909.5		F186-13
[F] 909.5.1		F186-13
[F] 909.5.2		F186-13
909.20		E5-12, FS52-12, G86-12
909.20.1		E2-12, E5-12
909.20.2		E5-12
909.20.3.1		E5-12
909.20.3.2		E5-12
909.20.4.1		E5-12
909.20.4.4		E2-12, E5-12
909.20.5		E2-12, E5-12
909.20.6.		E2-12, E5-12
909.20.6.1		FS138-12
909.20.6.2		E2-12, E5-12
909.21.1		FS140-12, FS141-12
909.21.1.1 (New)		FS141-12
[F] 911.1.5		E2-12 Part III
[F] 915	[F] 908.7	F180-13

CHAPTER 10
MEANS OF EGRESS

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
1001.2		E7-12 AMPC, E9-12
1002.1		E1-12, E2-12, E4-12 AMPC, E7-12 AMPC, E56-12 AMPC, E57-12 AMPC, E153-12, G57-12, G85-12
1003.2		G61-12
1003.3		E10-12
1003.3.3		E10-12
1003.6		E9-12
1004.1.1.1		E15-12 AMPC
1004.1.1.2		E15-12 AMPC
1004.1.1.3 (New)		E15-12 AMPC

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
Table 1004.1.2		E18-12 AMPC2
1004.3		ADM22-13 Part I, S90-12 Part IV
1005.1		E20-12
1005.3.1		E20-12, E86-12
1005.3.2		E20-12
1005.4		E9-12
1005.5		E9-12
1005.6		E9-12
1005.7.2		G73-12, G257-12
1006 (New)		E1-12
1006.1 (New)		E1-12
1006.2 (New)		E1-12
1006.2.1 (New)		E1-12
Table 1006.2.1 (New)		E1-12, E111-12, E132 AMPC1, 2
1006.2.1.1	1015.1.1	E1-12
1006.2.2 (New)		E1-12
1006.2.2.1	1015.3	E1-12
1006.2.2.2	1015.4	E1-12, G57-12
1006.2.2.3	1015.5	E1-12, G57-12
1006.2.2.4	1015.6	E1-12
1006.3	1021.3.1	E1-12, E127-12, E136-12
1006.3.1	1021.1	E1-12, E2-12 E127-12, E128-12
Table 1006.3.1(New)		E1-12, E127-12
Table 1006.3.2(1)	Table 1021.2(1)	E1-12, E127-12
Table 1006.3.2 (2)	Table 1021.2(2)	E1-12, E127-12 E134-12, G57-12
1006.3.2.1	1021.2.1	E1-12, E127-12
1007 (New)		E1-12
1007.1	1015.2	E1-12, E7-12 AMPC
1007.1.1	1015.2.1	E1-12, E2-12, E7-12, G85-12
1007.1.1.1 (New)		E1-12, E7-12 AMPC
1007.1.2	1015.2.2	E1-12, E7-12 AMPC E127-12
1007.1.3 (New)		E1-12, E7-12 AMPC
1007.1.3.1 (New)		E1-12, E7-12 AMPC
1007.2 (New)		E1-12
1008.1 (New)		E34-12
1008.2	1006.1	E34-12
1008.2.1	1006.2	E29-12, E34-12
1008.2.2 (New)		E33-12
1008.3	1006.3	E34-12
1008.3.1(New)		E34-12
1008.3.2 (New)		E34-12
1008.3.3 (New)		E35-12, CCC
1008.3.4 (New)		E34-12
1008.3.5	1006.3.1	E33-12, E34-12
1009.1	1007.1	E36-12, E86-12, E87-12
1009.2	1007.2	E7-12 AMPC, E46-12 AS
1009.3	1007.3	E7-12 AMPC, E38-12, E39-12 AMPC
1009.4	1007.4	E39-12 AMPC
1009.5	1007.5	E41-12, E202-12, E212-12
Deleted	1007.5.1	E43-12
1009.6	1007.6	E45-12

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2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
1009.6.1 (New)		E45-12, G57-12
1009.6.2 (New)		E45-12
1009.6.3	1007.6.1	E9-12
1009.6.4	1007.6.2	E7-12 AMPC, E45-12, E46-12
1009.7	1007.7, 1007.7.1	E46
Deleted	1007.7.2	E2-12, E46-12
1009.8	1007.8	E48-12 AMPC
1009.8.2	1007.8.2	E223-12
1009.9	1007.9	E223-12
1009.11	1007.11	E223-12
1010.1.1	1008.1.1	E9-12, E51-12, E52-12
1010.1.2	1008.1.2	E54-12 AMPC
1010.1.2.1 (New)		CCC 12-E5
1010.1.3	1008.1.3	E62-12
1010.1.4.1	1008.1.4.1	E2-12, E56-12 AMPC
Deleted	Table 1008.1.4.1	E56-12 AMPC
Table 1010.1.4.1(1) (New)		E56 AMPC
Table 1010.1.4.1(2) (New)		E56 AMPC
1010.1.4.1.1	1008.1.4.1.1	E9-12, E56-12 AMPC
1010.1.4.1.2	1008.1.4.1.2	E56-12 AMPC
1010.1.4.2	1008.1.4.2	E57-12 AMPC
1010.1.4.3	1008.1.4.3	E54-12 AMPC
1010.1.5	1008.1.5	E59-12 AMPC
1010.1.7	1008.1.7	E60-12
1010.1.9.1	1008.1.9.1	E62-12
1010.1.9.3	1008.1.9.3	E63-12
1010.1.9.4	1008.1.9.4	E9-12
1010.1.9.6	1008.1.9.6	E66-12 AMPC, E67-12, E69-12 AMPC1
1010.1.9.7	1008.1.9.7	E70-12, E72-12, E73-12, E74-12 AMPC
1010.1.9.8	1008.1.9.8	E77-12, E78-12, E80-12
1010.1.9.9	1008.1.9.9	E77-12, E81-12, E82-12
1010.1.9.11	1008.1.9.11	E2-12
1010.1.10	1008.1.10	E84-12
1010.3	1008.3	E9-12
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Deleted	1009.2 thru 1009.2.2	E7-12 AMPC
Deleted	1009.3.1 thru 1009.3.1.8	E7-12 AMPC
1011.2	1009.4	E9-12, E86-12, E87-12, E88-12
1011.5.2	1009.7.2	E86-12, E87-12, E88-12, E102-12, CCC
1011.5.4	1009.7.4	E2-12, E86-12, E87-12, E88-12, E92-12
1011.5.4.1	1009.7.4.1	E2-12, E92-12
1011.5.5	1009.7.5	E93-12
1011.5.5.3	1009.7.5.3	E102-12 CCC
1011.6	1009.8	E86-12, E87-12, E88-12
1011.7.3	1009.9.3	E2-12
1011.8	1009.10	E86-12, E87-12, E88-12, E102-12, CCC
1011.9	1009.11	E9-12
1011.11	1009.15	E86-12.E87-12 E88-12, E102-12

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2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
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1011.13	1009.16.2	E87-12, E102-12, E165-12
1011.14	1009.13	E102-12, CCC
1011.14.1	1009.13.1	E102-12
1011.14.2	1009.13.2	E102-12
1011.15	1009.14	E102-12, CCC 12-E20
1011.15.1 (New)		CCC 12-E20
1011.15.2 (New)		CCC 12-E20
1011.16 (New)		E102-12
1012.1	1010.1	E87-12
Deleted	1010.2	E2-12, E7-12 AMPC
1012.2	1010.3	E86-12, E87-12
1012.5.1	1010.6.1	E9-12
1012.8	1010.9	E87-12
1012.9	1010.11	E165-12
1012.10	1010.10	E87-12
1013	1011	
1013.1	1011.1	E7-12 AMPC
1013.4	1011.4	E12-12, E223-12
1013.6.3	1011.6.3	E103-12 AMPC
1014.1	1012.1	E86-12, E87-12, CCC
1014.2	1012.2	E86-12, E87-12, CCC
1014.4	1012.4	E86-12, E87-12, E164-12, CCC
1014.6	1012.6	E2-12, E87-12
1014.8	1012.8	E87-12, E104-12 AMPC
1014.9	1012.9	E9-12
1015.2	1013.2	E2-12, E87-12, E165-12
1015.3	1013.3	E86-12, E87-12, E165-12 CCC
1015.4	1013.4	E87-12
1015.6	1013.6	E108-12, M14-12
1015.7	1013.7	E108-12
1015.8	1013.8	E109-12
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Deleted	1015	E1-12
Deleted	1015.1	E1-12, E7-12 AMPC
Deleted	Table 1015.1	E1-12
1017	1016	E1-12
Table 1017.2	Table 1016.2	E116-12 E117-12, G87-12
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1017.3	1016.3	E7-12 AMPC
1018.1	1017.1	E9-12
1018.3	1017.3	E118-12
1018.5	1017.5	E9-12. E118-12
1019 (New)		E7-12 AMPC
1019.1 (New)		E7-12 AMPC
1019.2 (New)		E7-12 AMPC
1019.3	1009.3	E2-12, E7-12 AMPC E89-12, E132-12 AMPC1&2
1019.4 (New)		E7-12 AMPC
1020.1	1018.1	G31-12

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Table 1020.2	Table 1018.2	E9-12, CCC 12-G7
1020.3	1018.3	E9-12
1020.6	1018.6	E110-12
1021.1	1019.1	E9-12
1021.2	1019.2	E2-12
Deleted	1021.2.3	E1-12, E127-12
Deleted	1021.3	E1-12, E127-12
1021.4	1019.4	E126-12
1022.1	1020.1	E1-12
1022.7		E2-12, G57-12
1022.9		E2-12
1022.10.2		E5-12
Deleted	1021	E1-12
Deleted	1021.2.2	E1-12, E127-12
Deleted	1021.2.3	E1-12, E127-12
Deleted	1021.2.4	E1-12, E127-12
Deleted	1021.2.5	E1-12, E127-12
Deleted	1021.3	E1-12, E127-12
1023.1	1022.1	E2-12. E137-12 AMPC, E138-12
1023.2	1022.2	E139-12
1023.3	1022.3	E140-12
1023.3.1	1022.3.1	E141-12 AMPC
1023.5	1022.5	E143-12
1023.7	1022.7	E2-12, G85-12
1023.9	1022.9	E2-12, E223-12
1023.10 (New)		E144-12 AMPC
1023.11	1022.10	E145-12
1023.11.1	1022.10.1	E5-12, E145-12
1023.11.2	1022.10.2	E5-12
1024.1	1023.1	E138-12
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1024.5	1023.5	E143-12
1024.6	1023.6	E143-12
1024.7 (New)		E148-12
1025.5	1024.5	E149-12
1026.1	1025.1	E9-12
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1026.4.1 (New)		CCC 12-E10
1026.4.2 (New)		CCC 12-E10
1027.3	1026.3	E4-12 AMPC
1027.5	1026.5	E126-12 AMPC
1027.6	1026.6	E7-12 AMPC E153-12, E154-12 AMPC
1028.1	1027.1	E7-12 AMPC, E9-12, E155-12 AMPC G175-12
1028.2	1027.2	E9-12
1028.4.1	1027.4.1	E9-12
1029.2	1028.2	E9-12
1029.4	1028.4	E9-12
1029.5	1028.5	E7-12 AMPC
1029.6	1028.6	E9-12, E20-12
1029.6.1	1028.6.1	E9-12, E20-12 E86-12, E87-12
1029.6.2	1028.6.2	E9-12, E20-12
Table 1029.6.2	Table 1028.6.2	E2-12, E9-12 E20-12, E86-12, E87-12, CCC

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1029.6.2.1	1028.6.2.1	E20-12
1029.6.3	1028.6.3	E9-12, E20-12 E86-12, E87-12
1029.7	1028.7	E2-12, E87-12
1029.9	1028.9	E87-12
1029.9.1	1028.9.1	E86-12, E87-12, E164-12, CCC
1029.9.2	1028.9.2	E9-12, E87-12
1029.9.3	1028.9.3	E9-12
1029.9.4	1028.9.4	E9-12
1029.9.5	1028.9.5	E87-12, E159-12 E160-12
1029.9.6 (New)		E87-12
1029.9.6.1	1028.9.6	E9-12, E86-12 E87-12, CCC
1029.9.7 thru 1029.11.2 (New)		E86-12, E159-12, CCC
1029.12.1	1028.10.1	E87-12
1029.12.1.1	1028.10.1.1	E9-12
1029.12.2.1	1028.10.2.1	E160-12
Table 1029.12.2.1	Table 1028.10.2.1	E160-12 AMPC
1029.12.2.2	1028.10.2.2	E160-12 AMPC
1029.13	1028.11	E86-12, E87-12, CCC
1029.13.1 thru 1029.13.1.3 (New)		E87-12
1029.13.2 (New)		E86-12 E87-12, CCC
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1029.13.2.2.1(New)		E86-12, E161-12, CCC
1029.13.2.4 (New)		E87-12
1029.15	1028.13	E86-12, E87-12
1029.15.1	1028.13.1	E164-12
1029.15.2 (New)		E86-12, E164-12, CCC
1029.15.3 (New)		E164-12
1029.15.4	1028.13.2	E86-12, E87-12, E164-12
1029.16	1028.14	E87-12, E165-12
1029.16.1 (New)		E165-12
1029.16.3	1028.14.2	E165-12

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2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
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1103.2.3	1103.2.4	E168-13
1103.2.4	1103.2.5	E168-13
1103.2.5	1103.2.6	E168-13
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1103.2.14	1103.2.15	E168-13
1104.1		E177-13
1104.2		E208-13
1104.3		E177-13, E178-13, E179-13, E181-13, E208-13
1104.3.2		E180-12
1104.4		E178-12, E181-12
1105.1.6		E182-12
1105.1.7		E182-12
1106.1		E183-12 AMPC
1106.2		E183-12 AMPC
1107.3		E179-12, E185-12
1107.4		E185-12
1107.5.1.1		E186-12 AMPC
1107.5.3.1		E179-12
1107.5.5.1		E187-12
1107.6.1.1		E188-12
Deleted	1107.6.1.1.1	E189-12
1107.6.2.1	1103.2.13	E175-12
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1107.6.2.3	1107.6.2.2	E175-12, E191-12 AMPC
1107.6.3		E191-12 AMPC
1107.6.4		E191-12 AMPC
1107.6.4.1		E186-12 AMPC, E191-12 AMPC
1107.6.4.2		E191-12 AMPC
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1108.2.7.1		E194-12
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1109.2		E197-12, E198-12, E199-12
1109.2.2		E197-12
1109.2.3		E200-12 AMPC
1109.5.1		E201-12
1109.8		E185-12, E195-12, E202-12, E212-12
1109.11		E196-12
1109.11.2	1108.4.3	E196-12
1109.11.2.1	1108.4.3.1	E196-12
1109.11.2.2	1108.4.3.2	E196-12
1109.12.2		E204-12
1109.13		E205-12
Deleted	1109.13.1	E206-12
1109.15 (New)		E207-12
1110 (New)		E208-12, E209-12, E210-12, E211-12, E212-12, E213-12, E214-12, E216-12 AMPC, E217-12
1110.1 (New)	1109.15	E208-12, E209-12, E210-12, E211-12, E212-12, E213-12, E214-12, E216-12 AMPC, E217-12
1110.2(New)		E208-12
1110.2.1(New)		E208-12
1110.2.2	1109.15.1	E208-12
1110.2.3	1109.15.2	E208-12
1110.3	1109.15.3	E208-12
1110.4	1109.15.4	E208-12
1110.4.1(New)		E209-12
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1110.4.4	1109.15.4.2	E208-12
1110.4.5	1109.15.4.3	E208-12
1110.4.6	1109.15.4.4	E208-12
1110.4.7 (New)		E210-12
1110.4.8 thru 1110.4.8.3 (New)		E211-12
1110.4.9 and 1110.4.9.1(New).		E212-12
Table 1110.4.9.1 (New)		E212-12
1110.4.9.2 and 1110.4.9.3 (New)		E212-12
1110.4.10 (New)		E213-12
1110.4.11 (New)		E212-12
1110.4.12 thru 1110.4.12.3 (New)		E214-12
1110.4.13 (New)		E216-12 AMPC
1110.4.13.1	1109.15.4.5	E208-12, E216-12 AMPC
1110.4.13.2 (New)		E216-12 AMPC
1110.4.14 (New)		E217-12
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CHAPTER 12
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2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
1203.1		M36-12 Part II
1203.2		G146-12 AMPC, G147-12 AMPC, G149-12 AMPC1,2
1203.3 (New)		G149-12 AMPC1, 2
Table 1203.3 (New)		G149-12 AMPC1, 2
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1208.2		G158-12
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2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
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1403.7		S102-12, S103-12
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1404.5		FS155-12
1404.10		FS156-12
1404.13 (New)		FS157-12
Table 1405.2		FS162-12
1405.3 (New)		FS160-12
1405.3.1	1405.3	FS160-12
1405.3.2	1405.3.1	FS160-12
Table 1405.3.2	Table 1405.3.1	FS160-12
1405.3.3	1405.3.2	FS160-12
1405.3.4	1405.3.3	FS160-12

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2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
1405.8		FS162-12M FS163-12
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1405.10.1.4 thru 1405.10.1.7 (New)		FS177-12 AMPC
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1405.11.1		FS165-12
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1405.16		FS169-12
1405.16.1		FS170-12
1405.16.2		FS171-12
1406.2.1.1		FS172-12
1409.10.2		FS175-12
1410 (New)		FS198-12
1410.1 (New)		FS198-12

CHAPTER 15
ROOF ASSEMBLIES AND ROOF STRUCTURES

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
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1504.3.2		S11-12, S12-12, S13-12
1505.2		S20-12
1505.8		S2-12, S3-12, S21-12
1505.9 (New)		S19-12
1505.10 (New)		S24-12
Deleted	1506.2	S26-12
1506.2	1506.3	S27-12
1507.1.7	1905.1.8	S137-12
Deleted	1507.2.7.1	S8-12
Deleted	Table 1507.2.7.1(1)	S32-12
Deleted	Table 1507.2.7.1(2)	S32-12
1507.2.9.3		S36-12
1507.4.2		CCC 12-S7
1507.4.4		S38-12
1507.7.3		S40-12
1507.12.3		S43-12
1507.13.3		S43-12
1507.16		S4-12
1507.16.1		S4-12
1507.17		S2-12
1507.17.1 (New)		S47-12
1507.17.2 (New)		S47-12
1507.17.3 (New)		S47-12
1507.17.4 (New)		S47-12
1507.17.4.1(New)		S47-12
1507.17.4.2 (New)		S47-12
1507.17.5 (New)		S47-12
1507.17.6	1507.17.1	S2-12
1507.17.7	1507.17.2	S2-12
1507.17.8	1507.17.3	S2-12
1508.1		FS178-12

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2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
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1510 (New)	1509	S51-12
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1510.7.2	1509.7.2	S19-12
1510.7.3	1509.7.3	S3-12
1510.8	1509.8	S51-12
1510.8.2	1509.8.2	S51-12
1510.8.4	1509.8.4	S51-12
1510.9	1511.1.1	S3-12, S65-12
1511	1510	S59-12, S60-12
1511	1510.1	S59-12, S60-12
1511.3	1511.3	S62-12
1511.3.1 (New)		S62-12
1511.3.1.1	1510.3	CCC 12-S8, S62-12
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CHAPTER 16
STRUCTURAL DESIGN

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
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Deleted	Diaphragm rigid	S79-12
Deleted	DURATION OF LOAD	S66-12
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1603.1.7		S71-12, S102-12, S103-12
1603.1.8.1 (New)		S72-12
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Table 1604.3		S74-12, S75-12, S78-12
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1604.4		S79-12
1604.5		S82-12
Table 1604.5		S83-12
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1607.9.4 (New)		S93-12
1607.10.2		S94-12
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1607.12.3.1		S4-12, S95-12
1607.12.5 (New)		S72-12
1607.12.5.1 (New)		S72-12
1607.12.5.2 (New)		S72-12
1607.12.5.3 (New)		S72-12
1607.12.5.4 (New)		S72-12
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2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
1613.3.5.1		S79-12
1613.3.5.1 (New)		S111-12
1613.6 (New)		S72-12
1613.5 (New)		S111-12

CHAPTER 17
SPECIAL INSPECTIONS AND TESTS
(IBC35-09 CCC)

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
Deleted	1701.3	S112-12
Deleted	1702 (INSPECTION CERTIFICATE)	S66-12
1703.1		S114-12
1703.1.1		S114-12
1703.1.3		S113-12 Part I
1703.3		S114-12
1703.4		S116-12, S117-12 Part I
1703.4.1		ADM22-13 Part I, S90-12 Part I, S117-12 Part I
1703.4.2		S116-12
1703.5		S116-12
1703.5.1		S116-12
1703.5.2		S113-12, S116-12
1703.5.3		S116-12
1703.5.4		S116-12
1703.6		ADM22-13 Part I, S90-12 Part I
1703.6.1		ADM22-13 Part I, S90-12 Part I
1703.6.2		S113-12 Part I
1704		S113-12 Part I
1704.1		S113-12 Part I, S118-12, S119-12
1704.2		ADM22-13 Part I, S90-12 Part I, S113-12 Part I, S120-12, S121-12
1704.2.1		S113-12 (Part I), S121-12
1704.2.2		S113-12 Part I
1704.2.4		ADM22-13 Part I, S90-12 Part I, S113-12 Part I, S121-12
1704.2.5		S123-12, S124-12
1704.2.5.1	1704.2.5.2	S117-12 Part I S118-12, S123-12
1704.3		S113-12 Part I
1704.3.1		S113-12, S128-12
1704.3.2		S113-12 (Part I), S129-12
1704.3.3		S130-12
1704.4		S90-12 Part I
1704.5 (New)		S118-12, S136-12
1704.6	1704.5	S90-12 Part 1, S122-12, S131-12, S138-12
1704.6.1	1704.5.1	S137-12
1705		S113-12 Part I
1705.1		S113-12 Part I, S139-12
1705.1.1		S113-12 Part I
1705.2		S140-12, S141-12
1705.2.1		S140-12, S141-12
1705.2.2		S142-12
Deleted	1705.2.2.1	S140-12, S141-12 S142-12, S144-12
1705.2.3	1705.2.2	S140-12, S141-12 S144-12, S146-12

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
Table 1705.2.3	Table 1705.2.2	S113-12 Part I, S140-12, S141-12, S142-12, S144-12, S146-12
1705.3		S113-13 Part I, S149-12
Table 1705.3		S113-12 Part I, S147-12, S148-12, S151-12, S215-12
1705.3.1	1705.2.2.1.2	S144-12
1705.3.2	1507.3.1	S113-12 Part I, S136 -12
1705.4		S113-12 Part I, S138-12
1705.4.1		S113-12 Part I, S138-12
1705.4.2		S113-12 Part I
1705.5		S153-12
1705.5.1		S152-12
1705.6		S113-12 Part I
Table 1705.6		S113-12 Part I, S151-12
1705.7		S113-12 Part I
Table 1705.7		S113-12 Part I, S151-12
1705.8		S113-12
Table 1705.8		S113-12 Part I, S151-12
1705.9		S113-12 Part I
1705.10 (New)		S123-12
1705.11	1705.10	S130-12
1705.11.1	1705.10.1	S139-12
1507.11.2	1705.10.2	S139-12, S157-12, S158-12
1705.11.3	1705.10.3	S159-12
1705.12	1705.11	S166-12
1705.12.1 (New)		S140-12
1705.12.1.1	1705.11.1	S113-12, S140-12 S141-12, S160-12, S166-12
1705.12.1.2 (New)		S140-12, CCC
1705.12.2	1507.11.2	S136-12, S166-12
1705.12.3	1705.11.3	S139-12, S157-12, S161-12, S166-12
1705.12.4	1705.11.4	S129-12, S166-12
1705.12.5	1705.11.5	S157-12, S162-12
1705.12.6	1705.11.6	S139-12, S149-12, S157-12, S162-12
1705.12.7	1705.11.7	S137-12, S157-12
1705.12.8	1705.11.8	S166-12
1705.12.9 (New)		S165-12
1705.13	1705.12	S129-12, S169-12
1705.13.1	1705.12.2	S140-12
1705.13.1.1 (New)		S140-12, S141-12, S160-12, S169-12
1705.13.1.2 (New)		S140-12, CCC
1705.13.2	1705.12.3	S118-12, S129-12, S149-12, S169-12
1705.13.3 (New)		S118-12, S129-12, CCC
1705.13.4	1705.12.4	S169-12
1705.14	1705.13	S113-12 Part I
1705.14.1	1705.14	S113-12 Part I
1705.14.2	1705.13.2	S113-12 Part I
1705.15	1705.14	S113-12 Part I
1705.17.1	1705.16.1	S117-12 Part I
1705.17.2	1705.16.2	S117-12 Part I
1705.18	1705.17	S117-12 Part I
1705.18.2	1705.17.2	S117-12 Part I
1707.1		ADM22-13 Part I, S90-12 Part I
Deleted	1708	S170-12

CHAPTER 17 - continued

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
1708	1709	S170-12
1708.3.2	1709.3.2	S171-12
1709.1	1710	S170-12
1709.5	1710.5	S173-12
1709.6	1710.6	S176-12
Deleted	1711	S177-12, S294-12

CHAPTER 18
SOILS AND FOUNDATIONS

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
1803.5.6		S180-12
1803.5.7		S181-12
1803.6		ADM22-13 Part I, S90-12 Part I
1804.1		S181-12
1804.2 (New)		S181-12
1804.2.1 (New)		S181-12
1804.5	1804.4	S103-12 Part I
1808.3.2 (New)		S184-12
1809.11		S238-12
1810.2.5		S185-12
1810.3.2.3		S187-12
Table 1810.3.2.6		S187-12
1810.3.3.1.6		S190-12
1810.3.5.3.1		S187-12
1810.3.5.3.2 (New)		S187-12
1810.3.5.3.3 (New)		S187-12

CHAPTER 19
CONCRETE

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
1901.3 (New)		S215-12
1901.4 (New)		S218-12
1901.6	1901.4	S113-12
1903.1		S196-12
1903.2 (New)		S196-12
1903.3	1903.2	S196-12
1903.4	1903.3	S196-12
Deleted	1904.1	S199-12
1904.1 (New)		S199-12
Deleted	1904.2	S199-12
Deleted	Table 1904.2	S199-12
Deleted	Figure 1904.2	S199-12
1904.2 (New)		S199-12
1905.1		S203-12
Deleted	1905.1.1 (WALL PIER)	S203-12
1905.1.3		S203-12
Deleted	1905.1.4	S203-12
1905.1.7	1905.1.8	S137-12
1905.1.8	1905.1.9	S340-12
Deleted	1908 through 1908.5	S213-12, S215-12
Deleted	1909	S215-12
Deleted	1909.1	S215-12
1908.5	1910.5	S118-12
Deleted	1911 through 1912.6	S217-12

CHAPTER 21
MASONRY

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
2101.2		S219-12
Deleted	2101.2.1 through 2101.2.5	S219-12
2101.2.1	2101.2.6	S219-12
Deleted	2101.2.7 through 2101.3	S219-12
2101.3 (New)		S219-12
2101.3.1 (Relocated to 2111.2)		S219-12
Deleted	ANCHOR	S219-12
Deleted	ARCHITECTURAL TERRA COTTA	S66-12
Deleted	BOND BEAM	S66-12
Deleted	COMPRESSIVE STRENGTH OF MASONRY	S226-12
Deleted	PRISM	S226-12
Deleted	RUBBLE MASONRY	S66-12
Deleted	Coursed rubble	S66-12
Deleted	Random rubble	S66-12
Deleted	Rough or ordinary rubble	S66-12
Delete	STACK BOND	S66-12
Deleted	THIN BED MORTAR	S222-12
Deleted	2103.1	S222-12
2103.1 (New)		S222-12
Deleted	2103.2 through 2103.7	S222-12
Deleted	2103.9	S222-12
2103.2 (New)		S222-12
2103.2.1 (New)		S222-12
2103.2.4 (New)		FS177-12 AMPC
Deleted	2103.12	S222-12
2104.1		S225-12
Deleted	2104.1.1 through 2104.1.5	S225-12
Deleted	2104.2	S225-12
Deleted	2104.3	S225-12
Deleted	2104.4	S225-12
Deleted	2105.2 through 2105.3.3	S149-12, S226-12
2108.3		S228-12
2110.1.1		E2-12
Deleted	2111.1	S229-12
2111.1 (New)		S229-12
Deleted	2111.3	S229-12
Deleted	2111.4	S229-12
2111.4 (New)		S229-12
Deleted	2111.4.1	S229-12
2111.5 (New)		S229-12
2112.5		S234-12, S236-12
Deleted	2113.1	S229-12
2113.1 (New)		S229-12
Deleted	2113.3	S229-12
2113.3 (New)		S229-12
Deleted	2113.4	S229-12
2113.4 (New)		S229-12
Deleted	2113.4.1	S229-12

CHAPTER 22
STEEL

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
2201.1		S245.12
2203.1		S238-12, S254-12
2203.2		S238-12, S240-12, S245-12
2204.1		S239-12
2204.2		S239-12
2204.3	2204.2.1	S149-12, S239-12

CHAPTER 22 - continued

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
2205.1		S238-12
2205.2 (New)		S238-12
2205.2.1	2205.2	S238-12
2205.2.1.1	2205.2.1	S238-12
2205.2.1.2	2205.2.2	S238-12
2205.2.2 (New)		S238-12
2206.1		S238-12
2206.2 (New)		S238-12
2206.2.1	2206.2	S238-12
2207.1		S240-12
2207.1.1 (New)		S240-12
2207.2		S240-12
2207.3		S240-12
2207.4		S149-12, S240-12
2207.5		S118-12, S240-12
2209.1		S137-12, S243-12
2210.1.1.3 (New)		S244-12
2211.1		S245-12
2211.3.3		S90-12 Part I
2211.4		S245-12

CHAPTER 23
WOOD

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
2301.2		S246-12
2302.1 (New) (CROSS-LAMINATED TIMBER		S250-12
2302.1 (New) (ENGINEERED WOOD RIM BOARD		S248-12
2302.1 (New) (GABLE)		S287-12
Deleted	GLUED BUILT UP MEMBER	S66-12
Deleted	SUBDIAPHRAGM	S66-12
2303.1.4 (New)		S250-12
2303.1.13 (New)		S248-12
2303.4.1.3		S90-12 Part I
2303.5		S177-12
2304.6		S287-12
2304.6.1		S287-12
Table 2304.10.1		S261-12, S265-12, S263-12 S266-12, S267-12, S280-12
2304.10.3	2304.9.3	S177-12
2304.10.6		S260-12
Deleted	2304.11.1	S268-12
2304.12.1	2304.11.2	S268-12, S287-12
2304.12.1.1	2304.11.2.1	S268-12, S287-12
2304.12.1.2	2304.11.2.2	S268-12, S287-12
2304.12.1.3	2304.11.2.3	S268-12, S287-12
2304.12.1.4	2304.11.2.4	S268-12, S287-12
2304.12.2 (New)		S268-12
2304.12.2.2	2304.11.2.7	S268-12, S287-12
2304.12.2.5 (New)		S268-12
2304.12.3	2304.11.4	S268-12, S287-12
2304.12.3.1	2304.11.4.1	S268-12, S287-12
Deleted	2304.11.4.2	S268-12
2304.12.5	2304.11.7	S268-12, S287-12
2308 through 2308.8.2 (New)		S246-12, S273-12
2309 (New)		S246-12

CHAPTER 24
GLASS AND GLAZING

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
2404.1		S295-12
2404.2		S176-12, S295-12
2404.3.1 thru 2404.3.5		S295-12
2405.5		S176-12
2405.5.1		S176-12
2405.5.2		S176-12, S295-12
2406.4.6		E2-12
2406.4.7		E2-12, S297-12, S298-12
2407.1		S300-12
2407.1.1		S300-12
2409		S301-12
2409.1 (New)		S301-12

CHAPTER 25
GYPSUM BOARD AND PLASTER

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
2051.1		S217-12, S304-12
2501.2		S304-12
2502.1 (GYPSUM PANEL PRODUCTS)(New)		S304-12
2503.1		S304-12
2504.1		S304-12
2504.1.1		S304-12
2504.1.2		S304-12
2505.1		S304-12
2505.2		S304-12
2506		S304-12
2506.1		S304-12
2506.2		S304-12
Table 2506.2		S304-12
Table 2507.2		S245-12, S306-12
2508.1		S304-12
Table 2508.1		S304-12
2508.3		S304-12
2508.4		S304-12
2508.5		S304-12
Table 2508.5		S304-12
2508.5.2 through 2508.5.5		S304-12
2509.2		S307-12
Table 2509.2		S307-12
2509.3		S308-12
2510.6		S310-12
2514 (New)		S217-12
2514.1		S217-12
2514.2		S217-12

CHAPTER 26
PLASTIC

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
2601.1		FS198-12
2602.1 (Plastic Composite)		FS198-12
2602.1 (Plastic Lumber)		FS198-12
2602.1 (Wood/Plastic Composite)		FS198-12
2603.3		FS178-12
Deleted	2603.4.1.5	FS182-12

CHAPTER 26 - continued

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
2603.4.1.5		FS178-12, FS182-12 AMPC
2603.4.1.6		FS183-12
2603.4.1.8		FS184-12
2603.4.1.13		FS185-12
2603.5		FS186-12 AMPC
2603.5.5		FS186-12 AMPC
2603.5.7		FS128-12, FS172-12
Deleted	2603.7	FS189-12
2603.7 through 2603.7.3 (New)		FS189-12
Deleted	2603.8	FS189-12
2603.8	2603.9	FS189-12
2603.9	2603.10	FS189-12, FS190-12 AMPC2
Deleted	2603.10.1	FS190-12
2603.10 (New)		FS192-12
2603.11 (New)		FS193-12
2603.12 through 2603.12.2 (New)		FS194-12 AMPC
2604.1		FS196-12
Section 2612 (New)		FS198-12
2612.1 through 2612.6 (New)		FS198-12
Section 2613	Section 2612	FS198-12
Section 2614	Section 2613	FS198-12

CHAPTER 27
ELECTRICAL

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
[F] 2702.1		F53-13
[F] 2702.1.2 through 2702.1.7 (New)		F53-13
Deleted	[F] 2702.2.1	F59-13
[F] 2702.2.1 through [F] 2702.2.4 (New)		F59-13
Deleted	[F] 2702.2.5	F59-13
[F] 2072.2.5	[F] 2702.2.3	F59-13
Deleted	[F] 2702.2.6	F59-13
[F] 2702.2.6 (New)		G80-12
[F] 2702.2.7	[F] 2702.2.17	F59-13
[F] 2702.2.8	[F] 2702.2.10	G17-13
[F] 2702.2.9	[F] 2702.2.15	F59-13
[F] 2702.2.10	[F] 2702.2.7	F59-13
[F] 2702.2.10		G17-13
Deleted	[F] 2702.2.11	G17-13
[F] 2702.2.11	[F] 2702.2.4	F59-13
Deleted	[F] 2702.2.12	G17-13
[F] 2702.2.12	[F] 2702.2.9	F59-13
Deleted	[F] 2702.2.14	G17-13
[F] 2702.2.14	[F] 2702.2.8	F59-13
[F] 2702.2.15	[F] 2702.2.2	F59-13
[F] 2702.2.16		F59-13
Deleted	[F] 2702.2.18	F59-13
Deleted	[F] 2702.2.19	F59-13
Deleted	[F] 2702.2.20	F59-13
[F] 2702.3 (New)		F57-13
[F] 2702.4	[F] 2702.3	F57-13

CHAPTER 29
PLUMBING SYSTEMS

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
[P] 2902.1		P26-12
[P] Table 2902.1		G40-12, P30-12
[P] 2902.3		P35-12
[P] 2902.3.2		G71-12 Part III
[P] 2902.3.3		G71-12 Part III
[P] 2902.3.6	1210.4	G161-12
[P] 2902.4		P38-12
[P] 2902.4.1		P39-12
[P] 2902.5		G71-12 Part III
[P] 2902.6		P30-12

CHAPTER 30
ELEVATORS AND CONVEYING SYSTEMS

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
3001.2		G163-12, G164-12
3002.9	3004.4	G166-12
Deleted	3004.1 thru 3004.3.1	G166-12
3005.1	3006.1	G168-12 Part I AMPC
3005.2	3006.2	G168-12 Part I AMPC
3005.3	3006.3	G168-12 Part I AMPC
3005.4	3006.4	G168-12 Part I AMPC, G171-12
3005.5	3006.5	G168-12 Part I AMPC
3006 (New)		FS61-12, FS67-12, FS69-12, FS70-12, FS71-12, E110-12
3006.1 (New)		FS61-12, FS67-12, FS69-12, FS70-12, FS71-12, E110-12
3006.2	713.14.1	FS68-12, FS69-12, FS70-12 AMPC2
3006.3	713.14.1	E110-12, FS61-12, FS67-12, FS69-12, FS70-12, FS71-12
3006.4 (New)		E110-12
3006.5	713.14.1.1	FS61-12
Deleted	3007.2	G173-12
3007.2.1	3007.3.1	G168-12 Part I AMPC
3007.6	3007.7	E110-12
3007.6.1	3007.7.1	G85-12, G175-12
3007.6.3	3007.7.3	G176-12
3007.6.4	3007.7.4	G177-12
3007.6.5	3007.7.5	G178-12
3007.7.1		G85-12
3007.8	3007.9	G179-12
3007.8.1	3007.9.1	FS138-12
Deleted	3008.2	G180-12
3008.2	3008.2.1	G180-12
Deleted	3008.2.2	G181-12
3008.3.1		G168-12 Part I AMPC
3008.7		E110-12
3008.7.1		G85-12, G175-12
3008.7.3		G168-12 Part I AMPC, G182-12
Deleted	3008.7.6	G183-12
3008.7.6.1	3008.7.7.1	G184-12
Deleted	3008.7.7.2	G184-12
3008.8		G168-12 Part IN AMPC
3008.9		G185-12
3008.9.1		FS138-12, G168-12 Part I AMPC

CHAPTER 31
SPECIAL CONSTRUCTION

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
3102.1		G186-12
3102.1.1 (New)		G186-12
3102.3		G84-12
3102.3.1		G84-12
3102.4		G101-12
3102.5		G101-12
3102.6.1.1		G84-12
3102.7.1 (New)		G187-12
3103.1.1 (New)		G190-12
3104.1.1 (New)		G191-12
3104.2		G191-12
3104.5		G191-12
3104.5.1 (New)		G191-12
3104.5.1.1 (New)		G191-12
3104.5.1.2 (New)		G191-12
3104.5.1.3 (New)		G191-12
3104.5.2 (New)		G191-12
3104.5.2.1 (New)		G191-12
3104.5.2.2 (New)		G191-12
3104.5.3 (New)		G191-12
3104.5.4 (New)		G191-12
3105.4		G84-12, G192-12 AMPC
3109.3		G193-12
3111.1		S3-12
3111.1.1		G197-12

CHAPTER 33
SAFEGUARDS DURING CONSTRUCTION

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
3306.8		ADM22-13 Part I, S90-12 Part II
[F] 3311.1		E2-12 Part II

CHAPTER 34
EXISTING STRUCTURES

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
Deleted	3401 thru 3412	G201-12

CHAPTER 35
REFERENCED STANDARDS

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
CHAPTER 35	CHAPTER 35	ADM62-13
ANSI		G164-12
ASCE/SEI		G186-12
ASME		G163-12
ASTM		FS198-12, S310-12
ISO		FS156-12, FS170-12, FS171-12
NFPA		FS178-12

APPENDICES

APPENDIX D
FIRE DISTRICTS

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
D102.2.8		G84-12

APPENDIX E
SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
E101.1		E167-12
Deleted	E104.2	E189-12
Deleted	E104.2.1	E189-12
Deleted	E104.4	E196-12
E105.3		E207-12
E107.2		E226-12

APPENDIX G
FLOOD-RESISTANT CONSTRUCTION

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
G102.1		S319-12
G103.1		S320-12
G103.4		S321-12
G103.5		S321-12
G103.6.1		S321-12
G103.7		S102-12, S103-12, S321-12
S103.9		S322-12
G104.1		ADM22-13 Part I, S90-12
G104.2		S324-12
G301.2		S102-12, S103-12
G401.1		S321-12
G401.2		S321-12, S103-12
G501.2		S325-12
G501.4		S325-12
G501.5		S326-12
G601.1		S103-12
G701.1		S327-12
G801.1		S328-12
G801.5		S329-12
G801.6		S330-12
G801.7		S331-12
G801.8		S332-12
G901.1		S333-12
G1001.4		S318-12

APPENDIX J
GRADING

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
J101.2		S334-12
J106.1		ADM22-13 Part I, S90-12

APPENDIX K
ADMINISTRATIVE PROVISIONS

2015 IBC	2012 IBC	CODE CHANGE NUMBER(S)
K102.3		ADM22-13 Part I

Code Change No: FS1-12

Original Proposal

Section: 703.2

Proponent: Bob Eugene, representing Underwriters Laboratories (Robert.Eugene@ul.com)

Revise as follows:

703.2 Fire-resistance ratings. The fire-resistance rating of building elements, components or assemblies shall be determined in accordance with the test procedures set forth in ASTM E 119 or UL 263 or in accordance with Section 703.3. The fire-resistance rating of penetrations and fire-resistant joint systems shall be determined in accordance Sections 714 and 715 respectively. Where materials, systems or devices that have not been tested as part of a fire-resistance-rated assembly are incorporated into the building element, component or assembly, sufficient data shall be made available to the building official to show that the required fire-resistance rating is not reduced. ~~Materials and methods of construction used to protect joints and penetrations in fire-resistance-rated building elements, components or assemblies shall not reduce the required fire-resistance rating.~~

Exception: In determining the fire-resistance rating of exterior bearing walls, compliance with the ASTM E 119 or UL 263 criteria for unexposed surface temperature rise and ignition of cotton waste due to passage of flame or gases is required only for a period of time corresponding to the required fire-resistance rating of an exterior nonbearing wall with the same fire separation distance, and in a building of the same group. When the fire-resistance rating determined in accordance with this exception exceeds the fire-resistance rating determined in accordance with ASTM E 119 or UL 263, the fire exposure time period, water pressure and application duration criteria for the hose stream test of ASTM E 119 or UL 263 shall be based upon the fire-resistance rating determined in accordance with this exception.

Reason: Section 703.2 currently covers four distinct concepts that are jumbled together in one section, which is confusing for the code user.

One of these concepts requires materials and methods of construction used to protect joints and penetrations in fire-resistance-rated building elements, components or assemblies to not reduce the required fire-resistance rating. Requirements covering joints and penetrations in sections 715 and 714, respectively, already address this concern. This proposal replaces this sentence with a new second sentence. The user is guided to Sections 714 and 715 for integrity of penetration firestops and joint systems.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee felt that the reference to Sections 714 and 715 were appropriate for the fire ratings of penetrations and joint systems.

Assembly Action: **None**

Final Hearing Results

FS1-12 **AS**

Code Change No: FS4-12

Original Proposal

Section: 703.2.3

Proponent: Jerry R. Tepe, FAIA, JRT•AIA ARCHITECT representing The American Institute of Architects

Revise as follows:

703.2.3 Restrained classification. Fire-resistance-rated assemblies tested under ASTM E 119 or UL 263 shall not be considered to be restrained unless evidence satisfactory to the *building official* is furnished by the *registered design professional* showing that the construction qualifies for a restrained classification in accordance with ASTM E 119 or UL 263. Restrained construction shall be identified on the ~~plans~~ *construction documents*.

Reason: Revises the undefined term "plans" to the preferred and defined language of "construction documents." There is no technical change proposed.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that "construction documents" was an appropriate term substitution based on the definition of the term.

Assembly Action: **None**

Final Hearing Results

FS4-12 **AS**

Code Change No: FS6-12

Original Proposal

Section(s): 703.3

Proponent: Bob Eugene, representing Underwriters Laboratories (Robert.Eugene@ul.com)

Revise as follows:

703.3 Alternative methods for determining fire resistance. The application of any of the alternative methods listed in this section shall be based on the fire exposure and acceptance criteria specified in ASTM E 119 or UL 263. The required fire resistance of a building element, component or assembly shall be ~~permitted to be~~ established by ~~any~~ one of the following methods ~~or procedures~~:

1. Fire-resistance designs tested by an *approved agency* ~~documented in sources~~.
2. Prescriptive designs in accordance with ~~of fire-resistance-rated building elements, components or assemblies as prescribed in~~ Section 721.
3. Calculations in accordance with Section 722.
4. Engineering analysis based on a comparison of building element, component or assemblies designs having fire-resistance ratings as determined by the test procedures set forth in ASTM E 119 or UL 263.
5. Alternative protection methods as allowed by Section 104.11.

Reason: This proposal simplifies two of the options for establishing fire resistance. Concerning item 1, "Fire resistance designs in sources" could cover anything from a design from the UL Fire Resistance Directory to a sketch on a cocktail napkin. The intent appears to be designs tested to ASTM E119 or UL 263 by an approved agency, a defined term. The actual source of the design, whether in a publication or online, is irrelevant. The revision to item 2 is editorial only.

Cost Impact: None

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee felt that the proposal eliminated viable options of establishing the fire resistance rating of assemblies by mandating one of the methods of compliance and by requiring assemblies to be tested by an approved agency rather than simply providing assemblies from documented sources.

Assembly Action: **None**

Public Comments

Public Comment 1:

Bob Eugene, representing UL LLC, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

703.3 Alternative methods for determining fire resistance. The application of any of the alternative methods listed in this section shall be based on the fire exposure and acceptance criteria specified in ASTM E 119 or UL 263. The required fire resistance of a building element, component or assembly shall be permitted to be established by any of the following methods or procedures:

1. Fire-resistance designs documented in approved sources.
2. Prescriptive designs of fire-resistance-rated building elements, components or assemblies as prescribed in Section 721.
3. Calculations in accordance with Section 722.

4. Engineering analysis based on a comparison of building element, component or assemblies designs having fire-resistance ratings as determined by the test procedures set forth in ASTM E 119 or UL 263.
5. Alternative protection methods as allowed by Section 104.11.
6. Fire-resistance designs certified by an approved agency

Commenter's Reason: The original proposal used the text, "tested by an approved agency" in Item #1. This text was too narrow in scope, because some assemblies are sufficiently similar to others that an engineering decision can be made regarding conformance with the test standard without supplemental testing based on existing test data. The Item # 1 is retained as previously published, but the word "approved" as added before the term "source". The word approved was originally in item #1, but was inadvertently omitted by staff in the publication of the IBC. The membership never voted to delete the word "approved".

The Item 6 is added because the term "certified by an approved agency" should provide both the intended flexibility and confidence that the design conforms to the test standard based on scientific data.

Public Comment 2:

Bob Eugene, representing UL LLC, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

703.3 ~~Alternative methods~~ Methods for determining fire resistance. The application of any of the ~~alternative~~ methods listed in this section shall be based on the fire exposure and acceptance criteria specified in ASTM E 119 or UL 263. The required fire resistance of a building element, component or assembly shall be permitted to be established by any of the following methods or procedures:

1. Fire-resistance designs documented in sources.
2. Prescriptive designs of fire-resistance-rated building elements, components or assemblies as prescribed in Section 721.
3. Calculations in accordance with Section 722.
4. Engineering analysis based on a comparison of building element, component or assemblies designs having fire-resistance ratings as determined by the test procedures set forth in ASTM E 119 or UL 263.
5. Alternative protection methods as allowed by Section 104.11.

Commenter's Reason: The term "alternative" in the title and the first sentence of this section can be misleading. The intent of the IBC is that any of the methods identified in the list are suitable for determining the applicable level of fire resistance prescribed by the code.

Final Hearing Results

FS6-12 **AMPC1, 2**

Code Change No: FS11-12

Original Proposal

Section: 703.7

Proponent: Maureen Traxler, City of Seattle Dept of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee (maureen.traxler@seattle.gov)

Revise as follows:

703.7 Marking and identification. Where there is an accessible concealed floor, floor-ceiling or *attic* space, ~~Fire~~ *fire walls*, *fire barriers*, *fire partitions*, *smoke barriers* and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling in the concealed space. Such identification shall:

~~1. Be located in accessible concealed floor, floor-ceiling or *attic* spaces~~;

~~2~~1. Be located within 15 feet (4572 mm) of the end of each wall and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition; and

~~3~~ 2. Include lettering not less than 3 inches (76 mm) in height with a minimum 3/8 inch (9.5 mm) stroke in a contrasting color incorporating the suggested wording. “FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS” or other wording.

~~Exception:~~ ~~Walls in Group R-2 occupancies that do not have a removable decorative ceiling allowing access to the concealed space~~.

Reason: Section 703.7 was meant to require that the markings on fire-resistance rated assemblies only where there is an accessible space. This proposal modifies the code language to state that requirement more clearly. As written, this section requires the marking to be located in a concealed accessible space, so it requires construction of a concealed space where one would not otherwise be installed.

The exception is deleted because it becomes redundant when the charging language is clarified. If Committee feels it is necessary to maintain the exception, then it could be retained without changing the intent of the section. However, as written, the exception is unclear about what the exception applies to. Since it is indented under item 3, it appears to be an exception from the provisions related to the size of lettering.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this proposal was a good clarification that the marking and identification requirements were applicable only to accessible concealed spaces.

Assembly Action: **None**

Final Hearing Results

FS11-12 **AS**

Code Change No: FS12-12

Original Proposal

Section: 704.4, 704.4.2 (New)

Proponent: Daniel E. Nichols, P.E., New York State Division of Code Enforcement and Administration, Albany, NY (dan.nichols@dos.state.ny.us)

Revise as follows:

704.4 Protection of secondary members. Secondary members that are required to have a *fire-resistance rating* shall be protected by individual encasement protection. ~~by the membrane or ceiling of a *horizontal assembly* in accordance with Section 711, or by a combination of both.~~

704.4.2 Horizontal Assemblies. Horizontal assemblies are permitted to be protected with a membrane or ceiling when the membrane or ceiling provides the required fire-resistance rating and are installed in accordance with Section 711.

Reason: The purpose of this proposal is to provide the code user better direction when dealing with horizontal assemblies that require a fire-resistance rating. Currently, the section is written in a way that confuses the reader by addressing all secondary structural elements and then providing a horizontal assembly alternative compliance design. If the reader were to stop reading, the following section for bearing walls for light-frame construction would be missed. This proposal separates the horizontal assemblies out of the charge section for secondary member fire resistance requirements.

Another reason for this proposal is to clarify the requirements for membrane protection of horizontal assemblies. Currently, the only direction is to Section 711. Within Section 711, there is no direct requirement on how to handle the design of a horizontal assembly when the structural members within such assembly are required to be fire-resistance-rated. The only direction within the section is how to calculate fire resistance for mixed use occupancies and fire areas. The issue with this is that the calculation is for the 'separation' of spaces rather than the 'protection' of structural elements; with the separation calculation permitting the use of the structural member (and associated bay spaces) and the floor deck and finishes to be calculated in the fire-resistance. This calculation does not provide the needed fire-resistance-rating to the structural member.

The differences in fire-resistance of commonly used rated floor assemblies can be seen using directories; such as UL's fire resistance directories for rated floors. Whereas the assemblies are rated for 1-hour, the 'finish rating' is also published at a value the is lower than the 1-hour rating since such 'finish rating' test calculates only the material that is protecting the structural member. To look at this proposal another way, the real-world reason is to ensure designers are using the finish rating calculation to determine compliance for floor member rating requirements as it applies to the requirements of Chapter 6.

Section 711 is retained to deal with installation requirements such as penetrations, ducts, and joints.

Cost Impact: This will not increase the cost of construction since this is already required by the IBC.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposal clarified that a ceiling membrane could be used to provide the required fire resistance rating to horizontal assemblies.

Assembly Action: **None**

Final Hearing Results

FS12-12 **AS**

Code Change No: FS13-12

Original Proposal

Section: 704.4.1

Proponent: Sam Francis, American Wood Council (sfrancis@awc.org)

Revise as follows:

704.4 Protection of secondary members. Secondary members that are required to have a *fire-resistance rating* shall be protected by individual encasement protection, by the membrane or ceiling of a *horizontal assembly* in accordance with Section 711, or by a combination of both.

704.4.1 Light-frame construction. ~~King~~ ~~s~~Studs and boundary elements that are integral elements in *load-bearing walls* of light-frame construction shall be permitted to have required *fire-resistance ratings* provided by the membrane protection provided for the *load-bearing wall*.

Reason: The 2009 IBC Commentary describes the rationale: "Historically, codes have considered king and jack studs in light – frame construction as standard parts of the wall assembly. King studs have essentially the same function, load ratio, and thermal properties as the other studs in the load-bearing wall, and there is no need for them to be considered separate distinct column elements." Given that king studs are just like "regular studs", there is no reason to make the distinction here and then explain in the commentary that no distinction in function exists. Of course, with the successful passage of this proposal, the commentary should be changed to reflect the reverse in this section, saying that this used to say king studs but since they are exactly like other studs in function, this section no longer makes the distinction and that neither regular studs, nor king studs need the individual protection required of other secondary members in a manner similar to that of horizontal secondary structural members regulated by Section 704.4.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that studs were integral elements in load-bearing walls and that a king stud was simply a type of stud; therefore removal of the term "king" is appropriate.

Assembly Action: **None**

Final Hearing Results

FS13-12 **AS**

Code Change No: FS14-12

Original Proposal

Section: 705.2

Proponent: Al Godwin, CBO, CPM, representing Aon Fire Protection Engineering (al.godwin@aon.com)

Revise as follows:

705.2 Projections. Cornices, eave overhangs, exterior balconies and similar projections extending beyond the exterior wall shall conform to the requirements of this section and Section 1406. Exterior egress balconies and exterior exit stairways and ramps shall also comply with Sections 1019 and 1026, respectively. Projections shall not extend any closer to the line used to determine the fire separation distance than shown in Table 705.2.

Exception: Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section <u>for projections between the buildings</u>.

Reason: As written, this would exempt the building(s) from all projection regulations, even those to property lines. The exception should only apply to those projections between the buildings being considered as one building.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the exception should be clarified to address only those projections between the buildings on the same lot (705.3). The other exterior walls would be subjected to the requirements of 705.2.

Assembly Action: **None**

Final Hearing Results

FS14-12 **AS**

Code Change No: FS16-12

Original Proposal

Section(s): Table 705.2

Proponent: Homer Maiel, PE, CBO, Town of Atherton, representing ICC Tri-Chapter (Peninsula, East Bay, and Monterey Bay)

Revise as follows:

705.2 Projections. Cornices, eave overhangs, exterior balconies and similar projections extending beyond the exterior wall shall conform to the requirements of this section and Section 1406. Exterior egress balconies and exterior exit stairways and ramps shall also comply with Sections 1019 and 1026, respectively. Projections shall not extend any closer to the line used to determine the fire separation distance than shown in Table 705.2.

Table 705.2
MINIMUM DISTANCE OF PROTECTION

FIRE SEPARATION DISTANCE (FSD)	MINIMUM DISTANCE FROM LINE USED TO DETERMINE FSD
0 feet to less than ~~2~~ 3 feet	Projections not permitted
~~2 feet to less than 5 feet~~ 3 feet	24 inches
~~5 feet or~~ greater than 3 feet	~~40 inches~~ 24 inches plus 8 inches for every foot thereafter

Exception: Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section.

Reason: The current code language which was changed as the result of approval of FS12-09/10 in Baltimore, has simplified the projection requirements a great deal. However, there is a flaw in Table 705.2.

In Fig.1, I am trying to compare 2009 requirements with 2012. In 2009 code, the projection was a function of, 1) distance of exterior face of the wall to the lot line where protected openings or a combination of protected and unprotected openings are required, 2) automatic sprinkler systems. The 2012 code simplifies Section 705.2 by eliminating both of those requirements. In 2012, the only function is FSD. Once FSD is determined, then the projection is measured from FSD. This is shown in Fig. 1.

In Table 705.2, the third row is where the flaw appears. For example, if the FSD is 4 feet, then the minimum distance for projection to FSD is 24 inches. That means the maximum allowable projection can be 24 inches (48" – 24"). On the other hand, if FSD is 5 feet, then the minimum distance from the line used to determine FSD is 40". That means that projection can only be 20" (60"- 40"). Less projection is allowed for 5' FSD than 4' FSD!! This is clearly shown in Fig. 2. Also Fig. 3 shows this flaw and at the same time 2009 and 2012 have been compared graphically.

The new proposal still maintains the simplicity that is introduced in 2012 along with incorporating 2009 numbers.

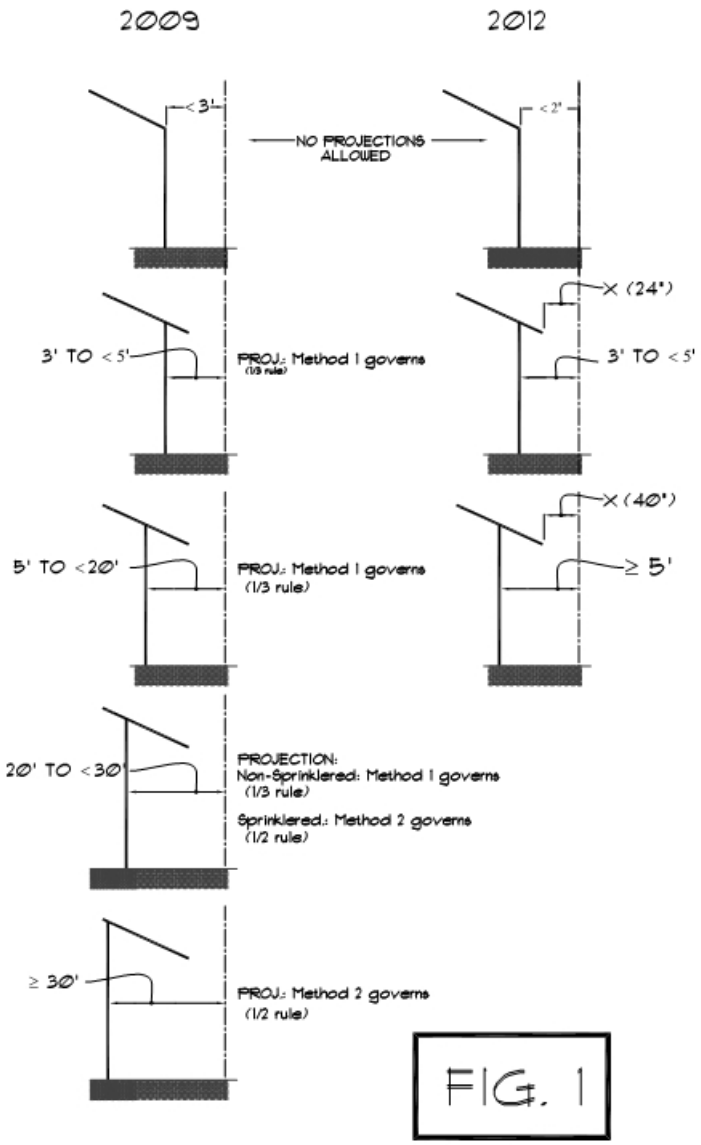
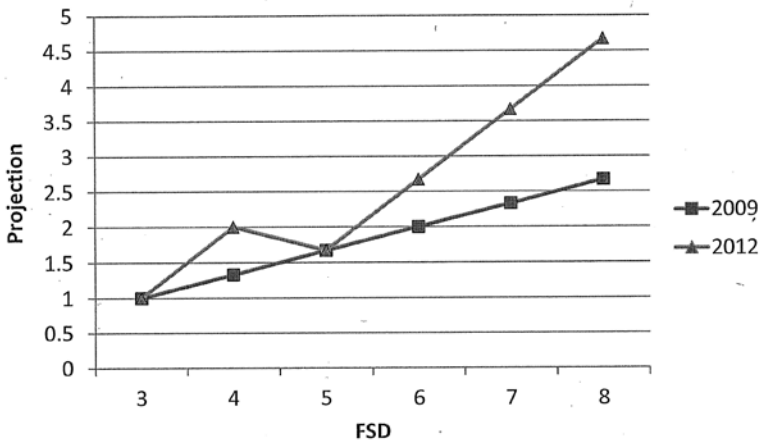


FIG. 1

Fig. 2

FSD	2009				2012	
< 2'	NP				NP	
2' - < 3'	NP				Proj.	From Edge of Proj. to PL (x)
					0.9'	2'
3'	Proj.		X		1'	2'
	1'		2'			
4'	1.33		2.67		2'	2'
5'	1.67		3.33 (40")		1.67	3.33 (40")
6'	2		4		2.67	3.33 (40")
7'	2.33		4.67		3.67	3.33 (40")
8'	2.67		5.33		4.67	3.33 (40")
…	…		…		…	…
20'	Sprk.		Non-Sprk.		16.67	3.33 (40")
	Proj	X	Proj	X		
	10	10	6.67	13.3		

Fig. 3



Cost Impact: This code change will not increase the cost of construction.

Analysis: FS15, FS16, FS17 and FS18 provide different options for Table 705.2. The committee needs to make its intent clear with respect to these provisions.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee agreed that this proposal did not provide clarity to the projections requirements. There was no substantiation provided to increase the distance where no projections were allowed. Further, with construction tolerances basing requirements on an exact measurement of 3 feet seems unrealistic. Lastly, clarification is needed in the "greater than 3 feet" row to properly apply and enforce the minimum distance required from the lot line.

Assembly Action: **None**

Public Comments

Public Comment:

Homer Maiel, PE, CBO, Town of Atherton, representing ICC-Tri Chapter (Peninsula, East Bay, Monterey Bay Chapter), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

Table 705.2
MINIMUM DISTANCE OF PROTECTION

FIRE SEPARATION DISTANCE (FSD)	MINIMUM DISTANCE FROM LINE USED TO DETERMINE FSD
0 feet to ~~less than~~ 2 ~~3~~ feet	Projections not permitted
More than 2 feet to ~~less than 5~~ 3 feet	24 inches
~~5 feet or~~ greater than 3 feet to less than 30 feet	24" plus 8" for every foot ~~thereafter~~ of FSD beyond 3' or fraction thereof.
30 feet or greater	20 feet

Exception: Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section.

Commenter's Reason: In Dallas the committee and original proponent of the code change from 2009 to 2012, agreed that there was an anomaly to this section of the code. The committees concern for projections over 3 feet has been addr essed in this modification Also the last row was added to address any distance at FSD of 30 feet or greater. The 30-foot criteria is consistent with Table 705.8 where no wall protection is needed.

Analysis: Public Comments to FS15, FS16, and FS17 provide different options for Table 705.2. The membership needs to make its intent clear with respect to these provisions.

Final Hearing Results

FS16-12 **AMPC**

Code Change No: FS19-12

Original Proposal

Section: 705.2.3

Proponent: Steve Thomas, Colorado Code Consulting, LLC representing the Colorado Chapter ICC (sthomas@coloradocode.net)

Revise as follows:

705.2.3 Combustible projections. Combustible projections extending to within 5 feet (1524 mm) of the line used to determine the fire separation distance~~, or located where openings are not permitted, or where protection of some openings is required~~ shall be of at least 1-hour fire-resistance- rated construction, Type IV construction, fire-retardant-treated wood or as required by Section 1406.3.

Exception: Type VB construction shall be allowed for combustible projections in Group R-3 and U occupancies with a fire separation distance greater than or equal to 5 feet (1524 mm).

Reason: This section was revised during the last code cycle by several different changes. The deleted language is confusing to the user of the code. The base requirement of 5 feet already addresses projections that are located where openings are prohibited (3 feet). Therefore, the language “or located wher openings are not permitted” is not needed. The language, “or where protection of some openings is required” is very confusing. What does it mean to say some opening protection is required? Is there a certain percentage of openings that makes it “some”? There is no direction for the user of the code to enforce this language.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposal appropriately deletes confusing language from Section 705.2.3.

Assembly Action: **None**

Final Hearing Results

FS19-12 **AS**

Code Change No: FS20-12

Original Proposal

Section(s): 705.3, Table 705.8

Proponent: Marshall A. Klein, P.E., Marshall A. Klein & Associates, Inc., representing National Multi-Housing Council

Revise as follows:

705.3 Buildings on the same lot. For the purposes of determining the required wall and opening protection, projections and roof-covering requirements, buildings on the same lot shall be assumed to have an imaginary line between them. Space where a new building is to be erected on the same lot as an existing building, the location of the assumed imaginary line with relation to the existing building shall be such that the *exterior wall* and opening protection of the existing building meet the criteria as set forth in Sections 705.5 and 705.8.

Exceptions:

1. Two or more buildings on the same lot shall either be regulated as separate buildings or shall be considered as portions of one building if the aggregate area of such buildings is within the limits specified in Chapter 5 for a single building. Where the buildings contain different occupancy groups or are of different types of construction, the area shall be that allowed for the most restrictive occupancy or construction.
2. Where an S-2 parking garage is erected on the same lot as a Group R-2 building, and there is no fire separation distance between these buildings, then the adjoining exterior walls between the buildings are permitted to have occupant use openings in accordance with Section 706.8. However, opening protectives in such openings shall only be required in the exterior wall of the S-2 parking garage, not in the exterior wall openings in the R-2 building, and these opening protectives in the exterior wall of the S-2 parking garage shall be a minimum of 1½ hours fire protection rating.

TABLE 705.8
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

FIRE SEPARATION DISTANCE (feet)	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA[a]
0 to less than 3[b,c,k]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted[k]
	Unprotected, Sprinklered (UP, S)[i]	Not Permitted[k]
	Protected (P)	Not Permitted[k]

(Portions of table not shown remain unchanged)

(Footnotes a through j remain unchanged)

k. For openings between S-2 parking garage and Group R-2 building, see Section 705.3 Exception #2.

Reason: This code proposal attempts to resolve a practical design issue that is extremely common in the design of apartment projects in major urban areas.

The great majority of multi-family projects are being built with parking garages beside the apartment buildings. Access from the parking garage into the apartment unit's floor is provided at each garage floor onto the apartment's floor for convenience as well as

for safety for the apartment dwellers. Many designs have one or more of the exterior walls of the parking garage and the apartment building at a 0' fire separation distance. The literal text of the first row of Table 705.8 would prohibit any openings in these exterior walls between the parking garage and the apartment building. However, if these exterior walls were replaced with a fire wall then openings are permitted under Table 705.8 Footnote "c". However, since the parking garage is usually constructed first, and then the apartment building is built next to it, the design and application of a fire wall present major design problems.

The parking garages are usually a minimum of Type I or Type II construction type, whereas the apartment buildings are usually Type III or Type V construction type. The design and tying together two buildings of two different construction types on the same lot is more complicated structurally than designing both buildings with their own exterior walls.

From a life safety/fire protection standpoint, the sprinklered apartment buildings (R-2 use) have one of the best fire safety records of all the occupancies types. The fire history for parking garages shows that most fires are contained to a single vehicle fire.

Since the parking garage and the apartment building are on the same lot there should be no logical reason why opening protectives can not be installed in the exterior walls between these two buildings the same as permitted for openings in a fire wall between two buildings. The only technical reason is that there is no fire door manufacturer that has details on how to install a listed fire door assembly in such walls that would stay in place if one of the exterior walls collapsed. To resolve this dilemma in a reasonable and practical manner, since the apartment building is required to be sprinklered under Section 903.2.8), the fire door assembly would be placed in the exterior wall of the S-2 Parking Garage. If by some chance the R-2 sprinklered building burned to the ground, the openings into the parking garage would still be protected. If by chance the S-2 parking garage burned down to the ground, the sprinklers near the openings in the exterior wall of the R-2 building would provide adequate protection. As mentioned above, based on the past fire history of sprinklered R-2 occupancies and S-2 parking garages the likelihood of either building type burning down to the ground is not very probable.

Cost Impact: Cost savings with no decrease in fire protection or life safety

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee felt that the differences between the protection afforded by fire walls and exterior walls and their openings are significant and should be supported by substantiating data. Further, the change seems to assume a construction type and should really require Type I or Type IIA for the parking garage.

Assembly Action: **None**

Public Comments

Public Comment:

Marshall A. Klein, P.E., Marshall A. Klein & Associates, Inc., representing National Multi-Housing Council (NMHC), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

705.3 Buildings on the same lot. For the purposes of determining the required wall and opening protection, projections and roof-covering requirements, buildings on the same lot shall be assumed to have an imaginary line between them. Space where a new building is to be erected on the same lot as an existing building, the location of the assumed imaginary line with relation to the existing building shall be such that the *exterior wall* and opening protection of the existing building meet the criteria as set forth in Sections 705.5 and 705.8.

Exceptions:

1. Two or more buildings on the same lot shall either be regulated as separate buildings or shall be considered as portions of one building if the aggregate area of such buildings is within the limits specified in Chapter 5 for a single building. Where the buildings contain different occupancy groups or are of different types of construction, the area shall be that allowed for the most restrictive occupancy or construction.
2. Where an S-2 parking garage <u>of Construction Type I ot Type IIA</u> is erected on the same lot as a Group R-2 building, and there is no fire separation distance between these buildings, then the adjoining exterior walls between the buildings are permitted to have occupant use openings in accordance with Section 706.8. However, opening protectives in such openings shall only be required in the exterior wall of the S-2 parking garage, not in the exterior wall openings in the R-2 building, and these opening protectives in the exterior wall of the S-2 parking garage shall be a minimum of 1½ hours fire protection rating.

(Portions of code change not shown remain unchanged.)

Commenter's Reason: To resolve any concerns noted in the Committee's reason for "disapproval", there is considerable supporting data for this Public Comment in the following national publications:

1. 2006 NFPA Fire Data Report, “Structure and Vehicle Fires in General Vehicle Parking Garages”
2. 2008 Parking Consultants Council Fire Safety Committee Report, “Parking Structure Fire Facts

These fire reports provide the following justifications for support of this public comment:

1. There is an average of only 660 fire/year in all types of parking structures in the US. This represents only 0.006% of all the annual fires/year in the US in all occupancy classifications. Therefore, fires in parking garages occur very infrequently.
2. Out of this low average number of fires/year (660) in parking structures, only 160 fires/year are in parking structures of Type I or Type IIA construction type.
3. No structural damage occurred in 98.7% of vehicle fires in parking structures.

As stated by many of the Committee members at the Dallas Hearing and noted in the Committee reason, if the code proposal clearly stated that it was limited to parking garages of Type I or Type IIA construction, it would have been acceptable.

Therefore, this Public Comment has now clearly limited the application to only Construction Type I or IIA parking garages, and the fire data shows a very low number of fires in these parking garages as well as an extremely low probability of a fire leaving the parking garage. The protection provide by this Exception #2 is more than adequate meet the intent of the code to provide life safety/fire protection between a parking garage and a sprinklered Group R-2 building built on the same lot.

Final Hearing Results

FS20-12 **AMPC**

Code Change No: FS22-12

Original Proposal

Section(s): 705.6, 706.2

Proponent: Jonathan Siu, representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov)

Revise as follows:

705.6 Protection required for structural stability. ~~The wall~~ Exterior walls shall extend to the height required by Section 705.11 ~~and shall have sufficient structural stability such that it will remain in place for the duration of time indicated by the required *fire-resistance rating*~~. Where exterior walls have a minimum *fire separation distance* of not less than 30 feet (9144 mm), interior structural elements which brace the exterior wall but which are not located within the plane of the exterior wall shall have the minimum *fire-resistance rating* required in Table 601 for that structural element. Structural elements which brace the exterior wall but are located outside of the exterior wall or within the plane of the exterior wall shall have the minimum *fire-resistance rating* required in Tables 601 and 602 for the exterior wall.

706.2 Protection required for structural stability. ~~Fire walls shall have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall for the duration of time indicated by the required *fire-resistance rating*~~ Structural elements which brace the fire wall but are located outside of the fire wall or within the plane of the fire wall shall have the minimum *fire resistance rating* required for the fire wall, or the wall shall be constructed as double fire walls in accordance with NFPA 221.

Reason: The purpose of this code change proposal is to delete the requirements that an exterior walls or fire walls must maintain their stability under real fire conditions for a real-time 1, 2, 3, or 4 hours. This is an inappropriate performance standard for the following reasons:

1. This requirement is unenforceable. It is a common misconception that a given fire-resistance rating means the rated assembly will stand for the stated period of time (in real time) under real fire conditions. However, while the test that establishes the rating provides a common standard (or level playing field) for tested assemblies, it does not necessarily represent the behavior of a real wall under real fire conditions. Stated another way, the test is only meant to measure performance in the given test environment, not to reflect real-world conditions. Because the test standard does not tell you how long in real time the assembly will stand under real fire conditions, there is no method for a design professional (or code official) to determine ahead of time how these assemblies should be constructed given the code requirement—nobody will know until a real fire occurs in the building and someone times how long the wall stands (if it collapses) or if it withstands the fire for the required (real-time) time period.
2. These elements (exterior and fire walls) are being held to a much higher standard than any other element, with no justification. That is, no other element is required to remain in place for the required real time under real-world fire conditions, whether they be horizontal assemblies, or fire barriers protecting an interior exit stair, for example. There is no reason why exterior walls and fire walls should be treated differently than these other equally important elements.
3. If the intent of the deleted text is to require exterior and fire walls to meet the required fire resistance rating, then the text is redundant.
4. If the intent of the requirement in these sections is to require a specific structural design, Chapter 16 doesn't provide sufficient guidance for structural design of wall anchorage that would withstand collapse of a portion of a building. In addition, Chapter 7 is an inappropriate location for structural design requirements.

It is to be noted that this proposal does not take away fire protection. Part of the reason why fire-resistant rated construction is required is to protect the structure. The apparent intent of the text being proposed to be deleted is that the stability of the element (exterior or fire wall) matches the required fire-resistance rating of the assembly. However, this intent is covered by the last sentence in Section 705.6 and the added text to 706.2—the floors and roof stabilize the wall, and they are protected to the same degree the walls are. This text is being proposed to be added to Section 706.2 in order to replace the requirement for real-time structural stability, and retain the parallel requirement.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: FS21 and FS22 provide different requirements for exterior wall structural stability. The committee needs to make its intent clear with respect to these provisions. FS22 and FS27 provide different requirements for fire wall structural stability. The committee needs to make its intent clear with respect to these provisions.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee felt that the proposal did not add anything to the current requirements and was not needed. The committee also felt that the performance criteria currently in the code for fire walls should remain as it provides for the overarching intent related to fire walls. Lastly, the committee felt that Section 704 sufficiently addresses protection of structural members.

Assembly Action: **None**

Public Comments

Public Comment 1:

Jonathan Siu representing City of Seattle Dept of Planning & Development, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

705.6 Structural stability. ~~The wall~~ Exterior walls shall extend to the height required by Section 705.11 ~~and shall have sufficient structural stability such that it will remain in place for the duration of time indicated by the required *fire-resistance rating*.~~ Where exterior walls have a minimum *fire separation distance* of not less than 30 feet (9144 mm), interior structural elements which brace the exterior wall but which are not located within the plane of the exterior wall shall have the minimum *fire-resistance rating* required in Table 601 for that structural element. Structural elements which brace the exterior wall but are located outside of the exterior wall or within the plane of the exterior wall shall have the minimum *fire-resistance rating* required in Tables 601 and 602 for the exterior wall.

Commenter's Reason: As stated in the reason statement for the original code change proposal, the provision that an exterior wall be required to remain in place for a time period indicated by the required fire resistance rating is unenforceable. As was recognized in testimony from the floor in Dallas on at least one other proposal, a given fire resistance rating does not indicate how long an assembly will last under real fire conditions—the standardized tests are not intended to produce that sort of information. Therefore, under the current code language, there is no method by which the building official can determine what the wall construction is required to be, since neither test standards nor listed assemblies on which to base an approval exist.

The last two sentences in Section 705.6 address the required fire resistance rating for the bracing. If the bracing fails, it is unlikely the exterior wall will remain standing. For exterior walls, stability under fire conditions is generally provided by the floor structure. According to Section 705.6, the protection for the floors is based on the fire resistance ratings required in Tables 601 and 602. Note that floors do not necessarily have the same rating as the exterior wall—and this is acceptable under the current code language. But compliance with the fire resistance ratings in those tables is based on the standardized tests, which do not reflect actual performance under real fire conditions. Therefore, a building official cannot determine at plan review or during inspections whether the exterior wall and its bracing will comply with the current code text—the only method to determine compliance is to light a real fire in the building and watch the results.

However, if the intent is to make sure the exterior wall has the correct fire resistance rating, compliance with Chapter 6 and the additional requirements in the last two sentences in Section 705.6 can be verified by the building official. We would contend that this is the actual practice of building officials—that the fire resistance ratings of the exterior wall and floors are verified as conforming to the tables and Section 705.6, and if they do, that is deemed to satisfy the structural stability requirements in Section 705.6. Deleting the text as shown in this public comment does not change normal practice, and aligns the code with that intent.

Analysis: Public Comments to FS22 and FS27 provide different requirements for fire wall structural stability. The membership needs to make its intent clear with respect to these provisions.

Public Comment 2:

Jonathan Siu representing City of Seattle Dept of Planning & Development, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

706.2 Structural stability. Fire walls shall ~~have sufficient structural stability under fire conditions~~ be designed and constructed to allow collapse of ~~construction~~ the structure on either side without collapse of the wall under fire conditions. ~~for the duration of time indicated by the required *fire-resistance rating*, or shall be~~ Fire walls designed and constructed ~~as double fire walls~~ in accordance with NFPA 221 shall be deemed to comply with this section.

Commenter's Reason: As noted in the reason statement for the original proposal, the current code language requiring a fire wall to stand for a period of time "indicated by the required fire resistance rating" without collapse is unenforceable. As was recognized in testimony from the floor in Dallas on at least one other proposal, a given fire resistance rating does not indicate how long an assembly will last under real fire conditions.

Comments from the committee and the floor on the original proposal indicated a preference to retain the performance language in the code for fire walls. We have responded to these comments by rewriting the performance language to preserve the intent (a fire on one side doesn't cause collapse on the other side), but remove the unenforceable portion relating to how long the wall is required to stand.

It is worth noting we have not carried forward the requirement in the original proposal to provide fire-resistant rated protection for the wall bracing. The current code does not require bracing on the non-fire exposed side of the fire wall to be protected by fire-resistance rated construction. After discussion with other interested parties, we agreed it would not be appropriate to add a requirement for such protection, since the fire wall itself provides the protection from fire exposure.

NFPA 221 actually has two other methods of fire wall construction besides double wall construction—tied and cantilevered. It appears the intent of the requirements for all three methods in NFPA 221 is to result in structural behavior that is consistent with the guidance given in Section 706.2—the wall remains standing if the structure on the fire-exposed side fails. There does not appear to be a reason to limit the code to the use of only one of the three methods. The modified text in this public comment allows the use of NFPA 221 as a deemed-to-comply standard in order to give building officials and designers at least three known methods by which the requirements of this section can be met.

The bottom line with this proposal is the wall still has its required fire-resistance rating, and it is still required to be designed to remain in place if the structure on one side collapses in a fire. We have stated the performance objective, and have provided a pointer to a standard that is deemed to comply with that performance objective.

Analysis: Public Comments to FS22 and FS27 provide different requirements for fire wall structural stability. The membership needs to make its intent clear with respect to these provisions.

Public Comment 3:

Sam Francis, American Wood Council, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

705.6 Structural stability. ~~The wall~~ Exterior walls shall extend to the height required by Section 705.11 ~~and shall have sufficient structural stability such that it will remain in place for the duration of time indicated by the required *fire-resistance rating*. Where exterior walls have a minimum *fire separation distance* of not less than 30 feet (9144 mm),~~ iInterior structural elements which brace the exterior wall but which are not located within the plane of the exterior wall shall have the minimum *fire-resistance rating* required in Table 601 for that structural element. Structural elements which brace the exterior wall but are located outside of the exterior wall or within the plane of the exterior wall shall have the minimum *fire-resistance rating* required in Tables 601 and 602 for the exterior wall.

Commenter's Reason: Last cycle, AWC introduced FS17which was intended to make clear the fire resistance rating required for interior wall assemblies as they relate to the exterior wall. The sentence "Where exterior walls have a minimum fire separation distance of not less than 30 feet,…" only makes sense in the context of the previous sentence. Modifying the paragraph as others have suggested seems reasonable and we support than modification. But since the sentence referenced above only makes sense in the context of the text which is proposed for deletion by others, we encourage keeping the requirements for Interior Walls within the context of this section. We also encourage staff to correct the section title which becomes even more confusing with the possible change to the paragraph.

Analysis: Public Comments to FS22 and FS27 provide different requirements for fire wall structural stability. The membership needs to make its intent clear with respect to these provisions.

Final Hearing Results

FS22-12 **AMPC1, 2, 3**

Code Change No: FS23-12

Original Proposal

Section: Table 705.8

Proponent: Barry Gupton, PE, NC Department of Insurance, Office of State Fire Marshal, Engineering Division (barry.gupton@ncdoi.gov)

FIRE SEPARATION DISTANCE (feet)	DEGREE OF OPENING PROTECTION	ALLOWABLE AREAa
30 or greater	Unprotected, Nonsprinklered (UP, NS)	No Limit
	Unprotected, Sprinklered (UP, S)i	~~Not Required~~ No Limit
	Protected (P)	~~Not Required~~ No Limit

Revise as follows:

TABLE 705.8
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

(Portions of table not shown remain unchanged)

Reason The current wording incorrectly indicates that for Unprotected, Sprinklered and Protected openings which have a fire separation distance of 30' or greater are "Not Required". Actually the areas of these openings are unlimited for these situations except where Note i applies.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this proposal correctly changed the terminology in the table to indicate that the area of openings, whether protected or unprotected, was not limited.

Assembly Action: **None**

Final Hearing Results

FS23-12 **AS**

Code Change No: FS24-12

Original Proposal

Section: 705.8.5

Proponent: Steve Pfeiffer representing City of Seattle, Dept of Planning & Development (steve.pfeiffer@seattle.gov)

Revise as follows:

705.8.5 Vertical separation of openings. Openings in *exterior walls* in adjacent *stories* shall be separated vertically to protect against fire spread on the exterior of the buildings where the openings are within 5 feet (1524 mm) of each other horizontally and the opening in the lower *story* is not a protected opening with a *fire protection rating* of not less than 3/4 hour. Such openings shall be separated vertically at least 3 feet (914 mm) by spandrel girders, *exterior walls* or other similar assemblies that have a *fire-resistance rating* of at least 1 hour, rated for exposure to fire from both sides, or by flame barriers that extend horizontally at least 30 inches (762 mm) beyond the *exterior wall*. Flame barriers shall also have a *fire-resistance rating* of at least 1 hour. The unexposed surface temperature limitations specified in ASTM E 119 or UL 263 shall not apply to the flame barriers or vertical separation unless otherwise required by the provisions of this code.

Exceptions:

1. This section shall not apply to buildings that are three *stories* or less above *grade plane*.
2. This section shall not apply to buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Open parking garages.

Reason: This change is intended to clarify that provisions of Section 705.5, requiring an exterior wall with a fire separation distance of greater than 10 feet to only consider exposure to a fire from the inside, do not apply to Section 705.8.5. Fire separation distance, the critical factor in Section 705.5, to prevent spread of fire from property to property or building to building, plays no role in Section 705.8.5. The hazard, in Section 705.8.5, is of a fire within the building moving from floor to floor via exterior wall openings. It is critical that where a fire-resistive rated spandrel is used in prevention of the spread of fire from floor to floor, the assumed exposure to fire be from both sides of the wall spandrel.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that rating the spandrel girders or exterior wall assembly for exposure from both sides was appropriate to deter fire and products of combustion from leaving one floor level to the exterior and entering the floor level above from the exterior.

Assembly Action: **None**

Final Hearing Results

FS24-12 **AS**

Code Change No: FS28-12

Original Proposal

Section: 707.5, 707.5.1

Proponent: Philip Brazil, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

707.5 Continuity. *Fire barriers* shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such *fire barriers* shall be continuous through concealed space, such as the space above a suspended ceiling. Joints and voids at intersections shall comply with Sections 707.8 and 707.9.

Exceptions:

1. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 713.12.
2. Interior exit stairway and ramp enclosures required by Section 1022.2 and exit access stairway and ramp enclosures required by Section 1009.3 shall be permitted to terminate at a top enclosure complying with Section 713.12.

707.5.1 Supporting construction. The supporting construction for a *fire barrier* shall be protected to afford the required *fire-resistance rating* of the *fire barrier* supported. Hollow vertical spaces within a *fire barrier* shall be fireblocked in accordance with Section 718.2 at every floor level.

Exceptions:

1. The maximum required *fire-resistance rating* for assemblies supporting *fire barriers* separating tank storage as provided for in Section 415.8.2.1 shall be 2 hours, but not less than required by Table 601 for the building construction type.
2. ~~Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 713.12.~~
2. Supporting construction for 1-hour *fire barriers* required by Table 509 in buildings of Type IIB, IIIB and VB construction is not required to be fire-resistance rated unless required by other sections of this code.
4. ~~Interior exit stairway and ramp enclosures required by Section 1022.2 and exit access stairway and ramp enclosures required by Section 1009.3 shall be permitted to terminate at a top enclosure complying with Section 713.12.~~

Reason: Exception 2 of Section 707.5.1 has been in the IBC since the 2000 edition (Section 706.5 for fire barriers) and, until the 2009 edition, had applied to the requirements in Sections 707.5 and 707.5.1, which were in a single Section 706.5 on continuity. Exception 2 of Section 706.5 in the 2006 edition (Section 706.4 in the 2000 and 2003 editions) is intended to apply to Section 707.5 of the 2009 and 2012 editions, which requires fire barriers to extend to the top of the underside of the floor or roof sheathing, slab or deck above. Proposal FS37-07/08-AMPC created a separate Section 707.5.1, which led to the incorrect placement of the exception in Section 707.5.1. Exception 4 of Section 707.5.1 is also relocated to Section 707.5 because the subject of the exception is similar to that of Exception 2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that items 2 and 4 to current Section 707.5.1 were related more to continuity requirements and therefore should be relocated to Section 707.5.

Assembly Action: **None**

Final Hearing Results

FS28-12 **AS**

Code Change No: FS29-12

Original Proposal

Section: 707.6, 707.7.1, 717.5.2

Proponent: Philip Brazil, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

707.6 Openings. Openings in a *fire barrier* shall be protected in accordance with Section 716. Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet (15 m^2). Openings in enclosures for exit access stairways and ramps, interior exit stairways and ramps, and exit passageways shall also comply with Sections 1009.3.1.4, ~~1022.3~~ 1022.4 and 1023.5, respectively.

(No change to Exceptions)

707.7.1 Prohibited penetrations. Penetrations into enclosures for *exit access stairways*~~, *exit access*~~ and *ramps*, *interior exit stairways*~~, *interior exit*~~ and *ramps*, ~~or an~~ and *exit passageway*s shall be allowed only ~~when~~ where permitted by Sections 1009.3.1.5, 1022.5 ~~or~~ and 1023.6, respectively.

717.5.2 Fire barriers. Ducts and air transfer openings of *fire barriers* shall be protected with *approved fire dampers* installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for *interior exit stairways*~~,~~ and *ramps*, and *exit passageways*, except as permitted by Sections ~~1022.4~~ 1022.5 and 1023.6, respectively.

(No change to Exceptions)

Reason: In Section 707.6, the addition of Section 1009.3.1.4 eliminates a technical error in that Proposal E5-09/10-AS expanded the scope of 2009 IBC Section 707.6 from exit enclosures and exit passageways to also include exit access stairways and exit access ramps. Section 1009.3.1.4 in the 2012 IBC corresponds to exit access stairways and exit access ramps in the same manner as Sections 1022.3 and 1023.5 correspond to exit enclosures and exit passageways, respectively, in the 2009 IBC. With the addition of Section 1009.3.1.4 in the proposal, the egress components are effectively placed into three groups so that they correspond to the three referenced sections. The change in the section reference from 1022.3 to 1022.4 restores the correlation in 2009 IBC Section 707.6 that referenced Section 1022.3 for openings, which is Section 1022.4 in the 2012 IBC.

The changes in Section 707.7.1 are primarily clarifying. The deletion of "exit access" and "interior exit" is done for consistency with "exit access stairways and ramps" and "interior exit stairways and ramps" in Section 707.6 and elsewhere in the 2012 IBC as established with the approved changes from Proposal E5-09/10-AS. The changes from "or" to "and" eliminate a technical error in that 2009 Section 707.7.1 contains two items and two corresponding section references but Proposal E5-09/10-AS revised the section to include five items and three section references, which do not correspond in the same manner. The additions in the proposal effectively place the egress components into three groups so that they correspond to the three referenced sections.

In Section 717.5.2, "interior exit" is added because Proposal E5-09/10-AS replaced "exit enclosures and exit passageways" with "enclosures for stairways, ramps and exit passageways" but exit access stairways and exit access ramps are required to be enclosed in accordance with Sections 1009.3 and 1010.2, respectively, and Sections 1022.5 and 1023.6 are limited in scope to interior exit stairways and ramps, and exit passageways, respectively. Without the addition of "interior exit," Section 717.5.2 would be more restrictive for exit access stairways and ramps than for interior exit stairways and ramps because of the penetrations of interior exit stairways and ramps, and exit passageways, by ducts and air transfer openings that are permitted by Sections 1022.5 and 1023.6, respectively, unless otherwise prohibited by Section 717.5.2. Note that 2012 IBC Section 1009.3.1.7 does not impose additional requirements on penetrations of exit access stairway enclosures other than by reference to Section 717. The change in the section reference from 1022.4 to 1022.5 restores the correlation in 2009 IBC Section 716.5.2 that referenced Section 1022.4 for penetrations, which is Section 1022.5 in the 2012 IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this proposal corrected several sections referenced and pr operly revised terminology related to interior stairs and ramps.

Assembly Action: **None**

Final Hearing Results

FS29-12 **AS**

Code Change No: FS30-12

Original Proposal

Section: 707.9

Proponent: Tim Pate, City and County of Broomfield, Colorado, representing Colorado Chapter Code Change Committee

Revise as follows:

707.9 Voids at intersections. The voids created at the intersection of a *fire barrier* and a non-fire-resistance-rated roof assembly or a non-fire-resistance – rated exterior wall assembly shall be filled. An approved material or system shall be used to fill the void, shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

Reason: Section 707.9 is a new code section that deals with how to treat voids at top of fire barriers which terminate at non fire resistance rated roof assemblies. There is the same issue where fire barriers terminate at non fire resistance rated exterior walls. The added code language will clear up what to do with the void at these exterior walls which will match what to do at roof assembly.

Cost Impact:

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this proposal correctly adds requirements for the void created at a non-fireresistance rated exterior wall assembly and a fire barrier. These requirements should be the same as for those between a fire barrier and a non-fireresistance rated roof assembly.

Assembly Action: **None**

Final Hearing Results

FS30-12 **AS**

Code Change No: FS34-12

Original Proposal

Section: 708.1, 711.3

Proponent: Lee J. Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development (lkranz@bellevuewa.gov)

Revise as follows:

SECTION 708
FIRE PARTITIONS

708.1 General. The following wall assemblies shall comply with this section.

~~1. Walls separating *dwelling units* in the same building as required by Section 420.2.~~
~~2. Walls separating *sleeping units* in the same building as required by Section 420.2.~~
1. Separation walls as required by Section 420.2 for Group I-1, R-1, R-2 and R-3.
~~3~~2. Walls separating tenant spaces in *covered and open mall buildings* as required by Section 402.4.2.1.
~~4~~3. Corridor walls as required by Section 1018.1.
~~5~~4. Elevator lobby separation as required by Section 713.14.1.

SECTION 711
HORIZONTAL ASSEMBLIES

711.3 Fire-resistance rating. The *fire-resistance rating* of floor and roof assemblies shall not be less than that required by the building type of construction. Where the floor assembly separates mixed occupancies, the assembly shall have a *fire-resistance rating* of not less than that required by Section 508.4 based on the occupancies being separated. Where the floor assembly separates a single occupancy into different *fire areas*, the assembly shall have a *fire-resistance rating* of not less than that required by Section 707.3.10. ~~*Horizontal assemblies* separating *dwelling units* in the same building and *horizontal assemblies* separating *sleeping units* in the same building shall be a minimum of 1-hour fire-resistance-rated construction.~~ *Horizontal assemblies* serving as *dwelling* or *sleeping unit* separations in accordance Section 420.3 shall be a minimum of 1-hour fire-resistance rated construction.

Exception: *Dwelling unit* and *sleeping unit* separations in buildings of Type IIB, IIIB and VB construction shall have *fire-resistance ratings* of not less than ½ hour in buildings equipped throughout with an approved *automatic sprinkler system* in accordance with Section 903.3.1.1.

Reason: This proposal creates consistency of Sections 708.1 and 711.3 with Sections 420.2 and 420.3 related to minimum fire resistance rating of vertical and horizontal assemblies.

This proposal creates consistency of Sections 708.1 and 711.3 with Sections 420.2 and 420.3 related to inclusion of "separation required for other occupancies contiguous to sleeping units and dwelling units in the same building".

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this proposal provided for consistency with Sections 420.2 and 420.3 related to the minimum fire resistance ratings of vertical and horizontal assemblies and inclusion of separations requirement for other occupancies and sleeping and dwelling units in the same building.

Assembly Action: **None**

Final Hearing Results

FS34-12 **AS**

Code Change No: FS35-12

Original Proposal

Section: 709.1

Proponent: Tony Crimi, A.C. Consulting Solutions Inc, representing International Firestop Council (tcrimi@sympatico.ca)

Revise as follows:

709.1 General. Vertical and horizontal *smoke barriers* shall comply with this section.

Reason: The purpose of this proposal is simply to clarify smoke barriers can be either horizontal or vertical. The issue has come up many times, and causes much confusion in the field. The definition of smoke barriers does currently identify that a smoke barrier is a continuous membrane, either vertical or horizontal. The definition goes on to list items such as a wall, floor or ceiling assembly, that is designed and constructed to restrict the movement of smoke.

Cost Impact: This change will reduce the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that clarification that smoke barriers can be vertical and horizontal was needed for proper code application and enforcement.

Assembly Action: **None**

Final Hearing Results

FS35-12	**AS**

Code Change No: FS36-12

Original Proposal

Section: 709.4

Proponent: Tim Pate, City and County of Broomfield, Colorado, representing self

Revise as follows:

709.4 Continuity. *Smoke barriers* shall form an effective membrane continuous from outside wall to outside wall and from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall or floor supported in buildings of other than Type IIB, IIIB or VB construction.

Exceptions:

1. Smoke-barrier walls are not required in interstitial spaces where such spaces are designed and constructed with ceilings or exterior walls that provide resistance to the passage of fire and smoke equivalent to that provided by the smoke-barrier walls.
2. Smoke barriers used for elevator lobbies in accordance with Section 405.4.3, 3007.4.2 or 008.11.2 are not required to extend from outside wall to outside wall.
3. Smoke barriers used for areas of refuge in accordance with Section 1007.6.2 are not required to extend from outside wall to outside wall.

Reason: This added wording will clarify that when a smoke barrier extends to an exterior wall, the interstitial space will be required to provide resistance to the passage of fire and smoke equivalent to that provided by the smoke barrier which will match the requirement at an intersection of a ceiling.

Cost Impact: No cost increase – this proposal is attempting to clarify existing requirements by this added language.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the clarification that smoke barriers do not need to extend into the interstitial spaces of exterior walls where the exterior wall is capable of resisting the passage of fire and smoke to a level at least equivalent to that of a smoke barrier.

Assembly Action: **None**

Final Hearing Results

FS36-12 **AS**

Code Change No: FS37-12

Original Proposal

Section(s): 709.4

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

709.4 Continuity. *Smoke barriers* shall form an effective membrane continuous from outside wall to outside wall and from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall or floor supported in buildings of other than Type IIB, IIIB or VB construction.

Exceptions:

1. Smoke-barrier walls are not required in interstitial spaces where such spaces are designed and constructed with ceilings that provide resistance to the passage of fire and smoke equivalent to that provided by the smoke-barrier walls.
2. Smoke barriers used ~~for~~ to enclose elevator lobbies in accordance with Section 405.4.3, 1007.6.2, 3007.7.2 or 3008.7.2 shall be permitted to terminate at the elevator hoistway shaft enclosure. ~~not required to extend from outside wall to outside wall.~~ A smoke and draft control door assembly as specified in Section 716.5.3.1 shall not be required at each elevator hoistway door opening.
3. Smoke barriers used for areas of refuge in accordance with Section 1007.6.2 are not required to extend from outside wall to outside wall.

Reason: This proposal is one of several proposals submitted by the CTC dealing with elevator lobbies. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due t o the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on t he elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

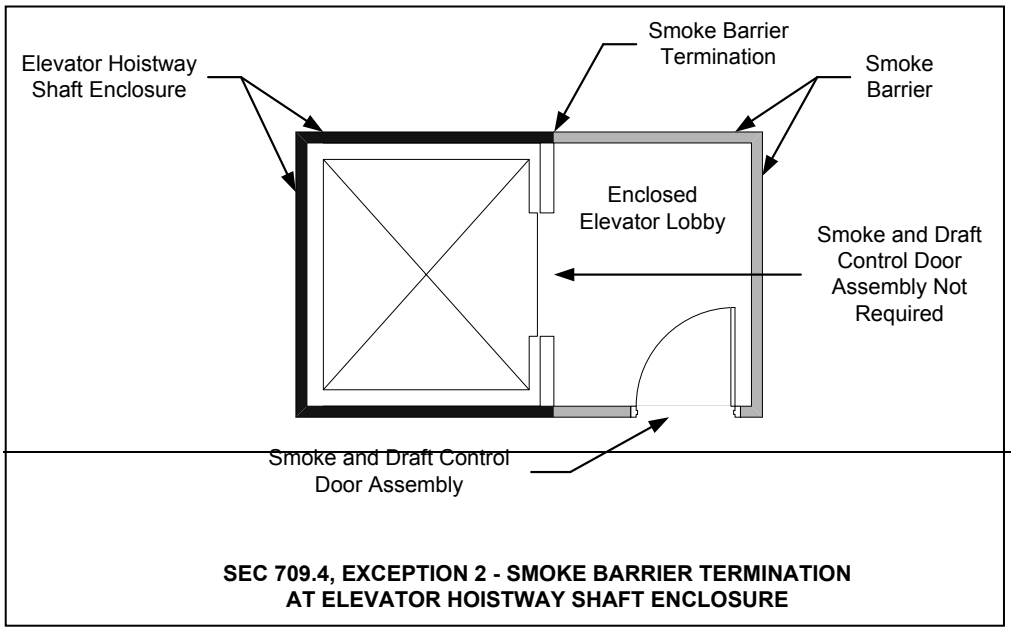
- ☐ Review the need for elevator lobbies~~,~~; with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- ☐ Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- ☐ Review related code provisions, such as egress from and through elevator lobbies.
- ☐ Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- ☐ Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- ☐ Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- ☐ Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study**,** 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

This proposal provides clarification of the smoke barrier continuity requirements. Provisions are necessary to clarify that opening protection at the hoistway opening is not necessary when an enclosed elevator lobby is provided in accordance with Section 405.4.3, 3007.7.2, or 3008.7.2. An enclosed elevator lobby protects the hoistway from smoke migration, therefore the hoistway is already protected. In addition the shaft walls provide sufficient smoke and draft protection to allow the smoke barriers to terminate at those walls.

This proposal does not require correlation with other CTC Elevator Lobby SG lobby proposals. See discussion on CTC elevator lobby proposal coordination in code change FS##-12



SEC 709.4, EXCEPTION 2 - SMOKE BARRIER TERMINATION AT ELEVATOR HOISTWAY SHAFT ENCLOSURE

Cost Impact: This code change proposal will not increase the cost of construction.

Analysis: FS37, FS38 and FS39 provide different requirements for smoke barriers enclosing elevator lobbies. The committee needs to make its intent clear with respect to these provisions.

Public Hearing Results

Committee Action: Approved as Modified

Modify proposal as follows:

709.4 Continuity. *Smoke barriers* shall form an effective membrane continuous from outside wall to outside wall and from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall or floor supported in buildings of other than Type IIB, IIIB or VB construction.

Exceptions:

1. Smoke-barrier walls are not required in interstitial spaces where such spaces are designed and constructed with ceilings that provide resistance to the passage of fire and smoke equivalent to that provided by the smoke-barrier walls.
2. Smoke barriers used to enclose elevator lobbies in accordance with Section 405.4.3, 1007.6.2, 3007.7.2 or 3008.7.2 shall be permitted to terminate at the elevator hoistway shaft enclosure. A smoke and draft control door assembly as specified in Section 716.5.3.1 shall not be required at each elevator hoistway door opening.
3. Smoke barriers used for areas of refuge in accordance with Section 1007.6.2 ~~are not required to extend from outside wall to outside wall~~ shall be permitted to terminate at the exit stairway shaft enclosure. A smoke and draft control door assembly as specified in Section 716.5.3.1 shall not be required at each exit doorway between an area of refuge and the exit enclosure.

Committee Reason: The committee agreed that smoke barriers need not always terminate at exterior walls and termination could be at the elevator hoistway enclosure. The modification recognizes that this allowance should also pertain to smoke barrier terminations at areas of refuge.

Assembly Action: None

Public Comments

Public Comment:

Dave Frable, representing U.S. General Services Administration, Public Buildings Service, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

709.4 Continuity. *Smoke barriers* shall form an effective membrane continuous ~~from outside wall to outside wall and~~ from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall or floor supported in buildings of other than Type IIB, IIIB or VB construction. Smoke barrier walls used to separate smoke compartments shall comply with Section 709.4.1. Smoke barrier walls used to enclose areas of refuge in accordance with Section 1007.6.2 or to enclose elevator lobbies in accordance with Section 405.4.3, 3007.7.2, or 3008.7.2 shall comply with Section 709.4.2.

Exceptions:

1. Smoke-barrier walls are not required in interstitial spaces where such spaces are designed and constructed with ceilings or exterior walls that provide resistance to the passage of fire and smoke equivalent to that provided by the smoke-barrier walls.
2. ~~Smoke barriers used to enclose elevator lobbies in accordance with Section 405.4.3, 1007.6.2, 3007.7.2 or 3008.7.2 shall be permitted to terminate at the elevator hoistway shaft enclosure. A smoke and draft control door assembly as specified in Section 716.5.3.1 shall not be required at each elevator hoistway door opening.~~
3. ~~Smoke barriers used for areas of refuge in accordance with Section 1007.6.2 shall be permitted to terminate at the exit stairway shaft enclosure. A smoke and draft control door assembly as specified in Section 716.5.3.1 shall not be required at each exit doorway between an area of refuge and the exit enclosure.~~

709.4.1 Smoke barrier walls separating smoke compartments. Smoke barrier walls used to separate smoke compartments shall form an effective membrane continuous from outside wall to outside wall.

709.4.2 Smoke barrier walls enclosing areas of refuge or elevator lobbies. Smoke barrier walls used to enclose areas of areas of refuge in accordance with Section 1007.6.2, or to enclose elevator lobbies in accordance with Section 405.4.3, 3007.7.2, or 3008.7.2, shall form an effective membrane enclosure that terminates at a fire barrier wall having a level of fire protection rating not less than 1-hour, another smoke barrier wall or an outside wall. A smoke and draft control door assembly as specified in Section 716.5.3.1 shall not be required at each elevator hoistway door opening or at each exit doorway between an area of refuge and the exit enclosure.

Commenter's Reason: The intent of this code change proposal is to revise and provide clarification to FS37 with regard to when smoke barrier walls are used to create smoke compartments versus when smoke barrier walls are used to create enclosures for elevator lobbies and areas of refuge.

a. Section 709.4 has been revised to delete "from outside wall to outside wall and" since termination of a smoke barrier wall at an outside wall is not required in all situations and also to provide references to two requirements (709.4.1 and 709.4.2) to clarify the distinction between smoke barrier walls separating smoke compartments and smoke barrier walls separating areas of refuge and elevator lobbies.
b. Exception 1 has been revised based on actions taken on FS36.
c. Exceptions 2 and 3 have been deleted based on the revisions in Section 709.4. The existing text in the subject two exceptions have been consolidated into new Section 709.4.2 since the requirements for areas of refuge and elevator lobbies are identical.
d. New requirement 709.4.1 makes it clear that smoke barrier walls used to form smoke compartments are required to be continuous from outside wall to outside wall.
e. New requirement 709.4.2 makes it clear that smoke barrier walls used to enclose elevator lobbies and areas of refuge are required to terminate at another smoke or fire barrier, or an outside wall if desired.

Lastly, it should be noted that the language approved by the Fire Safety Code Committee for FS37 has not been changed, other than to incorporate the correct references to sections 3007.7.2 and 3008.7.2, since the previous references (to 3007.4.2 and 3008.11.2) were incorrect.

Final Hearing Results

FS37-12 **AMPC**

Code Change No: FS40-12

Original Proposal

Section: 709.5, 709.5.1 (New)

Proponent: William E. Koffel, P.E., Koffel Associates, Inc. (wkoffel@koffel.com)

Revise as follows:

709.5 Openings. Openings in a smoke barrier shall be protected in accordance with Section 716.

Exceptions:

1. In Group I-2 and ambulatory care facilities, where ~~doors are installed across *corridors*,~~ a pair of opposite-swinging doors are installed across a corridor in accordance with Section 709.5.1, the doors shall not be required to be protected in accordance with Section 716. ~~without a center mullion shall be installed having have vision panels with fire-protection-rated glazing materials in fire-protection-rated frames, the area of which shall not exceed that tested.~~ The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of $^{3}/_{4}$-inch, louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. ~~and shall be automatic-closing by smoke detection in accordance with Section 716.5.9.3.~~ Where permitted by the door manufacturer's listing, positive-latching devices are not required.
2. In Group I-2 and ambulatory care facilities, horizontal sliding doors installed in accordance with Section 1008.1.4.3 and protected in accordance with Section 716.

709.5.1 Group I-2 and ambulatory care facilities. In Group I-2 and ambulatory care facilities, where doors are installed across a corridor, the doors shall be automatic closing by smoke detection in accordance with Section 716.5.9.3 and shall have a vision panel with fire-protection rated glazing materials in fire-protection-rated frames, the area of which shall not exceed that tested.

Reason: The first exception has been revised to clarify that it only applies when swinging doors are installed and does not require the use of swinging doors. Adding the second exception in the 2009 Edition helped with this issue but the proposed language is submitted for additional clarity.

The requirements for automatic closing doors and a vision panel have been removed from the first exception and added as a specific requirement. The Code should require the vision panel in both swinging and horizontal sliding doors. The purpose of the vision panel is to allow one to see if someone is in closing proximity to the door (applies only to swinging doors) and to allow the staff to check conditions on the other side of the door prior to opening the door. Both swinging doors and horizontal sliding doors, when installed across a corridor, are to be automatic-closing. Both of these requirements currently apply to such facilities due to licensure, certification, and accreditation requirements.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that both swinging and horizontal sliding doors installed across the corridor of a Group I-2 or ambulatory care facility should be required to have vision panels. This will allow staff to check the conditions on either side of the door.

Assembly Action: **None**

Final Hearing Results

FS40-12 **AS**

Code Change No: FS43-12

Original Proposal

Section: 710.5.2.2.1 (New)

Proponent: Jeff Inks, Window and Door Manufacturers Association, representing the National Architectural Door Council (jinks@wdma.com)

Revise as follows:

710.5.2.2.1 Smoke and draft control door labeling. Smoke and draft control doors complying only with UL 1784 shall be permitted to show the letter "S" on the manufacturer's labeling.

Reason: Based upon feedback from manufacturers of smoke control and fire doors, there is inconsistent understanding in the field of what the use of the "S" letter marking on a door means and whether it is permitted to be used on doors that are not fire rated as required by Section 716.

Historically, the legacy codes, using the UBC as an example, only permitted the "S" letter marking to be used on doors that passed the air leakage portion (Part 2) of UBC 7-2 (1997). However, doors first had to pass Part 1 (Fire Endurance). Consequently only fire doors were allowed to bear the "S" letter mark.

The IBC contains no such requirement and is therefore silent on whether non-fire-rated doors, such as those allowed in smoke partitions, are permitted to bear the "S" letter mark. While the IBC requires rated fire doors that meet the requirements of UL 1784 to indicate that by including the "S" mark on the fire label, there is neither restriction nor requirement regarding the use of the "S" letter mark on non-fire-rated doors. It is also not unusual for design professionals to specify that the "S" letter mark be included by the manufacture on their labeling of non-rated smoke partition doors, but some manufacturers have been hesitant to do so because of the legacy code provisions.

This proposal helps clarifies that the use of the "S" letter mark is intended only to indicate conformance to UL 1784, and allows use of the marking on smoke partition doors that conform to that test standard.

Cost Impact: This will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Allowing the "S" marking on smoke and draft control doors meeting UL1784 only is appropriate based on current code requirements for smoke partition doors. "S" indicates compliance with UL 1784 for air leakage, but in the past this also indicated that the door was also tested for fire resistance.

Assembly Action: **None**

Final Hearing Results

FS43-12 **AS**

Code Change No: FS46-12

Original Proposal

Section: 711.8

Proponent: William E. Koffel, P.E., Koffel Associates, Inc. representing Bilco Company (wkoffel@koffel.com)

Revise as follows:

711.8 ~~Floor~~ Horizontal fire door assemblies. ~~F~~loor Horizontal *fire door* assemblies used to protect openings in fire-resistance-rated ~~floors~~ horizontal assemblies shall be tested in accordance with NFPA 288, and shall achieve a *fire-resistance rating* not less than the assembly being penetrated. ~~Floor~~Horizontal *fire door* assemblies shall be labeled by an *approved agency*. The *label* shall be permanently affixed and shall specify the manufacturer, the test standard and the *fire-resistance rating*.

Reason: The Scope of NFPA 288, 2012 Edition has been expanded to include fire doors installed in fire-resistance rated horizontal assemblies, including fire resistance rated roof assemblies. The proposed change is consistent with the change in scope of NFPA 288

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed the change in fire door terminology was consistent with the changes to NFPA 288.

Assembly Action: **None**

Final Hearing Results

FS46-12 **AS**

Code Change No: FS50-12

Original Proposal

Section(s): 711, 712, 713, 714

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

SECTION 711
FLOOR AND ROOF ASSEMBLIES ~~HORIZONTAL ASSEMBLIES~~

711.1 General. ~~Floor and roof assemblies required to have a fire-resistance rating~~ Horizontal assemblies shall comply with Section 711.2 ~~this section~~. Nonfire-resistance-rated floor and roof assemblies shall comply with Section 711.3 ~~714.4.2~~.

711.2 Horizontal assemblies. Horizontal assemblies shall comply with Sections 711.2.1 through 711.2.6.

711.2.1 ~~711.2~~ Materials. ~~The floor and roof~~ Assemblies shall be of materials permitted by the building type of construction.

711.2.2 ~~711.4~~ Continuity. Assemblies shall be continuous without vertical openings, ~~penetrations or joints~~ except as permitted by this section and Section~~s~~ 712.~~2, 714.4, 715, 1009.3 and 1022.1~~. ~~Skylights and other penetrations through a fire-resistance-rated roof deck or slab are permitted to be unprotected, provided that the structural integrity of the fire-resistance-rated roof assembly is maintained. Unprotected skylights shall not be permitted in roof assemblies required to be fire-resistance rated in accordance with Section 705.8.6.~~ The supporting construction shall be protected to afford the required *fireresistance rating* of the *horizontal assembly* supported.

Exception: In buildings of Type IIB, IIIB or VB construction, the construction supporting the *horizontal assembly* is not required to be fire-resistance-rated at the following:

1. Horizontal assemblies at the separations of incidental uses as specified by Table 509, provided the required *fire-resistance rating* does not exceed 1 hour.
2. Horizontal assemblies at the separations of *dwelling units* and *sleeping units* as required by Section 420.3.
3. Horizontal assemblies at *smoke barriers* constructed in accordance with Section 709.

711.2.3 Supporting construction. The supporting construction shall be protected to afford the required fire-resistance rating of the horizontal assembly supported.

Exception: In buildings of Type IIB, IIIB or VB construction, the construction supporting the horizontal assembly is not required to be fire-resistance-rated at the following:

1. Horizontal assemblies at the separations of incidental uses as specified by Table 509 provided the required fire-resistance rating does not exceed 1 hour.
2. Horizontal assemblies at the separations of dwelling units and sleeping units as required by Section 420.3.
3. Horizontal assemblies at smoke barriers constructed in accordance with Section 709.

711.2.4 ~~711.3~~ Fire-resistance rating. The fire-resistance rating of ~~floor and roof~~ horizontal assemblies shall comply with Sections 711.2.4.1 through 711.2.4.6 but shall not be less than that required by the building type of construction.

711.2.4.1 Separating mixed occupancies. Where the ~~floor~~ horizontal assembly separates mixed occupancies, the assembly shall have a fire-resistance rating of not less than that required by Section 508.4 based on the occupancies being separated.

711.2.4.2 Separating fire areas. Where the ~~floor~~ horizontal assembly separates a single occupancy into different fire areas, the assembly shall have a fire-resistance rating of not less than that required by Section 707.3.10.

711.2.4.3 Dwelling units and sleeping units. Where the horizontal assemblies separating dwelling units in the same building ~~and horizontal assemblies separating~~, or sleeping units in the same building, the assembly shall be a minimum of 1-hour fire-resistance-rated construction.

Exception: Horizontal assemblies separating dwelling units and sleeping units shall be a minimum of ½ hour fire-resistance-rated construction ~~separations~~ in a building~~s~~ of Type IIB, IIIB and VB construction, ~~shall have fire-resistance ratings of not less than 1/2 hour in~~ when the building~~s~~ is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

711.2.4.4 Separating smoke compartments. Where the horizontal assembly is required to be a smoke barrier, the assembly shall comply with Section 709.

711.2.4.5 Separating incidental uses. Where the horizontal assembly separates incidental uses from the remainder of the building, the assembly shall have a fire-resistance rating of not less than that required by Section 509.

711.2.4.6 Other separations. Where a horizontal assembly is required by other sections of this code, it shall have a fire-resistance rating of not less than that required by that section.

711.2.5 ~~711.3.1~~ Ceiling panels. Where the weight of lay-in ceiling panels, where used as part of fire-resistance-rated floor/ceiling or roof/ceiling assemblies, is not adequate to resist an upward force of 1 pound per square foot (48 Pa), wire or other approved devices shall be installed above the panels to prevent vertical displacement under such upward force.

711.2.6 ~~711.3.3~~ Unusable space. In 1-hour fire-resistance-rated floor/ceiling assemblies, the ceiling membrane is not required to be installed over unusable crawl spaces. In 1-hour fire-resistance-rated roof assemblies, the floor membrane is not required to be installed where unusable attic space occurs above.

711.3 Nonfire-resistance rated floor and roof assemblies. Nonfire-resistance rated floor, floor/ceiling, roof and roof/ceiling assemblies shall comply with Sections 711.3.1 and 711.3.2.

711.3.1 Materials. Assemblies shall be of materials permitted by the building type of construction.

711.3.2 Continuity. Assemblies shall be continuous without vertical openings, except as permitted by Section 712.

~~**711.5 Penetrations.** Penetrations of horizontal assemblies, whether concealed or unconcealed, shall comply with Section 714.~~

~~**711.7 Ducts and air transfer openings.** Penetrations in horizontal assemblies by ducts and air transfer openings shall comply with Section 717.~~

~~**711.9 Smoke barrier.** Where horizontal assemblies are required to resist the movement of smoke by other sections of this code in accordance with the definition of smoke barrier, penetrations and joints in~~

~~such horizontal assemblies shall be protected as required for smoke barriers in accordance with Sections 714.5 and 715.6. Regardless of the number of stories connected by elevator shaft enclosures, doors located in elevator shaft enclosures that penetrate the horizontal assembly shall be protected by enclosed elevator lobbies complying with Section 713.14.1. Openings through horizontal assemblies shall be protected by shaft enclosures complying with Section 713. Horizontal assemblies shall not be allowed to have unprotected vertical openings.~~

SECTION 712
VERTICAL OPENINGS

712.1 General. ~~The provisions of this section shall apply to the~~ Each vertical opening ~~applications listed~~ shall comply with one of the protection methods in Sections 712.1.1through 712.1.16~~8~~.

712.1.1 Shaft enclosures. Vertical openings contained entirely within a shaft enclosure complying with Section 713 shall be permitted.

712.1.2 Individual dwelling unit. Unconcealed vertical openings totally within an individual residential dwelling unit and connecting four stories or less shall be permitted.

712.1.3 Escalator openings. Where a building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, vertical openings for ~~an~~ escalators ~~opening~~ shall be permitted when protected according to Section 712.1.3.1 or 712.1.3.2.

712.1.3.1 Opening size. Protection by a draft curtain and closely spaced sprinklers in accordance with NFPA 13 shall be permitted where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the escalator. In other than Groups B and M, this application is limited to openings that do not connect more than four stories.

712.1.3.2 Automatic shutters. Protection of the vertical opening by approved shutters at every penetrated floor shall be permitted in accordance with this section. The shutters shall be of noncombustible construction and have a *fire-resistance rating* of not less than 1.5 hours. The shutter shall be so constructed as to close immediately upon the actuation of a smoke detector installed in accordance with Section 907.3.1 and shall completely shut off the well opening. Escalators shall cease operation when the shutter begins to close. The shutter shall operate at a speed of not more than 30 feet per minute (152.4 mm/s) and shall be equipped with a sensitive leading edge to arrest its progress where in contact with any obstacle, and to continue its progress on release there from.

712.1.4 Penetrations. Penetrations, concealed and unconcealed, shall be permitted where protected in accordance with Section 714.

712.1.5 Joints. Joints shall be permitted where complying with Section 712.1.5.1 or 712.1.5.2, as applicable.

712.1.5.1 ~~711.6~~ Joints in or between horizontal assemblies. Joints made in or between horizontal assemblies shall comply with Section 715. The void created at the intersection of a floor/ceiling assembly and an exterior curtain wall assembly shall be permitted when protected in accordance with Section 715.4.

712.1.5.2 ~~711.4.1~~ Joints in or between nonfire-resistance-rated floor assemblies. Joints in or between floors without a required *fire-resistance rating* shall be permitted when they comply with one of the following:

1. The joint shall be concealed within the cavity of a wall.
2. The Joint shall be located above a ceiling.
3. The joint shall be sealed, treated or covered with an approved material or system to resist the free passage of flame and the products of combustion.

Exception: Joints meeting one of the ~~joint~~ exceptions listed in Section 715.1.

712.1.6 ~~712.1.5~~ Ducts and air transfer openings. Penetrations by ducts and air transfer openings ~~-~~shall be protected in accordance with Section 717~~.6~~. Grease ducts shall be protected in accordance with the *International Mechanical Code*.

712.1.7 ~~712.1.6~~ Atriums. In other than Group H occupancies, atriums complying with Section 404 shall be permitted.

712.1.8 ~~712.1.7~~ Masonry chimney. Approved vertical openings for masonry chimneys shall be permitted where the annular space is fireblocked at each floor level in accordance with Section 718.2.5.

712.1.9 ~~712.1.8~~ Two-story openings. In other than Groups I-2 and I-3, a ~~floor~~ vertical opening that is not used as one of the applications listed in this section shall be permitted if it complies with all of the items below.

1. Does not connect more than two stories.
2. Does not contain a stairway or ramp required by Chapter 10.
3. Does not penetrate a horizontal assembly that separates fire areas or smoke barriers that separate smoke compartments.
4. Is not concealed within the construction of a wall or a floor/ceiling assembly.
5. Is not open to a corridor in Group I and R occupancies.
6. Is not open to a corridor on nonsprinklered floors.
7. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.

712.1.10 ~~712.1.9~~ Parking garages. Vertical openings in parking garages for automobile ramps, elevators and duct systems shall comply with Section 712.1.10.1, 712.1.10.2 or 712.1.10.3 as applicable.
NOTE: Editorial

712.1.10.1 Automobile ramps. Vertical openings for automobile ramps in open and enclosed parking garages shall be permitted where constructed in accordance with Sections 406.5 and 406.6, respectively.

712.1.10.2 ~~712.1.15~~ Elevators ~~in parking garages~~. Vertical openings for elevator hoistways in open or enclosed parking garages that serve only the parking garage, and complying with Sections 406.5 and 406.6 respectively, shall be permitted.

712.1.10.3 ~~712.1.16~~ Duct systems ~~in parking garages~~. Vertical openings for mechanical exhaust or supply duct systems in open or enclosed parking garages complying with Sections 406.5 and 406.6 respectively, shall be permitted to be unenclosed where such duct system is contained within and serves only the parking garage.

712.1.11 ~~712.1.10~~ Mezzanine. Vertical openings between a mezzanine complying with Section 505 and the floor below shall be permitted.

~~**712.1.11 Joints.** Joints shall be permitted where complying with Section 715.~~

712.1.12 Unenclosed stairs and ramps. Vertical ~~floor~~ openings created by unenclosed stairs or ramps in accordance with Sections 1009.2 and 1009.3 shall be permitted.

712.1.13 Openings. ~~Floor fire doors.~~ Vertical openings for floor fire doors and access doors shall be permitted where protected by Section 712.1.13.1 or Section 712.1.13.2 as applicable. ~~floor fire doors in accordance with Section 711.8~~.

712.1.13.1 ~~711.8~~ Floor fire door assemblies. Floor fire door assemblies used to protect openings in fire-resistance-rated floors shall be tested in accordance with NFPA 288, and shall achieve a fire-resistance rating not less than the assembly being penetrated. Floor fire door assemblies shall be labeled by an approved agency. The label shall be permanently affixed and shall specify the manufacturer, the test standard and the fire-resistance rating.

712.1.13.2 ~~711.3.2~~ Access doors. Access doors shall be permitted in ceilings of fire-resistance-rated floor/ceiling and roof/ceiling assemblies provided such doors are tested in accordance with ASTM E 119 or UL 263 as horizontal assemblies and labeled by an approved agency for such purpose.

712.1.14. Group I-3. In Group I-3 occupancies, vertical openings shall be permitted in accordance with Section 408.5.

~~**712.1.17 Nonfire-resistance-rated joints.** Joints in or between floors without a required *fire-resistance rating* shall be permitted in accordance with Section 711.4.1.~~

712.1.15 Skylights. Skylights and other penetrations through a fire-resistance-rated roof deck or slab are permitted to be unprotected, provided that the structural integrity of the fire-resistance-rated roof assembly is maintained. Unprotected skylights shall not be permitted in roof assemblies required to be fire-resistance rated in accordance with Section 705.8.5. The supporting construction shall be protected to afford the required fire-resistance rating of the horizontal assembly supported.

712.1.16 ~~712.1.18~~ Openings otherwise permitted. Vertical openings shall be permitted where allowed by other sections of this code.

713.14.1 Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure has an opening ~~connects more than three stories~~ . The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by fire partitions. In addition to the requirements in Section 708 for fire partitions , doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 716.5.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. In other than Group I-2 or I-3 occupancies, an enclosed elevator lobby shall not be required where an elevator shaft enclosure connects not more than three stories.
2~~1~~. Enclosed elevator lobbies are not required at the level(s) of *exit discharge*, provided the level(s) of *exit discharge* is equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3~~2~~. Elevators not required to be located in a shaft in accordance with Section 712.1 are not required to have enclosed elevator lobbies.
4~~3~~. Enclosed elevator lobbies are not required where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall comply with the smoke and draft control door assembly requirements in Section 716.5.3.1 when tested in accordance with UL 1784 without an artificial bottom seal.
5~~4~~. Enclosed elevator lobbies are not required where the building is protected by an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2. This exception shall not apply to the following:
   5.1~~4.1.~~ Group I-2 occupancies;
   5.2~~4.2~~. Group I-3 occupancies; and
   5.3~~4.3~~. Elevators serving floor levels over 75 feet (22 860 mm) above the lowest level of fire department vehicle access in high-rise buildings.
6~~5~~. Smoke partitions shall be permitted in lieu of *fire partitions* to separate the elevator lobby at each floor where the building is equipped throughout with an *automatic sprinkler system*

installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition to the requirements in Section 710 for smoke partitions, doors protecting openings in the smoke partitions shall also comply with Sections 710.5.2.2, 710.5.2.3, and 716.5.9 and duct penetrations of the smoke partitions shall be protected as required for *corridors* in accordance with Section 717.5.4.1.

7~~6~~. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 909.21.

8~~7~~. Enclosed elevator lobbies are not required where the elevator serves only *open parking garages* in accordance with Section 406.5.

714.4 Horizontal assemblies. Penetrations of a fire-resistance rated ~~floor~~, floor/ceiling assembly or the ceiling membrane of a roof/ceiling assembly not required to be enclosed in a shaft by Section 712.1 shall be protected in accordance with Sections 714.4.1 through 714.4.4 ~~714.4.2.2~~.

~~**714.4.1 Fire-resistance-rated assemblies.** Penetrations of the fire-resistance-rated floor, floor/ceiling assembly or the ceiling membrane of a roof/ceiling assembly shall comply with Sections 714.4.1.1 through 714.4.1.4. Penetrations in horizontal smoke barriers shall also comply with 714.5.~~

714.4.1 ~~714.4.1.1~~ Through penetrations. Through penetrations of ~~fire-resistance-rated~~ horizontal assemblies shall comply with Section 714.4.1.1 or 714.4.1.2 ~~714.4.1.1.1 or 714.4.1.1.2~~.
(exceptions to remain unchanged)

714.4.1.1 ~~714.4.1.1.1~~ Installation. Through penetrations shall be installed as tested in the approved fire-resistance-rated assembly.

714.4.1.2 ~~714.4.1.1.2~~ Through-penetration firestop system. Through penetrations shall be protected by an approved through-penetration firestop system installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.

714.4.2 ~~714.4.1.2~~ Membrane penetrations. Penetrations of membranes that are part of a horizontal assembly shall comply with Section 714.4.1.1 or 714.4.1.2 ~~714.4.1.1.1 or 714.4.1.1.2~~. Where floor/ceiling assemblies are required to have a fire-resistance rating, recessed fixtures shall be installed such that the required fire resistance will not be reduced.

(Potions of text not shown remain unchanged)

714.4.3 ~~714.4.1.3~~ Dissimilar materials. Noncombustible penetrating items shall not connect to combustible materials beyond the point of firestopping unless it can be demonstrated that the fire-resistance integrity of the horizontal assembly is maintained.

714.4.4 ~~714.5~~ Penetrations in smoke barriers. Penetrations in *smoke barriers* shall be protected by an approved *through-penetration firestop system* installed and tested in accordance with the requirements of UL 1479 for air leakage. The *L rating* of the system measured at 0.30 inch (7.47 Pa) of water in both the ambient temperature and elevated temperature tests, shall not exceed**:**

1. 5.0 cfm per square foot (0.025m3 / s · m2) of penetration opening for each *through-penetration firestop system*; or

2. A total cumulative leakage of 50 cfm (0.024m3/s) for any 100 square feet (9.3 m2) of wall area, or floor area.

714.5 ~~714.4.2~~ Nonfire-resistance-rated assemblies. Penetrations of nonfire-resistance-rated floor or floor/ceiling assemblies or the ceiling membrane of a nonfire-resistance-rated roof/ceiling assembly shall meet the requirements of Section 713, or shall comply with Section 714.5.1 or 714.5.2 ~~714.4.2.1 or 714.4.2.2~~.

714.5.1 ~~714.4.2.1~~ Noncombustible penetrating items. Noncombustible penetrating items that connect not more than five stories are permitted, provided that the annular space is filled to resist the free passage of flame and the products of combustion with an approved noncombustible material or with a fill, void or cavity material that is tested and classified for use in through-penetration firestop systems.

714.5.2 ~~714.4.2.2~~ Penetrating items. Penetrating items that connect not more than two stories are permitted, provided that the annular space is filled with an approved material to resist the free passage of flame and the products of combustion.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/default.aspx. Since its inception in April/2005, the CTC has held twenty two meetings - all open to the public.
This proposed change is a result of the CTC's investigation of vertical openings through the Vertical Opening Study Group, which is part of the area of study, entitled "Balanced Fire Protection." The scope of the activity is noted as:

"To investigate what constitutes an acceptable balance between active fire protection and passive fire protection measures with respect to meeting the fire and life safety objectives of the IBC."

This proposal reorganizes some sections of Chapter 7 in order to clarify the provisions for protection of vertical openings. In the last code cycle, FS56-09/10 removed some inconsistencies, conflicts and obsolete language in Chapter 7, and eliminated some "do loops" that sent the code user in circles. This code change continues to take the code in the direction established by FS56. As with FS56-09/10, these proposed changes are editorial in nature and will not change how the code is applied. The primary change is to distinguish the different functions of Sections 711 and 712. Section 711 will contain only provisions for construction of horizontal assemblies and floor assemblies; Section 712 will contain all the initial provisions for vertical openings. In the 2012 IBC, Section 711 has a mixture of provisions related to assembly construction and to protection of vertical openings. In this proposal, all those provisions related to vertical openings are relocated to Section 712.

This proposal corrects an inconsistency in Section 711 with regard to non-rated floor and roof assemblies. The charging language in Section 711.1 of the 2012 code says that only rated horizontal assemblies are required to comply with Section 711; non-rated floor and roof assemblies are required to comply only with Section 714.4.2. However, Section 711.4.1 is titled "nonfire-resistance-rated assemblies" and contains provisions that are meant to apply to non-rated assemblies. This proposal corrects that anomaly by dividing Section 711 into separate subsections for rated and nonrated assemblies, and revising Section 711.1 to state that non-rated assemblies are required to comply with 711.3.

The specific changes include the following.
Sec. 711.1: The charging language is revised to clarify that rated assemblies are required to comply with Section 711.2 ("Horizontal assembly" is defined in Chapter 2 as "a fire-resistance-rated floor or roof assembly …"). Nonrated assemblies are required to comply with Section 711.3.
Sec. 711.2: A new subsection is created that applies only to rated horizontal assemblies. The provisions of Section 711.3 through 711.3.2 are separated into subsections with no change to the requirements. New subsections 711.2.4.4, 711.2.4.5 and 711.2.4.6 are added so that all the requirements for fire-resistance rating of horizontal assemblies are included in 711.
711.2.2 & 711.2.3: The language currently found in Section 711.4, Continuity, is moved closer to the beginning of the section and divided into two subsections to draw attention to the fact that the two provisions deal with separate subjects.
711.3.2 (2012 IBC): This section is being moved to Section 712 (712.1.13) because it applies to a vertical opening rather than a horizontal or floor assembly.
711.3: A new subsection is created that includes basic provisions for non-rated assemblies.
Sec. 711.4 (2012 IBC): The first sentence is relocated to new Section 711.2.1. The sentence that addresses skylights is moved to Section 712 (712.1.15) because it applies to a vertical opening rather than a horizontal or floor assembly. The last sentence and the exception are relocated to new Section 711.2.3.
Secs 711.5-711.8: All these sections pertain to protection of vertical openings and are relocated to Section 712.
Sec. 711.9: The provisions related to elevator lobbies are moved to Section 713.14 except the last sentence which is deleted because it is covered by Section 712.
Sec. 712.1: The charging language is revised to state more clearly that all vertical openings are required to be protected with one of the methods described in Section 712.
Sec. 712.1.5: 2012 Section 711.4.1 is relocated to 712 because it pertains to protection of vertical openings.
Sec. 712.1.10: The provisions related to vertical openings in parking garages are collected in this section. 712.1.10.1 is taken from current Sec. 712.1.9; 712.1.10.2 is taken from current Sec. 714.1.15; and 712.1.10.3 is taken from current Sec. 712.1.16.
Sec. 712.1.11: The current section moved to Section 712.1.5.

Sec. 712.1.13: Provisions related to opening protectives are collected together in new subsections. Sec. 712.1.13.1 relocated the provisions for floor fire door assemblies from current Sec. 711.8; Sec. 712.1.13.2 is relocated from current Sec. 711.3.2.
Sec. 712.1.15: A portion of current Sec. 711.4 is relocated here.
Sec. 713.14.1: This section is revised to accommodate provisions currently found in Section 711.9. Lobbies will still be required in most buildings only if there are more than 3 stories. However, the 3-story limitation is moved to an exception in order to incorporate the provision from 711.9 that requires lobbies whenever an elevator penetrates a smoke barrier. The exception mentions Group I-2 and I-3 occupancies because that is where smoke barriers are used.
Sec. 714.4: Sec. 714.4 is separated into separate sections for horizontal assemblies and non-rated assemblies.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

711.2.2 Continuity. Assemblies shall be continuous without vertical openings, except as permitted by this section and Section 712. ~~The supporting construction shall be protected to afford the required *fireresistance rating* of the *horizontal assembly* supported.~~

~~**Exception:** In buildings of Type IIB, IIIB or VB construction, the construction supporting the *horizontal assembly* is not required to be fire-resistance-rated at the following:~~

1. ~~Horizontal assemblies at the separations of incidental uses as specified by Table 509, provided the required *fire-resistance rating* does not exceed 1 hour.~~
2. ~~Horizontal assemblies at the separations of *dwelling units* and *sleeping units* as required by Section 420.3.~~
3. ~~Horizontal assemblies at *smoke barriers* constructed in accordance with Section 709.~~

712.1.12 Unenclosed stairs and ramps. Vertical openings created by unenclosed stairs or ramps in accordance with Section~~s 1009.2 and~~ 1009.3 shall be permitted.

713.14.1 Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure ~~has an opening~~ connects more than three stories. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by fire partitions. In addition to the requirements in Section 708 for fire partitions , doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 716.5.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. ~~In other than Group I-2 or I-3 occupancies, an enclosed elevator lobby shall not be required where an elevator shaft enclosure connects not more than three stories.~~

(Renumber remaining exceptions)

(portions of the proposal not shown remain unchanged)

Committee Reason: The committee agreed that the reorganization of portions of Chapter 7 in order to clarify the protection requirements related to vertical openings is appropriate. The modification removes redundant language from 711.2.2, removes an inappropriate section reference in Section 712.1.12 and revises Section 713.14.1 to remove conflicts with other proposals.

Assembly Action: **None**

Final Hearing Results

FS50-12 **AM**

Code Change No: FS52-12

Original Proposal

Section: 707.5.1, 713.1, 909.20

Proponent: Philip Brazil, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

707.5.1 Supporting construction. The supporting construction for a *fire barrier* shall be protected to afford the required *fire-resistance rating* of the *fire barrier* supported. Hollow vertical spaces within a *fire barrier* shall be fireblocked in accordance with Section 718.2 at every floor level.

Exceptions:

1. The maximum required *fire-resistance rating* for assemblies supporting a *fire barrier* separating tank storage as provided in Section 415.8.2.1 shall be 2 hours, but not less than required by Table 601 for the building construction type.
2. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 713.12.
3. Supporting construction for 1-hour *fire barriers* required by Table 509 in buildings of Type IIB, IIIB and VB construction is not required to be fire-resistance rated unless required by other sections of this code.
4. Interior exit stairway and ramp enclosures required by Section ~~1022.2~~ 1009.2.2 and exit access stairway and ramp enclosures required by Section 1009.3 shall be permitted to terminate at a top enclosure complying with Section 713.12.

713.1 General. The provisions of this section shall apply to shafts required to protect openings and penetrations through floor/ceiling and roof/ceiling assemblies. Exit access stairways and exit access ramps shall be ~~protected~~ enclosed in accordance with the ~~applicable provisions of~~ Sections 1009.3 and 1010.2, respectively. Interior exit stairways and interior exit ramps shall be ~~protected~~ enclosed in accordance with ~~the requirements of~~ Section ~~1022~~ 1009.2.2.

Revise as follows:

909.20 Smokeproof enclosures. Where required by Section 1022.10, a *smokeproof enclosure* shall be constructed in accordance with this section. A *smokeproof enclosure* shall consist of an ~~enclosed~~ *interior exit stairway* that ~~conforms to~~ is enclosed in accordance with the applicable provisions of Section ~~1022.2~~ 1022 and an open exterior balcony or ventilated vestibule meeting the requirements of this section. Where access to the roof is required by the *International Fire Code*, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

Reason: The changes are made because Sections 1009.2.2 and 1010.2 require the enclosure of interior exit stairways and ramps, respectively. Section 1022, however, does not require their enclosure but does specify the technical provisions for their enclosure (e.g., Sections 1022.2, 1022.4, 1022.5 and 1022.7). The changes in Section 909.20 are also being made for consistency with similar language in Section 1010.2. Based on our analysis of the 2012 IBC, all references to the enclosure of interior exit stairways and ramps where similar changes are warranted are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposed section number revisions and change in terminology from “protected” to “enclosed” is appropriate.

Assembly Action: **None**

Final Hearing Results

FS52-12	**AS**

Code Change No: FS55-12

Original Proposal

Section: 713.11

Proponent: Sharon S. Gilyeat, Koffel Associates, Inc., representing CHUTES International

Revise as follows:

713.11 Enclosure at the bottom. Shafts that do not extend to the bottom of the building or structure shall comply with one of the following:

1. They shall be enclosed at the lowest level with construction of the same *fire-resistance rating* as the lowest floor through which the shaft passes, but not less than the rating required for the shaft enclosure.
2. They shall terminate in a room having a use related to the purpose of the shaft. The room shall be separated from the remainder of the building by *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The *fire-resistance rating* and opening protective shall be at least equal to the protection required for the shaft enclosure.
3. They shall be protected by *approved fire dampers* installed in accordance with their listing at the lowest floor level within the shaft enclosure.

Exceptions:

1. The fire-resistance-rated room separation is not required, provided there are no openings in or penetrations of the shaft enclosure to the interior of the building except at the bottom. The bottom of the shaft shall be closed off around the penetrating items with materials permitted by Section 718.3.1 for draftstopping, or the room shall be provided with an *approved automatic sprinkler system*.
2. A shaft enclosure containing a ~~refuse chute or laundry~~ waste or linen chute shall not be used for any other purpose and shall ~~terminate~~ discharge in a room protected in accordance with Section 713.13.4.
3. The fire-resistance-rated room separation and the protection at the bottom of the shaft are not required provided there are no combustibles in the shaft and there are no openings or other penetrations through the shaft enclosure to the interior of the building.

Reason: Editorial changes intended to use consistent terms throughout the ICC that correlate with NFPA 82.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that "waste, linen and discharge" reflected commonly used terminology and were therefore appropriate.

Assembly Action: **None**

Final Hearing Results

FS55-12 **AS**

Code Change No: FS57-12

Original Proposal

Section(s): 713.13.1

Proponent: Sharon S. Gilyeat, Koffel Associates, Inc., representing CHUTES International

Revise as follows:

713.13.1 Refuse, recycling and laundry chute enclosures. A shaft enclosure containing a refuse, recycling, or laundry chute shall not be used for any other purpose and shall be enclosed in accordance with Section 713.4. Openings into the shaft, including those from access rooms and termination rooms, shall be protected in accordance with this section and Section 716. Openings into chutes shall not be located in *corridors*. Doors into chutes shall be self-closing. Discharge doors shall be self- or automatic-closing upon the actuation of a smoke detector in accordance with Section 716.5.9.3, except that heat-activated closing device~~s shall be permitted between the shaft and the termination room~~.

Reason: The industry standard is for the loading doors to remain normally closed and in the case of linen, access may also be secured. Allowing a loading door to a chute to be held open creates a safety risk. The risk of someone falling into the chute inadvertently is minimized by the door being normally closed. This section specifically refers to the doors to the chute from the access or discharge room. It does not refer to doors to the rooms associated with a chute. The proposed change only affects chute loading doors. It still requires all chute doors to be self-closing. The changes did not affect discharge doors which would be allowed to be held-open and obviously do not create the same safety risk. It should be noted that even the proponent of FS 39 acknowledged in their proposal that chute loading doors should not be held open even if they are automatic closing.

Cost Impact: The code change proposed will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

713.13.1 Waste ~~Refuse~~, recycling and linen ~~laundry~~ chute enclosures. A shaft enclosure containing a waste ~~refuse~~, recycling, or linen ~~laundry~~ chute shall not be used for any other purpose and shall be enclosed in accordance with Section 713.4. Openings into the shaft, including those from access rooms and discharge ~~termination~~ rooms, shall be protected in accordance with this section and Section 716. Openings into chutes shall not be located in *corridors*. Doors into chutes shall be self-closing. Discharge doors shall be self- or automatic-closing upon the actuation of a smoke detector in accordance with Section 716.5.9.3, except that heat-activated closing devices shall be permitted between the shaft and the discharge room.

Committee Reason: The committee agreed that the door into the chute needed to be self-closing only to reduce the risk of an occupant falling into the chute. The modification brings the language in line with what was approved in FS55-12.

Assembly Action: **None**

Final Hearing Results

FS57-12 **AM**

Code Change No: FS60-12

Original Proposal

Section(s): 713.13, 713.13.1, 713.13.2, 713.13.3, 713.13.4

Proponent: Sharon S. Gilyeat, Koffel Associates, Inc., representing CHUTES International

Revise as follows:

713.13 ~~Refuse~~ Waste and ~~laundry~~ linen chutes and incinerator rooms. ~~In other than Group I-2, refuse and laundry chutes, access and termination rooms and incinerator rooms~~ Waste and linen chutes shall comply with the provisions of NFPA 82, Chapter 5 and shall meet the requirements of Sections 713.13.1 through 713.13.6. Incinerator rooms shall meet the provisions of 713.13.4 through 713.13.5.

Exceptions:

1. Chutes serving and contained within a single dwelling unit.
2. ~~Refuse and laundry chutes in Group I-2 shall comply with the provisions of NFPA 82, Chapter 5.~~

713.13.1 ~~Refuse, recycling and laundry~~ Waste and linen chute enclosures. A shaft enclosure containing a ~~refuse, recycling, or laundry~~ waste or linen chute shall not be used for any other purpose and shall be enclosed in accordance with Section 713.4. Openings into the shaft~~, including those~~ from access rooms ~~and termination rooms,~~ shall be protected in accordance with this section and Section 716. Openings into chutes shall not be located in corridors. Doors shall be self-or automatic-closing upon the actuation of a smoke detector in accordance with Section 716.5.9.3, except that heat-activated closing devices shall be permitted between the shaft and the termination room.

713.13.2 Materials. A shaft enclosure containing a refuse, recycling, or laundry chute shall be constructed of materials as permitted by the building type of construction.

713.13.3 ~~Refuse, recycling and laundry~~ Chute access rooms. Access openings for ~~refuse, recycling and laundry~~ waste or linen chutes shall be located in rooms or compartments enclosed by not less than 1-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. Openings into the access rooms shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 716.5.9.3.

713.13.4 Chute ~~termination~~ discharge room. ~~Refuse, recycling and laundry~~ Waste or linen chutes shall discharge into an enclosed room separated ~~from the remainder of the building~~ by fire barriers with a fire resistance rating at least equal to the required fire-rating of the shaft enclosure and constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. Openings into the ~~termination~~ discharge room from the remainder of the building shall be protected by opening protectives having a fire protection rating equal to the protection required for the shaft enclosure. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 716.5.9.3. ~~Refuse~~ Waste chutes shall not terminate in an incinerator room. ~~Refuse, recycling and laundry~~ Waste and linen rooms that are not provided with chutes need only comply with Table 509.

Reason: The proposed editorial code changes incorporated above are intended to bring the language of ICC more in line with industry standards by using the terms waste and linen, vs. rubbish, recycle, trash etc. These proposed terms are more generic, consistent and eliminate the need to distinguish between types of waste. Note that global changes have been submitted to the document to correct the terms in all locations and provide consistency. These terms are used inconsistently throughout the

document. Note that during the last code cycle FS 191 was developed to clarify that recycling chutes are included in the requirements for chutes in IBC. This changed was accepted by the committee and incorporated into the 2012 edition of the IBC. With the changes proposed herein, the IBC will rely mostly on NFPA 82 to regulate chute requirements and therefore the definition of a waste chute is better defined in that document. This change is not intended to relax the requirements; a recycling chute would still need to protected like any other waste chute.

The technical changes are intended to have ICC incorporate NFPA 82 requirements for chutes for all occupancies not just for health care occupancies. NFPA 82, Chapter 5, was accepted as a reference standard chutes in health care occupancies during the last code cycle. The proposed technical changes also clarify that the fire resistance rating for the discharge room must have at least the same fire-rating as the shaft it serves.

It should be noted that during the committee's action on FS39 during the last cycle, many of the NFPA 82 requirements recommended by the proposer were not approved. The committee's reasoning indicated that they were not approved because the requirements were covered under NFPA 82 which was previously adopted by the committee. It is critical to understand that because the committee only adopted NFPA 82 for health care occupancies, there is still a void in the IBC. The requirements in NFPA 82 should apply to all commercial chutes. The changes proposed herein will fill that void.

Referencing NFPA 82 for all chutes will include required key construction and fire and life safety features that are currently not addressed by the IBC. Without this global adoption of NFPA 82 the following key requirements for chutes will not be covered in the IBC. These requirements have been extracted directly from NFPA 82 for easy reference and consideration by the committee.

1. Chute venting requirements:

5.2.2.4 Chute Venting.
5.2.2.4.1 A waste or linen chute shall extend (full size) at least 0.92m(3 ft) above the roof of a building of Type II-000, Type III, Type IV, or Type V construction.
5.2.2.4.2 The chute shall be permitted to extend less than 0.92m(3 ft) above the roof of a building of Type I, Type II-222, or Type II-111 construction subject to the approval of the authority having jurisdiction.
5.2.2.4.3 The chute shall be open to the atmosphere, with the opening being the same cross-sectional area as the chute.
5.2.2.4.4 The portion of chute between the highest intake door and the top of the chute vent shall be permitted to be offset a maximum of 45 degrees from the plumb, subject to the approval of the authority having jurisdiction.

2. Chute access and security

5.2* Gravity Waste or Linen Chutes.
5.2.1 General. General access gravity chutes shall be permitted to be supplied with unlocked doors and shall be permitted to be available to all occupants at all times.
5.2.1.1 Linen gravity chutes shall only be limited access chutes.
5.2.1.2 A limited access chute shall be secured either by locking the intake door or the entry door into the service room so that it can be used only by authorized personnel.
5.2.1.3 A gravity waste or linen chute also shall be permitted to be used to interface with a pneumatic transport system.

3. Minimum chute dimensions and offsets

5.2.2.2 Chute Offsets. See Figure 5.2.2.2.
5.2.2.2.1 Gravity metal chutes shall be constructed straight and plumb where allowed by the building configuration.
5.2.2.2.2 Gravity metal chutes shall be permitted to be offset a maximum of 15 degrees from plumb with the approval of the authority having jurisdiction.
5.2.2.2.3 Offsets shall be limited to a maximum of one offset for every two floors.
5.2.2.2.4 A single offset shall be completed (returned to vertical) between floors.
5.2.2.2.5 No access door shall be less than 1.2 m (4 ft) above an offset.
5.2.2.2.6 The portion of chute between the highest intake door and the chute termination shall be permitted to be offset a maximum of 45 degrees from the plumb, subject to the approval of the authority having jurisdiction.
5.2.2.2.7 For the purpose of this standard, a single chute offset from vertical shall include a return of the chute to vertical.
5.2.2.3 Standard Dimensions of Waste and Linen Gravity Chutes. Standard gravity chutes shall be a minimum of 571 mm (22½ in.) by 571 mm (22½ in.) or 610 mm (24 in.) in diameter.

4. Limitations on openings based on general vs secure access to the chute intake door

5.2.3.3 Chute Intake Doors.
5.2.3.3.1 General Access Gravity Waste Chutes.
5.2.3.3.1.1 All chute intake doors into a waste chute shall be provided with a self-closing, positive latching frame and gasketed fire door assembly having a fire protection rating of not less than 1 hour.
5.2.3.3.1.2 The door frame shall be fastened into the chute and the shaft wall.
5.2.3.3.1.3 The design and installation shall be such that no part of the frame or door projects into the chute.
5.2.3.3.1.4 The area of each chute intake door shall be limited to one-third of the cross-sectional area of a square chute and 44 percent of the area of a round chute.
5.2.3.3.2 Limited-Access Gravity Chutes.
5.2.3.3.2.1 All chute intake doors into a linen or waste chute shall be provided with a self-closing, positive-latching frame and gasketed fire door assembly having a fire protection rating of not less than 1 hour.
5.2.3.3.2.2 The door frame shall be fastened into the chute and the shaft wall.
5.2.3.3.2.3 The design and installation shall be such that no part of the frame or door projects into the chute.
5.2.3.3.2.4 A key shall be required to open the door.
5.2.3.3.2.5 The area of each waste chute intake door shall be limited to two-thirds of the cross-sectional area of the chute.
5.2.3.3.2.6 The area of each linen chute intake door shall not exceed the cross-sectional area of the chute.

There are other requirements that are critical for fire and life safety but these are the most significant ones that will be adopted if this change is incorporated. This change is critical to ensure fire and life safety in all commercial chutes in buildings. The industry is currently designing and installing chutes in accordance with this industry standard.

Cost Impact: The code change proposed will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

713.13.2 Materials. A shaft enclosure containing a waste ~~refuse~~, recycling, or linen ~~laundry~~ chute shall be constructed of materials as permitted by the building type of construction.

(Portions of the proposal not shown remain unchanged).

Committee Reason: The committee agreed that the proposed changes in terminology were consistent with industry standards and therefore appropriate. The modification revised terminology in Section 713.13.2 to be consistent with the proponent's intent.

Assembly Action: **None**

Final Hearing Results

FS60-12 **AM**

Code Change No: FS61-12

Original Proposal

Section: 713.14.1, 3007 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

713.14 Elevator, dumbwaiter and other hoistways. Elevator, dumbwaiter and other hoistway enclosures shall be constructed in accordance with Section 713 and Chapter 30.

Revise as follows:

SECTION 3007
ELEVATOR LOBBIES

3007.1 General. Enclosed elevator lobbies shall be provided in accordance with the following sections.

1. Section 3007.2 based upon number of stories connected by a shaft enclosure.
2. Section 405.4.3 for underground buildings.
3. Sections 407.5.3 and 711.9 for Group I-2 occupancies.
4. Section 1007.4 for areas of refuge.
5. Section 3008.7.2 for fire service access elevators.
6. Section 3009.7.2 for occupant evacuation elevators.

3007.2 ~~**713.14.1**~~ **Enclosed elevator lobby.** An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by fire partitions. In addition to the requirements in Section 708 for fire partitions, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 716.5.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the level(s) of exit discharge, provided the level(s) of exit discharge is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 712.1 are not required to have enclosed elevator lobbies.
3. Enclosed elevator lobbies are not required where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall comply with the smoke and draft control door assembly requirements in Section 716.5.3.1 when tested in accordance with UL 1784 without an artificial bottom seal.
4. Enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. This exception shall not apply to the following:
   4.1. Group I-2 occupancies;
   4.2. Group I-3 occupancies; and

4.3. Elevators serving floor levels over 75 feet above the lowest level of fire department vehicle access in high-rise buildings.

5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

In addition to the requirements in Section 710 for smoke partitions, doors protecting openings in the smoke partitions shall also comply with Sections 710.5.2.2, 710.5.2.3, and 716.5.9 and duct penetrations of the smoke partitions shall be protected as required for corridors in accordance with Section 717.5.4.1.

6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 909.21.
7. Enclosed elevator lobbies are not required where the elevator serves only open parking garages in accordance with Section 406.5.

(Renumber subsequent sections)

Reason: This proposal is one of several proposals submitted by the CTC Elevator lobby SG. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- Review the need for elevator lobbies, with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- Review related code provisions, such as egress from and through elevator lobbies.
- Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study, 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

The focus is relocation of the enclosed elevator lobby requirements in Section 713.14.1 to Chapter 30 of the IBC. This proposal is editorial in nature but is done with the hope of keeping the lobby requirements easier to apply and more consistent in the future. Section 405.4.3 contains the requirements for elevator lobbies in underground buildings. Sections 407.5.3 and 711.9 contain the requirements for elevator lobbies for the protection of horizontal assemblies in Group I-2 occupancies. The text in Section 713.14.1.1 has been relocated to new Section 3007.1 and editorially revised for consistency. Sections 3007.7.2 and 3008.7.2 (renumbered to 3008.7.2 and 3009.7.2 in this proposal) currently house the requirements for fire service access elevators and occupant evacuation elevators which have lobby construction requirements associated with them. New Section 3007.1 in this proposal now simply references users to the appropriate sections within the code for enclosed elevator lobby requirements. This way code users will be clear that there are several types of lobbies and that more than one set of requirements and triggers may apply to them. This also assists with correlation with ASME A17.1. (responsibility of committees needs to be addressed. Suggest that FS still address this new section 3007).

If this proposal should pass and FS##-12 *(TG2 Prop1)* should pass renumbering will be necessary to relocate the revised provisions from FS##-12(*TG2 Prop1)* to chapter 30. See discussion on CTC elevator lobby proposal coordination in code change FS##-12

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the requirements for lobbies should all be located in the same place and that Chapter 30 was the appropriate place.

Assembly Action: **None**

Final Hearing Results

FS61-12	**AS**

Code Change No: FS67-12

Original Proposal

Section: 713.14.1, 713.14.1.1, 713.14.3 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

713.14 Elevator, dumbwaiter and other hoistways. Elevator, dumbwaiter and other hoistway enclosures shall be constructed in accordance with Section 713 and Chapter 30.

713.14.1 Elevator hoistway door opening protection required. Elevator hoistway door openings shall be protected in accordance with Section713.14.2 where an elevator hoistway connects more than three stories, is required to be enclosed within a shaft enclosure in accordance with Section 712.1.1 and where any of the following conditions apply.

1. The building is not protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2
2. The building contains a Group I-2 occupancy;
3. The building contains a Group I-3 occupancy;
4. The building is a high rise building and the elevator serves floor levels over 75 feet above the lowest level of fire department vehicle access.

Exceptions:

1. Protection of elevator hoistway door openings is not required where the elevator serves only open parking garages in accordance with Section 406.5.
2. Protection of elevator hoistway door openings is not required at the level(s) of exit discharge, provided the level(s) of exit discharge is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.

~~**713.14.1**~~ **713.14.2 Elevator hoistway door opening protection options** ~~**Lobby**~~**.** Where Section 713.14.1 requires protection of the elevator hoistway door opening, one of the following protection options shall be provided.

1. An enclosed elevator lobby shall be provided at each floor ~~where an elevator shaft enclosure connects more than three stories. The shall~~ to separate the elevator hoistway shaft enclosure doors from each floor by fire partitions in accordance with Section 708. In addition~~, to the requirements in Section 708 for fire partitions~~, doors protecting openings in the elevator lobby enclosure walls shall ~~also~~ comply with Section 716.5.3 as required for corridor walls. ~~and~~ Penetrations of the enclosed elevator lobby ~~enclosure~~ by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1~~. Elevator lobbies shall have at least one *means of egress* complying with Chapter 10 and other provisions within this code.~~

   ~~**Exceptions:**~~

   ~~1. Enclosed elevator lobbies are not required at the level(s) of exit discharge, provided the level(s) of exit discharge is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.~~

~~2. Elevators not required to be located in a shaft in accordance with Section 712.1 are not required to have enclosed elevator lobbies.~~

2. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway shaft enclosure doors from each floor by smoke partitions in accordance with Section 710 where the building is equipped throughout with an automatic sprinkler system installed in accordance with 903.3.1.1 or 903.3.1.2. In addition, doors protecting openings in the smoke partitions shall comply with Sections 710.5.2.2, 710.5.2.3, and 716.5.9. Penetrations of the enclosed elevator lobby by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1.
3. ~~Enclosed elevator lobbies are not required where~~ An additional door~~s~~ shall be ~~are~~ provided at ~~the~~ each elevator hoistway door opening in accordance with Section 3002.6. Such door shall comply with the smoke and draft control door assembly requirements in Section 716.5.3.1 when tested in accordance with UL 1784 without an artificial bottom seal.
4. ~~Enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. This exception shall not apply to the following:~~
   ~~4.1. Group I-2 occupancies;~~
   ~~4.2. Group I-3 occupancies; and~~
   ~~4.3. Elevators serving floor levels over 75 feet above the lowest level of fire department vehicle access in high-rise buildings.~~
5. ~~Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.~~

   ~~In addition to the requirements in Section 710 for smoke partitions, doors protecting openings in the smoke partitions shall also comply with Sections 710.5.2.2, 710.5.2.3, and 716.5.9 and duct penetrations of the smoke partitions shall be protected as required for corridors in accordance with Section 717.5.4.1.~~

4.~~6~~ ~~Enclosed Elevator lobbies are not required where the~~ The elevator hoistway ~~is~~ shall be pressurized in accordance with Section 909.21.
7. ~~Enclosed elevator lobbies are not required where the elevator serves only open parking garages in accordance with Section 406.5.~~

713.14.3 Means of egress. Elevator lobbies shall be provided with at least one means of egress complying with Chapter 10 and other provisions in this code.

~~**713.14.1.1**~~ **713.14.4 Areas of refuge.** Areas of refuge shall be provided ~~as~~ where required in Section 1007.

Reason: This proposal is one of several proposals submitted by the CTC Elevator lobby SG. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- Review the need for elevator lobbies, with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- Review related code provisions, such as egress from and through elevator lobbies.
- Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.

- Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study**,** 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

The purpose of this code change is editorial in nature and seeks only to convert the enclosed elevator lobby section to one focused on making the current exceptions equal in stature in the code to the main requirement for a lobby. This also removes some of the confusion with having requirements within some of the exceptions. This proposal focuses on the protection of the elevator opening into the hoistway enclosure versus requiring an enclosed elevator lobby. This allows the other exceptions to become more clear and equal design options.

This proposal may require correlation with other CTC Elevator Lobby SG proposals but more in terms of renumbering. Also if FS##-12 *(TG2 Proposal 1)* passes then Item 4 of new Section 713.14.1 is no longer required. See discussion on CTC elevator lobby proposal coordination in code change FS##-12

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposed revisions provide clarity by taking requirements out of exceptions and reformatting the requirements to reflect protection of the elevator hoistway door opening.

Assembly Action: **None**

Final Hearing Results

FS67-12 **AS**

Code Change No: FS68-12

Original Proposal

Section: 713.14.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

713.14.1 Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by fire partitions. In addition to the requirements in Section 708 for fire partitions, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 716.5.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the level(s) of exit discharge, provided the level(s) of exit discharge is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 712.1 are not required to have enclosed elevator lobbies.
3. Enclosed elevator lobbies are not required where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall comply with the smoke and draft control door assembly requirements in Section 716.5.3.1 when tested in accordance with UL 1784 without an artificial bottom seal.
4. Enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. This exception shall not apply to the following:
   4.1 Group I-1, Condition 2 occupancies;
   4.2 Group I-2 occupancies;
   4.3 ~~4.2~~ Group I-3 occupancies; and
   4.4 ~~4.3~~ Elevators serving floor levels over 75 feet above the lowest level of fire department vehicle access in high-rise buildings.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition to the requirements in Section 710 for smoke partitions, doors protecting openings in the smoke partitions shall also comply with Sections 710.5.2.2, 710.5.2.3, and 716.5.9 and duct penetrations of the smoke partitions shall be protected as required for corridors in accordance with Section 717.5.4.1.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 909.21.
7. Enclosed elevator lobbies are not required where the elevator serves only open parking garages in accordance with Section 406.5.

Reason: The CTC Care facilities committee is aware of proposals from the CTC Elevator study group and the Adhoc Healthcare committee that will affect elevator lobby requirements. Currently elevator lobbies are required in Group I-2 and I-3 where smoke compartments are part of the emergency evacuation plan. The CTC Care facilities study group has asked for smoke compartments in Group I-1, Condition 2 as part of a plan to allow for staged evacuation for persons who may require limited assistance in

evacuation. If the decision of the membership is that elevator lobby protection is needed in smoke compartment, they should also be required in Group I-1, Condition 2.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee felt that it was not appropriate to approve language that inserts a Group in the code that is not currently recognized. The proponent should bring this back in the public comment phase pending the actions taken on the code change proposal that brings in the Group I-1 condition-type occupancies in full.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldasarra, Code Technologies Committee – Care facilities study group, requests Approval as Submitted.

Commenter's Reason: The Fire Safety committee disapproved this change because G31 had not yet been heard. Code change G31 established the Group I-1, Condition 2 as assisted living with the addition of smoke compartments. This separation configuration is similar to hospitals and jails. This proposal is asking that Group I-1, Condition 2 be required to have elevator lobbies consistent with hospitals and jails.

Final Hearing Results

FS68-12 **AS**

Code Change No: FS69-12

Original Proposal

Section: 713.14.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

713.14.1 Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by fire partitions. In addition to the requirements in Section 708 for fire partitions, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 716.5.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the level(s) of exit discharge, provided the level(s) of exit discharge is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 712.1 are not required to have enclosed elevator lobbies.
3. Enclosed elevator lobbies are not required where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall comply with the smoke and draft control door assembly requirements in Section 716.5.3.1 when tested in accordance with UL 1784 without an artificial bottom seal.
4. Enclosed elevator lobbies are not required where the building is protected by an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2. This exception shall not apply to the following:
   4.1. Group I-2 occupancies;
   4.2. Group I-3 occupancies; and
   4.3. Highrise buildings with Elevator~~s~~ hoistways ~~travelling~~ more than ~~serving floor levels over~~ 75 feet in height. ~~above the lowest level of fire department vehicle access in high-rise buildings~~. The height of the hoistway shall be measured from the lowest floor to the highest floor of the floors served by the hoistway.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition to the requirements in Section 710 for smoke partitions, doors protecting openings in the smoke partitions shall also comply with Sections 710.5.2.2, 710.5.2.3, and 716.5.9 and duct penetrations of the smoke partitions shall be protected as required for corridors in accordance with Section 717.5.4.1.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 909.21.
7. Enclosed elevator lobbies are not required where the elevator serves only open parking garages in accordance with Section 406.5.

Reason: This proposal is part of a series of proposals from the CTC addressing elevator lobbies. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology

Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- Review the need for elevator lobbies~~,~~; with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- Review related code provisions, such as egress from and through elevator lobbies.
- Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study**,** 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

In particular this proposal comes from the Task Group addressing the design and construction of elevator lobbies when they are required by the code.

The wording was revised to clarify that the hazard is related to taller hoistway heights versus an elevator located higher up in the high rise building. In other words a single tenant dedicated elevator that travels only a couple stories should not require an enclosed elevator lobby.

The intent of this proposal is that if item 4.3 of the 2012 remains in the code then the change shall be made but if item 4 and item 4.3 are deleted by other proposals whether from the CTC or other proponents then the revision is no longer necessary. See discussion on CTC elevator lobby proposal coordination in code change FS##-12

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this proposal clarified that the hazard is related to taller hoistway heights versus an elevator located higher up in the high rise building. Elevators located higher in the high rise building that only travel and serve a couple of floors should not be required to have a lobby.

Assembly Action: **None**

Final Hearing Results

FS69-12 **AS**

Code Change No: FS70-12

Original Proposal

Section(s): 713.14.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

713.14.1 Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by fire partitions. In addition to the requirements in Section 708 for fire partitions, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 716.5.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

(No changes to Exceptions 1 through 7)

8. Enclosed elevator lobbies and protection of elevator hoistway door openings are not required where the elevator hoistway opens to the exterior.

Reason: This proposal is part of a series of proposals from the CTC Elevator Lobby Study Group. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- Review the need for elevator lobbies, with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- Review related code provisions, such as egress from and through elevator lobbies.
- Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study, 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

There should be an exception similar to open parking since there is no accumulation of smoke where elevator hoist ways open to the exterior.

This proposal should not be affected by other proposals submitted by the CTC addressing elevator lobbies except for the need to renumber. None of the proposals from the CTC are intending to delete similar exceptions and thus this will simply be added as one of those exceptions. See discussion on CTC elevator lobby proposal coordination in code change FS##-12

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

713.14.1 Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by fire partitions. In addition to the requirements in Section 708 for fire partitions, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 716.5.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

(No changes to Exceptions 1 through 7)

8. Enclosed elevator lobbies and protection of elevator hoistway door openings are not required on the level where the elevator hoistway opens to the exterior.

Committee Reason: The committee agreed that lobby protection of elevator hoistway openings should not be required when smoke accumulation will not occur. The modification makes it clear that this exception is specific to the level that is open to the exterior and not all other levels that the hoistway connects.

Assembly Action: **None**

Public Comments

Public Comment 2:

Jonathan Siu representing City of Seattle Dept of Planning & Development, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

713.14.1 Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by fire partitions. In addition to the requirements in Section 708 for fire partitions, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 716.5.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

(No changes to Exceptions 1 through 7)

8. Enclosed elevator lobbies and protection of elevator hoistway door openings are not required on ~~the level~~ levels where the elevator hoistway opens to the exterior.

Commenter's Reason: As approved by the committee, the text of the exception implies there is only one level where the exception would apply. This public comment clarifies neither an elevator lobby nor elevator door protection is required at all levels that are open to the exterior.

Final Hearing Results

FS70-12 **AMPC2**

Code Change No: FS71-12

Original Proposal

Section: 713.14.1.1, 713.14.1.2 (New), 713.14.1.3 (New), 713.14.1.4 (New), 713.14.1.5 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

713.14.1.1 Areas of refuge. Where an area of refuge is required and an enclosed elevator lobby is provided to serve as an area~~s~~ of refuge, the enclosed elevator lobby shall comply with ~~as required in~~ Section 1007.6.

713.14.1.2 Fire Service Access Elevators. Where fire service access elevators are provided, enclosed elevator lobbies shall comply with Section 3007.

713.14.1.3 Occupant Evacuation Elevators. Where occupant evacuation elevators are provided, enclosed elevator lobbies shall comply with Section 3008.

713.14.1.4 Underground buildings. Where enclosed elevator lobbies are required for underground buildings such lobbies shall comply with Section 405.4.3.

713.14.1.5 Group I-2 occupancies. Enclosed elevator lobbies required in Group I-2 Occupancies in accordance with Sections 407.5.3 and 711.9 shall comply with Section 713.14.1.

Reason. This proposal is part of a series of proposals from the CTC dealing with Elevator Lobbies. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- Review the need for elevator lobbies~~,~~; with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- Review related code provisions, such as egress from and through elevator lobbies.
- Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study**,** 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

The proposed language simply provides clarification as to where all the enclosed elevator lobby requirements are located in other portions of the code. Section 713.14.1.1 was revised to be consistent in approach to the new Sections 713.14.1.2 and 713.14.1.3. Sections 713.14.1.4 and 713.14.5 were added to be consistent with the concept of pointing to other relevant sections requiring enclosed elevator lobbies. If provisions are moved from Chapter 7 to Chapter 30 this proposal is no longer necessary.

This proposal will not be necessary if the provisions in 713.14.1 are moved to chapter 30. Oter proposals such as the one revisiing to the elevator lobby exceptions to become permissions would require renumbering. Finally if the “where required provisions are heavily revised these sections may no longer be required. See discussion on CTC elevator lobby proposal coordination in code change FS##-12

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposal appropriately lists where all elevator lobby requirements are located throughout the code.

Assembly Action: **None**

Final Hearing Results

FS71-12 **AS**

Code Change No: FS74-12

Original Proposal

Section(s): 714.3.2

Proponent: Tony Crimi, A.C. Consulting Solutions Inc, representing International Firestop Council (tcrimi@sympatico.ca)

Revise as follows:

714.3.2 Membrane penetrations. Membrane penetrations shall comply with Section 714.3.1. Where walls or partitions are required to have a fire-resistance rating, recessed fixtures shall be installed such that the required fire-resistance will not be reduced.

Exceptions:

1. Membrane penetrations of maximum 2-hour fireresistance-rated walls and partitions by steel electrical boxes that do not exceed 16 square inches (0.0 103 m2) in area, provided the aggregate area of the openings through the membrane does not exceed 100 square inches (0.0645 m2) in any 100 square feet (9.29 m2) of wall area. The annular space between the wall membrane and the box shall not exceed 1/8 inch (3.1 mm). Such boxes on opposite sides of the wall or partition shall be separated by one of the following:
   1.1. By a horizontal distance of not less than 24 inches (610 mm) where the wall or partition is constructed with individual noncommunicating stud cavities;
   1.2. By a horizontal distance of not less than the depth of the wall cavity where the wall cavity is filled with cellulose loosefill, rockwool or slag mineral wool insulation;
   1.3. By solid fireblocking in accordance with Section 718.2.1;
   1.4. By protecting both outlet boxes with listed putty pads; or
   1.5. By other listed materials and methods.
2. Membrane penetrations by listed electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing. The annular space between the wall membrane and the box shall not exceed 1/8 inch (3.1 mm) unless listed otherwise. Such boxes on opposite sides of the wall or partition shall be separated by one of the following:
   2.1. By the horizontal distance specified in the listing of the electrical boxes;
   2.2. By solid fireblocking in accordance with Section 718.2.1;
   2.3. By protecting both boxes with *listed* putty pads; or
   2.4. By other *listed* materials and methods.
3. Membrane penetrations by electrical boxes of any size or type, which have been *listed* as part of a wall opening protective material system for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing.
4. Membrane penetrations by boxes other than electrical boxes, provided such penetrating items and the *annular space* between the wall membrane and the box, are protected by an *approved membrane penetration* firestop system installed as tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water, and shall have an F and T rating of not less than the required *fire-resistance rating* of the wall penetrated and be installed in accordance with their listing.
5. The *annular space* created by the penetration of an automatic sprinkler, provided it is covered by a metal escutcheon plate.
6. Membrane penetrations of maximum 2-hour fire resistance-rated walls and partitions by steel

Electrical boxes that exceed 16 square inches (0.0 103 m2) in area, or steel electrical boxes of any size that exceed an aggregate area through the membrane of 100 square inches (0.0645 m2) in any 100 square feet (9.29 m2) of wall area, provided the wall or partition is constructed with individual non-communicating stud cavities, the *annular space* between the wall membrane and the box does not exceed 1/8 inch (3.1 mm), and provided:

6.1. All electrical boxes within the stud cavity are protected by *listed* putty pads; or

6.2. All electrical boxes within the stud cavity are protected by other *listed* materials and methods.

Reason: This proposal reflects a very common current practice. It intends to permit an additional allowance for steel electrical boxes exceeding 16 square inches (0.0 103 m2) in area, and exceeding an aggregate area through the membrane of 100 square inches (0.0645 m2) in any 100 square feet (9.29 m2) of wall area based on testing and listing of these devices in accordance with IBC requirements for membrane penetrations in Section 714.3.1.

Listings for protection of metallic Electrical Boxes specify the conditions under which they may be installed within fire-resistance-rated wall assemblies constructed with bearing and non-bearing wood or steel studs and wallboard membranes. The Listings for metallic outlet or switch boxes identify it is possible to install the boxes under less stringent conditions when such boxes are used in conjunction with tested firestop systems or devices. The individual Classifications indicate the specific applications and the method of installation for which the materials have been investigated.

Cost Impact: This change will reduce the cost of construction by permitting additional design options.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee felt that the proposal was too restrictive in that it would require all electrical boxes within the stud cavity to be protected with putty pads if only one was over area allowance. Further how this relates to steel stud construction is not clear in that steel studs typically have openings in the web.

Assembly Action: **None**

Public Comments

Public Comment 1:

Tony Crimi, A.C. Consulting Solutions Inc., representing International Firestop Council, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

714.3.2 Membrane penetrations. Membrane penetrations shall comply with Section 714.3.1. Where walls or partitions are required to have a fire-resistance rating, recessed fixtures shall be installed such that the required fire-resistance will not be reduced.

Exceptions:

1 through 5 *(No changes)*

6. Membrane penetrations of maximum 2-hour fire resistance-rated walls and partitions by steel electrical boxes **t**hat exceed 16 square inches (0.0 103 m2) in area, or steel electrical boxes of any size ~~that exceed an~~ having an aggregate area through the membrane exceeding ~~of~~ 100 square inches (0.0645 m2) in any 100 square feet (9.29 m2) of wall area, provided such penetrating items are protected by listed putty pads or other listed materials and methods, and installed in accordance with the listing. ~~the wall or partition is constructed with individual non-communicating stud cavities, the annular space between the wall membrane and the box does not exceed 1/8 inch (3.1 mm), and provided:~~
   ~~6.1. All electrical boxes within the stud cavity are protected by listed putty pads; or~~
   ~~6.2. All electrical boxes within the stud cavity are protected by other listed materials and methods.~~

Commenter's Reason: This proposal reflects a very common current practice. It would permit an additional allowance for steel electrical boxes exceeding 16 square inches (0.0 103 m2) in size, and exceeding an aggregate area through the membrane of 100 square inches (0.0645 m2) in any 100 square feet (9.29 m2) of wall area based on testing and listing of protection methods in accordance with IBC requirements for membrane penetrations in Section 714.3.1.

While the Fire Safety Committee was quite supportive of FS74-12 at the CAH, they felt some modifications were required. The Committee Reason indicated a concern that the proposal was too restrictive in that it would require all electrical boxes within the a 100 square foot area to be protected with putty pads if only one was over the box density allowance. This revised text now simply

refers to protection in accordance with the listing. If testing shows that the fire resistance rating of the wall can be maintained by protecting only a portion of the boxes that together make up the total of more than 100 square inches per 100 square feet, then the listing would reflect that. The proportion of boxes that need to be protected must be determined by fire testing of each solution, and is thus not specified here.

One of the other items identified by the Committee was the need to clarify the application of a single stud cavity for materials such as steel studs, which have openings. That issue has been addressed by this modification by addressing the full wall area, rather than individual stud cavities.

The alternative, as currently permitted in the IBC, would be not to permit these steel electrical boxes which exceed the individual or exceed the maximum total area limit.

Final Hearing Results

FS74-12 **AMPC1**

Code Change No: FS75-12

Original Proposal

Section: 714.4.1.1.2

Proponent: Tony Crimi, A.C. Consulting Solutions Inc, representing International Firestop Council (tcrimi@sympatico.ca)

Revise as follows:

714.4.1.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approved through-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.

Reason: This proposal intends to permit an additional exception for metallic EMT or conduit penetrating a horizontal assembly that directly enters a metal-enclosed power switchgear assembly. The National Electrical Code defines Metal-Enclosed Power Switchgear as a switchgear assembly completely enclosed on all sides and top with sheet metal (except for ventilating openings and inspection windows) and containing primary power circuit switching, interrupting devices, or both, with buses and connections. The assembly may include control and auxiliary devices. Access to the interior of the enclosure is provided by doors, removable covers, or both. These devices consist of a substantial metal structure and a sheet metal enclosure. The NEC further requires that, where installed over a combustible floor, suitable protection to the floor must be provided, and requires clearances for cable conductors entering these enclosures. The unobstructed space opposite terminals or opposite raceways or cables entering a switchgear or control assembly must be adequate for the type of conductor and method of termination. Insulating these conduits or tubing creates a potential hazard, and requires derating of power cables. The condition below illustrates a typical installation:

Because these EMT goes through the floor and enters directly into these robust enclosures, it is reasonable to provide an exemption to the T-Rating requirements of the IBC in these conditions.

Cost Impact: This change will reduce the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposed exception to the T-Rating requirement is reasonable based on the protection afforded by the switchgear enclosures.

Assembly Action: **None**

Final Hearing Results

FS75-12 **AS**

Code Change No: FS76-12

Original Proposal

Section: 714.4.1.2

Proponent: Sam Francis, American Wood Council (sfrancis@awc.org)

Revise as follows:

714.4.1.2 Membrane penetrations. Penetrations of membranes that are part of a *horizontal assembly* shall comply with Section 714.4.1.1.1 or 714.4.1.1.2. Where floor/ceiling assemblies are required to have a *fire resistance rating*, recessed fixtures shall be installed such that the required *fire resistance* will not be reduced.

Exceptions:

(No changes to Exceptions 1 through 6)

7. The ceiling membrane of 1- and 2-hour fire resistance- rated horizontal assemblies is permitted to be interrupted with the double wood top plate of a ~~*fire-resistance-rated*~~ wall assembly that is sheathed with Type X gypsum wallboard, provided that all penetrating items through the double top plates are protected in accordance with Section 714.4.1.1.1 or 714.4.1.1.2 and the ceiling membrane is tight to the top plates. ~~The *fire-resistance rating* of the wall shall not be less than the rating of the horizontal assembly.~~

Reason: This is a common structural connection and prior to the 2012 edition the code had not prohibited where the floor structure rests on the top plate in wood frame construction. The requirement for similar rating should be left to the specific application in the code (where the code requires supporting construction to be rated the same as the construction being supported (depending on the type of floor or wall). As written, even nonbearing walls serving no fire protection purpose would have to be rated for up to 2 hours. A double top plate represents a minimum of 3 inches of solid wood at the point of interruption, representing no more hazard than the noncombustible penetrations permitted by Exceptions 1 and 2 of the section, since the annular space around such penetrations needs only protection against the passage of smoke and flame or nothing at all, since in the case of steel electrical boxes up to 1/8 inch of unprotected annular space is permitted. A ceiling running into double top plates provides superior protection in comparison.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal appropriately technically describes what should be done with this detail as the protection to the penetrating top plates is provided by the gypsum wallboard.

Assembly Action: **None**

Final Hearing Results

FS76-12 **AS**

Code Change No: FS77-12

Original Proposal

Section(s): 715.4.2 (New)

Proponent: Tony Crimi, A.C. Consulting Solutions Inc, representing International Firestop Council (tcrimi@sympatico.ca)

Revise as follows:

715.4.2 Exterior curtain wall/vertical fire barrier intersections. Voids created at the intersection of nonfire-resistance rated exterior curtain wall assemblies and a fire-resistance-rated wall shall be filled, An approved material or system shall be used to fill the void, shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

Reason: In the previous cycle, a Code change proposal was approved to 707.8 which clarified that the same requirement to protect the joint between a fire barrier and the underside of the floor also applies to the joint between a fire barrier and an exterior wall. The language in the 2012 IBC points the user to compliance with section 715. However, the IBC does not specifically address the intersection of non-fire-resistance rated exterior curtain walls to rated fire barriers. The proposed language provides clear performance requirements that can be applied and enforced in these conditions. It is similar to the language in other sections of the IBC for voids created between rated and unrated assemblies..

Cost Impact:

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

715.4.2 Exterior curtain wall/vertical fire barrier intersections. Voids created at the intersection of nonfire-resistance rated exterior curtain wall assemblies and fire barriers ~~a fire-resistance-rated wall~~ shall be filled, An approved material or system shall be used to fill the void, shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

Committee Reason: The committee agreed that Section 715 needs to address the protection of the intersection of non-fire-resistance rated exterior curtain walls and rated fire barriers as it currently does not. The modification corrects the terminology to refer to fire barriers to be consistent with the proponent's intent.

Assembly Action: **None**

Final Hearing Results

FS77-12 **AM**

Code Change No: FS83-12

Original Proposal

Section: 716.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

716.2 Fire-resistance-rated glazing. Fire-resistance-rated glazing tested as part of a fire-resistance-rated wall or floor/ceiling assembly in accordance with ASTM E 119 or UL 263 and labeled in accordance with Section 703.6 ~~shall be permitted in fire doors and fire window assemblies where tested and installed in accordance with their listings and~~ shall not otherwise be required to comply with this section when used as part of a wall or floor/ceiling assembly. Fire-resistance-rated glazing shall be permitted in fire door and fire window assemblies where tested and installed in accordance with their listings and when in compliance with the requirements of this section.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/default.aspx. Since its inception in April/2005, the CTC has held twenty two meetings - all open to the public.

This proposed change is a result of the CTC's investigation of the area of study entitled "Labeling of Fire Rated Glazing". The scope of the activity is noted as:

> Identify root causes of problems selecting, specifying, installing, and inspecting fire protective and fire resistive glazing and other assembly components including the frames. Propose identification requirements and other related code changes.

The changes proposed for Section 716.2 clarify how the code currently provides fire-resistance-rated glazing. The modifications to the first sentence clarify that when fire-resistance-rated glazing tested in accordance with ATM E119 and used as part of a wall or floor/ceiling assembly, it is not subject to the provisions of Section 716.

However, the second sentence clarifies that when fire-resistance-rated glazing is used as part of a fire door or fire window assembly there are provisions in Section 716 that apply to its use. As currently worded the user could be mislead as to the application of the additional requirements for applications involving fire door and window assemblies.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this proposal clarifies that when fire-resistance-rated glazing is tested in accordance with ASTM E118 and used as part of a wall or floor/ceiling assembly, the glazing is not subject to the provisions of Section 716.

Assembly Action: **None**

Final Hearing Results

FS83-12 **AS**

Code Change No: FS84-12

Original Proposal

Section: 716.3.1, 716.3.2 (New), 716.5.8.3, 716.5.8.3.1 and 716.6.8

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

716.3 Marking fire-rated glazing assemblies. *Fire-rated glazing* assemblies shall be marked in accordance with Tables 716.3, 716.5, and 716.6.

716.3.1 Identification. For fire-rated glazing, the *label* shall bear the identification required in Table 716.3 and Table 716.5. "D" indicates that the glazing is permitted to be used in *fire door* assemblies and that the glazing meets the fire protection requirements of NFPA 252. "H" shall indicate that the glazing meets the hose stream requirements of NFPA 252. "T" shall indicate that the glazing meets the temperature requirements of Section 716.5.5.1. The placeholder "XXX" represents the fire -rating period, in minutes.

716.3.2 Identification. For fire-protection-rated glazing, the *label* shall bear the following identification required in Table 716.3 and Table 716.6: "OH – XXX." "OH" indicates that the glazing meets both the fire protection and the hose-stream requirements of NFPA257 or UL9 and is permitted to be used in fire window openings. The placeholder "XXX" represents the fire-rating period, in minutes.

~~716.3.1~~ **716.3.3 Fire-rated glazing that exceeds the code requirements.** *Fire-rated glazing* assemblies marked as complying with hose stream requirements (H) shall be permitted in applications that do not require compliance with hose stream requirements. *Fire-rated glazing* assemblies marked as complying with temperature rise requirements
(T) shall be permitted in applications that do not require compliance with temperature rise requirements. *Fire-rated glazing* assemblies marked with ratings (XXX) that exceed the ratings required by this code shall be permitted.

716.5.8.3 Labeling. Fire-protection-rated glazing shall bear a *label* or other identification showing the name of the manufacturer, the test standard and information required in Section 716.3.1 ~~716.5.8.3.1~~ that shall be issued by an *approved agency* and shall be permanently identified on the glazing.

~~**716.5.8.3.1 Identification.** For fire-protection-rated glazing, the *label* shall bear the following four-part identification: "D - H or NH - T or NT - XXX." "D" indicates that the glazing shall be used in *fire door* assemblies and that the glazing meets the fire protection requirements of NFPA 252. "H" shall indicate that the glazing meets the hose stream requirements of NFPA 252. "NH" shall indicate that the glazing does not meet the hose stream requirements of the test. "T" shall indicate that the glazing meets the temperature requirements of Section 716.5.5.1. "NT" shall indicate that the glazing does not meet the temperature requirements of Section 716.5.5.1. The placeholder "XXX" shall specify the fire protection rating period, in minutes.~~

716.6.8 Labeling requirements. Fire-protection-rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and information required in Section 716.3.2 and Table 716.6 that shall be issued by an approved agency and shall be permanently identified on the glazing.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including:

meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/default.aspx. Since its inception in April/2005, the CTC has held twenty two meetings - all open to the public.

This proposed change is a result of the CTC's investigation of the area of study entitled "Labeling of Fire Rated Glazing". The scope of the activity is noted as:

> Identify root causes of problems selecting, specifying, installing, and inspecting fire protective and fire resistive glazing and other assembly components including the frames. Propose identification requirements and other related code changes.

The proposed changes to Section 716.3 (the addition of Section 716.3.1 and 716.3.2) clarify the requirements for marking of fire-rated glazing assemblies. No technical changes are being introduced.

Section 716.3.1 was moved from Section 716.5.8.3.1. The language was modified to clarify that the provisions of the section apply to fire-rated glazing used in fire door assemblies. Additionally, consistent with Tables 716.3 and Table 716.5, the language was modified to reflect the fact that fire-rated glazing assemblies that do not meet the temperature or hose stream requirements of this section are not required to be labeled as "NT" and "NH" respectively.

Section 716.3.2 was added to clarify that Tables 716.3 and 716.6 are the appropriate tables to be used for fire-protection-rated glazing, and to provide details of the required label and standards for performance, consistent with such tables. This section essentially reflects the same language as contained in Section 715.5.9.1 of the 2009 IBC.

The remaining changes are made to update cross-references to reflect the new section numbers.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that not all necessary information was relocated from Section 716.5.8.3.1, specifically the descriptions of what NH and NT are with respect to the glazing label.

Assembly Action: None

Public Comment

Public Comment:

Carl Baldassarra, P.E., FSFPE, requests Approval as Submitted.

Commenter's Reason: In the development cycle leading up to the 2012 IBC, the CTC submitted an extensive set of code changes calculated to provide IBC users with a comprehensive methodology for marking all types of fire rated glazing and a means of determining when and where those markings were to be used. These proposals were adopted and became a part of the 2012 IBC. However, following publication of the 2012 IBC, it became evident that several corrections were required. As a result, the CTC submitted four (4) proposals in this development cycle, namely, FS83-12, FS84-112, FS85-12, and FS95-12, to make needed corrections.

At the Technical Committee's fire safety hearings earlier this year, the committee recommended FS83-12 and FS85-12, as submitted; FS95-12, as modified; and disapproval of FS84-12. Unfortunately, the adoption of FS-84-12, as submitted, is critical to correcting the methodology adopted in the 2012 IBC for marking fire rated glazing.

FS84-12 does several things. First, it moves the text of section 716.5.8.3.1 to section 716.3.1. Second, in making that move, it deletes "NH" and "NT" as designations used in the marking of fire rated glazing. Third, it modifies section 716.3.1 and 716.3.2 to clarify that Tables 716.3, 716.5 and 716.6 are the primary sources for determining the markings to be used and the relationship of those markings to the various fire rated glazing applications that are provided for in the Code.

According to its reason statement, the Committee recommended that FS84-12 be disapproved solely on the basis that it deletes the "NH" and "NT" designations.

The cornerstones of the CTC's comprehensive methodology for marking fire rated glazing as adopted in the 2012 IBC are the marking designations set out in Table 716.3 and the inclusion of those designations for every fire rated glazing application set out in Tables 716.5 and 716.6. The reason FS84-12 proposes to delete the "NH" and "NT" designations is, simply, because they were inadvertently left in section 716.5.8.3.1 when the comprehensive marking system proposed by the CTC was adopted as a part of the 2012 IBC as they do not appear anywhere in the operative IBC Tables, namely, Tables 716.3, 716.5 or 716.6.

As a part of the comprehensive changes proposed by the CTC to the 2012 IBC, the "NH" and "NT" designations were never included in Tables 716.3, 716.5 and 716.6 because they are unnecessary in that the "H" or "T" marking**s** on a fire rated glazing assembly label means that the glazing assembly me**ets** the hose stream test or the temperature rise criteria, respectively, and the simple absence of an "H" or a "T" marking is sufficient to alert the user that the assembly has not been hose stream tested ("NH") or temperature rise tested ("NT").

In short, the "NH" and "NT" designations are unnecessary and were inadvertently left in section 716.5.8.3.1 when the 2012 IBC marking provisions were adopted. They should now be deleted from the Code and FS84-12 should be adopted as submitted.

Therefore, at the Final Action hearings, the CTC urges you to vote against the standing motion to disapprove FS84-12 and, following that, to vote in favor of a motion to approve FS84-12 as submitted.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "Labeling of Fire Rated Glazing.". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/LabelingFireRatedGlazing.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

FS84-12	**AS**

Code Change No: FS85-12

Original Proposal

Section: Table 716.5

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE [b]	FIRE RATED GLAZING MARKING DOOR VISION PANEL [e d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELITE/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	~~Not Permitted~~ See note b	~~Not Permitted~~ D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	~~Not Permitted~~ See note b	~~Not Permitted~~ D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.[c]	☐100 sq.in. = D-H-90 >100 sq.in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	$1^1/_2$	$1^1/_2$	100 sq. in.[c]	☐100 sq.in. = D-H-90 >100 sq.in.= D-H-W-90	Not Permitted	$1^1/_2$	Not Permitted	W-90
Horizontal exits in fire walls [e]	4	3	100 sq. in.	☐100 sq.in. = D-H-180 > 100 sq.in.= D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100 sq. in.	☐100 sq.in. = D-H-180 > 100 sq.in.= D-H-W-180	Not Permitted	3	Not Permitted	W-180
Shaft, exit enclosures and exit passageway walls	2	$1^1/_2$	100 sq. in. [c, d]	☐100 sq.in. = D-H-90 > 100 sq.in.= ~~D-H-T-or~~ D-H-T-W-90	Not Permitted	2	Not Permitted	W-120

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE [b]	FIRE RATED GLAZING MARKING DOOR VISION PANEL [e] [d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELITE/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures for shafts, exit access stairways, exit ac-cess ramps, interior exit stairways, interior exit ramps and exit passageway walls	1	1	100 sq. in. [c, d]	□100 sq.in. = D-H-60 >100 sq.in.= ~~D-H-T-60 or~~ D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	3/4	Maximum size tested	D-H-~~NT-~~45	3/4		D-H-~~NT-~~45	
Fire partitions: Corridor walls	1	1/3 [b]	Maximum size tested	D-20	3/4 [b]		D-H-OH-45	
	0.5	1/3 [b]	Maximum size tested	D-20	1/3		D-H-OH-20	
Other fire partitions	1	3/4	Maximum size tested	D-H-45	3/4		D-H-45	
	0.5	1/3	Maximum size tested	D-H-20	1/3		D-H-20	

(continued)

TABLE 716.5—continued
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE RATED GLAZING MARKING DOOR VISION PANEL[e d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELITE/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Exterior walls	3	$1^1/_2$	100 sq. in.[c b]	□100 sq.in. = D-H-90 >100 sq.in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.[e b]	□100 sq.in. = D-H-90 >100 sq.in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire Protection			
	1	$^3/_4$	Maximum size tested	D-H-45	$^3/_4$		D-H-45	
Smoke barriers					**Fire protection**			
	1	$^1/_3$[b]	Maximum size tested	D-20	$^3/_4$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^1/_2$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

~~b. For testing requirements, see Section 716.6.3.~~

b ~~c~~. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c ~~d~~. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d ~~e~~. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/default.aspx. Since its inception in April/2005, the CTC has held twenty two meetings - all open to the public.

This proposed change is a result of the CTC's investigation of the area of study entitled "Labeling of Fire Rated Glazing". The scope of the activity is noted as:

Identify root causes of problems selecting, specifying, installing, and inspecting fire protective and fire resistive glazing and other assembly components including the frames. Propose identification requirements and other related code changes.

Table 716.5 was heavily modified for the 2012 edition of the International Building Code to serve as a reference summary of current code requirements, i.e., the items located in the table are specified by technical language found in the code. Based upon a review of the table as currently depicted in the 2012 IBC as compared to the current language of the IBC additional items require inclusion and some items require modification to reflect the current code as modified by other proposals during the last cycle.

There are no technical changes to current code requirements proposed, the changes are editorial.

A section was added to the table for “Horizontal Exits in Fire Walls” to provide for a summary of current glazing requirements for openings in those assemblies.

Note b, (formerly note c), has be relocated to the top of the column “Door Vision Panel Size” because the allowance for fire-resistance rated glazing in the maximum size tested applies in all cases depicted.

Specific reference is added to Note b for door vision panels in fire doors located in 3 and 4 hour fire walls because only fire-resistance rated glazing is permitted to be utilized, fire protection rated glazing is not permitted in any size. The appropriate marking requirements have been added as well in the next column, “Fire Rated Glazing Marking Door Vision Panel”.

“D-H-T” or and “D-H-T-60 or” have been stricken from 2 hr “Shaft, exit enclosures and exit passageway walls” and from 1 hr “Fire barriers having a required fire-resistance rating of 1 hour:” requirements since fire-protection rated glazing is limited to the 100 sq. in. size and only fire-resistance rated glazing can be utilized in larger proportions.

NT has been stricken in several locations as the requirement for marking glazing as “not tested” for a particular feature has been eliminated as a code consideration. Glazing is simply required to be marked for those attributes it has been tested and listed for.

Existing Note b is being deleted as no longer accurate or necessary for application of the table.

Note e is added to provide guidance on where the requirements for the horizontal exit in fire walls glazing requirements are located and to highlight that there is a dimension restriction in addition to the maximum size limitation.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the changes to Table 716.5 were appropriate and were editorial in that they did reflect the code requirements accurately and more completely.

Assembly Action: **None**

Final Hearing Results

FS85-12 **AS**

Code Change No: FS87-12

Original Proposal

Section: 716.5.2

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Won-Door Corporation (wkoffel@koffel.com)

Revise as follows:

716.5.2 Other types of assemblies. *Fire door* assemblies with other types of doors, including swinging elevator doors, horizontal sliding fire door assemblies, and fire shutter assemblies, bottom and side-hinged chute intake doors, and top-hinged chute discharge doors, shall be tested in accordance with NFPA 252 or UL 10B. The pressure in the furnace shall be maintained as nearly equal to the atmospheric pressure as possible. Once established, the pressure shall be maintained during the entire test period.

Reason: Paragraph 716.5.1 applies to side-hinged or pivoted swinging doors and Paragraph 716.5.2 applies to other types of fire doors. However, the list of other types of fire doors is not all inclusive which has led some to wonder how the provisions apply to fire protection rated horizontal sliding doors. Therefore, the phrase "horizontal sliding doors" has been proposed to be added to the list.

Alternatively, if concern exists that the list may still be incomplete, all the text between the first and second comma could be deleted, thereby deleting the list from the Code and indicating that Paragraph 716.5.2 applies to all doors other than those covered by Paragraph 716.5.1.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that "horizontal sliding fire door assemblies" is appropriate to add to the list as another type of fire door assembly.

Assembly Action: **None**

Final Hearing Results

FS87-12 **AS**

Code Change No: FS91-12

Original Proposal

Section(s): 716.5.5.1

Proponent: Thomas S. Zaremba, Roetzel & Andress, representing Glazing Industry Code Committee and Primary Fire Rated Glazing Manufacturers (tzaremba@ralaw.com)

Revise as follows:

716.5.5.1 Glazing in doors. Fire-protection-rated glazing in excess of 100 square inches (0.065 m2) is not permitted. Fire-resistance-rated glazing in excess of 100 square inches (0.065 m2) shall be permitted in *fire doors*. ~~assemblies when tested as components of the door assemblies, and not as glass lights, and shall have a maximum transmitted temperature rise of 450o F (250o C) in accordance with Section 716.5.5.~~ Fire doors using listed fire-resistance-rated glazing shall have a maximum transmitted temperature rise in accordance with Section 716.5.5 when tested in accordance NFPA 252, UL 10B or UL 10C.

Reason: This proposal is not intended to change the underlying requirements of section 716.5.5.1. It is intended to provide uniformity for testing fire-resistance-rated glazing when it is used in temperature rise fire doors.

When glazing in temperature rise fire doors exceeds 100 sq. in., it must be fire-resistance-rated glazing. An issue arises as to the sequence of testing when fire-resistance-rated glazing is used in a fire door because fire-resistance-rated glazing is tested to ASTM E119 and the fire door is tested to NFPA 252. Working closely with UL, this code change proposal was developed to answer the question as to how to test a fire door when it uses fire-resistance-rated glazing. In that regard, the proposal would require the glazing to be tested first, and, if it meets the ASTM E119 acceptance criteria, it is listed as a fire-resistance-rated glazing. That "listed fire-resistance rated glazing" is then installed in a fire door and tested in accordance with NFPA 252, the fire door test, including tests for the maximum transmitted temperature rise requirements of Section 716.5.5.

If adopted, this proposal will provide uniformity for testing ASTM E119 fire-resistance-rated glazing when used in NFPA 252 tested fire doors.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

716.5.5.1 Glazing in doors. Fire-protection-rated glazing in excess of 100 square inches (0.065 m2) is not permitted. Fire-resistance-rated glazing in excess of 100 square inches (0.065 m2) shall be permitted in *fire doors*. Listed fire-resistance rated glazing in a fire door ~~using listed fire-resistance-rated glazing~~ shall have a maximum transmitted temperature rise in accordance with Section 716.5.5 when the fire door is tested in accordance with NFPA 252, UL 10B or UL 10C.

Committee Reason: The committee agreed that the proposed testing for maximum transmitted temperature of fire-resistance-rated glazing was appropriate. The modification clarifies that it is the glazing that gets tested.

Assembly Action: **None**

Final Hearing Results

FS91-12 **AM**

Code Change No: FS92-12

Original Proposal

Section(s): 716.5.7.1.1

Proponent: Bob Eugene, representing Underwriters Laboratories (Robert.Eugene@ul.com)

Revise as follows:

716.5.7.1.1 Light kits, louvers and components. Listed light kits and louvers and their required preparations shall be considered as part of the labeled door where such installations are done under the listing program of the third-party agency. ~~Where tested for such use,~~ *Fire doors* and door assemblies shall be permitted to consist of components, including glazing, vision light kits and hardware that are listed and labeled~~, listed or classified~~ for such use by different third-party agencies.

Reason: This proposal clarifies that the evidence a combination of components have been tested for such use is listing and labeling.

.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

716.5.7.1.1 Light kits, louvers and components. Listed light kits and louvers and their required preparations shall be considered as part of the labeled door where such installations are done under the listing program of the third-party agency. *Fire doors* and door assemblies shall be permitted to consist of components, including glazing, vision light kits and hardware that are listed or classified, and labeled for such use by different third-party agencies.

Committee Reason: The committee agreed that this proposal clarifies that the evidence of testing a combination of components is the listing and labeling of the components. The modification clarifies that the component could be classified as well as listed.

Assembly Action: **None**

Final Hearing Results

FS92-12 **AM**

Code Change No: FS93-12

Original Proposal

Section: 716.5.7.5 (New)

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Won-Door Corporation (wkoffel@koffel.com)

Revise as follows:

716.5.7.5 Fire door operator labeling requirements. Fire door operators for horizontal sliding doors shall be labeled and listed for use with the assembly

Reason: Section 716.5 requires fire door assemblies to be installed in accordance with NFPA 80. NFPA 80 requires fire door operators to be listed for use with the door. As such, the proposed new text is already required by NFPA 80. However, it can easily be overlooked or confusion may occur as to whether this specific requirement in NFPA 80 applies since Section 716.5.7 requires specific components to be labeled but does not include the operator for horizontal sliding doors.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this proposal is consistent with the provisions of NFPA 80 and t herefore appropriate.

Assembly Action: **None**

Final Hearing Results

FS93-12	**AS**

Code Change No: FS94-12

Original Proposal

Section(s): 716.5.8, 716.5.8.1, 716.5.8.1.2.1, 716.5.8.3

Proponent: Bob Eugene, representing Underwriters Laboratories (Robert.Eugene@ul.com)

Revise as follows:

716.5.8 Glazing material. Fire-~~protection~~-rated glazing conforming to the opening protective requirements in Section 716.5 shall be permitted in *fire door* assemblies.

716.5.8.1 Size limitations. Fire-resistance-rated glazing shall comply with the size limitations in Section 716.5.8.1.1. Fire-protection-rated glazing shall comply with the size limitations of NFPA 80, except as provided in Section~~s 716.5.8.1.1 and~~ 716.5.8.1.2.

716.5.8.1.1 Fire-resistance-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. Fire-resistance-rated glazing tested to ASTM E 119 or UL 263 and NFPA 252, UL 10B or UL 10C shall be permitted in *fire door assemblies* located in *fire walls* and in *fire barriers* in accordance with Table 716.5 to the maximum size tested in accordance with their listings.

716.5.8.1.2 Fire-protection-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. Fire-protection-rated glazing shall be prohibited in *fire walls* and *fire barriers* except as provided in Sections 716.5.8.1.2.1 and 716.5.8.1.2.2.

716.5.8.1.2.1 Horizontal exits. Fire-protection-rated glazing shall be permitted as vision panels in *self-closing* swinging *fire door* assemblies serving as horizontal exits in *fire walls* where limited to 100 square inches (0.065 m^2) with no dimension exceeding 10 inches (0.3 m~~m~~).

716.5.8.1.2.2 Fire barriers. Fire-protection-rated glazing shall be permitted in *fire doors* having a 1-1/2-hour *fire protection rating* intended for installation in *fire barriers*, where limited to 100 square inches (0.065 m^2).

716.5.8.2 Elevator, stairway and ramp protectives. Approved fire-protection-rated glazing used in *fire door* assemblies in elevator, stairway~~s~~ and ramp~~s~~ enclosures shall be so located as to furnish clear vision of the passageway or approach to the elevator, stairway or ramp.

716.5.8.3 Labeling. Fire-protection-rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and information required in Section ~~716.5.8.3.1~~ Table 716.3 that shall be issued by an *approved agency* and shall be permanently identified on the glazing.

Reason: The charging language of Section 716.5.8 references fire-protection-rated glazing. The sub sections which follow detail requirements for both fire-protection-rated glazing and fire-resistance-rated glazing. The proposed changes to Section 716.5.8 editorially correct this along with several other typographical errors. No technical changes are being introduced.

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Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

716.5.8 Glazing material. Fire-rated glazing and fire-resistance-rated glazing conforming to the opening protective requirements in Section 716.5 shall be permitted in *fire door* assemblies.

(Portions of the proposal not shown remain unchanged).

Committee Reason: The committee agreed that the proposal clarified the differences between fire-resistance-rated glazing and fire-protection-rated glazing regarding code application. The modification simply extends this differentiation to Section 716.5.8.

Assembly Action: **None**

Public Comments

Public Comment:

Bob Eugene, representing UL LLC, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

716.5.8.3 Labeling. Fire-~~protection~~-rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and information required in ~~Section~~ Table 716.3 that shall be issued by an *approved agency* and shall be permanently identified on the glazing.

(Portions of the proposal not shown remain unchanged)

Commenter's Reason: The term "fire-rated" is a defined term that includes both fire-protection-rated and fire-resistance-rated. Both are included in Table 716.3. The deletion to the term "Section" in the last sentence is editorial, was discussed in testimony at the Dallas hearings, but was inadvertently omitted from the motion by the Code Development Committee.

Final Hearing Results

FS94-12 **AMPC**

Code Change No: FS95-12

Original Proposal

Section(s): 716.5.8.4, 716.6.3

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

716.5.8.4 Safety glazing. Fire~~-protection~~-rated glazing installed in *fire doors* assemblies ~~in areas subject to human impact in hazardous locations~~ shall also comply with the safety glazing requirements of Chapter 24 where applicable.

716.6.3 Safety glazing. Fire~~-protection~~-rated glazing installed in *fire window assemblies* ~~in areas subject to human impact in hazardous locations~~ shall also comply with the safety glazing requirements of Chapter 24 where applicable.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/default.aspx. Since its inception in April/2005, the CTC has held twenty two meetings - all open to the public.

This proposed change is a result of the CTC's investigation of the area of study entitled "Labeling of Fire Rated Glazing". The scope of the activity is noted as:

Identify root causes of problems selecting, specifying, installing, and inspecting fire protective and fire resistive glazing and other assembly components including the frames. Propose identification requirements and other related code changes.

The proposed changes to Section 716.5.8.4 and 716.6.3 are needed to clarify the code changes approved in the last code cycle to ensure that there is no question that Chapter 24 language covers both fire-protection-rated glazing and fire-resistance-rated glazing. Proposed language also addresses requirements for safety glazing not defined as hazardous locations by referencing compliance with Chapter 24. No technical changes are being introduced.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

716.5.8.4 Safety glazing. Fire-protection-rated glazing and fire-resistance-rated glazing installed in *fire doors* assemblies shall also comply with the safety glazing requirements of Chapter 24 where applicable.

716.6.3 Safety glazing. Fire-protection-rated glazing and fire-resistance-rated glazing installed in *fire window assemblies* shall also comply with the safety glazing requirements of Chapter 24 where applicable.

Committee Reason: The committee agreed that the proposal clarified that both fire-resistance-rated glazing and fire-protection-rated glazing used as a safety glazing need to meet Chapter 24. The modification is for consistency with FS94-12 for further clarification.

Assembly Action: **None**

Final Hearing Results

FS95-12 **AM**

Code Change No: FS96-12

Original Proposal

Section(s): 716.5.9

Proponent: Sharon S. Gilyeat, Koffel Associates, Inc., representing CHUTES International

Revise as follows:

716.5.9 Door closing. Fire doors shall be self- or automatic-closing in accordance with this section. ~~Self-closing chute intake doors shall not fail in a "door open" position in the event of a closer failure.~~

Exceptions:

1. Fire doors located in common walls separating sleeping units in Group R-1 shall be permitted without automatic- or self-closing devices.
2. The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I emergency recall operation.

Reason: In the last code cycle this change was made as part of FS 39. In my review of the documentation relating to the change, it appears that the proposal was attempting to ensure the door stayed closed and latched even if the closer was broken. In other words, the closer could not be the device keeping the door shut, the latch needed to do this. The changes that ultimately went into 715.4.8.1.1 accomplished this goal. It does not appear that it was intended for there be multiple door closing devices on the door.

It is not possible to have a chute door fail safe to the closed position if the self-closer is broken and the door is open at the time the closer fails. It is the closer that brings the door to the closed position. If this requirement were taken literally, it would require all intake doors to be top hinged. For safety reasons this is not acceptable as the doors are generally arranged to minimize the risk of someone falling into the chute inadvertently. This is why side or bottom hinged doors are used as loading doors. I believe this requirement is unclear. It is attempting to address a maintenance and inspection issue by adding more hardware.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

716.5.9 Door closing. Fire doors shall be <u>latching and</u> self- or automatic-closing in accordance with this section.

Exceptions:

1. Fire doors located in common walls separating sleeping units in Group R-1 shall be permitted without automatic- or self-closing devices.
2. The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I emergency recall operation.

Committee Reason: The committee agreed that the proposal corrected a problem in that it removes language that seems to only allow a top hinged door that would fail in the closed position. The modification is for added confidence that the door will remain closed by being latched.

Assembly Action: **None**

Final Hearing Results

FS96-12 **AM**

Code Change No: FS97-12

Original Proposal

Section: 716.5.9.3

Proponent: Sharon S. Gilyeat, Koffel Associates, Inc., representing CHUTES International

Revise as follows:

716.5.9.3 Smoke-activated doors. Automatic-closing doors installed in the following locations shall be automatic-closing by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to the smoke detector or hold-open device. Doors that are automatic-closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated:

1. Doors installed across a corridor.
2. Doors that protect openings in exits or corridors required to be of fire-resistance-rated construction.
3. Doors that protect openings in walls that are capable of resisting the passage of smoke in accordance with Section 509.4.
4. Doors installed in smoke barriers in accordance with Section 709.5.
5. Doors installed in fire partitions in accordance with Section 708.6.
6. Doors installed in a fire wall in accordance with Section 706.8.
7. Doors installed in shaft enclosures in accordance with Section 713.7.
8. Doors installed in ~~refuse and laundry~~ waste and linen chutes, discharge openings, and access and ~~termination~~ discharge rooms in accordance with Section 713.13. ~~Automatic-closing~~ Chute ~~intake~~ loading doors installed in ~~refuse and laundry~~ waste and linen chutes shall also meet the requirements of Section 716.5.9 and 716.5.9.1.1.
9. Doors installed in the walls for compartmentation of underground buildings in accordance with Section 405.4.2.
10. Doors installed in the elevator lobby walls of underground buildings in accordance with Section 405.4.3.
11. Doors installed in smoke partitions in accordance with Section 710.5.2.3.

Reason: Editorial changes intended to use consistent terms throughout the ICC that correlate with NFPA 82. This change corresponds with the related change to 713.13.1. The industry standard is for the loading doors to remain normally closed and in the case of linen, to be secured. Allowing a loading door to a chute to be held open creates a safety risk. The risk of someone falling into the chute inadvertently is minimized by the door being normally closed.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved for consistency with the committee action on F S55-12 where the committee agreed that “waste, linen and discharge” reflected commonly used terminology and were therefore appropriate.

Assembly Action: **None**

Final Hearing Results

FS97-12 **AS**

Code Change No: FS98-12

Original Proposal

Section(s): 716.5.9.3

Proponent: Philip Brazil, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

716.5.9.3 Smoke-activated doors. Automatic-closing doors installed in the following locations shall be automatic- closing by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to the smoke detector or hold-open device. Doors that are automatic-closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated:

1. Doors installed across a *corridor*.
2. Doors that protect openings in *exits* or *corridors* required to be of fire-resistance-rated construction.
3. Doors that protect openings in walls that are capable of resisting the passage of smoke in accordance with Section 509.4.
4. Doors installed in *smoke barriers* in accordance with Section 709.5.
5. Doors installed in *fire partitions* in accordance with Section 708.6.
6. Doors installed in a *fire wall* in accordance with Section 706.8.
7. Doors installed in shaft enclosures in accordance with Section 713.7.
8. Doors installed in refuse and laundry chutes and access and termination rooms in accordance with Section 713.13. Automatic-closing chute intake doors installed in refuse and laundry chutes shall also meet the requirements of Sections 716.5.9 and 716.5.9.1.1.
9. Doors installed in the walls for compartmentation of underground buildings in accordance with Section 405.4.2.
10. Doors installed in the elevator lobby walls of underground buildings in accordance with Section 405.4.3.
11. Doors installed in smoke partitions in accordance with Section 710.5.2.3.
12. Doors installed in the enclosures of *exit access stairways* and *ramps* in accordance with Sections 1009.3.1.4 and 1010.2, respectively.

Reason: The addition of Item 12 is for correlation with the reference to Section 716.5.9.3 in Section 1009.3.1.4 for exit access stairways and, by inference, in Section 1010.2 for exit access ramps, which specifies compliance with Section 1009.3 for enclosure of stairways.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

716.5.9.3 Smoke-activated doors. Automatic-closing doors installed in the following locations shall be automatic- closing by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to the smoke detector or hold-open device. Doors that are automatic-closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated:

1. Doors installed across a *corridor*.

2 . Doors installed in the enclosures of *exit access stairways* and *ramps* in accordance with Sections 1009.3.1.4 and 1010.2, respectively.
3. ~~2.~~ Doors that protect openings in *exits* or *corridors* required to be of fire-resistance-rated construction.
4. ~~3.~~ Doors that protect openings in walls that are capable of resisting the passage of smoke in accordance with Section 509.4.
5. ~~4.~~ Doors installed in *smoke barriers* in accordance with Section 709.5.
6. ~~5.~~ Doors installed in *fire partitions* in accordance with Section 708.6.
7. ~~6.~~ Doors installed in a *fire wall* in accordance with Section 706.8.
8. ~~7.~~ Doors installed in shaft enclosures in accordance with Section 713.7.
9. ~~8.~~ Doors installed in refuse and laundry chutes and access and termination rooms in accordance with Section 713.13. Automatic-closing chute intake doors installed in refuse and laundry chutes shall also meet the requirements of Sections 716.5.9 and 716.5.9.1.1.
10. ~~9.~~ Doors installed in the walls for compartmentation of underground buildings in accordance with Section 405.4.2.
11. ~~10.~~ Doors installed in the elevator lobby walls of underground buildings in accordance with Section 405.4.3.
12. ~~11.~~ Doors installed in smoke partitions in accordance with Section 710.5.2.3.
~~12. Doors installed in the enclosures of *exit access stairways* and *ramps* in accordance with Sections 1009.3.1.4 and 1010.2, respectively.~~

Committee Reason: The committee agreed that the proposal correlated the requirements for doors in enclosed exit access stairways and ramps. The modification places the requirement in a more logical order within the list.

Assembly Action: **None**

Final Hearing Results

FS98-12 **AM**

Code Change No: FS100-12

Original Proposal

Section: 714.1.1 (New)

Proponent: Clay Aler, P.E., Koffel Associates, representing self

Add new text as follows:

717.1 General. The provisions of this section shall govern the protection of duct penetrations and air transfer openings in assemblies required to be protected and duct penetrations in nonfire-resistance-rated floor assemblies.

717.1.1 Ducts and Air Transfer Openings. Ducts transitioning horizontally between shafts shall not require a shaft enclosure provided that the duct penetration into each associated shaft is protected with *dampers* complying with the this section.

Reason: The code intent is to maintain the integrity of shaft enclosures when they are provided. The code intent is maintained by providing dampers in accordance with Section 717. The code intent is not to require a continuous shaft enclosure of main ducts where adequate protection of the individual shaft enclosures is maintained. The overriding intent is to maintain appropriate separation between stories within an enclosed building and to minimize the spread of fire and smoke through the use of dampers as ductwork leaves a shaft enclosure. Providing a continuous horizontal shaft enclosure with required supporting construction will have significant cost implications.

Cost Impact: The proposed code language will allow the designer to determine the approach taken to protect ductwork that must transition horizontally between shaft enclosures that are not continuous through all stories of a building. Designers choosing to provide dampers at each duct penetration of the associated discontinuous shaft enclosures should see a reduction in construction cost

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that damper protection was sufficient to allow ductwork to transition between vertical shafts without being horizontally enclosed in a shaft.

Assembly Action: **None**

Final Hearing Results

FS100-12 **AS**

Code Change No: FS104-12

Original Proposal

Section: 717.3.1 (IMC 607.3.1)

Proponent: Bob Eugene, representing Underwriters Laboratories (Robert.Eugene@ul.com)

Revise as follows:

717.3.1 (IMC 607.3.1) Damper testing. *Dampers* shall be listed and labeled in accordance with the standards in this section. *Fire dampers* shall comply with the requirements of UL 555. Only *fire dampers* and ceiling radiation dampers labeled for use in dynamic systems shall be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire. *Smoke dampers* shall comply with the requirements of UL 555S. *Combination fire/smoke dampers* shall comply with the requirements of both UL 555 and UL 555S. *Ceiling radiation dampers* shall comply with the requirements of UL 555C or shall be tested as part of a fire-resistance-rated floor/ceiling or roof/ceiling assembly in accordance with ASTM E119 or UL 263.

Reason: The code currently requires ceiling radiation dampers to comply with the requirements of the 2006 edition of UL 555C, with revisions through May 2010, which includes performance requirements for ceiling radiation dampers intended for use in dynamic HVAC systems where the airflow is operational at the time of a fire. The UL 555C standard requires ceiling radiation dampers investigated for use in dynamic systems to be marked for dynamic system use, along with the established airflow and closure pressure. This proposal will require the use of ceiling radiation dampers labeled for use in dynamic systems in these applications.

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Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this was an appropriate addition as it identifies another type of damper for use in dynamic systems.

Assembly Action: **None**

Final Hearing Results

FS104-12 **AS**

Code Change No: FS106-12

Original Proposal

Section(s): 202, 702.1, 717.3.1, 717.3.2.4 (new), 717.3.3.5 (New), 717.5, 717.5.4.1

Proponent: Bob Eugene representing Underwriters Laboratories (Robert.Eugene@ul.com)

Revise as follows:

SECTION 202
DEFINITIONS

CORRIDOR DAMPER. A listed device intended for use where air ducts penetrate or terminate at horizontal openings in the ceilings of interior corridors, where the corridor ceiling is constructed as required for the corridor walls.

DAMPER. See "*Ceiling radiation damper*," "*Combination fire/smoke damper*," "*Corridor damper*," "*Fire damper*" and "*Smoke damper*."

Revise text as follows:

702.1 Definitions. The following terms are defined in Chapter 2:
CORRIDOR DAMPER

(Portions of text not shown remain unchanged)

717.3.1 Damper testing. Dampers shall be listed and labeled in accordance with the standards in this section.

1. Fire dampers shall comply with the requirements of UL 555. Only fire dampers labeled for use in dynamic systems shall be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire.
2. Smoke dampers shall comply with the requirements of UL 555S.
3. Combination fire/smoke dampers shall comply with the requirements of both UL 555 and UL 555S.
4. Ceiling radiation dampers shall comply with the requirements of UL 555C or shall be tested as part of a fire-resistance-rated floor/ceiling or roof/ceiling assembly in accordance with ASTM E119 or UL 263.
5. Corridor dampers shall comply with requirements of both UL 555 and UL 555S. Corridor dampers shall also demonstrate acceptable closure performance when subjected to 150 fpm (0.76 mps) velocity across the face of the damper during the UL 555 fire exposure test.

717.3.2.4 Corridor damper ratings. Corridor dampers shall have the following minimum ratings:

1. One hour fire-resistance rating,
2. Class I or II leakage rating as specified in Section 717.3.2.2.

717.3.3.5 Corridor damper actuation. Corridor *damper* actuation shall be in accordance with Sections 717.3.3.1 and 717.3.3.2.

717.5 Where required. *Fire dampers*, *smoke dampers*, ~~*and*~~ *combination fire/smoke dampers*, *ceiling radiation dampers* and *corridor dampers* shall be provided at the locations prescribed in Sections 717.5.1 through 717.5.7 and 717.6. Where an assembly is required to have both *fire dampers* and *smoke dampers, combination fire/smoke dampers* or a *fire damper* and a *smoke damper* shall be ~~required~~ provided.

717.5.4.1 Corridors. Duct and air transfer openings that penetrate corridors shall be protected with dampers as follows.

1. A corridor damper shall be provided where corridor ceilings, constructed as required for the corridor walls as permitted in Section 708.4, Exception 3, are penetrated,
2. A ceiling radiation damper shall be provided where the ceiling membrane of a fire-resistance-rated floor-ceiling or roof-ceiling assembly, constructed as permitted in Section 708.4, Exception 2, is penetrated.
3. A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *corridor* enclosure required to have smoke and draft control doors in accordance with Section 716.5.3.

Exceptions:

1. *Smoke dampers* are not required where the building is equipped throughout with an approved smoke control system in accordance with Section 909, and *smoke dampers* are not necessary for the operation and control of the system.
2. *Smoke dampers* are not required in corridor penetrations where the duct is constructed of steel not less than 0.019 inch (0.48 mm) in thickness and there are no openings serving the corridor.

Reason: This proposal clarifies the appropriate types of dampers required to protect duct and air transfer openings that penetrate corridors. It accomplishes this as follows.

1. A new definition of corridor damper is proposed. These products have been around for several years, and 18 companies currently have corridor damper Listings.
2. IBC section 717.3.1 and 717.3.2.4 (IMC 607.3.1 and 607.3.2.4) describe the testing standards and ratings that corridor dampers must meet. Corridor dampers are listed for both a fire resistance rating of 1 hr, and a Class I or II leakage rating as defined by the Standard UL 555S. Leakage ratings of corridor dampers are determined at an elevated temperature 250°F or 350°F. Corridor dampers have also demonstrated acceptable closure performance when subjected to 150 fpm velocity across the face of the damper during fire exposure. Corridor dampers are only intended to be used to protect duct and air transfer openings in corridor ceilings, where the ceilings are constructed as required for the corridor walls (as permitted in Section 708.4, Exception 3.)
3. Section 717.3.3.5 (IMC 607.3.3.5) cover the actuation criteria for corridor dampers using existing criteria for both fire dampers and smoke dampers.
4. Language was added to Section 717.5.4.1 (IMC 607.5.4) describing the applications that require corridor dampers to be installed. Additional language was also added to indicate the applications in which a ceiling radiation damper is required to be installed, which was not covered in the current code.

Currently, Section 717.5.4.1, in conjunction with Sections 717.5.4 and/or 717.6.1, would imply these penetrations should be protected with combination fire/smoke dampers or fire dampers and smoke dampers. However, these devices are not designed and tested to be mounted in a wall installed in the horizontal orientation. The correct devices for this application are corridor dampers.

Cost Impact: None

Analysis: FS 106 and FS 107 provide similar provisions for corridor dampers. The committee needs to make its intent clear with respect to these provisions.

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

CORRIDOR DAMPER. A listed device intended for use where air ducts penetrate or terminate at horizontal openings in the ceilings of ~~interior~~ fire-resistance rated corridors, where the corridor ceiling is permitted to be constructed as required for the corridor walls.

(Portions of proposal not shown to remain unchanged)

Committee Reason: The committee agreed that this proposal appropriately adds technical requirements for the dampers required to protect duct and air transfer openings that penetrate specific corridor ceilings. Further, the committee preferred this over FS107 as this proposal expands on the testing requirements for corridor dampers, includes the use of these dampers at penetrations of ceiling membranes and does not repeat the actuation requirements. The modifications to the definition clarifies that the requirements for corridor dampers are related to fire-resistance rated corridors and corridor ceilings that are permitted to be constructed as required for corridors.

Assembly Action: **None**

Final Hearing Results

FS106-12 **AM**

Code Change No: FS108-12

Original Proposal

Section(s): 717.3.3.2 (IMC 607.3.3.2)

Proponent: Al Godwin, CBO, CPM, representing Aon Fire Protection Engineering (al.godwin@aon.com)

Revise as follows:

717.3.3.2 (IMC 607.3.3.2) Smoke damper actuation. The *smoke damper* shall close upon actuation of a *listed* smoke detector or detectors installed in accordance with Section 907.3 and one of the following methods, as applicable:

1. Where a *smoke damper* is installed within a duct, a smoke detector installed in the duct, or smoke detector installed outside the duct with sampling tubes protruding into the duct, shall be installed ~~in the duct~~ within 5 feet (1524 mm) of the *damper* with no air outlets or inlets between the detector and the *damper*. The detector shall be *listed* for the air velocity, temperature and humidity anticipated at the point where it is installed. Other than in mechanical smoke control systems, *dampers* shall be closed upon fan shutdown where local smoke detectors require a minimum velocity to operate.
2. Where a *smoke damper* is installed above *smoke barrier* doors in a *smoke barrier*, a spot-type detector ~~*listed* for releasing service~~ shall be installed on either side of the *smoke barrier* door opening. The detector shall be listed for releasing service if used for direct interface with the damper.
3. Where a *smoke damper* is installed within an air transfer opening in a wall, a spot-type detector ~~*listed* for releasing service~~ shall be installed within 5 feet (1524 mm) horizontally of the *damper*. The detector shall be listed for releasing service if used for direct interface with the damper.
4. Where a *smoke damper* is installed in a *corridor* wall or ceiling, the *damper* shall be permitted to be controlled by a smoke detection system installed in the *corridor*.
5. Where a ~~total-coverage~~ smoke ~~detector~~ detection system is installed in ~~provided within~~ areas served by the duct in which the damper would be located, ~~a heating, ventilation and air-conditioning (HVAC) system,~~ the *smoke dampers* shall be permitted to be controlled by the smoke detection system.

Reason: This section has remained the same for a number of cycles and is outdated.

There are several things of concern related to this section. Firstly, in methods 2 and 3 above, spot-type detectors “listed for releasing service” are referenced. While a limited number of manufacturers produce these types of detectors, most do not and it should not be a requirement that the detectors used be listed for release service. This can be confirmed by research to the UL Fire Protection Equipment Directory, Category UROX. The interface to close dampers is most often achieved by using a relay module, not a relay on the detector or detector base.

Secondly, method 1 is an example of a detector being located “within” a duct. In most cases, detectors are located outside the duct with sampling tubes protruding into the duct. While the restrictions of this method are often applied to duct detectors with sampling tubes, it suggests that only detectors placed within the duct may be used.

Lastly method 5, in our opinion, has two faults. One, the definition of “total-coverage smoke detector system” is not appropriate for the intent of the section, and two, the location for detectors should not be based on areas served by the HVAC system but rather by the areas served by the duct in which the damper is located. We were unable to locate a total-coverage smoke detector system in the IBC. And the definition in NFPA 72 is located in Chapter 17. NFPA 72 requires detectors above ceilings in some cases. My firm has also been called on a case where a duct detector at a shaft was being replaced with detection in all areas served by the duct on one floor as part of a renovation. The smoke dampers on the floors above had duct detectors with sampling tubes. The AHJ stated that the HVAC system also serves the floors above and without full coverage on those levels they could not approve the design approach.

Also, of the 5 methods listed, method 5 is the only one that uses the plural of smoke dampers. All others apply to single dampers.

Cost Impact: There should be no cost impact as this is the standard method of installation.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Although the committee thought that the revisions to exceptions 1 through 4 had merit, they disagreed with the revisions to exception 5 as it appears to allow required dampers to be replaced with smoke detection, which is not appropriate.

Assembly Action: **None**

Public Comments

Public Comment 1:

Al Godwin, CBO, CPM, representing Aon Fire Protection Engineering Corporation, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

717.3.3.2 Smoke damper actuation. The *smoke damper* shall close upon actuation of a *listed* smoke detector or detectors installed in accordance with Section 907.3 and one of the following methods, as applicable:

1. Where a *smoke damper* is installed within a duct, a smoke detector installed in the duct, or smoke detector installed outside the duct with sampling tubes protruding into the duct, shall be installed ~~in the duct~~ within 5 feet (1524 mm) of the *damper* with no air outlets or inlets between the detector and the *damper.* The detector shall be *listed* for the air velocity, temperature and humidity anticipated at the point where it is installed. Other than in mechanical smoke control systems, *dampers* shall be closed upon fan shutdown where local smoke detectors require a minimum velocity to operate.
2. Where a *smoke damper* is installed above *smoke barrier* doors in a *smoke barrier,* a spot-type detector ~~*listed* for releasing service~~ shall be installed on either side of the *smoke barrier* door opening. The detector shall be listed for releasing service if used for direct interface with the damper.
3. Where a *smoke damper* is installed within an air transfer opening in a wall, a spot-type detector ~~*listed* for releasing service~~ shall be installed within 5 feet (1524 mm) horizontally of the *damper.* The detector shall be listed for releasing service if used for direct interface with the damper.
4. Where a *smoke damper* is installed in a *corridor* wall or ceiling, the *damper* shall be permitted to be controlled by a smoke detection system installed in the *corridor.*
5. Where a total-coverage smoke detector system is provided within areas served by a heating, ventilation and air-conditioning (HVAC) system, *smoke dampers* shall be permitted to be controlled by the smoke detection system.

Commenter's Reason: In its review, the Committee agreed with items 1 thru 4. However, when asked a question I incorrectly responded that smoke detectors on the floor would replace the damper in the duct. That is obviously incorrect. The correct answer is that smoke detectors on the floor would replace the detector in the duct. The damper remains in place.

Public Comment 2:

Al Godwin, CBO, CPM, representing Aon Fire Protection Engineering Corporation, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

717.3.3.2 Smoke damper actuation. The *smoke damper* shall close upon actuation of a *listed* smoke detector or detectors installed in accordance with Section 907.3 and one of the following methods, as applicable:

1. *(no change)*
2. *(no change)*
3. *(no change)*
4. *(no change)*
5. Where a ~~total-coverage~~ smoke detection~~or~~ system is installed in ~~provided within~~ all areas served by the duct in which the damper will ~~would~~ be located, ~~a heating, ventilation and air-conditioning (HVAC) system,~~ the *smoke damper~~s~~* shall be permitted to be controlled by the smoke detection system.

Commenter's Reason: In its review, the Committee agreed with items 1 thru 4, which are submitted under a separate Public Comment. However, when asked a question I incorrectly responded that smoke detectors on the floor would replace the damper in the duct. That is obviously incorrect. The correct answer is that smoke detectors on the floor would replace the detector in the duct. The damper remains in place. The committee also recommended some amendments; e.g. adding "all" and changing "would" to "will." Those changes have been made.

Final Hearing Results

FS108-12 **AMPC1, 2**

Code Change No: FS114-12

Original Proposal

Section(s): 717.5.5 (IMC 607.5.4)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Healthcare

Revise as follows:

717.5.5 (IMC 607.5.4) Smoke barriers. A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *smoke barrier*. *Smoke dampers* and *smoke damper* actuation methods shall comply with Section 717.3.3.2.

Exceptions:

1. *Smoke dampers* are not required where the openings in ducts are limited to a single smoke compartment and the ducts are constructed of steel.
2. Smoke dampers are not required in ambulatory care facilities and Group I-2 hospital occupancies where the HVAC system is fully ducted in accordance with Section 603 of the *International Mechanical Code* and where buildings are equipped throughout with an automatic sprinkler system in accordance with Sections 903.3.1.1 and equipped with quick response sprinklers in accordance with Section 903.3.2.

Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

Duct smoke dampers at smoke barrier walls in facilities fully protected with electronically supervised, tested and maintained quick response automatic sprinkler systems should be omitted from the I-codes, have not been required by other model codes and have shown a history of success without the additional dampers. In preparation for this proposal the AHC asked Rolf Jensen & Associates (RJA) to review and provide comments on the "Smoke Damper Evaluation for Air Movement & Control Association International, Inc." analysis and dated May 14, 2010. A copy of their summary can be found at www.iccsafe.org.

The supporting information, summarized by RJA for the AHC, describes information gathered in the years since quick response sprinklers (QRS) have been deployed. Untenable conditions are typically measured in amount of heat, obscuration of exit signs, and carbon monoxide levels. The studies summarized these conditions taking approximately 2 hours to 2-1/2 hours to reach untenable levels. Considering non-smoking policies in hospitals, use of Class A materials, and overall reduction of items to fuel a fire, it is highly unlikely to reach the constant burning levels noted in the study. However, even if judged in those timeframes noted in the report, the actual responder timeframe should enter into the equation. The following summarizes emergency responder timeframes:

Alarm is sounded, either by manual pull by the staff or by the automatic smoke detection system (most likely an addressable system)

- Staff employs defend-in-place method, which includes shutting doors to the origin of the fire and relocating patients out of the immediate area (i.e. to the other side of the compartment smoke barrier)
- Within 10 minutes of alarm, the fire department arrives
- In the context of the fire response, doors are opened by the fire department to find the source of the fire. These are the doors that automatically closed upon initiation of the alarm. Any mechanical system is now out of the equation, because of the active use of the doorways in the fire response, or if needed, the patient movement away from the room of origin.

In conclusion, the meaningful time of the fire protection of the building occurs in the first 30 minutes of the fire incident, when decisions are made by fire professionals and the safety staff of the hospital in terms of status of the patients. Quick response sprinklers are more often noted as the most important feature of the overall building fire protection system, and are demonstrated to be effective in containing spread of the fire than dampering of the duct system.

Please note that this proposal deals only with smoke zone barrier walls. It is not proposed to change the requirement for these dampers at shafts or at the air handler units.

The RJA comments are as follows:

Evaluations of recent automatic sprinkler performance data and smoke movement analysis report for smoke dampers revealed the following:

1. In 3,750 fires reported over the years of 2003 – 2006 in hospitals, mental health and substance abuse facilities; one civilian death was recorded. That individual was within the room of fire origin within a mental health facility and started the fire.
2. The overwhelming majority (i.e. 97+%) of fires within these facilities did not extend beyond the room of origin, despite having an automatic suppression system present in only 57% of reported fires.
3. Automatic sprinkler protection in a hospital has higher reliability and better performance than other occupancies. In over 1,600 fires in hospitals spanning 2003 - 2006, when sprinklers were present and the fires were large enough to activate an automatic suppression system, those systems showed a 97% operational reliability and were effective 100% of the time.
4. The requirements for electronically supervised hydraulically designed automatic sprinkler system increases the system reliability
5. Properly documented testing and maintenance improves the reliability of these systems. CMS holds healthcare facility operators accountable for the testing and maintenance requirements of NFPA 25. Verification of this documentation and maintenance records are checked every 1 to 3 years.
6. Tenable conditions are present in the smoke movement analysis for sprinklered buildings with or without smoke dampers.
7. Tenable conditions in non sprinklered configurations can be maintained for test fire duration of 30 minutes beyond room of origin.

Due the required automatic system design requirements, the limited smoke movement in a fully sprinklered building, required testing and maintenance of these suppression systems, the omission of smoke dampers is justified. There are still multiple safeguards to protect the building occupants from a multiple loss of life fire.

The use of smoke dampers between smoke zones in hospitals protected with Quick Response automatic Sprinklers (QRS) is being evaluated based on the reports of fire outcomes in hospitals; automatic sprinkler system reliability, performance, and effectiveness; and an assessment of previous smoke movement work in non sprinklered configurations.

NFPA issued an updated report on automatic sprinkler performance in two different reports [(1)(2)]. The reported data has been reviewed and evaluated for hospital facilities when possible. The failure modes will be reviewed and addressed based on current Building Code and Fire Code requirements.

Jennifer Flynn's report [(2)] shows there were 3,750 fires reported to have occurred over the years of 2003 – 2006 in hospitals, mental health, substance abuse and medical office type facilities. In all those fires, one fatality was reported, and that fatality occurred within the room of fire origin. That one fatality occurred as a result of a mental health patient using flammable liquids and igniting the mattress and other materials within his room.

Of reported 2003-2007 structure fires in health care properties, an estimated 57% showed sprinklers present, with higher percentages for hospitals (71%) and nursing homes (65%) and a much lower percentage for clinics and doctor's offices (28%). Sprinklers were also reported as present in half or more of all reported fires in laboratories (60%), manufacturing facilities (52%), theaters (50%), and prisons and jails (50%). In every other property use, more than half of all reported fires had no sprinklers.

Hospitals have the highest percentage of automatic sprinklers present in all the occupancies analyzed in this report. Despite suppression systems being present in only
57% of health care properties where fires were reported, those fires only extended beyond the room of origin in less than 3 percent of all reported fires. This can be directly attributed to the **R.A.C.E.** training medical staff are mandated to receive annually. The **C** in RACE relates to *confining* the fire. More simply, medical staff are trained to close the doors in rooms where fires ignite, after they **R**escue patients near the fire origin and **A**lert others of the presence of the fire.

For most property use groups and most types of automatic extinguishing equipment, the majority of reported fires were too small to activate operational equipment.
When automatic extinguishing equipment was present, the percentages of fires too
small to activate operating equipment, based on overall reported structure fires, were as follows:

- 65% for all sprinklers,
- 65% for wet pipe sprinklers,
- 70% for dry pipe sprinklers,
- 61% for dry (or possibly wet) chemical systems,
- 43% for carbon dioxide systems,
- 66% for foam systems, and
- 59% for halogen systems.

Sprinklers in the area of fire failed to operate in only 7% of reported structure fires large enough to activate sprinklers. Based on Table A [(1)] , non confined fires larger than the sprinkler design area happened less than 2.0 % of the total non-confined and confined structure fires for healthcare buildings. These fires may affect a large part of a smoke compartment but they rarely happen.

Table 3A [(1)] indicates the percentage of effective operation of sprinklers in 620 fires large enough for sprinkler activation at 87% in all healthcare related facilities. The Flynn report breaks this down by type of healthcare facility. Where sprinklers were present and the fire was large enough to operate the sprinklers in hospitals alone, sprinklers were effective 100 percent of the time.

The assessment of automatic sprinkler failures are summarized in Table 4A [(1)]. However, healthcare or hospitals are not separated as an occupancy type.

The System turned off reas	53%
2. Inappropriate suppression system	20%
3. Lack of Maintenance	15%
4. Manual intervention	9%
5. System component damages	2%

In new and existing hospitals, the automatic sprinkler systems require electronic supervision. This supervision will typically address the major (53%) reason for system failure. This analysis is limited to hospitals. Automatic water based suppression is the appropriate means to control fires in this healthcare occupancy. This addresses 20% of the documented failures. Automatic water based suppression systems are required for all new hospitals and all renovations over 4000 square feet. 73%of the failures are addressed by electronically supervised automatic sprinkler systems.

Lack of maintenance is addressed by the CMS enforcement which ensures facilities follow NFPA 25. Existing healthcare facilities are required to document the NFPA 25 inspection, testing and maintenance on all water based suppression systems. Through contracts with state public health and fire marshal's offices that direct periodic surveys, CMS ensures that the needed inspection, testing and maintenance is provided in health care facilities. This work will also identify damaged system components. The required testing and maintenance and damage will address 17% of the documented failures.

Manual intervention is a fire service function. Standard operating procedures recommend determining the fire no longer poses a threat before shutting the system down.

The Hall report [(1)] also notes reasons for ineffectiveness of systems. This category addresses the effectiveness of a system not the failure. These systems still operated but not at the design intent. These have 2 major categories. Extinguishing agent did not reach the fire and not enough extinguishing agent available.

Shielded fires are the first category. These can be addressed by proper design. Small shielded fires under tables or beds are within the design parameters of a NFPA 13 compliant sprinkler system. Missing areas under duct work or within storage racks are the typical issues in this category. These types of items, if missed in the initial design and installation, should be identified in the ongoing testing and maintenance required by NFPA 25.

Insufficient extinguishing agent addresses inadequate water supply and partially closed valves. Proper maintenance and testing will identify a deteriorating water supply. The electronic supervision required for the hospital sprinkler system will send a trouble alarm to the fire alarm panel for partially closed control valves.

The hydraulically designed, electronically supervised, and regularly tested and maintained automatic sprinkler system is substantially more reliable than the current performance data indicate. Fire loss data also shows there has not been a documented multiple loss of live fire due to fire in a fully sprinklered building.

This sprinkler system analysis was done to evaluate the current data and how it relates to hospitals and demonstrates that the probability of a catastrophic failure of the required sprinkler system is remote. The biggest influence on the automatic sprinkler performance is the fire services for a properly designed, installed and maintained sprinkler system.

SMOKE DAMPER EVALUATION – ADDITIONAL CONSIDERATIONS

This portion of the reason statement evaluates an analysis prepared by Koffel Associates, Inc. (KA) titled "Smoke Damper Evaluation for Air Movement & Control Association International, Inc." and dated May 14, 2010. The purpose of our evaluation is to closely examine the details, assumptions, and conclusions related to the KA analysis to quantify the severity of hazardous conditions expected given the smoke spread predicted in the analysis for the scenarios with and without smoke dampers.

The KA analysis utilized a CONTAM computer model to predict smoke movement throughout a representative building under various conditions. The primary variables considered in this comparative analysis were whether the fire was sprinklered or unsprinklered and whether smoke dampers were included or omitted from the model. Data from a study titled "Fire Experiments of Zoned Smoke Control at the Plaza Hotel in Washington DC" by John H. Klote at the National Institute of Standards and Technology (NIST), 1990, was used as a basis for modeling smoke in the CONTAM model. Specifically, the KA analysis assumed a smoke concentration of 5.66×10^{-5} lb/ft^3 in the compartment of origin for the unsprinklered fire scenario and a concentration of 1.89×10^{-6} lb/ft^3 for the sprinklered fire scenario which is reportedly based on the fire test data contained in the Klote study.

The Klote study involved real fire tests conducted in the Plaza Hotel, a seven-story masonry structure. The Plaza Hotel tests were intended to evaluate the effectiveness of zoned mechanical smoke control systems. While not specified in the KA analysis, it appears that data from Plaza Hotel Test 1 and/or Test 5 was used for the unsprinklered fire scenario and data from Test 10 was used for the sprinklered fire scenario. Each of these three fire tests involved burning a 300 lb wood crib in a second floor corridor of the Plaza hotel with no mechanical smoke control systems active and all windows closed. Table 1 and Table 2 below summarize the select relevant data presented in the Klote study and KA analysis. This data shows movement away from the area of fire origin with and without smoke dampers installed in the model.

Table 1: Klote Study Results

	Tests 1 and 5	Test 10
Fuel Load	300 lb Wood Crib	300 lb Wood Crib
Test Duration	30 min	30 min
Sprinkler Interaction	No Sprinklers	Quick Response Sprinkler above Wood Crib
Peak Optical Density on Fire Floor (Fig. 24, 25)	3 m^{-1} @ 4 mins[1]	0.1 m^{-1} @ 3 mins
Peak CO Concentration on Fire Floor (Fig. 21)	~6,000 ppm	~200 ppm

The maximum optical density from Tests 1 and 5 was not reported in the Klote study. This optical density value is estimated based on the CO concentrations, which show a factor of 30 differential between the sprinklered and unsprinklered fire scenarios. This factor of 30 was applied to the maximum optical density value that was reported in the sprinklered fire test (Test 10). This assumption matches the KA analysis which assumed a smoke concentration for the unsprinklered fire scenario that was approximately 30 times the sprinklered scenario.

Table 2: KA Analysis Results
Smoke Concentration on Non-Fire Floor
(presented as % of smoke concentration on Fire Floor)

	Smoke Dampers	Without Smoke Dampers
5 Story Building @ 30 mins	1.37%	25.05%
5 Story Building @ 1 hour	2.51%	40.33%
5 Story Building @ 12 hours	7.78%	64.28%
50 Story Building @ 30 mins	0.11%	2.88%
50 Story Building @ 1 hour	0.21%	5.21%
50 Story Building @ 12 hours	0.69%	15.15%

The most severe conditions on the non-fire floor predicted by the KA analysis consider a 5 story building, no smoke dampers, and a constant smoke concentration on the fire floor over a 12-hour period. This scenario predicted that after 12 hours, the conditions on the non-fire floor, in terms of smoke concentrations, would be 64.28% of the conditions on the fire floor. After 30 minutes of constant conditions on the fire floor, the non-fire floor smoke concentration is 25.05% of that on the fire floor.

It should be noted that the assumption of constant peak smoke conditions for an extended period of time (as much as 12 hours) on the fire floor is extremely conservative. The Klote study data is based on a 30 minute test duration where the peak smoke concentrations (obscuration and CO concentrations) occur at one particular instance during the 30 minute test. Further, a fire burning at a constant rate over a 12 hour period of time would necessitate a fuel load to support such a fire. The most densely packed storage occupancies have fuel loads approaching only 3 or 4 hours.

The KA assumption is particularly conservative when considering the sprinkler controlled fire where Klote's study indicates that the fire in Test 10 was extinguished about 7 minutes after fire ignition. Klote's study also indicates that for the unsprinklered fires (Tests 1 and 5) the heat release rate of the fire decreased due to low oxygen levels after approximately 15 minutes as can be seen by the reduction in temperature shown in Figure 12 of the Klote study. So, maintaining a constant fire burning rate over a 30- minute duration is unlikely and is a very conservative assumption, especially in a building like hospitals that is occupied 24/7 by alert staff.

The following tables are intended to assess the degree of tenable conditions that may be present on the non-fire floor (for cases with and without smoke dampers) considering the referenced data from the Klote's study and the smoke concentration modeling performed in the KA analysis. The data in Table 3 is based on the CONTAM model results for the 5 story building only, which was the most challenging building configuration in terms of smoke concentrations on the non-fire floor.

Table 3: Tenability Analysis- Sprinklered Fire Scenario

Klote Test 10 (Sprinklered Fire)		
Peak Optical Density (D) on Fire Floor (Fig. 24, 25)	0.1 m^{-1} @ 3 mins	
Peak CO Concentration on Fire Floor (Fig. 21)	~200 ppm	
Calculated Visibility Based on Optical Density[1]	34.8 m (lighted sign)	
	With Smoke Dampers	**Without Smoke Dampers**
Predicted CO Concentration on Non-Fire Floor at 30 mins	200 ppm * 1.37% **= 3 ppm**	200 ppm * 25.05% **=50 ppm**
Predicted Visibility on Non-Fire Floor at 30 mins	34.8 m / 1.37% **= 2538 m**	34.8 m / 25.05% **= 138 m**
Predicted CO Concentration on Non-Fire Floor at 1 hour	200 ppm * 2.51% = **5 ppm**	200 ppm * 40.33% **=81 ppm**
Predicted Visibility on Non-Fire Floor at 1 hour	34.8 m / 2.51% **=1385 m**	34.8 m / 40.33% **= 86 m**
Predicted CO Concentration on Non-Fire Floor at 12 hours	200 ppm * 7.78% **=16 ppm**	200 ppm * 64.28% **=129 ppm**
Predicted Visibility on Non-Fire Floor at 12 hours	34.8 m / 7.78% **=447 m**	34.8 m / 64.28% **=54 m**

[1] The optical densities (D) reported in the Klote Study were converted to light extinction coefficients (K) by K=2.3D and visibilities (V) were calculated to light-emitting (exit) sign by V-8/K.

Table 4: Tenability Analysis- Unsprinklered Fire Scenario

Klote Tests 1 and 5 Data (Unsprinklered Fire)		
Peak Optical Density (D) on Fire Floor (Fig. 24, 25)	3 m^{-1} @ 4 min	
Peak CO Concentration on Fire Floor (Fig. 21)	~6,000 ppm	
Calculated Visibility Based on Optical Density [1]	1.2 m (lighted sign)	
	With Smoke Dampers	**Without Smoke Dampers**
Predicted CO Concentration on Non-Fire Floor at 30 mins	6,000 ppm * 1.37% **=83 ppm**	6,000 ppm * 25.05% **=1503 ppm**
Predicted Visibility on Non-Fire Floor at 30 mins	1.2 m / 1.37% **= 84.7 m**	1.2 m / 25.05% **= 4.6 m**
Predicted CO Concentration on Non-Fire Floor at 1 hour	6,000 ppm * 2.51% **=151 ppm**	6,000 ppm * 40.33% **=2420 ppm**
Predicted Visibility on Non-Fire Floor at 1 hour	1.2 m / 2.51% **=46.2 m**	1.2 m / 40.33% **= 2.9 m**
Predicted CO Concentration on Non-Fire Floor at 12 hour	6,000 ppm * 7.78% **=467 ppm**	6,000 ppm * 64.28% **=3857 ppm**
Predicted Visibility on Non-Fire Floor at 12 hour	1.2 m / 7.78% **=14.9 m**	1.2 m / 64.28% **=1.8 m**

[1]The optical densities (D) reported in the Klote Study were converted to light extinction coefficients (K) by K=2.3D and visibilities (V) were calculated to light-emitting (exit) sign by V=8/K.

The KA analysis discusses tenability on the non-fire floor in terms of visibility through smoke. A tenability performance criterion of approximately 10 meters (30 feet) is cited by the KA analysis as a commonly used value. While this visibility criterion is within ranges of visibility criteria for general building applications presented by The SFPE Handbook, 4th edition (Section 2, Chapter 4) Table 2-4.3, a lower criterion of 4 meters is suggested for healthcare occupancies where patients and staff are familiar with their surroundings and egress paths are typically defined by small rooms and corridors as opposed to large open spaces where greater visibility is necessary. Table 2-4.2 of the SFPE Handbook suggest a visibility threshold of 4 meters to allow safe escape when occupants are familiar with their surroundings.

Although not referenced in the KA analysis, tenability is also often measured in terms of carbon monoxide (CO) concentrations. CO is a measure of the toxicity of smoke that occupants are exposed to during evacuation. Carbon monoxide (CO) causes the formation of carboxyhemoglobin in the bloodstream when it is being breathed in the air during exposure. This relationship between exposure time and the concentration of carbon monoxide is dynamic, varying based upon the varying concentrations of CO within the surroundings and the physical condition of the individual. A more detailed discussion of the formation of carboxyhemoglobin can be found in the SFPE Handbook, 4th edition (Section 2, Chapter 6). Figure 2-6.14 of the SFPE Handbook indicates that occupant exposure with an at rest respiratory rate to a carbon monoxide concentration of 2,000 parts per million (ppm) can be experienced for 30 minutes before incapacitation occurs. Based on this relationship between exposure time and concentration, a conservative tenability criterion for carbon monoxide concentrations of 2000 ppm is suggested.

Based on the tenability criteria of 4 meters for visibility and 2000 ppm for CO concentrations, the data in the Klote study for the sprinklered fire indicates that conditions were tenable on the fire floor during the 30 minute fire test as the minimum visibility was measured to be 34.8 meters to a lighted exit sign and a maximum CO concentration of approximately 200 ppm. If the conditions on the fire floor are tenable, then any lower concentrations of smoke on non-fire floors, as predicted by the KA analysis, will also be tenable. This suggests that for sprinkler controlled fires, tenable conditions will be maintained on the non-fire floor, regardless of whether smoke dampers are installed, when considering the assumptions contained in the KA analysis. This is further supported by a study performed by Notarianni, "Measurement of Room Conditions and Response of Sprinklers and Smoke Detectors During a Simulated Two- Bed Hospital Patient Room Fire", NISTIR 5240, 1993 which assessed performance of sprinklers and smoke detectors in typical hospital room configurations. This study concluded that in all tests, with one exception, the sprinklers actuated in the room of fire origin before the patient's life would be threatened. The one exception was the shielded fire test where the sprinklers activated after untenable conditions were reached in the patient room. This study supports the assertion that in most cases sprinklers will activate and control further growth of the fire before untenable conditions are reached in the room of origin. Therefore, the sprinklers help to control the spread of untenable conditions throughout the building.

The results of for the unsprinklered fire scenario in Table 4 above show a minimum visibility on the non-fire floor of 4.6 meters to a lighted exit sign and a maximum CO concentration of 1503 ppm after 30 minutes of constant peak conditions on the fire floor. Based on the tenability criteria cited above of at least 4 meters of visibility and a maximum CO concentration of 2000 ppm, the conditions after 30 minutes for the unsprinklered fire scenario can also be considered tenable. It should be noted that the lowest visibility conditions in the Klote study occurred no earlier than 4 minutes after fire ignition and the maximum CO concentrations occurred no earlier than 15 minutes after fire ignition. The KA analysis for the 30 minute exposure assumes these most severe conditions on the fire floor from fire ignition (time zero) which indicates that tenable conditions should be maintained on the non-fire floor for more than 30 minutes after fire ignition when considering the delay in the Klote tests from ignition to when the most severe conditions occur in on the fire floor.

For the 1991 edition of NFPA 101, the Subcommittee on Health Care Occupancies performed studies that evaluated the benefits of healthcare occupancies when provided with a fully automatic sprinkler system and quick response sprinkler heads. All new Group I-2 buildings are required to be provided with a fully automatic sprinkler system and QRS. The studies discussed and mentioned above provide further scientific documentation that sprinklers are a more than effective means of mitigating the transfer of smoke beyond smoke compartment walls, as was discussed over twenty years ago.

Additionally, the requirements for interior finishes, decorative materials, mattresses, upholstered furniture, decorative vegetation and other decorative furnishings have become more restrictive in the past twenty years as well. Test standards have been developed to further quantify statistical information regarding the flame spread and smoke development of each of these above items. With these added restrictions within Group I-2 occupancies, the flame spread and smoke development ratings of these have assisted in the reduction of a greater potential event.

This review and analysis of previous fire tests, studies, and performance data provides a basis for justification to omit smoke dampers in new I-2 healthcare facilities. The performance of a building without automatic sprinkler protection has many variables to consider. The analysis above does look at typical non sprinklered scenarios and shows acceptable performance for at least the first 30 minutes. Emergency responders will be on site to assist the staff in a fire response. The recent fire records in healthcare facilities both sprinklered and non sprinklered show an ability to protect the person not intimate with a fire.

Bibliography

(1) *U.S. Experience with Sprinklers and Other Automatic Fire Extinguishing Equipment*, John R. Hall, Jr. P.E. PhD, National Fire Protection Association, 2010

(2) *Structure Fires in Medical, Mental Health, and Substance Abuse Facilities*; Jennifer D. Flynn; National Fire Protection Association; February 2009

Cost Impact: The code change proposal will reduce the cost of construction and will eliminate on-going maintenance costs.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following reasons: Ambulatory care facilities should not be included as they have less restrictive parameters than an I-2, such as construction type; removing dampers from the complete HVAC system, even if it is fully ducted, is too broad and would rely too heavily on the sprinkler system performance; and the scope is too broad and should be limited to patient care areas.

Assembly Action: None

Public Comments

Public Comment 1:

John Williams, CBO, Chair, representing ICC Ad Hoc Committee on Healthcare, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

717.5.5 (IMC 607.5.4) Smoke barriers. A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *smoke barrier*. *Smoke dampers* and *smoke damper* actuation methods shall comply with Section 717.3.3.2.

Exceptions:

1. *Smoke dampers* are not required where the openings in ducts are limited to a single smoke compartment and the ducts are constructed of steel.
2. Smoke dampers are not required in smoke barriers required by Section 407.5 ~~ambulatory care facilities and~~ for Group I-2 hospitals ~~hospital occupancies~~ where the HVAC system is fully ducted in accordance with Section 603 of the *International Mechanical Code* and where buildings are equipped throughout with an *automatic sprinkler system* in accordance with Sections 903.3.1.1 and equipped with quick response sprinklers in accordance with Section 903.3.2.

Commenter's Reason: This public comment responds to the committee's stated concern that ambulatory care facilities not be included in the code change proposal and clarifies that the omission of smoke dampers is limited to only smoke barriers that create smoke compartments in hospitals as required by IBC Section 407.5. Smoke dampers will remain in vertical shaft walls, floor and ceiling penetrations and other spaces that serve as vertical shafts in both patient and non-patient care areas. A similar revision has already been made in NFPA 101 Life Safety Code

This public comment is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 7 open meetings and over 100 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed code changes and public comments. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

Public Comment 2:

John Williams, CBO, Chair, representing ICC Ad Hoc Committee on Healthcare, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

717.5.5 (IMC 607.5.4) Smoke barriers. A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *smoke barrier*. *Smoke dampers* and *smoke damper* actuation methods shall comply with Section 717.3.3.2.

Exceptions:

1. *Smoke dampers* are not required where the openings in ducts are limited to a single smoke compartment and the ducts are constructed of steel.
2. Smoke dampers are not required in ambulatory care facilities and Group I-2 Condition 2 ~~hospital occupancies~~ where the HVAC system is fully ducted in accordance with Section 603 of the *International Mechanical Code* and where buildings are equipped throughout with an *automatic sprinkler system* in accordance with Sections 903.3.1.1 and equipped with quick response sprinklers in accordance with Section 903.3.2.

Commenter's Reason: Code change FS114-12 is a technical change which included new text dealing with the omission of smoke dampers in Group I-2 hospitals. This public comment addresses and is limited to the editorial coordination of terminology with approved Code change G257-12 which revised the terminology for Group I-2 occupancies into two use conditions, similar to the way the current code addresses Group I-3. In this case, hospitals fall under Group I-2, Condition 2. Since G257-12 deals only with terminology, this public comment is being submitted to FS42-12 in order to focus the attention only on the coordination of terminology issue.

This public comment is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 7 open meetings and over 100 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed code changes and public comments. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

Analysis: Code change G257-12 was Approved as Modified at the Code Development Hearings and a public comment has not been submitted. Accordingly, it has been placed on the consent agenda.

Final Hearing Results

FS114-12 **AMPC1, 2**

Code Change No: FS115-12

Original Proposal

Section: 717.6.2.1 (IMC 607.6.2.1)

Proponent: Bob Eugene, representing Underwriters Laboratories (Robert.Eugene@ul.com)

Revise as follows:

717.6.2.1 (IMC 607.6.2.1) Ceiling radiation dampers. *Ceiling radiation dampers* shall be tested in accordance with Section 717.3.1. *Ceiling radiation dampers* shall be installed in accordance with the details *listed* in the fire-resistancerated assembly and the manufacturer's installation instructions and the listing. *Ceiling radiation dampers* are not required where ~~either~~ one of the following applies:

1. Tests in accordance with ASTM E 119 or UL 263 have shown that *ceiling radiation dampers* are not necessary in order to maintain the *fire-resistance rating* of the assembly.
2. Where exhaust duct penetrations are protected in accordance with Section 714.4.1.2, are located within the cavity of a wall and do not pass through another *dwelling unit* or tenant space.
3. Where duct and air transfer openings are protected with a duct outlet protection system tested as part of a fire-resistance-rated assembly in accordance with ASTM E 119 or UL 263.

Reason: This proposal is intended to permit the use of duct protection methods other than ceiling radiation dampers for protecting ducts and air transfer openings through the ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly. The acceptance of the alternate duct protection systems is based on testing conducted in accordance with ASTM E 119 or UL 263. Although one could arguable use the current Provision No. 1 of Section 717.6.2.1 to rationalize the use of alternate duct protection methods, this proposal makes it clear that alternate methods are permitted based on testing. Example of alternate protection methods include insulation and wrap materials.

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Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that specifically allowing alternate duct protection systems, tested as part of the fire rated assembly in accordance with ASTM E119 or UL 263, was appropriate as an alternate to a ceiling radiation damper.

Assembly Action: **None**

Final Hearing Results

FS115-12 **AS**

Code Change No: FS116-12

Original Proposal

Section(s): 717.6.3 (IMC 607.6.3)

Proponent: Guy McMann MCP, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

Revise as follows:

717.6.3 (IMC 607.6.3) Nonfire-resistance-rated floor assemblies. Duct systems constructed of *approved* materials in accordance with the *International Mechanical Code* that penetrate nonfire-resistance-rated floor assemblies shall be protected by any of the following methods:

1. A shaft enclosure in accordance with Section 713.
2. The duct connects not more than two *stories*, and the *annular space* around the penetrating duct is protected with an *approved* noncombustible material that resists the free passage of flame and the products of combustion.
3. ~~The duct connects not more than three *stories*, and the *annular space* around the penetrating duct is protected with an *approved* noncombustible material that resists the free passage of flame and the products of combustion and a *fire damper* is installed at each floor line.~~

   ~~**Exception:** *Fire dampers* are not required in ducts within individual residential *dwelling units*.~~

Reason: This text is in conflict with where fire-dampers are to be installed. Fire dampers are not tested or listed to be installed in this application. This is an apparent cost saving measure in an attempt to circumvent the requirements for shafting by installing fire-dampers in wood floors. The code has stood on the cherished principle that materials and products be installed in accordance with the manufacturer's instructions and the listings but in this case there are no instructions or listings to install the product. Code enforcement is placed in an awkward position to permit installations that violate listings. There needs to be other language installed in the code that achieves the desired outcome without resorting to violating listings. This is an inappropriate use of a product and it's difficult to defend the practice. A companion change has been submitted to the IMC committee

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

717.6.3 (IMC 607.6.3) Nonfire-resistance-rated floor assemblies. Duct systems constructed of *approved* materials in accordance with the *International Mechanical Code* that penetrate nonfire-resistance-rated floor assemblies shall be protected by any of the following methods:

1. A shaft enclosure in accordance with Section 713.
2. The duct connects not more than two *stories*, and the *annular space* around the penetrating duct is protected with an *approved* noncombustible material that resists the free passage of flame and the products of combustion.
3. In floor assemblies comprised of noncombustible materials, a shaft shall not be required where the duct connects not more than three stories, and the annular space around the penetrating duct is protected with an approved noncombustible material that resists the free passage of flame and the products of combustion and a fire damper is installed at each floor line.

   Exception: Fire dampers are not required in ducts within individual residential dwelling units.

Committee Reason: The committee agreed that method number 3 should not be applied to combustible floor assemblies as indicated in the proponent's reason statement. The modification clarifies that item 3 is applicable only to noncombustible floor assemblies.

Assembly Action: **None**

Final Hearing Results

FS116-12 **AM**

Code Change No: FS120-12

Original Proposal

Section: 720.2, 720.3, 720.4, 720.6

Proponent: Rick Thornberry, P.E. representing the Cellulose Insulation Manufacturers Association (CIMA)

Revise as follows:

720.2 Concealed insulation. Insulating materials, where concealed as installed in buildings of any type of construction, shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

Exception: ~~Cellulose~~ Cellulosic fiber loose-fill insulation ~~that is not spray applied,~~ complying with the requirements of Section 720.6~~,~~ shall only be required to meet the smoke-developed index of not more than 450.

720.3 Exposed insulation. Insulating materials, where exposed as installed in buildings of any type of construction, shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

Exception: ~~Cellulose~~ Cellulosic fiber loose-fill insulation ~~that is not spray applied~~ complying with the requirements of Section 720.6 shall only be required to meet the smoke-developed index of not more than 450.

720.4 Loose-fill insulation. Loose-fill insulation materials that cannot be mounted in the ASTM E 84 or UL 723 apparatus without a screen or artificial supports shall comply with the flame spread and smoke-developed limits of Sections 720.2 and 720.3 when tested in accordance with CAN/ULC S102.2.

Exception: ~~Cellulose~~ Cellulosic fiber loose-fill insulation shall not be required to be tested in accordance with CAN/ULC S102.2, provided such insulation has a smoke-developed index of not more than 450 and complies with the requirements of ~~Section 720.2 or 720.3, as applicable, and~~ Section 720.6.

720.6 ~~Cellulose~~ Cellulosic fiber loose-fill insulation and self-supported spray applied cellulosic insulation. ~~Cellulose~~ Cellulosic fiber loose-fill insulation and self-supported spray applied cellulosic insulation shall comply with CPSC 16 CFR Parts 1209 and ~~CPSC 16 CFR Part~~ 1404. Each package of such insulating material shall be clearly labeled in accordance with CPSC 16 CFR Parts 1209 and ~~CPSC 16 CFR Part~~ 1404.

Reason: The purpose of this code change proposal is to clarify the requirements for cellulose insulation by substituting the industry terms for the two types of cellulose insulation commonly used: cellulosic fiber loose-fill insulation and self-supported spray applied cellulosic insulation. These two terms are taken from ASTM C 739, Standard Specification for Cellulosic Fiber Loose-Fill Thermal Insulation and ASTM C 1149, Standard Specification for Self-Supported Spray Applied Cellulosic Thermal Insulation, respectively. The application of the Exception to Section 720.4 is also simplified and made more user friendly by including the smoke-developed index requirement and deleting the references to Sections 720.2 and 720.3 where that requirement is specified by the Exceptions to those sections. This saves the code user a step in the process of applying Section 720.4 and avoids potential misapplications and misinterpretations that often occur when dealing with multiple Exceptions.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee felt the proposal did clarify the requirements for cellulose insulation by substituting the industry terms for the two types of cellulose insulation commonly used.

Assembly Action: **None**

Final Hearing Results

FS120-12 **AS**

Code Change No: FS121-12

Original Proposal

Section: 720.2, 720.3, 720.4

Proponent: Marcelo M Hirschler, GBH International (gbhint@aol.com)

Revise as follows:

720.2 Concealed installation. Insulating materials, where concealed as installed in buildings of any type of construction, shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

Exception: Cellulose loose-fill insulation that is not spray applied, complying with the requirements of Section 720.6, shall not be required to meet a flame spread index requirement but shall ~~only~~ be required to meet a ~~the~~ smoke-developed index of not more than 450 when tested in accordance with CAN/ULC S102.2.

720.3 Exposed installation. Insulating materials, where exposed as installed in buildings of any type of construction, shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

Exception: Cellulose loose-fill insulation that is not spray applied, complying with the requirements of Section 720.6, shall not be required to meet a flame spread index requirement but shall ~~only~~ be required to meet a ~~the~~ smoke-developed index of not more than 450 when tested in accordance with CAN/ULC S102.2.

720.4 Loose-fill insulation. Loose-fill insulation materials that cannot be mounted in the ASTM E 84 or UL 723 apparatus without a screen or artificial supports shall comply with the flame spread and smoke-developed limits of Sections 720.2 and 720.3 when tested in accordance with CAN/ULC S102.2.

Exception: Cellulose loose-fill insulation shall not be required to meet a flame spread index requirement when ~~be~~ tested in accordance with CAN/ULC S102.2, provided such insulation complies with the requirements of Section 720.2 or 720.3, as applicable, and Section 720.6.

Reason: Recent discussions have shown that cellulose loose fill insulation is actually tested in the ASTM E84 test by using an artificial steel screen with tiny grid openings such that the flame spread index determined is meaningless because of the massive effect of the metal included with the loose fill insulation. Unless that screen is used the cellulose loose fill insulation falls through the grid onto the tunnel floor. The IBC (and the IRC) have long ceased to require that cellulose loose fill insulation meets a flame spread index criterion (if it complies with the CPSC requirements in 16 CFR 1209 and 16 CFR 1404, i.e. smoldering tests) but only that the insulation meets a smoke developed index. There is consensus in the fire test community that if the flame spread index cannot be determined adequately with the ASTM E84 test using that steel screen, neither can the smoke developed index be determined. Therefore, the recommendation is that the tests be conducted in accordance with CAN/ULC S102.2 and not ASTM E84, where no metal screen is needed since the loose fill insulation material is tested on the floor and not on the ceiling.

Usually cellulose loose fill insulation will meet the appropriate smoke developed index values but the appropriate fire test needs to be used.

Language in ASTM E84:

X1.6.1 Loose-fill insulation shall be placed on galvanized steel screening (Note 11) with approximate 3/64-in. (1.2-mm) openings supported on a test frame 20 in. (508 mm) wide by 2 in. (51 mm) deep, made from 2 by 3 by 3/16-in. (51 by 76 by 5-mm) steel angles (see Fig. X1.2). Three frames are required to cover the full tunnel length. The insulation shall be packed to the density specified by the manufacturer.

Note 11: The use of galvanized steel screening normally lowers the flame spread index values obtained for some materials that are tested in this manner and, therefore, the results do not necessarily relate directly to values obtained for other materials mounted without galvanized steel screening.

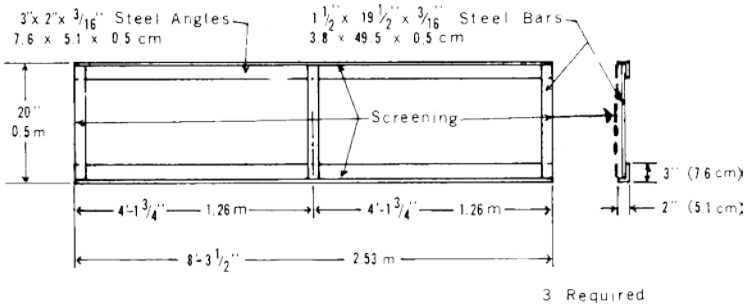


FIG. X1.2 Steel Frame for Loose Fill Materials

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee felt that the test standard proposed was a more accurate method for determining the smoke-developed index of cellulose loose-fill insulation.

Assembly Action: **None**

Final Hearing Results

FS121-12 **AS**

Code Change No: FS122-12

Original Proposal

Section: Table 721.1(3)

Proponent: Sam Francis, American Wood Council (sfrancis@awc.org)

Revise as follows:

TABLE 721.1(3)
MINIMUM PROTECTION FOR FLOOR AND ROOF SYSTEMS[a, q]

FLOOR OR ROOF CONSTRUCTION	ITEM NUMBER	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches)			
			4 hr	3 hr	2 hr	1 hr	4 hr	3 hr	2 hr	1 hr
23. Wood I-joist (minimum joist depth 9-1/4" with a minimum flange depth of 1-5/16" and a minimum flange cross-sectional area of ~~2.3~~ 2.25 square inches) at 24" o.c. spacing with ~~1" by 4 inch (nominal)~~ a minimum 1x4 (3/4" x 3.5" actual) ~~wood furring strip spacer~~ ledger strip applied parallel to and covering the bottom of the bottom flange of each member, tacked in place. 2" mineral wool insulation, 3.5 pcf (nominal) installed adjacent to the bottom flange of the I-joist and supported by the ~~1"x4" furring strip spacer~~ 1x4 ledger strip.	23-1.1	½" deep single leg resilient channel 16" on center (channels doubled at wallboard end joints), placed perpendicular to the furring strip and joist and attached to each joist by 1-7/8" Type S drywall screws, 5/8" Type C gypsum wallboard applied perpendicular to the channel with end joints staggered at least 4' and fastened with 1-1/8" Type S drywall screws spaced 7" on center. Wallboard joints to be taped and covered with joint compound.	—	—	—	Varies	—	—	—	5/8

FLOOR OR ROOF CONSTRUCTION	ITEM NUMBER	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches)			
			4 hr	3 hr	2 hr	1 hr	4 hr	3 hr	2 hr	1 hr
27. Wood I-joist (minimum I-joist depth 9-1/2" with a minimum flange depth of 1-15/16" and a minimum flange cross-sectional area of 1.95 square inches; minimum web thickness of 3/8") @ 24" o.c.	27-1.1	Minimum 0.019" thick resilient channel 16" o.c. (Channels doubled at wallboard end joints), placed perpendicular to the joists and attached to each joist by ~~1-5/8~~ 1-1/4" Type S drywall screws. Two Layers of ½" Type X gypsum wallboard applied with the long dimension perpendicular to the I-joists with end joints staggered. The base layer is fastened with 1-1/4" Type S drywall screws spaced 12" o.c. and the face layer is fastened with 1-5/8" Type S drywall screws spaced 12" o.c. Face layer end joints shall not occur on the same I-joist as base layer end joints and edge joints shall be offset 24" from base layer joints. Face layer to also be attached to base layer with 1-1/2" Type G drywall screws spaced 8" o.c. placed 6" from face layer end joints. Face layer wallboard joints to be taped and covered with joint compound.	—	—	—	Varies	—	—	—	1

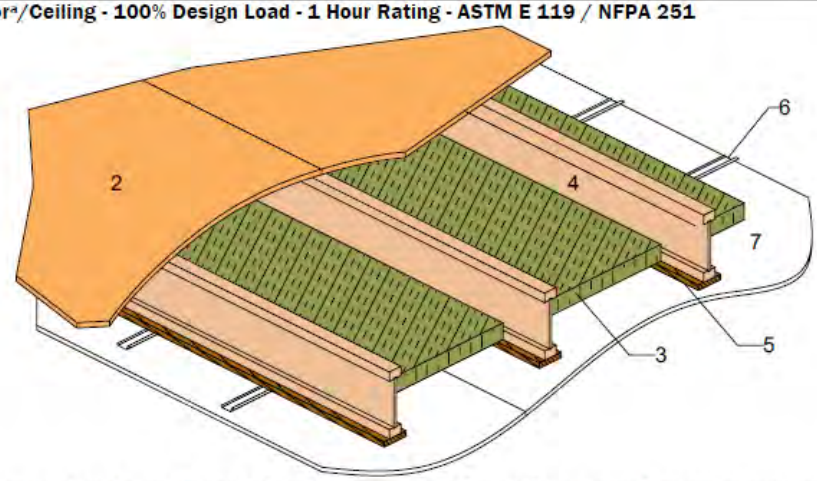
(Portions of table not shown remain unchanged)

Reason: The changes proposed here are editorial. The original publication of this entry contained typographical errors such as rounding the minimum flange cross-sectional area to 2.3 cubic inches from the original submitted text of 2.25 cubic inches. Other changes are simply to clean up language involving nominal dimension or actual dimension and other nontechnical issues. In Item 27, the minimum required length of the drywall screws was incorrectly entered as 1-5/8inch when the actual minimum is 1-1/4inch.

On the following pages, WIJ-1.3 is the information from AWC, including the test report reference, for item #23 and WIJ-1.6 is the information for item #27 in the table.

WIJ-1.3 One-Hour Fire-Resistive Ceiling Assembly

Floor[a]/Ceiling - 100% Design Load - 1 Hour Rating - ASTM E 119 / NFPA 251



1. **Floor Topping (optional, not shown):** Gypsum concrete, lightweight or normal concrete topping.
2. **Floor Sheathing:** Minimum 23/32 inch thick tongue-and-groove wood sheathing (Exposure 1). Installed per code requirements.
3. **Insulation:** Minimum 2 inch thick mineral wool insulation batts – 3.5 pcf (nominal), supported by setting strip edges, friction-fitted between the sides of the I-joist flanges.
4. **Structural Members:** Wood I-joists spaced a maximum of 24 inches on center.
   Minimum I-joist flange depth: 1-5/16 inches — Minimum I-joist flange area: 2.25 inches^2
   Minimum I-joist web thickness: 3/8 inch — Minimum I-joist depth: 9-1/4 inches
   See ASTM D 5055-07 for qualification requirements.
5. **Setting Strips:** Minimum 1x4 (nominal) wood setting strips attached with 1-1/2 inch long drywall screws at 24 inches on center along the bottom flange of I-joist creating a ledge to support insulation.
6. **Resilient Channels:** Minimum 0.019 inch thick galvanized steel resilient channels, attached perpendicular to I-joists using 1-7/8 inch long drywall screws. Resilient channels spaced 16 inches on center and doubled at each wallboard end joint extending to the next joist.
7. **Gypsum Wallboard:** Minimum 5/8 inch thick Type C gypsum wallboard installed with long dimension perpendicular to resilient channels and fastened to each channel with minimum 1-1/8 inch long Type S drywall screws. Fasteners spaced 7 inches on center and 3/4 inches from panel edges and ends. End joints of wallboard staggered.
7. **Finish System (not shown):** Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

Fire Test conducted at National Gypsum Testing Services, Inc. — September 28, 2001
Third Party Witness: Underwriter's Laboratories, Inc. — Report No: NC3369

STC and IIC Sound Ratings for Listed Assembly

Without Gypsum Concrete				With Gypsum Concrete			
Cushioned Vinyl		Carpet & Pad		Cushioned Vinyl		Carpet & Pad	
STC	IIC	STC	IIC	STC	IIC	STC	IIC
51[b]	46[b]	52	66	60[b]	48[b]	60[b]	60[b]

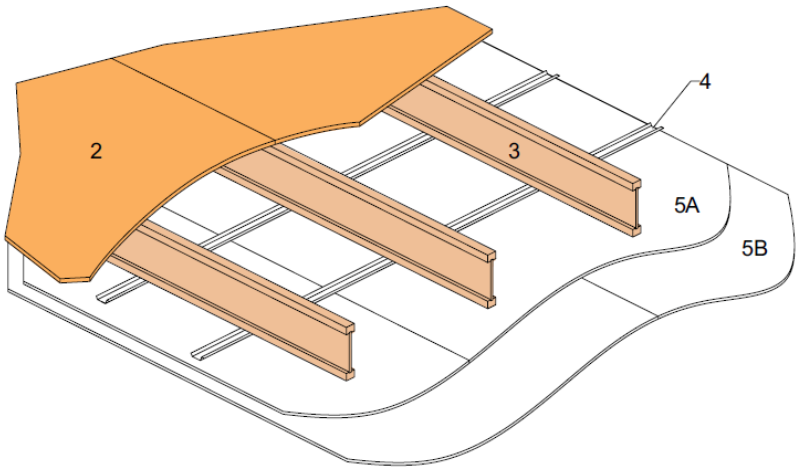
[a] This assembly may also be used in a fire-rated roof/ceiling application, but only when constructed exactly as described.

[b] STC and IIC values estimated by David L. Adams Associates, In

January 2009

WIJ-1.6 One-Hour Fire-Resistive Ceiling Assembly

Floor[a]/Ceiling - 100% Design Load - 1 Hour Rating - ASTM E 119 / NFPA 251



1. **Floor Topping (optional, not shown):** Gypsum concrete, lightweight or normal concrete topping.
2. **Floor Sheathing:** Minimum 23/32 inch thick tongue-and-groove wood sheathing (Exposure 1). Installed per code requirements with minimum 8d common nails.
3. **Structural Members:** Wood I-joists spaced a maximum of 24 inches on center.

   Minimum I-joist flange depth: 1-5/16 inches — Minimum I-joist flange area: 2.25 inches^2
   Minimum I-joist web thickness: 3/8 inch — Minimum I-joist depth: 9-1/2 inches
   See ASTM D 5055-07 for qualification requirements.
4. **Resilient Channels[b]:** Minimum 0.019 inch thick galvanized steel resilient channel attached perpendicular to the bottom flange of the I-joists with one 1-1/4 inch drywall screw. Channels spaced a maximum of 16 inches on center [24 inches on center when I-joists are spaced a maximum of 16 inches on center].
5. **Gypsum Wallboard:** Two layers of minimum 1/2 inch Type X gypsum wallboard attached with the long dimension perpendicular to the resilient channels as follows:

   5a. Wallboard Base Layer: Base layer of wallboard attached to resilient channels using 1-1/4 inch Type S drywall screws at 12 inches on center.

   5b. Wallboard Face Layer: Face layer of wallboard attached to resilient channels through base layer using 1-5/8 inch Type S drywall screws spaced 12 inches on center. Edge joints of wallboard face layer offset 24 inches from those of base layer. Additionally, wallboard face layer attached to base layer with 1-1/2 inch Type G drywall screws spaced 8 inches on center, placed 1-1/2 inches from face layer end joints.
6. **Finish System (not shown):** Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

Fire Test conducted at National Research Council of Canada Report No. A-4440.1 June 24, 1997

STC and IIC Sound Ratings for Listed Assembly							
Without Gypsum Concrete				With Gypsum Concrete			
Cushioned Vinyl		Carpet & Pad		Cushioned Vinyl		Carpet & Pad	
STC	IIC	STC	IIC	STC	IIC	STC	IIC
-	-	54	68	-	-	**58**[c]	**55**[c]

[a] This assembly may also be used in a fire-rated roof/ceiling application, but only when constructed exactly as described.
[b] Direct attachment of gypsum wallboard in lieu of attachment to resilient channels is typically deemed acceptable. When gypsum wallboard is directly attached to the I-joists, the wallboard should be installed with long dimension perpendicular to the I-joists and sound ratings for WIJ-1.5 should be used.
[c] STC and IIC values estimated by David L. Adams Associates, Inc

January 2009

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the changes were purely editorial and appropriate.

Assembly Action: **None**

Final Hearing Results

FS122-12 **AS**

Code Change No: FS123-12

Original Proposal

Section: Table 721.1(3)

Proponent: Tony Crimi, A.C. Consulting Solutions Inc, representing North American Insulation Manufacturers Association (NAIMA) (tcrimi@sympatico.ca)

Revise as follows:

TABLE 721.1(3)
MINIMUM PROTECTION FOR FLOOR AND ROOF SYSTEMS[a, q]

FLOOR OR ROOF CONSTRUCTION	ITEM NUMBER	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				THICKNESS OF FLOOR OR CEILING (inches)			
			4 hours	3 hours	2 hours	1 hours	4 hours	3 hours	2 hours	1 hours
28. Wood I-joist (minimum I-joist depth 91/4" with a minimum flange depth of 11/2" and a minimum flange cross-sectional area of 2.25 square inches; minimum web thickness of 3/8") @ 24" o.c. Unfaced fiberglass insulation or mineral wool insulation is installed between the joists supported on the upper surface of the flange by stay wires spaced 12" o.c.	28-1.1	Base layer of $^{3}/_{8}$" Type C gypsum wall-board attached directly to I-joists with $1^{3}/_{8}$" Type S drywall screws spaced 12" o.c. with ends staggered. Minimum 0.0179" thick hat-shaped $^{7}/_{8}$ -inch furring channel 16" o.c. (channels doubled at wallboard end joints), placed perpendicular to the joist and attached to each joist by $1^{5}/8$ " Type S drywall screws after the base layer of gypsum wall-board has been applied. The middle and face layers of $^{5}/_{8}$ " Type C gypsum wall- board applied perpendicular to the channel with end joints staggered. The middle layer is fastened with 1" Type S drywall screws spaced 12" o.c. The face	—	—	—	Varies	—	—	2 ¾	—

FLOOR OR ROOF CONSTRUCTION	ITEM NUMBER	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				THICKNESS OF FLOOR OR CEILING (inches)			
			4 hours	3 hours	2 hours	1 hours	4 hours	3 hours	2 hours	1 hours
		layer is applied parallel to the middle layer but with the edge joints offset 24" from those of the middle layer and fastened with $1^5/_8$ " Type S drywall screws 8" o.c. The joints shall be taped and covered with joint compound.								

(Portions of table not shown remain unchanged)

Reason: The IBC treats glass fiber insulation and mineral wool insulation as interchangeable in parallel in most applications in this Table. This particular assembly in Section 721 does not identify miner fiber insulation as being permitted. Since mineral wool insulation performs at least as well as glass fiber insulation under fire conditions, it should be added to this design.

Cost Impact: This proposal should not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that glass fiber insulation and mineral wool insulation were interchangeable in this application.

Assembly Action: **None**

Final Hearing Results

FS123-12 **AS**

Code Change No: FS124-12

Original Proposal

Section: Table 721.1(3)

Proponent: Sam Francis, American Wood Council (sfrancis@awc.org)

Revise as follows:

TABLE 721.1(3)
MINIMUM PROTECTION FOR FLOOR AND ROOF SYSTEMS[a, q]

FLOOR OR ROOF CONSTRUCTION	ITEM NUMBER	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches)			
			4 hr	3 hr	2 hr	1 hr	4 hr	3 hr	2 hr	1 hr
30. Wood I-joist (minimum I-joist depth 9-1/2" with a minimum flange depth of 1-1/2" and a minimum flange cross-sectional area of 2.25 square inches; minimum web thickness of 3/8") @ 24" o.c. Fiberglass insulation placed between I-joists supported by the resilient channels.	30-1.1	Minimum 0.019" thick resilient channel 16" o.c. (Channels doubled at wallboard end joints), placed perpendicular to the joists and attached to each joist by 1-1/4" Type S drywall screws. Two Layers of ½" Type X gypsum wallboard applied with the long dimension perpendicular to the I-joists with end joints staggered. The base layer is fastened with 1-1/4" Type S drywall screws spaced 12" o.c. and the face layer is fastened with 1-5/8" Type S drywall screws spaced 12" o.c. Face layer end joints shall not occur on the same I-joist as base layer end joints and edge joints shall be offset 24" from base layer joints. Face layer to also be attached to base layer with 1-1/2" Type G drywall screws spaced 8" o.c. placed 6" from face layer end joints. Face layer wallboard joints to be taped and covered with joint compound.	—	—	—	Varies	—	—	—	1

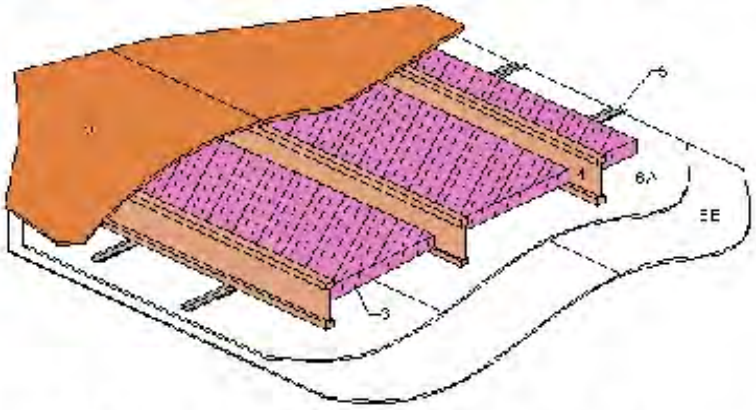
(Portions of table not shown remain unchanged)

Reason: Many code officials have come to rely upon Table 721 as the preferred source of information regarding fire resistance rated assemblies. Because of its importance, we believe that the table should offer the most common generic assemblies. Floor

systems utilizing I-joists have increased from less than 10 percent in 1990 to more than 50 percent. With the increased prevalence of I-joist floor/ceiling assemblies, including this assembly in the table will make the IBC more complete and it will be more useful to code officials. It is also expected that the document will be "user friendly", particularly for designers. In an effort to fulfill this expectation, we propose this common assembly for incorporation into Table 721.1(3). It is supported by ASTM E-119 test results as shown on the attached page. The following information and test results are provided with the understanding that their inclusion does not place them within the copyright release requirements of the signature statement.

WIJ-1.7 One-Hour Fire-Resistive Ceiling Assembly

Floor[a]/Ceiling - 100% Design Load - 1 Hour Rating - ASTM E 119 / NFPA 251



1. Floor Topping (optional, not shown): Gypsum concrete, lightweight or normal concrete topping.
2. Floor Sheathing: Minimum 23/32 inch thick tongue-and-groove wood sheathing (Exposure 1). Installed per code requirements with minimum 8d common nails.
3. Insulation: Fiberglass insulation placed between I-joists supported by the resilient channels.
4. Structural Members: Wood I-joists spaced a maximum of 24 inches on center.

Minimum I-joist flange depth: 1-1/2 inches
Minimum I-joist flange area: 2.25 inches^2
Minimum I-joist web thickness: 3/8 inch
Minimum I-joist depth: 9-1/2 inches

See ASTM D 5055-07 for qualification requirements.

5. Resilient Channels: Minimum 0.019 inch thick galvanized steel resilient channel attached perpendicular to the bottom flange of the I-joists with one 1-1/4 inch drywall screw. Channels spaced a maximum of 16 inches on center [24 inches on center when I-joists are spaced a maximum of 16 inches on center].
6. Gypsum Wallboard: Two layers of minimum 1/2 inch Type X gypsum wallboard attached with the long dimension perpendicular to the resilient channels as follows:

6a. Wallboard Base Layer: Base layer of wallboard attached to resilient channels using 1-1/4 inch Type S drywall screws at 12 inches on center.

6b. Wallboard Face Layer: Face layer of wallboard attached to resilient channels through base layer using 1-5/8 inch Type S drywall screws spaced 12 inches on center. Edge joints of wallboard face layer offset 24 inches from those of base layer. Additionally, wallboard face layer attached to base layer with 1-1/2 inch Type G drywall screws spaced 8 inches on center, placed 1-1/2 inches from face layer end joints.

7. Finish System (not shown): Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

Fire Test conducted at National Research Council of Canada Report No: A-4219.13.2 March 23, 1998

STC and IIC Sound Ratings for Listed Assembly							
Without Gypsum Concrete				**With Gypsum Concrete**			
Cushioned Vinyl		**Carpet & Pad**		**Cushioned Vinyl**		**Carpet & Pad**	
STC	**IIC**	**STC**	**IIC**	**STC**	**IIC**	**STC**	**IIC**
59	**50**	**55[b]**	**68[b]**	**65**	**51**	**63[b]**	**65[b]**

[a] This assembly may also be used in a fire-rated roof/ceiling application, but only when constructed exactly as described.
[b] STC and IIC values estimated by David L. Adams Associates, Inc

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that inclusion of this additional fire resistance rated assembly is appropriate as it does reflect typical construction and was tested in accordance with ASTM E119.

Assembly Action: **None**

Final Hearing Results

FS124-12 **AS**

Code Change No: FS125-12

Original Proposal

Section: 722.2.2.1

Proponent: Jason J. Krohn, P.E., representing the Precast/Prestressed Concrete Institute (jkrohn@pci.org)

Revise as follows:

722.2.2.1 Reinforced and prestressed floors and roofs. The minimum thicknesses of reinforced and prestressed concrete floor or roof slabs for *fire-resistance ratings* of 1 hour to 4 hours are shown in Table 722.2.2.1.

Exception: Minimum thickness shall not be required for floors and ramps within open and enclosed parking garages constructed in accordance with Sections 406.5 and 406.6, respectively.

Reason:

1. Section 712.1.9 permits floor openings for automobile ramps in open and enclosed parking garages without shaft enclosures.
2. Exception 5 of Section 715.1 does not require fire-resistant joint systems for floors and ramps within open and enclosed parking garages or structures.

Referenced standard ACI 216.1-07, *Standard Method for Determining Fire Resistance of Concrete and Masonry Construction Assemblies,* states that the purpose of the minimum thickness requirements (Section 722.2.2.1) is for "barrier fire resistance." It can be concluded from section 712.1.9 and 715.1 that there is no intent of creating a fire barrier between floors and ramps in open and enclosed parking garages. Therefore, there is no logic in requiring a minimum thickness for floors and ramps of open and enclosed parking garages due to heat transmission theory.

Even with this proposed exception, Section 722.2.3 requires the minimum thickness of concrete cover over reinforcement which is necessary to preserve the structural integrity of the floors and can be used to meet the structural end point criteria. Section 722.2.3 specifies the concrete cover protection for the purposes of maintaining fire endurance of the structural element.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the minimum thickness requirements in Table 722.2.2.1 were intended to address fire barrier resistance in accordance with ACI 216. Therefore, since fire-barrier type resistance is not intended between floors in parking structures this exception was appropriate.

Assembly Action: **None**

Final Hearing Results

FS125-12 **AS**

Code Change No: FS126-12

Original Proposal

Section: 722.5.1.2.1, Figure 722.5.1(2), Figure 722.5.1(3)

Proponent: Michael Gardner, representing Gypsum Association (mgardner@gypsum.org)

Revise as follows:

722.5.1.2.1 Attachment. The gypsum ~~wallboard~~ board or gypsum panel products shall be supported as illustrated in either Figure 722.5.1(2) for fire-resistance ratings of 4 hours or less, or Figure 722.5.1(3) for fire-resistance ratings of 3 hours or less.

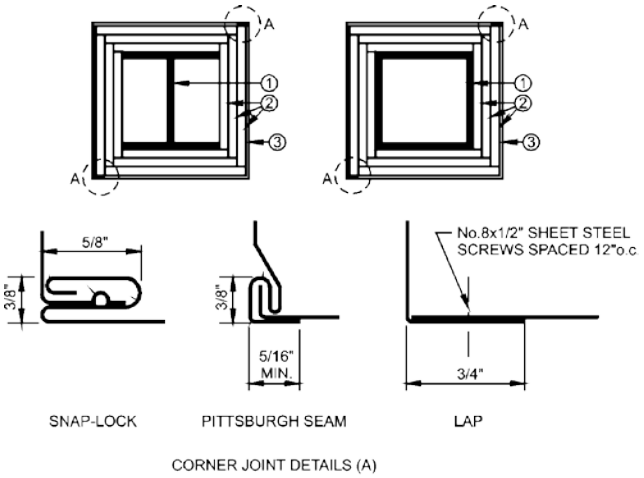


FIGURE 722.5.1(2)
GYPSUM ~~WALLBOARD~~ PROTECTED STRUCTURAL STEEL COLUMNS WITH SHEET STEEL COLUMN COVERS

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm.

1. Structural steel column, either wide flange or tubular shapes.
2. Type X gypsum board or ~~wallboard~~ gypsum panel products in accordance with ASTM ~~C 36~~ C 1177, C 1178, C 1278, C 1396 or C 1658. The total thickness of gypsum board or gypsum panel products calculated as *h* in 722.5.1.2, shall be applied vertically to an individual column using one of the following methods:
   1. As a single layer with no horizontal joints.
   2. As multiple layers with no horizontal joints permitted in any layer.
   3. As multiple layers with horizontal joints staggered not less than 12 inches vertically between layers and not less than 8 feet vertically in any single layer. ~~For single-layer applications, the wallboard shall be applied vertically with no horizontal joints. For multiple-layer applications, horizontal joints are permitted at a minimum spacing of 8 feet, provided that the joints in successive layers are staggered at least 12 inches.~~ The total required thickness of ~~wallboard~~ gypsum board or gypsum panel products shall be determined on the basis of the specified fire-resistance rating and the weight-to-heated-perimeter ratio (*W/D*) of the column. For fire-resistance ratings of 2 hours or less, one of the required layers of gypsum ~~wallboard~~ board or gypsum panel product may be applied to the exterior of the sheet steel column covers with 1-inch long Type S screws spaced 1 inch from the wallboard edge and 8 inches on center. For such installations, 0.0149-inch minimum thickness galvanized steel corner beads with 11/2- inch legs shall be attached to the wallboard with Type S screws spaced 12 inches on center.

3. For fire-resistance ratings of 3 hours or less, the column covers shall be fabricated from 0.0239-inch minimum thickness galvanized or stainless steel. For 4-hour fire-resistance ratings, the column covers shall be fabricated from 0.0239-inch minimum thickness stainless steel. The column covers shall be erected with the Snap Lock or Pittsburgh joint details. For fire-resistance ratings of 2 hours or less, column covers fabricated from 0.0269-inch minimum thickness galvanized or stainless steel shall be permitted to be erected with lap joints. The lap joints shall be permitted to be located anywhere around the perimeter of the column

cover. The lap joints shall be secured with 1/2-inch-long No. 8 sheet metal screws spaced 12 inches on center. The column covers shall be provided with a minimum expansion clearance of 1/8 inch per linear foot between the ends of the cover and any restraining construction.

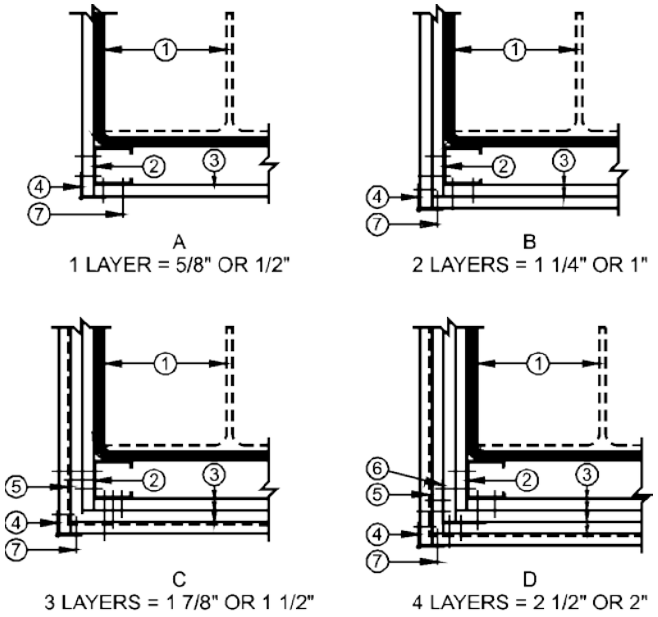


FIGURE 722.5.1(3)
GYPSUM ~~WALLBOARD~~ PROTECTED STRUCTURAL STEEL COLUMNS WITH STEEL STUD/SCREW ATTACHMENT SYSTEM

For SI: 1 inch = 25.4 mm, 1 foot = -305 mm.

1. Structural steel column, either wide flange or tubular shapes.
2. $1^{5}/_{8}$-inch deep studs fabricated from 0.0179-inch minimum thickness galvanized steel with 15/16 or 17/16-inch legs. The length of the steel studs shall be 1/2 inch less than the height of the assembly.
3. Type X gypsum board or gypsum panel products ~~wallboard~~ in accordance with ASTM ~~C36~~ C177, C1178, C1278, C1396 pr C1658. The total thickness of gypsum board or gypsum panel products calculated as *h* in 722.5.1.2, shall be applied vertically to an individual column using one of the following methods:
   1. As a single layer with no horizontal joints.
   2. As multiple layers with no horizontal joints permitted in any layer.
   3. As multiple layers with horizontal joints staggered not less than 12 inches vertically between layers and not less than 8 feet vertically in any single layer ~~For single-layer applications, the wallboard shall be applied vertically with no horizontal joints. For multiple-layer applications, horizontal joints are permitted at a minimum spacing of 8 feet, provided that the joints in successive layers are staggered at least 12 inches.~~ The total required thickness of ~~wallboard~~ gypsum board or gypsum panel products shall be determined on the basis of the specified fire-resistance rating and the weight-to-heated-perimeter ratio (*W/D*) of the column.
4. Galvanized 0.0149-inch minimum thickness steel corner beads with 11/2-inch legs attached to the ~~wallboard~~ gypsum board or gypsum panel products with 1-inch-long Type S screws spaced 12 inches on center.
5. No. 18 SWG steel tie wires spaced 24 inches on center.
6. Sheet metal angles with 2-inch legs fabricated from 0.0221-inch minimum thickness galvanized steel.
7. Type S screws, 1 inch long, shall be used for attaching the first layer of ~~wallboard~~ gypsum board or gypsum panel product to the steel studs and the third layer to the sheet metal angles at 24 inches on center. Type S screws 13/4-inch long shall be used for attaching the second layer of ~~wallboard~~ gypsum board or gypsum panel product to the steel studs and the fourth layer to the sheet metal angles at 12 inches on center. Type S screws 21/4 inches long shall be used for attaching the third layer of ~~wallboard~~ gypsum board or gypsum panel product to the steel studs at 12 inches on center.

Reason: The existing language requirement that prohibits the installation of horizontal joints in a single-layer protection system is occasionally overlooked or ignored. In addition, the phrase requiring a “minimum spacing of 8 feet between joints” is being misinterpreted and applied to the horizontal distance between joints in adjacent columns and not the joints in a single column.

Proposal presents the language in a clearer format that is intended to specifically define the three possible application methods for the gypsum board or gypsum panel protection system.

To clarify that materials other than gypsum wallboard can be used to achieve the desired fire-resistance-rating, the proposal inserts language acknowledging that Type X gypsum panel products – gypsum products manufactured without a paper facing – and gypsum board materials other than gypsum wallboard may be used to achieve the desired fire-resistance rating.

Cost Impact: No change to the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposal presents the language in a clearer format that is intended to specifically define the three application methods for gypsum board or gypsum panel protection systems.

Assembly Action: **None**

Final Hearing Results

FS126-12 **AS**

Code Change No: FS127-12

Original Proposal

Section(s): 722.6.1.2

Proponent: Larry Wainright, Qualtim, representing the Structural Building Components Association (lwainright@qualtim.com)

Revise as follows:

722.6.1.2 Dissimilar membranes. Where dissimilar membranes are used on ~~a~~ an interior wall assembly, the calculation shall be made from the least fire-resistant (weaker) side.

Reason: To avoid confusion between the requirements for interior and exterior walls. Except where required elsewhere in the code to have fire resistance calculated for exterior exposure, the requirements for exterior walls apply only exposure from the interior of the structure (722.6.2.3). This language is intended to provide clarity and is not intended to change any requirement of the code.

Cost Impact: This proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee preferred the current language. The term "interior" is not needed for clarity.

Assembly Action: **None**

Public Comments

Public Comment:

Larry Wainright, Qualtim, representing SBCA- Structural Building Components Association, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

722.6.1.2 Dissimilar membranes. Where dissimilar membranes are used on a wall assembly that requires consideration of fire exposure from both sides, the calculation shall be made from the least fire-resistant (weaker) side.

Commenter's Reason: This language is intended to provide clarity and is not intended to change any requirement of the code. Section 722.6.1 contains the general requirements for calculating the fire-resistance of wood framing. Section 722.6.2.3 contains the specific requirements for Exterior walls and states the following:

"**722.6.2.3 Exterior walls.** For an exterior wall with a *fire separation distance* greater than 10 feet (3048 mm), the wall is assigned a rating dependent on the interior membrane and the framing as described in Tables 722.6.2(1) and 722.6.2(2). The membrane on the outside of the nonfire-exposed side of exterior walls with a *fire separation distance* greater than 10 feet (3048 mm) may consist of sheathing, sheathing paper and siding as described in Table 722.6.2(3)."

As a result, 722.6.1.2 is not correct when considering exterior walls with a fire separation distance greater than 10ft. This comment is intended to clarify the general provision so that it is not in conflict with the specific provision.

Final Hearing Results

FS127-12 **AMPC**

Code Change No: FS128-12

Original Proposal

Section: 702.1, Table 722.6.2(3), 2603.5.7

Proponent: John Mulder, Intertek Testing Services NA, Inc., representing International Standards Organization Technical Committee 77, Products in Fibre-reinforced Cement and self

Revise as follows:

702.1 Definitions. The following terms are defined in Chapter 2:

FIBER-CEMENT SIDING

TABLE 722.6.2(3)
MEMBRANE[a] ON EXTERIOR FACE OF WOOD STUD WALLS

SHEATHING	PAPER	EXTERIOR FINISH
$^5/_8$ – inch T & G lumber $^5/_{16}$ – inch exterior glue wood structural panel ½ - inch gypsum wallboard $^5/_8$ – inch gypsum wallboard ½ - inch fiberboard	Sheathing paper	Lumber siding Wood shingles and shakes ¼-inch fiber-cement lap, panel or shingle siding ¼-inch wood structural panels-exterior type ¼-inch hardboard Metal siding Stucco on metal lath Masonry veneer Vinyl siding
None		3/8 – inch exterior-grade wood structural panels

For SI: 1 pound/cubic foot = 16.0185 kg/m2.
a. Any combination of sheathing, paper and exterior finish is permitted.

Revise as follows:

2603.5.7 Ignition. Exterior walls shall not exhibit sustained flaming where tested in accordance with NFPA 268. Where a material is intended to be installed in more than one thickness, tests of the minimum and maximum thickness intended for use shall be performed.

Exception: Assemblies protected on the outside with one of the following:

1. A thermal barrier complying with Section 2603.4.
2. A minimum 1 inch (25 mm) thickness of concrete or masonry.
3. Glass-fiber-reinforced concrete panels of a minimum thickness of 3/8 inch (9.5 mm).
4. Metal-faced panels having minimum 0.019-inchthick (0.48 mm) aluminum or 0.016-inch-thick (0.41 mm) corrosion-resistant steel outer facings.
5. A minimum 7/8 inch (22.2 mm) thickness of stucco complying with Section 2510.
6. A minimum ¼-inch (6.4 mm) thickness of fiber-cement lap, panel or shingle siding complying with Section 1405.16 and 1405.16.1 or 1405.16.2.

Reason:

1. A revision to Table 722.6.2(3) is proposed to include “fiber-cement lap, panel and shingle siding”. The term “fiber-cement products” is proposed to be included in the definitions here consistent with the definition published in the Terminology Standard ASTM C1154-06, *Standard Terminology for Non-Asbestos Fiber-Reinforced Cement Products* (see attached Standard) and also proposed for revision in Chapter 2 of the IBC code.
2. The application of ¼-inch fiber-cement lap, panel or shingle siding complying with ASTM C1186, Type A (or ISO 8336 Category A) provides less potential for flame spread and smoke developed than the current wood-based and vinyl siding products currently recognized for use in this table. Fiber-cement siding having a flame spread of 0 and smoke developed index of 5 or less as required in the referenced specifications (see attached ICC-ES ESR-1381[reference Section 3.0], ESR-1572[reference Section 3.0], ESR-1844[reference Section 3.1], ESR-2290[reference Section 3.1], and ESR-2894[reference Section 3.2] as supporting documents) provides a greater level of fire protection than the wood or vinyl siding currently permitted under Section 722.6.2.3 of the Code.
3. ¼-inch thick fiber-cement product complying with the provisions of Section 1405.16 (“complying with the requirements of ASTM C1186, Type A, minimum Grade II [or ISO 8336, Category A, Class 2]) has a flame spread of 0 and smoke developed index of 5 or less. The proposed fiber-cement siding is also classed as noncombustible in accordance with ASTM E 136 (see ICC-ES ESR-1381[reference Section 3.0], ESR-1572[reference Section 3.0], ESR-1844[reference Section 3.1], ESR-2290[reference Section 3.1], and ESR-2894[reference Section 3.2]) documenting these claims (http://www.icc-es.org/).

Cost Impact: The code change proposal will not increase the cost of construction because the change only adds a new term to the definitions section of Chapter 7, and because the proposed addition of fiber-cement siding products to the table [(722.6.2(3)] and to the exceptions (2603.5.7) only provides for the choice and use of a type of siding product having greater fire resistance.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee preferred the current language. The term “interior” is not needed for clarity.

Assembly Action: **None**

Final Hearing Results

FS128-12 **AS**

Code Change No: FS129-12

Original Proposal

Section(s): Table 722.6.2(4)

Proponent: John Mulder, Intertek Testing Services NA, Inc., representing International Standards Organization Technical Committee 77, *Products in Fibre-reinforced Cement* and Self

Revise as follows:

TABLE 722.6.2(4)
FLOORING OR ROOFING OVER WOOD FRAMING[a]

ASSEMBLY	STRUCTURAL MEMBERS	SUBFLOOR OR ROOF DECK	FINISHED FLOORING OR ROOFING
Floor	Wood	$^{15}/_{32}$ – inch wood structural panels or $^{11}/_{16}$ – inch T & G softwood	Hardwood or softwood flooring on building paper, resilient flooring, parquet floor, felted-synthetic fiber floor covering, carpeting or ceramic tile on ¼-inch-thick fiber-cement underlayment or ceramic tile on 3/8-inch-thick panel type underlay Ceramic tile on $1^{1}/_{4}$-inch mortar bed
Roof	Wood		Finished roofing material with or without insulation

For SI: 1 pound/cubic foot = 16.0185 kg/m2.
a. Any combination of sheathing, paper and exterior finish is permitted.

Reason: Add comma between building paper and resilient flooring and between parquet floor and felted-synthetic fiber floor covering to clean up the language. ¼-inch fiber-cement underlayment (having a flame spread of 0 and smoke developed index of 5 or less as required in the referenced product specifications (ASTM C1288, Grade II) or [ISO 8336, Type C, Class 2]) provides a greater level of fire protection than the wood panel-type underlay currently permitted under Section 722.6.2.4 of the Code. The proposed fiber-cement underlayment is also classed as noncombustible in accordance with ASTM E 136 (see ICC-ES ESR-1381[reference Section 3.0], ESR-2280[reference Section 3.1], and ESR-2292[reference Section 3.0]) as supporting documentation (http://www.icc-es.org/).

Cost Impact: The code change proposal will not increase the cost of construction because the proposed addition of fiber-cement underlayment products to the table only provides for the choice and use of a type of underlayment product having greater fire resistance than the product currently recognized.

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

TABLE 722.6.2(4)
FLOORING OR ROOFING OVER WOOD FRAMING[a]

ASSEMBLY	STRUCTURAL MEMBERS	SUBFLOOR OR ROOF DECK	FINISHED FLOORING OR ROOFING
Floor	Wood	$^{15}/_{32}$ – inch wood structural panels or $^{11}/_{16}$ – inch T & G softwood	Hardwood or softwood flooring on building paper, resilient flooring, parquet floor, felted-synthetic fiber floor covering, carpeting or ceramic tile on ¼-inch-thick fiber-cement underlayment or ~~ceramic tile~~ on 3/8-inch-thick panel type underlay Ceramic tile on $1^{1}/_{4}$-inch mortar bed
Roof	Wood		Finished roofing material with or without insulation

For SI: 1 pound/cubic foot = 16.0185 kg/m2.
a. Any combination of sheathing, paper and exterior finish is permitted

Committee Reason: The committee agreed that the addition of fiber-cement underlayment was appropriate based on the test data provided. The modification eliminates ceramic tile so as not to eliminate other finishes on the panel type underlay.

Assembly Action: **None**

Final Hearing Results

FS129-12 **AM**

Code Change No: FS130-12

Original Proposal

Section: 722.6.3

Proponent: Sam Francis, American Wood Council (sfrancis@awc.org)

Delete without substitution:

~~**722.6.3 Design of fire-resistant exposed wood members.** The fire-resistance rating, in minutes, of timber beams and columns with a minimum nominal dimension of 6 inches (152 mm) is equal to:~~

~~Beams: 2.54Zb [4 -2(b/d)] for beams which may be exposed to fire on four sides. (Equation 7-18)~~

~~2.54Zb [4 -(b/d)] for beams which may be exposed to fire on three sides. (Equation 7-19)~~

~~Columns: 2.54Zd [3 -(d/b)] for columns which may be exposed to fire on four sides (Equation 7-20)~~

~~2.54Zd [3 -(d/2b)] for columns which may be exposed to fire on three sides. (Equation 7-21)~~

~~where:~~

~~b = The breadth (width) of a beam or larger side of a column before exposure to fire (inches).~~
~~d = The depth of a beam or smaller side of a column before exposure to fire (inches).~~
~~Z = Load factor, based on Figure 722.6.3(1).~~

~~**722.6.3.1 Equation 7-21.** Equation 7-21 applies only where the unexposed face represents the smaller side of the column. If a column is recessed into a wall, its full dimension shall be used for the purpose of these calculations.~~

~~**722.6.3.2 Allowable loads.** Allowable loads on beams and columns are determined using design values given in AF&PA NDS.~~

~~**722.6.3.3 Fastener protection.** Where minimum 1- hour *fire resistance* is required, connectors and fasteners shall be protected from fire exposure by 11/2 inches (38 mm) of wood, or other *approved* covering or coating for a 1-hour rating. Typical details for commonly used fasteners and connectors are shown in AITC Technical Note 7.~~

~~**722.6.3.4 Minimum size.** Wood members are limited to dimensions of 6 inches (152 mm) nominal or greater. Glued-laminated timber beams utilize standard laminating combinations except that a core lamination is removed. The tension zone is moved inward and the equivalent of an extra nominal 2-inch-thick (51 mm) outer tension lamination is added.~~

~~**FIGURE 722.6.3(1)**~~
~~**LOAD FIGURE**~~

~~*K*e = The effective length factor as noted in Figure 722.6.3(2).~~
~~*l* = The unsupported length of columns (inches).~~

~~**FIGURE 722.6.3(2)**~~
~~**EFFECTIVE LENGTH FACTORS**~~

Reason: A more robust design methodology for designing these members is contained in Chapter 16 of *the National Design Specification for Wood construction (NDS)*. This ANSI consensus standard is referenced in 722.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that a more robust design methodology for designing fire resistant exposed wood members is contained in the National Design Specification for Wood Construction; therefore this proposal is appropriate.

Assembly Action: **None**

Final Hearing Results

FS130-12 **AS**

Code Change No: FS132-12

Original Proposal

Section: 803.3

Proponent: Sam Francis, American Wood Council (sfrancis@awc.org)

Revise as follows:

803.3 Heavy timber exemption. Exposed portions of ~~structural members~~ building elements complying with the requirements for buildings of Type IV construction in Section 602.4 shall not be subject to *interior finish* requirements.

Reason: "Structural members" is not a well defined term. Building Elements is a term used in Table 601 to refer to various structural members. The various members in Table 601 are part of the structural frame concept upon which the table is based. The intent here is to use an expression which is familiar to the user and understandable to the enforcer and practitioner.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the term "building elements" is a term used in Table 601 and in the heavy timber portions of the code. Therefore, use of this term in place of "structural members" is appropriate.

Assembly Action: **None**

Final Hearing Results

FS132-12 **AS**

Code Change No: FS138-12

Original Proposal

Section: 202 (New), 909.20.6.1, 3007.9.1, 3008.9

Proponent: Vickie Lovell, InterCode Incorporated representing 3M Company (vickie@intercodeinc.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-GENERAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Add new definition as follows:

ELECTRICAL CIRCUIT PROTECTIVE SYSTEM. A specific construction of devices, materials, or coatings installed as a fire resistive barrier system applied to electrical system components, such as cable trays, conduits and other raceways, open run cables and conductors, cables, and conductors.

Revise as follows:

909.20.6 Ventilating equipment. The activation of ventilating equipment required by the alternatives in Sections 909.20.4 and 909.20.5 shall be by smoke detectors installed at each floor level at an *approved* location at the entrance to the smokeproof enclosure. When the closing device for the *stair* shaft and vestibule doors is activated by smoke detection or power failure, the mechanical equipment shall activate and operate at the required performance levels. Smoke detectors shall be installed in accordance with Section 907.3.

909.20.6.1 Ventilation systems. Smokeproof enclosure ventilation systems shall be independent of other building ventilation systems. The equipment, control wiring, power wiring and ductwork shall comply with one of the following:

1. Equipment, control wiring, power wiring and ductwork shall be located exterior to the building and directly connected to the smokeproof enclosure or connected to the smokeproof enclosure by ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
2. Equipment, control wiring, power wiring and ductwork shall be located within the smokeproof enclosure with intake or exhaust directly from and to the outside or through ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
3. Equipment, control wiring, power wiring and ductwork shall be located within the building if separated from the remainder of the building, including other mechanical equipment, by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

Exceptions:

1. Control wiring and power wiring utilizing a 2-hour rated cable. ~~or cable system~~
2. Where encased with not less than 2 inches (51 mm) of concrete.
3. Control wiring and power wiring protected by a listed electrical circuit protective system with a *fire-resistance rating* of not less than 2 hours.

Revise as follows:

3007.9 Electrical power. The following features serving each fire service access elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator hoistway lighting.
3. Elevator machine room *ventilation* and cooling equipment.
4. Elevator controller cooling equipment.

3007.9.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway and machine room and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to fire service access elevators shall be protected by construction having a *fire-resistance rating* of not less than 2 hours, ~~or~~ shall be a circuit integrity cable having a *fire-resistance rating* of not less than 2 hours~~.~~, or shall be protected by a listed electrical circuit protective system having a *fire-resistance rating* of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operations.

3008.9 Electrical power. The following features serving each occupant evacuation elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator machine room *ventilation* and cooling equipment.
3. Elevator controller cooling equipment.

3008.9.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway and machine room and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to fire service access elevators shall be protected by construction having a *fire-resistance rating* of not less than 2 hours, or shall be circuit integrity cable having a *fire-resistance rating* of not less than 2 hours, or shall be protected by a listed electrical circuit protective system having a *fire-resistance rating* of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operations.

Reason: This proposal is intended to add the option of using fire-resistive cables, which are tested to UL 2196 *Tests for Fire Resistive Cables*, and to include the option of using conventional cables with a protective material applied to the them. These materials are called electrical circuit protective systems.

Electrical circuit protective systems are already recognized by NFPA 70 the *National Electrical Code* for protection of fire pump control wiring, emergency system circuit wiring, and critical operations power system circuit wiring. The recognized standards to test fire-resistive electrical circuit protective systems are as follows:

- ASTM E1725 *Standard Test Methods for Fire Tests of Fire-Resistive Barrier systems for Electrical System Components*.
- UL 1724 *Fire Tests for Electrical Circuit Protective Systems*

The UL category for this designation of this type of protective system is FHIT.

This definition is a compilation of excerpts from the terminology section ASTM E1725 the *Standard Test Methods for Fire Tests of Fire-Resistive Barrier systems for Electrical System Components*.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC General code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it provides a viable design alternative for the two hour fire-resistance rated protection required. Some concern was noted that in the future a standard reference should be provided to insure that the product is being appropriately tested.

Assembly Action: **None**

Final Hearing Results

FS138-12 **AS**

Code Change No: FS140-12

Original Proposal

Section: 909.21.1

Proponent: Michael Perrino, CBO, Code Consultants, Inc., representing self

Revise as follows:

909.21.1 Pressurization requirements. Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inches of water (25 Pa) and a maximum positive pressure of 0.25 inches of water (67 Pa) with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.

Exception: The minimum positive pressure of 0.10 inches of water (25 Pa) and a maximum positive pressure of 0.25 inches of water (67 Pa) with respect to occupied floors is not required at the floor of recall with the doors open.

Reason: The IBC requires the pressure difference, required for the pressurization alternative, to be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. There is not currently an exception for the measurement of the pressure at the floor of elevator recall.

Elevator hositway pressurization is intended to minimize smoke movement into an elevator shaft when a lobby is not provided. Meeting the required pressure difference on the recall floor with the hoistway doors open is not necessary, because the recall floor is protected by smoke detectors that will not allow the hoistway doors to open if smoke is present.

The pressurization method is based on using pressure differences produced by fans to minimize the spread of smoke across a barrier. A barrier will not exist on the recall floor when the hoistway doors are open and smoke detectors used for elevator recall prevent the doors from opening when smoke is present.

The intent of hositway pressurization is to create the pressure difference between the floor of origin (low pressure) and the elevator hoistway (high pressure) to minimize smoke movement into the shaft. However, both a primary and alternate recall floor are provided so that the floor of fire origin will not be the designated level of recall. Therefore, it is not necessary to create a pressure differential across the open hoistway doors on the level of recall, because the recall floor will not be the floor of fire origin.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that at the floor of recall the elevator doors are required to remain open; therefore this change is necessary.

Assembly Action: **None**

Final Hearing Results

FS140-12 **AS**

Code Change No: FS141-12

Original Proposal

Section: 909.21.1, 909.21.1.1(New)

Proponent: Jonathan Siu, representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov)

Revise as follows:

909.21.1 Pressurization requirements. Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inches of water (25 Pa) and a maximum positive pressure of 0.25 inches of water (67 Pa) with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The pressure differentials shall be measured between the hoistway and the adjacent elevator landing. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.

Exceptions:

1. On floors containing only Group R occupancies, the pressure differential is permitted to be measured between the hoistway and a dwelling unit or sleeping unit.
2. Where an elevator opens into a lobby enclosed in accordance with Sections 3007.7 or 3008.7, the pressure differential is permitted to be measured between the hoistway and the space immediately outside the door(s) from the floor to the enclosed lobby.
3. The pressure differential is permitted to be measured relative to the outdoor atmosphere on floors other than the following:
   - 3.1. The fire floor
   - 3.2. The two floors immediately below the fire floor, and
   - 3.3. The floor immediately above the fire floor

909.21.1.1 Use of Ventilation Systems. Ventilation systems, other than hoistway supply air systems, are permitted to be used to exhaust air from adjacent spaces on the fire floor, two floors immediately below, and one floor immediately above the fire floor to the building exterior where necessary to maintain the positive pressure relationships as required in 708.14.2.1 during the operation of the elevator shaft pressurization system.

Reason: The purpose of this code change proposal is to introduce a method of measuring pressure differentials in pressurized hoistways.

The City of Seattle has had a long history of requiring pressurized hoistways in high rise buildings to prevent smoke migration. In 2005, the City of Seattle Department of Planning & Development (DPD) convened a committee which included representatives from industry, the Seattle Fire Department, and DPD, to decide whether to recommend changes to the high rise smoke migration control requirements in place at that time. The committee also consulted with Dr. John Klote, who suggested the approach that Seattle eventually adopted with some small modifications. This proposal takes the Seattle approach and adapts it to the 2012 IBC.

During the 2009/2010 code change cycle, a proposal was made to delete the hoistway pressurization requirements in the IBC without substitution (FS51-09/10), based on a study conducted by Drs. Miller and Beasley. This study showed that requiring the pressure differential of 0.10 inches of water column to be maintained at the recall floor with the elevator doors in the open position resulted in overpressurization of all the other floors—meaning the current standards in the code cannot be met. Based on further modeling by Dr. Miller, the proponent for FS51 submitted a public comment introducing Seattle's requirements into the IBC. The reason statement for the public comment stated Dr. Miller "concluded that the 'Seattle approach' does indeed meet all the prescriptive requirements of the IBC 2009." The proposal and its public comment were ultimately withdrawn by the proponent in anticipation of the formation of the CTC Elevator Lobby Study Group.

While not specifically endorsed by the CTC Elevator Lobby Study Group, the Seattle approach was discussed as one of several viable options for preventing smoke from entering hoistways. Unfortunately, the Study Group did not recommend any changes to the prescriptive hoistway pressurization requirements currently in the code. DPD has chosen to submit this method because we believe the code needs a viable alternative to the currently unworkable requirements. It should be noted that this proposal is independent of the Study Group proposals, and will work regardless of the outcome of the proposals from the Study Group.

Specific changes:

The new text in Section 909.21.1 clarifies between which two points the pressure differential gets measured. In general, the intent of the code is to keep smoke out of the hoistway, so the pressure should be measured between the elevator hoistway and the elevator landing/lobby. However, the first exception allows the pressure to be measured between the hoistway and sleeping or dwelling units in residential buildings, since they are highly compartmented. In addition, the fire source is most likely to be in the dwelling or sleeping unit, and providing positive pressure in the corridor/hallway outside the units (via leakage through the elevator hoistway doors) will help reduce the smoke migrating from the affected unit. The second exception allows the pressure to be measured between the hoistway and the space on the outside the smoke barrier that forms the lobby.

The third exception is the key to this proposal, in that it requires the 0.10 inch water column pressure differential between the hoistway and the floor be met only on the 4 most critical floors—the floor of fire origin, the two floors immediately below, and one floor immediately above. For all other stories, the pressure differential is allowed to be measured between the hoistway and the outside of the building. The purpose of this requirement is to maintain a slightly positive pressure in the building relative to atmospheric, so as to lower the neutral pressure plane in the building, which then reduces the driving force of stack effect. This exception is intended to be permitted to be used in conjunction with Exceptions 1 and 2. The engineers who design this system begin by modeling one floor as the “notionalized” fire floor, and designing the system (fans, dampers, etc.) accordingly. Each floor is subsequently modeled as the notionalized fire floor, and the system is checked to make sure the maximum and minimum pressure differentials are met. (Note that actual models may not have to be run for each floor, if it is clear the worst case has been covered.) Ultimately, the system will need to be designed so it will correctly configure itself for a fire originating on any floor in the building.

New section 909.21.1.1 allows the use of the general building HVAC system to exhaust air to create/maintain the required pressure differential. It is to be noted that the requirements of the rest of Section 909.21, in particular, Section 909.21.10 regarding protection of equipment, would still apply to these components.

Cost Impact: This proposal will increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal is very usable and provides additional guidance on how to provide pressurization and ultimately code compliance.

Assembly Action: **None**

Final Hearing Results

FS141-12 **AS**

Code Change No: FS147-12

Original Proposal

Section(s): 1403.5

Proponent: Theresa Weston, PhD., representing DuPont Building Innovations (theresa.a.weston@usa.dupont.com)

Revise as follows:

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.

Exception: Walls that contain less than 500 gm/m^2 combustible material and where the water-resistive barrier has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723.

Reason: Section 1403.5 (new in 2012) requires NFPA 285 testing for exterior walls containing a combustible water-resistive barrier. Since walls are required by Section 1402.3 to incorporate a water-resistive barrier and virtually all water-resistive barriers currently on the market are combustible, the introduction of this section into the code is requiring testing of all walls. This proposal exempts walls in which the only combustible material is a water-resistive barrier with low flame spread and low mass so that it will have an insignificant contribution to the total fuel load of the wall system.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: FS14 7 revised the provisions for flame propagation in noncombustible exterior walls. FS148 deletes these requirements. The committee needs to make its intent clear with respect to these provisions.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that it was appropriate to exempt walls in which the only combustible material is a water-resistive barrier that will not have a significant contribution to the fuel load of the wall system.

Assembly Action: **None**

Public Comments

Public Comment 1:

Jesse J. Beitel and Marcelo M. Hirschler (GBH International), Hughes Associates, Inc., representing Extruded Polystyrene Foam Association, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.

Exceptions:

1. Walls in which the water-resistive barrier is the only combustible component and the exterior wall has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1405.2.
2. Walls in which the water-resistive barrier is the only combustible component and the water-resistive barrier has a Peak Heat Release Rate of less than 150 kW/m^2, a Total Heat Release of less than 20 MJ/m^2 and an Effective Heat of Combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354 and has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.
3. Windows and doors and flashing for windows and doors shall not be considered to be part of a water resistive barrier for purposes of this section.

Commenter's Reason: This proposed comment is in response to the committee findings and subsequent industry discussions regarding an exception to conduct full scale NFPA 285 testing in cases where the only combustible material is a water-resistive barrier with low combustibility and mass so low that it will have an insignificant contribution to the total fuel load of the wall system.

In general, this public comment agrees with the proponent of FS147-12 that NFPA 285 testing is not required where the only combustible material in the exterior wall is a water resistant barrier. However, the exceptions have been improved and are as follows:

Exception 1 – Recognizes that "heavy" types of noncombustible exterior wall veneers can provide protection to the water-resistive barrier to eliminate the need for NFPA 285 testing when the water resistive barrier is the only combustible component in the exterior wall. A pointer to Table 1405.2 which describes the allowable minimum thicknesses of brick, concrete, stone, terra cotta, stucco or steel is provided.

Exception 2 – Provides an exception for NFPA 285 testing when the water resistive barrier is the only combustible material in any exterior wall and demonstrates low combustibility characteristics when tested in accordance with ASTM E1354 and ASTM E84. The pass criteria are based upon a proprietary test program that evaluated a number of market available water-resistive barriers.

Exception 3 – Recognizes the fact that windows and doors and flashing for windows and doors are limited in area and do not present a significant avenue for fire spread.

This public comment is technically supported and coordinates with other applicable sections of the IBC.

Analysis: FS147 and FS148 delete these requirements. Public comments to FS147 and FS148 deal with the requirements of Section 1403.5 differently. The membership needs to make its intent clear with respect to these provisions.

Public Comment 2:

Julie Ruth, JRuth Code Consulting, representing American Architectural Manufacturers Association, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

FENESTRATION. Skylights, roof windows, vertical windows (fixed or moveable), opaque doors, glazed doors, glazed block and combination opaque/glazed doors. Fenestration includes products with glass and nonglass glazing materials.

Revise existing Section 1403.5 as follows:

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, fenestration products and flashing of fenestration products shall not be considered part of the water resistive barrier.

Exception: Walls that contain less than 500 gm/m^2 combustible material and where the water-resistive barrier has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723.

Commenter's Reason: The purpose of this Public Comment is to clarify that Section 1403.5 does not apply to fenestration products, and the flashing of fenestration products. The intent of Section 1405.3 is to apply to the installation of water resistive barriers over the opaque section of exterior walls. When water resistive barriers are installed in such a large quantity, such as over the entire opaque section of exterior walls, they can add a significant fuel load to the exterior wall.

On the other hand, typically fenestration products and the flashing of fenestration products are not included in NFPA 285 testing. The amount of combustible material used in the flashing of fenestration products is insignificant. There have been no documented instances of fenestration products and their flashing contributing to the fuel load or spread of fire over an exterior wall in any significant manner. Therefore, fenestration products and their flashing should not be included in the application of Section 1403.5.

Analysis: FS147 and FS148 delete these requirements. Public comments to FS147 and FS148 deal with the requirements of Section 1403.5 differently. The membership needs to make its intent clear with respect to these provisions.

Final Hearing Results

FS147-12 **AMPC1, 2**

Code Change No: FS150-12

Original Proposal

Section: 1403.6

Proponent: Philip Line, American Wood Council, representing American Wood Council

Revise as follows:

1403.6 Flood resistance. For buildings in flood hazard areas as established in Section 1612.3, *exterior walls* extending below the elevation required by Section 1612 shall be constructed with flood-damage-resistant materials. ~~Wood shall be pressure-preservative treated in accordance with AWPA U1 for the species, product and end use using a preservative *listed* in Section 4 of AWPA U1 or decay-resistant heartwood of redwood, black locust or cedar.~~

Reason: The specific requirement for preservative treated wood in *exterior walls* extending below the base flood elevation is deleted because wood products such as plywood sheathing, plywood panel siding and wall studs have been shown to be resistant to effects of flood exposure without aid of preservatives required elsewhere in the code for protection of wood from decay and termites.

Primary considerations for material performance and use in flood hazard areas are outlined in FEMA *TB2 Flood Damage Resistant Materials Requirements for Buildings Located in Special Flood Hazard Areas*. A flood damage resistant material is one that is "capable of withstanding direct and prolonged contact with floodwaters without sustaining significant damage". Evaluation consists of consideration of material performance following 72 hr immersion and presence of only limited damage requiring no more than cosmetic repair (e.g. cleaning, sanitizing, and resurfacing such as sanding, repair of joints, repainting). Research conducted by Oak Ridge National Laboratory and Tuskegee University (ORNL/TM-2005/34 Field Testing of Energy-Efficient Flood-Damage-Resistant Residential Envelope Systems Summary Report, June 2004) and field observations of material performance from actual floods were considerations in the update of FEMA TB2-2008. Within TB2, examples of wood that are not required to be preservative treated for flood damage resistance that may form a part of *exterior walls* include studs and Exterior and Marine Plywood used as wall sheathing. While preservative treated studs and preservative treated exterior plywood sheathing were not tested in the ORNL/Tuskegee study, it is not expected that presence of preservative treatment would improve the already acceptable performance of these materials.

Requirements for preservative treated wood for protection from decay and termites are addressed elsewhere in the code (see 2303.1.8, 2304.11 and Chapter 18) and will continue to be in effect including in flood hazard areas. These include required preservative treatment of: i) wood framing members, including wood sheathing, that rest on exterior foundation walls and are less than 8 inches from exposed earth, ii) wood framing members and furring strips attached directly to the interior of exterior masonry or concrete walls below grade, iii) sleepers and sills on a concrete or masonry slab that is in direct contact with earth, iv) wood siding where clearance is less than 6 inches from earth or less than 2 inches horizontal surfaces such as concrete porch or similar surface, and v) wood in contact with ground.

A similar requirement for preservative-treated wood along with reference to FEMA TB2 is in the 2012 IRC. A companion change to this proposal will be submitted to the IRC to make provisions of the IRC and IBC consistent.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the deletion as these requirements are covered in other portions of the code.

Assembly Action: **None**

Final Hearing Results

FS150-12 **AS**

Code Change No: FS154-12

Original Proposal

Section(s): 1404.4

Proponent: John Woestman, Kellen Company, representing Masonry Veneer Manufacturers Association (MVMA) (jwoestman@kellencompany.com)

Revise as follows:

1404.4 Masonry. Exterior walls of masonry construction shall be designed and constructed in accordance with this section and Chapter 21. Masonry units, mortar and metal accessories used in anchored and adhered veneer shall meet the physical requirements of Chapter 21. The backing of anchored and adhered veneer shall be of concrete, masonry, steel framing or wood framing. Insulation board meeting the applicable requirements of the code shall be permitted between the backing and the masonry veneer.

Reason: Section 1404.4 could be interpreted as not allowing continuous insulation / insulation board to be placed in the wall system between the masonry veneer and the backing.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

1404.4 Masonry. Exterior walls of masonry construction shall be designed and constructed in accordance with this section and Chapter 21. Masonry units, mortar and metal accessories used in anchored and adhered veneer shall meet the physical requirements of Chapter 21. The backing of anchored and adhered veneer shall be of concrete, masonry, steel framing or wood framing. Continuous insulation ~~Insulation board~~ meeting the applicable requirements of the code shall be permitted between the backing and the masonry veneer.

Committee Reason: The committee agreed that allowing continuous insulation to be placed in the wall system between the masonry veneer and the backing was intended and appr opriate to clarify in this proposal. The modification allows for types of insulation other than board products.

Assembly Action: **None**

Final Hearing Results

FS154-12 **AM**

Code Change No: FS155-12

Original Proposal

Section: 1404.5

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1404.5 Metal. Exterior walls constructed of cold-formed steel ~~construction~~, structural steel or aluminum~~lightweight metal alloys~~ shall be designed in accordance with Chapters 22 and 20, respectively.

Reason: These minor editorial modifications in this section correct the terminology related to cold-formed steel and aluminum to match that utilized in Chapter 22, Section 2210 and Chapter 20.

Cost Impact: No impact to the cost of construction is anticipated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that these modifications correct the terminology related to cold-formed steel and aluminum to match that used in Chapter 22 and Chapter 20.

Assembly Action: **None**

Final Hearing Results

FS155-12	**AS**

Code Change No: FS156-12

Original Proposal

Section: 1404.10, Chapter 35

Proponent: John Mulder, Intertek Testing Services NA, Inc., representing International Standards Organization Technical Committee 77, Products in Fibre-reinforced Cement and self

Revise as follows:

1404.10 Fiber-cement siding. Fiber-cement siding shall conform to the requirements of ASTM C1186, Type A (or ISO 8336, Category A), and shall be so identified on labeling listing an *approved* quality control agency.

Add new standard to Chapter 35 as follows:

ISO		
8336-2009	Fiber-Cement Flat Sheets – Product Specification and Test Methods	

Reason: Performance requirements of ISO 8336, *Fibre-cement flat sheets – Product specification and test methods*, have been harmonized with the performance requirements of ASTM C1186. Fiber-cement siding producers in Mexico, Central and South America, Europe, Asia, Australia and New Zealand currently manufacture and test their fiber-cement siding products for compliance with ISO 8336 (see attached). Members of International Standards Organization Technical Committee 77, *Product in Fiber-reinforced Cement,* are working to have their respective country's codes, where applicable, revised to include the harmonized standard. The inclusion of this Standard in the IBC will eliminate a barrier to trade by permitting manufacturers worldwide to demonstrate compliance with product performance requirements specific to the United States without incurring the added expense of additional test report documentation.

Cost Impact: The code change proposal will not increase the cost of construction because the recognition of the alternative compliance Standard can reduce test report documentation requirements thereby reducing costs to the product manufacturer and reduces a barrier to trade.

Analysis: A review of the standard proposed for inclusion in the code, ISO 8336-2009, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that ISO 8336 has been harmonized with the performance requirements of ASTM C1186 and is therefore an appropriate referenced standard.

Assembly Action: **None**

Final Hearing Results

FS156-12 **AS**

Code Change No: FS157-12

Original Proposal

Section(s): 1404.13 (New)

Proponent: Jay Crandell, ARES Consulting, representing the Foam Sheathing Committee of the American Chemistry Council- Plastics Division (jcrandell@aresconsulting.biz)

Add new text as follows:

1404.13 Foam Plastic Insulation. Foam plastic insulation used in exterior wall covering assemblies shall comply with Section 2603.

Reason: Foam plastic insulation is commonly included as a component in exterior wall covering assemblies for energy code compliance and is included in the current definition of exterior wall coverings. Therefore, it is appropriate to include in Chapter14 reference to applicable material requirements in Chapter 26.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

1404.13 Foam Plastic Insulation. Foam plastic insulation used in exterior wall covering assemblies shall comply with Chapter 26 ~~Section 2603~~.

Committee Reason: The committee agreed that foam plastic insulation is a common component in exterior wall covering assemblies and therefore it is appropriate to include referenced to Chapter 26 from Chapter 14. The modification referenced Chapter 26 because the entire chapter is applicable.

Assembly Action: **None**

Final Hearing Results

FS157-12 **AM**

Code Change No: FS160-12

Original Proposal

Section: 1405.3, 1405.3.1, Table 1405.3.1, 1405.3.2

Proponent: Jay Crandell, ARES Consulting, representing the Foam Sheathing Committee of the American Chemistry Council- Plastics Division (jcrandell@aresconsulting.biz)

Revise as follows:

1405.3 Vapor retarders. Vapor retarders as described in Section 1405.3.3 shall be provided in accordance with Sections 1405.3.1 and 1405.3.2, or an approved design using accepted engineering practice for hygrothermal analysis.

1405.3.1 Class I and II Vapor Retarders. Class I or II vapor retarders shall not be provided on the interior side of frame walls in Zones 1 and 2. Class I vapor retarders shall not be provided on the interior side of frame walls in Zones 3 and 4. Class I or II vapor retarders shall be provided on the interior side of frame walls in Zones 5, 6, 7, 8 and Marine 4. The appropriate zone shall be selected in accordance with Chapter 3 of the *International Energy Conservation Code*.

Exceptions:

1. Basement walls.
2. Below-grade portion of any wall.
3. Construction where moisture or its freezing will not damage the materials.
4. Conditions where Class III vapor retarders are required in Section 1405.3.2.

1405.3.~~1~~2 Class III vapor retarders. Class III vapor retarders shall be permitted where any one of the conditions in Table 1405.3.1 is met. Only Class III vapor retarders shall be used on the interior side of frame walls where foam plastic insulating sheathing with perm rating of less than 1 perm is applied in accordance with Table 1405.3.1 on the exterior side of the frame wall.

TABLE 1405.3.1
CLASS III VAPOR RETARDERS

(Portions of table not shown remain unchanged)

a. Spray foam with a minimum density of 2 lbs/ft^3 applied to the interior cavity side of wood structural panels, fiberboard, insulating sheathing or gypsum is deemed to meet the insulating sheathing requirement where the spray foam *R*-value meets or exceeds the specified insulating sheathing *R*-value.

~~1405.3.2~~ 1405.3.3 Material vapor retarder class. The *vapor retarder class* shall be based on the manufacturer's certified testing or a tested assembly. The following shall be deemed to meet the class specified:

Class I: Sheet polyethylene, nonperforated aluminum foil with a perm rating of less than or equal to 0.1.
Class II: Kraft-faced fiberglass batts or paint with a perm rating greater than 0.1 and less than or equal to 1.0.
Class III: Latex or enamel paint with a perm rating of greater than 1 and less than or equal to 10.

Reason: Provisions are strengthened and clarified to better promote seasonal drying of walls and avoid a “double vapor barrier” condition in combination with a “warm wall” design using insulating sheathing in cold climates. Provision is also added to clarify that low perm vapor retarders on interior side of walls shall not be used in the warmer climate zones as indicated to avoid a reversed vapor retarder. In essence the code says well what “ought” to be done, but doesn’t clearly prohibit what “ought not” be done.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the added vapor retarder requirements would clarify where types of vapor retarders should and should not be installed to perform effectively.

Assembly Action: **None**

Final Hearing Results

FS160-12 **AS**

Code Change No: FS162-12

Original Proposal

Section(s): Table 1405.2, 1405.7, 1405.8

Proponent: John Woestman, Kellen Company, representing Masonry Veneer Manufacturers Association (MVMA) (jwoestman@kellencompany.com)

Revise as follows:

TABLE 1405.2
MINIMUM THICKNESS OF WEATHER COVERINGS

COVERING TYPE	MINIMUM THICKNESS (inches)
~~Prec~~Cast stone facing[e]	0.625

(Portions of table not shown remain unchanged)

For SI: 1 inch = 25.4 mm.
a. Wood siding of thicknesses less than 0.5 inch shall be placed over sheathing that conforms to Section 2304.6.
b. Exclusive of texture.
c. As measured at the bottom of decorative grooves.
d. 16 ounces per square foot for cold-rolled copper and lead-coated copper, 12 ounces per square foot for copper shingles, high-yield copper and leadcoated high-yield copper.
e. Includes scratch coat, setting bed, and ~~pre~~cast stone.

1405.7 Stone veneer. Anchored ~~S~~stone veneer units not exceeding 10 inches (254 mm) in thickness shall be anchored directly to masonry, concrete or to stud construction by one of the following methods:

(No change to items 1 through 3)

1405.8 Slab-type veneer. Anchored ~~S~~slab-type veneer units not exceeding 2 inches (51 mm) in thickness shall be anchored directly to masonry, concrete or stud construction For veneer units of marble, travertine, granite or other stone units of slab form ties of corrosion-resistant dowels in drilled holes shall be located in the middle third of the edge of the units, spaced a maximum of 24 inches (610 mm) apart around the periphery of each unit with not less than four ties per veneer unit. Units shall not exceed 20 square feet (1.9 m2) in area. If the dowels are not tight fitting, the holes shall be drilled not more than 0.063 inch (1.6 mm) larger in diameter than the dowel, with the hole countersunk to a diameter and depth equal to twice the diameter of the dowel in order to provide a tight-fitting key of cement mortar at the dowel locations when the mortar in the joint has set. Veneer ties shall be corrosion-resistant metal capable of resisting, in tension or compression, a force equal to two times the weight of the attached veneer. If made of sheet metal, veneer ties shall be not smaller in area than 0.0336 by 1 inch (0.853 by 25 mm) or, if made of wire, not smaller in diameter than 0.1483-inch (3.76 mm) wire.

Reason: While working on several code change proposals to clarify requirements for adhered masonry veneer, these minor revision opportunities were identified.

The revision of Table 1405.2 is proposed as “Cast stone” is defined in the IBC as precast of Portland cement concrete and used as a trim, veneer, or facing.” Precast stone” is not defined in the IBC.

The other revisions provide consistency in language for these types of anchored veneer, and to clarify these are anchored veneer requirements (and not adhered veneer requirements).

Cost Impact: None

Public Hearing Results

Committee Action: **Approved a s Modified**

Modify proposal as follows:

TABLE 1405.2
MINIMUM THICKNESS OF WEATHER COVERINGS

COVERING TYPE	MINIMUM THICKNESS (inches)
~~Cast stone facing[e]~~	~~0.625~~

(Portions of table not shown remain unchanged)

For SI: 1 inch = 25.4 mm.
a. Wood siding of thicknesses less than 0.5 inch shall be placed over sheathing that conforms to Section 2304.6.
b. Exclusive of texture.
c. As measured at the bottom of decorative grooves.
d. 16 ounces per square foot for cold-rolled copper and lead-coated copper, 12 ounces per square foot for copper shingles, high-yield copper and leadcoated high-yield copper.
~~e. Includes scratch coat, setting bed, and cast stone.~~

(Portions of proposal not shown remain unchanged)

Committee Reason: The committee agreed that the proposed revisions to Sections 1405.7 and 1405.8 provide consistency for these types of anchored veneer, and clarify that these are anchored veneer requirements. The modification recognizes that all stone veneers are already covered in the table.

Assembly Action: **None**

Final Hearing Results

FS162-12 **AM**

Code Change No: FS163-12

Original Proposal

Section: 1405.8

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1405.8 Slab-type veneer. Slab-type veneer units not exceeding 2 inches (51 mm) in thickness shall be anchored directly to masonry, concrete or ~~stud~~ light-frame construction. For veneer units of marble, travertine, granite or other stone units of slab form ties of corrosion-resistant dowels in drilled holes shall be located in the middle third of the edge of the units, spaced a maximum of 24 inches (610 mm) apart around the periphery of each unit with not less than four ties per veneer unit. Units shall not exceed 20 square feet (1.9 m2) in area. If the dowels are not tight fitting, the holes shall be drilled not more than 0.063 inch (1.6 mm) larger in diameter than the dowel, with the hole countersunk to a diameter and depth equal to twice the diameter of the dowel in order to provide a tight-fitting key of cement mortar at the dowel locations when the mortar in the joint has set. Veneer ties shall be corrosion-resistant metal capable of resisting, in tension or compression, a force equal to two times the weight of the attached veneer. If made of sheet metal, veneer ties shall be not smaller in area than 0.0336 by 1 inch (0.853 by 25 mm) or, if made of wire, not smaller in diameter than 0.1483-inch (3.76 mm) wire.

Reason: This minor editorial change corrects terminology to match the defined term found in IBC, Section 202, *Light-Frame Construction.*

Cost Impact: No impact to the cost of construction is anticipated.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee felt that substituting “light-frame” for “stud” construction could lead to confusion and that the term stud construction was a well understood term.

Assembly Action: **None**

Public Comment

Public Comment:

Jonathan Humble, AIA, NCARB, LEED BD&C, representing American Iron and Steel Institute, requests Approval as Submitted.

Commenter’s Reason: At the May 2012 (Dallas, TX) code hearings representatives from the steel and wood industry stood up and supported this proposal, and they were the only two parties who testified on this proposal.

Unfortunately, the committee during their deliberations moved into discussions which questioned the impact of “stud” versus the proposal to use “light-frame”. This extended from questions related to the attachment of veneers to the framing, and moved to the belief that the proposal might include attachment to wood panels (e.g. sheathing) and not to the framing members as required by the code. This discussion is moot since the definition of “light-frame” only refers to the framing and nothing else, as shown in the definitions below.

*“**LIGHT-FRAME CONSTRUCTION.** A type of construction whose vertical and horizontal structural elements are primarily formed by a system of repetitive wood or cold-formed steel framing members.” (Copyright ICC 2012)*

"CONVENTIONAL LIGHT-FRAME CONSTRUCTION. *A type of construction whose primary structural elements are formed by a system of repetitive wood-framing members. See Section 2308 for conventional light-frame construction provisions" (Copyright ICC 2012).*

In view of this fact we ask the membership to overturn the committee recommendation for "disapproval" and change the result to "approved as submitted."

Final Hearing Results

FS163-12 **AS**

Code Change No: FS164-12

Original Proposal

Section: 1405.11

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1405.11 Metal veneers. Veneers of metal shall be fabricated from *approved* corrosion-resistant materials or shall be protected front and back with porcelain enamel, or otherwise be treated to render the metal resistant to corrosion. Such veneers shall not be less than 0.0149-inch (0.378 mm) nominal thickness sheet steel mounted on wood or metal furring strips or approved sheathing on ~~the wood~~ light-frame construction.

Reason: In this application, the use of sheathing should not be limited solely to wood construction. Rather, by utilizing the more general term of *light-frame construction*, which is defined in IBC Section 202, it allows approved sheathing to be used on both wood and cold-formed steel framing.

Cost Impact: No impact to the cost of construction is anticipated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that utilizing the general term light-frame construction would allow for both wood and cold-formed steel framing.

Assembly Action: **None**

Final Hearing Results

FS164-12 **AS**

Code Change No: FS165-12

Original Proposal

Section: 1405.11.1

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1405.11.1 Attachment. Exterior metal veneer shall be securely attached to the supporting masonry or framing members with corrosion-resistant fastenings, metal ties or by other *approved* devices or methods. The spacing of the fastenings or ties shall not exceed 24 inches (610 mm) either vertically or horizontally, but where units exceed 4 square feet (0.4 m2) in area there shall be not less than four attachments per unit. The metal attachments shall have a cross-sectional area not less than provided by W 1.7 wire. Such attachments and their supports shall be ~~capable of resisting a horizontal force in accordance with~~ designed and constructed to resist the wind loads as specified in Section 1609 for components and cladding~~, but in no case less than 20 psf (0.958 kg/m2)~~.

Reason: As a result of the publication of the 2010 edition of ASCE 7, the 2012 edition of the IBC made significant changes to the wind load provisions in Section 1609, including the conversion from nominal design wind speeds to ultimate design wind speeds, and the creation of wind speed maps that reflect a structure's particular Risk Category. (See Section 1609.3.) Unfortunately, in this process, this minimum pressure for the attachment of metal veneers in Section 1405.11.1 was not updated. This leaves one of two options available: 1. the minimum wind pressure could be corrected to reflect the ASCE 7-10 basis, if it is still needed; or, 2. the minimum pressure could be eliminated in deference to the minimum design wind pressure specified in ASCE 7.

Rather than continue to complicate the code with a specific minimum pressure that requires continued maintenance, we recommend that it be eliminated and, that the section defer to the ASCE 7 minimum net design wind pressure for components and cladding, which is set at 16 psf in ASCE 7-10, Section 30.2.2. (See also 1609.6.3 for the minimum specified in the simplified method.) ASCE 7-10, Chapter 30 is adopted in Section 1609.

Cost Impact: No impact to the cost of construction is anticipated.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with this proposal's elimination of the specific minimum design pressure for attachment of metal veneers and relies on the reference instead to Section 1609 while clarifying that it is the component and cladding wind load that must be resisted.

Assembly Action: **None**

Final Hearing Results

FS165-12 **AS**

Code Change No: FS166-12

Original Proposal

Section: 1405.11.3

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1405.11.3 Backup. Masonry backup shall not be required for metal veneer unless required by~~except as is necessary to meet~~ the fire resistance requirements of this code.

Reason: This editorial modification simplifies the code language.

Cost Impact: No impact to the cost of construction is anticipated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposal provided simplification and removed ambiguous language.

Assembly Action: **None**

Final Hearing Results

FS166-12 **AS**

Code Change No: FS167-12

Original Proposal

Section(s): 1405.14.1

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1405.14.1 Application. The siding shall be applied over sheathing or materials listed in Section 2304.6. Siding shall be applied to conform with the *water-resistive barrier* requirements in Section 1403. Siding and accessories shall be installed in accordance with *approved* manufacturer's instructions. Unless otherwise specified in the *approved* manufacturer's instructions, nails used to fasten the siding and accessories shall have a minimum 0.313-inch (7.9 mm) head diameter and 1/8-inch (3.18 mm) shank diameter. The nails shall be corrosion resistant and shall be long enough to penetrate the studs or nailing strip at least 3/4 inch (19 mm). For cold-formed steel light-frame construction, corrosion-resistant fasteners shall be used and shall penetrate the cold-formed steel framing at least three exposed threads. Where the siding is installed horizontally, the fastener spacing shall not exceed 16 inches (406 mm) horizontally and 12 inches (305 mm) vertically. Where the siding is installed vertically, the fastener spacing shall not exceed 12 inches (305 mm) horizontally and 12 inches (305 mm) vertically.

Reason: The section should include guidance on fastener requirements for cold-formed steel light-frame construction similar to those specified in IBC Section 1405.16. In adding the language from Section 1405.16, a change was made from “all weather screws” to “corrosion-resistant fasteners,” which is the more appropriate and more commonly used term. Additionally, the language was corrected from “three full threads” to “three exposed threads.” This matches language used in AISI S200, Section D1.3. Also, it avoids confusion on what a “full thread” is; as long as three threads can be seen from any side of the screw, it’s sufficient. A separate, coordinating proposal for Section 1405.16 corrects the language there.

Cost Impact: No impact to the cost of construction is anticipated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposal provided a good technical addition on how to connect vinyl siding to steel framing.

Assembly Action: **None**

Public Comments

Public Comment:

Jonathan Humble, AIA, NCARB, LEED BD&C, representing American Iron and Steel Institute, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1405.14.1 Application. The siding shall be applied over sheathing or materials listed in Section 2304.6. Siding shall be applied to conform with the *water-resistive barrier* requirements in Section 1403. Siding and accessories shall be installed in accordance with *approved* manufacturer's instructions. Unless otherwise specified in the *approved* manufacturer's instructions, nails used to fasten the siding and accessories shall have a minimum 0.313-inch (7.9 mm) head diameter and 1/8-inch (3.18 mm) shank diameter. The nails shall be corrosion resistant and shall be long enough to penetrate the studs or nailing strip at least 3/4 inch (19 mm). For cold-formed steel light-frame construction, corrosion-resistant fasteners shall be used. Screw fasteners ~~and~~ shall penetrate the cold-formed steel framing at least three exposed threads. Other fasteners shall be installed in accordance with the approved construction

documents and manufacturer's instructions. Where the siding is installed horizontally, the fastener spacing shall not exceed 16 inches (406 mm) horizontally and 12 inches (305 mm) vertically. Where the siding is installed vertically, the fastener spacing shall not exceed 12 inches (305 mm) horizontally and 12 inches (305 mm) vertically.

Commenter's Reason: Following the May 2012 code hearings AISI representatives were approached by individuals who raised questions regarding the proposed terminology application to the minimum installation requirements. In this case they observed a disconnect between "fastener" types including pneumatically driven fasteners, powder-actuated fasteners, rivet fasteners and clinch joining versus the requirement of a minimum penetration for screws of "three exposed threads."

AISI agrees, and is proposing for further modification this proposal. Following further discussions with those interested parties we believe we have addressed the irregularities which were brought to our attention.

Final Hearing Results

FS167-12 **AMPC**

Code Change No: FS169-12

Original Proposal

Section(s): 1405.16

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1405.16 Fiber-cement siding. Fiber-cement siding complying with Section 1404.10 shall be permitted on exterior walls of Type I, II, III, IV and V construction for wind pressure resistance or wind speed exposures as indicated by the manufacturer's listing and *label* and *approved* installation instructions. Where specified, the siding shall be installed over sheathing or materials *listed* in Section 2304.6 and shall be installed to conform to the *water-resistive barrier* requirements in Section 1403. Siding and accessories shall be installed in accordance with *approved* manufacturer's instructions. Unless otherwise specified in the *approved* manufacturer's instructions, nails used to fasten the siding to wood studs shall be corrosion-resistant round head smooth shank and shall be long enough to penetrate the studs at least 1 inch (25 mm). For cold-formed steel light-frame construction ~~metal framing~~, ~~all-weather screws~~ corrosion-resistant fasteners shall be used and shall penetrate the the cold-formed steel framing ~~metal framing~~ at least three exposed ~~full~~ threads.

Reason: The editorial modifications correct the terminology to reflect what is adopted in Section 2211. A change was made from "all weather screws" to "corrosion-resistant fasteners," which is the more appropriate and more commonly used term. Additionally, the language was corrected from "three full threads" to "three exposed threads." This matches language used in AISI S200, Section D1.3. Also, it avoids confusion on what a "full thread" is; as long as three threads can be seen from any side of the screw, it's sufficient.

Cost Impact: No impact to the cost of construction is anticipated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposal provided a good technical addition on how to connect fiber-cement siding to cold-formed steel framing.

Assembly Action: **None**

Public Comments

Public Comment:

Jonathan Humble, AIA, NCARB, LEED BD&C, representing American Iron and Steel Institute, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1405.16 Fiber-cement siding. Fiber-cement siding complying with Section 1404.10 shall be permitted on exterior walls of Type I, II, III, IV and V construction for wind pressure resistance or wind speed exposures as indicated by the manufacturer's listing and *label* and *approved* installation instructions. Where specified, the siding shall be installed over sheathing or materials *listed* in Section 2304.6 and shall be installed to conform to the *water-resistive barrier* requirements in Section 1403. Siding and accessories shall be installed in accordance with *approved* manufacturer's instructions. Unless otherwise specified in the *approved* manufacturer's instructions, nails used to fasten the siding to wood studs shall be corrosion-resistant round head smooth shank and shall be long enough to penetrate the studs at least 1 inch (25 mm). For cold-formed steel light-frame construction corrosion-resistant fasteners

shall be used. ~~and~~ Screw fasteners shall penetrate the ~~the~~ cold-formed steel framing at least three exposed full threads . Other fasteners shall be installed in accordance with the approved construction documents and manufacturer's instructions.

Commenter's Reason: Following the May 2012 code hearings AISI representatives were approached by individuals who raised questions regarding the proposed terminology application to the minimum installation requirements. In this case they observed a disconnect between "fastener" types including pneumatically driven fasteners, powder-actuated fasteners, rivet fasteners and clinch joining versus the requirement of a minimum penetration for screws of "three exposed threads."

AISI agrees, and is proposing for further modification this proposal. Following further discussions with those interested parties we believe we have addressed the irregularities which were brought to our attention.

Final Hearing Results

FS169-12 **AMPC**

Code Change No: FS170-12

Original Proposal

Section(s): 1405.16.1, Chapter 35

Proponent: John Mulder, Intertek Testing Services NA, Inc., representing International Standards Organization Technical Committee 77, Products in Fibre-reinforced Cement and self

Revise as follows:

1405.16.1 Panel siding. Fiber-cement panels shall comply with the requirements of ASTM C1186, Type A, minimum Grade II (or ISO 8336, Category A, minimum Class 2). Panels shall be installed with the long dimension either parallel or perpendicular to framing. Vertical and horizontal joints shall occur over framing members and shall be ~~sealed~~ protected with *approved* caulking, or ~~covered~~ with battens, or flashing, or be vertical or horizontal shiplap, or otherwise ~~shall be~~ designed to comply with Section 1403.2. Panel siding shall be installed with fasteners in accordance with the *approved* manufacturer's instructions.

Add new standard to Chapter 35 as follows:

ISO	
8336-2009	Fiber-Cement Flat Sheets – Product Specification and Test Methods

Reason: Performance requirements of ISO 8336, *Fibre-cement flat sheets – Product specification and test methods*, have been harmonized with the performance requirements of ASTM C1186, *Standard Specification for Flat Non-Asbestos Fiber-Cement Sheets*. Fiber-cement siding producers in Mexico, Central and South America, Europe, Asia, Australia and New Zealand currently manufacture and test their fiber-cement siding products for compliance with ISO 8336. The inclusion of this Standard reference in the IBC will permit manufacturers worldwide to demonstrate product compliance to IBC requirements. The addition of a reference to ISO 8336 in the Code removes a barrier to trade. Additional editorial changes are proposed to clarify the nature of the required vertical and/or horizontal joint protection to include reference to *approved* caulking and the recognition of both vertical or horizontal shiplap joints as a means of protecting the joints as is also common with wood panel siding.

Cost Impact: The code change proposal will not increase the cost of construction because the product is already recognized for use in the Code. Reference to compliance with this alternative standard, an International Standard requiring the same performance as the ASTM Standard, will reduce barriers to trade by allowing foreign products complying with ISO 8336, Category A, minimum Class 2, market access to the United States without the need for additional product compliance documentation.

Analysis: A review of the standard proposed for inclusion in the code, ISO 8336-2009, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

For staff analysis of the content of ISO 8336-2009 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org/cs/codes/Documents/2012-13cycle/Proposed-A/2012ProposedStandards.pdf.

Committee Action: **Approved as Modified**

Modify proposal as follows:

1405.16.1 Panel siding. Fiber-cement panels shall comply with the requirements of ASTM C1186, Type A, minimum Grade II or ISO 8336, Category A, minimum Class 2. Panels shall be installed with the long dimension either parallel or perpendicular to framing. Vertical and horizontal joints shall occur over framing members and shall be protected with ~~*approved*~~ caulking, or with battens, or flashing, or be vertical or horizontal shiplap, or otherwise designed to comply with Section 1403.2. Panel siding shall be installed with fasteners in accordance with the *approved* manufacturer's instructions.

Add new standard to Chapter 35 as follows:

ISO
8336-2009 Fiber-Cement Flat Sheets – Product Specification and Test Methods

Committee Reason: The committee agreed that ISO 8336 has been harmonized with the performance requirements of ASTM C1186 and was therefore appropriate. The modification eliminates an unnecessary step for the code official to specifically approve common caulking materials.

Assembly Action: **None**

Final Hearing Results

FS170-12 **AM**

Code Change No: FS171-12

Original Proposal

Section(s): 1405.16.2, Chapter 35

Proponent: John Mulder, Intertek Testing Services NA, Inc., representing International Standards Organization Technical Committee 77, Products in Fibre-reinforced Cement and self

Revise as follows:

1405.16.2 Lap siding. Fiber-cement lap siding having a maximum width of 12 inches (305 mm) shall comply with the requirements of ASTM C1186, Type A, minimum Grade II (or ISO 8336, Category A, minimum Class 2). Lap siding shall be lapped a minimum 1¼ inches (32 mm) and lap siding not having tongue-and-groove end joints shall have the ends sealed with *approved* caulking, or covered with an H-section joint cover, or located over a strip of flashing or otherwise shall be designed to comply with Section 1403.2. Lap siding courses shall be installed with fastener heads exposed or concealed in accordance with the *approved* manufacturer's instructions.

Add new standard to Chapter 35 as follows:

ISO	
8336-2009	Fiber-Cement Flat Sheets – Product Specification and Test Methods

Reason: Performance requirements of ISO 8336, *Fibre-cement flat sheets – Product specification and test methods*, have been harmonized with the performance requirements of ASTM C1186, *Standard Specification for Flat Non-Asbestos Fiber-Cement Sheets*. Fiber-cement siding producers in Mexico, Central and South America, Europe, Asia, Australia and New Zealand currently manufacture and test their fiber-cement siding products for compliance with ISO 8336. The inclusion of this Standard reference in the IBC will permit manufacturers worldwide to demonstrate product compliance to IBC requirements. The addition of a reference to ISO 8336 in the Code removes a barrier to trade. Additional editorial changes are proposed to clarify the nature of the required vertical joint protection and to include reference to *approved* caulking.

Cost Impact: The code change proposal will not increase the cost of construction because the product is already recognized for use in the Code. Reference to compliance with this alternative standard, an International Standard requiring the same performance as the ASTM Standard, will reduce barriers to trade by allowing foreign products complying with ISO 8336, Category A, minimum Class 2, market access to the United States without the need for additional product compliance documentation.

Analysis: A review of the standard proposed for inclusion in the code, ISO 8336-2009, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

For staff analysis of the content of ISO 8336-2009 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org/cs/codes/Documents/2012-13cycle/Proposed-A/2012ProposedStandards.pdf.

Committee Action: **Approved as Modified**

Modify proposal as follows:

1405.16.2 Lap siding. Fiber-cement lap siding having a maximum width of 12 inches (305 mm) shall comply with the requirements of ASTM C1186, Type A, minimum Grade II (or ISO 8336, Category A, minimum Class 2). Lap siding shall be lapped a minimum 1¼ inches (32 mm) and lap siding not having tongue-and-groove end joints shall have the ends protected ~~sealed~~ with ~~*approved*~~ caulking, or covered with an H-section joint cover, or located over a strip of flashing or otherwise shall be designed to comply with Section 1403.2. Lap siding courses shall be installed with fastener heads exposed or concealed in accordance with the *approved* manufacturer's instructions.

Add new standard to Chapter 35 as follows:

ISO
8336-2009 Fiber-Cement Flat Sheets – Product Specification and Test Methods

Committee Reason: The committee agreed that ISO 8336 has been harmonized with the performance requirements of ASTM C1186 and was therefore appropriate. The modification eliminates an unnecessary step for the code official to specifically approve common caulking materials. The modification also replaces “sealed” with “protected” to be consistent with the changes made in FS170-12.

Assembly Action: **None**

Final Hearing Results

FS171-12 **AM**

Code Change No: FS172-12

Original Proposal

Section(s): 1406.2.1.1, 2603.5.7

Proponent: Michael D. Fischer, Kellen Company, representing self (mfischer@kellencompany.com)

Revise as follows:

1406.2.1.1 Ignition resistance. Where permitted by Section 1406.2.1, combustible exterior wall coverings shall be tested in accordance with NFPA 268.

Exceptions:

1. Wood or wood-based products.
2. Other combustible materials covered with an exterior weather covering, other than vinyl sidings, ~~listed~~ included in and complying with the thickness requirements of ~~in~~ Table 1405.2.
3. Aluminum having a minimum thickness of 0.019 inch (0.48 mm).

Revise as follows:

2603.5.7 Ignition. *Exterior walls* shall not exhibit sustained flaming where tested in accordance with NFPA 268. Where a material is intended to be installed in more than one thickness, tests of the minimum and maximum thickness intended for use shall be performed.

Exception: Assemblies protected on the outside with one of the following:

1. A thermal barrier complying with Section 2603.4.
2. A minimum 1 inch (25 mm) thickness of concrete or masonry.
3. Glass-fiber-reinforced concrete panels of a minimum thickness of 3/8 inch (9.5 mm).
4. Metal-faced panels having minimum 0.019-inch thick (0.48 mm) aluminum or 0.016-inch-thick (0.41 mm) corrosion-resistant steel outer facings.
5. A minimum 7/8-inch (22.2 mm) thickness of stucco complying with Section 2510.
6. Exterior weather coverings, other than vinyl sidings, meeting the minimum thickness requirements of Table 1405.2.

Reason: This proposal does two things: first, it clarifies that the exception for exterior weather coverings in 1406.2.1.1 must meet the minimum thickness requirements of Table 1405.2, and second it closes a gap in the code between 1406.2.1.1 and 2603.5.7. NFPA 268 is not required for certain combustible exterior wall coverings per 1406.2.1.1; the proposal makes that clear in 2603.5.7 in order to add consistency and clarity to the intended application of NFPA 268.

Cost Impact: The proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

2603.5.7 Ignition. *Exterior walls* shall not exhibit sustained flaming where tested in accordance with NFPA 268. Where a material is intended to be installed in more than one thickness, tests of the minimum and maximum thickness intended for use shall be performed.

Exception: Assemblies protected on the outside with one of the following:

1. A thermal barrier complying with Section 2603.4.
2. A minimum 1 inch (25 mm) thickness of concrete or masonry.
3. Glass-fiber-reinforced concrete panels of a minimum thickness of 3/8 inch (9.5 mm).
4. Metal-faced panels having minimum 0.019-inch thick (0.48 mm) aluminum or 0.016-inch-thick (0.41 mm) corrosion-resistant steel outer facings.
5. A minimum 7/8-inch (22.2 mm) thickness of stucco complying with Section 2510.
6. ~~Exterior weather coverings, other than vinyl sidings, meeting the minimum thickness requirements of Table 1405.2.~~

(Portions of proposal not shown remain unchanged)

Committee Reason: The committee agreed that the proposal clarifies that materials meeting exception #2 for exterior weather coverings in Section 1406.2.1.1 must also meet the minimum thickness requirements of Table 1405.2.

Assembly Action: **None**

Final Hearing Results

FS172-12 **AM**

Code Change No: FS173-12

Original Proposal

Section(s): 1407.1.1

Proponent: Jesse J. Beitel, Hughes Associates, Inc., representing Centria (jbeitel@haifire.com)

Revise as follows:

1407.1 General. The provisions of this section shall govern the materials, construction and quality of metal composite materials (MCM) for use as *exterior wall coverings* in addition to other applicable requirements of Chapters 14 and 16.

1407.1.1 Core Material ~~Plastic core~~. MCMs that contain a core material of foam plastic insulation as defined in Section 2602.1 shall comply with the requirements of Chapter 26.
~~The plastic core of the MCM shall not contain foam plastic insulation as defined in Section 2602.1.~~

Reason: MCMs contain a solid plastic core and are regulated by Section 1407. A factory-manufactured panel consisting of steel skins and a foam plastic insulation core is regulated by Chapter 26. However, some Code officials and others have interpreted the existing Section 1407.1.1 such that the factory-manufactured panel consisting of steel skins and foam plastic insulation core is not allowed by the Code and thus cannot be used.

The proposed wording clarifies the intent of the Code and will hopefully avoid future misinterpretations.

Cost Impact: The Code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee felt that MCM by definition do not contain foam plastic and the proposed language would only be confusing.

Assembly Action: **None**

Public Comments

Public Comment:

Jesse J. Beitel, Hughes Associates, Inc., representing Centria, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

METAL COMPOSITE MATERIAL (MCM). A factory-manufactured panel consisting of metal skins bonded to both faces of a solid plastic core.

1407.1 General. The provisions of this section shall govern the materials, construction and quality of metal composite materials (MCM) for use as *exterior wall coverings* in addition to other applicable requirements of Chapters 14 and 16.

~~**1407.1.1 Plastic core.** The plastic core of the MCM shall not contain foam plastic insulation as defined in Section 2602.1.~~

Commenter's Reason: The Committee's statement is correct in that the core of an MCM should not contain foam plastic, however, the definition of an MCM does not specifically say that. In fact, the definition of MCM does not currently specify a "solid" core. This was suggested by one of the Committee members during the hearings in Dallas.

The proposed amendment to the original proposal addresses this and thus, clarifies the situation. Additionally, with this change, Section 1407.1.1 is no longer needed.

Final Hearing Results

FS173-12 **AMPC**

Code Change No: FS175-12

Original Proposal

Section(s): 1409.10.2

Proponent: Marcelo M Hirschler, GBH International (gbhint@aol.com)

Revise as follows:

1409.10.2 Thermal barriers. HPL shall be separated from the interior of a building by an approved thermal barrier consisting of 1/2-inch (12.7 mm) gypsum wallboard or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. If the integrity fire test is conducted in accordance with NFPA 286, the acceptance criteria shall be as indicated in section 803.1.2 of this code. ~~equivalent thermal barrier material that will limit the average temperature rise of the unexposed surface to not more than 250°F (121°C) after 15 minutes of fire exposure in accordance with the standard time-temperature curve of ASTM E 119 or UL 263. The thermal barrier shall be installed in such a manner that it will remain in place for not less than 15 minutes based on a test conducted in accordance with UL 1715.~~

Reason: This section describes the criteria for a thermal barrier for HPL materials (as contained for MCM materials in 1407.10.2 and for foam plastics in 2603.4) and the language should be similar to the language in those sections. An additional sentence is recommended, as also proposed for section 1407.10.2 and 2603.4) to prevent the use of a thermal barrier that permits flashover.

There has been some discussion about allowing as thermal barriers materials that cause flashover when tested to NFPA 286. That should not be allowed and this language will ensure that thermal barriers protect against flashover in the fire area.

Note that the integrity fire test of NFPA 275 can be conducted in accordance with NFPA 286, UL 1040, UL 1715 or FM 4880. In UL 1040, UL 1715 and FM 4880 pass/fail criteria are included and flashover is not permitted. NFPA 286 does not contain pass/fail criteria and the code must have its own acceptance criteria.

The language in 1407.10.2 and 2603.4 (with the proposed addition) is shown below.

1407.10.2 Thermal barriers. MCM shall be separated from the interior of a building by an approved thermal barrier consisting of 1/2-inch (12.7 mm) gypsum wallboard or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. If the integrity fire test is conducted in accordance with NFPA 286, the acceptance criteria shall be as indicated in section 803.1.2 of this code.

2603.4 Thermal barrier. Except as provided for in Sections 2603.4.1 and 2603.10, foam plastic shall be separated from the interior of a building by an approved thermal barrier of ½-inch (12.7 mm) gypsum wallboard or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. If the integrity fire test is conducted in accordance with NFPA 286, the acceptance criteria shall be as indicated in section 803.1.2 of this code. Combustible concealed spaces shall comply with Section 718.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1409.10.2 Thermal barriers. HPL shall be separated from the interior of a building by an approved thermal barrier consisting of 1/2-inch (12.7 mm) gypsum wallboard or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. ~~If the integrity fire test is conducted in accordance with NFPA 286, the acceptance criteria shall be as indicated in section 803.1.2 of this code.~~

Committee Reason: The committee felt this change added consistency with Section 1407.10.2 with the addition of NFPA 275 as it is the appropriate standard for thermal barriers. The modification removes the improper reference to NFPA 286 as other standards could be used in accordance with NFPA 275 to determine the integrity fire testing.

Assembly Action: **None**

Final Hearing Results

FS175-12 **AM**

Code Change No: FS177-12

Original Proposal

Section(s): 809 (New), 1410 (New), 2103.15 (New)

Proponent: John Woestman, Kellen Company, representing Masonry Veneer Manufacturers Association (MVMA) (jwoestman@kellencompany.com)

Add new text as follows:

SECTION 809
INTERIOR ADHERED MASONRY VENEER

809.1 Adhered masonry veneer. Interior adhered masonry veneer shall comply with the applicable requirements in Section 809 and Sections 6.1 and 6.3 of TMS 402/ACI 530/ASCE 5.

809.2 Interior adhered masonry veneers. Interior adhered masonry veneers shall have a maximum weight of 20 psf (0.958 kg/m2) and shall be installed in accordance with Section 809 and the requirements of Section 1410 applicable to interior adhered masonry veneer. Where the interior adhered masonry veneer is supported by wood construction, the supporting members shall be designed to limit vertical deflection to L/600 of the span of the supporting members.

Revise as follows:

~~**1405.10 Adhered masonry veneer.** Adhered masonry veneer shall comply with the applicable requirements in Section 1405.10 and Sections 6.1 and 6.3 of TMS 402/ACI 530/ASCE 5.~~

~~**1405.10.1 Exterior adhered masonry veneer.** Exterior adhered masonry veneer shall be installed in accordance with Section 1405.10 and in accordance with the manufacturer's instructions.~~

~~**1405.10.1.1 Water-resistive barriers.** Water resistive barriers shall be installed as required in Section 2510.6.~~

~~**1405.10.1.2 Flashing at foundation.** A corrosion resistant screed or flashing of a minimum 0.019-inch (0.48 mm) or 26 gauge galvanized or plastic with a minimum vertical attachment flange of 31/2 inches (89 mm) shall be installed extend a minimum of 1 inch (25 mm) below the foundation plate line on exterior stud walls in accordance with Section 1405.4. The water-resistive barrier shall lap over the exterior of the attachment flange of the screed or flashing.~~

~~**1405.10.1.3 Clearances.** On exterior stud walls, adhered masonry veneer shall be installed a minimum of 4 inches (102 mm) above the earth, or a minimum of 2 inches (51 mm) above paved areas, or a minimum of 1/2 inch (12 mm) above exterior walking surfaces which are supported by the same foundation that supports the exterior wall.~~

~~**1405.10.2 Exterior adhered masonry veneers—porcelain tile**. Adhered units shall not exceed 5/8 inch (15.8 mm) thickness and a maximum of 24 inches (610 mm) in any face dimension nor more than 3 square feet (0.28 m2) in total face area and shall not weigh more than 9 pounds psf (0.43 kN/m2). Porcelain tile shall be adhered to an approved backing system.~~

~~**1405.10.3 Interior adhered masonry veneers.** Interior adhered masonry veneers shall have a maximum weight of 20 psf (0.958 kg/m2) and shall be installed in accordance with Section 1405.10. Where the~~

~~interior adhered masonry veneer is supported by wood construction, the supporting members shall be designed to limit deflection to L/600 of the span of the supporting members.~~

SECTION 1410
EXTERIOR ADHERED MASONRY VENEER

1410.1 General. The provisions of this section shall govern the materials, construction, and quality of adhered masonry veneer for use as exterior wall coverings in addition to the applicable requirements of Chapters 14, 16, 21, and 25. Interior adhered masonry veneer shall comply with Section 809.

1410.2 Exterior adhered masonry veneer. Exterior adhered masonry veneer shall be installed in accordance with Section 1410 and in accordance with the manufacturer's instructions and shall comply with the applicable requirements in Sections 6.1 and 6.3 of TMS 402/ACI 530/ASCE 5..

1410.2.1 Flashing. Flashing shall comply with the applicable requirements of Section 1405.4 and the following.

1410.2.1.1 Flashing at foundation. A corrosion resistant screed or flashing of a minimum 0.019-inch (0.48 mm) or 26 gauge galvanized or plastic with a minimum vertical attachment flange of 31/2 inches (89 mm) shall be installed extend a minimum of 1 inch (25 mm) below the foundation plate line on exterior stud walls in accordance with Section 1405.4. The water-resistive barrier shall lap over the exterior of the attachment flange of the screed or flashing.

1410.2.2 Water-resistive barriers. Water-resistive barriers shall be installed as required in Section 2510.6.

1410.2.3 Clearances. On exterior stud walls, adhered masonry veneer shall be installed a minimum of 4 inches (102 mm) above the earth, or a minimum of 2 inches (51 mm) above paved areas, or a minimum of 1/2 inch (12 mm) above exterior walking surfaces which are supported by the same foundation that supports the exterior wall.

1410.2.4 Adhered masonry veneer installed with lath and mortar. Exterior adhered masonry veneer installed with lath and mortar shall comply with the following.

1410.2.4.1 Lathing. Lathing shall comply with the requirements of Section 2510.

1410.2.4.2 Scratch Coat. A nominal ½" thick layer of mortar complying with the material requirements of Sections 2103.15 and 2512.2 shall be applied encapsulating the lathing. The surface of this mortar shall be scored horizontally resulting in a scratch coat.

1410.2.4.3 Adhering veneer. The masonry veneer units shall be adhered to the mortar scratch coat with a nominal ½" thick setting bed of mortar complying with Sections 2103.15 and 2512.2 applied to create a full setting bed for the back of the masonry veneer units. The masonry veneer units shall be worked into the setting bed resulting in a nominal 3/8" setting bed after the masonry veneer units are applied.

1410.2.5 Adhered masonry veneer applied directly to masonry and concrete. Adhered masonry veneer applied directly to masonry or concrete shall comply with the applicable requirements of Section 1410 and with the requirements of Section 2510.7 or Section 1410.2.4.

1410.2.6 Cold weather construction. Cold weather construction of adhered masonry veneer shall comply with the requirements of Sections 2104.3 and 2512.4.

1410.2.7 Hot weather construction. Hot weather construction of adhered masonry veneer shall comply with the requirements of Section 2104.4.

1410.3 Exterior adhered masonry veneers—porcelain tile. Adhered units shall not exceed 5/8 inch (15.8 mm) thickness and a maximum of 24 inches (610 mm) in any face dimension nor more than 3 square feet (0.28 m2) in total face area and shall not weigh more than 9 pounds psf (0.43 kN/m2). Porcelain tile shall be adhered to an approved backing system.

Add new text as follows:

2103.15 Mortar for adhered masonry veneer. Mortar for use with adhered masonry veneer shall conform to ASTM C270 for Type N or Type S, or shall comply with ANSI A118.4 for latex-modified Portland cement mortar.

Reason: This proposal seeks to clarify requirements for adhered masonry veneer (AMV).

This proposal moves the requirements for exterior AMV to a new section at the end of Chapter 14, Exterior Walls, and then expands on the requirements for exterior AMV. The requirements for interior AMV are moved to a new section at the end of Chapter 8, Interior Finishes (as AMV installed in the interior is essentially an interior finish).

For ease of presenting the new sections at the ends of Chapter 8 and Chapter 14, the original text in Section 1405.10 is shown as deleted. However, the current technical requirements of the IBC in 1405.10 are included in the two new sections for interior AMV (proposed Section 809) and exterior AMV (proposed Section 1410)

AMV is similar in some ways to masonry, and also similar in some ways to cement plaster. But AMV is also dissimilar to both of these well-known materials. With this proposal, we have attempted to reference existing code requirements where appropriate. Also, where we believe appropriate, we have presented specific requirements for AMV.

Regarding the mortar used for AMV systems, we're proposing a new section at the end of Section 2103 clearly defining the requirements for mortars used with AMV.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this proposal clarifies requirements for adhered masonry veneer (AMV) by creating a separate section dealing only with AMV in Chapter 14. Further, the additions to Chapter 8 are appropriate as they are current provisions dealing with AMV used in interior applications.

Assembly Action: **None**

Public Comments

Public Comment:

John Woestman, Kellen Company, representing Masonry Veneer Manufacturers Association (MVMA), requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

1405.10 Adhered masonry veneer. Adhered masonry veneer shall comply with the applicable requirements in Section 1405.10 and Sections 6.1 and 6.3 of TMS 402/ACI 530/ASCE 5.

1405.10.1 Exterior adhered masonry veneer. Exterior adhered masonry veneer shall be installed in accordance with Section 1405.10 and in accordance with the manufacturer's instructions.

1405.10.1.1 Water-resistive barriers. Water-resistive barriers shall be installed as required in Section 2510.6.

1405.10.1.2 Flashing. Flashing shall comply with the applicable requirements of Section 1405.4 and the following.

1405.10.1.2.1 Flashing at foundation. A corrosion resistant screed or flashing of a minimum 0.019-inch (0.48 mm) or 26 gauge galvanized or plastic with a minimum vertical attachment flange of 31/2 inches (89 mm) shall be installed to extend a minimum of 1 inch (25 mm) below the foundation plate line on exterior stud walls in accordance with Section 1405.4. The water-resistive barrier shall lap over the exterior of the attachment flange of the screed or flashing.

1405.10.1.3 Clearances. On exterior stud walls, adhered masonry veneer shall be installed a minimum of 4 inches (102 mm) above the earth, or a minimum of 2 inches (51 mm) above paved areas, or a minimum of 1/2 inch (12 mm) above exterior walking surfaces which are supported by the same foundation that supports the exterior wall.

1405.10.1.4 Adhered masonry veneer installed with lath and mortar. Exterior adhered masonry veneer installed with lath and mortar shall comply with the following.

1405.10.1.4.1 Lathing. Lathing shall comply with the requirements of Section 2510.

1405.10.1.4.2 Scratch Coat. A nominal ½" thick layer of mortar complying with the material requirements of Sections 2103.15 and 2512.2 shall be applied encapsulating the lathing. The surface of this mortar shall be scored horizontally resulting in a scratch coat.

1405.10.1.4.3 Adhering veneer. The masonry veneer units shall be adhered to the mortar scratch coat with a nominal ½" thick setting bed of mortar complying with Sections 2103.15 and 2512.2 applied to create a full setting bed for the back of the masonry veneer units. The masonry veneer units shall be worked into the setting bed resulting in a nominal 3/8" setting bed after the masonry veneer units are applied.

1405.10.1.5 Adhered masonry veneer applied directly to masonry and concrete. Adhered masonry veneer applied directly to masonry or concrete shall comply with the applicable requirements of Section 1410 and with the requirements of Section 2510.7 or Section 1405.10.1.4.

1405.10.1.6 Cold weather construction. Cold weather construction of adhered masonry veneer shall comply with the requirements of Sections 2104.3 and 2512.4.

1405.10.1.7 Hot weather construction. Hot weather construction of adhered masonry veneer shall comply with the requirements of Section 2104.4.

1405.10.2 Exterior adhered masonry veneers—porcelain tile. Adhered units shall not exceed 5/8 inch (15.8 mm) thickness and a maximum of 24 inches (610 mm) in any face dimension nor more than 3 square feet (0.28 m2) in total face area and shall not weigh more than 9 pounds psf (0.43 kN/m2). Porcelain tile shall be adhered to an approved backing system.

1405.10.3 Interior adhered masonry veneers. Interior adhered masonry veneers shall have a maximum weight of 20 psf (0.958 kg/m2) and shall be installed in accordance with Section 1405.10. Where the interior adhered masonry veneer is supported by wood construction, the supporting members shall be designed to limit deflection to L/600 of the span of the supporting members.

2103.15 Mortar for adhered masonry veneer. Mortar for use with adhered masonry veneer shall conform to ASTM C270 for Type N or Type S, or shall comply with ANSI A118.4 for latex-modified Portland cement mortar.

Commenter's Reason: The goals of this public comment are to not move the requirements for interior adhered masonry veneer to Chapter 8 as in the original FS177-12 proposal, retain all of the original language of 1405.10 of the 2012 IBC, and retain the proposed / new technical requirements of FS177-12 which were approved during the committee hearings.

This public comment is a "replace the original proposal with the following" for ease of understanding what's proposed for revision of the IBC.

The reason for this public comment: following the committee hearings, a concern was raised with FS177 which proposed moving the requirements for interior adhered masonry veneer to Chapter 8. The concern is Chapter 8 is focused on fire-related performance requirements of interior finishes and these (non-fire-related) provisions for interior adhered masonry veneer really shouldn't be placed in Chapter 8. Looking at Chapter 8 from that perspective . . . . we agree.

To address that concern, we're proposing in this public comment to leave the requirements for adhered masonry veneer where they have been located in the IBC since the 2000 IBC.

Final Hearing Results

FS177-12 **AMPC**

Code Change No: FS178-12

Original Proposal

Section: 2603.1

Proponent: Philip J. Smith PE, representing FM Approvals (phillip.smith@fmapprovals.com)

Revise as follows:

2603.3 Surface-burning characteristics. Unless otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested in the maximum thickness intended for use in accordance with ASTM E 84 or UL 723. Loose fill-type foam plastic insulation shall be tested as board stock for the flame spread and smoke-developed indexes.

Exceptions:

1. Smoke-developed index for interior *trim* as provided for in Section 2604.2.
2. In cold storage buildings, ice plants, food plants, food processing rooms and similar areas, foam plastic insulation where tested in a thickness of 4 inches (102 mm) shall be permitted in a thickness up to 10 inches (254 mm) where the building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1. The approved *automatic sprinkler system* shall be provided in both the room and that part of the building in which the room is located.
3. Foam plastic insulation that is a part of a Class A, B or C roof-covering assembly provided the assembly with the foam plastic insulation satisfactorily passes ~~FM 4450~~ NFPA 276 or UL 1256. The smoke-developed index shall not be limited for roof applications.
4. Foam plastic insulation greater than 4 inches (102 mm) in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches (102 mm), provided the end use is approved in accordance with Section 2603.10 using the thickness and density intended for use.
5. Flame spread and smoke-developed indexes for foam plastic interior signs in *covered and open mall buildings* provided the signs comply with Section 402.6.4.

2603.4.1.5 Roofing. Foam plastic insulation under a roof assembly or roof covering that is installed in accordance with the code and the manufacturer's instructions shall be separated from the interior of the building by wood structural panel sheathing not less than 0.47 inch (11.9 mm) in thickness bonded with exterior glue, with edges supported by blocking, tongue-and-groove joints or other approved type of edge support, or an equivalent material. A thermal barrier is not required for foam plastic insulation that is a part of a Class A, B or C roof-covering assembly, provided the assembly with the foam plastic insulation satisfactorily passes ~~FM 4450~~ NFPA 276 or UL 1256.

1508.1 General. The use of above-deck thermal insulation shall be permitted provided such insulation is covered with an *approved* roof covering and passes the tests of ~~FM 4450~~ NFPA 276 or UL 1256 when tested as an assembly.

Add new standard to Chapter 35 as follows:

NFPA 276-11, Standard Method of Fire Tests for Determining the Heat Release Rate of Roofing Assemblies with Combustible Above-Deck Roofing Components.

Reason: NFPA 276 is a consensus internal fire test identical to the FM Approvals roof deck calorimeter test contained in FM 4450.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

For staff analysis of the content of NFPA 276-2011 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org/cs/codes/Documents/2012-13cycle/Proposed-A/2012ProposedStandards.pdf.

Committee Action: **Approved as Submitted**

Committee Reason: The committee felt that NFPA 276 was an appropriate substitution for FM 4450.

Assembly Action: **None**

Final Hearing Results

FS178-12 **AS**

Code Change No: FS182-12

Original Proposal

Section(s): 2603.4.1.5

Proponent: Mike Ennis, representing SPRI Inc. (m.ennis@mac.com)

Delete and substitute as follows:

~~**2603.4.1.5 Roofing.** Foam plastic insulation under a roof assembly or roof covering that is installed in accordance with the code and the manufacturer's instructions shall be separated from the interior of the building by wood structural panel sheathing not less than 0.47 inch (11.9 mm) in thickness bonded with exterior glue, with edges supported by blocking, tongue-and-groove joints or other approved type of edge support, or an equivalent material. A thermal barrier is not required for foam plastic insulation that is a part of a Class A, B or C roof-covering assembly, provided the assembly with the foam plastic insulation satisfactorily passes FM 4450 or UL 1256.~~

2603.4.1.5 Roofing. The foam plastic insulation is a part of a Class A, B or C roof-covering assembly that is installed in accordance with the code and the manufacturer's instructions and is either constructed as described in 1 or tested as described in 2:

1. The roof assembly is separated from the interior of the building by wood structural panel sheathing not less than 0.47 inch (11.9 mm) in thickness bonded with exterior glue, with edges supported by blocking, tongue-and-groove joints or other approved type of edge support, or an equivalent material.
2. The assembly with the foam plastic insulation satisfactorily passes FM 4450 or UL 1256.

Reason: The proposed wording is intended to clarify exceptions for the use of a thermal barrier to separate foam plastic insulation from the interior of the building. The current wording does not clearly convey that there are two exceptions for the use of a thermal barrier. One is a prescriptive construction technique; the other describes specific testing requirements.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed language is not mandating any requirements and is therefore incomplete and inappropriate.

Assembly Action: **None**

Public Comments

Public Comment:

Mike Ennis, representing Single Ply Roofing Industry Inc. (SPRI), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

2603.4.1.5 Roofing. A thermal barrier is not required for ~~The~~ foam plastic insulation that is ~~a~~ part of a Class A, B or C roof-covering assembly that is installed in accordance with the code and the manufacturer's instructions and is either constructed as described in 1 or tested as described in 2:

1. The roof assembly is separated from the interior of the building by wood structural panel sheathing not less than 0.47 inch (11.9 mm) in thickness bonded with exterior glue, with edges supported by blocking, tongue-and-groove joints or other approved type of edge support, or an equivalent material.
2. The assembly with the foam plastic insulation satisfactorily passes FM 4450 or UL 1256.

Commenter's Reason: The Committee recommended this proposal for disapproval because they felt the proposed language was not mandating any requirements and is therefore incomplete and inappropriate. The above-proposed additional language provides the mandate.

Final Hearing Results

FS182-12 **AMPC**

Code Change No: FS183-12

Original Proposal

Section(s): 2603.4.1.6

Proponent: Rick Thornberry, P.E. representing the Cellulose Insulation Manufacturers Association (CIMA)

Revise as follows:

2603.4.1.6 Attics and crawl spaces. Within an attic or crawl space where entry is made only for service of utilities, foam plastic insulation shall be protected against ignition by 11/2-inch-thick (38 mm) mineral fiber insulation; 1/4-inch-thick (6.4 mm) wood structural panel, particleboard or hardboard; 3/8-inch (9.5 mm) gypsum wallboard, corrosion-resistant steel having a base metal thickness of 0.016 inch (0.4 mm); 1 ½-inch-thick (38 mm) cellulose insulation in attic spaces only; or other approved material installed in such a manner that the foam plastic insulation is not exposed. The protective covering shall be consistent with the requirements for the type of construction.

Reason: The effect of this code change proposal is to make Section 2603.4.1.6 in the IBC consistent with Sections R316.5.3 and R316.5.4 in the IRC.

During the 2009/2010 code development cycle for the 2012 IRC, we submitted Code Change RB62-09/10 which was approved as modified to add the 1 ½ inch thick cellulose insulation as a new Item 3.7 to the list of ignition barrier materials. The list of ignition barrier materials in Section 2603.4.1.6 is virtually identical to the list of those materials in Section R316.5.3 with the exception of the 1 ½ inch thick cellulose insulation we are proposing to add.

The Reason submitted for Code Change RB62-09/10 is reproduced below:

We are proposing the use of 1-1/2 inch thick cellulose loose-fill insulation as another acceptable material for use as an ignition barrier to satisfy the requirements of R314.5.3 for the protection of foam plastic insulation in attics as an alternate to the thermal barrier required by Section 314.4. We are basing this proposal on the equivalent performance to that of Item No. 1 of this section which allows 1-1/2 inch thick mineral fiber insulation that by definition includes both mineral wool and glass fiber. Presently, cellulose insulation is recognized as being equivalent to mineral fiber insulation for the purpose of providing an additional 15 minutes of protection to a fire-resistance rated wall assembly utilizing wood stud construction as specified in Table 721.6.2(5) of the 2009 International Building Code (IBC).

Furthermore, when the Cellulose Insulation Manufacturers Association (CIMA) conducted the full scale fire tests to validate the comparable performance of cellulose insulation in achieving a one-hour fire-resistance rating for wood stud wall assemblies faced with various thicknesses of gypsum wallboard, they also measured the heat transfer through the cellulose insulation within the wall cavity to determine its resistance to the movement of heat through the assembly during the ASTM E119 fire test exposure. The test data indicated that approximately 1-1/2 inches of cellulose insulation was capable of limiting the temperature increase to an average maximum temperature of 250^{o}F for a period of 15 minutes which is the same performance specified for a thermal barrier in Section R314.4.

Therefore, we believe that this proposal to include 1-1/2 inch thick cellulose loose-fill insulation as another material acceptable for an ignition barrier is appropriate.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

2603.4.1.6 Attics and crawl spaces. Within an attic or crawl space where entry is made only for service of utilities, foam plastic insulation shall be protected against ignition by 11/2-inch-thick (38 mm) mineral fiber insulation; 1/4-inch-thick (6.4 mm) wood structural panel, particleboard or hardboard; 3/8-inch (9.5 mm) gypsum wallboard, corrosion-resistant steel having a base metal thickness of 0.016 inch (0.4 mm); 1 ½-inch-thick (38 mm) self-supported spray applied cellulose insulation in attic spaces only; or other approved material installed in such a manner that the foam plastic insulation is not exposed. The protective covering shall be consistent with the requirements for the type of construction.

Committee Reason: The committee agreed that cellulose insulation was an acceptable material for used as an ignition barrier for foam plastics used in attics and crawl spaces. The modification further describes the type of cellulose insulation that is appropriate for this application.

Assembly Action: **None**

Final Hearing Results

FS183-12 **AM**

Code Change No: FS184-12

Original Proposal

Section: 2603.4.1.8

Proponent: Jeff Inks, Window and Door Manufacturers Association, representing the National Architectural Door Council (jinks@wdma.com)

Revise as follows:

2603.4.1.8 Exterior doors in buildings of Group R-2 or R-3. In occupancies classified as Group R-2 or R-3, foam-filled exterior entrance doors to individual *dwelling units* that do not require a fire-resistance rating shall be faced with aluminum, steel, fiberglass, wood or other approved materials.

Reason: The language in this section has remained unchanged since at least the 2000 IBC. However, use of non-rated insulated side-hinged exterior doors with facing materials other than wood is commonplace without resulting in any compromise in fire safety. They should be expressly provided for in this section rather than require special approval.

Cost Impact: This proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the allowable materials added for door faces were appropriate and commonly used for this application.

Assembly Action: **None**

Final Hearing Results

FS184-12 **AS**

Code Change No: FS185-12

Original Proposal

Section: 2603.4.1.13

Proponent: Michael D. Fischer, Kellen Company, representing self (mfischer@kellencompany.com)

Revise as follows:

2603.4.1.13 Type V construction. Foam plastic spray applied to a sill plate, ~~and~~ joist header and rim joist in ~~of~~ Type V construction is subject to all of the following:

1. The maximum thickness of the foam plastic shall be $3^1/_4$ inches (82.6 mm).
2. The density of the foam plastic shall be in the range of 1.5 to 2.0 pcf (24 to 32 kg/m^3).
3. The foam plastic shall have a flame spread index of 25 or less and an accompanying smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723.

Reason: The current text in the 2012 IBC was revised to add new language for floors in 2603.4.1.13, but the charging paragraph was not modified to include floor joists in the list of framing members. The proposal closes the gap in the code by including rim and/or band joists with sill plates and headers, and ensures that the prescriptive requirements also apply to those components.

Cost Impact: The proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposal adds appropriate terminology to more completely describe the framing members to which foam plastic is commonly spray applied to.

Assembly Action: **None**

Final Hearing Results

FS185-12 **AS**

Code Change No: FS186-12

Original Proposal

Section(s): 2603.5, 2603.5.1 (New)

Proponent: Jason Thompson, National Concrete Masonry Association, representing Masonry Alliance for Codes and Standards

Revise as follows:

2603.5 Exterior walls of buildings <u>of Type I, II, III or IV construction</u> of any height. *Exterior walls* of buildings of Type I, II, III or IV construction of any height shall comply with Sections 2603.5.1 through 2603.5.7. *Exterior walls* of cold storage buildings required to be constructed of noncombustible materials, where the building is more than one *story* in height, shall also comply with the provisions of Sections 2603.5.1 through 2603.5.7.

> **<u>Exception:</u>** <u>Walls constructed of concrete or masonry where the foam plastic insulation is covered on each face by a minimum of 1-inch (25 mm) thickness of masonry or concrete.</u>

<u>2603.5.1 Exterior walls of buildings</u> <u>of Type V construction</u> *Exterior walls* of buildings of Type V construction shall comply with Sections 2603.2, 2603.3 and 2603.4.

(Renumber subsequent sections)

Reason: The purpose of this code change is to reinstate the exception that was contained in Section 2602.5.2.2 of the 1997 Uniform Building Code (UBC) that exempted masonry and concrete exterior walls containing foam plastic insulation from the requirements of that section where the foam plastic insulation is covered by a minimum of 1-inch thickness of masonry or concrete. Based on research of the ICC code merging process, it appears that this exception was inadvertently omitted when the three legacy model building codes were originally merged into the First Working Draft of the IBC.

Section 2602.5.2.2 of the 1997 UBC was titled "Buildings of Any Height." It contained requirements for regulating the use of foam plastic insulation in the exterior walls of buildings where the exterior walls were required to be of noncombustible construction. These requirements are very similar to the requirements that were in Section 2603.5 of the 2000 IBC, as well as the current requirements contained in Section 2603.5 of the 2012 IBC. The proposed wording for this new Exception, based on the 1997 UBC, is the same wording used in IBC Section 2603.4.1.1 Masonry or Concrete Construction that allows the omission of the thermal barrier that is otherwise required to protect foam plastic insulation from the interior of the building. And it is similar to Item 2 in IBC Section 2603.5.7 Ignition that exempts exterior wall assemblies containing foam plastic insulation from being tested in accordance with NFPA 268 to determine ignition resistance to an exterior radiant heat source where the assembly is protected on the exterior with a minimum 1-inch thickness of concrete or masonry.

In a review of the legacy codes and development of the IBC there does not appear to be any technical reason justifying why this Exception was not included or should not be reinstated, nor are we aware of any adverse fire experience that precludes its application.

Cost Impact: The code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee felt that there was no justification to exempt concrete or masonry and foam plastic sandwich panels from all of the requirements of Section 2603.5.

Assembly Action: **None**

Public Comments

Public Comment:

Jason Thompson and Jason Krohn, National Concrete Masonry Association representing Masonry Alliance for Codes and Standards & Precast/Prestressed Concrete Institute, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

2603.5 Exterior walls of buildings ~~of Type I, II, III, or IV construction~~ of any height. Exterior walls of buildings of Type I, II, III or IV construction of any height shall comply with Sections 2603.5.1 through 2603.5.7. Exterior walls of cold storage buildings required to be constructed of noncombustible materials, where the building is more than one story in height, shall also comply with the provisions of Sections 2603.5.1 through 2603.5.7.

~~**Exception:** Walls constructed of concrete or masonry where the foam plastic insulation is covered on each face by a minimum of 1-inch (25 mm) thickness of masonry or concrete.~~

~~**2603.5.1 Exterior walls of buildings of Type V construction.**~~ Exterior walls of buildings of Type V construction shall comply with Section 2603.2, 2603.3 and 2603.4.

2603.5.5 Vertical and lateral fire propagation. The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.

Exception<u>s</u>:

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by a minimum of 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
   a. there is no air space between the insulation and the concrete or masonry; or
   b. the insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum air space between the insulation and the concrete or masonry is not more than 1-inch (25 mm).

Commenter's Reason: As submitted, the changes proposed on FS186-12 could have been interpreted as exempting the testing and acceptance requirements for foam plastic insulation materials, which was not the intent. Instead, the purpose of FS186-12 was simply to exempt the need for testing in accordance with NFPA 285 for those assemblies where past testing has demonstrated successful performance.

Testing conducted by the National Research Council of Canada showed that insulating materials within the cavity of concrete and masonry construction did not exhibit fire propagation when there was no intervening air space within the assembly, even for insulation materials that had a flame spread index substantially higher than 75. Further, similar results were seen when the assembly included an intervening air space; provided that the air space was no larger than 1 inch in thickness and the flame spread index of the insulation material was 25 or less. The modifications proposed here reflect the results and recommendations of this testing.

Lie, T.T., "Contribution of Insulation in Cavity Walls to Propagation of Fire", National Research Council of Canada, Division of Building Research, Fire Study No. 29, November, 1972, (NRCC 12878).
http://www.nrc-cnrc.gc.ca/obj/irc/doc/pubs/fs/fs29/fs29.pdf

Final Hearing Results

FS186-12 **AMPC**

Code Change No: FS189-12

Original Proposal

Section: 2603.7

Proponent: Marcelo M Hirschler, GBH International (gbhint@aol.com)

Delete and substitute as follows:

~~**2603.7 Interior finish in plenums.** Foam plastic insulation used as interior wall or ceiling finish in plenums shall comply with one or more of the following:~~

~~1. The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~
~~2. The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286.~~
~~3. The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

2603.7 Foam plastic insulation used as interior finish or interior trim in plenums. Foam plastic insulation used as interior wall or ceiling finish, or as interior trim, in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall also comply with one or more of Sections 2603.7.1, 2603.7.2 and 2607.1.3.

2603.7.1 Separation required. The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

2603.7.2 Approval. The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.10.

2603.7.3 Covering. The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

(Renumber subsequent sections)

~~**2603.8 Interior trim in plenums.** Foam plastic insulation used as interior trim in plenums shall comply with the requirements of Section 2603.7.~~

Reason: Section 602.2.1.5 of the IMC has identical requirements to those of sections 2603.7 and 2603.8 of the IBC (see IMC text below). Section 603.1, item 2, of the IBC states (exception 25) that materials exposed within plenums should comply with the IMC. Therefore it is best if section 2603.7 of the IBC is simply extracted from the IMC.

Note that the IBC and IMC text both reference section 2603.10 of the IBC but that this section will be renumbered as 2603.9 if the proposal is accepted.

M602.2.1.5 Foam plastic insulation. Foam plastic insulation used as interior wall or ceiling finish, or as interior trim, in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall also comply with one or more of Sections 602.2.1.5.1, 602.2.1.5.2 and 602.2.1.5.3.

M602.2.1.5.1 Separation required. The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 of the *International Building Code* and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

M602.2.1.5.2 Approval. The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 of the *International Building Code* when tested in accordance with NFPA 286.
The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.10 of the *International Building Code*.

M602.2.1.5.3 Covering. The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

Cost Impact: None

Analysis statement: If this proposal is approved for inclusion in the 2015 IBC, future maintenance of Section 2603.7 by the Mechanical Code Committee will be considered by the International Code Correlation Committee.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the requirements for foam plastic used in plenums contained within the IMC were more appropriate than the current language dealing with this subject in the IBC.

Assembly Action: **None**

Final Hearing Results

FS189-12 **AS**

Code Change No: FS190-12

Original Proposal

Section(s): 2603.10, 2603.10.1

Proponent: Jesse J. Beitel, Hughes Associates, Inc., representing The Extruded Polystyrene Foam Association (jbeitel@haifire.com)

Revise as follows:

2603.10 Special approval. Foam plastic shall not be required to comply with the requirements of Sections 2603.4, 2603.6, 2603.7 and ~~through~~ 2603.8 where specifically approved based on large-scale tests such as, but not limited to, NFPA 286 (with the acceptance criteria of Section 803.2), FM 4880, UL 1040 or UL 1715. Such testing shall be related to the actual end-use configuration and be performed on the finished manufactured foam plastic assembly in the maximum thickness intended for use. Foam plastics that are used as interior finish on the basis of special tests shall also conform to the flame spread and smoke developed requirements of Chapter 8. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.

~~**2603.10.1 Exterior walls.** Testing based on Section 2603.10 shall not be used to eliminate any component of the construction of an exterior wall assembly when that component was included in the construction that has met the requirements of Section 2603.5.5.~~

Reason: This proposal prevents using a room/corner fire test to eliminate the requirements of 2603.5. A room corner test cannot definitively determine the vertical and lateral fire propagation characteristics of an exterior wall assembly and should not be used to eliminate the need for the appropriate test namely NFPA 285. Additionally, with the proposed change, Section 2603.10.1 is no longer needed.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

2603.10 Special approval. Foam plastic shall not be required to comply with the requirements of Sections 2603.4~~,~~ and 2603.6, ~~2603.7 and 2603.8~~ where specifically approved based on large-scale tests such as, but not limited to, NFPA 286 (with the acceptance criteria of Section 803.2), FM 4880, UL 1040 or UL 1715. Such testing shall be related to the actual end-use configuration and be performed on the finished manufactured foam plastic assembly in the maximum thickness intended for use. Foam plastics that are used as interior finish on the basis of special tests shall also conform to the flame spread and smoke developed requirements of Chapter 8. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.

Committee Reason: The committee felt that limiting the exemptions allowed by the large scale testing in this section was appropriate based on the fire exposure that the large scale testing addresses. The modification further limits what the large scale testing exempts, again based on the fire exposure that the large scale testing addresses.

Assembly Action: **None**

Public Comments

Public Comment 2:

Timothy T Earl, GBH International, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

2603.10 Special approval. Foam plastic shall not be required to comply with the requirements of Section 2603.4 ~~and~~ or those of Section 2603.6 where specifically approved based on large-scale tests such as, but not limited to, NFPA 286 (with the acceptance criteria of Section 803.2), FM 4880, UL 1040 or UL 1715. Such testing shall be related to the actual end-use configuration and performed on the finished manufactured foam plastic assembly in the maximum thickness intended for use. Foam plastics that are used as interior finish on the basis of special tests shall also conform to the flame spread and smoke-developed requirements of Chapter 8. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.

Commenter's Reason: This is simply a primarily editorial clarification. Foam plastic that passes one of the large-scale tests does not need to meet the requirements of Section 2603.4 or those of Section 2603.6. They are independent requirements and there is no need, in any application, for the foam plastic insulation materials to meet both but the word "and" might be interpreted that way.

Final Hearing Results

FS190-12 **AMPC2**

Code Change No: FS192-12

Original Proposal

Section: 2603.11 (New), Chapter 35

Proponent: Jay Crandell, ARES Consulting, representing the Foam Sheathing Committee of the American Chemistry Council- Plastics Division (jcrandell@aresconsulting.biz)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Add new text as follows:

2603.11 Wind Resistance. Foam plastic insulation complying with ASTM C 578 and ASTM C 1289 and used as exterior wall sheathing on framed wall assemblies shall comply with ANSI/FS 100 for wind pressure resistance.

Add new standard to Chapter 35 as follows:

Structural Building Components Association (SBCA)
6300 Enterprise Lane
Madison, Wisconsin 53719

Standard Reference number	Title	Referenced in code section
ANSI/FS 100-12	Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating Sheathing Used in Exterior Wall Covering Assemblies …….	2603.11

Reason: This ANSI standard (FS 100-12) is needed to address the use of foam plastic insulating sheathing in exterior wall covering assemblies where resistance to wind pressure is required. This standard provides a methodology by which a manufacturer can qualify their product, through testing, to meet the requirements of the I-codes in establishing the wind pressure resistance of the product. It also provides for on-going quality control procedures to ensure that the product continues to meet its qualified wind pressure resistance. The ANSI standard supplements the applicable ASTM materials standards also referenced in the code change proposal. The ANSI standard was approved by the standard project committee and in process of its public comment phase at the time this proposal was due to ICC (Jan 3, 2012). The current version of the standard is available for review at www.sbcindustry.com/fs100draft. It is expected that copies of the completed ANSI standard will be available prior to the code development hearings.

As a formatting note to ICC staff, there are other proposals by the proponent dealing with separate topics for wall sheathing applications of foam sheathing and they are being proposed with the same new section number (2306.11). Presuming that this proposal passes as well as any of the others, it is the proponent's desire to have them all organized under a Section 2306.11 for wall sheathing applications of foam plastic insulation.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

For staff analysis of the content of ANSI/FS 100-12 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org/cs/codes/Documents/2012-13cycle/Proposed-A/2012ProposedStandards.pdf.

Committee Action: **Disapproved**

Committee Reason: The committee's disapproval is based on the proposed referenced standard being an unfinished draft that is under development.

Assembly Action: **None**

Final Hearing Results

FS192-12 **AS**

Code Change No: FS193-12

Original Proposal

Section: 2603.11 (New)

Proponent: Jay Crandell, ARES Consulting, representing the Foam Sheathing Committee of the American Chemistry Council- Plastics Division (jcrandell@aresconsulting.biz)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Add new text as follows:

2603.11 Cladding attachment over foam sheathing to masonry or concrete wall construction. Cladding shall be specified and installed in accordance with Chapter 14 and the cladding manufacturer's installation instructions or an approved design. Foam sheathing shall be attached to masonry or concrete construction in accordance with the insulation manufacturer's installation instructions or an approved design. Furring and furring attachments through foam sheathing shall be designed to resist design loads determined in accordance with Chapter 16, including support of cladding weight as applicable. Fasteners used to attach cladding or furring through foam sheathing to masonry or concrete substrates shall be approved for application into masonry or concrete material and shall be installed in accordance with the fastener manufacturer's installation instructions.

Exceptions:

1. Where the cladding manufacturer has provided approved installation instructions for application over foam sheathing and connection to a masonry or concrete substrate, those requirements shall apply.
2. For exterior insulation and finish systems, refer to Section 1408.
3. For anchored masonry or stone veneer installed over foam sheathing, refer to Section 1405.

Reason: Two other proposals submitted on the topic of attachment of cladding through foam sheathing address wood and steel framing applications based on experimental data and rational analysis addressed in the reason statements for those proposals. Similar solutions and guidance for attachment of cladding to masonry/concrete walls through foam sheathing is needed. Research is not yet available to justify prescriptive "off-the-shelf" solutions with standardized types of concrete/masonry fasteners. Also, many fasteners best suited for this application are proprietary and approved data and design is the best approach. Therefore, this proposal requires engineered design of cladding connections through foam sheathing to masonry/concrete. The exceptions recognize cases where appropriate attachment solutions may already exist.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: This code change gives needed direction for the attachment of cladding over foam sheathing to masonry or concrete walls.

Assembly Action: **None**

Final Hearing Results

FS193-12 **AS**

Code Change No: FS194-12

Original Proposal

Section(s): 2603.11 (New), 2603.11.1 (New), Table 2603.11.1 (New), 2603.11.2 (New), Table 2603.11.2 (New)

Proponent: Jay Crandell, ARES Consulting, representing the Foam Sheathing Committee of the American Chemistry Council- Plastics Division (jcrandell@aresconsulting.biz)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Add new text as follows:

2603.11 Cladding attachment over foam sheathing to steel framing. Cladding shall be specified and installed in accordance with Chapter 14 and the cladding manufacturer's installation instructions. Where used, furring and furring attachments shall be designed to resist design loads determined in accordance with Chapter 16. In addition, the cladding or furring attachments through foam sheathing to framing shall meet or exceed the minimum fastening requirements of Section 2603.11.1, 2603.11.2, or an approved design for support of cladding weight.

Exceptions:

1. Where the cladding manufacturer has provided approved installation instructions for application over foam sheathing, those requirements shall apply.
2. For exterior insulation and finish systems, refer to Section 1408.
3. For anchored masonry or stone veneer installed over foam sheathing; refer to Section 1405.

2603.11.1 Direct attachment. Where cladding is installed directly over foam sheathing without the use of furring, cladding minimum fastening requirements to support the cladding weight shall be as specified in Table 2603.11.1.

TABLE 2603.11.1 CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[1]

Cladding Fastener Through Foam Sheathing into:	Cladding Fastener -Type and Minimum Size[2]	Cladding Fastener Vertical Spacing (inches)	Maximum Thickness of Foam Sheathing[3] (inches)					
			16"oc Fastener Horizontal Spacing			24"oc Fastener Horizontal Spacing		
			Cladding Weight:			Cladding Weight:		
			3 psf	11 psf	25 psf	3 psf	11 psf	25 psf
Steel Framing (minimum penetration of steel thickness + 3 threads)	#8 screw into 33 mil steel or thicker	6	3	3	1.5	3	2	DR
		8	3	2	0.5	3	1.5	DR
		12	3	1.5	DR	3	0.75	DR
	#10 screw into 33 mil steel	6	4	3	2	4	3	0.5
		8	4	3	1	4	2	DR
		12	4	2	DR	3	1	DR
	#10 screw into 43 mil steel	6	4	4	3	4	4	2
		8	4	4	2	4	3	1.5

	or thicker	12	4	3	1.5	4	3	DR

For SI: 1 inch = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa

DR = design required

o.c. = on center

a. Steel framing shall be minimum 33 ksi steel for 33 mil and 43 mil steel and 50 ksi steel for 54 mil steel or thicker.

b. Screws shall comply with the requirements of AISI S200.

c. Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C 578 or ASTM C 1289.

2603.11.2 Furred cladding attachment. Where steel or wood furring is used to attach cladding over foam sheathing, furring minimum fastening requirements to support the cladding weight shall be as specified in Table 2603.11.2. Where placed horizontally, wood furring shall be preservative treated wood in accordance with Section 2303.1.8 or naturally durable wood and fasteners shall be corrosion resistant in accordance Section 2304.9.5. Steel furring shall have a minimum G60 galvanized coating.

TABLE 2603.11.2 FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[1]

Furring Material	Framing Member	Fastener Type and Minimum Size[2]	Minimum Penetration into Wall Framing (inches)	Fastener Spacing in Furring (inches)	Maximum Thickness of Foam Sheathing[4] (inches)					
					16"oc FURRING[5]			24"oc FURRING[5]		
					Cladding Weight:			Cladding Weight:		
					3 psf	11 psf	25 psf	3 psf	11 psf	25 psf
Minimum 33mil Steel Furring or Minimum 1x Wood Furring[3]	33 mil Steel Stud	#8 screw	Steel thickness + 3 threads	12	3	1.5	DR	3	0.5	DR
				16	3	1	DR	2	DR	DR
				24	2	DR	DR	2	DR	DR
		#10 screw	Steel thickness + 3 threads	12	4	2	DR	4	1	DR
				16	4	1.5	DR	3	DR	DR
				24	3	DR	DR	2	DR	DR
	43 mil or thicker Steel Stud	#8 Screw	Steel thickness + 3 threads	12	3	1.5	DR	3	0.5	DR
				16	3	1	DR	2	DR	DR
				24	2	DR	DR	2	DR	DR
		#10 screw	Steel thickness + 3 threads	12	4	3	1.5	4	3	DR
				16	4	3	0.5	4	2	DR
				24	4	2	DR	4	0.5	DR

For SI: 1" = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa.

DR = design required

o.c. = on center

1. Wood furring shall be Spruce-Pine-Fir or any softwood species with a specific gravity of 0.42 or greater. Steel furring shall be minimum 33 ksi steel. Steel studs shall be minimum 33 ksi steel for 33mil and 43 mil thickness and 50 ksi steel for 54 mil steel or thicker.
2. Screws shall comply with the requirements of AISI S200.
3. Where the required cladding fastener penetration into wood material exceeds ¾ inch (19.1 mm) and is not more than 1-1/2 inches (38.1 mm), a minimum 2 inch (51 mm) nominal wood furring shall be used or an approved design.
4. Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C 578 or ASTM C 1289.
5. Furring shall be spaced a maximum of 24 inches (610 mm) on center, in a vertical or horizontal orientation. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing. In a horizontal orientation, the indicated 8 inch (203.2 mm) and 12 inch (304.8 mm) fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches (406.4 mm) and 24 inches (610 mm) on center, respectively.

Reason: The proposed cladding connection requirements already exist in the New York State Energy Code which is based on the 2009 IECC. Similar requirements for the IECC 2012 were considered last code cycle, but it was clearly expressed that these provision are a better fit for the building code. These requirements fill an important need in the IBC provisions for exterior wall covering assemblies that include foam plastic insulation.

The proposed requirements are based on a project sponsored by the New York State Energy Research and Development Agency (NYSERDA) and the Steel Framing Alliance. The project report is available for download at http://data.memberclicks.com/site/sfa/NYSERDA_TASK_3_REPORT%20-%20FINAL_(3-22-10).pdf . The report explains the technical basis for the proposed requirements.

The purpose of the NYSERDA project was to develop prescriptive fastening requirements for cladding materials installed over foam sheathing to ensure adequate performance. The project included testing of cladding attachments through various thicknesses of foam sheathing using various fastener types on steel frame wall assemblies. Supplemental testing also was sponsored by the Foam Sheathing Coalition (lab report available at www.foamsheathing.org) to address attachments to wood framing and the resulting data is included in the data set analyzed and presented in the NYSERDA project report. The proposed cladding attachment requirements and foam sheathing thickness limits are based on rational analysis verified by the extensive test data to control cladding connection movement to no more than 0.015" slip under cladding weight or dead load. This deflection controlled approach resulted in safety factors commonly in the range of 5 to 8 relative to average shear capacity.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Disapproved**

Committee Reason: There seemed to be confusion with the proposed requirements for attaching cladding over foam sheathing to steel studs, such as test methods and whether furring included hat channels.

Assembly Action: **None**

Public Comments

Public Comment:

Jay Crandell, ARES Consulting, representing American Chemistry Council's Foam Sheathing Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

2603.11 Cladding attachment over foam sheathing to cold-formed steel framing. Cladding shall be specified and installed in accordance with Chapter 14 and the cladding manufacturer's approved installation instructions, including any limitations for use over foam plastic sheathing, or an approved design. Where used, furring and furring attachments shall be designed to resist design loads determined in accordance with Chapter 16. In addition, the cladding or furring attachments through foam sheathing to framing shall meet or exceed the minimum fastening requirements of Section 2603.11.1, Section 2603.11.2, or an approved design for support of cladding weight.

(Portions of proposal not shown remain unchanged).

Commenter's Reason: Proposal FS 194-12 as submitted received a successful assembly action at the code development hearing. The purpose of this PC is simply to make some editorial clarifications. First, it is clarified that the section applies to cold-formed steel framing. Second, the intended application of cladding manufacturer installation instructions (including any limitations for use over foam plastic sheathing) is clarified.

This PC and the proposal is based on extensive testing and analysis. It provides solutions needed to ensure building code compliant installations of cladding over foam sheathing to steel framing. The provisions in FS194 as submitted have been used successfully in the New York State energy code for nearly 2 years [1]. Technically consistent code-compliance guidance is also publicly available from the American Chemistry Council's Foam Sheathing committee website [2].

An abbreviated version of the original research serving as the technical basis of this proposal as sponsored by the Steel Framing Alliance is also publicly available [3]. The complete NYSERDA study, including the test data and analysis supporting this proposal, also has been publicly available since 2010 [4]. In addition, several other articles, including peer-review journal papers, have addressed and confirmed solutions similar to those provided in FS 194-12. One peer-reviewed journal article which evaluated connections of cladding to steel framing using an FEA modeling and testing verification approach concluded the following [5]:

"The approach adopted in this work is in agreement with the NYSERDA report on fastening system for continuous insulation."

In addition to the above laboratory and analytical studies, a field monitoring study quantifying the actual performance of cladding connections as well as hygrothermal and wind resistance of a continuous insulation retrofit on a multi-story building has confirmed the good performance of connections and continuous insulation within the range of conditions addressed in the FS 194 proposal [6].

Your approval of this PC will ensure that building designers have direct access to appropriate and effective solutions in the building code and that code officials have the information needed to ensure enforcement and adequate performance of energy-code compliant exterior wall covering assemblies including continuous insulation. Finally, the committee expressed confusion regarding

the allowance to use “hat channels” as type of steel furring. The proposal uses the term “steel furring” purposefully to allow steel hat channels or other steel shapes as furring as long as the member is the same thickness as defined in the tables.

References:
[1] http://publicecodes.citation.com/st/ny/st/b1200v10/st_ny_st_b1200v10_4_sec002.htm
[2] http://fsc.americanchemistry.com/Building-Code/Installation-of-Cladding
[3] http://www.steelframing.org/PDF/energy/SFA_Siding_FINAL_Report_2010.pdf
[4] Fastening systems for continuous insulation, Report prepared for New York State Energy Research And Development Authority, By Newport Ventures, Inc., Final Report 10-11, April 2010.
http://www.nyserda.ny.gov/en/Publications/Research-and-Development/~/media/Files/Publications/Research/Other%20Technical%20Reports/fastening-systems-for-continuous-insulation.ashx
[5] RCI International Convention, 2011, “Three-Coat Stucco Veneer Cladding Attachment Schemes for Thick Continuous Insulation (ci) foam Based on Experimentally Validated Finite Element (fe) Modeling”
[6] Parsons, G., Hansbro, J., Buck, C., Croasdale, S. and Schwartz, J., “Structural and Hygrothermal Field Monitoring of Thick Continuously Insulated Wall Assemblies Utilized in a Multi-Story Residential Building”, Best 3 Conference, 2012.

Final Hearing Results

FS194-12 **AMPC**

Code Change No: FS196-12

Original Proposal

Section: 2604.1

Proponent: Tony Crimi, A.C. Consulting Solutions Inc, representing North American Insulation Manufacturers Association (NAIMA) (tcrimi@sympatico.ca)

Revise as follows:

2604.1 General. Plastic materials installed as interior finish or *trim* shall comply with Chapter 8. Foam plastics shall only be installed as interior finish where approved in accordance with the special provisions of Section 2603.10. Foam plastics that are used as interior finish shall also meet the flame spread and smoke developed index requirements for interior finish in accordance with Chapter 8. Foam plastics installed as interior *trim* shall comply with Section 2604.2.

Reason: This proposal is a further clarification and is consistent with previous changes incorporated in the 2012 IBC. In the 2012 IBC, additional language was introduced to 2603.9 to clarify that both the flame spread and smoke developed requirements of Chapter 8 must be complied with for foam plastics that are used as interior finish on the basis of special tests in accordance with 2603.10 of the 2012 IBC.

Section 2603.10 permits foamed plastic insulation to be used as interior wall or ceiling finish in plenums even without the installation of a thermal barrier. Similarly here, the thermal barrier specified in Section 2603.4 is not required under the conditions set forth in Sections 2603.4.1.1 through 2603.4.1.14. Consequently, the smoke developed provisions need to be clearly identified. This would make 2604.1 consistent with 2603.10 in this regard.

Cost Impact: This proposal should not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that both the flame spread and smoke development requirements of Chapter 8 are required for foam plastics that are qualified for use as interior finish in accordance with Section 2603.10.

Assembly Action: **None**

Final Hearing Results

FS196-12 **AS**

Code Change No: FS198-12

Original Proposal

Section(s): 202, 1410 (New), 2601, 2602, 2612 (New), Chapter 35

Proponent: Marcelo M Hirschler, GBH International (gbhint@aol.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Revise as follows:

SECTION 202
DEFINITIONS

PLASTIC COMPOSITE. A generic designation that refers to wood/plastic composites and plastic lumber.

PLASTIC LUMBER. A manufactured product made primarily of plastic materials (filled or unfilled) which is generally rectangular in cross-section and is typically supplied in sizes that correspond to traditional lumber board and dimensional lumber sizes.

WOOD/PLASTIC COMPOSITE. A composite material made primarily from wood or cellulose-based materials and plastic.

Add new text as follows:

SECTION 1410
PLASTIC COMPOSITE DECKING

1410.1 Exterior deck boards, stair treads, handrails and gu ardrail systems constructed of plastic composites, including plastic lumber, shall comply with Section 2612.

Revise as follows:

SECTION 2601
GENERAL

2601.1 Scope. These provisions shall govern the materials, design, application, construction and installation of foam plastic, foam plastic insulation, plastic veneer, interior plastic finish and trim, ~~and~~ light-transmitting plastics, and plastic composites, including plastic lumber. See Chapter 14 for requirements for exterior wall finish and trim.

SECTION 2602
DEFINITIONS

2602.1 General. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

FIBER-REINFORCED POLYMER
FOAM PLASTIC INSULATION
LIGHT-DIFFUSING SYSTEM
LIGHT-TRANSMITTING PLASTIC ROOF PANELS

LIGHT-TRANSMITTING PLASTIC WALL PANELS
PLASTIC, APPROVED
PLASTIC COMPOSITE
PLASTIC GLAZING
PLASTIC LUMBER
THERMOPLASTIC MATERIAL
THERMOSETTING MATERIAL
WOOD/PLASTIC COMPOSITE

SECTION 2612
PLASTIC COMPOSITES

2612.1 General. Plastic composites shall consist either of wood/plastic composites or of plastic lumber. Plastic composites shall comply with the provisions of this code and with the additional requirements of Section 2612.

2612.2 Labeling and identification. Packages and containers of plastic composites used in exterior applications delivered to the job site shall bear the *label* of an *approved agency* showing the manufacturer's name, product listing, product identification and information sufficient to determine that the end use will comply with the code requirements.

2612.2.1 Performance levels. The label for plastic composites used in exterior applications as deck boards, stair treads, handrails and guardrail systems shall indicate the required performance levels and demonstrate compliance with the provisions of ASTM D7032. If the plastic composites are plastic lumber materials, the label shall additionally indicate compliance with the provisions of ASTM D6662.

2612.2.2 Loading. The label for plastic composites used in exterior applications as deck boards, stair treads, handrails and guardrail systems shall indicate the type and magnitude of the load determined in accordance with ASTM D7032 or with ASTM D6662, as appropriate.

2612.3 Flame Spread Index. Plastic composites required elsewhere in this code to comply with fire safety requirements, including a f lame spread index, shall have those properties determined in accordance with Chapter 8. Otherwise, wood/plastic composite materials shall meet the requirements of ASTM D7032 and plastic lumber materials shall meet the requirements of ASTM D6662.

Exception: materials determined to be noncombustible in accordance with Section 703.5.

2612.4 Termite and Decay resistance. Plastic composites containing wood, cellulosic or any other biodegradable materials shall be termite and decay resistant as determined in accordance with Section 4.8 of ASTM D7032.

2612.5 Construction requirements. Plastic composites shall be permitted to be us ed as structural components of exterior deck boards, stair treads, handrails and guardrail systems in buildings of Class VB construction. Plastic composite decking shall also comply with the requirements of Section 2612.6.

2612.5.1 Span rating. Plastic composites used as structural components of exterior deck boards shall have a span rating determined in accordance with ASTM D7032 with a deflection limit of L/360.

2612.5.2 Differential movement of components. P lastic composites used as structural elements of exterior deck boards shall have approved fastening to allow for differential movement of the structural members to which the materials are fastened.

2612.5.3 Handrails and Guards. Plastic composites used in handrail systems shall comply with the requirements of Section 1012. Plastic composites used in guardrail systems shall comply with the requirements of Section 1013.

2612.6 Plastic composite decking. Plastic composite decking shall be designed and installed in accordance with the general provisions of this code and Sections 2612.6.1 through 2612.6.2.

2612.6.1 General. Each piece of decking composed of plastic composites shall be square-end trimmed. When random lengths are furnished, each piece shall be square end trimmed across the face so that at least 90 percent of the pieces are within 0.5 degrees (0.00873 rad) of square. The ends of the pieces shall be permitted to be beveled up to 2 degrees (0.0349 rad) from the vertical with the exposed face of the piece slightly longer than the opposite face of the piece. Tongue-and groove decking shall be installed with the tongues up on sloped or pitched roofs with pattern faces down.

2612.6.2 Layup patterns. Decking composed of plastic composites is permitted to be laid up following one of five standard patterns as defined in Sections 2304.8.2.1 through 2304.8.2.5 for lumber decking. Other patterns are permitted to be used provided they are substantiated through engineering analysis.

Add new standards as follows:

CHAPTER 35
REFERENCED STANDARDS

ASTM D6662, Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards
ASTM D7032, Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails)

Reason: This proposal recommends permitting the use of plastic composites for exterior applications as deck boards, stair treads, handrails and guardrail systems in buildings of Class VB construction. Since these materials contain significant amounts of plastic components, they are probably best included in a new separate section of Chapter 26. The requirements shown mirror those of wood decks/lumber decking.

Plastic composites can be plastic lumber or wood plastic composites. Both types of products are made of plastic materials with added fibrous materials to provide stiffness. There are some differences between the two, but they are relatively subtle. Wood plastic composites contain wood materials, or cellulosic materials, (normally over 50%) as the primary fiber that provides the stiffness. On the other hand plastic lumber materials contain primarily plastic (normally over 50%) and use a variety of materials to provide stiffness, often fiberglass. Specifications have been issued by ASTM for both types of plastic composite; the materials (and the specifications) fall under the jurisdiction of different technical committees. Committee D07 (on wood) issued ASTM D7032, Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails), presently referenced both in the IRC and in the IWUIC. Committee D20 (on plastics) issued ASTM D6662, Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards, presently referenced in the IWUIC.

Numerous plastic lumber decks are used throughout the US, but neither the IRC nor the IBC reference them. The IBC also does not reference wood plastic composite decks, and the requirements are similar. The ICC Evaluation Services recognizes both types of materials under Acceptance Criteria AC 174, Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails). It is suitable to incorporate these materials into the IBC in a separate section under Chapter 26 (plastics) and permit them to be used for decks in Class VB construction.

Specification ASTM D6662, for plastic lumber decking boards, requires the plastic lumber to comply with properties based on the following ASTM standards:
ASTM D2565 Standard Practice for Xenon-Arc Exposure of Plastics Intended for Outdoor Applications
ASTM D2915 Standard Practice for Evaluating Allowable Properties for Grades of Structural Lumber
ASTM D4329 Standard Practice for Fluorescent UV Exposure of Plastics
ASTM D6109 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber and Related Products
ASTM D6341 Standard Test Method for Determination of the Linear Coefficient of Thermal Expansion of Plastic Lumber and Plastic Lumber Shapes Between −30 and 140°F [−34.4 and 60°C]
ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM G151 Standard Practice for Exposing Nonmetallic Materials in Accelerated Test Devices that Use Laboratory Light Sources
ASTM G154 Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
ASTM G155 Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials

Specification ASTM D7032 requires the material to comply with many of the same properties. They include flexural properties (ASTM D6109), Xenon-arc exposure (ASTM D2565),), structural lumber grade classifications (ASTM D2915). In fact, it requires UV resistance in accordance with ASTM D6662.

Specification ASTM D7032 also requires the material to comply with biodeterioration tests (decay, fungi and termite resistance) if the material contains wood, cellulosic or other biodegradable materials (section4.8). Resistance to termites is assessed via ASTM D3345 or AWPA E1 and resistance to fungal decay in accordance with ASTM D1413, ASTM D2017 or AWPA E10. This is included in the code proposal for plastic composite materials.

With regard to fire properties, ASTM D6662 requires that plastic lumber meet ASTM E84, Steiner tunnel test, with a flame spread index of no more than 200, with a material that is required to remain in place during the test. The wording with regard to ASTM E84 flame spread testing in ASTM D6662 is very explicit, and much clearer than the wording in the test method itself. The requirements in ASTM D6662 ensure that no material “passes” the ASTM E84 test while falling to the tunnel floor before the flame progresses that far. The following wording is included in the ASTM D6662 standard:

“6.4.2 The test specimen shall either be self-supporting by its own structural characteristics or held in place by added supports along the test specimen surface. The test specimen shall remain in place throughout the test duration, without such severe sagging that it interferes with the effect of the gas flame on the test specimen. Test results are invalid if the bulk of the test specimen melts or drops to the furnace floor.”

ASTM D7032 also requires wood-plastic composite decking materials to comply with a flame spread index of no more than 200 when tested to ASTM E84. However, ASTM D7032 does not have the additional requirements that the material stay in place. It also allows (as does AC 174) the use of alternate fire test methods for assessing fire performance of the wood plastic composite materials.

This proposal requires that wood plastic composite materials comply with the requirements of ASTM D7032 and that plastic lumber materials comply with the requirements of both ASTM D6662 and ASTM D7032, thereby including in the code all physical and mechanical property and fire test requirements associated with both types of decking materials. It is not clear whether wood plastic composite materials are always capable of complying with all the requirements of ASTM D6662, including the fire test.

Just for information: wood materials normally comply with a flame spread index of no more than 200.

Structural plastic lumber materials exhibit long lasting, weather resistance together with the structural characteristics of dimensional wood lumber. The materials are made primarily from recycled plastics from post-consumer waste like plastic milk and detergent bottles. The materials then include strengthening additives, UV–inhibited pigments, anti-oxidant processing aids and foaming agents for a highly stable material that is at least equivalent to wood lumber in some measures.

For information, the fire test required by AC 174 is optional, as it states that it requires a “flame spread rating … determined by testing in accordance with section 4.9 of ASTM D7032”. The complete section of AC 174 reads as follows:

“The flame-spread rating of materials used to fabricate deck boards and components of guardrail systems (guards and handrails) shall be determined by testing in accordance with Section 4.9 of ASTM D 7032. Alternatively, any other approved test procedure is permitted to be used for determining a flame-spread rating of the materials that will give comparable results to tests conducted in accordance with ASTM E 84.”

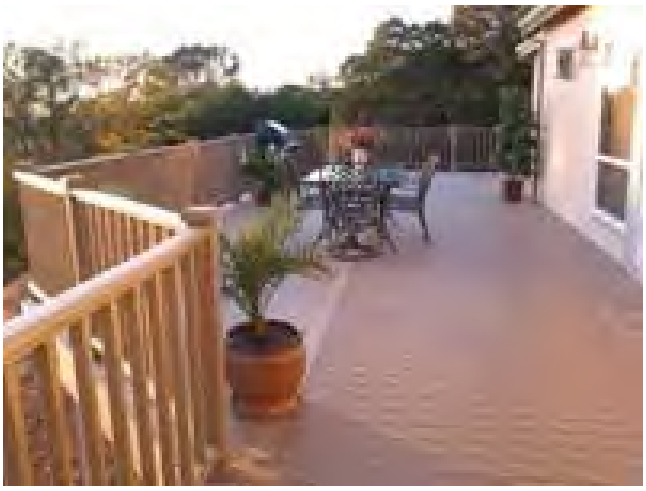
ASTM D7032 states as follows:

“4.9 *Fire Performance Tests* — The flame-spread rating of materials used to fabricate deck boards, guards, and handrails shall be determined by testing in accordance with Test Method E 84.

4.9.1 *Criterion*—Materials shall have a flame-spread index no greater than 200 when tested in accordance with Test Method E 84.

NOTE 5 — Other test procedures may be permitted for determining a flame-spread rating for the material. Depending upon material formulation, other fire performance tests may be required. Additionally, fire performance properties other than flame spread may be important. Test Methods E 1354 or D 1929, or procedures in Annex A2 may be used to provide an assessment of one or more of the following properties: smoke release rate, mass loss rate, heat release rate, ignition temperatures, and spread of flame. “

A few photographs of some actual plastic lumber decks follow.



Cost Impact: None

Analysis: A review of the standard proposed for inclusion in the code, ASTM D7032 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

For staff analysis of the content of ASTM D6662-09 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org/cs/codes/Documents/2012-13cycle/Proposed-A/2012ProposedStandards.pdf.

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Modified**

Modify proposal as follows:

PLASTIC COMPOSITE. A generic designation that refers to wood/plastic composites and plastic lumber.

PLASTIC LUMBER. A manufactured product made primarily of plastic materials (filled or unfilled) which is generally rectangular in cross-section ~~and is typically supplied in sizes that correspond to traditional lumber board and dimensional lumber sizes~~.

WOOD/PLASTIC COMPOSITE. A composite material made primarily from wood or cellulose-based materials and plastic.

SECTION 1410
PLASTIC COMPOSITE DECKING

1410.1 Exterior deck boards, stair treads, handrails and guardrail systems constructed of plastic composites, including plastic lumber, shall comply with Section 2612.

2601.1 Scope. These provisions shall govern the materials, design, application, construction and installation of foam plastic, foam plastic insulation, plastic veneer, interior plastic finish and trim, light-transmitting plastics, and plastic composites, including plastic lumber. See Chapter 14 for requirements for exterior wall finish and trim.

2602.1 General. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

FIBER-REINFORCED POLYMER
FOAM PLASTIC INSULATION
LIGHT-DIFFUSING SYSTEM
LIGHT-TRANSMITTING PLASTIC ROOF PANELS
LIGHT-TRANSMITTING PLASTIC WALL PANELS
PLASTIC, APPROVED
PLASTIC COMPOSITE
PLASTIC GLAZING
PLASTIC LUMBER
THERMOPLASTIC MATERIAL
THERMOSETTING MATERIAL
WOOD/PLASTIC COMPOSITE

SECTION 2612
PLASTIC COMPOSITES

2612.1 General. Plastic composites shall consist either of wood/plastic composites or of plastic lumber. Plastic composites shall comply with the provisions of this code and with the additional requirements of Section 2612.
2612.2 Labeling and identification. Packages and containers of plastic composites used in exterior applications ~~delivered to the job site~~ shall bear ~~the~~ a *label* ~~of an *approved agency*~~ showing the manufacturer's name, ~~product listing,~~ product identification and information sufficient to determine that the end use will comply with the code requirements.

2612.2.1 Performance levels. The label for plastic composites used in exterior applications as deck boards, stair treads, handrails and ~~guardrail systems~~ guards shall indicate the required performance levels and demonstrate compliance with the provisions of ASTM D 7032. ~~If the plastic composites are plastic lumber materials, the label shall additionally indicate compliance with the provisions of ASTM D6662.~~

2612.2.2 Loading. The label for plastic composites used in exterior applications as deck boards, stair treads, handrails and ~~guardrail systems~~ guards shall indicate the type and magnitude of the load determined in accordance with ASTM D7032 ~~or with ASTM D6662, as appropriate~~.

2612.3 Flame Spread Index. Plastic composites ~~required elsewhere in this code to comply with fire safety requirements, including a flame spread index, shall have those properties determined in accordance with Chapter 8~~ shall exhibit a flame spread index not exceeding 200 when tested in accordance with ASTM E 84 or UL 723 with the test specimen remaining in place during the test. ~~Otherwise, wood/plastic composite materials shall meet the requirements of ASTM D7032 and plastic lumber materials shall meet the requirements of ASTM D6662.~~

Exception: Materials determined to be noncombustible in accordance with Section 703.5.

2612.4 Termite and decay resistance. Plastic composites containing wood, cellulosic or any other biodegradable materials shall be termite and decay resistant as determined in accordance with ~~Section 4.8 of~~ ASTM D7032.

2612.5 Construction requirements. Plastic composites shall be permitted to be used as ~~structural components of~~ exterior deck boards, stair treads, handrails and ~~guardrail systems~~ guards in buildings of ~~Class~~ Type VB construction. ~~Plastic composite decking shall also comply with the requirements of Section 2612.6.~~

2612.5.1 Span rating. Plastic composites used as ~~structural components of~~ exterior deck boards shall have a span rating determined in accordance with ASTM D 7032 ~~with a deflection limit of L/360~~.

~~**2612.5.2 Differential movement of components**. Plastic composites used as structural elements of exterior deck boards shall have approved fastening to allow for differential movement of the structural members to which the materials are fastened.~~

~~**2612.5.3 Handrails and Guards**. Plastic composites used in handrail systems shall comply with the requirements of Section 1012. Plastic composites used in guardrail systems shall comply with the requirements of Section 1013.~~

2612.6 Plastic composite decking, handrails and guards. Plastic composite decking, handrails and guards shall be ~~designed and~~ installed in accordance with ~~the general provisions of~~ this code and ~~Sections 2612.6.1 through 2612.6.2~~ the manufacturer's instructions.

~~**2612.6.1 General.** Each piece of decking composed of plastic composites shall be square-end trimmed. When random lengths are furnished, each piece shall be square end trimmed across the face so that at least 90 percent of the pieces are within 0.5 degrees (0.00873 rad) of square. The ends of the pieces shall be permitted to be beveled up to 2 degrees (0.0349 rad) from the vertical with the exposed face of the piece slightly longer than the opposite face of the piece. Tongue-and groove decking shall be installed with the tongues up on sloped or pitched roofs with pattern faces down.~~

~~**2612.6.2 Layup patterns.** Decking composed of plastic composites is permitted to be laid up following one of five standard patterns as defined in Sections 2304.8.2.1 through 2304.8.2.5 for lumber decking. Other patterns are permitted to be used provided they are substantiated through engineering analysis.~~

Add new standards as follows:

CHAPTER 35
REFERENCED STANDARDS

~~ASTM D6662, Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards~~
ASTM D7032, Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails)

Committee Reason: The committee recognizes that composite plastics are in use and it is time to provide code requirements. This code change requires product testing so that there are load ratings that can verify proper use. The modification makes editorial corrections and deletes unnecessary sections.

Final Hearing Results

FS198-12 **AM**

Code Change No: G1-12

Original Proposal

Section(s): 202

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care, Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

24-HOUR ~~CARE~~ BASIS. The actual time that a person is an occupant within a facility for the purpose of receiving care. It shall not include a facility that is open for 24 hours and is capable of providing care to someone visiting the facility during any segment of the 24 hours**.**

Reason: This code change is intended to clarify the code. In the last code cycle a change was made attempting to clarify the phrase "24 hour basis". This term is used when determining the appropriate occupancy classification for facilities that provide custodial, medical or supervised care, including Group I-1, I-2 and R-4 (IBC 308.3, 308.4, 310.6). The committee accepted the clarification that in this context 24 hour care was intended to refer to the actual time that a patient is receiving care. Unfortunately, the code change used a phrase that was descriptive of the concept not the actual phrase used in the code. This code change corrects the term to the one used in code.

This proposal is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx .

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: The proposed changes with not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved to better align with CMS requirements and it better describes the time patients are actually provided with care.

Assembly Action: **None**

Final Hearing Results

G1-12 **AS**

Code Change No: G3-12

Original Proposal

Section(s): 202

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Proponent: Jason Thompson (jthompson@ncma.org), National Concrete Masonry Association, Phil Samblanet (psamblanet@masonrysociety.org), The Masonry Society, representing Masonry Alliance for Codes and Standards

Revise definitions in Chapter 2 as follows:

~~**BOND BEAM.** A horizontal grouted element within *masonry* in which reinforcement is embedded.~~

~~**CLEANOUT.** An opening to the bottom of a grout space of sufficient size and spacing to allow the removal of debris.~~

MASONRY. A built-up construction or combination of building units or materials of clay, shale, concrete, glass, gypsum, stone or other *approved* units bonded together with or without *mortar* or grout or other accepted methods of joining.

~~**Ashlar masonry.** Masonry composed of various-sized rectangular units having sawed, dressed or squared bed surfaces, properly bonded and laid in *mortar*.~~

~~**Coursed ashlar.** Ashlar masonry laid in courses of stone of equal height for each course, although different courses shall be permitted to be of varying height.~~

Glass unit masonry. Masonry composed of glass units bonded by *mortar*.

Plain masonry. Masonry in which the tensile resistance of the masonry is taken into consideration and the effects of stresses in reinforcement are neglected.

~~**Random ashlar.** Ashlar masonry laid in courses of stone set without continuous *joints* and laid up without drawn patterns. When composed of material cut into modular heights, discontinuous but aligned horizontal *joints* are discernible.~~

Reinforced masonry. Masonry construction in which reinforcement acting in conjunction with the masonry is used to resist forces.

Solid masonry. Masonry consisting of solid masonry units laid contiguously with the *joints* between the units filled with *mortar*.

Unreinforced (plain) masonry. Masonry in which the tensile resistance of masonry is taken into consideration and the resistance of the reinforcing steel, if present, is neglected.

RUBBLE MASONRY. *Masonry* composed of roughly shaped stones.

Coursed rubble. Masonry composed of roughly shaped stones fitting approximately on level beds and well bonded.

Random rubble. Masonry composed of roughly shaped stones laid without regularity of coursing but well bonded and fitted together to form well-divided *joints*.

Rough or ordinary rubble. Masonry composed of unsquared field stones

SHEAR WALL (For Chapter 21)

Detailed plain masonry shear wall. A masonry shear wall designed to resist lateral forces neglecting stresses in reinforcement, and designed in accordance with Section 2106.1.

Intermediate prestressed masonry shear wall. A prestressed masonry shear wall designed to resist lateral forces considering stresses in reinforcement, and designed in accordance with Section 2106.1.

Intermediate reinforced masonry shear wall. A masonry shear wall designed to resist lateral forces considering stresses in reinforcement, and designed in accordance with Section 2106.1.

Ordinary plain masonry shear wall. A masonry shear wall designed to resist lateral forces neglecting stresses in reinforcement, and designed in accordance with Section 2106.1.

Ordinary plain prestressed masonry shear wall. A prestressed masonry shear wall designed to resist lateral forces considering stresses in reinforcement, and designed in accordance with Section 2106.1.

Ordinary reinforced masonry shear wall. A masonry shear wall designed to resist lateral forces considering stresses in reinforcement, and designed in accordance with Section 2106.1.

Special prestressed masonry shear wall. A prestressed masonry shear wall designed to resist lateral forces considering stresses in reinforcement and designed in accordance with Section 2106.1 except that only grouted, laterally restrained tendons are used.

Special reinforced masonry shear wall. A masonry shear wall designed to resist lateral forces considering stresses in reinforcement, and designed in accordance with Section 2106.1.

STACK BOND. The placement of *masonry units* in a bond pattern is such that head *joints* in successive courses are vertically aligned. For the purpose of this code, requirements for stack bond shall apply to *masonry* laid in other than *running bond*.

STONE MASONRY. *Masonry* composed of field, quarried or *cast stone* units bonded by *mortar*.

Ashlar stone masonry. Stone masonry composed of rectangular units having sawed, dressed or squared bed surfaces and bonded by *mortar*.

Rubble stone masonry. Stone masonry composed of irregular-shaped units bonded by *mortar*.

WALL. A vertical element with a horizontal length-to-thickness ratio greater than three, used to enclose space.

Cavity wall. A wall built of *masonry units* or of concrete, or a combination of these materials, arranged to provide an airspace within the wall, and in which the inner and outer parts of the wall are tied together with metal ties.

~~**Composite wall.** A wall built of a combination of two or more *masonry units* bonded together, one forming the backup and the other forming the facing elements.~~

Dry-stacked, surface-bonded wall. A wall built of concrete *masonry units* where the units are stacked dry, without *mortar* on the bed or *head joints*, and where both sides of the wall are coated with a surface-bonding *mortar*.

~~**Masonry-bonded hollow wall.** A multi-*wythe* wall built of *masonry units* arranged to provide an air space between the *wythes* and with the *wythes* bonded together with *masonry units*.~~

Parapet wall. The part of any wall entirely above the roof line.

Reason: This change proposal deletes masonry-specific terms that are no longer used within Chapter 21 or elsewhere within the IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The committee favors the removal of obsolete masonry-related definitions that are not used within the IBC.

Assembly Action: **None**

Final Hearing Results

G3-12 **AS**

Code Change No: G3-13

Original Proposal

Section(s): IBC [F] 307.1; IBC [F] 307.1.1 (New)

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee (bajnaic@chesterfield.gov)

Revise as follows:

IBC [F] 307.1 High-hazard Group H. High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof, that involves the manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities in excess of those allowed in control areas complying with Section 414, based on the maximum allowable quantity limits for control areas set forth in Tables 307.1(1) and 307.1(2). Hazardous occupancies are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this section, the requirements of Section 415 and the International Fire Code. Hazardous materials stored, or used on top of roofs or canopies shall be classified as outdoor storage or use and shall comply with the International Fire Code.

~~**Exceptions:** The following~~ **IBC [F] 307.1.1 Uses other than Group H.** The storage, use or handling of hazardous materials as described in one or more of the following items shall not cause the occupancy to be classified as Group H, but shall be classified as the occupancy that they most nearly resemble~~.~~:

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the International Fire Code.
2. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the International Fire Code.
3. Closed piping system containing flammable or combustible liquids or gases utilized for the operation of machinery or equipment.
4. Cleaning establishments that utilize combustible liquid solvents having a flash point of 140°F (60°C) or higher in closed systems employing equipment listed by an approved testing agency, provided that this occupancy is separated from all other areas of the building by 1-hour fire barriers constructed in accordance with Section 707 or 1-hour horizontal assemblies constructed in accordance with Section 711, or both.
5. Cleaning establishments that utilize a liquid solvent having a flash point at or above 200°F (93°C).
6. Liquor stores and distributors without bulk storage.
7. Refrigeration systems.
8. The storage or utilization of materials for agricultural purposes on the premises.
9. Stationary batteries utilized for facility emergency power, uninterruptable power supply or telecommunication facilities, provided that the batteries are provided with safety venting caps and ventilation is provided in accordance with the *International Mechanical Code*.
10. Corrosive ~~s shall not include~~ personal or household products in their original packaging used in retail display. ~~or~~
11. Commonly used corrosive building materials.

~~11~~12. Buildings and structures occupied for aerosol storage shall be classified as Group S-1, provided that such buildings conform to the requirements of the *International Fire Code*.

~~12.~~13. Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities not exceeding the maximum allowable quantity per control area in Group M or S occupancies complying with Section 414.2.5.

~~13.~~ 14. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the *International Fire Code*.

[F] ~~307.1.1~~ 307.1.2 Hazardous materials. Hazardous materials in any quantity shall conform to the requirements of this code, including Section 414, and the *International Fire Code*.

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 6 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

This proposal takes a long "exception list" and turns the language into a positive statement list of hazardous material activities that would not be classified as a High Hazard Group occupancy.

Cost Impact: This proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the proponent that the code change clarifies and brings the section into conformance with established code style.

Assembly Action: **None**

Final Hearing Results

G3-13 **AS**

Code Change No: G4-12

Original Proposal

Section(s): 202

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Proponent: Chuck Bajnai, Chesterfield County, VA., Robert Rice, Josephine County Oregon, representing Oregon Building Officials Association (structdesigner@yahoo.com)

Revise as follows:

BRACED WALL LINE. ~~A series of *braced wall panels* in a single *story* that meets the requirements of Section 2308.3 or 2308.12.4.~~ A straight line through the building plan that represents the location of the lateral resistance provided by the wall bracing.

BRACED WALL PANEL. ~~A section of wall braced in accordance with Section 2308.9.3 or 2308.12.4.~~ A full-height section of wall constructed to resist in-plane shear loads through interaction of framing members, sheathing material and anchors. The panel's length meets the requirements of its particular bracing method, and contributes toward the total amount of bracing required along its *braced wall line* in accordance with Section 2308.6.

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

This proposal clarifies the requirements of both "Braced wall lines" and "Braced wall panels". The proposed definitions are consistent with the definitions in the IRC which reflect the work of ICC's Ad-Hoc Wall Bracing Committee from previous code cycles.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Modified**

Modify proposal as follows:

BRACED WALL LINE. A straight line through the building plan that represents the location of the lateral resistance provided by the wall bracing.

BRACED WALL PANEL. A full-height section of wall constructed to resist in-plane shear loads through interaction of framing members, sheathing material and anchors. The panel's length meets the requirements of its particular bracing method, and contributes toward the total amount of bracing required along its *braced wall line.* ~~in accordance with Section 2308.6.~~

Committee Reason: This proposal correlates the IBC definition of braced wall line with the IRC. For engineered design of components of buildings outside the scope of the IRC, these definitions are needed. The modification removes an incorrect section reference.

Assembly Action: **None**

Final Hearing Results

G4-12 **AM**

Code Change No: G4-13

Original Proposal

Section(s): IBC [F] 403.3.2 (IFC 914.3.1.2)

Proponent: Jeffrey M. Shapiro, International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

Revise as follows:

IBC [F] 403.3.2 (IFC 914.3.1.2) Water supply to required fire pumps. In buildings that are more than 420 feet (128 m) in *building height,* required fire pumps shall be supplied by connections to no fewer than two water mains located in different streets. Separate supply piping shall be provided between each connection to the water main and the pumps. Each connection and the supply piping between the connection and the pumps shall be sized to supply the flow and pressure required for the pumps to operate.

Exception: Two connections to the same main shall be permitted provided the main is valved such that an interruption can be isolated so that the water supply will continue without interruption through no fewer than one of the connections.

Reason: The text in this section originated with Proposal G46-07/08. That proposal was accepted based on a public comment that had a reason statement that began with "*The purpose of this public comment is to increase the reliability of fire sprinkler systems in very tall buildings, those that exceed 420 feet in height, by requiring a minimum of two risers for each sprinkler zone and pumps to be supplied by a minimum of two connections to the municipal distribution system*." Although Section 403.3.1, which was also created by the same public comment included the 420 foot threshold, the threshold was clearly overlooked in the text of 403.3.2. The text as written technically applies to any high-rise building, which comes at very significant cost, yet there is no documented justification as a basis for applying the code in that manner. The proposed revision resolves the apparent oversight in the current code text.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved the code change based on the proponent's reason statement.

Assembly Action: **None**

Final Hearing Results

G4-13	**AS**

Code Change No: G5-12

Original Proposal

Section(s): 202

THIS PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC GENERAL CODE DEVELOPMENT COMMITTEE.

Proponent: Bob Eugene, Underwriters Laboratories (Robert.Eugene@ul.com)

Revise as follows:

CEILING RADIATION DAMPER. A *listed* device installed in a ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly to limit *automatically* the radiative heat transfer through an air inlet/outlet opening. Ceiling radiation dampers include air terminal units, ceiling dampers and ceiling air diffusers.

Reason: The added wording specifies the three types of products which provide protection at air inlet/outlet openings.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Fire Safety code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposed language clearly and appropriately identifies the three types of ceiling radiation dampers.

Assembly Action: **None**

Final Hearing Results

G5-12	**AS**

Code Change No: G5-13

Original Proposal

Section(s): IBC [F] 414.3

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee (bajnaic@chesterfield.gov)

Revise as follows:

IBC [F] 414.3 Ventilation. Rooms, areas or spaces ~~of Group H~~ in which explosive, corrosive, combustible, flammable or highly toxic dusts, mists, fumes, vapors or gases are or may be emitted due to the processing, use, handling or storage of materials shall be mechanically ventilated ~~as~~ where required by this code, the *International Fire Code* or ~~and~~ the *International Mechanical Code*.

~~Ducts conveying explosives or flammable vapors, fumes or dusts shall extend directly to the exterior of the building without entering other spaces. Exhaust ducts shall not extend into or through ducts and plenums~~.

> ~~**Exception:** Ducts conveying vapor or fumes having flammable constituents less than 25 percent of their lower flammable limit (LFL) are permitted to pass through other spaces.~~

Emissions generated at workstations shall be confined to the area in which they are generated as specified in the International Fire Code and the International Mechanical Code.

~~The location of supply and exhaust openings shall be in accordance with the *International Mechanical Code*. Exhaust air contaminated by *highly toxic* material shall be treated in accordance with the *International Fire Code*~~.

~~A manual shutoff control for *ventilation* equipment required by this section shall be provided outside the room adjacent to the principal access door to the room. The switch shall be of the break-glass type and shall be labeled: VENTILATION SYSTEM EMERGENCY SHUTOFF.~~

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 6 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

This proposal clarifies that ventilation may be required when hazardous materials are handled regardless of whether the activity is located in a H Group. The proposal also eliminates language that is covered by the IMC for the design and installation of the exhaust systems.

Note that this section does not trigger the installation of the exhaust systems, it refers to the IBC, IFC and IMC for those triggers such as: IBC [F] 415.8.2.7, IBC [F] 415.10.1.6, IBC [F] 415.10.5.8, IMC 502.1, IMC 502.2 – IMC 502.17, IFC 2105.2.3, IFC 2106.3.3, IFC 5003.8.4.2, IFC 5003.8.5.2, and IFC 5004.3 as a few examples.

Cost Impact: This proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the proponent that the code change clarifies that ventilation may be required when hazardous materials are handled regardless of whether the activity is located in a Group H occupancy. It also improves correlation with the IMC on this subject.

Assembly Action: **None**

Final Hearing Results

G5-13	**AS**

Code Change No: G6-12

Original Proposal

Section(s): 202

THIS PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE.

Proponent: Tony Crimi, A.C. Consulting Solutions Inc., representing International Firestop Council (tcrimi@sympatico.ca)

Revise as follows:

CERAMIC FIBER BLANKET. A high temperature *mineral wool* insulation material made of alumina-silica ceramic or calcium magnesium silicate soluble fibers and weighing 4 to 10 pounds per cubic foot (pcf) (64 to 160 kg/m^3).

Reason: The current IBC definition for ceramic fiber blanket is out of date. Current ceramic fiber technology includes either alumino-silica or calcium magnesium silicate soluble fibers. This definition is referenced in 722.2.1.3.1 and Figure 722.2.1.3.1 which shows thicknesses of *ceramic fiber blankets* to be used generically to insulate joints between precast concrete wall panels for various panel thicknesses and joint widths.

Calcium magnesium silicate fibers have been found to provide equivalent or better performance when tested to numerous Standards referenced in the IBC & IMC, including ASTM E136, ASTM E119, ASTM E814, and ASTM E2336.

Cost Impact: This change will not affect the cost of construction.

Public Hearing Results

This code change was heard by the IBC Fire Safety code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposed updates to the definition of ceramic fiber blanket were consistent with industry terminology and therefore appropriate.

Assembly Action: **None**

Final Hearing Results

G6-12 **AS**

Code Change No: G7-12

Original Proposal

Section(s): 202

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Proponent: Gregg Achman, Hearth & Home Technologies (achmang@hearthnhome.com)

Revise as follows:

[M] CHIMNEY. A primarily vertical ~~enclosure~~ structure containing one or more ~~passageways~~ flues, for ~~conveying flue gases to the outside~~ the purpose of carrying gaseous products of combustion and air from a fuel burning appliance to the outdoor atmosphere.

Factory-built chimney. A *listed* and *labeled chimney* composed of factory-made components, assembled in the field in accordance with manufacturer's instructions and the conditions of the listing.

Masonry chimney. A field-constructed *chimney* composed of solid masonry units, bricks,stones, or concrete.

Metal chimney. A field-constructed *chimney* of metal.

Reason: This provides common language for the definition of a CHIMNEY in the IBC with both the IMC and IFGC.

Cost Impact: The code change proposal will not increase cost of the construction.

Public Hearing Results

This code change was heard by the IMC code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as submitted based upon the proponent's reason.

Assembly Action: **None**

Final Hearing Results

G7-12 **AS**

Code Change No: G7-13

Original Proposal

Section(s): IBC [F] 414.5.2

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Delete without substitution:

~~**IBC [F] 414.5.2 Monitor control equipment.** Monitor control equipment shall be provided where required by the International Fire Code.~~

(Renumber subsequent sections)

Reason: Section 414.5.2 refers to regulations in the IFC for application to "monitor control equipment". The term "monitor control equipment" is not used in the IFC as suggested by this reference to the IFC.

This IBC section is referring to a term that is not utilized, therefore, this section is proposed to be deleted. The term is not used and do not relate to building construction requirements.

Process control equipment is already addressed in the IFC and the provisions in the IFC cover these items. The proposal eliminates the confusion which occurs when the user refers to the IFC and finds nothing specified for 'monitor control equipment'. Deleting this section does not eliminate any of the requirements.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx..

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Cost Impact: This code change will not increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the proponent that the code change deletes an unneeded and confusing reference to nonexistent requirements in the IFC which does not use the term "monitor control equipment".

Assembly Action: **None**

Final Hearing Results

G7-13 **AS**

Code Change No: G8-12 Part I

Original Proposal

Section(s): 202

PART I – IPC

Revise as follows:

SECTION 202
DEFINITIONS

IPC [B] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the *building's* perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

Reason: This definition is controlled by the IBC; this proposal brings the IPC, IMC, IFGC, and IPSDC, IEBC definitions in line with the term as defined by the IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

All parts of this code change were heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Correlates the IPC definition of design flood elevation with the IBC definition.

Assembly Action: **None**

Final Hearing Results

G8-12 Part I **AS**

Code Change No: G8-12 Part II

Original Proposal

Section(s): 202

PART II – IMC

Revise as follows:

SECTION 202
DEFINITIONS

IMC [B] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the *building's* perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

Reason: This definition is controlled by the IBC; this proposal brings the IPC, IMC, IFGC, and IPSDC, IEBC definitions in line with the term as defined by the IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

All parts of this code change were heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Correlates the IMC definition of design flood elevation with the IBC definition.

Assembly Action: **None**

Final Hearing Results

G8-12 Part II **AS**

Code Change No: G8-12 Part III

Original Proposal

Section(s): 202

PART III – IFGC

Revise as follows:

SECTION 202
DEFINITIONS

IFGC [B] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the *building's* perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

Reason: This definition is controlled by the IBC; this proposal brings the IPC, IMC, IFGC, and IPSDC, IEBC definitions in line with the term as defined by the IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

All parts of this code change were heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Correlates the IFGC definition of design flood elevation with the IBC definition.

Assembly Action: **None**

Final Hearing Results

G8-12 Part III **AS**

Code Change No: G8-12 Part IV

Original Proposal

Section(s): 202

PART IV – IPSDC

Revise as follows:

SECTION 202
DEFINITIONS

IPSDC [B] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the *building's* perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

Reason: This definition is controlled by the IBC; this proposal brings the IPC, IMC, IFGC, and IPSDC, IEBC definitions in line with the term as defined by the IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

All parts of this code change were heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Correlates the IPSDC definition of design flood elevation with the IBC definition.

Assembly Action: **None**

Final Hearing Results

G8-12 Part IV **AS**

Code Change No: G8-13

Original Proposal

Section(s): IBC [F] 414.7, [F] 414.7.1, [F] 414.7.2, [F] 414.7.3

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee (bajnaic@chesterfield.gov)

Revise as follows:

IBC [F] ~~414.7~~ 415.5 Emergency alarms. Emergency alarms for the detection and notification of an emergency condition in Group H occupancies shall be provided as set forth herein.

IBC [F] ~~414.7.1~~ 415.5.1 Storage. An approved manual emergency alarm system shall be provided in buildings, rooms or areas used for storage of hazardous materials. Emergency alarm-initiating devices shall be installed outside of each interior exit or exit access door of storage buildings, rooms or areas. Activation of an emergency alarm-initiating device shall sound a local alarm to alert occupants of an emergency situation involving hazardous materials.

IBC [F] ~~414.7.2~~ 415.5.2 Dispensing, use and handling. Where hazardous materials having a hazard ranking of 3 or 4 in accordance with NFPA 704 are transported through corridors, interior exit stairways or ramps, or exit passageways there shall be an emergency telephone system, a local manual alarm station or an approved alarm-initiating device at not more than 150-foot (45 720 mm) intervals and at each exit and exit access doorway throughout the transport route. The signal shall be relayed to an approved central, proprietary or remote station service or constantly attended on-site location and shall initiate a local audible alarm.

IBC [F] ~~414.7.3~~ 415.5.3 Supervision. Emergency alarm systems shall be supervised by an approved central, proprietary or remote station service or shall initiate an audible and visual signal at a constantly attended on-site location.

(Renumber subsequent sections)

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 6 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The scope of Section 414 applies to all buildings and structures where hazardous materials are present.

> ***[F] 414.1 General.*** *The provisions of Sections 414.1 through 414.7 shall apply to buildings and structures occupied for the manufacturing, processing, dispensing, use or storage of hazardous materials.*

However, current Section 414.5 only applies to Group H occupancies. For clarification the section is proposed to be relocated to Section 415 which is the portion of the IBC that applies to H Group occupancies.

Cost Impact: This proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved the code change based on the proponent's reason statement.

Assembly Action: **None**

Final Hearing Results

G8-13	**AS**

Code Change No: G9-12

Original Proposal

Section(s): 202

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Proponent: Gregory R. Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com)

Delete and Substitute as follows:

SECTION 202
DEFINITIONS

~~**EXIT, HORIZONTAL.** A path of egress travel from one building to an area in another building on approximately the same level, or a path of egress travel through or around a wall or partition to an area on approximately the same level in the same building, which affords safety from fire and smoke from the area of incidence and areas communicating therewith.~~

HORIZONTAL EXIT. An exit component consisting of fire-resistance rated construction and opening protectives intended to compartmentalize portions of a building thereby creating refuge areas that afford safety from the fire and smoke from the area of fire origin.

Reason: This proposed definition clarifies what a horizontal exit actually is. Clearly, it is not a path of egress travel as is currently stated. Contained within the definition of "EXIT," a horizontal exit is classified as an "exit component." Section 1025 provides for the physical construction requirements intended to segregate portions of the building and intended to create refuge areas. The proposed definition more accurately describes the general nature of the horizontal exit and leaves the specifics of the various building configuration and fire-resistance rating options to Section 1025.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The revised definition for 'horizontal exit' will provide clarity to the code. The phrases "travel through or around" and "approximately the same level" in the current definition is difficult to understand.

Assembly Action: **None**

Final Hearing Results

G9-12 **AS**

Code Change No: G9-13

Original Proposal

Section(s): IBC [F] 415.6

Proponent: Homer Maiel, PE, CBO, Town of Atherton (CA), representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay)

Revise as follows:

IBC [F] 415.6 Special provisions for Group H-1 occupancies. Group H-1 occupancies shall be in ~~buildings used for no other purpose, shall not exceed one *story* in height and be without basements, crawl spaces or other under-floor spaces.~~ *detached buildings*. Roofs shall be of lightweight construction with suitable thermal insulation to prevent sensitive material from reaching its decomposition temperature. Group H-1 occupancies containing materials that are in themselves both physical and health hazards in quantities exceeding the maximum allowable quantities per *control area* in Table 307.1(2) shall comply with requirements for both Group H-1 and H-4 occupancies.

Reason: This is only an editorial change. The entire stricken out portion is the definition for “detached buildings”. Hence replacing it with “detached buildings”

Cost Impact: This code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The disapproval was based on the fact that the critical phrase “…used for no other purpose…” does not appear in the definition so the proponent’s premise that the definition can substitute for the stricken code text is incorrect.

Assembly Action: **None**

Public Comments

Public Comment:

Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

IBC [F] 415.6 Special provisions for Group H-1 occupancies. Group H-1 occupancies shall be in *detached buildings,* used for no other purpose. Roofs shall be of lightweight construction with suitable thermal insulation to prevent sensitive material from reaching its decomposition temperature. Group H-1 occupancies containing materials that are in themselves both physical and health hazards in quantities exceeding the maximum allowable quantities per *control area* in Table 307.1(2) shall comply with requirements for both Group H-1 and H-4 occupancies.

Commenter’s Reason: The original proposal has been modified in accordance to committee's comment back in Dallas.

Final Hearing Results

G9-13 **AMPC**

Code Change No: G10-13

Original Proposal

Section(s): IBC [F] 415.7.1

Proponent: Homer Maiel, PE, CBO, Town of Atherton (CA), representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay)

Delete without substitution as follows:

~~**IBC [F] 415.7.1 Detached buildings.** Detached buildings shall not exceed one story in height and shall be without basements, crawl spaces or other under-floor spaces.~~

Reason: Since this section is already covered in Chapter 2 as a definition, there is no need to be repeated here.

Cost Impact: This code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the proponent that in this case it is appropriate for the detached building definition to replace the stricken code text.

Assembly Action: **None**

Final Hearing Results

G10-13	**AS**

Code Change No: G12-13

Original Proposal

Section(s): IBC [F] 415.10.3.2, IBC [F] 415.10.5.8

Proponent: Patrick A. McLaughlin McLaughlin & Associates, representing the Semiconductor Industry Association (pmclaugma@aol.com)

Revise as follows:

IBC [F] 415.10.3.2 Mechanical ventilation. *Service corridors* shall be mechanically ventilated as required by Section 415.10.1.6 or at not less than six air changes per hour~~, whichever is greater~~.

IBC [F] 415.10.5.8 Ventilation. Mechanical exhaust *ventilation* shall be provided in liquid storage rooms, HPM rooms and gas rooms at the rate of not less than 1 cubic foot per minute per square foot (0.044 L/s/m^2) of floor area or six air changes per hour~~, whichever is greater, for categories of material~~.

Exhaust *ventilation* for gas rooms shall be designed to operate at a negative pressure in relation to the surrounding areas and direct the exhaust *ventilation* to an exhaust system.

Reason: The six air changes per hour was developed assuming a maximum ceiling height of 10 feet. Currently some of the rooms have ceiling height in excess of 25 feet. There is no justification for the air movement that is required to reach the 6 air changes per hour. The NPFA handbook ventilation discussion states "NFPA 30 allows the use of the traditional approach of 1 cfm of ventilation per square foot (0.3 m3/minlm2) of floor area. This is based on an old, but very effective, rule of thumb: areas where liquids are used should be ventilated at a rate of six air changes per hour. However, most industrial facilities are high-ceilinged; six air changes per hour involve exhausting a great volume of air, with a correspondingly large energy loss in winter. Because most vapors are generated and tend to remain at or near floor level, it is reasonable to assume an arbitrary ceiling height of 10 ft (3 m). With each square foot of floor area translating to 10 ft^3, six air changes per hour equals 60 ft^3 per hour, or 1 cfm for that one square foot of floor area". As the semiconductor industry moves to future technologies, the ceiling heights of HPM rooms are in some cases over 25', which would require massive amounts of make-up air and result in a large energy loss due to cooling and heating of the space. This proposed change would than align the IFC and IBC provisions with NFPA 30, while still maintaining requirements for adequate makeup air into HPM rooms.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved the code change based on the proponent's reason statement and that the revision recognizes changes in HPM technology since the deleted text was implemented.

Assembly Action: **None**

Final Hearing Results

G12-13 **AS**

Code Change No: G13-13

Original Proposal

Section(s): IBC [F] 415.10.6.4

Proponent: Robert J Davidson, Davidson Code Concepts, LLC, representing self (BFICOCS) (rjd@davidsoncodeconcepts.com)

Revise as follows:

IBC [F] 415.10.6.4 Installations in corridors and above other occupancies. The installation of HPM piping and tubing within the space defined by the walls of corridors and the floor or roof above, or in concealed spaces above other occupancies, shall be in accordance with Sections 415.10.6.1 through 415.10.6.3 and the following conditions:

1. through 3. *(No change to current text.)*
4. HPM supply piping and tubing and nonmetallic waste lines shall be separated from the corridor and from occupancies other than Group H-5 by fire barriers or by an approved piping protective system that have a fire-resistance rating of not less than 1 hour Where gypsum wallboard is used, joints on the piping side of the enclosure are not required to be taped~~, provided the joints occur over framing members~~. Access openings into the enclosure shall be protected by approved fire protection-rated assemblies.
5. *(No change to current text.)*

Exception: Transverse crossings of the corridors by supply piping that is enclosed within a ferrous pipe or tube for the width of the corridor need not comply with Items 1 through 5.

Reason: The purpose of this proposal is to allow for additional methods of fire-resistance protection for supply piping and tubing. Depending on the configuration and installation details, a fire-resistance wrap material can provide the required fire-resistance rating.

An additional change is to eliminate the wording ", provided the joints occur over framing members" which addresses the elimination of taping joints on the supply piping side of the fire-resistance protection. The IBC Commentary states:
The elimination of the taping of the wallboard joints on the piping side of a rated assembly is in recognition of actual installation difficulties and the reduced likelihood of a fire on the interior of the wall cavity. To eliminate the taping of joints, however, the joints must occur over framing members.

If the elimination is related to the practical difficulty of taping on the inside of the barrier and the reduces likelihood of a fire on the interior of the cavity, in other words the protection is for an exposure fire, then elimination of the interior taping is not reliant on the joints being over framing members.

Cost Impact: The code change proposal will reduce the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The disapproval was based on the proponent's request for disapproval so he can submit a public comment to rearrange the text regarding joint taping.

Assembly Action: **None**

Public Comments

Public Comment:

Robert J. Davidson, Davidson Code Concepts, LLC, representing self, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

IBC [F] 415.10.6.4 Installations in corridors and above other occupancies. The installation of HPM piping and tubing within the space defined by the walls of corridors and the floor or roof above, or in concealed spaces above other occupancies, shall be in accordance with Sections 415.10.6.1 through 415.10.6.3 and the following conditions:

1. through 3. *(No change to current text.)*
4. HPM supply piping and tubing and nonmetallic waste lines shall be separated from the corridor and from occupancies other than Group H-5 by fire barriers or by an approved ~~piping protective system~~ method or assembly that ~~have~~ has a fire-resistance rating of not less than 1 hour. ~~Where gypsum wallboard is used, joints on the piping side of the enclosure are not required to be taped~~. Access openings into the enclosure shall be protected by approved fire protection-rated assemblies.
5. *(No change to current text.)*

   Exception: Transverse crossings of the corridors by supply piping that is enclosed within a ferrous pipe or tube for the width of the corridor need not comply with Items 1 through 5.

Commenter's Reason: In response to the committee and public testimony concerns the specific methods have been deleted to instead refer to a generic requirement of protection with "an approved method or assembly". In recognition of the committee discussion this modified wording provides for acceptance of a wider base of solutions.

Final Hearing Results

G13-13 **AMPC**

Code Change No: G14-13

Original Proposal

Section(s): IBC [F] 421, Table 509.1, 202; IFC 5808 (New); 5802.1, 202

Proponent: Robert J Davidson, Davidson Code Concepts, LLC, representing National Renewable Energy Laboratory (NREL) (rjd@davidsoncodeconcepts.com)

Revise as follows:

IBC SECTION 421
HYDROGEN ~~CUTOFF~~ GAS ROOMS

[F] 421.1 General. Where required by the International Fire Code, hydrogen ~~cutoff~~ gas rooms shall be designed and constructed in accordance with Sections 421.1 through 421.8.

[F] 421.2 Definitions. The following terms are defined in Chapter 2:

GASEOUS HYDROGEN SYSTEM.

HYDROGEN ~~CUTOFF~~ GAS ROOM.

[F] 421.3 Location. Hydrogen ~~cutoff~~ gas rooms shall not be located below grade.

[F] 421.4 Design and construction. Hydrogen ~~cutoff~~ gas rooms not classified as Group H shall be ~~classified with respect to occupancy in accordance with Section 302.1 and~~ separated from other areas of the building in accordance with Section 509.1 ~~by not less than 1-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both; or as required by Section 508.2, 508.3 or 508.4, as applicable~~ .

[F] 421.4.1 ~~Opening protectives~~ Pressure control. ~~Doors within the fire barriers, including doors to corridors, shall be self-closing in accordance with Section 716. Interior door openings shall be electronically interlocked to prevent operation of the hydrogen system when doors are opened or ajar or the room shall be provided with a mechanical exhaust ventilation system designed in accordance with Section 421.4.1.1.~~ Hydrogen gas rooms shall be provided with a ventilation system designed to maintain the room at a negative pressure in relation to surrounding rooms and spaces.

~~**[F] 421.4.1.1 Ventilation alternative**. Where an exhaust system is used in lieu of the interlock system required by Section 421.4.1, exhaust ventilation systems shall operate continuously and shall be designed to operate at a negative pressure in relation to the surrounding area. The average velocity of ventilation at the face of the door opening with the door in the fully open position shall not be less than 60 feet per minute (0.3048 m/s) and not less than 45 feet per minute (0.2287 m/s) at any point in the door opening.~~

[F] 421.4.2 Windows. Operable windows in interior walls shall not be permitted. Fixed windows shall be permitted where in accordance with Section 716.

[F] 421.5 Exhaust Ventilation. ~~Cutoff~~ Gas rooms shall be provided with mechanical exhaust ventilation in accordance with the applicable provisions ~~for repair garages in Chapter 5~~ of Section 502.16.1 of the *International Mechanical Code*.

[F] 421.6 Gas detection system. Hydrogen ~~cutoff~~ gas rooms shall be provided with an approved flammable gas detection system in accordance with Sections 421.6.1 through ~~421.6.3~~ 421.6.4.

[F] 421.6.1 System design. The flammable gas detection system shall be listed for use with hydrogen and any other flammable gases used in the room. The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammability limit (LFL) for the gas or mixtures present at their anticipated temperature and pressure.

[F] 421.6.2 Gas detection system components. Gas detection system control units shall be listed and labeled in accordance with UL 864 or UL 2017. Gas detectors shall be listed and labeled in accordance with UL 2075 for use with the gases and vapors being detected.

[F] 421.6.3 ~~421.6.2~~ Operation. Activation of the gas detection system shall result in all of the following:

1. Initiation of distinct audible and visual alarm signals both inside and outside of the ~~cutoff~~ gas room.
2. Activation of the mechanical exhaust ventilation system.

[F] 421.6.4 ~~421.6.3~~ Failure of the gas detection system. Failure of the gas detection system shall result in activation of the mechanical exhaust ventilation system, cessation of hydrogen generation and the sounding of a trouble signal in an approved location.

[F] 421.7 Explosion control. Explosion control shall be provided ~~in accordance with Chapter 9 of the International Fire Code~~ where required by Section [F] 414.5.1. Mechanical ventilation and gas detection systems shall be connected to a standby power system in accordance with Chapter 27.

IBC TABLE 509.1
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Hydrogen ~~cutoff~~ gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.

(Portions of table not shown remain unchanged)

IBC SECTION 202
DEFINITIONS

[F] HYDROGEN ~~CUTOFF~~ GAS ROOM. A room or space that is intended exclusively to house a gaseous hydrogen system.

Add new IFC text as follows:

SECTION 5808
HYDROGEN GAS ROOMS

5808.1 General. Where required by the International Fire Code, hydrogen gas rooms shall be designed and constructed in accordance with Sections 5808.1 through 5808.7 and the *International Building Code*.

5808.2 Location. Hydrogen gas rooms shall not be located below grade.

5808.3 Design and construction. Hydrogen gas rooms not exceeding the maximum allowable quantities in Table 5003.1.1(1) shall be separated from other areas of the building in accordance with Section 509.1 of the *International Building Code*.

5808.3.1 Pressure control. Hydrogen gas rooms shall be provided with a ventilation system designed to maintain the room at a negative pressure in relation to surrounding rooms and spaces.

5808.3.2 Windows. Operable windows in interior walls shall not be permitted. Fixed windows shall be permitted where in accordance with Section 716 of the *International Building Code*.

5808.4 Exhaust Ventilation. Gas rooms shall be provided with mechanical exhaust ventilation in accordance with the applicable provisions of Section 502.16.1 of the *International Mechanical Code*.

5808.5 Gas detection system. Hydrogen gas rooms shall be provided with an approved flammable gas detection system in accordance with Sections 5808.5.1 through 5808.5.4.

5808.5.1 System design. The flammable gas detection system shall be listed for use with hydrogen and any other flammable gases used in the room. The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammability limit (LFL) for the gas or mixtures present at their anticipated temperature and pressure.

5808.5.2 Gas detection system components. Gas detection system control units shall be listed and labeled in accordance with UL 864 or UL 2017. Gas detectors shall be listed and labeled in accordance with UL 2075 for use with the gases and vapors being detected.

5808.5.3 Operation. Activation of the gas detection system shall result in all of the following:

1. Initiation of distinct audible and visual alarm signals both inside and outside of the gas room.
2. Activation of the mechanical exhaust ventilation system.

5808.5.4 Failure of the gas detection system. Failure of the gas detection system shall result in activation of the mechanical exhaust ventilation system, cessation of hydrogen generation and the sounding of a trouble signal in an approved location.

5808.6 Explosion control. Explosion control shall be provided where required by Section 911.

5808.7 Standby power. Mechanical ventilation and gas detection systems shall be connected to a standby power system in accordance with Chapter 6.

Add new IFC definition as follows:

IFC SECTION 202
DEFINITIONS

GASEOUS HYDROGEN SYSTEM. An assembly of piping, devices and apparatus designed to generate, store, contain, distribute or transport a nontoxic, gaseous hydrogen containing mixture having at least 95-percent hydrogen gas by volume and not more than 1-percent oxygen by volume. Gaseous hydrogen systems consist of items such as *compressed gas* containers, reactors and appurtenances, including pressure regulators, pressure relief devices, manifolds, pumps, compressors and interconnecting piping and tubing and controls.

HYDROGEN GAS ROOM. A room or space that is intended exclusively to house a *gaseous hydrogen system*.

Revise as follows:

5802.1 Definitions. The following terms are defined in Chapter 2:

FLAMMABLE GAS.
FLAMMABLE LIQUEFIED GAS.
GASEOUS HYDROGEN SYSTEM.
HYDROGEN GAS ROOM.

METAL HYDRIDE.
METAL HYDRIDE STORAGE SYSTEM.

Reason:

IBC Changes: The purpose of this submittal is cleanup of language, correlation with NFPA 2 "Hydrogen Technologies Code", and correlation with other portions of the IBC. NFPA 2 has been formed to provide a source document for the storage, use and handling of hydrogen and much work has gone into refining terms and requirements. For consistency the concepts and terms within the IFC, the IBC and NFPA should correlate for effective and efficient application of hydrogen technologies.

From the 2011 edition of NFPA 2:

Origin and Development of NFPA 2
"With the increased interest in hydrogen being used as a fuel source, the National Fire Protection Association was petitioned to develop an all-encompassing document that establishes the necessary requirements for hydrogen technologies. In 2006, the Technical Committee on Hydrogen Technology was formed and tasked to develop a document that addresses all aspects of hydrogen storage, use, and handling, that draws from existing NFPA codes and standards, and that identifies and fills technical gaps for a complete functional set of requirements for code users and enforcers. This document is also structured so that it works seamlessly with building and fire codes."

The term "Hydrogen Cutoff Room" is proposed to be changed to "Hydrogen Gas Room" which is the phrase used by NFPA 2 for consistency. The change would be reflected in the definition, titles and technical language found within the code.

Section [F]421.4 is modified to improved correlation of this section with Section 509 Incidental Uses. Hydrogen cutoff rooms not classified as a Group H are in Table 509 as an Incidental use. The specifications for separation are covered by 509.4.1. The "hydrogen cutoff room" was not intended to be an H Group, so the language referring to Group separated or non-separated uses is not necessary. That language will apply if a Group H classification is determined to apply. The change provides a cleaner, easier to understand application of these requirements

Section [F] 421.4.1 is modified to be consistent with the newer requirements found within NFPA 2 for hydrogen gas rooms.

Section [F]421.5 is modified to clarify that it is an "exhaust" ventilation system that is required and a pointer to the specific section in the IMC has been added instead of the generic Chapter 5 reference for clarity.

A new Section [F] 421.6.2 has been added to provide standards for the required gas detection system. This language and the referenced standards already exists in the IFC,IBC and IMC for when gas detection systems are required to be installed.

Section [F421.6.2, Item 2 and Section [F]421.6.3 are proposed to be modified by adding the word "exhaust" to add clarity that it is a "mechanical exhaust system" that is be required.

Section [F]421.7 has been modified to point to the explosion control requirements located within Chapter 4 of the IBC, they are a match for the requirements of the IFC.

IFC Changes: This is duplication of language that is currently in the building code. Because most of the requirements for hydrogen are in the Fire Code, there is a tendency to only use the IFC along with the IFGC and IMC for detailed requirements. The existence of the allowance for use of a hydrogen gas room is not always recognized. By copying the existing language to this new section in the fire code officials will not only provide for increase awareness on the application of hydrogen gas rooms, but will also highlight the systems that must be maintained.

The only modifications made were to fit the language to application out of this code as compared to the IBC as has been done with similar language duplication on other topics.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify the proposal as follows:

IBC SECTION 421
HYDROGEN FUEL GAS ROOMS

[F] 421.1 General. Where required by the *International Fire Code*, hydrogen fuel gas rooms shall be designed and constructed in accordance with Sections 421.1 through 421.8.

[F] 421.2 Definitions. The following terms are defined in Chapter 2:

GASEOUS HYDROGEN SYSTEM.

HYDROGEN FUEL GAS ROOM.

[F] 421.3 Location. Hydrogen fuel gas rooms shall not be located below grade.

[F] 421.4 Design and construction. Hydrogen fuel gas rooms not classified as Group H shall be separated from other areas of the building in accordance with Section 509.1.

[F] 421.4.1 Pressure control. Hydrogen fuel gas rooms shall be provided with a ventilation system designed to maintain the room at a negative pressure in relation to surrounding rooms and spaces.

[F] 421.4.2 Windows. Operable windows in interior walls shall not be permitted. Fixed windows shall be permitted where in accordance with Section 716.

[F] 421.5 Exhaust Ventilation. Hydrogen fuel gas rooms shall be provided with mechanical exhaust ventilation in accordance with the applicable provisions of Section 502.16.1 of the *International Mechanical Code*.

[F] 421.6 Gas detection system. Hydrogen fuel gas rooms shall be provided with an approved flammable gas detection system in accordance with Sections 421.6.1 through 421.6.4.

[F] 421.6.1 System design. The flammable gas detection system shall be listed for use with hydrogen and any other flammable gases used in the hydrogen fuel gas room. The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammability limit (LFL) for the gas or mixtures present at their anticipated temperature and pressure.

[F] 421.6.2 Gas detection system components. Gas detection system control units shall be listed and labeled in accordance with UL 864 or UL 2017. Gas detectors shall be listed and labeled in accordance with UL 2075 for use with the gases and vapors being detected.

[F] 421.6.3 Operation. Activation of the gas detection system shall result in all of the following:

1. Initiation of distinct audible and visual alarm signals both inside and outside of the hydrogen fuel gas room.
2. Activation of the mechanical exhaust ventilation system.

[F] 421.6.4 Failure of the gas detection system. Failure of the gas detection system shall result in activation of the mechanical exhaust ventilation system, cessation of hydrogen generation and the sounding of a trouble signal in an approved location.

[F] 421.7 Explosion control. Explosion control shall be provided where required by Section [F] 414.5.1. Mechanical ventilation and gas detection systems shall be connected to a standby power system in accordance with Chapter 27.

IBC TABLE 509.1
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.

(Portions of table not shown remain unchanged)

IBC SECTION 202
DEFINITIONS

[F] HYDROGEN FUEL GAS ROOM. A room or space that is intended exclusively to house a gaseous hydrogen system.

Add new IFC text as follows:

SECTION 5808
HYDROGEN FUEL GAS ROOMS

5808.1 General. Where required by this code, hydrogen fuel gas rooms shall be designed and constructed in accordance with Sections 5808.1 through 5808.7 and the *International Building Code*.

5808.2 Location. Hydrogen fuel gas rooms shall not be located below grade.

5808.3 Design and construction. Hydrogen fuel gas rooms not exceeding the maximum allowable quantities in Table 5003.1.1(1) shall be separated from other areas of the building in accordance with Section 509.1 of the *International Building Code*.

5808.3.1 Pressure control. Hydrogen fuel gas rooms shall be provided with a ventilation system designed to maintain the room at a negative pressure in relation to surrounding rooms and spaces.

5808.3.2 Windows. Operable windows in interior walls shall not be permitted. Fixed windows shall be permitted where in accordance with Section 716 of the *International Building Code*.

5808.4 Exhaust Ventilation. Hydrogen fuel gas rooms shall be provided with mechanical exhaust ventilation in accordance with the applicable provisions of Section 502.16.1 of the *International Mechanical Code*.

5808.5 Gas detection system. Hydrogen fuel gas rooms shall be provided with an approved flammable gas detection system in accordance with Sections 5808.5.1 through 5808.5.4.

5808.5.1 System design. The flammable gas detection system shall be listed for use with hydrogen and any other flammable gases used in the hydrogen fuel gas room. The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammability limit (LFL) for the gas or mixtures present at their anticipated temperature and pressure.

5808.5.2 Gas detection system components. Gas detection system control units shall be listed and labeled in accordance with UL 864 or UL 2017. Gas detectors shall be listed and labeled in accordance with UL 2075 for use with the gases and vapors being detected.

5808.5.3 Operation. Activation of the gas detection system shall result in all of the following:

1. Initiation of distinct audible and visual alarm signals both inside and outside of the hydrogen fuel gas room.
2. Activation of the mechanical exhaust ventilation system.

5808.5.4 Failure of the gas detection system. Failure of the gas detection system shall result in activation of the mechanical exhaust ventilation system, cessation of hydrogen generation and the sounding of a trouble signal in an approved location.

5808.6 Explosion control. Explosion control shall be provided where required by Section 911.

5808.7 Standby power. Mechanical ventilation and gas detection systems shall be connected to a standby power system in accordance with Chapter 6.

Add new IFC definition as follows:

IFC SECTION 202
DEFINITIONS

GASEOUS HYDROGEN SYSTEM. An assembly of piping, devices and apparatus designed to generate, store, contain, distribute or transport a nontoxic, gaseous hydrogen containing mixture having at least 95-percent hydrogen gas by volume and not more than 1-percent oxygen by volume. Gaseous hydrogen systems consist of items such as *compressed gas* containers, reactors and appurtenances, including pressure regulators, pressure relief devices, manifolds, pumps, compressors and interconnecting piping and tubing and controls.

HYDROGEN FUEL GAS ROOM. A room or space that is intended exclusively to house a *gaseous hydrogen system*.

Revise as follows:

5802.1 Definitions. The following terms are defined in Chapter 2:

FLAMMABLE GAS.
FLAMMABLE LIQUEFIED GAS.
GASEOUS HYDROGEN SYSTEM.
HYDROGEN FUEL GAS ROOM.
METAL HYDRIDE.
METAL HYDRIDE STORAGE SYSTEM.

Committee Reason: The committee agreed with the proponent's reason statement that the code change provides needed revisions to the IBC and the addition of requirements in the IFC on emergent hydrogen fuel technology. Approval is also consistent with committee action on related code changes F254-13, F256-13 and F303-13. The modification sets hydrogen fuel gas rooms apart from the currently defined gas room. It was pointed out by the committee that new IFC Section 5808.5.3 should be reviewed for possible violation of the Americans with Disabilities Act (ADA).

Assembly Action: None

Public Comments

Public Comment:

Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

604.2.19 (IBC [F] 2702.2.19) Hydrogen fuel gas rooms. Standby power shall be provided for hydrogen fuel gas rooms as required in Section 5808.7.

5808.7 Standby power. Mechanical ventilation and gas detection systems shall be connected to a standby power system in accordance with Section 604 ~~Chapter 6~~.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

Section 5808.7 introduced new requirements for standby power systems for hydrogen fuel gas rooms. This proposal correlates the standby power requirements for these facilities with the [proposal F59, which reformatted all references to emergency and standby power. No substantive changes were made a result of this public comment.

Final Hearing Results

G14-13 AMPC

Code Change No: G15-13

Original Proposal

Section(s): IBC [F] 425 (New), [F] 415.8.1

Proponent: Robert J Davidson, Davidson Code Concepts, LLC, representing the Biomass Feedstock Industry Committee on Codes and Standards (BFICOCS) (rjd@davidsoncodeconcepts.com)

Revise as follows:

IBC SECTION [F] 425
COMBUSTIBLE DUSTS, GRAIN PROCESSING AND STORAGE

[F] ~~415.8.1~~ 425.1 Combustible dusts, grain processing and storage. The provisions of Sections ~~415.8.1.1~~ 425.1.1 through ~~415.8.1.6~~ 425.1.6 shall apply to buildings in which materials that produce combustible dusts are stored or handled. Buildings that store or handle combustible dusts shall comply with the applicable provisions of NFPA 61, NFPA 85, NFPA 120, NFPA 484, NFPA 654, NFPA 655 and NFPA 664, and the International Fire Code.

[F] ~~415.8.1.1~~ 425.1.1 Type of construction and height exceptions. Buildings shall be constructed in compliance with the height and area limitations of Table 503 ~~for Group H-2~~; except that where erected of Type I or II construction, the heights and areas of grain elevators and similar structures shall be unlimited, and where of Type IV construction, the maximum building height shall be 65 feet (19 812 mm) and except further that, in isolated areas, the maximum building height of Type IV structures shall be increased to 85 feet (25 908 mm).

[F] ~~415.8.1.2~~ 425.1.2 Grinding rooms. Every room or space occupied for grinding or other operations that produce combustible dusts in such a manner that the room or space is classified as a Group H-2 occupancy shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. The fire-resistance rating of the enclosure shall be not less than 2 hours where the area is not more than 3,000 square feet (279 m2), and not less than 4 hours where the area is greater than 3,000 square feet (279 m2).

[F] ~~415.8.1.3~~ 425.1.3 Conveyors. *(No change to current text)*

[F] ~~415.8.1.4~~ 425.1.4 Explosion control. *(No change to current text)*

[F] ~~415.8.1.5~~ 425.1.5 Grain elevators. *(No change to current text)*

[F] ~~415.8.1.6~~ 425.1.6 Coal pockets. *(No change to current text)*

Reason: The IBC requirements for *Combustible dusts, grain processing and storage* are located in a section of the IBC that only applies to activities that have been designated as High Hazard Groups involving hazardous materials, yet, starting with the 2012 edition IFC Table 5003.1.1(1) / IBC Table 307.1(1) provides for an exception to the High Hazard Group designation if the combustible dust hazard is controlled, in that event the requirements would not apply when some of them should apply, including the height and area exceptions, regardless of the Group classification.

[F] 415.1 Scope.
*The provisions of Sections 415.1 through 415.10 shall apply to the **storage and use of hazardous materials** in excess of the maximum allowable quantities per control area listed in Section 307.1. Buildings and structures with an occupancy in Group H shall also comply with the applicable provisions of Section 414 and the International Fire Code.*

Further, combustible dusts and fibers are not "hazardous materials" as defined by the IFC/IBC and should not be merged in with hazardous material requirements regardless of Group classification.

[F] HAZARDOUS MATERIALS. *Those chemicals or substances that are physical hazards or health hazards as classified in Section 307 and the International Fire Code, whether the materials are in usable or waste condition.*

[F] HEALTH HAZARD. *A classification of a chemical for which there is statistically significant evidence that acute or chronic health effects are capable of occurring in exposed persons. The term "health hazard" includes chemicals that are toxic or highly toxic, and corrosive.*

[F] PHYSICAL HAZARD. *A chemical for which there is evidence that it is a combustible liquid, cryogenic fluid, explosive, flammable (solid, liquid or gas), organic peroxide (solid or liquid), oxidizer*

Based upon the scoping of Section [F]415.1 and the definitions for hazardous materials, the current location for [F]415.8.1 is a mismatch. Though the presence of combustible dusts can cause a high hazard group classification, the material involved is not necessarily a "hazardous material" by definition.

From a practical standpoint, this proposal is a follow up coordination with the code change F187-09/10 which added "combustible dusts" to IFC Table 5003.1.1(1) / IBC Table 307.1(1) along with Note q that provides for elimination of the Group H-2 classification where the hazards are controlled. Prior to that code change the existence of a combustible dust caused an H-2 classification and section [F] 415.8.1 would have applied, (though a designer/facility operator could still question the hazardous materials scoping of Section 415.1 mentioned above).

Some of the provisions found in existing IBC Sections [F]415.8.1 through [F]415.8.1.6 need to be applied regardless of the H Group classification and in most cases it will be compliance with these sections that assists the occupancy to avoid the H Group classification.

This proposal moves the requirements for Combustible dusts, grain processing and storage to a new Section [F]425 to eliminate the H Group scoping limitation and makes minor modifications necessitated by the relocation.

Sections [F]415.8.1.1, proposed as [F]425.1.1, has been modified to eliminate the reference to the H-2 Group, the section provides for a height exception for these occupancies which should apply regardless of the Group classification. Another way to express this is to point out that if the height increase was warranted for an H-2 Group classification, it is clearly warranted for an S, F or U Group classification.

[F]415.8.1.2, proposed as [F]425.1.2, is modified to clarify that the those construction requirements are for occupancies that are classified as Group H, which is the hazard classification they are based upon in the current code language. If the hazard is controlled providing for elimination of the Group H designation, then the increased construction requirements are not necessary. The remaining sections are not modified as they should apply in all cases as appropriate.

The Biomass Feedstock Industry Committee on Codes and Standards (BFICOCS), led by Oak Ridge National Laboratory (ORNL), is an initiative of the Department of Energy Biomass Technologies Office (BTO). As part of the BTO integrated biorefinery efforts, the BFICOCS was assembled to conduct analysis of existing fire and building codes and to prepare proposed code changes designed to facilitate the development of the commercial-scale biomass industry while maintaining a focus on safety. The committee is made up of managers, engineers and code officials from industry, government laboratories, consulting firms, and the American Society of Agricultural and Biological Engineers.

Fire codes related to storage, handling, and preprocessing of biomass are based on industries that operate in a significantly different manner than the growing biomass-based energy industry. Applying current research on biomass properties and knowledge of conventional and emerging storage, handling, and preprocessing technologies, the BFICOCS has identified changes in the IFC that benefit industry and the public.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved the code change based on the proponent's reason statement and it agreed that the revised approach to combustible dust hazards is more reasonable, especially for grain facilities located in rural areas.

Assembly Action: **None**

Final Hearing Results

G15-13 **AS**

Code Change No: G16-13

Original Proposal

Section(s): IBC [F] 501.2

Proponent: Tim Swanson, City of Greeley, representing Colorado Chapter of the International Code Council

Revise as follows:

IBC [F] 501.2 Address identification. New and existing buildings shall be provided with *approved* address numbers or letters. Each character shall be ~~not less than 4 inches (102 mm) in height and not less than 0.5 inch (12.7 mm) in width.~~ a minimum of 4 inches (101.6 mm) high with a minimum stroke width of 0.5 inch (12.7 mm).They shall be installed on a contrasting background and be plainly visible from the street or road fronting the property. When required by the fire code official, address numbers shall be provided in additional *approved* locations to facilitate emergency response. Where access is by means of a private road and the building address cannot be viewed from the *public way*, a monument, pole or other *approved* sign or means shall be used to identify the structure. Address numbers shall be maintained.

Reason: The language in the current IBC would literally allow the entire character to be as narrow as ½" wide. I know that is not the intent, but that is what the current language it would allow. The intent of requiring a visible, recognizable character is better stated with the language that was in the 2006 IBC and is currently in the 2012 IFC, and the 2012 IRC.

Cost Impact: None

Analysis: Current IFC Section 505.1, IPMC Section 304.3 and IRC R319.1 contain the proposed phraseology.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved the code change based on the its approval of code changes F43-13, Parts I, II and III.

Assembly Action: **None**

Final Hearing Results

G16-13 **AS**

Code Change No: G17-12

Original Proposal

Section(s): 202

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Proponent: Terry L. Amburgey, PhD, AMBAR, Inc., representing A Group of Independent Wood Scientists located in the USA and Canada (terramburgey@yahoo.com)

Revise as follows:

NATURALLY DURABLE WOOD. The heartwood of the following species except for the occasional piece with corner sapwood, provided 90 percent or more of the width of each side on which it occurs is heartwood.

Decay resistant. Redwood, cedar, black locust and black walnut.

Termite resistant. Redwood, Alaska yellow cedar, Eastern red cedar and ~~both heartwood and all sapwood of~~ Western red cedar

Reason: It is well known that the sapwood of virtually all wood species is susceptible to deterioration by fungi and insects such as subterranean termites. However, it should be recognized that the durability of all "naturally durable" woods can be classified as moderately resistant, resistant, or very resistant. In addition, the heartwood durability of a given species may vary according to its position in a tree, so caution should be used when specifying the use of naturally durable wood in lieu of pressure treated wood. We suggest that you reference a readily-available source of literature (e.g., Wood Handbook. "Wood as an Engineering Material", General Technical Report FPL-GTR-113. Forest Products Laboratory, USDA Forest Service) as a source of information on naturally durable (resistant) wood species.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this clarification of the definition of naturally durable wood is an improvement.

Assembly Action: **None**

Final Hearing Results

G17-12 **AS**

Code Change No: G17-13

Original Proposal

Section(s): IBC [F] 2702.2.10, [F] 2702.2.11, [F] 2702.2.12

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azumiamia@yahoo.com)

Revise as follows:

IBC [F] 2702.2.10 Hazardous materials. Emergency or standby power shall be provided in occupancies with hazardous materials ~~in accordance with Section 414.5.3~~ where required by the *International Fire Code*.

~~**IBC [F] 2702.2.11 Highly toxic and toxic materials.** Emergency power shall be provided for occupancies with highly *toxic* or *toxic* materials in accordance with the *International Fire Code*.~~

~~**IBC [F] 2702.2.12 Organic peroxides.** Standby power shall be provided for occupancies with organic peroxides in accordance with the *International Fire Code*.~~

(Renumber subsequent sections)

Reason: This proposal is intended to simplify the IBC requirements and correlate the IBC with the requirements in the IFC. This proposal does not change any requirements, it only reformats them.

Section 2702.2.10 currently references back to 414.5.3. Section 414.5.3 states that "…systems shall be provided with an emergency or standby power system in accordance with Chapter 27." So the reality is that both sections reference each other. To solve this confusion, IBC 414.5.3 is retained to reference Chapter 27, and 2702.2.10 is revised to reference the IFC.

Sections 2702.11 and 2702.12 are deleted since they are covered under the definition of 'hazardous materials' addressed in Section 2702.10 and the revision to 2702.10 covers their reference to the IFC.

. This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

Cost Impact: This code change will not increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved the code change based on the proponent's reason statement and agreed that the proposal brings needed clarity to the emergency and standby power requirements for hazardous materials by removing a closed cross reference within the IBC and deleting redundant text.

Assembly Action: **None**

Final Hearing Results

G17-13 **AS**

Code Change No: G19-12

Original Proposal

Section(s): 202

Proponent: Al Godwin, CBO, CPM, representing Aon Fire Protection Engineering (al.godwin@aon.com)

Revise as follows:

PLATFORM. A raised area within a building used for worship, the presentation of music, plays or other entertainment; the head table for special guest; the raised area for lecturers and speakers; boxing and wrestling rings; theater-in-the-round stages; and similar purposes wherein, other than horizontal sliding curtains, there are no overhead hanging curtains, drops, scenery or stage effects other than lighting and sound. A temporary platform is one installed for not more than 30 days.

Reason: The definition is not clear if the overhead curtain is a vertical curtain or does it prohibit horizontal curtains as well.

The commentary states "Thus, since the fuel load on platforms is ordinarily low and there is no fuel load overhead in areas that would be difficult to access, the code requirements for platforms are less stringent than for stages." Thus, it is implied that the definition of overhead hanging curtains is vertical. As such, horizontal curtains are permitted.

Many schools have a raised platform in the cafeteria used for school presentations.

These designs have existed for years with no problems. It should be made more clear in the code that horizontal curtains are permitted.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as such curtains would be required to comply with NFPA 701 and clarifies that such curtains would not be considered "overhead hanging curtains."

Assembly Action: **None**

Final Hearing Results

G19-12 **AS**

Code Change No: G21-12

Original Proposal

Section(s): 202

Proponent: Gary J. Ehrlich, P.E., National Association of Home Builders (NAHB) (gehrlich@nahb.org)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add new definition to Chapter 2 as follows:

SHINGLE FASHION. A method of installing roof or wall coverings, water-resistive barriers, flashing, or other building components such that upper or outer layers of material are placed overlapping lower or inner layers of material to provide for drainage and moisture control.

Reason: The purpose of this code change is to introduce a definition for "shingle fashion". This term is used in the IBC and IRC to describe the required method of applying moisture control layers such as roof underlayment and water-resistive barriers to the building. The intent is to direct the builder, contractor or installer to place upper layers of material lapping over lower layers of material, in the fashion of placing roof shingles, so moisture is provided with a clear path to drain down and away from the building. In field investigations of buildings with mold and moisture issues, it is frequently discovered that flashing, WRBs or underlayment have been placed in ***reverse*** shingle fashion, with the upper layer tucked behind the lower layer. This permits moisture to drain behind or below the intended protective layer or material where it can be trapped and lead to mold and decay of building components. A definition would therefore be of use in giving direction as to the proper installation of these materials.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Modified**

Modify proposal as follows:

SHINGLE FASHION. A method of installing roof or wall coverings, water-resistive barriers, flashing, or other building components such that upper ~~or outer~~ layers of material are placed overlapping lower ~~or inner~~ layers of material to provide for drainage via gravity and moisture control.

Committee Reason: This proposal adds a needed definition of the term "shingle fashion". The modification corrects the proposed wording so that reverse shingling is not allowed.

Assembly Action: **None**

Final Hearing Results

G21-12 **AM**

Code Change No: G22-12

Original Proposal

Section(s): 202

Proponent: Philip Brazil, P.E., Reid Middletown, Inc., representing Washington Association of Building Officials, Technical Code Development (pbrazil@reidmiddleton.com)

Delete without substitution as follows:

~~**SPECIFIED.** Required by *construction documents*.~~

Reason: Given the use of the term in a multitude of contexts throughout the building code, it is not considered appropriate to define "specified" in such a narrow manner as "required by construction documents." Note that the definition was located in Section 2102 of in the 2009 IBC and the scoping statement in Section 2102.1 specified that all the definitions in Section 2102 are applicable throughout the building code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The defined term "specified" is limited in its current application. The term is used throughout the code in a manner not reflected in the definition.

Assembly Action: **None**

Final Hearing Results

G22-12 **AS**

Code Change No: G23-12

Original Proposal

Section(s): 202

Proponent: John Ingargiola (john.ingargiola@dhs.gov) and Gregory Wilson (gregory.p.wilson@dhs.gov), representing Department of Homeland Security, Federal Emergency Management Agency, Rebecca C. Quinn, RCQuinn Consulting, Inc. (rcqinn@earthlink.net), representing Department of Homeland Security, Federal Emergency Management Agency

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

SUBSTANTIAL IMPROVEMENT. Any *repair*, reconstruction, rehabilitation, alteration, *addition* or other improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or *repair* is started. If the structure has sustained *substantial damage*, any repairs are considered substantial improvement regardless of the actual *repair* work performed. The term does not, however, include either:

1. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the *building official* and that ~~are~~ is the minimum necessary to assure safe living conditions.
2. Any *alteration* of a historic structure provided that the *alteration* will not preclude the structure's continued designation as a historic structure.

Reason: The IBC Chapter 34 and the International Existing Building Code are structured to govern repairs, alterations, change of occupancy, and additions. Sections 3404.2, EB403.2 and EB701.3 have requirements for compliance with flood provisions if alterations are determined to be substantial improvement. This proposal does not change any meaning or technical requirement. It simply adds the term "alteration" for consistency with terms used in the code, and adds the word "other" to capture any improvement regardless of what it is called, including those associated with change of occupancy.

Cost Impact: None

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: This code change is primarily editorial. The clarification will make it easier for enforcement of provisions related to substantial improvement.

Assembly Action: **None**

Final Hearing Results

G23-12 **AS**

Code Change No: G24-12

Original Proposal

Section(s): 202

Proponent: David Bonowitz, David Bonowitz S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

SUBSTANTIAL STRUCTURAL DAMAGE. A condition where:

1. ~~In any *story*, the~~ The vertical elements of the lateral force resisting system have suffered damage such that the lateral load-carrying capacity of ~~the structure~~ any store in any horizontal direction has been reduced by more than 33 percent from its predamage condition; or
2. The capacity of any ~~vertical gravity load-carrying component,~~ vertical component carrying gravity load, or any group of such components, that supports more than 30 percent of the total area of the structure's floors and roofs has been reduced more than 20 percent from its predamage condition and the remaining capacity of such affected elements, with respect to all dead and *live loads,* is less than 75 percent of that required by this code for new buildings of similar structure, purpose and location.

Reason: The proposal makes two clarifications to remove potential confusion. Both changes maintain the intent of the current definition.

In item 1, the change clarifies that the potential loss of capacity can be in any story and that the focus on "any story" relates to the capacity loss, not necessarily to the location of the damage.

In item 2, the change clarifies that "vertical" refers to the orientation of the components of interest, not the direction of the gravity loads.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Agreement with the proponent's reason which indicates that these are editorial improvements that clarify the definition of substantial structural damage.

Assembly Action: **None**

Final Hearing Results

G24-12 **AS**

Code Change No: G26-12

Original Proposal

Section(s): 202

Proponent: Dennis Pitts, American Wood Council (dpits@awc.org)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

TREATED WOOD. Wood ~~and wood-based materials~~ products that ~~use vacuum-pressure impregnation processes~~ are conditioned to enhance fire retardant or preservative properties.

Fire-retardant-treated wood. ~~Pressure-treated lumber and plywood~~ Wood products that, when impregnated with chemicals by a pressure process or other means during manufacture, exhibit reduced surface-burning characteristics and resist propagation of fire.

Preservative-treated wood. ~~Pressure-treated wood~~ Wood products ~~that~~ , conditioned with chemicals by a pressure process or other means that exhibit reduced susceptibility to damage by fungi, insects or marine borers.

Reason: Pressure-treatment is not the only method permitted by the code for treated wood. Fire retardant treated wood (FRTW) can be impregnated with chemicals by pressure treatment or "other means during manufacture" (see Section 2303.2 and 2303.2.2). Preservative treated wood can be pressure treated or treated by a number of other methods indicated in the AWPA standards referenced in Section 2303.1.8. The current definition assumes pressure-treatment and therefore conflicts with the requirements in the text for both FRTW and preservative-treated wood.

Cost Impact: The code change proposal will not increase the cost of construction. No increase in cost.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The committee believes the revisions to the definition of the term "treated wood" are improvements that simplify the definition and coordinate the wording with the related code provisions.

Assembly Action: **None**

Final Hearing Results

G26-12 **AS**

Code Change No: G27-12

Original Proposal

Section(s): 303.1.4, 305.1.1 (IFC [B] 202)

Proponent: Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee

Revise as follows:

303.1.4 Accessory to places of religious worship. Accessory religious educational rooms and religious auditoriums with *occupant loads* of less than 100 per room or space are not considered separate occupancies.

305.1.1 Accessory to places of religious worship. Religious educational rooms and religious auditoriums, which are accessory to *places of religious worship* in accordance with Section 303.1.4 and have *occupant loads* of less than 100 per room or space, shall be classified as Group A-3 occupancies.

Reason: This proposal is intended to clarify the application of Sections 303.1.4 and 305.1.1. As currently written it is not clear if the occupant load is intended to be all inclusive, or per room or space. When it is recognized that the language includes "auditoriums" as one of the spaces to consider, an accumulative occupant load would not provide the intended benefit of the language.

The proposed language clarifies that the occupant load of 100 is per room or space, a reasonable number when considering religious educational rooms and auditoriums.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: This proposal will lower the cost of construction by clarifying the intent and application of the language.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This revision was felt appropriate as this is how previous editions of the IBC were applied. This revision allows each room or space to be evaluated independently.

Assembly Action: **None**

Final Hearing Results

G27-12 **AS**

Code Change No: G28-12

Original Proposal

Section(s): 304.1 (IFC [B] 202)

Proponent: Al Godwin, CBO, CPM, Aon Fire Protection Engineering (al.godwin@aon.com)

Revise as follows:

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

Airport traffic control towers
Ambulatory care facilities
Animal hospitals, kennels and pounds
Banks
Barber and beauty shops
Car wash
Civic administration
Clinic, outpatient
Dry cleaning and laundries: pick-up and delivery stations and self-service
Educational occupancies for students above the 12th grade
Electronic data processing
Food processing establishments and commercial kitchens with an occupant load less than 25 and not associated with restaurants, cafeterias and similar dining facilities.
Laboratories: testing and research
Motor vehicle showrooms
Post offices
Print shops
Professional services (architects, attorneys, dentists, physicians, engineers, etc.)
Radio and television stations
Telephone exchanges
Training and skill development not within a school or academic program

Reason: It is not uncommon to have catering services, bakeries, takeout pizza, and other food prep establishments in retail strip centers. Calling such uses an F-1 actually invokes change of use provisions that are not necessary. To avoid this, many jurisdictions will just call them "retail sales". However, they actually are more closely related to a small café and should be considered as such. Or, they should be listed under Group M.

With 200 sq. ft. per person occupant load calculation, 25 occupants equates to 5,000 sq. ft.

Cost Impact: This code change proposal will not increase the cost of construction but could reduce the cost of unnecessary change of use.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved for several reasons. First it was considered too high of an occupant load which would basically allow a 5000 square foot kitchen. It was suggested that it might be better to simply limit the square footage instead of basing upon an occupant load. A square footage of 2500 square feet was offered as a suggestion. Additionally, the committee noted that correlation with Group F occupancies was necessary.

Assembly Action: **None**

Public Comments

Public Comment:

Al Godwin, CBO, CPM, Aon Fire Protection Engineering Corporation, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

Airport traffic control towers
Ambulatory care facilities
Animal hospitals, kennels and pounds
Banks
Barber and beauty shops
Car wash
Civic administration
Clinic, outpatient
Dry cleaning and laundries: pick-up and delivery stations and self-service
Educational occupancies for students above the 12th grade
Electronic data processing
Food processing establishments and commercial kitchens ~~with an occupant load less than 25 and~~ not associated with restaurants, cafeterias and similar dining facilities not more than 2500 square feet in area.
Laboratories: testing and research
Motor vehicle showrooms
Post offices
Print shops
Professional services (architects, attorneys, dentists, physicians, engineers, etc.)
Radio and television stations
Telephone exchanges
Training and skill development not within a school or academic program

306.2 Moderate-hazard factory industrial, Group F-1. Factory industrial uses which are not classified as Factory Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the following:

Aircraft (manufacturing, not to include repair)
Appliances
Athletic equipment
Automobiles and other motor vehicles
Bakeries
Beverages: over 16-percent alcohol content
Bicycles
Boats
Brooms or brushes
Business machines
Cameras and photo equipment
Canvas or similar fabric
Carpets and rugs (includes cleaning)
Clothing
Construction and agricultural machinery
Disinfectants
Dry cleaning and dyeing
Electric generation plants
Electronics
Engines (including rebuilding)
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities over 2500 square feet in area.
Furniture
Hemp products
Jute products
Laundries
Leather products
Machinery
Metals
Millwork (sash and door)

Motion pictures and television filming (without spectators)
Musical instruments
Optical goods
Paper mills or products
Photographic film
Plastic products
Printing or publishing
Recreational vehicles
Refuse incineration
Shoes
Soaps and detergents
Textiles
Tobacco
Trailers
Upholstering
Wood; distillation
Woodworking (cabinet)

Commenter Reason: In its review, the Committee felt that the amendment was appropriate but too large. Also, a correlation amendment should be proposed for F-1 occupancies. Therefore, these amendments would seem to be within the recommendations of the committee.

Although worded differently, these uses will receive a form of recognition under P35-12 which passed committee as follows:

P35 – 12
403.3 (IBC [P] 2902.3)

Proponent: Julius Ballanco, P.E., JB Engineering and Code Consulting, P.C., representing Little Caesar Enterprises (JBEngineer@aol.com)

Revise as follows:

403.3 (IBC [P] 2902.3) Required public toilet facilities. Customers, patrons and visitors shall be provided with *public* toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 403 for all users. Employees shall be provided with toilet facilities in all *occupancies*. Employee toilet facilities shall be either separate or combined employee and *public* toilet facilities.

Exceptions: Public toilet facilities shall not be required in:

1. Open or enclosed parking garages. Toilet facilities shall not be required in parking garages where there are no parking attendants.
2. Structures and tenant spaces intended for quick transactions, including take out, pick up and drop off, having a public access area less than or equal to 300 square feet.

Tenant spaces that are only intended for quick transactions do not need to provide public facilities for customers, patrons, and visitors. The public does not rely on such spaces to provide public toilet rooms. Patrons spend a short period of time completing a transaction, then they depart.

Examples of these types of spaces include: takeout food locations, such as Chinese food take outs; pizza take outs; and carry out ribs. Similar quick transaction facilities include: dry cleaners, atm facilities, florists, shoe repair shops, and newspaper stands.

It is recognized that the text of the second exception could be shortened to read: Structures and tenant spaces having a public access area less than or equal to 300 square feet. The added text is provided for clarity.

The purpose of this section has always been to provide comfort facilities for anyone spending a period of time in the public space. Quick transaction spaces are unique, in that people are not in the space for any length of time. Furthermore, the space open to the public is limited to 300 square feet.

It would be a safety and/or health hazard to have the public travel to the working areas of the tenant space to use toilet facilities. Hence, if a public toilet room is added, the space for the toilet room would have to be located in the front space where the small public area is located. This creates a security concern where the public toilet room would block openings in the front tenant space.

The 300 square foot dimension is based on the standard large spaces used by these types of facilities. Most tenant spaces of this type have an area less than 300 square feet for the public.

P35-12 Committee Action: **Approved as Submitted**

Committee Reason: Small spaces intended for momentary occupancy by the public do not require toilet facilities.

Assembly Action: **None**

Final Hearing Results

G28-12 **AMPC**

Code Change No: G30-12

Original Proposal

Section(s): 304.1 (IFC [B] 202)

Proponent: Adria Paesani, Fountain Valley Fire Department (adria.paesani@fountainvalley.org); Robert Marshall, Contra Costa Fire Department representing CalChiefs

Revise as follows:

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

Airport traffic control towers
Ambulatory health care facilities serving five or fewer patients (see Section 308.3.2 for facilities serving more than five patients)
Animal hospitals, kennels and pounds
Banks
Barber and beauty shops
Car wash
Civic administration
Clinic – outpatient
Dry cleaning and laundries: pick-up and delivery stations and self-service
Educational occupancies for students above the 12th grade
Electronic data processing
Laboratories: testing, research
Motor vehicle showrooms
Post offices
Print shops
Professional services (architects, attorneys, dentists, physicians, engineers, etc)
Radio and television stations
Telephone exchanges
Training and skill development not within a school or academic program (this shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics, and similar uses regardless of the ages served, and where not classified as a Group A occupancy)

Reason: The 2012 International Building Code defines a Group E occupancy as *the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade*. There are a variety of local interpretations on whether a tutoring center falls into a Group B or Group E classification. This code proposal is intended to classify tutoring centers and similar transient occupancies that cater to children as Group B occupancies per section 304.1. Enforcing Group E regulations greatly increases the cost to tutoring centers , in particular, as other similar uses clearly do not fall into the academic provisions of the Group E occupancies, i.e. martial arts, gymnastics, etc. The majority of tutoring centers are placed in multi-unit, Type V structures. Placing a Group E occupancy in a Type V building requires either a one-hour or two-hour wall between adjoining occupancies depending on fire sprinkler coverage. In addition, a manual fire alarm system is required in all Group E occupancies having an occupant load of more than 30, unless provided with fire sprinklers.

Cost Impact: The code change proposal will not increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was preferred over G29-12 as it better described the smaller scale intention of the application. More specifically the statement “not classified as Group A Occupancies” clarifies that it is not intended to apply to larger classroom settings as discussed in G29-12.

Assembly Action: **None**

Final Hearing Results

G30-12	**AS**

Code Change No: G31-12 Part I

Original Proposal

Section(s): 202, 308.3, 308.3.1, 308.3.2, 308.4.1, 310.6, 310.6.1 (NEW), 310.6.2 (NEW), 420, 420.1, 420.4 (NEW), 420.4.1 (NEW), 504.2, 709.5, 1018.1; (IFC [B] 202, 1018.1)

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee

THIS IS A 2 PART CODE CHANGES. BOTH PARTS WILL BE HEARD BY HEARD BY THE IBC GENERAL CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE IBC GENERAL COMMITTEE.

PART I – INTERNATIONAL BUILDING CODE

Revise as follows:

SECTION 202
DEFINITIONS

24-HOUR ~~CARE~~ BASIS. The actual time that a person is an occupant within a facility for the purpose of receiving care. It shall not include a facility that is open for 24 hours and is capable of providing care to someone visiting the facility during any segment of the 24 hours**.**

CUSTODIAL CARE. Assistance with day-to-day living tasks; such as assistance with cooking, taking medication, bathing, using toilet facilities and other tasks of daily living. Custodial care ~~include~~ includes occupants ~~who~~ that have the ability to respond to emergency situations and evacuate at a slower rate and/or who have mental and psychiatric complications.

GROUP HOME. A facility for social rehabilitation, substance abuse or mental health problems that contains a group housing arrangement that provides *custodial care* but does not provide ~~acute~~ medical care.

SECTION 308
INSTITUTIONAL GROUP I

308.3 Institutional Group I-1. This occupancy shall include buildings, structures or portions thereof for more than 16 persons, excluding staff, who reside on a 24 hour basis in a supervised environment and receive *custodial care*. ~~The persons receiving care are capable of self preservation.~~ Buildings of Group I-1 shall be classified as one of the occupancy conditions indicated in Sections 308.3.1 or 308.3.2. This group shall include, but not be limited to, the following:

Alcohol and drug centers
Assisted living facilities
Congregate care facilities
Convalescent facilities
Group homes
Halfway houses
Residential board and ~~*custodial*~~ *care* facilities
Social rehabilitation facilities

308.3.1 Condition 1. This occupancy condition shall include buildings in which all persons receiving custodial care who, without any assistance, are capable of responding to an emergency situation to complete building evacuation.

308.3.2 Condition 2. This occupancy condition shall include buildings in which there are any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation.

~~**308.3.2**~~ **308.3.3 Six to sixteen persons receiving custodial care.** A facility ~~such as above,~~ housing not fewer than six and not more than 16 persons receiving ~~such~~ custodial care, shall be classified as Group R-4.

~~**308.3.1**~~ **308.3.4 Five or fewer persons receiving custodial care.** A facility ~~such as the above~~ with five or fewer persons receiving ~~such~~ custodial care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or with Section P2904 of the *International Residential Code*.

308.4 Institutional Group I-2. This occupancy shall include buildings and structures used for *medical care* on a 24-hour basis for more than five persons who are *incapable of selfpreservation*. This group shall include, but not be limited to, the following:

Foster care facilities
Detoxification facilities
Hospitals
Nursing homes
Psychiatric hospitals

308.4.1 Five or fewer persons receiving medical care. A facility ~~such as the above~~ with five or fewer persons receiving ~~such~~ medical care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or with Section P2904 of the *International Residential Code*.

SECTION 310
RESIDENTIAL GROUP R

310.6 Residential Group R-4. This occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive *custodial care*. ~~The persons receiving care are capable of self-preservation.~~ Buildings of Group R-4 shall be classified as one of the occupancy conditions indicated in Sections 310.6.1 or 310.6.2 This group shall include, but not be limited to, the following:

Alcohol and drug centers
Assisted living facilities
Congregate care facilities
Convalescent facilities
Group homes
Halfway houses
Residential board and ~~custodial~~ care facilities
Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code.

310.6.1 Condition 1. This occupancy condition shall include buildings in which all persons receiving custodial care, who without any assistance, are capable of responding to an emergency situation to complete building evacuation.

310.6.2 Condition 2. This occupancy condition shall include buildings in which there are any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation.

SECTION 420
GROUPS I-1, R-1, R-2, R-3, R-4

420.1 General. Occupancies in Groups I-1, R-1, R-2 ~~and~~ , R-3 and R-4 shall comply with the provisions of Sections 420.1 through ~~420.5~~ 420.6 and other applicable provisions of this code.

420.4 Smoke barriers in Group I-1 Condition 2. Smoke barriers shall be provided in Group I-1 Condition 2 to subdivide every story used by persons receiving care, treatment or sleeping and to provide other stories with an occupant load of 50 or more persons, into no fewer than two smoke compartments. Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m^2) and the travel distance from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barrier shall be in accordance with Section 709.

420.4.1 Refuge area. Refuge areas shall be provided within each smoke compartment. The size of the refuge area shall accommodate the occupants and care recipients from the adjoining smoke compartment. Where a smoke compartment is adjoined by two or more smoke compartments, the minimum area of the refuge area shall accommodate the largest occupant load of the adjoining compartments. The size of the refuge area shall provide the following:

1. Not less than 15 net square feet (1.4 m^2) for each care recipient.
2. Not less than 6 net square feet (0.56 m^2) for other occupants.

Areas or spaces permitted to be included in the calculation of the refuge area are corridors, lounge or dining areas and other low hazard areas.

[F] 420.4 420.5 Automatic sprinkler system. *(No change)*

[F] 420.5 420.6 Smoke detection and fire alarm system. *(see Part II)*

SECTION 504
BUILDING HEIGHT

504.2 Automatic sprinkler system increase. Where a building is equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum *building height* is increased by 20 feet (6096 mm) and the maximum number of *stories* is increased by one. These increases are permitted in addition to the *building area* increase in accordance with Sections 506.2 and 506.3. For Group R buildings equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.2, the value specified in Table 503 for maximum *building height* is increased by 20 feet (6096 mm) and the maximum number of *stories* is increased by one, but shall not exceed 60 feet (18 288 mm) or four *stories*, respectively.

Exception: The use of an *automatic sprinkler system* to increase *building heights* shall not be permitted for the following conditions:

1. Buildings, or portions of buildings, classified as ~~a~~ Group I-1 Condition 2, of Type IIB, III, IV or V construction or Group I-2 ~~occupancy~~ occupancies of Type IIB, III, IV or V construction.
2. Buildings, or portions of buildings, classified as a Group H-1, H-2, H-3 or H-5 occupancy.
3. Buildings where an *automatic sprinkler system* is substituted for fire-resistance rated construction in accordance with Table 601, Note d.

SECTION 709
SMOKE BARRIERS

709.5 Openings. Openings in a *smoke barrier* shall be protected in accordance with Section 716.

Exceptions:

1. In Group I-1 Condition 2, Group I-2 and ambulatory care facilities, where doors are installed across *corridors*, a pair of opposite- swinging doors without a center mullion shall be installed having vision panels with fire-protection- rated glazing materials in fire-protection-rated frames, the area of which shall not exceed that tested. The doors shall be close fitting within operational tolerances, and shall not have undercuts in excess of 3/4-inch, louvers or grilles. The doors shall have head and jamb stops, astragals or rabbets at meeting edges and shall be automatic-closing by smoke detection in accordance with Section 716.5.9.3. Where permitted by the door manufacturer's listing, positive-latching devices are not required.
2. In Group I-1 Condition 2, Group I-2 and ambulatory care facilities, horizontal sliding doors installed in accordance with Section 1008.1.4.3 and protected in accordance with Section 716.

SECTION 1018 (IFC [B] 1018)
CORRIDORS

1018.1 (IFC [B] 1018.1) Construction. *Corridors* shall be fire-resistance rated in accordance with Table 1018.1. The *corridor* walls required to be fire-resistance rated shall comply with Section 708 for *fire partitions*.

Exceptions:

1. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group E where each room that is used for instruction has at least one door opening directly to the exterior and rooms for assembly purposes have at least one-half of the required *means of egress* doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. A *fire-resistance rating* is not required for *corridors* contained within a dwelling or sleeping unit in an occupancy in Group I-1 and Group R.
3. A *fire-resistance rating* is not required for *corridors* in *open parking garages*.
4. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group B which is a space requiring only a single *means of egress* complying with Section 1015.1.
5. *Corridors* adjacent to the *exterior walls* of buildings shall be permitted to have unprotected openings on unrated *exterior walls* where unrated walls are permitted by Table 602 and unprotected openings are permitted by Table 705.8.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

GENERAL PURPOSE

The current IBC requires all occupants receiving Custodial Care to be able to evacuate on their own without any assistance from others. Most state Custodial Care (assisted living/ residential care/ group homes) licensing agencies allow occupants who require limited assistance with evacuation.[1] The lack of consistency between what the states allow and the IBC Custodial Care provisions causes inconsistent application of the IBC.[2] This proposal resolves that conflict and will result in better consistency. The proposal integrates allowing both residents who require limited assistance with evacuation and those that do not in Custodial Care occupancies. It accomplishes this while maintaining current residential occupancy safeguards along with adding appropriate Group I-2 safeguards, for those requiring assistance with evacuation.

The proposed Group I-1 and R-4 custodial care revisions accomplish the following:

- It provides “condition classifications” for both Groups I-1 and R-4. It makes Condition 1 for the buildings, as currently allowed, with residents capable of responding on their own during emergencies. It adds a Condition 2 for buildings residents who may require some assistance with evacuation.
- The added “condition” classification is already utilized in Group I-3 and is also proposed to be included in Group I-2, under a separate proposal by the ICC Ad Hoc Committee on Healthcare.
- It adds to the new Group I-1 Condition 2, four more stringent requirements due to the new resident type allowed, in addition to the existing current Group I-1 Condition 1 requirements: story limitations, smoke barriers, increased sprinkler protection, and additional smoke detection.
- It adds to the new Group R-4 Condition 2, due to the new resident type allowed, two more stringent requirements in addition to the capable Group R-4 Condition 1 requirements: story limitations, and additional attic detection or protection, considering the smaller facilities.
- It clarifies in the revised Custodial Care definition and in Group I-1 and R-4 Condition 2 occupancies that they are not Group I-2, which provides Medical Care. Group I-1 Custodial Care has persons with some physical or mental limitations, who may require limited assistance in emergency evacuation, but who are still capable enough to participate in complete building evacuation during emergencies. This limit of the level of care or resident type in Group I-1 and R-4 does not include Group I-2 higher acuity occupants who require full nursing care or Medical Care as defined. Those receiving Medical Care in Group I-2 may be bedridden during emergencies, may be on life support systems, or may be semiconscious or unconscious, all in which evacuation concepts allows for defend in place strategies.
- It leaves the other current IBC base I-1/ R-4 requirements, and the capable Group I-1 and R-4 Condition 1 requirements unchanged from the current code, except for minor clerical revisions.
- The substantiation for both the IBC and correlating IFC changes relating to this Group I-1/R4 proposal are integrated below in IBC section order, to provide a comprehensive correlation of both sets of changes for both codes.

GENERAL REASONS AND SUBSTANTIATION

The new Group I-1 Condition 2 requirements add appropriate Group I-2 protection features. It also maintains more restrictive Group I-1 residential protection features than current Group I-2 requirements. Other differences between Group I-1 and Group I-2 are also maintained. The numerous differences between Group I-1/ R-4 Custodial Care and Group I-2 Medical Care occupancies in relation to resident types, care levels, and functional facility design concepts relating to protection noted below, substantiate why it is appropriate to regulate them differently in separate occupancy groups.

- **Group I-1 Condition 2 & Group I-2 similarity:** Group I-1 Condition 2 adds NFPA 13 full sprinkler coverage system requirements, like Group I-2 Medical Care.
- **Group I-1 Condition 2 & Group I-2 similarity & difference:** Group I-1 Condition 2 adds smoke barriers like Group I-2 medical care occupancies. Smoke barriers provide temporary protection for custodial care residents that require assistance from others in an emergency. These Group I-1 facilities still eventually complete building evacuation and residents still participate in fire drills as in the current IFC, versus the “defend in place” and non fire drill participation in Group I-2 Medical Care facilities. The proponent is also proposing minor Group I-1 Condition 2 changes in the IFC, still requiring fire drill participation, and full evacuation, while utilizing smoke compartments to allow for staged building evacuation.
- **Group I-1 Condition 2 & Group I-2 differences:** Group I-1 Condition 2 still has appropriate corridor protections, dwelling and sleeping unit separation, smoke detection, and unit smoke alarms, which Group I-2 Medical Care does not require. This is due to small apartments generally occurring in Custodial Care that may have some domestic cooking appliances, while Group I-2 Medical Care has sleeping rooms where cooking is prohibited in the rooms. It is also due to resident to staff ratios that are generally less in Custodial Care than Group I-2 Medical Care during night time.
- **Group I-1/R-4 Condition 2 & Group I-2 difference:** Group I-1 and R-4 Condition 2 occupancies through state licensing agencies, do not allow residents that must remain in bed during emergency evacuation, so Group I-2 increased means of egress width requirements in Chapter 10 for bed movement are not applied.
- **Group I-1/R-4 Condition 2 & Group I-2 differences:** Other differences between traditional Group I-2 occupancies and new Group I-1 and R-4 Condition 2 occupancies are maintained due to differences between the types of care provided (Medical Care versus Custodial Care), and other characteristics of the two occupancy groups. One example is that Medical Care may have semiconscious or unconscious persons who are totally dependent on others for their safety during emergencies. Custodial Care has persons who are conscious but may not be as functional or responsive to emergencies as compared to the general population. These persons still have sufficient functional ability to participate in evacuation with or without assistance. This aspect of the revised Group I-1 is also consistent with all state assisted living regulations.

These Custodial Care occupancies are also often controlled by individual state licensing agency requirements, which can vary greatly between different states by use, name, and occupant capabilities[2]. This proposal concept clarifies that irrelevant of state licensing regulations, the determining factors for IBC occupancy classification and related safeguards are based on three aspects characterizing the care occupancies:

- **The type of IBC defined care that is provided (Medical or Custodial).** The care level limits Group I-1 to provide Custodial Care and does not allow the higher resident acuity levels allowed in nursing facilities or hospitals (Medical Care).
- **The type of evacuation process and evacuation capability that is allowed in Custodial Care versus Medical Care.** It limits Custodial Care to residents that may require limited assistance in evacuation but who are capable of actively participating in complete building evacuation versus the defend in place concept for Medical Care
- **That they receive care on a 24 hour basis as defined.**

Finally, these concepts proposed herein are already being applied by a majority of the state licensing agencies for custodial care uses, especially in the largest use assisted living/ residential care. State licensing agencies also do control their types of licensed care. All states have nursing licensure and create a line in the sand differentiating nursing licensure from their custodial care

licensures. The IBC specifically lists the two uses (nursing and custodial care uses) in separate occupancies, so these proposed changes will not allow for nursing to be in the new Group I-1 Condition 2 occupancy.

ITEMIZED IBC/ IFC SECTION SUBSTANTAITION/ REASONS

The relating substantiation for both the IBC and IFC proposed code changes includes all of the substantiation, in IBC section order, to provide a comprehensive correlation of both sets of changes for both codes.

Section 202 - 24 Hour Basis. The term "24 Hour Basis" revises the old "24 Hour Care" term to reflect the actual term words used throughout the code.

Section 202 - Group Home. The Group Home definition is revised to reflect current defined term of "medical care."

Section 202 - Custodial Care. The revision to the custodial care definition clarifies the difference between custodial care and medical care. Medical care allows for defend in place as is proposed by the ICC Ad Hoc Committee on Healthcare. The revised text clarifies that custodial care includes persons that can still respond to emergencies at a slower rate than the general population for complete building evacuation, due to mental, psychiatric or physical complications.

Section 308.3 Group I-1 is revised to allow persons who can respond to an emergency situation with or without assistance from others. Assisted living is the largest use group of the custodial care uses with over 32,000 facilities. Currently nearly all state licensing agencies allow a majority of their assisted living classifications to have residents that may require limited assistance from others during emergency evacuation. There are also numerous other uses in Group I-1 that have all persons that can evacuation on their own with assistance from others. The "Condition" concept is utilized from the Group I-3 detention occupancy to differentiate Group I-1 occupancies between needing assistance and not needing assistance in evacuation. The "condition" classification is also proposed to be included in Group I-2, under a separate proposal by the ICC Ad Hoc Committee on Healthcare.

The revised section implements language from the existing correlating section in Group I-3, stating that a building shall also be classified with one of the conditions. This clarifies that Group I-1 buildings shall classified on their building permit application and occupancy permit with either a "Group I-1 Condition 1" or "Group I-1 Condition 2" occupancy classification. Most assisted living facilities should be classified as Group I-1 Condition 2 unless the permit application drawings quote licensing regulations limiting the resident type to Condition 1.

The proposed custodial care Condition 2 occupancies include those who may need limited assistance in evacuation. The key aspect of the wording is to differentiate Group I-1 from Group I-2. Group I-1 is limited to custodial care and Group I-2 is for medical care. The intent of using the words "limited verbal or physical assistance" in Group I-1/R-4 Condition 2 is to clarify the difference of capability levels of emergency evacuation between custodial and medical care. Group I-1 Custodial care is limited to those persons needing limited assistance in evacuation but who can still participate in emergency evacuation response and who can still evacuate with or without assistance. Custodial care evacuation assistance is limited versus medical care which includes those who cannot get out of bed during emergencies, or someone completely incapable of helping themselves by being unconscious or semiconscious, or on life support systems.

Many assisted living, residential care, and some group home facilities have some residents that may fall under the following limited assistance with evacuation condition as paraphrased from the NFPA 101A Guide on Alternative Approaches to Life Safety. This guide has been utilized by many states licensing agencies, starting since the early 1990's, to determine the relative emergency evacuation capability of residents of custodial care types of residents, with or without assistance from others. It is used here to show the relative nuances of evacuation assistance that will be included in custodial care in the IBC. The concepts are similar as proposed herein, that the occupants still actively participate in fire drills and are trained to complete building evacuation during emergencies, with or without assistance from others:

- A person who has mild to more resistance or confusion to respond to an alarm, or needing someone to help them with instructions as found with persons with dementia or persons with Alzheimer's.
- A person needing extra intermediate or continuous help during their emergency evacuation.
- A person who has some physical impairment needing physical assistance to help them evacuate.
- A person who needs some assistance getting out of bed or is considered not self starting, but can continue with or without assistance in building evacuation.
- A person with seconds or even a few minutes of impaired consciousness intermittently a few times over a few months due to medications or illness.
- A person requiring minor or constant supervision or attention to help them receive, comprehend, and follow through instructions during emergencies.
- A person who is on medications, or even exceptionally sound sleepers, making them have some chance of not having a waking response to an alarm.
- All persons still have the capability level to participate in emergency evacuation with or without assistance from others.

308.4 Group I-2 is revised with the clerical change clarifying that Group I-2 provides medical care as defined.

Section 310.6 Group R-4 is revised like the Group I-1 to allow persons who can respond to an emergency situation with or without assistance from others for the same reasons cited in the Section 308.3 Group I-1 Reason section.

Section 420.1 Group R-4 is added to the scoping language clarifying that Group R-4 shall conform to Section 420 requirements. The 2012 IBC did not list R-4 in this section even though it was implied that it also had to comply with section 420, because Group R-4 also had to comply with Group R-3 requirements.

Section 420.4 Smoke barriers are added as a requirement in the Group I-1 Condition 2. Smoke barriers are added due to new proposed resident type allowed and to create similar requirements as Group I-2. Compartmentalization is a key aspect of occupancies with occupants who may need assistance with evacuation. There are also state licensing regulations in a majority of states requiring smoke barriers in their assisted living facilities. The smoke barrier sections utilize and match technical requirements, language and format from the current I-2 Section 407 for smoke barriers. The smoke compartment area matches the current area limit.

Section 420.4.1 Matches the format and requirements of the smoke barrier requirements from Section 407. The 15 square feet refuge area is smaller than the Group I-2 refuge area requirements due to no bedridden residents being allowed in custodial care

uses by all state regulatory agencies. The 15 square feet matches over the one third of states that have similar state assisted living refuge areas in their licensing life safety regulations compared to this custodial care proposal.
The “sleeping rooms” are also removed as a refuge area space as compared to Group I-2. This is appropriate because custodial care often includes apartments or sleeping rooms that have domestic cooking facilities with the associated room and corridor smoke and fire separation requirements included in Group I-1 and R. This is also another difference between custodial care and medical care.

(IFC) Section 420.5 and 420.6 The current Section “420.4 Automatic sprinkler system” is moved to Section 420.5 as a clerical change due to the new proposed added sections prior. The current Section “420.5 Smoke detection and fire alrm system” is moved to section 420.6 as a clerical change due to the new proposed added sections prior. There are proposed clerical changes to the new section 420.6 that add all of the actual occupancies cross-referenced in the sections referenced in the section.
Section 504.2 requires that the new Group I-1 and R-4 Condition 2 not be allowed to use sprinklers for story increases in Type IIB, III, IV, or V construction, matching the current exception for Group I-2. The limitation is proposed due to the new resident type. It is also because about 30 states licensing agencies already limit their custodial care facilities with residents needing assistance with evacuation to less than the four stories that are currently allowed in Group I-1 in the combustible construction types.
This proposal also essentially matches Oregon’s State building code, based on the IBC but with amendments in Groups I-1 and R-4. Oregon’s state building code has utilized the specific concepts proposed here in this proposal since 1991. It has the longest history of implementing hybrid Group I and R occupancy requirements by allowing residents needing assistance with evacuation in custodial care, with NFPA 13 sprinklers, smoke barriers, 3 story wood frame limits along with Group R corridor and apartment separation and protections. Oregon has had no multiple fire death fires in over 100 buildings using these concepts and requirements, and all fires were contained.
Section 709.5 includes adding cross corridor doors in the new required smoke barriers in Group I-1 Condition 2, matching the same exceptions allowed for I-2. Adding compartmentalization is a key provision in dealing with occupants that move as individuals or as a group at slower pace, with or without assistance, than the general population during emergency evacuation.
(IFC) Section 903.2.6 requires full NFPA 13 sprinkler coverage in the Group I-1 Condition 2 facility fire areas. The NFPA 13 requirement is added due to the new proposed resident type allowed. Full sprinkler coverage provided by a NFPA 13 system is a key aspect of larger occupancies with residents needing some assistance with evacuation. Currently over half the states licensing agencies already require NFPA 13 sprinklers in their large assisted living facilities with residents needing assistance with evacuation. The exception is revised to allow NFPA 13R in other Group I-1 Condition 1 facilities, maintaining the current exception for the current capable Group I-1 uses.
The exception number 2 is deleted since a NFPA 13D system for single family residential or other small facilities was never intended to be allowed in and Group I-1 facility serving more than 16 residents, irrelevant of whether they require assistance with evacuation.
(IFC) Section 903.2.8.1 is revised to separate the Group R-3 and Group R-4 provisions.
(IFC) Section 903.2.8.2 is added as a clerical revision maintaining the current requirement of sprinklers in accordance with Section 903.3.1.3 in capable Group R-4 which is the new Group R-4 Condition 1.
(IFC) Section 903.2.8.3 is revised to allow for the new R-4 Condition 2 occupancy. The R-4 Condition 2 occupancy would have both an NFPA13R sprinkler system required as well as added attic protection. In attics not used for living purposes, storage or fuel fired equipment, there are four options offered. Either the smoke detection system will provide early warning of an attic fire, or the chance of a fire in the attic is reduced by construction or sprinklers. Automatic sprinklers in the unheated attic space would have a freezing issue in group homes in northern climates, so additional options are necessary.
(IFC) Section 903.3.1.3 Automatic sprinkler system requirement is revised to reflect the proposed changes to the Group R-4 occupancy.
(IFC) Section 907.2.6.1 is revised to eliminate the smoke detection exception only in buildings housing Group I-1 Condition 2 occupancies. This proposal still allows the exception to be applied to other buildings with Group I-1 Condition 1 as defined by fire walls or exterior walls.
Section 1018.1 Corridor Construction is revised to allow halls within dwelling units in Group I-1 be non-rated just like R occupancies as a missed oversight from previous editions of the code.

Footnotes

1. The substantiation of residents needing some assistance with evacuation occurring in assisted living and other custodial care uses was cited in the original G21 proposal for IBC changes during the 2009/10 code change cycle. It substantiated findings from a national analysis on assisted living performed for the State of Hawaii in 2007 titled “Assisted Living Analysis of All State Regulations Relative to Building Codes and Life Safety Codes.” It showed that virtually all states allow residents needing limited assistance with evacuation in at least one of their categories of assisted living/ residential care facilities and that about two-thirds of all categories allow this occupant type. The analysis confirmed that assisted living/ residential care facilities receive custodial care (older IBC term personal care) and not medical care, and also confirmed the division of size of facilities in Groups I-1 and R-4, so it is appropriately categorized in the IBC relative to care type and sizes. It substantiated that assisted living/ residential care is the largest and fastest growing use in Groups I-1 and R-4. The analysis also confirmed other various aspects of a custodial care program, uses, and protection features differentiating it from medical (health) care. It presented findings and conclusions that a combination of both Group I and R protection features for custodial care with residents needing some assistance with evacuation as is proposed here, is the consistent to what the largest number of various state licensing agencies have implemented in regulating life safety protection for this use by individual states. It showed that the concepts proposed herein are also consistent or similar to what at least three states have already incorporated into their statewide amendments for the IBC (California, Oregon, and Washington.)
2. Industry representatives confirmed in information provided to the CTC that custodial care and especially assisted living/ residential care IBC occupancy classification varies greatly across the country. Industry substantiated that it is mostly due to the IBC stating that only occupants who can evacuate on their own occur in IBC custodial care occupancies versus what actually occurs nationally. This conflict then causes some custodial care to be classified as a hybrid of Group I-1 and I-2 in states amending the IBC, some classified as Group I-2, some classified as general I-

1 or I-2 hybrids in states enforcing other varying standards (NFPA 101), some individual projects applying alternative means creating a hybrid occupancy, and some miss-applying the capability standard. The industry representatives were associated with the American Health Care Association, Assisted Living Federation of America, and Leading Age as the three industry trade associations representing almost all assisted living/ residential care in the country.

Cost Impact: The proposed changes will not increase the cost of construction. Reduction

Public Hearing Results

Both parts of this proposal were heard by the IBC General code development committee.

PART I – IBC GENERAL
Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as submitted as it was felt overdue. Also it differentiates between facilities that need higher levels of protection due to condition of the residents. Often without this proposal it will push many I-1 occupancies to be Group I-2. This division provides for more rigorous requirements such as smoke compartments for I-1 condition 2 while still providing flexibility for those facilities that do not require that level of protection. The division into two conditions was felt to be the best solution to this problem with differing levels of care required in I-1 occupancies.

Assembly Action: **None**

Final Hearing Results

G31-12 Part I **AS**

Code Change No: G31-12 Part II

Original Proposal

Section(s): 202, 308.3, 308.3.1, 308.3.2, 308.4.1, 310.6, 310.6.1 (NEW), 310.6.2 (NEW), 420, 420.1, 420.4 (NEW), 420.4.1 (NEW), 504.2, 709.5, 1018.1; (IFC [B] 202, 1018.1)

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee

THIS IS A 2 PART CODE CHANGES. BOTH PARTS WILL BE HEARD BY HEARD BY THE IBC GENERAL CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE IBC GENERAL COMMITTEE.

PART II – INTERNATIONAL FIRE CODE

Revise as follows:

IBC [F] ~~420.5~~ 420.6 ~~Smoke detection and~~ fire alarm systems and smoke alarms. Fire alarm systems and smoke alarms shall be provided in Group I-1, R-1, ~~and~~ R-2 and Group R-4 occupancies in accordance with Sections 907.2.6, 907.2.8, ~~and~~ 907.2.9 and 907.2.10, respectively. Single-or multiple-station smoke alarms shall be provided in Groups I-1, R-2, R-3 and R-4 in accordance with Section 907.2.11.

SECTION 903 (IBC [F] 903)
AUTOMATIC SPRINKLER SYSTEMS

903.2.6 (IBC [F] 903.2.6) Group I. An automatic sprinkler system shall be provided throughout buildings with a Group I fire area.

Exceptions:

1. An automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be permitted in Group I-1 Condition 1 facilities.
~~2. An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be allowed in Group I-1 facilities when in compliance with all of the following:~~
~~2.1. A hydraulic design information sign is located on the system riser~~
~~2.2. Exception 1 of Section 903.4 is not applied, and~~
~~2.3. Systems shall be maintained in accordance with the requirements of Section 903.3.1.2.~~
2 ~~3~~. An automatic sprinkler system is not required where Group I-4 day care facilities are at the level of exit discharge and where every room where care is provided has at least one exterior exit door.
3 ~~4~~. In buildings where Group I-4 day care is provided on levels other than the level of exit discharge, an automatic sprinkler system in accordance with 903.3.1.1 shall be installed on the entire floor where care is provided and all floors between the level of care and the level of exit discharge, all floors below the level of exit discharge, other than areas classified as an open parking garage.

903.2.8 (IBC [F] 903.2.8) Group R. An *automatic sprinkler system* installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R *fire area*.

903.2.8.1 (IBC [F] 903.2.8.1) Group R-3 ~~or R-4 congregate residence~~. An automatic sprinkler system installed in accordance with 903.3.1.3 shall be permitted in Group R-3. ~~or R-4 congregate residence with 16 or fewer residents.~~

903.2.8.2 (IBC [F] 903.2.8.2) Group R-4 Condition 1. An automatic sprinkler system installed in accordance with 903.3.1.3 shall be permitted in Group R-4 Condition 1.

903.2.8.3 (IBC [F] 903.2.8.3) Group R-4 Condition 2. An automatic sprinkler system installed in accordance with 903.3.1.2 shall be permitted in Group R-4 Condition 2. Attics shall be protected in accordance with Sections 903.2.8.3.1 or 903.2.8.3.2.

903.2.8.3.1 (IBC [F] 903.2.8.3.1) Attics used for living purposes, storage or fuel fired equipment. Attics used for living purposes, storage or fuel fired equipment shall be protected throughout with automatic sprinkler system installed in accordance with 903.3.1.2.

903.2.8.3.2 (IBC [F] 903.2.8.3.2) Attics not used for living purposes, storage or fuel fired equipment . Attics not used for living purposes, storage or fuel fired equipment shall be protected in accordance with one of the following:

1. Attics protected throughout by a heat detector system arranged to activate the building fire alarm system in accordance with Section 907.2.10.
2. Attics constructed of non-combustible materials.
3. Attics constructed of fire-retardant-treated wood framing complying with Section 2303.2.
4. The automatic fire sprinkler system shall be extended to provide protection throughout the attic space.

~~903.2.8.2~~ 903.2.8.4 (IBC [F] ~~903.2.8.2~~ 903.2.8.4) Care facilities. An automatic sprinkler system installed in accordance with 903.3.1.3 shall be permitted in care facilities with 5 or fewer individuals in a single family dwelling.

903.3.1.3 (IBC [F] 903.3.1.3) NFPA 13D sprinkler systems. Automatic sprinkler systems installed in one and two-family dwellings, Group R-3, ~~and~~ R-4 ~~congregate residences~~ Condition 1 and townhouses shall be permitted to be installed throughout in accordance with NFPA 13D.

SECTION 907 (IBC [F] 907)
FIRE ALARM AND DETECTION SYSTEMS

907.2.6.1 (IBC [F] 907.2.6.1) Group I-1. In Group I-1 occupancies, an automatic smoke detection system shall be installed in corridors, waiting areas open to corridors and habitable spaces other than sleeping units and kitchens. The system shall be activated in accordance with Section 907.5.

Exceptions:

1. For Group I-1 Condition 1 smoke ~~Smoke~~ detection in habitable spaces is not required where the facility is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Smoke detection is not required for exterior balconies.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

GENERAL PURPOSE

The current IBC requires all occupants receiving Custodial Care to be able to evacuate on their own without any assistance from others. Most state Custodial Care (assisted living/ residential care/ group homes) licensing agencies allow occupants who require limited assistance with evacuation.[1] The lack of consistency between what the states allow and the IBC Custodial Care provisions causes inconsistent application of the IBC.[2] This proposal resolves that conflict and will result in better consistency. The proposal integrates allowing both residents who require limited assistance with evacuation and those that do not in Custodial Care

occupancies. It accomplishes this while maintaining current residential occupancy safeguards along with adding appropriate Group I-2 safeguards, for those requiring assistance with evacuation.

The proposed Group I-1 and R-4 custodial care revisions accomplish the following:

- It provides "condition classifications" for both Groups I-1 and R-4. It makes Condition 1 for the buildings, as currently allowed, with residents capable of responding on their own during emergencies. It adds a Condition 2 for buildings residents who may require some assistance with evacuation.
- The added "condition" classification is already utilized in Group I-3 and is also proposed to be included in Group I-2, under a separate proposal by the ICC Ad Hoc Committee on Healthcare.
- It adds to the new Group I-1 Condition 2, four more stringent requirements due to the new resident type allowed, in addition to the existing current Group I-1 Condition 1 requirements: story limitations, smoke barriers, increased sprinkler protection, and additional smoke detection.
- It adds to the new Group R-4 Condition 2, due to the new resident type allowed, two more stringent requirements in addition to the capable Group R-4 Condition 1 requirements: story limitations, and additional attic detection or protection, considering the smaller facilities.
- It clarifies in the revised Custodial Care definition and in Group I-1 and R-4 Condition 2 occupancies that they are not Group I-2, which provides Medical Care. Group I-1 Custodial Care has persons with some physical or mental limitations, who may require limited assistance in emergency evacuation, but who are still capable enough to participate in complete building evacuation during emergencies. This limit of the level of care or resident type in Group I-1 and R-4 does not include Group I-2 higher acuity occupants who require full nursing care or Medical Care as defined. Those receiving Medical Care in Group I-2 may be bedridden during emergencies, may be on life support systems, or may be semiconscious or unconscious, all in which evacuation concepts allows for defend in place strategies.
- It leaves the other current IBC base I-1/ R-4 requirements, and the capable Group I-1 and R-4 Condition 1 requirements unchanged from the current code, except for minor clerical revisions.
- The substantiation for both the IBC and correlating IFC changes relating to this Group I-1/R4 proposal are integrated below in IBC section order, to provide a comprehensive correlation of both sets of changes for both codes.

GENERAL REASONS AND SUBSTANTIATION

The new Group I-1 Condition 2 requirements add appropriate Group I-2 protection features. It also maintains more restrictive Group I-1 residential protection features than current Group I-2 requirements. Other differences between Group I-1 and Group I-2 are also maintained. The numerous differences between Group I-1/ R-4 Custodial Care and Group I-2 Medical Care occupancies in relation to resident types, care levels, and functional facility design concepts relating to protection noted below, substantiate why it is appropriate to regulate them differently in separate occupancy groups.

- **Group I-1 Condition 2 & Group I-2 similarity:** Group I-1 Condition 2 adds NFPA 13 full sprinkler coverage system requirements, like Group I-2 Medical Care.
- **Group I-1 Condition 2 & Group I-2 similarity & difference:** Group I-1 Condition 2 adds smoke barriers like Group I-2 medical care occupancies. Smoke barriers provide temporary protection for custodial care residents that require assistance from others in an emergency. These Group I-1 facilities still eventually complete building evacuation and residents still participate in fire drills as in the current IFC, versus the "defend in place" and non fire drill participation in Group I-2 Medical Care facilities. The proponent is also proposing minor Group I-1 Condition 2 changes in the IFC, still requiring fire drill participation, and full evacuation, while utilizing smoke compartments to allow for staged building evacuation.
- **Group I-1 Condition 2 & Group I-2 differences:** Group I-1 Condition 2 still has appropriate corridor protections, dwelling and sleeping unit separation, smoke detection, and unit smoke alarms, which Group I-2 Medical Care does not require. This is due to small apartments generally occurring in Custodial Care that may have some domestic cooking appliances, while Group I-2 Medical Care has sleeping rooms where cooking is prohibited in the rooms. It is also due to resident to staff ratios that are generally less in Custodial Care than Group I-2 Medical Care during night time.
- **Group I-1/R-4 Condition 2 & Group I-2 difference:** Group I-1 and R-4 Condition 2 occupancies through state licensing agencies, do not allow residents that must remain in bed during emergency evacuation, so Group I-2 increased means of egress width requirements in Chapter 10 for bed movement are not applied.
- **Group I-1/R-4 Condition 2 & Group I-2 differences:** Other differences between traditional Group I-2 occupancies and new Group I-1 and R-4 Condition 2 occupancies are maintained due to differences between the types of care provided (Medical Care versus Custodial Care), and other characteristics of the two occupancy groups. One example is that Medical Care may have semiconscious or unconscious persons who are totally dependent on others for their safety during emergencies. Custodial Care has persons who are conscious but may not be as functional or responsive to emergencies as compared to the general population. These persons still have sufficient functional ability to participate in evacuation with or without assistance. This aspect of the revised Group I-1 is also consistent with all state assisted living regulations.

These Custodial Care occupancies are also often controlled by individual state licensing agency requirements, which can vary greatly between different states by use, name, and occupant capabilities[2]. This proposal concept clarifies that irrelevant of state licensing regulations, the determining factors for IBC occupancy classification and related safeguards are based on three aspects characterizing the care occupancies:

- **The type of IBC defined care that is provided (Medical or Custodial).** The care level limits Group I-1 to provide Custodial Care and does not allow the higher resident acuity levels allowed in nursing facilities or hospitals (Medical Care).
- **The type of evacuation process and evacuation capability that is allowed in Custodial Care versus Medical Care.** It limits Custodial Care to residents that may require limited assistance in evacuation but who are capable of actively participating in complete building evacuation versus the defend in place concept for Medical Care
- **That they receive care on a 24 hour basis as defined.**

Finally, these concepts proposed herein are already being applied by a majority of the state licensing agencies for custodial care uses, especially in the largest use assisted living/ residential care. State licensing agencies also do control their types of licensed care. All states have nursing licensure and create a line in the sand differentiating nursing licensure from their custodial care licensures. The IBC specifically lists the two uses (nursing and custodial care uses) in separate occupancies, so these proposed changes will not allow for nursing to be in the new Group I-1 Condition 2 occupancy.

ITEMIZED IBC/ IFC SECTION SUBSTANTAITION/ REASONS

The relating substantiation for both the IBC and IFC proposed code changes includes all of the substantiation, in IBC section order, to provide a comprehensive correlation of both sets of changes for both codes.

Section 202 - 24 Hour Basis. The term "24 Hour Basis" revises the old "24 Hour Care" term to reflect the actual term words used throughout the code.

Section 202 - Group Home. The Group Home definition is revised to reflect current defined term of "medical care."

Section 202 - Custodial Care. The revision to the custodial care definition clarifies the difference between custodial care and medical care. Medical care allows for defend in place as is proposed by the ICC Ad Hoc Committee on Healthcare. The revised text clarifies that custodial care includes persons that can still respond to emergencies at a slower rate than the general population for complete building evacuation, due to mental, psychiatric or physical complications.

Section 308.3 Group I-1 is revised to allow persons who can respond to an emergency situation with or without assistance from others. Assisted living is the largest use group of the custodial care uses with over 32,000 facilities. Currently nearly all state licensing agencies allow a majority of their assisted living classifications to have residents that may require limited assistance from others during emergency evacuation. There are also numerous other uses in Group I-1 that have all persons that can evacuation on their own with assistance from others. The "Condition" concept is utilized from the Group I-3 detention occupancy to differentiate Group I-1 occupancies between needing assistance and not needing assistance in evacuation. The "condition" classification is also proposed to be included in Group I-2, under a separate proposal by the ICC Ad Hoc Committee on Healthcare.

The revised section implements language from the existing correlating section in Group I-3, stating that a building shall also be classified with one of the conditions. This clarifies that Group I-1 buildings shall classified on their building permit application and occupancy permit with either a "Group I-1 Condition 1" or "Group I-1 Condition 2" occupancy classification. Most assisted living facilities should be classified as Group I-1 Condition 2 unless the permit application drawings quote licensing regulations limiting the resident type to Condition 1.

The proposed custodial care Condition 2 occupancies include those who may need limited assistance in evacuation. The key aspect of the wording is to differentiate Group I-1 from Group I-2. Group I-1 is limited to custodial care and Group I-2 is for medical care. The intent of using the words "limited verbal or physical assistance" in Group I-1/R-4 Condition 2 is to clarify the difference of capability levels of emergency evacuation between custodial and medical care. Group I-1 Custodial care is limited to those persons needing limited assistance in evacuation but who can still participate in emergency evacuation response and who can still evacuate with or without assistance. Custodial care evacuation assistance is limited versus medical care which includes those who cannot get out of bed during emergencies, or someone completely incapable of helping themselves by being unconscious or semiconscious, or on life support systems.

Many assisted living, residential care, and some group home facilities have some residents that may fall under the following limited assistance with evacuation condition as paraphrased from the NFPA 101A Guide on Alternative Approaches to Life Safety. This guide has been utilized by many states licensing agencies, starting since the early 1990's, to determine the relative emergency evacuation capability of residents of custodial care types of residents, with or without assistance from others. It is used here to show the relative nuances of evacuation assistance that will be included in custodial care in the IBC. The concepts are similar as proposed herein, that the occupants still actively participate in fire drills and are trained to complete building evacuation during emergencies, with or without assistance from others:

- A person who has mild to more resistance or confusion to respond to an alarm, or needing someone to help them with instructions as found with persons with dementia or persons with Alzheimer's.
- A person needing extra intermediate or continuous help during their emergency evacuation.
- A person who has some physical impairment needing physical assistance to help them evacuate.
- A person who needs some assistance getting out of bed or is considered not self starting, but can continue with or without assistance in building evacuation.
- A person with seconds or even a few minutes of impaired consciousness intermittently a few times over a few months due to medications or illness.
- A person requiring minor or constant supervision or attention to help them receive, comprehend, and follow through instructions during emergencies.
- A person who is on medications, or even exceptionally sound sleepers, making them have some chance of not having a waking response to an alarm.
- All persons still have the capability level to participate in emergency evacuation with or without assistance from others.

308.4 Group I-2 is revised with the clerical change clarifying that Group I-2 provides medical care as defined.

Section 310.6 Group R-4 is revised like the Group I-1 to allow persons who can respond to an emergency situation with or without assistance from others for the same reasons cited in the Section 308.3 Group I-1 Reason section.

Section 420.1 Group R-4 is added to the scoping language clarifying that Group R-4 shall conform to Section 420 requirements. The 2012 IBC did not list R-4 in this section even though it was implied that it also had to comply with section 420, because Group R-4 also had to comply with Group R-3 requirements.

Section 420.4 Smoke barriers are added as a requirement in the Group I-1 Condition 2. Smoke barriers are added due to new proposed resident type allowed and to create similar requirements as Group I-2. Compartmentalization is a key aspect of occupancies with occupants who may need assistance with evacuation. There are also state licensing regulations in a majority of states requiring smoke barriers in their assisted living facilities. The smoke barrier sections utilize and match technical requirements,

language and format from the current I-2 Section 407 for smoke barriers. The smoke compartment area matches the current area limit.
Section 420.4.1 Matches the format and requirements of the smoke barrier requirements from Section 407. The 15 square feet refuge area is smaller than the Group I-2 refuge area requirements due to no bedridden residents being allowed in custodial care uses by all state regulatory agencies. The 15 square feet matches over the one third of states that have similar state assisted living refuge areas in their licensing life safety regulations compared to this custodial care proposal.
The "sleeping rooms" are also removed as a refuge area space as compared to Group I-2. This is appropriate because custodial care often includes apartments or sleeping rooms that have domestic cooking facilities with the associated room and corridor smoke and fire separation requirements included in Group I-1 and R. This is also another difference between custodial care and medical care.

(IFC) Section 420.5 and 420.6 The current Section "420.4 Automatic sprinkler system" is moved to Section 420.5 as a clerical change due to the new proposed added sections prior. The current Section "420.5 Smoke detection and fire alrm system" is moved to section 420.6 as a clerical change due to the new proposed added sections prior. There are proposed clerical changes to the new section 420.6 that add all of the actual occupancies cross-referenced in the sections referenced in the section.
Section 504.2 requires that the new Group I-1 and R-4 Condition 2 not be allowed to use sprinklers for story increases in Type IIB, III, IV, or V construction, matching the current exception for Group I-2. The limitation is proposed due to the new resident type. It is also because about 30 states licensing agencies already limit their custodial care facilities with residents needing assistance with evacuation to less than the four stories that are currently allowed in Group I-1 in the combustible construction types.
This proposal also essentially matches Oregon's State building code, based on the IBC but with amendments in Groups I-1 and R-4. Oregon's state building code has utilized the specific concepts proposed here in this proposal since 1991. It has the longest history of implementing hybrid Group I and R occupancy requirements by allowing residents needing assistance with evacuation in custodial care, with NFPA 13 sprinklers, smoke barriers, 3 story wood frame limits along with Group R corridor and apartment separation and protections. Oregon has had no multiple fire death fires in over 100 buildings using these concepts and requirements, and all fires were contained.
Section 709.5 includes adding cross corridor doors in the new required smoke barriers in Group I-1 Condition 2, matching the same exceptions allowed for I-2. Adding compartmentalization is a key provision in dealing with occupants that move as individuals or as a group at slower pace, with or without assistance, than the general population during emergency evacuation.
(IFC) Section 903.2.6 requires full NFPA 13 sprinkler coverage in the Group I-1 Condition 2 facility fire areas. The NFPA 13 requirement is added due to the new proposed resident type allowed. Full sprinkler coverage provided by a NFPA 13 system is a key aspect of larger occupancies with residents needing some assistance with evacuation. Currently over half the states licensing agencies already require NFPA 13 sprinklers in their large assisted living facilities with residents needing assistance with evacuation. The exception is revised to allow NFPA 13R in other Group I-1 Condition 1 facilities, maintaining the current exception for the current capable Group I-1 uses.
The exception number 2 is deleted since a NFPA 13D system for single family residential or other small facilities was never intended to be allowed in and Group I-1 facility serving more than 16 residents, irrelevant of whether they require assistance with evacuation.
(IFC) Section 903.2.8.1 is revised to separate the Group R-3 and Group R-4 provisions.
(IFC) Section 903.2.8.2 is added as a clerical revision maintaining the current requirement of sprinklers in accordance with Section 903.3.1.3 in capable Group R-4 which is the new Group R-4 Condition 1.
(IFC) Section 903.2.8.3 is revised to allow for the new R-4 Condition 2 occupancy. The R-4 Condition 2 occupancy would have both an NFPA13R sprinkler system required as well as added attic protection. In attics not used for living purposes, storage or fuel fired equipment, there are four options offered. Either the smoke detection system will provide early warning of an attic fire, or the chance of a fire in the attic is reduced by construction or sprinklers. Automatic sprinklers in the unheated attic space would have a freezing issue in group homes in northern climates, so additional options are necessary.
(IFC) Section 903.3.1.3 Automatic sprinkler system requirement is revised to reflect the proposed changes to the Group R-4 occupancy.
(IFC) Section 907.2.6.1 is revised to eliminate the smoke detection exception only in buildings housing Group I-1 Condition 2 occupancies. This proposal still allows the exception to be applied to other buildings with Group I-1 Condition 1 as defined by fire walls or exterior walls.
Section 1018.1 Corridor Construction is revised to allow halls within dwelling units in Group I-1 be non-rated just like R occupancies as a missed oversight from previous editions of the code.

Footnotes

1. The substantiation of residents needing some assistance with evacuation occurring in assisted living and other custodial care uses was cited in the original G21 proposal for IBC changes during the 2009/10 code change cycle. It substantiated findings from a national analysis on assisted living performed for the State of Hawaii in 2007 titled "Assisted Living Analysis of All State Regulations Relative to Building Codes and Life Safety Codes." It showed that virtually all states allow residents needing limited assistance with evacuation in at least one of their categories of assisted living/ residential care facilities and that about two-thirds of all categories allow this occupant type. The analysis confirmed that assisted living/ residential care facilities receive custodial care (older IBC term personal care) and not medical care, and also confirmed the division of size of facilities in Groups I-1 and R-4, so it is appropriately categorized in the IBC relative to care type and sizes. It substantiated that assisted living/ residential care is the largest and fastest growing use in Groups I-1 and R-4. The analysis also confirmed other various aspects of a custodial care program, uses, and protection features differentiating it from medical (health) care. It presented findings and conclusions that a combination of both Group I and R protection features for custodial care with residents needing some assistance with evacuation as is proposed here, is the consistent to what the largest number of various state licensing agencies have implemented in regulating life safety protection for this use by individual states. It showed that the concepts proposed herein are also consistent or similar to what at least three states have already incorporated into their statewide amendments for the IBC (California, Oregon, and Washington.)

2. Industry representatives confirmed in information provided to the CTC that custodial care and especially assisted living/ residential care IBC occupancy classification varies greatly across the country. Industry substantiated that it is mostly due to the IBC stating that only occupants who can evacuate on their own occur in IBC custodial care occupancies versus what actually occurs nationally. This conflict then causes some custodial care to be classified as a hybrid of Group I-1 and I-2 in states amending the IBC, some classified as Group I-2, some classified as general I-1 or I-2 hybrids in states enforcing other varying standards (NFPA 101), some individual projects applying alternative means creating a hybrid occupancy, and some miss-applying the capability standard. The industry representatives were associated with the American Health Care Association, Assisted Living Federation of America, and Leading Age as the three industry trade associations representing almost all assisted living/ residential care in the country.

Cost Impact: The proposed changes will not increase the cost of construction. Reduction

Public Hearing Results

Both parts of this proposal were heard by the IBC General code development committee.

PART II – IFC
Committee Action: **Approved as Submitted**

Committee Reason: Part II of G31 was approved as submitted to be consistent with the action on G31-12 Part I. This proposal also addresses the more specific need for NFPA 13R systems in Group R-4 Occupancies, condition 2 versus allowing NFPA 13D in Condition 1 Group R-4 Occupancies.

Assembly Action: **None**

Final Hearing Results

G31-12 Part II	**AS**

Code Change No: G34-12

Original Proposal

Section(s): 308.3, 310.6

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee

Revise as follows:

308.3 Institutional Group I-1. This occupancy shall include buildings, structures or portions thereof for more than 16 persons who reside on a 24 hour basis in a supervised environment and receive *custodial care*. The persons receiving care are capable of self preservation. This group shall include, but not be limited to, the following:

Alcohol and drug centers
Assisted living facilities
Congregate care facilities
~~Convalescent facilities~~
Group homes
Halfway houses
Residential board and *custodial care* facilities
Social rehabilitation facilities

310.6 Residential Group R-4. This occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive *custodial care*. The persons receiving care are capable of self-preservation. This group shall include, but not be limited to, the following:

Alcohol and drug centers
Assisted living facilities
Congregate care facilities
~~Convalescent facilities~~
Group homes
Halfway houses
Residential board and *custodial care* facilities
Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code.

Reason: This term is outdated and should be deleted from Group I-1. The term 'convalescent home' is being currently being incorrectly used in IMC Table 403.3 as a Group I-2 facility. There is a correlative proposal to delete the term from IMC Table 403.3.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved to be consistent with current terminology. The term “convalescent” is no longer used.

Assembly Action: **None**

Final Hearing Results

G34-12	**AS**

Code Change No: G40-12

Original Proposal

Section(s): 202, 310.5, 310.5.2 (NEW), IPC Table 403.1 (IBC [P] Table 2902.1)

Proponent: Tim Nogler, Washington State Building Code Council, representing Washington Association of Building Officials Technical Code Development Committee (tim.nogler@des.wa.gov)

Revise as follows:

310.5 Residential Group R-3. Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Buildings that do not contain more than two *dwelling units*
Boarding houses (nontransient) with 16 or fewer occupants
Boarding houses (*transient*) with 10 or fewer occupants
Care facilities that provide accommodations for five or fewer persons receiving care
Congregate living facilities (nontransient) with 16 or fewer occupants
Congregate living facilities (*transient*) with 10 or fewer occupants
Lodging houses with five of fewer *guest rooms*

310.5.2 Lodging houses. Owner occupied *lodging houses* with five or fewer *guest rooms* shall be permitted to be constructed in accordance with the *International Residential Code*.

Add new definitions as follows:

SECTION 202
DEFINITIONS

GUEST ROOM. A room used or intended to be used by one or more guests for living or sleeping purposes.

LODGING HOUSE. A one family dwelling where one or more occupants are primarily permanent in nature, and rent is paid for guestrooms.

Revise as follows:

IPC TABLE 403.1 (IBC [P] TABLE 2902.1)
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]
(See IPC Sections 403.2 and 403.3)
(See IBC Sections 2902.2 and 2902.3)

No.	Classification	Occupancy	Description	WATER CLOSETS (Urinals see section 419.2 of the IPC)		LAVATORIES		BATHTUBS/SHOWERS	Drinking Fountains[e,f] (See Section 410.1 of the IPC)	OTHER
				MALE	FEMALE	MALE	FEMALE			
7	**Residential**	R-3	One-and two-family dwellings and lodging houses	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	--	1 kitchen sink per dwelling unit; 1 automatic clothes

			with 5 or fewer guest rooms					washer connecti on per dwelling unit

(Portions of table not shown remain unchanged)

Reason: The purpose of this code change is to allow a small bed and breakfast or similar lodging to be classified as single family. The proposed definitions are from the 2012 IRC. This proposal makes the IBC consistent with the IRC in regulating "lodging houses". The 2012 IRC scope covers lodging house occupancies with five or fewer guestrooms, when equipped with a fire sprinkler system. In the previous cycle, the IBC General committee had concerns that adding the IRC definitions to the IBC would create conflict with chapter 29 required plumbing fixtures. The committee had concerns that a new Group R-3 occupancy would create confusion with how to determine minimum number of plumbing fixtures per chapter 29. To address that concern, this proposal adds "lodging house" to IPC Table 403.1 (IBC Table 2902.1) to be consistent with one-family dwellings.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The concept addressed is similar to G41-12 but based upon number of rooms versus occupants. This does not work with the IBC construct of occupant load but is consistent with the IRC approach. A possible solution is using total number of occupants similar to G41-12. It was encouraged to coordinate with G41-12 and evaluate how this proposal works with the accessibility requirements.

Assembly Action: **None**

Public Comment

Public Comment:

Clare Ray Allshouse AIA, CBO, City of Shoreline, WA, representing Washington Association of Building Officials Technical Code Development Committee, requests Approval as Submitted.

Commenter's Reason: The Committee disapproved the original proposal in part due to a failure to work within the IBC construct of occupant load (number of occupants versus rooms) even though it was acknowledged that it is consistent with the IRC approach. The terms used in this proposal are identical to the terms currently used in the IRC. Since the expressed purpose of this proposal is to coordinate the IBC with the IRC, it would seem most appropriate to define it in IRC terms to reduce the potential for confusion in its proper application. Furthermore, by making this scope clarification in the IBC that these occupancies are subject to the provisions of the IRC, the accessibility question raised by the Committee is resolved by definition.

Final Hearing Results

G40-12 **AS**

Code Change No: G42-12

Original Proposal

Section(s): 311.1.2 (NEW) (IFC [B] 202)

Proponent: Tod Connors, Arlington County (VA) Department of Community Planning, Housing, and Development/Division of Inspection Services, representing self

Revise as follows:

311.1.2 Accessory storage spaces. A room or space used for storage purposes that is less than 100 square feet (9.3m$^{2)}$ in area and accessory to another occupancy will be classified as part of that occupancy. The aggregate area of such rooms or spaces shall not exceed the allowable area limits of Section 508.2.

Reason: Storage rooms were removed from Incidental Uses, Table 509. Storage is now treated as a mixed use condition and must meet either the requirements of 508.2 Accessory occupancies, 508.3 Nonseparated occupancies, or 508.4 Separated occupancies. When applying these mixed use sections in B occupancy buildings of IIB or IIA construction, an S-I storage room cannot be placed on the highest floor allowed by Table 503 Allowable Building Heights and Areas and Section 504 Building Height. The 100 square foot lower limit would allow small storage rooms on upper floors. This area is the same lower limit used in the Incidental Use Table when storage rooms were last included. The statement limiting area to the limits under current Accessory occupancy requirements is to preclude a large number of small storage rooms in excess of what other code sections limit.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Editorial revision

Modify proposal as follow:

311.1.2 Accessory storage spaces. A room or space used for storage purposes that is less than 100 square feet (9.3m^2) in area and accessory to another occupancy ~~will~~ shall be classified as part of that occupancy. The aggregate area of such rooms or spaces shall not exceed the allowable area limits of Section 508.2.

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved based upon the proponent's reason. This is another way of gaining small storage areas on upper floors although G126-12 is the preferred approach. Editorial revision makes consistent with current code language.

Assembly Action: **None**

Final Hearing Results

G42-12	**AS**

Code Change No: G45-12

Original Proposal

Section(s): 402.4.1, 402.4.1.1 (NEW), 402.4.1.2 (NEW), 402.4.1.3 (NEW)

Proponent: Sarah A. Rice, C.B.O., The Preview Group (srice@preview-group.com)

Revise as follows:

402.4.1 Area and types of construction. The *building area* and type of construction of ~~any~~ *covered mall or open mall buildings*, ~~including~~ *anchor buildings*, ~~of Types I, II, III and IV construction shall not be limited provided the *anchor buildings* do not exceed three *stories above grade plane*. The construction type of *open parking garages* and enclosed parking garages shall comply with Sections 406.5 and 406.6, respectively.~~ and parking garages shall comply with this section.

~~**Exception:** The type of construction allowable *building height* and *building area* of *anchor buildings* greater than three *stories above grade plane* shall comply with Section 503, as modified by Sections 504 and 506.~~

402.4.1.1 Covered and open mall buildings. The building area of any covered mall or open mall building shall not be limited provided the covered mall or open mall building does not exceed three floor levels at any point nor three stories above grade plane, and is of Type I, II, III or IV construction.

402.4.1.2 Anchor buildings. The building area and building height of any anchor building shall be based upon the type of construction as required by Section 503, as modified by Sections 504 and 506.

Exception: The building area of any anchor building shall not be limited provided the anchor building is not more than three stories above grade plane, and is of Type I, II, III or IV construction.

402.4.1.3 Parking garage. The building area and building height of any parking garage, open or enclosed, shall be based upon the type of construction as required by Sections 406.5 and 406.6, respectively.

Reason: The proposed change seeks to add clarity to what have always been somewhat confusing limits and requirements for types of construction for mall buildings and their attached structures (anchor buildings and parking garages) by breaking a single code section into multiple sections. No technical changes are proposed.

A regional shopping center is typically by code comprised of 3 components; a covered or open mall, an anchor building(s), and a parking garage(s). And when it comes to building area and type of construction requirements in the IBC, each of these components has a unique set of criteria. Currently the IBC has the building area and type of construction regulations for all 3 of these components in a single section, which makes it confusing when trying to distinguish which provision applies to which component.

This proposal seeks to break the content of current Section 402.4.1 into 3 subsections – one for the mall building itself (402.4.1.1), one for anchor buildings (402.4.1.2)and one for parking garages (402.4.1.3).

When broken down, the building area and type of construction requirements for mall buildings, anchor buildings and parking garages are very clear.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it breaks down the various provisions for covered and open m all buildings, anchor buildings and parking garages that were buried in current Section 402.4.1.

Assembly Action: **None**

Final Hearing Results

G45-12 **AS**

Code Change No: G48-12

Original Proposal

Section(s): 403.1

Proponent: Al Godwin, CBO, CPM, Aon Fire Protection Engineering, (al.godwin@aon.com)

Revise as follows:

403.1 Applicability. *High-rise buildings* shall comply with Sections 403.2 through 403.6.

Exception: The provisions of Sections 403.2 through 403.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. *Open parking garages* in accordance with Section 406.5.
3. ~~Buildings with~~ The portion of a building containing a Group A-5 occupancy in accordance with Section 303.6. This exemption shall not apply to other uses that if on their own would have been considered as a high-rise building.
4. Special industrial occupancies in accordance with Section 503.1.1.
5. Buildings with a Group H-1, H-2 or H-3 occupancy in accordance with Section 415.

Reason: As written, the wording exempts any building as long as part of the building is a Group A-5. If built as one building, it could be read to exempt high-rise office and/or condo's that are connected to or part of a sports stadium.

The commentary states:

"Places of outdoor assembly (Group A-5) and stand alone open parking garages are exempted because of the free ventilation to the outside that exists in such structures,"

Many stadiums today, including at the college level, are built with uses such as sky boxes and restaurants that themselves qualify as a high rise. While exempting the open air stadium seems appropriate since its occupants can see everything, other uses should be protected as a high rise if any of those uses on their own exceed the high rise limitation.

Individuals in sky boxes do not have a clear vision of neighboring skyboxes. Exiting a sky box is not as simple as walking out into the open air seating and moving away from the hazard.

Cost Impact: This code change will increase the cost of construction if such other uses have been allowed to be exempt from high-rise provisions and are now required to comply.

Public Hearing Results

Committee Action: **Approved as Submitted**

Editorial revision

Modify proposal as follows:

403.1 Applicability. *High-rise buildings* shall comply with Sections 403.2 through 403.6.

Exception: The provisions of Sections 403.2 through 403.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. *Open parking garages* in accordance with Section 406.5.
3. The portion of a building containing a Group A-5 occupancy in accordance with Section 303.6. This exemption shall not apply to other ~~uses~~ occupancies that if on their own would have been considered as a high-rise building.
4. Special industrial occupancies in accordance with Section 503.1.1.
5. Buildings with a Group H-1, H-2 or H-3 occupancy in accordance with Section 415.

Committee Reason: This proposal was a good clean up and clarification that simply because a building contains a Group A-5 occupancy the entire building containing other occupancies should not be exempt from the high-rise requirements of Section 403. Note editorial correction to change the term “uses” to “occupancies” in the proposed language.

Assembly Action: **None**

Public Comments

Public Comment:

Maureen Traxler, City of Seattle, representing Department of Planning & Development, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

403.1 Applicability. *High-rise buildings* shall comply with Sections 403.2 through 403.6.

Exception: The provisions of Sections 403.2 through 403.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. *Open parking garages* in accordance with Section 406.5.
3. The portion of a building containing a Group A-5 occupancy in accordance with Section 303.6. ~~This exemption shall not apply to other occupancies that if on their own would have been considered as a high-rise building.~~
4. Special industrial occupancies in accordance with Section 503.1.1.
5. Buildings with a Group H-1, H-2 or H-3 occupancy in accordance with Section 415.

Commenter’s Reason: This modification is proposed to relieve some potentially unreasonable requirements imposed on small occupancies. Using the example from the proponent’s reason statement, a restaurant or sky box in a large stadium would be considered a high-rise, which would require emergency power, and a fire command center, among other things, no matter how small the restaurant. By deleting the last sentence, the smallest uses could be considered accessory, and would be spared some onerous requirements. The language that remains in exception 3 addresses the proponent’s concern about offices and residences connected to a stadium. While the occupant load of A-5 stadiums is high, the stadiums are occupied relatively infrequently for short periods, and the height of the high-rise portions of the building are at the lower end of the range for high-rise buildings. Stadiums have large exits, usually exceeding the required capacity, and most stadium designs include redundancies in the egress system.

Final Hearing Results

G48-12 **AMPC**

Code Change No: G49-12

Original Proposal

Section(s): 403.1

THIS PROPOSAL IS ON THE AGENDA OF THE IBC GENERAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC GENERAL CODE DEVELOPMENT COMMITTEE.

Proponent: Al Godwin, CBO, CPM, Aon Fire Protection Engineering, (al.godwin@aon.com)

Revise as follows:

403.1 Applicability. *High-rise buildings* shall comply with Sections 403.2 through 403.6.

Exception: The provisions of Sections 403.2 through 403.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. *Open parking garages* in accordance with Section 406.5.
3. Buildings with a Group A-5 occupancy in accordance with Section 303.6. 4. Special industrial occupancies in accordance with Section 503.1.1.
5. Buildings with:
   5.1. a Group H-1 occupancy;~~,~~
   5.2. a Group H-2 occupancy in accordance with Sections 415.7.1, 415.8.1, 415.8.3 and 415.8.4;
   or,
   5.3. a Group H-3 occupancy in accordance with Section 415.7.1

Reason: The commentary states:

"Finally, buildings with occupancies in groups H-1, H-2 and H-3 are excluded from the provisions of this section because the fire hazard characteristics of such occupancies in a high-rise have not yet been considered."

However, the code does not prohibit these H occupancies from being in high-rise buildings. If that is the intent, then there are many sections of the code that need amending.

Are Group H occupancies allowed in high-rise buildings?

If not, this code change needs to go a different direction.

It is not uncommon to have Group H-2, flammable liquids, in a high rise building. And, high-rise labs often have H-2 flammable gases and H-3 oxidizing gases as well.

In accordance with Section 508.2.4, 508.3.3 and 415.8.2.1, specific H occupancies are required to be separated as separated mixed uses in accordance with Section 508.4. These Group H occupancies are not to be considered Accessory uses or non-separated mixed uses. They must always be separated mixed uses.

To exempt the entire building from high-rise provisions for complying with Section 415 does not seem reasonable since the provisions of that section do not compensate for the high rise provisions.

As listed, any high rise lab building that has a flammable gas H-2 room would be exempt from all of the high-rise provisions, including the fire service access elevator.

For example:

Section 415.8.2 provides provisions for the storage, handling, processing and transporting of flammable and combustible liquids in Groups H-2 and H-3 occupancies. There is a short list of requirements. However, compliance with that short list does not seem to compensate for the high-rise provisions of Section 403.

It does seem appropriate to exempt the occupancies only for the new sections listed. As proposed in this code change, only the following buildings would be exempt from the high rise provisions.

H-1 – required to be in a separate building and only allowed one story, Section 415.6.
H-2 and H-3 – when required to be in a separate building and only allowed one story, Section 415.7.
H-2 – special buildings:
Combustible dusts, grain processing and storage, Section 415.8.1
Liquefied petroleum gas facilities, Section 415.8.3.
Dry cleaning plants, Section 415.8.4.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as submitted as it was a necessary clarification that H occupancies can be located within a high-rise building. The committee based this decision primarily on the proponent's reason. One concern was raised related to whether group H occupancies would be allowed the construction type reductions in Section 403.

Assembly Action: **None**

Final Hearing Results

G49-12 **AS**

Code Change No: G51-12

Original Proposal

Section(s): 403.2.1.2, Table 716.5, 3412.6.6 (IEBC [B] 1401.6.6)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Proponent: Philip Brazil. PE, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development (pbrazil@reidmiddleton.com)

Revise as follows:

403.2.1.2 Shaft enclosures. For buildings not greater than 420 feet (128 000 mm) in *building height*, the required *fire-resistance rating* of the *fire barriers* enclosing vertical *shafts,* other than ~~*exit enclosures*~~ *interior exit stairway* and elevator hoistway enclosures, is permitted to be reduced to 1 hour where automatic sprinklers are installed within the *shafts* at the top and at alternate floor levels.

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4 3 2 1-1/2	3 3[a] 1-1/2 1-1/2
~~Shaft,~~ Enclosures for shafts, ~~exit enclosures~~ interior exit stairways and interior exit ramps: and exit passageway walls	2	1-1/2
Fire barriers having a required fire-resistance rating of 1-hour: Enclosures for shafts, exit access stairways, exit access ramps, interior exit stairways~~,~~ and interior exit ramps; and exit passageway walls	1	1
Other fire barriers	1	3/4
Fire partitions: Corridor walls	1 0.5	1/3[b] 1/3[b]
Other fire partitions	1 0.5	3/4 1/3
Exterior walls	3 2	1-1/2 1-1/2

	1	3/4
Smoke barriers	1	1/3 [b]

(Portions of Table not shown remain unchanged)

Revise as follows:

3412.6.6 (IEBC [B] 1401.6.6) Vertical openings. Evaluate the *fire-resistance rating* of ~~*exit* enclosures~~ *interior exit stairways or ramps*, hoistways, escalator openings and other shaft enclosures within the building, and openings between two or more floors. Table 3412.6.6(1) contains the appropriate protection values. Multiply that value by the construction type factor found in Table 3412.6.6(2). Enter the vertical opening value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.6, Vertical Openings, for fire safety, means of egress, and general safety. If the structure is a one-story building or if all the unenclosed vertical openings within the building conform to the requirements of Section 708, enter a value of 2. The maximum positive value for this requirement shall be 2.

Reason: The changes are for consistency with the approved changes from Proposal E5-09/10, which changed instances of "exit enclosure" to "interior exit stairway or ramp." A reference to "ramp" is not added to Section 403.2.1.2 for consistency with Section 403 on high rise buildings, which generally does not specify ramps with interior exit stairways (e.g., Sections 403.2.3, 403.2.3.1, 403.2.3.2, 403.5.1 and 403.5.2). All instances of "exit enclosure" in the 2012 IBC are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The defined term 'exit enclosure' was removed from the code by E5-09/10. This proposal will provide consistency throughout the code by replacement of the deleted definition with the current terminology.

Assembly Action: **None**

Final Hearing Results

G51-12 **AS**

Code Change No: G52-12

Original Proposal

Section(s): 403.5.2, 403.5.4

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Proponent: Philip Brazil. PE, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development (pbrazil@reidmiddleton.com)

Revise as follows:

403.5.2 Additional interior exit stairway. For buildings other than Group R-2 that are more than 420 feet (128 000 mm) in *building height*, one additional *interior exit stairway* meeting the requirements of Sections 1009 and 1022 shall be provided in addition to the minimum number of *exits* required by Section 1021.1. The total width of any combination of remaining *interior exit stairways* with one *interior exit stairway* removed shall be not less than the total width required by Section 1005.1. *Scissor stairs* shall not be considered the additional *interior exit stairway* required by this section.

Exception: An additional *interior exit stairway* shall not be required to be installed in buildings having elevators used for occupant self-evacuation in accordance with Section 3008.

403.5.4 Smokeproof enclosures. Every required *interior exit stairway* serving floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall be a *smokeproof enclosure* in accordance with Sections 909.20 and 1022.10.

Reason: "Interior" is added before "exit stairway" because "exit stairway" includes exterior exit stairways, which are not permitted in high-rise buildings by Section 1026.2. Based on our analysis of the 2012 IBC, all instances of "exit stairway" in provisions for or related to high-rise buildings, where a change to "interior exit stairways" is warranted, are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The revisions will allow consistent terminology for interior exit stairways within the high-rise building section of the code. Exterior exit stairways are not an option for high-rise buildings, so this would be considered an editorial clarification.

Assembly Action: **None**

Final Hearing Results

G52-12	**AS**

Code Change No: G53-12

Original Proposal

Section(s): 403.6.1

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Revise as follows:

403.6.1 Fire service access elevator. In buildings with an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access, no fewer than two fire service access elevators, or all elevators, whichever is less, shall be provided in accordance with Section 3007. Each fire service access elevator shall have a capacity of not less than 3500 pounds (1588 kg) and shall comply with Section 3002.4.

Reason: When Section 3002.4 was amended to require elevator cars that can accommodate an 84 inch (2134 mm) stretcher it increased the size of the elevator car to a 3500 pound minimum capacity. As Section 403.6.1 now requires all Fire Service Access elevators in a building to be this size, it makes sense to coordinate this requirement with the stretcher size requirement.

As firefighters use Fire Service Access elevators to stage to fight a fire, these elevators will often be occupied carrying equipment and personnel to the staging floor. If only one of these 3500 pound elevators can also accommodate a stretcher, there is no guarantee that it will be the one that is available to evacuate injured persons. Having all Fire Service Access elevators usable and available to serve both the staging and the evacuation functions is an efficient way of taking advantage of what may be the largest elevator cars in the building.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: It was felt that requiring the stretcher requirements to link with the fire service access elevator is not an undue burden. This proposal will make sure that the fire service access elevator is also large enough to accommodate a stretcher.

Assembly Action: **None**

Final Hearing Results

G53-12 **AS**

Code Change No: G54-12

Original Proposal

Section(s): 404.5, 712.1.8

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Healthcare and Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

Revise as follows:

404.5 Smoke control. ~~A~~ In other than Group I-2. smoke control system shall be installed in accordance with Section 909.

Exception: Smoke control is not required for *atriums* that connect only two *stories*.

712.1.8 Two-story openings. In other than ~~Groups I-2 and~~ Group I-3, a floor opening that is not used as one of the applications listed in this section shall be permitted if it complies with all of the items below.

1. Does not connect more than two stories.
2. Does not contain a stairway or ramp required by Chapter 10.
3. Does not penetrate a horizontal assembly that separates fire areas or smoke barriers that separate smoke compartments.
4. Is not concealed within the construction of a wall or a floor/ceiling assembly.
5. Is not open to a corridor in Group I and R occupancies.
6. Is not open to a corridor on nonsprinklered floors.
7. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.

Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx This proposal is being co-sponsored by the ICC Code Technology Committee.

This proposal is intended to correct a misapplication of the intent of the code and coordinate with federal requirements. Currently the language in Section 404.5 and 404.6 would allow a two story atrium to be open to the floors without providing a smoke control system or any passive separation. While this may be appropriate for many occupancy groups, exposing patients who are incapable of self preservation to a large vertical opening is an unacceptable risk. Practically, this would never occur because federal requirements that fund and regulate these types of facilities would not allow an opening without either smoke control or passive separation.

Two story vertical openings are design features that hospitals typically employ to create a more calming and welcoming environment for the patients and their families. The intent of the code appears to allow multiple methods for dealing vertical openings. The AHC believed that a reasonable solution was to restrict the unprotected atrium language and concurrently add language to allow the use of two story openings in 712.1.8. This trade off would protect the corridor from the large opening between floors. It would also provide facilities and designers two options for dealing with these openings.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Modified**

Modify proposal as follows:

404.5 Smoke control. A ~~In other than Group I-2.~~ smoke control system shall be installed in accordance with Section 909.

Exception: In other than Group I-2 smoke control is not required for *atriums* that connect only two *stories*.

712.1.8 Two-story openings. In other than Groups I-2 and ~~Group~~ I-3, a floor opening that is not used as one of the applications listed in this section shall be permitted if it complies with all of the items below.

1. Does not connect more than two stories.
2. Does not contain a stairway or ramp required by Chapter 10.
3. Does not penetrate a horizontal assembly that separates fire areas or smoke barriers that separate smoke compartments.
4. Is not concealed within the construction of a wall or a floor/ceiling assembly.
5. Is not open to a corridor in Group I and R occupancies.
6. Is not open to a corridor on nonsprinklered floors.
7. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.

Committee Reason: This proposal closes a loophole for a higher risk occupancy that would now be required smoke control for two story atriums. The spaces included in atriums in hospitals often become very large. The modification emphasizes what the original intent of the proposal was to be more restrictive for Group I-2 occupancies.

Assembly Action: **None**

Final Hearing Results

G54-12 **AM**

Code Change No: G55-12

Original Proposal

Section(s): 404.5

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

Revise as follows:

404.5 Smoke control. ~~A~~ In other than Group I-2 and Group I-1. Condition 2, smoke control system shall be installed in accordance with Section 909.

Exception: Smoke control is not required for *atriums* that connect only two *stories*.

Reason: The Adhoc Healthcare committee has a proposal to require smoke control for 2 story atriums in Group I-2 due to concerns about smoke compartmentation. The CTC care committee would like to include the new Group I-1, Condition 2 based on the same theory of protection.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Modified**

Modify proposal as follows:

404.5 Smoke control. A ~~In other than Group I-2 and Group I-1. Condition 2,~~ smoke control system shall be installed in accordance with Section 909.

Exception: In other than Group I-2 and Group I-1. Condition 2 smoke control is not required for *atriums* that connect only two *stories*.

Committee Reason: This proposal enhances the safety in both hospitals and assisted living facilities with more occupants needing a higher level of care. This closes a loophole created with the exception for two story atriums that often get very large. The modification is similar to that made in G54-12 which is emphasizing the original intent of the proposal which was to be more restrictive.

Assembly Action: **None**

Final Hearing Results

G55-12 **AM**

Code Change No: G57-12

Original Proposal

Section(s): 202, 404.9, 410.6.3.2, [F] 411.4 (IFC 914.7.1), 1007.6 (IFC [B] 1007.6), 1015.4 (IFC [B] 1015.4), 1015.5 (IFC [B] 1015.5), Table 1021.2(2) [IFC [B] Table 1021.2(2)], Table 3412.6.5 (IEBC [B] Table 1401.6.5), C104.1

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Proponent: Philip Brazil. PE, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development (pbrazil@reidmiddleton.com)

Revise as follows:

SECTION 202
DEFINITIONS

COMMON PATH OF EGRESS TRAVEL. That portion of *exit access* which the occupants are required to traverse before two separate and distinct paths of egress travel to two *exits* are available. Paths that merge are common paths of travel. Common paths of egress travel shall be included within the permitted exit access travel distance.

404.9 Exit access travel distance. In other than the lowest level of the *atrium*, where the required *means of egress* is through the *atrium* space, the portion of *exit access* travel distance within the *atrium* space shall be not greater than 200 feet (60 960 mm). The exit access travel distance requirements for areas of buildings open to the *atrium* and where access to the *exits* is not through the *atrium*, shall comply with the requirements of Section 1016.

410.6.3.2 Exit access travel distance. The ~~length of~~ *exit access* travel distance shall be not greater than 300 feet (91 440 mm) for buildings without a sprinkler system and 400 feet (121 900 mm) for buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

[F] 411.4 (IFC 914.7) Automatic sprinkler system. *Special amusement buildings* shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1. Where the *special amusement building* is temporary, the sprinkler water supply shall be of an *approved* temporary means.

> **Exception:** Automatic sprinklers are not required where the total floor area of a temporary *special amusement building* is less than 1,000 square feet (93 m^2) and the exit access travel distance from any point to an *exit* is less than 50 feet (15 240 mm).

1007.6 (IFC [B] 1007.6) Areas of refuge. Every required *area of refuge* shall be *accessible* from the space it serves by an *accessible means of egress*. The maximum travel distance from any *accessible* space to an *area of refuge* shall not exceed the exit access travel distance permitted for the occupancy in accordance with Section 1016.1. Every required *area of refuge* shall have direct access to a *stairway* complying with Sections 1007.3 or an elevator complying with Section 1007.4. Where an elevator lobby is used as an *area of refuge*, the shaft and lobby shall comply with Section 1022.10 for smokeproof enclosures except where the elevators are in an *area of refuge* formed by a *horizontal exit* or smoke barrier.

1015.4 (IFC [B] 1015.4) Refrigeration machinery rooms. Machinery rooms larger than 1,000 square feet (93 m_2) shall have not less than two *exits* or *exit access doorways*. Where two *exit access doorways* are required, one such doorway is permitted to be served by a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of the room.

All portions of machinery rooms shall be within 150 feet (45 720 mm) of an *exit* or *exit access doorway*. An increase in exit access travel distance is permitted in accordance with Section 1016.1.

Doors shall swing in the direction of egress travel, regardless of the *occupant load* served. Doors shall be tight fitting and self-closing.

1015.5 (IFC [B] 1015.5) Refrigerated rooms or spaces. Rooms or spaces having a floor area larger than 1,000 square feet (93 m^2), containing a refrigerant evaporator and maintained at a temperature below 68°F (20°C), shall have access to not less than two *exits* or *exit access doorways*.

Exit access Travel distance shall be determined as specified in Section 1016.1, but all portions of a refrigerated room or space shall be within 150 feet (45 720 mm) of an *exit* or *exit access doorway* where such rooms are not protected by an *approved automatic sprinkler* system. Egress is allowed through adjoining refrigerated rooms or spaces.

Exception: Where using refrigerants in quantities limited to the amounts based on the volume set forth in the *International Mechanical Code*.

TABLE 1021.2(2) [IFC [B] TABLE 1021.2(2)]
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANTS PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
First story or basement	A, B [b], E, F [b], M, U, S [b]	49 occupants	75 feet
	H-2, H-3	3 occupants	25 feet
	H-4, H-5, I, R-1, R-2 [a, c], R-4	10 occupants	75 feet
	S	29 occupants	100 feet
Second story	B, F, M, S	29 occupants	75 feet
Third story and above	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP – Not Permitted
NA – Not Applicable

a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with *emergency escape and rescue openings* in accordance with Section 1029.
b. Group B, F and S occupancies in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall have a maximum exit access travel distance of 100 feet.
c. This table is used for R-2 occupancies consisting of *sleeping units*. For R-2 occupancies consisting of *dwelling units*, use Table 1021.2(1).

TABLE 3412.6.5 (IEBC [B] TABLE 1401.6.5)
CORRIDOR WALL VALUES

OCCUPANCY	CATEGORIES			
	a	b	c[a]	d[a]
A-1	-10	-4	0	2
A-2	-30	-12	0	2
A-3, F, M, R, S-1	-7	-3	0	2
A-4, B, E, S-2	-5	-2	0	5

a. Corridors not providing at least one-half the exit access travel distance for all occupants on a floor shall be category b.

C104.1 Exit facilities. Exits shall be provided in accordance with Chapters 10 and 11.

Exceptions:

1. The maximum exit access travel distance from any point in the building to an approved exit shall not exceed 300 feet (91 440 mm).
2. One exit is required for each 15,000 square feet (1393.5 m^2) of area or fraction thereof.

Reason: The addition of "exit access" before "travel distance" is for consistency with "exit access travel distance" in Section 1016 and elsewhere in the 2012 IBC, which was established with the approved changes from Proposal E5-09/10-AS. The other changes that are in Sections 1007.6 and 1015.4 are grammatical. Based on our analysis of the 2012 IBC, all instances of "travel distance" in the 2012 IBC where the addition of "exit access" is warranted are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Adding "exit access" where it is applicable to the travel distance assists in linking Section 1015 requirements to other requirements in the code. In Section 1015, the term should be used consistently throughout.

Assembly Action: **None**

Final Hearing Results

G57-12 **AS**

Code Change No: G58-12

Original Proposal

Section(s): 404.9.1 (NEW), 404.9.2 (NEW)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Proponent: Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee (BCAC)

Add new text as follows:

404.9 Travel distance. In other than the lowest level of the *atrium*, where the required *means of egress* is through the *atrium* space, the portion of *exit access* travel distance within the *atrium* space shall be not greater than 200 feet (60 960 mm). The travel distance requirements for areas of buildings open to the *atrium* and where access to the *exits* is not through the *atrium*, shall comply with the requirements of Section 1016.

404.9.1 Exit access across floor of atrium. Where the lowest level of the *atrium* is at the *level of exit discharge,* exit access travel distance shall be in accordance with Section 1016.2.

404.9.2 Interior exit stairways. A maximum of 50 percent of *interior exit stairways* are permitted to egress through the lowest level of an *atrium* where that level is the *level of exit discharge* in accordance with Section 1027.

Reason: The proposed language will clarify an otherwise vague permitted use of an atrium floor to be used as exit access to an exit from the atrium. This design is frequently encountered in healthcare and high-rise residential occupancies.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved because some members of the committee felt that allowing for 50% of the egress paths to move through an atrium is a safety hazard. However, other members felt that this was a clarification of what was already permitted where the atrium floor was also the lobby at the level of exit discharge.

Assembly Action: **None**

Public Comments

Public Comment:

Chuck Bajnai, Chesterfield County, VA, representing ICC Building Code Action Committee requests Approval as Modified by this Public Comment.

Replace the proposal with the following:

~~**404.9 Travel distance.** In other than the lowest level of the *atrium*, where the required *means of egress* is through the *atrium* space, the portion of *exit access* travel distance within the *atrium* space shall be not greater than 200 feet (60 960 mm). The travel distance requirements for areas of buildings open to the *atrium* and where access to the *exits* is not through the *atrium*, shall comply with the requirements of Section 1016.~~

404.9 Exit access travel distance. Exit access travel distance for areas open to an atrium shall comply with the requirements of this section.

404.9.1 Egress not through the atrium. Where required access to the exits is not through the atrium, exit access travel distance shall comply with Section 1016.

404.9.2 Exit access travel distance at the level of exit discharge. Where the path of egress travel is through an atrium space, exit access travel distance at the level of exit discharge shall be determined in accordance with Section 1016.

404.9.3 Exit access travel distance at other than the level of exit discharge. Where the path of egress travel is not at the level of exit discharge from the atrium, that portion of the total permitted exit access travel distance that occurs within the atrium shall be not greater than 200 feet (60 960 mm).

404.10 Interior exit stairways. A maximum of 50 percent of interior exit stairways are permitted to egress through an atrium on the level of exit discharge in accordance with Section 1027.

Commenter's Reason: This public comment is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 5 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Item G58-12 was intended to address two technical points. First, the proposal spoke to how exit access travel distance is measured within an atrium. Presently, Section 404.9 only addresses the design condition where the path of egress travel is at other than the lowest level of the atrium. This public comment creates a format where the various scenarios for paths of egress travel are individually addressed. Section 404.9.1 allows for conventional exit access travel distances where access to exits is not through the atrium. Sections 404.9.2 and 404.9.3 dictate exit access travel distances where exits are accessed through the atrium. Section 404.9.2 states that where exit access travel occurs at the level of exit discharge from the atrium, Section 1016 values apply. Section 404.9.3 clarifies the current Section 404.9 requirement where exit access travel occurs at other (above or below) than the level of exit discharge from the atrium, in the correct technical context. The current reference of "lowest level of the atrium" assumes that that level is at the level of exit discharge, which may or may not be the case. Accordingly, that language has been deleted in favor of a specific reference to the level of exit discharge.

The second point of the original proposal was to clarify that interior exit stairways could egress through an atrium where such area complies with the provisions of Section 1027. This public comment agrees with that interpretation. Section 1027 does not prohibit egress through atrium spaces where all applicable conditions are met. This proposal clarifies that issue.

This reformatting and editorial clarification will assist code practitioners in correctly determining exit access travel distance requirements in buildings having atriums. Approval of this proposal as modified will increase uniformity in interpretation and application of these important provisions. This change includes the changes approved in E90 to add "exit access" to the description of travel distances.

Cost Impact: The code change will not increase the cost of construction.

Final Hearing Results

G58-12 **AMPC**

Code Change No: G59-12

Original Proposal

Section(s): 202, 406.3, 406.3.1, 406.3.2, 406.3.3, 406.3.4

Proponent: Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee (BCAC)

Add new definition as follows:

PRIVATE GARAGE. A building or portion of a building in which motor vehicles used by the tenants of the building or buildings on the premises are stored or kept, without provisions for repairing or servicing such vehicles for profit.

Revise as follows:

406.3 Private garages and carports. Private garages and carports shall comply with Sections 406.3.1 through ~~406.3.5~~ 406.3.4.

406.3.1 Classification. ~~Buildings or parts of buildings~~ Private garages and carports shall be classified as Group U occupancies. ~~because of the use or character of the occupancy~~ Each private garage shall be ~~not greater than~~ a 1,000 square feet (93 m^2) in area. ~~or one *story* in height except as provided in Section 406.3.2. Any building or portion thereof that exceeds the limitations specified in this section shall be classified in the occupancy group other than Group U that it most nearly resembles.~~ Multiple private garages are permitted in a building when each private garage is separated from the other private garages by 1-hour fire barriers in accordance with Section 707, or 1-hour horizontal assemblies in accordance with Section 711, or both.

~~**406.3.2 Area increase.** Group U occupancies used for the storage of private or pleasure-type motor vehicles where no repair work is completed or fuel is dispensed are permitted to be 3,000 square feet (279 m^2) where the following provisions are met:~~

~~1. For a mixed occupancy building, the *exterior wall* and opening protection for the Group U portion of the building shall be as required for the major occupancy of the building. For such a mixed occupancy building, the allowable floor area of the building shall be as permitted for the major occupancy contained therein.~~
~~2. For a building containing only a Group U occupancy, the *exterior wall* shall not be required to have a *fire-resistance rating* and the area of openings shall not be limited where the *fire separation distance* is 5 feet (1524 mm) or more.~~

~~More than one 3,000-square-foot (279 m_2) Group U occupancy shall be permitted to be in the same structure, provided each 3,000-square-foot (279 m^2) area is separated by *fire walls* complying with Section 706.~~

~~**406.3.3**~~ **406.3.2 Garages ~~and carports~~ floor surfaces.** ~~Carports shall be open on no fewer than two sides. Carport~~ Garage floor surfaces shall be of *approved* noncombustible material. ~~Carports not open on at least two sides shall be considered a garage and shall comply with the provisions of this section for garages.~~ The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

~~**Exception:** Asphalt surfaces shall be permitted at ground level in carports.~~

~~The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.~~

~~**406.3.4**~~ **406.3.3 Separation.** The separation~~s~~ of private garages from other occupancies shall comply with Section 508. Separation of private garages from dwelling units shall comply with ~~the following:~~ Sections 406.3.3.1 through 406.3.3.3.

~~1.~~ **406.3.3.1 Dwelling unit separation.** The private garage shall be separated from the *dwelling unit* and its *attic* area by means of gypsum board, not less than ½ inch (12.7 mm) in thickness, applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a $^{5}/_{8}$-inch (15.9 mm) Type X gypsum board or equivalent and ½-inch (12.7 mm) gypsum board applied to structures supporting the separation from habitable rooms above the garage. Door openings between a private garage and the *dwelling unit* shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than $1^{3}/_{8}$ inches (34.9 mm) in thickness, or doors in compliance with Section 716.5.3 with a fire protection rating of not less than 20 minutes. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Doors shall be *self-closing* and self-latching.

~~2.~~ **406.3.3.2 Ducts.** Ducts in a private garage and ducts penetrating the walls or ceilings separating the *dwelling unit,* including its *attic* area*,* from the garage shall be constructed of sheet steel of not less than 0.019 inches (0.48 mm), in thickness, and shall have no openings into the garage.

406.3.4 Carports. Carports shall be open on at least two sides. Carport floor surfaces shall be of approved noncombustible material. Carports not open on at least two sides shall be considered a garage and shall comply with the requirements for private garages.

Exception: Asphalt surfaces shall be permitted at ground level in carports.

The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

(~~406.3.4, item 3~~) 406.3.4.1 Carport separation. A separation is not required between a Group R-3 and U carport, provided the carport is entirely open on two or more sides and there are not enclosed areas above.

Reason: Consistency and coordination among the International Codes is one of the cornerstones of the ICC Code Development process. The ICC Board established the ICC Building Code Action Committee (BCAC) to act as a forum to deal with complex issues ahead of the Code Development Process, identify emerging issues and draft proposed code changes.
This proposed change is a result of the BCAC's work.

Part 1 of this code proposal adds a definition for private garage that is needed in the Code that clarifies the differences between a private garage, an open parking garage and an enclosed parking garage. This new definition for the IBC is modified from two of the legacy codes (1997 UBC Section 208 and 1999 BOCA Section 407.2. The SBC did not define a private garage.) and will serve well for the clarification of the Code that a private garage can be provided in other occupancies beside residential occupancies.

Part 2 of this code proposal is the revision of Section 406.3.1 and the deletion of Section 406.3.2 which were carry-overs from one of the legacy codes (1997 UBC Sections 312.2.1 & 312.2.2) that are really not applicable to the fire protection/life safety requirements in the IBC that address U occupancies in separated or mixed occupancies in a more defined manner than the previous legacy code from which these requirements were taken from. The retaining of a maximum size of 1000 square feet private garage (roughly a 20' x 50' floor area) is a reasonable limitation for a private garage before such a Group U occupancy would be required to be designed as a S-2 parking garage or a S-1 repair garage, as applicable. Such a maximum square footage for a private garage works out well when using IMC Section 402.2 requirement for natural ventilation in a private garage since the typical garage door is a minimum of 8' x 8' (64 sq. ft.), and the minimum natural ventilation required for ventilation is 4% of the floor area being ventilated (i.e. maximum 1000 sq. ft. x 0.04 = minimum 40 sq. ft. opening required < the minimum 64 sq. ft. overhead garage door). Such a garage door will provide an additional (24/40 =) 60% safety factor on the natural ventilation of the space under the Code.

Section 406.3.3 has been modified by breaking it into two sections and matching the language to the IRC language for clarity and correlation. (IRC Section R309 for reference).

This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as

well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost: This proposal will decrease the cost of construction by clarifying the requirements for private garage separation and increasing coordination of the language with the IRC.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify the proposal as follows:

406.3.1 Classification. Private garages and carports shall be classified as Group U occupancies. Each private garage shall be not greater than a 1,000 square feet (93 m^2) in area. Multiple private garages are permitted in a building when each private garage is separated from the other private garages by 1-hour fire barriers in accordance with Section 707, or 1-hour horizontal assemblies in accordance with Section 711, or both.

(Portions of the proposal not shown remain the same)

Committee Reason: This proposal provided a good clean up of the private garage requirements. Some committee members still preferred the 3000 square feet allowed in the legacy codes. Concerns remain with the separation requirements. The modification clarifies that the 1000 square feet in Section 406.3.1 is meant as a maximum area. It should be noted that the BCAC would address concerns that Section 406.3.2(2) should be retained through reference in footnotes to Tables 602 and 705.8 during the public comment process.

Assembly Action: **None**

Public Comments

Public Comment 1:

Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee (BCAC), requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, e, h]

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H[f]	OCCUPANCY GROUP F-1, M, S-1[g]	OCCUPANCY GROUP A, B, E, F-2, I, R, S-2[g], U[b]
X < 5[c]	All	3	2	1
5 ≤ X < 10	IA Others	3 2	2 1	1 1
10 ≤ X < 30	IA, IB IIB, VB Others	2 1 1	1 0 1	1[d] 0 1[d]
X ≥30	All	0	0	0

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.
b. ~~For special requirements for Group U occupancies, see Section 406.3.~~ For a building containing only a Group U occupancy private garage or carport, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1524 mm) or more.
c. See Section 706.1.1 for party walls.
d. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.
e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.
f. For special requirements for Group H occupancies, see Section 415.5.
g. For special requirements for Group S aircraft hangars, see Section 412.4.1.

h. Where Table 705.8 permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.

TABLE 705.8
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

FIRE SEPARATION DISTANCE (feet)	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA[a]
0 to less than 3[b, c]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, Sprinklered (UP, S)[i]	Not Permitted
	Protected (P)	Not Permitted
3 to less than 5[d, e]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, Sprinklered (UP, S)[i]	15%
	Protected (P)	15%
5 to less than 10[e, f, j]	Unprotected, Nonsprinklered (UP, NS)	10%[h]
	Unprotected, Sprinklered (UP, S)[i]	25%
	Protected (P)	25%
10 to less than 15[e, f, g, j]	Unprotected, Nonsprinklered (UP, NS)	15%[h]
	Unprotected, Sprinklered (UP, S)[i]	45%
	Protected (P)	45%
15 to less than 20[f, g, j]	Unprotected, Nonsprinklered (UP, NS)	25%
	Unprotected, Sprinklered (UP, S)[i]	75%
	Protected (P)	75%
20 to less than 25[f, g, j]	Unprotected, Nonsprinklered (UP, NS)	45%
	Unprotected, Sprinklered (UP, S)[i]	No Limit
	Protected (P)	No Limit
25 to less than 30[f, g, j]	Unprotected, Nonsprinklered (UP, NS)	70%
	Unprotected, Sprinklered (UP, S)[i]	No Limit
	Protected (P)	No Limit
30 or greater	Unprotected, Nonsprinklered (UP, NS)	No Limit
	Unprotected, Sprinklered (UP, S)[i]	Not Required
	Protected (P)	Not Required

For SI: 1 foot = 304.8 mm.
UP, NS = Unprotected openings in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
UP, S = Unprotected openings in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
P = Openings protected with an opening protective assembly in accordance with Section 705.8.2.

a. Values indicated are the percentage of the area of the exterior wall, per story.
b. For the requirements for fire walls of buildings with differing heights, see Section 706.6.1.
c. For openings in a fire wall for buildings on the same lot, see Section 706.8.
d. The maximum percentage of unprotected and protected openings shall be 25 percent for Group R-3 occupancies.
e. Unprotected openings shall not be permitted for openings with a fire separation distance of less than 15 feet for Group H-2 and H-3 occupancies.
f. The area of unprotected and protected openings shall not be limited for Group R-3 occupancies, with a fire separation distance of 5 feet or greater.

g. The area of openings in an open parking structure with a fire separation distance of 10 feet or greater shall not be limited.
h. Includes buildings accessory to Group R-3.
i. Not applicable to Group H-1, H-2 and H-3 occupancies.
j. ~~For special requirements for Group U occupancies, see Section 406.3.2.~~ The area of openings in a building containing only a Group U occupancy private garage or carport with a fire separation distance of 5 feet or greater shall not be limited.

(Portions of the proposal not shown to remain unchanged)

Commenter's Reason: This public comment is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 5 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

This public comment resolves the concern noted in the Code Development Committee's reason statement. This code modification just places the requirements in the 2012 IBC Section 406.3.2(2) into the appropriate footnotes in Tables 602 & 705.8.

Cost Impact: The code change will not increase the cost of construction.

Final Hearing Results

G59-12 **AMPC1**

Code Change No: G61-12

Original Proposal

Section(s): 406.3.4 (NEW), 1003.2; (IFC [B] 1003.2)

Proponent: Sarah A. Rice, C.B.O., The Preview Group (srice@preview-group.com)

Add new text as follows:

406.3.4 Clear height. In private garages and carports the clear height in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). Vehicle and pedestrian areas accommodating van-accessible parking shall comply with Section 1106.5.

Revise as follows:

1003.2 (IFC [B] 1003.2) Ceiling height. The *means of egress* shall have a ceiling height of not less than 7 feet 6 inches (2286 mm).

Exceptions:

1. Sloped ceilings in accordance with Section 1208.2.
2. Ceilings of *dwelling units* and *sleeping units* within residential occupancies in accordance with Section 1208.2.
3. Allowable projections in accordance with Section 1003.3.
4. *Stair* headroom in accordance with Section 1009.5.
5. Door height in accordance with Section 1008.1.1.
6. *Ramp* headroom in accordance with Section 1010.6.2.
7. The clear height of floor levels in vehicular and pedestrian traffic areas ~~in~~ of public and private parking garages in accordance with Section 406.4.1.
8. Areas above and below *mezzanine* floors in accordance with Section 505.2.

Reason: The code is silent regarding the ceiling height on private garages. The proposed text is identical to Section 406.4.1 which applies to public garages. Therefore this change would make the ceiling height of these two provisions identical. Without adding this provision, ceiling height will be governed by Section 1003.2 which requires a ceiling height of 7 feet 6 inches.

Section 406.4.1 of the 2012 IBC reads:

406.4.1 Clear height. *The clear height of each floor level in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). Vehicle and pedestrian areas accommodating van-accessible parking shall comply with Section 1106.5.*

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This was approved as it was a necessary for private garages to correlate with the requirements for ceiling height in Section 406.4.1. Otherwise the ceiling height requirements of Section 1003.2 would apply.

Assembly Action: **None**

Final Hearing Results

G61-12 **AS**

Code Change No: G62-12

Original Proposal

Section(s): 406.3.4

Proponent: Sarah A. Rice, C.B.O., The Preview Group (srice@preview-group.com)

Revise as follows:

406.3.4 Separation. ~~Separations shall comply with the following:~~ Private garages shall be separated from other occupancies in the same building in accordance with Section 508.

Exceptions:

1. ~~The~~ Where located adjacent to a dwelling unit, a private garage shall be separated from the *dwelling unit* and its *attic* area by means of gypsum board, not less than ½ inch (12.7 mm) in thickness, applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a $^{5}/_{8}$-inch (15.9 mm) Type X gypsum board or equivalent and ½-inch (12.7 mm) gypsum board applied to structures supporting the separation from habitable rooms above the garage.
   1.1. Door openings between a private garage and the *dwelling unit* shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than $1^{3}/_{8}$ inches (34.9 mm) in thickness, or doors in compliance with Section 716.5.3 with a fire protection rating of not less than 20 minutes. Doors shall be *self-closing* and self-latching.
   1.2. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. ~~Doors shall be *self-closing* and self-latching.~~
   ~~2.~~ 1.3. Ducts in a private garage and ducts penetrating the walls or ceilings separating the *dwelling unit,* including its *attic* area*,* from the garage shall be constructed of sheet steel of not less than 0.019 inches (0.48 mm), in thickness, and shall have no openings into the garage.
~~3.~~2. A separation is not required between a Group R-3 and U carport, provided the carport is entirely open on two or more sides and there are not enclosed areas above.

Reason: The code in Section 406 appears to be silent with respect to the separation requirements between a private garage and something other than a dwelling unit. Private garages are not limited be being accessory to residences, but could be accessory to other uses such as a small office building. The existing provisions of Section 406.3.4 only address the separations between a dwelling unit and a private garage or carport. This change directs the code user to the mixed occupancy section of the code to address the separations either as an accessory occupancy, non-separated or separated mixed occupancy. It then takes the existing text and changes it into an exception to sending people to Section 508.

The other change is to reformat what is currently Items 1 and 2 of Section 406.3.4. The current Item 1 has various sub-requirements applying to the wall separating the private garage from a dwelling unit. The provision for self-closing and self-latching doors is simply being moved to be adjacent to the remaining door requirements. The current item 2 would appear not to be a stand alone provision nor a distinct exception for the separation of private garage and dwelling unit, but is another element of the separation described in Item 1.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it gives necessary guidance for private garages adjacent to other than Group R-3 Occupancies. It was suggested that this be correlated with G59-12 as necessary. Note that there was some concern with the term "adjacent."

Assembly Action: **None**

Final Hearing Results

G62-12	**AS**

Code Change No: G63-12

Original Proposal

Section(s): 406.4.3

Proponent: Donald R. Monahan, Walker Parking Consultants, representing Parking Consultants Council of the National Parking Association (don.monahan@walkerparking.com)

Revise as follows:

406.4.3 Vehicle barriers. *Vehicle barriers* not less than 2 feet 9 inches (835 mm) in height shall be placed ~~at the ends of drive lanes, and at the end of parking spaces~~ where the vertical distance to the ground or surface directly below is greater than 1 foot (305 mm). *Vehicle barriers* shall comply with the loading requirements of Section 1607.8.3.

Exception: *Vehicle barriers* are not required in vehicle storage compartments

Reason: The current language implies that only those walls at the end of parking spaces or at the end of a drive aisle need to comply with the vehicle barrier requirements. Sidewalls at parking spaces are also vulnerable to vehicle impact as the vehicle maneuvers into the stall. Similarly, the side walls of vehicle-only ramps are vulnerable to collision if a vehicle is out of control due to driver heart attack, slippery or wet surfaces, or obstacles on the ramp. All walls at vertical surface displacements need to meet these vehicle barrier requirements.

Cost Impact: We believe most responsible designers already provide vehicle barriers or ramped floors at all vertical transitions in floor surfaces, such that this relatively minor clarification will not have a significant cost impact.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as there may be other locations within a garage that should have vehicle barriers not addressed by the current specific requirements.

Assembly Action: **None**

Public Comments

Public Comment:

Maureen Traxler, City of Seattle, representing Department of Planning & Development, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

406.4.3 Vehicle barriers. *Vehicle barriers* not less than 2 feet 9 inches (835 mm) in height shall be placed where the vertical distance <u>from the floor of a drive lane or parking space</u> to the ground or surface directly below is greater than 1 foot (305 mm). *Vehicle barriers* shall comply with the loading requirements of Section 1607.8.3.

Exception: *Vehicle barriers* are not required in vehicle storage compartments.

Commenter's Reason: The original proposal was intended to expand the requirement for vehicle barriers to apply wherever there is a "vertical surface displacement" instead of only at the ends of drive lanes and parking spaces. However, as written, the section doesn't specify where the measurement is taken from. This proposed modification clarifies that the vertical distance is measured from the floor of the drive lane or parking space.

Final Hearing Results

G63-12 **AMPC**

Code Change No: G65-12

Original Proposal

Section(s): 407.2.5 (New)

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

Add new text as follows:

407.2.5 Cooking facilities. In Group I-2 nursing homes, rooms or spaces that contain domestic cooking facilities shall be permitted to be open to the corridor where the number of sleeping units within the smoke compartment is limited to 30 residents and all of the following requirements are met:

1. Only one area with domestic cooking facilities is permitted within a smoke compartment.
2. The types of cooking appliances are are limited to ovens, cooktops, ranges, warmers and microwaves.
3. The corridor is a clearly identified space delineated by construction or floor pattern, material or color.
4. The space containing domestic cooking facilities shall be arranged so as not to obstruct access to the required exit.
5. A domestic cooking hood installed and constructed in accordance with Section 505 of the International Mechanical Code is provided over cooktops and ranges.
6. The domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Pre-engineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions.
7. A manual actuation device for the hood suppression system shall be installed in accordance with Section 904.11.1 and 904.11.2 of the International Fire Code.
8. A shutdown for the fuel and electrical power supply to the cooking equipment shall be provided and shall be accessible only to staff.
9. A portable fire extinguisher shall be installed within 30 feet (9144 mm) of domestic cooking appliances complying with Section 906.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

As nursing homes move away from institutional models, it is critical to have a functioning kitchen that can serve as the hearth of the home. Instead of a large centralized, institutional kitchen where all meals are prepared and delivered to a central dining room or the resident's room, the new "household model" nursing home uses de-centralized kitchens and small dining areas to create the feeling and focus of home. For persons with dementia, it is particularly important to have spaces that look familiar, like the kitchen in their former home ,to increase their understanding and ability to function at their highest level.

Allowing kitchens, that serve a small, defined group of residents, to be open to common spaces, and in some instances corridors, are critically important to enhancing the feeling and memories of home for older adults. This allows residents to see and smell the food being prepared, which can enhance their appetites and evoke positive memories. Some residents, based on their abilities and cognition level may even be able to participate in food preparation activities such as stirring, measuring ingredients, peeling vegetables, or folding towels. This becomes a social activity, where they can easily converse with the staff member cooking, as well as a way for the resident to maintain their functional abilities and to feel that they are still an important contributing member of society.

We know that unattended cooking equipment is the leading cause of fires. However, allowing the kitchen to be open also allows the nursing home staff to more carefully supervise the space so that if an incident were to occur, it would be spotted and dealt with faster than if the kitchen was completely behind closed doors. Health care facilities have the benefit of having awake-staff

24 hours a day. These staff members know the building layout and the residents well, and are trained to handle emergencies. The locked fuel shut-off switch will prevent cooking activities occurring without staff knowledge.

Moreover, studies have shown that a single low-flow residential sprinkler head is effective “to control both [a] cooking oil fire and [an] appliance fire, despite shielding by the cabinets, while extinguishing the fire spread to the cabinets and walls.” [ref: NIST special publication 1066: Residential kitchen fire suppression research needs, Madrzykowski, Hamins & Mehta, Feb. 2007] As all nursing homes are already required to have quick-response sprinklers throughout, we believe that more than adequate safety is being provided when preparing food up to 16 residents, and by adding the automatic chemical suppression in the hood, we are also providing more than adequate safety for up to 30 residents. The volume of meals prepared in both of these cases are much more similar to a single-family home rather than a commercial restaurant setting.

The fire safety record for nursing homes is one of the lowest of any occupancy in the United States based on NFPA fire data. The number of fire deaths from multiple death fires has averaged 1.7 deaths/year for the last 20 years. The number of single fire deaths in nursing averages 3-5 deaths/ year. The population of nursing homes is 1.7 million. Compared to the number of residents 65 or over living in residential occupancies (32 million) and the number of fire deaths/year of this population, a resident over 65 in a nursing home is 12 times less likely to die in a fire than a resident over 65 living in a private residential occupancy.

All new nursing homes have been required to be sprinklered since 2003, and currently 95% of all existing nursing homes are sprinklered. All existing nursing homes are required by federal regulations to be fully sprinklered by August 13, 2013. There has never been a multiple death fire in a fully sprinklered nursing home based on 15 years of NFPA fire data. A review of nursing home fire data from 1970 (41 years) not a single multiple death nursing home fire resulted from a fire originating in a kitchen. The majority of single death fires are the result of a resident smoking while on oxygen or the ignition of their clothing or bedding from smoking material. We could find no fire data of any resident of a nursing home, single or multiple death fire, dying from a fire that originated in a kitchen.

In nursing home occupancies, the strategy is to defend in place, taking advantage of the smoke compartments to move residents away from smoke and fire. The smaller size of the household units that would contain these open kitchens, rather than the larger institutional style nursing homes many of us know, means that evacuations to an adjacent compartment or to the exterior is faster and the smaller size of any one of these units limits the number of people at risk.

An additional safety feature, in this proposal, is the inclusion of a deactivation switch that is locked and only accessible to staff. This will prevent unauthorized use of the cooking appliance without staff supervision. Staff members would need to be trained not only in basic food handling precautions but also in basic fire safety and extinguisher use. A fire extinguisher would be required in each kitchen area in addition to the suppression required in the hood and the sprinklers in the facility. These are all additional levels of safety that are being added to this application and will help to protect the residents.

The choice of thirty or fewer residents as the limiting number of residents that could be housed within a single unit with an open kitchen was based on a requirement from the Veterans Administration to serve the needs in their facilities, as well as current trends in the design of these types of facilities. These small nursing homes or nursing home “household” units generally range in size from 10 to 30 residents. The committee that drafted this proposal included providers, industry representatives, code and design professionals who are familiar with this design model and its operation. This group’s conclusion was that 30 residents allowed this open kitchen application for the overwhelming majority of facilities in the industry because staffing for thirty is widely considered an economical staffing ratio for the majority of organizations. Yet the designs for this number are still relatively small in size. These designs range from around 6,000 square feet for the smallest 10 person units to around 17,000 square feet even for units housing as many as 30. In general, at these unit sizes, the distances to exits, either to the exterior or to other compartments is much shorter than commonly seen in traditional nursing homes. This committee felt that in combining the added safety features proposed along with the improved evacuation distances and reduced number of people at risk, the limitation of 30 people maintained good safety, yet met the needs of a majority of the industry.

If this proposal is approved, there will be a reference in Table 906.1 for fire extinguishers.

Example of Kitchen open to Corridor.

Example of shutdown

Cost Impact: This code change proposal will not increase the cost of construction. Reduction

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved for several reasons. First the scoping of such requirements needs to be clearer to avoid the main food preparation for such facilities using these requirements. Also the need for increased supervision was a concern. Concepts such as timers for the appliances should be considered. Generally allowing kitchens such as these open to the corridor caused some concerns. Terminology used does not seem consistent with IMC which uses "domestic cooking appliances" versus "domestic cooking facilities."

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, Code Technologies Committee – Care facilities study group, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

407.2.5 Cooking facilities. In Group I-2 ~~nursing homes~~ Condition 1, rooms or spaces that contain ~~domestic~~ a cooking ~~facilities~~ facility with domestic cooking appliances shall be permitted to be open to the corridor where ~~the number of sleeping units within the smoke compartment is limited to 30 residents and~~ all of the following requirements are met:

1. The number of care recipients housed within the smoke compartment is not greater than 30.
2. The number of care recipient served by the cooking facility is not greater than 30.
3. Only one ~~area with domestic~~ cooking ~~facilities~~ facility area is permitted within a smoke compartment.

~~2.~~ The types of domestic cooking appliances permitted are limited to ovens, cooktops, ranges, warmers and microwaves.

~~3.~~ The corridor is a clearly identified space delineated by, construction or floor pattern, material or color.

~~4.~~ The space containing the domestic cooking ~~facilities~~ facility shall be arranged so as not to obstruct access to the required exit.

~~5.~~ A domestic cooking hood installed and constructed in accordance with Section 505 of the *International Mechanical Code* is provided over the cooktop or range.

~~6.~~ The domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Pre-engineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's installation instructions.

~~7.~~ A manual actuation device for the hood suppression system shall be installed in accordance with Sections 904.11.1 and 904.11.2 of the *International Fire Code*.

10. An interlock device shall be provided such that upon activation of the hood suppression system, the power or fuel supply to the cooktop or range will be turned off.

~~8.~~11. A shut ~~down~~ off for the fuel and electrical power supply to the cooking equipment, shall be provided in a location that is

accessible only to staff.

12. A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.

~~9.~~13. A portable fire extinguisher shall be installed in accordance with Section 905 of the *International Fire Code*.

Commenter's Reason: Based on the feedback from the Committee and the Opponents of the proposal, The CTC has revised some of the language to be more specific and more stringent.

The charging paragraph has been modified to more clearly define the space and the number of occupants has been moved to the requirements for greater clarity. The Condition 1 is an editorial coordination with G257-12.

- **Item #1** (new) states the maximum number of residents that may live within the same smoke compartment as the cooking facility. This limits the number of residents that could be at risk from an incident.
- **Item #2** (new) this clarifies that the cooking facility that is open to the corridor may only serve a maximum of 30 residents. This prohibits the central kitchen, serving the whole facility, from being open to the corridor. Further, this limits the number of meals that are being prepared in this facility which limits time of cooking duration, grease production and risk.
- **Item #3** The language was clarified to be clearer that only one cooking facility is permitted in a smoke compartment and for consistency with the other requirements.
- **Item #4** Added the word "domestic" to be consistent with the terminology contained within the Mechanical Code.
- **Item #6** Clarification for correlation.
- **Item #10** (new) added the requirement for an interlock that shuts off the power source/fuel supply if the hood suppression system activates.
- **Item #11** (previous #8) Terminology changed from shutdown to shutoff to correlate to the IMC and to be clear on its purpose. Also clarified that the switch is located in a location accessible only to staff.
- **Item #12** (new) Adds the requirement for a timer to deactivate the appliance in the event staff forgets to turn off the appliance. This adds a belt and suspenders level of safety which does not solely rely on human action.

In Skilled Nursing and Assisted Living care settings across the country, there are hundreds of similar kitchens, open to the corridor and common spaces, in operation today (see notes below). The ones in existence have been the result of varied negotiations with the AHJ and have resulted in a very inconsistent application/interpretation of the code. This code change is needed to create more consistency in the construction of these open kitchens and to standardize the level of safety features provided.

This proposal was originally brought forward by a group representing all of the major stakeholder groups in the Long-Term Care industry. This group worked closely with the CTC, along with Fire Marshals and other Code Officials to craft the language you see here to ensure an appropriate level of safety while providing a great benefit to the quality of life for the care recipients.

A similar proposal to what is contained here has already been approved by the Life Safety Code, and the Center for Medicare and Medicaid (CMS) endorses the use of open kitchens for small groups of residents.

Please bear in mind that all new nursing homes have been required to be fully sprinkled since 2003. All existing nursing homes have been mandated, by CMS, to be fully sprinkled by August of 2013. In the last 15 years of NFPA fire data, there has **never been a multiple death fire in a fully sprinkled nursing home.** The majority of the single death fires are the result of a resident smoking while on oxygen.

A NIST study* found that a single, low-flow residential sprinkler was able to control a cooking oil fire and extinguish any fire spread to the cabinets and walls. Because the nursing homes are sprinkled, combined with the small number of meals, hood suppression system, and automatic shut off features contained in this proposal, along with the 24/7 staffing in a nursing home create a high level of safety and will protect the residents when the kitchen is open to other spaces.

NIST Special publication 1066 "Overview of NIST/USFA Localized Residential Suppression System Project",** PG 5 & 6 Daniel Madrzykowski, Anthony Hamins, Shivani Mehta*

Open kitchen settings in operation currently (varied requirements)

- **The Green House**® project = 127 "houses" - each with an open kitchen - in operation in19 states and several more in planning or construction. States include AL, AK, AZ, AR, GA, KS, MD, MA, MS, MI, MT, NE, NJ, NY, PA, TN, TX, WA, WI
- Edgewater, West Des Moines, IA – 4 skilled nursing households, each with an open kitchen.
- Concordia Village in Springfield, IL
- Three Crowns Park in Evanston, IL – 2 households, each with an open kitchen.
- Masonic Home in Louisville, KY - 3 open kitchens
- An estimated 30 – 40 open kitchens are in operation in OR
- Landis Homes in Lititz, PA
- Garden Spot Village, in New Holland PA has 4 Nursing households, each with an open kitchen. Their sister project, Maple Farm, in Akron, PA has 2 nursing households, each with an open kitchen.
- Lutheran Home at Telford, PA
- Covenant Oaks at Oakwood Village University Woods, in Madison, WI has 4 Assisted Living households, each with an open kitchen.
- St. Mary's Center in Madison, WI – 16 households, each with an open kitchen
- St. John's Home in Milwaukee, WI – One open kitchen
- Creekview at Evergreen, OshKosh, WI – 8 skilled nursing households, each with an open kitchen

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "Care Facilities". Information on the CTC, including: meeting agendas; minutes; reports; resource documents;

presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/CareFacilities.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Pictures of Nursing Homes currently in operation, with open plan kitchens

13 Resident Nursing Household
w/ open cooking facility

Staff analysis: Code change G257-12 was Approved as Modified at the Code Development Hearings and a public comment has not been submitted. Accordingly it has been placed on the consent agenda.

Final Hearing Results

G65-12 **AMPC**

Code Change No: G66-12

Original Proposal

Section(s): 407.2.5 (New)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC GENERAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC GENERAL CODE DEVELOPMENT COMMITTEE.

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

Add new text as follows:

407.2.5 Nursing home housing units. In Group I-2 nursing homes, within areas where nursing home residents are housed, shared living spaces, group meeting or multipurpose therapeutic spaces shall be permitted to be open to the *corridor*, where all of the following criteria are met:

1. The walls and ceilings of the space are constructed as required for *corridors*.
2. The spaces are not occupied as resident sleeping rooms, treatment rooms, incidental uses in accordance with Section 509, or hazardous uses.
3. The open space is protected by an automatic fire detection system installed in accordance with Section 907.
4. The *corridors* onto which the spaces open, in the same *smoke compartment*, are protected by an automatic fire detection system installed in accordance with Section 907, or the *smoke compartment* in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
5. The space is arranged so as not to obstruct access to the required *exits*.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

In nursing home occupancies, residents are encouraged to spend time outside of their rooms. Wayfinding and orientation problems are common in nursing homes residents, and research has shown that direct visibility to a desired location is more effective for cuing than signage. Therefore, having a variety of shared living spaces open to the corridor encourages socialization, encourages interaction, and is important to resident well-being. Further, being able to preview activities that are occurring helps to encourage joining and allows reluctant participants to join at their own pace. Finally, a more open plan allows staff to more easily see residents throughout the course of the day.

Adhoc Health has a proposal to limit storage to containers with 10 cubic feet or greater in Table 509. This would address the issue of storage within areas open to the corridor.

Example of Living room

Example of Dining Room

Cost Impact: The proposed changes will not increase the cost of construction. There will be a reduction in cost.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as submitted as the proposal provides added value to these facilities with appropriate safety requirements. Note that this proposal will apply only to Group I-2 condition 1 occupancies based upon G257-12.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, Code Technologies Committee – Care facilities study group, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

407.2.5 Nursing home housing units. In Group I-2 ~~nursing homes~~ Condition 1, within areas where nursing home residents are housed, shared living spaces, group meeting or multipurpose therapeutic spaces shall be permitted to be open to the *corridor*, where all of the following criteria are met:

1. The walls and ceilings of the space are constructed as required for *corridors*.
2. The spaces are not occupied as resident sleeping rooms, treatment rooms, incidental uses in accordance with Section 509, or hazardous uses.
3. The open space is protected by an automatic fire detection system installed in accordance with Section 907.
4. The *corridors* onto which the spaces open, in the same *smoke compartment*, are protected by an automatic fire detection system installed in accordance with Section 907, or the *smoke compartment* in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
5. The space is arranged so as not to obstruct access to the required *exits*.

Commenter's Reason: Code change G66 is a technical change which included new text dealing with areas open to the corridors of nursing homes. The purpose of this public comment is limited to the editorial coordination of terminology with the approval of Code change G257 which revised the terminology for Group I-2 occupancies into two use conditions, similar to the way the current code addresses Group I-3. In this case, nursing homes fall under Group I-2, Condition 1. Since G257 deals only with terminology, this public comment is being submitted to G66 in order to focus the attention on the coordination of terminology issue.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "Care Facilities". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/CareFacilities.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Staff analysis: Code change G257-12 was Approved as Modified at the Code Development Hearings and a public comment has not been submitted. Accordingly it has been placed on the consent agenda.

Final Hearing Results

G66-12 **AMPC**

Code Change No: G68-12

Original Proposal

Section(s): 202, 407.4, 422.3.1 (NEW)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Healthcare and Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

THIS CODE CHANGE WILL BE HEARD BY THE IBC MEANS OF EGRESS COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Revise as follows:

407.4 Means of egress. Group I-2 occupancies shall be provided with means of egress complying with Chapter 10 and Sections 407.4.1 through 407.4.3. The fire safety and evacuation plans provided in accordance with Section 1001.4 shall identify the building components necessary to support a *defend in place* emergency response in accordance with IFC Sections 404 and 408.

422.3.1 Means of egress. Where ambulatory care facilities require smoke compartmentation in accordance with Section 422.3 the fire safety evacuation plans provided in accordance with Section 1001.4 shall identify the building components necessary to support a *defend in place* emergency response in accordance with IFC Sections 404 and 408.

Add new definition to Chapter 2 as follows:

DEFEND IN PLACE. A method of emergency response that engages building components and trained staff to provide occupant safety during an emergency. Emergency response involves remaining in place, relocating within the building, or both, without evacuating the building.

Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering, a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

This code change defines a commonly used concept with a broadly accepted term for use with Group I-2 and identifies several instances where the defend in place concept should be permitted and recognized.

Defend in place, or protect in place, is a concept that has long been employed as the preferred method of fire response in hospitals due to the fragile nature of the occupants. Occupants in this setting are often dependent upon the building infrastructure and immediate evacuation would place their lives at risk. This infrastructure typically includes life support systems such as medical gases, emergency power, and environmental controls that rely on continued building operation. Previous versions of this code and legacy codes have created a tried and tested set of requirements to support this concept, such as smoke compartmentation and areas of refuge. However, previous codes have not specifically described the concept of occupants remaining within a building during a fire emergency which leads to confusion and misapplication during design and enforcement.

This change identifies Group I-2 as a location where this type of emergency response is permitted. The codes governing hospitals, nursing homes, and other Group I-2 classes are designed to support the defend in place use. While the code has been silent on the underlying concept, the defend in place strategy has been the commonly accepted practice in these facilities. When the new Ambulatory Care Facilities section was being drafted, the goal was to create a type of defend in place. Defend in place is only appropriate when smoke compartments are created, therefore the allowance to use this strategy is predicated on the smoke compartmentation section.

A proposal is being submitted to the IFC to clarify further the defend in place concept in Section 404 and 408. [Should we place draft IFC proposal here]

Cost Impact: This proposal will not increase the cost of construction; the healthcare industry already has this documentation and information on file for compliance with state licensing and federal certification standards.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The idea of 'defend in place' is already commonly used in Group I-2 facilities and has showed great success in practice. The International Fire Code (IFC) already addresses updates of the plans, information provided, training of staff and evacuation plans and practice. Jurisdictions can approve the plans, so the issue of safety within the facility can be appropriately addressed on a case-by case basis. These plans will identify passive and active elements in buildings as well as encourage maintenance.

Assembly Action: **None**

Final Hearing Results

G68-12	**AS**

Code Change No: G70-12

Original Proposal

Section(s): 202, 407.4.2, 407.4.3.3, 407.4.3.4, 407.4.3.5, 407.4.3.5.1, 407.4.3.5.3

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Revise as follows:

CARE SUITE. In Group I-2 occupancies, a group of treatment rooms, care recipient sleeping rooms and ~~their associated~~ the support rooms or spaces and circulation space within the suite ~~Group I-2 occupancies~~ where staff are in attendance for supervision of all care recipients within the suite, and the suite is in compliance with the requirements of Section 407.4.3.

Revise as follows:

407.4.2 Travel distance. The travel distance between any point in a Group I-2 occupancy sleeping room, not located in a *care suite,* and an *exit access* door in that room shall be not greater than 50 feet (15 240 mm).

407.4.3 Group I-2 care suites. *Care suites* in Group I-2 shall comply with Section 407.4.3.1 through 407.4.3.4 and either Section 407.4.3.5 or 407.4.3.6.

407.4.3.1 Exit access through care suites. *Exit access* from all other portions of a building not classified as a *care suite* shall not pass through a *care suite*. In a *care suite* required to have more than one *exit*, one *exit access* is permitted to pass through an adjacent *care suite* provided all of the other requirements of Sections 407.4 and 1014.2 are satisfied.

407.4.3.2 Separation. *Care suites* shall be separated from other portions of the building by a smoke partition complying with Section 710.

~~**407.4.3.3 One intervening room.** For rooms other than sleeping rooms located within a *care suite*, *exit access* travel from the *care suite* shall be permitted through one intervening room where the travel distance to the *exit access* door from the *care suite* is not greater than 100 feet (30 480 mm).~~

407.4.3.3 Access to Corridor. Movement from habitable rooms shall not require passage through no more than 3 doors and 100 feet (30 480 mm) travel distance within the suite.

> **Exception:** The travel distance shall be permitted to be increased to 125 feet (38 100 mm) where an automatic smoke detection system is provided throughout the *care suite* and installed in accordance with NFPA 72.

~~**407.4.3.4 Two intervening rooms.** For rooms other than sleeping rooms located within a *care suite*, *exit access* travel within the *care suite* shall be permitted through two intervening rooms where the travel distance to the *exit access* door from the *care suite* is not greater than 50 feet (15 240 mm).~~

~~**407.4.3.5**~~ **407.4.3.4 Care suites containing sleeping room areas.** Sleeping rooms shall be permitted to be grouped into *care suites* ~~with one intervening room~~ if one of the following conditions is met:

1. The ~~intervening room within~~ the *care suite* is not used as an *exit access* for more than eight care recipient beds.
2. The arrangement of the *care suite* allows for direct and constant visual supervision into the sleeping rooms by care providers.
3. An automatic smoke detection system is provided in the sleeping rooms and installed in accordance with NFPA 72.

~~407.4.3.5.1~~ 407.4.3.4.1 Area. *Care suites* containing sleeping rooms shall be not greater than ~~5,000~~ 7,500 square feet (~~465~~ 696 m^2) in area.

Exception: *Care suites* containing sleeping rooms shall be permitted to be not greater than 10,000 sq feet (929 m^2) in area where automatic smoke detection system is provided throughout the *care suite* and installed in accordance with NFPA 72.

~~407.4.3.5.2~~ 407.4.3.4.2 Exit access. Any sleeping room, or any *care suite* that contains sleeping rooms, of more than 1,000 square feet (93 m2) shall have no fewer than two *exit access* doors from the *care suite* located in accordance with Section 1015.2.

~~**407.4.3.5.3 Travel distance.** The travel distance between any point in a *care suite* containing sleeping rooms and an *exit access* door from that *care suite* shall be not greater than 100 feet (30 480 mm).~~

Reason: This proposal is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.
In relation to the code change proposal dealing with size and configuration of care suites, the definition is being proposed with changes to address the scope of which the suites are used. Suites are recognized to be an effective tool to provide some flexibility in reaching an exit access, due to functional considerations. Use of suites is a particularly useful tool at Intensive Care Units and Emergency Departments in patient treatment areas. The ability to have full visual wall systems that have a breakaway function is extremely beneficial during any type of emergency situation, including defend-in-place, evacuation as well as day-to-day care. These systems allow for observation while providing a level of privacy for the patient. These systems are also flexible enough to handle multiple levels of acuity in the same space.

It is not the intent to broaden the definition so widely as to effectively eliminate the use of corridors as exit access. This change attempts to clarify that associated support spaces of care suites, such as pharmacies, laboratories, linen rooms and storage rooms which are not located within the care suite are not required to be classified as care suites.

The proposal relaxes several requirements due to providing additional fire protection features and clarifies code intent on requirements. The 5,000 square ft limitation for care suites was in legacy building codes before sprinkler protection was required in Group I-2 occupancies. Sprinkler protection provides additional life safety to building occupants which justifies the care suite containing sleeping rooms area increase to 7,500 square ft. Providing an automatic smoke detection system throughout a care suite containing sleeping rooms or constant staff supervision into the sleeping rooms further justifies increasing the area to 10,000 square ft.

The proposal also removes the intervening room from the travel distance requirements as an intervening room is difficult to define and conflicts with industry practice for design of certain units. For example does a pair of “cross corridor” doors within a suite constitute an intervening room? A provision was added to limit the number of doors required for a patient sleeping bed to reach the exit access corridor which addresses concerns regarding patient evacuation of the suite. Current requirements make it difficult to plan the sleeping portion of the suite in under 5,000 square feet, primarily because of the required size of the patient sleeping room. In the past, a sixteen bed area could get under the space requirement, with support spaces such as clean and soiled utilities falling outside that portion of the suite. However, the Intensive Care Unit programming data supports the need for the basic patient room / staff space elements of the program can be accommodated in under 7,500 square feet, but not less than 5,000 square feet. In order to properly staff a unit, the need for unobstructed view from a nurses station to a patient room is needed. This cannot be done with the barrier to form a suite down the middle of the unit, and therefore the staff area. The proposed change enables removal of that barrier while optimizing operational efficiency of the unit, including the fire safety watch of the unit by staff.

To achieve a 7,500 square foot suite, the program becomes very limited to the spaces that are involved in the direct care of the patient, as demonstrated on the Intensive care Suite program developed for this proposal (see the “IntensiveCareUnit-7500” tab in the noted programming file). Key spaces such as the break room and utility spaces are outside of the suite, which is workable from an operational standpoint, but not ideal. Key spaces such as staff support and utility spaces are outside of the suite. Increasing to 10,000 square feet allows inclusion of staff more staff and support spaces within the suite. Operationally, this is a key

factor because the staff will not need to leave the suite on their break time, when retrieving supplies, or to access the staff toilet because it improves the response time of the staff during a medical emergency, or a fire / safety situation.

The proposal clarifies the 50 ft travel distance limitation from a patient sleeping room to an exit access door does not apply in care suites. The provision of crossing through three doors is also being introduced to help clarify what is now called out as 'intervening spaces.' Use of three doors is much clearer to a reviewer and designer, rather than defining what is an intervening space on a project-by-project basis.

The proposal also permits smoke detection to be provided in sleeping rooms of care suites where direct supervision of patients by staff is not possible. Smoke detection in the patient room provides equivalent early detection of a fire. The proposal attempts to maintain the level of life safety in care suites while providing more options to health care design professionals to facilitate excellent patient experience and treatment.

The travel distance provisions in care suites with sleeping rooms was increased to 125 ft to reach an exit access corridor based on the additional level of protection provided by direct and constant supervision into sleeping rooms by care providers or complete smoke detection throughout the suite as well as limiting the number of doors permitted for a patient sleeping bed to reach the exit access corridor.

This committee also has a correlative change to IFC with proposed language in IBC 407.8 and 907.2.6.2 coordinates with the proposed language automatic smoke detection system requirements in IBC 407.4.3.

Refer to attached "ICC_AHCHC Programming_10-10-2011.xlsx" for programming data as it relates to Intensive Care Units. This program is based on the noted version of the AIA or FGI Guidelines for Planning of Healthcare Facilities, for the support of the 7,500 square foot increases as noted above. A copy of the programming document can be found at www.iccsafe.org.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

The following errata were not posted to the ICC website.

Modify proposal as follows:

407.4.3.3 Access to Corridor. Movement from habitable rooms shall not require passage through ~~no~~ more than 3 doors and 100 feet (30 480 mm) travel distance within the suite.

Exception: The travel distance shall be permitted to be increased to 125 feet (38 100 mm) where an automatic smoke detection system is provided throughout the *care suite* and installed in accordance with NFPA 72.

Committee Action: **Approved as Submitted**

Committee Reason: The erratum is editorial to remove a double negative. The use of 'doors' instead of 'intervening rooms' provides for a more uniform enforcement when determining egress from a suite. Intervening rooms are inconsistently interpreted when dealing with anti-rooms, patient bathrooms or corridors/vestibules within the suite. The proposal will provide appropriate separation requirements for suites. The increased suite size will coordinate with what is permitted by 2012 NFPA 101.

Assembly Action: **None**

Final Hearing Results

G70-12 **AS**

Code Change No: G71-12 Part I

Original Proposal

Section(s): 407.4.2, 407.4.3.3, 407.4.3.4, 407.4.3.5, 407.5, 408.6.1, 408.8.1, 422.3,

Proponent: Philip Brazil. PE, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development (pbrazil@reidmiddleton.com)

THIS IS A 3 PART PROPOSAL AND ALL THREE PARTS ARE ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

PART I – IBC MEANS OF EGRESS

Revise as follows:

407.4.2 ~~Travel distance~~ Distance of travel. The ~~travel~~ distance of travel between any point in a Group I-2 occupancy sleeping room and an *exit access* door in that room shall be not greater than 50 feet (15 240 mm).

407.4.3.3 One intervening room. For rooms other than sleeping rooms located within a *care suite*, *exit access* travel from the *care suite* shall be permitted through one intervening room where the ~~travel~~ distance of travel to the *exit access* door from the *care suite* is not greater than 100 feet (30 480 mm).

407.4.3.4 Two intervening rooms. For rooms other than sleeping rooms located within a *care suite*, *exit access* travel within the *care suite* shall be permitted through two intervening rooms where the ~~travel~~ distance of travel to the *exit access* door from the *care suite* is not greater than 50 feet (15 240 mm).

407.4.3.5.3 ~~Travel distance~~ Distance of travel. The ~~travel~~ distance of travel between any point in a *care suite* containing sleeping rooms and an *exit access* door from that *care suite* shall be not greater than 100 feet (30 480 mm).

407.5 Smoke barriers. *Smoke barriers* shall be provided to subdivide every *story* used by persons receiving care, treatment or sleeping and to divide other *stories* with an *occupant load* of 50 or more persons, into no fewer than two *smoke compartments*. Such *stories* shall be divided into *smoke compartments* with an area of not more than 22,500 square feet (2092 m^2) and the ~~travel~~ distance of travel from any point in a *smoke compartment* to a *smoke barrier* door shall be not greater than 200 feet (60 960 mm). The *smoke barrier* shall be in accordance with Section 709.

408.6.1 Smoke compartments. The number of residents in any *smoke compartment* shall be not more than 200. The ~~travel~~ distance of travel to a door in a *smoke barrier* from any room door required as *exit access* shall be not greater than 150 feet (45 720 mm). The ~~travel~~ distance of travel to a door in a *smoke barrier* from any point in a room shall be not greater than 200 feet (60 960 mm).

408.8.1 Occupancy Conditions 3 and 4. Each sleeping area in Occupancy Conditions 3 and 4 shall be separated from the adjacent common spaces by a smoke-tight partition where the ~~travel~~ distance of travel from the sleeping area through the common space to the *corridor* exceeds 50 feet (15 240 mm).

422.3 Smoke compartments. Where the aggregate area of one or more *ambulatory care facilities* is greater than 10,000 square feet (929 m^2) on one *story*, the *story* shall be provided with a *smoke barrier* to subdivide the *story* into no fewer than two *smoke compartments*. The area of any one such *smoke compartment* shall be not greater than 22,500 square feet (2092 m^2). The ~~travel~~ distance of travel from

any point in a *smoke compartment* to a *smoke barrier* door shall be not greater than 200 feet (60 960 mm). The *smoke barrier* shall be installed in accordance with Section 709 with the exception that *smoke barriers* shall be continuous from outside wall to an outside wall, a floor to a floor, or from a *smoke barrier* to a *smoke barrier* or a combination thereof.

Reason: The change from "travel distance" to "distance of travel" more clearly distinguishes between "exit access travel distance" as specified in Section 1016 and a travel distance that is other than an exit access travel distance for which the provisions of Section 1016 do not apply. Note that Section 1016.3 specifies the measurement of exit access travel distance as being from "the most remote point within a story along the natural and unobstructed path of horizontal and vertical egress travel to the entrance to an exit," except for open parking garages and outdoor facilities with open access components where it is measured as specified therein. The sections in this proposal, however, specify the measurement of travel distance between points within the exit access (i.e., to an exit access door in Sections 407.4.2, 407.4.3.3, 407.4.3.4 and 407.4.3.5.3; to a smoke barrier door in Sections 407.5, 408.6.1 and 422.3; to an extinguisher in Section 906.2 and Tables 906.3(1) and 906.3(2); etc.).

Changing from "travel distance" to "distance of travel" in these cases is considered to be clarifying and does not change the meaning or the intent of the language. The changes will also be consistent with "distance of travel" in 2012 IBC Sections 402.8.3, 402.8.5 and 415.10.3.3. The other change in Section 2902.5 is grammatical. Based on our analysis of the 2012 IBC, all instances of "travel distance" in the 2012 IBC where a change to "distance of travel" is warranted are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

All three parts of this code change was heard by the IBC Means of Egress code development committee.

PART I – IBC MEANS OF EGRESS
Committee Action: **Approved as Submitted**

Committee Reason: The proposal clarifies within Group I-2, Group I-3 and ambulatory care facilities where a distance is not 'exit access travel distance' as the term is used in Section 1016, but is a distance utilized for other elements.

Assembly Action: **None**

Final Hearing Results

G71-12 Part I **AS**

Code Change No: G71-12 Part II

Original Proposal

Section(s): 906.2, Table 906.3(1), Table 906.3(2), 907.2.6, 907.2.10.1 (IBC [F] 906.2, Table 906.3(1), Table 906.3(2), 907.2.6, 907.2.10.1)

Proponent: Philip Brazil. PE, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development (pbrazil@reidmiddleton.com)

THIS IS A 3 PART PROPOSAL AND ALL THREE PARTS ARE ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

PART II – IFC

Revise as follows:

IFC 906.2 (IBC [F] 906.2) General requirements. Portable fire extinguishers shall be selected and installed in accordance with this section and NFPA 10.

Exceptions:

1. The ~~travel~~ distance of travel to reach an extinguisher shall not apply to the spectator seating portions of Group A-5 occupancies.
2. In Group I-3, portable fire extinguishers shall be permitted to be located at staff locations.

TABLE 906.3(1) [IBC [F] TABLE 906.3(1)]
FIRE EXTINGUISHERS FOR CLASS A FIRE HAZARDS

	LIGHT (low) HAZARD OCCUPANCY	ORDINARY (moderate) HAZARD OCCUPANCY	EXTRA (high) HAZARD OCCUPANCY
Minimum Rated Single Extinguisher	2-A [c]	2-A	4-A [a]
Maximum Floor Area per Unit of A	3,000 square feet	1,500 square feet	1,000 square feet
Maximum Floor Area for Extinguisher [b]	11,250 square feet	11,250 square feet	11,250 square feet
Maximum ~~Travel~~ Distance of Travel to Extinguisher	75 feet	75 feet	75 feet

(Portions to table not shown remain unchanged)

TABLE 906.3(2) [IBC [F] TABLE 906.3(2)]
FIRE EXTINGUISHERS FOR FLAMMABLE OR COMBUSTIBLE LIQUIDS WITH DEPTHS LESS THAN OR EQUAL TO 0.25 INCH

TYPE OF HAZARD	BASIC MINIMUM EXTINGUISHER RATING	MAXIMUM ~~TRAVEL~~ DISTANCE OF TRAVEL TO EXTINGUISHERS (feet)
Light (Low)	5-B 10-B	30 50
Ordinary (Moderate)	10-B 20-B	30 50
Extra (High)	40-B 80-B	30 50

(Portions to table not shown remain unchanged)

907.2.6 (IBC [F] 907.2.6) Group I. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group I occupancies. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be provided in accordance with Sections 907.2.6.1, 907.2.6.2 and 907.2.6.3.3.

Exceptions:

1. Manual fire alarm boxes in sleeping units of Group I-1 and I-2 occupancies shall not be required at *exits* if located at all care providers' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that ~~travel~~ the distances of travel required in Section 907.4.2.1 are not exceeded.
2. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is *approved* by the fire code official.

907.2.10.1 (IBC [F] 907.2.10.1) Manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-4 occupancies.

Exceptions:

1. A manual fire alarm system is not required in buildings not more than two *stories* in height where all individual *sleeping units* and contiguous *attic* and crawl spaces to those units are separated from each other and public or common areas by at least 1-hour *fire partitions* and each individual *sleeping unit* has an *exit* directly to a *public way*, *egress court* or *yard*.
2. Manual fire alarm boxes are not required throughout the building when the following conditions are met:
   2.1. The building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2;
   2.2. The notification appliances will activate upon sprinkler waterflow; and 2.3. At least one manual fire alarm box is installed at an *approved* location.
3. Manual fire alarm boxes in resident or patient sleeping areas shall not be required at *exits* where located at all nurses' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that ~~travel~~ the distances of travel required in Section 907.4.2.1 are not exceeded.

Reason: The change from "travel distance" to "distance of travel" more clearly distinguishes between "exit access travel distance" as specified in Section 1016 and a travel distance that is other than an exit access travel distance for which the provisions of Section 1016 do not apply. Note that Section 1016.3 specifies the measurement of exit access travel distance as being from "the most remote point within a story along the natural and unobstructed path of horizontal and vertical egress travel to the entrance to an exit," except for open parking garages and outdoor facilities with open access components where it is measured as specified therein. The sections in this proposal, however, specify the measurement of travel distance between points within the exit access (i.e., to an exit access door in Sections 407.4.2, 407.4.3.3, 407.4.3.4 and 407.4.3.5.3; to a smoke barrier door in Sections 407.5, 408.6.1 and 422.3; to an extinguisher in Section 906.2 and Tables 906.3(1) and 906.3(2); etc.).

Changing from "travel distance" to "distance of travel" in these cases is considered to be clarifying and does not change the meaning or the intent of the language. The changes will also be consistent with "distance of travel" in 2012 IBC Sections 402.8.3, 402.8.5 and 415.10.3.3. The other change in Section 2902.5 is grammatical. Based on our analysis of the 2012 IBC, all instances of "travel distance" in the 2012 IBC where a change to "distance of travel" is warranted are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

All three parts of this code change was heard by the IBC Means of Egress code development committee.

PART II – IFC
Committee Action: **Approved as Submitted**

Committee Reason: The proposal clarifies where a distance is not 'exit access travel distance' as the term is used in Section 1016, but is a distance utilized for other types of elements. The IFC deals with distance of travel to items such as fire extinguishers and fire alarm pulls.

Assembly Action: **None**

Final Hearing Results

G71-12 Part II **AS**

Code Change No: G71-12 Part III

Original Proposal

Section(s): 906.2, Table 906.3(1), Table 906.3(2), 907.2.6, 907.2.10.1 (IBC [F] 906.2, Table 906.3(1), Table 906.3(2), 907.2.6, 907.2.10.1)

Proponent: Philip Brazil. PE, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development (pbrazil@reidmiddleton.com)

THIS IS A 3 PART PROPOSAL AND ALL THREE PARTS ARE ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

PART III – IPC

Revise as follows:

403.3 (IBC [P] 2902.3.2) Location of toilet facilities in occupancies other than malls. In occupancies other than covered and open mall buildings, the required *public* and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

> **Exception:** The location and maximum ~~travel~~ distances of travel to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum ~~travel~~ distance of travel are *approved*.

403.3.4 (IBC [P] 2902.3.3) Location of toilet facilities in malls. In covered and open mall buildings, the required *public* and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 300 feet (91 440 mm). In mall buildings, the required facilities shall be based on total square footage within a covered mall building or within the perimeter line of an open mall building, and facilities shall be installed in each individual store or in a central toilet area located in accordance with this section. The maximum ~~travel~~ distance of travel to central toilet facilities in mall buildings shall be measured from the main entrance of any store or tenant space. In mall buildings, where employees' toilet facilities are not provided in the individual store, the maximum ~~travel~~ distance of travel shall be measured from the employees' work area of the store or tenant space.

403.5 (IBC [P] 2902.5) Drinking fountain location. Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a ~~travel~~ distance of travel of 500 feet of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet. Drinking fountains shall be located on an accessible route.

Reason: The change from “travel distance” to “distance of travel” more clearly distinguishes between “exit access travel distance” as specified in Section 1016 and a travel distance that is other than an exit access travel distance for which the provisions of Section 1016 do not apply. Note that Section 1016.3 specifies the measurement of exit access travel distance as being from “the most remote point within a story along the natural and unobstructed path of horizontal and vertical egress travel to the entrance to an exit,” except for open parking garages and outdoor facilities with open access components where it is measured as specified therein. The sections in this proposal, however, specify the measurement of travel distance between points within the exit access (i.e., to an exit access door in Sections 407.4.2, 407.4.3.3, 407.4.3.4 and 407.4.3.5.3; to a smoke barrier door in Sections 407.5, 408.6.1 and 422.3; to an extinguisher in Section 906.2 and Tables 906.3(1) and 906.3(2); etc.).

Changing from “travel distance” to “distance of travel” in these cases is considered to be clarifying and does not change the meaning or the intent of the language. The changes will also be consistent with “distance of travel” in 2012 IBC Sections 402.8.3, 402.8.5 and 415.10.3.3. The other change in Section 2902.5 is grammatical. Based on our analysis of the 2012 IBC, all instances of “travel distance” in the 2012 IBC where a change to “distance of travel” is warranted are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

All three parts of this code change was heard by the IBC Means of Egress code development committee.

PART III – IPC
Committee Action: **Approved as Submitted**

Committee Reason: The proposal clarifies where a distance is not 'exit access travel distance' as the term is used in Section 1016, but is a distance utilized for other types of elements. The IPC deals with distance of travel to items such as toilet rooms and drinking fountains.

Assembly Action: **None**

Final Hearing Results

G71-12 Part III **AS**

Code Change No: G72-12

Original Proposal

Section(s): 407.4.3, 407.4.3.5 (NEW)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Revise as follows:

407.4.3 Group I-2 care suites. *Care suites* in Group I-2 shall comply with Section 407.4.3.1 through ~~407.4.3.4~~ 407.4.3.5 and either Section ~~407.4.3.5~~ 407.4.3.6 or ~~407.4.3.6~~ 407.4.3.7.

407.4.3.5 Doors within care suites. Doors within care suites serving habitable rooms shall be permitted to comply with one of the following:

1. Manually operated horizontal sliding doors permitted in accordance with Exception 9 to Section 1008.1.2.
2. Power-operated doors permitted in accordance with Exception 7 to Section 1008.1.2.
3. Means of egress doors complying with Section 1008.

(Renumber subsequent sections)

Reason: This code proposal is intended to help improve the code by identifying what is permitted for doors installed within Group I-2 care suites.

Within care suites, patient rooms and treatment rooms are generally not required by the IBC to have doors. However, for clinical needs (infection control, privacy, confidentiality, etc.), doors are commonly required within care suites to patient rooms or treatment rooms.

BHMA members are experiencing varying interpretations and code enforcement actions for the doors installed within Group I-2 care suites. The IBC may be considered less than explicitly clear as to what is specifically required, or allowed, for doors installed within Group I-2 care suites.

We realize, from a technical perspective, this proposed language does not add new requirements to the code. We also realize a user of the IBC could determine what is required and what is not required – and, by default, what is allowed – for doors installed within I-2 care suites. Examples: a door installed in a fire-resistance rated wall would need to be fire-resistance rated (however, doors within I-2 care suites are rarely required to be fire-resistance rated). Similar for smoke partitions. Most doors and doorways in I-2 care suites need to meet egress and accessibility requirements, which is usually a non-issue as these doors and doorways are configured for patient movement by wheelchair and hospital bed.

Unfortunately, BHMA members are experiencing differences in interpretation and application of the code (example: not approving manually operated horizontal sliding doors serving patient sleeping rooms in a care suite) making it difficult to confidently assist building owners, architects, contractors, and other stakeholders with their projects.

With this proposal, we're attempting to provide appropriate guidance as to what is permitted for doors installed within Group I-2 care suites.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The allowance for horizontal sliding doors, manual or automatic, are needed within care suites in Group I-2 for infection controls and patient access. Allowing these types of doors would not reduce life/safety within these areas for staff or

patients. However, the committee felt that Section 407.4.3.5, Exception 3 was redundant and should be deleted. There was also a concern that 'care suites' might be interpreted as areas outside of Group I-2 hospitals.

Assembly Action: **None**

Final Hearing Results

G72-12 **AS**

Code Change No: G73-12

Original Proposal

Section(s): 407.4.3 (NEW), 1005.7.1.2; (IFC [B] 1005.7.1.2)

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

THIS CODE CHANGE WILL BE HEARD BY THE IBC MEANS OF EGRESS COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Add new text as follows:

407.4.3 Projections in corridors. In Group I-2 nursing homes, where the *corridor* width is a minimum of 96 inches (2440 mm), projections shall be permitted for furniture where all of the following conditions are met:

1. The furniture is attached to the floor or to the wall.
2. The furniture does not reduce the clear width of the *corridor* to less than 72 inches (1830 mm) except where other encroachments are permitted in accordance with Section 1005.7.
3. The furniture is positioned on only one side of the *corridor.*
4. Each arrangement of furniture is 50 square feet (4.6 square meters) maximum in area.
5. Furniture arrangements are separated by 10 feet (3050 mm) minimum.
6. Placement of furniture is considered as part of the fire and safety plans in accordance with Section 1001.4.

Revise as follows:

1005.7.2 (IFC [B] 1005.7.2) Other projections. *Handrail* projections shall be in accordance with the provisions of Section 1012.8. Other nonstructural projections such as trim and similar decorative features shall be permitted to project into the required width a maximum of 1½ inches (38 mm) on each side.

Exception: Projections are permitted in corridors within Group I-2 nursing homes in accordance with Section 407.4.3.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Many nursing homes have long corridors that residents must traverse. Current interpretation of the IBC precludes the provision of resident seating in nursing home hallways/corridors to assure that egress is unobstructed in the event of an emergency. Residents who are physically unable to traverse the distance without being able to rest periodically have little recourse but use a wheelchair, an outcome counter to maintaining their ambulatory skills.

In addition, changes to facility operations in health care facilities no longer require staff to routinely move residents in beds, coupled with the relatively low occupant load in healthcare facilities, makes 8 ft of clear corridor width often unnecessary.

The primary substantiation to the proposal is as follows:

1. Furniture appropriately placed at defined intervals along hallways/corridors can promote a resident's ability to maintain his/her highest practical level of functioning and maintain independence. Allowing rest areas (small chairs, benches or grouped seating placed at different points) affords residents the opportunity to walk a distance, rest and then continue independently to their destination, and can enhance resident quality of life and help prevent resident falls and preventable decline in function.
2. In addition to promoting resident independence and mobility, seating placed in hallways/corridors may help to foster social opportunities and create a more homelike environment. Prohibiting such seating areas could diminish opportunities for socialization, and independence. The use of such seating areas will allow resident and staff greater flexibility in choosing safe places to rest.

3. This provision would require that furniture located within the corridor be fixed in place to eliminate the risk that the furniture could be moved into needed egress path. Furniture could be fixed to the floor or wall using a bracket, which would allow removal for maintenance and cleaning purposes.
4. For the fixed furniture, this provision maintains a minimum clear egress width of 6 feet. It also limits the frequency of such furniture groupings so that the 8 ft width is otherwise maintained.
5. This provision also requires that all of the groupings be located to one side of the corridor, so that in an emergency event, the path of travel would be clear on one side of the corridor and zig zagging the corridor would not be required.

Cost Impact: The proposed changes will not increase the cost of construction. There will be a reduction

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Allowance in Group I-2 nursing homes for limited furniture located along the corridor will increase the quality of life for residents without a decrease in safety. This allowance is already permitted by the certification requirements and NFPA 101. Concerns for zig-zag egress paths and non-fixed furniture have been addressed.

Assembly Action: **None**

Final Hearing Results

G73-12 **AS**

Code Change No: G74-12

Original Proposal

Section(s): 407.4.3.2

Proponent: Lennon Peake, P.E., Koffel Associates, Inc., representing self (lpeake@koffel.com)

Revise as follows:

407.4.3.2 Separation. *Care suites* shall be separated from other portions of the building, including other care suites, by a smoke partition complying with Section 710.

Reason: The existing language only references that care suites must be separated from other portions of the building and could be interpreted that care suites are not required to be separated from each other. The intent of the proposal is to clarify that care suites must be separated from other care suites by a smoke partition especially since Paragraph 407.4.3.1 permits egress through an adjoining suite.

Cost Impact: There is no cost impact as a result of this proposal as it is intended to clarify existing requirements.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved based upon the proponent's reason.

Assembly Action: **None**

Final Hearing Results

G74-12	**AS**

Code Change No: G75-12

Original Proposal

Section(s): 407.4.3.6.1

Proponent: Lennon Peake, P.E., Koffel Associates, Inc., representing self (lpeake@koffel.com)

Revise as follows:

407.4.3.6.1 Area. *Care suites* of rooms, other than sleeping rooms, shall have an area not greater than ~~10,000~~ 12,000 square feet (~~929~~ 1 161 m^2).

Exception: *Care suites* not containing sleeping rooms shall be permitted to be not greater than 15,000 sq feet (1 394 m^2) in area where an automatic smoke detection system is provided throughout the *care suite* in accordance with Section 907.

Reason: The 10,000 square ft limitation for care suites not containing sleeping rooms was in Codes before sprinkler protection was required in Group I-2 occupancies. Sprinkler protection provides additional life safety to building occupants which justifies the area increase to 12,500 square ft. Providing an automatic smoke detection system throughout a care suite provides an additional level of life safety which justifies increasing the area to 15,000 sq ft. Sprinkler protection and smoke detection are very effective measures of providing life safety to building occupants address the proposed increase in the area of a care suite not containing sleeping rooms.

Cost Impact: There is not cost impact as a result of this proposal as it allows more options in the design of a suite.

Public Hearing Results

Errata as shown below are contained in the Updates to the 2012 Proposed Changes posted on the ICC website. Please go to http://www.iccsafe.org/cs/codes/Pages/12-13-ProposedChanges-A.aspx for more information.

Modify proposal as follows:

407.4.3.6.1 Area. *Care suites* of rooms, other than sleeping rooms, shall have an area not greater than ~~12,000~~ 12,500 square feet (1161 m^2).

Exception: *Care suites* not containing sleeping rooms shall be permitted to be not greater than 15,000 square feet (1394 m^2) in area where an automatic smoke detection system is provided throughout the *care suite* in accordance with Section 907.

Committee Action: **Approved as Submitted**

Committee Reason: The proposal coordinates with the needs of the healthcare industry. The number of patients does not increase instead simply the area needed for each care suite is increased.

Assembly Action: **None**

Final Hearing Results

G75-12 **AS**

Code Change No: G76-12

Original Proposal

Section(s): 407.5

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Healthcare

Revise as follows:

407.5 Smoke barriers. *Smoke barriers* shall be provided to subdivide every *story* used by persons receiving care, treatment or sleeping and to divide other *stories* with an *occupant load* of 50 or more persons, into no fewer than two *smoke compartments*. Such *stories* shall be divided into *smoke compartments* with an area of not more than 22,500 square feet (2092 m^2)in Group I-2 occupancies and not more than 40,000 square feet in Group I-2 hospitals and the travel distance from any point in a *smoke compartment* to a *smoke barrier* door shall be not greater than 200 feet (60 960 mm). The *smoke barrier* shall be in accordance with Section 709.

Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering, a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

This code change addresses outdated code material. Historically, smoke compartment size has been driven by the allowable travel distance within the smoke compartment. Past code changes have increased the travel distance without a corresponding change in smoke compartment size. Secondly, the size of the functional patient areas has increased, but the occupant load has remained the same or has been reduced. Therefore, we are asking for an increase in smoke compartment size to accommodate the operational needs of the modern hospital.

A summary of the history of smoke compartment requirements is as a requirement is as follows:

- October 1984 BCMC – Maximum length and width equals 150 feet.
- 1987 BOCA – 610.5 – Maximum length and width equals 150 feet
- 1992 BOCA Supplement – 610.4 – 22,500 uare feet, with maximum travel distance of 150 feet.
- Code Change No. B20-95 – 22,500 square feet, with maximum travel distance proposed to be increased to 200 feet.
- 1996 BOCA – 409.4 - 22,500 square feet, with maximum travel distance of 200 feet.
- 2000 IBC – 407.4 - 22,500 square feet, with maximum travel distance of 200 feet.

Originally, there was no limit to smoke compartment size, other what was imposed by travel distance. The 22,500 square foot requirement was based on the old travel distance requirement of 150 feet, and used it to extrapolate an area (150ft x150ft = 22,500 square feet). This proposal uses the same logic and applies the current 200 foot travel distance maximum (200ft x200ft), resulting in a 40,000 square foot smoke compartment. This proposal would maintain the existing requirement that each floor be divided into two smoke compartments. Practically the requirement for 200' travel distance within smoke compartments will still drive smaller smoke compartment sizes in some cases.

Over the past 20 years, there has been a steady increase in the size of patient treatment rooms in hospitals. The primary reason for the increase is the equipment and utilities necessary for the treatment of a patient, such as patient monitoring, gases, and diagnostics equipment, while maintaining space for staff access to the patient. In response, the widely adopted and enforced "*Guidelines for the Design and Construction of Health Care Facilities"* from the FGI Institute have also increased, making these operational considerations actual code requirements. In the case of the inpatient units, the adoption of a single bed in a patient room has had the largest impact on square footage, while not significantly increasing the number of occupants on the unit.

The concept of an "individual patient space" is becoming the standard design in other types throughout the hospital. Many emergency departments are opting for private patient exam spaces with hard walls, primarily for infection control and patient privacy considerations. Similarly, radiology areas are being driven by technology and clearance issues which go beyond the required minimums, and have impacts on square footages to achieve clearances. In some units, there has also been an increase in the types of required support spaces, including ratios of equipment storage per treatment room, the increased importance of computer equipment rooms, and various staff areas. However, support spaces have remained largely the same, while the main increases

have been in the size of the patient treatment areas themselves. While these spaces have been increasing in size, the smoke compartment size requirements have been left unchanged in the building codes.

When studying the contemporary sizes of functions such as emergency departments, radiology operations, and bed units, the larger size allows for greater visualization from the staff to the patient, which is a crucial aspect of planning a patient area. This operational consideration could more easily be achieved before the increase in patient areas, but the same operational considerations require an increase to the smoke zone size to match contemporary requirements, delivery of care and technologies. Attached is a study of space programs which compare the 2010 Guideline requirements with the 1996-97 Guidelines. In short, today's hospital takes more square footage to care for the same amount of patients. These programs demonstrate the need to increase to 40,000 square foot smoke compartment. See program analysis at the following link.
http://www.iccsafe.org/cs/AHC/Pages/WG-General.aspx

Cost Impact: This proposal will help to decrease the cost of construction. Increasing the compartment size will reduce the number of smoke and fire dampers and lifetime maintenance costs could proportionately decrease.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved based upon lack of technical justification. Travel distance was not felt to be a sufficient justification for the increase. Also the increase was seen as too large and perhaps can be accomplished in an incremental fashion. Also there was concern that this increase was being made without revising the occupant loads in Chapter 10. There was also concern with the size of refuge areas based upon a potential increase in occupant load.

Assembly Action: **None**

Public Comments

Public Comment 1:

John Williams, CBO, Chair, ICC Ad Hoc Committee on Healthcare, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

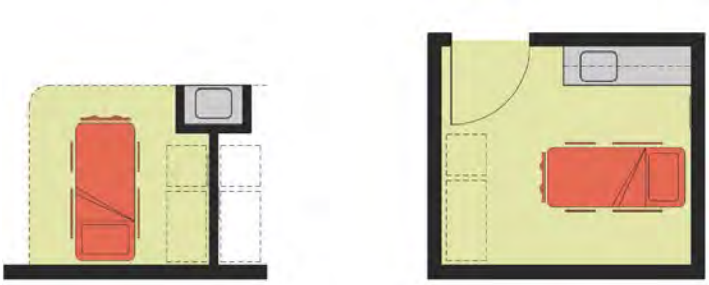
407.5 Smoke barriers. *Smoke barriers* shall be provided to subdivide every *story* used by persons receiving care, treatment or sleeping and to divide other *stories* with an *occupant load* of 50 or more persons, into no fewer than two *smoke compartments*. Such *stories* shall be divided into *smoke compartments* with an area of not more than 22,500 square feet (2092 m^2) in Group I-2 ~~occupancies~~ nursing homes and not more than 40,000 square feet in Group I-2 hospitals and the travel distance from any point in a *smoke compartment* to a *smoke barrier* door shall be not greater than 200 feet (60 960 mm). The *smoke barrier* shall be in accordance with Section 709.

Commenter's Reason: The revised smoke compartment size was specifically intended only to apply to hospitals. This public comment is being submitted to respond to the concerns of the General Committee.

To clarify the practical application of smoke compartments in Group I-2 hospitals, they are routinely unable to consistently be maximized at the current 22,500 square feet. Due to programmatic concerns, the average compartment is between 14,000 and 18,000 square feet. When planning space, and the 22,500 square foot limit is reached, the programmatic needs of the functional area are subdivided to respond to the required limit. For example, an emergency department that has 50 bays, which may be able to exist in a 28,000 square foot area with proper staffing, would be divided into two areas of 14,000 square feet to satisfy the code requirement, sacrificing needed visual by installing the barrier down the middle.

The reason that our sample ED can exist in 28,000 square feet is because other regulatory issues cause the spaces to be larger. Exam bays have gone from 80 square feet to 100 square feet, imaging rooms have gone from 120 square feet to 180 square feet because the equipment and their servers have gotten bigger, and new medical/surgical rooms are mandated to have one bed in them, when two beds was acceptable prior to these new regulations. As these requirements have caused spaces to become larger, the smoke zone size has not followed in kind. What used to fit comfortably within the 22,500 square foot area can no longer fit, while treating the same number of patients and accommodating the same number of staff.

The same logic caused the need for larger suite sizes, which was recommended for approval in this code cycle. The supporting programming documentation was intended to describe and compare how the same spaces have grown as described above. Below are graphic representations of examples of spaces that have grown, and demonstrate that the same number of occupants are working and being treated in the space as before, which does not increase the occupant load.



1996
80 square feet

2010
100 square feet

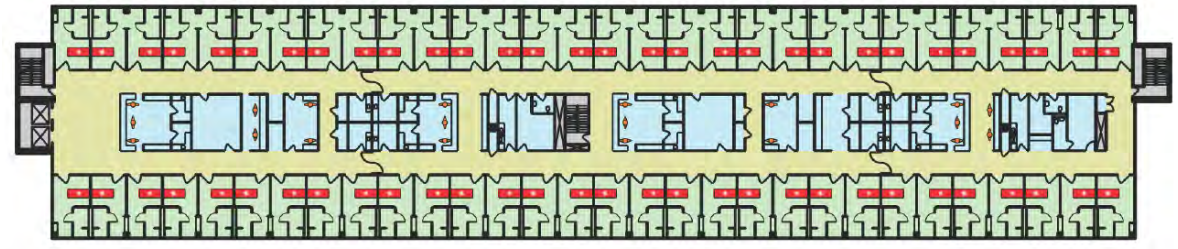
The sketch above describes an emergency department patient bay. What used to be able to be constructed in 80 square feet now requires 100 square feet.

1996 Guideline

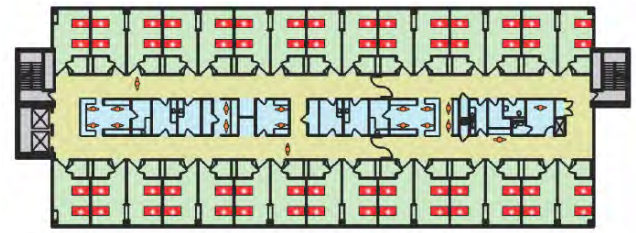
2010 Guideline

Similarly, the sketch above shows a typical MRI suite. In past years, the zoning of the equipment space was more flexible. The requirement is now based on the American College of Radiology's "Guidance Document for Safe MR Practices," 2007 version, page 3, Figure 1. The four-zone approach requires the use of more buffer spaces, increasing the square footage needed to configure the suite.

In terms of occupant load, increasing the square foot per occupant would have no effect. All aspects of egress are set via travel distance and functional need to move beds and stretchers through the facility doors and corridors. For example, corridors are required to be 96 inches, doors a minimum of 32 inches, etc. If these widths were calculated from the occupancy load, they would be drastically smaller, which serves no functional purpose and are not desired. Increasing the square foot per occupant only makes this discrepancy greater.



2010 Guideline



1996 Guideline

The sketch above demonstrates the impact of occupants on the increased space needed to treat the same number of patients as well as house the same number of staff. Increased requirements for support spaces, such as computer server closets, soiled utility, increased storage per room and staff support spaces has cause the support “core” to increase. This in addition to patient rooms that are allowed to only have one bed, rather than the past allowance for two beds per patient room.

The previously submitted packages also demonstrate various functional programs within the hospital, with compliant space requirements. For example, a medical/surgical bed unit can fit into approximately 34,000 square feet, an emergency department can fit into about 30,000 square feet, and a radiology imaging area into 38,000 square feet. This demonstrates that a hospital would not go to maximize the compartment size, as is the case now, but to allow the functional and staffing considerations drive the size of the compartment, and not for the sake of the 22,500 number.

The problem of zone barriers occurs mostly on the lower floors, which is why having this increase occur in only areas that do not contain patient sleeping beds. The bed floors are subject to the requirement of a minimum of two smoke zones per floor, which is key to the defend in place concept and horizontal bed movement if needed. A floor plate of two 22,500 square foot smoke zones is still a workable in terms of planning a floor. This issue rises in emergency departments, radiology areas, observation units, which routinely occur on the lower floors of the hospital, and have much larger floor plates.

The varying size of the program square footages also make it difficult to establish an incremental smoke zone size, as suggested by the committee at the Code Action Hearings. This leads us to the logical next step of using the currently allowed 200 foot travel distance to exits as the limiting factor for the zone size. This is not the primary reason for seeking the increase in smoke size, but the figure that makes the most sense given where the original 22,500 was derived: from the 150 smoke zone distance as described in the original reason statement. For support of the concept that the travel distance set the original smoke zone size, please see IEBC, paragraph 803.3.1, allows unlimited travel distance in buildings of 150 feet by 150 feet.

Therefore, using 200 foot travel distance as the basis for the zone increase is the most logical approach to allow the needed planning flexibility to maximize visual to patients, and have staffing and care delivery set the size of the compartment in the building.

This proposal is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 7 open meetings and over 100 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx .

The AHC is proposing a revision to address some of the oversights in the I-Codes of long-standing and operational requirements for hospitals and healthcare facilities that has not been specifically addressed. The requirements being proposed in this code change have been long-standing provisions of the construction and operational requirements for healthcare facilities.

Cost Impact: This proposal will help to decrease the cost of construction. Increasing the compartment size will reduce the number of smoke and fire dampers and lifetime maintenance costs could proportionately decrease.

Final Hearing Results

G76-12 **AMPC1**

Code Change No: G78-12

Original Proposal

Section(s): 407.10

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Healthcare

Revise as follows:

SECTION 425
HYBERBARIC FACILITIES

~~407.10~~ 425.1 Hyperbaric facilities. Hyperbaric facilities ~~in Group I-2 occupancies~~ shall meet the requirements contained in Chapter 20 of NFPA 99.

Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and asses' contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering, a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx
This code change expands the scope of an existing requirement to include all of the occupancies that have hyberbaric chambers installed.
Hyperbaric chambers are used in multiple occupancy types, not just Group I-2. Most of the typical patients that use these devices are outpatients, and are typically housed in Group B occupancies. As the popularity of these devices increase, *these are showing up in residential settings as well*. This proposal would increase the scope of these requirements to anywhere a hyperbaric chamber is seen.

Cost Impact: This change will increase the cost of construction for facilities that are not currently federally certified.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The hazard of hyperbaric facilities is the same regardless of the occupancy they are located and should be regulated in all occupancies. The application should not be limited only to Group I-2 Occupancies.

Assembly Action: **None**

Final Hearing Results

G78-12 **AS**

Code Change No: G80-12

Original Proposal

Section(s): 407.11(New), IFC 604.2.15 (New) [IBC [F] 2702.2.16 (New)]

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Add new text as follows:

407.11 Electrical systems. In Group I-2 occupancies, the essential electrical power for electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of Chapter 27 and NFPA 99.

Add new text as follows:

IFC 604.2.15 (IBC [F] 2702.2.16) Group I-2 Occupancies. Essential electrical power for Group I-2 occupancies shall be in accordance with Section 407.11.

Reason: Currently emergency power systems are required to comply with NFPA 99 by the Center for Medicare/Medicaid Services (CMS) in order for a facility to receive federal reimbursement funds. Providing the code language requiring compliance with NFPA 99 will ensure the required power system is provided in Group I-2 occupancies. While there is a reference to NFPA 99 in NFPA 70, there is no direct reference. This closes up a gap in the requirements. A reference to Chapter 27 will comprehensively address electrical systems including references to NFPA 70, 110 and 111.

This proposal is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx .

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was consistent with G77-12 which was Approved as Submitted. This proposal references NFPA 99 which provides a method of understanding the particular risks of a facility. This proposal adds additional clarification as to what is required for Group I-2 occupancies. G77-12 should be coordinated with G80-12.

Assembly Action: **None**

Public Comments

Public Comment:

John Williams, Adhoc Health Care – MOE study group, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

407.11 Electrical systems. In Group I-2 occupancies, the essential electrical ~~power~~ system for electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of Chapter 27 and NFPA 99.

IFC 604.2.15 (IBC [F] 2702.2.16) Group I -2 Occupancies. Essential electrical ~~power~~ systems for Group I-2 occupancies shall be in accordance with Section 407.11.

Commenter's Reason: The intent of the modification would be to revise the term "essential electrical power" to use the NFPA defined term as defined by NFPA 99-2012, as follows:

3.3.48 Essential Electrical System. A system comprised of alternate sources of power and all connected distribution systems and ancillary equipment, designed to ensure continuity of electrical power to designated areas and functions of a health care facility during disruption of normal power sources, and also to minimize disruption within the internal wiring system.

Appendix commentary: A.3.3.48 Essential Electrical System. The essential electrical system can be comprised of three branches: life safety branch, critical branch, and equipment branch.

In addition, the intent is to coordinate this proposal with G77. Chapter 27 has a reference to NFPA 110 for the review of the system. NFPA 99 allows the use of the risk based approach for analysis of the fuel and water supply needs.

The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 7 open meetings and over 100 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

Final Hearing Results

G80-12 **AMPC1**

Code Change No: G83-12

Original Proposal

Section(s): 410.3.5

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Won-Door Corporation (wkoffel@koffel.com)

Revise as follows:

410.3.5 Proscenium curtain. Where a proscenium wall is required to have a fire-resistance rating , the stage opening shall be provided with a fire curtain complying with NFPA 80, a horizontal sliding doors having a fire protection rating of at least one hour, or an approved water curtain complying with Section 903.3.1.1 or, in facilities not utilizing the provisions of smoke-protected assembly seating in accordance with Section 1028.6.2, a smoke control system complying with Section 909 or natural ventilation designed to maintain the smoke level at least 6 feet (1829 mm) above the floor of the means of egress

Reason: Horizontal sliding doors can be used to protect proscenium openings without interfering with the operational considerations of the proscenium opening. A horizontal sliding door with a fire protection rating of at least one hour offers a level of protection greater than that provided by a fire curtain which is tested for a fire exposure of 30 minutes and the acceptance criteria does not include either the hose stream (included in the fire test for horizontal sliding doors or temperature rise criteria which is also not included in a fire protection rating).

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it is a viable design option for the protection of stages.

Assembly Action: **None**

Public Comments

Public Comment:

William E. Koffel, P.E., Koffel Associates, Inc., representing Won-Door Corporation, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

410.3.5 Proscenium curtain. Where a proscenium wall is required to have a fire-resistance rating , the stage opening shall be provided with a fire curtain complying with NFPA 80, horizontal sliding doors complying with Section 716.5.2 and having a fire protection rating of at least one hour, or an approved water curtain complying with Section 903.3.1.1 or, in facilities not utilizing the provisions of smoke-protected assembly seating in accordance with Section 1028.6.2, a smoke control system complying with Section 909 or natural ventilation designed to maintain the smoke level at least 6 feet (1829 mm) above the floor of the means of egress.

Commenter's Reason: Although not noted in the Committee Report during the Dallas hearings it was noted that a reference to Chapter 7 should be included in the new text concerning horizontal sliding doors. As such, a reference to Section 716.5.2 has been proposed.

Final Hearing Results

G83-12 **AMPC**

Code Change No: G84-12

Original Proposal

Section(s): 410.3.6, 424.2, 3102.3, 3102.3.1, 3102.6.1.1, 3105.4, D102.2.8

Proponent: Marcelo Hirschler GBH International, representing self

Revise as follows:

410.3.6 Scenery. Combustible materials used in sets and scenery shall meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701, in accordance with Section 806 and the *International Fire Code*. Foam plastics and materials containing foam plastics shall comply with Section 2603 and the *International Fire Code*.

424.2 Materials. Children's play structures shall be constructed of noncombustible materials or of combustible materials that comply with the following:

1. through 4. *(no change)*
5. Textiles and films complying with the ~~flame~~ fire propagation performance criteria contained in Test Method 1 or Test Method 2, as appropriate, of NFPA 701.
6. through 7. *(no change)*
8. Foam plastics shall be covered by a fabric, coating or film meeting the ~~flame~~ fire propagation performance criteria contained in Test Method 1 or Test Method 2, as appropriate, of NFPA 701.
9. *(no change)*

3102.3 Type of construction. Noncombustible membrane structures shall be classified as Type IIB construction. Noncombustible frame or cable-supported structures covered by an *approved* membrane in accordance with Section 3102.3.1 shall be classified as Type IIB construction. Heavy timber frame-supported structures covered by an *approved* membrane in accordance with Section 3102.3.1 shall be classified as Type IV construction. Other membrane structures shall be classified as Type V construction.

Exception: Plastic less than 30 feet (9144 mm) above any floor used in greenhouses, where occupancy by the general public is not authorized, and for aquaculture pond covers is not required to meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701.

3102.3.1 Membrane and interior liner material. Membranes and interior liners shall be either noncombustible as set forth in Section 703.5 or meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701 and the manufacturer's test protocol.

Exception: Plastic less than 20 mil (0.5 mm) in thickness used in greenhouses, where occupancy by the general public is not authorized, and for aquaculture pond covers is not required to meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701.

3102.6.1.1 Membrane. A membrane meeting the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701 shall be permitted to be used as the roof or as a skylight on buildings of Types IIB, III, IV and V construction, provided it is not less than 20 feet (6096 mm) above any floor, balcony or gallery.

3105.4 Canopy materials. *Canopies* shall be constructed of a rigid framework with an *approved* covering that meets the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of

NFPA 701 or has a *flame spread index* not greater than 25 when tested in accordance with ASTM E 84 or UL 723.

D102.2.8 Permanent canopies. Permanent canopies are permitted to extend over adjacent open spaces provided all of the following are met:

1. The canopy and its supports shall be of noncombustible material, *fire-retardant-treated wood*, Type IV construction or of 1-hour fire-resistance-rated construction.

   Exception: Any textile covering for the canopy shall meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701 ~~be flame resistant as determined by tests conducted in accordance with NFPA 701~~ after both accelerated water leaching and accelerated weathering.

2. Any canopy covering, other than textiles, shall have a *flame spread index* not greater than 25 when tested in accordance with ASTM E 84 or UL 723 in the form intended for use.
3. The canopy shall have at least one long side open.
4. The maximum horizontal width of the canopy shall not exceed 15 feet (4572 mm).
5. The *fire resistance* of *exterior walls* shall not be reduced.

Reason: There is an additional issue, as discussed below and that addresses the potential for providing misleading test results.

In 1989 the NFPA Technical Committee on Fire Tests eliminated the so-called “small-scale test” from NFPA 701 because the results had been shown not to represent a fire performance that corresponded to what happened in real scale. Instead of the “small-scale test” NFPA 701 now (and for over 20 years) contains two tests (Test 1 and Test 2), which apply to materials as indicated by the text of NFPA 701 (2010) that is shown at the bottom of this proposal.

However, a large number of manufacturers continue stating that the materials or products that they sell have been tested to NFPA 701, when they really mean the pre-1989 small-scale test in NFPA 701. That test no longer exists and materials or products meeting that test do not exhibit acceptable fire performance.

Text of NFPA 701 (2010):

1.1.1.1 Test Method 1 shall apply to fabrics or other materials used in curtains, draperies, or other window treatments. Vinyl-coated fabric blackout linings shall be tested according to Test Method 2.

1.1.1.2 Test Method 1 shall apply to single-layer fabrics and to multilayer curtain and drapery assemblies in which the layers are fastened together by sewing or other means. Vinyl-coated fabric blackout linings shall be tested according to Test Method 2.

1.1.1.3 Test Method 1 shall apply to specimens having an areal density less than or equal to 700 g/m^2 (21 oz/yd^2), except where Test Method 2 is required to be used by 1.1.2.

1.1.2.1 Test Method 2 (flat specimen configuration) shall be used for fabrics, including multilayered fabrics, films, and plastic blinds, with or without reinforcement or backing, with areal densities greater than 700 g/m^2 (21 oz/yd^2).

1.1.2.2 Test Method 2 shall be used for testing vinyl-coated fabric blackout linings and lined draperies using a vinyl-coated fabric blackout lining.

1.1.2.3 Test Method 2 shall be used for testing plastic films, with or without reinforcement or backing, when used for decorative or other purposes inside a building or as temporary or permanent enclosures for buildings under construction.

1.1.2.4 Test Method 2 shall apply to fabrics used in the assembly of awnings, tents, tarps, and similar architectural fabric structures and banners.

Note also the following from the text of NFPA 701 (2010):

1.2* Purpose.

1.2.1 The purpose of Test Methods 1 and 2 shall be to assess the propagation of flame beyond the area exposed to the ignition source.

A.1.1 A small-scale test method appeared in NFPA 701 until the 1989 edition. It was eliminated from the test method because it has been shown that materials that “pass” the test do not necessarily exhibit a fire performance that is acceptable. The test was not reproducible for many types of fabrics and could not predict actual full-scale performance. It should not, therefore, be used.

A.1.1.1 For the purposes of Test Method 1, the terms curtains, draperies, or other types of window treatments, where used, should include, but not be limited to, the following items:

(1) Window curtains
(2) Stage or theater curtains
(3) Vertical folding shades
(4) Roll-type window shades
(5) Hospital privacy curtains
(6) Window draperies
(7) Fabric shades or blinds
(8) Polyvinyl chloride blinds
(9) Horizontal folding shades
(10) Swags

Examples of textile items other than window treatments to which Test Method 1 applies include:

(1) Table skirts
(2) Table linens

(3) Display booth separators
(4) Textile wall hangings
(5) Decorative event tent linings not used in the assembly of a tent

In addition to the clarification of the test criteria of NFPA 701 two additional revisions are proposed as follows:

- Section 424.2 has been revised to use the terminology “fire propagation” versus “flame propagation” to be consistent with all other references to NFPA 701 in the IBC.
- Section D102.2.8 was revised to remove “flame resistant” terminology. Throughout the ICC set of codes, the references to NFPA 701 have been revised to be more precise and address “fire propagation performance criteria of NFPA 701” rather than talk about “flame resistant” or “flame retardant”. NFPA 701 does not measure whether a material or product is “flame resistant” or “flame retardant” but whether it meets its “fire propagation performance criteria”. Apparently I missed this section.

Cost impact: This code change proposal will increase the cost of construction, but only minimally.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it clarifies that in order to comply with NFPA 701 the product needs to comply specifically with either Test Method 1 or test method 2 of NFPA 701.

Assembly Action: **None**

Final Hearing Results

G84-12 **AS**

Code Change No: G85-12

Original Proposal

Section(s): 202, 410.6.2, 1015.2.1 (IFC [B] 1015.2.1), 1022.7 (IFC [B] 1022.7), 3007.7.1

Proponent: Philip Brazil. PE, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development (pbrazil@reidmiddleton.com)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Revise as follows:

EXIT ACCESS DOORWAY. A door or access point along the path of egress travel from an occupied room, area or space where the path of egress enters an intervening room, *corridor*, *exit access stair*<u>*way*</u> or *exit access ramp*.

Revise as follows:

410.6.2 Stairway and ramp enclosure. *Exit access stairways* and *ramps* serving a *stage* or *platform* are not required to be enclosed. *Exit access stairways* <u>and *ramps*</u> serving *technical production areas* are not required to be enclosed.

Revise as follows:

1015.2.1 (IFC [B] 1015.2.1) Two exits or exit access doorways. Where two *exits* or *exit access doorways* are required from any portion of the *exit access*, the *exit* doors or *exit access doorways* shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between *exit* doors or *exit access doorways*. Interlocking or *scissor stairs* shall be counted as one *exit stairway*.

Exceptions:

1. Where *interior exit stairways* <u>or *ramps*</u> are interconnected by a 1-hour fire-resistance-rated *corridor* conforming to the requirements of Section 1018, the required *exit* separation shall be measured along the shortest direct line of travel within the *corridor*.
2. Where a building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2, the separation distance of the *exit* doors or *exit access doorways* shall not be less than one-third of the length of the maximum overall diagonal dimension of the area served.

1022.7 (IFC [B] 1022.7) Interior exit stairway and ramp exterior walls. *Exterior walls* of the *interior exit stairway* ~~and~~ <u>or</u> *ramp* shall comply with the requirements of Section 705 for exterior walls. Where nonrated walls or unprotected openings enclose the exterior of the *stairway* <u>or *ramp*</u> and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the building *exterior walls* within 10 feet (3048 mm) horizontally of a nonrated wall or unprotected opening shall have a *fire-resistance rating* of not less than 1 hour. Openings within such *exterior walls* shall be protected by opening protectives having a *fire protection rating* of not less than 3/4 hour. This construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the topmost landing of the *stairway* <u>or *ramp*</u> or to the roof line, whichever is lower.

Revise as follows:

3007.7.1 Access. The fire service access elevator lobby shall have direct access to an enclosure for an *interior exit stairway* or *ramp*.

Reason: The addition of "ramp(s)" is for consistency with "exit access stairway or ramp," "interior exit stairway or ramp" and "stairway or ramp" throughout the 2012 IBC, where applicable, which was established with the approved changes from Proposal E5-09/10-AS. In the definition of "exit access doorway" in Section 202, the change from "stair" to "stairway" is for consistency with the use of "exit access stairway" for the same reason. In Section 1022.7, the change from "and" to "or" is grammatical. Based on our analysis of the 2012 IBC, there are no other instances of "exit access stairway" or "interior exit stairway" where the addition of "ramp(s)" is warranted.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Ramps should be permitted as an egress element the same as stairways for egress from stages (Section 410.6.2) where looking at separation of exits on a floor along a rated corridor (Section 1015.2.1), and when looking at egress from a fire safety evacuation lobby (Section 3007.7.1). Revisions to Section 1022.7 provides for a consistent use of ramps and stairways throughout the section for protection of interior exits when looking at exterior wall requirements. Changes to the definition for 'exit access doorway' and Section 1022.7 are consistent with E2-12.

Assembly Action: **None**

Final Hearing Results

G85-12 **AS**

Code Change No: G86-12

Original Proposal

Section(s): 412.3, 412.3.1, 412.3.2, Table 412.3.2, 412.3.3, 412.3.4, 412.3.5

Proponent: Eric Rosenbaum, Hughes Associates, Inc., representing Air Traffic Control Tower Fire Life Safety Task Group (erosenbaum@haifire.com)

Revise as follows:

412.3 Airport traffic control towers. The provisions of Sections 412.3.1 through 412.3.~~5~~11 shall apply to airport traffic control towers ~~not exceeding 1,500 square feet (140 m^2) per floor~~ occupied only for the following uses:

1. Airport traffic control cab.
2. Electrical and mechanical equipment rooms.
3. Airport terminal radar and electronics rooms.
4. Office spaces incidental to the tower operation.
5. Lounges for employees, including sanitary facilities.

412.3.1 Type of construction. Airport traffic control towers shall be constructed to comply with the height ~~and area~~ limitations of Table 412.3.2.

TABLE 412.3.2
HEIGHT ~~AND AREA~~ LIMITATIONS FOR AIRPORT TRAFFIC CONTROL TOWERS

TYPE OF CONSTRUCTION	HEIGHT[a] (feet)	~~MAXIMUM AREA (square feet)~~
IA	Unlimited	~~1,500~~
IB	240	~~1,500~~
IIA	100	~~1,500~~
IIB	85	~~1,500~~
~~IIIA~~	~~65~~	~~1,500~~

a. Height to be measured from grade plane to cab floor

412.3.2 Stairway Stairways in Airport traffic control towers shall conform to the requirements of Section 1009. Such *stairways* shall be a smokeproof enclosure in accordance with Section 909.20. The stair pressurization alternative in accordance with Section 909.20.5 shall be permitted to be used. *Stairways* shall not be required to extend to the roof as specified in Section 1009.11.

412.3.3 Exit access. From observation levels, airport traffic control towers shall be permitted to have a single means of exit access for a distance of travel not exceeding 100 ft (30 m). This means of egress shall be permitted to include exit access utilizing an unenclosed stair at the observation level.

~~412.3.2~~ **412.3.4 Single means of egress.** Not less than one *exit stairway* shall be permitted for airport traffic controls towers of any height provided that the *occupant load* per floor is not greater than 15 and the area per floor does not exceed 1,500 square feet (140 m^2). ~~The *stairway* shall conform to the requirements of Section 1009. The *stairway* shall be separated from elevators by a minimum distance of one-half of the diagonal of the area served measured in a straight line. The *exit stairway* and elevator hoist way are permitted to be located in the same shaft enclosure, provided they are separated from each other by a 4-hour *fire barrier* having no openings. Such *stairway* shall be pressurized to a minimum of 0.15 inch of water column (43 Pa) and a maximum of 0.35 inch of water column (101 Pa) in the shaft relative to the building~~

~~with stairway doors closed. *Stairways* need not extend to the roof as specified in Section 1009.11. The provisions of Section 403 do not apply.~~

~~**Exception:** Smokeproof enclosures as set forth in Section 1022.9 are not required where required *stairways* are pressurized.~~

412.3.4.1 Arrangement of single means of egress. Airport traffic control towers permitted a single exit and located above another building shall be provided with one of the following:

1. Exit enclosure separated from the other building with no door openings to or from the other building
2. Exit enclosure leading directly to an exit enclosure serving the other building, with walls and door separating the exit enclosures from each other, and another door allowing access to the top floor of the building that provides access to a second exit serving that floor.

412.3.4.2 Interior Finish. Airport traffic control towers permitted a single exit in accordance with Section 412.3.4 shall be restricted to interior wall and ceiling finishes of Class A or Class B.

~~**412.3.3**~~ **412.3.5 Automatic fire detection systems.** Airport traffic control towers shall be provided with an automatic fire detection system installed in accordance with Section 907.2.

412.3.6 Automatic sprinkler system. Airport traffic control towers shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

~~**412.3.4**~~ **412.3.7 Standby power.** A standby power system that conforms to Chapter 27 shall be provided in airport traffic control towers more than 65 feet (19 812 mm) in height. Power shall be provided to the following equipment:

1. Pressurization equipment, mechanical equipment and lighting.
2. Elevator operating equipment.
3. Fire alarm and smoke detection systems.

412.3.8 Elevator Protection. Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to elevators shall be protected by construction having a minimum 1-hour *fire resistance rating* or shall be circuit integrity cable having a minimum 1-hour *fire-resistance rating*.

~~**412.3.5**~~ **412.3.9 Accessibility.** Airport traffic control towers need not be *accessible* as specified in the provisions of Chapter 11

Reason: All of the proposed changes are the recommendation of the Air Traffic Control Tower Fire Life Safety Task Group, and reflect the current approach to fire protection and life safety in airport traffic control towers (ATCT). The fire safety criteria applicable to ATCTs are originally based on an agreement between the operator of and controllers utilizing the ATCTs. Many of the changes relate to reformatting the Section with the intent of clarifying its application.

ATCTs create a unique hazard. ATCTs typically have a limited number of occupants. In addition, occupants must be awake and alert. The hazard associated with ATCTs is affected by the building's limited uses, height, and the potential delay in evacuation because of the handoff of flights .

Section 412.3-The provision of a maximum area per floor of 1,500 square feet limits the usage of the facility without providing significant Fire/Life Safety benefit in Airport Traffic Control Towers with multiple exits. The 1,500 square foot maximum area provisions are proposed to be relocated to restrict the floor size only for single exit towers. It is proposed that facilities in excess of 1,500 square feet per floor would be considered a ATCT only if the uses are limited to those listed in Section 412.3. Facilities with uses other than those listed in Section 412.3 would need to be designed as a typical building as addressed by the remainder of the IBC.

Table 412.3.1-The proposed provisions to limit construction to non-combustible types is presented because the use of combustible construction for a new ATCT allows the introduction of a potential unnecessary hazard developing within the construction without observation. We are not aware of new ATCT utilizing combustible construction.

Section 412.3.2-This change creates a new section containing criteria applicable to stairways for clarity. Most of the criteria were relocated from the existing Section 412.3.2, **Egress**. The current specified pressure differential required by Section 412 does not coordinate with Chapter 9 and the current approaches, a pressure differential of a minimum of 0.10 inches of water. In addition, instead of requiring a smoke proof enclosure by stair pressurization all options are identified as acceptable for providing a smoke proof enclosure.

Section 412.3.3-This section provides new criteria applicable to egress from observation levels. Obstruction related to enclosed stairs would eliminate the ability to provide sightlines. In addition, the reduction in area to allow two stairs to this level would affect operations. The proposed maximum exit access travel distance provision is intended to address exit access from the cab, where a single access stair is provided to allow maximum floor usage and maintain 360 degree line-of-sight requirements. A single exit access stair is typically provided from the observation level with the exit originating on the floor below the observation level. The proposed provision limits travel distance before reaching an exit/exits and is based on the common path of travel limitations established under Chapter 10.

Section 412.3.4- Many of the changes relate to relocations to or from other sections. In addition, the separation distance criteria of the stair to an elevator and fire resistance rating of the shafts is proposed to be removed. Elevators are not typically utilized as a means of egress unless specifically design such as Occupant Evacuation Elevators, Section 3008. If designed as a means of egress the criteria for separation distance of exits in Chapter 10 would potentially apply. Shaft enclosure criteria in Chapter 7 addresses fire resistance rated separation of shafts sufficiently.

Section 412.3.4.1-The proposed provision limiting single stair exit arrangement is intended to provide increased Fire/Life Safety when Airport Traffic Control Towers are built above other buildings. In this scenario, separated exit enclosures are required to protect occupants from the Airport Traffic Control Tower where delayed evacuation of the cab may be required.

Section 412.3.4.2-The proposed restriction on interior finish in a single exit stair Airport Traffic Control Tower is intended to increase Fire/Life Safety by limiting flame spread and smoke production which have a higher probability of impinging on the means of egress in single stair facilities.

Section 412.3.6-The proposed provision requiring sprinkler protection in all Airport Traffic Control Towers is intended to increase life safety and property protection. Life safety is positively affected by limiting the chance of smoke/fire spread and flashover in the facility where delayed evacuation of the cab may be required. In addition, property protection to allow sooner reuse of the structure would be provided.

Section 412.3.8-The proposed provision requiring protection of elevator wiring and cabling is to increase the probability of a functioning elevator to aid firefighters in the event of a fire and to increase the probability that the facility can be rapidly returned back to service after a minor fire incident.

Section 412.3.9 - No change from current criteria. ATCTs are exempt from accessibility criteria in Section 412.3.5.

Cost Impact: This code change will increase the cost of construction from the current code requirements; however, reflects current building practices of ATCTs.

Public Hearing Results

The following errata were not posted to the ICC website.

Underline all of Section 412.3.3 as follows:

412.3.3 Exit access. From observation levels, airport traffic control towers shall be permitted to have a single means of exit access for a distance of travel not exceeding 100 feet (30 m). This means of egress shall be permitted to include exit access utilizing an unenclosed stair at the observation level.

(Portions of proposal not shown remain unchanged)

Committee Action: Disapproved

Committee Reason: The proposal was disapproved as the committee felt that it was inappropriate to remove Type IIIA construction. Also, less restrictive requirements for smaller buildings were necessary with regard to sprinklers and pressurized stairways. In Section 412.3.4.1 as proposed should not restrict all openings. Additionally, terminology with regard to stairways should be revised to be consistent with E5-09/10.

Assembly Action: None

Public Comments

Public Comment:

Eric Rosenbaum, Hughes Associates, Inc., representing Air Traffic Control Tower Fire Life Safety Task Group, requests Approval as Modified by this Public Comment.

Replace proposal as follows:

412.3 Airport traffic control towers. The provisions of Sections 412.3.1 through ~~412.3.5~~ 412.3.9 shall apply to airport traffic control towers ~~not exceeding 1,500 square feet (140 m^2) per floor~~ occupied only for the following uses:

1. Airport traffic control cab.
2. Electrical and mechanical equipment rooms.
3. Airport terminal radar and electronics rooms.
4. Office spaces incidental to the tower operation.

5. Lounges for employees, including sanitary facilities.

412.3.1 Type of construction. Airport traffic control towers shall be constructed to comply with the height ~~and area~~ limitations of Table 412.3.2.

TABLE 412.3.2
HEIGHT ~~AND AREA~~ LIMITATIONS FOR AIRPORT TRAFFIC CONTROL TOWERS

TYPE OF CONSTRUCTION	HEIGHT[a] (feet)	~~MAXIMUM AREA (square feet)~~
IA	Unlimited	~~1,500~~
IB	240	~~1,500~~
IIA	100	~~1,500~~
IIB	85	~~1,500~~
IIIA	65	~~1,500~~

a. Height to be measured from grade plane to cab floor

412.3.2 Stairways. Stairways in airport traffic control towers shall be in accordance with Section 1009. Stairways shall be smokeproof enclosures complying with one of the alternatives provided in Section 909.20.

Exception: Stairways in airport traffic control towers are not required to comply with Section 1009.16.

412.3.3 Exit access. From observation levels, airport traffic control towers shall be permitted to have a single means of *exit access* for a travel distance not greater than 100 feet (30480 mm). Exit access stairways from the observation level need not be enclosed.

~~**412.3.2 Egress**~~ **412.3.4 Number of exits.** Not less than one *exit stairway* shall be permitted for airport traffic controls towers of any height provided that the *occupant load* per floor is not greater than 15 and the area per floor does not exceed 1,500 square feet (140 m^2). ~~The *stairway* shall conform to the requirements of Section 1009. The *stairway* shall be separated from elevators by a minimum distance of one-half of the diagonal of the area served measured in a straight line. The *exit stairway* and elevator hoist-way are permitted to be located in the same shaft enclosure, provided they are separated from each other by a 4-hour *fire barrier* having no openings. Such *stairway* shall be pressurized to a minimum of 0.15 inch of water column (43 Pa) and a maximum of 0.35 inch of water column (101 Pa) in the shaft relative to the building with stairway doors closed. *Stairways* need not extend to the roof as specified in Section 1009.11. The provisions of Section 403 do not apply.~~

~~**Exception:** Smokeproof enclosures as set forth in Section 1022.9 are not required where required *stairways* are pressurized.~~

412.3.4.1 Interior finish. Where an airport traffic control tower is provided with only one exit stairway, interior wall and ceiling finishes shall be either Class A or Class B.

~~**412.3.3**~~ **412.3.5 Automatic fire detection systems.** Airport traffic control towers shall be provided with an automatic fire detection system installed in accordance with Section 907.2.

412.3.6 Automatic sprinkler system. Where an occupied floor is located more than 35 feet (10 668 mm) above the lowest level of fire department vehicle access, airport traffic control towers shall be equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1

~~**412.3.4**~~ **412.3.7 Standby power.** A standby power system that conforms to Chapter 27 shall be provided in airport traffic control towers more than 65 feet (19 812 mm) in height. Power shall be provided to the following equipment:

1. Pressurization equipment, mechanical equipment and lighting.
2. Elevator operating equipment.
3. Fire alarm and smoke detection systems.

412.3.8 Elevator protection. Wires or cables that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to elevators shall be protected by construction having a *fire-resistance rating* of not less than 1 hour, or shall be circuit integrity cable having a *fire-resistance rating* of not less than 1 hour.

412.3.8.1 Elevators for occupant evacuation. Where provided in addition to an exit stairway, occupant evacuation elevators shall be in accordance with Section 3008.

~~**412.3.5**~~ **412.3.9 Accessibility.** Airport traffic control towers need not be *accessible* as specified in the provisions of Chapter 11

909.20 Smokeproof enclosures. Where required by Section 412.3.2 or Section 1022.10, a smokeproof enclosure shall be constructed in accordance with this section. A smokeproof enclosure shall consist of an enclosed interior exit stairway that conforms to Section 1022.2 and an open exterior balcony or ventilated vestibule meeting the requirements of this section. Where access to the roof is required by the International Fire Code, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

1009.3 Exit access stairways. Floor openings between stories created by exit access stairways shall be enclosed.

Exceptions:

(Exceptions 1 through 10 not shown remain unchanged)

11. Stairways serving observation levels of airport traffic control towers complying with Section 412 are not required to be enclosed.

Commenter's Reason: All of the proposed changes are the recommendation of the Air Traffic Control Tower Fire Life Safety Task Group, and reflect the current approach to fire protection and life safety in airport traffic control towers (ATCT). The existing IBC criteria is unclear, difficult to interpret how it applies, does not address all of the concerns associated with ATCTs and does not correlate with other sections in the IBC, The fire safety criteria identified in the proposal are originally based on an agreement between the operator of and controllers utilizing the ATCTs. Many of the changes relate to reformatting the Section with the intent of clarifying its application.

The original proposal was revised based on the committee comments as follows:

1. The Committee thought it was inappropriate to remove Type IIIA construction. Type IIIA construction has been reinserted.
2. The Committee thought less restrictive requirements for smaller buildings were necessary with regard to automatic sprinklers. For automatic sprinklers, height requirements for the installation of automatic sprinklers have been added to provide a basis for applying the more restrictive requirements, similarly to that as required by Section 903.2.11.3. The selection of 35 feet was chosen based on the heights of ground ladders typical found at smaller, rural fire departments and airports. Due to the absence of aerial ladders or means to reach higher elevations at these locations, additional levels of fire protection are required to protect the life safety of the tower occupants in towers that exceed 35 feet.
3. The Committee thought less restrictive requirements for smaller buildings were necessary with regard to pressurized stairways. The current IBC/IFC requirements of Section 412.3.2 requires all stairways to be a smoke proof enclosure. Due to the potential delayed response of occupants to allow hand-off of air traffic to controllers not in the building, a smoke proof enclosure is felt to be an appropriate level of safety for all stairways located in new ATCTs by the Air Traffic Control Tower Fire Life Safety Task Group. Providing smoke proof enclosures is common design practice in ATCTs.

Changes to the sections addressing sprinkler protection and Type IIIA construction were made based on committee feedback. The original intent was to provide a superior level of life safety for the building occupants but based on the Committee response the requirements were made too restrictive for smaller ATCTs.

Section 412.3.4.1 was removed due to concerns regarding the restrictions of openings. IBC Chapter 10 is considered to appropriately address these life safety aspects.

The Committee also commented that terminology with regards to stairways should be revised to be consistent with E5-09/10. Revisions were made to the terminology to bring it in line with other ICC terminology.

In addition, criteria for using elevators as a means of egress, including elevator lobbies, has been addressed by referencing section 3008. This addresses a comment received during the meeting to address elevator lobbies if elevators are used as a means of egress. The intent is that elevators used as a means of egress would require compliance with Section 3008, Occupant Evacuation Elevators.

Additional changes to Sections 909.20 and 1009.3 were added to coordinate with proposed changes to Sections 412.3.2 and 412.3.3.

All of the proposed changes are the recommendation of the Air Traffic Control Tower Fire Life Safety Task Group, and reflect the current approach to fire protection and life safety in airport traffic control towers (ATCT). The fire safety criteria applicable to ATCTs are originally based on an agreement between the operator of and controllers utilizing the ATCTs. Many of the changes relate to reformatting the Section with the intent of clarifying its application.

ATCTs create a unique hazard. ATCTs typically have a limited number of occupants. In addition, occupants must be awake and alert. The hazard associated with ATCTs is affected by the building's limited uses, height, and the potential delay in evacuation because of the handoff of flights.

The proposed changes address the following issues:

a. Change addresses the Section has been ignored since 2000 IBC.
b. Recommendations are based on designers and users input and agreement.
c. Reflect current design approaches.
d. Addresses issues not currently addressed by code.
e. Clarifies application.
f. Correlates IBC with other enforcement criteria.
g. Reformats for usability.
h. Take changes as a package.
i. Reflect some increase and decreases in safety.

Provides a practical, designable approach to fire safety that the current requirements do not.

Final Hearing Results

G86-12 AMPC

Code Change No: G87-12

Original Proposal

Section(s): 412.7 (NEW), Table 412.7 (NEW), 412.7.1 (NEW), Table 1016.2 (IFC [B] Table 1016.2)

Proponent: Gregory R. Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com), Jay Wallace, The Boeing Company (jay.s.wallace@boeing.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC MEANS OF EGRESS COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Add new text as follows:

412.7 Aircraft manufacturing facilities. In buildings used for the manufacturing of aircraft, exit access travel distances indicated in Section 1016.1 shall be increased in accordance with the following:

1. The building shall be of Type I or II construction.
2. Exit access travel distance shall not exceed the distances given in Table 412.7.

TABLE 412.7
AIRCRAFT MANUFACTURING EXIT ACCESS TRAVEL DISTANCE

HEIGHT (feet) [b]	MANUFACTURING AREA (sq. ft.) [a]					
	≥150,000	≥200,000	≥250,000	≥500,000	≥750,000	≥1,000,000
≥ 25	400	450	500	500	500	500
≥ 50	400	500	600	700	700	700
≥75	400	500	700	850	1,000	1,000
≥ 100	400	500	750	1,000	1,250	1,500

For SI: 1 foot = 304.8 mm

a. Contiguous floor area of the aircraft manufacturing facility having the indicated height.

b. Minimum height from finished floor to bottom of ceiling or roof slab or deck.

412.7.1 Ancillary areas. Rooms, areas and spaces ancillary to the primary manufacturing area shall be permitted to egress through such area having a minimum height as indicated in Table 412.7. Exit access travel distance within the ancillary room, area or space shall not exceed that indicated in Table 1016.1 based on the occupancy classification of that ancillary area. Total exit access travel distance shall not exceed that indicated in Table 412.7.

Revise as follows:

TABLE 1016.2 (IFC [B] TABLE 1016.2)
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200	250[b]
I-1	Not Permitted	250[c]
B	200	300[c]
F-2, S-2, U	300	400[c]
H-1	Not Permitted	75[c]
H-2	Not Permitted	100[c]
H-3	Not Permitted	150[c]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
H-4	Not Permitted	175[c]
H-5	Not Permitted	200[c]
I-2, I-3, I-4	Not Permitted	200[c]

For SI: 1 foot = 304.8 mm.

a. See the following sections for modifications to *exit access* travel distance requirements:
Section 402.8: For the distance limitation in *malls*.
Section 404.9: For the distance limitation through an *atrium* space.
Section 407.4: For the distance limitation in Group I-2.
Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.
Section 411.4: For the distance limitation in special amusement buildings.
Section 412.7: For the distance limitations in aircraft manufacturing facilities.
Section 1015.4: For the distance limitation in refrigeration machinery rooms.
Section 1015.5: For the distance limitation in refrigerated rooms and spaces.
Section 1021.2: For buildings with one *exit*.
Section 1028.7: For increased limitation in assembly seating.
Section 1028.7: For increased limitation for assembly open-air seating.
Section 3103.4: For temporary structures.
Section 3104.9: For pedestrian walkways.

b. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

c. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Reason: Supporting technical data are available for review at http://www.boeing.com/nosearch/tds/.

Many aircraft manufacturing buildings are unusually large due to the size of the commercial or military aircraft being produced. For instance, an assembled Boeing 747 has a tail height of over 63 feet. The rectangular footprint of a Boeing 747-800 is over 56,000 square feet.

Group F-1 occupancies greater than 150,000 square feet in floor area can have difficulty complying with 250 foot, sprinklered exit access travel distance limitations without incorporating exit passageways or horizontal exits into the design of the building means of egress system. The use of either exit component is somewhat problematic. Due to the compartmentalized nature of horizontal exits, they do not lend to aircraft production processes or movement of the finally assembled aircraft. For similar reasons, exit passageways are generally installed below the floor of the assembly level. The use of underground exit passageways during an emergency in a very high volume space is generally contrary to human nature. Once aware of an event, employees would instinctively evacuate the building at the level with which they are most familiar. Also, it is relatively easy to move away from the point of origin of a fire due to a person's sensory awareness within the entire open space. Given the fact that occupants sense safety as they move away from the fire, it is counter-intuitive to enter an underground area unless as a last resort.

Regardless of human nature and logic, it must be demonstrated that large volume spaces provide a tenable environment for the evacuation or relocation of building occupants. Prior to the technical justification of this proposal, it should be noted that during the previous code development cycle, The Boeing Company submitted Item E109-09/10, that was intended to allow for increased travel distances in large volume aircraft manufacturing buildings. To support its proposal, Boeing conducted smoke and temperature fire modeling using the NIST FDS (National Institute of Standards and Technology - Fire Dynamics Simulator) computer program. Boeing correlated initial model fire data to an actual burn test conducted at a certified test facility in Washington State.

The ICC Means of Egress Code Committee disapproved the proposal. This proposal is virtually identical to the previous submittal. In its published reason statement for disapproval, the committee stated, "Boeing should be commended for their fire model analysis on this issue." The primary concern of the committee was that Boeing had not obtained a third party peer review in accordance with The American Society of Fire Protection Engineers protocol. Additionally, several questions were asked about Boeing modeling assumptions. The Boeing Company obtained the services of Arup, a widely renowned design and consulting firm to perform a peer review. Arup reviewed the committee comments and provided Boeing with a revised set of parameters for new modeling runs. Based on the results of the additional modeling runs, Arup developed a report validating the proposed travel distances. During testimony at the final action hearings in Charlotte, NC, several Means of Egress Code Committee members testified that Boeing had addressed their concerns and recommended approval of the code change. During testimony, one individual expressed that a centrally located fire could produce more severe results. Based on this created doubt, the item failed to achieve the necessary 2/3 majority by a handful of votes. Since that disapproval, additional modeling has been performed based on a centrally located event origin. The results further validated the proposed code change. Resubmitted for this code development cycle, there is only one significant change to the proposal. That is with the location of the provision. Previously, it was proposed to be located in Section 1016. Given the very specific nature of the provision--that is, it is applicable only to large volume aircraft manufacturing facilities--it has been located in Section 412, Aircraft-Related Occupancies.

Since this is a re-submittal of a previous proposal, supporting technical data are extensive and could overwhelm this reason statement. Therefore, background information is provided in chronological order at a Boeing website: http://www.boeing.com/nosearch/tds/. Included are: the original proposed code change E109-09/10 with a comprehensive reason statement, initial supporting modeling data, the Means of Egress Code Committee's reason for disapproval, revised modeling data based on committee comment, the Arup peer review, Boeing's public comment for approval as submitted at the final action hearings and further modeling data based on comment at the final action hearings.

In summary, the unique size of some aircraft manufacturing facilities inherently provides a tenable environment for building occupants as they travel to an exit. It is logical that spaces with higher ceilings provide for a greater level of occupant tenability than

those with lower ceilings. Rather than arbitrarily selecting travel distance values based on former provisions or attempting an educated guess, The Boeing Company conducted computer modeling based on conservative assumptions in order to determine acceptable travel distances. This proposal has been extensively vetted over the previous code development cycle. Boeing has responded to every technical concern by performing additional modeling runs and obtaining a third party peer review. All additional research and review has only further validated the initial assumptions and conclusions. Approval of this proposal will acknowledge means of egress design issues associated with large area, high volume aircraft manufacturing spaces while providing a high degree of occupant safety during egress from such buildings.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The proposal addresses the unique needs for aircraft manufacturing facilities. The proponent provided testing and modeling along with a peer review of findings. The requirements will provide for safe exiting within this extreme environment. The proponent has addressed questions that were brought up during the last code change process.

Assembly Action: **None**

Final Hearing Results

G87-12 **AS**

Code Change No: G88-12

Original Proposal

Section(s): [F] 415.8.1.7 (New) (IFC 3403.2)

Proponent: Barry Gupton, PE, representing NC Department of Insurance (NCDOI), Office of State Fire Marshal (OSFM), Engineering Division (barry.gupton@ncdoi.gov)

Add new text as follows:

[F] 415.8.1.7 (IFC 3403.2) Tire rebuilding. Buffing operations shall be located in a room separated from the remainder of the building housing the tire rebuilding or tire recapping operation by a 1-hour *fire barrier*.

Exception: Buffing operations are not required to be separated where all of the following conditions are met:

1. Buffing operations are equipped with an *approved* continuous automatic water-spray system directed at the point of cutting action;
2. Buffing machines are connected to particle-collecting systems providing a minimum air movement of 1,500 cubic feet per minute (cfm) (0.71 m^3/s) in volume and 4,500 feet per minute (fpm) (23 m/s) in-line velocity; and
3. The collecting system shall discharge the rubber particles to an *approved* outdoor noncombustible or fire-resistant container, which is emptied at frequent intervals to prevent overflow.

Reason: The 2012 IFC has this exact requirement in Section 3403.2 for buffing areas in tire rebuilding operations. The requirement is to prevent the fire hazard of rubber dust generated by these operations. The requirement is different than the general requirement for "grinding rooms" in IBC Section 415.8.1.2. Because it is a requirement that affects building construction it should also appear in the building code so that designers can make informed decisions concerning this use.

Cost Impact: The code change proposal will not increase the cost of construction as it is already a requirement in the IFC.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it is providing provisions that will make enforcement of tire rebuilding more straightforward.

Assembly Action: **None**

Final Hearing Results

G88-12 **AS**

Code Change No: G9-12

Original Proposal

Section(s): 202

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Proponent: Gregory R. Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com)

Delete and Substitute as follows:

SECTION 202
DEFINITIONS

~~**EXIT, HORIZONTAL.** A path of egress travel from one building to an area in another building on approximately the same level, or a path of egress travel through or around a wall or partition to an area on approximately the same level in the same building, which affords safety from fire and smoke from the area of incidence and areas communicating therewith.~~

HORIZONTAL EXIT. An exit component consisting of fire-resistance rated construction and opening protectives intended to compartmentalize portions of a building thereby creating refuge areas that afford safety from the fire and smoke from the area of fire origin.

Reason: This proposed definition clarifies what a horizontal exit actually is. Clearly, it is not a path of egress travel as is currently stated. Contained within the definition of "EXIT," a horizontal exit is classified as an "exit component." Section 1025 provides for the physical construction requirements intended to segregate portions of the building and intended to create refuge areas. The proposed definition more accurately describes the general nature of the horizontal exit and leaves the specifics of the various building configuration and fire-resistance rating options to Section 1025.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The revised definition for 'horizontal exit' will provide clarity to the code. The phrases "travel through or around" and "approximately the same level" in the current definition is difficult to understand.

Assembly Action: **None**

Final Hearing Results

G9-12 **AS**

Code Change No: G9-13

Original Proposal

Section(s): IBC [F] 415.6

Proponent: Homer Maiel, PE, CBO, Town of Atherton (CA), representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay)

Revise as follows:

IBC [F] 415.6 Special provisions for Group H-1 occupancies. Group H-1 occupancies shall be in ~~buildings used for no other purpose, shall not exceed one *story* in height and be without basements, crawl spaces or other under-floor spaces.~~ *detached buildings*. Roofs shall be of lightweight construction with suitable thermal insulation to prevent sensitive material from reaching its decomposition temperature. Group H-1 occupancies containing materials that are in themselves both physical and health hazards in quantities exceeding the maximum allowable quantities per *control area* in Table 307.1(2) shall comply with requirements for both Group H-1 and H-4 occupancies.

Reason: This is only an editorial change. The entire stricken out portion is the definition for “detached buildings”. Hence replacing it with “detached buildings”

Cost Impact: This code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The disapproval was based on the fact that the critical phrase “…used for no other purpose…” does not appear in the definition so the proponent’s premise that the definition can substitute for the stricken code text is incorrect.

Assembly Action: **None**

Public Comments

Public Comment:

Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

IBC [F] 415.6 Special provisions for Group H-1 occupancies. Group H-1 occupancies shall be in *detached buildings,* used for no other purpose. Roofs shall be of lightweight construction with suitable thermal insulation to prevent sensitive material from reaching its decomposition temperature. Group H-1 occupancies containing materials that are in themselves both physical and health hazards in quantities exceeding the maximum allowable quantities per *control area* in Table 307.1(2) shall comply with requirements for both Group H-1 and H-4 occupancies.

Commenter’s Reason: The original proposal has been modified in accordance to committee's comment back in Dallas.

Final Hearing Results

G9-13 **AMPC**

Code Change No: G94-12

Original Proposal

Section(s): 423.3 (NEW)

Proponent: Andrew Herseth FEMA and Erin Ashley URS Corporation, representing Dept. Homeland Security, Federal Emergency Management Agency

Revise as follows:

SECTION 423
STORM SHELTERS

423.1 General. In addition to other applicable requirements in this code and this section, storm shelters shall be constructed in accordance with ICC-500.

423.1.1 Scope. This section applies to the construction of storm shelters constructed as separate detached buildings or constructed as safe rooms within buildings for the purpose of providing safe refuge from storms that produce high winds, such as tornados and hurricanes. Such structures shall be designated to be hurricane shelters, tornado shelters, or combined hurricane and tornado shelters.

423.2 Definitions. The following terms are defined in Chapter 2:

STORM SHELTER.
Community storm shelter.
Residential storm shelter.

423.3 Group E Occupancies. In areas where the shelter design wind speed for tornadoes is 250 MPH per Figure 304.2(1) of ICC 500, all Group E Occupancies with an aggregate occupant load of 50 or more shall have a storm shelter constructed in accordance with ICC 500. The shelter shall be capable of housing the total occupant load of the Group E occupancy.

Exceptions:

1. Group E day care facilities.
2. Group E occupancies accessory to places of religious worship.
3. Buildings meeting the requirements for shelter design in ICC 500.

Reason: Due to unpredictable and often very short tornado warning time, there are many events where it is unfeasible to evacuate schools. Field studies of the Spring 2001 Southern US tornadoes revealed extensive damage to schools (including safe refuge areas) built to current codes. A saferoom provides near absolute protection for this vulnerable population. Background of this proposal is given below.
On May 6, 2011, the Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) deployed a Mitigation Assessment Team (MAT) to the States of Alabama, Georgia, Mississippi, and Tennessee to assess the damage caused by an outbreak of tornadoes occurring April 25 through April 28, 2011. A second MAT was deployed on June 1, 2011 to Missouri following the tornado on May 22 in Joplin. The results of their study presents MAT observations, conclusions, and recommendations in response to those field investigations highlight the importance of properly selecting the best available refuge area in existing facilities, incorporating shelters and safe rooms in new construction as well as the importance of eliminating collapse hazards, such as tree fall and other nearby objects.
The MAT observed 20 schools, 6 of which are described in Chapter 6 of the MAT Report to be published in Spring 2012. Each of these 6 schools saw high levels of damage due to the increase wind loading sustained by the building. The schools discussed are located in Missouri, Alabama, and Georgia.
IBC-compliant facilities are susceptible to significant building damage and disruption if struck by strong or violent tornadoes, as evidenced by the damage sustained by Joplin East Middle School during the May 22, 2011 Joplin tornado. While Joplin East Middle School was not occupied during the tornado (the tornado occurred on Sunday evening), the outcome could have been disastrous the school had been occupied. There were no safe rooms (by the definition of ICC 500-2008) located within the school, only

“designated refuge areas.” The auditorium roof and two exterior walls collapsed (see Figure 1), along with two roof trusses and an exterior wall of the gymnasium. The remainder of the damage was from wind-borne debris, including glazing damage, as well as water damage due to damaged roof covering, decking, and rooftop equipment. The tornado was estimated as an EF 3 by the National Weather Service and an EF 2 by the FEMA Mitigation Assessment Team (MAT).

Figure 1 (Figure 6-44 of the MAT Report): View of the collapse of the auditorium roof and both exterior walls of Joplin East Middle School.

Several other schools evaluated for damage by FEMA MAT deployed following the Spring 2011 tornado outbreak all showed substantial damage when exposed to a tornado. The consequences of the inability of a school to withstand a tornado event coupled with the lack of an ICC 500-compliant safe room could lead to devastating consequences, including loss of life.

Joplin High School, like the Middle School, was also unoccupied during the tornado event. The High School did not have a tornado safe room or shelter. Several lower level corridors were designated refuge areas. Debris was blown into these corridors during the tornado (see Figure 2).

Figure 2 (Figure 6-52 of the MAT Report): View of a corridor designated as a tornado refuge area in Joplin High School. The debris was blown into the corridor during the tornado.

The rest of the school saw widespread damage, including collapse of the gymnasium (see Figure 3), extensive exterior wall damage to the North classroom wing (see Figure 4) along with roof system damage, destroyed roof covering, broken glazing, collapse of the east wall of the classroom wing along the courtyard, and the collapse of portions of the auditorium walls. The NWS rated the tornado an EF4, while the FEMA MAT assessed the damage and determined the tornado was an EF3.

Figure 3 (Figure 6-56): View of the collapsed primary gymnasium of Joplin High School. The gymnasium collapsed through progressive failure.

Figure 4 (Figure 6-53 of the MAT Report): North classroom wing damage of Joplin High School.

Alberta Elementary School and University Place Elementary School in Tuscaloosa, Alabama, as well as both Ringgold Middle School and Ringgold High School in Ringgold, Georgia all also experienced damage from the Spring 2011 tornado outbreaks. None of these schools had safe rooms built to ICC 500-2008 specifications. Alberta Elementary school, where luckily the students had been sent home from school before the tornado struck, saw destruction of one of its "designated refuge areas." University Place Elementary School, Ringgold Middle School, and Ringgold High School were also not occupied during the tornado events because of early dismissals issued because of weather forecasts. It is lucky none the schools were occupied, as they all saw extensive damage.

Not all schools investigated by the FEMA MAT were lacking ICC 500-compliant safe rooms however. Seneca Intermediate School in Seneca, Missouri built a FEMA P-361, *Design and Construction Guidance for Community Safe Rooms* (FEMA, 2008), compliant safe room following damage from a tornado in May 2008. Though the community of Seneca, Missouri, was not hit by a tornado May 22, 2011, the MAT inspected this new community safe room as a case study for good safe room construction.

Seneca, Missouri, is not the only community that decided to take action and install an ICC 500-compliant safe room in its newly constructed school. On April 30, 2010, Alabama Governor Riley signed Act No. 2010-746 enacting a requirement for any new contract awarded on or after July 1, 2010 for the construction of a new public school (grades kindergarten to twelfth) to include a Building Commission of Alabama approved safe space or hallway. Pursuant to this Act, the Building Commission of Alabama adopted the ICC 500-2008 as the minimum building code for safe spaces. Safe spaces are required to comply with the building code requirements for tornado shelters. Compliance with the building code requirements for hurricane shelters is recommended, but not mandatory. Any renovations, additions to existing schools, or auxiliary buildings added to an existing school are not considered "a new public school" and are exempt from including an approved safe space or hallway.

A requirement, such as that enacted by Act No. 2010-746 in Alabama and the proposed code change (proposed Section 423) are important for life-safety as there may not always be enough of a lead time before a tornado strikes for early dismissal from schools and for students to seek safety. As was the case with University Place Elementary School, warning time for tornadoes can make all of the difference. FEMA technical and policy guidance on safe rooms recommends only having a 5 minute travel time (0.5-mile

distance) to seek shelter from a tornado. It is oftentimes imperative therefore, that students are able to shelter at their schools. In order for the students to be given near-absolute protection from a tornado, the safe rooms in schools need to be constructed to meet ICC 500-2008 standards, as is proposed by the addition of Section 423.

Cost Impact: This proposal will increase the cost of construction.

From FEMA 361, *Design and Construction Guidance for Community Safe Rooms (Second Edition),* FEMA reviewed 36 safe room grant applications from 2008. On average, the safe room cost per square foot for projects considered technically feasible And effective for providing protection was $188/sf. From more expanded grant application data from years 2005 to 2008, the percent increase in building cost to harden a portion of a new building to resist debris impact from a 15-lb 2x4 board missile traveling horizontally at 100 mph and impacting vertical surfaces and the same missile traveling vertically at 67 mph and impacting horizontal surfaces is 5-27%. More information on Safe Room design costs can be found in chapter 2 of FEMA 361.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was felt to be necessary and overdue to require storm shelters for Group E occupancies.

Assembly Action: **None**

Final Hearing Results

G94-12 **AS**

Code Change No: G95-12

Original Proposal

Section(s): 423.3 (NEW)

Proponent: Andrew Herseth FEMA and Erin Ashley URS Corporation, representing Dept. Homeland Security, Federal Emergency Management Agency

Revise as follows:

SECTION 423
STORM SHELTERS

423.1 General. In addition to other applicable requirements in this code and this section, storm shelters shall be constructed in accordance with ICC-500.

423.1.1 Scope. This section applies to the construction of storm shelters constructed as separate detached buildings or constructed as safe rooms within buildings for the purpose of providing safe refuge from storms that produce high winds, such as tornados and hurricanes. Such structures shall be designated to be hurricane shelters, tornado shelters, or combined hurricane and tornado shelters.

423.2 Definitions. The following terms are defined in Chapter 2:

STORM SHELTER.
Community storm shelter.
Residential storm shelter.

423.3 Critical Emergency operations. In areas where the shelter design wind speed for tornadoes per Figure 304.2(1) of ICC 500 is 250 MPH, 911 call stations, emergency operation centers and fire, rescue, ambulance and police stations shall have a storm shelter constructed in accordance with ICC 500.

Exception: Buildings meeting the requirements for shelter design in ICC 500.

Reason: Critical facilities, such as emergency operations centers (EOCs), fire and police stations and other buildings are essential for the delivery of vital services or protection of a community. Tornado damage investigations and other research have shown us techniques for protecting occupants of critical facilities struck by tornadoes, as well as maintaining continuity of operations for those facilities. Emergency operation centers and Police and fire rescue facilities are critical to disaster response because an interruption in their operation as a result of building or equipment failure may prevent rescue operations, evacuation, assistance delivery, or general maintenance of law and order, which can have serious consequences for the community after a storm event.

On May 6, 2011, the Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) deployed a Mitigation Assessment Team (MAT) to the States of Alabama, Georgia, Mississippi, and Tennessee to assess the damage caused by an outbreak of tornadoes occurring April 25 through April 28, 2011. A second MAT was deployed on June 1, 2011 to Missouri following the tornado on May 22 in Joplin. The results of their study presents MAT observations, conclusions, and recommendations in response to those field investigations highlight the importance of properly selecting the best available refuge area in existing facilities, incorporating shelters and safe rooms in new construction as well as the importance of eliminating collapse hazards, such as tree fall and other nearby objects.

The MAT observed 16 EOCs, as presented in Chapter 7 of the MAT report to be published in Spring 2012, fire stations and police stations that were located where the basic (design) wind speeds prescribed in IBC 2009 is 90 mph (ICC 2009) throughout Alabama, Mississippi and Missouri. Each of these 16 facilities saw some level of damage due to the increase wind loading sustained by the building.

Two such examples from the MAT highlighting the need for shelters in critical facilities are the Tuscaloosa Fire Station 4 and the Smithville Police Station.

The Tuscaloosa Fire Station 4 (Tuscaloosa, AL) is a building which was in the vicinity of the tornado track, rated an EF4 by NWS, as shown in Figure 1. Four fire station personnel were in the building when the tornado struck although none were injured.

Figure 1 (Figure 7-38 of the MAT Report): Aerial view of the track in the vicinity of the fire station (yellow circle). The center of the track is approximated by the red line (Tuscaloosa, AL) (Source: Modified from NOAA, 2011)

This fire station was opened in 1952. The fire station had a modified bitumen roof membrane system over a cast-in-place concrete deck. Some of the exterior walls were brick (which appeared to be bearing walls). Other exterior walls were stucco over wire lath over furring over what appeared to be cast-in-place concrete. The apparatus bay had two sectional doors at the front and back of the bay. There was not a safe room or shelter in the building. The tornado blew all four apparatus bay doors away, all of the exterior windows were broken, the roof membrane was punctured in a few areas, some of the cap sheet was blown away, and some rooftop equipment was blown away. Figure 2 is a general view of the fire station and the adjacent apartment building.

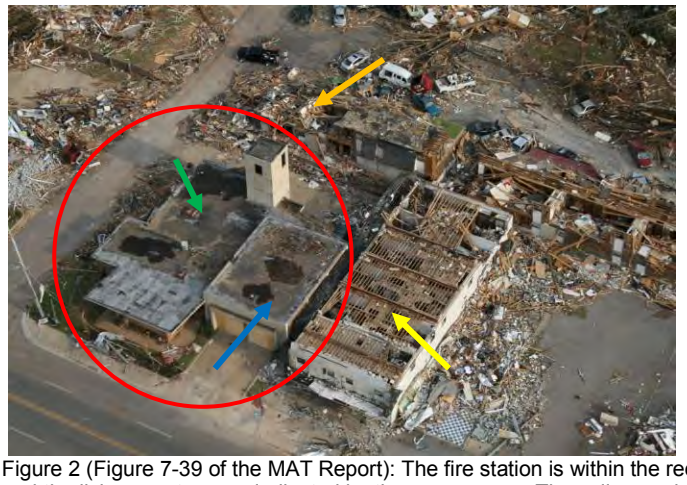


Figure 2 (Figure 7-39 of the MAT Report): The fire station is within the red circle. The apparatus bay is indicated by the blue arrow and the living quarters are indicated by the green arrow. The yellow and orange arrows indicate the nearby heavily damaged apartment buildings (Tuscaloosa, AL)

The Smithville Police Department (Smithville, MS) experienced substantial damage and casualties after the tornado. NWS rated the core of the track in the vicinity of the police department as an EF5 as shown in Figure 3 below. At the time the tornado struck there were seven people in the building, five of whom were injured by the tornado damage.

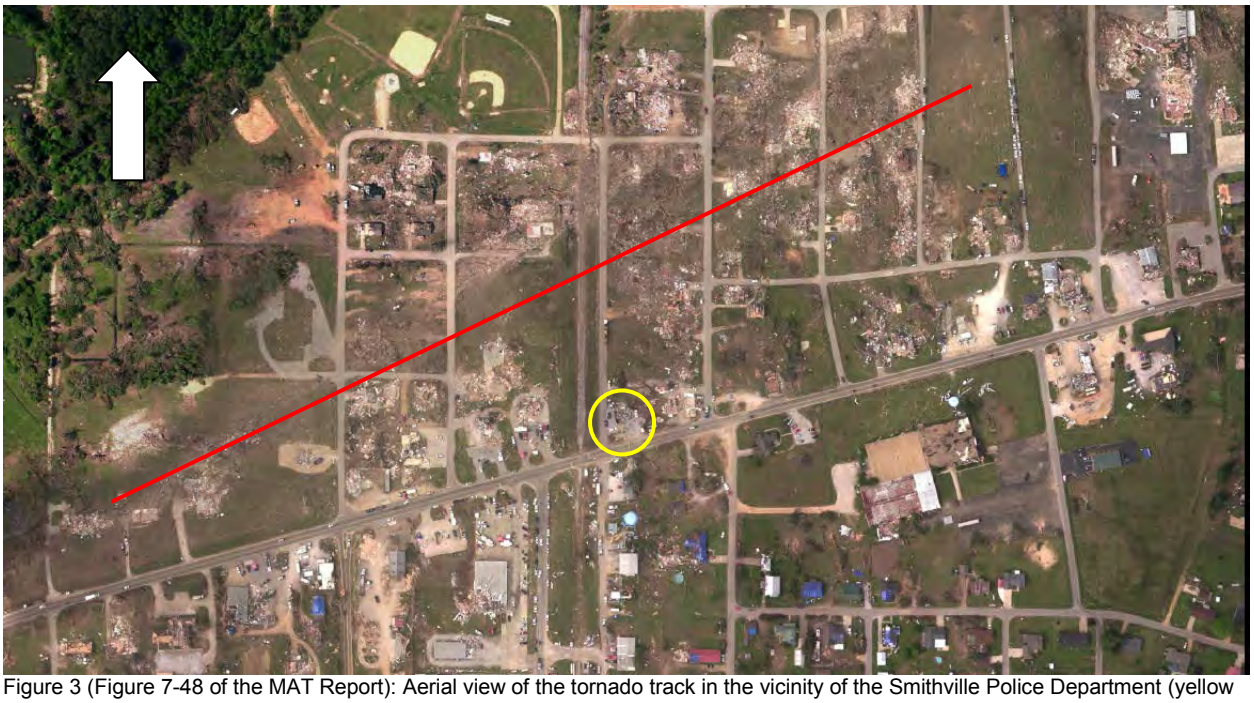


Figure 3 (Figure 7-48 of the MAT Report): Aerial view of the tornado track in the vicinity of the Smithville Police Department (yellow circle). The center of the track is approximated by the red line (Smithville, MS) (Source: Modified from NOAA, 2011)

The Smithville Police Department was constructed in 1962. The building was constructed of unreinforced CMU with brick veneer. The facility did not have a shelter or safe room. During the storm, the roof of the police department was blown off, and large portions of the walls on the north, east, and south sides of the building collapsed.

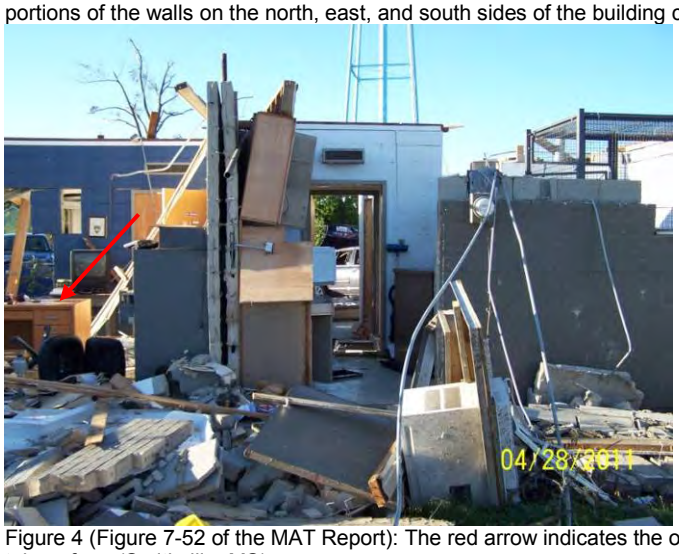


Figure 4 (Figure 7-52 of the MAT Report): The red arrow indicates the office where two children and an adult got under the desk to take refuge (Smithville, MS)

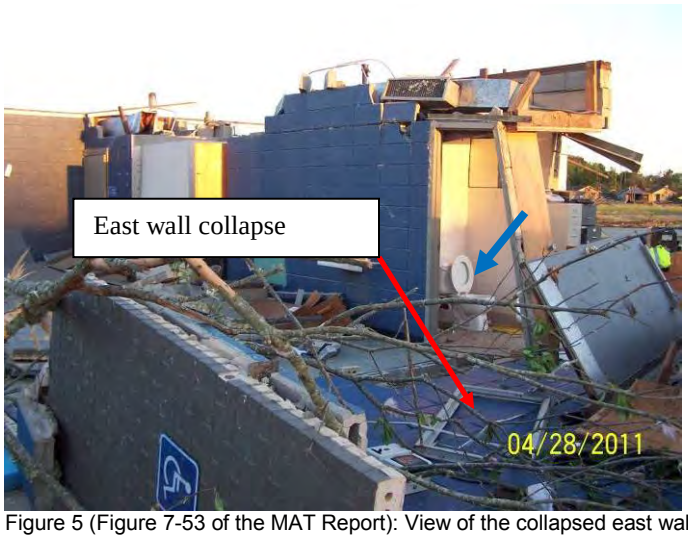


Figure 5 (Figure 7-53 of the MAT Report): View of the collapsed east wall (red arrow) and restroom (blue arrow) of the Smithville Police Department. Note that some of the restroom walls collapsed (Smithville, MS)

At the time the tornado struck there were seven people were in the building including police personnel and civilians. Two people sustained injuries. As a result of the tornado, the Smithville Police Department lost complete functionality at its original location and has been relocated to the town hall.

Another facility investigated by the MAT was the Cullman County Emergency Management Agency; this facility was not struck by the Cullman tornado on April 27, 2011. In 2008, the Cullman County Emergency Management Agency (EMA) moved into its new facility in the basement of the newly constructed Cullman County Water Department Building. The EMA portion of the facility was designed as a safe room in accordance with FEMA 361 (2000 edition) to resist the wind and wind-borne debris associated with EF5 tornadoes: wind speeds of 250 mph (3-second gust) and debris impact from a 15-lb 2x4 board missile traveling horizontally at 100 mph.

According to the architect, the portions of the facility designed to the FEMA 361 criteria were constructed for approximately $200 per square foot for a total cost of roughly $1,250,000. By contrast the upper floor of the facility (used for other Cullman County offices) was constructed at a cost of approximately $120 per square foot. If constructed to the building code in effect at the time, the EMA portion of the facility would have cost approximately 50% less. Implementing the FEMA 361 criteria for the selected portions of the facility ended up accounting for approximately 65% of the total building cost. By choosing to spend an additional 25% on the facility, the owner and architect were able to achieve both personal protection for the 25 county staff and also provide continuity of operations during events. Additionally, based on FEMA 361 criteria regarding the number of occupants, the multipurpose room can provide protection for the facility staff as well as up to 300 additional persons (if needed).

The code should consider including a shelter to protect occupants of critical facilities, making enhancements to building design that will minimize building damage, and designing the facility to avoid interrupted operations even if struck by violent tornadoes.

Cost Impact: This proposal will increase the cost of construction.

From FEMA 361, *Design and Construction Guidance for Community Safe Rooms (Second Edition),* FEMA reviewed 36 safe room grant applications from 2008. On average, the safe room cost per square foot for projects considered technically feasible and effective for providing protection was $188/sf. From more expanded grant application data from years 2005 to 2008, the percent increase in building cost to harden a portion of a new building to resist debris impact from a 15-lb 2x4 board missile traveling horizontally at 100 mph and impacting vertical surfaces and the same missile traveling vertically at 67 mph and impacting horizontal surfaces is 5-27%. More information on Safe Room design costs can be found in chapter 2 of FEMA 361.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal providing emergency storm shelters for critical emergency personnel was felt necessary. There was some concern that the equipment would not be protected by these shelters.

Assembly Action: **None**

Final Hearing Results

G95-12 **AS**

Code Change No: G101-12

Original Proposal

Section(s): 406.6.1, [F] 415.8.1.1, [F] 415.8.2.1.1, Table 503, 503.1, 503.1.1, 503.1.2, 503.1.3, 504, 504.1, 504.1.1 (NEW), 504.1.2 (NEW), 504.1.3 (NEW),504.2, 504.3, Table 504.3 (NEW), 505.4, Table 504.4 (NEW), 506, 508.8, 507.8.1, 507.8.1.1, 507.8.4, 508.2.1, 508.2.2, 508.2.3, 510.2, 3102.4, 3102.5, 3412.6.1 (IEBC [B] 1412.6.1), 3412.6.1.1 (IEBC [B] 1412.6.1.1), 3412.6.2 (IEBC [B] 1412.6.2), 3412.6.2.1 (IEBC [B] 1412.6.2.1)

Proponent: Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee

Revise as follows:

406.6.1 Heights and areas. Enclosed vehicle parking garages and portions thereof that do not meet the definition of *open parking garages* shall be limited to the allowable heights and areas specified in ~~Table 503~~ Sections 504 and 506 as modified by ~~Sections 504, 506 and~~ Section 507. Roof parking is permitted.

[F] 415.8.1.1 Type of construction and height exceptions. Buildings shall be constructed in compliance with the height, number of stories and area limitations ~~of Table 503~~ specified in Sections 504 and 506 for Group H-2; except that where erected of Type I or II construction, the heights and areas of grain elevators and similar structures shall be unlimited, and where of Type IV construction, the maximum *building height* shall be 65 feet (19 812 mm) and except further that, in isolated areas, the maximum *building height* of Type IV structures shall be increased to 85 feet (25 908 mm).

[F] 415.8.2.1.1 Height exception. Where storage tanks are located within a building no more than one *story above grade plane*, the height limitation of Section ~~503~~ 504 shall not apply for Group H.

SECTION 503
GENERAL BUILDING HEIGHT AND AREA LIMITATIONS

503.1 General. The *building height*, number of stories *and area* shall not exceed the limits specified in ~~Table 503~~ Sections 504 and 506 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. Building height, number of stories and area provisions shall be applied independently. Each portion of a building separated by one or more *fire walls* complying with Section 706 shall be considered to be a separate building.

503.1.1 Special industrial occupancies. Buildings and structures designed to house special industrial processes that require large areas and unusual *building heights* to accommodate craneways or special machinery and equipment, including, among others, rolling mills; structural metal fabrication shops and foundries; or the production and distribution of electric, gas or steam power, shall be exempt from the *building height*, number of stories *and area* limitations of ~~Table 503~~ specified in Sections 504 and 506.

503.1.2 Buildings on same lot. Two or more buildings on the same *lot* shall be regulated as separate buildings or shall be considered as portions of one building if the *building height*, number of stories of each building and the aggregate *building area* of the buildings are within the limitations of ~~Table~~ 503 as modified by specified in Sections 504 and 506. The provisions of this code applicable to the aggregate building shall be applicable to each building.

503.1.3 Type I construction. Buildings of Type I construction permitted to be of unlimited tabular *building heights and areas* are not subject to the special requirements that allow unlimited area buildings in Section 507 or unlimited *building height* in Sections 503.1.1 and 504.3.

~~**TABLE 503**~~
~~**ALLOWABLE BUILDING HEIGHTS AND AREAS[a, b]**~~
~~**Building height limitations shown in feet above grade plane. Story limitations shown as stories above grade plane. Building area limitations shown in square feet, as determined by the definition of "Area, building," per story**~~

SECTION 504
BUILDING HEIGHT AND NUMBER OF STORIES

504.1 General. The ~~*building* *height* permitted by Table 503~~, in feet, and the number of stories of a building shall be ~~increased in accordance with Sections 504.2 and 504.3~~ determined based on the type of construction, occupancy classification, and whether or not there is an automatic sprinkler system installed throughout the building.

Exception: The *building height* of one-*story* aircraft hangars, aircraft paint hangars and buildings used for the manufacturing of aircraft shall not be limited if the building is provided with an *automatic sprinkler system* or *automatic fire-extinguishing system* in accordance with Chapter 9 and is entirely surrounded by *public ways* or *yards* not less in width than one and one-half times the *building height*.

504.1.1 Unlimited area buildings. The height of unlimited area buildings shall be designed in accordance with Section 507.

504.1.2 Special Provisions. The requirements in Section 510, "Special Provisions", shall permit the use of special conditions that are exempt from, or modify, the specific requirements of this chapter regarding the allowable heights of buildings based on the occupancy classification and type of construction, provided the special condition complies with the provisions specified in Section 510.

504.1.3 Fire-resistance rating substitution. Where sprinklers are substituted for one hour construction in accordance with Table 601, Footnote d, the height and number of stories shall be determined based on the provisions applicable to buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

~~**504.2 Automatic sprinkler system increase.** Where a building is equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum *building height* is increased by 20 feet (6096 mm) and the maximum number of *stories* is increased by one. These increases are permitted in addition to the *building area* increase in accordance with Sections 506.2 and 506.3. For Group R buildings equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.2, the value specified in Table 503 for maximum *building height* is increased by 20 feet (6096 mm) and the maximum number of *stories* is increased by one, but shall not exceed 60 feet (18 288 mm) or four *stories*, respectively.~~

~~**Exception:** The use of an *automatic sprinkler system* to increase *building heights* shall not be permitted for the following conditions:~~

1. ~~Buildings, or portions of buildings, classified as a Group I-2 occupancy of Type IIB, III, IV or V construction.~~
2. ~~Buildings, or portions of buildings, classified as a Group H-1, H-2, H-3 or H-5 occupancy.~~
3. ~~Buildings where an *automatic sprinkler system* is substituted for fire-resistance rated construction in accordance with Table 601, Note d.~~

504.2 Mixed occupancy. In a building containing mixed occupancies in accordance with Section 508, no individual occupancy shall exceed the height and number of story limits specified in this section for the applicable occupancies.

504.3 Height in feet. The maximum height, in feet, of a building shall not exceed the limits specified in Table 504.3.

~~504.3 Roof structures.~~ **Exception:** Towers, spires, steeples and other roof structures shall be constructed of materials consistent with the required type of construction of the building except where other construction is permitted by Section 1509.2.5. Such structures shall not be used for habitation or storage. The structures shall be unlimited in height if of noncombustible materials and shall not extend more than 20 feet (6096 mm) above the allowable *building height* if of combustible materials (see Chapter 15 for additional requirements).

TABLE 504.3[a]
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A,B,E,F,M,S,U	NS[b]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
H-1, H-2, H-3, H-5	NS[c,d]	UL	160	65	55	65	55	65	50	40
	S									
H-4	NS[c,d]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
I-1, I-3	NS[d,e]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
I-2	NS[d,f]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85						
I-4	NS[d,g]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
R	NS[d,h]	UL	160	65	55	65	55	65	50	40
	S13R	60	60	60	60	60	60	60	60	60
	S	UL	180	85	75	85	75	85	70	60

For SI: 1 foot = 304.8mm
UL = Unlimited
NS = Buildings not equipped throughout with an automatic sprinkler system.
S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.
a. See Chapter 4 for specific exceptions to the allowable height in this Chapter 5.
b. See Section 903.2 for minimum sprinkler thresholds for specific occupancies.
c. New Group H occupancies required to be sprinklered in accordance with Section 903.2.5.
d. The NS value is only for use in evaluation of existing building height in accordance with Section 3412.6.1.
e. New Group I -1 and I-3 occupancies required to be sprinklered in accordance with Section 903.2.6. For New Group I-1 Occupancy, see also Section 903.2.6, Exceptions 1 and 2.
f. New and existing Group I-2 occupancies required to be sprinklered in accordance with Section 903.2.6 and IFC Section 1103.5.
g. New Group I-4 occupancies see Section 903.2.6 Exceptions 3 and 4.
h. New Group R occupancies required to be sprinklered in accordance with Section 903.2.8.

504.4 Number of stories. The maximum number of stories of a building shall not exceed the limits specified in Table 504.4.

T

ABLE 504.4[a,b]
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOT-NOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	5	3	2	3	2	3	2	1
	S	UL	6	4	3	4	3	4	3	2
A-2	NS	UL	11	3	2	3	2	3	2	1
	S	UL	12	4	3	4	3	4	3	2
A-3	NS	UL	11	3	2	3	2	3	2	1
	S	UL	12	4	3	4	3	4	3	2
A-4	NS	UL	11	3	2	3	2	3	2	1
	S	UL	12	4	3	4	3	4	3	2
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S	UL	UL	UL	UL	UL	UL	UL	UL	UL
B	NS	UL	11	5	3	5	3	5	3	2
	S	UL	12	6	4	6	4	6	4	3
E	NS	UL	5	3	2	3	2	3	1	1
	S	UL	6	4	3	4	3	4	2	2
F-1	NS	UL	11	4	2	3	2	4	2	1
	S	UL	12	5	3	4	3	5	3	2
F-2	NS	UL	11	5	3	4	3	5	3	2
	S	UL	12	6	4	5	4	6	4	3
H-1	NS[c,e]	1	1	1	1	1	1	1	1	NP
	S									
H-2	NS[c,e]	UL	3	2	1	2	1	2	1	1
	S									
H-3	NS[c,e]	UL	6	4	2	4	2	4	2	1
	S									
H-4	NS[c,e]	UL	7	5	3	5	3	5	3	2
	S	UL	8	6	4	6	4	6	4	3
H-5	NS[c,e]	4	4	3	3	3	3	3	3	2
	S									
I-1	NS[d,e]	UL	9	4	3	4	3	4	3	2
	S	UL	10	5	4	5	4	5	4	3
I-2	NS[e,f]	UL	4	2	1	1	NP	1	1	NP
	S	UL	5	3						
I-3	NS[d,e]	UL	4	2	1	2	1	2	2	1
	S	UL	5	3	2	3	2	3	3	2
I-4	NS[e,g]	UL	5	3	2	3	2	3	1	1
	S	UL	6	4	3	4	3	4	2	2
M	NS	UL	11	4	2	4	2	4	3	1
	S	UL	12	5	3	5	3	5	4	2
R-1	NS[e,h]	UL	11	4	4	4	4	4	3	2
	S13R	4	4						4	3
	S	UL	12	5	5	5	5	5	4	3
R-2	NS[e,h]	UL	11	4	4	4	4	4	3	2
	S13R	4	4						4	3
	S	UL	12	5	5	5	5	5	4	3
R-3	NS[e,h]	UL	11	4	4	4	4	4	3	3
	S13R	4	4						4	4

	S	UL	12	5	5	5	5	5	4	4
R-4	NS[e,h]	UL	11	4	4	4	4	4	3	2
	S13R	4	4						4	3
	S	UL	12	5	5	5	5	5	4	3
S-1	NS	UL	11	4	2	3	2	4	3	1
	S	UL	12	5	3	4	3	5	4	2
S-2	NS	UL	11	5	3	4	3	4	4	2
	S	UL	12	6	4	5	4	5	5	3
U	NS	UL	5	4	2	3	2	4	2	1
	S	UL	6	5	3	4	3	5	3	2

UL = Unlimited. NP = Not Permitted
NS = Buildings not equipped throughout with an automatic sprinkler system.
S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.
a. See Chapter 4 for specific exceptions to the allowable stories in this Chapter 5.
b. See Section 903.2 for minimum sprinkler thresholds for specific occupancies.
c. New Group H occupancies required to be sprinklered in accordance with Section 903.2.5.
d. New Group I-1 and I-3 occupancies required to be sprinklered in accordance with Section 903.2.6. For New I-1 Occupancy, see also Section 903.2.6, Exceptions 1 and 2.
e. The NS value is only for use in evaluation of existing building height in accordance with Section 3412.6.1.
f. New and existing Group I-2 occupancies required to be sprinklered in accordance with Section 903.2.6 and IFC Section 1103.5.
g. New Group I-4 occupancies see Section 903.2.6, Exceptions 3 and 4.
h. New Group R occupancies required to be sprinklered in accordance with Section 903.2.8.

SECTION 505
MEZZANINES AND EQUIPMENT PLATFORMS

(Portions of text not shown remain unchanged)

Delete and substitute as follows:

~~SECTION 506~~
~~BUILDING AREA MODIFICATIONS~~

~~**506.1 General.** The *building areas* limited by Table 503 shall be permitted to be increased due to frontage *(If)* and *automatic sprinkler system* protection *(Is)* in accordance with Equation 5-1:~~

~~*Aa* = {*At* + [*At* × *If*] + [*At* × *Is*]} **(Equation 5-1)**~~
~~where:~~
~~*Aa* = Allowable *building area* per *story* (square feet).~~
~~*At* = Tabular *building area* per *story* in accordance with Table 503 (square feet).~~
~~*If* = Area increase factor due to frontage as calculated in accordance with Section 506.2.~~
~~*Is* = Area increase factor due to sprinkler protection as calculated in accordance with Section 506.3.~~

~~**506.2 Frontage increase.** Every building shall adjoin or have access to a *public way* to receive a *building area* increase for frontage. Where a building has more than 25 percent of its perimeter on a *public way* or open space having a width of not less than 20 feet (6096 mm), the frontage increase shall be determined in accordance with Equation 5-2:~~

~~*If* = [*F*/*P* - 0.25]*W*/30 **(Equation 5-2)**~~
~~where:~~
~~*If* = Area increase due to frontage.~~
~~*F* = Building perimeter that fronts on a *public way* or open space having 20 feet (6096 mm) open minimum width (feet).~~
~~*P* = Perimeter of entire building (feet).~~
~~*W* = Width of *public way* or open space (feet) in accordance with Section 506.2.1.~~

Weighted average $W = (L1 \times w1 + L2 \times w2 + L3 \times w3 \ldots)/F$. **(Equation 5-3)**

where:

Ln = Length of a portion of the exterior perimeter wall.
wn = Width of open space associated with that portion of the exterior perimeter wall.
F = Building perimeter that fronts on a *public way* or open space having a width of 20 feet (6096 mm) or more.

Exception: Where the building meets the requirements of Section 507, as applicable, except for compliance with the 60-foot (18 288 mm) *public way* or *yard* requirement, and the value of *W* is greater than 30 feet (9144 mm), the value of *W* divided by 30 shall be limited to a maximum of 2.

506.2.2 Open space limits. Such open space shall be either on the same *lot* or dedicated for public use and shall be accessed from a street or *approved fire lane*.

506.3 Automatic sprinkler system increase. Where a building is equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, the *building area* limitation in Table 503 is permitted to be increased by an additional 200 percent (*Is* = 2) for buildings with more than one *story above grade plane* and an additional 300 percent (*Is* = 3) for buildings with no more than one *story above grade plane*. These increases are permitted in addition to the height and *story* increases in accordance with Section 504.2.

Exception: The use of an *automatic sprinkler system* to increase the building area limitation shall not be permitted for the following conditions:

1. Buildings classified as a Group H-1 occupancy.
2. Buildings, or portions of buildings, classified as either a Group H-2 or H-3 occupancy. For buildings containing such occupancies, the allowable area shall be determined in accordance with Section 508.4.2, with the sprinkler system increase applicable only to the portions of the building not classified as Group H-2 or H-3.
3. Buildings where an *automatic sprinkler system* is substituted for fire-resistance rated construction in accordance with Table 601, Note d.

506.4 Single occupancy buildings with more than one story. The total allowable *building area* of a single occupancy building with more than one *story above grade plane* shall be determined in accordance with this section. The actual aggregate *building area* at all *stories* in the building shall not exceed the total allowable *building area*.

Exception: A single *basement* need not be included in the total allowable *building area*, provided such *basement* does not exceed the area permitted for a building with no more than one *story above grade plane*.

506.4.1 Area determination. The total allowable *building area* of a single occupancy building with more than one *story above grade plane* shall be determined by multiplying the allowable *building area* per *story* (*Aa*), as determined in Section 506.1, by the number of *stories above grade plane* as listed below:

1. For buildings with two *stories above grade plane*, multiply by 2;
2. For buildings with three or more *stories above grade plane*, multiply by 3; and
3. No *story* shall exceed the allowable *building area* per *story* (*Aa*), as determined in Section 506.1, for the occupancies on that *story*.

Exceptions:

1. Unlimited area buildings in accordance with Section 507.

2. The maximum area of a building equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2 shall be determined by multiplying the allowable area per *story (Aa)*, as determined in Section 506.1, by the number of *stories above grade plane*.

506.5 Mixed occupancy area determination. The total allowable *building area* for buildings containing mixed occupancies shall be determined in accordance with the applicable provisions of this section. A single *basement* need not be included in the total allowable *building area*, provided such *basement* does not exceed the area permitted for a building with no more than one *story above grade plane*.

506.5.1 No more than one story above grade plane. For buildings with no more than one *story above grade plane* and containing mixed occupancies, the total *building area* shall be determined in accordance with the applicable provisions of Section 508.1.

506.5.2 More than one story above grade plane. For buildings with more than one *story above grade plane* and containing mixed occupancies, each *story* shall individually comply with the applicable requirements of Section 508.1. For buildings with more than three *stories above grade plane*, the total *building area* shall be such that the aggregate sum of the ratios of the actual area of each *story* divided by the allowable area of such *stories* based on the applicable provisions of Section 508.1 shall not exceed 3.

SECTION 506
BUILDING AREA

506.1 General. The floor area of a building shall be determined based on the type of construction, occupancy classification, whether or not there is an automatic sprinkler system installed throughout the building, and the amount of building frontage on public way or open space.

506.1.1 Unlimited area buildings. Unlimited area buildings shall be designed in accordance with Section 507.

506.1.2 Special Provisions. The requirements in Section 510, “Special Provisions”, shall permit the use of special conditions that are exempt from, or modify, the specific requirements of this chapter regarding the allowable areas of buildings based on the occupancy classification and type of construction, provided the special condition complies with the provisions specified in Section 510.

506.1.3 Fire-resistance rating substitution. Where sprinklers are substituted for one hour construction in accordance with Table 601, Footnote d, the floor area of the building shall be determined based on the provisions applicable to buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

506.1.4 Basements. Single story basements need not be included in the total allowable floor area of a building provided the total basement floor area does not exceed that permitted for a one-story building.

506.2 Allowable area determination. The allowable area of a building shall be determined in accordance with the applicable provisions of Sections 506.2.1 through 506.2.4 and Section 506.3.

506.2.1 Single occupancy, one-story buildings. The allowable area of a single occupancy building with no more than one story above grade plane shall be determined in accordance with Equation 5-1:

$A_a = A_t + (NS \times I_f)$ (**Equation 5-1)**

where:

A_a = Allowable area (square feet).
A_t = Tabular allowable area factor (NS, S1, or S13R value, as applicable) in accordance with Table 506.2.

NS = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether or not the building is sprinklered).

I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

506.2.2 Mixed occupancy, one-story buildings. The allowable area of a mixed occupancy building with no more than one story above grade plane shall be determined in accordance with the applicable provisions of Section 508.1.

506.2.2.1 Group H-2 or H-3 mixed occupancies. For a building containing Group H-2 or H-3 occupancies, the allowable area shall be determined in accordance with Section 508.4.2, with the sprinkler system increase applicable only to the portions of the building not classified as Group H-2 or H-3.

506.2.3 Single occupancy, multi-story buildings. The allowable area of a single occupancy building with more than one story above grade plane shall be determined in accordance with Equation 5-2:

$A_a = [A_t + (NS \times I_f)] \times S_a$ **(Equation 5-2)**

where:

A_a = Allowable area (square feet).
A_t = Tabular allowable area factor (NS, S13R, or SM value, as applicable) in accordance with Table 506.2.
NS = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether or not the building is sprinklered).
I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.
S_a = Actual number of building stories above grade plane, not to exceed 3. For buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2, use the actual number of building stories above grade plane, not to exceed 4.
No individual story shall exceed the allowable area (A_a) as determined by Equations 5-2 using the value of $S_a = 1$.

506.2.4 Mixed occupancy, multi-story buildings. Each story of a mixed occupancy building with more than one story above grade plane shall individually comply with the applicable requirements of Section 508.1. For buildings with more than three stories above grade plane, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories based on the applicable provisions of Section 508.1 shall not exceed 3.

506.2.4.1 Group H-2 or H-3 mixed occupancies. For a building containing Group H-2 or H-3 occupancies, the allowable area shall be determined in accordance with Section 508.4.2, with the sprinkler system increase applicable only to the portions of the building not classified as Group H-2 or H-3.

TABLE 506.2[a,b]
ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
	S1	UL	UL	62,000	34,000	56,000	34,000	60,000	46,000	22,000
	SM	UL	UL	46,500	25,500	42,000	25,500	45,000	34,500	16,500

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-3	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-4	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1	UL	UL	UL	UL	UL	UL	UL	UL	UL
	SM	UL	UL	UL	UL	UL	UL	UL	UL	UL
B	NS	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000
E	NS	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9.500
	S1	UL	UL	106,000	58,000	94,000	58,000	102,000	74,000	38,000
	SM	UL	UL	79,500	43,500	70,500	43,500	76,500	55,500	28,500
F-1	NS	UL	UL	25,000	15,500	19,000	12,000	33,500	14,000	8.500
	S1	UL	UL	100,000	62,000	76,000	48,000	134,000	56,000	34,000
	SM	UL	UL	75,000	46,500	57,000	36,000	100,500	42,000	25,500
F-2	NS	UL	UL	37,500	23,000	28,500	18,000	50,500	21,000	13,000
	S1	UL	UL	150,000	92,000	114,000	72,000	202,000	84,000	52,000
	SM	UL	UL	112,500	69,000	85,500	54,000	151,500	63,000	39,000
H-1	NSc	21,000	16,500	11,000	7,000	9.500	7,000	10,500	7,500	NP
	S1									
H-2	NSc	21,000	16,500	11,000	7,000	9.500	7,000	10,500	7,500	3,000
	S1									
	SM									
H-3	NSc	UL	60,000	26,500	14,000	17,500	13,000	25,500	10,000	5,000
	S1									
	SM									
H-4	NSc,d	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
	S1	UL	UL	150,000	70,000	114,000	70,000	144,000	72,000	26,000
	SM	UL	UL	112,500	52,500	85,500	52,500	108,000	54,000	19,500
H-5	NSc,d	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	108000	54,000	27,000
I-1	NSd,e,f	UL	55,000	19,000	10,000	16,500	10,000	18,000	10,500	4,500
	S1	UL	220,000	76,000	40,000	66,000	40,000	72,000	42,000	18,000

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
	SM	UL	165,000	57,000	30,000	49,500	30,000	54,000	31,500	13,500
I-2	NSd,g	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP
	S1	UL	UL	60,000	44,000	48,000	NP	48,000	38,000	NP
	SM	UL	UL	45,000	33,000	36,000	NP	36,000	28,500	NP
I-3	NSd,e	UL	UL	15,000	10,000	10,500	7,500	12,000	7,500	5,000
	S1	UL	UL	45,000	40,000	42,000	30,000	48,000	30,000	20,000
	SM	UL	UL	45,000	30,000	31,500	22,500	36,000	22,500	15,000
I-4	NSd,e,h	UL	60.500	26,500	13,000	23,500	13,000	25,500	18,500	9,000
	S1	UL	121,000	106,000	52,000	94,000	52,000	102,000	74,000	36,000
	SM	UL	181,500	79,500	39,000	70,500	39,000	76,500	55,500	27,000
M	NS	UL	UL	21,500	12,500	18,500	12,500	20,500	14,000	9,000
	S1	UL	UL	86,000	50,000	74,000	50,000	82,000	56,000	36,000
	SM	UL	UL	64,500	37,500	55,500	37,500	61,500	42,000	27,000
R-1	NSd,i	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
R-2	NSd,i	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
R-3	NSd,i	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S13R									
	S1									
	SM									
R-4	NSd,i	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
S-1	NS	UL	48,000	26,000	17,500	26,000	17,500	25,500	14,000	9,000
	S1	UL	192,000	104,000	70,000	104,000	70,000	102,000	56,000	36,000
	SM	UL	144,000	78,000	52,500	78,000	52,500	76,500	42,000	27,000
S-2	NS	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500
	S1	UL	316,000	156,000	104,000	156,000	104,000	154,000	84,000	54,000
	SM	UL	237,000	117,000	78,000	117,000	78,000	115,500	63,000	40,500
U	NS	UL	35,500	19,000	8,500	14,000	8,500	18,000	9,000	5,500
	S1	UL	142,000	76,000	34,000	56,000	34,000	72,000	36,000	22,000
	SM	UL	106,500	57,000	25,500	42,000	25,500	54,000	27,000	16,500

For SI: 1 square foot = 0.0929m^2

UL = Unlimited, NP = Not permitted.

NS = Buildings not equipped throughout with an automatic sprinkler system.
S1 = Buildings maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
SM = Buildings two or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.

a. See Chapter 4 for specific exceptions to the allowable area in this Chapter 5.
b. See Section 903.2 for minimum sprinkler thresholds for specific occupancies.
c. New Group H occupancies required to be sprinklered in accordance with Section 903.2.5.
d. The NS value is only for use in evaluation of existing building area in accordance with Section 3412.6.2.
e. New Group I-1 and I-3 occupancies required to be sprinklered in accordance with Section 903.2.6.
f. For New I-1 Occupancy, see also Section 903.2.6, Exceptions 1 and 2.
g. New and existing I-2 occupancies required to be sprinklered in accordance with Section 903.2.6 and IFC Section 1103.5.
h. New Group I-4 occupancies see Section 903.2.6, Exceptions 3 and 4.
i. New Group R occupancies required to be sprinklered in accordance with Section 903.2.8.

506.3 Frontage increase. Every building shall adjoin or have access to a *public way* to receive an area factor increase based on frontage. Area factor increase shall be determined in accordance with Sections 506.3.1 through 506.3.3.

506.3.1 Minimum percentage of perimeter. To qualify for an area factor increase based on frontage, a building shall have not less than 25 percent of its perimeter on a *public way* or open space. Such open space shall be either on the same lot or dedicated for public use and shall be accessed from a street or *approved fire lane*.

506.3.2 Minimum frontage distance. To qualify for an area factor increase based on frontage, the *public way* or open space adjacent to the building perimeter shall have a minimum distance (W) of 20 feet (6096 mm) measured at right angles from the building face to any of the following:

1. The closest interior lot line.
2. The entire width of a street, alley or public way.
3. To the exterior face of an adjacent building on the same property.

Where the value of *W* is greater than 30 feet (9144 mm), a value of 30 feet (9144 mm) shall be used in calculating the building area increase based on frontage, regardless of the actual width of the *public way* or open space. Where the value of *W* varies along the perimeter of the building, the calculation performed in accordance with Equation 5-4 shall be based on the weighted average calculated in accordance with Equation 5-3.

$$W = (L_1 \times w_1 + L_2 \times w_2 + L_3 \times w_3 \ldots)/F \qquad \textbf{(Equation 5-3)}$$

where:

W (Width: weighted average) = Calculated width of public way or open space (feet).
L_n = Length of a portion of the exterior perimeter wall.
w_n = Width (≥ 20 feet) of a public way or open space associated with that portion of the exterior perimeter wall.
F = Building perimeter that fronts on a *public way* or open space having a width of 20 feet (6096 mm) or more.

Exception: Where the building meets the requirements of Section 507, as applicable, except for compliance with the minimum 60-foot (18 288 mm) *public way* or *yard* requirement, and the value of *W* is greater than 30 feet (9144 mm), the value of *W* shall not exceed 60 feet (18 288 mm).

506.3.3 Amount of increase. The area factor increase based on frontage shall be determined in accordance with the following:

I_f = [F/P - 0.25]W/30 **(Equation 5-4)**
where:

I_f = Area factor increase due to frontage.
F = Building perimeter that fronts on a *public way* or open space having minimum distance of 20 feet (6096 mm).
P = Perimeter of entire building (feet).
W = Width of *public way* or open space (feet) in accordance with Section 506.3.2.

Revise as follows:

507.8 Group H-2, H-3 and H-4 occupancies. Group H-2, H-3 and H-4 occupancies shall be permitted in unlimited area buildings containing Group F and S occupancies in accordance with Sections 507.3 and 507.4 and the provisions of Sections 507.8.1 through 507.8.4.

507.8.1 Allowable area. The aggregate floor area of Group H occupancies located in an unlimited area building shall not exceed 10 percent of the area of the building nor the area limitations for the Group H occupancies as specified in ~~Table 503 as modified by Section 506.2~~ Section 506 based upon the perimeter of each Group H floor area that fronts on a *public way* or open space.

507.8.1.1 Located within the building. The aggregate floor area of Group H occupancies not located at the perimeter of the building shall not exceed 25 percent of the area limitations for the Group H occupancies as specified in ~~Table 503~~ Section 506.

507.8.4 Height limitations. For two-*story* unlimited area buildings, Group H occupancies shall not be located more than one *story above grade plane* unless permitted based on the allowable height ~~in~~ and number of *stories* and feet as ~~set forth in Table 503 for~~ specified in Section 504 based on the type of construction of the unlimited area building.

~~**508.2.1 Area limitations.** Aggregate accessory occupancies shall not occupy more than 10 percent of the *building area* of the *story* in which they are located and shall not exceed the tabular values in Table 503, without *building area* increases in accordance with Section 506 for such accessory occupancies.~~

~~**508.2.2**~~ **508.2.1 Occupancy classification.** Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space.

508.2.2 Allowable building height. The allowable height and number of stories of the building shall be in accordance with Section 504 for the main occupancy of the building. The allowable height and number of stories for each accessory occupancy shall not exceed the tabular values for nonsprinklered buildings in Table 504.3 and Table 504.4 for such accessory occupancy.

~~**508.2.3 Allowable building area and height.** The allowable *building area and height* of the building shall be based on the allowable *building area and height* for the main occupancy in accordance with Section 503.1. The height of each accessory occupancy shall not exceed the tabular values in Table 503, without increases in accordance with Section 504 for such accessory occupancies. The *building area* of the accessory occupancies shall be in accordance with Section 508.2.1.~~

508.2.3 Allowable building area. The allowable area of the building shall be based on the applicable provisions of Section 506 for the main occupancy of the building. Aggregate accessory occupancies shall not occupy more than 10 percent of the floor area of the story in which they are located and shall not exceed the tabular values for nonsprinklered buildings in Table 506.2 for each such accessory occupancies.

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. through 6. *(no change)*
7. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section ~~503~~ 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

3102.4 Allowable floor areas. The area of a membrane structure shall not exceed the limitations ~~set forth in Table 503, except as provided in~~ specified in Section 506.

3102.5 Maximum height. Membrane structures shall not exceed one *story* nor shall such structures exceed the height limitations in feet ~~set forth in Table 503~~ specified in Section 504.3.

Exception: Noncombustible membrane structures serving as roofs only.

3412.6.1 (IEBC [B] 1412.6.1) Building height and number of stories. The value for building height and number of stories shall be the lesser value determined by the formula in Section 3412.6.1.1. ~~Chapter 5~~ Section 504 shall be used to determine the allowable height and number of stories of the building~~, including allowable increases due to automatic sprinklers as provided for in Section 504.2.~~ Subtract the actual *building height* in feet from the allowable and divide by 12 1/2 feet. Enter the height value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.1, Building Height, for fire safety, means of egress and general safety. The maximum score for a building shall be 10.

3412.6.1.1 (IEBC [B] 1412.6.1.1) Height formula. The following formulas shall be used in computing the building height value.

Height value, feet = $\frac{(AH)-(EBH)}{12.5}$ x *CF* **(Equation 34-1)**

Height value, feet = (*AS* – *EBS*) x *CF* **(Equation 34-2)**

where:

AH = Allowable height in feet from ~~Table 503~~ Section 504.
EBH = Existing *building height* in feet.
AS = Allowable height in stories from ~~Table 503~~ Section 504.
EBS = Existing building height in stories.
CF = 1 if (*AH*) – (*EBH*) is positive.
CF = Construction-type factor shown in Table 3412.6.6(2) if (*AH*) – (*EBH*) is negative.

Note: Where mixed occupancies are separated and individually evaluated as indicated in Section 3412.6, the values AH, AS, EBH and EBS shall be based on the height of the occupancy being evaluated.

3412.6.2 (IEBC 1412.6.2) Building area. The value for building area shall be determined by the formula in Section 3412.6.2.2. Section ~~503~~ 506 and the formula in Section 3412.6.2.1 shall be used to determine the allowable area of the building. ~~This shall include any allowable increases due to frontage and automatic sprinklers as provided for in Section 506.~~ Subtract the actual *building area* in square feet from the allowable area and divide by 1,200 square feet. Enter the area value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.2, Building Area, for fire safety, means of egress and general safety. In determining the area value, the maximum permitted positive value for area is 50 percent of the fire safety score as *listed* in Table 3412.8, Mandatory Safety Scores.

3412.6.2.1 (IEBC [B] 1412.6.2.1) Allowable area formula. The following formula shall be used in computing allowable area:

~~*Aa = {At + [At x If] + [At x Is]}*~~ **~~(Equation 34-3)~~**

$A_a = A_t + (NS \times I_f)$ **(Equation 34-3)**

where:

Aa = Allowable *building area* per story (square feet).
At = Tabular ~~*building*~~ allowable *area* ~~per story~~ factor (NS, S1, S13R, or SM value, as applicable) in accordance with Table ~~503~~ 506.2 ~~(square feet)~~.
NS = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether or not the building is sprinklered).
~~*Is = Area increase factor due to sprinkler protection as calculated in accordance with Section 506.3.*~~
If = Area factor increase ~~factor~~ due to for frontage as calculated in accordance with Section ~~506.2~~ 506.3.

Reason: This proposal rewrites current IBC allowable area and height provisions in an attempt to provide an increased degree of user friendliness and technical consistency to these fundamental requirements. To anyone not looking very closely at this code proposal, it may appear to be a dramatic change from current provisions, but the BCAC can assure you that it is not. Although this proposal modifies the format and technical language for allowable area and height determination, for all intents and purposes it can be regarded as being an editorial code change. That is, the code user will achieve exactly the same design solution in the 2015 IBC using the proposed improved methodology as that which results from the 2012 IBC.

Currently, Section 503.1 references Table 503 as the starting point of allowable area and height determination. This proposal references the code text Sections 504, "Building Height and Number of Stories", and 506, "Building Area", as the starting point that will now give structure to the design process. Existing Table 503, that represented unmodified base allowable area and height data, has been separated into three specific tables and placed in context at the appropriate technical sections for the design or review process. Table 504.3, "Allowable Building Height in Feet Above Grade Plane", Table 504.4, "Allowable Number of Stories Above Grade Plane" and Table 506.2, "Allowable Area Factor", now provide the allowable value based on the three (3) required variables to determine the height and area of a building:

1. Occupancy classification of the building
2. Type of construction of the building, and
3. Whether or not the building is sprinklered and if it is sprinklered, the type of sprinkler system provided.

Inputting the above-required variables into these three revised tables effectively eliminates all the many exceptions currently found in Sections 504.2 and 506.3, reducing the possibility of an error of omission or misunderstanding that is common with some users of the Code. The exceptions in the 2012 IBC Sections 504.2 and 506.3 were seamlessly incorporated into the new Tables so there is no way of misinterpreting what is required under the Code. Also, new footnotes in the revised tables will now correlate the mandatory sprinkler requirements in Section 903 with the height and area requirements in Chapter 5.

Using revised Section 504 that references Tables 504.3 & 504.4 makes determining the allowable building height in feet, and number of stories a very straight-forward exercise. Simply enter the appropriate table based on the applicable construction type, occupancy classification and sprinkler protection variables to determine the allowable value (and you are finished!). The footnotes in the tables provide the necessary cross-references and amplification for general specific exceptions under Chapter 4, Chapter 9 or Chapter 34. This is the first time that the height and area calculations in the Code Tables have been correlated with the sprinkler thresholds in Section 903 that were missed by many code users in the past.

Allowable building area determination is formula driven using the allowable area factor values in new Table 506.2 which are the existing values in the current 2012 IBC Table 503; however, the added values for "S1" & "SM" are multiplied out for use with the single story and multi-story sprinklered buildings. The "S1" (one story building sprinklered per NFPA 13) value is the "NS" (Nonsprinklered) value multiplied by 4 (old base Table value + 3 times the old Table value), the "SM" (multi-story building sprinklered per NFPA 13) value is the "NS" (Nonsprinklered) value multiplied by 3 (old base Table value + 2 times the old Table value), and the S13R (building sprinklered per NFPA 13R) value is the same value as the "NS" (Nonsprinklered) value. Sections 506.2.1, 506.2.2, 506.2.3 and 506.2.4 provide specific procedures and the formulas for allowable area determination based on tabular values chosen from Table 506.2 based on the building under consideration and on the frontage increase calculated under Section 506.3. The Section 506.3, "frontage increase", provisions have been reworded to clarify the existing frontage increase determination procedure. Accounting for potential building area increases by sequentially starting at Section 506.1 and ending at 506.3.3 will provide the total allowable building area without referring back and forth between non-sequentially arranged code sections, Table 503 and footnotes as is the current procedure with the 2012 IBC.

A comparison of the 2012 and 2015 allowable area and height determination procedures reveals a much more simple process and identical answers to the exercise:

GIVEN:
Occupancy classification: Group B
Actual number of stories: 4
Actual Height above grade plane: 80'
Actual floor area/story = 100,000 sq. ft. (400,000 aggregate floor area for the entire building)
Type of construction: Type IIA
Sprinkler protection: NFPA 13
Frontage: around the entire building has 50 feet open space (100% open)

DETERMINE:
Total allowable building area and height in feet and stories.

2012 IBC Procedure:

Step 1: Read charging language at Section 503.1.

Step 2: Read charging language at Section 504.1.

Step 3: Read Section 504.2 and note that sprinklered building receives 20' increase and one story increase in height in Table 503 if none of the exceptions in Section 504.2 are applicable.

Step 4: Obtain tabular data from Table 503 (yields 65 ft and 5 stories) and apply increases from Step 3 (yields: 85 ft > 80 ft actual ✓and 6 stories > 4 stories actual ✓)

Step 5: Read Section 506.1 and then go to Table 503 to get A_t value (yields 37,500 sq. ft.) for use in Equation 5-1

Step 6: Read Section 506.2 and determine applicable allowable area frontage increase from Equations 5-2 & 5-3 (yields I_f = 0.75).

Step 7: Read Section 506.6 and its exceptions and determine applicable allowable area sprinkler increase from Section 506.3 (yields I_s = 2).

Step 8: Solve for A_a in Equation 5-1 in Section 506.1 using values obtained in Steps 5-7 (yields A_a =140,625 sf).

Step 9: Read Section 506.4 and determine total building area for this 4 story building using Section 506.4.1(2) (yields 3 x 140, 625 = 421,875 sq. ft. > 400,000 sq. ft. actual ✓).

Step 10: Determine maximum allowable per story for this 4 story building using Section 506.4.1(3) (yields from Step 8 = 140,624 sq. ft. > 100,000 sq. ft. actual ✓). Finished.

2015 IBC Procedure:

Step 1: Read charging language at Section 503.1.
Step 2: Read charging language at Section 504.1.
Step 3: Read Sections 504.1 to Section 504.3 and determine allowable building height in feet from Section Table 504.3 (yields 85 ft > 80 ft actual ✓).
Step 4: Read Section 504.4 and determine allowable building height in stories from Section Table 504.4 (yields: 6 stories > 4 stories actual ✓)).
Step 5: Read Sections 506.1 to 506.2.3 and determine the values required for determining maximum building floor area in Equations 5-2 (yields A_t from Table 506.2 as 112,500 sq. ft for SM value, 37,500 sq. ft for NS value, S_a = 3, and to determine I_f need to go Section 506.3 (See Step 6))
Step 6: Read Section 506.3 to 506.3.3 and determine applicable allowable area frontage increase from Equations 5-2 & 5-3 (yields I_f = 0.75).
Step 7: Using values obtained in Steps 5 & 6 determine the maximum building floor area using Equations 5-2 (yields 112,500 x 37,500(0.75) x 3 =421,875 sq. ft. > 400,000 sq. ft. actual ✓).
Step 8: Determine maximum allowable per story for this 4 story building using Equation 5-2 with S_a = 1 (yields 112,500 x 37,500(0.75) x 1 =140,625 sq. ft. > 100,000 sq. ft. actual ✓). Finished.

Several other sections other than Sections 503, 504 and 506 that referenced Table 503 directly have been revised to correlate the proper cross-reference to the revised allowable area and height determination procedures.

This proposal combines, organizes and rewords former allowable area and height provisions that resulted in a somewhat confusing multi-step process for value determination that new code users had a very difficult time learning. Through an improved sequential format and technical consolidation, this process has been greatly simplified resulting in consistency for area and height determinations.

In summary, all current technical provisions relative to allowable area and height determination have been retained. This code proposal is intended to greatly improve the functionality and consistency of the International Building Code in this fundamental, and important, area of allowable area and height determination.

Please review the following matrixes that account for the 2012 vs. 2015 IBC locations for relative technical requirements made by this code proposal.

2012 IBC Table	Proposed 2015 IBC Table
Table 503	Table 504.3 for Height in Feet
	Table 504.4 for Height in Stories
	Table 506.2 for Allowable Area Factor
Table 503 Footnote "a.1"	Sprinkler increase due to height built into Table 504.3. Sprinkler increase due to stories built into Table 504.4.
Table 503 Footnote "a.2"	New format of the title of Table 506.2 and revised layout and calculation method in Section 506.2 using Equations 5-1 & 5-2

	eliminate the need for Footnote “a.2”
Table 503 Footnote “a.3”	Sprinkler increase due to area built into Table 506.2
Table 503 Footnote “a.4”	Sections 504.1.1 & 506.1.1
Table 503 Footnote “b”	Table 504.3 Footnote “a” Table 504.4 Footnote “a” Table 506.2 Footnote “a”
2012 IBC Section	Proposed 2015 IBC Section/Table
503.1	503.1
503.1.1	503.1.1
503.1.2	503.1.2
503.1.3	503.1.3
504.1	504.1
504.1 Exception	504.1 Exception
504.2	Table 504.3 & Table 504.4
504.2 Exception #1	Table 504.3 & Table 504.4 under the rows for Group I-2 and the columns for Construction Types IIB, III, IV and V.
504.2 Exception #2	Table 504.3 & Table 504.4 under the rows for Groups H-1, H-2, H-3 and H-5
504.2 Exception #3	Section 504.1.3
504.3	504.3 Exception
506.1	506.2.1 Equation 5-1 and 506.2.3 Equation 5-2
506.2	506.3.3
506.2 Equation 5-2	506.3.3 Equation 5-4
506.2.1	506.3.2
506.2.1 Equation 5-3	506.3.2 Equation 5-3
506.2.1 Exception	506.3.2 Exception
506.2.2	506.3.1
506.3	Table 506.2 in the rows for each occupancy
506.3 Exception #1	Table 506.2 in the rows for H-1 occupancy
506.3 Exception #2	506.2.2.1 and 506.2.4.1
506.3 Exception #3	506.1.3
506.4	506.2.3
506.4 Exception	506.1.4
506.4.1	506.2.1 (Equation 5-1) for one story building 506.2.3 (Equation 5-2 with S_a value)
506.4.1 Exception #1	506.1.1
506.4.1 Exception #2	506.2.3 (built into S_a value description)
506.5	506.1.4
506.5.1	506.2.2
506.5.2	506.2.4

Changes shown in Table below in legislative format:

2012 IBC Table	Proposed 2015 IBC Table
Table 503	Table 504.3 for Height in Feet
	Table 504.4 for Height in Stories
	Table 506.2 for Allowable Area Factor
Table 503 Footnote “a.1” a. See the following sections for general exceptions to Table 503: 1. Section 504.2, Allowable building height and story increase due to automatic sprinkler system installation.	Sprinkler increase due to height built into Table 504.3. Sprinkler increase due to stories built into Table 504.4.
Table 503 Footnote “a.2” a. See the following sections for general exceptions to Table 503: 2. Section 506.2, Allowable building area increase due to street frontage.	New format of the title of Table 506.2 and revised layout and calculation method in Section 506.2 using Equations 5-1 & 5-2 eliminate the need for Footnote “a.2”
Table 503 Footnote “a.3” a. See the following sections for general exceptions to Table 503:	Sprinkler increase due to area built into Table 506.2

3. Section 506.3, Allowable building area increase due to automatic sprinkler system installation.	
Table 503 Footnote "a.4" a. See the following sections for general exceptions to Table 503: 4. Section 507, Unlimited area buildings.	**504.1.1 Unlimited area buildings.** The height of unlimited area buildings shall be designed in accordance with Section 507. **506.1.1 Unlimited area buildings.** Unlimited area buildings shall be designed in accordance with Section 507.
Table 503 Footnote "b" b See Chapter 4 for specific exceptions to the allowable height and areas in Chapter 5.	Table 504.3 Footnote "a" a. See Chapter 4 for specific exceptions to the allowable height in this Chapter 5. Table 504.4 Footnote "a" a. See Chapter 4 for specific exceptions to the allowable stories in this Chapter 5. Table 506.2 Footnote "a" a. See Chapter 4 for specific exceptions to the allowable area in this Chapter 5.
2012 IBC Section	Proposed 2015 IBC Section/Table
503.1 General. The *building height and area* shall not exceed the limits specified in Table 503 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. Each portion of a building separated by one or more *fire walls* complying with Section 706 shall be considered to be a separate building.	**503.1 General.** The *building height*, number of stories *and area* shall not exceed the limits specified in ~~Table 503~~ Sections 504 and 506 based on the type of construction as determined by Section 602 and the ~~occupancies~~ occupancy classification as determined by Section 302, except as modified hereafter. Building height, number of stories and area provisions shall be applied independently. Each portion of a building separated by one or more *fire walls* complying with Section 706 shall be considered to be a separate building.
503.1.1 Special industrial occupancies. Buildings and structures designed to house special industrial processes that require large areas and unusual *building heights* to accommodate craneways or special machinery and equipment, including, among others, rolling mills; structural metal fabrication shops and foundries; or the production and distribution of electric, gas or steam power, shall be exempt from the *building height and area* limitations of Table 503.	**503.1.1 Special industrial occupancies.** Buildings and structures designed to house special industrial processes that require large areas and unusual *building heights* to accommodate craneways or special machinery and equipment, including, among others, rolling mills; structural metal fabrication shops and foundries; or the production and distribution of electric, gas or steam power, shall be exempt from the *building height*, number of stories *and area* limitations ~~of Table 503~~ specified in Sections 504 and 506.
503.1.2 Buildings on same lot. Two or more buildings on the same *lot* shall be regulated as separate buildings or shall be considered as portions of one building if the *building height* of each building and the aggregate *building area* of the buildings are within the limitations of Table 503 as modified by Sections 504 and 506. The provisions of this code applicable to the aggregate building shall be applicable to each building.	**503.1.2 Buildings on same lot.** Two or more buildings on the same lot shall be regulated as separate buildings or shall be considered as portions of one building if the *building height*, number of stories of each building and the aggregate *building area* of the buildings are within the limitations ~~of Table 503~~ specified in Sections 504 and 506. The provisions of this code applicable to the aggregate building shall be applicable to each building.
503.1.3 Type I construction. Buildings of Type I construction permitted to be of unlimited tabular *building heights and areas* are not subject to the special requirements that allow unlimited area buildings in Section 507 or unlimited *building height* in Sections 503.1.1 and 504.3 or increased *building heights and areas* for other types of construction.	**503.1.3 Type I construction.** Buildings of Type I construction permitted to be of unlimited tabular *building heights and areas* are not subject to the special requirements that allow unlimited area buildings in Section 507 or unlimited *building height* in Sections 503.1.1 and 504.3.Exception or increased *building heights and areas* for other types of construction. (No Change to text)
504.1 General. The *building height* permitted by Table 503 shall be increased in accordance with Sections 504.2 and 504.3.	**504.1 General.** The ~~building~~ height, in feet, and the number of stories of a building ~~permitted by Table 503~~ shall be ~~increased in accordance with Sections 504.2 and 504.3~~ determined based on the type of construction, occupancy classification, and whether or not there is an automatic sprinkler system installed throughout the building.
504.1 Exception: The *building height* of one-*story* aircraft hangars, aircraft paint hangars and buildings used for the manufacturing of aircraft shall not be limited if the building is	**504.1 Exception:** The *building height* of one-story aircraft hangars, aircraft paint hangars and buildings used for the manufacturing of aircraft shall not be limited if the building is

provided with an *automatic sprinkler system* or *automatic fire-extinguishing system* in accordance with Chapter 9 and is entirely surrounded by *public ways* or *yards* not less in width than one and one-half times the *building height*.	provided with an automatic fire-extinguishing system in accordance with Chapter 9 and is entirely surrounded by *public ways* or *yards* not less in width than one and one-half times the *building height*.
504.2 Automatic sprinkler system increase. Where a building is equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum *building height* is increased by 20 feet (6096 mm) and the maximum number of *stories* is increased by one. These increases are permitted in addition to the *building area* increase in accordance with Sections 506.2 and 506.3. For Group R buildings equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.2, the value specified in Table 503 for maximum *building height* is increased by 20 feet (6096 mm) and the maximum number of *stories* is increased by one, but shall not exceed 60 feet (18 288 mm) or four *stories*, respectively.	Built into Table 504.3 & Table 504.4.
504.2 Exception 1: The use of an *automatic sprinkler system* to increase *building heights* shall not be permitted for the following conditions: 1. Buildings, or portions of buildings, classified as a Group I-2 occupancy of Type IIB, III, IV or V construction.	Built into Table 504.3 & Table 504.4 under the rows for Group I-2 and the columns for Construction Types IIB, III, IV and V.
504.2 Exception 2: The use of an *automatic sprinkler system* to increase *building heights* shall not be permitted for the following conditions: 2. Buildings, or portions of buildings, classified as aGroup H-1, H-2, H-3 or H-5 occupancy.	Built into Table 504.3 & Table 504.4 under the rows for Groups H-1, H-2, H-3 and H-5
504.2 Exception 3: The use of an *automatic sprinkler system* to increase *building heights* shall not be permitted for the following conditions: 3. Buildings where an *automatic sprinkler system* is substituted for fire-resistance rated construction in accordance with Table 601, Note d.	**504.1.3 Fire-resistance rating substitution.** Where sprinklers are substituted for one hour construction in accordance with Table 601, Footnote d, the height and number of stories shall be determined based on the provisions applicable to buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
504.3 Roof structures. Towers, spires, steeples and other roof structures shall be constructed of materials consistent with the required type of construction of the building except where other construction is permitted by Section 1509.2.5. Such structures shall not be used for habitation or storage. The structures shall be unlimited in height if of noncombustible materials and shall not extend more than 20 feet (6096 mm) above the allowable *building height* if of combustible materials (see Chapter 15 for additional requirements).	**Exception: ~~504.3 Roof structures.~~** Towers, spires, steeples and other roof structures shall be constructed of materials consistent with the required type of construction of the building except where other construction is permitted by Section 1509.2.5. Such structures shall not be used for habitation or storage. The structures shall be unlimited in height if of noncombustible materials and shall not extend more than 20 feet above the allowable *building height* if of combustible materials (see Chapter 15 for additional requirements).
506.1 General. The *building areas* limited by Table 503 shall be permitted to be increased due to frontage *(If)* and *automatic sprinkler system* protection *(Is)* in accordance with Equation 5-1: *Aa* = {*At* + [*At* × *If*] + [*At* × *Is*]} **(Equation 5-1)** where: *Aa* = Allowable *building area* per *story* (square feet). *At* = Tabular *building area* per *story* in accordance with Table 503 (square feet). *If* = Area increase factor due to frontage as calculated in accordance with Section 506.2. *Is* = Area increase factor due to sprinkler protection as calculated in accordance with Section 506.3.	See 506.2.1 Equation 5-1 and 506.2.3 Equation 5-2 **506.2.1 Single occupancy, one-story buildings.** The allowable area of a single occupancy building with no more than one story above grade plane shall be determined in accordance with Equation 5-1: $A_a = A_t + (NS \times I_f)$ **(Equation 5-1)** where: A_a = Allowable area (square feet). A_t = Tabular allowable area factor (NS, S1, or S13R value, as applicable) in accordance with Table 506.2 . NS = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether or not the building is sprinklered). I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3. **506.2.3 Single occupancy, multi-story buildings.** The allowable area of a single occupancy building with more than one story above grade plane shall be determined in accordance with

	Equation 5-2: $A_a = [A_t + (NS \times I_f)] \times S_a$ **(Equation 5-2)** where: A_a = Allowable area (square feet). A_t = Tabular allowable area factor (NS, S13R, or SM value, as applicable) in accordance with Table 506.2. NS = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether or not the building is sprinklered). I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3. S_a = Actual number of building stories above grade plane, not to exceed 3. For buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2, use the actual number of building stories above grade plane, not to exceed 4. No individual story shall exceed the allowable area (A_a) as determined by Equations 5-2 using the value of S_a = 1.
506.2 Frontage increase. Every building shall adjoin or have access to a *public way* to receive a *building area* increase for frontage. Where a building has more than 25 percent of its perimeter on a *public way* or open space having a width of not less than 20 feet (6096 mm), the frontage increase shall be determined in accordance with Equation 5-2: *If* = [*F*/*P* - 0.25]*W*/30 **(Equation 5-2)** where: *If* = Area increase due to frontage. *F* = Building perimeter that fronts on a *public way* or open space having 20 feet (6096 mm) open minimum width (feet). *P* = Perimeter of entire building (feet). *W* = Width of *public way* or open space (feet) in accordance with Section 506.2.1.	**506.3.3 Amount of increase.** The area factor increase based on increase shall be determined in accordance with the following: I_f = [*F*/*P* - 0.25]*W*/30 **(Equation 5-4)** where: I_f = Area factor increase due to frontage. *F* = Building perimeter that fronts on a *public way* or open space having minimum ~~dimension~~ distance of 20 feet (6096 mm). *P*= Perimeter of entire building (feet) *W* = Width of *public way* or open space (feet) in accordance with Section ~~506.2.1~~ 506.3.2.
506.2.1 Width limits. To apply this section the value of *W* shall be not less than 20 feet (6096 mm). Where the value of *W* varies along the perimeter of the building, the calculation performed in accordance with Equation 5-2 shall be based on the weighted average calculated in accordance with Equation 5-3 for portions of the exterior perimeter walls where the value of *W* is greater than or equal to 20 feet (6096 mm). Where the value of *W* is greater than 30 feet (9144 mm), a value of 30 feet (9144 mm) shall be used in calculating the weighted average, regardless of the actual width of the open space. *W* shall be measured perpendicular from the face of the building to the closest interior *lot line*. Where the building fronts on a *public way*, the entire width of the *public way* shall be used. Where two or more buildings are on the same *lot*, *W* shall be measured from the exterior face of a each building to the opposing exterior face of each adjacent building, as applicable. Weighted average *W* = (*L1* □□*w*1 + *L*2 □□*w*2 + *L*3 □□*w*3…)/*F*. **(Equation 5-3)** where: *Ln* = Length of a portion of the exterior perimeter wall. *wn* = Width of open space associated with that portion of the exterior perimeter wall. *F* = Building perimeter that fronts on a *public way* or open space having a width of 20 feet (6096 mm) or more.	~~**506.2.1 Width limits**~~ **506.3.2 Minimum frontage distance.** To ~~apply this section the value of W shall not be less than 20 feet.~~ quality for an area factor increase based on frontage, the *public way* or open space adjacent to the building perimeter shall have a minimum distance (W) of 20 feet (6096 mm) measured at right angles from the building face to any of the following: 1. The closest interior lot line. 2. the entire width a street, alley or *public way*. *3. to the exterior face of an adjacent building on the same property.* ~~Where the value of *W* varies along the perimeter of the building, the calculation performed in accordance with Equation 5-4 shall be based on the weighted average calculated in accordance with Equation 5-3 for portions of the exterior perimeter walls where the value of *W* is equal to or greater than 20 feet (6096 mm).~~ Where the value of *W* is greater than 30 feet (9144 mm), a value of 30 feet (9144 mm) shall be used in calculating the building area increase based on frontage ~~weighted average~~, regardless of the actual width of the *public way* or open space. ~~*W* shall be measured perpendicular from the face of the building to the closest interior *lot line*. Where the building fronts on a *public way*, the entire width of the *public way* shall be used. Where two or more buildings are on the same lot, W shall be measured from the exterior face of the building to the exterior face of an opposing building, as applicable..~~ Where the value of *W* varies along the perimeter of the building, the calculation performed in accordance with Equation 5-4 shall be based on the weighted average calculated in accordance with Equation 5-3. ~~Weighted average~~ $W = (L_1 \times w_1 + L_2 \times w_2 + L_3 \times w_3 \ldots)/F$. **(Equation 5-3)** where: *W* (Width: weighted average) = Calculated width of public way or open space (feet)

	L_n = Length of a portion of the exterior perimeter wall. w_n = Width (≥ 20 feet) of a *public way* or open space associated with that portion of the exterior perimeter wall. *F* = Building perimeter that fronts on a *public way* or open space having a width of 20 feet (6096 mm) or more.
506.2.1 **Exception:** Where the building meets the requirements of Section 507, as applicable, except for compliance with the 60-foot (18 288 mm) *public way* or *yard* requirement, and the value of *W* is greater than 30 feet (9144 mm), the value of *W* divided by 30 shall be limited to a maximum of 2.	506.3.2 Exception: Where the building meets the requirements of Section 507, as applicable, except for compliance with the minimum 60-foot (18 288 mm) *public way* or *yard* requirement, and the value of *W* is greater than 30 feet (9144 mm), the value of *W* shall not exceed 60 feet (18 288 mm) ~~*W* divided by 30 shall be limited to a maximum of 2~~.
506.2.2 Open space limits. Such open space shall be either on the same *lot* or dedicated for public use and shall be accessed from a street or *approved fire lane*.	506.3.1 (Last sentence in paragraph. No change to text wording.)
506.3 Automatic sprinkler system increase. Where a building is equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, the *building area* limitation in Table 503 is permitted to be increased by an additional 200 percent (*I*s = 2) for buildings with more than one *story above grade plane* and an additional 300 percent (*I*s = 3) for buildings with no more than one *story above grade plane*. These increases are permitted in addition to the height and *story* increases in accordance with Section 504.2.	Built into Table 506.2 in the rows for S1 and SM for each occupancy
506.3 **Exception 1:** The use of an *automatic sprinkler system* to increase the building area limitation shall not be permitted for the following conditions: 1. Buildings classified as a Group H-1 occupancy.	Built into Table 506.2 in the rows for S1 and SM for H-1 occupancy
506.3 **Exception 2:** The use of an *automatic sprinkler system* to increase the building area limitation shall not be permitted for the following conditions: 2. Buildings, or portions of buildings, classified as either a Group H-2 or H-3 occupancy. For buildings containing such occupancies, the allowable area shall be determined in accordance with Section 508.4.2, with the sprinkler system increase applicable only to the portions of the building not classified as Group H-2 or H-3.	506.2.2.1 and 506.2.4.1: **Group H-2 or H-3 mixed occupancies.** ~~Buildings, or portions of buildings, classified as either a Group H-2 or H-3 occupancy~~ For a buildings containing Group H-2 or H-3 occupancies, the allowable building area shall be determined in accordance with Section 508.4.2, with the sprinkler system increase applicable only to the portions of the building not classified as Group H-2 or H-3.
506.3 **Exception 3:** The use of an *automatic sprinkler system* to increase the building area limitation shall not be permitted for the following conditions: 3. Buildings where an *automatic sprinkler system* is substituted for fire-resistance rated construction in accordance with Table 601, Note d.	**506.1.3 Fire-resistance rating substitution.** Where sprinklers are substituted for one hour construction in accordance with Table 601, Footnote d, the floor area of the building shall be determined based on the provisions applicable to buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
506.4 Single occupancy buildings with more than one story. The total allowable *building area* of a single occupancy building with more than one *story above grade plane* shall be determined in accordance with this section. The actual aggregate *building area* at all *stories* in the building shall not exceed the total allowable *building area*.	**506.2.3 Single occupancy, multi-story buildings.** The allowable area of a single occupancy building with more than one story above grade plane shall be determined in accordance with Equation 5-2: $A_a = [A_t + (NS \times I_f)] \times S_a$ **(Equation 5-2)** where: A_a = Allowable area (square feet). A_t = Tabular allowable area factor (NS, S13R, or SM value, as applicable) in accordance with Table 506.2. NS = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether or not the building is sprinklered). I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3. S_a = Actual number of building stories above grade plane, not to exceed 3. For buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2,

	use the actual number of building stories above grade plane, not to exceed 4. No individual story shall exceed the maximum building floor area (A_a) as determined by Equations 5-2 using the value of S_a = 1.
506.4 **Exception:** A single *basement* need not be included in the total allowable *building area*, provided such *basement* does not exceed the area permitted for a building with no more than one *story above grade plane*.	**506.1.4 Basements.** ~~A~~ Single story basement~~s~~ need not be included in the total allowable floor area of a building provided ~~such basement~~ the total basement floor area does not exceed ~~the area~~ that permitted for a one-story building ~~with no more than one story above grade plane~~.
506.4.1 Area determination. The total allowable *building area* of a single occupancy building with more than one *story above grade plane* shall be determined by multiplying the allowable *building area* per *story* (*Aa*), as determined in Section 506.1, by the number of *stories above grade plane* as listed below: 1. For buildings with two *stories above grade plane*, multiply by 2; 2. For buildings with three or more *stories above grade plane*, multiply by 3; and 3. No *story* shall exceed the allowable *building area* per *story* (*Aa*), as determined in Section 506.1, for the occupancies on that *story*.	**506.2 Allowable area determination.** The allowable area of a building shall be determined in accordance with the applicable provisions of Sections 506.2.1 through 506.2.4 and Section 506.3. **506.2.1 Single occupancy, one-story buildings.** The allowable area of a single occupancy building with no more than one story above grade plane shall be determined in accordance with Equation 5-1: $A_a = A_t + (NS \times I_f)$ **(Equation 5-1)** where: A_a = Allowable area (square feet). A_t = Tabular allowable area factor (NS, S1, or S13R value, as applicable) in accordance with Table 506.2 . NS = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether or not the building is sprinklered). I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3. **506.2.3 Single occupancy, multi-story buildings.** The maximum floor area of a single occupancy building with more than one story above grade plane shall be determined in accordance with Equation 5-2: $A_a = [A_t + (NS \times I_f)] \times S_a$ **(Equation 5-2)** where: A_a = Allowable area (square feet). A_t = Tabular allowable area factor (NS, S13R, or SM value, as applicable) in accordance with Table 506.2. NS = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether or not the building is sprinklered). I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3. S_a = Actual number of building stories above grade plane, not to exceed 3. For buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2, use the actual number of building stories above grade plane, not to exceed 4. No individual story shall exceed the maximum building floor area (A_a) as determined by Equations 5-2 using the value of S_a = 1.
506.4.1 Exception #1: 1. Unlimited area buildings in accordance with Section 507.	~~506.4.1 Exception #1~~ **506.1.1 Unlimited area buildings.** Unlimited area buildings shall be designed in accordance with Section 507.
506.4.1 Exception #2: 2. The maximum area of a building equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2 shall be determined by multiplying the allowable area per *story (Aa),* as determined in Section 506.1, by the number of *stories above grade plane*.	506.2.3 (S_a value): S_a = Actual number of building stories above grade plane, not to exceed 3. For buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2, use the actual number of building stories above grade plane, not to exceed 4
506.5 Mixed occupancy area determination. The total allowable *building area* for buildings containing mixed occupancies shall be determined in accordance with the applicable provisions of this section. A single *basement* need	~~**506.5 Mixed occupancy area determination.** The total allowable *building area* for buildings containing mixed occupancies shall be determined in accordance with the~~

not be included in the total allowable *building area*, provided such *basement* does not exceed the area permitted for a building with no more than one *story above grade plane*.	~~applicable provisions of this section.~~ **506.1.4 Basements.** ~~A~~ Single story basement~~s~~ need not be included in the total allowable floor area of a building provided ~~such basement~~ the total basement floor area does not exceed ~~the area~~ that permitted for a one-story building~~ with no more than one story above grade plane~~.
506.5.1 No more than one story above grade plane. For buildings with no more than one *story above grade plane* and containing mixed occupancies, the total *building area* shall be determined in accordance with the applicable provisions of Section 508.1.	**~~506.2.2 No more than one story above grade plane.~~ Mixed occupancy, one-story buildings.** ~~For buildings with no more than one *story above grade plane* and containing mixed occupancies, the total *building area*~~ The maximum floor area of a mixed occupancy building with no more than one story above grade plane shall be determined in accordance with the applicable provisions of Section 508.1.
506.5.2 More than one story above grade plane. For buildings with more than one *story above grade plane* and containing mixed occupancies, each *story* shall individually comply with the applicable requirements of Section 508.1. For buildings with more than three *stories above grade plane*, the total *building area* shall be such that the aggregate sum of the ratios of the actual area of each *story* divided by the allowable area of such *stories* based on the applicable provisions of Section 508.1 shall not exceed 3.	**~~506.5.2~~ 506.2.4 ~~More than one story above grade plane.~~ Mixed occupancy, multi-story buildings.** ~~For buildings with more than one *story above grade plane* and containing mixed occupancies, each *story*~~ Each story of a mixed occupancy building with more than one story above grade plane shall individually comply with the applicable requirements of Section 508.1. For buildings with more than three stories above grade plane, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories based on the applicable provisions of Section 508.1 shall not exceed 3.
	2015 Proposed Correlating Code Changes to Sections that refer back to Chapter 5
406.6.1 Heights and areas. Enclosed vehicle parking garages and portions thereof that do not meet the definition of *open parking garages* shall be limited to the allowable heights and areas specified in Table 503 as modified by Sections 504, 506 and 507. Roof parking is permitted.	**406.6.1 Heights and areas.** Enclosed vehicle parking garages and portions thereof that do not meet the definition of open parking garages shall be limited to the allowable heights, number of stories and areas specified in ~~Table 503~~ Sections 504 and 506 as modified by Section~~s 504, 506 and~~ 507. Roof parking is permitted.
[F] 415.8.1.1 Type of construction and height exceptions. Buildings shall be constructed in compliance with the height and area limitations of Table 503 for Group H-2; except that where erected of Type I or II construction, the heights and areas of grain elevators and similar structures shall be unlimited, and where of Type IV construction, the maximum *building height* shall be 65 feet (19 812 mm) and except further that, in isolated areas, the maximum *building height* of Type IV structures shall be increased to 85 feet (25 908 mm).	**[F] 415.8.1.1 Type of construction and height exceptions.** Buildings shall be constructed in compliance with the height, number of stories and area limitations ~~of Table 503~~ specified in Sections 504 and 506 for Group H-2 occupancies; except that where erected of Type I or II construction, the heights and areas of grain elevators and similar structures shall be unlimited, and where of Type IV construction, the maximum height shall be 65 feet (19 812 mm) and except further that, in isolated areas, the maximum height of Type IV structures shall be increased to 85 feet (25 908 mm).
[F] 415.8.2.1.1 Height exception. Where storage tanks are located within a building no more than one *story above grade plane*, the height limitation of Section 503 shall not apply for Group H.	**[F] 415.8.2.1.1 Height exception.** Where storage tanks are located within a building no more than one *story above grade plane*, the height limitation of Section ~~503~~ 504 shall not apply for Group H.
507.8 Group H occupancies. Group H-2, H-3 and H-4 occupancies shall be permitted in unlimited areas buildings containing Group F and S occupancies, in accordance with Sections 507.3 and 507.4 and the provisions of Sections 507.8.1 through 507.8.4.	**507.8 Group H-2, H-3 and H-4 occupancies.** Group H-2, H-3 and H-4 occupancies shall be permitted in unlimited areas buildings containing Group F and S occupancies, in accordance with Sections 507.3 and 507.4 and the provisions of Sections 507.8.1 through 507.8.4.
507.8.1 Allowable area. The aggregate floor area of Group H occupancies located in an unlimited area building shall not exceed 10 percent of the area of the building nor the area limitations for the Group H occupancies as specified in Table 503 as modified by Section 506.2 based upon the perimeter of each Group H floor area that fronts on a *public way* or open space.	**507.8.1 Allowable area.** The aggregate floor area of Group H occupancies located in an unlimited area building shall not exceed 10 percent of the area of the building nor the area limitations for the Group H occupancies as specified in ~~Table 503 as modified by Section 506.2~~ Section 506 based upon the perimeter of each Group H floor area that fronts on a public way or open space.
507.8.1.1 Located within the building. The aggregate floor area of Group H occupancies not located at the perimeter of the building shall not exceed 25 percent of the area limitations for the Group H occupancies as specified in Table 503.	**507.8.1.1 Located within the building.** The aggregate floor area of Group H occupancies not located at the perimeter of the building shall not exceed 25 percent of the area limitations for the Group H occupancies as specified in ~~Table 503~~ *Section 506*.
507.8.4 Height limitations. For two-*story* unlimited area buildings, Group H occupancies shall not be located more than one *story above grade plane* unless permitted based on the allowable height in *stories* and feet as set forth in Table 503 for the type of construction of the unlimited area building.	**507.8.4. Height limitations.** For two-story unlimited area buildings, Group H occupancies shall not be located more than one story above grade plane unless permitted based on the allowable height ~~in~~ and number of stories ~~as set forth~~ specified in ~~Table 503~~ Section 504 ~~for~~ based on the type of construction of the unlimited area building.

508.2.1 Area limitations. Aggregate accessory occupancies shall not occupy more than 10 percent of the *building area* of the *story* in which they are located and shall not exceed the tabular values in Table 503, without *building area* increases in accordance with Section 506 for such accessory occupancies.	**~~508.2.1~~ 508.2.3 ~~Area limitations.~~ Allowable building area.** The allowable floor area of the building shall be based on the applicable provisions of Section 506 for the main occupancy of the building. Aggregate accessory occupancies shall not occupy more than 10 percent of the floor area of the story in which they are located and shall not exceed the tabular values ~~in Table 503~~ for nonsprinklered buildings in Table 506.2 for such accessory occupancies.
508.2.2 Occupancy classification. Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space.	**~~508.2.2~~ 508.2.1 Occupancy classification.** Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space. (No changes to text)
508.2.3 Allowable building area and height. The allowable *building area and height* of the building shall be based on the allowable *building area and height* for the main occupancy in accordance with Section 503.1. The height of each accessory occupancy shall not exceed the tabular values in Table 503, without increases in accordance with Section 504 for such accessory occupancies. The *building area* of the accessory occupancies shall be in accordance with Section 508.2.1.	**~~508.2.3~~ 508.2.2 Allowable building area and height.** The allowable ~~*building area and*~~ height and number of stories of the building shall be ~~based on the allowable building area and height~~ in accordance with Section 504 for the main occupancy of the building ~~in accordance with Section 503.1~~. The allowable height ~~of~~ for each accessory occupancy shall not exceed the tabular values in Table ~~503~~ 504.3 and Table 504.4 ~~without increases in accordance with Section 504~~ for nonsprinklered buildings specified for each such accessory occupancy. ~~The *building area* of the accessory occupancies shall be in accordance with Section 508.2.1~~.
510.2(7) The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 503 for the building having the smaller allowable height as measured from the *grade plane*.	510.2(7) The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section ~~503~~ 504.3 for the building having the smaller allowable height as measured from the *grade plane*.
3102.4 Allowable floor areas. The area of a membrane structure shall not exceed the limitations set forth in Table 503, except as provided in Section 506.	**3102.4 Allowable floor areas.** The area of a membrane structure shall not exceed the floor area limitations ~~set forth in Table 503, except as provided~~ specified in Section 506.
3102.5 Maximum height. Membrane structures shall not exceed one *story* nor shall such structures exceed the height limitations in feet set forth in Table 503. **Exception:** Noncombustible membrane structures serving as roofs only.	**3102.5 Maximum height and number of stories.** Membrane structures shall not exceed one story nor shall such structures exceed the height limitations in feet ~~set forth~~ specified in ~~Table 503~~ Section 504.3. **Exception**: Noncombustible membrane structures serving as roofs only.
3412.6.1 (IEBC 1301.6.1) Building height. The value for building height shall be the lesser value determined by the formula in Section 3412.6.1.1. Chapter 5 shall be used to determine the allowable height of the building, including allowable increases due to automatic sprinklers as provided for in Section 504.2. Subtract the actual *building height* in feet from the allowable and divide by 12 1/2 feet. Enter the height value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.1, Building Height, for fire safety, means of egress and general safety. The maximum score for a building shall be 10.	**3412.6.1 Building height and number of stories. (and in the IEBC [B] 1301.6.1 Building height).** The value for building height and number of stories shall be the lesser value determined by the formula in Section 3412.6.1.1. ~~Chapter 5~~ Section 504 shall be used to determine the allowable height and number of stories of the building~~, including allowable increases due to automatic sprinklers as provided for in Section 504.2~~. Subtract the actual building height in feet from the allowable and divide by 12 1/2 feet. Enter the height value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.1, Building Height, for fire safety, means of egress and general safety. The maximum score for a building shall be 10.
3412.6.1.1 (IEBC 1301.6.1.1) 3412.6.1.1 Height formula. The following formulas shall be used in computing the building height value. $\text{Height value, feet} = \frac{(AH) - (EBH)}{12.5} \times CF$ **(Equation 34-1)** $\text{Height value, feet} = (AS - EBS) \times CF$ **(Equation 34-2)** where: *AH* = Allowable height in feet from Table 503. *EBH* = Existing *building height* in feet. *AS* = Allowable height in stories from Table 503. *EBS* = Existing building height in stories. *CF* = 1 if (*AH*) – (*EBH*) is positive.	**3412.6.1.1 Height formula. (and in the IEBC [B] 1301.6.1.1 Height formula.)** The following formulas shall be used in computing the building height value. $\text{Height value, feet} = \frac{(AH) - (EBH)}{12.5} \times CF$ **(Equation 34-1)** $\text{Height value, feet} = (AS - EBS) \times CF$ **(Equation 34-2)** where: AH = Allowable height in feet from ~~Table 503~~ Section 504. EBH = Existing building height in feet. AS = Allowable number of stories from ~~Table 503~~ Section 504. EBS = Existing building number of stories. CF = 1 if (AH) – (EBH) is positive.

CF = Construction-type factor shown in Table 3412.6.6(2) if (*AH*) – (*EBH*) is negative. **Note:** Where mixed occupancies are separated and individually evaluated as indicated in Section 3412.6, the values AH, AS, EBH and EBS shall be based on the height of the occupancy being evaluated.	CF = Construction-type factor shown in Table 3412.6.6(2) if (AH) – (EBH) is negative. **Note:** Where mixed occupancies are separated and individually evaluated as indicated in Section 3412.6, the values AH, AS, EBH and EBS shall be based on the height of the occupancy being evaluated.
3412.6.2 (IEBC 1301.6.2) Building area. The value for building area shall be determined by the formula in Section 3412.6.2.2. Section 503 and the formula in Section 3412.6.2.1 shall be used to determine the allowable area of the building. This shall include any allowable increases due to frontage and automatic sprinklers as provided for in Section 506. Subtract the actual *building area* in square feet from the allowable area and divide by 1,200 square feet. Enter the area value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.2, Building Area, for fire safety, means of egress and general safety. In determining the area value, the maximum permitted positive value for area is 50 percent of the fire safety score as *listed* in Table 3412.8, Mandatory Safety Scores.	**3412.6.2 Building area. (and in the IEBC [B] 1301.6.2 Building area.)** The value for building area shall be determined by the formula in Section 3412.6.2.2. Section ~~503~~ 506 and the formula in Section 3412.6.2.1 shall be used to determine the allowable area of the building. ~~This shall include any allowable increases due to frontage and automatic sprinklers as provided for in Section 506.~~ Subtract the actual building area in square feet from the allowable area and divide by 1,200 square feet. Enter the area value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.2, Building Area, for fire safety, means of egress and general safety. In determining the area value, the maximum permitted positive value for area is 50 percent of the fire safety score as listed in Table 3412.8, Mandatory Safety Scores.
3412.6.2.1 (IEBC 1301.6.2.1) Allowable area formula. The following formula shall be used in computing allowable area: *Aa* = {*At* + [*At* x *If*] + [*At* x *Is*]} **(Equation 34-3)** where: *Aa* = Allowable *building area* per story (square feet). *At* = Tabular *building area* per story in accordance with Table 503 (square feet). *Is* = Area increase factor due to sprinkler protection as calculated in accordance with Section 506.3. *If* = Area increase factor due to for frontage as calculated in accordance with Section 506.2.	**3412.6.2.1 Allowable area formula. (and in the IEBC [B] 1301.6.2.1 Allowable area formula.)** The following formula shall be used in computing allowable area: ~~*Aa* = {*At* + [*At* x *If*] + [*At* x *Is*]}~~ **(Equation 34-3)** $A_a = A_t + (NS \times I_f)$ **(Equation 34-3)** where: A_a = Allowable ~~building~~ building area per story (square feet). A_t = Tabular ~~building~~ allowable area ~~per story~~ factor (NS, S1, S13R, or SM value, as applicable) in accordance with Table ~~503~~ 506.2 ~~(square feet).~~ NS = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether or not the building is sprinklered). ~~I_s = Area increase due to sprinkler protection as calculated in accordance with Section 506.3.~~ I_f = Area factor increase ~~factor~~ due to ~~for~~ frontage as calculated in accordance with Section ~~506.2~~ 506.3.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: None

Public Hearing Results

Errata as shown below are contained in the Updates to the 2012 Proposed Changes posted on the ICC website. Please go to http://www.iccsafe.org/cs/codes/Pages/12-13-ProposedChanges-A.aspx for more information.

G101-12: Replace table as follows:

TABLE 506.2[a,b]
ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
	S1	UL	UL	62,000	34,000	56,000	34,000	60,000	46,000	22,000
	SM	UL	UL	46,500	25,500	42,000	25,500	45,000	34,500	16,500
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-3	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-4	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1									
	SM									
B	NS	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000
E	NS	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9.500
	S1	UL	UL	106,000	58,000	94,000	58,000	102,000	74,000	38,000
	SM	UL	UL	79,500	43,500	70,500	43,500	76,500	55,500	28,500
F-1	NS	UL	UL	25,000	15,500	19,000	12,000	33,500	14,000	8.500
	S1	UL	UL	100,000	62,000	76,000	48,000	134,000	56,000	34,000
	SM	UL	UL	75,000	46,500	57,000	36,000	100,500	42,000	25,500
F-2	NS	UL	UL	37,500	23,000	28,500	18,000	50,500	21,000	13,000
	S1	UL	UL	150,000	92,000	114,000	72,000	202,000	84,000	52,000
	SM	UL	UL	112,500	69,000	85,500	54,000	151,500	63,000	39,000
H-1	NSc	21,000	16,500	11,000	7,000	9.500	7,000	10,500	7,500	NP
	S1									
H-2	NSc	21,00	16,500	11,000	7,000	9.500	7,000	10,500	7,500	3,000

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
	S1	0								
	SM									
H-3	NSc	UL	60,000	26,500	14,000	17,500	13,000	25,500	10,000	5,000
	S1									
	SM									
H-4	NSc,d	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
	S1	UL	UL	150,000	70,000	114,000	70,000	144,000	72,000	26,000
	SM	UL	UL	112,500	52,500	85,500	52,500	108,000	54,000	19,500
H-5	NSc,d	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	108000	54,000	27,000
I-1	NSd,e,f	UL	55,000	19,000	10,000	16,500	10,000	18,000	10,500	4,500
	S1	UL	220,000	76,000	40,000	66,000	40,000	72,000	42,000	18,000
	SM	UL	165,000	57,000	30,000	49,500	30,000	54,000	31,500	13,500
I-2	NSd,g	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP
	S1	UL	UL	60,000	44,000	48,000	NP	48,000	38,000	NP
	SM	UL	UL	45,000	33,000	36,000	NP	36,000	28,500	NP
I-3	NSd,e	UL	UL	15,000	10,000	10,500	7,500	12,000	7,500	5,000
	S1	UL	UL	45,000	40,000	42,000	30,000	48,000	30,000	20,000
	SM	UL	UL	45,000	30,000	31,500	22,500	36,000	22,500	15,000
I-4	NSd,e,h	UL	60.500	26,500	13,000	23,500	13,000	25,500	18,500	9,000
	S1	UL	121,000	106,000	52,000	94,000	52,000	102,000	74,000	36,000
	SM	UL	181,500	79,500	39,000	70,500	39,000	76,500	55,500	27,000
M	NS	UL	UL	21,500	12,500	18,500	12,500	20,500	14,000	9,000
	S1	UL	UL	86,000	50,000	74,000	50,000	82,000	56,000	36,000
	SM	UL	UL	64,500	37,500	55,500	37,500	61,500	42,000	27,000
R-1	NSd,i	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
R-2	NSd,i	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
R-3	NSd,i	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S13R									
	S1									
	SM									
R-4	NSd,i	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
S-1	NS	UL	48,000	26,000	17,500	26,000	17,500	25,500	14,000	9,000
	S1	UL	192,000	104,000	70,000	104,000	70,000	102,000	56,000	36,000
	SM	UL	144,000	78,000	52,500	78,000	52,500	76,500	42,000	27,000
S-2	NS	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500
	S1	UL	316,000	156,000	104,000	156,000	104,000	154,000	84,000	54,000
	SM	UL	237,000	117,000	78,000	117,000	78,000	115,500	63,000	40,500
U	NS	UL	35,500	19,000	8,500	14,000	8,500	18,000	9,000	5,500
	S1	UL	142,000	76,000	34,000	56,000	34,000	72,000	36,000	22,000
	SM	UL	106,500	57,000	25,500	42,000	25,500	54,000	27,000	16,500

(Portions of table not shown remain unchanged)

(Portions of code change not shown remain unchanged)

Committee Action: **Approved as Modified**

Modify proposal as follows:

506.2.2 Mixed occupancy, one-story buildings. The allowable area of a mixed occupancy building with no more than one story above grade plane shall be determined in accordance with the applicable provisions of Section 508.1 based on Equation 5-1 for each applicable occupancy.

506.2.4 Mixed occupancy, multi-story buildings. Each story of a mixed occupancy building with more than one story above grade plane shall individually comply with the applicable requirements of Section 508.1. For buildings with more than three stories above grade plane, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories, determined in accordance with Equation 5-3 based on the applicable provisions of Section 508.1, shall not exceed 3.:

$A_a=[A_t+(NS \times I_f)]$ (Equation 5-3)

Where:

A_a = Allowable area (square feet)
A_t = Tabular allowable area factor (NS, S13R or SM value, as applicable) in accordance with Table 506.2.
NS = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether or not the building is sprinklered).
I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

Exception: For buildings designed as separated occupancies under Section 508.4 and equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories determined in accordance with Equation 5-3

based on the applicable provisions of Section 508.1, shall not exceed 4.

(Portions of proposal not shown remain unchanged)

Committee Reason: This proposal was approved as modified based upon the fact that it will make the enforcement of height and area requirements more straightforward. It was noted in cases where a 13D system is not allowed for the sprinkler increase it should be noted next to the NS line such as "NS or 13D." The modification simply provides reference to the appropriate equations that were missed. In the case of Equation 5-3 it provides and equation specific to mixed occupancies multi-story buildings. This proposal was not intended to change any of the height and area requirements from the 2012 IBC but simply to make the provisions more understandable. It would not be within the scope of this proposal to submit public comments that would change any of these existing final calculations for the 2015 IBC from those presently obtained by use of the 2012 IBC.

Assembly Action: **None**

Final Hearing Results

G101-12 **AM**

Code Change No: G104-12

Original Proposal

Section(s): 503.1

Proponent: Gene Boecker, Code Consultants, Inc., representing self

Revise as follows:

503.1 General. ~~The~~ Unless otherwise specifically modified in Chapter 4, *building height and area* shall not exceed the limits specified in Table 503 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. Each portion of a building separated by one or more *fire walls* complying with Section 706 shall be considered to be a separate building.

Reason: Section 503.1 needs to include this provision to make it clear that Chapter 4 also contains height and area requirements which may be more or less restrictive than those in Chapter 5. The problem is that except as a footnote to Table 503, no reference is made in the code to the fact that Chapter 4 contains specific language that modifies the allowable heights and areas for various structures based on their unique conditions. This occurs in 402.4, 403.2, 405.2, 406.5.1, 406.5.5, 406.7.2, 410.3.1, 410.3.2, 410.4, 412.3.1, 412.4.2, 412.4.6, 412.6.2, 415.8.1.1, 415.8.1.6.

Numerous sections of the IBC as well as other codes in the ICC family refer back to the limiting the height and area based on the requirements in Chapter 5 of the IBC. Without this reference, these other sections in Chapter 4 are not tied in; and, the IBC itself is more complete. For example, the IEBC refers to allowing building height and area based on the Chapter 5 but makes no reference to Chapter 4. Essentially, any modification to a covered mall, high-rise building, open parking garage and various High Hazard occupancies could be literally interpreted to require compliance with Table 503, rendering the initial construction noncompliant. This proposal closes a gap in the code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Although starting the section with an exception seemed awkward the concept was acceptable based upon the proponents justification. Chapter 4 has various specific allowances and limitations on height and area of special uses.

Assembly Action: **None**

Public Comments

Public Comment 1:

Gene Boecker, AIA, Code Consultants, Inc (CCI) requests Approved as Modified by this Public Comment.

Modify the proposal as follows:

503.1 General. Unless otherwise specifically modified in Chapters 4 and 5, *building height and area* shall not exceed the limits specified in Table 503 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. Each portion of a building separated by one or more *fire walls* complying with Section 706 shall be considered to be a separate building.

Commenter's Reason: *Reason:* As proponent of G104-12 it was noted to me that I had left out also referring to IBC Section 510, "Special Provisions", that also contains numerous requirements that differ from the limits in Table 503 and for consistency with the intent of this code proposal should be included in this code proposal. Therefore, to resolve this omission that was certainly not my intent for this code proposal that was intended only to clarify the Code, I am proposing to provide a more general reference in Section 503.1 to resolve my original concerns. This code comment will not change the code requirements in the Code; it will only

provide the code user additional information on how to apply the requirements under Section 503. Numerous modifications take place in Sections 402, 403, 405, 406, 410, 412, 415, 504, 506, 507, 508 and 510. There are 41 locations in all, 20 in Chapter 4 and 21 in Chapter 5. Rather than list all the Sections, this is a reasonable method for addressing the external modifications to the height and area provisions of Section 503.

Final Hearing Results

G104-12	AMPC1

Code Change No: G112-12

Original Proposal

Section(s): 506.4, 506.5

Proponent: Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee (BCAC)

Revise as follows:

506.4 Single occupancy buildings with more than one story. The total allowable *building area* of a single occupancy building with more than one *story above grade plane* shall be determined in accordance with this section. The actual aggregate *building area* at all *stories* in the building shall not exceed the total allowable *building area*.

Exception: ~~A single *basement*~~ Basements need not be included in the total allowable *building area*, provided the total area of such *basement* does not exceed the area permitted for a building with no more than one *story above grade plane*.

506.5 Mixed occupancy area determination. The total allowable *building area* for buildings containing mixed occupancies shall be determined in accordance with the applicable provisions of this section. ~~A single *basement*~~ Basements need not be included in the total allowable *building area*, provided the total area of such *basements* does not exceed the area permitted for a building with no more than one *story above grade plane*.

Reason: Intended to be editorial to provide better understanding and clarify the existing provisions on basement area calculations.

If a building has two or more small basements on opposite sides of a building that are ***not*** connected, how does one review such basements under these existing provisions? The existing code says "…A ***single*** basement…".

The BCAC Committee believes the intent of the Code was not to prohibit multiple individual basements under a building as long as they do not exceed the area permitted for a building with no more than one story above grade plane.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: None.

Public Hearing Results

Editorial correction

Modify proposal as follows:

506.5 Mixed occupancy area determination. The total allowable *building area* for buildings containing mixed occupancies shall be determined in accordance with the applicable provisions of this section. Basements need not be included in the total allowable *building area*, provided the total area of such ~~*basements*~~ *basement* does not exceed the area permitted for a building with no more than one *story above grade plane*.

(Portions of proposal not shown remain unchanged)

Committee Action: **Approved as Submitted**

Committee Reason: This proposal addresses building with several partial basements that in total do not exceed the area permitted for a building with no more than one story above grade plane. As currently written it would be unclear if several partial basements

would be allowed. The editorial correction was related to plural agreement and is the same as written in Section 506.4 of the proposal.

Assembly Action: **None**

Final Hearing Results

G112-12 **AS**

Code Change No: G115-12

Original Proposal

Section(s): 507.1

Proponent: Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee (BCAC)

Revise as follows:

507.1 General. The area of buildings of the occupancies and configurations specified in Sections 507.1 through 507.12 shall not be limited. Basements not more than one story below grade plane shall be permitted.

Exception: Other occupancies shall be permitted in unlimited area buildings in accordance with the provisions of Section 508.2.

Where Sections 507.2 through 507.12 require buildings to be surrounded and adjoined by *public ways* and *yards,* those open spaces shall be determined as follows:

1. *Yards* shall be measured from the building perimeter in all directions to the closest interior *lot lines* or to the exterior face of an opposing building located on the same *lot*, as applicable.
2. Where the building fronts on a *public way*, the entire width of the *public way* shall be used.

Reason: Intended to clarify the existing provision that is currently silent on whether or not a basement is permitted under any of the unlimited area building provisions. However, the code is a permissive code, i.e. either the code provisions explicitly prohibit or provide specific requirements that control the construction of buildings and conditions. If the Code does not prohibit a particular building design or process, or the Code does not control the building design or process with specific requirements, then it is permitted by Code. Therefore, since the Code is silent on whether or not an unlimited area building can have a basement, the Code therefore permits a basement, or for that matter, multiple basements.

This issue had been discussed in the past at one of the legacy code development cycles back in 1985 (BOCA Code Proposal B23-85). That code proposal attempted to add to the unlimited one story sprinklered building provisions that such building "…do not contain a basement…". It should be noted that the legacy BOCA & SBCCI Codes did not have unlimited area provisions for 2 story sprinklered buildings like the legacy UBC or the present IBC do permit. BOCA Code Proposal B23-85 was denied by the BOCA Code Development Committee with the following reason: "A total prohibition of basement areas would be unnecessarily restrictive. Certain industrial processes require the use of below-floor areas by nature of the process. Some amount of basement area would be acceptable if limited in size."

Through discussion between the BCAC and FCAC Committee it was agreed that the basement conditions should be codified similar to what is now permitted for buildings designed under the general height and area requirements of the Code (See Section 506.4 Exception and Section 506.5). Any sprinkler provisions in Section 507 would also be applicable to the basement as well. In addition, the sprinkler provisions of Section 903.2.11.1 would also be applicable to unlimited area nonsprinklered buildings designed under Section 507.2 (Group F-2 or S-2).

This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: The proposed changes will not increase the cost of construction..

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it clarifies the intent that the code would allow a single basement in unlimited area buildings.

would be allowed. The editorial correction was related to plural agreement and is the same as written in Section 506.4 of the proposal.

Assembly Action: **None**

Final Hearing Results

G115-12 **AS**

Code Change No: G116-12

Original Proposal

Section(s): 507.1, 507.1.1 (NEW)

Proponent: Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee (BCAC)

Revise as follows:

507.1 General. The area of buildings of the occupancies and configurations specified in Sections 507.1 through 507.12 shall not be limited.

~~**Exception:** Other occupancies shall be permitted in unlimited area buildings in accordance with the provisions of Section 508.2.~~

Where Sections 507.2 through 507.12 require buildings to be surrounded and adjoined by *public ways* and *yards,* those open spaces shall be determined as follows:

1. *Yards* shall be measured from the building perimeter in all directions to the closest interior *lot lines* or to the exterior face of an opposing building located on the same *lot*, as applicable.
2. Where the building fronts on a *public way*, the entire width of the *public way* shall be used.

507.1.1 Accessory occupancies. Accessory occupancies shall be permitted in unlimited area buildings in accordance with the provisions of Section 508.2, otherwise the requirements of Sections 507.2 through 507.12 shall be applied, where applicable.

Reason: Intended to be editorial to provide better understanding and clarify the existing provision. The exception was deleted and placed as a subsection of Section 507.1. As a subsection, the requirement for accessory occupancies permitted in unlimited area buildings is clarified that if such occupancies do not meet the Section 508.2 (and its subsections) requirements, then the requirements for unlimited area buildings in Section 507.2 through 507.12 would be applied to any such occupancy.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: The proposed changes will not increase the cost of construction..

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This new section addressing accessory occupancies was not felt necessary. Professionals using the code should be able to use the current exception to Section 507.1 to allow accessory occupancies. It was felt that this new section would actually cause confusion.

Assembly Action: **None**

Public Comment

Public Comment:

Eirene Oliphant, MCP, BRR Architecture, requests Approval as Submitted.

Commenter's Reason: In the report of the public hearing, the committee stated that "professionals using the code should be able to use the current exception to Section 507.1 to allow accessory uses". In a perfect world, yes professionals who understand how to apply the code correctly would allow the exception to apply. However, this is not a perfect world and not every code official applies the exception the way it was intended. As a design firm that does work all over the United States, we have on a number of occasions, received plan review comments back which do not recognize the application of an accessory use in an unlimited building of which the accessory use is not a B, F, M or S use group. We had a project for a sprinklered, one story retail store which was approximately 150,000 total square feet. There was an employee breakroom which amounted to approximately 1,500 square feet. This employee breakroom, along with some office space amounted to well under ten percent of the total square footage and met all of the requirements to be considered accessory uses. The code official performing the plan review insisted that the "assembly area" meet the requirements of Section 507.3.1, which required a two-hour occupancy separation between the break room (A-2 use group) and all other uses as well as having the exits discharge directly to the exterior of the building. Even with reference to the IBC Commentary, the code official would not recognize the exception for the accessory use.

In spite of the committee's opinion that this new section would cause confusion, based on my experience, it will help avoid confusion.

Final Hearing Results

G116-12 **AS**

Code Change No: G119-12

Original Proposal

Section(s): 507.4

Proponent: Joel Bringhurst, CH2M Hill Engineers, representing IM Flash Technologies (joel.bringhurst@ch2m.com)

Revise as follows:

507.4 Two story. The area of a Group B, F, H-5 M or S building no more than two *stories above grade plane* shall not be limited where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, and is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

Reason: History of H-5 Occupancy

Semiconductor fabrication facilities were first constructed as B-2 occupancy prior to the 1985 Uniform Building Code (UBC). In the 1985 UBC the occupancy group of H-6 was first introduced. It was a new classification for semiconductor fabrication facilities and related support uses. The H-6 occupancy ultimately became the H-5 occupancy in the 2000 International Building Code (IBC).

The definitive guide for the introduction of the H-6 occupancy in the 1985 UBC was the book *H-6 Design Guide to the Uniform Codes for High Tech Facilities* written by Alfred Goldberg, P.E., H.A.I.A. (Consulting Engineer) and Larry Fluer (Technical Consultant – Hazardous Materials) . On page 3-2 the authors state the following:

> "For the new Group H, Division 6 class, the original use of most of the existing fabrication facilities was classified as Group B, Division 2. The new H-6 class has virtually the identical code provisions in Table Nos. 5-C and 5-D as does the B-2 class. The intent of the H-6 code change is to consider that there is no change in use involved where the present and prior use was as a semiconductor fabrication facility. The intent is simply to assign a new name or designation to the existing use (see Section 104(c))."
>
> "However, any future alterations or changes will require compliance with the applicable provisions of the new H-6 classification. As provided in Section 104(c), in no case should an existing fabrication facility be made to conform to the new H-6 provisions simply as a result of a jurisdiction adopting or utilizing the new code provisions, except for those portions where alterations or changes are undertaken."

At the inception of the H-6 occupancy, this statement established an equivalent relative hazard level between H-6 and B-2 occupancies. In their discussion of relative hazards of occupancies Goldberg and Fluer further state on page 3-4 that "these determinations are made based on Table Nos. 5-C and 5-D allowable for each of the occupancies being compared."

Table 5-C is "Basic Allowable Area for Buildings One Story in Height" and Table 5-D is "Maximum Height of Buildings." The allowable areas in Table 5-C for B-2 and H-6 occupancies for all construction types are exactly the same. The maximum heights in Table 5-D for B-2 occupancy are the same except for one story more than H-6 occupancy for all but the Type I-FR and Type II-FR construction types, which are somewhat higher than for H-6 occupancy.

The basic method for comparison of relative hazard of occupancies has long been established as being relative to allowable area and maximum height. On the basis of allowable area the B-2 and H-6 occupancies have the same hazard level. On the basis of height H-6 would be more hazardous than B-2 occupancy in a taller building.

Comparison of H-5 to Groups B, F, M, and S in IBC Section 507.4.

H-5 occupancy has the same allowable areas as B occupancy per IBC Table 503 for all construction types. IBC Table 503 now contains the information previously contained in Tables 5-C and 5-D in the 1985 UBC. The relationship between B and H-5 occupancies are unchanged from the relationship established between B-2 and H-6 occupancies in the 1985 UBC. This unchanged relationship is reinforced in the *2009 IBC Handbook: Fire and Life Safety Provisions*, page 84, which states:

> **"415.8 Group H-5.** The Group H-5 occupancy category was created to standardize regulations for semiconductor manufacturing facilities. This section provides the specific regulations for these occupancies. The H-5 category requires engineering and fire-safety controls that reduce the overall hazard of the occupancy to a level thought to be equivalent to a moderate hazard Group B occupancy. Accordingly, the areas permitted for Group H-5 occupancies are the same as for Group B occupancies."

H-5 occupancy has equal or greater allowable areas than F-1, M and S-1 occupancies for all construction types per IBC Table 503. As F-1, M and S-1 occupancies are included in the existing provisions for the unlimited area building, this could even be interpreted to indicate that H-5 occupancy, with all of its code-required mitigating features, is less hazardous than F-1, M and S-1 occupancies.

The maximum height in stories for H-5 occupancy is less than or equal to the maximum height for B occupancy in IBC Table 503, however, in no case is the maximum height of H5 occupancy less than 2 stories. The relative maximum height relationship

between B and H-5 occupancies are relatively unchanged from the relationship established between B-2 and H-6 occupancies in the 1985 UBC. When it comes to height in stories it is acknowledged that H5 is more hazardous than B occupancy as the number of stories in the B is higher. This proposal for unlimited area per IBC Section 507.4 is within a provision that is conditional upon a two-story limitation; therefore this proposal is limited to the hazard comparison to allowable area provisions only from IBC Table 503.

H-5 occupancy has a significant number of IBC requirements that mitigate the hazards of H-5 compared to B occupancy in general. These mitigating requirements have effectively equalized the two occupancies in terms of relative hazard, which is demonstrated by the equal allowable areas of the two occupancies within IBC Table 503, which has remained consistent over time. Again from the *2009 IBC Handbook*, p84:

> "The code requires that special ventilation systems be installed in fabrication areas that will prevent explosive fuel to air mixtures from developing. The ventilation system must be connected to an emergency power system. Furthermore, buildings containing Group H-5 occupancies are required to be protected throughout by an automatic fire-sprinkler system and fire and emergency alarm systems. Fire and emergency alarm systems are intended to be separate and distinct systems, with the emergency-alarm system providing a signal for emergencies other than fire. This section also provides requirements for piping and tubing that transport hazardous materials that allow piping to be located in exit corridors and above other occupancies subject to numerous, stringent protection criteria. The provisions for Group H-5 occupancies are correlated with companion provisions in Chapter 18 of the IFC."

Any hazards introduced by the inclusion of an unlimited area H5 occupancy in an unlimited area building per IBC Section 507.4 would be mitigated by sprinklers, side yards, and limits in story height the same as Groups B, F, M and S occupancies, which as compared in previous paragraphs, have equal or more hazard based on a relative allowable area comparison to H-5 occupancy.

Group H occupancies are currently allowed in unlimited area buildings per IBC Section 507.8. The occupancies specifically addressed are H-2, H-3, and H-4. These three occupancies are restricted to an area of 10 percent of the unlimited area building or the Table 503 limits. This establishes that specific uses of H occupancies with more hazard than H-5 are permitted in an unlimited area building. However, the restrictions in these provisions to H occupancies in IBC Section 507.8 are limited to H2, H3 and H4 and do not apply to H-5 occupancy, which is relatively less hazardous.

Differences between H-5 and Groups B, F, M and S

H-5 occupancy contains Hazardous Production Materials (HPMs). The B, F, M, and S occupancies are also permitted to have hazardous materials, but the quantity cannot exceed the Maximum Allowable Quantizes (MAQ) in Tables 307.1 (1) and 307.1 (2). H-5 occupancy has numerous code-required mitigating features that effectively address the hazards of H5 and will not be impacted or reduced by this requested code change. The requirements of IBC Section 415.8 and other areas of the code relating to H-5 occupancy will remain in effect in their entirety with this proposal.

If H-5 occupancy is added to IBC Section 507.4 the H-5 occupancy will still be regulated relative to construction type and building height by IBC Chapter 5.

Conclusion

H-5 occupancy has a relative hazard based on allowable area per IBC Table 503 that is equal to or better than B, F, M, and S occupancies. Adding H-5 occupancy to the occupancies that are allowed to have unlimited area per IBC Section 507.4 would be consistent with the permitted level of hazard and mitigation established by this section. The code-required mitigating features of H-5 occupancy have been demonstrated for over 25 years to be effective since the introduction of the semiconductor fabrication facility occupancy in the 1985 UBC.

Cost Impact: Cost savings from Type I Construction, which is required for unlimited H-5 in Table 503

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved as it was felt that having an unlimited area H-5 occupancy in unprotected construction was inappropriate. The differences in Group H-5 and Group B occupancies were felt to be too great to provide this allowance even if much of the building area provisions were based originally on group B occupancies.

Assembly Action: **None**

Public Comments

Public Comment 3:

Kevin Wright PE, SE, IM Flash Technologies requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

507.9 Unlimited mixed occupancy buildings with Group H-5. The area of a Group B, F, H-5, M or S building no more than two *stories above grade plane* shall not be limited where the building is equipped throughout with an *automatic sprinkler system* in

accordance with Section 903.3.1.1, and is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width, provided all of the following criteria are met:

1. Buildings containing Group H-5 occupancy shall be of Type I or II construction.
2. Each area used for Group H-5 occupancy shall be separated from other occupancies as required in Sections 508.4 and 415.10.
3. Each area used for Group H-5 occupancy shall not exceed the maximum allowable area permitted for such occupancies in Section 503.1 including modifications of Section 506.

Exception: When the Group H-5 occupancy exceeds the maximum allowable area, the Group H-5 shall be subdivided into areas that are separated by 2-hour fire barriers.

Commenter's Reason:

G119 Intent

- Address and clarify the area of H-5 occupancy as a part of an unlimited area building (UAB) described in 507.
  - Currently H-5 is not specifically addressed in section 507.
  - As a primary occupancy, H-5 occupancy shall be compartmentalized when the type of construction warrants.
  - Confusion exists when H5 is viewed as a accessory use within the UAB.
  - Table 503 with modifications per 506 is interpreted as the area limitation for H-5 in type II construction within a UAB.
  - For clarity, section 507 should specifically address the H-5 occupancy as well as the allowable area of H-5 within mixed occupancy of an UAB.

G119 Deficiencies as Indicated in the Public Hearing in Dallas, TX

- As written, proposed code change G119 would have allowed unlimited area H-5 buildings of any type of construction, including wood frame.
- The proposal is heavy in historical points but is lacking in technical justification.

This Public Comment Proposes the Following Modifications

- Construction limited to Type I & II.
  - Table 503 limits the area of S occupancy in Type I construction and therefore Type I would be included in the UAB with this proposal.
- This proposal is intended to address single and multiple H-5 occupancies as primary occupancies within an unlimited area building. This is similar to another UAB for A1 and A2 occupancies, Section 507.3.1
- Provide current code equivalency to fire intensity & volume, fire department personnel access and exposure to community of H-5 occupancy through the use of compartmentalization.
  - This proposal provides a method for allowable area for H-5 occupancy within mixed occupancy buildings per 503 including increases per 506. H-5 area modifications allowed by Section 506 can be used.
  - This proposal provides clarification for separation of mixed occupancies by use of 508.4 and 415.10. There are provisions specific to 415.10 with require separation of H-5 to HPM rooms, service corridors and other fabrication areas which are based on the program requirements which may be greater than Section 508.4. It is the intent of this proposal to continue to have these provisions remain in effect.
  - This proposal provides a means similar to table 707.3.10 to compartmentalize when multiple H-5 occupancies are used. As a primary occupancy, H-5 would be compartmentalized by the 2-hour wall to limit the areas to the Table 503 with 506 increases when the type of construction dictates. When the Table 503 is unlimited as is the case with Type IA, the 2-hour compartment would not be required

G119-12 Reasons for Modifications to the Original Proposal

- This section allows Group H-5 occupancies in mixed occupancy, two-story unlimited area buildings under limited conditions. A typical example of a practical application of this would be the construction of a fabrication building that is used primarily for multiple cleanrooms and may contain laboratories, offices, conference rooms, fan coil unit filter storage, etc. Group H-5 would not be permitted as stand-alone unlimited area buildings. Dissimilar to the requirement in Section 507.4 for Group B, F, M and S buildings, unlimited area buildings that contain a Group H-5 occupancy are permitted to be built of only Type I or II.

  The restrictions on the use of Group H-5 occupancies in mixed occupancy, unlimited area buildings include: (1) type I or II construction; (2) required separation; (3) limited size of each Group H-5 occupancy to the area allowed in Section 503.1 with modifications per 506; and (3- Exception) additional Group H-5 occupancy areas are separated from each other by a 2-hour rated fire barrier.

  - Item 1. States that the building be constructed of Type I or II construction.
  - Item 2. States that the Group H-5 occupancy is required to be separated from the rest of the unlimited area building by fire barriers in accordance with Section 508.4.4. For example, if a fabrication area contains cleanroom facilities next to a lunch room (Group A-2), the lunch room would need to be separated from the cleanroom facilities by a 2-hour fire barrier, as determined from Table 508.4.
  - Item 3. Requires each Group H-5 area to be limited to that allowed by Section 503.1 with modifications based on 506. For example, if the fabrication cleanroom mentioned above were Type IIB construction, the allowable area of cleanroom per floor would be 69,000 square feet (6,410 m2) [tabular value of 23,000 square feet (2,136 m2) × 3]. This is a total of 138,000 square feet (12,820 m2) for each area of the building. Note that the allowable area is increased by 200 percent as permitted by Section 506.3 for multi-story buildings equipped with fire sprinklers. The allowable area could also be increased for frontage in accordance with Section 506.2, depending upon the amount of

frontage that the Group H-5 portion has, relative to its own perimeter. The important point is that the area limits for each Group H-5 occupancy area based upon Section 503.1, not the tabular values of Table 503. Thus, because Section 503.1 states that the allowable area is limited to the values in Table 503.1 except as modified hereafter, the allowable increases given in Section 506 would be applicable.

- Item 3, Exception. Requires that each Group H-5 occupancy is evaluated on its own and not as an aggregate (i.e., the area of the Group H-5 occupancies would not be added together). When other occupancies are integrated into the area such as F, S, M or B, the rated separation between the H-5 occupancies can be located in a place such that the total area of H-5 in each area is less than the area limits for each H-5 based on Section 503.1. Therefore the other occupancies can be on either side of the 2-hour fire barrier as long as the H-5 occupancy does not exceed the area limits. In occupancies not listed, areas would be limited to provisions of Section 503.1, with increases as allowed.

Final Hearing Results

G119-12 **AMPC3**

Code Change No: G121-12

Original Proposal

Section(s): 507.8

Proponent: Homer Maiel, PE, CBO, Town of Atherton (CA), representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay)

Revise as follows:

507.8 Group H occupancies. Group H-2, H-3 and H-4 occupancies shall be permitted in unlimited area buildings containing Group F ~~and~~ or S occupancies, in accordance with Sections 507.3 and 507.4 and the provisions of Sections 507.8.1 through 507.8.4.

Reason: The word "and" implies that both Groups F and S have to be present in a building in order for this section to apply. Word "or" eliminates that misunderstanding.

Cost Impact: This code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change clarifies that both F and S occupancies do not need to be in a building to allow H-2, H-3 and H-4 occupancies in unlimited area buildings.

Assembly Action: **None**

Final Hearing Results

G121-12 **AS**

Code Change No: G126-12

Original Proposal

Section(s): 508.2.3

Proponent: Sarah A. Rice, C.B.O., The Preview Group (srice@preview-group.com)

Revise as follows:

508.2.3 Allowable building area and height. The allowable *building area and height* of the building containing accessory occupancies shall be based on the allowable *building area and height* for the main occupancy in accordance with Section 503.1. ~~The height of each accessory occupancy shall not exceed the tabular values in Table 503, without increases in accordance with Section 504 for such accessory occupancies.~~ The *building area* of the accessory occupancies shall be in accordance with Section 508.2.1.

Reason: The current text of 508.2.3 literally limits the location of an accessory occupancy in a building to the tablular height in Table 503 for the occupancy of the accessory occupancy. Imposing this limit is a total contradiction to what the accessory occupancy design option was intended to allow. When literally applied, an office building of Type IIC construction that is allowed to be 4 stories in height with sprinklers, could not have closets or storage rooms above the 2nd story as they are a Group S-1 (storage) occupancy and the tabular height limit in Table 503 is 2 stories.

And I emphasize "tabular" height limit because as the code is currently written, no height increase can be taken for a fully sprinklered building used when determining the vertical location of an accessory occupancy.

Another example would be linen storage rooms (Group S-1) in hotels of Type IIB construction. Based on Table 503 the tabular building height limit (in stories) for a Group S-1 occupancy is 2 stories, where the hotel (Group R-2) is allowed to be up to 5 stories when sprinklered. Because Group S-1 occupancies are not allowed above the 2nd story, linen storage closets would not be allowed above the 2nd story – a hotel cannot literally function without those storage spaces.

Without this code change many building designs as we know them today would continue to literally not be allowed.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved based upon the proponent's reason and since it provides flexibility to accessory occupancies to the location within the building due to the removal of height restrictions.

Assembly Action: **None**

Final Hearing Results

G126-12 **AS**

Code Change No: G128-12

Original Proposal

Section(s): Table 508.4

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Revise as follows:

TABLE 508.4
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

OCCUPANCY	A, E		I-1[a], I-3, I-4		I-2		R[a]		F-2, S-2[b], U		B[e], F-1, M, S-1		H-1		H-2		H-3, H-4		H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
B[e], F-1, M, S-1	—	—	—	—	—	—	—	—	—	—	N	N	NP	NP	2	3	1	2	1	NP

(Portions of table not shown remain unchanged)

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.
a. See Section 420.
b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but to not less than 1 hour.
c. See Section 406.3.4.
d. Separation is not required between occupancies of the same classification.
e. See Section 422.2 for ambulatory care facilities.

Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering, a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

This footnote reminds the reader that although there is no separation required for many B occupancy to other occupancies that Section 422.2 would still require a 1 hour fire partition between other group B occupancies and F-1, M and S-1 occupancies.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This provides a helpful clarification that ambulatory care facilities have specific and more restrictive separation requirements even though they are Group B occupancies.

Assembly Action: **None**

Final Hearing Results

G128-12 **AS**

Code Change No: G130-12

Original Proposal

Section(s): Table 509

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Revise as follows:

TABLE 509
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input.	1 hour or provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen cutoff rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic sprinkler system
In Group E occupancies, laboratories and vocational shops~~,~~ not classified as Group H~~, located in Group E or I-2 occupancy~~	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour or provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops.	1 hour
In ambulatory care facilities or Group I-2 occupancies , waste and linen collection rooms ~~located in either Group I-2 occupancies or ambulatory care facilities~~ with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.

ROOM OR AREA	SEPARATION AND/OR PROTECTION
lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies	

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L.

Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx This proposal is being co-sponsored by the ICC Code Technology Committee.

Currently, more detail is needed in the Incidental Use table to add spaces currently being maintained in healthcare and ambulatory care occupancies. The above chart makes the noted tables consistent with current operational and programmatic standards in the Group I-2 occupancy.

The current version of the table does not address the occasion when materials in a laboratory increases, most notably in the aggregate of larger histology / cytology laboratories. Materials such as xylene, hydrochloric acid, ethanol and fixatives (among others) are present in these areas. Although they are stored in gallon and liter quantities, and not bulk storage, the quantities add up over the larger lab control areas when they are in use at the benches.

The distinction between smaller stat labs, largely found in ambulatory care facilities, and larger clinical labs, found in hospitals, is being proposed. Ambulatory care facilities has been added to the current laboratory category to address those support spaces such as stat labs that are set up for a specific time-sensitive purpose, such as blood draw and chemotherapy, to save time in the Group B occupancy setting. Larger scale or non-critical lab operations are typically sent out to proprietary labs from ambulatory facilities. When addressing labs crossing the threshold into one hour rated construction, these labs are typically constructed as stand-alone operations and commonly appear in Group B occupancies, and are subject to the current occupancy separation requirements.

Volume thresholds are being considered in waste and linen collection rooms because basic exam spaces contain some level of waste containers and linen hampers without rising to the level of storage. The 10 cubic foot threshold represents essentially two medium sized linen hampers and/or trash receptacles. Larger linen and waste receptacle containers, and not the smaller containers typically found in an exam room or patient sleeping room, are subject to volume rather than square footage of the room because a relatively small space, with the 10 cubic foot threshold crossed in a space well below, for example, 100 square feet.

Group I-2 is also being added to the requirement for one hour rating with rooms equipped with padded surfaces. The instance of these rooms existing in a hospital is rare. It is prudent, however, to add the requirement where there is the occasion that such rooms are used in areas such as emergency departments, inpatient psychiatric units, or similar areas.

Physical plant and maintenance shops are a very specific function in a hospital building, and are being added to the table to ensure protection due to the stored materials related to the physical plant operation.

Addition of storage rooms as an area requiring 1 hour rated protection is a key functional aspect of a Group I-2 healthcare building. Areas that become unused become storage areas very quickly. Specifically calling out storage areas helps define and control the storage of combustibles, and avoid creating random storage in otherwise unmonitored or unprotected areas.

Areas addressed in the past, but are no longer included in the table, are addressed in the International Fire Code (IFC). For example, storage of combustible gases is addressed in IFC Section 5306.2 and has specific references to the Group I-2 occupancy. Gift shops, formerly listed as an incidental area requiring protection, have largely been eliminated from these requirements in the I-Codes and other model codes, and are addressed in the context of being open to the corridor.

In consideration of ambulatory care facilities, where not otherwise specifically called out, categories that are required for both Group B and I occupancies are assumed to cover Group I-2 and ambulatory care facilities. Examples of this interpretation are hydrogen cut-off rooms and stationary battery storage.

Cost Impact: The code change proposal will increase the cost of construction in facilities where the incidental uses occur.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as submitted as it helps to correlate the IBC with CMS requirements with regard to incidental uses.

Assembly Action: **None**

Final Hearing Results

G130-12 **AS**

Code Change No: G133-12

Original Proposal

Section(s): 510.2

Proponent: Marshall Klein, P.E., Marshall A. Klein & Associates, Inc., representing (NMHC) (makleinfpe@comcast.net) and Jason Thompson, P.E., National Concrete Masonry Association, representing Masonry Alliance for Codes and Standards

Revise as follows:

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours.
2. ~~The building below the *horizontal assembly* is not greater than one *story above grade plane*.~~

(Portions of text not shown remain unchanged)

Reason: (Klein) Item #2 of Section 510.2 is an antiquated section of the Code that was a carryover from the legacy 1997 UBC Section 311.2.2.1, **"Group S, Division 3 with Group A, Division 3; Group B, Group M or R, Division 1 Occupancy above"**. Under this section of the UBC the occupancies permitted below the 3 hour fire rated horizontal separation (i.e. parking garage, B, M and A-3 occupancies) were ***not*** required to be sprinklered. In the 2009 IBC, we revised the requirements under this Section of Code to **require** the building below the 3 hour fire rated horizontal separation to be sprinklered per Section 903.3.1.1 (NFPA 13) (See 2012 IBC Section 510.2(6)). Therefore, to limit the building under Section 510.2 that is of Type 1A Construction Type and sprinklered makes no sense anymore, and limits the use of this section of Code in major urban renewal areas of the US.

From a life safety/fire protection standpoint, permitting the Type 1A portion under the 3 hour horizontal separation to go to any number of stories, is an equal or better type of construction that is permitted by this section of code under Section 510.2(7). Section 510.2(7) permits the building(s) above the Type IA portion to be a maximum height in feet not to exceed the height limits set forth in Section 503 for the "…building having the smaller allowable height as measured from the grade plane…". Therefore, a project built under Section 510.2 can presently have above the Type IA portion an R-2 occupancy, sprinklered per NFPA 13R, 4 story, Type 5A, maximum of 60' above grade plane (or an R-2 occupancy, sprinklered per NFPA 13, 4 story, Type 5A, maximum of 70' above grade plane). However, if Item #2 is deleted, then as the Type IA portion is increased in its number of stories above grade plane, the portion above is still limited by Item #7's height limitation and its "height footprint" is being reduced. The net effect is that because this section of the Code will not permit more stories for the Type IA Construction Type, sprinklered portion of the project, the net effect is the reduction of the height of the portion of the project that is of a lesser construction type that is above the Type IA portion. Therefore, from a life safety/fire protection standpoint, we have an equal or better code requirement that is more flexible to provide for the needs of our urban needs to bring people back into our major cities to live and work.

(Thompson) Section 510.2 of the IBC has requirements to allow buildings with certain occupancies to be constructed with mixed construction types by using what is commonly referred to as pedestal construction where a building of a lesser type of construction is permitted to be built on top of a building of Type IA construction and the different types of construction are allowed to be considered separate buildings. This method of construction is allowed provided specific criteria are met including the installation of a 3 hour horizontal assembly that acts as a de facto "fire wall" separating the two buildings from vertical fire exposure (Item 1) and by limiting the total building height to the maximum height permitted in Table 503 for the lesser construction type (Item 7). However, the present code limits the height of the Type IA portion of the building below the 3 hour horizontal assembly to a single story above grade plane (Item 2).

Type IA is the most stringent construction type in the IBC from a fire resistance and noncombustibility point of view. According to Table 503, except for Group H-1 and H-2 occupancies, all other occupancies in buildings of Type IA construction are permitted to be of unlimited height and area due to the inherent fire safety provided by the most fire resistive construction type. However, Item 2 in Section 510.2 limits the Type IA building serving as the base of the pedestal construction to one story in height. This code change proposes to delete the one story limitation for the Type IA building portion of the pedestal construction. This will allow the Type IA building serving as the base of the pedestal construction to be multiple stories while still maintaining the total building height limit in Item 7 of Section 510.2 which is based on the construction type of the lesser type of construction built on top of the Type IA pedestal. This makes good sense since the more stories of Type IA construction allowed above the grade plane, the less potential stories of combustible construction with less fire resistance there will be in the building above.

Cost Impact: (Klein) The construction will cost more because of the additional cost of Type IA construction, but without the additional story or stories of Type IA podium for commercial development the project would not be cost effective to build to promote urban development.

(Thompson) This will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal solves a problem for urban areas. The revision provides flexibility without changing the overall height of such structures.

Assembly Action: **None**

Final Hearing Results

G133-12 **AS**

Code Change No: G134-12

Original Proposal

Section(s): 510.2

Proponent: C. Ray Allshouse AIA, CBO, City of Shoreline, WA, representing the Washington Association of Building Officials Technical Code Development Committee (rallshouse@shorelinewa.gov)

Revise as follows:

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours.
2. The building below the *horizontal assembly* is not greater than one *story above grade plane*.
3. The building below the *horizontal assembly* is of Type IA construction.
4. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

   1. The building above the *horizontal assembly* is not required to be of Type I construction;
   2. The enclosure connects fewer than four *stories*; and
   3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.

5. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
6. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any ~~of the following occupancies:~~ occupancy allowed by this code except Group H.
   ~~6.1. Group S-2 parking garage used for the parking and storage of private motor vehicles;~~
   ~~6.2. Multiple Group A, each with an *occupant load* of less than 300;~~
   ~~6.3. Group B;~~
   ~~6.4. Group M;~~
   ~~6.5. Group R; and~~
   ~~6.6. Uses incidental to the operation of the building (including entry lobbies, mechanical rooms, storage areas and similar uses).~~
7. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 503 for the building having the smaller allowable height as measured from the *grade plane*.

Reason: Current code language unnecessarily limits occupancy types under the building separation allowances in the case of horizontal separation assemblies when compared with vertical assemblies. Since a building is considered separate and distinct provided that all seven conditions listed in Section 510.2 are met, noting that these conditions specifically include Type IA construction below the 3-hour fire resistance rated horizontal assembly and the maximum building height shall not exceed Section 503 limits above the grade plane, why does the code also restrict Group E, I and F occupancies from consideration? Such occupancies could exist immediately next to these buildings limited by precisely the same height limitations with a less restrictive fire separation rating.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved based upon the proponent's justification. This proposal provides flexibility in a higher construction type building to allow any occupancy besides Group H.

Assembly Action: **None**

Final Hearing Results

G134-12 **AS**

Code Change No: G138-12

Original Proposal

Section(s): 510.8

Proponent: Jason Thompson, P.E., National Concrete Masonry Association, representing Masonry Alliance for Codes and Standards

Revise as follows:

510.8 Group B ~~or~~ and M buildings with Group S-2 open parking garage above. Group B ~~or~~ and M occupancies located ~~not higher than the first *story above grade plane*~~ below a Group S-2 open parking garage of a lesser type of construction shall be considered as a separate and distinct building from the Group S-2 open parking garage for the purpose of determining the type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 2 hours.
2. The occupancies in the building below the *horizontal assembly* are limited to Groups B and M.
3. The occupancy above the *horizontal assembly* is limited to a Group S-2 *open parking garage*.
4. The building below the horizontal assembly is of Type IA construction.

   Exception: The building below the *horizontal assembly* ~~is~~ shall be permitted to be of Type IB or II construction, but not less than the type of construction required for the Group S-2 *open parking garage* above, where the building below is not greater than one story in height above grade plane.

5. through 7. *(no change)*

Reason: Section 510.8 of the IBC has requirements that allow buildings with certain occupancies to be constructed with mixed construction types by using what is commonly referred to as pedestal construction where a building of a lesser type of construction is permitted to be built on top of a building of Type I or II construction and the different types of construction are allowed to be considered separate buildings. This method of construction is allowed provided specific criteria are met including the installation of a 2 hour horizontal assembly that acts as a de facto “fire wall” separating the two buildings from vertical fire exposure (Item 1) and by limiting the total building height to the maximum height permitted in Table 503 for the lesser construction type (Item 6). However, the present code limits the height of the Type I or II portion of the building below the 2 hour horizontal assembly to a single story above grade plane.

This code change proposes to delete the one story limitation where the lower building portion of the pedestal construction is of Type IA construction. This will allow the Type IA building serving as the base of the pedestal construction to be multiple stories in height while still maintaining the total building height limit in Item 6 of Section 510.8 which is based on the construction type of the lesser type of construction built on top of the Type IA pedestal. Type IA is the most stringent construction type in the IBC from a fire resistance and noncombustibility point of view. According to Table 503, except for Group H-1 and H-2 occupancies, all other occupancies in buildings of Type IA construction are permitted to be of unlimited height and area due to the inherent fire safety provided by the most fire resistive construction type. This makes good sense since the more stories of Type IA construction allowed above the grade plane, the less stories of potentially combustible construction and less fire resistance there will be in the building above.

This code change to Section 510.8 is very similar to another code change we have proposed to Section 510.2 Horizontal Building Separation Allowance for pedestal buildings with high fire resistive construction for the lower building of the pedestal.

Cost Impact: The code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

510.8 Group B or ~~and~~ M buildings with Group S-2 open parking garage above. Group B or ~~and~~ M occupancies located below a Group S-2 open parking garage of a lesser type of construction shall be considered as a separate and distinct building from the Group S-2 open parking garage for the purpose of determining the type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 2 hours.
2. The occupancies in the building below the *horizontal assembly* are limited to Groups B and M.
3. The occupancy above the *horizontal assembly* is limited to a Group S-2 *open parking garage*.
4. The building below the horizontal assembly is of Type IA construction.

   Exception: The building below the *horizontal assembly* is shall be permitted to be of Type IB or II construction, but not less than the type of construction required for the Group S-2 *open parking garage* above, where the building below is not greater than one story in height above grade plane.

5. through 7. *(no change)*

Committee Reason: This proposal was approved based upon the action taken on G133-12. The proposal allows 2 stories where type IA is used but limits to 1 story when Type IB or II construction is used. The modification simply replaces “and” with “or” so it does not appear that you need both a Group B and a Group M occupancy to use this allowance.

Assembly Action: **None**

Final Hearing Results

G138-12 **AM**

Code Change No: G140-12

Original Proposal

Section(s): Table 601

Proponent: Al Godwin, CBO, CPM, Aon Fire Protection Engineering, (al.godwin@aon.com)

Revise as follows:

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A[d]	B	A[d]	B	HT	A[d]	B
Primary structural frame[g] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[f, g] Interior	 3 3[a]	 2 2[a]	 1 1	 0 0	 2 1	 2 0	 2 1/HT	 1 1	 0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[e]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	1½[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

~~d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.~~

(Portions of text not shown remain unchanged)

Reason: In order to take advantage of this footnote, the sprinkler system must be "not otherwise required." The question is "required by what section?"

Obviously, it is known that if you take extra square footage or extra height and stories, the 1-hour tradeoff is not permitted.

And, it can be assumed that if the sprinkler system is installed to comply with the Fire Area provisions of Section 903, the system is required.

However, take note of Section 901.2 which states "Any fire protection system for which an exception or reduction to the provisions of this code has been granted shall be considered to be a required system." Thus, if any of the following items are applied, the system is a required system:

Flame spread reduction
Extra travel distance
Extra common path of egress travel
Corridor fire rating reduction
Dead end corridor extensions
Open stairs in sprinklered two story buildings
Etc.

The IBC commentary, Section 901.2, states:

"For example, a typical small office building may not require an automatic sprinkler system solely due to its Group B occupancy classification; however, if an exit access corridor fire-resistance-rating reduction is taken in accordance with Table 1018.1 for buildings equipped throughout with an NFPA 13 sprinkler system, that sprinkler system would be considered a required system."

When looking at Table 503, how many buildings that are large enough to be a Type VA, IIIA or IIA and are not already required to be sprinklered by another provision of the code. Group B occupancies are the most obvious exempted occupancy.

And, if there is a building that is a VA, IIIA or IIA without being sprinklered, who is going to sprinkler a building and not take a sprinkler reduction as listed above.

Allowing this footnote to continue to exist opens the door to misuse. Sprinkler exceptions and reductions are going to be taken along with the 1-hour reduction, in violation of the provision. If not now, perhaps 5 years from now when the jurisdiction forgets that a 1-hour reduction was granted.

There is no need to allow this footnote to continue to exist.

Cost Impact: This code change proposal will not increase the cost of construction since those projects that are taking one-hour reduction along with non-allowed trade-offs are non-compliant anyway.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it removes an unnecessary level of complication in the code that restricts the use of sprinkler tradeoffs throughout the code.

Assembly Action: **None**

Final Hearing Results

G140-12 **AS**

Code Change No: G141-12

Original Proposal

Section(s): 602.4, Table 602.4

Proponent: Sam Francis, American Wood Council (sfrancis@awc.org)

Revise as follows:

602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For glued laminated members and Structural Composite Lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4.

TABLE 602.4
WOOD MEMBER SIZE EQUIVALENCIES

MINIMUM NOMINAL SOLID SAWN SIZE		MINIMUM GLUED-LAMINATED NET SIZE		MINIMUM STRUCTURAL COMPOSITE LUMBER NET SIZE	
Width, inch	Depth, inch	Width, inch	Depth, inch	Width, inch	Depth, inch
8	8	6¾	8¼	7	7½
6	10	5	10½	5¼	9½
6	8	5	8¼	5¼	7½
6	6	5	6	5¼	5½
4	6	3	6⅞	3½	5½

Reason: Along with large solid-sawn and glued-laminated timbers, Structural Composite Lumber (SCL) can be produced in sizes necessary to qualify for Heavy Timber construction. Net dimensions of typical SCL members are similar to the net dimensions of nominal solid sawn timbers; however, the minimum width dimensions are slightly less than solid sawn timber widths and slightly greater than the glued-laminated timber net widths. In order to estimate equivalent cross-sectional dimensions, the initial section properties of the solid-sawn and glued-laminated timbers were compared with initial section properties of SCL. Starting with common SCL net widths between solid-sawn and glued-laminated timber net widths, minimum net depths were estimated for each nominal heavy timber size to provide similar net section properties. The resulting net dimensions were then incorporated into Table 602.4.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved based upon the need for more fire test data on the performance of composite lumber.

Assembly Action: **None**

Public Comment

Public Comment:

Sam Francis, American Wood Council, requests Approval as Submitted.

Commenter's Reason: The American Wood Council urges the membership to approve this proposal AS SUBMITTED.

Much of the discussion of this proposal focused on the "lack of fire test data" for the product. Lost in the discussion is the fundamental principle of heavy timber performance: its protection from loss of strength by the development of a char layer during pyrolysis. Structural Composite Lumber (SCL) is of large section similar to sections of heavy timber (HT). SCL becomes insulated in the same manner as HT during pyrolysis. Therefore, it should be sufficient to demonstrate that wood species have the same **char rate** when manufactured into SCL as they have when manufactured into HT. To that end, the data for individual species are available at the website: http://www.awc.org/Code-Officials/2012-IBC-Challenges.

One of the other concerns was that adhesive might contribute to, or alter, the char rate of wood. The standard for SCL includes the requirement that the adhesives used to manufacture SCL meet the same as elevated temperature performance requirements as adhesives used to manufacture glued laminated timber. Glued laminated timber is included in the Heavy Timber definition.

USDA Forest Products Laboratory Research Paper FPL-RP- 633 reviewed the adhesive's impact on the char rate of another family of large-section composite wood products, Structural Composite Lumber (SCL). The following is an extract of their conclusion:

"In this study, we tested 14 structural composite lumber products to determine the char rate when exposed to the fire exposure of the standard fire resistance test. Products tested included LSL, LVL, and PSL. Products of five different species were tested. Based on the small vertical-furnace tests, we concluded that the char rates for composite lumber products were comparable to those of solid-sawn lumber and within the range previously found for different species of solid-sawn lumber."

The full text of this report is available via the website link above.

The char rate of wood is the characteristic which gives heavy timber is performance when exposed to fire. The char rate of Structural Composite Lumber has been shown to be within the range of that of solid sawn lumber. Therefore, it is appropriate to include comparable sizes of SCL in the heavy timber section.

Final Hearing Results

G141-12 **AS**

Code Change No: G142-12 Part I

Original Proposal

Section(s): 602.4, 602.4.1 (NEW), 602.4.2 (NEW), 602.4.4, 602.4.6.2 (NEW), 602.4.5, 602.4.6, 602.4.8.1, 602.4.8.2 (NEW)

Proponent: Sam Francis, American Wood Council (sfrancis@awc.org)

THIS IS A 2 PART CODE CHANGE. THE FIRST PART WILL BE HEARD BY THE IBC GENERAL COMMITTEE AND THE SECOND BY THE IBC STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

PART I – IBC GENERAL

Revise as follows:

602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section. ~~Fire retardant treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.~~ Exterior walls complying with Section 602.4.1 or 602.4.2 shall also be permitted. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For glued-laminated members the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4. *Cross laminated timber* (CLT) dimensions used in this section are actual dimensions.

602.4.1 *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.

602.4.2 *Cross-laminated timber* complying with Section 2303.1.4 shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected *by (1) fire retardant treated wood* sheathing complying with 2303.2 and not less than 15/32 inch thick; or (2) *gypsum board* not less than ½ inch thick; or (3) a noncombustible material.

~~**602.4.1**~~ **602.4.3 Columns.** Wood columns shall be sawn or glued laminated and shall be not less than 8 inches (203 mm), nominal, in any dimension where supporting floor loads and not less than 6 inches (152 mm) nominal in width and not less than 8 inches (203 mm) nominal in depth where supporting roof and ceiling loads only. Columns shall be continuous or superimposed and connected in an approved manner.

~~**602.4.2**~~ **602.4.4 Floor framing**. Wood beams and girders shall be of sawn, or glued-laminated *timber* and shall be not less than 6 inches (152 mm) nominal in width and not less than 10 inches (254 mm) nominal in depth. Framed sawn, glued-laminated *timber* arches, which spring from the floor line and support floor loads, shall be not less than 8 inches (203 mm) nominal in any dimension. Framed timber trusses supporting floor loads shall have members of not less than 8 inches (203 mm) nominal in any dimension.

~~**602.4.3**~~ **602.4.5 Roof framing**. Wood-frame or glued-laminated arches for roof construction, which spring from the floor line or from grade and do not support floor loads, shall have members not less than 6 inches (152 mm) nominal in width and have not less than 8 inches (203 mm) nominal in depth for the lower half of the height and not less than 6 inches (152 mm) nominal in depth for the upper half. Framed or glued-laminated arches for roof construction that spring from the top of walls or wall abutments, framed

timber trusses and other roof framing, which do not support floor loads, shall have members not less than 4 inches (102 mm) nominal in width and not less than 6 inches (152 mm) nominal in depth. Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches (76 mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice plates shall be not less than 3 inches (76 mm) nominal in thickness. Where protected by approved automatic sprinklers under the roof deck, framing members shall be not less than 3 inches (76 mm) nominal in width.

~~602.4.4~~ **602.4.6 Floors.** Floors shall be without concealed spaces. Wood floors shall be constructed in accordance with 602.4.6.1 or 602.4.6.2.

602.4.6.1 Sawn or glued-laminated planks. ~~of s~~Sawn or glued-laminated planks, splined or tongue-and-groove, of not less than 3 inches (76 mm) nominal in thickness covered with 1-inch (25 mm) nominal dimension tongue-and-groove flooring, laid crosswise or diagonally, or 0.5-inch (12.7 mm) particleboard or planks not less than 4 inches (102 mm) nominal in width set on edge close together and well spiked and covered with 1-inch (25 mm) nominal dimension flooring or 15/32-inch (12 mm) wood structural panel or 0.5-inch (12.7 mm) particleboard. The lumber shall be laid so that no continuous line of joints will occur except at points of support. Floors shall not extend closer than 0.5 inch (12.7 mm) to walls. Such 0.5-inch (12.7 mm) space shall be covered by a molding fastened to the wall and so arranged that it will not obstruct the swelling or shrinkage movements of the floor. Corbelling of masonry walls under the floor shall be permitted to be used in place of molding.

602.4.6.2 CLT. *Cross laminated timber* shall be not less than 4 inches (102 mm) in thickness. It shall be continuous from support to support and mechanically fastened to one another. *Cross laminated timber* shall be permitted to be connected to walls without a shrinkage gap providing swelling or shrinking is considered in the design. Corbelling of masonry walls under the floor shall be permitted to be used.

~~602.4.5~~ **602.4.7 Roofs.** Roofs shall be without concealed spaces and wood roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness~~,~~; 11/8-inch-thick (32 mm) wood structural panel (exterior glue)~~, or of~~; planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors~~.~~; or of cross laminated timber. Other types of decking shall be permitted to be used if providing equivalent fire resistance and structural properties

Cross laminated timber roofs shall be not less than 3 inch nominal in thickness and shall be continuous from support to support and mechanically fastened to one another.

~~602.4.6~~ **602.4.8 Partitions and Walls.** Partitions and walls shall comply with 602.4.8.1 or 602.4.8.2.

602.4.8.1 Interior Walls and Partitions. Interior walls and partitions shall be of solid wood construction formed by not less than two layers of 1-inch (25 mm) matched boards or laminated construction 4 inches (102 mm) thick, or of 1-hour fire-resistance-rated construction.

602.4.8.2 Exterior walls. All exterior walls shall be of one of the following:

1. Noncombustible materials; or
2. Not less than 6 inches in thickness and constructed of one of the following:
   2.1 *Fire retardant treated wood* in accordance with 2303.2 and complying with 602.4.1 or
   2.2. C*ross laminated timber* complying with 602.4.2.

~~602.4.7~~ **602.4.9 Exterior Structural Members.** Where a horizontal separation of 20 feet (6096 mm) or more is provided, wood columns and arches conforming to heavy timber sizes shall be permitted to be used externally.

Reason: Cross-laminated timber (CLT) is a new technology developed in Europe. It is generally analogous to large section members currently associated with heavy timber in the current code. Its fire performance is most like that of glued-laminated beams, or glu-lams, in traditional Type IV (heavy timber) construction. Therefore it is proposed that the CLT be included in Type IV. To properly accomplish this, this proposal adds a definition of CLT, adds a consensus-developed product standard and then modifies the text of Type IV to accommodate CLT.

In Item #1, the existing language is maintained but FRTW, currently allowed in walls of Type IV, is pulled out into a subset of nontraditional material permitted to be used in Type IV. CLT is then added as the second subset. This makes it clear that this mode of construction performs like Heavy Timber but is constructed with different techniques. Walls are more like “tilt-up slabs” than HT beams but their fire performance is very similar to HT. Floors are more like slabs but again, their fire performance is similar to HT.

No changes are needed to the sections on columns, floor framing or roof framing because CLT is neither used as a “column” nor a "framing material". Cross-laminated timber is a large, thick panel composed of crosswise layers of dimension lumber bound with a structural adhesive.

In Section 602.4.4-Floors, the existing language is pulled down into a subparagraph and is unchanged. CLT floors are slightly different than HT so it is put into a second subparagraph with its own requirements. Among the differences is thickness (CLT=4 inches; HT=3 inches topped with a sheathing). Finally, the section is renumbered to accommodate the inserted subsections on general requirements.

In Section 602.4.5-Roofs, the existing language is pulled down, unchanged, into a subparagraph. CLT is again included as a subparagraph. Again the numbering is changed.

In Section 602.4.6-floors, CLT is added as an explicitly permitted form of floor decking. Traditional HT floor decks are 3” or 4” thick planks with various sheathings. Unlike the traditional plank decking, the CLT alternate has no joints to protect. Therefore no sheathing is required on top of the CLT. The structure of the section does not, however, prohibit the use of sheathing on top of a CLT floor deck.

In Section 602.4.7-roofs, CLT is added as an explicitly permitted form of roof decking.

In Section 602.4.8-walls, CLT is added as an acceptable wall system. For interior walls, it is already compliant as an element of solid wood construction meeting the traditional minimum dimensions. This section was modified to break out exterior walls separately so as to correlate with the base paragraph, 602.4 and its CLT subsection, 602.4.2. This eliminates any confusion which might arise between the two sections. By separating the interior and exterior walls, the new minimum wall thickness requirement associated with CLT may be interpreted to apply to all exterior wall construction, including traditional construction. However, it is observed that all common forms of exterior wall construction of Type IV would easily comply with this requirement.

The remaining items are necessary to include the product standard for CLT and a definition for the product. These items form the basis for the inclusion in Chapter 6 and give clarity to this new type of wood construction.

More information on the cross-laminated timber product can be found at our website, www.AWC.org.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, ANSI/APA PRG 320-2011 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Part I of this proposal was heard by the IBC General Code Development Committee.

For staff analysis of the content of ANSI/APA PRG 320-2011 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

PART I – IBC GENERAL
Committee Action: Disapproved

Committee Reason: The proposal was disapproved based upon the need for fire test data on the performance of cross laminated lumber.

Assembly Action: None

Public Comment

Public Comment:

Sam Francis, American Wood Council, requests Approval as Submitted.

Commenter’s Reason: The American Wood Council urges the membership to approve Part 1 of this proposal As Submitted.

Testimony during the Code Development hearing on this proposal focused on the “lack of fire test data” of Cross Laminated Timber (CLT). This was also the reason given by the Code Development Committee in recommending disapproval, so recent fire test data on CLT is being provided to the membership for their consideration. Fire test data is one important consideration in approving this change. A fundamental attribute of heavy timber building fire performance is the time it takes for large sections to lose strength during fire exposure. The char layer created during pyrolysis of the wood protects and insulates the underlying fiber

and allows the heavy timber to retain its structural load carrying capacity. Cross Laminated Timber (CLT) has similar characteristics as heavy timber, including large section properties. CLT is insulated in the same manner as HT during pyrolysis. Therefore, it should be sufficient to demonstrate that wood species have the same **char rate** when manufactured into CLT as they have when manufactured into heavy timber. To that end, the data for individual species are available at the webpage: http://www.awc.org/Code-Officials/2012-IBC-Challenges. Other information regarding CLT is also posted to the website.

One of the other concerns expressed during the hearings was that adhesive might contribute to, or alter, the char rate of wood. The new standard for CLT, which has been recommended for approval by the ICC Structural Committee in S250-12, includes the requirement that the adhesives used to manufacture CLT meet the same elevated temperature performance requirements as adhesives used to manufacture structural composite lumber (SCL) and glued laminated timber. Glued laminated timber is included in the Heavy Timber definition.

Glued laminated timbers have historically been accepted as having similar char rates to solid sawn heavy timber. The basis for that conclusion has been a number of tests performed by various agencies showing the char rates to be similar and, therefore, affording the same protection for fire exposure within the member. Examples of this information are also available at the webpage provided above.

Finally, recent testing by FPInnovations in Canada has determined that CLT has similar char rates to solid sawn heavy timber. That research paper, entitled “Preliminary CLT Fire Resistance Testing Report” is also available at the webpage provide above. The average char rate for the seven CLT tests in which char rate was measured was determined to be 1.5 in./hr, the same average char rate as for solid wood and glued laminated timber.

Final Hearing Results

G142-12 Part I **AS**

Code Change No: G143-12

Original Proposal

Section(s): 602.4.4

Proponent: Sam Francis, American Wood Council (sfrancis@awc.org)

Revise as follows:

602.4.4 Floors. Floors shall be without concealed spaces. Wood floors shall be of:

1. Sawn or glued-laminated planks, splined or tongue-and-groove, of not less than 3 inches (76 mm) nominal in thickness covered with 1-inch (25 mm) nominal dimension tongue-and-groove flooring, laid crosswise or diagonally, 15/32-inch (12 mm) wood structural panel, or 0.5-inch (12.7 mm) particleboard; or

2. Planks not less than 4 inches (102 mm) nominal in width set on edge close together and well spiked and covered with 1-inch (25 mm) nominal dimension flooring, ~~or~~ 15/32-inch (12 mm) wood structural panel, or 0.5-inch (12.7 mm) particleboard.

The lumber shall be laid so that no continuous line of joints will occur except at points of support. Floors shall not extend closer than 0.5 inch (12.7 mm) to walls. Such 0.5-inch (12.7 mm) space shall be covered by a molding fastened to the wall and so arranged that it will not obstruct the swelling or shrinkage movements of the floor. Corbelling of masonry walls under the floor shall be permitted to be used in place of molding.

Reason: This section is awkwardly worded with multiple requirements buried in a single paragraph. The revised formatting is user friendly and improves the structure of the provisions.

The technical change inserting 15/32-inch wood structural panel into the first option actually is how this requirement appeared in the 1996 BOCA National Building Code, the 1994 ICBO Uniform Building Code and the 1994 SBCCI Standard Building Code. Given that all three legacy codes had this provision, it seems likely that it was inadvertently omitted in the 2000 IBC.

This does nothing to change the long standing practice of Heavy Timber construction but it cleans up the text so that newer users can make sense of the options afforded herein.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it added back a viable option for sawn or glue laminated planks for wood floors. The allowance for 15/32 inch wood structural panels had been allowed in all three of the legacy codes.

Assembly Action: **None**

Final Hearing Results

G143-12	**AS**

Code Change No: G145-12

Original Proposal

Section(s): 603.1

Proponent: David Scott, Target (David.Scott@target.com)

Revise as follows:

603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. through 25. *(no change)*
26. Wall construction of freezers and coolers of less than 1000 sq. ft. in size, lined on both sides with non combustible materials and the building is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1

Reason: Item 6 allows for combustible materials such as doors, door frames, window sashes and frames. Item 11 allows partitions of wood panels or similar light construction up to 6 feet in height. In addition, freezer and cooler walls would need to meet finish requirements of Section 803 and 2603.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The scale of this proposed exception is much larger than what is typically allowed by the exceptions. Also, the materials allowed to construct the interior of the walls were not clearly addressed.

Assembly Action: **None**

Final Hearing Results

G145-12 **AS**

Code Change No: G146-12

Original Proposal

Section(s): 1203.2

Proponent: Michael D. Fischer, Kellen Company, representing Asphalt Roofing Manufacturers Association

Revise as follows:

1203.2 Attic spaces. Enclosed *attics* and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated.

Exceptions:

1. The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided ~~that not less than 50 percent and not more than 80 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required *ventilation* provided by eave or cornice vents.~~ Both of the following conditions are met:
   1.1. In Climate Zones 6, 7 and 8, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
   1.2 At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the *ventilation* provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.
~~2. The net free cross-ventilation area shall be permitted to be reduced to 1/300 where a Class I or II vapor barrier is installed on the warm-in-winter side of the ceiling.~~
~~3~~2. ~~*Attic*~~ Ventilation of attic spaces under low slope roof assemblies shall not be required when determined not necessary by the *building official* due to atmospheric or climatic conditions.

Reason: There have been numerous changes to the attic ventilation requirements of the IBC and IRC during the past few code cycles. This proposal is offered to provide consistency with the ventilation requirements between the IBC and IRC and provide clarity regarding the placement of attic ventilators. Additionally, the added exception for local conditions was submitted to manage low-slope design issues; this proposal limits the use of that exception to such roof assemblies.

Cost Impact: This proposal will not raise the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: There was concern that the revision to item 3 was not properly justified based upon the fact that it was new section in the 2012 code. G147-12 provides the necessary revisions to be consistent with the IRC for attic ventilation.

Assembly Action: **None**

Public Comments

Public Comment:

Michael D. Fischer, Kellen Company, Asphalt Roofing Manufacturers' Association, request Approval as Modified by this Public Comment.

Modify the proposal as follows:

1203.2 Attic spaces. Enclosed *attics* and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An air space of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated. Ventilators shall be installed in accordance with manufacturer's installation instructions.

Exceptions:

1. The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided both of the following conditions are met:
   1.1. In Climate Zones 6, 7 and 8, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
   1.2 At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the *ventilation* provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.
2. ~~Ventilation of attic spaces under low slope roof assemblies shall not be required when determined not necessary by the *building official* due to atmospheric or climatic conditions.~~

Commenter's Reason: Proposal G149, approved (with modification) by the committee, introduces new comprehensive provisions for unvented attics. These provisions include the application of insulation for moisture and condensation control, proper installation of vapor retarders, specific provisions for roof covering installation, and other climate specific requirements. The existing provision that allows a waiver of attic ventilation is now in conflict with these new provisions for unvented attic spaces. Without the removal of this text, there are three compliance paths:

1) Comply with the attic ventilation requirements in 1203.2,
2) Comply with the new requirements for unvented attic assemblies, or
3) Do nothing whatsoever, provided the code official will sign off on the project.

This last option would require the code official to waive the requirements for the control of moisture and condensation control on the basis of the code official's knowledge of meteorology. The provision does not allow the code official to evaluate the proposed materials, assemblies and installation methods, but simply to waive the requirement-regardless of construction-across the board based solely on the weather.

The new unvented attic provisions require airspaces above the deck when the roof covering is wood shingles or shakes. By disregarding the unvented attic provisions via a carte blanche waiver of ventilation requirements, the code official risks failure of the roof covering

Moisture control in attics is an issue in southern as well as northern climate zones. The recent trend to more reflective roof covering has resulted in an increase in reported moisture problems in roof assemblies. Cool roofs result in lower roof assembly temperatures, which reduce the normal drying cycles that can mitigate moisture intrusion from minor roof leaks. Numerous studies demonstrate the need to control condensation in roof assemblies where reflected roof systems are installed. Applicable research is available at:

Richard E. Norris, "Hygrothermal Analysis: The New Design Standard", *RCI Interface*, July, 2012.
Helene Hardy-Pierce, "Unintended Consequences! Keeping Alert to Protect Single-Ply Roofs," *RCI Interface*, February 2012.
Christian Bludau, Daniel Zirkelback, and Hartwig M. Kunzel, "Condensation Problems in Cool Roofs," *RCI Interface,* August 2009
Phil Dregger, "'Cool' Roofs Cause Condensation – Fact or Fiction?", *Western Roofing,* January-February 2012.
Iain Fairnington, "Reducing Condensation in the Roof Space," *RCI Interface*, September 2001.
http://www.ravcoalition.org/research.html

Analysis: This proposal is similar to G147-12 that was Approved as Modified. Consideration of the coordination of the proposals should be made.

Final Hearing Results

G146-12 AMPC

Code Change No: G147-12

Original Proposal

Section(s): 1203.2

Proponent: Joseph Lstiburek, Building Science Corporation, representing self

Revise as follows:

1203.2 Attic spaces. Enclosed *attics* and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated.

Exceptions:

1. The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided ~~that not less than 50 percent and not more than 80 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required *ventilation* provided by eave or cornice vents.~~ Both of the following conditions are met:
   1.1. In Climate Zones 6, 7 and 8, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
   1.2 At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the *ventilation* provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.
~~2. The net free cross-ventilation area shall be permitted to be reduced to 1/300 where a Class I or II vapor barrier is installed on the warm-in-winter side of the ceiling.~~
~~3~~2. *Attic* ventilation shall not be required when determined not necessary by the *building official* due to atmospheric or climatic conditions.

Reason: This proposed language aligns the IBC with IRC R806.2. The current IBC vapor retarder language is incorrect as it violates the applicable physics in hot climates and needs to be changed. Finally, the current language regarding a 50 percent and 80 percent split between upper and lower vents violates the applicable physics and can lead to attic ventilation make up air being drawn from the building rather than from the eave or cornice vents.

Cost Impact: This proposal will not raise the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1203.2 Attic spaces. Enclosed *attics* and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1

inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated.

Exceptions:

1. The net free cross ventilation area shall be permitted to be reduced to 1/300 provided both of the following conditions are met:
   1.1. In Climate Zones 6, 7 and 8 in accordance with the *International Energy Conservation Code*, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
   1.2 At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the *ventilation* provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.
2. *Attic* ventilation shall not be required when determined not necessary by the *building official* due to atmospheric or climatic conditions.

Committee Reason: This particular proposal aligns the IBC with the IRC. The modification was simply to indicate how the climate zones are determined as the IBC does not address climate zones

Assembly Action: **None**

Public Comments

Public Comment:

Brenda A. Thompson, Clark County Development Services, Clark County Nevada, Sustainable/Energy/High Performance Code Action Committee, request Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1203.2 Attic spaces. Enclosed *attics* and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated.

Exceptions:

1. The net free cross ventilation area shall be permitted to be reduced to 1/300 provided both of the following conditions are met:
   1.1. In Climate Zones 6, 7 and 8 ~~in accordance with the *International Energy Conservation Code*~~, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
   1.2 At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the *ventilation* provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.
2. *Attic* ventilation shall not be required when determined not necessary by the *building official* due to atmospheric or climatic conditions.

Add New Definition to Chapter 2:

CLIMATE ZONE. A geographical region that have been assigned climatic criteria as specified in Chapters 3CE and 3RE of *the International Energy Conservation Code.*

Commenter's Reason: This public comment is submitted by the ICC Sustainability Energy and High Performance Building Code Action Committee (SEHPCAC). The SEHPCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the SEHPCAC has held 2 open meetings and over 15 workgroup calls which included members of the SEHPCAC as well as any interested party to discuss and debate proposed changes and public comments. Related documentation and reports are posted on the SEHPCAC website at: http://www.iccsafe.org/cs/SEHPCAC/Pages/default.aspx.

There are increasing numbers of proposals in which the term ‘climate zone’ is used in the proposed code test. Just this year at least 8 proposals heard in Dallas included the term. Three of the proposals were approved or approved as modified. Specifically G147 and G149, were approved as modified in order to provide a reference to the IECC to help the code user know where climate zones are ‘defined’. The issue is that ‘climate zones’ are established in the IECC, but there is no definition.

The goal of this public comment and that submitted to G149 is to establish a definition of climate zone in the IBC to simplify individual references to climate zones. In Cycle B, the SEHPCAC will be submitting a code change to the IECC to add a definition of Climate Zone. In Cycle C, the SEHPCAC will submit a code change to the IgCC to add a definition of Climate zone. This will allow all future references to climate zone to be simple and not have to say “as established in the International Energy Conservation Code.

Final Hearing Results

G147-12 **AMPC**

Code Change No: G149-12

Original Proposal

Section(s): 202, 1203.2, 1203.3 (New), Table 1203.2 (New)

Proponent: Joseph Lstiburek, Building Science Corporation, representing self (joe@buildingscinece.com)

Revise as follows:

1203.2 ~~Attic spaces.~~ Ventilation required. *(No change to body of text)*

1203.3 Unvented attic and unvented enclosed rafter assemblies. Unvented *attic* assemblies (spaces between the ceiling joists of the top *story* and the roof rafters) and unvented enclosed rafter assemblies (spaces between ceilings that are applied directly to the underside of roof framing members/rafters and the structural roof sheathing at the top of the roof framing members/rafters) shall be permitted where all the following conditions are met:

1. The unvented attic space is completely within the *building thermal envelope*.
2. No interior Class I vapor retarders are installed on the ceiling side (*attic* floor) of the unvented *attic* assembly or on the ceiling side of the unvented enclosed rafter assembly.
3. Where wood shingles or shakes are used, a minimum 1/4 inch (6 mm) vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.
4. In climate zones 5, 6, 7 and 8, any air-impermeable insulation shall be a Class II vapor retarder, or shall have a Class III vapor retarder coating or covering in direct contact with the underside of the insulation.
5. Either items 5.1 5.2 or 5.3 shall be met, depending on the air permeablity of the insulation directly under the structural roof sheathing.
   - 5.1. Air-impermeable insulation only. Insulation shall be applied in direct contact with the underside of the structural roof sheathing.
   - 5.2. Air-permeable insulation only. In addition to the *air-permeable insulation* installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing as specified in Table 1203.3 for condensation control.
   - 5.3. Air-impermeable and air-permeable insulation. The *air-impermeable insulation* shall be applied in direct contact with the underside of the structural roof sheathing as specified in Table 1203.3 for condensation control. The air-permeable insulation shall be installed directly under the *air-impermeable insulation*.
   - 5.4. Where preformed insulation board is used as the *air-impermeable insulation* layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.
6. This section does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals, art galleries, or enclosures in climate zones 5 or higher that are humidified beyond 35 percent during the three coldest months.

TABLE 1203.3
INSULATION FOR CONDENSATION CONTROL

CLIMATE ZONE	MINIMUM RIGID BOARD ON AIR-IMPERMEABLE INSULATION R-VALUE[a,b]
2B and 3B tile roof only	0 (none required)
1, 2A, 2B, 3A, 3B, 3C	R-5
4C	R-10

CLIMATE ZONE	MINIMUM RIGID BOARD ON AIR-IMPERMEABLE INSULATION R-VALUE[a,b]
4A, 4B	R-15
5	R-20
6	R-25
7	R-30
8	R-35

a. Contributes to, but does not supersede thermal resistance requirements for attic and roof assemblies in Section C402.2.1 of the *International Energy Conservation Code*.

b. Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45 degrees F (7 degrees C). For calculation purposes, an interior air temperature of 68 degrees F (20 degrees C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.

Add new definition as follows:

AIR-IMPERMEABLE INSULATION. An insulation having an air permeance equal to or less than 0.02 l/s-m^2 at 75 pa pressure differential tested according to ASTM E 2178 or E 283.

Reason: Unvented roof assemblies - both attic and cathedral ceiling - are a proven technology. They give the designer significant flexibility in locating mechanical equipment and ductwork inside of conditioned spaces thereby saving energy. They significantly improve the airtightness of the building enclosure thereby saving energy. They reduce wind uplift forces and reduce the risk of wildfire damage. They eliminate the problems associated with wind driven rain entering roof vents during hurricanes. The language in this proposed section is modeled on the existing language in the IRC Section 806.5. The "air-impermeable insulation" definition is the same as in the IRC.

Cost Impact: This proposal will not raise the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1203.3 Unvented attic and unvented enclosed rafter assemblies. Unvented *attic* assemblies (spaces between the ceiling joists of the top *story* and the roof rafters) and unvented enclosed rafter assemblies (spaces between ceilings that are applied directly to the underside of roof framing members/rafters and the structural roof sheathing at the top of the roof framing members/rafters) shall be permitted where all the following conditions are met:

1. The unvented attic space is completely within the *building thermal envelope*.
2. No interior Class I vapor retarders are installed on the ceiling side (*attic* floor) of the unvented *attic* assembly or on the ceiling side of the unvented enclosed rafter assembly.
3. Where wood shingles or shakes are used, a minimum 1/4 inch (6 mm) vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.
4. In climate zones 5, 6, 7 and 8 in accordance with the *International Energy Conservation Code*, any air-impermeable insulation shall be a Class II vapor retarder, or shall have a ~~Class III~~ Class II vapor retarder coating or covering in direct contact with the underside of the insulation.
5. Either items 5.1 5.2 or 5.3 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.
   5.1. Air-impermeable insulation only. Insulation shall be applied in direct contact with the underside of the structural roof sheathing.
   5.2. Air-permeable insulation only. In addition to the *air-permeable insulation* installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing as specified in Table 1203.3 for condensation control.
   5.3. Air-impermeable and air-permeable insulation. The *air-impermeable insulation* shall be applied in direct contact with the underside of the structural roof sheathing as specified in Table 1203.3 for condensation control. The air-permeable insulation shall be installed directly under the *air-impermeable insulation*.
   5.4. Where preformed insulation board is used as the *air-impermeable insulation* layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.
6. This section does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals, art galleries, or enclosures in climate zones 5 or higher that are humidified beyond 35 percent during the three coldest months.

(Portions of proposal not shown remain unchanged)

Committee Reason: The proposal makes the IBC consistent with the IRC for unvented attic and unvented rafter assemblies. The modification is consistent with the modification to G147-12 to clarify how to determine climate zones. Note the revision from class III to Class II was an errata but shown as part of the modification for convenience.

Assembly Action: **None**

Public Comments

Public Comment 1:

Joseph Lstiburek, Building Science Corporation and Steven R. Winkel, The Preview Group representing the American Institute of Architects, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1203.2 Attic spaces. Ventilation required. *(No change to body of text)*

1203.3 Unvented attic and unvented enclosed rafter assemblies. Unvented attics ~~assemblies (spaces between the ceiling joists of the top story and roof rafters)~~ and unvented enclosed roof framing ~~rafter~~ assemblies created by ~~(spaces between~~ ceilings ~~that are~~ applied directly to the underside of the roof framing members and structural roof sheathing applied directly to the top of the roof framing members ~~/rafters~~, shall be permitted where all the following conditions are met:

1. The unvented attic space is completely within the building thermal envelope.
2. No interior Class I vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed roof framing ~~rafter~~ assembly.
3. Where wood shingles or shakes are used, a minimum 1/4 inch (6 mm) vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.
4. In climate zones 5, 6, 7 and 8 in accordance with the *International Energy Conservation Code*, any air-impermeable insulation shall be a Class II vapor retarder, or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.
5. Insulation shall be located in accordance with the following:
   - 5.1 ~~Either~~ Items ~~5.1 5.2 or 5.3~~ 5.1.1, 5.1.2 , 5.1.3, or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.
     - 5.1.1 Where only ~~A~~ air-impermeable insulation ~~only~~ is provided, the air-impermeable ~~I~~ insulation shall be applied in direct contact with the underside of the structural roof sheathing.
     - 5.1.2. Where ~~A~~ air-permeable insulation is provided inside the building thermal envelope, it shall be installed per Section 5.1. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the R values in ~~as specified in~~ Table 1203.3 for condensation control.
     - 5.1.3. Where both ~~A~~ air-impermeable and air-permeable insulation are provided. ~~T~~ the air-impermeable insulation shall be applied in direct contact with the underside of the structural roof sheathing per Section 5.1.1 and shall be in accordance with the R values in ~~as specified in~~ Table 1203.3 for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation.
     - 5.1.4 Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45 degrees F (7 degrees C). For calculation purposes, an interior air temperature of 68 degrees F (20 degrees C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.
   - 5.2 ~~4~~ Where preformed insulation board is used as the air-impermeable insulation layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

~~6.~~ **Exceptions:**

1. Section 1203.3 ~~This section~~ does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals, art galleries.
2. Section 1203.3 does not apply to enclosures in climate zones 5 through 8 ~~or higher~~ that are humidified beyond 35 percent during the three coldest months.

TABLE 1203.3
INSULATION FOR CONDENSATION CONTROL

CLIMATE ZONE	MINIMUM R-VALUE OF ~~RIGID BOARD ON~~ AIR-IMPERMEABLE INSULATION ~~R-VALUE~~ [a,b]
2B and 3B tile roof only	0 (none required)
1, 2A, 2B, 3A, 3B, 3C	R-5
4C	R-10
4A, 4B	R-15
5	R-20
6	R-25
7	R-30
8	R-35

a. Contributes to, but does not supersede thermal resistance requirements for attic and roof assemblies in Section C402.2.1 of the *International Energy Conservation Code*.

b. ~~Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45 degrees F (7 degrees C). For calculation purposes, an interior air temperature of 68 degrees F (20 degrees C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.~~

Add new definition as follows:

AIR-IMPERMEABLE INSULATION. An insulation having an air permeance equal to or less than 0.02 l/s-m^2 at 75 pa pressure differential tested according to ASTM E 2178 or E 283.

ATTIC. The space between the ceiling beams of the top story and the roof rafters.

Commenter's Reason: The proposed revisions are for readability and clarity only. There are no technical revisions proposed that differ from the revised version which was readily approved by the General Committee with only minor modifications. The language in the proposed section is modeled on the existing language and definitions in the IRC, with revisions to make them more readily enforceable for buildings built using the IBC. The footnote is moved into the body of Section 5.1 to make it easier to find and to clarify that it is an alternate means of compliance to the items listed above it.

Public Comment 2:

Brenda A. Thompson, Clark County Development Services, Clark County Nevada, Sustainable/Energy/High Performance Code Action Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1203.3 Unvented attic and unvented enclosed rafter assemblies. Unvented *attic* assemblies (spaces between the ceiling joists of the top *story* and the roof rafters) and unvented enclosed rafter assemblies (spaces between ceilings that are applied directly to the underside of roof framing members/rafters and the structural roof sheathing at the top of the roof framing members/rafters) shall be permitted where all the following conditions are met:

4. In climate zones 5, 6, 7 and 8 ~~in accordance with the *International Energy Conservation Code*~~, any air-impermeable insulation shall be a Class II vapor retarder, or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.

Add New Definition to Chapter 2:

CLIMATE ZONE. A geographical region that have been assigned climatic criteria as specified in Chapters 3CE and 3RE of *the International Energy Conservation Code.*

(Portions of the proposal not shown remain unchanged)

Commenter's Reason: This public comment is submitted by the ICC Sustainability Energy and High Performance Code Action Committee (SEHPCAC). The SEHPCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the SEHPCAC has held 2 open meetings and over 15 workgroup calls which included members of the SEHPCAC as well as any interested party to discuss and debate proposed changes and public comments. Related documentation and reports are posted on the SEHPCAC website at: http://www.iccsafe.org/cs/SEHPCAC/Pages/default.aspx.

There are increasing numbers of proposals in which the term 'climate zone' is used in the proposed code test. Just this year at least 8 proposals heard in Dallas included the term. Three of the proposals were approved or approved as modified. Specifically G147 and G149, were approved as modified in order to provide a reference to the IECC to help the code user know where climate zones are 'defined'. The issue is that 'climate zones' are established in the IECC, but there is no definition.

The goal of this public comment and that submitted to G147 is to establish a definition of climate zone in the IBC to simplify individual references to climate zones. In Cycle B, the SEHPCAC will be submitting a code change to the IECC to add a definition of Climate Zone. In Cycle C, the SEHPCAC will submit a code change to the IgCC to add a definition of Climate zone. This will allow all future references to climate zone to be simple and not have to say "as established in the International Energy Conservation Code.

Final Hearing Results

G149-12 **AMPC1, 2**

Code Change No: G153-12

Original Proposal

Section(s): 1204.1

Proponent: Paul Armstrong, City of El Monte, representing Orange Empire Code Committee (paul@jaspacific.com)

Revise as follows:

1204.1 Equipment and systems. Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems capable of maintaining an indoor temperature of not less than 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.

Exceptions:

1. Space heating systems are not required for interior spaces where the primary purpose of the space is not associated with human comfort.
2. Group F, H, S or U occupancies.

Reason: The addition of the exception will exempt Groups F, H, S or U occupancies from the heating requirement in the IBC. The current text is vague and as a result, unenforceable. There are many opinions as to what is or is not associated with human comfort. However, the requirement for heating in these uses is governed by OSHA regulations (Groups F, H and S) or is not needed (Group U) or, in some cases, not desired (Group H). As an example, industrial bakeries have been told that a heating system is needed in rooms that contain ovens. Warm air supply ducts were then installed to comply with this interpretation. The IBC should allow the exemption of heating in these uses.

Since it was felt that some other uses may take advantage of exception 1, it is not proposed for deletion.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was preferred to G152-12. There was some concern over sunrooms but that was felt to be covered by the current exception.

Assembly Action: **None**

Final Hearing Results

G153-12 **AS**

Code Change No: G157-12

Original Proposal

Section(s): 1207.1, 1207.2, 1207.3

Proponent: Jerry R. Tepe, FAIA, JRT•AIA Architect, representing The American Institute of Architects (jrtaia@aol.com)

Revise as follows:

1207.1 Scope. This section shall apply to common interior walls, partitions and floor/ceiling assemblies between adjacent *dwelling units* and *sleeping units* or between *dwelling units* and *sleeping units* and adjacent public areas such as halls, *corridors*, *stairs* or service areas.

1207.2 Air-borne sound. Walls, partitions and floor/ceiling assemblies separating *dwelling units* and *sleeping units* from each other or from public or service areas shall have a sound transmission class (STC) of not less than 50 (45 if field tested) for air-borne noise when tested in accordance with ASTM E 90. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. This requirement shall not apply to ~~*dwelling unit*~~ entrance doors; however, such doors shall be tight fitting to the frame and sill.

1207.2.1 Masonry. The sound transmission class of concrete masonry and clay masonry assemblies shall be calculated in accordance with TMS 0302 or determined through testing in accordance with ASTM E 90.

1207.3 Structure-borne sound. Floor/ceiling assemblies between *dwelling units* and *sleeping units* or between a *dwelling unit* or *sleeping unit* and a public or service area within the structure shall have an impact insulation class (IIC) rating of not less than 50 (45 if field tested) when tested in accordance with ASTM E 492.

Reason: The code currently regulates sound transmission between dwelling units (apartments) but not for sleeping units (hotel/motel rooms, dormitories). It seems obvious that sleeping units should be similarly protected. While many higher-end establishments already provide a degree of sound control, many of us have experienced the disturbing noise of a loud TV while trying to sleep in a hotel room.

This will increase the cost of construction by possibly requiring the addition of insulation in the separating construction. However, other provisions of the code require this construction to have a fire-resistance rating, many of which assemblies already have insulation included.

Cost Impact: This code change proposal will increase cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Sound transmission between sleeping units in hotels and motels is as important as sound transmission between dwelling units.

Assembly Action: **None**

Final Hearing Results

G157-12 **AS**

Code Change No: G158-12

Original Proposal

Section(s): 1208.2

Proponent: Dennis Richardson, P.E., CBO, City of Salinas, Tri-Chapter (Peninsula, East Bay and Monterey Chapters, ICC) (dennisrichardsonpe@yahoo.com)

Revise as follows:

1208.2 Minimum ceiling heights. Occupiable spaces, *habitable spaces* and *corridors* shall have a ceiling height of not less than 7 feet 6 inches (2286 mm). Bathrooms, toilet rooms, kitchens, storage rooms and laundry rooms shall be permitted to have a ceiling height of not less than 7 feet (2134 mm).

Exceptions:

1. In one- and two-family *dwellings*, beams or girders spaced not less than 4 feet (1219 mm) on center shall be permitted to project not more than 6 inches (152 mm) below the required ceiling height.
2. If any room in a building has a sloped ceiling, the prescribed ceiling height for the room is required in one-half the area thereof. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the ceiling shall not be included in any computation of the minimum area thereof.
3. The height of *mezzanines* and spaces below m*ezzanines* shall be in accordance with Section 505.1.
4. Corridors contained within a dwelling or sleeping unit in a Group R occupancy shall have a ceiling height of not less than 7 feet (2134 mm).

Reason: To provide consistency with IRC Section R305.1. It appears the allowance for 7' ceiling height inside dwelling units was omitted from the IBC.

Cost Impact: The code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal provides consistency with the IRC and solves a common design problem.

Assembly Action: **None**

Final Hearing Results

G158-12	**AS**

Code Change No: G160-12

Original Proposal

Section(s): 1210.2.3

Proponent: Homer Maiel, PE, CBO, Town of Atherton (CA), representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay)

Revise as follows:

1210.2.3 Showers. Shower compartments and walls above bathtubs with installed shower heads shall be finished with a smooth, nonabsorbent surface to a height not less than ~~70~~ 72 inches (~~1778~~ 1829 mm) above the drain inlet.

Reason: There is currently inconsistency between IBC and IRC. This will bring IBC in line with IRC.

Cost Impact: This code change may increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it provides consistency with the IRC with regard to providing the same height for tiling or other similar finish materials in shower compartments and surrounding bath tubs.

Assembly Action: **None**

Final Hearing Results

G160-12	**AS**

Code Change No: G161-12

Original Proposal

Section(s): 1210.4

Proponent: Tim Pate, City and County of Broomfield, Colorado, representing Colorado Chapter Code Change Committee

Revise as follows:

~~**1210.4**~~ **2902.3.6 Toilet room location.** Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

Reason: It has never made sense why there was a section dealing with location of a toilet room in relation to rooms used for preparation of food located in Chapter 12 – which is titled Interior Environment.

The requirements for finish materials for both walls and floors of bathrooms and for privacy have been relocated to Chapter 12 which makes sense but requirements for locations should not be in this chapter. This requirement should still be located within Chapter 29 which deals with Plumbing systems and specifically bathrooms. This chapter has numerous requirements for routes and locations already.

Cost Impact: This proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Although there was some question as to whether it fit into the scope of Chapter 29 it was felt to be a health and safety issue and should be moved from Chapter 12 to Chapter 29. Similarly scoped issues already reside in Chapter 29.

Analysis: Note that this section is already located within in IPC Section 403.3.2.

Assembly Action: **None**

Final Hearing Results

G161-12 **AS**

Code Change No: G163-12

Original Proposal

Section(s): 3001.2, Chapter 35

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Revise as follows:

3001.2 Referenced standards. Except as otherwise provided for in this code, the design, construction, installation, alteration, repair and maintenance of elevators and conveying systems and their components shall conform to ASME A17.1/CSA B44, ASME A17.7/CSA B44.7, ASME A90.1, ASME B20.1, ALI ALCTV, and ASCE 24 for construction in flood hazard areas established in Section 1612.3.

Add new standard to Chapter 35 as follows:

ASME

ASME A17.7-2007/CSA B44-07 Performance-Based Safety Code for Elevators and Escalators

Editorially change references to "ASME A17.1/CSA B44 or ASME A17.7/CSA B44.7" elsewhere in the code:

Sections	
907.3.3	911.1.5(17)
1007.4	1607.9.1
3001.4	3002.5
3003.2	3007.1
3007.2	3008.2.1
3008.7.6	3008.8.1
3411.8.2	

Reason: The *ASME A17.7/CSA B44-07 Performance-Based Safety Code for Elevators and Escalators* is already recognized and permitted by the 2009 *International Building Co*de by virtue of the latter's reference to ASME A17.1/CSA B44, which states:

1.2.1 Purpose

The purpose of this Code is to provide for the safety of life and limb, and to promote the public welfare. Compliance with this Code shall be achieved by

(a) conformance with the requirements in ASME A17.1/CSA B44; or

(b) conformance with some of the requirements in ASME A17.1/CSA B44 and for systems, subsystems, components, or functions that do not conform with certain requirements in ASME A17.1/CSA B44, conform with the applicable requirements in ASME A17.7/CSA B44.7; or

(c) conformance with the requirements in ASME A17.7/CSA B44.7.

This code change will merely make explicit the legal adoption of the ASME Performance-Based Code in those jurisdictions that have adopted the 2009 IBC or 2015 IBC without amendment to Section 3001.2.

Unlike other performance codes that provide little direction on how they should be enforced, the *ASME A17.7/CSA B44-07 Performance-Based Safety Code for Elevators and Escalators* provides a structured methodology for establishing, documenting, and demonstrating that necessary and appropriate protective measures are taken to eliminate hazards or sufficiently mitigate risks (see attached flow chart). This process is particularly useful for establishing safety of elevator systems, sub-systems, components, or functions involving innovative design and new technologies. Based on meeting Global Essential Safety Requirements (GESRs), this methodology is most often performed by independent Accredited Elevator/Escalator Certifying Organization (AECO), and the AECO certifies to the code enforcing authorities that the elevator meets the requirements in the PBC (see attached flow chart).

The *Performance-Based Safety Code for Elevators and Escalators* has already been adopted by numerous US jurisdictions through separate elevator codes, laws and regulations. These include:

Chicago
Colorado
Florida
Illinois
Iowa
Kentucky
Nevada
New Hampshire
North Carolina
South Carolina
Utah

Additionally, most US jurisdictions have already permitted the installation of elevator products that conform with *ASME A17.7/CSA B44-07* but not the 2009 or earlier edition of ASME A17.1 referenced in their IBC-based building codes. Examples of this type of technology include elevators installed in wind turbine towers and elevators utilizing coated steel belt suspension means instead of traditional elevator ropes (cables).

Cost Impact: This code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, ASME A17.7-2007/CSA B44-07with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

For staff analysis of the content of ASME A17.7-2007/CSA B44-07 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved this proposal as the standard is currently referenced by A17.1 and provides a more direct reference to another compliance alternative for elevators.

Assembly Action: **None**

Final Hearing Results

G163-12 **AS**

Code Change No: G164-12

Original Proposal

Section(s): 3001.2, Chapter 35

Proponent: Victor D. Azzi, PhD, PE, Consulting Engineer, representing the Lift Manufacturers Product Section (LMPS), a division of the Material Handling Industry of America (MHIA) (victorazzi@comcast.net)

Revise as follows:

3001.2 Referenced standards. Except as otherwise provided for in this code, the design, construction, installation, *alteration*, repair and maintenance of elevators and conveying systems and their components shall conform to ASME A17.1/ CSA B44, ASME A90.1, ASME B20.1, ANSI MH29.1, ALI ALCTV, and ASCE 24 for construction in *flood hazard areas* established in Section 1612.3.

Add new standard to Chapter 35 as follows:

ANSI
MH29.1-2008 The Safety Requirements for Industrial Scissor Lifts

Reason: The proposed addition to Section 3001.2 is intended to add industrial scissors lifts, a common and industry-wide accepted vertical conveyance used in buildings since the early 1950's. This addition will help avoid the possibility of confusion by using the appropriate standard to define these types of vertical lifting devises.

As one example of the confusion that existed when, in Minneapolis, the Minnesota State Building Code was following the 2006 IBC. A City of Minneapolis building inspector in March 2008 was inspecting a new installation of an industrial scissors lift used as a loading dock. The only referenced standard in IBC Chapter 30 (Elevators and Conveying Systems) that seemed to be applicable was ASME B20.1, so he applied that standard. The other referenced standards in IBC 3001.2 were elevators (A17.1), belt manlifts (A90.1), and automotive lifts (ALI ALCTV). The inspector rationalized that, because the Minnesota State Building Code does not specifically recognize industrial scissor lifts, they are prohibited unless the manufacturer could show that they meet the intended safety requirements of the code he chose for the conveyance. The IBC is the minimum requirement for safety in that state. In order to gain approval, the manufacturer's scissors lift was required, in that case, to meet or exceed the level of safety that was intended for a completely different devise – a conveyor as defined and regulated by ASME B20.1.

ANSI MH29.1 is a stand-alone, nationally accepted ANSI standard, and has been for some eighteen years. It is the only standard that applies to industrial scissor lifts in exactly the same way that ASME B20.1 applies to conveyors, A17.1 applies to elevators, A90.1 applies to belt manlifts, or ALI ALCTV applies to automotive service lifts.

Abstract of ANSI MH29.1
Mobile and stationary industrial scissors lifts raise, lower and position materials and personnel in various applications but are different from other conveyances such as aerial work platforms (AWP) and elevators. In an effort to be referenced in the International Building Code (IBC) along with conveying systems and elevators, MH29.1 has been revised to better illustrate that personnel operate and may themselves be raised or lowered by industrial scissor lifts. This standard now defines dock lifts, work access lifts and lift tables as the three categories of industrial scissors lifts and identifies their differences and similarities. The responsibilities of manufacturers, users, owners and operators have been reordered, consolidated and enhanced. Lastly, the requirements within the standard have been revised, where needed, to ensure they are stated using mandatory language. This revision of MH29.1 is stronger and less ambiguous than previous versions of this standard.

This revision also contains a new section on operator responsibilities and modifies values related to the indicator bars in the section on platform protection.

See attached images of typical installations of scissor lifts in buildings.

- Scissors lift in 3-sided pit at loading dock # 1
- Scissors lift in 3-sided pit at loading dock # 2
- Scissors lift in front of loading dock
- Two scissors lifts at a loading dock

Referenced Standards

ANSI MH29.1 – The Safety Requirements for Industrial Scissor Lifts
ASME B20.1 – The safety Standard for Conveyors and Related Equipment

Cost Impact: This addition to the code will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, ANSI MH29.1-2008 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

For staff analysis of the content of ASME A17.7-2007/CSA B44-07 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved based upon the need for a standard reference for this type of lift. The reference in Section 3001.2 would require compliance with this standard although no other sections specifically call up the standard.

Assembly Action: **None**

Final Hearing Results

G164-12 **AS**

Code Change No: G166-12

Original Proposal

Section(s): 3004

Proponent: Jonathan Siu, City of Seattle Department of Planning & Development, Richard Bukowski, The RJA Group, Inc., Dave Frable, U.S. General Services Administration

Revise as follows:

~~SECTION 3004~~
~~HOISTWAY VENTING~~

~~3004.1 Vents required.~~ ~~Hoistways of elevators and dumbwaiters penetrating more than three stories shall be provided with a means for venting smoke and hot gases to the outer air in case of fire.~~

~~Exception:~~ ~~Venting is not required for the following elevators and hoistways:~~

1. ~~In occupancies of other than Groups R-1, R-2, I-1, I- 2 and similar occupancies with overnight *sleeping units*, where the building is equipped throughout with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.~~
2. ~~Sidewalk elevator hoistways.~~
3. ~~Elevators contained within and serving *open parking garages* only.~~
4. ~~Elevators within individual residential *dwelling units*.~~

~~3004.2 Location of vents.~~ ~~Vents shall be located at the top of the hoistway and shall open either directly to the outer air or through noncombustible ducts to the outer air. Noncombustible ducts shall be permitted to pass through the elevator machine room, provided that portions of the ducts located outside the hoistway or machine room are enclosed by construction having not less than the *fire-resistance rating* required for the hoistway. Holes in the machine room floors for the passage of ropes, cables or other moving elevator equipment shall be limited as not to provide greater than 2 inches (51 mm) of clearance on all sides.~~

~~3004.3 Area of vents.~~ ~~Except as provided for in Section 3004.3.1, the area of the vents shall be not less than 31/2 percent of the area of the hoistway nor less than 3 square feet (0.28 m2) for each elevator car, and not less than 31/2 percent nor less than 0.5 square feet (0.047 m2) for each dumbwaiter car in the hoistway, whichever is greater. Of the total required vent area, not less than one-third shall be permanently open. Closed portions of the required vent area shall consist of openings glazed with annealed glass not greater than 1/8 inch (3.2 mm) in thickness.~~

~~Exception:~~ ~~The total required vent area shall not be required to be permanently open where all the vent openings automatically open upon detection of smoke in the elevator lobbies or hoistway, upon power failure and upon activation of a manual override control. The manual override control shall be capable of opening and closing the vents and shall be located in an *approved* location.~~

~~3004.3.1 Reduced vent area.~~ ~~Where mechanical *ventilation* conforming to the *International Mechanical Code* is provided, a reduction in the required vent area is allowed provided that all of the following conditions are met:~~

1. ~~The occupancy is not in Group R-1, R-2, I-1 or I-2 or of a similar occupancy with overnight *sleeping units*.~~
2. ~~The vents required by Section 3004.2 do not have outside exposure.~~

~~3. The hoistway does not extend to the top of the building.~~
~~4. The hoistway and machine room exhaust fan is automatically reactivated by thermostatic means.~~
~~5. Equivalent venting of the hoistway is accomplished.~~

~~3004.4~~ 3002.9 Plumbing and mechanical systems. Plumbing and mechanical systems shall not be located in an elevator hoistway enclosure.

Exception: Floor drains, sumps and sump pumps shall be permitted at the base of the hoistway enclosure provided they are indirectly connected to the plumbing system.

Reason: The purpose of this code change proposal is to delete the requirement for providing vents in elevator hoistways, since the provisions are potentially harmful, conflict with other provisions in the code, and are now considered unnecessary in the elevator safety standard adopted by reference in the IBC.

The purpose of hoistway venting is unclear in terms of the original intent. Provisions date back to the 1950s but appear to be focused more upon firefighting and post-fire overhaul. Since that time, the provisions have shifted for the vents to be readily available (always open) or to operate automatically via a smoke detector in the lobby or the hoistway. The concern is that such venting may have the effect of drawing smoke through the building where it is not appropriate. This is a specific concern after consideration of overall smoke movement by the CTC Elevator Lobby Study Group related to stack effect and preventing smoke movement throughout the building. This provision also conflicts with the allowance for hoistway pressurization in accordance with Section 909.21 which does not currently exempt hoistway venting when using pressurization. Furthermore, the requirement for hoistway venting has been removed from the 2010 edition of the ANSI/ASME A17.1 Safety Code for Elevators and Escalators, no conflict will result from this change.

However, the requirements in Section 3004.4 are still valid. With the deletion of Section 3004, these provisions need to be relocated. Section 3002 is titled “Hoistway Enclosures,” and these provisions restricting what can be located in an elevator hoistway enclosure fit neatly within that subject matter. It can be argued that they never belonged in Section 3004 to begin with, since they do not relate to hoistway vents.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Hoistway venting was no longer necessary and creates conflicts within the code. In addition hoistway venting openings are a huge source of conditioned air loss.

Assembly Action: **None**

Final Hearing Results

G166-12 **AS**

Code Change No: G167-12

Original Proposal

Section(s): 3004.1

Proponent: Michael Perrino, CBO, Code Consultants, Inc., representing self

Revise as follows:

3004.1 Vents required. Hoistways of elevators and dumbwaiters penetrating more than three *stories* shall be provided with a means for venting smoke and hot gases to the outer air in case of fire.

Exception: Venting is not required for the following elevators and hoistways:

1. In occupancies of other than Groups R-1, R-2, I-1, I-2 and similar occupancies with overnight *sleeping units*, where the building is equipped throughout with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Sidewalk elevator hoistways.
3. Elevators contained within and serving *open parking garages* only.
4. Elevators within individual residential *dwelling units*.
5. Elevator hoistways that are pressurized in accordance with Section 909.21.

Reason: The intent of the hoistway venting is to limit smoke spread to upper stories of a building via elevator hoistways. Elevator hoistway pressurization systems have been introduced to the IBC within the past 10 years that provide a means of limiting smoke movement into elevator hoistways.

The concept of the elevator hoistway pressurization is to create a pressure difference between the floor of fire origin and the elevator hoistway to minimize smoke movement into the elevator hoistway. Because the pressurization system limits smoke movement into the elevator hoistway, the hoistway venting to remove smoke in the shaft is not necessary.

The installation of both a hoistway pressurization system and hoistway venting increases the required capacity of the pressurized air to compensate for the air lost through the hoistway vent. The installation of hoistway venting in a pressurized hoistway also increases the complexity of the pressurization system, because the system must compensate for an open or closed hoistway vent.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal is consistent with G166-12. If G166-12 should fail at final action this proposal will provide some necessary flexibility.

Assembly Action: **None**

Final Hearing Results

G167-12 **AS**

Code Change No: G168-12 Part I

Original Proposal

Section(s): Table 1607.1, 3004.2, 3006.1 through 3006.5, 3007.2, 3007.3.1, 3007.7.3, 3008.3.1, 3008.7.3, 3008.8, 3008.9.1

Proponent: Brian Black, BDSBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC GENERAL COMMITTEE.

PART I – INTERNATIONAL BUILDING CODE - GENERAL

Revise as follows:

3004.2 Location of vents. Vents shall be located at the top of the hoistway and shall open either directly to the outer air or through noncombustible ducts to the outer air. Noncombustible ducts shall be permitted to pass through ~~the~~ elevator machine rooms and control rooms, provided that portions of the ducts located outside the hoistway, ~~or~~ machine room, or control room are enclosed by construction having not less than the *fire-resistance rating* required for the hoistway. Holes in the machine room and control room floors for the passage of ropes, cables or other moving elevator equipment shall be limited as not to provide greater than 2 inches (51 mm) of clearance on all sides.

3006.1 Access. An *approved* means of access shall be provided to elevator machine rooms, control rooms, control spaces, and ~~overhead~~ machinery spaces.

3006.2 Venting. Elevator machine rooms, and machinery spaces that contain the driving machine, and control rooms or control spaces that contain the operation or motion controller, ~~solid state equipment~~ for elevator operation shall be provided with an independent *ventilation* or air-conditioning system to protect against the overheating of the electrical equipment. The system shall be capable of maintaining temperatures within the range established for the elevator equipment.

3006.3 Pressurization. The elevator machine room, control rooms, or control space with openings into ~~serving~~ a pressurized elevator hoistway shall be pressurized upon activation of a *heat or smoke detector* located in the elevator machine room, control room, or control space.

3006.4 Machine rooms, control rooms ~~and~~ machinery spaces, and control spaces. Elevator machine rooms, control rooms, control spaces, and machinery outside of but attached to a hoistway that have openings into the hoistway spaces shall be enclosed with *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than the required rating of the hoistway enclosure served by the machinery. Openings in the *fire barriers* shall be protected with assemblies having a *fire protection rating* not less than that required for the hoistway enclosure doors.

Exceptions:

1. Where machine rooms, ~~and~~ machinery spaces, control rooms and control spaces do not abut and have no openings to the hoistway enclosure they serve the *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour *fire resistance rating*.

2. In buildings four *stories* or less above *grade plane* where machine room, ~~and~~ machinery spaces, control rooms and control spaces do not abut and have no openings to the hoistway enclosure they serve, the machine rooms, ~~and~~ machinery spaces, control rooms and control spaces are not required to be fire-resistance rated.

3006.5 Shunt trip. Where elevator hoistways, ~~or~~ elevator machine rooms, control rooms and control spaces containing elevator ~~control~~ equipment are protected with automatic sprinklers, a means installed in accordance with NFPA 72, Section 6.16.4, Elevator Shutdown, shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. This means shall not be self-resetting. The activation of sprinklers outside the hoistway, ~~or~~ machine room, machinery space, control room, or control spaces shall not disconnect the main line power supply.

3007.2 Phase I Emergency recall operation. Actuation of any building fire alarm initiating device shall initiate Phase I emergency recall operation on all fire service access elevators in accordance with the requirements in ASME A17.1/CSA B44. All other elevators shall remain in normal service unless Phase I emergency recall operation is manually initiated by a separate, required three-position key-operated "Fire Recall" switch or automatically initiated by the associated elevator lobby, hoistway, ~~or~~ elevator machine room, machinery space containing a motor controller or electric driving machine, control space, or control room *smoke detectors*. In addition, if the building also contains occupant evacuation elevators in accordance with Section 3008, an independent, three-position, key-operated "Fire Recall" switch conforming to the applicable requirements in ASME A17.1/CSA B44 shall be provided at the designated level for each fire service access elevator.

3007.3.1 Prohibited locations. Automatic sprinklers shall not be installed in elevator machine rooms, ~~elevator machine~~ machinery spaces, control rooms, control spaces, and elevator hoistways of fire service access elevators.

3007.7.3 Lobby doorways. Other than ~~the~~ door to the hoistway, each doorway to a fire service access elevator lobby shall be provided with a 3/4-hour *fire door assembly* complying with Section 716.5. The *fire door assembly* shall also comply with the smoke and draft control door assembly requirements of Section 716.5.3.1 with the UL 1784 test conducted without the artificial bottom seal.

3008.3.1 Prohibited locations. Automatic sprinklers shall not be installed in elevator machine rooms, ~~and elevator machine~~ machinery spaces, control rooms, control spaces, and elevator hoistways of for occupant evacuation elevators.

3008.7.3 Lobby doorways. Other than ~~the~~ doors to the hoistway, and elevator machine rooms, machinery spaces, control rooms, and control spaces within the lobby enclosure smoke barrier, each doorway to an occupant evacuation elevator lobby shall be provided with a 3/4-hour *fire door assembly* complying with Section 716.5. The *fire door assembly* shall also comply with the smoke and draft control assembly requirements of Section 716.5.3.1 with the UL 1784 test conducted without the artificial bottom seal.

3008.8 Elevator system monitoring. The occupant evacuation elevators shall be continuously monitored at the *fire command center* or a central control point *approved* by the fire department and arranged to display all of the following information:

1. Floor location of each elevator car.
2. Direction of travel of each elevator car.
3. Status of each elevator car with respect to whether it is occupied.
4. Status of normal power to the elevator equipment, elevator machinery and electrical apparatus ~~controller~~ cooling equipment where provided, ~~and~~ elevator machine room, control room and control space *ventilation* and cooling equipment.
5. Status of standby or emergency power system that provides backup power to the elevator equipment, elevator machinery and electrical ~~controller~~ cooling equipment where provided, ~~and~~ elevator machine room, control room and control space *ventilation* and cooling equipment.

6. Activation of any fire alarm initiating device in any elevator lobby, elevator machine room, ~~or~~ machine space containing a motor controller or electric driving machine, control space, control room, or elevator hoistway.

3008.9.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway, ~~and~~ machine room, control room and control space and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to fire service access elevators shall be protected by construction having a *fire-resistance rating* of not less than 2 hours, or shall be circuit integrity cable having a *fire resistance rating* of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operation.

Revise as follows:

1607.3 Uniform live loads. The live loads used in the design of buildings and other structures shall be the maximum loads expected by the intended use or occupancy but shall in no case be less than the minimum uniformly distributed live loads given in Table 1607.1.

TABLE 1607.1
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o,
AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM (psf)	Concentrated (lbs)
11. Elevator machine room and control room grating (on area of 2 inches by 2 inches)	--	300

(Portions of table not shown remain unchanged)

Reason: The ASME A17.1 *Safety Code for Elevators and Escalators* underwent a substantial revision in 2005 to incorporate requirements for Machine Room-Less elevators (MRLs). These provisions are in ASME A17.1-2007/CSA B44-07 with A17.1a-2008/CSA B44a-08 Addenda that is referenced in Chapter 35 of the 2012 IBC.

ASME A17.1 has definitions for elevator rooms and spaces that may contain various elevator apparatus, and has terminology for certain elevator electrical apparatus. Key concepts include:

- A room outside the hoistway with an elevator machine is a ***machine room***;
- A room or space outside the hoistway with a motor controller and not a machine is a ***control room*** or ***control space***;
- Where a machine and motor controller are located inside the hoistway, the hoistway is a ***machinery space***;
- Machinery and control spaces may have doors;
- Elevator controllers include the operation controller and motion controller that may be separated from the location of the elevator machine and be located in separate elevator rooms and spaces;
- Machine rooms and controls rooms are full body spaces with doors that may have room sprinklers and fire detection apparatus; control and machinery spaces typically would not;
- Machine rooms and control rooms typically require room ventilation and cooling, machinery and control spaces typically do not;
- Machinery spaces inside the hoistway are covered by the code's hoistway requirements;.
- Elevator machines and electrical apparatus in spaces other than the hoistway or rooms may require standby power for apparatus cooling equipment.

Thus, MRL design has resulted in elevators machines and controllers being located in rooms or spaces other than the traditional machine rooms regulated by the IBC. This code change simply harmonizes the current IBC text with the nomenclature now used in ASME A17.1/CSA B44 to ensure that the same level of protection is provided to MRLs as is provided for traditional elevators with machine rooms.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Both parts of this proposal were heard by the IBC General Code Development Committee.

PART I – IBC GENERAL
Committee Action: **Disapproved**

Committee Reason: Current terminology was felt appropriate therefore these revisions appeared unnecessary. There was also some concern as to how this change would correlate with G176-12 and G182-12.

Assembly Action: **None**

Public Comments

Public Comment 1:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3004.2 Location of vents. Vents shall be located at the top of the hoistway and shall open either directly to the outer air or through noncombustible ducts to the outer air. Noncombustible ducts shall be permitted to pass through ~~the~~ elevator machine rooms and control rooms, provided that portions of the ducts located outside the hoistway, ~~or~~ machine room, or control room are enclosed by construction having not less than the *fire-resistance rating* required for the hoistway. Holes in the machine room and control room floors for the passage of ropes, cables or other moving elevator equipment shall be limited as not to provide greater than 2 inches (51 mm) of clearance on all sides.

Commenter's Reason: The original proposal was to make numerous editorial changes to the code to ensure that its requirements for "machine rooms" reflect the introduction of Machine Room Less (MRL) elevators in the referenced ASME A17.1-2007/CSA B44-07. Because this package was Disapproved in the hearings I am submitting each proposed change separately.

The ASME A17.1 *Safety Code for Elevators and Escalators* underwent a substantial revision in 2005 to incorporate requirements for Machine Room-Less elevators (MRLs). These provisions are in ASME A17.1-2007/CSA B44-07 with A17.1a-2008/CSA B44a-08 Addenda that is referenced in Chapter 35 of the 2012 IBC.

ASME A17.1 has definitions for elevator rooms and spaces that may contain various elevator apparatus, and has terminology for certain elevator electrical apparatus. Key concepts include:

- A room outside the hoistway with an elevator machine is a ***machine room***;
- A room or space outside the hoistway with a motor controller and not a machine is a ***control room*** or ***control space***;
- Where a machine and motor controller are located inside the hoistway, the hoistway is a ***machinery space***;
- Machinery and control spaces may have doors;
- Elevator controllers include the operation controller and motion controller that may be separated from the location of the elevator machine and be located in separate elevator rooms and spaces;
- Machine rooms and controls rooms are full body spaces with doors that may have room sprinklers and fire detection apparatus; control and machinery spaces typically would not;
- Machine rooms and control rooms typically require room ventilation and cooling, machinery and control spaces typically do not;
- Machinery spaces inside the hoistway are covered by the code's hoistway requirements;.
- Elevator machines and electrical apparatus in spaces other than the hoistway or rooms may require standby power for apparatus cooling equipment.

Thus, MRL design has resulted in elevators machines and controllers being located in rooms or spaces other than the traditional machine rooms regulated by the IBC. Noncombustible ducts should be permitted in control rooms that do not contain a machine, and holes in a control room floor should be regulated the same as holes located in a machine room floor.

Public Comment 2:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3006.1 Access. An *approved* means of access shall be provided to elevator machine rooms, control rooms, control spaces, and ~~overhead~~ machinery spaces.

Commenter's Reason: See Public Comment #1.

Public Comment 3:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3006.2 Venting. Elevator machine rooms, and machinery spaces that contain the driving machine, and control rooms or control spaces that contain the operation or motion controller, ~~solid state equipment~~ for elevator operation shall be provided with an independent *ventilation* or air-conditioning system to protect against the overheating of the electrical equipment. The system shall be capable of maintaining temperatures within the range established for the elevator equipment.

Commenter's Reason: See Public Comment #1.

Public Comment 4:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3006.3 Pressurization. The elevator machine room, control rooms, or control space with openings into ~~serving~~ a pressurized elevator hoistway shall be pressurized upon activation of a *heat or smoke detector* located in the elevator machine room, control room, or control space.

Commenter's Reason: See Public Comment #1.

Public Comment 5:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3006.4 Machine rooms, control rooms, ~~and~~ machinery spaces, and control spaces. Elevator machine rooms, control rooms, control spaces, and machinery spaces outside of but attached to a hoistway that have openings into the hoistway shall be enclosed with *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than the required rating of the hoistway enclosure served by the machinery. Openings in the *fire barriers* shall be protected with assemblies having a *fire protection rating* not less than that required for the hoistway enclosure doors.

Exceptions:

1. Where machine rooms, ~~and~~ machinery spaces, control rooms and control spaces do not abut and have no openings to the hoistway enclosure they serve the *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour *fire-resistance rating*.
2. In buildings four *stories* or less above *grade plane* where machine rooms, ~~and~~ machinery spaces, control rooms and control spaces do not abut and have no openings to the hoistway enclosure they serve, the machine rooms, ~~and~~ machinery spaces, control rooms and control spaces are not required to be fire-resistance rated.

Commenter's Reason: See Public Comment #1.

Public Comment 6:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3006.5 Shunt trip. Where elevator hoistways, ~~or~~ elevator machine rooms, control rooms or control spaces containing elevator ~~control~~ equipment are protected with automatic sprinklers, a means installed in accordance with NFPA 72, Section 6.16.4, Elevator Shutdown, shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. This means shall not be self-resetting. The activation of sprinklers outside the hoistway, ~~or~~ machine room, machinery space, control room, or control space shall not disconnect the main line power supply.

Commenter's Reason: See Public Comment #1.

Public Comment 7:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3007.2 Phase I Emergency recall operation. Actuation of any building fire alarm-initiating device shall initiate Phase I emergency recall operation on all fire service access elevators in accordance with the requirements in ASME A17.1/CSA B44. All other elevators shall remain in normal service unless Phase I emergency recall operation is manually initiated by a separate, required three-position, key-operated "Fire Recall" switch or automatically initiated by the associated elevator lobby, hoistway, ~~or~~ elevator machine room, machinery space containing a motor controller or electric driving machine, control space, or control room *smoke detectors*. In addition, if the building also contains occupant evacuation elevators in accordance with Section 3008, an independent, three-position, key-operated "Fire Recall" switch conforming to the applicable requirements in ASME A17.1/CSA B44 shall be provided at the designated level for each fire service access elevator.

Commenter's Reason: See Public Comment #1.

Public Comment 8:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3007.3.1 Prohibited locations. Automatic sprinklers shall not be installed in elevator machine rooms, ~~elevator~~ machinery spaces, control rooms, control spaces, and elevator hoistways of fire service access elevators.

Commenter's Reason: See Public Comment #1.

Public Comment 9:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3008.3.1 Prohibited locations. Automatic sprinklers shall not be installed in elevator machine rooms, ~~and elevator~~ machinery spaces, control rooms, control spaces, and elevator hoistways of ~~for~~ occupant evacuation elevators.

Commenter's Reason: See Public Comment #1.

Public Comment 10:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3008.7.3 Lobby doorways. Other than ~~the~~ doors to the hoistway, and elevator machine rooms, machinery spaces, control rooms, and control spaces within the lobby enclosure smoke barrier, each doorway to an occupant evacuation elevator lobby shall be provided with a 3/4-hour *fire door assembly* complying with Section 716.5. The *fire door assembly* shall also comply with the smoke and draft control assembly requirements of Section 716.5.3.1 with the UL 1784 test conducted without the artificial bottom seal.

Commenter's Reason: See Public Comment #1.

Public Comment 11:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3008.8 Elevator system monitoring. The occupant evacuation elevators shall be continuously monitored at the *fire command center* or a central control point *approved* by the fire department and arranged to display all of the following information:

1. Floor location of each elevator car.
2. Direction of travel of each elevator car.
3. Status of each elevator car with respect to whether it is occupied.
4. Status of normal power to the elevator equipment, elevator machinery and electrical apparatus ~~controller~~ cooling equipment where provided, ~~and~~ elevator machine room, control room and control space *ventilation* and cooling equipment.
5. Status of standby or emergency power system that provides backup power to the elevator equipment, elevator machinery and electrical ~~controller~~ cooling equipment where provided, ~~and~~ elevator machine room, control room and control space *ventilation* and cooling equipment.
6. Activation of any fire alarm initiating device in any elevator lobby, elevator machine room, ~~or~~ machinery space containing a motor controller or electric driving machine, control space, control room or elevator hoistway.

Commenter's Reason: See Public Comment #1.

Public Comment 12:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3008.9.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway, ~~and~~ machine room, control room and control space and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to fire service access elevators shall be protected by construction having a *fire-resistance rating* of not less than 2 hours, or shall be circuit integrity cable having a *fire resistance rating* of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operation.

Commenter's Reason: See Public Comment #1.

Public Comment 13:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

1607.3 Uniform live loads. The live loads used in the design of buildings and other structures shall be the maximum loads expected by the intended use or occupancy but shall in no case be less than the minimum uniformly distributed live loads given in Table 1607.1.

TABLE 1607.1
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM (psf)	Concentrated (lbs.)
11. Elevator machine room and control room grating (on area of 2 inches by 2 inches)	--	300

Commenter's Reason: See Public Comment #1.

Analysis: The original proponent of G168-12 Part I has submitted 11 public comments. While each public comment is indicated as a replacement of the original proposal, there is no change in the proposed wording between any public comment and the original

proposal. The net effect of the 11 public comments is to allow the membership to vote on each piece of G168, Part I, individually. Any and all public comments approved by the membership will amend the specific section or sections of the code in each specific comment. Approval of any one public comment will not override the approval of changes found in another public comment.

Final Hearing Results

G168-12 Part I	AMPC1 thru 13

Code Change No: G168-12 Part II

Original Proposal

Section(s): IFC 903.3.1.1.1, 907.2.13.1.1, 911.1.5 (IBC [F] 903.3.1.1.1, [F] 907.2.13.1.1, [F] 911.1.5)

Proponent: Brian Black, BDSBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC GENERAL COMMITTEE.

PART II – INTERNATIONAL FIRE CODE

Revise as follows:

IFC 903.3.1.1 (IBC [F] 903.3.1.1) NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an *automatic sprinkler system* in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in Section 903.3.1.1.1.

IFC 903.3.1.1.1 (IBC [F] 903.3.1.1.1) Exempt locations. Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an *approved* automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance-rated construction or contains electrical equipment.

1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. Any room or space where sprinklers are considered undesirable because of the nature of the contents, when *approved* by the fire code official.
3. Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a *fire-resistance rating* of not less than 2 hours.
4. Rooms or areas that are of noncombustible construction with wholly noncombustible contents.
5. Fire service access elevator machine rooms and machinery spaces.
6. Machine rooms, ~~and~~ machinery spaces, control rooms and control spaces associated with occupant evacuation elevators designed in accordance with Section 3008.

IFC 907.2.13.1.1 (IBC [F] 907.2.13.1.1) Area smoke detection. Area smoke detectors shall be provided in accordance with this section. Smoke detectors shall be connected to an automatic fire alarm system. The activation of any detector required by this section shall activate the emergency voice/alarm communication system in accordance with Section 907.5.2.2. In addition to smoke detectors required by Sections 907.2.1 through 907.2.10, smoke detectors shall be located as follows:

1. In each mechanical equipment, electrical, transformer, telephone equipment or similar room which is not provided with sprinkler protection.
2. In each elevator machine room, machinery space, control room and control space and in elevator lobbies.

IFC 911.1.5 (IBC [F] 911.1.5) Required features. The fire command center shall comply with NFPA 72 and shall contain the following features:

1. through 12. *(no change)*
13. An *approved* Building Information Card that contains, but is not limited to, the following information:
    13.1 *(no change)*
    13.2 *(no change)*
    13.3 *(no change)*
    13.4. *Exit stair* information that includes: number of *exit stairs* in building, each *exit stair* designation and floors served, location where each *exit stair* discharges, *exit stairs* that are pressurized, *exit stairs* provided with emergency lighting, each *exit stair* that allows reentry, *exit stairs* providing roof access; elevator information that includes: number of elevator banks, elevator bank designation, elevator car numbers and respective floors that they serve, location of elevator machine room~~s~~, control rooms, control spaces, location of sky lobby, location of freight elevator banks;
    13.5 *(no change)*
    13.6 *(no change)*
    13.7 *(no change)*
14. through 18. *(no change)*

Reason: The ASME A17.1 *Safety Code for Elevators and Escalators* underwent a substantial revision in 2005 to incorporate requirements for Machine Room-Less elevators (MRLs). These provisions are in ASME A17.1-2007/CSA B44-07 with A17.1a-2008/CSA B44a-08 Addenda that is referenced in Chapter 35 of the 2012 IBC.
ASME A17.1 has definitions for elevator rooms and spaces that may contain various elevator apparatus, and has terminology for certain elevator electrical apparatus. Key concepts include:

- A room outside the hoistway with an elevator machine is a ***machine room***;
- A room or space outside the hoistway with a motor controller and not a machine is a ***control room*** or ***control space***;
- Where a machine and motor controller are located inside the hoistway, the hoistway is a ***machinery space***;
- Machinery and control spaces may have doors;
- Elevator controllers include the operation controller and motion controller that may be separated from the location of the elevator machine and be located in separate elevator rooms and spaces;
- Machine rooms and controls rooms are full body spaces with doors that may have room sprinklers and fire detection apparatus; control and machinery spaces typically would not;
- Machine rooms and control rooms typically require room ventilation and cooling, machinery and control spaces typically do not;
- Machinery spaces inside the hoistway are covered by the code's hoistway requirements;.
- Elevator machines and electrical apparatus in spaces other than the hoistway or rooms may require standby power for apparatus cooling equipment.

Thus, MRL design has resulted in elevators machines and controllers being located in rooms or spaces other than the traditional machine rooms regulated by the IBC. This code change simply harmonizes the current IBC text with the nomenclature now used in ASME A17.1/CSA B44 to ensure that the same level of protection is provided to MRLs as is provided for traditional elevators with machine rooms.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved based upon the action taken on G168-12 part I.

Assembly Action: **None**

Public Comments

Public Comment 1:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

903.3.1.1.1 Exempt locations. Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an *approved* automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance-rated construction or contains electrical equipment.

1 through 5 – (*No change*)

6. Machine rooms, ~~and~~ machinery spaces, control rooms and control spaces associated with occupant evacuation elevators designed in accordance with Section 3008.

Commenter's Reason: The original proposal was to make numerous editorial changes to the code to ensure that its requirements for "machine rooms" reflect the introduction of Machine Room Less (MRL) elevators in the referenced ASME A17.1-2007/CSA B44-07. Because this package was Disapproved in the hearings I am submitting each proposed change separately.

The ASME A17.1 *Safety Code for Elevators and Escalators* underwent a substantial revision in 2005 to incorporate requirements for Machine Room-Less elevators (MRLs). These provisions are in ASME A17.1-2007/CSA B44-07 with A17.1a-2008/CSA B44a-08 Addenda that is referenced in Chapter 35 of the 2012 IBC.

ASME A17.1 has definitions for elevator rooms and spaces that may contain various elevator apparatus, and has terminology for certain elevator electrical apparatus. Key concepts include:

- A room outside the hoistway with an elevator machine is a ***machine room***;
- A room or space outside the hoistway with a motor controller and not a machine is a ***control room*** or ***control space***;
- Where a machine and motor controller are located inside the hoistway, the hoistway is a ***machinery space***;
- Machinery and control spaces may have doors;
- Elevator controllers include the operation controller and motion controller that may be separated from the location of the elevator machine and be located in separate elevator rooms and spaces;
- Machine rooms and controls rooms are full body spaces with doors that may have room sprinklers and fire detection apparatus; control and machinery spaces typically would not;
- Machine rooms and control rooms typically require room ventilation and cooling, machinery and control spaces typically do not;
- Machinery spaces inside the hoistway are covered by the code's hoistway requirements;.
- Elevator machines and electrical apparatus in spaces other than the hoistway or rooms may require standby power for apparatus cooling equipment.

Thus, MRL design has resulted in elevators machines and controllers being located in rooms or spaces other than the traditional machine rooms regulated by the IBC. This code change ensures that sprinklers are not included in control rooms or control spaces for MRLs used for occupant evacuation. This reflects the identical protection of controllers located in machine rooms required by the current code.

Public Comment 2:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

907.2.13.1.1 Area smoke detection. Area smoke detectors shall be provided in accordance with this section. Smoke detectors shall be connected to an automatic fire alarm system. The activation of any detector required by this section shall activate the emergency voice/alarm communication system in accordance with Section 907.5.2.2. In addition to smoke detectors required by Sections 907.2.1 through 907.2.10, smoke detectors shall be located as follows:

1. In each mechanical equipment, electrical, transformer, telephone equipment or similar room which is not provided with sprinkler protection.
2. In each elevator machine room, machinery space, control room and control space and in elevator lobbies.

Commenter's Reason: See Public Comment #1

Public Comment 3:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

911.1.5 Required features. The fire command center shall comply with NFPA 72 and shall contain the following features:

1. through 12. *(no change)*
13. An *approved* Building Information Card that contains, but is not limited to, the following information:
    - 13.1 *(no change)*
    - 13.2 *(no change)*
    - 13.3 *(no change)*
    - 13.4. *Exit stair* information that includes: number of *exit stairs* in building, each *exit stair* designation and floors served, location where each *exit stair* discharges, *exit stairs* that are pressurized, *exit stairs* provided with emergency lighting, each *exit stair* that allows reentry, *exit stairs* providing roof access; elevator information that includes: number of elevator banks, elevator bank designation, elevator car numbers and respective floors that they serve, location of elevator machine room~~s~~, control rooms, control spaces, location of sky lobby, location of freight elevator banks;
    - 13.5 *(no change)*
    - 13.6 *(no change)*
    - 13.7 *(no change)*
14. through 18. *(no change)*

Commenter's Reason: See Public Comment #1

Analysis: The original proponent of G168-12 Part II has submitted 3 public comments. While each public comment is indicated as a replacement of the original proposal, there is no change in the proposed wording between any public comment and the original proposal. The net effect of the 3 public comments is to allow the membership to vote on each piece of G168, Part II, individually. Any and all public comments approved by the membership will amend the specific section or sections of the code in each specific comment. Approval of any one public comment will not override the approval of changes found in another public comment.

Final Hearing Results

G168-12 Part II **AMPC1, 2, 3**

Code Change No: G171-12

Original Proposal

Section(s): 3006.4

Proponent: Al Godwin, CBO, CPM, Aon Fire Protection Engineering (al.godwin@aon.com)

Revise as follows:

3006.4 Machine rooms and machinery spaces. Elevator machine rooms and machinery spaces shall be enclosed with *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than the required rating of the hoistway enclosure served by the machinery. Openings in the *fire barriers* shall be protected with assemblies having a *fire protection rating* not less than that required for the hoistway enclosure doors.

Exceptions:

1. For other than fire service access elevators and occupant evacuation elevators, where machine rooms and machinery spaces do not abut and have no openings to the hoistway enclosure they serve the *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour *fireresistance rating*.
2. For other than fire service access elevators and occupant evacuation elevators, in buildings four *stories* or less above *grade plane* where machine room and machinery spaces do not abut and have no openings to the hoistway enclosure they serve, the machine room and machinery spaces are not required to be fire-resistance rated.

Reason: Section 903.3.1.1.1, items 5 and 6 prohibit sprinklers in machine rooms of fire service access elevators and occupant evacuation elevators. Thus, they are unprotected. As such, they should not be allowed a reduction in enclosure protection.

Alternate proposal:

In lieu of the change above, make the following change:

IBC Section 3006.4, delete the two exceptions.

And:

Group B cycle, IFC/IBC Section 903.3.1.1.1 amend item 5 and 6 as follows:

5. ~~Fire service access~~ elevator machine rooms and machinery spaces.
6. ~~Machine rooms and machinery spaces associated with occupant evacuation elevators designed in accordance with Section 3008.~~

Reason: Just treat all elevator machine rooms the same. No sprinklers. No reduction in construction.

Cost Impact: This code change proposal will increase the cost of construction in not allowing the reduction in the construction rating of elevator machine rooms.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was preferred to G170-12 due to format and will address both fire service access elevators and occupant evacuation elevators. G170-12 only addresses fire service access elevators.

Assembly Action: **None**

Final Hearing Results

G171-12	**AS**

Code Change No: G173-12

Original Proposal

Section(s): 3007.2

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Delete without substitution:

~~**3007.2 Phase I Emergency recall operation.** Actuation of any building fire alarm-initiating device shall initiate Phase I emergency recall operation on all fire service access elevators in accordance with the requirements in ASME A17.1/CSA B44. All other elevators shall remain in normal service unless Phase I emergency recall operation is manually initiated by a separate, required three-position, key-operated "Fire Recall" switch or automatically initiated by the associated elevator lobby, hoistway or elevator machine room *smoke detectors*. In addition, if the building also contains occupant evacuation elevators in accordance with Section 3008, an independent, three-position, key-operated "Fire Recall" switch conforming to the applicable requirements in ASME A17.1/CSA B44 shall be provided at the designated level for each fire service access elevator.~~

Reason: The first sentence makes no sense because ASME A17.1/CSA B44 requires Phase I emergency recall operation only when a fire alarm initiating device is activated in an elevator lobby, hoistway, or associated elevator machine room, machinery space containing a motor controller or electric driving machine, control space, or control room. The activation of any alarm initiating device in a building activating Phase I on any elevator does not comply with ASME A17.1/CSA B44.

Just as important, this activation of Phase I in a building equipped with Occupant Evacuation Elevators complying with Section 3008 would unnecessarily compromise the evacuation capacity of the elevator system for no good reason. The firefighters responding to a building fire can capture the fire service access elevators when they get there if it is needed.

With the deletion of the first sentence, none of the rest of this section is necessary as these functions are already addressed in ASME A17.1/CSA B44 or the Occupant Evacuation Elevator requirements of Section 3008.

Cost Impact: The code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved as it was felt that the detailed provisions should remain in the IBC. There was a concern with dependence upon a standard that is not yet published.

Assembly Action: **None**

Public Comment

Public Comment:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc.; Dave Frable, U.S. General Services Administration, Public Buildings Service; requests Approval as Submitted.

Commenter's Reason (Black): The first sentence makes no sense because ASME A17.1/CSA B44 requires Phase I emergency recall operation only when a fire alarm initiating device is activated in an elevator lobby, hoistway, or associated elevator machine room, machinery space containing a motor controller or electric driving machine, control space, or control room. The activation of any alarm initiating device in a building activating Phase I on any elevator does not comply with ASME A17.1/CSA B44.

Just as important, this activation of Phase I in a building equipped with Occupant Evacuation Elevators complying with Section 3008 would unnecessarily compromise the evacuation capacity of the elevator system for no good reason. The firefighters responding to a building fire can capture the fire service access elevators when they get there if it is needed.

With the deletion of the first sentence, none of the rest of this section is necessary as these functions are already addressed in ASME A17.1/CSA B44 or the Occupant Evacuation Elevator requirements of Section 3008.

The committee disapproved this proposal as it was felt – based on misinformed testimony - that the detailed provisions should remain in the IBC. Opponents spoke to a need to "keep this safety requirement in **our** code", when in fact this requirement severely decreases safety by taking all Fire Service Access Elevators out of service at the exact moment that building occupants have been trained to go to the lobby to use Occupant Evacuation Elevators to vacate the building. In buildings without Occupation Evacuation Elevators, there is no safety reason to recall Fire Service Access Elevators when, for example, someone burns popcorn in the office microwave.

The fact that the existing text decreases safety in certain buildings is bad enough, but the tenor of the testimony and committee deliberations on this item was of greater concern.

Some suggested that once a requirement that ***appears*** to provide safety is put in the code it should not be deleted, even when it is shown to not provide the safety intended. But we as code developers sometimes make mistakes, and if we do not allow ourselves to correct those mistakes in future codes the whole code development process becomes futile.

Even more disconcerting were comments suggesting that "we" should not trust other committees (in this case, the American Society of Mechanical Engineers A17 Standards Committee and Canadian Standards Association B44 Executive Committee) to develop safety requirements that can just be added to the I-Codes. This is absurd. The IBC has referenced ASME A17.1 since 2000 (as did the legacy codes in earlier decades), recognizing the expertise of those that developed the A17 codes and validity of their codes and standards. The IBC relies on the expertise of consensus bodies that develop the safety requirements for fire alarm systems (NFPA 72), sprinklers (NFPA 13), *etc*. Indeed, there are very few standards referenced in Chapter 35 of the code that do not relate to safety. Building codes cannot and should not attempt to replicate the work of consensus bodies that bring a level of expertise to their subjects that none of us in an ICC hearing can provide.

Finally, the committee also expressed a concern with dependence upon a standard that is not yet published. This proposal is relevant to how Phase I emergency recall operates in the referenced ASME A17.1a-2008/CSA B44a-08 and two or three earlier editions of the Safety Code for Elevators and Escalators. It does not rely on ASME A17.1-2013/CSA B44-13.

Commenter's Reason (Frable): As the original proponent of this section, I would support the deletion of this section since the original intent was to ensure that the designated fire service access elevator cars would be automatically recalled and waiting for fire department at the designated level prior to their arrival to the building. Unfortunately, I have been informed by members of the fire service that this requirement may cause some unintentional confusion and possible delays for firefighters responding to a building that have fire service access elevators automatically recalled by any fire alarm initiating device in lieu of just the specific fire alarm initiating devices activated in an elevator lobby, hoistway, or associated elevator machine room, machinery space containing a motor controller or electric driving machine, control space, or control room. The confusion and delays stem from the fact the firefighters will not be sure initially if the recalled fire service access elevators are safe to use and will now have to evaluate if in fact the environment affecting the operation of the fire fighter access elevators has been compromised causing the elevators to be recalled. In addition, any unwanted fire alarm condition in the building will result in the subject fire service access elevators being recalled.

Final Hearing Results

G173-12 **AS**

Code Change No: G175-12

Original Proposal

Section(s): 202, 1027.1, 3007.7.1, 3008.7.1

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

Revise as follows:

3007.7.1 Interior exit stairway access. The fire service access elevator lobby shall have direct access from the enclosed elevator lobby to an enclosure for an *interior exit stairway*.

Exception: Access to an interior exit stairway shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.

3008.7.1 Interior exit stairway access. The occupant evacuation elevator lobby shall have direct access from the enclosed elevator lobby to an *interior exit stairway* or *ramp*.

Exception: Access to an interior exit stairway shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.

1027.1 General. *Exits* shall discharge directly to the exterior of the building. The *exit discharge* shall be at grade or shall provide a direct ~~access~~ path of egress travel to grade. The *exit discharge* shall not reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and capacity of the required exits.

Exceptions:

1., 2., and 3, *(Portions of text not shown remain unchanged)*

Add new definition as follows:

DIRECT ACCESS. A path of travel from a space to an immediately adjacent space through an opening in the common wall between the two spaces.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

This proposal is one of several proposals submitted by the CTC related to elevator lobby provisions. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- ☐ Review the need for elevator lobbies, with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.

- ☐ Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- ☐ Review related code provisions, such as egress from and through elevator lobbies.
- ☐ Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- ☐ Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- ☐ Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- ☐ Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study**,** 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

The focus of this proposal is on how the direct access requirements of Section 3007.7.1 and 3008.7.1 are applied. Both FSAE and Occupant Evacuation elevators lobbies call for direct access to the stairway. The term direct access is not necessarily clear in its meaning and could if applied as intended place severe design limitations on some buildings. The intent of this proposal is to set out a viable option for the stairs to be more remotely located from the lobby. A package of requirements that provides fire resistance rated construction and smoke and draft protection is provided. A definition is also provided to clarify the use of the term. Section 1027.1 was revised slightly since the current use of the term “direct access” in that case has a different meaning.

Background sections for the separation requirements are as follows:

708.1 General. The following wall assemblies shall comply with this section.

1. Walls separating *dwelling units* in the same building as required by Section 420.2.
2. Walls separating *sleeping units* in the same building as required by Section 420.2.
3. Walls separating tenant spaces in *covered and open mall buildings* as required by Section 402.4.2.1.
4. Corridor walls as required by Section 1018.1.
5. Elevator lobby separation as required by Section 713.14.1.

708.2 Materials. The walls shall be of materials permitted by the building type of construction.

708.3 Fire-resistance rating. Fire partitions shall have a *fire resistance rating* of not less than 1 hour.

Exceptions:

1. Corridor walls permitted to have a 1/2 hour *fire-resistance rating* by Table 1018.1.
2. *Dwelling unit* and *sleeping unit* separations in buildings of Type IIB, IIIB and VB construction shall have *fire-resistance ratings* of not less than 1/2 hour in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

716.5.3 Door assemblies in corridors and smoke barriers. *Fire door* assemblies required to have a minimum *fire protection rating* of 20 minutes where located in *corridor* walls or *smoke barrier* walls having a *fire-resistance rating* in accordance with Table 716.5 shall be tested in accordance with NFPA 252 or UL 10C without the hose stream test.

Exceptions:

1. Viewports that require a hole not larger than inch (25 mm) in diameter through the door, have at least a 0.25-inch-thick (6.4 mm) glass disc and the holder is of metal that will not melt out where subject to temperatures of 1,700°F (927°C).
2. *Corridor* door assemblies in occupancies of Group I-2 shall be in accordance with Section 407.3.1.
3. Unprotected openings shall be permitted for *corridors* in multitheater complexes where each motion picture auditorium has at least one-half of its required *exit* or *exit access doorways* opening directly to the exterior or into an *exit* passageway.
4. Horizontal sliding doors in *smoke barriers* that comply with Sections 408.3 and 408.8.4 in occupancies in Group I-3.

716.5.3.1 Smoke and draft control. *Fire door* assemblies shall also meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 m3/s □□ m2)of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.

716.5.3.2 Glazing in door assemblies. In a 20-minute *fire door assembly*, the glazing material in the door itself shall have a minimum fire-protection-rated glazing of 20 minutes and shall be exempt from the hose stream test. Glazing material in any other part of the door assembly, including transom lights and sidelights, shall be tested in accordance with NFPA 257 or UL 9, including the hose stream test, in accordance with Section 716.6.

Background information on the term “direct access” is as follows:

ANCHOR BUILDING. An exterior perimeter building of a group other than H having direct access to a *covered or open mall building* but having required *means of egress* independent of the mall.

405.4.3 Elevators. Where elevators are provided, each compartment shall have direct access to an elevator. Where an elevator serves more than one compartment, an elevator lobby shall be provided and shall be separated from each compartment by a s*moke*

barrier in accordance with Section 709. Doors shall be gasketed, have a drop sill and be automatic-closing by smoke detection in accordance with Section 716.5.9.3.

407.4.1 Direct access to a corridor. Habitable rooms in Group I-2 occupancies shall have an *exit access* door leading directly to a *corridor*.

505.2.3 Openness. A *mezzanine* shall be open and unobstructed to the room in which such *mezzanine* is located except for walls not more than 42 inches (1067 mm) in height, columns and posts.

Exceptions:

1. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the *occupant load* of the aggregate area of the enclosed space is not greater than 10.
2. A *mezzanine* having two or more *means of egress* is not required to be open to the room in which the *mezzanine* is located if at least one of the *means of egress* provides direct access to an *exit* from the *mezzanine* level.
3. …

1007.6 Areas of refuge. Every required *area of refuge* shall be *accessible* from the space it serves by an *accessible means of egress*. The maximum travel distance from any *accessible* space to an *area of refuge* shall not exceed the travel distance permitted for the occupancy in accordance with Section 1016.1. Every required *area of refuge* shall have direct access to a *stairway* complying with Sections 1007.3 or an elevator complying with Section 1007.4. Where an elevator lobby is used as an *area of refuge*, the shaft and lobby shall comply with Section 1022.10 for smokeproof enclosures except where the elevators are in an *area of refuge* formed by a *horizontal exit* or smoke barrier.

1007.7.2 Outdoor facilities. Where *exit access* from the area serving outdoor facilities is essentially open to the outside, an exterior area of assisted rescue is permitted as an alternative to an *area of refuge*. Every required exterior area of assisted recue shall have direct access to an *interior exit stairway*, exterior *stairway*, or elevator serving as an *accessible means of egress* component. The exterior area of assisted rescue shall comply with Sections 1007.7.3 through 1007.7.6 and shall be provided with a two-way communication system complying with Sections 1007.8.1 and 1007.8.2.

1027.1 General. *Exits* shall discharge directly to the exterior of the building. The *exit discharge* shall be at grade or shall provide direct access to grade. The *exit discharge* shall not reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and capacity of the required exits.

1105.1.1 Parking garage entrances. Where provided, direct access for pedestrians from parking structures to buildings or facility entrances shall be *accessible*.

1105.1.2 Entrances from tunnels or elevated walkways. Where direct access is provided for pedestrians from a pedestrian tunnel or elevated walkway to a building or facility, at least one entrance to the building or facility from each tunnel or walkway shall be *accessible*.

TABLE 2902.1
c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.

3007.7.1 Access. The fire service access elevator lobby shall have direct access to an enclosure for an *interior exit stairway*.

3008.7.1 Access. The occupant evacuation elevator lobby shall have direct access to an *interior exit stairway* or *ramp*.

3109.4.1.8 Dwelling wall as a barrier. Where a wall of a *dwelling* serves as part of the barrier, one of the following shall apply:

1. Doors with direct access to the pool through that wall shall be equipped with an alarm that produces an audible warning when the door and/or its screen, if present, are opened. The alarm shall be *listed* and labeled in accordance with UL 2017. In dwellings not required to be *Accessible units*, *Type A units* or *Type B units*, the deactivation switch shall be located 54 inches (1372 mm) or more above the threshold of the door. In dwellings required to be *Accessible units*, *Type A units* or *Type B units*, the deactivation switch shall be located not higher than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the threshold of the door.

This proposal does not have any particular correlation concerns. See discussion on CTC elevator lobby proposal coordination in code change Section 713.14.1.

Cost Impact: This proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This proposal provides a viable alternative to direct access from the elevator lobby to the exit stairway enclosure to provide necessary design flexibility.

Assembly Action: None

Final Hearing Results

G175-12 **AS**

Code Change No: G176-12

Original Proposal

Section(s): 3007.7.3

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Revise as follows:

3007.7.3 Lobby doorways. Other than ~~the~~ doors to the hoistway, elevator control room, or elevator control space, each doorway to a fire service access elevator lobby shall be provided with a 3/4-hour *fire door assembly* complying with Section 716.5. The *fire door assembly* shall also comply with the smoke and draft control door assembly requirements of Section 716.5.3.1 with the UL 1784 test conducted without the artificial bottom seal.

Reason: Machine Room Less (MRL) elevators permitted by ASME A17.1/CSA B44 typically have control rooms or control spaces that are accessed by a door immediately adjacent to a hoistway opening in an elevator lobby.

3007.7.3 is intended to maintain the integrity of the lobby enclosure smoke barrier and the lobby's separation from the remaining floor area on a building floor (see 3007.7.2). This ensures that smoke from another area on the floor will not reach the lobby smoke detectors and place the elevator(s) into Phase I, thus rendering them unusable for Fire Service Access.

Smoke and draft control is unnecessary on elevator control room or space doors because any smoke emanating from those spaces has already activated the smoke detector in the control room/space and placed the elevator(s) in Phase I operation. It is thus unnecessary to protect the lobby smoke detector from smoke originating in the control room/space (or the hoistway to which the room/space is connected).

The ASME A17 Firefighters and Occupant Egress Task Groups that performed the hazard analyses that resulted in Fire Service Access Elevators did not discuss MRL elevators in their initial analyses that led to the current IBC requirements, and thus did not anticipate the problem of control room and control space doors opening into a lobby enclosure.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal addresses concerns with machine room less (MRL) elevator systems.

Assembly Action: **None**

Final Hearing Results

G176-12 **AS**

Code Change No: G177-12

Original Proposal

Section(s): 3007.7.4

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

Revise as follows:

3007.7.4 Lobby size. ~~Each~~ Regardless of the number of fire service access elevators served by the same elevator lobby the enclosed fire service access elevator lobby shall be a not less than 150 square feet (14 m^2) in an area with a minimum dimension of 8 feet (2440 mm).

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

This proposal is one of several proposals submitted by the CTC related to elevator lobbies. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- ☐ Review the need for elevator lobbies, with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- ☐ Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- ☐ Review related code provisions, such as egress from and through elevator lobbies.
- ☐ Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- ☐ Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- ☐ Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- ☐ Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study, 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

This proposal is to clarify that it was not the intent to require additional space for each additional fire service access elevator provided. The initial intent of the size requirement was merely to provide sufficient space to conduct fire fighting operations. The 2012 IBC has a new requirement for a second fire service access elevator which was not related to the section on lobby size. This second elevator was initially discussed as being needed for additional capacity but when discussed on the floor was noted as being more for redundancy.

The current size requirement is the result of a successful Public Comment to Code Change G197-07/08 submitted by the proponent representing the Los Angeles Fire Department. The proponent originally wanted 50 square feet for each additional elevator car served by the lobby but that was disapproved by the General Committee. The Public Comment deleted the 50 square feet and added the minimum dimension requirement of 8 feet. A detailed rationale for that approach can be found in the Commenter's Reason submitted with the Public Comment. So this proposed code change implements and clarifies the intent of the Public Comment that was approved by the ICC governmental voting representatives.

This proposal will not need correlation with other CTC Elevator lobby proposals. See discussion on CTC elevator lobby proposal coordination in the FS code change to Section 713.14.1 that changes the criteria for when elevator lobbies would be required.

Cost Impact: There will be no increase in the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as this was seen as a necessary clarification on the intended size of elevator lobbies for Fire Service Access Elevators this is especially important as the code now requires more than one fire service access elevator.

Assembly Action: **None**

Final Hearing Results

G177-12 **AS**

Code Change No: G178-12

Original Proposal

Section(s): 3007.7.5, Figure 3007.7.5

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Revise as follows:

3007.7.5 Fire service access elevator symbol. A pictorial symbol of a standardized design designating which elevators are fire service access elevators shall be installed on each side of the hoistway door frame on the portion of the frame at right angles to the fire service access elevator lobby. The fire service access elevator symbol shall be designed as shown in Figure 3007.7.5 and shall comply with the following:

1. The fire service access elevator symbol shall be not less than 3 inches (76 mm) in height.
2. The helmet shall contrast with the background, with either a light helmet on a dark background or a dark helmet on a light background.
~~2~~3. The vertical center line of the fire service access elevator symbol shall be centered on the hoistway door frame. Each symbol shall not be less than 78 inches (1981 mm), and not more than 84 (2134 mm) inches above the finished floor at the threshold.

(Add dimensional lines on Figure 3007.7.5 to indicate that it is the rectangular field, not the helmet that has a dimension of 3 inches (76 mm) minimum height.)

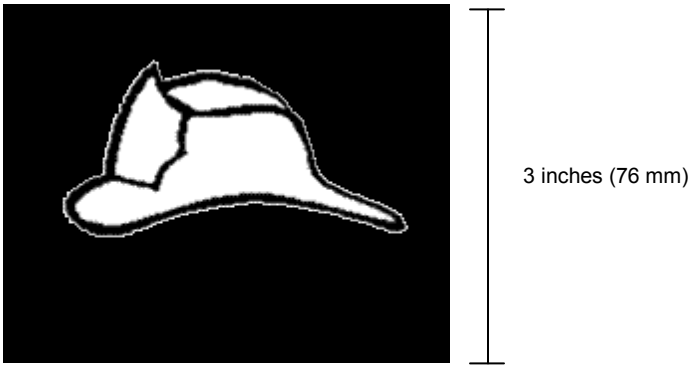


FIGURE 3007.7.5
FIRE SERVICE ACCESS ELEVATOR SYMBOL

Reason: Because the code is printed in black and white, the current text may be read to state that the symbol must always have a white helmet on a black background. This is unnecessarily restrictive, and in fact a red helmet may be the preferred color to harmonize with the buttons on the elevator car operating panel that are regulated by ASME A17.1/CSA B44.

The proposed new text in item 2 was adapted from the sign requirements of ICC/ANSI A117.1-2009.

Adding dimensional lines on the figure clears up the ambiguity regarding what height is being regulated.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal provides further clarification on the appearance of the fire service access elevator symbol. There was some concern that we should depend more on ASME A17.1 for such information.

Assembly Action: **None**

Final Hearing Results

G178-12 **AS**

Code Change No: G179-12

Original Proposal

Section(s): 3007.9

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Revise as follows:

3007.9 Electrical power. The following features serving each fire service access elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator hoistway lighting.
3. ~~Elevator machine room~~ Ventilation and cooling equipment for elevator machine/control rooms, and machinery/control spaces.
4. Elevator ~~controller cooling equipment~~ car lighting.

Reason: Editorial changes in item 3 reflect current terminology in ASME A17.1/CSA B44. Standby power is necessary for elevator car lighting as specified in item 4 to ensure that firefighters are not trapped in a pitch-black elevator in case the building power is interrupted.

Cost Impact: The code change will not increase the cost of construction.

Staff note: The proposal reflect the errata printed in the Report of Hearings.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved due to concern that the terminology revision related to provisions within an updated standard that is not yet published.

Assembly Action: **None**

Public Comment

Public Comment:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Submitted.

Commenter's Reason: The proposal was disapproved by the committee due to a concern that the terminology revision related to provisions within an updated standard that is not yet published.

In fact, the terminology is from the current reference standard ASME A17.1a-2008/CSA B44a-08 and earlier editions of the *Safety Code for Elevators and Escalators*. This proposal does not rely on the 2013 edition of that code.

The editorial changes in item 2 reflect current terminology in ASME A17.1/CSA B44. Standby power is necessary for elevator car lighting as specified in item 3 to ensure that firefighters are not trapped in a pitch-black elevator in case the building power is interrupted.

Final Hearing Results

G179-12 **AS**

Code Change No: G180-12

Original Proposal

Section(s): 3008.2, 3008.2.1

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Revise as follows:

~~**3008.2 Phase I Emergency recall operation**. An independent, three-position, key-operated "Fire Recall" switch complying with ASME A17.1/CSA B44 shall be provided at the designated level for each occupant evacuation elevator.~~

~~**3008.2.1**~~ **3008.2 Operation.** The occupant evacuation elevators shall be used for occupant self-evacuation ~~only in the normal elevator operating mode prior to Phase I Emergency Recall Operation~~ in accordance with the occupant evacuation operation requirements in ASME A17.1/CSA B44 and the building's fire safety and evacuation plan.

(Renumber subsequent sections)

Reason: Requirements for *Occupant Evacuation Operation* have been approved for publication in the 2013 edition of ASME A17.1/CSA B44 *Safety Code for Elevators and Escalators*. With this development and corresponding changes to the NFPA 72 *Fire Alarm and Signaling Code*, the comprehensive ICC/ASME/NFPA package to establish occupant evacuation elevator requirements is complete, and provisions that were temporarily "parked" in the IBC can be removed as they are addressed by ASME A17.1/CSA B44.

ASME A17.1-2013CSA B44-13 will amend that code's Firefighters' Emergency Operations requirements to require a "GROUP FIRE RECALL" three-position switch in the designated level lobby with a corresponding two-position switch in the fire command center that can recall all of the elevators in that group. In addition, each elevator in that group will have a three-position key operated switch for CAR FIRE RECALL in the designated level elevator lobby. This configuration will allow firefighters to recall all of the elevators in a group if warranted, but only recall a few of the elevators for firefighter service as needed, allowing the remaining elevators to operate as occupant evacuation elevators. This was the purpose of the key operated switches required by Section 3008.2, thus making the IBC requirement unnecessary.

DRAFT FOR ASME A17.1-2013/CSA B44-13i

2.27.10 Occupant Evacuation Operation

Where elevators are provided for occupant evacuation, Occupant Evacuation Operation (OEO) shall be provided to function prior to Firefighters' Emergency Operation and shall conform to 2.27.10.1 through 2.27.10.6. See also Nonmandatory Appendix T.

2.27.10.1 The requirements of 2.27.3.1 shall be modified as follows:

2.27.10.1.1 The three-position switch in the lobby (2.27.3.1.1) and two-position switch in the fire command center (2.27.3.1.2) shall be labeled "GROUP FIRE RECALL" and indicate the elevator group that they control.

2.27.10.1.2 An additional three-position key-operated individual "CAR FIRE RECALL" switch per elevator, that will not change position without a deliberate action by the user, shall be located in the lobby at the elevator discharge level adjacent to the elevator it controls. Each switch shall be labeled "CAR ___ FIRE RECALL" (with the car identification, as specified in 2.29.1, inserted), and its positions marked "RESET", "OFF" and "ON" (in that order) in letters a minimum of 5 mm (0.25 in.) high. Text shall be black on a yellow background. Each switch shall control the associated elevator in conformance with 2.27.3.1.6, but shall not control the other elevators controlled by the "GROUP FIRE RECALL" switch (see 2.27.10.1.1).

2.27.10.1.3 Each individual "CAR FIRE RECALL" switch shall terminate Occupant Evacuation Operation for the elevator it controls when placed in the "ON" position. Each "GROUP FIRE RECALL" switch shall terminate Occupant Evacuation Operation for the elevators it controls when placed in the "ON" position.

2.27.10.1.4 Each individual "CAR FIRE RECALL" switch shall be provided with an illuminated visual signal to indicate when Phase I Emergency Recall Operation is in effect for that car (see 2.27.3.1.5).

2.27.10.1.5 To remove an individual elevator from Phase I Emergency Recall Operation, the individual "CAR FIRE RECALL" switch shall be rotated first to the "RESET," and then to the "OFF" position, provided that

(1) the "GROUP FIRE RECALL SWITCH" and the additional two-position "GROUP FIRE RECALL" switch, where provided, are in the "OFF" position

(2) no fire alarm initiating device is activated (see 2.27.3.2).

2.27.10.1.6 A car with its individual "CAR FIRE RECALL" switch in the "ON" position shall not be removed from Phase I Emergency Recall Operation when the "GROUP FIRE RECALL" switch is rotated to the "RESET" position and then to the "OFF" position.

2.27.10.1.7 The Designated Level shall be the same floor as the Elevator Discharge Level. At the elevator discharge level, only the door(s) serving the lobby where the "GROUP FIRE RECALL" switch is located shall open.

2.27.10.2 The sign required by 2.27.9 shall not be installed. A variable message sign, as defined in A117.1, shall be installed for each elevator group on each landing served. It shall be located not less than 2130 mm (84 in) and not more than 3000 mm (120 in) above the floor and in a central visible location within the elevator lobby. Message text shall be a minimum of 50 mm (2 in) high and conform to A117.1 or Appendix E requirement E-20, whichever is applicable (see Section 9 and E-1). The variable message signs shall be powered by the same power supply as the elevator, including emergency or standby power. Where not prohibited by the Building Code, when the elevators are not on Occupant Evacuation Operation or Firefighters' Emergency Operation, the variable message signs shall be permitted to display other elevator system status messages. Note: sample text: "Elevators in normal operation".

2.27.10.3 Where hoistway pressurization is provided, a car on Phase I Emergency Recall, after completing the requirements of 2.27.3.1.6, shall conform to the following:

a) A car shall close its doors after 15 seconds.

b) Door reopening devices, door force limiting devices, kinetic energy limiting devices, and the door open button shall remain active.

c) At least one operating device normally used to call a car to the landing (*e.g.* hall call button, keypad) shall be located in the elevator lobby at the elevator discharge level. Actuating this device shall cause all recalled cars to open their doors for 30 to 45 seconds, then reclose.

2.27.10.4 A position indicator shall be provided at the elevator discharge level above or adjacent to the entrance for each car. The position indicator shall be powered by the same power supply as the elevator, including emergency or standby power.

2.27.10.5 Fire Alarm System Interface

2.27.10.5.1 Upon activation of an automatic fire alarm initiating device in the building in any area which does not initiate Phase I recall in this group, the fire alarm system shall provide signals to the elevator system in conformance with NFPA 72 indicating the floors to be evacuated. The floors to be evacuated shall be a contiguous block of floors, consisting of at least the floor with an active alarm, two floors above and two floors below. The elevator system shall initiate Occupant Evacuation Operation in accordance with 2.27.10.6 for the indicated floors. If activation of an automatic fire alarm initiating device which does not initiate Phase I recall in this group occurs on an additional floor(s) at any time while Occupant Evacuation Operation in accordance with 2.27.10.6 is in effect, the evacuation zone shall be expanded to include all floors with an active alarm, all floors between the highest and lowest floor with an active alarm plus two floors above the highest floor with an active alarm and two floors below the lowest floor with an active alarm. If the active alarm is on the elevator discharge level, automatic initiation of Occupant Evacuation Operation in accordance with 2.27.10.6 shall not be permitted. Manual initiation by authorized or emergency personnel shall be permitted.

Note (2.27.10.5.1): An active alarm refers to the condition caused by the "activation of an automatic fire alarm initiating device" as used in this requirement.

2.27.10.5.2 A means to initiate total building evacuation, labeled "ELEVATOR TOTAL BUILDING EVACUATION" shall be provided at the fire command center location and installed in accordance with NFPA 72. When this means is actuated, the fire alarm system shall provide a signal to the elevator system indicating that all floors are to be evacuated.

2.27.10.6 When any of the signals provided in 2.27.10.5 actuate, the elevators shall conform to 2.27.10.6.1 through 2.27.10.6.10 in order to move occupants from the floors affected by the fire to the elevator discharge level.

2.27.10.6.1 The variable message signs required by 2.27.10.2 shall indicate one of the following messages:

(a) On all floors being evacuated, they shall indicate that the elevators are available for evacuation and the estimated time duration in minutes for the next elevator to arrive.
Note: Sample text: "Elevators and stairs available for evacuation. Next car in about 2 minutes".

(b) On all floors not being evacuated, they shall indicate that elevator service is not available.
Note: Sample text: "Elevators temporarily dedicated to other floors".

(c) On the elevator discharge level, they shall indicate that the cars are in evacuation mode and that passengers should not use elevators.
Note (2.27.10.6.1): Sample text: “Elevators dedicated to evacuation. Do not enter elevator”.

(d) If no elevators are available for Occupant Evacuation Operation (Fire service, inspection, shut off, etc.), they shall indicate that elevator service is not available. On all floors being evacuated they shall also indicate that occupants should use the stairs.

Note: Sample text for floors being evacuated: “Elevators out of service. Use stairs to evacuate”. Sample text for other floors: “Elevators out of service”.

2.27.10.6.2 Automatic visual signal or variable message sign, and voice notification in each car shall indicate that the car is being used to evacuate the building. In the event that the car stops to pick up passengers at a floor other than the elevator discharge level, the signals shall instruct the passengers to remain in the car. Upon or prior to arrival at the elevator discharge level, passengers shall be notified that they have arrived at the exit floor and to exit quickly. Message text shall be a minimum of 25 mm (1 in) high and conform to A117.1 or Appendix E requirement E-20, whichever is applicable (see Section 9 and E-1). Voice notification shall be at least 10 dBA above ambient but not more than 80 dBA measured 1525 mm (60 in) above the floor, at the center of the car.

2.27.10.6.3 All landing calls outside of the contiguous block of floors being evacuated shall be canceled and disabled. Building security systems which limit service to these floors shall be overridden. Any landing call within the contiguous block of floors shall call an elevator(s) to that landing. Landing calls entered at the floor with an active alarm shall be given higher priority than the calls at the floors above and below it. If a subsequent active alarm is received from a different floor, the evacuation priority shall be assigned in the sequence received. Once passengers have entered an elevator, it shall proceed only towards the elevator discharge level. When total building evacuation is in effect and no calls are entered at an affected floor, priority shall be based on distance from the elevator discharge level, with the furthest floor served getting highest priority.

2.27.10.6.4 Car calls for all floors, except for the elevator discharge level, shall be canceled and disabled. A car call for the elevator discharge level shall be automatically entered when any landing call is answered.

2.27.10.6.5 Cars which are unoccupied when Occupant Evacuation Operation is actuated shall move without delay to a floor which is being evacuated, and park with their doors closed until a landing call is registered. If the car is in motion away from the floors being evacuated, it shall stop at or before the next available floor, without opening the doors, reverse direction and move to a floor which is being evacuated.

2.27.10.6.6 Cars which are occupied when Occupant Evacuation Operation is actuated shall proceed without delay to the elevator discharge level. If a reversal of travel direction is needed, it shall be done at or before the next available floor without opening the doors. After opening and closing the doors at the elevator discharge level, they shall proceed without delay to a floor which is being evacuated and park with their doors closed until a landing call is registered.

2.27.10.6.7 When a car answers a landing call at a floor being evacuated, a car call for the elevator discharge level shall be automatically registered. The system shall accept a new landing call as soon as the doors have opened to permit loading at that floor, or sooner. If a new landing call is registered at this floor, it shall be assigned to another car, and not canceled until that car arrives. Actuation of the landing call device shall not prevent a loaded car from closing its doors and leaving the floor.

2.27.10.6.8 While passengers are entering the car at a floor being evacuated, when the load reaches no greater than 80% of car capacity, the door re-opening device(s) shall be disabled and the doors shall initiate closing at reduced kinetic energy in accordance with 2.13.4.2.1(c). If the doors stall while closing, they shall re-open fully, then close. An audible signal shall sound until the doors are closed. If the load exceeds 100% of capacity the doors shall re-open and remain open and a voice notification and visual signal shall indicate that the car is overloaded.

2.27.10.6.9 Once the block of floors being evacuated has been evacuated, as indicated by a 60 second period in which no landing calls are registered, one car shall park with its doors closed at the lowest floor of the block of floors ready to answer subsequent landing calls within the block of floors; the rest shall park with doors closed at the elevator discharge level. A car parked at the elevator discharge level shall replace the car at the lowest floor of the block, which has answered a landing call.

2.27.10.6.10 Occupant Evacuation Operation shall be terminated when the fire alarm system is reset or the signals provided in 2.27.3.2 are actuated (see 2.27.10.1.3).

i Approved 2011 by the ASME A17 Standards Committee for ASME A17.1-2013/CSA B44-13; subject to ANSI and ASME Board Approval. Provided for informational purposes and does not indicate endorsement by ASME or its Committees of proposed changes to the ICC *International Building Code*.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: There was concern that more justification was necessary for this proposal. The proposal appears to make technical changes to the current requirements and there was some level of concern with the dependence on ASME A17.1. It is encouraged that this proposal be brought back via public comment.

Assembly Action: **None**

Public Comment

Public Comment:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Submitted.

Commenter's Reason: Requirements for *Occupant Evacuation Operation* (attached) have been approved for publication in the 2013 edition of ASME A17.1/CSA B44 *Safety Code for Elevators and Escalators*. With this development and corresponding changes to the NFPA 72 *Fire Alarm and Signaling Code*, the comprehensive ICC/ASME/NFPA package to establish occupant evacuation elevator requirements is complete, and provisions that were temporarily "parked" in the IBC can be removed as they are addressed by ASME A17.1/CSA B44.

This proposal was disapproved based on its dependence on the 2013 edition of ASME A17.1 that is not yet published. While *NEII*® is generally in agreement with this principle, there are two significant problems in this case:

1. Commenters and the committee assumed that because the IBC Occupant Evacuation Elevator requirements in Section 3008 do not conflict with the current ASME A17.1-2010/CSA B44-10, retaining the current IBC language will not be a problem, and any conflicts with the newer A17.1/CSA B44 can be resolved in the 2018 IBC. While this argument may be true for most codes and standards referenced in the I-Codes, it is incorrect in this case.

In many jurisdictions in the United States (*e.g.*, Wisconsin) the building code, fire code and elevator code are enacted by different pieces of legislation and regulated by entirely different state or municipal rules and agencies. Because of this, one department enforces the building code, another the elevator code, and neither official is obligated or legally able to recognize the requirements of the other. Some jurisdictions have legislated "auto-adopt" provisions in their elevator laws that will result in applying the 2013 of the *Safety Code for Elevators and Escalators* shortly after its publication. In other words, the 2013 elevator code will apply in many states and cities in little more than a year, irrespective of the code edition reference in the IBC.

The result is that the building official will require one set of key switches, the Chief Elevator Inspector will require another. Neither will have priority over the other, and the building owner will be continuously in violation of one law or the other. This conflict will exist for seven or more years if this proposal is not approved.

2. The American Society of Mechanical Engineers has stopped publishing yearly addenda to their codes. Had it kept its yearly addenda, an ASME A17.1b-2012/CSA B44b-12 that included the new requirement for Occupant Evacuation Operation would be published by now and available for referencing. At the same time the ICC elongated its code development process such that elevator requirements for the 2015 IBC had to be developed in 2011, four years before the anticipated publication of the IBC. This will significantly undermine efforts to harmonize the ASME, ICC and NFPA codes (a function of the ASME A17 Code Coordination Committee staffed by ICC, ASME, NFPA and *NEII*® representatives). Most importantly, this unprecedented delay will have the effect of decreasing the level of safety the IBC could otherwise provide to users of Occupant Evacuation Elevators.

ASME A17.1-2013CSA B44-13 will amend that code's Firefighters' Emergency Operations requirements to require a "GROUP FIRE RECALL" three-position switch in the designated level lobby with a corresponding two-position switch in the fire command center that can recall all of the elevators in that group. In addition, each elevator in that group will have a three-position key operated switch for CAR FIRE RECALL in the designated level elevator lobby. This configuration will allow firefighters to recall all of the elevators in a group if warranted, but only recall a few of the elevators for firefighter service as needed, allowing the remaining elevators to operate as occupant evacuation elevators. This was the purpose of the key operated switches required by Section 3008.2, thus making the IBC requirement unnecessary.

The proposal was also disapproved based upon the need for further technical justification.

ASME A17.1/CSA B44 expands the existing IBC requirement by providing numerous options to firefighters who may want to place only specific elevator in Phase I Emergency Recall Operation. GROUP FIRE RECALL switched in both the elevator lobby and the fire command center will save valuable time in catastrophic situations where having to recall numerous elevators one at a time using their individual stitches may not be desired or feasible.

Final Hearing Results

G180-12 **AS**

Code Change No: G181-12

Original Proposal

Section(s): 3008.2.2

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Delete without substitution as follows:

~~**3008.2.2 Activation.** Occupant evacuation elevator systems shall be activated by any of the following:~~

~~1. The operation of an *automatic sprinkler system* complying with Section 3008.3;~~
~~2. *Smoke detectors* required by another provision of the code;~~
~~3. *Approved* manual controls.~~

Reason: Requirements for *Occupant Evacuation Operation* have been approved for publication in the 2013 edition of ASME A17.1/CSA B44 *Safety Code for Elevators and Escalators*. With this development and corresponding changes to the NFPA 72 *Fire Alarm and Signaling Code*, the comprehensive ICC/ASME/NFPA package to establish occupant evacuation elevator requirements is complete, and provisions that were temporarily "parked" in the IBC can be removed as they are addressed by ASME A17.1/CSA B44.

ASME A17.1-2013/CSA B44-13 will include a section on Fire Alarm System Interface that requires that the activation of any building fire alarm initiating device not associated with Phase I elevator recall will provide signals to the elevator system controller(s) to indicate which building floors will be evacuated under the ASME Occupant Evacuation Operation criteria. These floors will be a contiguous block of floors consisting of the floor with the active alarm, two floors above, and two floors below. It will also accommodate enlarging the evacuation zone should other floors have an initiated fire alarm initiating device and will allow for full building evacuation when initiated by firefighters.

The ASME A17.1/CSA B44 requirements are more comprehensive than those in Section 3008.2.2 and the IBC requirements should be deleted in deference to the ASME provisions.

DRAFT FOR ASME A17.1-2013/CSA B44-13i

2.27.10 Occupant Evacuation Operation

Where elevators are provided for occupant evacuation, Occupant Evacuation Operation (OEO) shall be provided to function prior to Firefighters' Emergency Operation and shall conform to 2.27.10.1 through 2.27.10.6. See also Nonmandatory Appendix T.

2.27.10.1 The requirements of 2.27.3.1 shall be modified as follows:

2.27.10.1.1 The three-position switch in the lobby (2.27.3.1.1) and two-position switch in the fire command center (2.27.3.1.2) shall be labeled "GROUP FIRE RECALL" and indicate the elevator group that they control.

2.27.10.1.2 An additional three-position key-operated individual "CAR FIRE RECALL" switch per elevator, that will not change position without a deliberate action by the user, shall be located in the lobby at the elevator discharge level adjacent to the elevator it controls. Each switch shall be labeled "CAR ___ FIRE RECALL" (with the car identification, as specified in 2.29.1, inserted), and its positions marked "RESET", "OFF" and "ON" (in that order) in letters a minimum of 5 mm (0.25 in.) high. Text shall be black on a yellow background. Each switch shall control the associated elevator in conformance with 2.27.3.1.6, but shall not control the other elevators controlled by the "GROUP FIRE RECALL" switch (see 2.27.10.1.1).

2.27.10.1.3 Each individual "CAR FIRE RECALL" switch shall terminate Occupant Evacuation Operation for the elevator it controls when placed in the "ON" position. Each "GROUP FIRE RECALL" switch shall terminate Occupant Evacuation Operation for the elevators it controls when placed in the "ON" position.

2.27.10.1.4 Each individual "CAR FIRE RECALL" switch shall be provided with an illuminated visual signal to indicate when Phase I Emergency Recall Operation is in effect for that car (see 2.27.3.1.5).

2.27.10.1.5 To remove an individual elevator from Phase I Emergency Recall Operation, the individual "CAR FIRE RECALL" switch shall be rotated first to the "RESET," and then to the "OFF" position, provided that

(1) the "GROUP FIRE RECALL SWITCH" and the additional two-position "GROUP FIRE RECALL" switch, where provided, are in the "OFF" position

(2) no fire alarm initiating device is activated (see 2.27.3.2).

2.27.10.1.6 A car with its individual "CAR FIRE RECALL" switch in the "ON" position shall not be removed from Phase I Emergency Recall Operation when the "GROUP FIRE RECALL" switch is rotated to the "RESET" position and then to the "OFF" position.

2.27.10.1.7 The Designated Level shall be the same floor as the Elevator Discharge Level. At the elevator discharge level, only the door(s) serving the lobby where the "GROUP FIRE RECALL" switch is located shall open.

2.27.10.2 The sign required by 2.27.9 shall not be installed. A variable message sign, as defined in A117.1, shall be installed for each elevator group on each landing served. It shall be located not less than 2130 mm (84 in) and not more than 3000 mm (120 in) above the floor and in a central visible location within the elevator lobby. Message text shall be a minimum of 50 mm (2 in) high and conform to A117.1 or Appendix E requirement E-20, whichever is applicable (see Section 9 and E-1). The variable message signs shall be powered by the same power supply as the elevator, including emergency or standby power. Where not prohibited by the Building Code, when the elevators are not on Occupant Evacuation Operation or Firefighters' Emergency Operation, the variable message signs shall be permitted to display other elevator system status messages. Note: sample text: "Elevators in normal operation".

2.27.10.3 Where hoistway pressurization is provided, a car on Phase I Emergency Recall, after completing the requirements of 2.27.3.1.6, shall conform to the following:

a) A car shall close its doors after 15 seconds.

b) Door reopening devices, door force limiting devices, kinetic energy limiting devices, and the door open button shall remain active.

c) At least one operating device normally used to call a car to the landing (*e.g.* hall call button, keypad) shall be located in the elevator lobby at the elevator discharge level. Actuating this device shall cause all recalled cars to open their doors for 30 to 45 seconds, then reclose.

2.27.10.4 A position indicator shall be provided at the elevator discharge level above or adjacent to the entrance for each car. The position indicator shall be powered by the same power supply as the elevator, including emergency or standby power.

2.27.10.5 Fire Alarm System Interface

2.27.10.5.1 Upon activation of an automatic fire alarm initiating device in the building in any area which does not initiate Phase I recall in this group, the fire alarm system shall provide signals to the elevator system in conformance with NFPA 72 indicating the floors to be evacuated. The floors to be evacuated shall be a contiguous block of floors, consisting of at least the floor with an active alarm, two floors above and two floors below. The elevator system shall initiate Occupant Evacuation Operation in accordance with 2.27.10.6 for the indicated floors. If activation of an automatic fire alarm initiating device which does not initiate Phase I recall in this group occurs on an additional floor(s) at any time while Occupant Evacuation Operation in accordance with 2.27.10.6 is in effect, the evacuation zone shall be expanded to include all floors with an active alarm, all floors between the highest and lowest floor with an active alarm plus two floors above the highest floor with an active alarm and two floors below the lowest floor with an active alarm. If the active alarm is on the elevator discharge level, automatic initiation of Occupant Evacuation Operation in accordance with 2.27.10.6 shall not be permitted. Manual initiation by authorized or emergency personnel shall be permitted.

Note (2.27.10.5.1): An active alarm refers to the condition caused by the "activation of an automatic fire alarm initiating device" as used in this requirement.

2.27.10.5.2 A means to initiate total building evacuation, labeled "ELEVATOR TOTAL BUILDING EVACUATION" shall be provided at the fire command center location and installed in accordance with NFPA 72. When this means is actuated, the fire alarm system shall provide a signal to the elevator system indicating that all floors are to be evacuated.

2.27.10.6 When any of the signals provided in 2.27.10.5 actuate, the elevators shall conform to 2.27.10.6.1 through 2.27.10.6.10 in order to move occupants from the floors affected by the fire to the elevator discharge level.

2.27.10.6.1 The variable message signs required by 2.27.10.2 shall indicate one of the following messages:

(a) On all floors being evacuated, they shall indicate that the elevators are available for evacuation and the estimated time duration in minutes for the next elevator to arrive.
Note: Sample text: "Elevators and stairs available for evacuation. Next car in about 2 minutes".

(b) On all floors not being evacuated, they shall indicate that elevator service is not available.
Note: Sample text: "Elevators temporarily dedicated to other floors".

(c) On the elevator discharge level, they shall indicate that the cars are in evacuation mode and that passengers should not use elevators.
Note (2.27.10.6.1): Sample text: "Elevators dedicated to evacuation. Do not enter elevator".

(d) If no elevators are available for Occupant Evacuation Operation (Fire service, inspection, shut off, etc.), they shall indicate that elevator service is not available. On all floors being evacuated they shall also indicate that occupants should use the stairs.

Note: Sample text for floors being evacuated: “Elevators out of service. Use stairs to evacuate”. Sample text for other floors: “Elevators out of service”.

2.27.10.6.2 Automatic visual signal or variable message sign, and voice notification in each car shall indicate that the car is being used to evacuate the building. In the event that the car stops to pick up passengers at a floor other than the elevator discharge level, the signals shall instruct the passengers to remain in the car. Upon or prior to arrival at the elevator discharge level, passengers shall be notified that they have arrived at the exit floor and to exit quickly. Message text shall be a minimum of 25 mm (1 in) high and conform to A117.1 or Appendix E requirement E-20, whichever is applicable (see Section 9 and E-1). Voice notification shall be at least 10 dBA above ambient but not more than 80 dBA measured 1525 mm (60 in) above the floor, at the center of the car.

2.27.10.6.3 All landing calls outside of the contiguous block of floors being evacuated shall be canceled and disabled. Building security systems which limit service to these floors shall be overridden. Any landing call within the contiguous block of floors shall call an elevator(s) to that landing. Landing calls entered at the floor with an active alarm shall be given higher priority than the calls at the floors above and below it. If a subsequent active alarm is received from a different floor, the evacuation priority shall be assigned in the sequence received. Once passengers have entered an elevator, it shall proceed only towards the elevator discharge level. When total building evacuation is in effect and no calls are entered at an affected floor, priority shall be based on distance from the elevator discharge level, with the furthest floor served getting highest priority.

2.27.10.6.4 Car calls for all floors, except for the elevator discharge level, shall be canceled and disabled. A car call for the elevator discharge level shall be automatically entered when any landing call is answered.

2.27.10.6.5 Cars which are unoccupied when Occupant Evacuation Operation is actuated shall move without delay to a floor which is being evacuated, and park with their doors closed until a landing call is registered. If the car is in motion away from the floors being evacuated, it shall stop at or before the next available floor, without opening the doors, reverse direction and move to a floor which is being evacuated.

2.27.10.6.6 Cars which are occupied when Occupant Evacuation Operation is actuated shall proceed without delay to the elevator discharge level. If a reversal of travel direction is needed, it shall be done at or before the next available floor without opening the doors. After opening and closing the doors at the elevator discharge level, they shall proceed without delay to a floor which is being evacuated and park with their doors closed until a landing call is registered.

2.27.10.6.7 When a car answers a landing call at a floor being evacuated, a car call for the elevator discharge level shall be automatically registered. The system shall accept a new landing call as soon as the doors have opened to permit loading at that floor, or sooner. If a new landing call is registered at this floor, it shall be assigned to another car, and not canceled until that car arrives. Actuation of the landing call device shall not prevent a loaded car from closing its doors and leaving the floor.

2.27.10.6.8 While passengers are entering the car at a floor being evacuated, when the load reaches no greater than 80% of car capacity, the door re-opening device(s) shall be disabled and the doors shall initiate closing at reduced kinetic energy in accordance with 2.13.4.2.1(c). If the doors stall while closing, they shall re-open fully, then close. An audible signal shall sound until the doors are closed. If the load exceeds 100% of capacity the doors shall re-open and remain open and a voice notification and visual signal shall indicate that the car is overloaded.

2.27.10.6.9 Once the block of floors being evacuated has been evacuated, as indicated by a 60 second period in which no landing calls are registered, one car shall park with its doors closed at the lowest floor of the block of floors ready to answer subsequent landing calls within the block of floors; the rest shall park with doors closed at the elevator discharge level. A car parked at the elevator discharge level shall replace the car at the lowest floor of the block, which has answered a landing call.

2.27.10.6.10 Occupant Evacuation Operation shall be terminated when the fire alarm system is reset or the signals provided in 2.27.3.2 are actuated (see 2.27.10.1.3).

i Approved 2011 by the ASME A17 Standards Committee for ASME A17.1-2013/CSA B44-13; subject to ANSI and ASME Board Approval. Provided for informational purposes and does not indicate endorsement by ASME or its Committees of proposed changes to the ICC *International Building Code*.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal was disapproved based upon the need for further technical justification and the dependence on the 2013 edition of ASME A17.1 that is not yet published.

Assembly Action: None

Public Comment

Public Comment:

Brian Black, BD Black & Associates, representing National Elevator Industry, Inc. requests Approved as Submitted.

Commenter's Reason: This proposal was disapproved based on its dependence on the 2013 edition of ASME A17.1 that is not yet published. While *NEII*® is generally in agreement with this principle, there are two significant problems in this case:

1. Commenters and the committee assumed that because the IBC Occupant Evacuation Elevator requirements in Section 3008 do not conflict with the current ASME A17.1-2010/CSA B44-10, retaining the current IBC language will not be a problem, and any conflicts with the newer A17.1/CSA B44 can be resolved in the 2018 IBC. While this argument may be true for most codes and standards referenced in the I-Codes, it is incorrect in this case.

   In many jurisdictions in the United States (*e.g.*, Wisconsin) the building code, fire code and elevator code are enacted by different pieces of legislation and regulated by entirely different state or municipal rules and agencies. Because of this, one department enforces the building code, another the elevator code, and neither official is obligated or legally able to recognize the requirements of the other. Some jurisdictions have legislated "auto-adopt" provisions in their elevator laws that will result in applying the 2013 of the *Safety Code for Elevators and Escalators* shortly after its publication. In other words, the 2013 elevator code will apply in many states and cities in little more than a year, irrespective of the code edition reference in the IBC.

   The result is that the building official will require one Occupant Evacuation activation, the Chief Elevator Inspector will require another. Neither will have priority over the other, and the building owner will be continuously in violation of one law or the other. This conflict will exist for seven or more years if this proposal is not approved.
2. The American Society of Mechanical Engineers has stopped publishing yearly addenda to their codes. Had it kept its yearly addenda, an ASME A17.1b-2012/CSA B44b-12 that included the new requirement for Occupant Evacuation Operation would be published by now and available for referencing. At the same time the ICC elongated its code development process such that elevator requirements for the 2015 IBC had to be developed in 2011, four years before the anticipated publication of the IBC. This will significantly undermine efforts to harmonize the ASME, ICC and NFPA codes (a function of the ASME A17 Code Coordination Committee staffed by ICC, ASME, NFPA and *NEII*® representatives). Most importantly, this unprecedented delay will have the effect of decreasing the level of safety the IBC could otherwise provide to users of Occupant Evacuation Elevators.

   ASME A17.1-2013/CSA B44-13 (attached) will include a section on Fire Alarm System Interface that requires that the activation of any building fire alarm initiating device not associated with Phase I elevator recall will provide signals to the elevator system controller(s) to indicate which building floors will be evacuated under the ASME Occupant Evacuation Operation criteria. These floors will be a contiguous block of floors consisting of the floor with the active alarm, two floors above, and two floors below. It will also accommodate enlarging the evacuation zone should other floors have an initiated fire alarm initiating device and will allow for full building evacuation when initiated by firefighters.

   The ASME A17.1/CSA B44 requirements are more comprehensive than those in Section 3008.2.2 and the IBC requirements should be deleted in deference to the ASME provisions.

Final Hearing Results

G181-12 **AS**

Code Change No: G182-12

Original Proposal

Section(s): 3008.7.3

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Revise as follows:

3008.7.3 Lobby doorways. Other than ~~the~~ doors to the hoistway, elevator control room, or elevator control space, each doorway to an occupant evacuation elevator lobby shall be provided with a 3/4-hour *fire door assembly* complying with Section 716.5. The *fire door assembly* shall also comply with the smoke and draft control assembly requirements of Section 716.5.3.1 with the UL 1784 test conducted without the artificial bottom seal.

Reason: Machine Room Less (MRL) elevators permitted by ASME A17.1/CSA B44 typically have control rooms or control spaces that are accessed by a door immediately adjacent to a hoistway opening in an elevator lobby.

3008.7.3 is intended to maintain the integrity of the lobby enclosure smoke barrier and the lobby's separation from the remaining floor area on a building floor (see 3008.7.2). This ensures that smoke from another area on the floor will not reach the lobby smoke detectors and place the elevator(s) into Phase I, thus rendering them unusable for Occupant Evacuation.

Smoke and draft control is unnecessary on elevator control room or space doors because any smoke emanating from those spaces has already activated the smoke detector in the control room/space and placed the elevator(s) in Phase I operation. It is thus unnecessary to protect the lobby smoke detector from smoke originating in the control room/space (or the hoistway to which the room/space is connected).

The ASME A17 Firefighters and Occupant Egress Task Groups that performed the hazard analyses that resulted in Occupant Evacuation Elevators did not discuss MRL elevators in their initial analyses that led to the current IBC requirements, and thus did not anticipate the problem of control room and control space doors opening into a lobby enclosure.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved based upon the action on G176-12.

Assembly Action: **None**

Final Hearing Results

G182-12 **AS**

Code Change No: G183-12

Original Proposal

Section(s): 3008.7.6

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Delete without substitution as follows:

~~**3008.7.6 Lobby status indicator.** Each occupant evacuation elevator lobby shall be equipped with a status indicator arranged to display all of the following information:~~

1. ~~An illuminated green light and the message, "Elevators available for occupant evacuation" when the elevators are operating in normal service and the *fire alarm system* is indicating an alarm in the building.~~
2. ~~An illuminated red light and the message, "Elevators out of service, use *exit stairs*" when the elevators are in Phase I emergency recall operation in accordance with the requirements in ASME A17.1/CSA B44.~~
3. ~~No illuminated light or message when the elevators are operating in normal service.~~

Reason: Requirements for *Occupant Evacuation Operation* have been approved for publication in the 2013 edition of ASME A17.1/CSA B44 *Safety Code for Elevators and Escalators*. With this development and corresponding changes to the NFPA 72 *Fire Alarm and Signaling Code*, the comprehensive ICC/ASME/NFPA package to establish occupant evacuation elevator requirements is complete, and provisions that were temporarily "parked" in the IBC can be removed as they are addressed by ASME A17.1/CSA B44.

ASME A17.1-2013/CSA B44-13 will include all of the information specified in Section 3008.7.6, (1) and (2). In addition, it will require approximate waiting times for persons awaiting an evacuation elevator and an indication that exit stairs may also be used.

ASME A17.1-2013/CSA B44-13 will also provide indicators in the signs in lobbies on floors not being evacuated that elevator service is not available. This will ensure that persons who have heard of a fire in the building and who are aware that elevators may be available for evacuation will not waste time waiting for elevators that will not arrive at their floors.

ASME A17.1-2013/CSA B44-13 will require every sign in elevator lobbies where elevators have entered Phase I Firefighter service to indicate that the elevators are out of service and not available.

ASME A17.1-2013/CSA B44-13 differs from the IBC in that it will permit messages such as "Elevators in normal operation" on the lobby status indicator signs when no evacuation is occurring. The ASME A17 Elevators & Fire Task Group believes that this will accustom building occupants to reading the indicators and will also allow for monitoring to ensure that the signs are operable when needed.

Finally, ASME A17.1-2013/CSA B44-13 will specify that all indicator signs comply with the Variable Message Sign requirements of ICC/ANSI A117.1, thus ensuring they are accessible to persons with disabilities.

For these reasons, Section 3008.7.6 should be deleted in deference to the referenced standard.

DRAFT FOR ASME A17.1-2013/CSA B44-13i

2.27.10 Occupant Evacuation Operation

Where elevators are provided for occupant evacuation, Occupant Evacuation Operation (OEO) shall be provided to function prior to Firefighters' Emergency Operation and shall conform to 2.27.10.1 through 2.27.10.6. See also Nonmandatory Appendix T.

2.27.10.1 The requirements of 2.27.3.1 shall be modified as follows:

2.27.10.1.1 The three-position switch in the lobby (2.27.3.1.1) and two-position switch in the fire command center (2.27.3.1.2) shall be labeled "GROUP FIRE RECALL" and indicate the elevator group that they control.

2.27.10.1.2 An additional three-position key-operated individual "CAR FIRE RECALL" switch per elevator, that will not change position without a deliberate action by the user, shall be located in the lobby at the elevator discharge level adjacent to the elevator it controls. Each switch shall be labeled "CAR ___ FIRE RECALL" (with the car identification, as specified in 2.29.1, inserted), and its positions marked "RESET", "OFF" and "ON" (in that order) in letters a minimum of 5 mm (0.25 in.) high. Text shall be black on a yellow background. Each switch shall control the associated elevator in conformance with 2.27.3.1.6, but shall not control the other elevators controlled by the "GROUP FIRE RECALL" switch (see 2.27.10.1.1).

2.27.10.1.3 Each individual “CAR FIRE RECALL” switch shall terminate Occupant Evacuation Operation for the elevator it controls when placed in the “ON” position. Each “GROUP FIRE RECALL” switch shall terminate Occupant Evacuation Operation for the elevators it controls when placed in the “ON” position.

2.27.10.1.4 Each individual “CAR FIRE RECALL” switch shall be provided with an illuminated visual signal to indicate when Phase I Emergency Recall Operation is in effect for that car (see 2.27.3.1.5).

2.27.10.1.5 To remove an individual elevator from Phase I Emergency Recall Operation, the individual “CAR FIRE RECALL” switch shall be rotated first to the “RESET,” and then to the “OFF” position, provided that

(1) the “GROUP FIRE RECALL SWITCH” and the additional two-position “GROUP FIRE RECALL” switch, where provided, are in the “OFF” position

(2) no fire alarm initiating device is activated (see 2.27.3.2).

2.27.10.1.6 A car with its individual “CAR FIRE RECALL” switch in the “ON” position shall not be removed from Phase I Emergency Recall Operation when the “GROUP FIRE RECALL” switch is rotated to the “RESET” position and then to the “OFF” position.

2.27.10.1.7 The Designated Level shall be the same floor as the Elevator Discharge Level. At the elevator discharge level, only the door(s) serving the lobby where the “GROUP FIRE RECALL” switch is located shall open.

2.27.10.2 The sign required by 2.27.9 shall not be installed. A variable message sign, as defined in A117.1, shall be installed for each elevator group on each landing served. It shall be located not less than 2130 mm (84 in) and not more than 3000 mm (120 in) above the floor and in a central visible location within the elevator lobby. Message text shall be a minimum of 50 mm (2 in) high and conform to A117.1 or Appendix E requirement E-20, whichever is applicable (see Section 9 and E-1). The variable message signs shall be powered by the same power supply as the elevator, including emergency or standby power. Where not prohibited by the Building Code, when the elevators are not on Occupant Evacuation Operation or Firefighters’ Emergency Operation, the variable message signs shall be permitted to display other elevator system status messages. Note: sample text: “Elevators in normal operation”.

2.27.10.3 Where hoistway pressurization is provided, a car on Phase I Emergency Recall, after completing the requirements of 2.27.3.1.6, shall conform to the following:

a) A car shall close its doors after 15 seconds.

b) Door reopening devices, door force limiting devices, kinetic energy limiting devices, and the door open button shall remain active.

c) At least one operating device normally used to call a car to the landing (*e.g.* hall call button, keypad) shall be located in the elevator lobby at the elevator discharge level. Actuating this device shall cause all recalled cars to open their doors for 30 to 45 seconds, then reclose.

2.27.10.4 A position indicator shall be provided at the elevator discharge level above or adjacent to the entrance for each car. The position indicator shall be powered by the same power supply as the elevator, including emergency or standby power.

2.27.10.5 Fire Alarm System Interface

2.27.10.5.1 Upon activation of an automatic fire alarm initiating device in the building in any area which does not initiate Phase I recall in this group, the fire alarm system shall provide signals to the elevator system in conformance with NFPA 72 indicating the floors to be evacuated. The floors to be evacuated shall be a contiguous block of floors, consisting of at least the floor with an active alarm, two floors above and two floors below. The elevator system shall initiate Occupant Evacuation Operation in accordance with 2.27.10.6 for the indicated floors. If activation of an automatic fire alarm initiating device which does not initiate Phase I recall in this group occurs on an additional floor(s) at any time while Occupant Evacuation Operation in accordance with 2.27.10.6 is in effect, the evacuation zone shall be expanded to include all floors with an active alarm, all floors between the highest and lowest floor with an active alarm plus two floors above the highest floor with an active alarm and two floors below the lowest floor with an active alarm. If the active alarm is on the elevator discharge level, automatic initiation of Occupant Evacuation Operation in accordance with 2.27.10.6 shall not be permitted. Manual initiation by authorized or emergency personnel shall be permitted.

Note (2.27.10.5.1): An active alarm refers to the condition caused by the “activation of an automatic fire alarm initiating device” as used in this requirement.

2.27.10.5.2 A means to initiate total building evacuation, labeled “ELEVATOR TOTAL BUILDING EVACUATION” shall be provided at the fire command center location and installed in accordance with NFPA 72. When this means is actuated, the fire alarm system shall provide a signal to the elevator system indicating that all floors are to be evacuated.

2.27.10.6 When any of the signals provided in 2.27.10.5 actuate, the elevators shall conform to 2.27.10.6.1 through 2.27.10.6.10 in order to move occupants from the floors affected by the fire to the elevator discharge level.

2.27.10.6.1 The variable message signs required by 2.27.10.2 shall indicate one of the following messages:

(a) On all floors being evacuated, they shall indicate that the elevators are available for evacuation and the estimated time duration in minutes for the next elevator to arrive.
Note: Sample text: “Elevators and stairs available for evacuation. Next car in about 2 minutes”.

(b) On all floors not being evacuated, they shall indicate that elevator service is not available.
Note: Sample text: “Elevators temporarily dedicated to other floors”.

(c) On the elevator discharge level, they shall indicate that the cars are in evacuation mode and that passengers should not use elevators.
Note (2.27.10.6.1): Sample text: “Elevators dedicated to evacuation. Do not enter elevator”.

(d) If no elevators are available for Occupant Evacuation Operation (Fire service, inspection, shut off, etc.), they shall indicate that elevator service is not available. On all floors being evacuated they shall also indicate that occupants should use the stairs.

Note: Sample text for floors being evacuated: “Elevators out of service. Use stairs to evacuate”. Sample text for other floors: “Elevators out of service”.

2.27.10.6.2 Automatic visual signal or variable message sign, and voice notification in each car shall indicate that the car is being used to evacuate the building. In the event that the car stops to pick up passengers at a floor other than the elevator discharge level, the signals shall instruct the passengers to remain in the car. Upon or prior to arrival at the elevator discharge level, passengers shall be notified that they have arrived at the exit floor and to exit quickly. Message text shall be a minimum of 25 mm (1 in) high and conform to A117.1 or Appendix E requirement E-20, whichever is applicable (see Section 9 and E-1). Voice notification shall be at least 10 dBA above ambient but not more than 80 dBA measured 1525 mm (60 in) above the floor, at the center of the car.

2.27.10.6.3 All landing calls outside of the contiguous block of floors being evacuated shall be canceled and disabled. Building security systems which limit service to these floors shall be overridden. Any landing call within the contiguous block of floors shall call an elevator(s) to that landing. Landing calls entered at the floor with an active alarm shall be given higher priority than the calls at the floors above and below it. If a subsequent active alarm is received from a different floor, the evacuation priority shall be assigned in the sequence received. Once passengers have entered an elevator, it shall proceed only towards the elevator discharge level. When total building evacuation is in effect and no calls are entered at an affected floor, priority shall be based on distance from the elevator discharge level, with the furthest floor served getting highest priority.

2.27.10.6.4 Car calls for all floors, except for the elevator discharge level, shall be canceled and disabled. A car call for the elevator discharge level shall be automatically entered when any landing call is answered.

2.27.10.6.5 Cars which are unoccupied when Occupant Evacuation Operation is actuated shall move without delay to a floor which is being evacuated, and park with their doors closed until a landing call is registered. If the car is in motion away from the floors being evacuated, it shall stop at or before the next available floor, without opening the doors, reverse direction and move to a floor which is being evacuated.

2.27.10.6.6 Cars which are occupied when Occupant Evacuation Operation is actuated shall proceed without delay to the elevator discharge level. If a reversal of travel direction is needed, it shall be done at or before the next available floor without opening the doors. After opening and closing the doors at the elevator discharge level, they shall proceed without delay to a floor which is being evacuated and park with their doors closed until a landing call is registered.

2.27.10.6.7 When a car answers a landing call at a floor being evacuated, a car call for the elevator discharge level shall be automatically registered. The system shall accept a new landing call as soon as the doors have opened to permit loading at that floor, or sooner. If a new landing call is registered at this floor, it shall be assigned to another car, and not canceled until that car arrives. Actuation of the landing call device shall not prevent a loaded car from closing its doors and leaving the floor.

2.27.10.6.8 While passengers are entering the car at a floor being evacuated, when the load reaches no greater than 80% of car capacity, the door re-opening device(s) shall be disabled and the doors shall initiate closing at reduced kinetic energy in accordance with 2.13.4.2.1(c). If the doors stall while closing, they shall re-open fully, then close. An audible signal shall sound until the doors are closed. If the load exceeds 100% of capacity the doors shall re-open and remain open and a voice notification and visual signal shall indicate that the car is overloaded.

2.27.10.6.9 Once the block of floors being evacuated has been evacuated, as indicated by a 60 second period in which no landing calls are registered, one car shall park with its doors closed at the lowest floor of the block of floors ready to answer subsequent landing calls within the block of floors; the rest shall park with doors closed at the elevator discharge level. A car parked at the elevator discharge level shall replace the car at the lowest floor of the block, which has answered a landing call.

2.27.10.6.10 Occupant Evacuation Operation shall be terminated when the fire alarm system is reset or the signals provided in 2.27.3.2 are actuated (see 2.27.10.1.3).

i Approved 2011 by the ASME A17 Standards Committee for ASME A17.1-2013/CSA B44-13; subject to ANSI and ASME Board Approval. Provided for informational purposes and does not indicate endorsement by ASME or its Committees of proposed changes to the ICC *International Building Code*.

Cost Impact: This code change proposal will not increase construction costs.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved as it was felt that the status indicators should remain in the code regardless of whether they are currently addressed by the standard. Additionally, the proposal was disapproved based upon previous actions related to the referencing of the 2013 edition of ASME A17.1.

Assembly Action: **None**

Public Comment

Public Comment:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Submitted.

Commenter's Reason: This proposal was disapproved in part based on its dependence on the 2013 edition of ASME A17.1 that is not yet published. While *NEII*® is generally in agreement with this principle, there are two significant problems in this case:

1. Commenters and the committee assumed that because the IBC Occupant Evacuation Elevator requirements in Section 3008 do not conflict with the current ASME A17.1-2010/CSA B44-10, retaining the current IBC language will not be a problem, and any conflicts with the newer A17.1/CSA B44 can be resolved in the 2018 IBC. While this argument may be true for most codes and standards referenced in the I-Codes, it is incorrect in this case.

In many jurisdictions in the United States (*e.g.*, Wisconsin) the building code, fire code and elevator code are enacted by different pieces of legislation and regulated by entirely different state or municipal rules and agencies. Because of this, one department enforces the building code, another the elevator code, and neither official is obligated or legally able to recognize the requirements of the other. Some jurisdictions have legislated "auto-adopt" provisions in their elevator laws that will result in applying the 2013 of the *Safety Code for Elevators and Escalators* shortly after its publication. In other words, the 2013 elevator code will apply in many states and cities in little more than a year, irrespective of the code edition reference in the IBC.

The result is that the building official will require one set of Occupant Evacuation lobby status indicators, the Chief Elevator Inspector will require another. Neither will have priority over the other, and the building owner will be continuously in violation of one law or the other. This conflict will exist for seven or more years if this proposal is not approved.

2. The American Society of Mechanical Engineers has stopped publishing yearly addenda to their codes. Had it kept its yearly addenda, an ASME A17.1b-2012/CSA B44b-12 that included the new requirement for Occupant Evacuation Operation would be published by now and available for referencing. At the same time the ICC elongated its code development process such that elevator requirements for the 2015 IBC had to be developed in 2011, four years before the anticipated publication of the IBC. This will significantly undermine efforts to harmonize the ASME, ICC and NFPA codes (a function of the ASME A17 Code Coordination Committee staffed by ICC, ASME, NFPA and *NEII*® representatives). Most importantly, this unprecedented delay will have the effect of decreasing the level of safety the IBC could otherwise provide to users of Occupant Evacuation Elevators.

The committee also disapproved this proposal because some testified that the status indicators should remain in the code regardless of whether they are addressed by the standard. There was no technical justification for this other than a parochial attitude that these safety provisions should be kept in "our" code, even if the ASME provisions provide a significantly higher level of safety and the IBC provisions conflict with the superior requirements in ASME A17.1/CSA B44. It should also be noted that ICC staff was instrumental in developing the requirements in the ASME code, committing years of work serving on the ASME A17 Elevators & Fire Task Groups that created the IBC/NFPA/ASME Occupant Evacuation package from which this code change was derived.

Requirements for *Occupant Evacuation Operation* have been approved for publication in the 2013 edition of ASME A17.1/CSA B44 *Safety Code for Elevators and Escalators*. With this development and corresponding changes to the NFPA 72 *Fire Alarm and Signaling Code*, the comprehensive ICC/ASME/NFPA package to establish occupant evacuation elevator requirements is complete, and provisions that were temporarily "parked" in the IBC can be removed as they are addressed by ASME A17.1/CSA B44.

ASME A17.1-2013/CSA B44-13 will include all of the information specified in Section 3008.7.6, (1) and (2). In addition, it will require approximate waiting times for persons awaiting an evacuation elevator and an indication that exit stairs may also be used.

ASME A17.1-2013/CSA B44-13 will also provide indicators in the signs in lobbies on floors not being evacuated that elevator service is not available. This will ensure that persons who have heard of a fire in the building and who are aware that elevators may be available for evacuation will not waste time waiting for elevators that will not arrive at their floors.

ASME A17.1-2013/CSA B44-13 will require every sign in elevator lobbies where elevators have entered Phase I Firefighter service to indicate that the elevators are out of service and not available.

ASME A17.1-2013/CSA B44-13 differs from the IBC in that it will permit messages such as "Elevators in normal operation" on the lobby status indicator signs when no evacuation is occurring. The ASME A17 Elevators & Fire Task Group believes that this will accustom building occupants to reading the indicators and will also allow for monitoring to ensure that the signs are operable when needed.

Finally, ASME A17.1-2013/CSA B44-13 will specify that all indicator signs comply with the Variable Message Sign requirements of ICC/ANSI A117.1, thus ensuring they are accessible to persons with disabilities.

For these reasons, Section 3008.7.6 should be deleted in deference to the referenced standard.

Final Hearing Results

Code Change No: G184-12

Original Proposal

Section(s): 3008.7.7.1, 3008.7.7.2

Proponent: Jerome Seville, Commonwealth of Pennsylvania representing self

Revise as follows:

3008.7.7 Two-way communication system. A two-way communication system shall be provided in each occupant evacuation elevator lobby for the purpose of initiating communication with the *fire command center* or an alternate location *approved* by the fire department.

3008.7.7.1 Design and installation. The two-way communication system shall be provided and installed in accordance with Section 1007.8 ~~include audible and visible signals and shall be designed and installed in accordance with the requirements in ICC A117.1~~.

~~**3008.7.7.2 Instructions.** Instructions for the use of the two-way communication system along with the location of the station shall be permanently located adjacent to each station. Signage shall comply with the ICC A117.1 requirements for visual characters.~~

Reason: The revision will help make sure that the two way communication system requirements will remain consistent over time. The provisions currently in 1007.8 are more complete. The reference to ICC A117.1 will be picked up through the controls requirements in 1109.13 and the signage requirement currently in 1110.3.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

3008.7.7.1 Design and installation. The two-way communication system shall be ~~provided~~ designed and installed in accordance with Section 1007.8.1 and 1007.8.2.

Committee Reason: This proposal eliminates redundant language regarding two way communication systems. The modification clarifies that only specific sections within Section 1007.8 need to be addressed. Referencing the more general section will cause confusion regarding the location of these systems.

Assembly Action: **None**

Final Hearing Results

G184-12 **AM**

Code Change No: G185-12

Original Proposal

Section(s): 3008.9

Proponent: Brian Black, BDBlack Codes, Inc., representing National Elevator Industry Inc. (bdblack@neii.org)

Revise as follows:

3008.9 Electrical power. The following features serving each occupant evacuation elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. ~~Elevator machine room v~~ *Ventilation* and cooling equipment for elevator machine/control rooms, and machinery/control spaces.
3. Elevator ~~controller cooling equipment~~ car lighting.

Reason: Editorial changes in item 2 reflect current terminology in ASME A17.1/CSA B44. Standby power is necessary for elevator car lighting as specified in item 3 to ensure that occupants are not trapped in a pitch-black elevator in case the building power is interrupted.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved based upon the action on G179-12.

Assembly Action: **None**

Public Comment

Public Comment:

Brian Black, BDBlack & Associates, representing National Elevator Industry, Inc., requests Approval as Submitted.

Commenter's Reason: The proposal was disapproved by the committee due to a concern that the terminology revision related to provisions within an updated standard that is not yet published and based on action taken on G179-12.

In fact, the terminology is from the current reference standard ASME A17.1a-2008/CSA B44a-08 and earlier editions of the *Safety Code for Elevators and Escalators*. This proposal does not rely on the 2013 edition of that code.

The numbering in the original proposal as published was incorrect. Instead of being items 1,2 and 3 it was incorrectly labeled 1, 3 and 4 which caused some confusion. This has been corrected.

The editorial changes in item 2 reflect current terminology in ASME A17.1/CSA B44. Standby power is necessary for elevator car lighting as specified in item 3 to ensure that firefighters are not trapped in a pitch-black elevator in case the building power is interrupted.

Final Hearing Results

G185-12 **AS**

Code Change No: G186-12

Original Proposal

Section(s): 202, 3102.1, Chapter 35

Proponent: Jennifer Goupil P.E., The Structural Engineering Institute of ASCE, representing herself (jgoupil@asce.org)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to air-supported, air-inflated, membrane covered cable, ~~and~~ membrane-covered frame structures, and tensile membrane structures, collectively known as membrane structures, erected for a period of 180 days or longer. Those erected for a shorter period of time shall comply with the *International Fire Code*. Membrane structures covering water storage facilities, water clarifiers, water treatment plants, sewage treatment plants, greenhouses and similar facilities not used for human occupancy are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane structures erected on a building, balcony, deck or other structure for any period of time shall comply with this section.

Add new definition as follows:

TENSILE MEMBRANE STRUCTURE. A membrane structure having a shape that is determined by tension in the membrane and the geometry of the support structure. Typically, the structure consists of both flexible elements (e.g. membrane and cables), non-flexible elements (e.g. struts, masts, beams and arches) and the anchorage (e.g. supports and foundations). This includes Frame-supported tensile membrane structures.

Add new standard to Chapter 35 as follows:

ASCE/SEI
ASCE/SEI 55—10 Tensile Membrane Structures

Reason: This change proposes to add the new referenced standard *ASCE 55 Tensile Membrane Structures.* This Standard provides minimum criteria for the design and performance of tensile membrane cable and rigid member structures, including frame structures, collectively known as tensile membrane structures, including permanent and temporary structures as defined herein. The requirements of this Standard shall apply whether the tensile membrane structure is independent of or attached to another structure. This Standard does not apply to air-supported or air-inflated structures.

In addition to the scope and definitions, the Standard includes chapters on membrane materials, connections, design, fabrication and erection, as well as appendices for special provisions and a procedure for determining modulus of elasticity.

ASCE/SEI 55 is published and maintained by the Structural Engineering Institute of the American Society of Civil Engineers (SEI/ASCE). The document is a nationally recognized consensus standard developed in full compliance with the ASCE *Rules for Standards Committees*. The ASCE standards process is fully accredited by the American National Standards Institute (ANSI).

The document is designated ASCE/SEI 55-10 *Tensile Membrane Structures* and it is currently available for purchase from ASCE. Any person interested in obtaining a public comment copy of ASCE/SEI 55 may do so by contacting the proponent at jgoupil@asce.org. A copy of the standard has been submitted with this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, ASCE/SEI 55-10 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

The following is an errata that was not posted to the ICC website.

Add the following provision to the proposal:

3102.1.1 Tensile Membrane Structures. Tensile membrane structures, including permanent and temporary structures shall be designed and constructed in accordance with ASCE 55. The provisions in Sections 3102.3 through 3102.6 shall also apply.

(Portions of proposal not shown remain unchanged)

For staff analysis of the content of ASCE 55-10 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Modified**

Modify proposal as follows:

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to air-supported, air-inflated, membrane covered cable, and membrane-covered frame structures~~,~~ ; and to tensile membrane structures, collectively known as membrane structures, erected for a period of 180 days or longer. Those erected for a shorter period of time shall comply with the *International Fire Code*. Membrane structures covering water storage facilities, water clarifiers, water treatment plants, sewage treatment plants, greenhouses and similar facilities not used for human occupancy are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane structures erected on a building, balcony, deck or other structure for any period of time shall comply with this section.

(Portions not shown remain unchanged)

Committee Reason: The proposal adds a needed referenced standard for tensile membrane structures. The modification corrects grammatical errors.

Assembly Action: **None**

Final Hearing Results

G186-12 **AM**

Code Change No: G187-12

Original Proposal

Section(s): 3102.7.1 (NEW)

Proponent: John Gross (john.gross@nist.gov) and Fahim Sadek (fahim.sadek@nist.gov), National Institute of Standards and Technology (NIST), Department of Commerce (NIST)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add new text as follows:

3102.7.1 Membrane. For membrane-covered frame structures, the membrane shall not be considered to provide lateral restraint in the calculation of the capacities of the frame members.

Reason: This proposal is one of three submitted on the basis of the National Institute of Standards and Technology (NIST) study of the collapse of the Dallas Cowboys Indoor Practice Facility of May 2, 2009 (Gross et al., 2010).
In its study of the collapse of the Dallas Cowboys Indoor Practice Facility, a membrane-covered frame structure, NIST found that the facility was designed assuming that the tensioned exterior membrane provided lateral bracing for the frames. Had the building been designed assuming that the membrane would not provide lateral restraint, the design capacity for some frame members would have been 46 % of the capacity based on the assumption that the membrane provides full lateral restraint (see Table 5-5 of Gross et al., 2010)?

A review of the state of the practice indicated that there is some disparity among designers of membrane-covered frame structures regarding the contribution of the membrane to the stability of the frame members: some designers rely on the membrane to provide lateral support to the frames, while others do not. The amount of lateral restraint provided by the membrane depends on the stiffness and strength of the membrane which are not well quantified over the lifespan of the membrane. The degree of lateral restraint also depends on the level of tension in the membrane, which is uncertain since it is a function of the initial tensioning and maintenance procedure over the life of the membrane. A particular concern is the susceptibility of the fabric material to tearing due to a variety of reasons such as wind-borne debris during windstorms, accidental cuts during installation or maintenance, or degradation of the fabric tear strength due to environmental conditions including ultraviolet exposure. In such cases, tearing of the fabric would compromise the stability of the structural frames, which would in turn threaten the integrity of the entire structural system. In addition, tears in the fabric could introduce unbalanced lateral loads on the frame members. As a result, not considering the membrane to provide lateral restraint to the framing of the building is appropriate and justifiable on the basis of the factors mentioned herein.

Bibliography:
Gross, J.L., Main, J.A., Phan, L.T., Sadek, F., Cauffman, S.A., and Jorgensen, D.P., (2010), ~~Fin~~al Report on the Collapse of the Dallas Cowboys Indoor Practice Facility, May 2, 2009, NISTIR 7661, Gaithersburg, MD, January.

Cost Impact: The code change proposal will increase the cost of construction. This proposed change may require an increase in capacity for some structural members subjected to compression. This increase will result in moderate increase in the overall cost of construction. It is believed that such a cost impact is justified on the basis of occupant safety.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: This proposal codifies an appropriate engineering assumption for membrane-covered frame structures.

Assembly Action: **None**

Final Hearing Results

G187-12 **AS**

Code Change No: G190-12

Original Proposal

Section(s): 3103.1.1 (New)

Proponent: Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee (BCAC)

Add new text as follows:

3103.1.1 Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, *means of egress*, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The International Code Council's Building Code Action Committee was asked to look at adding structural provisions and requirements for temporary structures. In the current code, the administrative requirements for temporary structures are located in section 108 while the technical requirements are in section 3103. In reviewing the existing code, it was the opinion of the BCAC that the two sections in the current code sufficiently address the requirements. However, the BCAC did determine that section 108.2, "Conformance", was more technical than administrative and that a code user may not be aware of those requirements when looking at section 3103 for the technical requirements. To address this and to avoid potential confusion or oversight, the BCAC proposes moving the technical language of section 108.2 to section 3103.1.1.

Cost Impact: The code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved based upon concerns with enforcement issues. Section 108 has provisions to address these situations already.

Assembly Action: **None**

Public Comment

Public Comment:

Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee (BCAC), requests Approval as Submitted.

Commenter's Reason: Commenter's Reason: This public comment is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 5 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

In disapproving this code change proposal, the code development committee stated that moving the requirements of Section 108.2 to Section 3103.1.1 was unnecessary because the requirements were appropriately located in Section 108.2.

The BCAC disagrees with the code development committee; we would like the proposal *approved as submitted*. We still think our proposal to copy the provisions in Section 108.2 into Section 3103.1.1 makes the most sense, because the conformance requirements are technical in nature, and therefore belong in the technical area of the code that deals with temporary structures.

Also the BCAC argues that since many states generate their own chapter 1 requirements, the conformance requirements for temporary structures would be best served in 3103.1.1.

If successful, the BCAC intends to propose deleting Section 108.2 during the Group B hearings when all provisions in Chapter 1 will be considered.

Final Hearing Results

G190-12	AS

Code Change No: G191-12

Original Proposal

Section(s): 3104.1.1 (NEW), 3104.2, 3104.5

Proponent: Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee (BCAC)

Revise as follows:

3104.1 General This section shall apply to connections between buildings such as *pedestrian walkways* or tunnels, located at, above or below grade level, that are used as a means of travel by persons. The *pedestrian walkway* shall not contribute to the *building area* or the number of *stories* or height of connected buildings.

3104.1.1 Application. Pedestrian walkways shall be designed and constructed in accordance with Sections 3104.2 through 3104.9. Tunnels shall be designed and constructed in accordance with Section 3104.2 and 3104.10.

3104.2 Separate structures. ~~Connected~~ Buildings connected by pedestrian walkways or tunnels shall be considered to be separate structures.

Exceptions:

1. Buildings that are on the same *lot* and considered as portions of a single building in accordance with Section 503.1.2 ~~shall be considered a single structure~~.
2. For purposes of calculating the number of Type B units required by Chapter 11, structurally connected buildings and buildings with multiple wings shall be considered one structure.

3104.3 Construction. (No proposed changes)

3104.4 Contents. (No proposed changes)

3104.5 ~~Fire barriers between~~ Connections of pedestrian walkways ~~and~~ to buildings. The connection of a pedestrian walkway to a building shall comply with any one of the following: Section 3104.5.1, 3104.5.2, 3104.5.3 or 3104.5.4.

Exception: Buildings that are on the same lot and considered as portions of a single building in accordance with Section 503.1.2.

3104.5.1 Fire Barriers. Pedestrian walkways shall be separated from the interior of the building by not less than 2-hour *fire barriers* constructed in accordance with Section 707 and Sections 3104.5.1.1 through 3104.5.1.3. ~~or *horizontal assemblies* constructed in accordance with Section 711, or both.~~

3104.5.1.1 Exterior walls. Exterior walls of buildings connected to pedestrian walkways shall be 2-hour fire-resistance-rated. This protection shall extend not less than ~~vertically from a point~~ 10 feet (3048 mm) in every direction surrounding the perimeter of the pedestrian walkway. ~~above the walkway roof surface or the connected building roof line, whichever is lower, down to a point 10 feet (3048 mm) below the walkway and horizontally 10 feet (3048 mm) from each side of the *pedestrian walkway*.~~

3104.5.1.2. Openings in exterior walls of connected building. Openings ~~within the l0-foot (3048 mm) horizontal extension of the protected walls beyond the walkway~~ in exterior walls required to be fire-

resistance rated in accordance with Section 3104.5.1.1 shall be equipped with ~~devices~~ opening protectives providing a minimum 3/4-hour *fire protection rating* in accordance with Section 716.

3104.5.1.3 Supporting Construction. The fire barrier shall be supported by construction as required by Section 707.5.1.

~~**Exception:** The walls separating the *pedestrian walkway* from a connected building and the openings within the 10- foot (3048 mm) horizontal extension of the protected walls beyond the walkway are not required to have a *fire-resistance rating* by this section where any of the following conditions exist:~~

~~1. The distance between the connected buildings is more than 10 feet (3048 mm). The *pedestrian walkway* and connected buildings, except for *open parking garages*, are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

3104.5.2. Alternative separation. The wall separating the pedestrian walkway and the building shall comply with Section 3104.5.2.1 or 3104.5.2.2 when:

1. The distance between the connected buildings is more than 10 feet (3048 mm)
2. The *pedestrian walkway* and connected buildings, are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, and the roof of the walkway is not more than 55 feet above grade connecting to the fifth, or lower, story above grade plain, of each building

   Exception: Open parking garages need not be equipped with an automatic sprinkler system.

3104.5.2.1 Passage of smoke. The wall ~~is~~ shall be capable of resisting the passage of smoke. ~~or is constructed of a tempered, wired or laminated glass wall and doors subject to the following:~~

~~1.1. The wall or glass separating the interior of the building from the *pedestrian walkway* shall be protected by an *automatic sprinkler system* in accordance with Section 903.3.1.1 and the sprinkler system shall completely wet the entire surface of interior sides of the wall or glass when actuated;~~
~~1.2. The glass shall be in a gasketed frame and installed in such a manner that the framing system will deflect without breaking (loading) the glass before the sprinkler operates; and~~
~~1.3. Obstructions shall not be installed between the sprinkler heads and the wall or glass.~~

3104.5.2.2 Glass. The wall shall be constructed of a tempered, wired or laminated glass wall and doors or glass separating the interior of the building from the *pedestrian walkway.* The glass shall be protected by an *automatic sprinkler system* in accordance with Section 903.3.1.1, that,-when actuated , shall completely wet the entire surface of interior sides of the wall or glass. Obstructions shall not be installed between the sprinkler heads and the wall or glass. The glass shall be in a gasketed frame and installed in such a manner that the framing system will deflect without breaking (loading) the glass before the sprinkler operates.

~~2.~~ **3104.5.3 Open sides on walkway.** Where the distance between the connected buildings is more than 10 feet (3048 mm) the walls at the intersection of the pedestrian walkway and each building need not be fire-resistance rated provided ~~and~~ both sidewalls of the *pedestrian walkway* are not less than 50 percent open with the open area uniformly distributed to prevent the accumulation of smoke and *toxic* gases. The roof of the walkway shall be located not more than 40 ft. above grade plane, and the walkway shall only be permitted to connect to the third or lower story of each building.

Exception: Where the pedestrian walkway is protected with a sprinkler system in accordance with Section 903.3.1.1, the roof of the walkway shall be located not more than 55 ft. above grade plane, and the walkway shall only be permitted to connect to the fifth or lower story of each building.

~~3. Buildings are on the same *lot* in accordance with Section 503.1.2.~~

~~4.~~ **3104.5.4 Exterior walls greater than 2 hours.** Where *exterior walls* of connected buildings are required by Section 705 to have a *fire-resistance rating* greater than 2 hours, the pedestrian walkway shall:

1. Be equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, and
2. Have the roof of the walkway located not more than 55 feet above grade plane, and the walkway shall only be permitted to connect to the fifth, or lower, story above grade plane, of each building.

~~The previous exception shall apply to *pedestrian walkways* having a maximum height above grade of three *stories* or 40 feet (12 192 mm), or five *stories* or 55 feet (16 764 mm) where sprinklered.~~

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx..

The purpose of this code change proposal is to reorganize the provisions of Section 3104.5, regarding the separation options for pedestrian walkways from the buildings they connect. At present, Section 3104.5 relies upon a group of exceptions to provide the requirements for various options for separation of a pedestrian walkway from the buildings to which it is connected. The intent of this proposal is not make any modifications to these technical requirements; it simply writes the section in a format that logically lays out the options available in a direct manner, rather than as exceptions. This is, in our opinion, less confusing.

In addition, an editorial change was made to the two exceptions regarding buildings on the same lot. Section 503.1.2 states that two buildings on the same lot can be treated as separate buildings, or as portions of a single building. These exceptions were always intended to refer to the segment of Section 503.1.2 where two buildings are considered portions of a single building. The exceptions were rewritten to make that clear.

Finally, the existing language is unclear regarding the protection provided under the provisions now numbered 3104.5.1. Existing text states that the separation between the building and the walkway is to be a fire barrier and it then implies the fire barrier extends to the surrounding exterior walls. As fire barriers are an internal element and not an exterior wall element, the provisions of 3104.5 are revised to clarify how the 'protection' continues surrounding the walkway. Section 3104.5.1.3, while it appears to be a new provision, is merely a reminder of the requirements for supporting construction found in Section 707. Providing the reference will provide more consistent application.

Cost Impact: None.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

3104.5.4 Exterior walls greater than 2 hours. Where *exterior walls* of connected buildings are required by Section 705 to have a *fire-resistance rating* greater than 2 hours, the walls at the intersection of the pedestrian walkway and each building need not be fire resistance rated provided the pedestrian walkway is ~~shall~~:

1. ~~Be~~ Equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, and
2. ~~Have~~ The roof of the walkway is not located ~~not~~ more than 55 feet above grade plane, and the walkway shall only be permitted to connect to the fifth, or lower, story above grade plane, of each building.

(Portions not shown remain unchanged)

Committee Reason: This proposal was felt to be a good clean up of current language on pedestrian walkways to clarify the various compliance options. The modification simply clarifies that the walls at the intersection of the building and walkway do not need to be fire resistance rated. This was previously addressed in the 2009 code within the main body of the exception to Section 3104.5 but is lost when each section stands on its own.

Assembly Action: **None**

Final Hearing Results

G191-12 **AM**

Code Change No: G192-12

Original Proposal

Section(s): 3105.4

Proponent: Lee J. Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development (lkranz@bellevuewa.gov)

Revise as follows:

3105.4 Awning and canopy materials. Awnings and c*anopies* shall be ~~constructed of a rigid framework~~ provided with an *approved* covering that meets the fire propagation performance criteria of NFPA 701 or has a *flame spread index* not greater than 25 when tested in accordance with ASTM E 84 or UL 723.

Reason: The code does not currently provide a means for building officials to regulate the fire propagation performance and flame spread requirements for materials covering awnings afforded for canopies. This is resolved by adding "awnings" to this section. The words "constructed of a rigid framework…" is deleted as it is already included in the definitions of awning and canopy.

Cost Impact: This code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The provisions of Section 3105.4 were not intended to apply to awnings. This would possibly require compliance with NFPA 701 for awnings installed on one and two family dwellings. Compliance with NFPA 701 in general for awnings was felt to be unnecessary.

Assembly Action: **None**

Public Comments

Public Comment:

Lee J. Kranz, City of Bellevue Washington representing Washington Association of Building Officials Technical Code Development Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

3105.4 Awning and canopy materials. Awnings and canopies shall be provided with an approved covering that meets the fire propagation performance criteria of NFPA 701 or has a flame spread index not greater than 25 when tested in accordance with ASTM E 84 or UL 723.

Exception: The fire propagation performance and flame spread index requirements shall not apply to awnings installed on detached one and two family dwellings.

Commenter's Reason: Awnings, like canopies, may be installed on residential or commercial buildings. Awnings are typically light-weight frame structures, supported wholly or partially by the building to which they are attached and are typically covered with a membrane or fabric covering, therefore are more likely to pose a potential risk by dripping molten plastic or vinyl on building occupants leaving a building during a fire event. They may also pose a risk to fire fighters entering a building to extinguish a fire if the awning has been subjected to fire. Currently, the code does not provide a way for building officials to regulate the fire propagation performance and flame spread requirements for awning covering materials. This was resolved by adding "Awnings" to Section 3105.4. The General Committee suggested that it was never intended to regulate awning covering materials for one and two family dwellings so an exception is now included to resolve that issue. The definitions for *awnings* and *canopies* are very similar

and either may be installed on commercial or residential buildings. The primary difference between the two lies in how they are supported.

Final Hearing Results

G192-12	AMPC

Code Change No: G195-12

Original Proposal

Section(s): 3109.4

Proponent: Steve Pfeiffer, City of Seattle, Dept. of Planning & Development (steve.pfeiffer@seattle.gov)

Revise as follows

3109.4 Residential swimming pools. Residential swimming pools shall ~~comply~~ be completely enclosed by a barrier complying with Sections 3109.4.1 through 3109.4.3.

Exception: A swimming pool with a power safety cover or a spa with a safety cover complying with ASTM F 1346 need not comply with Section 3109.4.

Reason: The purpose of this change is to clarify the location where barriers are required at a residential swimming pool. The current code provisions specify how to construct a barrier, but don't specify that the pool must be entirely surrounded by the barrier. The proposed language is similar to Section 3109.3 for public swimming pools.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved based upon the proponents request and action taken on G193-12 Parts I through IV.

Assembly Action: **None**

Public Comment

Public Comment:

Rick Lupton, City of Seattle representing Dept of Planning & Development, requests Approval as Submitted.

Commenter's Reason: The purpose of this change is to clarify the location where barriers are required at a residential swimming pool. The current code provisions specify how to construct a barrier, but don't specify that the pool must be entirely surrounded by the barrier. The proposed language is similar to Section 3109.3 for public swimming pools. If G193 does not pass then this code change is still necessary. If G193 passes at the Final Action Hearing then the proposal will be withdrawn.

Final Hearing Results

G195-12 **AS**

Code Change No: G197-12

Original Proposal

Section(s): 3111.1.1 (NEW)

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Add new text as follows:

3111.1.1 Rooftop-mounted solar photovoltaic panels and modules. Solar photovoltaic panels and modules installed upon a roof or as an integral part of a roof assembly shall comply with the requirements of Chapter 15 and the *International Fire Code*.

Reason: This code change proposal is intended to add clarity to the Code. Rooftop-mounted solar photovoltaic panels and modules are addressed in Chapter 15-Roof Assemblies and Rooftop Structures, specifically in Section 1505.8-Photovoltaic Systems, Section 1507.17-Photovoltaic Modules/Shingles and Section 1511-Solar Photovoltaic Panels/Modules.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal provides a helpful clarification that compliance with Chapter 15 and the IFC is required when photovoltaic panels and modules are installed on a roof.

Assembly Action: **None**

Final Hearing Results

G197-12 **AS**

Code Change No: G201-12

Original Proposal

Section(s): [A] 101.4, [A] 116.5, 201.3, 202, Chapter 34

Proponent: Charles S. Bajnai, Chesterfield County, VA., ICC Building Code Action Committee (BCAC)

Delete without substitution as follows:

~~**CHAPTER 34**~~
~~**EXISTING STRUCTURES**~~

Revise as follows:

[A] 101.4 Referenced codes. The other codes listed in Sections 101.4.1 through ~~101.4.6~~ 101.4.7 and referenced elsewhere in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference.

[A] 101.4.7 Existing buildings. The provisions of the *International Existing Building Code* shall apply to all matters governing the repairs, alterations, change of occupancy, additions and relocation of existing buildings.

[A] 116.5 Restoration. The structure or equipment determined to be unsafe by the *building official* is permitted to be restored to a safe condition. To the extent that repairs, *alterations* or *additions* are made or a change of occupancy occurs during the restoration of the structure, such repairs, *alterations*, *additions* or change of occupancy shall comply with the requirements of Section 105.2.2 and ~~Chapter 34~~ *the International Existing Building Code*.

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the *International Energy Conservation Code*, *International Fuel Gas Code*, *International Fire Code*, *International Existing Building Code, International Mechanical Code* or *International Plumbing Code,* such terms shall have the meanings ascribed to them as in those codes.

Revise as follows:

SECTION 202
DEFINITIONS

EXISTING STRUCTURE ~~(For Chapter 34)~~. A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building *permit* has been issued.

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Consistency and coordination among the International Codes is one of the cornerstones of the ICC Code Development process. The ICC Board established the ICC Building Code Action Committee (BCAC) to act as a forum to deal with complex issues ahead of the Code Development Process, identify emerging issues and draft proposed code changes.

This proposed change is a result of the BCAC's work. This code change proposal was identified as the highest priority of the code change topics brought to the committee.

The purpose of this code change is to eliminate redundant and otherwise unnecessary and confusing requirements in the ICC family of codes. This is an effort to consolidate requirements for Existing Buildings into one code. The IEBC takes a more comprehensive approach to existing buildings than the IBC. The amount of language needed to properly regulate Existing Buildings

would make the IBC Chapter 34 too large, or require the IBC to be split into two volumes. Therefore it is necessary and proper to regulate Existing Buildings under the provisions of the IEBC. This does not mean that the IEBC is the only document for regulation of Existing Buildings because the IEBC references the IBC and vice versa.

Some opposition to the deletion of Chapter 34 has been expressed in past code cycles with the reason that most jurisdictions do not adopt the IEBC. Data collected by ICC Government Relations indicates that 75% of all the States have adopted the IEBC locally or statewide. Of those 75%, 60% adopt the IEBC Statewide in some fashion.

Some opposition to the deletion of Chapter 34 has been expressed in past code cycles with the reason that jurisdictions do not want to adopt another book or that it would require burdensome legislative actions. The data collected by ICC Government Relations indicates that the IEBC is adopted in more jurisdictions than the Plumbing Code, yet the International Plumbing Code is referenced throughout the IBC in more sections than the IEBC. This would require jurisdictions to make several legislative actions to amend to those Plumbing Code references in the IBC, whereas they would only have to take one legislative action in the adoption of the IEBC.

The topic of governance of Existing Buildings has gone through several code cycles flip-flopping from being in the IBC, to being in an appendix, to being in a new code - the IEBC. Opposition to removing it from the IBC and putting it in the IEBC has been expressed that the IEBC was "not ready for prime time" while leaving Chapter 34 in the IBC. The text of Chapter 34 is duplicated in Chapter 4 and 14 of the IEBC and is now "ready for prime time"

It is problematic and confusing when attempting to create code changes to address Existing Buildings. The proponent would have to propose amendments to both the IBC and the IEBC. Furthermore a code change in one committee may fail to get approved but approved in the other. Therefore it only makes sense to have the requirements for Existing Buildings in one document, the IEBC. Then all focus and efforts to properly address regulations for Existing Buildings can be handled through one committee, one avenue and one process.

1. This is more of an editorial change, adding the IEBC.
2. There is no need to have the term "for Chapter 34" in the definition. The ICC codes contain language for Terms not defined in current code but are defined in other codes.
3. The IEBC is already referenced for compliance in IBC 3401.6. The IBC committee agreed to place the reference section 3401.6, stating that the IEBC was a viable design tool as a compliance option. The IEBC is one of the several code documents in the ICC Family of Codes. The requirements in Chapter 34 are duplicated in the IEBC in Chapters 4 and 14 as two separate compliance Chapters/Methods the Table below shows the section references between IBC Chapter 34 and IEBC Chapter 4 and 14.
4. This is proposed to be revised and consistent with language in Section 101.4. The IEBC should be a referenced code the same as the IFGC, IMC, IPC, IPMC, IFC and the IECC. The IEBC is referenced in IBC 3401.6.
5. This is more of an editorial change, adding the IEBC.

Comparison Table of the IBC Chapter 34 and the IEBC Chapter 4

IBC 34	IEBC 4	Notes	IBC 34	IEBC 4	Notes	IBC 34	IEBC 4	Notes
3401.1	401.1		3404.5	403.5		3408.3	407.3	
3401.2		Not in IEBC	3404.6	403.6		3408.4	407.4	
3401.3		Found in 301.2	3405.1	404.1		3409.1	408.1	
3401.4	401.2		3405.2	404.2		3409.2	408.2	
3401.5	401.3		3405.3	404.3		3410.1	409.1	
3402		Found in 202	3405.4	404.4		3411.1	410.1	
3403.1	402.1		3405.5	404.5		3411.2	410.2	
3403.2	402.2		3406.1	405.1		3411.3	410.3	
3403.3	402.3		3406.2	405.2		3411.4	410.4	
3403.4	402.4		3406.3	405.3		3411.5	410.5	
3403.5	402.5		3406.4	405.4		3411.6	410.6	
3404.1	403.1		3406.5	405.5		3411.7	410.7	
3404.2	403.2		3407.1	406.1		3411.8	410.8	
3404.3	403.3		3408.1	407.1		3411.9	410.9	
3404.4	403.4		3408.2	407.2		3412	1401	

Notes:

1. 3401.2 of the IBC contains maintenance language. Similar language regarding maintenance is found in the IPMC.
2. 3401.3 of the IBC is not found in IEBC Chapter 4, however it is found in 301.2.
3. 3402 of the IBC is the definition section and is not found in IEBC Chapter 4, however it is found in 202.

Bibliography: ICC Government Relations Code Adoption Resources.

Analysis:

1. This code change proposal will not remove Chapter 4 or Chapter 14 of the IEBC.
2. ICC Staff would have to change the references in Section 1009.7.2 from ~~3404.1~~ to 403.1 of the International Existing Building Code
3. ICC Staff would have to change the references in Section 1103.2.2 from ~~3411~~ 410 of the International Existing Building Code

Cost Impact: The code change proposal will not increase the cost of construction.

Staff note: The IEBC does not have a definition for 'existing structure', however, it does have a definition for 'existing building' that reads as follows: [B] EXISTING BUILDING. A building erected prior to the date of the adoption of the appropriate code, or one for which a legal building permit has been issued.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal deletes Chapter 34 from the IBC. This proposal was preferred over G202 and G205 which would move the IEBC into the IBC in different forms. It was felt to be the most straightforward approach of simply referencing a single document and not moving all the text from the IEBC into the IBC. Keeping the IEBC as a document of choice will keep the Appendix A and C chapters intact. States such as NJ already address existing buildings within a separate document. Generally it was felt that it was necessary to go down this path to see if the membership is ready. The scoping of the IEBC is more appropriate than the IBC for existing buildings. Finally this will mean all existing building code related issues will go to a single committee. It should be noted that currently the structural provisions of both Chapter 34 and the IEBC are heard by the IBC Structural committee.

Analysis: This code change proposal considered by the IBC-General Committee was one of several proposals addressing the scope and application of the *International Building Code,* Chapter 34, and the *International Existing Building Code*. These proposals included G201-12, G202-12, and G205-12. The action taken by the IBC-General Committee on these proposals coupled with the final action taken at the 2012 Final Action Hearings will be limited to an advisory recommendation to the ICC Board of Directors who will determine the final disposition on these proposed changes.

Assembly Action: **None**

Final Hearing Results

G201-12 **AS**

Code Change No: G204-12

Original Proposal

Section(s): 3401.1

Proponent: David Bonowitz, David Bonowitz S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

Revise as follows:

3401.1 Scope. The provisions of this chapter shall control the *alteration*, *repair*, *addition*, moving, and change of occupancy of existing buildings and structures.

Exception: Existing *bleachers*, grandstands and folding and telescopic seating shall comply with ICC 300.

Reason: Chapter 34 includes Section 3410 for Moved Structures.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as submitted since Chapter 34 regulates structures that have been moved.

Assembly Action: **None**

Final Hearing Results

G204-12	**AS**

Code Change No: G211-12

Original Proposal

Section(s): 3403.4, 3404.4, 3405.2.1, 3405.2.3, 3408.4 (IEBC [B] 402.4, 403.4, 404.2.1, 404.2.3, 407.4), Chapter 35

Proponent: Jennifer Goupil, The Structural Engineering Institute of ASCE (jgoupil@asce.org)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

3403.4 (IEBC [B] 402.4) Existing structural elements carrying lateral load. Where the *addition* is structurally independent of the *existing structure*, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the *addition* is not structurally independent of the *existing structure*, the *existing structure* and its *addition* acting together as a single structure shall be shown to meet the requirements of Sections 1609 and 1613.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *addition* considered is no more than 10 percent greater than its demand-capacity ratio with the *addition* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.
2. In lieu of compliance with Section 1613 for the existing structure, it shall be permitted to demonstrate compliance of the existing structure and addition, acting together as a single structure, with the performance objectives in ASCE 41 Section 2.2.4. Alterations to existing structural elements initiated for the purpose of improving the performance of the seismic force-resisting system of the existing structure shall be permitted to be included in the ASCE 41 analysis.

3404.4 (IEBC [B] 403.4) Existing structural elements carrying lateral load. Except as permitted by Section 3404.5, where the *alteration* increases design lateral loads in accordance with Section 1609 or 1613, or where the *alteration* results in a structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall be shown to meet the requirements of Sections 1609 and 1613.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration* considered is no more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces per Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces, and

capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.

2. In lieu of compliance with Section 1613 for the altered structure, it shall be permitted to demonstrate compliance of the altered structure and addition with the performance objectives in ASCE 41 Section 2.2.4.

3405.2.1 (IEBC [B] 404.2.1) Evaluation. The building shall be evaluated by a *registered design professional*, and the evaluation findings shall be submitted to the building official. The evaluation shall establish whether the damaged building, if repaired to its pre-damage state, would comply with the provisions of this code for wind and earthquake loads.

Wind loads for this evaluation shall be those prescribed in Section 1609. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613.

Exception: In lieu of Section 1613, it shall be permitted to demonstrate compliance with the performance objectives in ASCE 41 Section 2.2.1.

3405.2.3 (IEBC [B] 404.2.3) Extent of repair for noncompliant buildings. If the evaluation does not establish compliance of the pre-damage building in accordance with Section 3405.2.1, then the building shall be rehabilitated to comply with applicable provisions of this code for load combinations that include wind or seismic loads. The wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be as required by this code. Earthquake loads for this rehabilitation design shall be those required for the design of the pre-damage building, but not less than 75 percent of those prescribed in Section 1613. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

Exception: It shall be permitted to demonstrate compliance of the rehabilitated structure with the performance objectives in ASCE 41 Section 2.2.1.

3408.4 (IEBC [B] 407.4) Seismic. When a change of occupancy results in a structure being reclassified to a higher risk category, the structure shall conform to the seismic requirements for a new structure of the higher risk category.

Exceptions:

1. ~~Specific seismic detailing requirements of Section 1613 for a new structure shall not be required to be met where the seismic performance is shown to be equivalent to that of a new structure. A demonstration of equivalence shall consider the regularity, over strength, redundancy and ductility of the structure.~~ In lieu of Section 1613, it shall be permitted to demonstrate compliance with the performance objectives in ASCE 41 Section 2.2.4.
2. When a change of use results in a structure being reclassified from Risk Category I or II to Risk Category III and the structure is located where the seismic coefficient, *SDS,* is less than 0.33, compliance with the seismic requirements of Section 1613 are not required.

Reason: The purpose of this proposal is to permit the use of ASCE 41-13 as an exception to IBC Chapter 16 and ASCE 7 where seismic evaluation or retrofit is required for existing buildings. ASCE 41-13 is a combination of two standards referenced in the 2012 IEBC (ASCE 31-03 and 41-06) for seismic evaluation and retrofit. In many cases the provisions of ASCE 31 and 41 are more appropriate for existing buildings by providing strength, stiffness, and acceptance criteria for structural systems that can meet the seismic performance objectives of the IBC without necessarily meeting all the specific detailing requirements. These standards have a history of use and as a result of the current (ANSI compliant) update cycle, incorporate recent research to represent the state of practice for seismic evaluation and retrofit.

Some specific reasons in support of the direct reference of ASCE 41 in the IBC are as follows:

- ASCE 31 and 41 already have been allowed as an option in the 2012 IBC by means of the Section 3401.5 reference to the IEBC as “deemed to comply.” The 2012 IEBC utilizes ASCE 31 and 41 as reference standards in a very similar manner to what is being proposed for IBC Chapter 34. This proposal makes the connection more direct and allows the use of ASCE 41 for seismic evaluation and retrofit without requiring compliance with other portions of the IEBC (fire, life safety, MEP, etc), thus giving design professionals more flexibility in using ASCE 41.

- ASCE 41-13 has two explicit performance objectives consistent with the intent of IBC Chapter 34. There is a "new building standard equivalent" (ASCE 41-13 Section 2.2.4) intended to be used in conditions where the IBC/ASCE 7 is referenced. This performance objective utilizes the seismic hazard levels for new buildings in ASCE 7 and includes other requirements and acceptance criteria intended to provide IBC-equivalent performance. There is also a basic existing building performance (ASCE 41-13 Section 2.2.1) that matches the traditional performance objective of ASCE 31 and 41, and consistent with 75% of IBC-level seismic forces. These two performance objectives are proposed to be applied in the appropriate sections of IBC Chapter 34, consistent with how those sections currently specify IBC forces.
- There is a history of ASCE 41 being referenced in some jurisdictions' adoption of the IBC, including Chapter 34 of the 2007 California Building Code.

A public ballot version of the new standard will be available from ASCE in the spring of 2012 and it is expected that it a prepublication (white cover) version will be available prior to the ICC Final Action Hearings in October of 2012. Any person interested in obtaining a public comment copy of ASCE 41-13 may do so by contacting the proponent at jgoupil@asce.org.

Cost Impact: The code change proposal will not increase the cost of construction.

Staff Analysis: This code change proposal references ASCE standard 41, which is already referenced in the _International Existing Building code. However, the proposed change to code text is written to correlate with a new edition of the standard ASCE 41-13, rather than the edition presently referenced in the code, which is the 06 edition. The 2013 edition of this standard is not yet completed, published and available. The update to this standard will be considered by the Administrative Code Committee during the 2013 Code Development Cycle. Should this code change proposal be approved, but the update to the standard not be approved by the Administrative Code Committee, the code text will revert to the text as it appears in the 2012 Edition of the Code. Additionally, if the standard update is approved but the document is not published and available by Dec. 1, 2014, an errata will be issued to the Code that will return the affected code text to the text as it appears in the 2012 Edition of the Code.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Disapproved**

Committee Reason: This code change would allow a less robust option that the current code. The committee believes it is necessary to spell out which performance objectives are to be followed.

Assembly Action: **None**

Public Comments

Public Comment:

Jennifer Goupil, The Structural Engineering Institute of ASCE requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

3403.4 (IEBC [B] 402.4) Existing structural elements carrying lateral load. Where the *addition* is structurally independent of the *existing structure*, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the *addition* is not structurally independent of the *existing structure*, the *existing structure* and its *addition* acting together as a single structure shall be shown to meet the requirements of Sections 1609 and 1613. For purposes of this section, compliance with ASCE 41, using a Tier 3 procedure and the two-level performance objective in Table 3403.4 for the applicable risk category, shall be deemed to meet the requirements of Section 1613.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *addition* considered is no more than 10 percent greater than its demand-capacity ratio with the *addition* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.
2. ~~In lieu of compliance with Section 1613 for the existing structure, it shall be permitted to demonstrate compliance of the existing structure and addition, acting together as a single structure, with the performance objectives in ASCE 41 Section 2.2.4. Alterations to existing structural elements initiated for the purpose of improving the performance of the seismic force-resisting system of the existing structure shall be permitted to be included in the ASCE 41 analysis.~~

TABLE 3403.4 (IEBC [B] TABLE 402.4)
PERFORMANCE OBJECTIVES FOR USE IN ASCE 41

FOR ALTERNATIVE COMPLIANCE WITH SECTION 1613

RISK CATEGORY	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1N EARTHQUAKE HAZARD LEVEL	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-2N EARTHQUAKE HAZARD LEVEL
I	Life Safety (S-3)	Collapse Prevention (S-5)
II	Life Safety (S-3)	Collapse Prevention (S-5)
III	Damage Control (S-2)	Limited Safety (S-4)
IV	Immediate Occupancy (S-1)	Life Safety (S-3)

3404.4 (IEBC [B] 403.4) Existing structural elements carrying lateral load. Except as permitted by Section 3404.5, where the *alteration* increases design lateral loads in accordance with Section 1609 or 1613, or where the *alteration* results in a structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall be shown to meet the requirements of Sections 1609 and 1613. For purposes of this section, compliance with ASCE 41, using a Tier 3 procedure and the two-level performance objective in Table 3403.4.1 for the applicable risk category, shall be deemed to meet the requirements of Section 1613.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration* considered is no more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces per Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces, and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.
2. ~~In lieu of compliance with Section 1613 for the altered structure, it shall be permitted to demonstrate compliance of the altered structure and addition with the performance objectives in ASCE 41 Section 2.2.4.~~

3405.2.1 (IEBC [B] 404.2.1) Evaluation. The building shall be evaluated by a *registered design professional*, and the evaluation findings shall be submitted to the *building official*. The evaluation shall establish whether the damaged building, if repaired to its pre-damage state, would comply with the provisions of this code for wind and earthquake loads.

Wind loads for this evaluation shall be those prescribed in Section 1609. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613. Alternatively, compliance with ASCE 41, using the performance objective in Table 3405.2.1 for the applicable risk category, shall be deemed to meet the earthquake evaluation requirement.

~~**Exception:** In lieu of Section 1613, it shall be permitted to demonstrate compliance with the performance objectives in ASCE 41 Section 2.2.1.~~

TABLE 3405.2.1 (IEBC [B] TABLE 404.2.1)
PERFORMANCE OBJECTIVES FOR USE IN ASCE 41
FOR ALTERNATIVE COMPLIANCE WITH REDUCED SECTION 1613 SEISMIC FORCES

RISK CATEGORY	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1E EARTHQUAKE HAZARD LEVEL
I	Life Safety (S-3)
II	Life Safety (S-3)
III	Damage Control (S-2). See Note a.
IV	Immediate Occupancy (S-1)

a. Tier 1 evaluation at the Damage Control performance level shall use the Tier 1 Life Safety checklists and Tier 1 Quick Check provisions midway between those specified for Life Safety and Immediate Occupancy performance.

3405.2.3 (IEBC [B] 404.2.3) Extent of repair for noncompliant buildings. If the evaluation does not establish compliance of the pre-damage building in accordance with Section 3405.2.1, then the building shall be rehabilitated to comply with applicable provisions of this code for load combinations that include wind or seismic loads. The wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be as required by this code. Earthquake loads for this rehabilitation design shall be those required for the design of the pre-damage building, but not less than 75 percent of those prescribed in Section 1613. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location. Alternatively, compliance with ASCE 41, using the performance objective in Table 3405.2.1 for the applicable risk category, shall be deemed to meet the earthquake rehabilitation requirement.

~~**Exception:** It shall be permitted to demonstrate compliance of the rehabilitated structure with the performance objectives in ASCE 41 Section 2.2.1.~~

3408.4 (IEBC [B] 407.4) Seismic. When a change of occupancy results in a structure being reclassified to a higher risk category, the structure shall conform to the seismic requirements for a new structure of the higher risk category. For purposes of this section,

compliance with ASCE 41, using a Tier 3 procedure and the two-level performance objective in Table 3403.4 for the applicable risk category, shall be deemed to meet the requirements of Section 1613.

Exceptions:

1. Specific seismic detailing requirements of Section 1613 for a new structure shall not be required to be met where the seismic performance is shown to be equivalent to that of a new structure. A demonstration of equivalence shall consider the regularity, overstrength, redundancy and ductility of the structure. ~~In lieu of Section 1613, it shall be permitted to demonstrate compliance with the performance objectives in ASCE 41 Section 2.2.4.~~
2. When a change of use results in a structure being reclassified from Risk Category I or II to Risk Category III and the structure is located where the seismic coefficient, S_{DS}, is less than 0.33, compliance with the seismic requirements of Section 1613 are not required.

Commenter's Reason: G211-12 was disapproved at the Public Hearings for two reasons, one of which we believe was a misunderstanding of the proposed standard, and the other is being addressed by this public comment. Therefore, we urge AMPC for G211-12 for the reasons stated below. For the purposes of clarity, the text below for this public comment replaces the original proposal; that is, changes indicated are relative to current code text.

We recommend AMPC for the following reasons.

1. The Committee's reason for disapproval indicated that the use of ASCE 41 would allow a "less robust" option than the current code. This is not correct. ASCE 41 can be used under the 2012 IBC, since Chapter 34 (Section 3401.6) allows the IEBC as a "deemed to comply" alternate. ASCE 41 is referenced as option for seismic evaluation and retrofit (Section 301.1.4).
2. In addition, the new version of the standard (ASCE 41-13) referenced in G211-12 contains a new performance objective that is defined as "equivalent to new building standards" (e.g. ASCE 7-10). This performance objective is required where the 2012 IBC required the use of unreduced ASCE 7 forces for evaluation or retrofit (see locations where Table 3403.4.1 is referenced below.)
3. Many local jurisdictions, including the State of California and City of Seattle have for several code cycles modified Chapter 34 to include references to ASCE 41 as an option for seismic evaluation and retrofit, recognizing that for many types of older buildings, it is acceptable and often more suited to the conditions of those buildings than ASCE 7, which is intended primarily for new construction.
4. The Committee's second reason for disapproval was that the performance objectives should be indicated in Chapter 34 rather than just using section reference in ASCE 41. The modifications below include these tables. It should be noted that these tables are consistent with the performance objectives in ASCE 41 so there is no technical change from the original as-submitted G211-12. In addition, the format and content of this modified proposal is consistent to the modifications that were made in EB1-12 which was approved as modified by the Structural Committee. (EB1-12 is the IEBC version comparable to G211-12.)
5. Additional modifications are proposed for G211-12 to make it more consistent with the AM version of EB1-12. These modifications include recasting the references to ASCE 41 as "alternates" rather than "exceptions" and in Section 3408.4, restoring Exception 1 from the current 2012 IBC text that was mistakenly deleted in the original G211-12.
6. ASCE 41-13, entitled "Seismic Evaluation and Retrofit of Existing Buildings," has completed ASCE committee balloting, and public balloting was complete at the end of July. A pre-publication (white cover) version of the standard will be available prior to the FAH.

Analysis: ASCE/SEI 41 is currently referenced in the International Existing Building Code. Update of the edition referenced for the standard will be handled through the Administrative code change proposals as part of Group B changes in the 2013/14 code development cycle.

Final Hearing Results

G211-12 AMPC

Code Change No: G212-12

Original Proposal

Section(s): 3404.1, 3405.1, 3405.2.3, 3405.5, 3408.4, 3409.1; (IEBC [B] 403.1, 404.1, 404.2.3, 404.5, 407.4, 408.1)

Proponent: David Bonowitz S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

3404.1 (IEBC [B] 403.1) General. Except as provided by Section 3401.4 or this section, *alterations* to any building or structure shall comply with the requirements of ~~the~~ this code for new construction. *Alterations* shall be such that the existing building or structure is no less ~~complying~~ conforming with the provisions of this code than the existing building or structure was prior to the *alteration*.

Exceptions:

1. An existing *stairway* shall not be required to comply with the requirements of Section 1009 where the existing space and construction does not allow a reduction in pitch or slope.
2. *Handrails* otherwise required to comply with Section 1009.15 shall not be required to comply with the requirements of Section 1012.6 regarding full extension of the *handrails* where such extensions would be hazardous due to plan configuration.

3405.1 (IEBC [B] 404.1) General. Buildings and structures, and parts thereof, shall be repaired in compliance with Section ~~3405 and~~ 3401.2. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. Routine maintenance required by Section 3401.2, ordinary repairs exempt from *permit* in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for *repairs* in this section.

3405.2.3 (IEBC [B] 404.2.3) Extent of repair for noncompliant buildings. If the evaluation does not establish compliance of the predamage building in accordance with Section ~~3404.2.1~~ 3405.2.1, then the building shall be rehabilitated to comply with applicable provisions of this code for load combinations that include wind or seismic loads. The wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be as required by this code. Earthquake loads for this rehabilitation design shall be those required for the design of the pre-damage building, but not less than seventy-five percent of those prescribed in Section 1613. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

3405.5 (IEBC [B] 4 04.5) Flood hazard areas. For buildings and structures in *flood hazard areas* established in Section 1612.3, any *repair* that constitutes substantial improvement of the existing structure, as defined in Section 1612.2, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3, any *repairs* that do not constitute substantial improvement ~~or repair of substantial damage~~ of the existing structure, as defined in Section 1612.2, are not required to comply with the flood design requirements for new construction.

3408.4 (IEBC [B] 407.4) Seismic. When a change of occupancy results in a structure being reclassified to a higher risk category, the structure shall conform to the seismic requirements for a new structure of the higher risk category.

Exceptions:

1. Specific seismic detailing requirements of Section 1613 for a new structure shall not be required to be met where the seismic performance is shown to be equivalent to that of a new structure. A demonstration of equivalence shall consider the regularity, over strength, redundancy and ductility of the structure.
2. When a change of use results in a structure being reclassified from Risk Category I or II to Risk Category III and the structure is located where the seismic coefficient, *SDS,* is less than 0.33, compliance with the seismic requirements of Section 1613 ~~are~~ is not required.

3409.1 (IEBC [B] 408.1) Historic buildings. The provisions of this code relating to the construction, *repair*, *alteration*, *addition*, restoration and ~~movement~~ moving of structures, and change of occupancy shall not be mandatory for *historic buildings* where such buildings are judged by the *building official* to not constitute a distinct life safety hazard.

Reason: This proposal is entirely editorial. At ICC discretion, some of the proposed edits should preferably be addressed as errata. Explanations for proposed edits:

- 3404.1: Match similar wording in 3403.1.
- 3405.1: No need for self-reference. The purpose of this item is to point to 3401.2 re coordination of repairs with maintenance.
- 3405.2.3: Errata
- 3405.5: Edit second paragraph to match first paragraph. Because of the definitions of substantial repair and substantial improvement, this proposed change has no substantive effect and is editorial only.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Modified**

Modify proposal as follows:

3405.1 (IEBC [B] 404.1) General. Buildings and structures, and parts thereof, shall be repaired in compliance with Section 3405 and 3401.2. Work on nonda maged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. Routine maintenance required by Section 3401.2, ordinary repairs exempt from *permit* in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for *repairs* in this section.

(Portions of proposal not shown remain unchanged)

Committee Reason: Agreement with the proponent's reason which indicated the proposal is entirely editorial in nature. The modification retains the reference to Section 3405 to clarify that it remains applicable.

Assembly Action: **None**

Public Comments

Public Comment:

John Ingargiola and Gregory Wilson, representing Department Homeland Security, Federal Emergency Management Agency, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

3405.5 (IEBC [B] 404.5) Flood hazard areas. For buildings and structures in *flood hazard areas* established in Section 1612.3, any *repair* that constitutes substantial improvement or repair of substantial damage of the existing structure, as defined in Section 1612.2, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3, any *repairs* that do not constitute substantial improvement or repair of substantial damage of the existing structure, as defined in Section 1612.2, are not required to comply with the flood design requirements for new construction.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: This modification restores the phrase "or repair of substantial damage" in the second paragraph of 3405.5 and adds the same phrase to the first paragraph. The code includes definitions for both terms, and both definitions are required for consistency with the definitions in the federal regulations for the National Flood Insurance Program (44 CFR § 59.1). Although the term "substantial improvement" is defined to include "repairs," it is clearer and more intuitive to include "repair of substantial damage" in a section specifically about repairs.

Final Hearing Results

G212-12	AMPC

Code Change No: G214-12

Original Proposal

Section(s): 3404.4.1 (NEW) [IEBC [B] 403.4.1(NEW)]

Proponent: David Bonowitz, David Bonowitz S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add new text as follows:

3404.4.1 (IEBC [B] 403.4.1) Seismic design category F. Where the portion of the building undergoing the intended alteration exceeds 50 percent of the aggregate area of the building, and where the building is assigned to seismic design category F, the structure of the altered building shall be shown to meet the earthquake design provisions of this code. For purposes of this section, the earthquake loads need not be taken greater than 75 percent of those prescribed in Section 1613 for new buildings of similar occupancy, purpose, and location. New structural members and connections required by this section shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

Reason: This proposal adds a new category of triggered seismic upgrade for the most vulnerable buildings undergoing major alterations. Currently, alteration triggers seismic upgrade only when the intended alteration project has structural impacts (Section 3404.4). A top-to-bottom architectural and mechanical renovation, however, generally triggers no seismic mitigation because such a project rarely increases lateral system DCRs by 10 percent. This proposal fills some of that mitigation gap.

The proposal is measured. It balances regulatory benefits with potential owner costs in three ways (see also the Cost Impact statement below for mitigating factors):

- The proposal covers only essential facilities in areas of the highest seismicity, i.e. those assigned to Seismic Design Category F. These risk category IV buildings are of greatest importance to a community's post-earthquake response and recovery, and if any buildings are deserving of triggered upgrades when their lives are significantly extended through major alterations, these are. Many such buildings (California hospitals, for example) are already addressed by targeted legislation, so will not be affected by the proposed trigger. Yet many jurisdictions with substantial seismic risks do not have histories of proactive mitigation and currently lack the code mechanism to enforce these common-sense improvements to essential facilities. These jurisdictions look to the model codes for best practices.
- The proposal applies only to major alterations where the intended project already involves more than half the building (a Level 3 Alteration, in IEBC terms).
- The proposal incorporates the concept of "reduced" seismic loads familiar to users of the IEBC; reduced loads are also allowed in current Section 3405 for seismic work triggered by repairs.

Cost Impact: Undetermined: Buildings assigned to SDC F that undergo major alteration will be subject to seismic upgrade. However, 1) it is not known how many such buildings exist, 2) many such buildings already have made or would make seismic improvements voluntarily, especially as part of a major alteration, 3) many such buildings would already comply with the reduced forces and would not entail any additional cost, and 4) owners can avoid the triggered work by limiting their scope of alteration.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: This code change clarifies the seismic upgrade triggers for Seismic Design Category F buildings that are undergoing alterations.

Assembly Action: **None**

Final Hearing Results

G214-12 **AS**

Code Change No: G215-12

Original Proposal

Section(s): 3404.4.5 (NEW) [IEBC [B] 403.4.5 (NEW)]

Proponent: David Bonowitz, David Bonowitz S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add new text as follows:

3404.4.5 (IEBC [B] 403.4.5) Bracing for unreinforced masonry parapets upon reroofing. Where the intended alteration requires a permit for reroofing and involves removal of roofing materials from more than 25 percent of the roof area of a building assigned to Seismic Design Category D, E or F that has parapets constructed of unreinforced masonry, the work shall include installation of parapet bracing to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. For purposes of this section, design seismic forces need not be taken greater than 75 percent of those that would be required for the design of similar nonstructural components in new buildings of similar purpose and location.

Reason: This proposal introduces a common-sense seismic mitigation provision to the IBC, to match a similar long-standing provision in the IEBC. The proposal is motivated by a pragmatic recognition of best practices from other model codes and ordinances, by observed damage throughout the east coast from the 2011 Virginia earthquake, and by a desire to align key provisions of the IBC and IEBC.

Currently, where the IBC or the IEBC Prescriptive Method is used, jurisdictions lack a mitigation mechanism for this all-too-common and dangerous damage pattern. Unreinforced brick parapets have been killing people in earthquakes since unreinforced brick buildings have existed. Significantly, the people most at risk are not the building owners themselves, but bystanders who happen to be on the sidewalk when the earthquake hits or tenants who attempt to flee the building during the shaking. The most basic mitigation, fulfilling the most basic purpose of existing building regulation, is to require parapet bracing when the life of such a risky building is being extended. Therefore, even if we maintain multiple code approaches for regulating existing buildings, this common-sense and cost-effective mitigation should be a basic provision in all of them.

The proposal is modeled on IEBC Work Area Method, Section 706.3.1, as follows:

- It applies to reroofing projects (a Level 1 Alteration in IEBC terms) because those projects facilitate access to the roof and parapet needed for typical brace installations.
- It only applies to unreinforced masonry parapets. While these exist in relatively few buildings, unbraced URM parapets remain the most widespread, vulnerable, and dangerous structural elements in earthquakes, as we have seen in several recent non-California events, including Virginia, Wells, NV, and Christchurch, NZ.
- It only applies in areas of high seismicity, for buildings assigned to SDC D-F.
- It allows the use of reduced “75 percent” forces. This is consistent with the IEBC provision and with traditional allowances for existing buildings.
- The proposal represents no cost increase at all in jurisdictions (such as Massachusetts, and most of California) that already have similar mitigation triggers of their own or have implemented targeted mitigation ordinances.
- Parapet bracing has a long history and is effective. Los Angeles required URM parapet bracing in 1949.
- Parapet bracing is not intrusive, as it can be done from outside the building.

Cost Impact: URM buildings in areas of high seismicity that undergo reroofing will become subject to parapet bracing. However, there is no additional cost in the many jurisdictions in high seismicity areas that already have similar provisions or targeted mitigation programs.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Modified**

Modify proposal by revising section 706.3.1 of the IEBC as follows:

IEBC [B] 706.3.1 Bracing for unreinforced masonry bearing wall parapets. ~~Where a permit is issued for reroofing for~~ Where the intended alteration requires a permit for reroofing and involves removal of roofing materials from more than 25 percent of the roof area of a building assigned to Seismic Design Category D, E or F that has parapets constructed of unreinforced masonry, the work shall include installation of parapet bracing to resist the reduced *International Building Code* level seismic forces as specified in Section 301.1.4.2 of this code, unless an evaluation demonstrates compliance of such items.

Committee Reason: The committee believes that unreinforced masonry parapets need to be addressed. This proposal provides consistency between the IBC and the IEBC. The modification provides a clarification that the provision applies when removing roofing in both the IBC Chapter 34 and IEBC Chapters 4 and 7.

Assembly Action: **None**

Final Hearing Results

G215-12 **AM**

Code Change No: G216-12

Original Proposal

Section(s): 3404.4.5 (NEW) [IEBC [B] 403.4.5 (NEW)]

Proponent: David Bonowitz, David Bonowitz S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add new text as follows:

3404.4.5 (IEBC [B] 403.4.5) Wall anchorage for unreinforced masonry walls in major alterations. Where the portion of the building undergoing the intended alteration exceeds 50 percent of the aggregate area of the building, the building is assigned to seismic design category C, D, E, or F, and the building's structural system includes unreinforced masonry walls, the alteration work shall include installation of wall anchors at the roof line to resist seismic forces, unless an evaluation demonstrates compliance of existing wall anchorage. For purposes of this section, design seismic forces need not be taken greater than 75 percent of those that would be required for the design of new buildings of similar structure, purpose, and location.

Reason: This proposal introduces a common-sense seismic mitigation provision to the IBC, to match a similar long-standing provision in the IEBC. The proposal is motivated by a pragmatic recognition of best practices from other model codes and ordinances, by observed damage throughout the east coast from the 2011 Virginia earthquake, and by a desire to align key provisions of the IBC and IEBC.

Currently, where the IBC or the IEBC Prescriptive Method is used, jurisdictions lack a mitigation mechanism for this vulnerable condition. A lack of roof-to-wall anchors, especially when paired with unbraced URM parapets, poses a remaining risk throughout areas of moderate and high seismicity.

The proposal is modeled on IEBC Work Area Method, Section 907.4.4, as follows:

- It only applies to major alterations where the intended project already involves more than half the building (a Level 3 Alteration, in IEBC terms). Thus, the triggered work represents a small additional cost by comparison, and one that makes sense where significant resources are being spent to modernize a URM building.
- It only applies in areas of moderate to high seismicity. (See note below.)
- It allows the use of reduced "75 percent" forces. This is consistent with the IEBC provision and with traditional allowances for existing buildings.
- The proposal represents no cost increase at all in jurisdictions (such as Massachusetts, and most of California) that already have similar mitigation triggers of their own or have implemented targeted mitigation ordinances.

The proposal would apply in SDC C, D, E, or F. 2012 IEBC Section 907.4.4 applies only in SDC D-F, but motivated by damage from the 2011 Virginia earthquake we are separately proposing extending the IEBC trigger to SDC C. As proponents, we urge consistency between the two codes. If our proposal to extend the IEBC provision to SDC C is disapproved, we would be open to a modification of this IBC proposal that would exempt SDC C.

Cost Impact: URM buildings that undergo a 50% alteration will be subject to wall anchorage. The cost of this work is small compared with the typical cost of such a project. Also, there is no additional cost in the many jurisdictions in higher seismicity areas that already have similar provisions or targeted mitigation programs.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Approval of this code change is consistent with the committee's action on EB9-12.

Assembly Action: **None**

Final Hearing Results

G216-12	**AS**

Code Change No: G217-12

Original Proposal

Section(s): 3404.4.5 (NEW) [IEBC [B] 403.4.5 (NEW)]

Proponent: David Bonowitz, David Bonowitz S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add new text as follows:

3404.4.5 (IEBC [B] 403.4.5) Bracing for unreinforced masonry parapets in major alterations. Where the portion of the building undergoing the intended alteration exceeds 50 percent of the aggregate area of the building, and where the building is assigned to seismic design category C, D, E, or F, parapets constructed of unreinforced masonry shall have bracing installed as needed to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. For purposes of this section, design seismic forces need not be taken greater than 75 percent of those that would be required for the design of similar nonstructural components in new buildings of similar purpose and location.

Reason: This proposal introduces a common-sense seismic mitigation provision to the IBC, to match a similar long-standing provision in the IEBC. The proposal is motivated by a pragmatic recognition of best practices from other model codes and ordinances, by observed damage throughout the east coast from the 2011 Virginia earthquake, and by a desire to align key provisions of the IBC and IEBC.

Currently, where the IBC or the IEBC Prescriptive Method is used, jurisdictions lack a mitigation mechanism for this all-too-common and dangerous damage pattern. Unreinforced brick parapets have been killing people in earthquakes since unreinforced brick buildings have existed. Significantly, the people most at risk are not the building owners themselves, but bystanders who happen to be on the sidewalk when the earthquake hits or tenants who attempt to flee the building during the shaking. The most basic mitigation, fulfilling the most basic purpose of existing building regulation, is to require parapet bracing when the life of such a risky building is being extended. Therefore, even if we maintain multiple code approaches for regulating existing buildings, this common-sense and cost-effective mitigation should be a basic provision in all of them.

The proposal is modeled on IEBC Work Area Method, Section 907.4.5, as follows:

- It only applies to major alterations where the intended project already involves more than half the building (a Level 3 Alteration, in IEBC terms). Thus, the triggered parapet bracing represents a small additional cost by comparison, and one that makes sense where significant resources are being spent to modernize a URM building.
- It only applies to unreinforced masonry parapets. While these exist in relatively few buildings, unbraced URM parapets remain the most widespread, vulnerable, and dangerous structural elements in earthquakes, as we have seen in several recent non-California events, including Virginia, Wells, NV, and Christchurch, NZ.
- It only applies in areas of moderate to high seismicity. (See note below.)
- It allows the use of reduced “75 percent” forces. This is consistent with the IEBC provision and with traditional allowances for existing buildings.
- The proposal represents no cost increase at all in jurisdictions (such as Massachusetts, and most of California) that already have similar mitigation triggers of their own or have implemented targeted mitigation ordinances.
    - Parapet bracing has a long history and is effective. Los Angeles required URM parapet bracing in 1949.
    - Parapet bracing is not intrusive, as it can be done from outside the building.

The proposal would apply in SDC C, D, E, or F. 2012 IEBC Section 907.4.5 applies only in SDC D-F, but motivated by damage from the 2011 Virginia earthquake we are separately proposing extending the IEBC trigger to SDC C. As proponents, we urge consistency between the two codes. If our proposal to extend the IEBC provision to SDC C is disapproved, we would be open to a modification of this IBC proposal that would exempt SDC C.

Cost Impact: Minor: URM buildings that undergo a 50% alteration will become subject to parapet bracing. The cost of parapet bracing is small compared with the typical cost of such a project. Also, there is no additional cost in the many jurisdictions in higher seismicity areas that already have similar provisions or targeted mitigation programs.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Approval of this code change is consistent with the committee's action on EB10-12.

Assembly Action: **None**

Final Hearing Results

G217-12	**AS**

Code Change No: G218-12

Original Proposal

Section(s): 3404.5 (NEW) [IEBC [B] 403.4.5 (NEW)]

Proponent: David Bonowitz, David Bonowitz S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add new text as follows:

3404.5 (IEBC [B] 403.4.5) Roof diaphragms resisting wind loads in high-wind regions. Where the intended alteration requires a permit for reroofing and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located where the ultimate design wind speed is greater than 155 mph or in a special wind region as defined in Section 1609, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting at least 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609.

Exception: One- and two-family dwellings need not be evaluated or strengthened.

Reason: This proposal introduces a common-sense mitigation provision to the IBC, to match a similar long-standing provision in the IEBC (Section 706.3.2). The proposal is motivated by a pragmatic recognition of best practices from other model codes and ordinances and by a desire to align key provisions of the IBC and IEBC.
Notes on the proposal:

- The 155 mph triggering wind speed is selected so that only buildings in the most critical wind regions along coastlines (as well as the code-designated special wind regions) are triggered. Note that by using a single wind speed value, the provision will now automatically cover different areas for buildings in different risk categories (see IBC Figures 1609A through 1609C).
- Use of 75 percent wind loads for evaluation limits the impact of the provision to the most deficient structures. This is appropriate.
- Houses are exempt. Many jurisdictions already cover houses with the IRC and exempt them entirely from IBC and IEBC provisions. In these cases the proposed exception makes no difference. Where the IBC or IEBC applies, this exception is considered prudent so as not to discourage very common and beneficial reroofing projects.

Cost Impact: Minor: Deficient buildings in high wind areas will be subject to evaluation, but many such buildings will already be adequate for the reduced loads and will incur no retrofit costs. The proposed exception exempts owners for whom the costs are most likely to discourage maintenance and repair.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Modified**

Modify proposal as follows:

3404.5 (IEBC [B] 403.4.5) Roof diaphragms resisting wind loads in high-wind regions. Where the intended alteration requires a permit for reroofing and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located where the ultimate design wind speed is greater than ~~155 mph~~ 115 mph in accordance with Figure 1609A or in a special wind region as defined in Section 1609, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609, including wind uplift. If the

diaphragms and connections in their current condition are not capable of resisting at least 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609.

~~**Exception:** One- and two-family dwellings need not be evaluated or strengthened.~~

Committee Reason: This proposal makes the IBC requirements for roof diaphragms in high-wind regions consistent with the IEBC and IRC. The committee feels that the best time for these retrofits is when you're replacing the roof covering. The modifications are consistent with the committee's action on EB4-12 and EB5-12. The modification removes the proposed exception for one- and two-family dwellings and applies an appropriate wind speed trigger that will minimize, and hopefully eliminate, much of the damage we do see.

Assembly Action: **None**

Final Hearing Results

G218-12 **AM**

Code Change No: G219-12

Original Proposal

Section(s): 3404.7, 3404.7.1, 3404.7.2, 3404.7.3 (IEBC [B] 403.7, 403.7.1, 403.7.2, 403.7.3)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Add new text as follows:

3404.7 (IEBC [B] 403.7) Refuge areas. Where alterations affect the configuration of an area utilized as a refuge areas, the capacity of the refuge area shall not be reduced below that required in Section 3404.7.1 through 3404.7.3.

3404.7.1 (IEBC [B] 403.7.1) Smoke compartments. In Group I-2 and I-3 occupancies, the required capacity of the refuge areas for smoke compartments in accordance with Section 407.5.1 and 408.6 .2 shall be maintained.

3404.7.2 (IEBC [B] 403.7.2) Ambulatory care. In ambulatory care facilities required to be separated by Section 422.2, the required capacity of the refuge areas for smoke compartments in accordance with Section 422.4 shall be maintained.

3404.7.3 (IEBC [B] 403.7.3) Horizontal exits. The required capacity of the refuge area for horizontal exits in accordance with Section 1025.4 shall be maintained.

Reason: When a space is being altered the designer needs to check that an alteration does not conflict with the area being used as a refuge area from an adjacent compartment. There is a correlative change being proposed for IEBC Chapter 8.

This proposal is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx .

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This is a common issue during alterations with healthcare occupancies and with horizontal exits. These provisions will provide a higher level of assurance that the necessary refuge areas are also addressed.

Assembly Action: **None**

Final Hearing Results

G219-12 **AS**

Code Change No: G222-12

Original Proposal

Section(s): 3405.2.2, 3405.4 (IEBC [B] 404.2.2, 404.4)

Proponent: David Bonowitz, David Bonowitz, S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

3405.2.2 (IEBC [B] 404.2.2) Extent of repair for compliant buildings. If the evaluation establishes compliance of the pre-damage building in accordance with Section 3405.2.1, then repairs shall be permitted that restore the building to its pre-damage state, based on material properties and design strengths applicable at the time of ~~original~~ the most recently permitted construction.

3405.4 (IEBC [B] 404.4) Less than substantial structural damage. For damage less than *substantial structural damage*, *repairs* shall be allowed that restore the building to its pre-damage state, based on material properties and design strengths applicable at the time of ~~original~~ the most recently permitted construction. New structural members and connections used for this repair shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

Reason: In both provisions, the intent is to refer back to the pre-damage condition. In many cases this is not the "original" condition of the building when it was first erected. The "most recently permitted" condition better conveys the intent.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Disapproved**

Committee Reason: In referring to a building's pre-damaged condition, "original construction" may at time be misunderstood, but the proposed revision to "most recently permitted" raises questions. For one, this could refer you to unrelated non-structural work or even an unattached accessory structure. It would be more relevant to refer to the particular element being repaired.

Assembly Action: **None**

Public Comments

Public Comment:

David Bonowitz, David Bonowitz, S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

3405.2.2 Extent of repair for compliant buildings. If the evaluation establishes compliance of the pre-damage building in accordance with Section 3405.2.1, then repairs shall be permitted that restore the building to its pre-damage state~~, based on material properties and design strengths applicable at the time of original construction~~.

3405.4 Less than substantial structural damage. For damage less than *substantial structural damage*, *repairs* shall be allowed that restore the building to its pre-damage state~~, based on material properties and design strengths applicable at the time of original construction~~. New structural members and connections used for this repair shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

Commenter's Reason: In both provisions, the intent is to refer back to the pre-damage condition. In many cases this is not the "original" condition of the building when it was first erected. The "most recently permitted" condition better conveys the intent.

However, the ICC Structural committee did not like the revised wording originally proposed. This comment solves the problem in an even simpler and cleaner way – and in a way that the ICC committee has already approved in IEBC sections 606.2.1 and 606.2.2.2.

Final Hearing Results

G222-12 **AMPC**

Code Change No: G223-12

Original Proposal

Section(s): 3405.3 (IEBC [B] 404.3)

Proponent: David Bonowitz, David Bonowitz, S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

3405.3 (IEBC [B] 404.3) Substantial structural damage to gravity load-carrying components. Gravity load-carrying components that have sustained *substantial structural damage* shall be rehabilitated to comply with the applicable provisions of this code for dead and live loads. Snow loads shall be considered if the *substantial structural damage* was caused by or related to snow load effects. Existing gravity load-carrying structural elements shall be permitted to be designed for live loads *approved* prior to the damage. If the *approved* live load is less than that required by Section 1607, the area designed for the nonconforming live load shall be posted with placards of *approved* design indicating the *approved* live load. Nondamaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated or shown to have the capacity to carry the design loads of the rehabilitation design. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

Reason: The proposal adds a useful provision from the Alterations and Additions sections to the Repairs section.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The committee felt that the proposed placarding of areas with nonconforming live loads can protect life safety. This provides flexibility in handling repairs to existing buildings in a manner similar to alterations and additions and it also helps put the occupants on notice.

Assembly Action: **None**

Final Hearing Results

G223-12	**AS**

Code Change No: G225-12

Original Proposal

Section(s): 3407, 3407.1, 3407.2 (New) [IEBC [B] 406, 406.1, 406.2 (New)]

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

Revise as follows:

SECTION 3407 (IEBC 406)
GLASS REPLACEMENT AND EXISTING WINDOWS

3407.1 (IEBC [B] 406.1) ~~Conformance~~ Replacement glass. The installation or replacement of glass shall be as required for new installations.

3407.2 (IEBC 406.2) Replacement Windows. All windows in Group R-2 or R-3 buildings containing dwelling units, window opening control devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all the following apply to the replacement window:

1. The window is operable;
2. The window replacement includes replacement of the sash and the frame;
3. The top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor;
4. The window will permit openings that will allow passage of a 4-inch diameter (102 mm) sphere when the window is in its largest opened position; and
5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by Section 1029.2.

Exceptions:

1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22.86 m) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F 2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The CTC Study Group on Child Window Safety has been fostering changes to the code over the past few cycles to clarify the application and specify the appropriate standards to be included in the code regarding child window safety. Suring the last cycle changes to incorporate those changes were successful in both the IBC and IRC. One of the areas that had not been the focus of CTC was existing windows in existing windows.

This code change incorporates parallel requirements to Section 1013.8 when an existing window is replaced, including the sash and the frame in an R-2 or R-3 building containing dwelling units. By incorporating this section in Chapter 34 and a companion change to the IEBC we can achieve a higher level of safety for children with minimum cost impact.

Cost Impact: The proposed changes will increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was felt necessary to improved child safety in existing buildings where windows are being replaced.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

SECTION 3407 (IEBC 406)
GLASS REPLACEMENT AND ~~EXISTING~~ REPLACEMENT WINDOWS

3407.1 (IEBC [B] 406.1) Replacement glass. The installation or replacement of glass shall be as required for new installations.

3407.2 (IEBC 406.2) Replacement Window Opening Control Devices. ~~All windows~~ In Group R-2 or R-3 buildings containing dwelling units, window opening control devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all the following apply to the replacement window:

1. The window is operable;
2. The window replacement includes replacement of the sash and the frame;
3. The top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor;
4. The window will permit openings that will allow passage of a 4-inch diameter (102 mm) sphere when the window is in its largest opened position; and
5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by Section 1029.2.

Exceptions:

1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22.86 m) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F 2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.

Commenter's Reason: The committee noted in its reason for approval that this will improve child safety in existing building which is of paramount importance. The public comment clarifies in Section 3407.2 that not all windows must be installed with window opening control devices but rather only those that meet the 5 criteria noted. In addition there are two editorial revisions to clarify that we are dealing with replacement windows and not all existing windows (title to 3407) and that in Section 3407.2, the subject matter of the section is the opening control devices.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public

comment is called “Child Window Safety”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/ChildWindowSafety.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

G225-12 **AMPC**

Code Change No: G227-12

Original Proposal

Section(s): 3408 (New) (IEBC [B] 407 (New))

Proponent: Jeff Inks, Window and Door Manufacturers Association (jinks@wdma.com)

Add new text as follows:

SECTION 3408 (IEBC 407)
REPLACEMENT WINDOW OPENINGS

3408.1 (IEBC [B] 407.1) Replacement window openings. Where windows are required to provide *emergency escape and rescue openings* in Group R-2 and R-3 occupancies, replacement windows shall be exempt from the requirements of Sections 1029.2, 1029.3 and 1029.5 provided the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. The replacement of the window is not part of a change of occupancy.

Reason: The intent of this proposal is to ensure that the IBC does not discourage or prevent improvements in fire safety in older residential occupancies by requiring replacement windows meet all of the provisions of Section 1029 when doing so would require increasing the size of the rough opening or altering the interior wall. Because many of these older buildings were constructed under codes that did not include the same emergency escape and rescue opening provisions that the IBC now requires for new construction, the only way to fully meet all of the requirements of Section 1029 for new construction if required when windows are replaced is to enlarge the rough opening and/or make significant alterations to the interior wall in order to accommodate any increase in window size or lowering of a sill.

At the very least, the significant cost and design challenges of altering the rough opening or interior wall can discourage window replacement and at worst can prevent the replacement of older windows that are harder to operate or inoperable all together because of their age and, that are significantly less energy efficient. When that happens, safety in compromised.

On the whole, while older bedroom windows in older buildings may not provide the full clear opening that is required for new construction or may have a sill height above 44 inches, they nonetheless still provide a viable emergency and escape rescue opening which is the primary intent of the code. Replacement of these windows with the same type of operating window or other type that can provide an equal or greater clear opening than the existing window -- even if they do not fully meet the clear opening or sill height requirements of Section 1029 – is always an improvement in safety, especially when a replacement opening can provide a larger clear opening than the existing window. Such improvements in safety should not be discouraged or prevented by overly onerous requirements for replacement windows.

This proposal is intended to ensure that doesn't happen by providing limited exceptions to the requirements of Section 1029 that can only be applied when certain conditions are met. The requirements that emergency escape and rescue openings be provided and the operational requirements for windows providing them are maintained for replacement windows as for new construction.

Cost Impact: This proposal will not increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal allows the installation of new windows without additional burden and at the same time increases energy efficiency. Clarification of Item 1 of proposed Section 3408.1 is necessary although the intent to prevent window openings from becoming smaller is understood.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

~~SECTION 3408 (IEBC 407)~~
~~REPLACEMENT WINDOW OPENINGS~~

~~3408.1 (IEBC [B] 407.1) Replacement window openings~~ **3407.3 Replacement Window Emergency Escape and Rescue Openings.** Where windows are required to provide *emergency escape and rescue openings* in Group R-2 and R-3 occupancies, replacement windows shall be exempt from the requirements of Sections 1029.2, 1029.3 and 1029.5 provided the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. The replacement of the window is not part of a change of occupancy.

Commenter's Reason: This is purely a correlative revision with the approved action on code change G225-12. G225 was approved to address replacement windows in Groups R-2 and R-3 in order to improve child safety from the standpoint of children falling out of windows in existing buildings. As noted by the committee it is approval of G227, this proposal relieves the burden on replacement windows and thus will encourage replacement with safer windows. The public comment, in turn, meshes these two approved proposals by consolidating them in a single section dealing with replacement windows.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "Child Window Safety". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/ChildWindowSafety.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

G227-12 **AMPC**

Code Change No: G228-12

Original Proposal

Section(s): 3408.1 (IEBC [B] 407.1)

Proponent: David Bonowitz, David Bonowitz, S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

3408.1 (IEBC [B] 407.1) Conformance. No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancies or in a different group of occupancies, unless such building is made to comply with the requirements of this code for such division or group of occupancies. Subject to the approval of the *building official*, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

Exception: The building need not be made to comply with the seismic requirements for a new structure unless required by Section 3408.4.

Reason: This proposal clarifies the intent of the code and resolves an apparent, though misunderstood, conflict regarding the seismic upgrade trigger for a Change of Occupancy project. Currently, section 3408.1 calls for full compliance with the code for new construction in the event of any change of occupancy or use. In concept, this would include compliance with earthquake design provisions. Section 3408.4, however, calls for seismic upgrade only when the project would also change the Risk Category. This proposal clarifies the intent and removes the conflict by adding an Exception to Section 3408.4. The wording of the exception is borrowed from current sections 3408.1 and 3408.4.

Note to ICC: A similar change is appropriate for IEBC Section 407. As in past cycles, we expect this to be made as an automatic coordination change, so we have not submitted a corresponding proposal to the IEBC.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: By referring the reader to Section 3408.4, the proposed exception clarifies when a seismic upgrade is triggered under a change of occupancy.

Assembly Action: **None**

Final Hearing Results

G228-12 **AS**

Code Change No: G229-12

Original Proposal

Section(s): 3408.1 (IEBC [B] 407.1)

Proponent: Maureen Traxler, City of Seattle Dept. of Planning & Development, representing Washington Association of Building Officials Technical Code Development (maureen.traxler@seattle.gov)

Revise as follows:

3408.1 (IEBC [B] 407.1) Conformance. No change shall be made in the use or occupancy of any building ~~that would place the building in a different division of the same group of occupancies or in a different group of occupancies,~~ or portion thereof unless such building is made to comply with the requirements of this code for ~~such division or group of occupancies.~~ the occupancy. Changes in use or occupancy in a building or portion thereof shall be such that the existing building is no less complying with the provisions of this code than the existing building or structure was prior to the change. Subject to the approval of the *building official*, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use. Change of tenants will be permitted without complying with this Section 3408 so long as the use is not changed.

Reason: This code change updates the charging language for change of occupancy. The term "division of occupancy" is deleted because the term is only used once elsewhere in the Code (Section 111.2), and its meaning is vague. When a building changes to a use that has special Building Code requirements, the building, or the portions of the building where the new use is located, should be made to comply with those code requirements. For example, if an ambulatory care facility expands from treatment of 3 patients to treatment of 6, Section 903.2.2 would require a sprinkler system to be installed. If an S-1 occupancy changes from the storage of clothing to storage of furniture, Section 903.2.9 would require sprinklers. Hazardous materials storage might not be allowed to move to a higher floor. There are many other similar examples. Even though the code official would not always be aware of these changes, this proposal would provide authority to require compliance when changed conditions are known, and prohibits changes in use that reduce a building's compliance.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal does not add clarification to the change of occupancy requirements.

Assembly Action: **None**

Public Comments

Public Comment:

Maureen Traxler, City of Seattle, representing Department of Planning & Development, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

3408.1 (IEBC [B] 407.1) Conformance. No change shall be made in the use or occupancy of any building or portion thereof unless such building is made to comply with the requirements of this code for the use or occupancy. Changes in use or occupancy in a building or portion thereof shall be such that the existing building is no less complying with the provisions of this code than the existing building or structure was prior to the change. Subject to the approval of the *building official*, the use or occupancy of existing

buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use. ~~Change of tenants will be permitted without complying with this Section 3408 so long as the use is not changed.~~

Commenter's Reason: The published reason for disapproval misses the main point of this code change proposal. The primary objective of the proposal is to require compliance with code requirements for new uses when a change of use occurs. When the use of a building changes to a use that is subject to special code requirements, the building should comply with those requirements.

We are proposing to modify the proposal by removing the last sentence because it is not necessary, and may be confusing. The sentence merely states an example of how the section would be applied, and is an interpretation that would be more appropriate to appear in the Commentary.

Final Hearing Results

G229-12 **AMPC**

Code Change No: G231-12

Original Proposal

Section(s): 202, 3408.1.1 (New) [IEBC [B] 202, 407.1.1 (New)]

Proponent: Al Godwin, CBO, CPM, Aon Fire Protection Engineering (al.godwin@aon.com)

Add new text as follow:

3408.1.1 (IEBC [B] 407.1.1) Change of Character. A change in occupancy with no change of occupancy classification shall not be made to any structure that will subject the structure to any special provisions of the applicable *International Codes*, without approval of the *building official*. Compliance shall be only as necessary to meet the specific provisions and is not intended to require the entire building be brought into compliance.

Add new definition as follows:

CHANGE OF OCCUPANCY. A change in the purpose or level of activity within a building that involves a change in application of the requirements of this code.

Reason: In the last code cycle, Code Change EB27-09/10 added "10. Ambulatory health care facilities" to IEBC Section 902.1 (now 1002.1) under the classification of "change of character. This section in the IEBC, along with The IEBC definition of Change of Use, in general verbiage, recognizes that there are changes of use that do not involve changing occupancy groups.

IEBC Section 1001.2 states:

> "**1001.2 Change in occupancy with no change in occupancy classification.** A change in occupancy, as defined in Section 202, with no *change of occupancy* classification shall not be made to any structure that will subject the structure to any special provisions of the applicable *International Codes*, including the provisions of Section 1002 through 1011, without the approval of the code official."

This proposal is to bring those provisions from IEBC Section 1001.2 over into Chapter 34 of the IBC.

As noted in the IEBC, it is possible to change a use without changing the occupancy classification. Some examples are as follows:

1. Group A-2 bar with an occupant load of 275 to a Group A-2 bar with an occupant load of 350. Increasing occupant loads is permitted under Section 1004.2.
2. Group B office to Group B Ambulatory Health Care
3. Group B office to Group B café
4. Group F-1 factory to a Group F-1 woodworking shop.
5. Group H-3 Oxidizing gases to Group H-3 Flammable solids
6. Group M retail to Group M retail of upholstered furniture
7. Group S-1 warehouse to Group S-1 tire warehouse over 20,000 cubic feet
8. Group S-1 warehouse to Group S-1 motor vehicle repair garage
9. Group R-2 apartment to Group R-2 Live/Work unit.

Each of these classifications has particular code provisions that would apply if the occupancy had been originally identified. Some items might be fire protection, alarms, fresh air, restroom facilities, accessibility, smoke barriers, etc. The IBC currently does not specifically address these changes since they do not change Groups or change Divisions within Groups.

When making a change of character, it is not necessary to totally re-evaluate the building. Only the new applicable provisions should be addressed.

For example:

Group A-2 bar with an occupant load of 275 to a Group A-2 bar with an occupant load of 350.

Items that might require review:

Means of egress – 1004.2, to the public way

Sprinklers – 903.2.1.2, only in this space
Alarms – 907.2.1, only in this space
Restrooms – Chapter 29
Fresh air – IMC
Accessibility – see Section 3411
If food – upgrade of interceptor provisions of the IPC

Items that might not require a new review:

Height and area
Exterior walls and openings

As this is a confusing issue, the code official will need to define what items of correction are appropriate. While the wording may be new, code officials have performed this service for years. This proposal just puts it in the code.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed language needs to be revised with terminology such as "change in the character of use." There was some discussion that the definition proposed could be beneficial in the IBC. Some committee members felt that this language was unnecessary.

Assembly Action: **None**

Public Comment

Public Comment:

Al Godwin, CBO, CPM, Aon Fire Protection Engineering Corporation, requests Approval as Submitted.

Commenter Reason: The Committee made the comment that the wording should be changed to "change in the character of use." Therefore the title of Section 3408.1.1 has been amended to reflect the new provision. This provision already exists in IEBC Section 1001.2. However, according to IEBC Section 301.1 compliance can be achieved by one of the three methods. The provision for Change of Character only exists in the Work Area Method of Section 301.1.2. Change of Character should also occur under the Prescriptive Compliance Method of Chapter 4 which is IBC Section 3408.1.1.

Therefore, this provision is a good change. It merely duplicates an existing IEBC provision and copies it in IEBC 407.1.1, which is also IBC 3408.1.1.

Final Hearing Results

G231-12 **AS**

Code Change No: G232-12

Original Proposal

Section(s): 3409.1, 3409.2 [IEBC [B] 408.1, 408.2 (New)]

Proponent: David Bonowitz, David Bonowitz, S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee (dbonowitz@att.net)

Revise as follows:

SECTION 3409 (IEBC [B] 408)
HISTORIC BUILDINGS

3409.1 (IEBC [B] 408.1) ~~Historic buildings~~ General. The provisions of this code that require improvements relative to a building's existing condition or, in the case of repairs, that require improvements relative to a building's pre-damage condition, shall not be mandatory for historic buildings unless specifically required by this Section. ~~relating to the construction, repair, alteration, addition, restoration and movement of structures, and change of occupancy shall not be mandatory for historic buildings where such buildings are judged by the building official to not constitute a distinct life safety hazard.~~

3409.2 (IEBC [B] 408.2) Life safety hazards. The provisions of this code shall apply to historic buildings judged by the building official to constitute a distinct life safety hazard.

~~3409.2~~ 3409.3 (IEBC [B] ~~408.2~~ 408.3) Flood hazard areas. Within flood hazard areas established in accordance with Section 1612.3, where the work proposed constitutes substantial improvement as defined in Section 1612.2, the building shall be brought into compliance with Section 1612.

Exception: Historic buildings that are:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places;
2. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district; or
3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

Reason: This proposal clarifies what we believe to be the intent of the code with respect to historic buildings: they should be maintained, and new work should be to code standards (with allowances for historic materials already in 3401.4), but upgrades normally triggered in non-historic buildings generally should not be triggered in historic buildings.

The current provision waives all of the code's Existing Buildings provisions for any historic building. We believe this is too broad a waiver, and likely unintended. The better approach, consistent with the more lengthy and detailed IEBC provisions, is to enforce maintenance provisions but to waive triggered upgrades.

Specifically, the proposal maintains the current provisions regarding "distinct life safety hazards" and flood hazard areas" but does the following:

- Editorially changes the title of Section 3409.1 to avoid duplication of title of whole Section 3409.
- Modifies Section 3409.1 to exempt only "improvements" relative to the existing condition before an addition, alteration, repair, change of occupancy, or relocation project begins.
- Moves the current provision regarding "distinct life safety hazards" to its own subsection and rewords it to remove a confusing double negative. Note that in doing so the proposal has the effect of saying that an historic building is *not* a distinct life safety hazard unless it is explicitly judged to be one. This is a change relative to the current provision.
- Renumbers 3409.2 to 3409.3 but otherwise leave the flood provisions untouched.

Note to ICC: A similar change is appropriate for IEBC Section 408. As in past cycles, we expect this to be made as an automatic coordination change, so we have not submitted a corresponding proposal to the IEBC.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved because it does not provide further clarification for historic buildings and would possibly be considered more restrictive.

Assembly Action: **None**

Public Comment

Public Comment:

David Bonowitz, S.E., representing NCSEA Code Advisory Committee, Existing Buildings Subcommittee, requests Approval as Submitted.

Commenter's Reason: This proposal clarifies the intent of the code with respect to historic buildings: they should be maintained, and new work should be to code standards (with allowances for historic materials already in 3401.4), but upgrades normally triggered in non-historic buildings generally should not be triggered in historic buildings.

The current provision waives *all* of the code's Existing Building provisions for any historic building. This is too broad a waiver, and not the one intended. The better approach, consistent with the more lengthy and detailed IEBC provisions, is to enforce maintenance provisions but to waive triggered upgrades.

The ICC Structural Committee's reason for disapproving the proposal, from the ROH, reads, in its entirety, "The proposal was disapproved because it does not provide further clarification for historic buildings and would possibly be considered more restrictive."

With respect, this does not make sense. It suggests that the committee either did not understand the proposal or does not understand the preferred approach taken by the IEBC. The committee's reason has two parts:

- "The proposal … does not provide further clarification for historic buildings …" As the proponents we do not know what this means. Presumably it means either that even more revisions to the 2012 text are needed or that the proposal would have no effect at all and therefore is of no value. Neither of these objections is valid. The first interpretation is invalid because no clarification beyond that proposed is necessary for the proposal to be seen as an improvement relative to the existing 2012 provision. The second interpretation does not make sense because it directly conflicts with the balance of the committee's reason, as explained in the next bullet.
- "The proposal … would possibly be considered more restrictive." Yes, that's correct, but not more restrictive than intended. On the contrary, it is the existing language that is *less* restrictive than almost any code user would want or reasonably expect it to be. The existing language says that the whole of Chapter 34 can be ignored for any historic building that isn't already – that is, prior to the intended project – "a distinct life safety hazard." Can that really be the intent? Additions, alterations, and changes of occupancy can be made without restriction to any historic building? If that's truly the intent, then ICC members should uphold the committee's disapproval. But if members agree with us that the intent is to relax the *upgrade* requirements but otherwise to maintain the existing level of safety in an historic building, then ICC members should approve proposal G232 as submitted.

Final Hearing Results

G232-12 **AS**

Code Change No: G238-12

Original Proposal

Section(s): 3411.7 (IEBC [B] 410.7)

Proponent: Hope Reed, New Mexico Governor's Commission on Disability (hope.reed@state.nm.us)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Revise as follows:

3411.7 (IEBC [B] 410.7) Alterations affecting an area containing a primary function. Where an alteration affects the accessibility to, or contains an area of *primary function*, the route to the primary function area shall be *accessible*. The accessible route to the *primary function* area shall include toilet facilities ~~or~~ and drinking fountains serving the area of primary function.

Exceptions:

1. The costs of providing the *accessible* route are not required to exceed 20 percent of the costs of the *alterations* affecting the area of *primary function.*
2. This provision does not apply to *alterations* limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to *alterations* under taken for the primary purpose of increasing the accessibility of a *facility*.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

Reason: See this same change for IEBC 310.7 and IEBC 605.2

Modify one word to comply with **2010 ADA** section 35.151(b)(4) Path of travel, and comply with **2010 ADA** section 36.403(a)(1) Path of travel.

People with disabilities need bathroom renovations and drinking fountain renovations along the "Path of Travel." When there is a choice, the easier solution is to change just the drinking fountains and look no further. The restroom renovations can be ignored. This does not benefit people with disabilities.

Those old restrooms need to be fixed and when full accessibility is not possible, some attempt at accessibility will provide a benefit to many. Widening the restroom door, installing a raised toilet, installing grab bars, and removing toilet partitions can be easy access renovations to comply with the intent of **2010 ADA**. Restroom and drinking fountain renovations need to be considered on an equal basis to comply with IBC 3411.6 where it states, "*alterations* shall provide access to the maximum extent that is technically feasible."

Cost Impact: The cost will not exceed 20% of the cost for the alteration as stated in IEBC 705.2 Exception 1. Renovations should include equal consideration of both restroom renovations and drinking fountain renovations.

The IEBC needs to help building code officials bring alteration projects closer to the 20% dollar amount. Restroom and drinking fountain renovations need to be considered on an equal basis to comply with IEBC 3411.6 where it states, "*alterations* shall provide access to the maximum extent that is technically feasible.

Public Hearing Results

This code change was heard by the IBC Structural code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The revision clarifies that both bathrooms and drinking fountains must be fixed as part of the accessible route requirements.

Assembly Action: **None**

Final Hearing Results

G238-12	**AS**

Code Change No: G241-12

Original Proposal

Section(s): 3411.8.4 [IEBC [B] 410.8.4]

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Revise as follows:

3411.8.4 (IEBC [B] 410.8.4) Stairs and escalators in existing buildings. In *alterations*, change of occupancy or *additions* where an escalator or *stair* is added where none existed previously and major structural modifications are necessary for installation, an *accessible* route shall be provided between the levels served by the escalator or *stairs* in accordance with ~~Sections~~ Section 1104.4 ~~and 1104.5~~.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent of this provisions is that the accessible route will be permitted to be provided in the same area as the new construction, and is not require it to be located elsewhere in the building. A reference to Section 1104.5 could require the accessible route to be provided in another part of the building is the new stairway was not on a general circulation route. A correlative change has been proposed to IEBC, Section 806.2.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: This revision would allow the accessible route to be provided in the area being altered to add the new stairway or escalator. The current language could be read to require the accessible route in an area remote from the alteration

Assembly Action: **None**

Final Hearing Results

G241-12 **AS**

Code Change No: G242-12

Original Proposal

Section(s): 3411.8.6 [IEBC [B] 410.8.6]

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Delete without substitution:

~~**3411.8.6 (IEBC [B] 410.8.6) Performance areas.** Where it is *technically infeasible* to alter performance areas to be on an *accessible* route, at least one of each type of performance area shall be made *accessible*.~~

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Existing performance areas not addressed in ADA/ABA (see ADA 206.2.6). The exception for performance area does not make a lot of sense because there are typically not multiple performance areas of the same type. If access to the stage or pit is technically infeasible, how would you do even one? We suggest deletion of IBC 3411.8.6 and IEBC 705.1.6

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Multiple performance areas of the same type are typically not provided within the same room. In existing buildings each performance area needs to be evaluated separately. The deletion of this requirement is logical.

Assembly Action: **None**

Final Hearing Results

G242-12 **AS**

Code Change No: G243-12

Original Proposal

Section(s): 3411.8.11 [IEBC [B] 410.8.11]

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Revise as follows:

3411.8.11 (IEBC [B] 410.8.11) Toilet rooms. Where it is *technically infeasible* to alter existing toilet and bathing rooms to be *accessible*, an *accessible* family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, provide directional signs indicating the location of the nearest family or assisted-use toilet room or bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

This proposal will coordinate with ADA 216.8. The intent of this proposal is to add directional signage requirements for family/assisted-use bathrooms when the existing bathrooms are not fully accessible. The same proposal is being made to IBC Section IEBC 705.10.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: Signage at non-accessible bathrooms indicating the location of the accessible family-use bathrooms is needed information. The added requirement is logical for existing buildings.

Assembly Action: **None**

Final Hearing Results

G243-12 **AS**

Code Change No: G244-12

Original Proposal

Section(s): 3412 (IEBC [B] Chapter 14)

Proponent: David S. Collins, The Preview Group, Inc., representing the American Institute of Architects (dcollins@preview-group.com); Michael A. Crowley, P.E., FSFPE, RJA Group (mcrowley@rjagroup.com)

Revise as follows:

3412.2 (IFC [B] 1401.2) Applicability. Structures existing prior to [DATE TO BE INSERTED BY THE JURISDICTION. NOTE: IT IS RECOMMENDED THAT THIS DATE COINCIDE WITH THE EFFECTIVE DATE OF BUILDING CODES WITHIN THE JURISDICTION], in which there is work involving *additions*, *alterations* or changes of occupancy shall be made to comply with the requirements of this section or the provisions of Sections 3403 through 3409. The provisions in Sections 3412.2.1 through 3412.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-2, M, R, S and U. These provisions shall not apply to buildings with occupancies in Group H or ~~I.~~ I-1, I-3 or I-4.

3412.6 (IFC [B] 1401.6) Evaluation process. The evaluation process specified herein shall be followed in its entirety to evaluate existing buildings in Groups A, B, E, F, M, R, S and U. For existing buildings in Group I-2, the evaluation process specified herein shall be followed and applied to each and every individual smoke compartment. Table 3412.7 shall be utilized for tabulating the results of the evaluation. References to other sections of this code indicate that compliance with those sections is required in order to gain credit in the evaluation herein outlined. In applying this section to a building with mixed occupancies, where the separation between the mixed occupancies does not qualify for any category indicated in Section 3412.6.16, the score for each occupancy shall be determined and the lower score determined for each section of the evaluation process shall apply to the entire building, or to each smoke compartment for Group I-2 occupancies.

Where the separation between mixed occupancies qualifies for any category indicated in Section 3412.6.16, the score for each occupancy shall apply to each portion, or smoke compartment of the building based on the occupancy of the space.

3412.6.2 (IFC [B] 1401.6.2) Building area. The value for building area shall be determined by the formula in Section 3412.6.2.2. Section 503 and the formula in Section 3412.6.2.1 shall be used to determine the allowable area of the building. This shall include any allowable increases due to frontage and automatic sprinklers as provided for in Section 506. Subtract the actual *building area* in square feet from the allowable area and divide by 1,200 square feet. Enter the area value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.2, Building Area, for fire safety, means of egress and general safety. In determining the area value, the maximum permitted positive value for area is 50 percent of the fire safety score as *listed* in Table 3412.8, Mandatory Safety Scores. Group I-2 occupancies shall be scored zero.

3412.6.4 (IFC [B] 1401.6.4) Tenant and dwelling unit separations. Evaluate the *fire-resistance rating* of floors and walls separating tenants, including *dwelling units*, and not evaluated under Sections 3412.6.3 and 3412.6.5. Group I-2 occupancies shall evaluate the rating of the separations between patient sleeping rooms.

Under the categories and occupancies in Table 3412.6.4, determine the appropriate value and enter that value in Table 3412.7 under Safety Parameter 3412.6.4, Tenant and Dwelling Unit Separations, for fire safety, means of egress and general safety.

TABLE 3412.6.4 (IFC [B] TABLE 1401.6.4)
SEPARATION VALUES

OCCUPANCY	CATEGORIES				
	a	b	c	d	e
A-1	0	0	0	0	1
I-2	0	1	2	3	4

(Portions of table not shown remain unchanged)

3412.6.5 (IFC [B] 1401.6.5) Corridor walls. Evaluate the *fire-resistance rating* and degree of completeness of walls which create *corridors* serving the floor, and constructed in accordance with Section 1018. This evaluation shall not include the wall elements considered under Sections 3412.6.3 and 3412.6.4. Under the categories and groups in Table 3412.6.5, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.5, Corridor Walls, for fire safety, means of egress and general safety.

TABLE 3412.6.5 (IFC [B] TABLE 1401.6.5)
CORRIDOR WALL VALUES

OCCUPANCY	CATEGORIES			
	a	b	c[a]	d[a]
A-1	-10	-4	0	2
I-2	-10	0	1	2

(Portions of table not shown remain unchanged)

3412.6.7 (IFC [B] 1401.6.7) HVAC systems. Evaluate the ability of the HVAC system to resist the movement of smoke and fire beyond the point of origin. Under the categories in Section 3412.6.7.1, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.7, HVAC Systems, for fire safety, means of egress and general safety. Facilities in Group I-2 occupancies meeting Categories a, b or c shall be considered to fail the evaluation.

3412.6.8 (IFC [B] 1401.6.8) Automatic fire detection. Evaluate the smoke detection capability based on the location and operation of *automatic fire detectors* in accordance with Section 907 and the *International Mechanical Code*. Under the categories and occupancies in Table 3412.6.8, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.8, Automatic Fire Detection, for fire safety, means of egress and general safety. Facilities in Group I-2 occupancies meeting Categories a, b or c shall be considered to fail the evaluation.

TABLE 3412.6.8 (IFC [B] TABLE 1401.6.8)
AUTOMATIC FIRE DETECTION VALUES

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-3, F, M, R, S-1	-10	-5	0	2	6	-
A-2	-25	-5	0	5	9	-
A-4,B,E,S-2	-4	-2	0	4	8	-
I-2	NP	NP	0	4	5	2

3412.6.8.1 (IFC [B] 1401.6.8.1) Categories. The categories for automatic fire detection are:

1. Category a—None.
2. Category b—Existing *smoke detectors* in HVAC systems and maintained in accordance with the *International Fire Code*.
3. Category c—*Smoke detectors* in HVAC systems. The detectors are installed in accordance with the requirements for new buildings in the *International Mechanical Code*.
4. Category d—*Smoke detectors* throughout all floor areas other than individual *sleeping units*, tenant spaces and *dwelling units*.
5. Category e—*Smoke detectors* installed throughout the floor area.

6. Category f – Smoke detectors in corridors only.

3412.6.9 (IFC [B] 1401.6.9) Fire alarm systems. Evaluate the capability of the *fire alarm system* in accordance with Section 907. Under the categories and occupancies in Table 3412.6.9, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.9, Fire Alarm Systems, for fire safety, means of egress and general safety.

TABLE 3412.6.9 (IFC [B] TABLE 1401.6.9)
FIRE ALARM SYSTEM VALUES

OCCUPANCY	CATEGORIES			
	a	b[a]	c	d
A-1, A-2, A-3, A-4, B, E, R	-10	-5	0	5
F, M, S	0	5	10	15
I-2	-4	1	2	5

a. For buildings equipped throughout with an automatic sprinkler system, add 2 points for activation by a sprinkler water flow device.

3412.6.10 (IFC [B] 1401.6.10) Smoke control. Evaluate the ability of a natural or mechanical venting, exhaust or pressurization system to control the movement of smoke from a fire. Under the categories and occupancies in Table 3412.6.10, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.10, Smoke Control, for means of egress and general safety.

TABLE 3412.6.10 (IFC [B] TABLE 1401.6.10)
SMOKE CONTROL VALUES

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-2, A-3	0	1	2	3	6	6
A-4, E	0	0	0	1	3	5
B, M, R	0	2(a)	3(a)	3(a)	3(a)	4(a)
F, S	0	2(a)	2(a)	3(a)	3(a)	3(a)
I-2	-4	0	0	0	3	0

a. This value shall be 0 if compliance with Category d or e in Section 3412.6.8.1 has not been obtained.

3412.6.11 (IFC [B] 1401.6.11) Means of egress capacity and number. Evaluate the *means of egress* capacity and the number of exits available to the building occupants. In applying this section, the *means of egress* are required to conform to the following sections of this code: 1003.7, 1004, 1005, 1014.2, 1014.3, 1015.2, 1021, 1024.1, 1027.2, 1027.5, 1028.2, 1028.3, 1028.4 and 1029. The number of exits credited is the number that is available to each occupant of the area being evaluated. Existing fire escapes shall be accepted as a component in the *means of egress* when conforming to Section 3406.

Under the categories and occupancies in Table 3412.6.11, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.11, Means of Egress Capacity, for means of egress and general safety.

TABLE 3412.6.11 (IFC [B] TABLE 1401.6.11)
MEANS OF EGRESS VALUES

OCCUPANCY	CATEGORIES				
	a[a]	b	c	d	e
A-1, A-2, A-3, A-4, E	-10	0	2	8	10
M	-3	0	1	2	4
B, F, S	-1	0	0	0	0
R	-3	0	0	0	0
I-2	-10	0	2	8	10

a. The values indicated are for buildings six stories or less in height. For buildings over six stories above grade plane, add an additional -10 points.

3412.6.12 (IFC [B] 1401.6.12) Dead ends. In spaces required to be served by more than one *means of egress*, evaluate the length of the *exit* access travel path in which the building occupants are confined to a single path of travel. Under the categories and occupancies in Table 3412.6.12, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.12, Dead Ends, for means of egress and general safety.

TABLE 3412.6.12 (IFC [B] TABLE 1401.6.12)
DEAD-END VALUES

OCCUPANCY	CATEGORIES			
	a	b	c	d
A-1, A-3, A-4, B, E, F, M, R, S	-2	0	2	-
A-2, E	-2	0	2	-
I-2	-2	0	2	-6

a. For dead-end distances between categories, the dead-end value shall be obtained by linear interpolation.

3412.6.12.1 (IFC [B] 1401.6.12.1) Categories. The categories for dead ends are:

1. Category a—Dead end of 35 feet (10 670 mm) in nonsprinklered buildings or 70 feet (21 340 mm) in sprinklered buildings.
2. Category b—Dead end of 20 feet (6096 mm); or 50 feet (15 240 mm) in Group B in accordance with Section 1018.4, exception 2.
3. Category c—No dead ends; or ratio of length to width (l/w) is less than 2.5:1.
4. Category d – Dead ends exceeding Category a.

3412.6.16 (IFC [B] 1401.6.16) Mixed occupancies. Where a building has two or more occupancies that are not in the same occupancy classification, the separation between the mixed occupancies shall be evaluated in accordance with this section. Where there is no separation between the mixed occupancies or the separation between mixed occupancies does not qualify for any of the categories indicated in Section 3412.6.16.1, the building shall be evaluated as indicated in Section 3412.6 and the value for mixed occupancies shall be zero. Under the categories and occupancies in Table 3412.6.16, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.16, Mixed Occupancies, for fire safety and general safety. For buildings without mixed occupancies, the value shall be zero.

3412.6.16.1 (IFC [B] 1401.6.16.1) Categories. The categories for mixed occupancies are:

1. Category a—Occupancies separated by minimum 1-hour *fire barriers* or minimum 1-hour *horizontal assemblies*, or both.
2. Category b—Separations between occupancies in accordance with Section 508.4.
3. Category c—Separations between occupancies having a *fire-resistance rating* of not less than twice that required by Section 508.4.4.

TABLE 3412.6.16 (IFC [B] TABLE 1401.6.16)
MIXED OCCUPANCY VALUES[a]

OCCUPANCY	CATEGORIES		
	a	b	c
A-1, A-2, R	-10	0	10
A-3, A-4, B, E, F, M, S	-5	0	5
I-2	NP	0	5

a. For fire-resistance ratings between categories, the value shall be obtained by linear interpolation.

3412.6.17 (IFC [B] 1401.6.17) Automatic sprinklers. Evaluate the ability to suppress a fire based on the installation of an *automatic sprinkler system* in accordance with Section 903.3.1.1. “Required sprinklers” shall be based on the requirements of this code. Under the categories and occupancies in Table 3412.6.17, determine the appropriate value and enter that value into Table 3412.7 under Safety

Parameter 3412.6.17, Automatic Sprinklers, for fire safety, means of egress divided by 2 and general safety.

TABLE 3412.6.17 (IFC [B] TABLE 1401.6.17)
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-3, F, M, R, S-1	-6	-3	0	2	4	6
A-2	-4	-2	0	1	2	4
A-4, B, E, S-2	-12	-6	0	3	6	12
I-2	NP	NP	NP	8	10	NA

NP not permitted
NA not applicable

3412.6.18 (IFC [B] 1401.6.18) Standpipes. Evaluate the ability to initiate attack on a fire by making a supply of water available readily through the installation of standpipes in accordance with Section 905. Required standpipes shall be based on the requirements of this code. Under the categories and occupancies in Table 3412.6.18, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.18, Standpipes, for fire safety, means of egress and general safety.

TABLE 3412.6.18 (IFC [B] TABLE 1401.6.18)
STANDPIPE SYSTEM VALUES

OCCUPANCY	CATEGORIES			
	a[a]	b	c	d
A-1, A-3, F, M, R, S-1	-6	0	4	6
A-2	-4	0	2	4
A-4, B, E, S-2	-12	0	6	12
I-2	-2	0	1	2

a. This option cannot be taken if Category a or b in Section 3412.6.17 is used.

3412.6.20 (IFC [B] 1401.6.20) Smoke Compartmentation. Evaluate the smoke compartments for compliance with Section 417.5. Using Table 3412.6.20, determine the appropriate smoke compartmentation value (*SCV*) and enter that value into Table 3412.7 under Safety Parameter 3412.6.20, Smoke Compartmentation, for fire safety, means of egress and general safety.

TABLE 3412.6.20 (IFC [B] TABLE 1401.6.20)
SMOKE COMPARTMENTATION VALUES

OCCUPANCY	CATEGORIES[a]		
	a Compartment size equal to or less than 22,500 square feet	b Compartment size greater than 22,500 square feet	c No smoke Compartment
A, B, E, F, M, R and S	0	0	0
I-2	0	NP	NP

For SI: 1 square foot = 0.093 m^2.
a. For areas between categories, the smoke compartmentation value shall be obtained by linear interpolation.

3412.6.21 (IFC [B] 1401.6.21) Patient ability, concentration, smoke compartment location and ratio to attendant. In I-2 occupancies, the ability of patients, their concentration and ratio to attendants shall be evaluated and applied per this section. Evaluate each smoke compartment using the categories in Sections 3412.6.21.1, 3412.6.21.2 and 3412.6.21.3 and enter the value in Table 3412.8. To determine the safety factor, multiply the three values together, if the sum is 9 or greater, compliance has failed.

3412.6.21.1 (IFC [B] 1401.6.21.1) Patient ability for self-preservation. Evaluate the ability of the patients for self-preservation in each smoke compartment in an emergency. Under the categories and occupancies in Table 3412.6.21.1 determine the appropriate value and enter that value in Table 3412.7

under Safety Parameter 3412.6.21.1, Patient Ability for Self-Preservation, for means of egress and general safety.

3412.6.21.1.1 (IFC [B] 1401.6.21.1.1) Categories: The categories for patient ability for self-preservation are:

1. Category a – (mobile) Patients are capable of self preservation without assistance.
3. Category c – (not mobile) Patients rely on assistance for evacuation or relocation.
4. Category d – (not movable) Patients cannot be evacuated or relocated

TABLE 3412.6.21.1 (IFC [B] TABLE 1401.6.21.1)
PATIENT ABILITY VALUES

OCCUPANCY	CATEGORIES		
	a	b	c
I-2	1	2	3

3412.6.21.2 (IFC [B] 1401.6.21.2) Patient Concentration. Evaluate the concentration of patients in each smoke compartment under Section 3412.6.21.2. Under the categories and occupancies in Table 3412.6.21.2 determine the appropriate value and enter that value in Table 3412.7 under Safety Parameter 3412.6.21.2, Patient Concentration, for means of egress and general safety.

3412.6.21.2.1 (IFC [B] 1401.6.21.2.1) Categories: The categories for patient concentration are:

1. Category a – smoke compartment has 1 to 10 patients.
2. Category b – smoke compartment has more than 10 to 40 patients
3. Category d – smoke compartment has greater than 40 patients

TABLE 3412.6.21.2 (IFC [B] TABLE 1401.6.21.2)
PATIENT CONCENTRATION VALUES

OCCUPANCY	CATEGORIES		
	a	b	c
I-2	1	2	3

3412.6.21.3 (IFC [B] 1401.6.21.3) Attendant-to-Patient Ratio. Evaluate the attendant-to-patient ratio for each compartment under Section 3412.6.21.3. Under the categories and occupancies in Table 3412.6.21.3 determine the appropriate value and enter that value in Table 3412.7 under Safety Parameter 3412.6.21.3, Attendant-to-Patient Ratio, for means of egress and general safety.

3412.6.21.3.1 (IFC [B] 1401.6.21.3.1) Categories: The categories for attendant-to-patient concentrations are:

1. Category a – attendant-to-patient concentrations is 1:5.
3. Category b – attendant-to-patient concentrations is 1:6 to 1:10.
4. Category c – attendant-to-patient concentrations is greater than 1:10 or no patients

TABLE 3412.6.21.3 (IFC [B] 1401.6.21.3)
ATTENDANT-TO-PATIENT RATIO VALUES

OCCUPANCY	CATEGORIES		
	a	b	c
I-2	1	2	3

TABLE 3412.7 (IFC [B] 1401.7)
SUMMARY SHEET – BUILDING CODE

Existing occupancy		_____
Proposed occupancy		_____
Year building was constructed		_____
Number of stories		_____
Height in feet		_____
Type of construction		_____
Area per floor		_____
Percentage of open perimeter increase		_____%
Completely suppressed:		Yes_____ No _____
Type		_____
Corridor wall rating		_____
Compartmentation:		Yes_____ No _____
Required door closers:		Yes_____ No _____
Fire-resistance rating of vertical opening enclosures		_____
Type of HVAC system:		_____
Serving number of floors		_____
Automatic fire detection:		Yes_____ No _____
Type and location		_____
Fire alarm system:		Yes_____ No _____
Type		_____
Smoke control:		Yes_____ No _____
Type		_____
Adequate exit routes:		Yes_____ No _____
Dead ends:		Yes_____ No _____
Maximum exit access travel distance		_____
Elevator controls:		Yes_____ No _____
Means of egress emergency lighting:		Yes_____ No _____
Mixed occupancies:		Yes_____ No _____
Standpipes:		Yes_____No_____
Incidental Use:		Yes_____No_____
Smoke Compartmentation less than 22,500		Yes_____No_____
Patient Ability for Self-preservation:		_____
Patient Concentration:		_____
Attendant-to-Patient Ratio:		_____

3412.8 (IFC [B] 1401.8) Safety scores. The values in Table 3412.8 are the required mandatory safety scores for the evaluation process listed in Section 3412.6.

TABLE 3412.8 (IFC [B] 1401.8)
MANDATORY SAFETY SCORES[a]

OCCUPANCY	FIRE SAFETY (MFS)	MEANS OF EGRESS (MME)	GENERAL SAFETY (MGS)
I-2	19	34	34

a.
MFS = Mandatory Fire Safety;
MME = Mandatory Means of Egress;
MGS = Mandatory General Safety.

(Portions of table not shown remain unchanged)

Reason: When initially developed, Chapter 34 did not include provisions for I-2 or H occupancies. The rationale was that the life safety system developed by NFPA was adequate for those I-2 occupancies and H occupancies were not likely to be a part of a building renovation, nor were the drafters of the original code change comfortable with development of values for an H occupancy. Recently, ICC and ASHE have begun working together to develop changes to the IBC to remove some of the conflicts that exist between the I-Codes and the licensing and funding standards used for hospitals. Part of that effort included discussion of the process for evaluation of an existing I-2. A small group of volunteers has developed this code change to incorporate I-2 into Chapter 34's compliance alternatives.
The ongoing issue is how to identify the appropriate levels of performance and how to integrate the criteria in in Chapter 34. The following is an approach identified by the volunteers demonstrating how this can best be achieved. The original Chapter 34 used "risk factors" as an element of the analysis. Chapter 34 was developed using risk factors that formed the basis for development of the BOCA building code and the criteria in NYC Local Law 5 for high-rise business occupancies. Other occupancies were extrapolated using those numbers.
When the IBC was developed a "zero based" revision was undertaken to establish compliance as a zero in all categories of compliance in Chapter 34's compliance alternatives. Values have been inserted into the categories where Chapter 34 is silent. Additional text has been developed to describe how these categories will be satisfied and some categories have been added to address specific elements of an existing I-2 occupancy which should play a role in achieving compliance.
Because the building is an existing I-2, elements that would not be known in a new building such as the ability of the patients or the number of persons providing care are documented as part of the ongoing licensing for these facilities. (WHAT DO WE DO ABOUT CHANGE OF OCCUPANCY?)
Evaluations were performed on several existing buildings to determine the appropriateness of the scoring. Areas of evaluation which would be untenable for typical patients and other persons in an I-2 occupancy were found and successful changes to upgrade the facility were identified, although not all would pass.

Cost Impact: The increased utility of Chapter 34 to address an I-2 occupancy will significantly reduce the cost of design and review.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it provides another option for evaluation of Group I-2 occupancies in existing buildings. It should be noted that in Sections 3412.6.16, 3412.6.17 and 3412.6.20 it was suggested that verbiage related to the buildings that fall in a "NP" category should be noted as failing as is done in 3412.6.8.

Assembly Action: **None**

Public Comments

Public Comment:

David S. Collins, FAIA, The Preview Group, Inc., representing The American Institute of Architects, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

TABLE 3412.6.8
AUTOMATIC FIRE DETECTION VALUES

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-3, F, M, R, S-1	-10	-5	0	2	6	-
A-2	-25	-5	0	5	9	-
A-4,B,E,S-2	-4	-2	0	4	8	-

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
I-2	NP	NP	~~0~~ NP	4	5	2

TABLE 3412.6.12
DEAD-END VALUES

OCCUPANCY	CATEGORIES			
	a	b	c	d
A-1, A-3, A-4, B, E, F, M, R, S	-2	0	2	- ~~4~~
A-2, E	-2	0	2	- ~~4~~
I-2	-2	0	2	-6

3412.6.16 Mixed occupancies. Where a building has two or more occupancies that are not in the same occupancy classification, the separation between the mixed occupancies shall be evaluated in accordance with this section. Where there is no separation between the mixed occupancies or the separation between mixed occupancies does not qualify for any of the categories indicated in Section 3412.6.16.1, the building shall be evaluated as indicated in Section 3412.6 and the value for mixed occupancies shall be zero. Under the categories and occupancies in Table 3412.6.16, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.16, Mixed Occupancies, for fire safety and general safety. For buildings without mixed occupancies, the value shall be zero. Facilities in Group I-2 occupancies meeting Categories a shall be considered to fail the evaluation.

3412.6.17 Automatic sprinklers. Evaluate the ability to suppress a fire based on the installation of an automatic sprinkler system in accordance with Section 903.3.1.1. "Required sprinklers" shall be based on the requirements of this code. Under the categories and occupancies in Table 3412.6.17, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.17, Automatic Sprinklers, for fire safety, means of egress divided by 2 and general safety. Facilities in Group I-2 occupancies meeting Categories a, b, c, or f shall be considered to fail the evaluation.

TABLE 3412.6.17
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-3, F, M, R, S-1	-6	-3	0	2	4	6
A-2	-4	-2	0	1	2	4
A-4, B, E, S-2	-12	-6	0	3	6	12
I-2	NP	NP	NP	8	10	~~NA~~ NP

NP not permitted
~~NA not applicable~~

3412.6.20 Smoke Compartmentation. Evaluate the smoke compartments for compliance with Section 417.5. Using Table 3412.6.20, determine the appropriate smoke compartmentation value (*SCV*) and enter that value into Table 3412.7 under Safety Parameter 3412.6.20, Smoke Compartmentation, for fire safety, means of egress and general safety. Facilities in Group I-2 occupancies meeting Categories b or c shall be considered to fail the evaluation.

(Portions of proposal not shown remain unchanged)

Reason: During the hearing committee members pointed out that there were some inconsistencies in the way the provisions were incorporated into the code when something was shown as not permitted. This comment clarifies that where the tables indicate that an I-2 is not permitted to use that category, if the building is found to be in that category the building has failed the evaluation.

In Table 3412.6.12, a new line was created to address dead ends beyond the 35 and 70 foot limits for I-2, but similar provisions for the other occupancies were not included. This comment adds negative points for those occupancies based on a relative risk of -4 points.

There are no changes to the other tables shown, they are simply included to show how the text relates to the provisions in them.

Final Hearing Results

G244-12 **AMPC**

Code Change No: G245-12

Original Proposal

Section(s): 3412.2.5 (IEBC [B] 1401.2.5)

Proponent: Carl Baldassarra, P.E., FSFPE Chair, ICC Code Technology Committee (CTC)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

Revise as follows:

3412.2.5 (IEBC [B] 1401.2.5) Accessibility requirements. ~~All portions of the buildings proposed for change of occupancy shall conform to the accessibility provisions of Section 3411.~~ Accessibility shall be provided in accordance with Section 3411 (IEBC [B] 410 or 605).

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

All existing buildings using the performance compliance alternative should meet the accessibility provisions for existing building, not just those undergoing a change of occupancy.

Cost Impact: The proposed changes will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Means of Egress code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: When a building is using Section 3412 for alternative performance compliance, it is appropriate for the accessibility to be reviewed for all alterations, not just those associated with a change of occupancy.

Assembly Action: **None**

Final Hearing Results

G245-12 **AS**

Code Change No: G247-12

Original Proposal

Section(s): Table 3412.6.19 [IEBC Table 1401.6.19]

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee (BCAC)

Revise as follows:

TABLE 3412.6.19 (IEBC [B] Table 1401.6.19)
INCIDENTAL USE AREA VALUES[a]

PROTECTION REQUIRED BY TABLE 509	PROTECTION PROVIDED						
	None	1 Hour	AS	AS with ~~SP~~ CRS	1 Hour and AS	2 Hours	2 Hours and AS
2 Hours and AS	-4	-3	-2	-2	-1	-2	0
2 Hours, or 1 Hour and AS	-3	-2	-1	-1	0	0	0
1 Hour and AS	-3	-2	-1	-1	0	-1	0
1 Hour	-1	0	-1	0	0	0	0
1 Hour, or AS with ~~SP~~ CRS	-1	0	-1	0	0	0	0
AS with ~~SP~~ CRS	-1	-1	-1	0	0	-1	0
1 Hour or AS	-1	0	0	0	0	0	0

a. AS = Automatic sprinkler system; ~~SP~~ CRS = ~~Smoke partitions~~ Construction capable of resisting the passage of smoke (See Section 509.4.2).

Reason: This code proposal makes no changes to the current requirements in the Code. This proposal is intended to be editorial and clarify the existing provisions in Table 3412.6.19.
Editorial revisions are made as follows:
1. The reference in the 1st Column Heading in this Table – the reference should be to Table 509 in the 2012 IBC, not to Table 508.2.5, which was the old location in the 2009 IBC.
2. The section reference in Footnote 'a' – the reference should be to "See IBC Section 509.4.2" in the 2012 IBC. Again, Section 508.2.5 was the old location in the 2009 IBC.

The use of "SP", and the reference to "smoke partitions" in three locations is proposed to be revised to correlate with the current requirements in IBC Section 509.4.2. The text in Section 3412.6.19 refers to protection of incidental uses in accordance with Section 509.4.2. Section 509.4.2 does not require smoke partitions. Section 509.4.2 requires separation by construction capable of resisting the passage of smoke. To be consistent with the requirements in Section 509.4.2, and so as not to create confusion with smoke partition requirements in Section 710, the proposed revision will replace the term "SP" (smoke partition), with the term "CRS" (capable of resisting the passage of smoke). This proposal clarifies that the construction needs to be capable of resisting the passage of smoke rather than be constructed as a smoke partition.

The revisions are made in IBC Table 3412.6.19 and the duplicate table in the IEBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This was approved as it simply correlates terminology with Section 509. Section 509 does not specifically require smoke partitions.

Assembly Action: **None**

Final Hearing Results

G247-12 **AS**

Code Change No: G257-12

Original Proposal

Section(s): 308.4, 308.4.1, 308.4.1.1(new), 308.4.1.2(new)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Revise as follows:

308.4 Institutional Group I-2. This occupancy shall include buildings and structures used for *medical care* on a 24-hour basis for more than five persons who are *incapable of self preservation*. This group shall include, but not be limited to, the following:

Foster care facilities
Detoxification facilities
Hospitals
Nursing homes
Psychiatric hospitals

308.4.1 Occupancy Conditions. Buildings of Group I-2 shall be classified as one of the occupancy conditions indicated in Sections 308.4.1.1 through 308.4.1.2.

308.4.1.1 Condition 1. This occupancy condition shall include facilities that provides nursing and medical care and could also provide emergency care, surgery, obstetrics, or in-patient stabilization units for psychiatric or detoxification, including, but not limited to hospitals.

308.4.1.2 Condition 2. This occupancy condition shall include facilities that provides nursing and medical care but does not provide emergency care, surgery, obstetrics, or in-patient stabilization units for psychiatric or detoxification, including, but not limited to nursing homes and foster care facilities.

~~**308.4.1**~~ **308.4.2 Five or fewer persons receiving care.** A facility such as the above with five or fewer persons receiving such care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or with Section P2904 of the *International Residential Code*.

Reason: This proposal is to provide a subset of occupancy uses amongst those healthcare uses that have been regulated together as one unit for many years.

Due to the diversification of how medical care is provided in the 5 characteristic occupancies given currently in the IBC for Group I-2 occupancies, this proposal splits the I-2 into two basic conditions; short-term care (hospitals) and long-term care (nursing homes). Whereas both of these subsets are based on medical treatment and are an occupancy group that the occupants are provided with a defend-in-place method of safety, changes in the delivery of care in the two different subgroups has changed in the past 10-20 years. Some examples of the changes include:

- Within Hospitals, there has been a general increase in the floor area per patient due to the increase in diagnostic equipment and the movement towards single occupant patient rooms.
- Within Nursing Homes, there has been a trend to provide more residential-type accommodations, such as group/suite living, fuel-fired appliances, and cooking facilities in residential areas.

The 'condition' concept is based on Group I-3 occupancies and the split this occupancy needs to effectively regulate amongst several levels of restraint. The benefit to the 'condition' concept, when compared to new use groups (i.e. I-5 or I-6) is that a majority of code requirements will still apply to all Group I-2 occupancies; such as mechanical systems, property maintenance, and rehabilitation. Furthermore, it removes potentially confusing code language from requirements when 'building specific' language is placed into code sections; such as the case with the current fire alarm section pertaining to Group I-2.

Detoxification facilities and facilities where patients receive psychiatric treatment can vary from hospitals where patients are at the beginning stages or detoxification or at psychiatric extremes that require medical care. These would be classified as Occupancy Condition 1. If the facilities were more along the line of counseling and rehabilitation in a care environment, the facility could be classified as Condition 2, or even as a Group I-1.

This proposal is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx .

Cost Impact: None

Public Hearing Results

Errata as shown below are contained in the Updates to the 2012 Proposed Changes posted on the ICC website. Please go to http://www.iccsafe.org/cs/codes/Pages/12-13-ProposedChanges-A.aspx for more information.

Revise as follows:

308.4 Institutional Group I-2. This occupancy shall include buildings and structures used for *medical care* on a 24-hour basis for more than five persons who are *incapable of self preservation*. This group shall include, but not be limited to, the following:

Foster care facilities
Detoxification facilities
Hospitals
Nursing homes
Psychiatric hospitals

308.4.1 Occupancy Conditions. Buildings of Group I-2 shall be classified as one of the occupancy conditions indicated in Sections 308.4.1.1 through 308.4.1.2.

308.4.1.1 Condition 1. This occupancy condition shall include facilities that provides nursing and medical care and could also provide emergency care, surgery, obstetrics, or in-patient stabilization units for psychiatric or detoxification, including, but not limited to hospitals.

308.4.1.2 Condition 2. This occupancy condition shall include facilities that provides nursing and medical care but does not provide emergency care, surgery, obstetrics, or in-patient stabilization units for psychiatric or detoxification, including, but not limited to nursing homes and foster care facilities.

~~**308.4.1**~~ **308.4.2 Five or fewer persons receiving care.** A facility such as the above with five or fewer persons receiving such care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or with Section P2904 of the *International Residential Code*.

Committee Action: **Approved as Modified**

Modify proposal as follows:

308.4.1.1 ~~**308.4.1.2 Condition 2**~~ **Condition 1.** This occupancy condition shall include facilities that provides nursing and medical care but does not provide emergency care, surgery, obstetrics, or in-patient stabilization units for psychiatric or detoxification, including, but not limited to nursing homes and foster care facilities.

308.4.1.2 ~~**308.4.1.1 Condition 1**~~ **Condition 2.** This occupancy condition shall include facilities that provides nursing and medical care and could also provide emergency care, surgery, obstetrics, or in-patient stabilization units for psychiatric or detoxification, including, but not limited to hospitals.

(Portions not shown remain unchanged)

Committee Reason: This proposal was approved as submitted as it recognizes the differences between hospitals and nursing homes in terms of the type of functions in such facilities. Note that the modification clarifies that the committee felt that the categories should be reversed as it was felt that the conditions should match the level of risk as addressed in G31-12 introducing Categories I and II for Group I-1 occupancies.

Assembly Action: **None**

Final Hearing Results

G257-12 **AM**

Code Change No: E1-12

Original Proposal

Section(s): 202, 1006 (New), 1007 (New), 1014.3, 1015, 1020.1, 1021 (IFC [B] 1006 (New), 1007 (New), 1014.3, 1015, 1020.1, 1021)

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee

Revise as follows:

SECTION 202
DEFINITIONS

COMMON PATH OF EGRESS TRAVEL. That portion of the exit access travel distance measured from the most remote point within a story to that point where ~~which~~ the occupants ~~are required to traverse before two~~ have separate and distinct ~~paths of egress travel~~ access to two exits or exit access doorways ~~are available. Paths that merge are common paths of travel. Common paths of egress travel shall be included within the permitted travel distance.~~

Revise as follows:

~~**1014.3 (IFC [B] 1014.3) Common path of egress travel.** The common path of egress travel shall not exceed the common path of egress travel distances in Table 1014.3.~~

~~**TABLE 1014.3 (TABLE [B] 1014.3)**~~
~~**COMMON PATH OF EGRESS TRAVEL**~~

~~OCCUPANCY~~	~~WITHOUT SPRINKLER SYSTEM (feet)~~		~~WITH SPRINKLER SYSTEM (feet)~~
	~~Occupant Load~~		
	~~OL ≤ 30~~	~~OL > 30~~	
~~B, S[d]~~	~~100~~	~~75~~	~~100[a]~~
~~U~~	~~100~~	~~75~~	~~75[a]~~
~~F~~	~~75~~	~~75~~	~~100[a]~~
~~H-1, H-2, H-3~~	~~Not Permitted~~	~~Not Permitted~~	~~25[a]~~
~~R-2~~	~~75~~	~~75~~	~~125[b]~~
~~R-3[e]~~	~~75~~	~~75~~	~~125[b]~~
~~I-3~~	~~100~~	~~100~~	~~100[a]~~
~~All others[c]~~	~~75~~	~~75~~	~~75[a,b]~~

~~For SI: 1 foot = 304.8 mm.~~

~~a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.~~
~~b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.~~
~~c. For a room or space used for assembly purposes having fixed seating, see Section 1028.8.~~
~~d. The length of a common path of egress travel in a Group S-2 open parking garage shall not be more than 100 feet (30 480 mm)~~
~~e. The length of a common path of egress travel in a Group R-3 occupancy located in a mixed occupancy building.~~
~~f. For the distance limitations in Group I-2, see Section 407.4.~~

SECTION ~~1015~~ 1006 (IFC [B] ~~1015~~ 1006)
NUMBERS OF EXITS AND EXIT ACCESS DOORWAYS

~~**1015.1**~~ **1006.1 (IFC [B]~~ ~~**1015.1**~~ **1006.1) General** ~~**Exits or exit access doorways from spaces.**~~ The number of exits or exit access doorways required within the means of egress system shall comply with

the provisions of Section 1006.2 for spaces and Section 1006.3 for stories. ~~Two exits or exit access doorways from any space shall be provided where one of the following conditions exists:~~

~~1. The *occupant load* of the space exceeds one of the values in Table 1015.1.~~

~~**Exceptions:**~~

~~1. In Group R-2 and R-3 occupancies, one *means of egress* is permitted within and from individual dwelling units with a maximum *occupant load* of 20 where the dwelling unit is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.~~
~~2. Care suites in Group I-2 occupancies complying with Section 407.4.3.~~

~~2. The *common path of egress travel* exceeds one of the limitations of Section 1014.3.~~
~~3. Where required by Section 1015.3, 1015.4, 1015.5, or 1015.6.~~

~~Where a building contains mixed occupancies, each individual occupancy shall comply with the applicable requirements for that occupancy. Where applicable, cumulative occupant loads from adjacent occupancies shall be considered in accordance with the provisions of Section 1004.1.~~

~~**TABLE 1015.1 (IFC [B] TABLE 1015.1)**~~
~~**SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY**~~

~~OCCUPANCY~~	~~MAXIMUM OCCUPANT LOAD~~
~~A, B, E, F, M, U~~	~~49~~
~~H-1, H-2, H-3~~	~~3~~
~~H-4, H-5, I-1, I-2, I-3, I-4, R~~	~~10~~
~~S~~	~~29~~

1006.2 (IFC [B] 1006.2) Egress from spaces. Rooms, areas or spaces, including mezzanines, within a story or basement shall be provided with the number of exits or access to exits in accordance with this section.

1006.2.1 (IFC [B] 1006.2.1) Egress based on occupant load and common path of egress travel distance. Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1.

Exceptions:

1. In Group R-2 and R-3 occupancies, one *means of egress* is permitted within and from individual dwelling units with a maximum *occupant load* of 20 where the dwelling unit is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and the common path of egress travel does not exceed 125 feet (38 100 mm).
2. Care suites in Group I-2 occupancies complying with Section 407.4.

TABLE 1006.2.1 (IFC [B] 1006.2.1)
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM
		Occupant Load		
		OL ≤ 30	OL > 30	
A[a], E, M, U	49	75	75	75[b]
B	49	100	75	100[b]

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM
		Occupant Load		
		OL ≤ 30	OL > 30	
F	49	75	75	100[b]
H-1, H-2, H-3	3	NP	NP	25[b]
H-4, H-5, I-1, I-2, I-4, R-1, R-3, R-4	10	NP	NP	75[b]
I-3	10	NP	NP	100[b]
R-2	10	NP	NP	125[c]
R-3	10	NP	NP	125[d]
S	29	100	75[e]	100[b]
U	49	100	75	75[b]

For SI: 1 foot = 304.8 mm.
NP – Not Permitted

a. For a room or space used for assembly purposes having fixed seating, see Section 1028.8.
b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
d. The length of common path of egress travel distance in a Group R-3 occupancy located in a mixed occupancy building shall be not more than 125 feet (38 100 mm).
e. The length of common path of egress travel distance in a Group S-2 open parking garage shall be not more than 100 feet (30 480 mm).

~~**1015.1.1**~~ **1006.2.1.1 (IFC [B]** ~~**1015.1.1**~~ **1006.2.1.1) Three or more exits or exit access doorways.** Three exits or exit access doorways shall be provided from any space with an occupant load of 501-1,000. Four exits or exit access doorways shall be provided from any space with an occupant load greater than 1,000.

~~**1015.2 (IFC [B] 1015.2) Exit or exit access doorway arrangement.**~~ *(relocated to new Section 1007)*

~~**1015.2.1 (IFC [B] 1015.2.1) Two exits or exit access doorways.**~~ *(relocated to new Section 1007)*

~~**1015.2.2 (IFC [B] 1015.2.2) Three or more exits or exit access doorways.**~~ *(relocated to new Section 1007)*

1006.2.2 (IFC [B] 1006.2.2) Egress based on use. The numbers of exits or access to exits shall be in accordance with this section.

~~**1015.3**~~ **1006.2.2.1 (IFC [B]** ~~**1015.3**~~ **1006.2.2.1) Boiler, incinerator and furnace rooms.** Two *exit access doorways* are required in boiler, incinerator and furnace rooms where the area is over 500 square feet (46 m^2) and any fuel-fired equipment exceeds 400,000 British thermal units (Btu) (422 000 KJ) input capacity. Where two *exit access doorways* are required, one is permitted to be a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance equal to one-half the length of the maximum overall diagonal dimension of the room.

~~**1015.4**~~ **1006.2.2.2 (IFC [B]** ~~**1015.4**~~ **1006.2.2.2) Refrigeration machinery rooms.** Machinery rooms larger than 1,000 square feet (93 m^2) shall have not less than two *exits* or *exit access* doors. Where two *exit access doorways* are required, one such doorway is permitted to be served by a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of room.

All portions of machinery rooms shall be within 150 feet (45 720 mm) of an *exit* or *exit access doorway*. An increase in travel distance is permitted in accordance with Section 1016.1.

Doors shall swing in the direction of egress travel, regardless of the *occupant load* served. Doors shall be tight fitting and self-closing.

~~**1015.5**~~ **1006.2.2.3 (IFC [B] ~~1015.5~~ 1006.2.2.3) Refrigerated rooms or spaces.** Rooms or spaces having a floor area larger than 1,000 square feet (93 m^2), containing a refrigerant evaporator and maintained at a temperature below 68°F (20°C), shall have access to not less than two *exits* or *exit access* doors.

Travel distance shall be determined as specified in Section 1016.1, but all portions of a refrigerated room or space shall be within 150 feet (45 720 mm) of an *exit* or *exit access* door where such rooms are not protected by an *approved automatic sprinkler* system. Egress is allowed through adjoining refrigerated rooms or spaces.

Exception: Where using refrigerants in quantities limited to the amounts based on the volume set forth in the *International Mechanical Code*.

~~**1015.6**~~ **1006.2.2.4 (IFC [B] ~~1015.6~~ 1006.2.2.4) Day care facilities.** Day care facilities, rooms or spaces where care is provided for more than 10 children that are 2-1/2 years of age or less, shall have access to not less than two exits or exit access doorways.

~~**SECTION 1021 (IFC [B] 1021)**~~
~~**NUMBER OF EXITS AND EXIT CONFIGURATION**~~

~~**1021.3.1 (IFC [B]1021.3.1)**~~ **1006.3 (IFC [B] 1006.3) ~~Access to exits at adjacent levels.~~ Egress from stories or occupied roofs** The means of egress system serving any story or occupied roof shall be provided with the number of exits or access to exits based on the aggregate occupant load served in accordance with this section. Access to exits at other levels shall be by stairways or ramps. Where access to exits occurs from adjacent building levels, the horizontal and vertical exit access travel distance to the closest exit shall not exceed that specified in Section 1016.1. Access to exits at other levels shall be from an adjacent story.

Each story above the second story of a building shall have a minimum of one interior or exterior exit stairway, or interior or exterior exit ramp. Where a minimum of three or more exits, or access to exits are required, a minimum of 50 percent of the required exits shall be interior or exterior exit stairways or ramps.

~~**Exception:** Landing platforms or roof areas for helistops that are less than 60 feet (18 288 mm) long, or less than 2,000 square feet (186 m^2) in area, shall be permitted to access the second exit by a fire escape, alternating tread device or ladder leading to the story or level below.~~

Exceptions:

1. Interior exit stairways and interior exit ramps are not required in open parking garages where the means of egress serves only the open parking garage.
2. Interior exit stairways and interior exit ramps are not required in outdoor facilities where all portions of the means of egress are essentially open to the outside.

~~**1021.1 (IFC [B] 1021.10)**~~ **1006.3.1 (IFC [B] 1006.3.1) ~~General.~~Egress based on occupant load.** Each story and occupied roof shall have the minimum number of exits, or access to exits, as specified in Table 1006.3.1 ~~this section~~. A single exit or access to a single exit shall be permitted in accordance with Section 1006.3.3. The required number of exits, or exit access stairways or ramps providing access to exits, from any story shall be maintained until arrival at the exit discharge ~~grade~~ or ~~a~~ public way. ~~Exits or access to exits from any story shall be configured in accordance with this section. Each story above the second story of a building shall have a minimum of one interior or exterior exit stairway, or interior or exterior exit~~

~~ramp. At each story above the second story that requires a minimum of three or more exits, or access to exits, a minimum of 50 percent of the required exits shall be interior or exterior exit stairways, or interior or exterior exit ramps.~~

~~Exceptions:~~

1. ~~Interior exit stairways and interior exit ramps are not required in open parking garages where the means of egress serves only the open parking garage.~~
2. ~~Interior exit stairways and interior exit ramps are not required in outdoor facilities where all portions of the means of egress are essentially open to the outside.~~

TABLE 1006.3.1 (IFC [B] TABLE 1006.9.3.1)
MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS PER STORY

OCCUPANT LOAD PER STORY	MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS FROM STORY
1-500	2
501-1,000	3
More than 1,000	4

~~1021.2.4 (IFC [B] 1021.2.4) Three or more exits.~~ ~~Three *exits*, or *exit access stairways* or *ramps* providing access to *exits* at other stories, shall be provided from any story or occupied roof with an *occupant load* from 501 to and including 1,000. Four *exits*, or *exit access stairways* or *ramps* providing access to *exits* at other stories, shall be provided from any story or occupied roof with an *occupant load* greater than 1,000.~~

~~1021.2.5~~ 1006.3.2 (IFC [B] ~~1021.2.5~~ 1006.3.2) Additional exits. In buildings over 420 feet in height, additional exits shall be provided in accordance with Section 403.5.2.

~~1021.2~~ 1006.3.3 (IFC [B] ~~1021.2~~ 1006.3.3) Single exits ~~Exits from stories~~. ~~Two exits, or exit access stairways or ramps providing access to exits, from any story or occupied roof shall be provided~~ A single exit or access to a single exit shall be permitted from any story or occupied roof, where one of the following conditions exists:

1. The occupant load or number of dwelling units ~~exceeds one of~~ and common path of egress travel distance does not exceed the values in Table 1006.3.3(1) or 1006.3.3(2) ~~1021.2(1) or 1021.2(2).~~
2. ~~The exit access travel distance exceeds that specified in Table 1021.2(1) or 1021.2(2) as determined in accordance with the provisions of Section 1016.1.~~
3. ~~Helistop landing areas located on buildings or structures shall be provided with two exits, or exit access stairways or ramps providing access to exits.~~

~~Exceptions:~~

~~1~~2. Rooms, areas and spaces complying with Table 1006.2.1 ~~Section 1015.1~~ with exits that discharge directly to the exterior at the level of exit discharge, are permitted to have one exit.
~~2~~3. Group R-3 occupancy buildings shall be permitted to have one exit.
~~3~~4. Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit.
~~4~~5. Air traffic control towers shall be provided with the minimum number of exits specified in Section 412.3.
~~5.~~ ~~Individual dwelling units in compliance with Section 1021.2.3.~~
6. Group R-3 and R-4 congregate residences shall be permitted to have one exit.
~~7.~~ ~~Exits serving specific spaces or areas need not be accessed by the remainder of the story when all of the following are met:~~
~~7.1~~ ~~The number of exits from the entire story complies with Section 1021.2.4;~~

~~7.2 The access to exits from each individual space in the story complies with Section 1015.1, and~~

~~7.3 All spaces within each portion of a story shall have access to the minimum number of approved independent exits based on the occupant load of that portion of the story, but not less than two exits.~~

~~1021.2.3 (IFC [B] 1021.2.3) Single-story or multi-story dwelling units.~~

7. Individual single-story or multi-story dwelling units shall be permitted to have a single exit or access to a single exit from the dwelling unit provided that all of the following criteria are met:

7.1.~~1.~~ The dwelling unit complies with Section ~~1015.1~~ 1006.2.1 as a space with one means of egress and

7.2.~~2.~~ Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit's entrance door provides access to not less than two approved independent exits.

~~TABLE 1021.2(1)~~ TABLE 1006.3.3(1) (IFC [B] ~~TABLE 1021.2(1)~~ TABLE 1006.3.3(1))
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM COMMON PATH OF EGRESS ~~EXIT ACCESS~~ TRAVEL DISTANCE (feet)
Basement, first, second or third story above grade plane	R-2[a, b]	4 dwelling units	125 ~~feet~~
Fourth story ~~and~~ above grade plane and higher	NP	NA	NA

For SI: 1 foot = 3048 mm.
NP – Not Permitted
NA – Not Applicable
a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1029.
b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.3(2) ~~1021.2(2)~~..

~~TABLE 1021.2(2)~~ TABLE 1006.3.3(2) (IFC [B] ~~TABLE 1021.2(2)~~ TABLE 1006.3.3(2))
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANT~~S~~ LOAD PER STORY	MAXIMUM COMMON PATH OF EGRESS ~~EXIT ACCESS~~ TRAVEL DISTANCE (feet)
First story above or ~~basement~~ below grade plane	A, B[a], E F[a], M, U, S[a]	~~49 occupants~~	75 ~~feet~~
	H-2, H-3	3 ~~occupants~~	25 ~~feet~~
	H-4, H-5, I, R-1, R-2[b,c], R-4	10 ~~occupants~~	75 ~~feet~~
	S	29 ~~occupants~~	100 ~~feet~~
Second story above grade plane	B, F, M, S	29 ~~occupants~~	75 ~~feet~~
Third story ~~and~~ above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP – Not Permitted

NA – Not Applicable

a. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum travel distance of 100 feet.
b. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1029.
c. This table is used for Group R-2 occupancies consisting of sleeping units. For Group R-2 occupancies consisting of dwelling units, use Table 1006.3.3(1) ~~1021.2(1)~~..

~~1021.2.1~~ 1006.3.3.1 (IFC [B] ~~1021.2.1~~ 1006.3.3.1) Mixed occupancies. Where one exit, or exit access stairway or ramp providing access to exits at other stories, is permitted to serve individual stories, mixed occupancies shall be permitted to be served by single exits provided each individual occupancy complies with the applicable requirements of Table 1006.3.3(1) ~~1021.2(1)~~ or Table 1006.3.3(2) ~~1021.2(2)~~ for that occupancy. Where applicable, cumulative occupant loads from adjacent occupancies shall be considered in accordance with the provisions of Section 1004.1. In each story of a mixed occupancy building, the maximum number of occupants served by a single exit shall be such that the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants for each occupancy does not exceed one.

~~1021.2.2~~ 1006.3.4 (IFC [B] ~~1021.2.2~~ 1006.3.4) Basements. A basement provided with one exit shall not be located more than one story below grade plane.

~~**1021.3 (IFC [B] 1021.3) Exit configuration.** Exits, or exit access stairways or ramps providing access to exits at other stories, shall be arranged in accordance with the provisions of Section 1015.2 through 1015.2.2. Exits shall be continuous from the point of entry into the exit to the exit discharge.~~

~~1021.4~~ 1006.3.5 (IFC [B] ~~1021.4~~ 1006.3.5) Vehicular ramps. Vehicular ramps shall not be considered as an exit access ramp unless pedestrian facilities are provided.

1006.3.6 (IFC [B] 1006.3.6) Helistop Platforms. Helistop landing areas located on buildings or structures shall be provided with two exits, or exit access stairways or ramps providing access to exits.

Exception: Landing platforms or roof areas for helistops that are less than 60 feet (18 288 mm) long, or less than 2,000 square feet (186 m^2) in area, shall be permitted to access the second exit by a fire escape, alternating tread device or ladder leading to the story or level below.

SECTION 1007(IFC [B] 1007)
EXIT AND EXIT ACCESS DOORWAY CONFIGURATION

~~1015.2~~ 1007.1 (IFC [B] ~~1015.2~~ 1007.1) General ~~Exit or exit access doorway arrangement~~. Exits and exit access doorways serving spaces, including individual building stories, shall be separated in accordance with the provisions of this section. ~~Required *exits* shall be located in a manner that makes their availability obvious. *Exits* shall be unobstructed at all times. *Exit* and *exit access doorways* shall be arranged in accordance with Sections 1015.2.1 and 1015.2.2.~~

~~1015.2.1~~ 1007.1.1 (IFC [B] ~~1015.2.1~~ 1007.1.1) Two exits or exit access doorways. Where two *exits* or *exit access doorways* are required from any portion of the *exit access*, the *exit* doors or *exit access doorways* shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the story or area to be served measured in a straight line between *exit* doors or *exit access doorways*. Interlocking or *scissor stairs* shall be counted as one *exit stairway*.

Exceptions:

1 ~~2~~. Where a building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2, the separation distance of the *exit* doors or *exit access doorways* shall not be less than one-third of the length of the maximum overall diagonal dimension of the area served.

2 ~~1~~. Where interior exit stairways are interconnected by a 1-hour fire-resistance-rated corridor

conforming to the requirements of Section 1018, the required exit separation shall be measured along the shortest direct line of travel within the corridor.

~~1015.2.2~~ 1007.1.2 **(IFC [B] ~~1015.2.2~~ 1007.1.2) Three or more exits or exit access doorways.** Where access to three or more *exits* is required, at least two *exit* doors or *exit access doorways* shall be arranged in accordance with the provisions of Section 1007.1.1. Additional required exits, or access to exits shall be located a reasonable distance apart such that if one becomes involved, the others will be available.

1007.2 (IFC [B] 1007.2) Measurement. The required separation distance between exits or exit access doorways shall be measured in accordance with the following:

1. The separation distance to exit or exit access doorways shall be measured to the nearest point along the width of the doorway.
2. The separation distance to exit access stairways shall be measured to the closest riser.
3. The separation distance to exit access ramps shall be measured to the start of the ramp run.

(Renumber remaining sections.)

SECTION 1020 (IFC [B] 1020)
EXITS

1020.1 (IFC [B] 1020.1) General. Exits shall comply with Sections 1020 through 1026 and the applicable requirements of Sections 1003 through 1013. An exit shall not be used for any purpose that interferes with its function as a means of egress. Once a given level of exit protection is achieved, such level of protection shall not be reduced until arrival at the exit discharge. Exits shall be continuous from the point of entry into the exit to the exit discharge.

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
This proposal is a continuation of Item E5-09/10 that was approved for inclusion in the 2012 IBC. That is, the proposal intends to clarify current IBC means of egress requirements resulting in greater user friendliness and increased uniformity in the application of these important provisions.
Currently, both Sections 1015 and 1021 contain provisions for the determination of the number of exits and exit access doorways. The relationship between the two sections is not particularly obvious to many code practitioners. This proposal combines the two sections and places their various provisions in technical context. This is partially achieved through formatting. Section 1015.2 prescribes the provisions for the determination of the number of required exits or exit access to exits from any individual space. Section 1015.3 provides the provisions for the determination of the number of required exits or access to exits from stories or occupied roofs.

Recognizing the importance of tables during the design/review process, improvements were made to improve understanding and consistency. Fundamental to the proper determination of the number of required exits is the consideration of design occupant loads and occupant remoteness. Currently, only Table 1021.2(2) includes both variables (number of occupants per story and exit access travel distance). Section 1015.1 currently addresses the occupant load in Table 1015.1; however, it requires the user to determine occupant remoteness requirements at Section 1014.3 that are indicated as “common path of egress travel.” For the 2012 Edition of the IBC, common path of egress travel provisions have been consolidated into a tabular format. The only remaining text of Section 1014.3 states, “The common path of egress travel shall not exceed the common path of egress travel distances in Table 1014.3,” without contextual reference to Section 1015.1 that requires that two exits or exit access doorways from any space shall be provided where the common path of egress travel exceeds one of the limitations of Section 1014.3. This technical disconnect is repaired through the consolidation of Tables 1015.1 and 1014.3 in a format already contained in Table 1021.1(2). The current difference in occupant remoteness terminology (exit access travel distance vs. common path of egress travel) was resolved in favor of common path of egress travel distance.

To increase consistency in interpretations and application, the definition of “COMMON PATH OF EGRESS TRAVEL” has been modified. The proposed language emphasizes that the common path of egress travel is initially measured identically to exit access travel distance; however, technically terminates at an earlier point (that point where an occupant has separate and distinct access to two exits or exit access doorways vs. to an entrance to an exit). The somewhat vague wording in the current definition results in inconsistent applications of this important provision. It should be noted that the *NFPA 101 Handbook* states that common path of egress travel is a portion of the exit access travel distance. Many rely on that document to interpret IBC requirements. Additionally, the merging provision has been deleted. This is a moot point because once a second exit or exit access doorway (to include any point where an occupant enters an intervening room, corridor, exit access stairway or exit access ramp) is required, it must be

separated in accordance with Section 1015.2. In recent code development cycles, many definitions have been edited to more accurately describe means of egress design requirements in context with the IBC system philosophy. This is another example of more accurately describing what is intended.

The establishment of a single method and term for the determination of occupant remoteness will greatly benefit code practitioners. The resultant Table 1006.2.1 is consistent in format, terminology and application to Table 1006.3.3(2) and will result in more accurate and consistent determination of the required number of exits and access to exits.

This proposal deletes current Section 1021.2, Exception 7. This provision was new to the 2009 Edition of the IBC and, according to the proponent's reason statement, was intended to coordinate the fragmented requirements of Sections 1015 and 1021. The consolidation of the two sections eliminates the need for the provision. The exception can be considered moot because it represents an exception to a non-requirement. There is no requirement for specific spaces to be accessed by the remainder of the story. The performance nature of number of exits/exit access provisions allows each space to be designed based on its own technical merit on an individual and collective basis. The conditions of the exception simply restate fundamental means of egress provisions. Based on the stated requirements of this proposal, the deleted exception is unnecessary.

Formerly, both Sections 1015 and 1021 contained provisions for the determination of exit/exit access configuration/arrangement/separation. Inasmuch as this issue is a major means of egress design requirement, the provisions have been consolidated into a new stand-alone section, Section 1007. Additionally, separation measurement provisions have been clarified. Currently, there are no specific measurement points for the determination of exit/exit access separation. New Section 1007.2 provides guidance for measuring to doors, exit access stairways and exit access ramps. This will reduce subjectivity in the determination of exit/exit access configuration.

Numbers of exits/exit access doorways and exit/exit access doorway configuration provisions have been located in Sections 1006 and 1007 respectively. This creates a sectional sequence for occupant load based means of egress provisions. Section 1004 covers design occupant load determination. Means of egress sizing requirements based on occupant load are contained in Section 1005. Now, occupant load based numbers requirements are placed in Section 1006 with multiple exit/exit access doorway arrangement provisions following in Section 1007. This logical format should assist designers and enforcement officials alike.

It was also determined that a general exit provision addressing exit continuity is incorrectly located in current Section 1021.3. It has been properly located in Section 1020.1.

In summary, this proposal represents a continuing effort to improve means of egress provisions for the purposes of philosophical functionality, technical consistency and user friendliness. Approval of this proposal will simplify the interpretation and application of IBC means of egress provisions while maintaining the highest traditions of fire and life safety.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Consolidation of information for number of exits from a space and floor (Section 1015 and 1022) reduces duplication of language and should simplify the code for the users. The understanding on the common path of travel requirements should be enhanced. In the definition for 'common path of travel', by the addition of 'exit access doorways', there is concern that where two exit access doorways are available, that this could be interpreted as ending the common path of travel. Adding back into the definition, "paths that merge are common path of travel" would address the issue. There may also be a problem with proposed travel distance measurements in new Section 1007.2.

Assembly Action: **None**

Final Hearing Results

E1-12 **AS**

Code Change No: E2-12 Part I

Original Proposal

Section(s): IMC 306.5.1, 1107.2; (IFGC [M] 306.5.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

THIS IS A 4 PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE AS 4 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMMITTEE.

PART I – INTERNATIONAL BUILDING CODE

Revise as follows:

CHAPTER 2
DEFINITIONS

SECTION 202
DEFINITIONS

EQUIPMENT PLATFORM. An unoccupied, elevated platform used exclusively for mechanical systems or industrial process equipment, including the associated elevated walkways, ~~*stairs*~~ *stairways*, *alternating tread devices* and ladders necessary to access the platform (see Section 505.3).

EXIT. That portion of a *means of egress* system between the *exit access* and the *exit discharge* or *public way*. Exit components include exterior exit doors at the *level of exit discharge*, *interior exit stairways*~~,~~ ~~*interior exit*~~ *and ramps, exit passageways, exterior exit stairways* and ~~*exterior exit*~~ *ramps and horizontal exits*.

EXIT ACCESS DOORWAY. A door or access point along the path of egress travel from an occupied room, area or space where the path of egress enters an intervening room, *corridor*, *exit access* ~~*stair*~~ *stairway* or ~~*exit access*~~ *ramp*.

FLOOR AREA, GROSS. The floor area within the inside perimeter of the *exterior walls* of the building under consideration, exclusive of vent *shafts* and *courts*, without deduction for *corridors*, *stairways*, ramps, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding *exterior walls* shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include *shafts* with no openings or interior *courts.*

FLOOR AREA, NET. The actual occupied area not including unoccupied accessory areas such as *corridors*, *stairways,* ramps toilet rooms, mechanical rooms and closets.

SCISSOR ~~STAIR~~ STAIRWAY. Two interlocking *stairways* providing two separate paths of egress located within one ~~stairwell~~ exit enclosure.

~~STAIR~~ STAIRWAY, SCISSOR. See "Scissor ~~stair~~ stairway."

Revise as follows:

CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

SECTION 403
HIGHRISE BUILDINGS

403.5.1 Remoteness of interior exit stairways. Required *interior exit stairways* shall be separated by a distance not less than 30 feet (9144 mm) or not less than one-fourth of the length of the maximum overall diagonal dimension of the building or area to be served, whichever is less. The distance shall be measured in a straight line between the nearest points of the *interior exit stairways*. In buildings with three or more *interior exit stairways,* no fewer than two of the *interior exit stairways* shall comply with this section. Interlocking or *scissor* ~~*stairs*~~ *stairways* shall be counted as one *interior exit stairway.*

403.5.2 Additional exit stairway. For buildings other than Group R-2 that are more than 420 feet (128 000 mm) in *building height*, one additional *exit stairway* meeting the requirements of Sections 1009 and 1022 shall be provided in addition to the minimum number of *exits* required by Section 1021.1. The total width of any combination of remaining *exit stairways* with one *exit stairway* removed shall be not less than the total width required by Section 1005.1. *Scissor* ~~*stairs*~~ *stairways* shall not be considered the additional *exit stairway* required by this section.

> **Exception:** An additional *exit stairway* shall not be required to be installed in buildings having elevators used for occupant self-evacuation in accordance with Section 3008.

Revise as follows:

CHAPTER 5
GENERAL BUILDING HEIGHTS AND AREAS

SECTION 505
MEZZANINES AND EQUIPMENT PLATFORMS

IBC 505.3 Equipment platforms. *Equipment platforms* in buildings shall not be considered as a portion of the floor below. Such *equipment platforms* shall not contribute to either the *building area* or the number of *stories* as regulated by Section 503.1. The area of the *equipment platform* shall not be included in determining the *fire area* in accordance with Section 903. *Equipment platforms* shall not be a part of any *mezzanine* and such platforms and the walkways, ~~*stairs*~~ *stairways*, *alternating tread devices* and ladders providing access to an *equipment platform* shall not serve as a part of the *means of egress* from the building.

Revise as follows:

CHAPTER 7
FIRE AND SMOKE PROTECTION FEATURES

SECTION 707
FIRE BARRIERS

707.6 Openings. Openings in a fire barrier shall be protected in accordance with Section 716. Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet (15 m2). Openings in enclosures for exit access stairways and ramps, interior exit stairways and ramps and exit passageways shall also comply with Sections 1022.3 and 1023.5, respectively.

Exceptions:

1. Openings shall not be limited to 156 square feet (15 m^2) where adjoining floor areas are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Openings shall not be limited to 156 square feet (15 m2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door serving enclosures for exit access stairways~~, exit access~~ and ramps, and interior exit stairways and ~~interior exit~~ ramps.
3. Openings shall not be limited to 156 square feet (15 m2) or an aggregate width of 25 percent of the length of the wall where the opening protective has been tested in accordance with ASTME 119 or UL263 and has a minimum fire-resistance rating not less than the fire-resistance rating of the wall.
4. Fire window assemblies permitted in atrium separation walls shall not be limited to a maximum aggregate width of 25 percent of the length of the wall.
5. Openings shall not be limited to 156 square feet (15 m2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door assembly in a fire barrier separating an enclosures for exit access stairways~~, exit access~~ and ramps, and interior exit stairways and ~~interior exit~~ ramps from an exit passageway in accordance with Section 1022.2.1.

707.7.1 Prohibited penetrations. Penetrations into enclosures for exit access stairways~~, exit access~~ and ramps, interior exit stairways~~, interior exit~~ and ramps or an exit passageway shall be allowed only when permitted by Section 1009.3.1.5, 1022.5 or 1023.6, respectively.

SECTION 713
SHAFT ENCLOSURES

713.1 General. The provisions of this section shall apply to shafts required to protect openings and penetrations through floor/ceiling and roof/ceiling assemblies. Exit access stairways and ~~exit access~~ ramps shall be protected in accordance with the applicable provisions of Section 1009. Interior exit stairways and ~~interior exit~~ ramps shall be protected in accordance with the requirements of Section 1022.

Revise as follows:

SECTION 716
OPENING PROTECTIVES

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

Type of Assembly
Fire barriers having a required fireresistance rating of 1 hour: Enclosures for shafts, exit access stairways~~,~~ ~~exit access~~ and ramps, interior exit stairways~~, interior exit~~ and ramps and exit passageway walls

(Portions of table not shown remain unchanged.)

SECTION 718
CONCEALED SPACES

718.2.4 Stairways. Fireblocking shall be provided in concealed spaces between *stair* stringers at the top and bottom of the run. Enclosed spaces under ~~*stairs*~~ *stairways* shall also comply with Section 1009.9.3.

Revise as follows:

CHAPTER 8
INTERIOR FINISHES

SECTION 803
WALL AND CEILING FINISHES

TABLE 803.9
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY[k]

Group	SPRINKLERED			NONSPRINKLERED		
	Interior exit stairways~~,~~ ~~interior exit~~ and ramps and exit passageways[a, b]	**Corridors and enclosure for exit access stairways and ~~exit access~~ ramps**	**Rooms and enclosed spaces[c]**	**Interior exit stairways~~,~~ ~~interior exit~~ and ramps and exit passageways[a, b]**	**Corridors and enclosure for exit access stairways and ~~exit access~~ ramps**	**Rooms and enclosed spaces[c]**

b. In other than Group I-2 occupancies in buildings less than three stories above grade plane of other than Group I-3, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted in interior exit stairways and ramps.

j. Class B materials shall be permitted as wainscoting extending not more than 48 inches above the finished floor in corridors and exit access stairways and ramps.

(Portions of table and notes not shown remain unchanged)

Revise as follows:

CHAPTER 9
FIRE PROTECTION SYSTEMS

SECTION 909
SMOKE CONTROL SYSTEMS

909.20.1 Access. Access to the ~~*stair*~~ *stairway* shall be by way of a vestibule or an open exterior balcony. The minimum dimension of the vestibule shall not be less than the required width of the *corridor* leading to the vestibule but shall not have a width of less than 44 inches (1118 mm) and shall not have a length of less than 72 inches (1829 mm) in the direction of egress travel.

909.20.4.4 ~~Stair~~ Stairway shaft air movement system. The ~~*stair*~~ *stairway* shaft shall be provided with a dampered relief opening and supplied with sufficient air to maintain a minimum positive pressure of 0.10 inch of water (25 Pa) in the shaft relative to the vestibule with all doors closed.

909.20.5 ~~Stair~~ Stairway pressurization alternative. Where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the vestibule is not required, provided that interior *exit stairways* are pressurized to a minimum of 0.10 inches of water (25 Pa) and a maximum of 0.35 inches of water (87 Pa) in the shaft relative to the building measured with all interior *exit stairway* doors closed under maximum anticipated conditions of stack effect and wind effect.

909.20.6 Ventilating equipment. The activation of ventilating equipment required by the alternatives in Sections 909.20.4 and 909.20.5 shall be by smoke detectors installed at each floor level at an *approved* location at the entrance to the smokeproof enclosure. When the closing device for the ~~*stair*~~ *stairway* shaft and vestibule doors is activated by smoke detection or power failure, the mechanical equipment shall activate and operate at the required performance levels. Smoke detectors shall be installed in accordance with Section 907.3.

909.20.6.2 Standby power. Mechanical vestibule and ~~*stair*~~ *stairway* shaft ventilation systems and automatic fire detection systems shall be powered by an *approved* standby power system conforming to Section 403.4.8 and Chapter 27.

Revise as follows:

CHAPTER 10
MEANS OF EGRESS

SECTION 1007 (IFC [B] 1007)
ACCESSIBLE MEANS OF EGRESS

1007.7.2 (IFC [B] 1007.7.2) Outdoor facilities. Where *exit access* from the area serving outdoor facilities is essentially open to the outside, an exterior area of assisted rescue is permitted as an alternative to an *area of refuge*. Every required exterior area of assisted recue shall have direct access to an *interior exit stairway*, exterior exit *stairway*, or elevator serving as an *accessible means of egress* component. The exterior area of assisted rescue shall comply with Section 1007.7.3 through 1007.7.6 and shall be provided with a two-way communication system complying with Sections 1007.8.1 and 1007.8.2.

SECTION 1008 (IFC [B] 1008)
DOORS, GATES AND TURNSTILES

1008.1.4.1 (IFC [B] 1008.1.4.1) Revolving doors. Revolving doors shall comply with the following:

1. Each revolving door shall be capable of collapsing into a bookfold position with parallel egress paths providing an aggregate width of 36 inches (914 mm).
2. A revolving door shall not be located within 10 feet (3048 mm) of the foot of or top of ~~*stairs*~~ *stairways* or escalators. A dispersal area shall be provided between the ~~*stairs*~~ *stairways* or escalators and the revolving doors.
3. The revolutions per minute (rpm) for a revolving door shall not exceed those shown in Table 1008.1.4.1.
4. Each revolving door shall have a side-hinged swinging door which complies with Section 1008.1 in the same wall and within 10 feet (3048 mm) of the revolving door.
5. Revolving doors shall not be part of an *accessible route* required by Section 1007 and Chapter 11.

1008.1.9.11 (IFC [B] 1008.1.9.11) Stairway doors. Interior *stairway means of egress* doors shall be openable from both sides without the use of a key or special knowledge or effort.

Exceptions:

1. *Stairway* discharge doors shall be openable from the egress side and shall only be locked from the opposite side.
2. This section shall not apply to doors arranged in accordance with Section 403.5.3.
3. In *stairways* serving not more than four stories, doors are permitted to be locked from the side opposite the egress side, provided they are openable from the egress side and capable of being unlocked simultaneously without unlatching upon a signal from the fire command center, if present, or a signal by emergency personnel from a single location inside the main entrance to the building.
4. *Stairway exit* doors shall be openable from the egress side and shall only be locked from the opposite side in Group B, F, M and S occupancies where the only interior access to the tenant space is from a single *exit* ~~*stair*~~ *stairway* where permitted in Section 1021.2.
5. *Stairway exit* doors shall be openable from the egress side and shall only be locked from the opposite side in Group R-2 occupancies where the only interior access to the dwelling unit is from a single *exit* ~~*stair*~~ *stairway* where permitted in Section 1021.2.

SECTION 1009 (IFC [B] 1009)
STAIRWAYS

1009.3 (IFC [B] 1009.3) Exit access stairways. Floor openings between stories created by *exit access stairways* shall be enclosed.

Exceptions:

1. In other than Group I-2 and I-3 occupancies, *exit access stairways* that serve, or atmospherically communicate between, only two stories are not required to be enclosed.
2. *Exit access stairways* serving and contained within a single residential dwelling unit or sleeping unit in Group R-1, R-2 or R-3 occupancies are not required to be enclosed.
3. In buildings with only Group B or M occupancies, *exit access stairway* openings are not required to be enclosed provided that the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the area of the floor opening between stories does not exceed twice the horizontal projected area of the *exit access stairway*, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.
4. In other than Groups B and M occupancies, *exit access stairway* openings are not required to be enclosed provided that the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the floor opening does not connect more than four stories, the area of the floor opening between stories does not exceed twice the horizontal projected area of the *exit access stairway*, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.
5. *Exit access stairways* within an *atrium* complying with the provisions of Section 404 are not required to be enclosed.
6. *Exit access stairways* ~~and ramps~~ in open parking garages that serve only the parking garage are not required to be enclosed.
7. <u>Exit access</u> *Stairways* serving outdoor facilities where all portions of the *means of egress* are essentially open to the outside are not required to be enclosed.
8. *Exit access stairways* serving stages, platforms and *technical production areas* in accordance with Sections 410.6.2 and 410.6.3 are not required to be enclosed.
9. <u>Exit access</u> *Stairways* are permitted to be open between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.
10. In Group I-3 occupancies, *exit access stairways* constructed in accordance with Section 408.5 are not required to be enclosed.

1009.7.4 (IFC [B] 1009.7.4) Dimensional uniformity. *Stair* treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm) in any *flight* of *stairs*. The greatest *winder* tread depth at the walkline within any *flight* of *stairs* shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Exceptions:

1. Nonuniform riser dimensions of *aisle stairs* complying with Section 1028.11.2.
2. Consistently shaped *winders*, complying with Section 1009.7, differing from rectangular treads in the same ~~*stairway*~~ *flight* <u>*of stairs*</u>.

Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of ~~*stairway*~~ <u>*stair*</u> width. The *nosings* or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other *nosing* marking provided on the *stair flight*. The distinctive marking stripe shall be visible in

descent of the *stair* and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51 mm).

1009.9.3 (IFC [B] 1009.9.3) Enclosures under interior stairways. The walls and soffits within enclosed usable spaces under enclosed and unenclosed *stairways* shall be protected by 1-hour fire-resistance-rated construction or the *fire-resistance rating* of the *stairway* enclosure, whichever is greater. Access to the enclosed space shall not be directly from within the ~~*stair*~~ *stairway* enclosure.
Exception: Spaces under *stairways* serving and contained within a single residential dwelling unit in Group R-2 or R-3 shall be permitted to be protected on the enclosed side with 1/2-inch (12.7 mm) gypsum board.

SECTION 1010 (IFC [B] 1010)
RAMPS

1010.2 (IFC [B] 1010.2) Enclosure. All *interior exit ramps* shall be enclosed in accordance with the applicable provisions of Section 1022. *Exit access ramps* shall be enclosed in accordance with the provisions of ~~Section~~ Sections 1009.2, 1009. 3 and 1009.4 for enclosure of *stairways*.

SECTION 1011 (IFC [B] 1011)
EXIT SIGNS

1011.4 (IFC [B] 1011.4) Raised character and Braille exit signs. A sign stating EXIT in raised characters and Braille and complying with ICC A117.1 shall be provided adjacent to each door to an *area of refuge*, an exterior area for assisted rescue, an *exit stairway*~~, an *exit*~~ *or ramp*, an *exit passageway* and the *exit discharge*.

SECTION 1012 (IFC [B] 1012)
HANDRAILS

1012.6 (IFC [B] 1012.6) Handrail extensions. *Handrails* shall return to a wall, *guard* or the walking surface or shall be continuous to the *handrail* of an adjacent ~~*stair*~~ *flight* of stairs or *ramp* run. Where *handrails* are not continuous between *flights,* the *handrails* shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. At *ramps* where *handrails* are not continuous between runs, the *handrails* shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of *ramp* runs. The extensions of *handrails* shall be in the same direction of the ~~*stair*~~ *flights* of stairs at *stairways* and the *ramp* runs at *ramps*.

Exceptions:

1. *Handrails* within a *dwelling unit* that is not required to be *accessible* need extend only from the top riser to the bottom riser.
2. *Aisle handrails* in rooms or spaces used for assembly purposes in accordance with Section 1028.13.
3. *Handrails* for *alternating tread devices* and ship ladders are permitted to terminate at a location vertically above the top and bottom risers. *Handrails* for *alternating tread devices* and ship ladders are not required to be continuous between *flights* or to extend beyond the top or bottom risers.

SECTION 1013 (IFC [B] 1013)
GUARDS

1013.2 (IFC [B] 1013.2) Where required. *Guards* shall be located along open-sided walking surfaces, including *mezzanines*, *equipment platforms*, *stairs*, *ramps* and landings that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm)

horizontally to the edge of the open side. *Guards* shall be adequate in strength and attachment in accordance with Section 1607.8.

Exception: *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of *stages* and raised *platforms*, including ~~steps~~ stairs leading up to the *stage* and raised *platforms*.
3. On raised *stage* and *platform* floor areas, such as runways, *ramps* and side *stages* used for entertainment or presentations.
4. At vertical openings in the performance area of stages and *platforms*.
5. At elevated walking surfaces appurtenant to *stages* and *platforms* for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating where *guards* in accordance with Section 1028.14 are permitted and provided.

SECTION 1015 (IFC [B] 1015)
EXIT AND EXIT ACCESS DOORWAYS

1015.2.1 (IFC [B] 1015.2.1) Two exits or exit access doorways. Where two *exits* or *exit access doorways* are required from any portion of the *exit access*, the *exit* doors or *exit access doorways* shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between *exit* doors or *exit access doorways*. Interlocking or *scissor* ~~*stairs*~~ *stairways* shall be counted as one *exit stairway*.

Exceptions:

1 Where *interior exit stairways* are interconnected by a 1-hour fire-resistance-rated *corridor* conforming to the requirements of Section 1018, the required *exit* separation shall be measured along the shortest direct line of travel within the *corridor*.
2. Where a building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2, the separation distance of the *exit* doors or *exit access doorways* shall not be less than one-third of the length of the maximum overall diagonal dimension of the area served.

SECTION 1019 (IFC [B] 1019)
EGRESS BALCONIES

1019.2 (IFC [B] 1019.2) Wall separation. Exterior egress balconies shall be separated from the interior of the building by walls and opening protectives as required for *corridors*.
Exception: Separation is not required where the exterior egress balcony is served by at least two ~~*stairs*~~ *stairways* and a deadend travel condition does not require travel past an unprotected opening to reach a ~~*stair*~~ *stairway*.

SECTION 1021 (IFC [B] 1021)
NUMBER OF EXITS AND EXIT CONFIGURATION

1021.1 (IFC [B] 1021.1.) General. Each story and occupied roof shall have the minimum number of *exits*, or access to exits, as specified in this section. The required number of *exits*, or *exit access stairways* or *ramps* providing access to exits, from any story shall be maintained until arrival at grade or a *public way*. *Exits* or access to exits from any story shall be configured in accordance with this section. Each story above the second story of a building shall have a minimum of one interior or exterior *exit stairway*~~,~~ or ~~interior or exterior *exit* *ramp*~~. At each story above the second story that requires a minimum of three or more *exits*, or access to *exits*, a minimum of 50 percent of the required *exits* shall be interior or exterior *exit stairways*~~,~~ or ~~interior or exterior *exit* *ramps*~~.

Exceptions:

1. *Interior exit stairways* and ~~*interior exit*~~ *ramps* are not required in *open parking garages* where the *means of egress* serves only the *open parking garage*.
2. *Interior exit stairways* and ~~*interior exit*~~ *ramp*s are not required in outdoor facilities where all portions of the *means of egress* are essentially open to the outside.

SECTION 1022 (IFC [B] 1022)
INTERIOR EXIT STAIRWAYS AND RAMPS

1022.1 (IFC [B] 1022.1) General. *Interior exit stairways* and ~~*interior exit*~~ *ramps* serving as an *exit* component in a *means of egress* system shall comply with the requirements of this section. *Interior exit stairways* and *ramps* shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an *exit passageway* conforming to the requirements of Section 1023, except as permitted in Section 1027.1. An *interior exit stairway* or *ramp* shall not be used for any purpose other than as a *means of egress*.

1022.7 (IFC [B] 1022.7) Interior exit stairway and ramp exterior walls. *Exterior walls* of the *interior exit stairway* and *ramp* shall comply with the requirements of Section 705 for exterior walls. Where nonrated walls or unprotected openings enclose the exterior of the *stairway* or ramps and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the building *exterior walls* within 10 feet (3048 mm) horizontally of a nonrated wall or unprotected opening shall have a *fire-resistance rating* of not less than 1 hour. Openings within such *exterior walls* shall be protected by opening protectives having a *fire protection rating* of not less than 3/4 hour. This construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the topmost landing of the *stairway*, ramp or to the roof line, whichever is lower.

1022.9 (IFC [B] 1022.9) Stairway identification signs. A sign shall be provided at each floor landing in an *interior exit stairway* and *ramp* connecting more than three stories designating the floor level, the terminus of the top and bottom of the *interior exit stairway* and *ramp* and the identification of the ~~*stair*~~ *stairway* or *ramp*. The signage shall also state the story of, and the direction to, the *exit discharge* and the availability of roof access from the *interior exit stairway* and *ramp* for the fire department. The sign shall be located 5 feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. In addition to the *stairway* identification sign, a floor level sign in raised characters and braille complying with ICC A117.1 shall be located at each floor level landing adjacent to the door leading from the *interior exit stairway* and *ramp* into the *corridor* to identify the floor level.

SECTION 1028 (IFC [B] 1028)
ASSEMBLY

TABLE 1028.6.2 (IFC [B] Table 1028.6.2)
WIDTH OF AISLES FOR SMOKE-PROTECTED ASSEMBLY

TOTAL NUMBER OF SEATS IN THE SMOKEPROTECTED ASSEMBLY SEATING	INCHES OF CLEAR WIDTH PER SEAT SERVED			
	~~Stairs and~~ aisle ~~steps~~ stairs with handrails within 30 inches	~~Stairs and~~ aisle ~~steps~~ stairs without handrails within 30 inches	~~Passageways, doorways and~~ Level and ramped aisles ~~ramps~~ not steeper than 1 in 10 in slope	~~Ramps~~ Ramped aisles steeper than 1 in 10 in slope

(Portions of table not shown remain unchanged)

1028.7 (IFC [B] 1028.7) Travel distance. *Exits* and *aisles* shall be so located that the travel distance to an *exit* door shall not be greater than 200 feet (60 960 mm) measured along the line of travel in nonsprinklered buildings. Travel distance shall not be more than 250 feet (76 200 mm) in sprinklered

buildings. Where *aisles* are provided for seating, the distance shall be measured along the *aisles* and *aisle accessway* without travel over or on the seats.

Exceptions:

1. *Smoke-protected assembly seating*: The travel distance from each seat to the nearest entrance to a vomitory or concourse shall not exceed 200 feet (60 960 mm). The travel distance from the entrance to the vomitory or concourse to a ~~*stair*~~ *stairway*, *ramp* or walk on the exterior of the building shall not exceed 200 feet (60 960 mm).
2. Open-air seating: The travel distance from each seat to the building exterior shall not exceed 400 feet (122 m). The travel distance shall not be limited in facilities of Type I or II construction.

Revise as follows:

CHAPTER 12
INTERIOR ENVIRONMENT

SECTION 1205
LIGHTING

1205.4 Stairway illumination. *Stairways* within *dwelling units* and *exterior stairways* serving a *dwelling unit* shall have an illumination level on tread runs of not less than 1 foot-candle (11 lux). ~~*Stairs*~~ *Stairways* in other occupancies shall be governed by Chapter 10.

SECTION 1207
SOUND TRANSMISSION

1207.1 Scope. This section shall apply to common interior walls, partitions and floor/ceiling assemblies between adjacent *dwelling units* or between *dwelling units* and adjacent public areas such as halls, *corridors*, ~~*stairs*~~ *stairways* or service areas.

Revise as follows:

CHAPTER 21
MASONRY

SECTION 2110
GLASS UNIT MASONRY

2110.1.1 Limitations. Solid or hollow *approved* glass block shall not be used in fire walls, party walls, fire barriers, fire partitions or smoke barriers, or for load-bearing construction. Such blocks shall be erected with mortar and reinforcement in metal channel-type frames, structural frames, masonry or concrete recesses, embedded panel anchors as provided for both exterior and interior walls or other *approved* joint materials. Wood strip framing shall not be used in walls required to have a fire-resistance rating by other provisions of this code.

Exceptions:

1. Glass-block assemblies having a fire protection rating of not less than 3/4 hour shall be permitted as opening protectives in accordance with Section 716 in fire barriers, fire partitions and smoke barriers that have a required fire-resistance rating of 1 hour or less and do not enclose exit stairways~~, exit~~ and ramps or exit passageways.
2. Glass-block assemblies as permitted in Section 404.6, Exception 2.

Revise as follows:

CHAPTER 23
WOOD

SECTION 2308
CONVENTIONAL LIGHT-FRAMED CONSTRUCTION

2308.12.7 Anchorage of exterior means of egress components. Exterior egress balconies, exterior ~~exit~~ stairways or ramps and similar *means of egress* components shall be positively anchored to the primary structure at not over 8 feet (2438 mm) o.c. or shall be designed for lateral forces. Such attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

Revise as follows:

CHAPTER 24
GLASS AND GLAZING

SECTION 2406
SAFETY GLAZING

2406.4.6 Glazing adjacent to ~~stairs~~ stairways and ramps. Glazing where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) above the plane of the adjacent walking surface of stairways, landings between flights of stairs, and ramps shall be considered a hazardous location.

Exceptions:

1. The side of a stairway, landing or ramp that has a guard complying with the provisions of Sections 1013 and 1607.8, and the plane of the glass is greater than 18 inches (457 mm) from the railing.
2. Glazing 36 inches (914 mm) or more measured horizontally from the walking surface.

2406.4.7 Glazing adjacent to the bottom ~~stair~~ stairway landing. Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 36 inches (914 mm) above the landing and within 60 inches (1524 mm) horizontally of the bottom tread shall be considered a hazardous location.

Exception: Glazing that is protected by a guard complying with Sections 1013 and 1607.8 where the plane of the glass is greater than 18 inches (457 mm) from the guard.

Revise as follows:

CHAPTER 34
EISTING STRUCTURES

SECTION 3406 (IEBC [B] 405)
FIRE ESCAPES

3406.1.3 (IEBC [B] 405.1.3) New fire escapes. New fire escapes for existing buildings shall be permitted only where exterior ~~*stairs*~~ *stairways* cannot be utilized due to lot lines limiting ~~*stair*~~ *stairway* size or due to the sidewalks, alleys or roads at grade level. New fire escapes shall not incorporate ladders or access by windows.

3406.4 (IEBC [B] 405.4) Dimensions. *Stairs* shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of ~~stairs~~ stairways not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 8 inches (203 mm) below the door.

SECTION 3411 (IEBC [B] 410)
ACCESSIBILITY FOR EXISTING BUILDINGS

3411.8.4 (IEBC [B] 410.8.4) ~~Stairs~~ Stairways and escalators in existing buildings. In *alterations*, change of occupancy or *additions* where an escalator or ~~*stair*~~ *stairway* is added where none existed previously and major structural modifications are necessary for installation, an *accessible* route shall be provided between the levels served by the escalator or ~~*stairs*~~ *stairways* in accordance with Sections 1104.4 and 1104.5.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent is for the consistent use of the defined terms for 'stair' and 'stairway' throughout the all the codes. Stair is used when talking about individual steps or stepped aisles. Stairway is used when the provisions are applicable to a series of steps, or flights and landings between stories. In addition, when terms such as 'exit access stairway' and 'exit access ramp' follow each other in a list, consistently eliminate a couple of words by saying 'exit access stairway and ramp.' When the provisions are equally appropriate for ramps and stairways, ramps is added.

Cost Impact: None

Public Hearing Results

PART I – IBC MEANS OF EGRESS
Committee Action: **Approved as Submitted**

Committee Reason: The proposal revised the use of 'stair' and 'stairway' throughout the code so that the application matches the defined terms. This will clarify when requirements are intended for a change in elevation (i.e., stair) vs. a change in story (i.e., stairway). There was some concern about the style choice to say 'exit access stairway and ramp' vs. using the specific defined terms 'exit access stairways and exit access ramps'.

Assembly Action: **None**

Final Hearing Results

E2-12 Part I **AS**

Code Change No: E2-12 Part II

Original Proposal

Section(s): IMC 306.5.1, 1107.2; (IFGC [M] 306.5.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

THIS IS A 4 PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE AS 4 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMMITTEE.

PART II - INTERNATIONAL MECHANICAL CODE

Revise as follows:

IMC CHAPTER 3
GENERAL REGULATIONS

IMC SECTION 306
ACCCESS AND SERVICE SPACE

IMC 306.5.1 (IFGC [M] 306.5.1) Sloped roofs. Where appliances, *equipment*, fans or other components that require service are installed on a roof having a slope of three units vertical in 12 units horizontal (25-percent slope) or greater and having an edge more than 30 inches (762 mm) above grade at such edge, a level platform shall be provided on each side of the *appliance* or *equipment* to which access is required for service, repair or maintenance. The platform shall be not less than 30 inches (762 mm) in any dimension and shall be provided with guards. The guards shall extend not less than 42 inches (1067 mm) above the platform, shall be constructed so as to prevent the passage of a 21-inch diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *International Building Code*. Access shall not require walking on roofs having a slope greater than four units vertical in 12 units horizontal (33-percent slope). Where access involves obstructions greater than 30 inches (762 mm) in height, such obstructions shall be provided with ladders installed in accordance with Section 306.5 or ~~stairs~~ stairways installed in accordance with the requirements specified in the *International Building Code* in the path of travel to and from appliances, fans or *equipment* requiring service.

IMC CHAPTER 11
REFRIGERATION

IMC SECTION 1107
REFRIGERANT PIPING

IMC 1107.2 Piping location. Refrigerant piping that crosses an open space that affords passageway in any building shall be not less than 7 feet 3 inches (2210 mm) above the floor unless the piping is located against the ceiling of such space. Refrigerant piping shall not be placed in any elevator, dumbwaiter or other shaft containing a moving object or in any shaft that has openings to living quarters or to means of egress. Refrigerant piping shall not be installed in an enclosed public stairway, ~~stair~~ stairway landing or means of egress.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC,

including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent is for the consistent use of the defined terms for 'stair' and 'stairway' throughout the all the codes. Stair is used when talking about individual steps or stepped aisles. Stairway is used when the provisions are applicable to a series of steps, or flights and landings between stories. In addition, when terms such as 'exit access stairway' and 'exit access ramp' follow each other in a list, consistently eliminate a couple of words by saying 'exit access stairway and ramp.' When the provisions are equally appropriate for ramps and stairways, ramps is added.

Cost Impact: None

Public Hearing Results

PART II – IMC
Committee Action: **Approved as Submitted**

Committee Reason: The proposal revised the use of 'stair' and 'stairway' throughout the code so that the application matches the defined terms. This will clarify when requirements are intended for a change in elevation (i.e., stair) vs. a change in story (i.e., stairway).

Assembly Action: **None**

Final Hearing Results

E2-12 Part II **AS**

Code Change No: E2-12 Part III

Original Proposal

Section(s): INTERNATIONAL FIRE CODE
IFC 508.1.5, 905.3.3, 905.4, 905.4.1, 907.2.13.2, 907.5.2.2, 1104.5, 1104.6.1, 1104.9, 1104.10, 1104.10.1, 1104.12, 1104.16, 1104.16.1, 1104.16.2, 1104.16.3, 1104.16.4, 1104.16.5, 1104.16.5.1, 1104.16.6, 1104.16.7, 1104.20, 1104.21, 1104.23, 3313.1, 5704.2.9.4, 5706.5.1.12; (IBC [F] 911.1.5, 905.3.3, 905.4, 905.4.1, 907.2.13.2, 907.5.2.2, 3311.1; IEBC [F] 1506.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

THIS IS A 4 PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE AS 4 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMMITTEE.

PART III – INTERNATIONAL FIRE CODE

Revise as follows:

IFC CHAPTER 5
FIRE SERVICE FEATURES

IFC SECTION 508 (IBC [F] 911)
FIRE COMMAND CENTER

IFC 508.1.5 (IBC [F] 911.1.5) Required features. The fire command center shall comply with NFPA 72 and shall contain the following features:

1. The emergency voice/alarm communication system control unit.
2. The fire department communications system.
3. Fire detection and alarm system annunciator.
4. Annunciator unit visually indicating the location of the elevators and whether they are operational.
5. Status indicators and controls for air distribution systems.
6. The fire-fighter's control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking interior exit *stairway* doors simultaneously.
8. Sprinkler valve and waterflow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.
11. Fire pump status indicators.
12. Schematic building plans indicating the typical floor plan and detailing the building core, *means of egress*, fire protection systems, fire-fighting equipment and fire department access and the location of *fire walls, fire barriers, fire partitions, smoke barriers* and smoke partitions.
13. An approved Building Information Card that contains, but is not limited to, the following information:
    13.1 General building information that includes: property name, address, the number of floors in the building (above and below grade), use and occupancy classification (for mixed uses, identify the different types of occupancies on each floor), estimated building population (i.e., day, night, weekend);

13.2 Building emergency contact information that includes: a list of the building's emergency contacts (e.g., building manager, building engineer, etc.) and their respective work phone number, cell phone number, email address;

13.3 Building construction information that includes: the type of building construction (e.g., floors, walls, columns, and roof assembly);

13.4 *Exit access and exit ~~stair~~ stairway* information that includes: number of *exit access and exit ~~stair~~ stairway* in building, each *exit access and exit ~~stair~~ stairway* designation and floors served, location where each *exit access and exit ~~stair~~ stairway* discharges, interior *exit ~~stairs~~ stairways* that are pressurized, *exit ~~stairs~~ stairways* provided with emergency lighting, each *exit ~~stairs~~ stairways* that allows reentry, *exit ~~stairs~~ stairways* providing roof access; elevator information that includes: number of elevator banks, elevator bank designation, elevator car numbers and respective floors that they serve, location of elevator machine rooms, location of sky lobby, location of freight elevator banks;

13.5 Building services and system information that includes: location of mechanical rooms, location of building management system, location and capacity of all fuel oil tanks, location of emergency generator, location of natural gas service;

13.6 Fire protection system information that includes: locations of standpipes, location of fire pump room, location of fire department connections, floors protected by automatic sprinklers, location of different types of sprinkler systems installed (e.g., dry, wet, pre-action, etc.);

13.7 Hazardous material information that includes: location of hazardous material, quantity of hazardous material.

14. Work table.
15. Generator supervision devices, manual start and transfer features.
16. Public address system, where specifically required by other sections of this code.
17. Elevator fire recall switch in accordance with ASME A17.1.
18. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

IFC CHAPTER 9
FIRE PROTECTION SYSTEMS

IFC SECTION 905
STANDPIPE SYSTEMS

IFC 905.3.3 (IBC [F] 905.3.3) Covered and open mall buildings. Covered mall and open mall buildings shall be equipped throughout with a standpipe system where required by Section 905.3.1. Mall buildings not required to be equipped with a standpipe system by Section 905.3.1 shall be equipped with Class I hose connections connected to the *automatic sprinkler system* sized to deliver water at 250 gallons per minute (946.4 L/min) at the most hydraulically remote hose connection while concurrently supplying the automatic sprinkler system demand. The standpipe system shall be designed to not exceed a 50 pounds per square inch (psi) (345 kPa) residual pressure loss with a flow of 250 gallons per minute (946.4 L/min) from the fire department connection to the hydraulically most remote hose connection. Hose connections shall be provided at each of the following locations:

1. Within the mall at the entrance to each *exit* passageway or *corridor*.
2. At each floor-level landing within ~~enclosed~~ interior exit stairways opening directly on the mall.
3. At exterior public entrances to the mall of a covered mall building.
4. At public entrances at the perimeter line of an open mall building.

IFC 905.4 (IBC [F] 905.4) Location of Class I standpipe hose connections. Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required interior exit *stairway*, a hose connection shall be provided for each floor level above or below grade. Hose connections shall be located at an intermediate floor level landing between floors, unless otherwise *approved* by the fire code official.

2. On each side of the wall adjacent to the *exit* opening of a *horizontal exit*.

   Exception: Where floor areas adjacent to a *horizontal exit* are reachable from an interior *exit stairway* hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the *horizontal exit*.

3. In every *exit* passageway, at the entrance from the *exit* passageway to other areas of a building.

   Exception: Where floor areas adjacent to an *exit* passageway are reachable from an interior *exit stairway* hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the entrance from the *exit* passageway to other areas of the building.

4. In covered mall buildings, adjacent to each exterior public entrance to the mall and adjacent to each entrance from an exit passageway or exit corridor to the mall. In open mall buildings, adjacent to each public entrance to the mall at the perimeter line and adjacent to each entrance from an exit passageway or exit corridor to the mall.
5. Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), a hose connection shall be located to serve the roof or at the highest landing of ~~a~~ an interior exit stairway with ~~stair~~ access to the roof provided in accordance with Section 1009.16.
6. Where the most remote portion of a nonsprinklered floor or *story* is more than 150 feet (45 720 mm) from a hose connection or the most remote portion of a sprinklered floor or *story* is more than 200 feet (60 960 mm) from a hose connection, the fire code official is authorized to require that additional hose connections be provided in *approved* locations.

IFC 905.4.1 (IBC [F] 905.4.1) Protection. Risers and laterals of Class I standpipe systems not located within an ~~enclosed~~ interior exit *stairway* ~~or pressurized enclosure~~ shall be protected by a degree of *fire resistance* equal to that required for vertical enclosures in the building in which they are located.

Exception: In buildings equipped throughout with an *approved automatic sprinkler system*, laterals that are not located within an ~~enclosed~~ interior exit *stairway* ~~or pressurized enclosure~~ are not required to be enclosed within fire-resistance- rated construction.

IFC SECTION 907 (IBC [F] 907)
FIRE ALARM AND DETECTION SYSTEMS

IFC 907.2.13.2 (IBC [F] 907.2.13.2) Fire department communication system. Where a wired communication system is *approved* in lieu of an emergency responder radio coverage system in accordance with Section 510 of the *International Fire Code*, the wired fire department communication system shall be designed and installed in accordance with NFPA 72 and shall operate between a fire command center complying with Section 911, elevators, elevator lobbies, emergency and standby power rooms, fire pump rooms, *areas of refuge* and inside ~~enclosed~~ *interior exit stairways*. The fire department communication device shall be provided at each floor level within the ~~enclosed~~ *interior exit stairway*.

IFC 907.5.2.2 (IBC [F] 907.5.2.2) Emergency voice/alarm communication systems. Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler waterflow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving *approved* information and directions for a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404 of the *International Fire Code*. In high-rise buildings, the system shall operate on a minimum of the alarming floor, the floor above and the floor below. Speakers shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:

1. Elevator groups.
2. Interior *Exit stairways*.

3. Each floor.
4. *Areas of refuge* as defined in Section 1002.1.

Exception: In Group I-1 and I-2 occupancies, the alarm shall sound in a constantly attended area and a general occupant notification shall be broadcast over the overhead page.

IFC CHAPTER 11
CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

IFC SECTION 1104
MEANS OF EGRESS FOR EXISTING BUILDINGS

IFC 1104.5 Illumination emergency power. The power supply for *means of egress* illumination shall normally be provided by the premises' electrical supply. In the event of power supply failure, illumination shall be automatically provided from an emergency system for the following occupancies where such occupancies require two or more *means of egress:*

1 and 2 *(No change)*
3. Group E in interior ~~stairs~~ exit access and exit stairways and ramps, *corridors,* windowless areas with student occupancy, shops and laboratories.

4 through 9 *(No change)*

IFC 1104.6.1 Height of guards. Guards shall form a protective barrier not less than 42 inches (1067 mm) high.

Exceptions:

1. Existing guards on the open side of ~~*stairs*~~ stairways shall be not less than 30 inches (760 mm) high.
2. Existing guards within *dwelling units* shall be not less than 36 inches (910 mm) high.
3. Existing guards in assembly seating areas.

IFC 1104.9 Revolving doors. Revolving doors shall comply with the following:

1. A revolving door shall not be located within 10 feet (3048 mm) of the foot or top of ~~stairs~~ stairways or escalators. A dispersal area shall be provided between the ~~stairs~~ stairways or escalators and the revolving doors.
2. The revolutions per minute for a revolving door shall not exceed those shown in Table 1104.9.
3. Each revolving door shall have a conforming side hinged swinging door in the same wall as the revolving door and within 10 feet (3048 mm).

Exceptions:

1. A revolving door is permitted to be used without an adjacent swinging door for street-floor elevator lobbies provided a stairway, escalator or door from other parts of the building does not discharge through the lobby and the lobby does not have any occupancy or use other than as a means of travel between elevators and a street.
2. Existing revolving doors where the number of revolving doors does not exceed the number of swinging doors within 20 feet (6096 mm).

IFC 1104.10 Stair dimensions for existing ~~stairs~~ stairways. Existing ~~stairs~~ stairways in buildings shall be permitted to remain if the rise does not exceed 81/4 inches (210 mm) and the run is not less than 9 inches (229 mm). Existing ~~stairs~~ stairways can be rebuilt.

Exception: Other ~~stairs~~ stairways *approved* by the *fire code official*.

IFC 1104.10.1 Dimensions for replacement ~~stairs~~ stairways. The replacement of an existing *stairway* in a structure shall not be required to comply with the new *stairway* requirements of Section 1009 where the existing space and construction will not allow a reduction in pitch or slope.

IFC 1104.12 ~~Circular~~ Curved stairways. Existing ~~circular~~ ~~stairs~~ curved stairways shall be allowed to continue in use provided the minimum depth of tread is 10 inches (254 mm) and the smallest radius shall not be less than twice the width of the *stairway*.

IFC 1104.16 Fire escape ~~stairs~~ stairways. Fire escape ~~stairs~~ stairways shall comply with Sections 1104.16.1 through 1104.16.7.

IFC 1104.16.1 Existing means of egress. Fire escape ~~stairs~~ stairways shall be permitted in existing buildings but shall not constitute more than 50 percent of the required *exit* capacity.

IFC 1104.16.2 Protection of openings. Openings within 10 feet (3048 mm) of fire escape ~~stairs~~ stairways shall be protected by opening protectives having a minimum 3/4-hour *fire protection rating*.

> **Exception:** In buildings equipped throughout with an *approved automatic sprinkler system*, opening protection is not required.

IFC 1104.16.3 Dimensions. Fire escape ~~stairs~~ stairways shall meet the minimum width, capacity, riser height and tread depth as specified in Section 1104.10.

IFC 1104.16.4 Access. Access to a fire escape ~~stair~~ stairway from a *corridor* shall not be through an intervening room. Access to a fire escape ~~stair~~ stairway shall be from a door or window meeting the criteria of Section 1005.1. Access to a fire escape ~~stair~~ stairway shall be directly to a balcony, landing or platform. These shall be no higher than the floor or window sill level and no lower than 8 inches (203 mm) below the floor level or 18 inches (457 mm) below the window sill.

IFC 1104.16.5 Materials and strength. Components of fire escape ~~stairs~~ stairways shall be constructed of noncombustible materials. Fire escape ~~stairs~~ stairways and balconies shall support the dead load plus a live load of not less than 100 pounds per square foot (4.78 kN/m2). Fire escape ~~stairs~~ stairways and balconies shall be provided with a top and intermediate handrail on each side.

IFC 1104.16.5.1 Examination. Fire escape ~~stairs~~ stairways and balconies shall be examined for structural adequacy and safety in accordance with Section 1104.16.5 by a registered design professional or others acceptable to the *fire code official* every five years, or as required by the *fire code official*. An inspection report shall be submitted to the *fire code official* after such examination.

IFC 1104.16.6 Termination. The lowest balcony shall not be more than 18 feet (5486 mm) from the ground. Fire escape ~~stairs~~ stairways shall extend to the ground or be provided with counterbalanced ~~stairs~~ stairways reaching the ground.

> **Exception:** For fire escape ~~stairs~~ stairways serving 10 or fewer occupants, an *approved* fire escape ladder is allowed to serve as the termination.

IFC 1104.16.7 Maintenance. Fire escapes stairways shall be kept clear and unobstructed at all times and shall be maintained in good working order.

IFC 1104.20 Stairway discharge identification. An interior *exit stairway* or *ramp* which continues below its *level of exit discharge* shall be arranged and marked to make the direction of egress to a *public way* readily identifiable.

> **Exception:** ~~Stairs~~ Stairways that continue one-half story beyond their *levels of exit discharge* need not be provided with barriers where the *exit discharge* is obvious.

IFC 1104.21 Exterior stairway protection. Exterior *exit* ~~stairs~~ stairways shall be separated from the interior of the building as required in Section 1026.6. Openings shall be limited to those necessary for egress from normally occupied spaces.

Exceptions:

1. Separation from the interior of the building is not required for buildings that are two stories or less above grade where the *level of exit discharge* serving such occupancies is the first story above grade.
2. Separation from the interior of the building is not required where the exterior *stairway* is served by an exterior balcony that connects two remote exterior *stairways* or other *approved exits*, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the opening not less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the interior of the building is not required for an exterior *stairway* located in a building or structure that is permitted to have unenclosed interior *stairways* in accordance with Section 1022.
4. Separation from the interior of the building is not required for exterior *stairways* connected to open ended *corridors*, provided that:
   4.1. The building, including *corridors* and ~~stairs~~ stairways, is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
   4.2. The open-ended *corridors* comply with Section 1018.
   4.3. The open-ended *corridors* are connected on each end to an exterior *exit stairway* complying with Section 1026.
   4.4. At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3 m2) or an exterior *stairway* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

IFC 1104.23 Stairway floor number signs. Existing ~~stairs~~ stairways shall be marked in accordance with Section 1022.8.

IFC CHAPTER 33
FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

IFC SECTION 3313 (IBC [F] 3311; IEBC [F] 1506.1)
STANDPIPES

IFC 3313.1 (IBC [F] 3311.1; IEBC [F] 1506.1) Where required. In buildings required to have standpipes by Section 905.3.1, no fewer than one standpipe shall be provided for use during construction. Such standpipes shall be installed when the progress of construction is not more than 40 feet (12 192 mm) in height above the lowest level of fire department vehicle access. Such standpipe shall be provided with fire department hose connections at accessible locations adjacent to usable ~~stairs~~ stairways. Such standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.

IFC CHAPTER 57
FLAMMABLE AND COMBUSTIBLE LIQUIDS

IFC SECTION 5704
STORAGE

IFC 5704.2.9.4 ~~Stairs~~ Stairways, platforms and walkways. ~~Stairs~~ Stairways, platforms and walkways shall be of noncombustible construction and shall be designed and constructed in accordance with NFPA 30 and the *International Building Code*.

IFC 5706.5.1.12 Loading racks. Where provided, loading racks, ~~stairs~~ stairways or platforms shall be constructed of noncombustible materials. Buildings for pumps or for shelter of loading personnel are allowed to be part of the loading rack. Wiring and electrical equipment located within 25 feet (7620 mm) of any portion of the loading rack shall be in accordance with Section 5703.1.1.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent is for the consistent use of the defined terms for 'stair' and 'stairway' throughout the all the codes. Stair is used when talking about individual steps or stepped aisles. Stairway is used when the provisions are applicable to a series of steps, or flights and landings between stories. In addition, when terms such as 'exit access stairway' and 'exit access ramp' follow each other in a list, consistently eliminate a couple of words by saying 'exit access stairway and ramp.' When the provisions are equally appropriate for ramps and stairways, ramps is added.

Cost Impact: None

Public Hearing Results

PART III – IFC
Committee Action: **Approved as Submitted**

Committee Reason: The proposal revised the use of 'stair' and 'stairway' throughout the code so that the application matches how the defined terms. This will clarify when requirements are intended for a change in elevation (i.e., stair) vs. a change in story (i.e., stairway). There was a question from the committee whether in Section 508.1.5, Item 7 should include 'exterior exit stairway'.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, requests Approval as Modified by this Public Comment

Modify the proposal as follows:

IFC 508.1.5 (IBC [F] 911.1.5) Required features. The fire command center shall comply with NFPA 72 and shall contain the following features:

1. through 6. *(no change)*
7. Controls for unlocking ~~interior exit~~ *stairway* doors simultaneously.
8. through 18. *(no change)*

(Portions of proposal not shown remain unchanged.)

Commenter's Reason: The modification to IFC Section 508.1.5 (IBC 911.1.5) Item 7 is due to a concern brought up by one of the Means of Egress Code Development committee regarding possible fire department access requirement from exterior exit stairways when dealing with locked exit stairway doors. The proposal is to not add the words "interior exit" so that the requirement for unlocking would be the same for interior exit stairways as exterior exit stairways.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "Unenclosed exit stairways". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/UnenclosedExitStairs.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

E2-12 Part III **AMPC**

Code Change No: E2-12 Part IV

Original Proposal

Section(s): IMC 306.5.1, 1107.2; (IFGC [M] 306.5.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

THIS IS A 4 PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE AS 4 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMMITTEE.

PART IV – INTERNATIONAL EXISTING BUILDING CODE

IEBC CHAPTER 8
ALTERATIONS—LEVEL 2

IEBC SECTION 804
FIRE PROTECTION

IEBC 804.1.1 Corridor ratings. Where an approved automatic sprinkler system is installed throughout the story, the required fire-resistance rating for any corridor located on the story shall be permitted to be reduced in accordance with the *International Building Code*. In order to be considered for a corridor rating reduction, such system shall provide coverage for the ~~stairwell~~ stairway landings serving the floor and the intermediate landings immediately below.

IEBC SECTION 805
MEANS OF EGRESS

IEBC 805.3.1.1 Single-exit buildings. Only one exit is required from buildings and spaces of the following occupancies:

1. through 8. *(No change)*
9. In buildings of Group R-2 occupancy of any height with not more than four dwelling units per floor; with a smokeproof enclosure or outside ~~stair~~ stairway as an exit; and with such exit located within 20 feet (6096 mm) of travel to the entrance doors to all dwelling units served thereby.
10. *(No change)*

IEBC 805.3.1.2.1 Fire escape access and details. Fire escapes shall comply with all of the following requirements:

1. and 2. *(No change)*
3. Newly constructed fire escapes shall be permitted only where exterior ~~stairs~~ stairways cannot be utilized because of lot lines limiting the ~~stair~~ stairway size or because of the sidewalks, alleys, or roads at grade level.
4. Openings within 10 feet (3048 mm) of fire escape ~~stairs~~ stairways shall be protected by fire assemblies having minimum 3/4-hour fire-resistance ratings.
   Exception: Opening protection shall not be required in buildings equipped throughout with an approved automatic sprinkler system.
5. *(No change)*

IEBC 805.3.1.2.3 Dimensions. ~~Stairs~~ Stairways shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm). Landings at the foot of ~~stairs~~ stairways shall not be less than 40 inches (1016 mm) wide by 36 inches (914 mm) long and located not more than 8 inches (203 mm) below the door.

IEBC 805.4.3 Door closing. In any *work area*, all doors opening onto an exit passageway at grade or an exit ~~stair~~ stairway shall be self-closing or automatic-closing by listed closing devices.

Exceptions:

1. Where exit enclosure is not required by the *International Building Code*.
2. Means of egress within or serving only a tenant space that is entirely outside the *work area*.

IEBC 805.4.3.1 Supplemental requirements for door closing. Where the *work area* exceeds 50 percent of the floor area, doors shall comply with Section 805.4.3 throughout the exit ~~stair~~ stairway from the *work area* to, and including, the level of exit discharge.

IEBC 805.9.1 Minimum requirement. Every required exit stairway that is part of the means of egress for any *work area* and that has three or more risers and is not provided with at least one handrail, or in which the existing handrails are judged to be in danger of collapsing, shall be provided with handrails for the full length of the ~~run of steps~~ stairway on at least one side. All exit stairways with a required egress width of more than 66 inches (1676 mm) shall have handrails on both sides.

IEBC 805.10.1 Minimum requirement. Every open portion of a ~~stair~~ stairway, landing, or balcony that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those portions in which existing guards are judged to be in danger of collapsing, shall be provided with guards.

IEBC SECTION 806
ACCESSIBILITY

IEBC 806.2 ~~Stairs~~ Stairways and escalators in existing buildings. In *alterations* where an escalator or ~~stair~~ stairway is added where none existed previously, an accessible route shall be provided in accordance with Sections 1104.4 and 1104.5 of the *International Building Code*.

IEBC CHAPTER 9
ALTERATIONS—LEVEL 3

IEBC SECTION 902
SPECIAL USE AND OCCUPANCY

IEBC 902.2.1 Emergency controls. Emergency controls for boilers and furnace equipment shall be provided in accordance with the *International Mechanical Code* in all buildings classified as day nurseries, children's shelter facilities, residential childcare facilities, and similar facilities with children below the age of 21/2 years or that are classified as Group I-2 occupancies, and in group homes, teaching family homes, and supervised transitional living homes in accordance with the following:

1. Emergency shutoff switches for furnaces and boilers in basements shall be located at the top of the ~~stairs~~ stairways leading to the basement; and
2. Emergency shutoff switches for furnaces and boilers in other enclosed rooms shall be located outside of such room.

IEBC CHAPTER 11
ADDITIONS

IEBC SECTION 1102
HEIGHTS AND AREAS

IEBC 1102.2 Area limitations. No *addition* shall increase the area of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings unless fire separation as required by the *International Building Code* is provided.

Exception: In-filling of floor openings and nonoccupiable appendages such as elevator and exit ~~stair~~ stairway shafts shall be permitted beyond that permitted by the *International Building Code*.

IEBC CHAPTER 12
HISTORIC BUILDINGS

IEBC SECTION 1203
FIRE SAFETY

IEBC 1203.9 Stairway railings. Grand stairways shall be accepted without complying with the handrail and guard requirements. Existing handrails and guards at all ~~stairs~~ stairways shall be permitted to remain, provided they are not structurally *dangerous*.

IEBC SECTION 1205
CHANGE OF OCCUPANCY

IEBC 1205.11 ~~Stairs~~ Stairways and guards ~~railings~~. Existing stairways shall comply with the requirements of these provisions. The *code official* shall grant alternatives for stairways and ~~railings~~ guards if alternative stairways are found to be acceptable or are judged to meet the intent of these provisions. Existing stairways shall comply with Section 1203.

Exception: For buildings less than 3,000 square feet (279 m2), existing conditions are permitted to remain at all ~~stairs~~ stairways and ~~rails~~ guards.

IEBC Resource A

2.1 Preliminary evaluation

Exterior Nonbearing Walls: The fire resistance of the exterior walls is important for two reasons. These walls (both bearing and non-bearing) are depended upon to: a) contain a fire within the building of origin; or b) keep an exterior fire *outside* the building. It is therefore important to indicate on the drawings where any openings are located as well as the materials and construction of all doors or shutters. The drawings should indicate the presence of wired glass, its thickness and framing, and identify the materials used for windows and door frames. The protection of openings adjacent to exterior means of escape (e.g., exterior ~~stairs~~ stairways, fire escapes) is particularly important. The ground floor drawing should locate the building on the property and indicate the precise distances to adjacent buildings.

The field investigator should be alert for differences in function as well as in materials and construction details. In general, the details within apartments are not as important as the major exit paths and ~~stairwells~~ exit stairways. The preliminary field investigation should attempt to determine the thickness of all walls. A term introduced below called “thickness design” will depend on an accurate (± 1/4 inch) determination. Even though this initial field survey is called “preliminary,” the data generated should be as accurate and complete as possible.

The field investigator should note the exact location from which observations are recorded. For instance, if a hole is found through a ~~stairwell~~ wall enclosing an exit stairway which allows a cataloguing of the construction details, the field investigation notes should reflect the location of the “find.” At the preliminary stage it is not necessary to core every wall; the interior details of construction can usually be determined at some location.

Doors: Doors to stairways and hallways represent some of the most important fire elements to be considered within a building. The uses of the spaces separated largely controls the level of fire performance necessary. Walls and doors enclosing ~~stairs~~ stairways or elevator shafts would normally require a higher level of performance than between a the bedroom and bath. The various uses are differentiated in Figure 1.

Rule 7: The fire endurance of asymmetrical constructions depends on the direction of heat flow. This rule is a consequence of Rules 4 and 6 as well as other factors. This rule is useful in determining the relative protection of corridors and ~~stairwells~~ walls enclosing an exit stairway from the surrounding spaces. In addition, there are often situations where a fire is more likely, or potentially more severe, from one side or the other.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent is for the consistent use of the defined terms for 'stair' and 'stairway' throughout the all the codes. Stair is used when talking about individual steps or stepped aisles. Stairway is used when the provisions are applicable to a series of steps, or flights and landings between stories. In addition, when terms such as 'exit access stairway' and 'exit access ramp' follow each other in a list, consistently eliminate a couple of words by saying 'exit access stairway and ramp.' When the provisions are equally appropriate for ramps and stairways, ramps is added.

Cost Impact: None

Public Hearing Results

PART IV – IEBC
Committee Action: **Approved as Submitted**

Committee Reason: The proposal revised the use of 'stair' and 'stairway' throughout the code so that the application matches the defined terms. This will clarify when requirements are intended for a change in elevation (i.e., stair) vs. a change in story (i.e., stairway).

Assembly Action: **None**

Final Hearing Results

E2-12 Part IV **AS**

Code Change No: E4-12

Original Proposal

Section(s): 202, 1026.3 (IFC [B] 1026.3)

Proponent: Gregory R. Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com)

Revise as follows:

SECTION 202
DEFINITIONS

EXIT ACCESS RAMP. An ~~interior~~ *ramp* that is not a required *interior* or *exterior exit ramp*.

EXIT ACCESS STAIRWAY. An ~~interior~~ *stairway* that is not a required *interior* or *exterior exit stairway*.

EXTERIOR EXIT RAMP. An exit component that serves to meet one or more means of egress design requirements, such as required number of exits or exit access travel distance, and is open to yards, courts or public ways.

EXTERIOR EXIT STAIRWAY~~, EXTERIOR~~. An exit component that serves to meet one or more means of egress design requirements, such as required number of exits or exit access travel distance, and is open to ~~that is open on at least one side, except for required structural columns, beams, handrails and guards. The adjoining open areas shall be either~~ yards, courts or public ways. ~~The other sides of the exterior stairway need not be open.~~

INTERIOR EXIT RAMP. An *exit* component that serves to meet one or more *means of egress* design requirements, such as required number of *exits* or *exit access* travel distance, and provides for a protected path of egress travel to the *exit discharge* or *public way.*

INTERIOR EXIT STAIRWAY. An *exit* component that serves to meet one or more *means of egress* design requirements, such as required number of *exits* or *exit access* travel distance, and provides for a protected path of egress travel to the *exit discharge* or *public way.*

RAMP. A walking surface that has a running slope steeper than one unit vertical in 20 units horizontal (5-percent slope).

STAIRWAY. One or more *flights* of *stairs*, either exterior or interior, with the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one level to another.

~~**STAIRWAY, INTERIOR.** A stairway not meeting the definition of an exterior stairway.~~

Revise as follows:

1026.3 (IFC [B] 1026.3) Open side. *Exterior exit stairways* and *ramps* serving as an element of a required *means of egress* shall be open on at least one side, except for required structural columns, beams, handrails and guards. An open side shall have a minimum of 35 square feet (3.3 m^2) of aggregate open area adjacent to each floor level and the level of each intermediate landing. The required open area shall be located not less than 42 inches (1067 mm) above the adjacent floor or landing level.

Reason: Several new means of egress terms were created and defined in the 2012 Edition of the International Building Code. They include, "EXIT ACCESS STAIRWAY," "EXIT ACCESS RAMP," "INTERIOR EXIT STAIRWAY" and "INTERIOR EXIT RAMP." These, and other terms, are fundamental to the design of any means of egress system. There is a precise relationship between these terms. It is proposed to modify the definition of both "EXIT ACCESS STAIRWAY" and "EXIT ACCESS RAMP" by deleting the word "interior." This is appropriate in that the exit access can be exterior to the building and changes in floor level can occur along the path of egress travel. Since an exit access stairway or ramp can be interior or exterior to the building, it is clarified that they are not exterior exit stairways or ramps as well.

Exterior exit stairways and exterior exit ramps are exit components according to the definition of "EXIT" in Section 202 and Section 1022.1. Both of these terms are currently undefined in the IBC. There is, however, a definition for "STAIRWAY, EXTERIOR." An exterior stairway is not a means of egress component, per se, in the IBC. It is proposed to replace the definition of "STAIRWAY, EXTERIOR" with a definition for "EXTERIOR EXIT STAIRWAY." The proposed definition is consistent with the current definition except for the distinction that such stairways are open to yards, courts or public ways consistent with the requirements in Section 1026.4. Additionally, Section 1026.3 has been modified to add technical language formerly contained in the definition of "STAIRWAY, EXTERIOR" as regards in impact of structural columns, beams, handrails and guards on openness determination. A companion definition for exterior exit ramps has been created which is consistent with the proposed definition of exterior exit stairway.

Lastly, it is proposed to delete the current definition of "STAIRWAY, INTERIOR." This definition is nonsensical, obsolete and out of current technical context. The current definition of "EXIT ACCESS STAIRWAY" effectively replaces this definition.

The definitions of "INTERIOR EXIT RAMP," "INTERIOR EXIT STAIRWAY." "RAMP" and "STAIRWAY" have been included for reference purposes so the relationship of the various terms can be seen.

In summary, the proposed modifications to these means of egress component definitions will provide necessary clarity for users who are designing or analyzing a means of egress system. It is imperative that IBC definitions be technically accurate and properly descriptive. Approval of this proposal will allow for more consistent interpretations and applications of important IBC means of egress provisions.

Cost Impact: None

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: There was a concern that ramps or stairways within the exit discharge would fall within the definition of exit access ramps and stairways.

Assembly Action: **None**

Public Comments

Public Comment:

Gregory R. Keith, Professional heuristic Development, representing The Boeing Company, requests Approval as Modified by this Public Comment

Modify the proposal as follows:

EXIT ACCESS RAMP. A ramp within the exit access portion of the means of egress system ~~that is not a required *interior* or *exterior exit ramp*~~.

EXIT ACCESS STAIRWAY. A stairway within the exit access portion of the means of egress system ~~that is not a required *interior* or *exterior exit stairway*~~.

(Portions of proposal not shown remain unchanged.)

Commenter's Reason: The ICC Means of Egress Code Development Committed disapproved Item E4-12 at the 2012 ICC code development hearings in Dallas, Texas. In its published reason statement, the committee noted, "There was a concern that ramps or stairways within the exit discharge would fall within the definition of exit access ramps and stairways." Based on that comment, and the fact that the concern was over current text, the proposed definitions for exit access stairways and exit access ramps have been revised to indicate that exit access stairways and ramps occur within the exit access portion of the means of egress system. Given that the formal technical relationship between exit access stairways and ramps and interior exit stairways and ramps has

been established in the 2012 Edition of the IBC, it is important that these key definitions accurately describe their role in the proper design of a means of egress system. Approval of this public comment will provide necessary clarification to these fundamental means of egress provisions.

Final Hearing Results

E4-12	AMPC

Code Change No: E5-12

Original Proposal

Section(s): 202, 909.20, 909.20.1, 909.20.2, 909.20.3.1, 909.20.3.2, 909.20.4.1, 909.20.4.4, 909.20.5, 909.20.6, 909.20.6.2, 1022.10.1, 1022.10.2 (IFC [B] 1022.10.1, 1022.10.2)

Proponent: Philip Brazil, P.E., Senior Engineer, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee

Revise as follows:

SECTION 202
DEFINITIONS

SMOKEPROOF ENCLOSURE. An *exit stairway* or *ramp* designed and constructed so that the movement of the products of combustion produced by a fire occurring in any part of the building into the enclosure is limited.

Revise as follows:

SECTION 909
SMOKE CONTROL SYSTEMS

909.20 Smokeproof enclosures. Where required by Section 1022.10, a *smokeproof enclosure* shall be constructed in accordance with this section. A *smokeproof enclosure* shall consist of an enclosed *interior exit stairway* or *ramp* that conforms to Section 1022.2 and an open exterior balcony or ventilated vestibule meeting the requirements of this section. Where access to the roof is required by the *International Fire Code*, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

909.20.1 Access. Access to the ~~*stair*~~ *stairway* or *ramp* shall be by way of a vestibule or an open exterior balcony. The minimum dimension of the vestibule shall not be less than the required width of the *corridor* leading to the vestibule but shall not have a width of less than 44 inches (1118 mm) and shall not have a length of less than 72 inches (1829 mm) in the direction of egress travel.

909.20.2 Construction. The smokeproof enclosure shall be separated from the remainder of the building by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. Openings are not permitted other than the required *means of egress* doors. The vestibule shall be separated from the *stairway* or *ramp* by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The open exterior balcony shall be constructed in accordance with the *fire-resistance rating* requirements for floor assemblies.

909.20.3.1 Balcony doors. Where access to the *stairway* or *ramp* is by way of an open exterior balcony, the door assembly into the enclosure shall be a *fire door assembly* in accordance with Section 716.5.

909.20.3.2 Vestibule doors. Where access to the *stairway* or *ramp* is by way of a vestibule, the door assembly into the vestibule shall be a *fire door assembly* complying with Section 715.4. The door assembly from the vestibule to the *stairway* or *ramp* shall have not less than a 20-minute *fire protection rating* complying with Section 716.5.

909.20.4.1 Vestibule doors. The door assembly from the *building* into the vestibule shall be a *fire door assembly* complying with Section 716.5.3. The door assembly from the vestibule to the *stairway* or *ramp* shall have not less than a 20-minute *fire protection rating* and meet the requirements for a smoke door assembly in accordance with Section 716.5.3. The door shall be installed in accordance with NFPA 105.

909.20.4.4 Stair shaft air movement system. The ~~*stair*~~ *stairway* or *ramp* shaft shall be provided with a dampered relief opening and supplied with sufficient air to maintain a minimum positive pressure of 0.10 inch of water (25 Pa) in the shaft relative to the vestibule with all doors closed.

909.20.5 ~~Stair~~ Stairway and ramp pressurization alternative. Where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the vestibule is not required, provided ~~that~~ each interior *exit stairway* or *ramp* ~~are~~ is pressurized to a minimum of 0.10 inches of water (25 Pa) and a maximum of 0.35 inches of water (87 Pa) in the shaft relative to the building measured with all *stairway* and *ramp* doors closed under maximum anticipated conditions of stack effect and wind effect.

909.20.6 Ventilating equipment. The activation of ventilating equipment required by the alternatives in Sections 909.20.4 and 909.20.5 shall be by smoke detectors installed at each floor level at an *approved* location at the entrance to the smokeproof enclosure. When the closing device for the ~~*stair*~~ *stairway* and ramp shaft and vestibule doors is activated by smoke detection or power failure, the mechanical equipment shall activate and operate at the required performance levels. Smoke detectors shall be installed in accordance with Section 907.3.

909.20.6.2 Standby power. Mechanical vestibule and ~~*stair*~~ *stairway* and ramp shaft ventilation systems and automatic fire detection systems shall be powered by an *approved* standby power system conforming to Section 403.4.8 and Chapter 27.

Revise as follows:

SECTION 1022 (IFC [B] 1022)
INTERIOR EXIT STAIRWAYS AND RAMPS

1022.10.1 (IFC [B] 1022.10.1) Termination and extension. A *smokeproof enclosure* or pressurized *stairway* or *ramp* shall terminate at an *exit discharge* or a *public way*. The *smokeproof enclosure* or pressurized *stairway* or *ramp* shall be permitted to be extended by an *exit passageway* in accordance with Section 1022.3. The *exit passageway* shall be without openings other than the *fire door assembly* required by Section 1022.3.1 and those necessary for egress from the *exit passageway*. The *exit passageway* shall be separated from the remainder of the building by 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

Exceptions:

1. Openings in the *exit passageway* serving a *smokeproof enclosure* are permitted where the *exit passageway* is protected and pressurized in the same manner as the *smokeproof enclosure*, and openings are protected as required for access from other floors.
2. Openings in the *exit passageway* serving a pressurized *stairway* or *ramp* are permitted where the *exit passageway* is protected and pressurized in the same manner as the pressurized *stairway* or *ramp*.
3. The *fire barrier* separating the smokeproof enclosure or pressurized *stairway* or *ramp* from the *exit passageway* is not required, provided the *exit passageway* is protected and pressurized in the same manner as the *smokeproof enclosure* or pressurized *stairway* or *ramp*.
4. A *smokeproof enclosure* or pressurized *stairway* or *ramp* shall be permitted to egress through areas on the *level of exit discharge* or vestibules as permitted by Section 1027.

1022.10.2 (IFC [B] 1022.10.2) Enclosure access. Access to the *stairway* or *ramp* within a *smokeproof enclosure* shall be by way of a vestibule or an open exterior balcony.

Exception: Access is not required by way of a vestibule or exterior balcony for *stairways* and *ramps* using the pressurization alternative complying with Section 909.20.5.

Reason: The addition of "ramp(s)" is for consistency with the language in Section 1022.10 (smokeproof enclosures and pressurized stairways and ramps), which requires interior exit stairways and ramps to be smokeproof enclosures or pressurized stairways or ramps in accordance with Section 909.20 where required by Section 403.5.4 (smokeproof enclosures in high-rise buildings) or 405.7.2 (smokeproof enclosures in underground buildings). In Sections 909.20.1, 909.20.4.4, 909.20.6 and 909.20.6.2, the change from "stair" to "stairway" is for consistency with the use of "stairway" elsewhere in Section 909.20. Based on our analysis of the 2012 IBC, all instances of "exit stairway" in provisions for or related to smokeproof enclosures, where the addition of "ramp" is warranted, are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: With the idea that ramps should be an option for any location where the code allows stairways, "and ramps" should be added throughout the provisions for smokeproof enclosures.

Assembly Action: **None**

Final Hearing Results

E5-12 **AS**

Code Change No: E7-12

Original Proposal

Section(s): 202, 403.5.1, 505.2.3, 707.3.3, 707.5.1, 707.7.1, 711.4, 712.1.8, 712.1.12, 713.1, 1001.2, 1007.2, 1007.3, 1007.6.2, 1009.2-1009.3.1.8, 1010.2, 1011.1, 1015.1, 1015.2, 1015.2.1, 1015.2.1.1(new), 1015.2.2, 1015.2.3(new), 1015.2.3.1(new), 1016.3, 1018(new), 1026.6, 1027.1, 1028.5 (IFC [B] 1001.2, 1007.2, 1007.3, 1007.6.2, 1009.2-1009.3.1.8, 1010.2, 1011.1, 1015.1, 1015.2, 1015.2.1, 1015.2.1.1(new), 1015.2.2, 1015.2.3(new), 1015.2.3.1(new), 1016.3, 1018(new), 1026.6, 1027.1, 1028.5)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

SECTION 202
DEFINITIONS

EXIT ACCESS RAMP. An ~~interior~~ *ramp* that is not a required ~~*interior*~~ *exit ramp*.

EXIT ACCESS STAIRWAY. An ~~interior~~ *stairway* that is not a required ~~*interior*~~ *exit stairway*.

Revise as follows:

SECTION 1001
ADMINISTRATION

1001.2 (IFC [B] 1001.2) Minimum requirements. It shall be unlawful to alter a building or structure in a manner that will reduce the number of exits or the capacity of the means of egress to less than required by this code. Means of egress shall be designed to be continuous and unobstructed.

SECTION 1007 (IFC [B] 1007)
ACCESSIBLE MEANS OF EGRESS

1007.2 (IFC [B] 1007.2) Continuity and components. Each required *accessible means of egress* shall be continuous to a *public way* and shall consist of one or more of the following components:

1. *Accessible* routes complying with Section 1104.
2. *Interior exit stairways* complying with Sections 1007.3 and 1022.
3. ~~Interior~~ *exit access stairways* complying with Sections 1007.3 and ~~1009.3~~ 1018.2 or 1018.3.
4. Exterior *exit stairways* complying with Sections 1007.3 and 1026 and serving levels other than the *level of exit discharge*.
5. Elevators complying with Section 1007.4.
6. Platform lifts complying with Section 1007.5.
7. *Horizontal exits* complying with Section 1025.
8. *Ramps* complying with Section 1010.
9. *Areas of refuge* complying with Section 1007.6.
10. Exterior area for assisted rescue complying with Section 1007.7.

1007.3 (IFC [B] 1007.3) Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between stories shall have a clear width of 48 inches (1219 mm) minimum between *handrails* and shall either incorporate an *area of refuge* within an enlarged floor-level landing or shall be accessed

from either an *area of refuge* complying with Section 1007.6 or a *horizontal exit*. *Exit access stairways* that connect levels in the same story are not permitted as part of an *accessible means of egress*.

Exceptions:

1. Exit access stairways providing means of egress from mezzanines are permitted as part of an accessible means of egress.
2~~1~~. The clear width of 48 inches (1219 mm) between *handrails* is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3~~2~~. *Areas of refuge* are not required at *stairways* in buildings equipped throughout by an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
4~~3~~. The clear width of 48 inches (1219 mm) between *handrails* is not required for *stairways* accessed from a *horizontal exit*.
5~~4~~. *Areas of refuge* are not required at *stairways* serving *open parking garages*.
6~~5~~. *Areas of refuge* are not required for smoke protected seating areas complying with Section 1028.6.2.
7~~6~~. The *areas of refuge* are not required in Group R-2 occupancies.

1007.6.2 (IFC [B] 1007.6.2) Separation. Each *area of refuge* shall be separated from the remainder of the story by a *smoke barrier* complying with Section 709 or a *horizontal exit* complying with Section 1025. Each *area of refuge* shall be designed to minimize the intrusion of smoke.

Exception: *Areas of refuge* located within an enclosure for ~~*exit access stairways* or~~ *interior exit stairways*.

SECTION 1009 (IFC [B] 1009)
STAIRWAYS

1009.1 (IFC [B] 1009.1) General. Stairways serving occupied portions of a building shall comply with the requirements of this section.

~~**1009.2 (IFC [B] 1009.2) Interior exit stairways.** Interior exit stairways shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an exit passageway conforming to the requirements of Section 1023, except as permitted in Section 1027.1.~~

~~**1009.2.1 (IFC [B] 1009.2.1) Where required.** Interior exit stairways shall be included, as necessary, to meet one or more means of egress design requirements, such as required number of exits or exit access travel distance.~~

~~**1009.2.2 (IFC [B] 1009.2.2) Enclosure.** All interior exit stairways shall be enclosed in accordance with the provisions of Section 1022.~~

~~**1009.3 (IFC [B] 1009.3) Exit access stairways.** *Relocated to 1018.3*~~

~~**1009.3.1 (IFC [B] 1009.3.1) Construction.** Where required, enclosures for exit access stairways shall be constructed in accordance with this section. Exit access stairway enclosures shall be constructed as fire barriers in accordance with Section 707 or horizontal assemblies in accordance with Section 711, or both.~~

~~**1009.3.1.1 (IFC [B] 1009.3.1.1) Materials.** Exit access stairway enclosures shall be of materials permitted by the building type of construction.~~

~~**1009.3.1.2 (IFC [B] 1009.3.1.2) Fire-resistance rating.** Exit access stairway enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more, and not less than 1 hour where connecting less than four stories. The number of stories connected by the exit access stairway enclosures shall include any basements, but not any mezzanines. Exit access stairway enclosures shall~~

~~have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours.~~

~~**1009.3.1.3 (IFC [B] 1009.3.1.3) Continuity.** Exit access stairway enclosures shall have continuity in accordance with Section 707.5 for fire barriers or Section 711.4 for horizontal assemblies as applicable.~~

~~**1009.3.1.4 (IFC [B] 1009.3.1.4) Openings.** Openings in an exit access stairway enclosure shall be protected in accordance with Section 716 as required for fire barriers. Doors shall be self- or automatic-closing by smoke detection in accordance with Section 716.5.9.3.~~

~~**1009.3.1.4.1 (IFC [B] 1009.3.1.4.1) Prohibited openings.** Openings other than those necessary for the purpose of the exit access stairway enclosure shall not be permitted in exit access stairway enclosures.~~

~~**1009.3.1.5 (IFC [B] 1009.3.1.5) Penetrations.** Penetrations in an exit access stairway enclosure shall be protected in accordance with Section 714 as required for fire barriers.~~

~~**1009.3.1.5.1 (IFC [B] 1009.3.1.5.1) Prohibited penetrations.** Penetrations other than those necessary for the purpose of the exit access stairway enclosure shall not be permitted in exit access stairway enclosures.~~

~~**1009.3.1.6 (IFC [B] 1009.3.1.6) Joints.** Joints in an exit access stairway enclosure shall comply with Section 715.~~

~~**1009.3.1.7 (IFC [B] 1009.3.1.7) Ducts and air transfer openings.** Penetrations of an exit access stairway enclosure by ducts and air transfer openings shall comply with Section 717.~~

~~**1009.3.1.8 (IFC [B] 1009.3.1.8) Exterior walls.** Where exterior walls serve as a part of an exit access stairway enclosure, such walls shall comply with the requirements of Section 705 for exterior walls and the fire-resistance-rated enclosure requirements shall not apply.~~

(Renumber remaining sections)

SECTION 1010
RAMPS

~~**1010.2 (IFC [B] 1010.2) Enclosure.** All interior exit ramps shall be enclosed in accordance with the applicable provisions of Section 1022. Exit access ramps shall be enclosed in accordance with the provisions of Section 1009.3 for enclosure of stairways.~~

(Renumber remaining sections)

SECTION 1011 (IFC [B] 1011)
EXIT SIGNS

1011.1 (IFC [B] 1011.1) Where required. *Exits* ~~and *exit access* doors~~ shall be marked by an *approved exit* sign readily visible from any direction of egress travel. The path of egress travel to *exits* and within *exits* shall be marked by readily visible *exit* signs to clearly indicate the direction of egress travel in cases where the *exit* or the path of egress travel is not immediately visible to the occupants. Intervening *means of egress* doors within *exits* shall be marked by *exit* signs. *Exit* sign placement shall be such that no point in an *exit access corridor* or *exit passageway* is more than 100 feet (30 480 mm) or the *listed* viewing distance for the sign, whichever is less, from the nearest visible *exit* sign.

Exceptions:

1. *Exit* signs are not required in rooms or areas that require only one *exit* or *exit access*.
2. Main exterior *exit* doors or gates that are obviously and clearly identifiable as *exits* need not have *exit* signs where *approved* by the *building official*.

3. *Exit* signs are not required in occupancies in Group U and individual sleeping units or dwelling units in Group R-1, R-2 or R-3.
4. *Exit* signs are not required in dayrooms, sleeping rooms or dormitories in occupancies in Group I-3.
5. In occupancies in Groups A-4 and A-5, *exit* signs are not required on the seating side of vomitories or openings into seating areas where *exit* signs are provided in the concourse that are readily apparent from the vomitories. Egress lighting is provided to identify each vomitory or opening within the seating area in an emergency.

SECTION 1015 (IFC [B] 1015)
EXITS AND EXIT ACCESS DOORWAYS

1015.1 (IFC [B] 1015.1) Exits or exit access doorways from spaces. Two exits or exit access doorways from any space including mezzanines shall be provided where one of the following conditions exists:

1. The *occupant load* of the space exceeds one of the values in Table 1015.1.

   Exceptions:

   1. In Group R-2 and R-3 occupancies, one *means of egress* is permitted within and from individual dwelling units with a maximum *occupant load* of 20 where the dwelling unit is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
   2. Care suites in Group I-2 occupancies complying with Section 407.4.3.

2. The *common path of egress travel* exceeds one of the limitations of Section 1014.3.
3. Where required by Section 1015.3, 1015.4, 1015.5, or 1015.6.

Where a building contains mixed occupancies, each individual occupancy shall comply with the applicable requirements for that occupancy. Where applicable, cumulative occupant loads from adjacent occupancies shall be considered in accordance with the provisions of Section 1004.1.

1015.2 (IFC [B] 1015.2) Exit or exit access doorway arrangement. Required exits shall be located in a manner that makes their availability obvious. ~~Exits shall be unobstructed at all times.~~ Exits, ~~and~~ exit access doorways, and exit access stairways and ramps shall be arranged in accordance with Sections 1015.2.1 and 1015.2.2.

1015.2.1 (IFC [B] 1015.2.1) Two exits or exit access doorways. Where two *exits* or *exit access doorways* and exit access stairways and ramps are required from any portion of the *exit access*, the *exit* ~~doors~~ or *exit access doorways* and exit access stairways and ramps shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between *exit* ~~doors~~ or *exit access doorways* and exit access stairways and ramps. Interlocking or *scissor stairs* shall be counted as one *exit stairway*.

Exceptions:

1. Where interior exit stairways are interconnected by a 1-hour fire-resistance-rated corridor conforming to the requirements of Section 1018, the required exit separation shall be measured along the shortest direct line of travel within the corridor.
2. Where a building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2, the separation distance of the *exit* ~~doors~~ or *exit access doorways* and exit access stairways and ramps shall not be less than one-third of the length of the maximum overall diagonal dimension of the area served.

1015.2.1.1 (IFC [B] 1015.2.1.1) Measurement point. The separation distance required in Section 1015.2.1 shall be measured in accordance with the following:

1. The separation distance to exit or exit access doorways shall be measured to any point along the width of the doorway.
2. The separation distance to exit access stairways shall be measured to the closest riser.
3. The separation distance to exit access ramps shall be measured to the start of the ramp run.

1015.2.2 (IFC [B] 1015.2.2) Three or more exits or exit access doorways. Where access to three or more *exits* is required, at least two *exit* ~~doors or~~ *exit access doorways* shall be arranged in accordance with the provisions of Section 1015.2.1.

1015.2.3 (IFC [B] 1015.2.3) Remoteness of exit access stairways or ramps. Where two exit access stairways or ramps provide the required means of egress to exits at another story, the required separation distance shall be maintained for all portions of such exit access stairways or ramps.

1015.2.3.1 (IFC [B] 1015.2.3.1) Three or more exit access stairways or ramps. Where more than two exit access stairways or ramps provide the required means of egress, at least two shall be arranged in accordance with 1015.2.3.

SECTION 1016 (IFC [B] 1016)
EXIT ACCESS TRAVEL DISTANCE

1016.3 (IFC [B] 1016.3) Measurement. Exit access travel distance shall be measured from the most remote point within a story along the natural and unobstructed path of horizontal and vertical egress travel to the entrance to an exit.

~~Exceptions~~ Exception:

1. ~~In~~ In open parking garages, exit access travel distance is permitted to be measured to the closest riser of an exit access stairway or the closest slope of an exit access ramp.
2. ~~In outdoor facilities with open exit access components, exit access travel distance is permitted to be measured to the closest riser of an exit access stairway or the closest slope of an exit access ramp.~~

SECTION 1018 (IFC [B] 1018)
EXIT ACCESS STAIRWAYS AND RAMPS

1018.1 (IFC [B] 1018.1) General. Exit access stairways and ramps serving as an exit access component in a means of egress system shall comply with the requirements of this section. The number of stories connected by exit access stairways and ramps shall include basements, but not mezzanines.

1018.2 (IFC [B] 1018.2) All occupancies. Exit access stairways and ramps that serve floor levels within a single story are not required to be enclosed.

1018.3 (IFC [B] 1018.3) ~~1009.3(IFC [B] 1009.3)~~ Occupancies other than Group I-2 and I-3. ~~Exit access stairways.~~ ~~Floor openings between stories created by exit access stairways shall be enclosed.~~ In other than Group I-2 and I-3 occupancies, floor openings containing exit access stairways or ramps that do not comply with one of the conditions listed in this section shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

~~Exceptions:~~

1. ~~In other than Group I-2 and I-3 occupancies,~~ Exit access stairways and ramps that serve, or atmospherically communicate between, only two stories~~, are not required to be enclosed~~.

Such interconnected stories shall not be open to other stories.

2. In Group R-1, R-2 or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within ~~a single residential~~ an individual dwelling unit or sleeping unit or live/work unit ~~in Group R-1, R-2 or R-3 occupancies are not required to be enclosed~~.
3. ~~In buildings with only Group B or M occupancies,~~ Exit access stairways and ramps in ~~openings are not required to be enclosed provided that the~~ buildings ~~is~~ equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the area of the ~~floor~~ vertical opening between stories does not exceed twice the horizontal projected area of the ~~exit access~~ stairway or ramp, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Groups B and M occupancies, this provision is limited to openings that do not connect more than four stories.
4. ~~In other than Groups B and M occupancies, exit access stairway openings are not required to be enclosed provided that the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the floor opening does not connect more than four stories, the area of the floor opening between stories does not exceed twice the horizontal projected area of the exit access stairway, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.~~
4~~5~~. Exit access stairways and ramps within an atrium complying with the provisions of Section 404 ~~are not required to be enclosed~~.
5~~6~~. Exit access stairways and ramps in open parking garages that serve only the parking garage ~~are not required to be enclosed~~.
6~~7~~. Exit access stairways and ramps serving ~~outdoor facilities where all portions of the means of egress are essentially open to the outside are not required to be enclosed~~ open-air seating complying with the exit access travel distance requirements of Section 1028.7.
8. ~~Exit access stairways serving stages, platforms and technical production areas in accordance with Sections 410.6.2 and 410.6.3 are not required to be enclosed.~~
7~~9~~. Exit access stairways and ramps serving ~~are permitted to be open between~~ the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.
10. ~~In Group I-3 occupancies, exit access stairways constructed in accordance with Section 408.5 are not required to be enclosed.~~

1018.4 (IFC [B] 1018.4) Group I-2 and I-3 occupancies. In Group I-2 and I-3 occupancies, floor openings between stories containing exit access stairways or ramps are required to be enclosed with a shaft enclosure constructed in accordance with Section 713.

Exception: In Group I-3 occupancies, exit access stairways or ramps constructed in accordance with Section 408 are not required to be enclosed.

(Renumber Subsequent Sections)

SECTION 1026 (IFC [B] 1026)
EXTERIOR EXIT STAIRWAYS AND RAMPS

1026.6 (IFC [B] 1026.6) Exterior stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the building as required in Section 1022.2. Openings shall be limited to those necessary for egress from normally occupied spaces.

Exceptions:

1. Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are no more than two stories above *grade plane* where a *level of exit discharge* serving such occupancies is the first story above *grade plane*.
2. Separation from the interior of the building is not required where the *exterior exit stairway* or *ramp* is served by an exterior *ramp* or balcony that connects two remote *exterior stairways* or

other *approved exits* with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the openings no less than 7 feet (2134 mm) above the top of the balcony.

3. ~~Separation from the interior of the building is not required for an *exterior stairway* or *ramp* located in a building or structure that is permitted to have unenclosed *exit access stairways* in accordance with Section 1009.3~~.
4. ~~4.~~ Separation from the interior of the building is not required for *exterior exit stairways* or *ramps* connected to open-ended *corridors*, provided that Items 3.1 ~~4.1~~ through 3.5 ~~4.5~~ are met:
   - ~~4.1~~3.1. The building, including *corridors*, *stairways* or *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
   - ~~4.2~~3.2. The open-ended *corridors* comply with Section 1018.
   - ~~4.3~~3.3. The open-ended *corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1026.
   - ~~4.4~~3.4. The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section 1022.7.
   - ~~4.5~~3.5. At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m2) or an *exterior stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

SECTION 1027 (IFC [B] 1027)
EXIT DISCHARGE

1027.1 (IFC [B] 1027.1) General. *Exits* shall discharge directly to the exterior of the building. The *exit discharge* shall be at grade or shall provide direct access to grade. The *exit discharge* shall not reenter a building. The combined use of Exceptions 1 and 2 below shall not exceed 50 percent of the number and capacity of the required exits.

Exceptions:

1. A maximum of 50 percent of the number and capacity of *interior exit stairways* and *ramps* is permitted to egress through areas on the *level of exit discharge* provided all of the following are met:
   - 1.1 ~~Such~~ Discharge of interior exit stairways and ramps shall be provided with ~~enclosures egress to~~ a free and unobstructed path of travel to an exterior *exit* door and such *exit* is readily visible and identifiable from the point of termination of the enclosure.
   - 1.2 The entire area of the *level of exit discharge* is separated from areas below by construction conforming to the fire-resistance rating for the enclosure.
   - 1.3 The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system*. All portions of the *level of exit discharge* with access to the egress path shall either be protected throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps*.
   - 1.4 Where a required interior exit stairway or ramp and an exit access stairway or ramp serve the same floor level and terminate at the same level of exit discharge, the termination of the exit access stairway or ramp and the exit discharge door of the interior exit stairway or ramp shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the exit discharge door from the interior exit stairway or ramp and the last tread of the exit access stairway or termination of slope of the exit access ramp.
2. A maximum of 50 percent of the number and capacity of the *interior exit stairways* and *ramps* is permitted to egress through a vestibule provided all of the following are met:

2.1 The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* ~~for~~ of the interior exit stairway or ramp enclosure.
2.2 The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
2.3 The area is separated from the remainder of the *level of exit discharge* by construction providing protection at least the equivalent of *approved* wired glass in steel frames.
2.4 The area is used only for *means of egress* and *exits* directly to the outside.

3. *Horizontal exits* complying with Section 1025 shall not be required to discharge directly to the exterior of the building.

SECTION 1028 (IFC [B] 1028)
ASSEMBLY

1028.5 (IFC [B] 1028.5) Interior balcony and gallery means of egress. For balconies, galleries or press boxes having a seating capacity of 50 or more located in a building, room or space used for assembly purposes, at least two means of egress shall be provided, with one from each side of every balcony, gallery or press box ~~and at least one leading directly to an exit.~~

Revise as follows:

SECTION 403
HIGH-RISE BUILDINGS

403.5.1 Remoteness of interior exit stairways. Required *interior exit stairways* shall be separated by a distance not less than 30 feet (9144 mm) or not less than one-fourth of the length of the maximum overall diagonal dimension of the building or area to be served, whichever is less. The distance shall be measured in a straight line between the nearest points of the enclosure surrounding the *interior exit stairways*. In buildings with three or more *interior exit stairways,* no fewer than two of the *interior exit stairways* shall comply with this section. Interlocking or *scissor stairs* shall be counted as one *interior exit stairway.*

Revise as follows:

SECTION 505
MEZZANINES AND EQUIPMENT PLATFORMS

505.2.3 Openness. A *mezzanine* shall be open and unobstructed to the room in which such *mezzanine* is located except for walls not more than 42 inches (1067 mm) in height, columns and posts.

Exceptions:

1. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the *occupant load* of the aggregate area of the enclosed space is not greater than 10.
2. A *mezzanine* having two or more ~~*means of egress*~~ exits or access to exits is not required to be open to the room in which the *mezzanine* is located ~~if at least one of the *means of egress* provides direct access to an *exit* from the *mezzanine* level.~~
3. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the aggregate floor area of the enclosed space is not greater than 10 percent of the *mezzanine* area.
4. In industrial facilities, *mezzanines* used for control equipment are permitted to be glazed on all sides.
5. In occupancies other than Groups H and I, that are no more than two *stories* above *grade plane* and equipped throughout with an *automatic sprinkler system* in accordance with

Section 903.3.1.1, a *mezzanine* having two or more *means of egress* shall not be required to be open to the room in which the *mezzanine* is located.

Revise as follows:

SECTION 707
FIRE BARRIERS

707.3.3 Enclosures for exit access stairways. The *fireresistance rating* of the fire barrier separating building areas from an exit access stairway or ramp shall comply with Section ~~1009.3.1.2~~ 713.4.

707.5.1 Supporting construction. The supporting construction for a *fire barrier* shall be protected to afford the required *fire-resistance rating* of the *fire barrier* supported. Hollow vertical spaces within a *fire barrier* shall be fireblocked in accordance with Section 718.2 at every floor level.

Exceptions:

1. The maximum required *fire-resistance rating* for assemblies supporting *fire barriers* separating tank storage as provided for in Section 415.8.2.1 shall be 2 hours, but not less than required by Table 601 for the building construction type.
2. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 713.12.
3. Supporting construction for 1-hour *fire barriers* required by Table 509 in buildings of Type IIB, IIIB and VB construction is not required to be fire-resistance rated unless required by other sections of this code.
4. Interior exit stairway and ramp enclosures required by Section 1022.2 and exit access stairway and ramp enclosures required by ~~Section 1009.3~~ Sections 1018.3 and 1018.4 shall be permitted to terminate at a top enclosure complying with Section 713.12.

707.7.1 Prohibited penetrations. Penetrations into enclosures for ~~exit access stairways, exit access ramps~~, interior exit stairways~~, interior exit~~ and ramps or an exit passageway shall be allowed only ~~when~~ where permitted by Section ~~1009.3.1.5,~~ 1022.5 or 1023.6~~, respectively~~.

SECTION 711
HORIZONTAL ASSEMBLIES

711.4 Continuity. Assemblies shall be continuous without openings, penetrations or joints except as permitted by this section and Sections 712.1, 714.4, 715, ~~1009.3~~ 1018 and 1022.1. Skylights and other penetrations through a fire-resistance-rated roof deck or slab are permitted to be unprotected, provided that the structural integrity of the fire-resistance-rated roof assembly is maintained. Unprotected skylights shall not be permitted in roof assemblies required to be fire-resistance rated in accordance with Section 705.8.6. The supporting construction shall be protected to afford the required *fire-resistance rating* of the *horizontal assembly* supported.

Exception: In buildings of Type IIB, IIIB or VB construction, the construction supporting the *horizontal assembly* is not required to be fire-resistance-rated at the following:

1. Horizontal assemblies at the separations of incidental uses as specified by Table 509, provided the required *fire-resistance rating* does not exceed 1 hour.
2. Horizontal assemblies at the separations of *dwelling units* and *sleeping units* as required by Section 420.3.
3. Horizontal assemblies at *smoke barriers* constructed in accordance with Section 709.

SECTION 712
VERTICAL OPENINGS

712.1 General. The provisions of this section shall apply to the vertical opening applications listed in Sections 712.1.1through 712.1.18.

712.1.1 Shaft enclosures. Vertical openings contained entirely within a shaft enclosure complying with Section 713 shall be permitted.

712.1.8 Two story openings. In other than Groups I-2 and I-3, a floor opening that is not used as one of the application listed in this section shall be permitted if it complies with all the items below.

1. Does not connect more than two stories.
2. ~~Does not contain a stairway or ramp required by Chapter 10.~~
3. Does not penetrate a horizontal assembly that separates fire areas or smoke barriers that separate smoke compartments.
4. Is not concealed within the construction of a wall or a floor/ceiling assembly.
5. Is not open to a corridor in Group I and R occupancies.
6. Is not open to a corridor on nonsprinklered floors.
7. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.

712.1.12 ~~Unenclosed~~ Exit access stairways and ramps. Vertical floor openings ~~created by unenclosed~~ containing exit access stairways or ramps in accordance with ~~Sections 1009.2 and 1009.3~~ Section 1018 shall be permitted.

SECTION 713
SHAFT ENCLOSURES

713.1 General. The provisions of this section shall apply to shafts required to protect openings and penetrations through floor/ceiling and roof/ceiling assemblies. ~~Exit access stairways and exit access ramps shall be protected in accordance with the applicable provisions of Section 1009.~~ Interior exit stairways and ~~interior exit~~ ramps shall be protected in accordance with the requirements of Section 1022.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The most substantial part of this change is the relocation of exit access specific stair requirements from the general stair section 1009 to a stand alone section 1018. Another substantial purpose of this code change proposal is for coordination between the open stairway code change from this committee for the last cycle (E5-09/10) and other changes that occurred during the same cycle. In addition, there were areas that needed to be clarified as part of coordination. The CTC also reviewed the concerns raised in the E5 09/10 Public Comments and addressed some outstanding issues from the public comments. Below are the specific reason statements for each section proposed for change:

202 (and 1026.6 exception #3)-The word "interior" was deleted from the definition of exit access stairway and ramp. Generally, this is done because there is no need to restrict exit access to interior elements. Specifically, this was done in coordination with the proposed deletion of exception #3 to section 1026.6. Exception #3 was a holdover from when what are currently exit access stairs were exit stairs. Exception #3 was there to coordinate the allowance for an exterior exit stair to be unprotected when an interior exit stair would be allowed to be unprotected. E5 changed the unenclosed exit stair to an exit access stair. In keeping with that methodology this exception is being deleted and "interior" is being removed from the exit access stair and ramp definitions so that the provisions that allow an unenclosed exit access stair are equally applicable to interior or exterior stairways. Rather than use exception #3 to 1026.6 for a exterior stair without protection the exit access provisions would be used for the exterior stair.

1001.2 – The new sentence in 1001.2 was a requirement in two sentences in 1015.2 that is proposed to be relocated here as it is a more general requirement. This was done as part of some additional proposed revisions to section 1015.2 that will be explained below in section order.

1007.2 -This is another coordination change related to the relocation of the access stair provisions from 1009.3 to 1018.

1007.3 – The last sentence of the main paragraph states that exit access stairways connecting levels in the same story are not permitted as part of an accessible means of egress. While this is true for split level floors or stepped aisles, this should not be true for mezzanines. While they are considered part of the floor below for height and area requirements, mezzanines are required to be elevated over 7'-0" (Section 505.2) similar to a story change in level.

1007.6.2-The exception should only apply to exit stairways based on mandatory enclosure requirements for exit stairways. Exit access stairs may be open or enclosed with non-rated "enclosures" therefore the requirement needs to be clear that separation of areas of refuge serving exit access stairways must comply with 1007.6.2.

1009.2, 1009.3 and subsections– This proposed change will remove the specific requirements for exit access stairways for the general stairway section 1009. 1009 will remain a general stair design section for all stairway details that are not means of egress system specific such as tread and riser dimensions, headroom, widths, etc. The specific enclosure requirements regarding exit access stairs are proposed to be addressed in a new stand alone section, 1018. This is in keeping with the same organization already in chapter 10 for the specific protection requirements for interior exit stairways and ramps and exterior exit stairways and ramps, as well as exit passageways and horizontal exits, each having a dedicated section that addresses the specific protection requirements for each means of egress element. The idea is to separate the general requirements from the specific requirements with regards to each type of MOE element.

1009.3.1 through 1009.3.1.8 – These sections explain how to construct a rated shaft enclosure around an exit access stair when a fire rating is required based on floor penetration limits being exceeded to prevent vertical smoke and heat migration. They were deleted entirely and not relocated to 1018 because the new sections 1018.3 and 1018.4 are proposed to reference to Section 713 for floor opening enclosure construction requirements. The original concept in E5 09/10 was to repeat the shaft enclosure requirements in the exit access stair section as exit access stair enclosure construction requirements. It was decided that this added unneeded text to the code and because it was a duplicate of requirements based on 713 that a change to one section may not be made to the companion section and therefore has the potential to set up an inconsistency with the two code sections that are intended to be the same.

1010.2 – This section is proposed to be deleted because it is not necessary. Just as 1009 is the general requirements for stairs 1010 is the general requirements for ramps. The specific requirements are addressed in stand alone sections that do not need to be cross referenced from the general section or vise versa.

1011.1 – "Exit access doors" is proposed for deletion in the first sentence because marking the path of egress travel is addressed in the remainder of section and exit access doors are part of the path of egress travel.

1015.1 – Revised to include mezzanines to clarify a mezzanine is a space, not a story, for purposes of means of egress. This also clarifies the 2012 IBC revision to Section 505 where mezzanines now reference Chapter 10 for means of egress. 505.3 Egress was deleted from the 2009 edition and replaced with 505.2.2, which is just a reference to chapter 10.

1015.2 –The second sentence was moved to 1001.1 because it is a more general requirement. Exit access stairways and ramps is proposed to be added to the third sentence because by definition an exit access doorway is a point where a path of travel enters an unenclosed exit access stairway but not the stairway itself. Therefore, current code text will allow exit access stairs to diverge towards each other reducing the distance between the stairways to less than the minimum separation. This is the beginning of a few changes to section 1015 that will prohibit diverging exit access stairs to less than the required separation distance for exit access doorways. Further modifications detailed below detail arrangement of exit access stairways in addition to exit access doorways, therefore, the elements were added to 1015.2 for consistency with the next proposed changes to 1015.2.1 and 1015.2.2.

1015.2.1 and 1015.2.2- In three places the word "doors" was deleted after "exit" because exit stands on its own and does not need to specifically reference and exit door.

1015.2.1.1– When exit access stairs are used the point where the path of travel enters the stairway is by definition an "exit access doorway". There is concern that there will be confusion regarding how to measure the distance between "exit access doorways" when unenclosed exit access stairways are used. The three measurement methods are proposed to be added to clearly state how to measure between doors, stairways and ramps when they need to meet separation requirements per section 1015.

1015.2.3 and 1015.2.3.1-This proposed section and sub-section are intended to require that the minimum separation distances between exit access stairways and ramps be maintain for the entire length of travel on the stairway or ramp. This is to prohibit stair and ramp runs that meet separation distance requirements at the first riser or beginning slope, from converging towards another stair or ramp such that the separation is reduced as the occupant goes up or down the stair or ramp run. Exit access stairs and ramps should maintain the required distance, just as doors, until egress travel over the ramp or stair is completed.

1016.3 – This is a companion change to 1018.3 exception #6 (pervious #7 to 1009.2.2) detailed below regarding outdoor facilities. The exception to 1018.3 was changed to match the requirements for open air seating as regulated by section 10128.7, which allows unlimited travel distance in non-combustible construction that has open air seating and 400 feet in combustible construction. This change deletes the measurement of the travel distance to the closest riser in outdoor facilities and replaces it with the 400 foot or unlimited travel distance per 1028.7. The intent is to coordinate the various travel distance requirements regarding open air seating facilities.

New Section 1018 Exit access stairways and ramps-
Current section 1009.3 is proposed to be relocated to new section 1018. This is the most significant aspect of this code change proposal. This part of the proposed change creates a new stand alone code section for exit access stairway and ramp specific

requirements so that the specific requirements for exit access stairs are separate from the general requirements. This is in keeping with the same organization already in chapter 10 for the specific protection requirements for interior exit stairways and ramps and exterior exit stairways and ramps, as well as exit passageways and horizontal exits, each having a dedicated section that addresses the specific protection requirements for each means of egress element. The specific enclosure requirements regarding exit access stairs are proposed to be addressed in the new section, 1018. 1009 will remain a general stair design section for all stairway details that are not means of egress system specific such as tread and riser dimensions, headroom, widths, etc.

New 1018.1 – This is just a general scoping section. The statement that stories include basements but not mezzanines was included in this section.

New 1018.2 - This section clarifies that steps/ramps between levels within a story are always permitted to be open. Enclosure requirements are not required until openings between stories are created for exit access stairways/ramps.

New 1018.3 (relocated 1009.3) – This proposed section is the text relocated from 1009.3 with some changes to the format and some changes to the specific exemptions. The code change text is formatted with underlines and strike-troughs of the relocated 1009.3 text. Each specific change is explained as follows:

New 1018.3 As an alternative to the rule with exceptions format the section was reformatted with the exceptions reconfigured as conditions which permit unprotected floor openings for exit access stairs/ramps. This is in keeping with the philosophy introduced with the vertical openings code change approved for the 2012 edition, which reconfigured the shaft enclosure exceptions to options. As part of the reformatting the statement “not required to be enclosed” has been removed from the exceptions to the body of section 1018.3. Additionally “and ramps” has been added to each condition; this was done to make it clear that the entire section addresses ramps and stairs equally. Previous section 1009.3.1 and 1009.3.1.1 through 1009.3.1.8 were the enclosure requirements applicable when a floor opening is required to be protected with a fire rated enclosure; this was deleted and not relocated to 1018. These sections were deleted entirely and not relocated to 1018 because the new sections 1018.3 and 1018.4 are proposed to reference to Section 713 for floor opening enclosure construction requirements. The original concept in E5 09/10 was to repeat the shaft enclosure requirements in the exit access stair section as exit access stair enclosure construction requirements. It was decided that this added unneeded text to the code and because it was a duplicate of requirements based on 713 that a change to one section may not be made to the companion section and therefore has the potential to set up an inconsistency with the two code sections that are intended to be the same.

1018.3 Exception/condition #1-Group I-2 and I-2 deleted from condition #1 and moved down to a new Section 1018.4, which addresses group I-2 and I-1. The restriction that requires all group I-2 and I-3 stairway floor openings to be protected with a shaft has not been changed. The last sentence stating “such interconnected stories shall not be open to other stories” was added to clarify that the first condition can only be used when there are no openings to other stories, other than the two stories connected by the exit access stair. This is to prevent other permitted floor openings from being used with this allowed opening to create a staggered opening condition where more than two stories can atmospherically communicate.

1018.3 Exception/condition #2-The use group limitation of this condition was moved from the end of the sentence to the beginning to make it easier to use so the code user can quickly identify the scope of the condition. Additionally “live/work unit” was added to the types of units that can use this condition. Unenclosed exit access stairs are permitted in live/work units per 419.4 and live/work unit is a type of group R-2 unit distinct from dwelling units and sleeping units.

1018.3 Exception/condition #3 and Deletion of exception #4-The term floor opening was replaced with vertical opening because the opening in this condition can be between multiple floors. Exception #4 was the same exception as exception #3 except that it applies to groups other than B and M with the only difference being that the opening is limited to 4 stories for groups other than B and M. To reduce the amount of text and number of conditions the “other than group B and M” provision was moved to condition #3 as the last sentence in condition #3.

1018.3 Exception/condition #4 and #5-Just reformatting as described in the 1018.3 general explanation.

1018.3 Exception/condition #6- This condition was modified with input from Ed Roether, who is an expert in stadium design. “Outdoor facilities where all portions of the means of egress are essentially open to the outside” is proposed to be changed to “open-air seating”, which is the term used in section 1028.7 regarding travel distance in assembly seating. This condition is proposed to be changed to be coordinated with the requirements for open air seating as regulated by section 1028.7, which allows unlimited travel distance in non-combustible construction that has open air seating and 400 feet in combustible construction.

1018.3 previous exception #8-This exception was deleted because the 2012 IBC section 410.6 was modified to address the specific means of egress requirements for stages and technical production areas. New section 410.6.2 in the 2012 IBC specifically exempts stage and technical production areas from stair/ramp enclosure therefore this exception/condition is redundant and not needed.

1018.3 Exception/condition #7-Just reformatting as described in the 1018.3 general explanation.

1018.3 previous exception #10 deleted– This exception was moved to 1018.4

New 1018.4 – This is the relocated and reformatted requirement for group I-2 and I-3 exit access stair/ramp enclosure as part of the reformat from exceptions to conditions. Additionally, as noted above, the previous exception #10 was relocated as an exception to this requirement because it is a specific exception for group I-3.

1026.6 Exception #3 deletion- 1026.6 exception #3 was a holdover from when what are currently exit access stairs were exit stairs. Exception #3 was there to coordinate the allowance for an exterior exit stair to be unprotected when an interior exit stair would be allowed to be unprotected. E5 changed the unenclosed exit stair to an exit access stair. In keeping with that methodology this exception is being deleted and "interior" is being removed from the exit access stair and ramp definitions so that the provisions that allow an unenclosed exit access stair are equally applicable to interior or exterior stairways. Rather than use exception #3 to 1026.6 for to create an exterior exit stair without protection the exit access provisions would be used for the exterior stair.

1027.1 exception #1.1-This is an editorial change that clarifies the exit stairways/ramps must have the free path of travel. This is a companion to the new section 1.4 described below.

1027.1 exception #1.4-This limitation is proposed to prevent an exit access stair and separate exit stair, which begin on the same floor, from termination to close together on the exit discharge floor. This is proposed so that one localized fire event on the exit discharge floor will not take out the termination of both means of egress components when an exit stair is permitted to discharge into the building. The 30 feet or ¼ diagonal separation distances were based on the 30 feet or ¼ diagonal that is specified for separation of interior stairways in high-rise section 403.5.1.

1028.5 and 505.2.3- "and at least one leading directly to an exit" is proposed for deletion. ICC staff asked for the committee to look at this do to numerous interpretive questions regarding what "leading directly to an exit" means. In both of these cases exit access stairs serving 2 stories could meet 1018.3 exception #1 and since neither condition qualifies as a story allowing exit access stairways is consistent with the provisions of 1018.3. Since "directly to an exit" can be interpreted to mean the mezzanine floor or balcony must have at least one exit at the mezzanine or balcony level that text is proposed to be deleted to allow exit access stairs to be used in both cases for both sets of stairways.

403.5.1-This is in response to E5 public comments. The intent of the separation required by this section is specific to the enclosure, not the stairway, therefore this language has been corrected.

505.2.3 – See reason statement for 1028.5.

707.3.3 and 707.5.1-These changes are to coordinate with the change in section numbering that occurred with moving the exit access stairway and ramp provisions from 1009 to 1018 and the change to reference section 713 for exit access stairway and ramp rated enclosure design requirements. References related to if an enclosure is required refer to sections in 1018, which is where the requirements for when a rated enclosure is required are proposed to be relocated. References related to the construction of the rated enclosure refer to section 713, which is where the requirements for how to rate the enclosure are located.

707.7.1-References to exit access stairways and ramps are proposed to be removed from this section because section 1018 is proposed to reference section 713 for exit access stairway and ramp rated enclosure design. Existing section 713.7.1 addresses prohibited openings therefore this reference is no longer needed in section 707.7.1.

711.4- See reason statement for 707.3.3 above.

712.1.8- Criteria #2 was proposed to be deleted and was approved to be deleted in E5 09/10 but was inadvertently reinstated do to a language change proposed to the same text in FS 56 09/10. Floor openings for open exit access stairways are intended to be protected in accordance with the exit access stair provision in 1009.3 (1018 per this proposal). If Criteria #2 is retained it will cause inconsistency with the exit access stairway provisions. It was the intent of E5 09/10 to have all exit access stair related opening protection requirements provided in the exit access stair provisions in chapter 10.

712.1.12 – This section has the terminology updated from "unenclosed" to "exit access" stairway to coordinate with terminology approved in E5-09/10. Additionally the section references are updated from 1009.3 to 1018 to coordinate with the relocation of exit access stair provisions from 1009.3 to 1018, which is explained further below in the reason statement. The purpose of the section is to act as a pointer to the exit access stairway vertical opening requirements that are all provided in proposed section 1018 (previous section 1009.3) for any vertical opening that contains an exit access stairway.

713.1 – This is another coordination change related to the relocation of the access stair provisions from 1009.3 to 1018. The enclosure requirements for exit access stairways in 1018 now reference Section 713 for rated enclosure construction requirements, rather than repeating the requirements in chapter 10, therefore this sentence is no longer needed.

Cost Impact: None

Public Hearing Results

Committee Action: Approved as Modified

Modify proposal as follows:

1001.2 (IFC [B] 1001.2) Minimum requirements. It shall be unlawful to alter a building or structure in a manner that will reduce the number of exits or the capacity of the means of egress to less than required by this code. ~~Means of egress shall be designed to be continuous and unobstructed.~~

1015.2 (IFC [B] 1015.2) Exit or exit access doorway arrangement. Required exits shall be located in a manner that makes their

availability obvious. Exits, exit access doorways, ~~and~~ exit access stairways and ramps shall be arranged in accordance with ~~Sections 1015.2.1 and 1015.2.2~~ this section.

1015.2.1 (IFC [B] 1015.2.1) Two exits or exit access doorways. Where two *exits*, ~~or~~ *exit access doorways*, ~~and~~ exit access stairways or ~~and~~ ramps, or any combination thereof, are required from any portion of the *exit access*, ~~the *exit* or *exit access doorways* and exit access stairways and ramps~~ they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between ~~*exit* or *exit access doorways* and exit access stairways and ramps~~ them. Interlocking or *scissor stairs* shall be counted as one *exit stairway*.

Exceptions:

1. Where interior exit stairways are interconnected by a 1-hour fire-resistance-rated corridor conforming to the requirements of Section 1018, the required exit separation shall be measured along the shortest direct line of travel within the corridor.
2. Where a building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2, the separation distance ~~of the *exit* or *exit access doorways,* and exit access stairways and ramps~~ shall not be less than one-third of the length of the maximum overall diagonal dimension of the area served.

Committee Reason: The committee proposed a modification to Section 1001.2 is to remove the proposed last sentence. That language is not needed as it is already included in the definition for 'means of egress.' The modification to Section 1015.2 and 1015.2.1 was proposed by the proponent due to a grammatical error. The revised proposal will allow for all four components, 1) exits, 2) exit access doorways, 3) exit access stairways, and 4) exit access ramps, sot be considered when evaluating arrangements of exit access elements. The remainder of the proposal is a good cleanup related to the open stairway change, E5-09/10. The deletion of the separation (1009.3) requirements in favor of a reference to stairway separation requirements (Section 713 in new Section 1018.3) removes redundant language and will allow for consistency in the future. The new Section 1018, as a section for exit access stairway separation, is consistent with the idea of interior exit stairway separation in Section 1022 and exterior exit stairway separation in Section 1026. The new language regarding convergence of open exit stairways addressed this safety concern in an appropriate manner (1027.1).

Assembly Action: **None**

Public Comments

Public Comment:

Al Godwin, CBO, CPM, representing Aon Fire Protection Engineering Corporation, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

SECTION 1011 (IFC [B] 1011)
EXIT SIGNS

1011.1 (IFC [B] 1011.1) Where required. *Exits* and *exit access* doors shall be marked by an *approved exit* sign readily visible from any direction of egress travel. The path of egress travel to *exits* and within *exits* shall be marked by readily visible *exit* signs to clearly indicate the direction of egress travel in cases where the *exit* or the path of egress travel is not immediately visible to the occupants. Intervening *means of egress* doors within *exits* shall be marked by *exit* signs. *Exit* sign placement shall be such that no point in an *exit access corridor* or *exit passageway* is more than 100 feet (30 480 mm) or the *listed* viewing distance for the sign, whichever is less, from the nearest visible *exit* sign.

Exceptions:

1. *Exit* signs are not required in rooms or areas that require only one *exit* or *exit access*.
2. Main exterior *exit* doors or gates that are obviously and clearly identifiable as *exits* need not have *exit* signs where *approved* by the *building official*.
3. *Exit* signs are not required in occupancies in Group U and individual sleeping units or dwelling units in Group R-1, R-2 or R-3.
4. *Exit* signs are not required in dayrooms, sleeping rooms or dormitories in occupancies in Group I-3.
5. In occupancies in Groups A-4 and A-5, *exit* signs are not required on the seating side of vomitories or openings into seating areas where *exit* signs are provided in the concourse that are readily apparent from the vomitories. Egress lighting is provided to identify each vomitory or opening within the seating area in an emergency.

Commenter's Reason: The original proposal deleted the phrase "and *exit access doors*." These are the exit access doors out of rooms, offices, banquet halls, conference rooms, etc. Exit signs have always been required at these locations unless complying with the exceptions. The term "*Exits*" is not inclusive of *exit access* doors.

Without this phrase, exit signs will only be required in the *exit access* "in cases where the exit or path of egress travel is not immediately visible". As such, each room has to be evaluated as to whether exit signs are needed.

The phrase should be left in.

Final Hearing Results

E7-12 **AMPC**

Code Change No: E9-12

Original Proposal

Section(s): 1001.2, 1003.6, 1005.4, 1005.5, 1005.6, 1007.6.1, 1008.1.1, 1008.1.4.1.1, 1008.1.9.4, 1008.3, 1009.4, 1009.11, 1010.6.1, 1012.9, 1017.1, 1017.5, 1018.2, Table 1018.2, 1018.3, 1019.1, 1023.2, 1025.1, 1027.1, 1027.2, 1027.4.1, 1028.2, 1028.4, 1028.6, 1028.6.1, 1028.6.2, Table 1028.6.2, 1028.6.3, 1028.9.2, 1028.9.3, 1028.9.4, 1028.9.6, 1028.10.1.1 (IFC [B] 1001.2, 1003.6, 1005.4, 1005.5, 1005.6, 1007.6.1, 1008.1.1, 1008.1.4.1.1, 1008.1.9.4, 1008.3, 1009.4, 1009.11, 1010.6.1, 1012.9, 1017.1, 1017.5, 1018.2, Table 1018.2, 1018.3, 1019.1, 1023.2, 1025.1, 1027.1, 1027.2, 1027.4.1, 1028.2, 1028.4, 1028.6, 1028.6.1, 1028.6.2, Table 1028.6.2, 1028.6.3, 1028.9.2, 1028.9.3, 1028.9.4, 1028.9.6, 1028.10.1.1)

Proponent: Gregory R. Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com)

Revise as follows:

1001.2 (IFC [B] 1001.2) Minimum requirements. It shall be unlawful to alter a building or structure in a manner that will reduce the number of *exits* or the minimum width or required capacity of the *means of egress* to less than required by this code.

1003.6 (IFC [B] 1003.6) Means of egress continuity. The path of egress travel along a *means of egress* shall not be interrupted by any building element other than a *means of egress* component as specified in this chapter. Obstructions shall not be placed in the minimum width or required capacity ~~width~~ of a *means of egress* component except projections permitted by this chapter. The minimum width or required capacity of a *means of egress* system shall not be diminished along the path of egress travel.

1005.4 (IFC [B] 1005.4) Continuity. The minimum width or required capacity of the means of egress required from any story of a building shall not be reduced along the path of egress travel until arrival at the public way.

1005.5. (IFC [B] 1005.5) Distribution of ~~egress~~ minimum width and required capacity. Where more than one exit, or access to more than one exit, is required, the means of egress shall be configured such that the loss of any one exit, or access to one exit, shall not reduce the available capacity or width to less than 50 percent of the required capacity or width.

1005.6 (IFC [B] 1005.6) Egress convergence. Where the means of egress from stories above and below converge at an intermediate level, the capacity of the means of egress from the point of convergence shall not be less than the largest minimum width or the sum of the required capacities for the stairways or ramps serving the two adjacent stories, whichever is larger.

1007.6.1 (IFC [B] 1007.6.1) Size. Each *area of refuge* shall be sized to accommodate one *wheelchair space* of 30 inches by 48 inches (762 mm by 1219 mm) for each 200 occupants or portion thereof, based on the *occupant load* of the *area of refuge* and areas served by the *area of refuge*. Such *wheelchair spaces* shall not reduce the ~~required~~ *means of egress* minimum width or required capacity ~~width~~. Access to any of the required *wheelchair spaces* in an *area of refuge* shall not be obstructed by more than one adjoining *wheelchair space*.

1008.1.1 (IFC [B] 1008.1.1) Size of doors. The ~~minimum width~~ required capacity of each door opening shall be sufficient for the *occupant load* thereof and shall provide a minimum clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door

and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. *Means of egress* doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than $41^1/_2$ inches (1054 mm). The height of door openings shall not be less than 80 inches (2032 mm).

Exceptions:

1 through 8. *(no change)*

1008.1.4.1.1 (IFC [B] 1008.1.4.1.1) Egress component. A revolving door used as a component of a *means of egress* shall comply with Section 1008.1.4.1 and the following three conditions:

1. Revolving doors shall not be given credit for more than 50 percent of the minimum width or required ~~egress~~ capacity.
2. Each revolving door shall be credited with a capacity based on no more than a 50-person ~~capacity~~ occupant load.
3. Each revolving door shall be capable of being collapsed when a force of not more than 130 pounds (578 N) is applied within 3 inches (76 mm) of the outer edge of a wing.

1008.1.9.4 (IFC [B] 1008.1.9.4) Bolt locks. Manually operated flush bolts or surface bolts are not permitted.

Exceptions:

1. On doors not required for egress in individual dwelling units or sleeping units.
2. Where a pair of doors serves a storage or equipment room, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf.
3. Where a pair of doors serves an occupant load of less than 50 persons in a Group B, F or S occupancy, manually operated edge- or surface- mounted bolts are permitted on the inactive leaf. The inactive leaf shall contain no doorknobs, panic bars or similar operating hardware.
4. Where a pair of doors serves a Group B, F or S occupancy, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf provided such inactive leaf is not needed to meet egress ~~width~~ capacity requirements and the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1. The inactive leaf shall contain no doorknobs, panic bars or similar operating hardware.
5. Where a pair of doors serves patient care rooms in Group I-2 occupancies, self-latching edge- or surface-mounted bolts are permitted on the inactive leaf provided that the inactive leaf is not needed to meet egress ~~width~~ capacity requirements and the inactive leaf contains no doorknobs, panic bars or similar operating hardware.

1008.3 (IFC [B] 1008.3) Turnstiles. Turnstiles or similar devices that restrict travel to one direction shall not be placed so as to obstruct any required *means of egress*.

Exception: Each turnstile or similar device shall be credited with a capacity based on no more than a 50-person ~~capacity~~ occupant load where all of the following provisions are met:

1. Each device shall turn free in the direction of egress travel when primary power is lost, and upon the manual release by an employee in the area.
2. Such devices are not given credit for more than 50 percent of the required egress capacity or width.
3. Each device is not more than 39 inches (991 mm) high.
4. Each device has at least $16^1/_2$ inches (419 mm) clear width at and below a height of 39 inches (991 mm) and at least 22 inches (559 mm) clear width at heights above 39 inches (991 mm).

Where located as part of an *accessible route*, turnstiles shall have at least 36 inches (914 mm) clear at and below a height of 34 inches (864 mm), at least 32 inches (813 mm) clear width between 34 inches (864 mm) and 80 inches (2032 mm) and shall consist of a mechanism other than a revolving device.

1009.4 (IFC [B] 1009.4) Width and capacity. The ~~width~~ required capacity of *stairways* shall be determined as specified in Section 1005.1, but ~~such~~ the minimum width shall not be less than 44 inches (1118 mm). See Section 1007.3 for *accessible means of egress stairways*.

Exceptions:

1. through 4. *(no change)*

1009.11 (IFC [B] 1009.11) Curved stairways. Curved stairways with winder treads shall have treads and risers in accordance with Section 1009.7 and the smallest radius shall not be less than twice the minimum width or required capacity ~~width~~ of the stairway.

Exception: The radius restriction shall not apply to curved stairways for occupancies in Group R-3 and within individual dwelling units in occupancies in Group R-2.

1010.6.1 (IFC [B] 1010.6.1) Width and capacity. The minimum width and required capacity of a *means of egress ramp* shall not be less than that required for *corridors* by Section 1018.2. The clear width of a *ramp* between *handrails*, if provided, or other permissible projections shall be 36 inches (914 mm) minimum.

1012.9 (IFC [B] 1012.9) Intermediate handrails. *Stairways* shall have intermediate *handrails* located in such a manner that all portions of the *stairway* ~~width required for egress~~ minimum width or required capacity are within 30 inches (762 mm) of a *handrail*. On monumental *stairs*, *handrails* shall be located along the most direct path of egress travel.

1017.1 (IFC [B] 1017.1) General. Aisles and aisle accessways serving as a portion of the exit access in the means of egress system shall comply with the requirements of this section. Aisles or aisle accessways shall be provided from all occupied portions of the exit access which contain seats, tables, furnishings, displays and similar fixtures or equipment. The minimum width or required capacity ~~width~~ of aisles shall be unobstructed.

Exception: Encroachments complying with Section 1005.7.

1017.5 (IFC [B] 1017.5) Aisles in other than assembly spaces and Groups B and M. In other than rooms or spaces used for assembly purposes and Group B and M occupancies, the minimum clear aisle ~~width~~ capacity shall be determined by Section 1005.1 for the occupant load served, but the width shall not be less than 36 inches (914 mm).

1018.2 (IFC [B] 1018.2) Width and capacity. The ~~minimum width~~ required capacity of corridors shall be determined as specified in Section 1005.1, but the minimum width shall not be less than that specified in Table 1018.2 ~~shall be as determined in Section 1005.1~~.

Table 1018.2 (IFC [B] TABLE 1018.2)
MINIMUM CORRIDOR WIDTH

Occupancy	Width (min)
Any facilities not listed below	44 inches (1118 mm)
Access to and utilization of mechanical, plumbing or electrical systems or equipment	24 inches (610 mm)
With an required ~~occupancy capacity~~ occupant load of less than 50	36 inches (914 mm)
Within a dwelling unit	36 inches (914 mm)
In Group E with a corridor having a ~~required~~	72 inches (1829 mm)

Occupancy	Width (min)
~~capacity~~ occupant load of 100 or more	
In corridors and areas serving gurney traffic in occupancies where patients receive outpatient medical care, which causes the patient to be not capable of self-preservation	72 inches (1829 mm)
Group I-2 in areas where required for bed movement	96 inches (2438 mm)

1018.3 (IFC [B] 1018.3) Obstruction. The minimum width or required capacity ~~width~~ of corridors shall be unobstructed.

Exception: Encroachments complying with Section 1005.7.

1019.1 (IFC [B] 1019.1) General. Balconies used for egress purposes shall conform to the same requirements as *corridors* for minimum width, required capacity, headroom, dead ends and projections.

1023.2 (IFC [B] 1023.2) Width. The ~~minimum width~~ required capacity of exit passageways shall be determined as specified in Section 1005.1 but ~~such~~ the minimum width shall not be less than 44 inches (1118 mm), except that exit passageways serving an occupant load of less than 50 shall not be less than 36 inches (914 mm) in width. The minimum width or required capacity ~~width~~ of exit passageways shall be unobstructed.

Exception: Encroachments complying with Section 1005.7.

1025.1 (IFC [B] 1025.1) Horizontal exits. *Horizontal exits* serving as an *exit* in a *means of egress* system shall comply with the requirements of this section. A *horizontal exit* shall not serve as the only *exit* from a portion of a building, and where two or more *exits* are required, not more than one-half of the total number of *exits* or total *exit* minimum width or required capacity ~~width~~ shall be *horizontal exits*.

Exceptions:

1. Horizontal exits are permitted to comprise twothirds of the required exits from any building or floor area for occupancies in Group I-2.
2. Horizontal exits are permitted to comprise 100 percent of the exits required for occupancies in Group I-
3. At least 6 square feet (0.6 m2) of accessible space per occupant shall be provided on each side of the horizontal exit for the total number of people in adjoining compartments.

1027.1 (IFC [B] 1027.1) General. Exits shall discharge directly to the exterior of the building. The exit discharge shall be at grade or shall provide direct access to grade. The exit discharge shall not reenter a building. The combined use of Exceptions 1 and 2 below shall not exceed 50 percent of the number and minimum width or required capacity of the required exits.

Exceptions:

1. A maximum of 50 percent of the number and minimum width or required capacity of interior exit stairways and ramps is permitted to egress through areas on the level of discharge provided all of the following are met:
   1.1 Such enclosures egress to a free and unobstructed path of travel to an exterior exit door and such exit is readily visible and identifiable from the point of termination of the enclosure.
   1.2 The entire area of the level of exit discharge is separated from areas below by construction conforming to the fire-resistance rating for the enclosure.
   1.3 The egress path from the interior exit stairway and ramp on the level of exit discharge is protected throughout by an approved automatic sprinkler system. All

portions of the level of exit discharge with access to the egress path shall either be protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of interior exit stairways or ramps.

2. A maximum of 50 percent of the number and minimum width or required capacity of the interior exit stairways and ramps is permitted to egress through a vestibule provided all of the following are met:
   - 2.1 The entire area of the vestibule is separated from areas below by construction conforming to the fire-resistance rating for the enclosure.
   - 2.2 The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
   - 2.3 The area is separated from the remainder of the level of exit discharge by construction providing protection at least the equivalent of approved wired glass in steel frames.
   - 2.4 The area is used only for means of egress and exits directly to the outside.
3. Horizontal exits complying with Section 1025 shall not be required to discharge directly to the exterior of the building.

1027.2 (IFC [B] 1027.2) Exit discharge width or capacity. The minimum width or required capacity of the exit discharge shall be not less than the ~~required discharge~~ minimum width or required capacity of the exits being served.

1027.4.1 (IFC [B] 1027.4.1) Width or capacity. The ~~minimum width~~ required capacity of egress courts shall be determined as specified in Section 1005.1, but ~~such~~ the minimum width shall not be less than 44 inches (1118 mm), except as specified herein. Egress courts serving Group R-3 and U occupancies shall not be less than 36 inches (914 mm) in width. The required capacity and width of egress courts shall be unobstructed to a height of 7 feet (2134 mm).

Exception: Encroachments complying with Section 1005.7.

Where an egress court exceeds the minimum required width and the width of such egress court is then reduced along the path of exit travel, the reduction in width shall be gradual. The transition in width shall be affected by a guard not less than 36 inches (914 mm) in height and shall not create an angle of more than 30 degrees (0.52 rad) with respect to the axis of the egress court along the path of egress travel. In no case shall the width of the egress court be less than the required ~~minimum~~ capacity.

1028.2 (IFC [B] 1028.2) Assembly main exit. A building, room or space used for assembly purposes that has an occupant load of greater than 300 and provided with a main exit, the main exit shall be of sufficient ~~width~~ capacity to accommodate not less than one-half of the occupant load, but such ~~width~~ capacity shall not be less than the total required ~~width~~ capacity of all means of egress leading to the exit. Where the building is classified as a Group A occupancy, the main exit shall front on at least one street or an unoccupied space of not less than 10 feet (3048 mm) in width that adjoins a street or public way. In a building, room or space used for assembly purposes where there is no well-defined main exit or where multiple main exits are provided, exits shall be permitted to be distributed around the perimeter of the building provided that the total ~~width~~ capacity of egress is not less than 100 percent of the required ~~width~~ capacity.

1028.4 (IFC [B] 1028.4) Foyers and lobbies. In Group A-1 occupancies, where persons are admitted to the building at times when seats are not available such persons shall be allowed to wait in a lobby or similar space, provided such lobby or similar space shall not encroach upon the minimum width or required ~~clear~~ capacity ~~width~~ of the means of egress. Such foyer, if not directly connected to a public street by all the main entrances or exits, shall have a straight and unobstructed corridor or path of travel to every such main entrance or exit.

1028.6 (IFC [B] 1028.6) ~~Width~~ Capacity of means of egress for assembly. The ~~clear width~~ capacity of aisles and other means of egress shall comply with Section 1028.6.1 where smoke-protected seating is

not provided and with Section 1028.6.2 or 1028.6.3 where smoke-protected seating is provided. The ~~clear width~~ capacity shall be measured to walls, edges of seating and tread edges except for permitted projections.

1028.6.1 (IFC [B] 1028.6.1) Without smoke protection. The ~~clear width of the~~ means of egress shall provide ~~sufficient~~ capacity in accordance with all of the following, as applicable:

1. At least 0.3 inch (7.6 mm) of width for each occupant served shall be provided on stairs having riser heights 7 inches (178 mm) or less and tread depths 11 inches (279 mm) or greater, measured horizontally between tread nosings.
2. At least 0.005 inch (0.127 mm) of additional stair ~~width~~ capacity for each occupant shall be provided for each 0.10 inch (2.5mm)of riser height above 7 inches (178 mm).
3. Where egress requires stair descent, at least 0.075 inch (1.9 mm) of additional ~~width~~ capacity for each occupant shall be provided on those portions of stair ~~width~~ capacity having no handrail within a horizontal distance of 30 inches (762 mm).
4. Ramped means of egress, where slopes are steeper than one unit vertical in 12 units horizontal (8-percent slope), shall have at least 0.22 inch (5.6 mm) of ~~clear width~~ capacity for each occupant served. Level or ramped means of egress, where slopes are not steeper than one unit vertical in 12 units horizontal (8-percent slope), shall have at least 0.20 inch (5.1 mm) of ~~clear width~~ capacity for each occupant served.

1028.6.2 (IFC [B] 1028.6.2) Smoke-protected seating. The ~~clear width~~ capacity of the means of egress for smoke-protected assembly seating shall not be less than the occupant load served by the egress element multiplied by the appropriate factor in Table 1028.6.2. The total number of seats specified shall be those within the space exposed to the same smoke-protected environment. Interpolation is permitted between the specific values shown. A life safety evaluation, complying with NFPA 101, shall be done for a facility utilizing the reduced width requirements of Table 1028.6.2 for smoke-protected assembly seating.

Exception: For an outdoor smoke-protected assembly seating with an occupant load not greater than 18,000, the ~~clear width~~ capacity shall be determined using the factors in Section 1028.6.3.

TABLE 1028.6.2 (IFC [B] TABLE 1028.6.2)
~~WIDTH~~ CAPACITY OF AISLES FOR SMOKE-PROTECTED ASSEMBLY

TOTAL NUMBER OF SEATS IN THE SMOKEPROTECTED ASSEMBLY SEATING	INCHES OF ~~CLEAR WIDTH~~ CAPACITY PER SEAT SERVED			
	Stairs and aisle steps with handrails within 30 inches	Stairs and aisle steps without handrails within 30 inches	Passageways, doorways and ramps not steeper than 1 in 10 in slope	Ramps steeper than 1 in 10 in slope
Equal to or less than 5,000	0.200	0.250	0.150	0.165
10,000	0.130	0.163	0.100	0.110
15,000	0.096	0.120	0.070	0.077
20,000	0.076	0.095	0.056	0.062
Equal to or greater than 25,000	0.060	0.075	0.044	0.048

For SI: 1 inch = 25.4 mm.

1028.6.3 (IFC [B] 1028.6.3) ~~Width~~ Capacity of means of egress for outdoor smoke-protected assembly seating. The ~~clear width~~ capacity in inches (mm) of aisles and other means of egress shall be not less than the total occupant load served by the egress element multiplied by 0.08 (2.0 mm) where egress is by aisles and stairs and multiplied by 0.06 (1.52 mm) where egress is by ramps, corridors, tunnels or vomitories.

Exception: The ~~clear width~~ capacity in inches (mm) of aisles and other means of egress shall be permitted to comply with Section 1028.6.2 for the number of seats in the outdoor smoke-protected assembly seating where Section 1028.6.2 permits less ~~width~~ capacity.

1028.9.2 (IFC [B] 1028.9.2) Aisle ~~width~~ capacity. The aisle ~~width~~ shall provide sufficient ~~egress~~ capacity for the number of persons accommodated by the catchment area served by the aisle. The catchment area served by an aisle is that portion of the total space that is served by that section of the aisle. In establishing catchment areas, the assumption shall be made that there is a balanced use of all means of egress, with the number of persons in proportion to egress capacity.

1028.9.3 (IFC [B] 1028.9.3) Converging aisles. Where aisles converge to form a single path of egress travel, the required ~~egress~~ capacity of that path shall not be less than the combined required capacity of the converging aisles.

1028.9.4 (IFC [B] 1028.9.4) Uniform width and capacity. Those portions of aisles, where egress is possible in either of two directions, shall be uniform in minimum width or required capacity ~~width~~.

1028.9.6 (IFC [B] 1028.9.6) Assembly aisle obstructions. There shall be no obstructions in the minimum width or required capacity ~~width~~ of aisles except for handrails as provided in Section 1028.13.

1028.10.1.1 (IFC [B] 1028.10.1.1) Aisle accessway capacity and width for seating at tables. Aisle accessways serving arrangements of seating at tables or counters shall ~~have sufficient clear width to~~ conform to the capacity requirements of Section 1005.1 but shall not have less than a minimum of 12 inches (305 mm) of width plus 1/2 inch (12.7 mm) of width for each additional 1 foot (305 mm), or fraction thereof, beyond 12 feet (3658 mm) of aisle accessway length measured from the center of the seat farthest from an aisle.

> **Exception:** Portions of an aisle accessway having a length not exceeding 6 feet (1829 mm) and used by a total of not more than four persons.

Reason: Section 1005 was improved in the 2012 Edition of the IBC. Formerly, the terms “width” and “capacity” were used inconsistently and often interchangeably. The section was re-titled to “Means of Egress Sizing.” Section 1005.2 establishes the context of the term “width,” explaining that it is the minimum width, in inches, of any means of egress component based on other Chapter 10 prescriptive minimum requirements. Section 1005.3 states the term “capacity” is the dimension, in inches, necessary to accommodate the design occupant load at a given point along the path of egress travel.

This proposal reviews the use of the terms “width” and “capacity” throughout Chapter 10 and places them in context with the stated specific technical requirement and the intent of Section 1005. Where minimum prescriptive dimensions of various means of egress components are referenced, the term “width” or “minimum width” is used. Where the calculated dimension based on the occupant load served is referenced, the term “capacity” or “required capacity” is used.

This proposal editorially corrects the misuse of the terms “width” and “capacity” and places them in context with the intent of 2012 IBC Section 1005. Approval will reduce confusion and increase consistency in the determination of IBC means of egress sizing provisions.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

Table 1018.2 (IFC [B] TABLE 1018.2)
MINIMUM CORRIDOR WIDTH

Occupancy	Width (min)
Any facilities not listed below	44 inches (1118 mm)
Access to and utilization of mechanical, plumbing or electrical systems or equipment	24 inches (610 mm)
With an ~~required~~ occupant load of less than 50	36 inches (914 mm)
Within a dwelling unit	36 inches (914 mm)
In Group E with a corridor having a occupant load of 100 or more	72 inches (1829 mm)
In corridors and areas serving gurney traffic in occupancies where patients receive outpatient medical care, which causes the patient to be not capable of self-preservation	72 inches (1829 mm)
Group I-2 in areas where required for bed movement	96 inches (2438 mm)

Committee Reason: The modification to Table 1018.2 is for consistency with the entire proposal and the revision in the table for the row dealing with Group E. The proposal as a whole clarifies where the calculated capacity vs. the actual width are used to determine the size of the egress component. However, some of the individual sections may need additional clarification. For example, the wording “capacity in inches” (i.e., Section 1028.6.3) seemed to be inconsistent with the intent of the proposal.

Assembly Action: **None**

Final Hearing Results

E9-12 **AM**

Code Change No: E10-12

Original Proposal

Section(s): 1003.3, 1003.3.3 (IFC [B] 1003.3, 1003.3.3)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1003.3 (IFC [B] 1003.3) Protruding objects. Protruding objects on circulations paths shall comply with the requirements of Sections 1003.3.1 through 1003.3.4.

1003.3.3 (IFC [B] 1003.3.3) Horizontal projections. ~~Structural elements, fixtures or furnishings shall not project horizontally from either side more than 4 inches (102 mm) over any walking surface between the heights of 27 inches (686 mm) and 80 inches (2032 mm) above the walking surface~~. Objects with leading edges more than 27 inches (685 mm) and not more than 80 inches (2030 mm) above the floor shall not project horizontally more than 4 inches (100 mm) into the circulation path.

Exception: *Handrails* are permitted to protrude 41/2 inches (114 mm) from the wall.

Reason: All existing buildings using the performance compliance alternative should meet the accessibility provisions for existing building, not just those undergoing a change of occupancy.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proponent pointed out that the reason statement was incorrect. The committee approved this proposal based on that the term 'circulation path' is defined, while the term 'walking surface' is not. Using a defined term always increases understanding and uniform enforcement. This revised language adds clarification to the application of the code and coordinates with ICC A117.1 and the 2010 ADA Standard for Accessible Design.

Assembly Action: **None**

Final Hearing Results

E10-12	**AS**

Code Change No: E15-12

Original Proposal

Section(s): 1004.1.1, 1004.1.1.1, 1004.1.1.2, 1004.1.1.3, 1014.2 (IFC [B] 1004.1.1, 1004.1.1.1, 1004.1.1.2, 1004.1.1.3, 1014.2)

Proponent: Dennis Richardson, PE; Building Official, City of Salinas, representing Tri-Chapter (Peninsula, East Bay and Monterey Bay Chapters of ICC)

Revise as follows:

1004.1.1 (IFC 1004.1.1) Cumulative occupant loads. Where the path of egress travel includes intervening rooms, areas or spaces, cumulative occupant loads shall be determined in accordance with this section.

1004.1.1.1 (IFC [B] 1004.1.1.1) Intervening spaces. Where occupants egress from one room, area or space through ~~another~~ others, the ~~design~~ *occupant load* shall be assigned individually for each area and considered as required by Section 1014.2. ~~be based on the cumulative *occupant loads* of all rooms, areas or spaces to that point along the path of egress travel.~~

1004.1.1.2 (IFC [B] 1004.1.1.2) Adjacent levels for mezzanines. The *occupant load* of a *mezzanine* ~~or story~~ with all required egress through a room, area or space on an adjacent level shall be added to the *occupant load* of that room, area or space.

Where a mezzanine is served by a means of egress, independent of the room or space in which it is located, the portion of occupant load accumulated to the room or space shall be added to the occupant load of that room or space.

Exceptions:

1. Where a mezzanine is not required to be open in accordance with Exception 2 of Section 505.2.3, provided the loss of all exit access, through the room or space the mezzanine is located in, shall not reduce the available capacity from the mezzanine to less than 50% of the required egress capacity from the mezzanine.
2. Where a mezzanine is not required to be open in accordance with Exception 5 of Section 505.2.3.

1004.1.1.3 (IFC [B] 1004.1.1.3) Adjacent stories. The portion of the occupant load accumulated from a story with exit access through an adjacent story shall be added to the story where access to an exit along that path is provided.

Exceptions:

1. In occupancies other than Group H and I, provided the loss of all exit access through the adjacent story shall not reduce the available egress capacity from the story under consideration to less than 50 percent of its required egress capacity.
2. In occupancies other than Group H and I, where unenclosed exit access stairways serving only the first and second stories of a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, provided at least two means of egress are provided from both floors.

1014.2 (IFC [B] 1014.2) Egress through intervening spaces. Egress through intervening spaces shall comply with this section. The capacity and minimum number of exits or exit access doorways and paths required from all interconnected portions of the exit access on a given story shall be considered individually for each room and in the aggregate for each portion of the exit access. The capacity and minimum number of exits or exit access doorways shall be provided based on the requirements in Sections 1005 and 1015, Egress capacity along any path of egress shall be based on the portion of the occupant loads from rooms, areas or spaces accumulated along that egress path.

1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an exit.

   Exception: Means of egress are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy when the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group.

2. An exit access shall not pass through a room that can be locked to prevent egress.
3. Means of egress from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms.
4. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.

   Exceptions:

   1. Means of egress are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit.
   2. Means of egress are not prohibited through stockrooms in Group M occupancies when all of the following are met:
      2.1 The stock is of the same hazard classification as that found in the main retail area;
      2.2 Not more than 50 percent of the exit access is through the stockroom;
      2.3 The stockroom is not subject to locking from the egress side; and
      2.4 There is a demarcated, minimum 44-inch-wide (1118 mm) aisle defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the exit without obstructions.

Reason: A number of code changes over the past two code cycles have, when combined together, made the code more restrictive as written or interpreted even though as advertised the individual code changes were not intended to increase the cost of construction. The issue primarily revolves around the assignment or accumulation of occupant load from one location to another and whether or not all, or none, or a portion of the occupant load from one area obtaining access to required exits through another story or area is added to the occupant load of that story or area for determination of the number of exits or exit access doorways and egress width.

This code change addresses two areas of concern that the committee may wish to consider separately: Egress on a given level and egress from one story or level through another by way or unenclosed exit access stairways.

In summary on a given level: This code change reinforces the concept that the occupant load is assigned to each occupied area individually. When there are intervening rooms, each area must be considered both individually and in the aggregate with other portions of the exit access to determine the number and width of exit access. Portions of the occupant load are accumulated along egress paths to determine the capacity of individual egress elements along those paths. But once occupants from one area make a choice and head out along one of several independent paths of egress travel, their occupant load is not added to some other area to determine how many paths of travel would be required from that different area as if a second fire were to occur at the same time in that area. Example D is provided at the end of this reason statement.

In summary on separate levels: This code change also attempts to treat egress design along unenclosed exit access stairways through adjacent stories or through adjacent levels (in the case of mezzanines) in a similar manner recognizing previous limited instances where open exit access stairways from stories were considered as exits and the capacity (width) was required to be maintained but the occupant load was not added to the adjacent story providing exit access. Example A is provided in this reason statement.

This code change also recognizes mezzanines with independent egress can function similar to a story in a building. Example B is provided in this reason statement.

This code change recognizes mezzanines with sole egress through a room or area should have the occupant load added to that room or area. Example C is provided in this reason statement.

In order to treat open exit access stairways, for both adjacent stories and levels (mezzanines), equally there must be some limitation on the loss of provided egress capacity from a mezzanine or story that gains a portion of its egress capacity through adjacent levels.

Except for the limited previous exceptions of occupancies other than H or I on the first or second floor equipped with sprinklers throughout (Example E), this code change places a limit of the loss of egress capacity through adjacent levels to no more than 50% of the required capacity. In the event more than 50% of required egress capacity would be blocked if egress through the adjacent level is lost then this code change requires the portion of occupant load to be added to the story or level where exit access is provided. This is consistent with the concept found in 2012 IBC section 1005.5 and is necessary in the case where two of three means of egress from a mezzanine could be open or two of four means of egress from a story could have open exit access through a story (both cases with more than 50% of the required capacity unprotected through the adjacent level or story).

Description of Examples A, B and C: All three examples are a 10 story office building with a parking garage at the first two floors. Upper floors are cut away to help with view. All doors shown are 3'-0" x 6'-8" with 32" net clear. Typical design of each floor of the office building is for 850 occupants. Building is equipped throughout with a sprinkler system per Section 903.3.1.1 (NFPA 13). Each floor requires 3 exits or exit access stairways in accordance with Section 1021.2.4. A minimum of two interior or exterior exit stairways are required from each story above the second floor per Section 1021.1.

Total required net exit door width from each typical story = 850 x .15 = 127.5 inches < 128 inches provided, OK.

Loss of any one exit at interior exit stairway 1 results in no more than 50% of required capacity; Distribution of egress capacity OK per Section 1005.5.

Example A: An two story open office suite covers the entire 3rd and 4th floors is and has a portion of the floor cut away. Access to interior exit stairway 1 is provided from the 4th floor using unenclosed exit access stairway 1. The occupant load of the 3rd floor is 850 without considering any occupant load from the adjacent floor. Occupant load of the partially cut away 4th floor is now 600. The portion of occupant load going to interior exit access stair way = 600 – 2 x 32/.15 = 174. Required width of exit access stair 1 = 174 x .20 = 34.6 inches therefore use 44 inch minimum exit access stair per Section 1009.4.

What occupant load is the third floor designed for? Are the typical floor exit doors and number of interior exit stairs code compliant?

If the portion of occupant load from the 4th floor utilizing the unenclosed exit access stair is added to the third floor occupant load (or all of the occupant load depending how the current code is interpreted), the third floor will now be over 1000 occupant load and 4 means of egress will be required from the third floor down through the building even though the occupant load for the overall building is reduced and previous codes would have allowed this condition in occupancies other than H and I.

This code change, for a B occupancy, would require the portion of the occupant load from the 4th floor to be added to the 3rd floor only if the exit access capacity required from the 4th floor would be reduced to less than 50% of required capacity if the exit access through the adjacent 3rd floor was blocked. In this example the egress would be ok as drawn. For H or I occupancies the portion of occupant load accumulated along the exit access stairway would be added to the occupant load of the story below as a requirement after this code change.

Example B: In this example the third floor does not communicate with any other floor but a mezzanine with an occupant load of 350 is installed. The mezzanine is served by an independent exit going into interior exit stairway 3 and by exit access stairway 1 providing access to the 3rd floor. The occupant load of the 3rd floor is 850 without considering any occupant load from the mezzanine.

What occupant load is the third floor designed for? Are the typical floor exit doors and number of interior exit stairs code compliant?

According to the current code all or a portion of the occupant load from the mezzanine (depending on how it is interpreted) would need to be added to the 3rd floor and in either case, even though the mezzanine has direct access to an exit the building would now require 4 means of egress from the 3rd floor down.

This code change for a B occupancy as shown, would require the portion of the occupant load from the third floor mezzanine to be added to the 3rd floor only if the exit access capacity required from the mezzanine would be reduced to less than 50% of required capacity if the exit access through the 3rd floor was blocked. For H or I occupancies the portions of occupant load accumulated along the exit access stairway would be added to the occupant load of the story below as a requirement of this code change.

For the B occupancy, egress would be ok as shown in the example.

Example C: In this example the third floor does not communicate with any other floor but a mezzanine with an occupant load of 350 is installed and the sole egress from the mezzanine is by two exit access stairways to the 3rd floor. The occupant load of the 3rd floor is 850 without considering any occupant load from the mezzanine.

What occupant load is the third floor designed for? Are the typical floor exit doors and number of interior exit stairs code compliant?

This example would be treated as required by current code where all of the occupant load from the mezzanine is added to the occupant load of the 3rd floor open office below. 3rd floor would now require 4 exits as the occupant load from the third story including the mezzanine would be greater than 1000.

Example D: In this example, the occupant loads assigned to each room or area based on 2012 IBC section 1004.1.2 and the function of the space. All door hardware is either panic or classroom hardware and in all cases is openable in the direction of door swing without the use of a key or special knowledge or effort. All door hardware can be locked with a key in the direction opposite of door swing for security purposes of individual areas. For this example each door is a single leaf from 36 inch minimum up to 48 inch maximum and the building is equipped throughout with an NFPA 13 sprinkler system. If additional door width is required at a door location, based on capacity, two 36" doors are provided.

In layout D.1, all rooms have adequate means of egress for the occupant load contained in the room when evaluated on an individual basis. The occupant load of the entire story is 700 and the story has an adequate number of exits when looked at in the aggregate (doors 3.1, 5.1 and 7.1).

When the Accounting Office and General Office are looked at in the aggregate, they have adequate egress for an aggregate occupant load of 400 for this portion of the exit access (doors 5.1 and 6.1 which both must be have capacity for 200 occupants). The lobby has a total of 20 occupant load and door 7.1 must be sized for an accumulated occupant load along this egress path of 360 (200 from door 6.1, 140 from door 4.1 and 20 from the lobby). Utilizing the concept of one fire, if there was a fire in the lobby then all

occupants would have adequate access to other means of egress through doors 5.1 and 3.1. If the fire occurred when doors 4.1 and 6.1 are locked from the lobby side then the limited number of occupants in the lobby have access to adequate egress through door 7.1.

If the fire occurs in another room, the general office for example, the portion of occupant load from the general office and the sales office with egress through the lobby are not added to the occupant load of the lobby to determine the number of exits or exit access doors from the lobby but the occupant load is accumulated along this path to determine the required capacity of doors 7.1 along this path. Because those individuals from other rooms, if exiting from a fire through the lobby, would have already exercised their option of two means of egress from the room where the occupants originated and there is no need to add the occupants or the portion of the design occupant load through the lobby to the occupant load of the lobby to determine the number of means of egress from the lobby. The code does not assume both a fire that persons are exiting from and then encountering another different fire along the way.

Egress in layout D.1 would meet the code as revised by the proposed change.

In layout D.2, all rooms have adequate means of egress for the occupant load contained in the room when evaluated on an individual basis. The occupant load of the entire story is still 700 and the story has an adequate number of exits when looked at in the aggregate (doors 3.2, 5.2 and 7.2). Since the sales office also has required egress through the general office, the accounting office, general office and sales office must be looked at in the aggregate and based on the total aggregate occupant load of 680 for this portion of the exit access. Three exit or exit access doors are required and provided from this portion of the exit access (door 3.2, 5.2, and 6.2). The capacity of door 5.2 and 6.2 must be designed based on an accumulated occupant load 270 along each egress path which is determined as follows: (140, the portion from the sales office, plus 100 from the accounting office, and 300 from the general office) all divided by 2= 270. The capacity of door 7.2 is determined based on the occupant load of 270 used to determine the occupant load of door 6.2 along with the accumulated occupant load of 20 from the lobby for a total occupant load of290 for the capacity of door 7.2 along the continuation of this egress path. This is consistent with Figure 1004.4.4 of the 1012 IBC Commentary and its accompanying explanation.

Egress in layout D.2 would meet the code as revised by the proposed change.

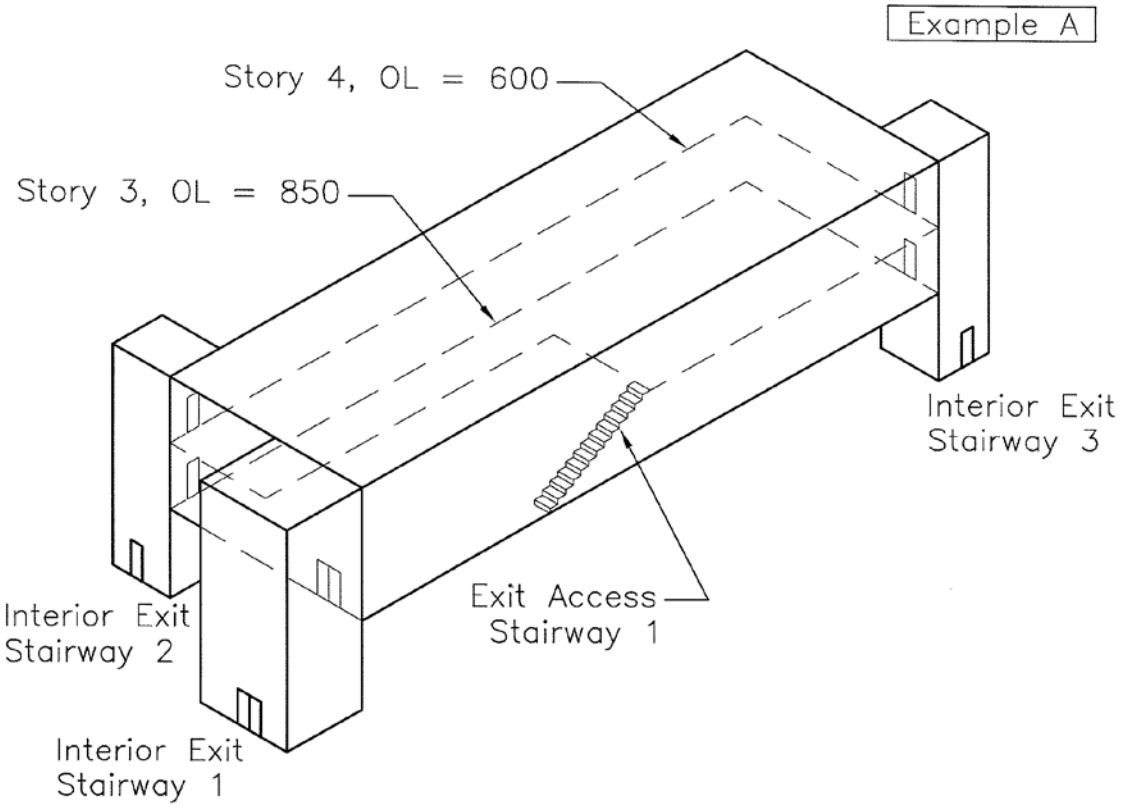
This example has adequate egress from each room, story and portion of the exit access when considered in the aggregate but it would not comply with the 2009 IBC because all occupants do not have access to all required exits from the story as was required by 2009 IBC section 1021.1 This was resolved by E5 and E120 in the past code cycle. This example would also not comply with the literal read of the 2012 IBC because all of the occupant load from the sales office and the accounting office would be added to the general office for a total of 680 requiring three means of egress from the general office.

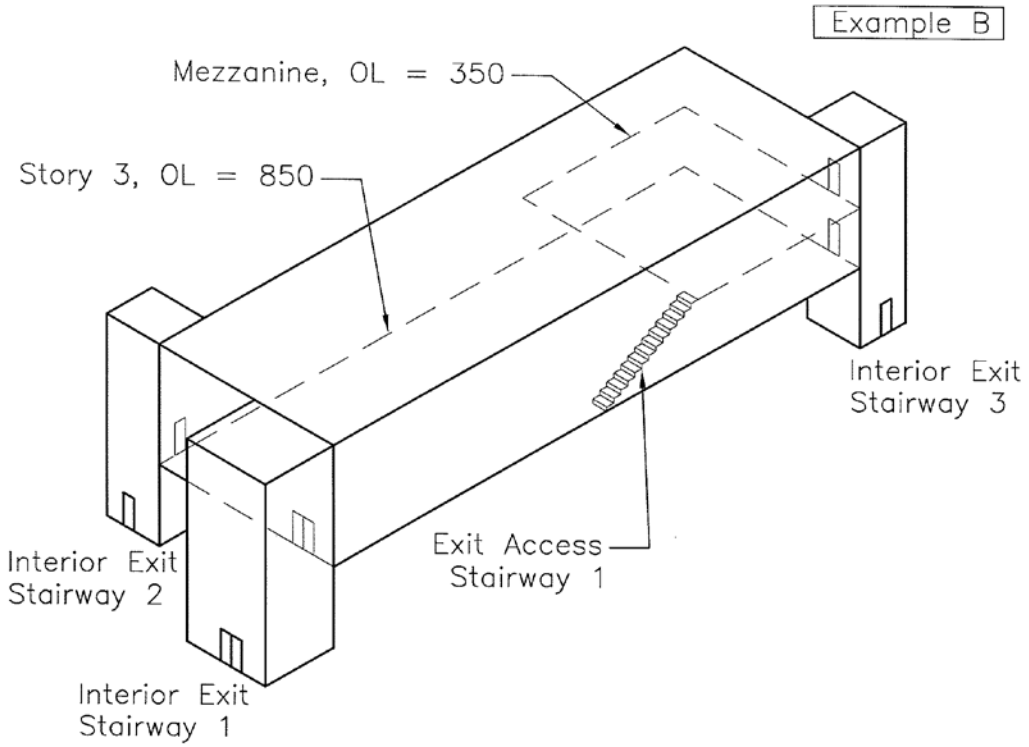
Example E: This example illustrates an egress system allowed for occupancies other than H and I in the first two floors of a building equipped throughout with an NFPA 13 sprinkler system. This arrangement was allowed under the 2006 IBC section 1020.1, exception 9 without adding the occupant load to the floor below. This code change would continue to allow this configuration as long as the capacity from each floor is maintained as required by the code.

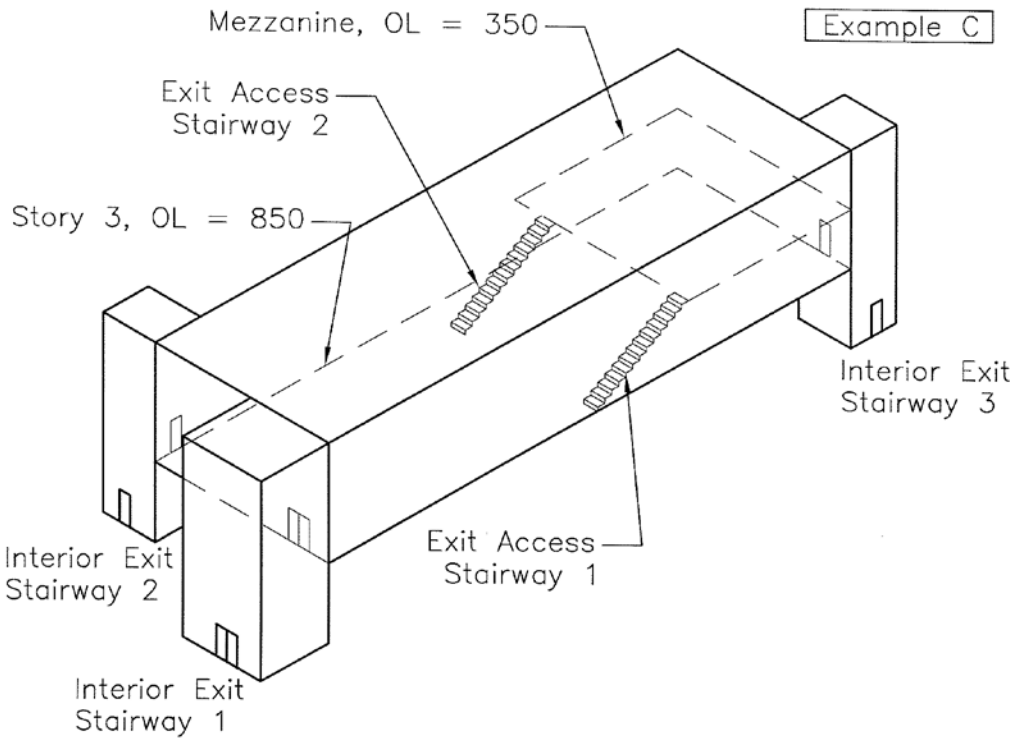
This configuration would apparently not meet the current code as the occupant load or a portion of the occupant load from the second floor would currently be required to be added to the occupant load of the first floor causing the occupant load to have three exits. This was apparently an unintended consequence of E122 06/07.

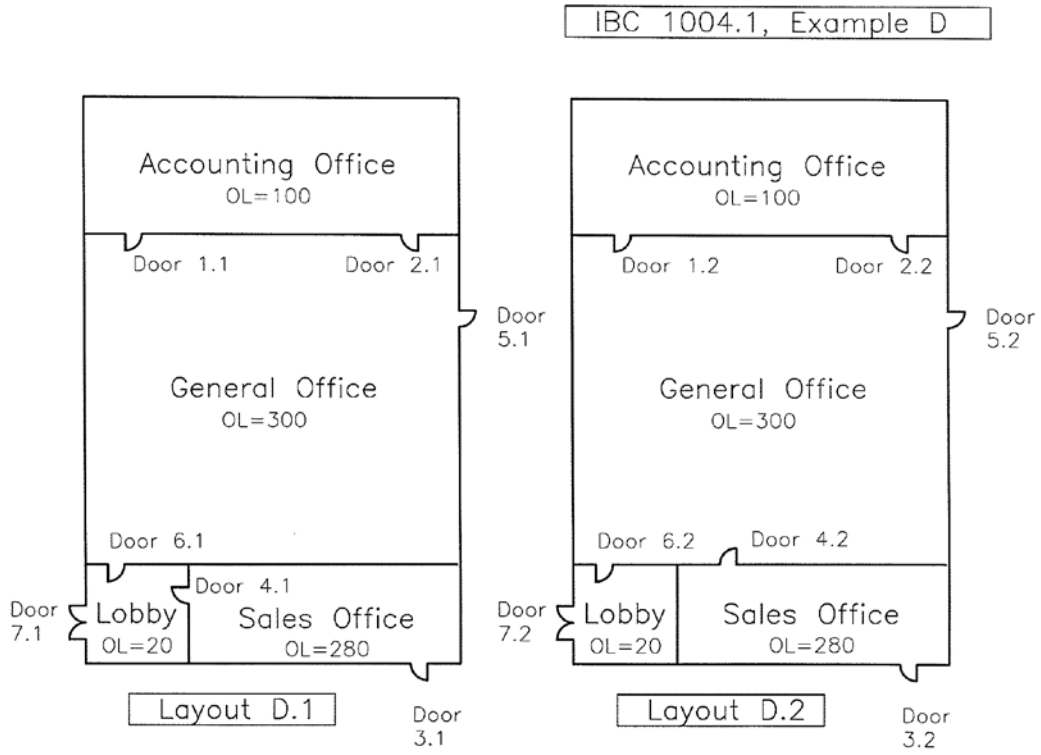
In Conclusion: This code change would clarify egress from a single level through intervening rooms would have occupant load assigned to each room and be evaluated both individually and in the aggregate for each portion of the exit access.

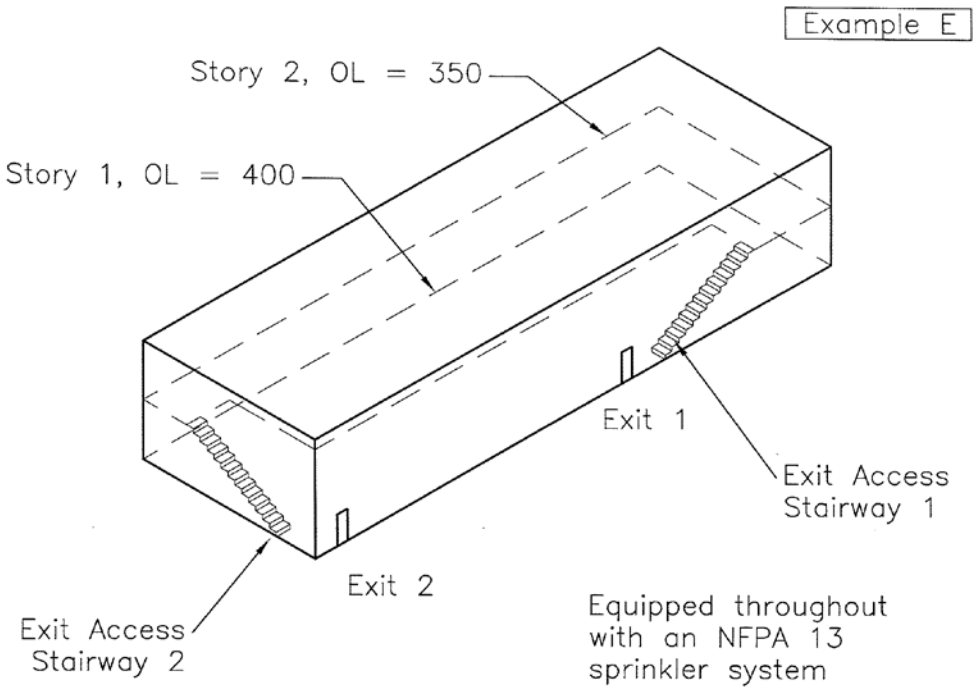
This code change would still require occupant load from an adjacent story or level to be added to an adjacent level when the sole egress occurs through the story. This code change provides a framework utilizing existing exceptions for the egress through an adjacent story or level to be considered in a similar manner depending on the degree of independent egress from the story or mezzanine.











Cost Impact: This change will not increase the cost of construction.

Staff Note: The version of E15-12 shown above was part of the errata posted on the ICC website and also appeared in the Report of Hearings.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal seems to treat the 2nd floor like a mezzanine regardless of how close the exit access stairways are to the exterior exits in the level of exit discharge. This would be in conflict with the cascading stairway loading that has been utilized in the code for years. "Loss of exit access" is to open for interpretation. The proposed language is very confusing. The intent is not clearly expressed. Disapproval is also consistent with the committee vote on E17.

Assembly Action: **None**

Public Comments

Public Comment:

Dennis Richardson, PE; Building Official, City of Salinas, representing Tri-Chapter (Peninsula, East Bay and Monterey Bay Chapters of ICC), requests Approval as Modified by this Public Comment

Replace the proposal with the following:

1004.1.1 Cumulative occupant loads. Where the path of egress travel includes intervening rooms, areas or spaces, cumulative occupant loads shall be determined in accordance with this section.

1004.1.1.1 (IFC [B] 1004.1.1.1) Intervening spaces or accessory areas. Where occupants egress from one or more room, area or space through ~~another~~ others, the design *occupant load* shall be the combined occupant load of interconnected accessory or intervening spaces. Design of egress path capacity shall be based on the cumulative portion of occupant loads of all rooms, areas or spaces to that point along the path of egress travel.

1004.1.1.2 (IFC [B] 1004.1.1.2) Adjacent levels for mezzanines. That portion of the *occupant load* of a *mezzanine* ~~or story~~ with required egress through a room, area or space on an adjacent level shall be added to the *occupant load* of that room, area or space.

1004.1.1.3 (IFC [B] 1004.1.1.3) Adjacent stories. Other than for the egress components designed for convergence in accordance with Section 1005.6, the occupant load from separate stories shall not be added.

Commenter's Reason: Over the past two code cycles there have been numerous changes to the egress provisions. Along the way a number of basic premises of the code have been slightly modified with the result of inconsistent interpretation and application of the code.

The goal of this code change is to state how occupant load is addressed in one place (Section 1004) so that the user can consistently apply the occupant load in other sections utilized to calculate the width (or capacity) and determine the number of exits or exit access paths. During the past two code cycles seemingly straight forward changes have had the effect of making the code more restrictive through interpretation even though they were not advertised as such.

1004.1.1.1 Intervening spaces: The current code as written gives inconsistent interpretations as shown in the 2012 ICC Code and Commentary Figure 1004.1.1 on page 10-10 and Figure 1021.2(1) on page 10-135. In Figure 1004.1.1, if interpreted literally as written, a small lobby with 10 occupant load with one path of exit travel through it would either have all or part of the occupant load from the next room added to it to determine both number and capacity of exits. If the code is applied literally in this example, then the design occupant load (now much larger) would require two exits or exit access from the lobby on its own even though the large room driving egress already has access to two exits. In the example accompanying Figure 1021.2(1) part of the occupant load is added to the corridor to determine the corridor now needs three exits which is incorrect as the room driving this condition already had access to three exits or exit access and the overall story only needs three exits.

Instead of taking occupant load from one space and adding it to another as implied by the current code for the overall design occupant load, this public comment emphasizes rooms that share an egress path must be looked at for the occupant load in the aggregate to address number of exits, door swing, hardware, etc. and each path of egress travel width (or capacity) must be designed for an accumulation of the portion of occupant load with egress along that path. Each individual room must also have access to the required egress as currently required by code.

1004.1.1.2 Mezzanines: Egress from mezzanines has been treated differently than stories in the IBC code for a number of years. The concept provided here is only the portion of occupant load with required egress through the room, area or space shall be added to the occupant load of the room, area or space below. This accounts for mezzanines where there is considerable independent egress directly off of the mezzanine and also for the conditions where some or all of the required egress from the mezzanine is through the level below.

1004.1.1.3 Stories: Historically in the IBC occupant load has not needed to be accumulated through exits from one story to another as long as both the maximum number and capacity at any story is maintained in the stories below. This has been referred to the "cascading stairway" loading effect. The concern of "conflict with the cascading stairway loading utilized by the code for years" was mentioned by the egress committee in the disapproval of E14, E15 and E17. In past codes, there is one instance where occupant load is added between stories when there is convergence with egress to a central level occurring at the same time from both above and below. This is acknowledged in this public comment.

The loss of the cascading loading for stairways may have occurred, in the minds of some, when unenclosed exit stairways found in section 1020, exceptions 8 and 9, of the 2006 IBC were relocated by E122-06/07 from the exit provisions to the exit access provisions. E122-06/07 stated it did not increase the cost of construction and there was no discussion in the E122-06/07 reason of any effect on cascading stairway loading at that time. Yet by renaming unenclosed exit stairs as unenclosed exit access stairs some practitioners interpreted this as a need to now add the portion of occupant load from an exit access stairway to the story below (as part of the exit access) instead of maintaining both the capacity and number of means of egress from the story as has historically been done for exits. This cascade stairway loading concept was alive and well regarding egress width from a story in section 1004.4 of the 2006 IBC, again in the last sentence of section 1005.1 of the 2006 IBC, and finally addressed for the number of exits from a story in 2006 IBC section 1019.1. The last section of this public comment attempts to address this issue to ensure, even though egress through an adjacent story has been reorganized, the intent of maintaining the cascade stairway loading is maintained as pointed out by the egress committee.

Final Hearing Results

E15-12 **AMPC**

Code Change No: E18-12

Original Proposal

Section(s): Table 1004.1.2 (IFC [B] Table 1004.2)

Proponent: Al Godwin, CBO, CPM, Aon Fire Protection Engineering representing Aon Fire Protection Engineering (al.godwin@aon.com)

Revise as follows:

TABLE 1004.1.2 (IFC [B] TABLE 1004.1.2)
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANCY

FUNCTION OF SPACE	OCCUPANCY LOAD FACTOR
Mercantile	
~~Areas on other floors~~	~~60 gross~~
~~Basement and grade floor areas~~	~~30 gross~~
Primary floors of the retail space[b]	30 gross
Floors and mezzanine other than the primary floors	60 gross
Storage, stock, shipping areas	300 gross

(Portions of table and notes not shown remain unchanged.)

b. The primary floor is the entry floor of the retail space. More than one floor will be considered a primary floor where customer entry from outside the retail space can occur on different levels. Other floors are secondary floors, mezzanines, and basements that customers can only access once inside the retail space.

Reason: It has never been made clear if the grade floor is the 1st floor of the retail space, or only those floors at grade. What about retails spaces that are on the 2nd floor of a strip center or mall? Is it assumed that they will not be as crowded as a retail space on the 1st floor? What if there are two grade floors? Why does a basement level have the same occupant load as the "grade floor."
This revision is provided to hopefully clarify the requirement. At least provide better clarification in the commentary.

Cost Impact: This code change proposal will not increase the cost of construction.

Staff Note: The original proposal had an errata in the 2nd column in the struck-out language. The proposal as shown has been corrected.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The issue is more the occupant load of the space rather than if this is the entry floor or not. A store could have a primary retail space on more than one floor This proposal would not work for malls. "Primary floor" would not have consistent interpretation.

Assembly Action: **None**

Public Comments

Public Comment 2:

Stephen Thomas, Colorado Code Consulting, LLC representing Colorado Chapter ICC, requests Approval as Modified by this Public Comment

Replace the proposal with the following:

TABLE 1004.1.2 (IFC [B] TABLE 1004.1.2)
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANCY

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR [a]
Mercantile	60 gross
~~Areas on other floors~~	~~60 gross~~
~~Basement and grade floor areas~~	~~30 gross~~
Storage, stock, shipping areas	300 gross

(Portions of table and notes not shown remain unchanged.)

Commenter's Reason: The original proposal tried to define what the primary floor was for mercantile occupancies. This public comments attempts to make this requirement easier for the code user. The different occupant load factors for various floors were originally based on multi-story single operator buildings. However, the use of these buildings is no longer the same as they were. Many of the big box retailers are now constructing multi-story buildings. We do not believe the number of occupants will be any different on different floors. Therefore, we are recommending that a single occupant load factor be used for all floors.

60 square feet per occupant was selected because it is a more reasonable number in today's retail environment. Much of the floor area is covered with display cases and counters. The actual number of people, even at Christmas time or Black Friday, would not exceed the 60 square feet limit. This occupant load factor is more reasonable and still provides the required number and capacity of exits from the building.

Final Hearing Results

E18-12 **AMPC2**

Code Change No: E20-12

Original Proposal

Section(s): 1005.1, 1005.3.1, 1005.3.2, 1028.6, 1028.6.1, 1028.6.2, Table 1028.6.2, 1028.6.2.1, 1028.6.3 (IFC [B] 1005.1, 1005.3.1, 1005.3.2, 1028.6, 1028.6.1, 1028.6.2, Table 1028.6.2, 1028.6.2.1, 1028.6.3)

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee

Revise as follows:

1005.1(IFC [B] 1005.1) General. All portions of the means of egress system shall be sized in accordance with this section.

Exception: ~~Means of egress~~ Aisles and aisle accessways in rooms or spaces used for assembly purposes complying with Section 1028.

1005.2 (IFC [B] 1005.2) Minimum width based on component. The minimum width, in inches, of any means of egress components shall not be less than that specified for such component, elsewhere in this code.

1005.3 (IFC [B] 1005.3) Required Capacity based on occupant load. The required capacity, in inches, of the means of egress for any room, area, space or story shall not be less than that determined in accordance with the following:

1005.3.1 (IFC [B] 1005.3) Stairways. The capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairway by a means of egress capacity factor of 0.3 inches (7.62 mm) per occupant. Where stairways serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required capacity of the stairways serving that story.

Exceptions:

1. For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairway by a means of egress capacity factor of 0.2 inches (5.1 mm) per occupant in buildings equipped throughout with and automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.
2. Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1028.6.2 indicated for aisles stairs for exit access or exit stairways where the entire path for means of egress from the seating to the exit discharge is provided with a smoke control system complying with Section 909.
3. Facilities with outdoor *smoke-protected assembly seating* shall be permitted to the capacity factors in Section 1028.6.3 indicated for aisle stairs for exit access or exit stairways where the entire path for means of egress from the seating to the exit discharge is open to the outdoors.

1005.3.2 (IFC [B] 1005.3.2) Other egress components. The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.2 inches (5.08 mm) per occupant.

Exceptions:

1. For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.15 inches (3.8 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.
2. Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1028.6.2 indicated for level or ramped aisles for means of egress components other than stairways where the entire path for means of egress from the seating to the exit discharge is provided with a smoke control system complying with Section 909.
3. Facilities with outdoor *smoke-protected assembly seating* shall be permitted to the capacity factors in Section 1028.6.3 indicated for level or ramped aisles for means of egress components other than stairways where the entire path for means of egress from the seating to the exit discharge is open to the outdoors.

1005.4 (IFC [B] 1005.4) Continuity. The capacity of the means of egress required from any story of a building shall not be reduced along the path of egress travel until arrival at the public way.

1028.6 (IFC [B] 1028.6) ~~Width~~ Capacity of ~~means of egress~~ aisle for assembly. The ~~clear width~~ required capacity of aisles ~~and other means of egress~~ shall not be less than that determined in accordance with ~~comply with~~ Section 1028.6.1 where smoke-protected seating is not provided and with Section 1028.6.2 or 1028.6.3 where smoke-protected seating is provided. ~~The clear width shall be measured to walls, edges of seating and tread edges except for permitted projections.~~

1028.6.1 (IFC [B] 1028.6.1) Without smoke protection. The ~~clear width~~ required capacity in inches (mm) of the ~~means of egress~~ aisles for assembly seating without smoke protection shall ~~provide sufficient capacity~~ not be less than the occupant load served by the egress element in accordance with all of the following, as applicable:

1. At least 0.3 inch (7.6 mm) of aisle width for each occupant served shall be provided on aisle stairs having riser heights 7 inches (178 mm) or less and tread depths 11 inches (279 mm) or greater, measured horizontally between tread nosings.
2. At least 0.005 inch (0.127 mm) of additional aisle ~~stair~~ width for each occupant shall be provided for each aisle stair with 0.10 inch (2.5mm)of riser height above 7 inches (178 mm).
3. Where egress requires aisle stair descent, at least 0.075 inch (1.9 mm) of additional aisle width for each occupant shall be provided on those portions of aisle stair width having no handrail within a horizontal distance of 30 inches (762 mm).

1028.6.2 (IFC [B] 1028.6.2) Smoke-protected seating. The ~~clear width~~ required capacity in inches (mm) of the ~~means of egress~~ aisle for smoke-protected assembly seating shall not be less than the occupant load served by the egress element multiplied by the appropriate factor in Table 1028.6.2. The total number of seats specified shall be those within the space exposed to the same smoke-protected environment. Interpolation is permitted between the specific values shown. A life safety evaluation, complying with NFPA 101, shall be done for a facility utilizing the reduced width requirements of Table 1028.6.2 for smoke-protected assembly seating.

Exception: For an outdoor smoke-protected assembly seating with an occupant load not greater than 18,000, the ~~clear width~~ required capacity in inches (mm) shall be determined using the factors in Section 1028.6.3.

TABLE 1028.6.2 (IFC [B] TABLE 1028.6.2)
~~WIDTH OF~~ CAPACITY FOR AISLES FOR SMOKE-PROTECTED ASSEMBLY

TOTAL NUMBER OF SEATS IN THE SMOKEPROTECTED ASSEMBLY SEATING	INCHES OF CLEAR WIDTH PER SEAT SERVED			
	~~Stairs and~~ Aisle ~~steps~~ stairs with handrails within 30 inches	~~Stairs and~~ Aisle ~~steps~~ stairs without handrails within 30 inches	~~Passageways, doorways and ramps~~ Flat aisles or ramped aisle not steeper than 1 in 10 in slope	~~Ramps~~ Ramped aisles steeper than 1 in 10 in slope
Equal to or less than 5,000	0.200	0.250	0.150	0.165
10,000	0.130	0.163	0.100	0.110
15,000	0.096	0.120	0.070	0.077
20,000	0.076	0.095	0.056	0.062
Equal to or greater than 25,000	0.060	0.075	0.044	0.048

For SI: 1 inch = 25.4 mm.

1028.6.2.1 (IFC [B] 1028.6.2.1) Smoke control. ~~Means of egress~~ Aisles and aisle accessways serving a *smoke-protected assembly seating* area shall be provided with a smoke control system complying with Section 909 or natural ventilation designed to maintain the smoke level at least 6 feet (1829 mm) above the floor of the means of egress.

1028.6.2.2 (IFC [B] 1028.6.2.2) Roof height. A smoke-protected assembly seating area with a roof shall have the lowest portion of the roof deck not less than 15 feet (4572 mm) above the highest aisle or aisle accessway.

Exception: A roof canopy in an outdoor stadium shall be permitted to be less than 15 feet (4572 mm) above the highest aisle or aisle accessway provided that there are no objects less than 80 inches (2032 mm) above the highest aisle or aisle accessway.

1028.6.2.3 (IFC [B] 1028.6.2.3) Automatic sprinklers. Enclosed areas with walls and ceilings in buildings or structures containing smoke-protected assembly seating shall be protected with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

Exceptions:

1. The floor area used for contests, performances or entertainment provided the roof construction is more than 50 feet (15 240 mm) above the floor level and the use is restricted to low fire hazard uses.
2. Press boxes and storage facilities less than 1,000 square feet (93 m2) in area.
3. Outdoor seating facilities where seating and the means of egress in the seating area are essentially open to the outside.

1028.6.3 (IFC [B] 1028.6.3) ~~Width of means of egress for~~ outdoor smoke-protected assembly seating. The ~~clear width~~ required capacity in inches (mm) of aisles ~~and other means of egress~~ shall be not less than the total occupant load served by the egress element multiplied by 0.08 (2.0 mm) where egress is by ~~aisles and~~ aisle stairs and multiplied by 0.06 (1.52 mm) where egress is by level aisles and ~~ramps~~ ramped aisles, ~~corridors, tunnels or vomitories~~.

Exception: The ~~clear width~~ required capacity in inches (mm) of aisles ~~and other means of egress~~ shall be permitted to comply with Section 1028.6.2 for the number of seats in the outdoor smoke-protected assembly seating where Section 1028.6.2 permits less width.

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The question is a consistent application of the numbers used to calculate the capacity in inches for the required width for means of egress within and from assembly spaces. Currently the language for smoke protected seating (Section 1028.6.2 and 1028.6.3) is applicable for the capacity units for the entire means of egress; however, for non-smoke protected seating (Section 1028.6.1) the provisions appear to address only aisles within the seating area. When the capacity numbers in 1005.3 should be used is unclear. The purpose of this proposal is locate the numbers to determine capacity all in assembly facilities in Section 1005.3 for means of egress outside the seating bowl, and to have Section 1028 deal with aisles (level, stepped and ramped) within the seating areas. This will also reinforce that in order to take advantage of the lower capacity unit numbers, not only the seating area, but the means of egress route out of the building must be smoke-protected or open to the outdoors so there is limited accumulation of smoke. This would be consistent with the definition of smoke-protected seating:

SMOKE-PROTECTED ASSEMBLY SEATING. Seating served by *means of egress* that is not subject to smoke accumulation within or under a structure.

The intent is to continue to allow for facilities that provide smoke-protection for the seating bowl and the means of egress to continue to use the lower capacity numbers for determining required egress width; without adversely affecting assembly spaces that do not have smoke-protection.

Problems with the current text is that with the mix of requirements in 1028 for aisles and general means of egress for smoke protected seating, it has been interpreted that the higher capacity numbers should be used for the entire means of egress for non-smoke protected seating. A request for a formal code interpretation on this issue ended up in a deadlock.

For example:

Given a church with a balcony. The aisle stairs have a capacity unit of 0.3 (1028.6.1). Can the stairways from the balcony use the capacity unit of 0.2 (1005.3.1 Exception)? The difference could increase the minimum stairway width for stairways starting with balcony seating of 292 instead of 440.

44”/0.3 = 146 x 2 stairs = 292 occupants
44”/0.2 = 220 x 2 stairs = 440 occupants

Another example:

Consider if an assembly space exits into a multi-use building, such as a lecture hall in a college classroom building. The occupants of the lecture hall use the building stairways to egress the floor. Should the capacity numbers for the stairways be 0.2 for everyone; 0.3 for occupants form the lecture hall but 0.2 for everyone else; or 0.3 for everyone? If the last approach is chosen, one lecture hall in a university classroom/office building could have a significant impact on the stairway width for the entire building.

BCAC has code changes in dealing with aisles in 1005, 1009, 1017 and 1028 as well as a transition between aisle stairs and stairways. The intent is for all four proposals to correlate; however this change can stand by itself.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: Approved as Modified

Modify proposal as follows:

1028.6.1 (IFC [B] 1028.6.1) Without smoke protection. *(no change to main paragraph)*

1. through 3. *(no change)*
4. Ramped aisles ~~means of egress~~, where slopes are steeper than one unit vertical in 12 units horizontal (8-percent slope), shall have at least 0.22 inch (5.6 mm) of clear aisle width for each occupant served. Level or ramped aisles ~~means of egress~~, where slopes are not steeper than one unit vertical in 12 units horizontal (8-percent slope), shall have at least 0.20 inch (5.1 mm) of clear aisle width for each occupant served.

Committee Reason: Section 1028.6.1 Item 4 was inadvertently left out of the proposal. The modification is to add the item and propose language consistent with the rest of the proposal. Relocating the technical criteria for determining capacity for elements located outside of the seating area for smoke protected seating to Section 1005 will help clarify what capacity numbers are applicable for the sizing the exit access and exits outside of the seating bowl as addressed in Section 1028. This separation will be a benefit for both non-smoke protected and smoke protected seating.

Assembly Action: None

Final Hearing Results

E20-12 **AM**

Code Change No: E29-12

Original Proposal

Section(s): 1006.2 (IFC [B] 1006.2)

Proponent: Gene Boecker, AIA, Code Consultants, Inc, representing self (geneb@codeconsultants.com)

Revise as follows:

1006.2 (IFC [B] 1006.2) Illumination level. The means of egress illumination level shall not be less than 1 footcandle (11 lux) at the walking surface.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances ~~to not less than 0.2 footcandle (2.15 lux),~~ by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' fire alarm system.

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux),
2. Steps, landings and the sides of ramps shall be permitted to be marked in accordance with Sections 1024.2.1, 1024.2.2 and 1024.2.4 by systems listed in accordance with UL 1994.

Reason: The exception is divided into two parts. The first is a relocation of the existing text of the exception. The second part adds the allowance for use of the self-luminous marking system already in the code in Section 1024. Because the illumination levels within an auditorium may not be brought up to sufficiently high levels between performances to charge the photoluminescent markings, only internally illuminated systems are addressed. The light levels produced would be the same as those required for the emergency egress identification provided by the markings in Section 1024. Handrail marking is not included in this proposal because it was not a part of the external illumination concept previously and because it would be distracting to individuals seated at essentially the same eye level as the handrails.

The UL standard is already included in the code. It recognizes internal illumination as one means of achieving the illumination levels desired and provides a method for assuring reliability.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1006.2 (IFC [B] 1006.2) Illumination level. The means of egress illumination level shall not be less than 1 footcandle (11 lux) at the walking surface.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' fire alarm system.

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux),
2. Steps, landings and the sides of ramps shall be permitted to be marked with self-luminous materials in accordance with Sections 1024.2.1, 1024.2.2 and 1024.2.4 by systems listed in accordance with UL 1994.

Committee Reason: The purpose of the modification is to clarify that Option 2 is limited to the types of stripes that luminess without having to charge with an external lighting source. The two options would allow for design options for lighting the walking surfaces in theaters while also considering energy efficiency and reliability/maintenance issues. The committee did express a concern for obstructions located along the path of travel within the seating area which may also need to be marked in some manner.

Assembly Action: **None**

Final Hearing Results

E29-12 **AM**

Code Change No: E33-12

Original Proposal

Section(s): 1006.2.1 (New), 1006.3.1 [IFC [B] 1006.2.1(New), 1006.3.1]

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Revise as follows:

1006.2.1 (IFC [B] 1006.2.1) Exit discharge. In Group I-2 occupancies, at the exit discharge, exterior landings as required by Section 1008.1.6 for *exit discharge* doorways in buildings required to have two or more *exits*, failure of any single lighting unit shall not reduce the illumination level to less than 1 foot-candles (11 lux).

1006.3.1 (IFC [B] 1006.3.1) Illumination level under emergency power. Emergency lighting facilities shall be arranged to provide initial illumination that is at least an average of 1 foot-candle (11 lux) and a minimum at any point of 0.1 foot-candle (1 lux) measured along the path of egress at floor level. Illumination levels shall be permitted to decline to 0.6 foot-candle (6 lux) average and a minimum at any point of 0.06 foot-candle (0.6 lux) at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded. In Group I-2 occupancies, failure of any single lighting unit shall not reduce the illumination level to less than 0.2 foot-candles (2.2 lux).

Reason: The intent of new Section 1006.2.1 is to assure that the failure of a single lighting unit will not comprise the minimum lighting levels needed to safely egress during exit discharge.

The revision in Section 1006.3.1 is to assure performance of the lighting system during an emergency. The requirement creates a level of redundancy needed to assure lighting levels.

The limitation to Group I-2 is due to the scope of the Adhoc Health committee. There are no reasons why this would not be a good change for a majority of occupancies.

This proposal is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx .

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The requirement for two lights at the exit discharge will provide for redundancy at this important transition area. While this requirement is currently in NFPA 70, the committee had some concerns of the term in NFPA being 'lighting element' and this proposal requiring 'lighting unit.'

Assembly Action: **None**

Final Hearing Results

E33-12 **AS**

Code Change No: E34-12

Original Proposal

Section(s): 1006.3 (IFC [B] 1006.3)

Proponent: Gene Boecker, Code Consultants, Inc., representing self (geneb@codeconsultants.com); Maureen Traxler, City of Seattle Department of Planning and Development, representing City of Seattle Department of Planning and Development (maureen.traxler@seattle.gov)

Revise as follows:

1006.3 (IFC [B] 1006.3) Emergency power for illumination. The power supply for means of egress illumination shall normally be provided by the premises' electrical supply.

1006.3.1 (IFC [B] 1006.3.1) Rooms and spaces. In the event of power supply failure, in rooms and spaces that require two or more means of egress an emergency electrical system shall automatically illuminate all of the following areas:

1. Aisles ~~and unenclosed egress stairways in rooms and spaces that require two or more means of egress~~.
2. Corridors~~, interior exit stairways and ramps and exit passageways in buildings required to have two or more exits~~.
3. Exit access stairways and ramps

1006.3.2 (IFC [B] 1006.3.2) Buildings. In the event of power supply failure, in buildings that require two or more means of egress, an emergency electrical system shall automatically illuminate all of the following areas:

1. Interior exit access stairways and ramps
2. Interior and exterior exit stairways and ramps
3. Exit passageways
3. ~~Exterior egress components at other than their levels of exit discharge until exit discharge is accomplished for buildings required to have two or more exits.~~
4. ~~Interior exit discharge elements~~ Vestibules and areas on the level of discharge used for exit discharge in accordance with~~, as permitted in~~ Section 1027.1, ~~in buildings required to have two or more exits~~.
5. Exterior landings as required by Section 1008.1.6 for exit ~~discharge~~ doorways that lead directly to the exit discharge ~~in buildings required to have two or more exits~~.

1006.3.3 (IFC [B] 1006.3.3) Duration. The emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Section 2702.

~~1006.3.1~~ 1006.3.4 (IFC [B] ~~1006.3.1~~ 1006.3.4) Illumination level under emergency power. *(no change)*

Reason: This proposal corrects a small glitch in the 2012 code, and is otherwise editorial. The glitch is that a space for which two means of egress are required might not have an aisle or corridors, for example a gymnasium or horse practice arena. Therefore, Section 1006.3 would not require emergency lighting. The provision that requires emergency lighting when two or more exits are required is moved out of the list so that all such spaces will have emergency lighting. In addition, the proposal updates the terminology used for stairways and ramps.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1006.1 (IFC [B] 1006.1) Means of egress illumination. Illumination shall be provided in the means of egress in accordance with Section 1006.2. Under emergency power, means of egress illumination shall comply with Section 1006.3.

~~**1006.1 (IFC [B] 1006.1)**~~ **1006.2 (IFC [B] 1006.2) Illumination required.** The *means of egress serving a room or space*~~, including the *exit discharge*~~, shall be illuminated at all times that the room or space ~~building space served by the *means of egress*~~ is occupied.

Exceptions:

1. Occupancies in Group U.
2. *Aisle accessways* in Group A.
3. *Dwelling units* and *sleeping units* in Groups R-1, R-2 and R-3.
4. *Sleeping units* of Group I occupancies.

~~**1006.2 (IFC [B] 1006.2)**~~ **1006.2.1 (IFC [B] 1006.2.1) Illumination level under normal power.** *(no change to text)*

Committee Reason: The modification is to put all of Section 1006 into a format consistent with the proposal for emergency egress lighting (Section 1006.3). This will help clarify and separate the requirements for egress lighting during typical lighting situations vs. egress lighting during emergencies when the building has lost normal power. The reformatting of Section 1006.3 for emergency means of egress lighting claries when the provisions are applicable and updates the terminology.

Assembly Action: **None**

Final Hearing Results

E34-12 **AM**

Code Change No: E35-12

Original Proposal

Section(s): 1006.3 (IFC [B] 1006.3)

Proponent: Wesley Walters (hww@clarkcountynv.gov)

Revise as follows:

1006.3 (IFC [B] 1006.3) Illumination emergency power. The power supply for *means of egress* illumination shall normally be provided by the premises' electrical supply.

In the event of power supply failure, an emergency electrical system shall automatically illuminate all of the following areas:

1. *Aisles* and unenclosed egress *stairways* in rooms and spaces that require two or more *means of egress*.
2. *Corridors*, *exit enclosures* and *exit passageways* in buildings required to have two or more *exits*.
3. Exterior egress components at other than their *levels of exit discharge* until *exit discharge* is accomplished for buildings required to have two or more *exits*.
4. Interior *exit discharge* elements, as permitted in Section 1027.1, in buildings required to have two or more *exits*.
5. Exterior landings as required by Section 1008.1.6 for *exit discharge* doorways in buildings required to have two or more *exits*.
6. Electrical equipment rooms, fire command centers, fire pump rooms and generator rooms.
7. Public restrooms with an area greater than 300 square feet (27.87 m^2).

Reason: The new exception 6 - In the event of an emergency and the lighting is lost you need to track down the problem and maintain emergency equipment. The expansion of areas to include the emergency equipment provides a higher level of safety for those trying to resolve problems with the system failure.

The new exception 7 - large bathrooms are designed without natural light yet may have many doors (stalls), twists and turns that leave groups of people in a compromised situation with no ability to determine how to get out in an emergency.

Cost Impact: The code change proposal will increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: When the building has lost power and moved to emergency lighting, these areas have unique needs for lighting. Item 6 will provide minimal illumination in areas where emergency responders of service personnel may be working to get the building back up and running. There is a concern that 'electrical equipment rooms' may be interpreted to include electrical closets. People that may be in public restrooms at the time of power failure may need the extra lighting to prepare themselves for evacuation.

Assembly Action: **None**

Final Hearing Results

E35-12 **AS**

Code Change No: E36-12

Original Proposal

Section(s): 1007.1 (IFC [B] 1007.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1007.1 (IFC [B] 1007.1) Accessible means of egress required. *Accessible means of egress* shall comply with this section. *Accessible* spaces shall be provided with not less than one *accessible means of egress*. Where more than one *means of egress* are required by Section 1015.1 or 1021.1 from any *accessible* space, each *accessible* portion of the space shall be served by not less than two *accessible means of egress*.

Exceptions:

1. *Accessible means of egress* are not required to be provided in ~~alterations to~~ existing buildings.
2. One *accessible means of egress* is required from an *accessible mezzanine* level in accordance with Section 1007.3, 1007.4 or 1007.5.
3. In assembly areas with sloped or stepped *aisles*, one *accessible means of egress* is permitted where the common path of travel is *accessible* and meets the requirements in Section 1028.8.

Reason: The intent is to revise Section 1007.1 for consistency with the language in IBC 3411.6,and IEBC 410.6 and 705.

1. The language in these three sections reads as follows:
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities*.

The text in 1007.1 could be read to require accessible means of egress in existing buildings undergoing a change or occupancy. While there may be situations where accessible means of egress should be provided in existing buildings, this must be addressed separately. It was not the intent of the provisions in the four sections in the IBC and IEBC to have different requirements.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposed revision will add consistency for accessible means of egress in existing buildings throughout the codes.

Assembly Action: **None**

Final Hearing Results

E36-12 **AS**

Code Change No: E38-12

Original Proposal

Section(s): 1007.3 (IFC [B] 1007.3)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1007.3 (IFC [B] 1007.3) Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between stories shall have a clear width of 48 inches (1219 mm) minimum between *handrails* and shall either incorporate an *area of refuge* within an enlarged floor-level landing or shall be accessed from either an *area of refuge* complying with Section 1007.6 or a *horizontal exit*. *Exit access stairways* that connect levels in the same story are not permitted as part of an *accessible means of egress*.

Exceptions:

1. Areas of refuge are not required at exit access stairways where a two-way communication is provided at the elevator landing in accordance with Section 1007.8.
2. ~~1.~~ The clear width of 48 inches (1219 mm) between *handrails* is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. ~~2.~~ *Areas of refuge* are not required at *stairways* in buildings equipped throughout by an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
4. ~~3.~~ The clear width of 48 inches (1219 mm) between *handrails* is not required for *stairways* accessed from a *horizontal exit*.
5. ~~4.~~ *Areas of refuge* are not required at *stairways* serving *open parking garages*.
6. ~~5.~~ *Areas of refuge* are not required for smoke protected seating areas complying with Section 1028.6.2.
7. ~~6.~~ The *areas of refuge* are not required in Group R-2 occupancies.

Reason: In an unsprinklered building with unenclosed exit access stairways permitted between stories an area of refuge is require to serve the stairway, which will result in a closet type area of refuge at the top of the stairway with two-way communication inside. At this location, the area of refuge would not be connected to a stairway enclosure, and there is a real chance that it will end up being used as a closet. From a technical point of view, where do you put this area of refuge in relation to the open exit access stairway and how close does it have to be to the open stairway? Does the stair have to be enclosed because of the connection requirements in 1007.3? Since the two-way communication is now required at the elevator lobby it would be more logical to allow the occupants with mobility impairments to move to the elevator landing and use that communication device and move them away from the open stairway.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Open exit access stairways between stories do not have a logical place to put an area of refuge. In these limited situations sending people to a two way communication system in a more readily visible and much more likely to be not be blocked area provides for an increased level of safety.

Assembly Action: **None**

Final Hearing Results

E38-12	**AS**

Code Change No: E39-12

Original Proposal

Section(s): 1007.3, 1007.4 (IFC [B] 1007.3, 1007.4)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1007.3 (IFC [B] 1007.3) Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between stories shall have a clear width of 48 inches (1219 mm) minimum between *handrails* and shall either incorporate an *area of refuge* within an enlarged floor-level landing or shall be accessed from ~~either~~ an *area of refuge* complying with Section 1007.6 ~~or a *horizontal exit*~~. *Exit access stairways* that connect levels in the same story are not permitted as part of an *accessible means of egress*.

Exceptions:

1. The clear width of 48 inches (1219 mm) between *handrails* is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. *Areas of refuge* are not required at *stairways* in buildings equipped throughout by an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. The clear width of 48 inches (1219 mm) between *handrails* is not required for *stairways* ~~accessed from a *horizontal exit*~~ from a refuge area in conjunction with a horizontal exit.
4. *Areas of refuge* are not required at *stairways* serving *open parking garages*.
5. *Areas of refuge* are not required for smoke protected seating areas complying with Section 1028.6.2.
6. ~~The~~ *Areas of refuge* are not required at stairways in Group R-2 occupancies.
7. *Areas of refuge* are not required at *stairways* in *Group I-3 facilities*.
8. Areas of refuge are not required for stairways accessed from a refuge area in conjunction with a horizontal exit.

1007.4 (IFC [B] 1007.4) Elevators. In order to be considered part of an *accessible means of egress*, an elevator shall comply with the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1. Standby power shall be provided in accordance with Chapter 27 and Section 3003. The elevator shall be accessed from either an *area of refuge* complying with Section 1007.6 or a *horizontal exit*.

Exceptions:

1. ~~Elevators are not required to be accessed from an *area*~~ *Areas of refuge* ~~or *horizontal exit*~~ *are not required at the elevator* in *open parking garages*.
2. *Areas of refuge* are not required at elevators in *Group I-3 facilities*.
3. ~~2.~~ ~~Elevators are not required to be accessed from an *area*~~ *Areas of refuge* ~~or *horizontal exit*~~ ~~in~~ are not required in buildings and facilities equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
4. ~~3.~~ Areas of refuge are not required at Elevators not required to be located in a shaft in accordance with Section 712 ~~are not required to be accessed from an *area of refuge* or *horizontal exit*~~.

5~~4.~~ Areas of refuge are not required at Elevators ~~are not required to be accessed from an *area of refuge* or *horizontal exit* for~~ serving smoke protected seating areas complying with Section 1028.6.2.

6. Areas of refuge are not required for elevators accessed from a refuge area in conjunction with a horizontal exit.

Reason: This proposal is for the most part editorial and makes the language in the exceptions consistent. There is with one new items added and one relocation for added clarity.

"Areas of refuge are not required at stairways/elevators in Group I-3 facilities" is a new exception to coordinate with the DOJ 2010 ADA Standards for Accessible Design. The Department of Justice (ADA 207.2 Exception 2) had concerns that areas of refuge could pose security risks in correctional facilities due to their enclosed nature, and a building designer has the option of locating a facility's accessible spaces such that an elevator need never be used as part of an accessible means of egress.

" Areas of refuge are not required for stairways/elevators accessed from a refuge area in conjunction with a horizontal exit" clarifies that a redundant area of refuge is not needed immediately adjacent to the elevator where a refuge area and horizontal exit to the elevator are provided.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The language in the most part is editorial and clarifies and coordinates the exceptions in 1007.3 and 1007.4. Moving 'horizontal exits' from the main body into an exception helps identify the compartment formed by the horizontal exit as an alternative for smoke protection offered by and area of refuge. However, the committee wanted some additional information on why it was appropriate to not require areas of refuge in Group I-3 since the residents are not capable of self preservation.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldasarra, Code Technologies Committee – Open stairway study group, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1007.3 (IFC [B] 1007.3) Stairways. In order to be considered part of an *accessible means of egress*, a *stairway* between stories shall have a clear width of 48 inches (1219 mm) minimum between *handrails* and shall either incorporate an *area of refuge* within an enlarged floor-level landing or shall be accessed from either an *area of refuge* complying with Section 1007.6 or a *horizontal exit*. *Exit access stairways* that connect levels in the same story are not permitted as part of an *accessible means of egress*.

Exceptions:

1. The clear width of 48 inches (1219 mm) between *handrails* is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. *Areas of refuge* are not required at *stairways* in buildings equipped throughout by an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. The clear width of 48 inches (1219 mm) between *handrails* is not required for *stairways* from a refuge area in conjunction with a horizontal exit.
4. *Areas of refuge* are not required at *stairways* serving *open parking garages*.
5. *Areas of refuge* are not required for smoke protected seating areas complying with Section 1028.6.2.
6. The *Areas of refuge* are not required at stairways in Group R-2 occupancies.

~~7. *Areas of refuge* are not required at *stairways* in *Group I-3 facilities*.~~

7.~~8.~~ Areas of refuge are not required for stairways accessed from a refuge area in conjunction with a horizontal exit.

1007.4 (IFC [B] 1007.4) Elevators. In order to be considered part of an *accessible means of egress*, an elevator shall comply with the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1. Standby power shall be provided in

accordance with Chapter 27 and Section 3003. The elevator shall be accessed from either an *area of refuge* complying with Section 1007.6 or a *horizontal exit*.

Exceptions:

1. *Areas of refuge are not required at the elevator* in *open parking garages*.
2. ~~*Areas of refuge are not required at elevators in Group I-3 facilities.*~~
3. ~~3.~~2. *Areas of refuge* are not required in buildings and facilities equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
4. ~~4.~~3. Areas of refuge are not required at Elevators not required to be located in a shaft in accordance with Section 712.
5. ~~5.~~4. Areas of refuge are not required at Elevators serving smoke protected seating areas complying with Section 1028.6.2.
6. ~~6.~~5. Areas of refuge are not required for elevators accessed from a refuge area in conjunction with a horizontal exit.

Commenter's Reason: E39 was denied by the Means of Egress Committee based on a question that was asked by a committee member regarding providing the exemption to exempt the area of refuge requirement for group I-3 occupancies; specifically, the committee member questioned the addition of exception #7 to 1007. Unfortunately our work group representatives were not at the microphone when the question was raised so we failed to provide a response to the question. The proposals text regarding horizontal exits and elevators was not questioned or challenged by floor testimony or committee deliberations.

Exception #7 to 1007 was added for consistency with the ADA 207.2 exception 2, which exempts group I-3 (detention) occupancies from area of refuge requirements do to security concerns. Furthermore, the life safety concerns are already addressed by the increase fire protection features and constant supervision that is provided in group I-3 facilities. Per the 2012 edition of the IBC group I-3 occupancies are already exempted from area of refuge requirements per current exemption # 2 to 1007, which exempts buildings that are sprinkled per 903.3.1.1. IBC section 903.2.3 requires group I occupancies to be sprinkled per 903.3.1.1. It is a valid argument that proposed exception #7 to 1007 is redundant therefore not needed; therefore our public comment proposes to delete exception #7 from the code change. The proposals text regarding horizontal exits and elevators is unaffected by this public comment.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "IBC Coordination with the new ADAAG". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website http://www.iccsafe.org/cs/CTC/Pages/IBCCoordination-ADAAG.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

E39-12 **AMPC**

Code Change No: E41-12

Original Proposal

Section(s): 1007.5 (IFC [B] 1007.5)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1007.5 (IFC [B] 1007.5) Platform lifts. Platform ~~(wheelchair)~~ lifts shall ~~not~~ be permitted to serve as part of an accessible means of egress~~, except~~ where allowed as part of a required accessible route in Section 1109.8~~, Items 1 through 9~~ except for Item 10. Standby power for the platform lift shall be provided in accordance with Chapter 27 ~~for platform lifts permitted to serve as part of a means of egress~~.

Reason: This is an editorial cleanup of this existing requirement. With the current language people often interpret Item "1 through 9" as a typo instead of not allowing #10. The reason to change "items 1 through 9 [excepting 10]" to specifically exempting Item 10 is to clarify that it is not appropriate to permit a platform lift installed due to exterior site constraints to serve as assessable means of egress. Whereas Items 1 through 9 in Section 1109.8 address very small spaces with minimal occupant loads, Item 10 would permit a platform lift to serve as an accessible route into a health care facility, senior apartment building, assisted loving project, and other occupancies that may hold dozens of persons who need an accessible means of egress from the facility. The slow speed and long cycling time of a platform lift would make its use as an accessible means of egress for more than a few persons impracticable in an emergency.

The remaining changes are editorial cleanup. (ADA 207.2)

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal clarifies that a specific allowance for using platform lifts (1109.8 Item 10) for access into a building is not permitted as part of the accessible means of egress.

Assembly Action: **None**

Final Hearing Results

E41-12 **AS**

Code Change No: E43-12

Original Proposal

Section(s): 1007.5.1 (IFC [B] 1007.5.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Delete without substitution:

~~**1007.5.1 (IFC [B] 1007.5.1) Openness.** Platform lifts on an accessible means of egress shall not be installed in a fully enclosed hoistway.~~

Reason: The intent of this proposal is to delete this requirement for platform lifts that serve as part of the accessible means of egress. The platform lift safety standard, ASME A18.1, has been revised to allow for platform lifts to penetrate a floor. Vertical openings are required in the IBC to be protected in accordance with Section 712. Platform lifts permitted as part of the accessible route into as space are addressed in ADA 207.2 and IBC 1109.8. While most are for a change in elevation that would not penetrate a floor, some provisions, such as non-public areas with 5 or fewer occupants, may involve a floor penetration.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Deletion of this requirement is a coordination with ASME A18.1 allowances for platform lifts to penetrate a floor assembly.

Assembly Action: **None**

Final Hearing Results

E43-12 **AS**

Code Change No: E45-12

Original Proposal

Section(s): 1007.6, 1007.6.2 (IFC [B] 1007.6, 1007.6.2)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1007.6 (IFC [B] 1007.6) Areas of refuge. Every required area of refuge shall be accessible from the space it serves by an accessible means of egress.

1007.6.1 (IFC [B] 1007.6.1) Travel distance. The maximum travel distance from any accessible space to an area of refuge shall not exceed the travel distance permitted for the occupancy in accordance with Section 1016.1.

1007.6.2 (IFC [B] 1007.6.2) Stairway or elevator access. Every required area of refuge shall have direct access to a stairway ~~within an exit enclosure~~ complying with Sections 1007.3 and 1022 or an elevator complying with Section 1007.4. ~~Where an elevator lobby is used as an area of refuge , the shaft and lobby shall comply with Section 1022.9 for smokeproof enclosures except where the elevators are in an area of refuge formed by a horizontal exit or smoke barrier.~~

~~1007.6.1~~ 1007.6.3 (IFC [B] ~~1007.6.1~~ 1007.6.3) Size. *(no change)*

~~1007.6.2~~ 1007.6.4 (IFC [B] ~~1007.6.2~~ 1007.6.4) Separation. Each *area of refuge* shall be separated from the remainder of the story by a *smoke barrier* complying with Section 709 or a *horizontal exit* complying with Section 1025. Each *area of refuge* shall be designed to minimize the intrusion of smoke.

> **Exception:** *Areas of refuge* located within an enclosure for *exit access stairways* or *interior exit stairways* *complying with Section 1009.3 or Section 1022*.

~~1007.6.3~~ 1007.6.5 (IFC [B] ~~1007.6.3~~ 1007.6.5) Two-way communication. *(no change)*

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- Review the need for elevator lobbies**,** with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- Review related code provisions, such as egress from and through elevator lobbies.
- Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.

- Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study**,** 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

This proposal is intended to correlate the area of refuge elevator lobby requirements with other related elevator lobby requirements. This section currently requires that when an enclosed elevator lobby is used as an area of refuge that the lobby and the hoistway be protected as a smokeproof enclosure. Reference to the smoke proof enclosure requirements seemed inappropriate as they are focused upon stairs and would not be practical to apply to elevator lobbies. For instance it is unclear if an enclosed elevator lobby would be required to have a vestibule. Also if the pressurization option is chosen the criteria and requirements are focused upon stairs not elevator hoistway pressurization. The solution was to simply rely on the separation required for areas of refuge in general as that was the original intent of the requirement.

See discussion on CTC elevator lobby proposal coordination in code changes to Section 713.14.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The separation of the requirements in the section provides for better flow and understanding.

Assembly Action: **None**

Final Hearing Results

E45-12 **AS**

Code Change No: E46-12

Original Proposal

Section(s): 1007.2, 1007.6.2, 1007.7, 1007.7.1, 1007.7.2 (IFC [B] 1007.2, 1007.6.2, 1007.7, 1007.7.1, 1007.7.2)

Proponent: Ron Clements, Chesterfield County Building Inspection Department representing self (clementsro@chesterfield.gov)

Revise as follows:

1007.2 (IFC [B] 1007.2) Continuity and components. Each required accessible means of egress shall be continuous to a public way and shall consist of one or more of the following components:

1. Accessible routes complying with Section 1104.
2. Interior exit stairways complying with Sections 1007.3 and 1022.
3. Interior exit access stairways complying with section s 10007.3 and 1009.3.
4. Exterior exit stairways complying with Sections 1007.3 and 1026 and serving levels other than the level of exit discharge.
5. Elevators complying with Section 1007.4.
6. Platform lifts complying with Section 1007.5.
7. Horizontal exits complying with Section 1025.
8. Ramps complying with Section 1010.
9. Areas of refuge complying with Section 1007.6.
10. Exterior area for assisted rescue complying with Section 1007.7 serving exits at the level of exit discharge.

1007.6.2 (IFC [B] 1007.6.2) Separation. Each *area of refuge* shall be separated from the remainder of the story by a *smoke barrier* complying with section 710 or a *horizontal exit* complying with Section 1025. Each *area of refuge* shall be designed to minimize the intrusion of smoke.

Exceptions:

1. *Areas of refuge* located within *an exit enclosure for exit access stairways or interior exit stairways*.
2. *Areas of refuge* in outdoor facilities where exit access is essentially open to the outside.

1007.6.3 (IFC [B] 1007.6.3) Two-way communication. *(no change)*

1007.7 (IFC [B] 1007.7) Exterior area for assisted rescue. Exterior areas for assisted rescue shall be accessed by an accessible route from the area served. ~~Exterior areas for assisted rescue shall be permitted in accordance with section 1007.7.1 or 1007.7.2.~~

~~**1007.7.1 (IFC [B] 1007.7.1) Level of exit discharge.**~~ Where the exit discharge does not include an accessible route from an exit located on the level of exit discharge to a public way, an exterior area of assisted rescue shall be provided on the exterior landing in accordance with section 1007.7.3 through ~~1007.7.6~~ 1007.7.4.

~~**1007.7.2 (IFC [B] 1007.7.2) Outdoor facilities.** Where exit access from the area serving outdoor facilities is essentially open to the outside, an exterior area of assisted rescue is permitted as an alternative to an area of refuge. Every required exterior area of assisted rescue shall have direct access to an interior exit stairway, exterior stairway, or elevator serving as an accessible means of egress component. The exterior area of assisted rescue shall comply with sections 1007.7.3 through 1007.7.6 and shall be provided with a two-way communication system complying with sections 107.8.1 and 1007.8.2.~~

~~1007.7.3~~ 1007.7.1 (IFC [B] ~~1007.7.3~~ 1007.7.1)Size. *(No change to current text)*

~~1007.7.4~~ 1007.7.2 (IFC [B] ~~1007.7.4~~ 1007.7.2) Separation. *(No change to current text)*

~~1007.7.5~~ 1007.7.3 (IFC [B] ~~1007.7.5~~ 1007.7.3) Openness. *(No change to current text)*

~~1007.7.6~~ 1007.7.4 (IFC [B] ~~1007.7.6~~ 1007.7.4) Stairway. *(No change to current text)*

Reason: The purpose of this code change is to simplify the requirements for exterior area of assisted rescue and return the concept back to its original purpose as an exit discharge component. This code change also addresses outdoor facilities with regards to area of refuge and exterior area of assisted rescue requirements that were introduced into the code by code change E38-09/10. The result of code change E38-09/10 is to allow what is essentially an area of refuge to be designed with the omission of the smoke rated enclosure around the area of refuge when the area of refuge is located in a structure that is open to the outdoor air by calling it an exterior area of assisted rescue. The problem is that the exterior area for assisted rescue is a specialized accessible means of egress component that was created as an element of a grade level exit discharge, exterior of the building on the outside of the exterior wall, and it is to awkward to attempt to use the exterior area for assisted rescue section as the method to accomplish the goal of E38-09/10. That is why it took so many modifications throughout section 1007.7 to accomplish.

Another problem is that 1007.7.2 is addressing an outdoor facility where the exterior area of assisted rescue will likely be within the building perimeter and the building may not have exterior walls or even a roof. That condition raises the question of how to comply with section 1007.7.4.2 for separation. Is the intent to provide a 1 hour rated “exterior wall” within the building perimeter that may not even have a roof at which to terminate? This is further confused when the requirements for openness in 1007.7.5 are added to the question. It appears that though section 1007.7.4 for separation is referenced by 1007.7.2 as applicable, 1007.7.4 Separation is not applicable and no rating is required since there is no exterior wall to provide a separation, and since the building is open the separation is not needed.

Since the net result of the E38-09/10 change is to keep all of the aspects of an area of refuge accept the separation requirement it is cleaner and simpler to accomplish that goal with a single exception to 1007.6.1 Separation. The following are explanations for each specific change:

1007.2 item #10- “serving exits at the level of exit discharge” was added to clarify that exterior area of assisted rescue is a level of exit discharge component. Note that item or component #4 for exterior exit stairways already states that exterior exit stairs serve “levels other than the level of exit discharge”.

1007.6.2 Exception #1 and #2- The current exception was numbered one and new exception #2 was added. This new exception allows the area of refuge to be exempted from the rated separation requirements as is intended with the current 2012 code text approved through E38-09/10.

1007.7 and 1007.7.1- The language from section 1007.7.1 that addresses exterior areas of assisted rescue on the level of exit discharge has been moved up to the parent section 1007.7 since the result of this code change is that exterior areas of assisted rescue will only serve the level of exit discharge. Sub-sections 1007.7.1 and 1007.7.2 are proposed to be deleted without replacement.

1007.7.2-The provisions of section 1007.7.2 are addressed in the areas of refuge section 1007.6 with the addition of the exception proposed for 1007.6.2. The requirements and allowances of the first sentence of section 1007.7.2 are accomplished with the addition of exception #2 proposed for 1007.6.2 for areas of refuge. The requirements and allowances of the second sentence of section 1007.7.2 is accomplished with existing text in section 1007.6 for areas of refuge. The requirements of the third sentence of section 1007.7.2 are accomplished with the current provisions for area of refuge with the separation exception, which includes the size of the area and the two way communication. The stairway provisions including exception for sprinkler in 1007.7.6 are provided by the stairway requirements that exist in section 1007.3.

Cost Impact: This is strictly an editorial change with no alteration of code requirements therefore this change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The revision takes the code back to the understanding that exterior areas for assisted rescue are limited to the exits at the level of exit discharge, not anywhere open to the exterior. The current text for exterior areas for assisted rescue on levels other than the level of exit discharge has a problem with the separation requirements. Outdoor facilities are already protected from the accumulation of smoke and fumes by the nature of their construction.

Assembly Action: **None**

Final Hearing Results

E46-12 **AS**

Code Change No: E48-12

Original Proposal

Section(s): 1007.8 (IFC [B] 1007.8)

Proponent: Steve Pfeiffer representing City of Seattle, Dept of Planning & Development (steve.pfeiffer@seattle.gov)

Revise as follows:

1007.8 (IFC [B] 1007.8) Two-way communication. A two-way communication system complying with Sections 1007.8.1 and 1007.8.2 shall be provided at the landing serving each elevator ~~landing~~ or bank of elevators on each *accessible* floor that is one or more stories above or below the *story* of *exit discharge.* ~~complying with Sections 1007.8.1 and 1007.8.2.~~

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator ~~landing~~ or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1007.6.3.
2. Two-way communication systems are not required on floors provided with *exit ramps* conforming to the provisions of Section 1010.

Reason: The purpose of this change is to clarify which elevator landings are required to have a two-way communication system where there are multiple elevators or banks of elevators on an accessible floor. The current language is clear where there is only one elevator, but if there are multiple elevators, it's unclear whether communication is required at one elevator, each elevator, or whether a communication device serving a bank of elevators would suffice. This change would require a single two-way communication at the landing for each single elevator or each bank of elevators on the floor. References to Sections 1007.8.1 and 1007.8.2 are also relocated as to more clearly apply to the communication system rather than the story of exit discharge.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This revision will clarify that only a single two-way communication system is required at a group of elevators. However, there is a question if this language would now require two-way communication at the back-of-house service elevators, including freight elevators.

Assembly Action: **None**

Public Comments

Public Comment:

Gene Boecker, AIA, representing Code Consultants, Inc (CCI), and Rick Lupton, Dept. of Planning & Development representing City of Seattle, WA, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1007.8 (IFC [B] 1007.8) Two-way communication. A two-way communication system complying with Sections 1007.8.1 and 1007.8.2 shall be provided at the landing serving each elevator or bank of elevators on each *accessible* floor that is one or more stories above or below the *story* of *exit discharge*.

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator landing or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1007.6.3.
2. Two-way communication systems are not required on floors provided with *exit ramps* conforming to the provisions of Section 1010.
3. Two-way communications systems are not required at the landings serving only service elevators that are not designated as part of the accessible means of egress or serve as part of the required accessible route into a facility.
4. Two-way communications systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.

Commenter's Reason: The committee expressed concern that the language as written could be confusing relative to whether or not "every" elevator meant back-of-house elevators. The added two exceptions clarifies the original intent that service and fright elevators are not included. Exception #3 was worded in such a way that a service elevator would require the two-way communications system if it was the designated accessible means of egress off the floor or the required accessible route onto the floor. Freight elevators are not intended for passenger use and should not be required to have two-way communications system. Private residence elevators can only be used within individual dwelling units and the two-way communication system would not be practical.

Final Hearing Results

E48-12 **AMPC**

Code Change No: E51-12

Original Proposal

Section(s): 1008.1.1 (IFC [B] 1008.1.1)

Proponent: David R. Scott, AIA, representing Target Corporation (David.Scott@Target.com)

Revise as follows:

1008.1.1 (IFC [B] 1008.1.1) Size of doors. The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 411/2 inches (1054 mm). The height of door openings shall not be less than 80 inches (2032 mm).

Exceptions:

1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in Group R-2 and R-3 occupancies.
2. Door openings to resident sleeping units in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93 m2) in area shall not be limited by the minimum width.
4. Width of door leaves in revolving doors that comply with Section 1008.1.4.1 shall not be limited.
5. Door openings within a dwelling unit or sleeping unit shall not be less than 78 inches (1981 mm) in height.
6. Exterior door openings in dwelling units and sleeping units, other than the required exit door, shall not be less than 76 inches (1930 mm) in height.
7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a dwelling unit or sleeping unit that is not required to be an Accessible unit, Type A unit or Type B unit.
8. Door openings required to be accessible within Type B units shall have a minimum clear width of 31.75 inches (806 mm).
9. Doors to walk-in freezers and coolers less than 1000 square feet (93 m^2) in area shall have a maximum width of 60 inches (1524 mm).

Reason: Freezers and coolers are used by employees that are familiar with their operation. Such doors would still need to meet the door opening force of section 1008.1.3. Section 1008.1.2, exception 1 indicates that private garages, office areas, factory and storage areas with an occupant load of 10 or less do not need to be pivoting or side hinged swinging type doors. Therefore, in such areas, an overhead type sectional door could be used as the egress door. I would expect a 60” swinging type freezer door to open easier than a sectional overhead type door.

Also note that Section 1103.2.15 indicates that walk-in coolers and freezers intended for employee use only are not required to be accessible. The code commentary indicates they may have raised floors, special door seals, and unconventional door-operating hardware.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The increased door size will address safe egress and at the same time allow for equipment that moves product into the space. The side swinging doors are just as easy to operate as other options currently permitted. The limitation on the size of the space will appropriately limit the occupant load and extent of application.

Assembly Action: **None**

Final Hearing Results

E51-12 **AS**

Code Change No: E52-12

Original Proposal

Section(s): 1008.1.1 (IFC [B] 1008.1.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1008.1.1 (IFC [B] 1008.1.1) Size of doors. The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of 32 inches (813 mm). …

Exceptions:

1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in Group R-2 and R-3 occupancies.
2. Door openings to resident sleeping units in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet ($0.93m^2$) in area shall not be limited by the minimum width.
4. Width of door leaves in revolving doors that comply with Section 1008.1.4.1 shall not be limited.
5. Door openings within a dwelling unit or sleeping unit shall not be less than 78 inches (1981 mm) in height.
6. Exterior door openings in dwelling units and sleeping units, other than the required exit door, shall not be less than 76 inches (1930 mm) in height.
7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a dwelling unit or sleeping unit that is not required to be an Accessible unit, Type A unit or Type B unit.
8. Door openings required to be accessible within Type B units shall have a minimum clear width of 31 ¾ inches (806 mm).
9. In Group R-1 dwelling units or sleeping units not required to be Accessible units, the minimum width shall not apply to doors for showers or saunas.

Reason: IBC/IPC does not specify a width for sauna or shower doors at this time. Since these doors are literally means of egress, the door would have to meet a 32" clear width. The exception is consistent with ADA 224.1.2.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Shower and sauna doors within individual Group R-1 sleeping units will not prove a safety hazard during emergency evacuation. Exception 7 currently does not allow doors within Group R-1 sleeping units to be less than 32" clear width.

Assembly Action: **None**

Final Hearing Results

E52-12 **AS**

Code Change No: E54-12

Original Proposal

Section(s): 202, 1008.1.2, 1008.1.4.3 (IFC [B] 1008.1.2, 1008.1.4.3)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

Add the definition as follows:

SECTION 202
DEFINITIONS

HORIZONTAL SLIDING ACCORDION FOLDING DOOR. An accordion-folding style multiple-section track-hung moveable door assembly.

Revise as follows:

1008.1.2 (IFC [B] 1008.1.2) Door swing. Egress doors shall be of the pivoted or side-hinged swinging type.

Exceptions:

1. Private garages, office areas, factory and storage areas with an *occupant load* of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single *dwelling unit* in Groups R-2 and R-3.
5. In other than Group H occupancies, revolving doors complying with Section 1008.1.4.1.
6. In other than Group H occupancies, *horizontal sliding accordion folding doors* complying with Section 1008.1.4.3 are permitted in a *means of egress*.
7. Power-operated doors in accordance with Section 1008.1.4.2.
8. Doors serving a bathroom within an individual *sleeping unit* in Group R-1.
9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a *means of egress* from spaces with an *occupant load* of 10 or less.

Doors shall swing in the direction of egress travel where serving a room or area containing an *occupant load* of 50 or more persons or a Group H occupancy.

1008.1.4.3 (IFC [B] 1008.1.4.3) Horizontal sliding accordion folding doors. In other than Group H occupancies, *horizontal sliding accordion folding* doors permitted to be a component of a *means of egress* in accordance with Exception 6 to Section 1008.1.2 shall comply with all of the following criteria:

1. The doors shall be power operated and shall be capable of being operated manually in the event of power failure.
2. The doors shall be openable by a simple method from both sides without special knowledge or effort.
3. The force required to operate the door shall not exceed 30 pounds (133 N) to set the door in motion and 15 pounds (67 N) to close the door or open it to the minimum required width.
4. The door shall be openable with a force not to exceed 15 pounds (67 N) when a force of 250 pounds (1100 N) is applied perpendicular to the door adjacent to the operating device.

5. The door assembly shall comply with the applicable *fire protection rating* and, where rated, shall be self-closing or automatic closing by smoke detection in accordance with Section 716.5.9.3, shall be installed in accordance with NFPA 80 and shall comply with Section 716.
6. The door assembly shall have an integrated standby power supply.
7. The door assembly power supply shall be electrically supervised.
8. The door shall open to the minimum required width within 10 seconds after activation of the operating device.

Reason: This proposal is intended to clarify the IBC.

Our BHMA members are seeing code officials, specifiers, and other stakeholders questioning or attempting to apply the requirements of 1008.1.4.3 to the doors included in 1008.1.4.2. Currently, both IBC Sections 1008.1.4.2 and 1008.1.4.3 could be (incorrectly) interpreted as applying to the same types of sliding doors (power-operated horizontal sliding doors). However, the intent of the code is that these sections apply to doors of significantly different configurations.

The doors of 1008.1.4.2 are the more common power-operated doors such as the doors installed at the entrances to stores, businesses, hospitals, and the like. When a pedestrian is not present, these doors usually are in a closed position, and are powered open for passage, and then powered closed. The power operated doors included within the scope of the standards referenced in 1008.1.4.2 are rarely used where a fire-rated opening protective is required.

The doors in 1008.1.4.3 are an accordion-style folding door assembly which slides horizontally. In the opening, these doors are usually kept in an open position like many other fire-rated doors or smoke-rated doors protecting elevator lobbies, or other gathering areas. The doors in 1008.1.4.3 may travel on a track in a straight line, but may also travel on a track that has a curve or curves.

The proposed definition and text revisions are intended to not revise the technical requirements of the IBC.

Cost Impact: None

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal would eliminate design options for horizontal sliding doors. The definition could encompass room dividers. This proposal would only allow for one type of technology.

Assembly Action: **None**

Public Comments

Public Comment:

John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

SECTION 202
DEFINITIONS

~~**HORIZONTAL SLIDING ACCORDION FOLDING DOOR.** An accordion-folding style multiple-section track-hung moveable door assembly~~.

1008.1.2 (IFC [B] 1008.1.2) Door swing. Egress doors shall be of the pivoted or side-hinged swinging type.

Exceptions:

1. Private garages, office areas, factory and storage areas with an *occupant load* of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single *dwelling unit* in Groups R-2 and R-3.
5. In other than Group H occupancies, revolving doors complying with Section 1008.1.4.1.
6. In other than Group H occupancies, special purpose horizontal sliding, accordion, or folding doors assemblies complying with Section 1008.1.4.3 are permitted in a *means of egress*.
7. Power-operated doors in accordance with Section 1008.1.4.2.
8. Doors serving a bathroom within an individual *sleeping unit* in Group R-1.
9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a *means of egress* from spaces with an *occupant load* of 10 or less.

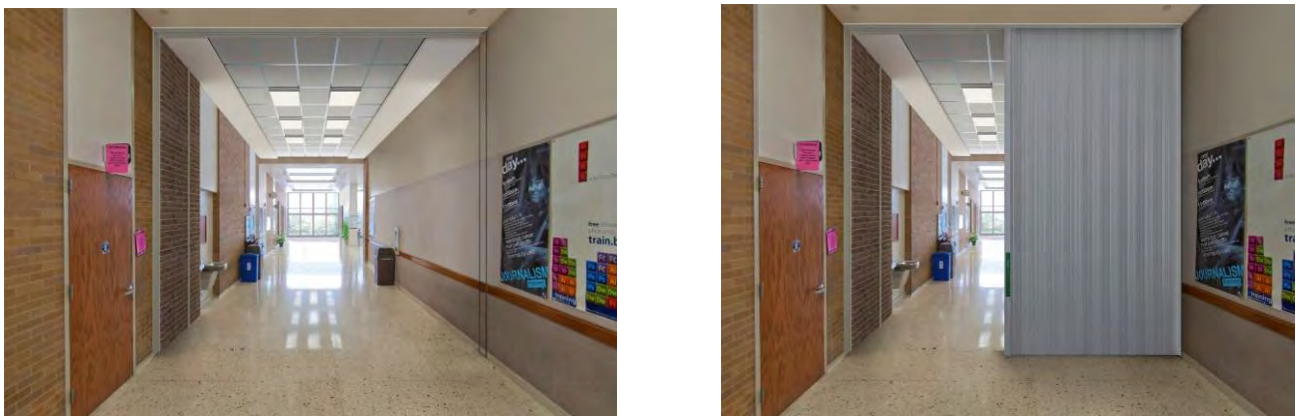
Doors shall swing in the direction of egress travel where serving a room or area containing an *occupant load* of 50 or more persons or a Group H occupancy.

1008.1.4.3 (IFC [B] 1008.1.4.3) Special purpose ~~H~~horizontal sliding, accordion, or folding doors. In other than Group H occupancies, special purpose horizontal sliding, accordion, or folding doors assemblies permitted to be a component of a *means of egress* in accordance with Exception 6 to Section 1008.1.2 shall comply with all of the following criteria:

1. The doors shall be power operated and shall be capable of being operated manually in the event of power failure.
2. The doors shall be openable by a simple method from both sides without special knowledge or effort.
3. The force required to operate the door shall not exceed 30 pounds (133 N) to set the door in motion and 15 pounds (67 N) to close the door or open it to the minimum required width.
4. The door shall be openable with a force not to exceed 15 pounds (67 N) when a force of 250 pounds (1100 N) is applied perpendicular to the door adjacent to the operating device.
5. The door assembly shall comply with the applicable *fire protection rating* and, where rated, shall be self-closing or automatic closing by smoke detection in accordance with Section 716.5.9.3, shall be installed in accordance with NFPA 80 and shall comply with Section 716.
6. The door assembly shall have an integrated standby power supply.
7. The door assembly power supply shall be electrically supervised.
8. The door shall open to the minimum required width within 10 seconds after activation of the operating device.

Commenter's Reason: This proposal seeks to differentiate the means of egress requirements of the horizontal sliding doors addressed in Section 1008.1.4.3 of the IBC from other sections of the IBC addressing means of egress requirements of other horizontal sliding doors, and especially the power operated doors addressed by section 1008.1.4.2. No technical changes to the IBC are sought. This public comment attempts to address the committee's comments and stakeholder feedback regarding the proposal.

Below are several examples of the horizontal sliding doors addressed by this section of the IBC (Section 1008.1.4.3).



Door in normally-open position (left), and partially deployed (right). Source: www.wondoor.com

Source: www.wondoor.com

The doors addressed by Section 1008.1.4.3 are commonly in the normally-open position (hidden in their enclosure). In the event of fire or smoke, where these doors are installed in the means of egress, this section of the code requires the doors to be power operated but also openable manually to the required minimum egress width. Items 1 through 8 of Section 1008.1.4.3 when taken together, provide a unique set of requirements that apply only to doors of this type of configuration.

Final Hearing Results

E54-12 **AMPC**

Code Change No: E56-12

Original Proposal

Section(s): 202, 1008.1.4.1, Table 1008.1.4.1, 1008.1.4.1.1, 1008.1.4.1.2, Chapter 35 (IFC [B] 202, 1008.1.4.1, Table 1008.1.4.1, 1008.1.4.1.1, 1008.1.4.1.2, Chapter 80)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

Add the definition as follows:

SECTION 202
DEFINITIONS

BREAKOUT. For revolving doors, a process whereby wings or door panels can be pushed open manually for *means of egress* travel.

Revise as follows:

1008.1.4.1 (IFC [B] 1008.1.4.1) Revolving doors. Revolving doors shall comply with the following:

1. Revolving doors shall comply with BHMA A156.27 and shall be installed in accordance with the manufacturer's installation instructions.
2. ~~Each revolving door shall be capable of collapsing into a bookfold position with parallel egress paths providing an aggregate width of 36 inches (914 mm).~~ Each revolving door shall be capable of *breakout* in accordance with BHMA A156.27 and shall provide an aggregate width of not less than 36 inches (914 mm).

~~2.~~3. A revolving door shall not be located within 10 feet (3048 mm) of the foot of or top of *stairs* or escalators. A dispersal area shall be provided between the *stairs* or escalators and the revolving doors.

~~3.~~4. The revolutions per minute (rpm) for a revolving door shall not exceed ~~those shown in Table 1008.1.4.1.~~the maximum rpm as specified in BHMA A156.27.

5. An emergency stop switch shall be provided near each entry point of a revolving door within 48 inches (1220 mm) of the door and between 24 inches (610 mm) and 48 inches (1220 mm) above the floor. The activation area of the emergency stop switch button shall be not less than 1 inch (25 mm) in diameter and shall be red.

~~4.~~6. Each revolving door shall have a side-hinged swinging door which complies with Section 1008.1 in the same wall and within 10 feet (3048 mm) of the revolving door.

~~5.~~7. Revolving doors shall not be part of an *accessible route* required by Section 1007 and Chapter 11.

~~**TABLE 1008.1.4.1 (IFC [B] TABLE 1008.1.4.1)**~~
~~**REVOLVING DOOR SPEEDS**~~

~~INSIDE DIAMETER (feet-inches)~~	~~POWER-DRIVEN-TYPE SPEED CONTROL (rpm)~~	~~MANUAL-TYPE SPEED CONTROL (rpm)~~
~~6-6~~	~~11~~	~~12~~
~~7-0~~	~~10~~	~~11~~
~~7-6~~	~~9~~	~~11~~
~~8-0~~	~~9~~	~~10~~
~~8-6~~	~~8~~	~~9~~
~~9-0~~	~~8~~	~~9~~

~~INSIDE DIAMETER (feet-inches)~~	~~POWER-DRIVEN-TYPE SPEED CONTROL (rpm)~~	~~MANUAL-TYPE SPEED CONTROL (rpm)~~
~~9-6~~	~~7~~	~~8~~
~~10-0~~	~~7~~	~~8~~

~~For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.~~

1008.1.4.1.1 (IFC [B] 1008.1.4.1.1) Egress component. A revolving door used as a component of a *means of egress* shall comply with Section 1008.1.4.1 and the following three conditions:

1. Revolving doors shall not be given credit for more than 50 percent of the required egress capacity.
2. Each revolving door shall be credited with no more than a 50-person capacity.
3. Each revolving door shall ~~be capable of being collapsed when a force of not more than 130 pounds (578 N) is applied within 3 inches (76 mm) of the outer edge of a wing~~ provide for egress in accordance with BHMA A156.27 with a *breakout* force of not more than 130 pounds.

1008.1.4.1.2 (IFC [B] 1008.1.4.1.2) Other than egress component. A revolving door used as other than a component of a *means of egress* shall comply with Section 1008.1.4.1. The ~~collapsing~~ *breakout* force of a revolving door not used as a component of a *means of egress* shall not be more than 180 pounds (801 N).

Exception: A ~~collapsing~~ *breakout* force in excess of 180 pounds (801 N) is permitted if the collapsing force is reduced to not more than 130 pounds (578 N) when at least one of the following conditions is satisfied:

1. There is a power failure or power is removed to the device holding the door wings in position.
2. There is an actuation of the *automatic sprinkler system* where such system is provided.
3. There is an actuation of a smoke detection system which is installed in accordance with Section 907 to provide coverage in areas within the building which are within 75 feet (22 860 mm) of the revolving doors.
4. There is an actuation of a manual control switch, in an *approved* location and clearly defined, which reduces the ~~holding~~ *breakout* force to ~~below the~~ not more than 130-pounds (578 N) ~~force level~~.

Add standard to Chapter 35 (IFC Chapter 80) as follows:

BHMA

A 156.27-11 Power and Manual Operated Revolving Pedestrian Doors

Reason: This proposal updates the requirements currently in the IBC for revolving doors and introduces the 2011 edition of BHMA A156.27 American National Standard for Power and Manual Operated Revolving Pedestrian Doors into the IBC.

Revolving doors currently being installed in commercial buildings range from 6 feet to 24 feet in diameter and include manually operated revolving doors and numerous types and sizes of automatic revolving doors (i.e. power operated revolving doors).

The latest edition of BHMA A156.27 includes in its scope a wide variety of manual and power operated revolving doors, many of which are not included within the scope of the current IBC requirements. The requirements in A156.27 include the maximum allowable door speed (RPM), based on type and size of revolving door, and ranges from maximum 12 RPM for the smallest manual revolving door to maximum 0.3 RPM for the largest power operated revolving door.

BHMA A156.27 includes requirements for egress including minimum egress width and maximum breakout force, and also includes requirements for signage, glazing, sensors, an emergency stop switch, and other criteria.

The existing Table 1008.1.4.1 is recommended to be deleted as there are five (5) expanded and updated tables in A156.27 addressing maximum allowable door speeds (RPM) for manually operated revolving doors and the various types and sizes of power operated revolving doors.

Cost Impact: Proposal updates IBC to current industry standards and practices resulting in no cost impact.

Analysis: A review of the standard proposed for inclusion in the code, BHMA A156.27-11 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Committee Action: **Disapproved**

For staff analysis of the content of the BMHA A156.27-11 standard relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org/cs/codes/Documents/2009-10cycle/ProposedChanges/Standards-Analysis.pdf :

Committee Reason: The scope of the referenced standard, BMHA A156.27-11, states that the standard is not for custom installation. There is some concern that this could be interpreted as not requiring compliance with the standard with any custom installation. The ICC Standards Review Committee felt that there were some non-mandatory language in the standard. The committee felt that Table 1008.14.1 in the code aided code official in determining compliance for revolving doors.

Assembly Action: **None**

Public Comments

Public Comment:

John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1008.1.4.1 (IFC [B] 1008.1.4.1) Revolving doors. Revolving doors shall comply with the following:

1. Revolving doors shall comply with BHMA A156.27 and shall be installed in accordance with the manufacturer's installation instructions.
2. Each revolving door shall be capable of *breakout* in accordance with BHMA A156.27 and shall provide an aggregate width of not less than 36 inches (914 mm).
3. A revolving door shall not be located within 10 feet (3048 mm) of the foot of or top of *stairs* or escalators. A dispersal area shall be provided between the *stairs* or escalators and the revolving doors.
4. The revolutions per minute (rpm) for a revolving door shall not exceed the maximum rpm as specified in BHMA A156.27. Manual revolving doors shall comply with Table 1008.1.4.1(1). Automatic or power operated revolving doors shall comply with Table 1008.1.4.1(2).
5. An emergency stop switch shall be provided near each entry point of ~~a~~ automatic or power operated revolving doors within 48 inches (1220 mm) of the door and between 24 inches (610 mm) and 48 inches (1220 mm) above the floor. The activation area of the emergency stop switch button shall be not less than 1 inch (25 mm) in diameter and shall be red.
6. Each revolving door shall have a side-hinged swinging door which complies with Section 1008.1 in the same wall and within 10 feet (3048 mm) of the revolving door.
7. Revolving doors shall not be part of an *accessible route* required by Section 1007 and Chapter 11.

Table 1008.1.4.1(1)(IFC [B] Table 1008.1.4.1(1))
Maximum Door Speed Manual Revolving Doors

Revolving Door Maximum Nominal Diameter (ft-in)	Maximum Allowable Revolving Door Speed (rpm)
6-0	12
7-0	11
8-0	10
9-0	9
10-0	8

Table 1008.1.4.1(2) (IFC [B] Table 1008.1.4.1(2))
Maximum Door Speed Automatic or Power Operated Revolving Doors

Revolving Door Maximum Nominal Diameter (ft-in)	Maximum Allowable Revolving Door Speed (rpm)
8-0	7.2
9-0	6.4
10-0	5.7
11-0	5.2
12-0	4.8
12-6	4.6
14-0	4.1
16-0	3.6
17-0	3.4
18-0	3.2
20-0	2.9
24-0	2.4

(Portion of proposal not shown remains unchanged.)

Commenter's Reason: This proposal and public comment build on the existing requirements for revolving doors in the IBC, updates the IBC, and attempts to address the committee's comments.

Revolving doors range from (smaller) manually operated revolving door systems to automatic (power operated) revolving doors of small to large diameter (8' to 24' diameter). Several types of revolving doors are illustrated below.

Manual Revolving Doors (7' dia.)

Automatic Revolving Door (8' dia.)

Automatic Revolving Door (20' dia.)

This proposal references BHMA A156.27 which includes the same egress-related requirements currently in the IBC (i.e. breakout function and maximum forces, etc.) and includes numerous additional safety-related requirements for revolving doors which are currently not required by the IBC. For example, BHMA A156.27 requires manually operated revolving doors to contain governors to limit the rotational speed of the door and requires automatic, or power operated, revolving doors to incorporate numerous sensors and switches, and complex motor controls to safely operate the door.

Addressing the committee's reasons for disapproving this proposal:

1. Custom installations.
   Custom installation would likely be addressed in a manner similar to today. The mandatory requirements of this section of the IBC would apply (i.e. means of egress / breakout, emergency stop switches, maximum speed, etc.) as would the provisions of the proposed standard, BHMA A156.27. With approval of this proposal for the IBC, far fewer revolving door applications would not be addressed by IBC requirements.
2. Non-mandatory language in the proposed standard.
   ICC staff's analysis of the proposed standard states: "No permissive or unenforceable language was noted. No proprietary references were noted. The standard indicates that it was developed through a consensus process. The consensus process is ANSI."
   However, the ICC Standard Review Committee found "very occasional use of permissive language".
   Addressing the ICC SRC findings: in the proposed standard, the very occasional use of permissive language allows options for complying with mandatory requirements of the standard.

For example, sensors are required in specified locations on automatic revolving doors, and cushioning devices are also required in specified locations. The language in the standard allows these mandatory requirements to be met with the (required) sensor built into the (required) cushioning device, or the (required) sensor may be an item mounted separately from the (required) cushioning device.

3. Including Table 1008.1.4.1 in the code.
   Existing Table 1008.1.4.1 is replaced with two tables: one table for manual revolving doors, and a second table for automatic, or power operated, revolving doors.
   The table for automatic revolving doors is expanded to include revolving door diameters larger than currently included in Table 1008.1.4.1, and the maximum allowable RPM is revised downward (slower) for safety reasons and to be consistent with the current industry standard, BHMA A156.27.

BHMA A156.27 includes provisions for acceptable door speeds (max. RPM), egress / breakout requirements for the various types and configurations of revolving doors (consistent with current and proposed IBC requirements), glazing (consistent with Federal and IBC requirements for safety glazing), kinetic energy, and safety requirements such as emergency stop switches, sensors, and speed controls. These provisions enhance current IBC requirements.

Final Hearing Results

E56-12 **AMPC**

Code Change No: E57-12

Original Proposal

Section(s): 202, 1008.1.4.2 (IFC [B] 202, 1008.1.4.2)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

Add the following definition:

SECTION 202
DEFINITIONS

LOW ENERGY POWER-OPERATED DOOR. Swinging door which open automatically upon an action by an pedestrian, such as pressing a push plate or waving a hand in front of a sensor. The door closes automatically, and operates with decreased forces and decreased speeds. See also POWER ASSISTED DOOR and POWER OPERATED DOOR.

POWER-OPERATED DOOR. Swinging, sliding, or folding door which open automatically when approached by a pedestrian or open automatically upon an action by an pedestrian. The door closes automatically, and include provisions such as presence sensors to prevent entrapment. See also LOW ENERGY POWER OPERATED DOOR and POWER ASSISTED DOOR.

POWER-ASSISTED DOOR. Swinging door which opens by reduced pushing or pulling force on the door operating hardware. The door closes automatically after the pushing or pulling force is released, and function with decreased forces. See also LOW ENERGY POWER OPERATED DOOR and POWER OPERATED DOOR.

Revise as follows:

1008.1.4.2 (IFC [B] 1008.1.4.2) Power-operated doors. Where *means of egress* doors are operated or assisted by power~~, such as doors with a photoelectric actuated mechanism to open the door upon the approach of a person, or doors with power assisted manual operation,~~ the design shall be such that in the event of power failure, the door is capable of being opened manually to permit *means of egress* travel or closed where necessary to safeguard *means of egress*. The forces required to open these doors manually shall not exceed those specified in Section 1008.1.3, except that the force to set the door in motion shall not exceed 50 pounds (220 N). The door shall be capable of swinging open from any position to the full width of the opening in which such door is installed when a force is applied to the door on the side from which egress is made. ~~Full p~~Power-operated swinging doors, power-operated sliding doors, and power-operated folding doors shall comply with BHMA A156.10. Power-assisted swinging doors and low energy power-operated swinging doors shall comply with BHMA A156.19.

Exceptions:

1. Occupancies in Group I-3.
2. Horizontal sliding doors complying with Section 1008.1.4.3.
3. For a biparting door in the emergency breakout mode, a door leaf located within a multiple-leaf opening shall be exempt from the minimum 32-inch (813 mm) single-leaf requirement of Section 1008.1.1, provided a minimum 32-inch (813 mm) clear opening is provided when the two biparting leaves meeting in the center are broken out.

Reason: This proposal is intended to clarify the IBC and while not revising the technical requirements of the code.

The proposed definitions and text revisions are intended to more closely align the IBC with the standards currently referenced in Section 1008.1.4.2.

The doors of Section 1008.1.4.2 are the various types of power-operated doors such as the doors installed at the entrances to buildings, and may be installed within these same buildings.

Cost Impact: None.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The definitions have some dangling clauses. Is the door supposed to close even if it is open only halfway. The text in 1008.1.4.2 added swinging and sliding in the door descriptions, but the types are not part of the definitions.

Assembly Action: **None**

Public Comments

Public Comment:

John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

SECTION 202
DEFINITIONS

LOW ENERGY POWER-OPERATED DOOR. Swinging door which opens automatically upon an action by a ~~an~~ pedestrian~~,~~ such as pressing a push plate or waving a hand in front of a sensor. The door closes automatically~~,~~ and operates with decreased forces and decreased speeds. See also POWER-ASSISTED DOOR and POWER-OPERATED DOOR.

POWER-OPERATED DOOR. Swinging, sliding, or folding door which opens automatically when approached by a pedestrian or opens automatically upon an action by a ~~an~~ pedestrian. The door closes automatically~~,~~ and includes provisions such as presence sensors to prevent entrapment. See also LOW ENERGY POWER-OPERATED DOOR and POWER-ASSISTED DOOR.

POWER-ASSISTED DOOR. Swinging door which opens by reduced pushing or pulling force on the door operating hardware. The door closes automatically after the pushing or pulling force is released, and ~~function~~ functions with decreased forces. See also LOW ENERGY POWER-OPERATED DOOR and POWER-OPERATED DOOR.

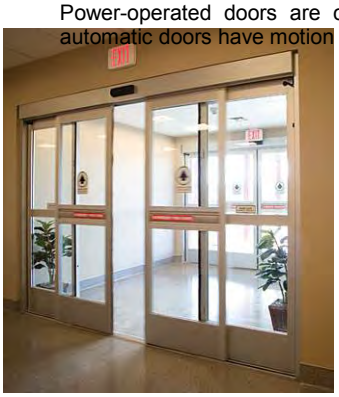
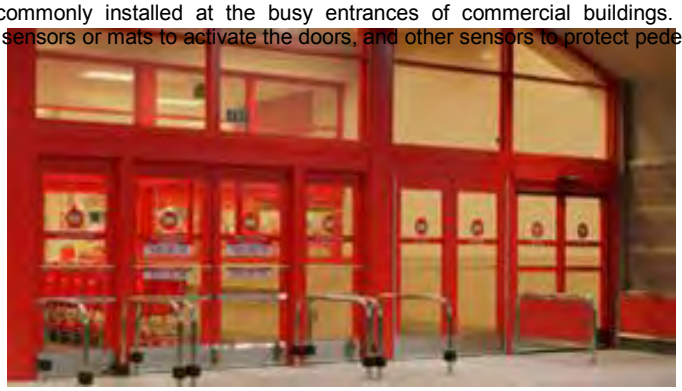
1008.1.4.2 (IFC [B] 1008.1.4.2) Power-operated doors. Where *means of egress* doors are operated or assisted by power, the design shall be such that in the event of power failure~~,~~ the door is capable of being opened manually to permit *means of egress* travel or closed where necessary to safeguard *means of egress*. The forces required to open these doors manually shall not exceed those specified in Section 1008.1.3, except that the force to set the door in motion shall not exceed 50 pounds (220 N). The door shall be capable of swinging open from any position to the full width of the opening in which such door is installed when a force is applied to the door on the side from which egress is made. Power-operated swinging doors, power-operated sliding doors, and power-operated folding doors shall comply with BHMA A156.10. Power-assisted swinging doors and low energy power-operated swinging doors shall comply with BHMA A156.19.

Commenter's Reason: This intent of this proposal and this public comment is to improve the code by defining / describing the types of doors this section of the code applies to while not revising the technical requirements of the code. We've attempted to address the committee's comments with revisions to the definitions and slight changes to 1008.1.4.2 (adding a comma, and deleting a comma).

Below is a summary of these doors:

Power-Operated Doors

Power-operated doors are commonly installed at the busy entrances of commercial buildings. These relatively fast moving automatic doors have motion sensors or mats to activate the doors, and other sensors to protect pedestrians.

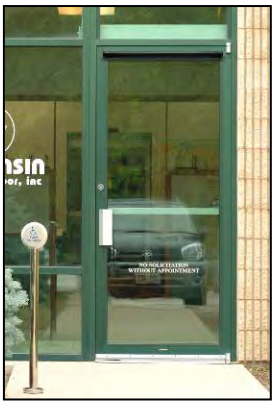




Power-Operated Doors – Three Examples

Low Energy Power-Operated Doors

To enhance accessibility in public buildings, side-hinged doors are commonly installed as low-energy power-operated doors. These doors operate at slower speeds and lower forces, compared to the faster moving power-operated door. Low energy power-operated doors are commonly activated by pressing a push plate, and open fully once activated. In addition, these doors can be activated by pushing or pulling on the door itself, to cause the door to open fully.

Notice the post mounted push plate, left image below, and the wall mounted push plate, right image below.




Low Energy Power-Operated Doors – Two Examples

Power-assisted doors

Power assisted doors reduce the force or effort it takes to open the door while it is being pushed or pulled. The user activates the door with a slight push or pull of the door handle. As soon as the push or pull force is removed, the door will start to close.

Final Hearing Results

E57-12 **AMPC**

Code Change No: E59-12

Original Proposal

Section(s): 1008.1.5 (IFC [B] 1008.1.5)

Proponent: David R. Scott, AIA, representing Target Corporation (David.Scott@Target.com)

Revise as follows:

1008.1.5 (IFC [B] 1008.1.5) Floor elevation. There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope).

Exceptions:

1. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply:
   1.1 A door is permitted to open at the top step of an interior flight of stairs, provided the door does not swing over the top step.
   1.2 Screen doors and storm doors are permitted to swing over stairs or landings.
2. Exterior doors as provided for in Section 1003.5, Exception 1, and Section 1020.2, which are not on an accessible route.
3. In Group R-3 occupancies not required to be Accessible units, Type A units or Type B units, the landing at an exterior doorway shall not be more than 73/4 inches (197 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door, does not swing over the landing.
4. Variations in elevation due to differences in finish materials, but not more than 1/2 inch (12.7mm).
5. Exterior decks, patios or balconies that are part of Type B dwelling units, have impervious surfaces and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the dwelling unit.
6. <u>Doors serving equipment spaces not required to be accessible in accordance with Section 1103.2.9 and serving an occupant load of 5 or less shall be permitted to have the landings on both sides to be at different levels provided the elevation difference is not more than 7 inches (178 mm).</u>

Reason: Equipment spaces are utilized by personal familiar with the layout and function of such space. This would not constitute a hazard type situation stepping down from the equipment spaces.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This options if preferred over E58. This proposal addresses the issue of type of space and limits occupant load. The people using this area will be familiar with the space, so the concern for the step/threshold as a tripping hazard is limited.

Assembly Action: **None**

Public Comments

Public Comment:

Eirene Oliphant, MCP, BRR Architecture, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1008.1.5 (IFC [B] 1008.1.5) Floor elevation. There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope).

Exceptions:

1. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply:
   1.1 A door is permitted to open at the top step of an interior flight of stairs, provided the door does not swing over the top step.
   1.2 Screen doors and storm doors are permitted to swing over stairs or landings.
2. Exterior doors as provided for in Section 1003.5, Exception 1, and Section 1020.2, which are not on an accessible route.
3. In Group R-3 occupancies not required to be Accessible units, Type A units or Type B units, the landing at an exterior doorway shall not be more than 73/4 inches (197 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door, does not swing over the landing.
4. Variations in elevation due to differences in finish materials, but not more than 1/2 inch (12.7mm).
5. Exterior decks, patios or balconies that are part of Type B dwelling units, have impervious surfaces and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the dwelling unit.
6. Doors serving equipment spaces not required to be accessible in accordance with Section 1103.2.9 and serving an occupant load of 5 or less shall be permitted to have ~~the~~ ~~landings~~ a landing on ~~both sides~~ one side to be ~~at different levels provided the elevation difference is~~ not more than 7 inches (178 mm) above or below the landing on the egress side of the door.

Commenter's Reason: The committee disapproved the E58 proposal believing that the proposed language would allow for both sides of the floor to be 7 inches below the threshold which would result in a 7 inch high threshold, thus creating a tripping hazard. The committee also suggested that a limit on the occupant load be provided. The only difference between E58 and E59 was the occupant load, otherwise the proposed code language was identical. The committee approved E59 due to the limited occupant load of 5. However, the tripping hazard language remains. This public comment is being provided in an effort to make sure the intent of the language was clear, that the floor level cannot be below 7 inches on both sides of the door.

Final Hearing Results

E59-12 **AMPC**

Code Change No: E60-12

Original Proposal

Section(s): 1008.1.7 (IFC [B] 1008.1.7)

Proponent: Julie Ruth, P.E., JRuth Code Consulting, representing American Architectural Manufacturers Association (AAMA) (julruth@aol.com)

Revise as follows:

1008.1.7 (IFC [B] 1008.1.7) Thresholds. Thresholds at doorways shall not exceed ¾ inch in height above the finished floor or landing for sliding doors serving dwelling units or ½ inch above the finished floor or landing for other doors. Raised thresholds and floor level changes greater than ¼ inch at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope).

~~**Exception**~~ **Exceptions:**

1. In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to 7 ¾ inches in height if all of the following apply:
   1.1. The door is not part of the required means of egress.
   1.2. The door is not part of an accessible route as required by Chapter 11.
   1.3. The door is not part of an *Accessible unit, Type A unit* or *Type B unit*.
2. In Type B units, where Exception 5 to Section 1008.1.5 permits a 4-inch (102 mm) elevation change at the door, the threshold height on the exterior side of the door shall not exceed 4 ¾ (120 mm) inches in height above the exterior deck, patio or balcony for sliding doors or 4 1/2 inch (114 mm) above the exterior deck, patio or balcony for other doors.

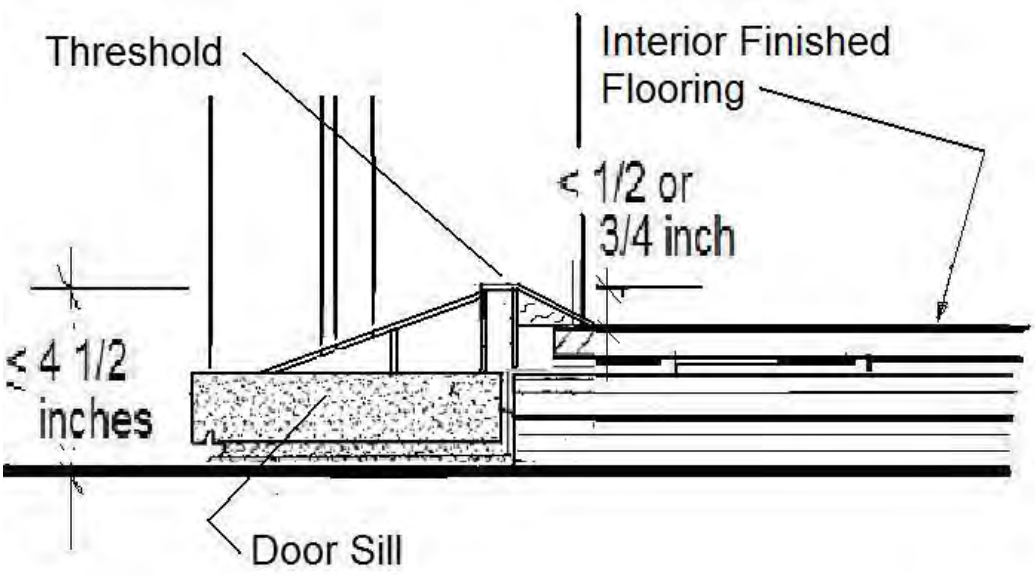
Reason: Currently an exception to the threshold height provisions of Section 1008.1.7 exists for doors where a 7 ¾ inch step down is permitted by exception 3 to Section 1008.1.5. Specifically this is limited to exterior doors that are not part of the required means of egress, and which are not serving *Accessible units*, *Type A units* or *Type B units*.

This proposal adds a second exception for doors where a 4 inch step down is permitted between Type B dwelling units and exterior decks, patios and balconies by exception 5 to Section 1008.1.5. This proposal would permit the height of the threshold itself to exceed ½ or ¾ inch in height, as long as the resultant profile from the interior floor to the exterior surface is maintained as required by current code text.

The sketch below provides an example of the type of installation that would be permitted by this proposal. Specifically, the threshold itself is higher than ½ or ¾ inch. The additional height, however, is contained within the 4 inch step down that is permitted between the interior floor and the exterior surface for doors serving *Type B* dwelling units. The height of the threshold is limited to ½ inch or ¾ inch above the interior floor and shall not be more than 4 ½ or 4 ¾ inch above the exterior surface, depending upon the type of door. If the threshold is greater than ¼ inch above the interior floor it is to be beveled at a slope of 1 inch vertical to 2 inches horizontal (50% slope), as required by current text.

The higher threshold is needed to prevent water infiltration underneath the door into the dwelling unit. A threshold height of ¾ inch is only sufficient to resist water infiltration in areas of low wind and exceptionally low rainfall. Throughout most of the rest of the U.S. the potential for water to leak into interior spaces under conditions of high wind combined with heavy rain does exist with a door threshold of only ¾ inch in height. Along the gulf coast and eastern seaboard much higher thresholds of up to 2 ½ inches in height are needed to sufficiently resist water infiltration under extreme weather conditions.

These sills can be accommodated within the 4 inch step down permitted between *Type B* dwelling units and exterior decks, patios and balconies. Permitting this higher threshold facilitates compliance with Chapter 11. For example, Section 1107.6.2.1.2 requires every apartment in R-2 occupancies with more than 4 dwelling units to be *Type B* units. If a higher threshold is not permitted between exterior decks, balconies and patios that serve these units and the actual units themselves, throughout most of the country exterior decks, balconies and patios could not be installed in R-2 occupancies without creating a potential risk of serious water damage to the interior of the building under extreme weather conditions.



Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This new option for thresholds is limited the thresholds on the outside of a Type B units at a deck/balcony. This option allows for protection for water infiltration. This proposal also coordinates with the Fair Housing Act requirements.

Assembly Action: **None**

Final Hearing Results

E60-12 **AS**

Code Change No: E62-12

Original Proposal

Section(s): 1008.1.3, 1008.1.9.1 (IFC [B] 1008.1.3, 1008.1.9.1)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

Revise as follows:

1008.1.3 (IFC [B] 1008.1.3) Door opening force. The force for pushing or pulling open interior swinging egress doors, other than fire doors, shall not exceed 5 pounds (22 N). These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position. For other swinging doors, as well as sliding and folding doors, the door latch shall release when subjected to a 15-pound (67 N) force. The door shall be set in motion when subjected to a 30-pound (133 N) force. The door shall swing to a full open position when subjected to a 15-pound (67 N) force.

1008.1.9.1 (IFC [B] 1008.1.9.1) Hardware. Door handles, pulls, latches, locks and other operating devices on doors required to be *accessible* by Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist to operate and shall not require more than a 15-pound (67 N) force to unlatch.

Reason: The proposed language in Section 1008.1.3 is intended to clarify the IBC, and to be consistent with A117.1.

The sentence proposed for 1008.1.9.1 quantifies the maximum force allowable to operate door hardware to unlatch a door which is required to be accessible. Currently, the IBC is silent regarding this requirement. This maximum force is consistent with the maximum force allowed for panic hardware and fire exit hardware (IBC Section 1008.1.10.1) commonly installed on doors required to be accessible in the means of egress.

Cost Impact: None.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1008.1.9.1 (IFC [B] 1008.1.9.1) Hardware. Door handles, pulls, latches, locks and other operating devices on doors required to be *accessible* by Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist to operate ~~and shall not require more than a 15-pound (67 N) force to unlatch~~.

Committee Reason: The proponent requested that the code change proposal not include the proposed revision to Section 1008.1.9.1. Coordination is needed with the ICC A117.1 standard and the 2010 ADA Standard for Accessible Design. The revision to Section 1008.1.3 clarifies that the 5 lbs. force is applicable to the door opening force for interior doors and not applicable to the door hardware. Eliminates conflict with 1008.1.10.1 Item 4.

Assembly Action: **None**

Final Hearing Results

E62-12 **AM**

Code Change No: E63-12

Original Proposal

Section(s): 1008.1.9.3 (IFC [B] 1008.1.9.3)

Proponent: Lee J. Kranz, City of Bellevue, Washington, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov)

Revise as follows:

1008.1.9.3 (IFC [B] 1008.1.9.3) Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main ~~exterior~~ door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
   2.1. The locking device is readily distinguishable as locked;
   2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN ~~BUILDING~~ THIS TENANT SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background; and
   2.3. The use of the key-operated locking device is revokable by the *building official* for due cause.
3. Where egress doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware.
4. Doors from individual *dwelling* or *sleeping units* of Group R occupancies having an *occupant load* of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.

Reasoning: The proposed change is consistent with an interpretation given by ICC staff that this condition is allowed to exist. The issue that this addresses is one where you have a restaurant door opening into a mall; the door to the mall could be the "main" exit but not be an "exterior" door.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1008.1.9.3 (IFC [B] 1008.1.9.3) Locks and latches. *(no change)*

1. *(no change)*
2. *(no change)*
   2.1. *(no change)*
   2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS ~~TENANT~~ SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background; and
   2.3. *(no change)*
3. through 5. *(no change)*

Committee Reason: The modification to strike the word 'Tenant' in Item 2.2 was in recognition that spaces within a building that want to use Item 2 might be a space within a building that is not necessarily a separate tenant, such as the lecture hall within a college office/classroom building or a sanctuary area within a church. The revision to the requirement is in recognition that this allowance is appropriate for the main doors for spaces within a larger building, not just for exterior doors on entire buildings. This allowance is commonly used in malls. There is a concern that this option might be misapplied for situations where egress from another space is through the unoccupied space.

Assembly Action: **None**

Final Hearing Results

E63-12 **AM**

Code Change No: E66-12

Original Proposal

Section(s): 1008.1.9.6 (IFC [B] 1008.1.9.6)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1008.1.9.6 (IFC [B] 1008.1.9.6) Special locking arrangements in doors in ~~Group~~ Groups I-1 assisted living facilities and I-2. Approved, special egress locks shall be permitted in a Group I-1 assisted living facilities or I-2 ~~occupancy~~ occupancies where the clinical needs of persons receiving care require such locking. Special egress locks shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors are installed and operate in accordance with Items 1 through 7 below.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center, a nursing station or other approved location.
4. A building occupant shall not be required to pass through more than one door equipped with a special egress lock before entering an exit.
5. The procedures for the operation(s) of the unlocking system shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the International Fire Code.
6. All clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
7. Emergency lighting shall be provided at the door.

Exception: Items 1 through 4 shall not apply to doors to areas where persons which because of clinical needs require restraint or containment as part of the function of a psychiatric treatment area.

Reason: The current text allows special provisions in the path of egress for Group I-2 when patient care, most often due to issues of elopement, allows for staff to control access to the exits. This allowance should be permitted in assisted living facilities in order to allow proper care for residents in the initial stages of Alzheimer's, therefore, this allowance needs to be extended to Group I-1 assisted living facilities.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: Increase

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Increasing the scope to include Group I-1 assisted living facilities provides for sensible on-site security for residents in assisted living facilities where there may be elopement concerns for residents (i.e., Alzheimer or dementia wards). The CTC committee may need to put in a public comment to coordinate these limits with the Group I-1, Condition 1 and Condition 2 approved in G31-12.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldasarra, Code Technologies Committee – Open stairway study group, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1008.1.9.6 (IFC [B] 1008.1.9.6) Special locking arrangements in doors in Groups I-1 ~~assisted living facilities~~ and I-2.
Approved, special egress locks shall be permitted in a Group I-1 ~~assisted living facilities~~ or I-2 occupancies where the clinical needs of persons receiving care require such locking. Special egress locks shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors are installed and operate in accordance with Items 1 through 7 below.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center, a nursing station or other approved location.
4. A building occupant shall not be required to pass through more than one door equipped with a special egress lock before entering an exit.
5. The procedures for the operation(s) of the unlocking system shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the International Fire Code.
6. All clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
7. Emergency lighting shall be provided at the door.

Exception: Items 1 through 4 shall not apply to doors to areas where persons which because of clinical needs require restraint or containment as part of the function of a psychiatric treatment area.

Commenter's Reason: Elopement potential exists in all Group I-1, therefore this option should not be limited to just assisted living. This would not affect revisions made to this section in E67, which clarified the requirements for this type of lock.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "Care Facilities". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/CareFacilities.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

E66-12 **AMPC**

Code Change No: E67-12

Original Proposal

Section(s): 1008.1.9.6 (IFC [B] 1008.1.9.6)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1008.1.9.6 (IFC [B] 1008.1.9.6) ~~Special~~ Controlled egress ~~locking arrangements in~~ doors in Group I-2. ~~Approved,~~ Electric ~~special egress~~ locks, including electro-mechanical locks and electromagnetic locks, shall be permitted to be locked in the means of egress in a Group I-2 occupancy where the clinical needs of persons receiving care require their containment. ~~such locking. Special egress locks~~ Controlled egress doors shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors are installed and operate in accordance with Items 1 through ~~7~~ 8 below.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a switch that directly breaks power to the lock, located ~~signal from~~ at the fire command center, a nursing station or other approved location.
4. A building occupant shall not be required to pass through more than one door equipped with a ~~special~~ controlled egress lock before entering an exit.
5. The procedures for the ~~operation(s) of the~~ unlocking ~~system~~ of the doors shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the International Fire Code.
6. All clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
7. Emergency lighting shall be provided at the door.
8. All components of the door locking system shall be listed in accordance with UL 294.

Exception: Items 1 through 4 shall not apply to doors to areas where persons which because of clinical needs require restraint or containment as part of the function of a psychiatric treatment area.

Reason: This section deals with the use of electric locks to enhance the capabilities of egress control. Egress control serves three primary purposes. These are to control the elopement of ambulatory patients not capable of self preservation; the containment of patients that, due to their mental condition, could do harm to others; the prevention of the abduction of babies and children. Exceptions allow for the use of listed child abduction security systems and even mechanical locks (non-electric.)

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

This proposal is being co-sponsored by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the

CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: Approved as Modified

Modify proposal as follows:

1008.1.9.6 (IFC [B] 1008.1.9.6) Controlled egress doors in Group I-2. Electric ~~locks~~ locking systems including electro-mechanical ~~locks~~ locking systems and electromagnetic ~~locks~~ locking systems shall be permitted to be locked in the means of egress in a Group I-2 occupancy where the clinical needs of persons receiving care require their containment. Controlled egress doors shall be permitted in such occupancies where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors are installed and operate in accordance with Items 1 through 8.

1. The ~~doors~~ door locks shall unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The ~~doors~~ door locks shall unlock upon loss of power controlling the lock or lock mechanism.
3. The door ~~locks~~ locking systems shall be installed to have the capability of being unlocked by a switch ~~that directly breaks power to the lock,~~ located at the *fire command center*, a nursing station or other *approved* location. The switch shall directly break power to the lock.
4. A building occupant shall not be required to pass through more than one door equipped with a controlled egress ~~lock~~ locking system before entering an *exit*.
5. The procedures for the unlocking of the doors shall be described and *approved* as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.
6. All clinical staff shall have the keys, codes or other means necessary to operate the locking ~~devices~~ systems.
7. Emergency lighting shall be provided at the door.
8. ~~All components of~~ The door locking system units shall be listed in accordance with UL 294.

Exception: Items 1 through 4 shall not apply to doors to areas where persons, which because of clinical needs, require restraint or containment as part of the function of a psychiatric treatment area.

Committee Reason: The modification coordinates with the terminology used in the referenced standard, UL 294 and recognizes that locks are part of a system. The modification also coordinates with the suggested language clarifications brought up in E68. The updated language will improve consistency between the code and the industry. The switch in Item 3 is important for safety by reducing the change for system errors. The reference to UL294 would provide consistency between the different types of access control systems.

Assembly Action: None

Final Hearing Results

E67-12 AM

Code Change No: E69-12

Original Proposal

Section(s): 1008.1.9.6 (IFC [B] 1008.1.9.6)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1008.1.9.6 (IFC [B] 1008.1.9.6) Special locking arrangements in Group I-2. Approved, special egress locks shall be permitted in a Group I-2 occupancy where the clinical needs of persons receiving care require such locking. Special egress locks shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors are installed and operate in accordance with Items 1 through 7 below.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center, a nursing station or other approved location.
4. A building occupant shall not be required to pass through more than one door equipped with a special egress lock before entering an exit.
5. The procedures for the operation(s) of the unlocking system shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the International Fire Code.
6. All clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
7. Emergency lighting shall be provided at the door.

~~Exception~~ Exceptions:

1. Items 1 through 4 shall not apply to doors to areas where persons which because of clinical needs require restraint or containment as part of the function of a ~~psychiatric~~ treatment area.
2. Items 1 through 4 shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction.

Reason: This section deals with the use of electric locks to enhance the capabilities of egress control. Egress control serves three primary purposes. These are to control the elopement of ambulatory patients not capable of self preservation; the containment of patients that, due to their mental condition, could do harm to others; the prevention of the abduction of babies and children. Exceptions allow for the use of listed child abduction security systems and even mechanical locks (non-electric.)

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

This proposal is being co-sponsored by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the

CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: While the issue of child abduction is important to consider, the proposal does not limit the exception to specific areas such as the nursery or pediatric wards.

Assembly Action: **None**

Public Comments

Public Comment 1:

John Williams, Adhoc Health Care – MOE study group, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1008.1.9.6 (IFC [B] 1008.1.9.6) Special locking arrangements in Group I-2. Approved, special egress locks shall be permitted in a Group I-2 occupancy where the clinical needs of persons receiving care require such locking. Special egress locks shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors are installed and operate in accordance with Items 1 through 7 below.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center, a nursing station or other approved location.
4. A building occupant shall not be required to pass through more than one door equipped with a special egress lock before entering an exit.
5. The procedures for the operation(s) of the unlocking system shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the International Fire Code.
6. All clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
7. Emergency lighting shall be provided at the door.

Exceptions:

1. Items 1 through 4 shall not apply to doors to areas where persons which because of clinical needs require restraint or containment as part of the function of a treatment area.
2. Items 1 through 4 shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction <u>from nursery and obstetric areas of a Group I-2 hospital</u>.

Commenter's Reason: This issue of protection against child abduction is an important one for hospitals. However, we also understand the code development committee's concern that the proposed exception could be read to allow for an entire hospital to be locked down. The modification will limit these systems to the high risk areas of the nursery and obstetric areas only.

The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 7 open meetings and over 100 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

Final Hearing Results

E69-12 **AMPC1**

Code Change No: E70-12

Original Proposal

Section(s): 1008.1.9.7 (IFC [B] 1008.1.9.7)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1008.1.9.7 (IFC [B] 1008.1.9.7) Delayed egress ~~locks~~. ~~*Approved, listed,*~~ Delayed egress ~~locks~~ locking systems, shall be permitted to be installed on doors serving any occupancy except Group A, E, and H occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907~~,~~. The locking system shall allow immediate free egress and shall be installed and operated ~~provided that the doors unlock~~ in accordance with Items 1 through ~~6~~ 7 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an *exit.*

1. The delay electronics shall deactivate ~~doors unlock~~ upon actuation of the *automatic sprinkler system* or automatic fire detection system, allowing immediate, free egress.
2. The ~~doors unlock~~ delay electronics shall deactivate upon loss of power controlling the lock or lock mechanism, allowing immediate free egress.
3. The ~~door locks~~ delay electronics shall have the capability of being ~~unlocked by a signal from~~ deactivated at the fire command center and other approved locations.
4. An attempt to egress ~~The initiation of~~ shall initiate an irreversible process which ~~will release the~~ shall allow such egress in not more than 15 seconds when a ~~force of not more than 15 pounds (67 N)~~ physical effort to exit is applied to the egress side door hardware for *not more than ~~1~~ 3 ~~second~~ seconds* ~~to the release device~~. The effort to open the door shall not require a force greater than 30 pounds (133N). Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics ~~door lock has~~ have been ~~released~~ deactivated, ~~by the application of force to the releasing device~~, ~~relocking~~ rearming the delay electronics shall be by manual means only.

   Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. A sign shall be provided on the door located above and within 12 inches (305mm) of the ~~release device~~ door exit hardware reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 (30) SECONDS. The sign shall comply with the visual character requirements in ICC A117.1.
6. Emergency lighting shall be provided ~~at~~ on the egress side of the door.
7. All components of the door locking system shall be listed in accordance with UL 294.

Reason: The intent of this proposal is to clarify the delayed egress locking system requirements. The intent is for all proposals for Section 1008.1.9.7 to work together. Three changes are submitted in order to keep the discussions separate.

The term “delayed egress lock” is proposed to be changed to “delayed egress locking system.” Delayed egress always requires a system of electronic devices that work together to perform the delayed egress task. Sometimes they are contained within an electromagnetic lock or a bar and sometimes they are separate components, but they are never just a lock.

The term ‘unlock” is proposed to change to “allow immediate free egress.” Immediate free egress can be accomplished without unlocking the door. Merchants, offices and health care facilities are hesitant to use delayed egress because an “after hours” egress event will leave their building unlocked. Addressing the “delay” as a separate issue from “locked”, this modification will allow the door to relock FROM THE OUTSIDE after a delayed egress event, but change the operation of the door to free egress until the system is manually reset. The intent of the code is not to keep people out. Instead, it is to let them out.

In Item 4 it is proposed to change the delay from one second to three seconds. One second is not enough time for a fully cognizant person to recognize that their action is what is causing the alarm and decide to abort the exit attempt. Dementia patients tend to wander toward doors when not otherwise engaged. Since staffing cannot be 1:1, it means that the nurses are attending other issues. Reducing these "nuisance" alarm issues can greatly reduce the need to drop everything and go check and reset the door.

In Item 4 it is proposed to make the force requirement consistent with Section 1008.1.3. There are three ways to initiate a delay sequence that are in common use, today. The code has never been changed to accommodate two of these. The original one, an electromagnetic lock with delay electronics and a switch built into the case, is not addressed. It allows the use of existing door hardware and should be used with exit only applications. Otherwise, it can be triggered from both sides. The second means of delay initiation includes switches in cylindrical and mortise locks that begin the sequence when the inside lever is turned. This method has become possible with the ADA changes made to these locks to accommodate levers. The third method is the one the code seems to reference. It uses a switch bar (aka active dummy with switch), a panic bar with a switch, or fire-exit hardware with a switch. Depending on the manufacturer and the model number, the switch may either signal an external delay timer that controls an electromagnetic lock or signal a self-contained delayed egress system that controls a latch.

In Item 5 it is proposed to require a contrasting color for signage. Manufacturers typically supply the sign with their product, but often the sign blends in with the color of the door. The reference to ICC A117.1 visual requirements would not require engraved letters or Braille, but would require readable text, with good finish and contrast.

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

This proposal is being co-sponsored by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: Approved as Modified

Modify proposal as follows:

1008.1.9.7 (IFC [B] 1008.1.9.7) Delayed egress. Delayed egress locking systems, shall be permitted to be installed on doors serving any occupancy except Group A, E, and H occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907. The locking system shall allow immediate free egress and shall be installed and operated in accordance with Items 1 through 7 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress ~~lock~~ locking system before entering an *exit.*

1. The delay electronics of the delayed egress locking system shall deactivate upon actuation of the *automatic sprinkler system* or automatic fire detection system, allowing immediate, free egress.
2. The delay electronics of the delayed egress locking system shall deactivate upon loss of power controlling the lock or lock mechanism, allowing immediate free egress.
3. The ~~delay electronics~~ delayed egress locking system shall have the capability of being deactivated at the fire command center and other approved locations.
4. An attempt to egress shall initiate an irreversible process which shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for *not more than 3 seconds*. ~~The effort to open the door shall not require a force greater than 30 pounds (133N).~~ Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only.

   Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. A sign shall be provided on the door located above and within 12 inches (305mm) of the door exit hardware reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 (30) SECONDS. The sign shall comply with the visual character requirements in ICC A117.1.
6. Emergency lighting shall be provided on the egress side of the door.
7. ~~All components of~~ The ~~door~~ delayed egress locking system units shall be listed in accordance with UL 294.

Committee Reason: The modification coordinates with the terminology used in the referenced standard, UL 294 and recognizes that locks are part of a system. The modification also coordinates with the suggested language clarifications brought up in E71. Deletion of "immediate free egress" is consistent with the idea of delayed egress locking systems. The updated language will improve consistency between the code and the industry. The reference to UL294 would provide consistency between the different types of access control systems.

Assembly Action: **None**

Final Hearing Results

E70-12 **AM**

Code Change No: E72-12

Original Proposal

Section(s): 1008.1.9.7 (IFC [B] 1008.1.9.7)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1008.1.9.7 (IFC [B] 1008.1.9.7) Delayed egress ~~locks~~. *Approved, listed*, delayed egress ~~locks~~ locking systems, shall be permitted to be installed on doors serving any occupancy except Group A, E, and H occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through ~~6~~ 7 below. ~~A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an *exit*.~~

1. The doors unlock upon actuation of the *automatic sprinkler system* or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center.
4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for *1 second* to the release device. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the door lock has been released by the application of force to the releasing device, relocking shall be by manual means only.

   Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. The egress path from any point shall pass through no more than one delayed egress door.

   Exception: In Group I-2 or I-3 occupancies, the egress path from any point in the building shall be permitted to pass through no more than two delayed egress doors provided the combined delay does not exceed 30 seconds.

6. A sign shall be provided on the door located above and within 12 inches (305mm) of the release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 (30) SECONDS.
7. Emergency lighting shall be provided at the door.

Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

This proposal is being co-sponsored by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent is for both proposals for Section 1008.1.9.7 to work together. Two changes are submitted in order to keep the discussions separate.

Since delayed egress was developed in two separate theaters for two separate reasons, pilfering was a reason that is perfect for *one* 15 second delay. Back then, sprinkler requirements were not like they are today. On the other hand, delayed egress for health care in a fully sprinklered facility should be recognized as being different. A delay of thirty seconds is appropriate for this situation and so should two 15 second delays when used for good purpose, as they delay the person for no more time and often for less time. Following are two good purposes:

1. Property, especially in cities, is at a premium in both price and availability. For this reason, we see more and more two and three story ambulatory health care facilities as a result of needing to build up instead of out. This comes with a need to keep Alzheimer's disease and Head Injury patients on the floor **and** in the building. Currently, the facility is tasked with having to make a dangerous and unnecessary choice.
2. Most large (60+) single story dementia facilities have a perimeter fence surrounding the back and sides of the building. All exits except the front door are into a protected yard. The front door controls entry into the office/lobby area and reception. It is a small area requiring only the front door as an exit. A second door leading from the front office area into the core of the facility keeps the residents from eloping and strangers from entering. Originally, this door was not an exit and the facility side of the door was disguised as a wall so residents (patients) would not try to get out. Since it was not an exit, a delayed egress system was placed on that door and another one on the front door. Keypads were on both sides and both systems would unlock upon activation of the fire alarm. It was a mantrap designed so that if the lobby to core door went into alarm, the front door would instantly become delayed egress. Pursuant to the "discovery" and subsequent enforcement of the idea that if people exit the way they entered, the lobby to core door was an exit, should not be disguised and the front door could no longer be delayed. Without exceptions for those with health issues, the patients were now less safe than before. Allowing two 15 second delays would return them to a safe environment. This reasoning could also be applied toward doors leading into a common lobby with a stair tower door. The stair tower door would be free egress unless someone had triggered the ward delay in an attempt to elope from the ward. This would set off the alarm and arm the stair tower door's delayed egress system.

Cost Impact: None

Public Hearing Results

Committee Action: Approved as Modified

Modify proposal as follows:

1008.1.9.7 (IFC [B] 1008.1.9.7) Delayed egress. *(no change)*

1. through 4. *(no change)*
5. The egress path from any point shall pass through no more than one delayed egress ~~door~~ locking system.

   Exception: In Group I-2 or I-3 occupancies, the egress path from any point in the building shall be permitted to pass through no more than two delayed egress ~~doors~~ locking systems provided the combined delay does not exceed 30 seconds.
6. and 7. *(no change)*

Committee Reason: The modification provides a consistency of terminology in the different locking requirements. The new Item 5 promotes a balance between on-site security and egress within Groups I-2 and I-3.

Assembly Action: None

Final Hearing Results

E72-12 AM

Code Change No: E73-12

Original Proposal

Section(s): 1008.1.9.7 (IFC [B] 1008.1.9.7)

Proponent: Dave Frable, U.S General Services Administration, Public Buildings Service, representing U.S. General Services Administration, Public Buildings Service

Revise as follows:

1008.1.9.7 (IFC [B] 1008.1.9.7) Delayed egress locks. *Approved, listed*, delayed egress locks shall be permitted to be installed on doors serving any occupancy except Group A, E and H occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an *exit*.

1. The doors unlock upon actuation of the *automatic sprinkler system* or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center.
4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for 1 second to the release device. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the door lock has been released by the application of force to the releasing device, relocking shall be by manual means only.

   Exception: Where *approved*, a delay of not more than 30 seconds is permitted.

5. A sign shall be provided on the door located above and within 12 inches (305 mm) of the release device~~. reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30]SECONDS~~.
   5.1. For doors that swing in the direction of egress, the sign shall read: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.
   5.2. For doors that swing in the opposite direction of egress, the sign shall read: PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.
6. Emergency lighting shall be provided at the door.

Reason: The intent of this code change proposal is to acknowledge an UL listed delayed egress hardware that can be used on doors that swing in the opposite direction of egress, whereby pulling on the hardware engages the 15 or 30 second timer. As such, the subject signage requirements need to be revised to accommodate where such hardware is to be installed. Note: although most delayed egress hardware is installed on doors that swing in the direction of egress, there is no language currently in this section that actually prohibits installing delayed egress hardware on doors that swing in the opposite direction, unless one uses existing language for the signage as a means for prohibiting its use.

Cost Impact: This code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The revised signage clarifies that the option for delayed egress locking systems can be on either the push or pull side of a door.

Assembly Action: **None**

Final Hearing Results

E73-12	**AS**

Code Change No: E74-12

Original Proposal

Section(s): 1008.1.9.7 (IFC [B] 1008.1.9.7)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1008.1.9.7 (IFC [B] 1008.1.9.7) Delayed egress locks. *Approved, listed*, delayed egress ~~locks~~ locking systems, shall be permitted to be installed on doors serving any occupancy except Group A, E, and H occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an *exit.*

1. The doors unlock upon actuation of the *automatic sprinkler system* or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center.
4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for *1 second* to the release device. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the door lock has been released, by the application of force to the releasing device, relocking rearming shall be by manual means only.

   Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. A sign shall be provided on the door located above and within 12 inches (305mm) of the release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 (30) SECONDS.

   Exception: Where approved, the installation of a sign is not required when it interferes with the safety of the residents in Group I occupancies.

6. Emergency lighting shall be provided at the door.

Reason: The intent is for all proposals for Section 1008.1.9.7 to work together. Three changes are submitted in order to keep the discussions separate.

The new exception to Item 5 - Providing escape instructions to first stage Alzheimer's disease patients who often still can read is unwise. Staff is there to assist in a fire.

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

This proposal is being co-sponsored by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The signage is necessary at doors with delayed egress locking systems for visitors within the Group I-1 facilities. Disapproval is consistent with committee action on E75-12.

Assembly Action: **None**

Public Comments

Public Comment:

John Williams, Adhoc Health Care – MOE study group, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

IBC 1008.1.9.7 (IFC [B] 1008.1.9.7) Delayed egress locks. *Approved, listed*, delayed egress locking systems, shall be permitted to be installed on doors serving any occupancy except Group A, E, and H occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an *exit.*

1. The doors unlock upon actuation of the *automatic sprinkler system* or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center.
4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for *1 second* to the release device. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the door lock has been released, by the application of force to the releasing device, relocking rearming shall be by manual means only.

   Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. A sign shall be provided on the door located above and within 12 inches (305mm) of the release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 (30) SECONDS.

   Exception: Where approved, <u>in Group I occupancies,</u> the installation of a sign is not required ~~when the instructions compromise the safety of the residents in Group I occupancies~~ <u>where persons who because of clinical needs require restraint or containment as part of the function of the treatment area.</u>

6. Emergency lighting shall be provided at the door.

Commenter's Reason: When housing dementia patient, especially first stage Alzheimer patients, reading is often still in their capabilities. They are ambulatory, often in good physical condition, but not capable of self preservation. Their greatest dangers are elopement into traffic, ice and snow, darkness and wildlife. The intent of the proposed exception is to address this important safety issue. Families are relying on these facilities to keep their loved ones safe. Allowance for this exception is where approved by the code official.

The MOE committee had a concern that the instruction signage at delayed egress locks was needed for visitors. In all Group I facilities, staff is trained to assist in evacuation of all occupants, including residents and visitors. In addition, delayed egress systems already include connection to both the sprinkler system and the fire detection system, both required under this section. In the event of a activation of the fire alarm or sprinkler system or power failure, all delayed egress doors unlock from the inside and allow unobstructed egress. Dementia units are staffed to assist residents and visitors in fire and weather emergencies with practiced emergency plans. Having a direct signage at the door adds to the likelihood that there will be elopements. All doors with delayed egress systems will still be required to have exit signs.

Where facilities that are faced with a choice between delayed egress with escape instructions at each door, or going to a full lockdown such as controlled egress, the facility will always pick pursuit of the latter due to concerns for patient safety.

Several of the locking options do allow locking occupants in where there are staff releases the locks. This option would allow a facility to address patient safety without totally relying on staff to open exit doors in a fire event.

The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 7 open meetings and over 100 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

Final Hearing Results

E74-12 **AMPC**

Code Change No: E77-12

Original Proposal

Section(s): 1008.1.9.8, 1008.1.9.9 (IFC [B] 1008.1.9.8, 1008.1.9.9)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1008.1.9.8 (IFC [B] 1008.1.9.8) Access controlled egress doors. The entrance doors in a means of egress in buildings with an occupancy in Groups A, B, E, I-1, I-2, I-4, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in groups A, B, E, I-1, I-2, I-4, M, R-1 or R-2 are permitted to be equipped with an approved entrance and egress access control system, listed in accordance with UL 294, which shall be installed in accordance with all of the following criteria:

1. A sensor shall be provided on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to that the part of the access control system which locks the doors shall automatically unlock the doors.
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016mm to 1219mm) vertically above the floor and within 5 feet (1524mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads “PUSH TO EXIT.” When operated, the manual unlocking device shall result in direct interruption of power to the lock—independent of the access control system electronics—and the doors shall remain unlocked for a minimum of 30 seconds.
4. Activation of the building fire alarm system, if provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building automatic sprinkler or fire detection system, if provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
6. Entrance doors in buildings with an occupancy in Group A, B, E, or M shall not be secured from the egress side during periods that the building is open to the general public.

1008.1.9.9 (IFC [B] 1008.1.9.9) Electromagnetically locked egress doors. Doors in the *means of egress* in buildings with an occupancy in Group A, B, E, I-1, I-2, I-4, M, R-1 or R-2 and doors to tenant spaces in Group A, B, E, I-1, I-2, I-4, M, R-1 or R-2 shall be permitted to be electromagnetically locked if equipped with listed hardware that incorporates a built-in switch and meets the requirements below:

1. The listed hardware that is affixed to the door leaf has an obvious method of operation that is readily operated under all lighting conditions.
2. The listed hardware is capable of being operated with one hand.
3. Operation of the listed hardware directly interrupts the power to the electromagnetic lock and unlocks the door immediately.
4. Loss of power to the listed hardware automatically unlocks the door.
5. Where panic or *fire exit hardware* is required by Section 1008.1.10, operation of the listed panic or *fire exit hardware* also releases the electromagnetic lock.

Reason: Group I-1 and I-2 include patients where they may be a concern for elopement. In day care, there is the concern of children perhaps leaving the facility. These types of systems allow for some control, while at the same time allowing free egress during an emergency.

If the correlative change for Group R-4, Condition 1 and Condition 2 is successful, a public comment regarding the application of these types of locking arrangements may be submitted.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: Increase

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The allowance for access controlled egress systems to be used for Group I-1 and I-4 incorporates on-site safety with appropriate egress requirements.

Assembly Action: **None**

Final Hearing Results

E77-12 **AS**

Code Change No: E78-12

Original Proposal

Section(s): 1008.1.9.8 (IFC [B] 1008.1.9.8)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1008.1.9.8 (IFC [B] 1008.1.9.8) ~~Access controlled~~ Motion sensor release of electromagnetically locked egress doors. Electromagnetically locked ~~The entrance~~ doors located in a means of egress in buildings with an occupancy in Groups A, B, E, I-2, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in groups A, B, E, I-2, M, R-1 or R-2 are permitted ~~to be equipped with an approved entrance and egress access control system, listed in accordance with UL 294, which shall be~~ where installed and operated in accordance with all of the following criteria:

1. A motion sensor shall be provided on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to ~~that~~ the lock ~~part of the access control system which locks the doors~~ shall automatically unlock the doors.
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016mm to 1219mm) vertically above the floor and within 5 feet (1524mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads “PUSH TO EXIT.” When operated, the manual unlocking device shall result in direct interruption of power to the lock—independent of ~~the access control system~~ other electronics—and the doors shall remain unlocked for a minimum of 30 seconds.
4. Activation of the building fire alarm system, if provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building automatic sprinkler or fire detection system, if provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
6. Entrance doors in buildings with an occupancy in Group A, B, E, or M shall ~~not be secured from the~~ always allow immediate free egress ~~side~~ during periods that the building is open to the general public.
7. All components of the door locking system shall be listed in accordance with UL 294.

Reason: This code was originally proposed to NFPA, UBC/UFC, and BOCA as an **alternative** way to release electromagnetic locks. It came from Washington, D.C. security contractors in the early 1980s when faced with installing electromagnetic locks on hundreds of all glass doors on defense contractors’ facilities. There was no way to install bars with switches and no way to conceal the wiring. The title, Access Controlled Egress Doors, **meant** that access to free egress was controlled. It had nothing to do with the (then) new *electronic access control systems.*

The code addressed fire safety by taking aspects of devices not allowed and making them safer when used together. Buttons, once special knowledge, were given specific placement parameters and requirements to break the power to the lock, directly; the somewhat unreliable motion sensor was backed up by the button; the 30 second re-triggerable and independent timer attached to the button protected against CPU failure and allowed 30 seconds before relocking so the disabled could get through the door; and the connection to the fire system meant that the door would unlock upon alarm. It was an alternate code, designed to be used sparingly and in certain situations.

This code is used heavily in hospitals, but its application is often misunderstood. It is time to clean up this code by eliminating confusing references to *access control systems*, directly or implied. Access has never been an issue for the codes, except in high-rise stair towers.

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives.

The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

This proposal is being co-sponsored by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1008.1.9.8 (IFC [B] 1008.1.9.8) ~~Motion~~ Sensor release of ~~electromagnetically~~ electrically locked egress doors.
~~Electromagnetically locked~~ The electric locks on sensor released doors located in a means of egress in buildings with an occupancy in Groups A, B, E, I-2, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in groups A, B, E, I-2, M, R-1 or R-2 are permitted where installed and operated in accordance with all of the following criteria:

1. ~~A motion~~ The sensor shall be ~~provided~~ installed on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to the lock or locking system shall automatically unlock the doors.

3 through 6 *(no change)*

7. ~~All components of~~ The door locking system units shall be listed in accordance with UL 294.

Committee Reason: The modification coordinates with the terminology used in the referenced standard, UL 294 and recognizes that locks are part of a system. The modification also coordinates with the suggested language clarifications brought up in E79. The revision to the title and the start of the section allows for a variety of types of sensors and electric locks. The updated language will improve consistency between the code and the industry. The reference to UL294 would provide consistency between the different types of access control systems.

Assembly Action: **None**

Final Hearing Results

E78-12 **AM**

Code Change No: E80-12

Original Proposal

Section(s): 1008.1.9.8 (IFC [B] 1008.1.9.8)

Proponent: Robert Trotter, representing Tennessee Code Development Committee (bobtrotter1023@aol.com)

Revise as follows:

1008.1.9.8 (IFC [B] 1008.1.9.8) Access-controlled egress doors. The entrance doors in a means of egress in buildings with an occupancy in Group A, B, E, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in Groups A, B, E, M, R-1 and R-2 are permitted to be equipped with an approved entrance and egress access control system, listed in accordance with UL 294, which shall be installed in accordance with all of the following criteria:

1. A sensor shall be provided on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to that part of the access control system which locks the doors shall automatically unlock the doors.
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads “PUSH TO EXIT.” When operated, the manual unlocking device shall result in direct interruption of power to the lock—independent of the access control system electronics—and the doors shall remain unlocked for a minimum of 30 seconds.
4. Activation of the building fire alarm system, if provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building automatic sprinkler or fire detection system, if provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
6. ~~Entrance doors in buildings with an occupancy in Group A, B, E or M shall not be secured from the egress side during periods that the building is open to the general public.~~

Reason: The sixth criterion is redundant and should be removed from the code. The first five requirements satisfactorily meet the needs for access-controlled egress doors. The doors are not secured from the egress side when the first five criterions are met.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Deletion of Item 6 removes redundant language in this section. The committee agreed that the doors are effectively open for egress if Items 1 through 5 are met.

Assembly Action: **None**

Final Hearing Results

E80-12 **AS**

Code Change No: E81-12

Original Proposal

Section(s): 1008.1.9.9 (IFC [B] 1008.1.9.9)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Revise as follows:

1008.1.9.9 (IFC [B] 1008.1.9.9) Electromagnetically locked egress doors. Doors in the *means of egress* in buildings with an occupancy in Group A, B, E, I-2, M, R-1 or R-2 and doors to tenant spaces in Group A, B, E, I-2, M, R-1 or R-2 shall be permitted to be electromagnetically locked if equipped with listed hardware that incorporates a built-in switch and meet the requirements below :

1. The listed hardware that is affixed to the door leaf has an obvious method of operation that is readily operated under all lighting conditions.
2. The listed hardware is capable of being operated with one hand.
3. Operation of the listed hardware directly interrupts the power to the electromagnetic lock and unlocks the door immediately.
4. Loss of power to the listed hardware automatically unlocks the door.
5. Where panic or *fire exit hardware* is required by Section 1008.1.10, operation of the listed panic or *fire exit hardware* also releases the electromagnetic lock.

Reason: The addition of I-2 is necessary since so many of these health care facilities use electromagnetic locks for security and personnel safety, something that 1008.1.9.8 cannot provide.

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Allowances for Group I-2 to use electromagnetic locking systems is consistent with the approved changes to a variety of locking systems. This is also consistent with specific changes to Section 1008.1.9.9 in E77-12.

Assembly Action: **None**

Final Hearing Results

E81-12 **AS**

Code Change No: E82-12

Original Proposal

Section(s): 1008.1.9.9 (IFC [B] 1008.1.9.9)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Revise as follows:

1008.1.9.9 (IFC [B] 1008.1.9.9) Door hardware release of electromagnetic locks on ~~Electromagnetically locked~~ egress doors. Doors in the *means of egress* in buildings with an occupancy in Group A, B, E, M, R-1 or R-2 and doors to tenant spaces in Group A, B, E, M, R-1 or R-2 shall be permitted to be electromagnetically locked if equipped with ~~listed~~ hardware that incorporates a built-in switch and ~~meet the requirements below~~ are installed and operated in accordance with Items 1 through 6 below:

1. The ~~listed~~ hardware that is affixed to the door leaf has an obvious method of operation that is readily operated under all lighting conditions.
2. The ~~listed~~ hardware is capable of being operated with one hand.
3. Operation of the ~~listed~~ hardware directly interrupts the power to the electromagnetic lock and unlocks the door immediately.
4. Loss of power to the ~~listed~~ hardware automatically unlocks the door.
5. Where panic or *fire exit hardware* is required by Section 1008.1.10, operation of the ~~listed~~ panic or *fire exit hardware* also releases the electromagnetic lock.
6. All components of the door locking system shall be listed in accordance with UL 294.

Reason: The title change is to prevent confusion between the two types of releasing systems for electromagnetic locks as both codes, 1008.1.9.8 and 1008.1.9.9, detail these requirements which are very different from each other. The remainder of the change is editorial for consistency with other sections.

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1008.1.9.9 (IFC [B] 1008.1.9.9) ~~Door hardware release of electromagnetic locks on~~ Electromagnetically locked egress doors. Doors in the *means of egress* in buildings with an occupancy in Group A, B, E, M, R-1 or R-2 and doors to tenant spaces in Group A, B, E, M, R-1 or R-2 shall be permitted to be ~~electromagnetically~~ locked with an electromagnetic locking system where ~~if~~ equipped with hardware that incorporates a built-in switch and are installed and operated in accordance with Items 1 through 6 below:

1. The hardware that is affixed to the door leaf has an obvious method of operation that is readily operated under all lighting conditions.
2. The hardware is capable of being operated with one hand.

3. Operation of the hardware directly interrupts the power to the electromagnetic lock and unlocks the door immediately.
4. Loss of power to the ~~hardware~~ locking system automatically unlocks the door.
5. Where panic or *fire exit hardware* is required by Section 1008.1.10, operation of the panic or *fire exit hardware* also releases the electromagnetic lock.
6. ~~All components of~~ The ~~door~~ locking system units shall be listed in accordance with UL 294.

Committee Reason: The modification coordinates with the terminology used in the referenced standard, UL 294 and recognizes that locks are part of a system. The modification also coordinates with the suggested language clarifications brought up in E79. The revision to the title puts back the existing title. The updated language will improve consistency between the code and the industry. The reference to UL294 would provide consistency between the different types of access control systems.

Assembly Action: **None**

Final Hearing Results

E82-12 **AM**

Code Change No: E84-12

Original Proposal

Section(s): 1008.1.10 (IFC [B] 1008.1.10)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

Revise as follows:

1008.1.10 (IFC [B] 1008.1.10) Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock unless it is *panic hardware* or *fire exit hardware*.

~~Exception~~ Exceptions:

1. A main *exit* of a Group A occupancy shall be permitted to be locking in accordance ~~compliance~~ with Section 1008.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1008.1.9.9.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide that contain overcurrent devices, switching devices or control devices with *exit* or *exit access* doors shall be equipped with *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.

Reason: A potential interpretation of the requirements of 1008.1.10 is to not allow any other lock or latch where panic hardware or fire exit hardware is required. But 1008.1.9.9 allows an electromagnetic lock where panic or fire exit hardware is required by 1008.1.10. The proposed language clarifies electromagnetic locks are permitted where panic or fire exit hardware is required.

The revision to the existing exception is correlative and editorial only.

Cost Impact: None.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal clarifies that electromagnetic type locks should be permitted where panic or fire exit hardware is required.

Assembly Action: **None**

Final Hearing Results

E84-12 **AS**

Code Change No: E86-12

Original Proposal

Section(s): 1007.1, 1009.4, 1009.7.2, 1009.7.4, 1009.8, 1009.10, 1009.15, 1010.3, 1028.6.1, 1028.6.3, 1028.11.2, 1028.13, 1028.13.2 (IFC [B] 1007.1, 1009.4, 1009.7.2, 1009.7.4, 1009.8, 1009.10, 1009.15, 1010.3, 1028.6.1, 1028.6.3, 1028.11.2, 1028.13, 1028.13.2)

Proponent: Gene Boecker, AIA, Code Consultants, Inc, representing self (geneb@codeconsultants.com)

Revise as follows:

1007.1 (IFC [B] 1007.1) Accessible means of egress required. Accessible means of egress shall comply with this section. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress are required by Section 1015.1 or 1021.1 from any accessible space, each accessible portion of the space shall be served by not less than two accessible means of egress.

Exceptions:

1. Accessible means of egress are not required in alterations to existing buildings.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with Section 1007.3, 1007.4 or 1007.5.
3. In assembly areas with ~~sloped~~ ramped aisles or stepped aisles, one accessible means of egress is permitted where the common path of travel is accessible and meets the requirements in Section 1028.8.

1009.4 (IFC [B] 1009.4) Width. The width of stairways shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm). See Section 1007.3 for accessible means of egress stairways.

Exceptions:

1. Stairways serving an occupant load of less than 50 shall have a width of not less than 36 inches (914 mm).
2. Spiral stairways as provided for in Section 1009.12.
3. ~~Aisle stairs~~ Stepped aisles complying with Section 1028.
4. Where an incline platform lift or stairway chairlift is installed on stairways serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, a clear passage width not less than 20 inches (508 mm) shall be provided. If the seat and platform can be folded when not in use, the distance shall be measured from the folded position.

1009.7.2 (IFC [B] 1009.7.2) Riser height and tread depth. Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the nosings of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's nosing. Winder treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair.

Exceptions:

1. Alternating tread devices in accordance with Section 1009.13.
2. Ship ladders in accordance with Section 1009.14.
3. Spiral stairways in accordance with Section 1009.12.
4. ~~Aisle stairs~~ Stepped aisles in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1028.11.2.
5. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 7 ¾ inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walkline shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing projection not less than ¾ inch (19.1 mm) but not more than 1 ¼ inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
6. See Section 3404.1 for the replacement of existing stairways.
7. In Group I-3 facilities, stairways providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m^2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).

1009.7.4 (IFC [B] 1009.7.4) Dimensional uniformity. Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed $^3/_8$ inch (9.5 mm) in any flight of stairs. The greatest winder tread depth at the walkline within any flight of stairs shall not exceed the smallest by more than $^3/_8$ inch (9.5 mm).

Exceptions:

1. Nonuniform riser dimensions of ~~aisle stairs~~ stepped aisles complying with Section 1028.11.2.
2. Consistently shaped winders, complying with Section 1009.7, differing from rectangular treads in the same stairway flight.

Where the bottom or top riser adjoins a sloping public way, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of stairway width. The nosings or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight. The distinctive marking stripe shall be visible in descent of the stair and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51 mm).

1009.8 (IFC [B] 1009.8) Stairway landings. There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall not be less than the width of stairways they serve. Every landing shall have a minimum width measured perpendicular to in the direction of travel equal to the width of the stairway. Where the stairway has a straight run the depth need not exceed 48 inches (1219 mm). Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. When wheelchair spaces are required on the stairway landing in accordance with Section 1007.6.1, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

Exception: ~~Aisle stairs~~ Stepped aisles complying with Section 1028.

1009.10 (IFC [B] 1009.10) Vertical rise. A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

Exceptions:

1. ~~Aisle stairs~~ Stepped aisles complying with Section 1028.
2. Alternating tread devices used as a means of egress shall not have a rise greater than 20 feet (6096 mm) between floor levels or landings.
3. Spiral stairways used as a means of egress from technical production areas.

1009.15 (IFC [B] 1009.15) Handrails. Stairways shall have handrails on each side and shall comply with Section 1012. Where glass is used to provide the handrail, the handrail shall also comply with Section 2407.

Exceptions:

1. Handrails for ~~aisle stairs~~ stepped aisles provided in accordance with Section 1028.13.
2. Stairways within dwelling units and spiral stairways are permitted to have a handrail on one side only.
3. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require handrails.
4. In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require handrails.
5. Changes in room elevations of three or fewer risers within dwelling units and sleeping units in Group R-2 and R-3 do not require handrails.

1010.3 (IFC [B] 1010.3) Slope. Ramps used as part of a means of egress shall have a running slope not steeper than one unit vertical in 12 units horizontal (8-percent slope). The slope of other pedestrian ramps shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

Exception: ~~Aisle ramp~~ The slope of a ramped aisle in a room or space used for assembly purposes shall comply with Section 1028.11.

1028.6.1 (IFC [B] 1028.6.1) Without smoke protection. The clear width of the means of egress shall provide sufficient capacity in accordance with all of the following, as applicable:

1. At least 0.3 inch (7.6 mm) of width for each occupant served shall be provided on ~~stairs~~ stepped aisles having riser heights 7 inches (178 mm) or less and tread depths 11 inches (279 mm) or greater, measured horizontally between tread nosings.
2. At least 0.005 inch (0.127 mm) of additional ~~stair~~ stepped aisle width for each occupant shall be provided for each 0.10 inch (2.5mm) of riser height above 7 inches (178 mm).
3. Where egress requires ~~stair~~ stepped aisle descent, at least 0.075 inch (1.9 mm) of additional width for each occupant shall be provided on those portions of ~~stair~~ stepped aisle width having no handrail within a horizontal distance of 30 inches (762 mm).
4. Ramped aisles ~~means of egress~~, where slopes are steeper than one unit vertical in 12 units horizontal (8-percent slope), shall have at least 0.22 inch (5.6 mm) of clear width for each occupant served. Level or ramped aisles ~~means of egress~~, where slopes are not steeper than one unit vertical in 12 units horizontal (8-percent slope), shall have at least 0.20 inch (5.1 mm) of clear width for each occupant served.

1028.6.3 (IFC [B] 1028.6.3) Width of means of egress for outdoor smoke-protected assembly seating. The clear width in inches (mm) of aisles and other means of egress shall be not less than the total occupant load served by the egress element multiplied by 0.08 (2.0 mm) where egress is by ~~aisles and stairs~~ stepped aisles and stairways and multiplied by 0.06 (1.52 mm) where egress is by ~~ramps~~ aisles, ramped aisles, corridors, tunnels or vomitories.

Exception: The clear width in inches (mm) of aisles and other means of egress shall be permitted to comply with Section 1028.6.2 for the number of seats in the outdoor smoke-protected assembly seating where Section 1028.6.2 permits less width.

1028.11.2 (IFC [B] 1028.11.2) Risers. Where the gradient of ~~aisle stairs~~ stepped aisles is to be the same as the gradient of adjoining seating areas, the riser height shall not be less than 4 inches (102 mm) nor more than 8 inches (203 mm) and shall be uniform within each flight.

Exceptions:

1. Riser height nonuniformity shall be limited to the extent necessitated by changes in the gradient of the adjoining seating area to maintain adequate sightlines. Where nonuniformities exceed 3/16 inch (4.8 mm) between adjacent risers, the exact location of such nonuniformities shall be indicated with a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers. Such stripe shall be a minimum of 1 inch (25 mm), and a maximum of 2 inches (51 mm), wide. The edge marking stripe shall be distinctively different from the contrasting marking stripe.
2. Riser heights not exceeding 9 inches (229 mm) shall be permitted where they are necessitated by the slope of the adjacent seating areas to maintain sightlines.

1028.13 (IFC [B] 1028.13) Handrails. Ramped aisles having a slope exceeding one unit vertical in 15 units horizontal (6.7-percent slope) and ~~aisle stairs~~ stepped aisles shall be provided with handrails in compliance with Section 1012 located either at one or both sides of the aisle or within the aisle width.

Exceptions:

1. Handrails are not required for ramped aisles having a gradient no greater than one unit vertical in eight units horizontal (12.5-percent slope) and seating on both sides.
2. Handrails are not required if, at the side of the aisle, there is a guard that complies with the graspability requirements of handrails.
3. Handrail extensions are not required at the top and bottom of ~~aisle stair~~ stepped aisles and ~~aisle ramp runs~~ ramped aisles to permit crossovers within the aisles.

1028.13.2 (IFC [B] 1028.13.2) Intermediate handrails. Where handrails are provided in the middle of ~~aisle stairs,~~ stepped aisles there shall be an additional intermediate handrail located approximately 12 inches (305 mm) below the main handrail.

Reason: The intent is to use language that is more common and consistent with the manner in which it is applied. The adjective defines the noun. In all the cases within the code the thing being described is the aisle and the stepped or ramped aspect is the adjective.

Changing the phase "aisle stairs" to "stepped aisles" in multiple locations: Throughout the sections of the code that address aisles, the adjective is used and then the term "aisle" follows, except for this element. There are "cross" aisles and "ramped" aisles but the term is changed to aisle stairs rather than stepped aisles except in one occurrence. The term "stepped aisles" is already used in Section 1007.1, exception #3.

In the code sections that address stairs the term aisle stairs is used but in the exceptions because they are different than regular stairs. The code language should acknowledge this. The code uses the term stair which is defined. But in the stair section of the code, it offers exception after exception that the requirement does not apply to "aisle stairs." If the text indicates that these are not to be treated as stairs, then the code should not be using that term.

Change the phrase "aisle ramp" to "ramped aisles" in three locations: In all conditions except these three, the term used in the code to address these elements is "ramped aisle." These are the only cases where the term is not used consistently. The proposal seeks to make this aspect of the code consistent throughout.

Section 1028.6.3: It is clear that the intent of the language in the exception to Section 1028.6.3 is to address the vertical elements for aisles. Consistent with the language changes proposed, this should be clarified that it is the "stepped" aisles that are being discussed since the following phrase clearly addresses horizontal elements.

This is but another example where the term stairs is inappropriate since it would be confusing to say "aisle stairs and stairs." If the aisle stairs are already stairs then the expression is redundant. If they are different then the terminology should address that.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Using the phrase ‘stepped aisles’ helps differentiate ‘stairways’ from the current phase ‘aisle stairs’. This will improve clarity in the code language.

Assembly Action: **None**

Final Hearing Results

E86-12 **AS**

Code Change No: E87-12

Original Proposal

Section(s): 1007.1, 1009.4, 1009.7.2, 1009.7.4, 1009.8, 1009.10, 1009.15, 1010.3, 1028.6.1, 1028.6.3, 1028.11.2, 1028.13, 1028.13.2 (IFC [B] 1007.1, 1009.4, 1009.7.2, 1009.7.4, 1009.8, 1009.10, 1009.15, 1010.3, 1028.6.1, 1028.6.3, 1028.11.2, 1028.13, 1028.13.2)

Proponent: Gene Boecker, AIA, Code Consultants, Inc, representing self (geneb@codeconsultants.com)

Revise as follows:

1007.1 (IFC [B] 1007.1) Accessible means of egress required. Accessible means of egress shall comply with this section. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress are required by Section 1015.1 or 1021.1 from any accessible space, each accessible portion of the space shall be served by not less than two accessible means of egress.

Exceptions:

1. Accessible means of egress are not required in alterations to existing buildings.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with Section 1007.3, 1007.4 or 1007.5.
3. In assembly areas with ~~sloped~~ ramped aisles or stepped aisles, one accessible means of egress is permitted where the common path of travel is accessible and meets the requirements in Section 1028.8.

1009.4 (IFC [B] 1009.4) Width. The width of stairways shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm). See Section 1007.3 for accessible means of egress stairways.

Exceptions:

1. Stairways serving an occupant load of less than 50 shall have a width of not less than 36 inches (914 mm).
2. Spiral stairways as provided for in Section 1009.12.
3. ~~Aisle stairs~~ Stepped aisles complying with Section 1028.
4. Where an incline platform lift or stairway chairlift is installed on stairways serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, a clear passage width not less than 20 inches (508 mm) shall be provided. If the seat and platform can be folded when not in use, the distance shall be measured from the folded position.

1009.7.2 (IFC [B] 1009.7.2) Riser height and tread depth. Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the nosings of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's nosing. Winder treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair.

Exceptions:

1. Alternating tread devices in accordance with Section 1009.13.
2. Ship ladders in accordance with Section 1009.14.
3. Spiral stairways in accordance with Section 1009.12.
4. ~~Aisle stairs~~ Stepped aisles in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1028.11.2.
5. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 7 ¾ inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walkline shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing projection not less than ¾ inch (19.1 mm) but not more than 1 ¼ inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
6. See Section 3404.1 for the replacement of existing stairways.
7. In Group I-3 facilities, stairways providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m^2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).

1009.7.4 (IFC [B] 1009.7.4) Dimensional uniformity. Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed $^3/_8$ inch (9.5 mm) in any flight of stairs. The greatest winder tread depth at the walkline within any flight of stairs shall not exceed the smallest by more than $^3/_8$ inch (9.5 mm).

Exceptions:

1. Nonuniform riser dimensions of ~~aisle stairs~~ stepped aisles complying with Section 1028.11.2.
2. Consistently shaped winders, complying with Section 1009.7, differing from rectangular treads in the same stairway flight.

Where the bottom or top riser adjoins a sloping public way, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of stairway width. The nosings or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight. The distinctive marking stripe shall be visible in descent of the stair and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51 mm).

1009.8 (IFC [B] 1009.8) Stairway landings. There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall not be less than the width of stairways they serve. Every landing shall have a minimum width measured perpendicular to in the direction of travel equal to the width of the stairway. Where the stairway has a straight run the depth need not exceed 48 inches (1219 mm). Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. When wheelchair spaces are required on the stairway landing in accordance with Section 1007.6.1, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

Exception: ~~Aisle stairs~~ Stepped aisles complying with Section 1028.

1009.10 (IFC [B] 1009.10) Vertical rise. A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

Exceptions:

1. ~~Aisle stairs~~ Stepped aisles complying with Section 1028.
2. Alternating tread devices used as a means of egress shall not have a rise greater than 20 feet (6096 mm) between floor levels or landings.
3. Spiral stairways used as a means of egress from technical production areas.

1009.15 (IFC [B] 1009.15) Handrails. Stairways shall have handrails on each side and shall comply with Section 1012. Where glass is used to provide the handrail, the handrail shall also comply with Section 2407.

Exceptions:

1. Handrails for ~~aisle stairs~~ stepped aisles provided in accordance with Section 1028.13.
2. Stairways within dwelling units and spiral stairways are permitted to have a handrail on one side only.
3. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require handrails.
4. In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require handrails.
5. Changes in room elevations of three or fewer risers within dwelling units and sleeping units in Group R-2 and R-3 do not require handrails.

1010.3 (IFC [B] 1010.3) Slope. Ramps used as part of a means of egress shall have a running slope not steeper than one unit vertical in 12 units horizontal (8-percent slope). The slope of other pedestrian ramps shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

Exception: ~~Aisle ramp~~ The slope of a ramped aisle in a room or space used for assembly purposes shall comply with Section 1028.11.

1028.6.1 (IFC [B] 1028.6.1) Without smoke protection. The clear width of the means of egress shall provide sufficient capacity in accordance with all of the following, as applicable:

1. At least 0.3 inch (7.6 mm) of width for each occupant served shall be provided on ~~stairs~~ stepped aisles having riser heights 7 inches (178 mm) or less and tread depths 11 inches (279 mm) or greater, measured horizontally between tread nosings.
2. At least 0.005 inch (0.127 mm) of additional ~~stair~~ stepped aisle width for each occupant shall be provided for each 0.10 inch (2.5mm) of riser height above 7 inches (178 mm).
3. Where egress requires ~~stair~~ stepped aisle descent, at least 0.075 inch (1.9 mm) of additional width for each occupant shall be provided on those portions of ~~stair~~ stepped aisle width having no handrail within a horizontal distance of 30 inches (762 mm).
4. Ramped aisles ~~means of egress~~, where slopes are steeper than one unit vertical in 12 units horizontal (8-percent slope), shall have at least 0.22 inch (5.6 mm) of clear width for each occupant served. Level or ramped aisles ~~means of egress~~, where slopes are not steeper than one unit vertical in 12 units horizontal (8-percent slope), shall have at least 0.20 inch (5.1 mm) of clear width for each occupant served.

1028.6.3 (IFC [B] 1028.6.3) Width of means of egress for outdoor smoke-protected assembly seating. The clear width in inches (mm) of aisles and other means of egress shall be not less than the total occupant load served by the egress element multiplied by 0.08 (2.0 mm) where egress is by ~~aisles and stairs~~ stepped aisles and stairways and multiplied by 0.06 (1.52 mm) where egress is by ~~ramps~~ aisles, ramped aisles, corridors, tunnels or vomitories.

Exception: The clear width in inches (mm) of aisles and other means of egress shall be permitted to comply with Section 1028.6.2 for the number of seats in the outdoor smoke-protected assembly seating where Section 1028.6.2 permits less width.

1028.11.2 (IFC [B] 1028.11.2) Risers. Where the gradient of ~~aisle stairs~~ stepped aisles is to be the same as the gradient of adjoining seating areas, the riser height shall not be less than 4 inches (102 mm) nor more than 8 inches (203 mm) and shall be uniform within each flight.

Exceptions:

1. Riser height nonuniformity shall be limited to the extent necessitated by changes in the gradient of the adjoining seating area to maintain adequate sightlines. Where nonuniformities exceed 3/16 inch (4.8 mm) between adjacent risers, the exact location of such nonuniformities shall be indicated with a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers. Such stripe shall be a minimum of 1 inch (25 mm), and a maximum of 2 inches (51 mm), wide. The edge marking stripe shall be distinctively different from the contrasting marking stripe.
2. Riser heights not exceeding 9 inches (229 mm) shall be permitted where they are necessitated by the slope of the adjacent seating areas to maintain sightlines.

1028.13 (IFC [B] 1028.13) Handrails. Ramped aisles having a slope exceeding one unit vertical in 15 units horizontal (6.7-percent slope) and ~~aisle stairs~~ stepped aisles shall be provided with handrails in compliance with Section 1012 located either at one or both sides of the aisle or within the aisle width.

Exceptions:

1. Handrails are not required for ramped aisles having a gradient no greater than one unit vertical in eight units horizontal (12.5-percent slope) and seating on both sides.
2. Handrails are not required if, at the side of the aisle, there is a guard that complies with the graspability requirements of handrails.
3. Handrail extensions are not required at the top and bottom of ~~aisle stair~~ stepped aisles and ~~aisle ramp runs~~ ramped aisles to permit crossovers within the aisles.

1028.13.2 (IFC [B] 1028.13.2) Intermediate handrails. Where handrails are provided in the middle of ~~aisle stairs,~~ stepped aisles there shall be an additional intermediate handrail located approximately 12 inches (305 mm) below the main handrail.

Reason: The intent is to use language that is more common and consistent with the manner in which it is applied. The adjective defines the noun. In all the cases within the code the thing being described is the aisle and the stepped or ramped aspect is the adjective.

Changing the phase "aisle stairs" to "stepped aisles" in multiple locations: Throughout the sections of the code that address aisles, the adjective is used and then the term "aisle" follows, except for this element. There are "cross" aisles and "ramped" aisles but the term is changed to aisle stairs rather than stepped aisles except in one occurrence. The term "stepped aisles" is already used in Section 1007.1, exception #3.

In the code sections that address stairs the term aisle stairs is used but in the exceptions because they are different than regular stairs. The code language should acknowledge this. The code uses the term stair which is defined. But in the stair section of the code, it offers exception after exception that the requirement does not apply to "aisle stairs." If the text indicates that these are not to be treated as stairs, then the code should not be using that term.

Change the phrase "aisle ramp" to "ramped aisles" in three locations: In all conditions except these three, the term used in the code to address these elements is "ramped aisle." These are the only cases where the term is not used consistently. The proposal seeks to make this aspect of the code consistent throughout.

Section 1028.6.3: It is clear that the intent of the language in the exception to Section 1028.6.3 is to address the vertical elements for aisles. Consistent with the language changes proposed, this should be clarified that it is the "stepped" aisles that are being discussed since the following phrase clearly addresses horizontal elements.

This is but another example where the term stairs is inappropriate since it would be confusing to say "aisle stairs and stairs." If the aisle stairs are already stairs then the expression is redundant. If they are different then the terminology should address that.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This reorganization will reduce flipping back and forth in the code by separating 'aisle stairs' and 'aisle ramps' from 'stairways' and 'ramps'. Handrails and guards are referenced consistently where applicable. This proposal will add clarification of terms throughout the chapter. The committee does want the phrase 'aisle stairs' to change to 'stepped aisles' based on the committee action on E86.

Assembly Action: **None**

Final Hearing Results

E87-12 **AS**

Code Change No: E88-12

Original Proposal

Section(s): 1009.1, 1009.4, 1009.7.2, 1009.7.4, 1009.8, 1009.10, 1009.15 (IFC [B] 1009.1, 1009.4, 1009.7.2, 1009.7.4, 1009.8, 1009.10, 1009.15)

Proponent: S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee

Revise as follows:

SECTION 1009 (IFC [B] 1009)
STAIRWAYS

1009.1 (IFC [B] 1009.1) General. Stairways serving occupied portions of a building shall comply with the requirements of this section.

Exception: Within rooms or spaces used for assembly purposes, aisle stairs shall comply with Section 1028.

1009.4 (IFC [B] 1009.4) Width. The width of stairways shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm). See Section 1007.3 for accessible means of egress stairways.

Exceptions:

1. Stairways serving an occupant load of less than 50 shall have a width of not less than 36 inches (914 mm).
2. Spiral stairways as provided for in Section 1009.12.
3. ~~Aisle stairs complying with Section 1028.~~
34. Where an incline platform lift or stairway chairlift is installed on stairways serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, a clear passage width not less than 20 inches (508 mm) shall be provided. If the seat and platform can be folded when not in use, the distance shall be measured from the folded position.

1009.7 (IFC [B] 1009.7) Stair treads and risers. Stair treads and risers shall comply with Sections 1009.7.1 through 1009.7.5.3.

1009.7.2 (IFC [B] 1009.7.2) Riser height and tread depth. Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the nosings of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's nosing. Winder treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair.

Exceptions:

1. Alternating tread devices in accordance with Section 1009.13.
2. Ship ladders in accordance with Section 1009.14.
3. Spiral stairways in accordance with Section 1009.12.

4. ~~Aisle stairs in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1028.11.2.~~ Stairways connecting aisle stairs to cross aisles or concourses shall be permitted to use the riser/tread dimension in Section 1028.11.1.
45. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 7 ¾ inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walkline shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing projection not less than ¾ inch (19.1 mm) but not more than 1 ¼ inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
56. See Section 3404.1 for the replacement of existing stairways.
67. In Group I-3 facilities, stairways providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m^2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).

1009.7.4 (IFC [B] 1009.7.4) Dimensional uniformity. Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm)in any flight of stairs. The greatest winder tread depth at the walk line within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Exceptions:

1. ~~Nonuniform riser dimensions of aisle stairs complying with Section 1028.11.2.~~ Stairways connecting aisle stairs to cross aisles or concourses shall be permitted to comply with the dimensional non-uniformity in Section 1028.11.2.
2. Consistently shaped winders, complying with Section 1009.7, differing from rectangular treads in the same stairway flight.

Where the bottom or top riser adjoins a sloping public way, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of stairway width. The nosings or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight. The distinctive marking stripe shall be visible in descent of the stair and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51 mm).

1009.8 (IFC [B] 1009.8) Stairway landings. There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall not be less than the width of stairways they serve. Every landing shall have a minimum width measured perpendicular to in the direction of travel equal to the width of the stairway. Where the stairway has a straight run the depth need not exceed 48 inches (1219 mm). Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. When wheelchair spaces are required on the stairway landing in accordance with Section 1007.6.1, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

Exception: ~~Aisle stairs complying with Section 1028.~~ Where stairways connect aisle stairs to cross aisles or concourses, stairway landings are not required at the transition between stairways and aisle stairs constructed in accordance with Section 1028.

1009.10 (IFC [B] 1009.10) Vertical rise. A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

Exceptions:

1. ~~Aisle stairs complying with Section 1028~~.
   1.~~2.~~ Alternating tread devices used as a means of egress shall not have a rise greater than 20 feet (6096 mm) between floor levels or landings.
   2.~~3.~~ Spiral stairways used as a means of egress from technical production areas.

1009.15 (IFC [B] 1009.15) Handrails. Stairways shall have handrails on each side and shall comply with Section 1012. Where glass is used to provide the handrail, the handrail shall also comply with Section 2407.

Exceptions:

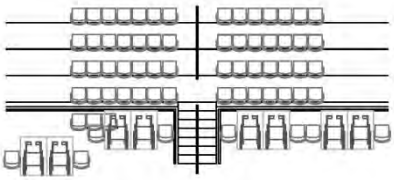
1. ~~Handrails for aisle stairs provided in accordance with Section 1028.13.~~
1~~2.~~ Stairways within dwelling units, and spiral stairways are permitted to have a handrail on one side only.
2~~3.~~ Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require handrails.
3~~4.~~ In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require handrails.
4~~5.~~ Changes in room elevations of three or fewer risers within dwelling units and sleeping units in Group R-2 and R-3 do not require handrails.

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

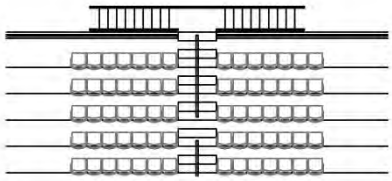
There are limited situations where aisle stairways transition directly to a stairway without first reaching a cross aisle or standard landing. Some examples are illustrated below. In these situations, to limit the chance of someone tripping at the transition, the specific exceptions for tread and riser dimensions (1009.7.2), dimensional uniformity (1009.7.4) and landings (1009.10) should be permitted in order to keep a consistent flight as occupants moved from aisle stair to stairway.

It is the intent of this code change to work in conjunction with the provisions to separate aisle stairs from stairways and ramped aisles from ramps in another proposal from this committee. BCAC has code changes in dealing with aisles in 1005, 1009, 1017 and 1028 as well as a transition between aisle stairs and stairways. The intent is for all four proposals to correlate; however this change can stand by itself.

C1

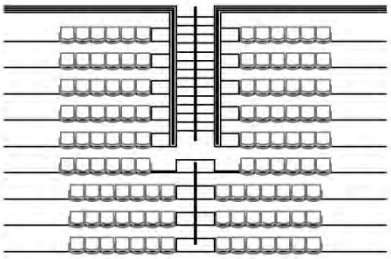


C1

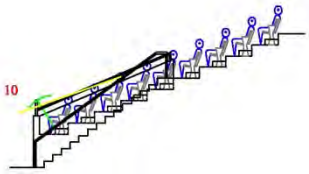


D1

D1



E2



E2

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal appropriately addresses the situation where assembly seating has a transition from 'aisle stairs' to 'stairways' in order to deal with changes in elevations are raised seating areas.

Assembly Action: **None**

Final Hearing Results

E88-12 **AS**

Code Change No: E89-12

Original Proposal

Section(s): 1009.3 (IFC [B] 1009.3)

Proponent: Maureen Traxler, City of Seattle Dept of Planning & Development, representing City of Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

Revise as follows:

1009.3 (IFC [B] 1009.3) Exit access stairways. Floor openings between stories created by exit access stairways shall be enclosed.

Exceptions:

1. In other than Group I-2 and I-3 occupancies, exit access stairways that serve, or atmospherically communicate between, only two stories, are not required to be enclosed.
2. Exit access stairways serving and contained within a single residential dwelling unit or sleeping unit in Group R-1, R-2 or R-3 occupancies are not required to be enclosed.
3. In ~~buildings with only~~ Group B or M occupancies, exit access stairway openings are not required to be enclosed provided that the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the area of the floor opening between stories does not exceed twice the horizontal projected area of the exit access stairway, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.
4. In other than Groups B and M occupancies, exit access stairway openings are not required to be enclosed provided that the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the floor opening does not connect more than four stories, the area of the floor opening between stories does not exceed twice the horizontal projected area of the exit access stairway, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.
5. Exit access stairways within an atrium complying with the provisions of Section 404 are not required to be enclosed.
6. Exit access stairways and ramps in open parking garages that serve only the parking garage are not required to be enclosed.
7. Stairways serving outdoor facilities where all portions of the means of egress are essentially open to the outside are not required to be enclosed.
8. Exit access stairways serving stages, platforms and technical production areas in accordance with Sections 410.6.2 and 410.6.3 are not required to be enclosed.
9. Stairways are permitted to be open between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.
10. In Group I-3 occupancies, exit access stairways constructed in accordance with Section 408.5 are not required to be enclosed.

Reason: We believe an inadvertent change to Section 1009.3 exception 3 was made by E5-09/10. In the 2009 IBC, Section 708.2 Exception 2.1 allowed this condition in Group B or M occupancies as proposed here. The language of the 2012 IBC is too restrictive. There are many buildings that include more than just a B or M occupancy. If the proper separation, areas, etc. are followed, this exception should be allowable for mixed use buildings, as this exception has qualifications that have to be met before this can be used. In addition, Exception #4 says: "In other than Group B and M occupancies …" **not** "In *buildings* with other than……." which seems to imply that this was the intent of Exception #3 too.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal allows for Section 1009.3, Exception 3 to be utilized in mixed occupancy buildings.

Assembly Action: **None**

Final Hearing Results

E89-12 **AS**

Code Change No: E92-12

Original Proposal

Section(s): 1009.7.4 (IFC [B] 1009.7.4)

Proponent: David W. Cooper , Stairway Manufacturing and Design Consultants representing Stairway Manufacturers' Association (sma@stairways.org)

Revise as follows:

1009.7.4 (IFC [B] 1009.7.4) Dimensional uniformity. *Stair* treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm) in any *flight* of *stairs*. The greatest *winder* tread depth at the walkline within any *flight* of *stairs* shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Exceptions:

1. Nonuniform riser dimensions of *aisle stairs* complying with Section 1028.11.2.
2. Consistently shaped *winders*, complying with Section 1009.7, differing from rectangular treads in the same *stairway flight*.
3. Nonuniform riser dimension complying with Section 1009.7.4.1.

1009.7.4.1 (IFC [B] 1009.7.4.1) Nonuniform height risers. Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of *stairway* width. The *nosings* or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other *nosing* marking provided on the *stair flight*. The distinctive marking stripe shall be visible in descent of the *stair* and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51 mm).

Reason: Editorial

Cost Impact: This will not affect the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This is a good editorial clarification that separates a unique landing situation from the main requirements for dimensional uniformity. This will encourage uniform application.

Assembly Action: **None**

Final Hearing Results

E92-12 **AS**

Code Change No: E93-12

Original Proposal

Section(s): 1009.7.5 (IFC [B] 1009.7.5)

Proponent: David W. Cooper, Stairway Manufacturing and Design Consultants representing Stairway Manufacturers' Association (sma@stairways.org)

Revise as follows:

1009.7.5 (IFC [B] 1009.7.5) Nosing and riser profile. ~~The radius of curvature at the leading edge of the tread shall be not greater than 9/16 inch (14.3 mm).~~ ~~Beveling of *nosings*~~ *Nosings* shall have a curvature or bevel of not less than 1/8 inch (3.2 mm) but not more than 9/16 inch (14.3 mm) from the foremost projection of the tread. Risers shall be solid and vertical or sloped under the tread above from the underside of the *nosing* above at an angle not more than 30 degrees (0.52 rad) from the vertical.

Reason: The radius of curvature is not of consequence as a smaller segment of a larger radius can be and is often used as shown in figure 2. The critical factor is to maximize the flat portion of the tread for purchase of the foot in descent.

A curvature or bevel at the nosing makes stairs safer; the nosing is less likely to chip or split due to use and wear, the nosing is not sharp and can reduce injury in a fall, and the change in the surface planes allows for light modeling that provides contrast resulting in improved visibility of the leading edge of the tread both in ascent and descent. For these reasons a minimum curvature or bevel has been added as a new requirement.

The Figures below show that larger radii can be safely allowed by regulating the extent of the curvature in the same way beveling is regulated.

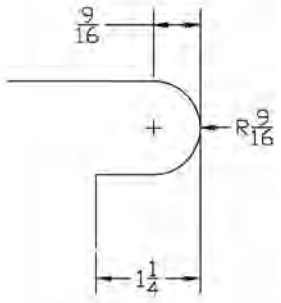


Figure 1

Figure 1 illustrates the maximum radius at the nosing regulated by the current radius dimension

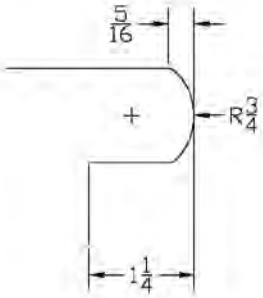


Figure 2

Figure 2 illustrates an alternate curvature or rounding using a radius larger than allowed.

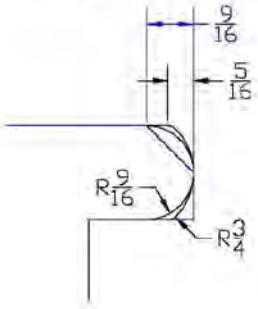


Figure 3

Figure 3 illustrates the maximum beveling in blue in a composite with the nosings of figure 2 and 3.

Cost Impact: This will not affect the cost of construction

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1009.7.5 (IFC [B] 1009.7.5) Nosing and riser profile. *Nosings* shall have a curvature or bevel of not less than ~~1/8~~ 1/16 inch (~~3.2~~ 1.6 mm) but not more than 9/16 inch (14.3 mm) from the foremost projection of the tread. Risers shall be solid and vertical or sloped under the tread above from the underside of the *nosing* above at an angle not more than 30 degrees (0.52 rad) from the vertical.

Committee Reason: The modification from 1/8 inch to 1/16 inch works with metal stairway construction and at the same time would not allow for sharp edges. The profile requirements proposed are logical. The new curvature would preserve tread depth and increase the design options for stairways.

Assembly Action: **None**

Final Hearing Results

E93-12 **AM**

Code Change No: E102-12

Original Proposal

Section(s): 1009.1, 1009.16, 1009.16.2, 1009.18 (New) [IFC [B] 1009.1, 1009.16, 1009.16.2, 1009.18 (New)]

Proponent: Ali M. Fattah, P.E., City of San Diego, representing the San Diego Area Chapter of ICC

Revise as follows:

1009.1 (IFC [B] 1009.1) General. *Stairways* serving occupied portions of a building shall comply with the requirements of ~~this section~~ Sections 1009.2 through 1009.15. Alternating tread devices shall comply with Section 1009.16. Ships ladders shall comply with Section 1009.17. Ladders shall comply with Section 1009.18.

~~1009.15~~ 1009.13 (IFC [B] ~~1009.15~~ 1009.13) Handrails. *(no change)*

~~1009.16~~ 1009.14 (IFC [B] ~~1009.16~~ 1009.14) Stairway to roof. In buildings four or more stories above grade plane, one stairway shall extend to the roof surface, unless the roof has a slope steeper than four units vertical in 12 units horizontal (33-percent slope).

> **Exception:** Other than where required by Section 1009.14.1, in buildings without an occupied roof, access to the roof from the top story shall be permitted to be by an alternating tread device, a ships ladder or a permanent ladder.

~~1009.17~~ 1009.14.1 (IFC [B] ~~1009.17~~ 1009.14.1) Stairway to elevator equipment. Roofs and penthouses containing elevator equipment that must be accessed for maintenance are required to be accessed by a stairway.

~~1009.16.1~~ 1009.14.2 (IFC [B] ~~1009.16.1~~ 1009.14.2) Roof access. Where a stairway is provided to a roof, access to the roof shall be provided through a penthouse complying with Section 1509.2.

> **Exception:** In buildings without an occupied roof, access to the roof shall be permitted to be a roof hatch or trap door not less than 16 square feet (1.5 m2) in area and having a minimum dimension of 2 feet (610 mm).

1009.15 ~~1009.16.2~~ (IFC [B] 1009.15 ~~1009.16.2~~) ~~Protection at roof hatch openings.~~ Guards. Guards shall be provided along stairways and landing where required by Section 1013 and shall be constructed in accordance with Section 1013. Where the roof hatch opening providing the required access is located within 10 feet (3049 mm) of the roof edge, such roof access or roof edge shall be protected by guards installed in accordance with the provisions of Section 1013.

~~1009.13~~ 1009.16 (IFC [B] ~~1009.13~~ 1009.16) Alternating tread devices. *(No change to current text)*

~~1009.13.1~~ 1009.16.1 (IFC [B] ~~1009.13.1~~ 1009.16.1) Handrails of alternating tread devices. *(No change to current text)*

~~1009.13.2~~ 1009.16.2 (IFC [B] ~~1009.13.2~~ 1009.16.2) Treads of alternating tread devices. *(No change to current text)*

~~1009.14~~ 1009.17 (IFC [B] ~~1009.14~~ 1009.17) Ships Ladders. *(No change to current text)*

1009.18 (IFC [B] 1009.18) Ladders. Permanent ladders shall not serve as a part of the *means of egress* from occupied spaces within a the building. Permanent ladders shall be permitted to providing access to the following areas:

1. Spaces frequented only by personnel for maintenance, repair or monitoring of equipment;
2. Nonoccupiable spaces accessed only by catwalks, crawl spaces, freight elevators or very narrow passageways;
3. Raised areas used primarily for purposes of security, life safety or fire safety including, but not limited to, observation galleries, prison guard towers, fire towers or lifeguard stands;
4. Elevated levels in Group U not open to the general public;
5. Non-occupied roofs that are not required to have stairway access in accordance with Section 1009.14.1.
6. Ladders shall be constructed in accordance with Section 306.5 of the International Mechanical Code, Sections 306.5.

Reason: The IBC is not clear on whether means of egress is required from certain spaces such as catwalks above ceilings, mechanical equipment areas, service pits etc. that are occasionally accessed or that are accessed by able bodied trained personnel. Furthermore the IBC makes no mention that certain areas may be accessed with fixed ladders as permitted by other codes within the I code family of codes. The means of egress definition implies that chapter 10 applies to occupied spaces. Occupied space is not defined however occupiable space does and does not exclude elevated areas used for security and observation persons required to be able bodied. The proposed reformatting of Section 1009 includes ladders as a restricted element for vertical travel in addition to ships ladders and alternating tread devices. Alternating tread devices and ships ladders are permitted as a means of egress subject to limitations.

Section 1009.18 is added to delineate when ladders can access certain areas not considered to be occupied and therefore do not need to be served by means of egress. Condition 1 frequently occurs in auto repair bays, areas in manufacturing facilities, elevator pits etc. Condition 3 addresses areas that are elevated for security personnel. Condition 4 addresses barns and stables and private garages where equipment or materials may be stored in an overhead area.

Permanent ladders are required from equipment service areas in accordance with the IMC. See text below. There are other locations where ladders are needed because there is no space for a stairway (i.e., elevator pits). While the ladder is not part of the required means of egress, a safe ladder should be provided when used for access to non-occupied spaces.

Part of this change is editorial to group all the stairway provisions together and then provide guidance for alternating tread devices, ships ladders and permanent ladders.

IMC 306.5 Equipment and appliances on roofs or elevated structures. Where *equipment* requiring access or appliances are located on an elevated structure or the roof of a building such that personnel will have to climb higher than 16 feet (4877 mm) above grade to access such equipment or appliances, an interior or exterior means of access shall be provided. Such access shall not require climbing over obstructions greater than 30 inches (762 mm) in height or walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33-percent slope). Such access shall not require the use of portable ladders. Where access involves climbing over parapet walls, the height shall be measured to the top of the parapet wall.

Permanent ladders installed to provide the required access shall comply with the following minimum design criteria:

1. The side railing shall extend above the parapet or roof edge not less than 30 inches (762 mm).
2. Ladders shall have rung spacing not to exceed 14 inches (356 mm) on center. The uppermost rung shall be a maximum of 24 inches (610 mm) below the upper edge of the roof hatch, roof or parapet, as applicable.
3. Ladders shall have a toe spacing not less than 6 inches (152 mm) deep.
4. There shall be a minimum of 18 inches (457 mm) between rails.
5. Rungs shall have a minimum 0.75-inch (19 mm) diameter and be capable of withstanding a 300-pound (136.1kg) load.
6. Ladders over 30 feet (9144 mm) in height shall be provided with offset sections and landings capable of withstanding 100 pounds per square foot (488.2 kg/m2). Landing dimensions shall be not less than 18 inches (457 mm) and not less than the width of the ladder served. A guard rail shall be provided on all open sides of the landing.
7. Climbing clearance. The distance from the centerline of the rungs to the nearest permanent object on the climbing side of the ladder shall be a minimum of 30 inches (762 mm) measured perpendicular to the rungs. This distance shall be maintained from the point of ladder access to the bottom of the roof hatch. A minimum clear width of 15-inches (381 mm) shall be provided on both sides of the ladder measured from the midpoint of and parallel with the rungs except where cages or wells are installed.
8. Landing required. The ladder shall be provided with a clear and unobstructed bottom landing area having a minimum dimension of 30 inches (762 mm) by 30 inches (762 mm) centered in front of the ladder.
9. Ladders shall be protected against corrosion by *approved* means.
10. Access to ladders shall be provided at all times.

Catwalks installed to provide the required access shall be not less than 24 inches (610 mm) wide and shall have railings as required for service platforms.

Exception: This section shall not apply to Group R-3 occupancies.

IMC 306.5.1 Sloped roofs. Where appliances, *equipment*, fans or other components that require service are installed on a roof having a slope of three units vertical in 12 units horizontal (25-percent slope) or greater and having an edge more than 30 inches (762 mm) above grade at such edge, a level platform shall be provided on each side of the *appliance* or *equipment* to which access

is required for service, repair or maintenance. The platform shall be not less than 30 inches (762 mm) in any dimension and shall be provided with guards. The guards shall extend not less than 42 inches (1067 mm) above the platform, shall be constructed so as to prevent the passage of a 21-inch diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *International Building Code*. Access shall not require walking on roofs having a slope greater than four units vertical in 12 units horizontal (33-percent slope). Where access involves obstructions greater than 30 inches (762 mm) in height, such obstructions shall be provided with ladders installed in accordance with Section 306.5 or stairs installed in accordance with the requirements specified in the *International Building Code* in the path of travel to and from appliances, fans or *equipment* requiring service.
Cost Impact: None.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This responsibly incorporates the use of ladders to access limited spaces.

Assembly Action: **None**

Final Hearing Results

E102-12 **AS**

Code Change No: E103-12

Original Proposal

Section(s): 1011.6.3 (IFC [B] 1011.6.3)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Revise as follows:

1011.6.3 (IFC [B] 1011.6.3) Power source. *Exit* signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27.

Exceptions:

1. *Approved exit* sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.
2. Group I-2 hospital exit sign illumination shall not be provided by unit equipment battery only.

Reason: The IBC and IFC both have the same requirements. NFPA is less restrictive for UL listings of equipment. NFPA 70 is not referenced by IBC/IFC as does NFPA 99. IBC/IFC permit batteries.

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The requirement matches federal requirements for hospitals already in place and improves the reliability of the exit signage. The committee suggested that perhaps better wording would to require what the signage needed to be connected to rather than an exception for batteries. This might limit the mis-interpretation that remote batteries might be an option.

Assembly Action: **None**

Public Comments

Public Comment:

John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1011.6.3 (IFC [B] 1011.6.3) Power source. *Exit* signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency

power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27.

Exceptions:

1. *Approved exit* sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.
2. Group I-2 ~~hospital~~ Condition 2 exit sign illumination shall not be provided by unit equipment battery only.

Commenter's Reason: Code change E103 is a technical change which proposes to revise the exception to note that exit sign illumination for hospitals is not to be provided by unit equipment batteries only. This was approved by the committee in Dallas. The purpose of this public comment is limited to the editorial coordination of terminology with the approval of Code change G257 (see below). In this case, hospitals are Group I-2 Condition 2. Since G257 deals only with terminology, this public comment is being submitted to E102 in order to focus the attention on the coordination of terminology issue.

At the Code Development Hearing, the IBC - General committee approved as modified G257-12 which created two occupancy conditions for Group I-2, similar to what is currently in the IBC for Group I-3. The end result is that where warranted based on the type of occupancy, the code would designate Group I-2 hospitals as Group I-2 Condition 2. As indicated in the reason statement for G257, the benefit of the condition concept, when compared to creating new use groups, (i.e. Group I-5 or I-6) is that a majority of code requirements would still apply to all Group I-2 occupancies.

Following the successful action on G257, the ICC Ad Hoc Committee for Healthcare (AHC) did a word search of the IBC along with a review of code changes submitted in the 2012 Cycle which are unique to hospitals and nursing homes to determine whether or not the condition designation was necessary in order to distinguish between the two typical Group I-2 occupancies – hospitals (Condition 2) and nursing homes (Condition 1). As noted above, the majority of the code requirements do not differentiate based on these two types of Group I-2 and as such the number of instances where the Group I-2 condition designation is necessary is kept to a minimum. Code change E103 is one such application where the Group I-2 Condition 2 designation is warranted and therefore this public comment is being submitted by the AHC.

The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 7 open meetings and over 100 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Staff analysis: Code change G257 was Approved as Modified at the Code Development Hearings and a public comment has not been submitted. Accordingly it has been placed on the consent agenda.

Final Hearing Results

E103-12 **AMPC**

Code Change No: E104-12

Original Proposal

Section(s): 1012.8 (IFC [B] 1012.8)

Proponent: Gene Boecker, AIA, Code Consultants, Inc, representing self (geneb@codeconsultants.com)

Revise as follows:

1012.8 (IFC [B] 1012.8) Projections. On ramps, the clear width between handrails shall be 36 inches (914 mm) minimum. Projections into the required width of stairways and ramps at each side shall not exceed 41/2 inches (114 mm) at or below the handrail height. Projections into the required width shall not be limited above the minimum headroom height required in Section 1009.5. Projections due to intermediate handrails shall not constitute a reduction in the egress width provided that each intermediate handrail is not wider than 2-1/4 inches (57 mm).

Reason: The intent, when this provision was originally added, was to allow intermediate handrails to not count against the required width since it was required on wide stairs and provided added safety on ramps. Because the prior code text was unclear what effect a handrail had on the allowed projections into the stair or ramp and what that did for the overall capacity of the egress element some change was necessary. When a person moves on a stair or ramp, using the handrail, the arm is over the railing. The person on the other side of the railing does likewise. This type of condition does not effectively reduce the capacity of the egress element and increases safety by virtue of the handrail itself.

However, double railings widen the space between columns of people on ramps and stairs and can reduce capacity. A set of handrails separated by 10 inches may be helpful in providing each column with a handrail but it should be taken into consideration when calculating the capacity of the ramp or stair. The proposal uses a 2-1/4 inch dimension to allow for non-circular handrails which might meet the requirements of Section 1012.3.1 for Type I handrails. Thus, if a single railing (or multiple single railings) is placed within a stair or ramp, each railing, if less than 2-1/4 inches in width, would not count to decrease the capacity of the egress element or required width.

However, if a set of double railings would be provided within the stair or ramp, the minimum overall width of a double railing would be 4 inches (two 1-1/4 inch railings, plus 1-1/2 inch clear between railings per Section 1012.3.1 and 1012.7). This would need to be deducted from the total width of the stair or ramp.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed language could be interpreted to not allow a double handrail no matter how wide the stairway. This is needed for stairways with heavy traffic moving in two directions, such as schools during passing periods. The proponent should come back with a proposal that addresses limits for the typical double handrail.

Assembly Action: **None**

Public Comments

Public Comment:

Gene Boecker, AIA, Code Consultants, Inc (CCI), requests Approval as Modified by this Public Comment.

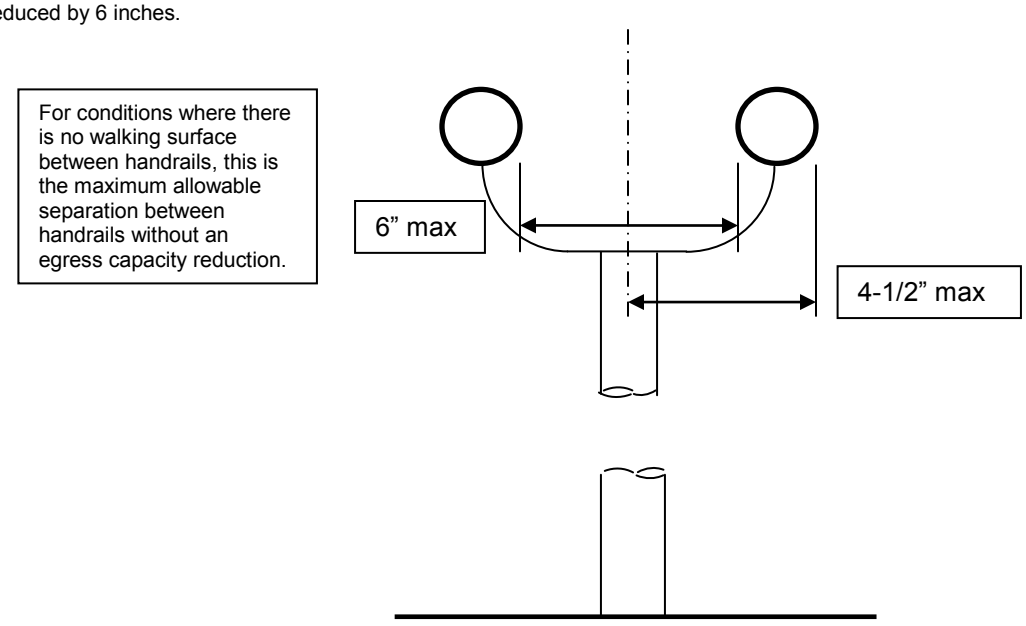
Modify the proposal as follows:

1012.8 (IFC [B] 1012.8) Projections. On ramps, the clear width between handrails shall be 36 inches (914 mm) minimum. Projections into the required width of stairways and ramps at each side shall not exceed 41/2 inches (114 mm) at or below the

handrail height. Projections into the required width shall not be limited above the minimum headroom height required in Section 1009.5. Projections due to intermediate handrails shall not constitute a reduction in the egress width ~~provided that each intermediate handrail is not wider than 2-1/4 inches (57 mm).~~ Where a pair of intermediate handrails are provided within the stairway width without a walking surface between the pair of intermediate handrails and the distance between the pair of intermediate handrails is greater than 6 inches (152 mm), the available egress width shall be reduced by the distance between the closest edges of each such intermediate pair of handrails that is greater than six inches (152 mm).

Commenter's Reason: The committee didn't think that the language was adequate for what to do when a pair of handrails is provided. The proposal addresses that by offering a method to calculate the egress width. The illustration shows in simple terms the dimension that must be deducted from the overall width of the stairway. Because handrails are allowed to protrude on the sides without reducing the egress width and a single intermediate handrail does not reduce the egress width, this solution is the simplest method for evaluating conditions where two handrails are provided without a walking surface between them.

If the handrails touch one another then there is no reduction. However, because at least 1-1/2 inches must be provided for clearance around the handrail according to Section 1012.7, the handrails must be at least 1-1/2 inches apart. In this configuration, no reduction is applied. If the handrails are 6 inches apart, and a thin barrier was provided at mid-point as a wall, the configuration would be like two stairways, side-by-side. On each side of the thin barrier, the handrail would be projecting 4-1/2 inches (half of six inches plus the 1-1/2 inch diameter railing) into the stair, exactly what is allowed by Section 1012.8. Therefore the maximum between handrails is 6 inches. If the pair of railings is located 12 inches apart, the stairway width available for egress would be reduced by 6 inches.



This methodology addresses the committee's concerns and recognizes that fact the intermediate handrails are capable of reducing the available width in stairways if designed in such a manner that it is not possible to walk on both sides of the handrails. ICC staff have indicated that there have been attempted designs with 12 -18 inches between handrails, based on the original language. This clearly infringes on the ability of the stair to convey the proper number of people to egress since it reduces the effective width. The proposal addresses that issue and also the concerns of the committee and other testifying, that the provisions recognize allowed protrusions.

Final Hearing Results

E104-12 **AMPC**

Code Change No: E108-12

Original Proposal

Section(s): 1013.6, 1013.7, Chapter 35 (IFC [B] 1013.6, 1013.7, Chapter 80) (IMC [B] 304.11, Chapter 15)

Proponent: Dean Kalahar, Ascend Cleaning and Restoration, LLC, representing Ascend Cleaning & Restoration. LLC (dean.kalahar@gmail.com)

Revise as follows:

1013.6 (IFC [B] 1013.6) Mechanical equipment, systems and devices. *Guards s*hall be provided where ~~appliances, equipment, fans, roof hatch openings, and other~~ various components that require service are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The *guard* shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter. The *guard* shall extend not less than 30 inches (762 mm) beyond each end of such ~~appliance, equipment, fan, or~~ various component.

> **Exception:** Permanent fall arrest/restraint anchorage connector devices meeting ANSI/ASSE Z 359.1 affixed for use during the entire roof covering lifetime. The devices shall be re-evaluated for possible replacement when the entire roof covering is replaces. The devices shall be placed no more than 10 feet (3048 mm) on center along hip and ridge lines and placed no less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

1013.7 (IFC [B] 1013.7) Roof access. *Guards* shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent passage of a sphere 21 inches (533 mm) in diameter.

> **Exception:** Permanent fall arrest/restraint anchorage connector devices meeting ANSI/ASSE Z 359.1 affixed for use during the entire roof covering lifetime. The devices shall be re-evaluated for possible replacement when the entire roof covering is replaces. The devices shall be placed no more than 10 feet (3048 mm) on center along hip and ridge lines and placed no less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

IMC [B] 304.11 Guards. Guards shall be provided where ~~appliances, *equipment*, fans, or other~~ various components that require service and roof hatch openings are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of such ~~appliances, *equipment*, fans,~~ various components and roof hatch openings and the top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *International Building Code.*

> **Exception:** Permanent fall arrest/restraint anchorage connector devices meeting ANSI/ASSE Z 359.1 affixed for use during the entire roof covering lifetime. The devices shall be re-evaluated for possible replacement when the entire roof covering is replaces. The devices shall be placed no more than 10 feet (3048 mm) on center along hip and ridge lines and placed no less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

Add new standard to IBC Chapter 35, IFC Chapter 80 and IMC Chapter 15.

ASSE
American Society of Sanitary Engineering
901 Canterbury, Suite A
Westlake, OH 44145

ANSI/ASSE Z359.1-2007, Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components, Part of the Fall Protection Code

Reason: The existing code provisions requiring the construction of guards do not adequately address the expanding list of equipment, assemblies, systems, devices and items that are now commonly being placed on roof tops and elevated walking surfaces that require routine maintenance. The current provisions of these sections require guards to be constructed as a method of fall protection provided for service and installation workers. The code change proposal adds clarity to the current code language by adding additional specific items that are typical placements on roofs and elevated walking surfaces. This expands the fall protection, life-safety provisions to a growing number of trades and service workers that are working on elevated surfaces. The proposal also provides an alternate method of compliance with the inclusion of a exceptions which allow for the installation of fall arrest/restraint anchorage connector devices meeting ANSI Z359.1 which is the nationally recognized consensus general industry standard used nationally. The proposed exception is a choice made by the designer and building owner that provides design flexibility and the opportunity to lower construction cost associated with building guards. The proposal will increase the uniform application of this section of the code. The Bureau of Labor Statistics, US Department of Labor reports the fatalities due to falls for the years from 1998 to 2010 are second to only highway incidents, with an average of 743 fatalities each year over this 12 year period. Of the 635 fatal falls in 2010 one third are from falls from ladders or roofs. In 2010 the construction industry had the highest number of fatal occupational injuries. In 2010 for nonfatal falls the median number of days away from work due to falls to a lower level was 14 days. Clearly the code needs to be improved to provide fall protection where mechanical equipment, appliances, equipment, fans, roof hatch openings, solar arrays, solar water heaters, photovoltaic panels, skylights, chimneys, gutters, attic vents, and ventilators, satellite dishes, antennas, television/radio/internet and other communication equipment and all other machinery and other components that require service are located on elevated surfaces more than 30 inches above a lover level.

Cost Impact: The code change proposal will not increase the cost of construction because the current code provisions can be interpreted to have the intent to require guards at all elevated working level more than 30 inches above a floor, roof or grade. The inclusions of exceptions provide a choice to lower the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, ANSI/ASSE Z359.1 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Committee Action: **Approved as Submitted**

For staff analysis of the content of the ANSI/ASSE Z359.1-2007 standard relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org/cs/codes/Documents/2009-10cycle/ProposedChanges/Standards-Analysis.pdf :

Committee Reason: The proposal submitted a case that falls are a problem from both sloped and flat roofs. The added exceptions specified an alternative for guards that includes a ASSE standard, Z359.1.

Assembly Action: **None**

Final Hearing Results

E108-12 **AS**

Code Change No: E109-12

Original Proposal

Section(s): 1013.8 (IFC [B] 1013.8)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1013.8 (IFC [B] 1013.8) Window ~~sills~~ openings. All windows ~~I~~in ~~Occupancy~~ Groups R-2 and R-3 buildings ~~, one- and two-family and multiple-family~~ including dwelling~~s~~ units, where the ~~opening~~ top of the sill ~~portion~~ of an operable window opening is located ~~more~~ less than 36 inches above the finished floor and greater than 72 inches (1829 mm) above the finished grade or other surface below on the exterior of the building, ~~the lowest part of the clear opening of the window shall be at a height not less than 36 inches (915 mm) above the finished floor surface of the room in which the window is located. Operable sections of windows shall not permit openings that allow passage of a 4-inch-diameter (102 mm) sphere where such openings are located within 36 inches (915 mm) of the finished floor.~~ shall comply with one of the following:

~~**Exceptions:**~~

1. Operable windows where the top of the sill ~~portion~~ of the opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below and that are provided with window fall prevention devices that comply with ASTM F 2006.
2. Operable windows whose openings will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening when the window is in its largest opened position.
3. Operable windows whose openings ~~that~~ are provided with window fall prevention devices that comply with ASTM F 2090.
4. Operable windows that are provided with window opening control devices that comply with Section 1013.8.1.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the C

TC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The CTC Study Group on Child Window Safety examined Section 1013.8 during the preparation of the code change for existing buildings and several questions came up regarding the original intent and the clear scope of what was being regulated. Reviewing all the code changes that led to the current language, we concluded that the limitation on window openings and the requirement for use of protection devices was focused on dwelling units within buildings. We also felt that any such buildings would have a high incidence of exposure by small children to other window openings where they might fall and be injured.

Therefore, we have clarified the language specifying that it is all windows in an R-2 or R-3 building which has dwelling units in it. Similarly, we have clarified that the height is to be measured to the top of the sill of an operable window. Finally, the exceptions aren’t actually exceptions, but conditions where various devices and their standards are allowed to be used.

Cost: The reduced time required to understand and apply the section properly should reduce the construction costs associated with determining compliance.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposed language provides precise measurement locations. The current language had requirements as exceptions. This is a good cleanup that will allow for more consistent interpretation.

Assembly Action: **None**

Final Hearing Results

E109-12	**AS**

Code Change No: E110-12

Original Proposal

Section(s): 713.14.1, 1014.2, 1018.6, 3007.7, 3008.7 (IFC [B] 1014.2, 1018.6)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1014.2 (IFC [B] 1014.2) Egress through intervening spaces. Egress through intervening spaces shall comply with this section.

1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an exit.

   Exception: Means of egress are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy when the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group.

2. An exit access shall not pass through a room that can be locked to prevent egress.
3. Means of egress from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms.
4. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.

   Exceptions:

   1. Means of egress are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit.
   2. Means of egress are not prohibited through stockrooms in Group M occupancies when all of the following are met:
      - 2.1 The stock is of the same hazard classification as that found in the main retail area;
      - 2.2 Not more than 50 percent of the exit access is through the stockroom;
      - 2.3 The stockroom is not subject to locking from the egress side; and
      - 2.4 There is a demarcated, minimum 44-inch-wide (1118 mm) aisle defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the exit without obstructions.

5. Exit access through an enclosed elevator lobby is permitted. Access to at least one of the required exits shall be provided without travel through the enclosed elevator lobbies required by Sections 713.14.1, 3007 or 3008. Where the path of exit access travel passes through an enclosed elevator lobby the level of protection required for the enclosed elevator lobby is not required to be extended to the exit unless direct access to an exit is required by other sections of this code.

1018.6 (IFC [B] 1018.6) Corridor continuity. Fire-resistance-rated *corridors* shall be continuous from the point of entry to an *exit*, and shall not be interrupted by intervening rooms. Where the path of egress travel within a fire-resistance-rated *corridor* to the *exit* includes travel along unenclosed *exit access*

stairways or *ramps*, the *fire resistance-rating* shall be continuous for the length of the *stairway* or *ramp* and for the length of the connecting *corridor* on the adjacent floor leading to the *exit*.

Exceptions:

1. Foyers, lobbies or reception rooms constructed as required for *corridors* shall not be construed as intervening rooms.
2. Enclosed elevator lobbies as permitted by Item 5 of Section 1014.2 shall not be construed as Intervening rooms.

Revise as follows:

713.14.1 Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three *stories*. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by *fire partitions*. In addition to the requirements in Section 708 for *fire partitions*, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 716.5.3 as required for *corridor* walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for *corridors* in accordance with Section 717.5.4.1. Elevator lobbies shall have at least one *means of egress* complying with Chapter 10 and other provisions within this code. Egress through an elevator lobby shall be permitted in accordance with Item 5 of Section 1014.2.

Revise as follows:

3007.7 Fire service access elevator lobby. The fire service access elevator shall open into a fire service access elevator lobby in accordance with Sections 3007.7.1 through 3007.7.5. Egress is permitted through the elevator lobby in accordance with Item 5 of Section 1014.2.

Exception: Where a fire service access elevator has two entrances onto a floor, the second entrance shall be permitted to open into an elevator lobby in accordance with Section 708.14.1.

3008.7 Occupant evacuation elevator lobby. The occupant evacuation elevators shall open into an elevator lobby in accordance with Sections 3008.7.1 through 3008.7.7. Egress is permitted through the elevator lobby in accordance with Item 5 of Section 1014.2.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

This proposal is one of several proposals submitted by the CTC Elevator lobby SG. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- Review the need for elevator lobbies, with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- Review related code provisions, such as egress from and through elevator lobbies.
- Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study, 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal allows for corridors to move through an elevator lobby provided the corridor also connects directly to an exit at the other end. This adds design flexibility without a reduction in fire safety. This clarifies and coordinates corridor continuity and lobby enclosure requirements. This is coordinated with the fire service access elevator requirement for the stairway to be connected to the fire service access elevator lobby. There should be no conflict with fire department staging since the fire department does not typically stage on the fire floor, and the evacuation should mainly occur before the fire department arrives. This has been permitted in many areas of the country for a number of years, and no hazards have been identified with this configuration.

Assembly Action: **None**

Final Hearing Results

E110-12 **AS**

Code Change No: E111-12

Original Proposal

Section(s): Table 1014.3 (IFC [B] Table 1014.3)

Proponent: Patrick A. McLaughlin, McLaughlin & Associates, representing Compressed Gas Association (pmclaugma@aol.com)

Revise as follows:

TABLE 1014.3 (IFC [B] TABLE 1014.3)
COMMON PATH OF EGRESS TRAVEL

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)		WITH SPRINKLER SYSTEM (feet)
	Occupant Load		
	OL ≤ 30	OL > 30	
B, S[d]	100	75	100[a]
U	100	75	75[a]
F	75	75	100[a]
H-1, H-2, H-3	Not Permitted	Not Permitted	25[a ~~g~~]
H-4	Not Permitted	Not Permitted	75[g]
R-2	75	75	125[b]
R-3[e]	75	75	125[b]
I-3	100	100	100[a]
All others [c, f]	75	75	75[a, b]

For SI: 1 foot = 304.8 mm.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
c. For a room or space used for assembly purposes having fixed seating, see Section 1028.8.
d. The length of a common path of egress travel in a Group S-2 open parking garage shall not be more than 100 feet (30 480 mm).
e. The length of a common path of egress travel in a Group R-3 occupancy located in a mixed occupancy building.
f. For the distance limitations in Group I-2, see Section 407.4.
g. Occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.1.

Reason: H-1 thru H-4 occupancies are required to be sprinklered, however, if the H occupancy is located within another occupancy, that occupancy may or may not be sprinklered because the sprinkler system is not required throughout the building per 903.2.5.1. As written, the common path of travel distance would not apply and there is no guidance on what the common path of travel distance should be. Furthermore, the current footnote can lead to erroneous interpretation of the code requiring the building to be spinklered throughout. In our opinion this was never the intent of this table. H occupancies cannot exit through a more hazardous occupancy, therefore the common path of egress travel allowed within the H occupancy seem reasonable when exiting through another occupancy of lesser hazard. The proposal also moves H-4 occupancies, from "All others" row, to its own row, changes the footnote, and correctly indicates that H-4 occupancies are not permitted to be without sprinkler systems.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

TABLE 1014.3 (IFC [B] TABLE 1014.3)
COMMON PATH OF EGRESS TRAVEL

(No change to table or footnotes not shown)
g. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.1.

Committee Reason: The modification to footnote g is adding Group H for clarity since the new footnote is only applicable to Group H facilities. The table matches the requirements in Section 903.2.5.1 for Group H. The travel distance for Group H-4 is clarified.

Assembly Action: **None**

Final Hearing Results

E111-12 **AM**

Code Change No: E116-12

Original Proposal

Section(s): Table 1016.2 (IFC [B] Table 1016.2)

Proponent: Patrick A. McLaughlin, McLaughlin & Associates, representing Compressed Gas Association (pmclaugma@aol.com)

Revise as follows:

TABLE 1016.2 (IFC [B] TABLE 1016.2)
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200	250[b]
I-1	Not Permitted	250[b]
B	200	300[c]
F-2, S-2, U	300	400[c]
H-1	Not Permitted	75[c]
H-2	Not Permitted	100[c d]
H-3	Not Permitted	150[c d]
H-4	Not Permitted	175[c d]
H-5	Not Permitted	200[c d]

For SI: 1 foot = 304.8 mm.

a. *(no change)*

b. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

c. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

d. Occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.1.

Reason: H-1 thru H-4 occupancies are required to be sprinklered, however, if the H occupancy is located within another occupancy, that occupancy may or may not be sprinklered because the sprinkler system is not required throughout. As written, the travel distance allowance would not apply and there is no guidance on what the travel distance should be. Furthermore, the current footnote has led to erroneous interpretation of the code requiring the building to be spinklered throughout. In our opinion this was never the intent of this table. H occupancies cannot exit through a more hazardous occupancy, therefore the travel distances allowed within the H occupancy seem reasonable when exiting through another occupancy of lesser hazard.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Errata – Replace the table with the following:

TABLE 1016.2 (IFC [B] TABLE 1016.2)
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200	250[b]
I-1	Not Permitted	250[b]
B	200	300[c]
F-2, S-2, U	300	400[c]
H-1	Not Permitted	75[c d]
H-2	Not Permitted	100[c d]
H-3	Not Permitted	150[c d]
H-4	Not Permitted	175[c d]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
H-5	Not Permitted	200 [c]
I-1, I-2, I-3	Not Permitted	200 [c]

Modify proposal as follows:

TABLE 1016.2 (IFC [B] TABLE 1016.2)[a]
EXIT ACCESS TRAVEL DISTANCE

(No change to table or footnotes not shown)
d. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.1.

Committee Reason: The modification to footnote d is adding Group H for clarity since the new footnote is only applicable to Group H facilities. The new footnote provides guidance specific to Group H sprinkler allowances. This is consistent with the committee action to E111.

Assembly Action: **None**

Final Hearing Results

E116-12 **AM**

Code Change No: E117-12

Original Proposal

Section(s): Table 1016.2, 1016.2.2(New) [IFC [B] Table 1016.2, 1016.2.2(New)]

Proponent: Carl F. Baldassarra, P.E., FSFPE, Rolf Jensen and Associates, Inc. representing Rolf Jensen and Associates (cbaldassarra@rjagroup.com); Tonya L. Hoover, California State Fire Marshal representing same

Revise as follows:

1016.2.2 (IFC [B] 1016.2.2) Group F-1 and S-1 increase. The maximum exit access travel distance shall be 400 feet (122 m) in Group F-1 or S-1 occupancies where all of the following are met:

1. The portion of the building classified as Group F-1 or S-1 is limited to one story in height;
2. The minimum height from the finished floor to the bottom of the ceiling or roof slab or deck is 24 feet (7315 mm); and
3. The building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1.

TABLE 1016.2 (IFC [B] TABLE 1016.2)
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200	250[b]
I-1	Not Permitted	250[b]
B	200	300[c]
F-2, S-2, U	300	400[c]
H-1	Not Permitted	75[c]
H-2	Not Permitted	100[c]
H-3	Not Permitted	150[c]
H-4	Not Permitted	175[c]
H-5	Not Permitted	200[c]
I-2, I-3, I-4	150	200[c]

For SI: 1 foot = 304.8 mm.

a. See the following sections for modifications to exit access travel distance requirements:
Section 402.8: For the distance limitation in *malls*.
Section 404.9: For the distance limitation through an *atrium* space.
Section 407.4: For the distance limitation in Group I-2.
Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.
Section 411.4: For the distance limitation in special amusement buildings.
Section 1014.2.2: For the distance limitation in Group I-2 Hospital Suites.
Section 1015.4: For the distance limitation in refrigeration machinery rooms.
Section 1015.5: For the distance limitation in refrigerated rooms and spaces.
Section 1016.2.2: For increased distance limitation in Group F-1 and Group S-1.
Section 1021.2: For buildings with *one exit*.
Section 1028.7: For increased limitation in assembly seating.
Section 1028.7: For increased limitation for assembly open-air seating.
Section 3103.4: For temporary structures.
Section 3104.9: For pedestrian walkways.

b. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

c. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Reason:
BALDASSARA: This proposed change is intended to allow a 400-foot exit access travel distance for F-1 and S-1 buildings meeting certain criteria. The 2009/2012 editions of the International Building Code were revised to eliminate the 400-foot exit travel distance for large Group S-1 warehouse and large Group F-1 factory facilities equipped with smoke and heat vents. This change was made because thermally-activated vents were judged not to warrant such an increase. A companion change to allow such an increase was not approved, yet there remains a need to have extended exit travel distances in such buildings because of the nature of their function. The allowance of an exit travel distance of 400 feet has existed in the IBC and Legacy codes for warehouses and factories with non-combustible products since the early 1960s without any adverse experience, both in buildings with and without smoke and heat vents.

The California State Fire Marshal's Office (CSFM) has reviewed this subject because of the pressing need to find a solution for large F-1 and S-1 buildings. A study was commissioned and published, "*Report to the California State Fire Marshal on Exit Access Travel Distance of 400 Feet by Task Group 400, December 20, 2010*," and subsequent "*Fire Modeling Analysis Report,*" revised July 20, 2011, provide the technically-based rationale for increased exit travel distance without any special protection. That is the basis for this change. [NOTE TO ICC STAFF: PROVIDE LINKS TO THE REPORTS FOR INTERESTED PARTIES.] Future work by both the ICC Code Technology Committee and the CSFM in the next year will further improve the protection for such facilities; such provisions will be proposed for the IFC in the Group B Code Change cycle next year.

This proposal amends the above sections and add additional criteria necessary to reinstate a 400 foot travel distances for large warehouse and large factory facilities. An addition to Footnote a in Table 1016.2 is added and makes a reference to a new Section 1016.2.2.

Section 1016.2.2 is added to provide the criteria for an increased exit access travel distance of 400 feet in Group F-1 and S-1 occupancies. The criteria for application of this section, based upon the criteria in the reports, includes:

1. The travel distance increase is only applicable to portions of the building which are one story in height. The allowance for a travel distance of 400 feet in the 2006 IBC is limited to buildings which are one story in height, so this concept is carried forward. This would not preclude a building with a one story storage warehouses or factory area and a two story office or a mezzanine from also utilizing this section. The section is written so that the one story limitation is only applicable to the area where the 400 foot travel distance is utilized.
2. The minimum height from floor, ceiling, or roof deck above, must be 24 feet. The 24 feet of clearance is based on the "Fire Modeling Analysis Report" by Aon Fire Protection Engineering. The 24 feet ceiling height is used to provide a volume for the smoke to accumulate during the fire and provide time for egress, much like the concept used for smoke-protected seating. Control mode sprinklers were utilized in the fire modeling to demonstrate the more conservative approach. Certainly, ESFR or specialty sprinklers would be more effective.

HOOVER: The 2009/2012 International Building Code (IBC) and International Fire Code (IFC) revised the allowable exit travel distance for large Group F-1 factory facilities and large Group S-1 warehouses from that of the 2006 IBC and IFC and prior Legacy codes. In the 2009/2012 IBC/IFC, warehouses and factories with non-combustible products are allowed an exit access travel distance of 400 feet; however, when those same buildings contain combustible materials, the maximum exit access travel distance is reduced to 250 feet.

The allowance of an exit travel distance of 400 feet has existed in the IBC/IFC and Legacy codes for warehouses and factories with non-combustible products since the early 1960s. The allowance of an exit travel distance of 400 feet for <u>all</u> warehouses and factories has existed for well over a decade.

The California State Fire Marshal and the Task Group 400 recognized that the item was deleted from the 2009 IBC/IFC, which has been carried forward to the 2012 IBC/IFC. The ultimate goal was to revise the IBC/IFC, however a revision processed through the International Code Council Code change process would not appear in the code until the 2015 edition making adoption not possible until 2015 or later due to the regulatory adoption process. This proposal will re-instate the travel distance allowance of 400 for F-1 and S-1 occupancies, but it is not based on the installation of smoke/heat vents, it is based on fire modeling and egress times.

This proposal amends Table 1016.2 and adds a new section 1016.2.2 that contains additional criteria necessary to reinstate a 400 foot travel distances for large factory facilities and large warehouses. The report, "*Report to the California State Fire Marshal on Exit Access Travel Distance of 400 Feet by Task Group 400 December 20, 2010*" ("report"), and subsequent "*Fire Modeling Analysis Report*" (Appendix A to the report) provide the complete rationale. Initially, a simple addition to Footnote a in Table 1016.2 is added to make a reference to a new Section 1016.2.2.

Section 1016.2.2 is added to provide the criteria for an increased exit access travel distance of 400 feet in certain large Group F-1 and S-1 occupancies. The criterion for application of this section includes:

1. The travel distance increase is only applicable to portions of the building which are one story in height. The allowance for a travel distance of 400 feet in the 2006 IBC was also limited to buildings which are one story in height, so this concept is carried forward.
   This would not preclude a building with a one story storage warehouses or factory area and a two story office or a mezzanine from also utilizing this section. The section is written so that the one story limitation is only applicable to the area where the 400 foot travel distance is utilized. The two story office building would still be limited to 300 feet as indicated in Table 1016.1.
2. The minimum height from floor to ceiling above, or the underside of the roof deck, must be 24 feet. The 24 feet is measured to the bottom of the roof or ceiling above. The height is specified as 'minimum.' It is not intended to be applied to an 'average' height; it is the minimum. It is assumed that beams and purlins will extend down below this height of 24 feet.
   The 24 feet of clearance is based on the "Fire Modeling Analysis Report" by Aon Fire Protection Engineering. The 24 feet ceiling height is used to provide a volume for the smoke to accumulate during the fire event and provide time for egress. The report evaluated various size buildings and through fire modeling established safe egress times in those facilities. The report provides the basis and justification to the 400 foot exit access travel distance. Control mode sprinklers were utilized

in the fire modeling to demonstrate the more conservative approach. Certainly, ESFR or specialty sprinklers would be more effective.
The complete report can be found on the California State Fire Marshal's website at:
http://osfm.fire.ca.gov/codedevelopment/pdf/2010interimcodeadoption/Part-9_ISOR_Attachment_A_rev20110720comp.pdf

This code change is the first of two proposals being submitted by the California State Fire Marshal regarding large factory facilities and large warehouses. This code change provides a sound solution to allowing an exit travel distance of 400 feet. The next code change proposal considers the fact that firefighting operations are impacted when larger buildings are constructed where the exit access travel distance is allowed to be 400 feet. As a result, mitigation to the firefighting impact is to be proposed to the IFC in the 2013 ICC Group B code development schedule.

Cost Impact:
BALDASSARA: None.

HOOVER: This code change will likely decrease the cost of construction for F-1 and S-1 buildings with a travel distance in excess of 250 feet because strict compliance would require more exits unless a performance-based alternate method of design was approved.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This solution for an increased travel distance is viable for large factories and warehouses. Ample evidence and fire modeling has been provided to verify adequate fire safety within these facilities.

Assembly Action: **None**

Final Hearing Results

E117-12 **AS**

Code Change No: E118-12

Original Proposal

Section(s): 1017.3, 1017.5 (IFC [B] 1017.3, 1017.5)

Proponent: S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee

Revise as follows:

SECTION 1017
AISLES

1017.1 (IFC [B] 1017.1) General. Aisles and aisle accessways serving as a portion of the exit access in the means of egress system shall comply with the requirements of this section. Aisles or aisle accessways shall be provided from all occupied portions of the exit access which contain seats, tables, furnishings, displays and similar fixtures or equipment. The required width of aisles shall be unobstructed.

Exception: Encroachments complying with Section 1005.7.

1017.2 (IFC [B] 1017.2) Aisles in assembly spaces. Aisles and aisle accessways serving a room or space used for assembly purposes shall comply with Section 1028.

1017.3 (IFC [B] 1017.3) Aisles in Groups B and M. In Group B and M occupancies, the minimum clear aisle width shall be determined by Section 1005.1 for the occupant load served, but shall not be less than ~~36 inches (914 mm)~~ that required for corridors by Section 1018.2.

Exception: Nonpublic aisles serving less than 50 people and not required to be accessible by Chapter 11 need not exceed 28 inches (711 mm) in width.

1017.4 (IFC [B] 1017.4) Aisle accessways in Group M. *(no change)*

1017.5 (IFC [B] 1017.5) Aisles in other than assembly spaces and Groups B and M. In other than rooms or spaces used for assembly purposes and Group B and M occupancies, the minimum clear aisle width shall be determined by Section 1005.1 for the occupant load served, but shall not be less than ~~36 inches (914 mm)~~ that required for corridors by Section 1018.2.

Exception: Nonpublic aisles serving less than 50 people and not required to be accessible by Chapter 11 need not exceed 28 inches (711 mm) in width.

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 3 open meetings and over 15 workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Aisles are the main paths for means of egress through many types of spaces, such as between cubicles in open office plans, between merchandise pads in display areas in stores, between shelving in storage areas and between equipment in factories. While not confined by walls as corridors are, they should still be sized consistently with corridors so occupants could exit the building safely. The 2012 IBC has a Table in 1018.2 that provides minimum corridor widths in a clear manner. The exception currently in 1017.3 is repeated in 1017.5 for consistency between use groups.

BCAC has code changes in dealing with aisles in 1005, 1009, 1017 and 1028 as well as a transition between aisle stairs and stairways. The intent is for all four proposals to correlate; however this change can stand by itself.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal will coordinate aisles with corridor widths so occupants will to have a consistent egress width for exit access as they move from corridors to open spaces and visa versa. This proposal is not dealing with aisle accessways, therefore the exception for non-public areas is appropriate.

Assembly Action: **None**

Final Hearing Results

E118-12	**AS**

Code Change No: E122-12

Original Proposal

Section(s): 1018.2 (IFC [B] 1018.2)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1018.2 (IFC [B] 1018.2) Width. The minimum width of *corridors* specified in Table 1018.2 shall be as determined in Section 1005.1.

Exception: In Group I-2 occupancies, corridors are not required to have a clear width of 96 inches (2438 mm) in areas where there will not be stretcher or bed movement for access to care or as part of the defend in place strategy.

TABLE 1018.2 (IFC TABLE [B] 1018.2)
MINIMUM CORRIDOR WIDTH

Occupancy	Width (min)
Any facilities not listed below	44 inches (1118 mm)
Access to and utilization of mechanical, plumbing or electrical systems or equipment	24 inches (610 mm)
With a required occupancy capacity less than 50	36 inches (914 mm)
Within a dwelling unit	36 inches (914 mm)
In Group E with a *corridor* having a required capacity of 100 or more	72 inches (1829 mm)
In *corridors* and areas serving gurney traffic in occupancies where patients receive outpatient medical care, which causes the patient to be incapable of *self-preservation*	72 inches (1829 mm)
Group I-2 in areas where required for bed movement	96 inches (2438 mm)

Reason: Since hospitals typically include accessory spaces or non separated mixed use occupancies that are not patient care, the code official should have the clear ability to apply judgment in determining the appropriate means of egress components. For example a large assembly space may need certain Group requirements, while a mechanical space with no patient would not need an 8' corridor.

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

This proposal is being co-sponsored by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: This proposal could help to decrease the cost of construction by allowing a more efficient use of building square footage.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: In Group I-2 facilities, for areas where movement of beds does not happen, this allowance for reduction in corridor width is appropriate. Tying this to both general use and the means of egress reminds the designer to look at both scenarios.

Assembly Action: **None**

Final Hearing Results

E122-12 **AS**

Code Change No: E126-12

Original Proposal

Section(s): 1019.4, 1026.5 (IFC [B] 1019.4, 1026.5)

Proponent: Steve Pfeiffer representing City of Seattle, Department of Planning & Development (steve.pfeiffer@seattle.gov)

Revise as follows:

1019.4 (IFC [B] 1019.4) Location. Exterior egress balconies shall have a minimum ~~fire~~ separation ~~distance~~ of 10 feet (3048 mm) measured at right angles from the exterior edge of the egress balcony to:

1. Adjacent lot ~~line~~ lines;
2. Other portions of the building; ~~and from~~
3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 based on *fire separation distance*.

1026.5 (IFC [B] 1026.5) Location. *Exterior exit stairways* and *ramps* shall have a minimum ~~fire~~ separation ~~distance~~ of 10 feet (3048 mm) measured at right angles from the exterior edge of the *stairway* or *ramp*, including landings, to:

1. Adjacent lot ~~line~~ lines;
2. Other portions of the building; ~~and from~~
3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 based on *fire separation distance*.

Reason: The purpose of this change is to clarify that an exterior exit stairway or egress balcony needs a minimum 10 feet separation where a building wraps around on itself, such as a U-shaped building. The phrase "at right angles" was added because the definition of fire separation distance measures from a wall rather than the exterior edge.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proponent asked for additional time to reconsider some of the language in the proposal. There may be a concern with use of the term 'fire separation' when dealing with a single building. Right angles may not be the correct way to measure protection at a curved wall.

Assembly Action: **None**

Public Comments

Public Comment:

Steven Pfeiffer, City of Seattle, representing Department of Planning & Development, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1019.4 (IFC [B] 1019.4) Location. Exterior egress balconies shall have a minimum fire separation distance of 10 feet (3048 mm) measured at right angles from the exterior edge of the egress balcony to:

1. Adjacent lot lines;
2. Other portions of the building;
3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 based on *fire separation distance*.

For the purpose of this section other portions of the building shall be treated as separate buildings.

1026.5 (IFC [B] 1026.5) Location. *Exterior exit stairways* and *ramps* shall have a minimum fire separation distance of 10 feet (3048 mm) measured at right angles from the exterior edge of the *stairway* or *ramp*, including landings, to:

1. Adjacent lot lines;
2. Other portions of the building;
3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 based on *fire separation distance*.

For the purpose of this section other portions of the building shall be treated as separate buildings.

Commenter's Reason: This modification is proposed to clarify that an exterior exit stair or ramp, or exterior egress balcony always needs a minimum 10 feet separation, even where a building wraps around on itself, such as a U-shaped building. If both of a building's egress balconies or exterior stairways are within 10 feet of each other, a single fire could compromise both. The original proposal changed "fire separation distance" to "separation distance" which created a problem when measuring to the centerline of a street or alley. The original proposal would have not have allowed the separation between exterior balconies or stairways to be measured to the centerline of the street. This comment retains the provision that distance be measured at right angles because that provision is taken from the current definition of "fire separation distance".

Final Hearing Results

E126-12 **AMPC**

Code Change No: E127-12

Original Proposal

Section(s): 1015.2.2, 1021.1, Table 1021.1(New), 1021.2, Table 1021.2(1), Table 1021.2(2), 1021.2.1, 1021.2.2, 1021.2.3, 1021.2.4, 1021.2.5, 1021.3, 1021.3.1, 1021.4 (IFC [B] 1015.2.2, 1021.1, Table 1021.1(New), 1021.2, Table 1021.2(1), Table 1021.2(2), 1021.2.1, 1021.2.2, 1021.2.3, 1021.2.4, 1021.2.5, 1021.3, 1021.3.1, 1021.4)

Proponent: Wayne Jewell, Green Oak Township, representing self and Steve Thomas, Colorado Code Consulting, representing self

Revise as follows:

1015.2.2 (IFC [B] 1015.2.2) Three or more exits or exit access doorways. Where access to three or more *exits* is required, at least two *exit* doors or *exit access doorways* shall be arranged in accordance with the provisions of Section 1015.2.1. Additional required exit or exit access doorways shall be arranged a reasonable distance apart so that if one becomes, blocked, the others will be available.

SECTION 1021 (IFC [B] 1021)
NUMBER OF EXITS ~~AND EXIT CONFIGURATION~~

1021.1 (IFC [B] 1021.1) General. Each story and occupied roof shall have the minimum number of independent exits, or access to exits, as specified in ~~this section~~ Table 1021.1. A single exit or access to a single exit shall be permitted in accordance with Section 1021.2. The required number of exits, or exit access stairways or ramps providing access to exits, from any story shall be maintained until arrival at grade or a public way. ~~Exits or access to exits from any story shall be configured in accordance with this section. Each story above the second story of a building shall have a minimum of one interior or exterior exit stairway, or interior or exterior exit ramp. At each story above the second story that requires a minimum of three or more exits, or access to exits, a minimum of 50 percent of the required exits shall be interior or exterior exit stairways, or interior or exterior exit ramps.~~

~~**Exceptions:**~~

1. ~~Interior exit stairways and interior exit ramps are not required in open parking garages where the means of egress serves only the open parking garage.~~
2. ~~Interior exit stairways and interior exit ramps are not required in outdoor facilities where all portions of the means of egress are essentially open to the outside.~~

TABLE 1021.1 (IFC [B] TABLE 1021.1)
MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS PER STORY

Occupant Load per Story	Minimum Number of Exits or Access to Exits From Story
1-500	2
501-1,000	3
More than 1,000	4

1021.2 (IFC [B] 1021.2) Single exits ~~from stories~~. A single exit or access to a single exit shall be permitted ~~Two exits, or exit access stairways or ramps providing access to exits,~~ from any story or occupied roof, ~~shall be~~ provided ~~where~~ one of the following conditions exists:

1. The occupant load, ~~or~~ number of dwelling units and exit access travel distance does not exceed~~s one of~~ the values in Table 1021.2(1) or 1021.2(2).
2. ~~The exit access travel distance exceeds that specified in Table 1021.2(1) or 1021.2(2) as determined in accordance with the provisions of Section 1016.1.~~
3. ~~Helistop landing areas located on buildings or structures shall be provided with two exits, or exit access stairways or ramps providing access to exits.~~

~~Exceptions:~~

~~1~~2. Rooms, areas and spaces complying with Section 1015.1 with exits that discharge directly to the exterior at the level of exit discharge, are permitted to have one exit or access to a single exit.
~~2~~3. Group R-3 occupancy buildings shall be permitted to have one exit.
~~3~~4. Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit,
4. ~~Air traffic control towers shall be provided with the minimum number of exits specified in Section 412.3.~~
5. ~~Individual dwelling units in compliance with Section 1021.2.3.~~
~~5~~6. Group R-3 and R-4 congregate residences shall be permitted to have one exit or access to a single exit.
6. **~~1021.2.3 (IFC [B] 1021.2.3) Single-story or multi-story dwelling units.~~** Individual single-story or multi-story dwelling units shall be permitted to have a single exit or access to a single exit ~~within and~~ from the dwelling unit provided that all of the following criteria are met:
   6.1 The dwelling unit complies with Section 1015.1 as a space with one means of egress and
   6.2 Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit's entrance door provides access to not less than two approved independent exits.
7. ~~Exits serving specific spaces or areas need not be accessed by the remainder of the story when all of the following are met:~~
   ~~7.1 The number of exits from the entire story complies with Section 1021.2.4;~~
   ~~7.2 The access to exits from each individual space in the story complies with Section 1015.1; and~~
   ~~7.3 All spaces within each portion of a story shall have access to the minimum number of approved independent exits based on the occupant load of that portion of the story but not less than two exits.~~

TABLE 1021.2(1) (IFC [B] TABLE 1021.2(1))
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane	R-2[a, b]	4 dwelling units	125 feet
Fourth story above grade plane and higher ~~above~~	NP	NA	NA

For SI: 1 foot = 3048 mm.

NP – Not Permitted
NA – Not Applicable
a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1029.
b. This Table is used for R-2 occupancies consisting of dwelling units. For R-2 occupancies consisting of sleeping units, use Table 1021.2(2).

TABLE 1021.2(2) (IFC [B] TABLE 1021.2(2))
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANTS STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
First story above or below grade plane ~~basement~~	A, B[b], E F[b], M, U, S[b]	49 occupants	75 feet
	H-2, H-3	3 occupants	25 feet
	H-4, H-5, I, R-1, R-2[a,c], R-4	10 occupants	75 feet
	S	29 occupants	100 feet
Second story above grade plane	B, F, M, S	29 occupants	75 feet
Third story above grade plane and ~~above~~ higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP – Not Permitted
NA – Not Applicable
a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1029.
b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum travel distance of 100 feet.
c. This Table is used for R-2 occupancies consisting of sleeping units. For R-2 occupancies consisting of dwelling units, use Table 1021.2(1).

1021.2.1 (IFC [B] 1021.2.1) Mixed occupancies. Where one exit, or exit access stairway or ramp providing access to exits at other stories, is permitted to serve individual stories, mixed occupancies shall be permitted to be served by single exits provided each individual occupancy complies with the applicable requirements of Table 1021.2(1) or Table 1021.2(2) for that occupancy. Where applicable, cumulative occupant loads from adjacent occupancies shall be considered in accordance with the provisions of Section 1004.1. In each story of a mixed occupancy building, the maximum number of occupants served by a single exit shall be such that the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants indicated in Table 1012.3(1) for each occupancy does not exceed one. Where dwelling units are located on a story with other occupancies, the actual number of dwelling units divided by 4 plus the ratio from the other occupancy does not exceed one.

1021.2.2 (IFC [B] 1021.2.2) Exits from specific space. Exits serving specific spaces or areas need not be accessed by the remainder of the story when all of the following are met:

1. The number of exits from the entire story complies with Section ~~1021.4.1~~ 1021.1;
2. The access to exits from each individual space in the story complies with Section 1015.1; and
3. All spaces within each portion of a story shall have access to the minimum number of approved independent exits based on the occupant load of that portion of the story but not less than two exits.

~~**1021.2.2 (IFC [B] 1021.1.2) Basements.** A basement provided with one exit shall not be located more than one story below grade plane.~~

~~**1021.2.3 (IFC [B] 1021.2.3) Single-story or multi-story dwelling units.** Individual single-story or multi-story dwelling units shall be permitted to have a single exit within and from the dwelling unit provided that all of the following criteria are met:~~

1. ~~The dwelling unit complies with Section 1015.1 as a space with one means of egress and~~
2. ~~Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit's entrance door provides access to not less than two approved independent exits.~~

~~**1021.2.4 (IFC [B] 1021.2.4) Three or more exits.** Three exits, or exit access stairways or ramps providing access to exits at other stories, shall be provided from any story or occupied roof with an occupant load of 501-1,000. Four exits, or exit access stairways or ramps providing access to exits at other stories, shall be provided from any story or occupied roof with an occupant load greater than 1,000.~~

~~**1021.2.5 (IFC [B] 1021.2.5) Additional exits.** In buildings over 420 feet in height, additional exits shall be provided in accordance with Section 403.5.2.~~

~~**1021.3 (IFC [B] 1021.3) Exit configuration.** Exits, or exit access stairways or ramps providing access to exits at other stories, shall be arranged in accordance with the provisions of Section 1015.2 through 1015.2.2. Exits shall be continuous from the point of entry into the exit to the exit discharge.~~

~~**1021.3.1 (IFC [B] 1021.3.1) Access to exits at adjacent levels.** Access to exits at other levels shall be by stairways or ramps. Where access to exits occurs from adjacent building levels, the horizontal and vertical exit access travel distance to the closest exit shall not exceed that specified in Section 1016.1. Access to exits at other levels shall be from an adjacent story.~~

~~**Exception:** Landing platforms or roof areas for helistops that are less than 60 feet (18 288 mm) long, or less than 2,000 square feet (186 m^2) in area, shall be permitted to access the second exit by a fire escape, alternating tread device or ladder leading to the story or level below.~~

1021.3 ~~1021.4~~ (IFC [B] 1021.3 ~~1021.4~~) Vehicular ramps. Vehicular ramps shall not be considered as an exit access ramp unless pedestrian facilities are provided.

Reason: The intent of this proposal is to reorganize Section 1020 for clarity.

1015.2.2 – Separation for the 3rd exit was deleted by E82-04/05 as too subjective, however, this language should be reinserted because now there is no language to describe where additional exits are located.
1021.1 –The word 'independent' is added for clarity (no one should consider a double door as two exits). The minimum number of MOE have been moved into a table format for clarity and ease of reference for other requirements. The exceptions are not needed since the number required is based on exit and/or access to exits. Open parking and outdoor stadiums are exit access stairways from each floor above grade.
New Table 1021.1 – Requirements from 1021.1 and 1021.2.4 are relocated together into Table format. Allowances are extended to be number of exits and/or number of access to exits (i.e., exit access doorways, exit access stairways, exit access ramps).
1021.2 – This section is revise for a positive where permitted approach rather than exceptions.

- Item 1 & 2 – combined
- Existing item 3 – deleted because already addressed in 412.7.3 – need to be consistent in references for MOE
- New Item 2 and 4 – revised for exit and exit access
- Existing Exception 4 – deleted because already addressed in 412.3 - need to be consistent in references for MOE
- Existing Exception 5 - addressed in new Item 6
- New Item 5 - revised for exit and exit access
- New Item 6 – revised for exit and exit access; relocated from 1021.2.3. No reason to be separate section.
- Existing Exception 7 – Since this is exit configuration, not single exit, it has been relocated to new 1021.2.2.

Table 1021.2(1) and 1021.2(2) – Revise headings to limit number of basements to 1.
1021.2.1 – The additional sentence adopts the same ratio formula currently in the code but addresses what you would do when dwelling units were in the mix (i.e., there is no occupant load).
New 1021.2.2 – this was Section 1021.2 Exception 7. Relocated since this is exit configuration for situations where one exit may be within a tenant space and blocked from access from other tenants on the floor.
Existing 1021.2.2 - Deleted. Basements are now addressed in Table 1021.2(1) and 1021.2(2) so not needed here.
Existing 1021.2.3 – deleted and relocated to 1021.2 new Item 6.
Existing 1021.2.4 – deleted and relocated to Table 1021.1
Existing 1021.2.5 – deleted –3rd stairway is not a required means of egress stairway and already addressed in 403.5.2. Code users should either reference all MOE in Chapter 4 or rely on Chapter 4 and not reference anything.
Existing 1021.3 - Delete. Now addressed in 1015.2 and 1015.2.1
Existing 1021.3.1 - Delete. Now addressed in 1015.2 and 1015.2.1. Helistops in exception are addressed in 412.7.3.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal clarifies the number of exits and separation of exits. There was some concerns regarding the additional sentence in Section 1015.2.2 regarding separation for the third and fourth exits. While not a specific measurement, the added language that says 'not blocked' should provide at least a limited indication of what would be an appropriate level of separation.

Assembly Action: **None**

Final Hearing Results

E127-12 **AS**

Code Change No: E128-12

Original Proposal

Section(s): 1021.1 (IFC [B] 1021.1)

Proponent: Philip Brazil, P.E., Senior Engineer, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee

Revise as follows:

1021.1 (IFC [B] 1021.1) General. Each story and occupied roof shall have the minimum number of *exits*, or access to *exits*, as specified in this section. The required number of exits, or *exit access stairways* or *ramps* providing access to exits, from any story or occupied roof shall be maintained until arrival at grade or a *public way*. *Exits* or access to exits from any story or occupied roof shall be configured in accordance with this section. Each story and occupied roof above the second story of a building shall have a minimum of one interior or exterior *exit stairway*, or interior or exterior *exit ramp*. At each story and occupied roof above the second *story* that requires a minimum of three or more *exits*, or access to *exits*, a minimum of 50 percent of the required *exits* shall be interior or exterior *exit stairways*, or interior or exterior *exit ramps*.

Exceptions:

1. *Interior exit stairways* and *interior exit ramps* are not required in *open parking garages* where the *means of egress* serves only the *open parking garage*.
2. *Interior exit stairways* and *interior exit ramps* are not required in outdoor facilities where all portions of the *means of egress* are essentially open to the outside.

Reason: The addition of "or occupied roof" clarifies the intent from the first sentence ("each story and occupied roof") that occupied roofs shall be provided with exits as required for stories. Without the addition of "or occupied roof," the requirements to (1) maintain the required number of exits, or exit access stairways or ramps providing access to exits, until arrival at grade or a public way, (2) configure the exits or access to exits in accordance with Section 1021, and (3) have a minimum number of interior or exterior exit stairways or ramps, will not apply to occupied roofs. The additions are also for consistency with "story or occupied roof" in Sections 1021.2 and 1021.2.4.

Finally, the addition of "or occupied roof" will restore the intent of Section 1021.1 in the 2009 IBC, which required occupied roofs to "be provided with exits as required for stories."

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The added language would provide consistency between the requirements for a story and an occupied roof.

Assembly Action: **None**

Final Hearing Results

E128-12 **AS**

Code Change No: E132-12

Original Proposal

Section(s): 1021.2 (IFC [B] 1021.2)

Proponent: Philip Brazil, P.E., Senior Engineer, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1021.2 (IFC [B] 1021.2) Exits from stories. Two *exits*, or *exit access stairways* or *ramps* providing access to *exits*, from any story or occupied roof shall be provided where one of the following conditions exists:

1. The *occupant load* or number of *dwelling units* exceeds one of the values in Table 1021.2(1) or 1021.2(2).
2. The *exit access* travel distance exceeds that specified in Table 1021.2(1) or 1021.2(2) as determined in accordance with the provisions of Section 1016.1.
3. *Helistop* landing areas located on buildings or structures shall be provided with two *exits*, or *exit access stairways* or *ramps* providing access to *exits*.

Exceptions:

1. Rooms, areas and spaces complying with Section 1015.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*~~,~~ are permitted to have one *exit*.
2. Group R-3 occupancy *buildings* shall be permitted to have one *exit*.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit*.
4. Air traffic control towers shall be provided with the minimum number of *exits* specified in Section 412.3.
5. Individual *dwelling units* in compliance with Section 1021.2.3.

~~6. Group R-3 and R-4 congregate residences shall be permitted to have one *exit*.~~

6.~~7~~. *Exits* serving specific spaces or areas need not be accessed by the remainder of the story when all of the following are met:

- 6.1.~~7.1.~~ The number of *exits* from the entire story complies with Section 1021.2.4;
- 6.2.~~7.2.~~ The access to *exits* from each individual space in the story complies with Section 1015.1; and
- 6.3.~~7.3.~~ All spaces within each portion of a story shall have access to the minimum number of *approved* independent *exits* based on the *occupant loa*d of that portion of the story, but not less than two exits.

Reason: Exception #6 was added by Proposal E5-09/10 but a reason for the exception was not given in the reason statement accompanying the proposal and there is no corresponding provision in the 2009 IBC. Note that the deletion has no effect on Group R-3 occupancies in that are permitted to have one exit by Exception #2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: There is a question as to if there is a conflict with Table 1022.2.2 and Section 1021.2 for Group R-4 single exit provisions. Section 1021.2 Item 6 should be deleted until the issue can be fully discussed.

Assembly Action: **None**

Public Comments

Public Comment 1:

Jonathan Siu, City of Seattle, Department of Planning & Development, representing Washington Association of Building Officials, Technical Code Development Committee, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

1021.2 Exits from stories. Two *exits*, or *exit access stairways* or *ramps* providing access to *exits*, from any story or occupied roof shall be provided where one of the following conditions exists:

1. The *occupant load* or number of *dwelling units* exceeds one of the values in Table 1021.2(1) or 1021.2(2).
2. The *exit access* travel distance exceeds that specified in Table 1021.2(1) or 1021.2(2) as determined in accordance with the provisions of Section 1016.1.
3. *Helistop* landing areas located on buildings or structures shall be provided with two *exits*, or *exit access stairways* or *ramps* providing access to exits.

Exceptions:

1. Rooms, areas and spaces complying with Section 1015.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit*.
~~2. Group R-3 occupancy buildings shall be permitted to have one *exit*.~~
2.~~3.~~ Parking garages where vehicles are mechanically parked shall be permitted to have one *exit*.
3.~~4.~~ Air traffic control towers shall be provided with the minimum number of *exits* specified in Section 412.3.
4.5. Individual *dwelling units* in compliance with Section 1021.2.3.
5. 6. Group R-3 and R-4 ~~congregate residences~~ occupancies shall be permitted to have one *exit*.
6.~~7.~~ *Exits* serving specific spaces or areas need not be accessed by the remainder of the story when all of the following are met:
   6.1 ~~7.1~~. The number of *exits* from the entire story complies with Section 1021.2.4;
   6.2 ~~7.2~~. The access to *exits* from each individual space in the story complies with Section 1015.1; and
   6.3 ~~7.3~~. All spaces within each portion of a story shall have access to the minimum number of *approved* independent *exits* based on the *occupant load* of that portion of the story, but not less than two exits.

Commenter's Reason: The intent of this proposal is to clean up the text that allows a single means of egress from R occupancies. While the Means of Egress Committee approved the original proposal as submitted, it has come to our attention there is a possibility the approved text is not consistent with the Fair Housing Act. Although there was no testimony to that effect in Dallas, we are submitting this public comment to head off the possibility of creating a conflict between the IBC and the Fair Housing Act.

The question of consistency with the Fair Housing Act revolves around how R-4 occupancies are treated. Our understanding of the Act is R-4 occupancies cannot be treated differently than R-3 occupancies. By deleting the exception for single exits for R-4 congregate residences, it could be construed that the code is treating the two occupancies differently. However, "congregate residences" is not a term that is used in the IBC anymore, so referring to R-4 congregate residences does not make sense. All the uses listed in Section 310.6 for an R-4 occupancy classification could be construed to be "congregate residences." On the other hand, if the "congregate care facilities" in Section 310.6 is thought to correspond with "congregate residences," we do not see a justification for limiting the application of this section to just congregate care facilities—all the uses listed in Section 310.6 are of similar hazard, else they would be placed in a different occupancy (most likely an I occupancy). For those reasons, we have proposed reinserting the exception for R-4's and to allow a single exit for all R-4 occupancies, not just congregate residences (whatever those are, in the context of the IBC).

For R-3 occupancies, the intent of the original proposal was to delete redundant text that allows R-3 occupancies to have one exit—both Exceptions 2 and 6 in the 2012 IBC allows this. Apparently, the Means of Egress Committee agreed with us that Exception 2 covered Exception 6. Since this public comment changes Exception 6 (now Exception 5 in the public comment) to apply to all R-3 occupancies, the intent of the original code change is still accomplished, but in a different way. In this case, Exception 2 is covered, and can be deleted.

Public Comment 2:

Steve Thomas, CBO, Denver, CO, representing self; Wayne Jewell, CBO, CPCA, Green-Oak, MI, representing self; request Approval as Submitted by this Public Comment

Replace the proposal as follows:

1021.2 (IFC [B] 1021.2) Exits from stories. Two *exits*, or *exit access stairways* or *ramps* providing access to *exits*, from any story or occupied roof shall be provided where one of the following conditions exists:

1. The *occupant load* or number of *dwelling units* exceeds one of the values in Table 1021.2(1) or 1021.2(2).
2. The *exit access* travel distance exceeds that specified in Table 1021.2(1) or 1021.2(2) as determined in accordance with the provisions of Section 1016.1.
3. *Helistop* landing areas located on buildings or structures shall be provided with two *exits*, or *exit access stairways* or *ramps* providing access to *exits*.

Exceptions:

1. Rooms, areas and spaces complying with Section 1015.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit*.
2. Group R-3 occupancy *buildings* shall be permitted to have one *exit*.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit*.
4. Air traffic control towers shall be provided with the minimum number of *exits* specified in Section 412.3.
5. Individual *dwelling units* in compliance with Section 1021.2.3.
6. Group R-3 congregate living facilities and R-4 ~~congregate residences~~ facilities shall be permitted to have one *exit*.
7. *Exits* serving specific spaces or areas need not be accessed by the remainder of the story when all of the following are met:
   7.1. The number of *exits* from the entire story complies with Section 1021.2.4;
   7.2. The access to *exits* from each individual space in the story complies with Section 1015.1; and
   7.3. All spaces within each portion of a story shall have access to the minimum number of *approved* independent *exits* based on the *occupant loa*d of that portion of the story, but not less than two exits.

1009.3 (IFC [B] 1009.3) Exit access stairways. Floor openings between stories created by *exit access stairways* shall be enclosed.

Exceptions:

1. In other than Group I-2 and I-3 occupancies, *exit access stairways* that serve, or atmospherically communicate between, only two stories are not required to be enclosed.
2. *Exit access stairways* serving and contained within a single residential *dwelling unit* or *sleeping unit* in Group R-1, R-2 or R-3 occupancies are not required to be enclosed.
3. Exit access stairways serving and contained within a Group R-3 congregate living facility or a Group R-4, facility are not required to be enclosed.

(No changes to remainder of section not shown. Renumber exceptions 3 through 10.)

1014.3 (IFC [B] 1014.3) Common path of egress travel. The *common path of egress travel* shall not exceed the *common path of egress travel* distances in Table 1014.3.

TABLE 1014.3 (IFC TABLE [B] 1014.3)
COMMON PATH OF EGRESS TRAVEL

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)		WITH SPRINKLER SYSTEM (feet)
	Occupant Load		
	≤30	> 30	
R-3, R-4 [e]	75	75	125 [b]

(No change to portions of table not shown)

For SI: 1 foot = 304.8 mm.

a. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
b. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.
c. For a room or space used for assembly purposes having *fixed seating*, see Section 1028.8.
d. The length of a *common path of egress travel* in a Group S-2 *open parking garage* shall not be more than 100 feet (30 480 mm).
e. The length of a *common path of egress travel* in a Group R-3 occupancy located in a mixed occupancy building or Group R-3 or R-4 within a congregate living facility.
f. For the distance limitations in Group I-2, see Section 407.4.

Commenter's Reason: As stated in the proponents reason, Section 1021.2, Exception 6 was added as part of E5-09/10. The intent of this proposal is to have a complete package for the exit stairway requirements for congregate living facilities in Groups R-3 and R-4, as an alternative to deleting the allowance for one exit staairway in Section 1021.1, Exception 6.

Exception 2 to Section 1021.2 is for the building of Group R-3, which would typically be a one- or two-family dwelling unit. Exception 6 is for Group R-3 and R-4 occupancies includes congregate living facilities with 16 or fewer residents; by definition a *congregate living facility* can be a part of a building. A congregate living facility is defined as sleeping units with shared kitchen and bathing facilities, so these are not dwelling units. The number of occupants in these occupancies is very limited and the occupants are familiar with their surroundings. This provision allows the same standards of design as required for single family homes to be applied to these types of facilities, keeping the code in-line with the requirements of the Federal Fair Housing provisions.

While the original proposal chose to delete the allowance for a single stairway within these small congregate residences, this proposal's addition to Sections 1009.3 and 1014.3 attempts to coordinate the requirements for open stairways and travel distance to address these types of facilities.

Final Hearing Results

E132-12 **AMPC1, 2**

Code Change No: E134-12

Original Proposal

Section(s): Table 1021.2(2), (IFC [B] Table 1021.2(2))

Proponent: Gregory R. Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com); Maureen Traxler, representing City of Seattle Department of Planning and Development (maureen.traxler@seattle.gov)

Revise as follows:

TABLE 1021.2(2) (IFC [B] 1021.2(2))
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANTS PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
First story or basement	A, B[b], E F[b], M, U, ~~S~~[b]	49 occupants	75 feet
	H-2, H-3	3 occupants	25 feet
	H-4, H-5, I, R-1, R-2[a,c], R-4	10 occupants	75 feet
	S[b,d]	29 occupants	~~100~~ 75 feet
Second story	B, F, M, S[d]	29 occupants	75 feet
Third story and above	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP – Not Permitted
NA – Not Applicable

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1029.
b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum travel distance of 100 feet.
c. This Table is used for R-2 occupancies consisting of sleeping units. For R-2 occupancies consisting of dwelling units, use Table 1021.2(1).
d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet (30 480 mm).

Reason: Table 1021.2(2) currently contains a technical conflict. That is, within the "First story or basement" line, Group S occupancies are listed twice with differing occupant load and exit access travel distance thresholds. Rather than arbitrarily selecting one of the two sets of values, they have been adjusted so as to coincide with the requirements for multiple exits or exit access doorways from spaces. Table 1015.1 allows for single exits/exit access in Group S occupancies where the occupant load is 29 or less. Table 1014.3 limits the common path of egress travel in Group S occupancies to 75 feet in unsprinklered buildings and 100 feet in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. Additionally, Table 1014.3, Footnote d permits 100 feet for common path of egress travel in Group S-2 open parking garages. The proposed corrections to Table 1021.2(2) eliminate internal conflicts and are consistent with multiple exit thresholds found elsewhere in the IBC.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This issue will move the Group S allowance for increased travel distance from the table to a footnote. With the two option in the table, some users felt there was a conflict in the requirements rather than two options.

Assembly Action: **None**

Final Hearing Results

E134-12 **AS**

Code Change No: E136-12

Original Proposal

Section(s): 1021.3.1 (IFC [B] 1021.3.1)

Proponent: Jonathan Siu, City of Seattle Dept of Planning & Development representing Washington Association of Building Officials Technical Code Development Committee (jon.siu@seattle.gov)

Revise as follows:

1021.3.1 (IFC [B] 1021.3.1) Access to exits at adjacent levels. Access to exits at other levels shall be by stairways or ramps. Where access to exits occurs from adjacent building levels, the horizontal and vertical exit access travel distance to the closest exit shall not exceed that specified in Section 1016.1. ~~Access to exits at other levels shall be from an adjacent story.~~ The path of egress travel to an *exit* shall not pass through more than one adjacent story.

Reason: This proposal is intended to clarify the requirement for exit accesses leading to an exit that is located on another story. The intent of the last sentence in Section 1021.3.1 is to prohibit having an occupant travel more than one story via an exit access stairway or ramp to reach an exit. However, as written, the language is confusing and can be read to say that all exits must be accessed from an adjacent story. We believe the requirement can be stated more clearly as we have proposed.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Errata: The existing exception is missing from the proposal to Section 1021.3.1.

Committee Reason: The proposal clarifies the path of egress travel by rewording the last sentence. The committee did identify that E127 deletes this section, however, if E127 is reversed, this is a good clarification.

Assembly Action: **None**

Final Hearing Results

E136-12 **AS**

Code Change No: E137-12

Original Proposal

Section(s): 1022.1(IFC [B] 1022.1)

Proponent: Paul Armstrong, P.E., CBO, City of El Monte representing the ICC Orange Empire Chapter Code Committee (paul@jaspacific.com)

Revise as follows:

1022.1 (IFC [B] 1022.1) General. Interior exit stairways and interior exit ramps serving as an exit component in a means of egress system shall comply with the requirements of this section. Interior exit stairways and ramps shall be enclosed and lead directly to the exterior of the building or shall be extended to the exterior of the building with an extended exit passageway conforming to the requirements of Section 1023, except as permitted in Section 1027.1. An interior exit stairway or ramp shall not be used for any purpose other than as a means of egress.

Reason: Editorial revision. The proposed revision is added for clarification to the requirement for protection of interior exit stairways or ramps as found in Chapter 2, Definitions.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed enclosure language is already addressed in Section 1009.2.2.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, Chair, Code Technologies Committee, requests Approval as Submitted.

Commenter's Reason: This public comment is intended to correct an inadvertent error of omission with Item E7-12 that was approved as modified during the 2012 ICC code development hearings in Dallas, TX. E7-12 was intended to clarify and refine the provisions of Item E5-09/10 that was approved for inclusion in the 2012 IBC. E7-12 relocated the technical requirements for exit access stairways from Section 1009.3 to a new Section 1018. It also removed the provisions of Section 1009.2 applicable to interior exit stairways; however, failed to relocate them in Section 1022. It was not the intent of E-7 to remove the enclosure requirements for exit stairs from the code. The intent was to relocate the exit stair enclosure requirements to section 1022.

This oversight was discovered during the discussion of Item E137-12 at the Dallas code development hearings. Passage of E137-12 will fix this error and maintain the clear requirement that exit stairs shall be enclosed. The following language is currently contained in Section 1009.2 of the 2012 IBC.

1009.2 Interior exit stairways. Interior exit stairways shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an exit passageway conforming to the requirements of Section 1023, except as permitted in Section 1027.1.

1009.2.1 Where required. Interior exit stairways shall be included, as necessary; to meet one or more means of egress design requirements, such as required number of exits or exit access travel distance.

1009.2.2 Enclosure. All interior exit stairways shall be enclosed in accordance with the provisions of Section 1022.

These inadvertently deleted provisions have been placed in proper technical context in Section 1022. Approval of this public comment will restore necessary charging language for the enclosure of interior exit stairways and ramps in the 2015 Edition of the IBC.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "Unenclosed exit stairways". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/UnenclosedExitStairs.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

E137-12 **AS**

Code Change No: E138-12

Original Proposal

Section(s): 1022.1, 1023.1 (IFC [B] 1022.1, 1023.1)

Proponent: Lee J. Kranz, City of Bellevue, Washington, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov)

Revise as follows:

1022.1 (IFC [B] 1022.1) General *Interior exit stairways* and *interior exit ramps* serving as an *exit* component in a *means of egress system* shall comply with the requirements of this section. *Interior exit stairways* and *ramps* shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an *exit passageway* conforming to the requirements of Section 1023, except as permitted in Section 1027.1. An *interior exit stairway* or *ramp* shall not be used for any purpose other than as a means of egress and a circulation path.

Exception: An interior exit stairway or ramp shall be permitted to be used as a circulation path.

1023.1 (IFC [B] 1023.1) General E*xit passageways* serving as an *exit* component in a *means of egress system* shall comply with the requirements of this section. An *exit passageway* shall not be used for any purpose other than as a means of egress and a circulation path.

Exception: An interior exit passageway shall be permitted to be used as a circulation path.

Reasoning: Although the code text, as currently written, does not specifically prohibit interior exit stairways, ramps and exit passageways from being used as a circulation path or as a path of entry into a building, it could be interpreted that way. Interior exit stairways, ramps and passageways are commonly used by building occupants to access other floors or areas on the same floor for convenience purposes.

According to official IBC Interpretation 27-08 ~~(see attached copy)~~ issued on March 6, 2009 by ICC staff "An exit passageway provides a protected path of egress travel in a horizontal direction to the exit discharge or the public way. While this provision states that the exit passageway shall not be used for any purpose other than as a means of egress, similar to an exit enclosure, the intent is to limit openings to those necessary for exit access to the exit passageway from normally occupied spaces and for egress from the exit passageway in addition to prohibiting the exit passageway from being used for storage or the placement of furniture, vending machines, etc., because these situations may obstruct the path of exit travel and, if the materials are combustible, create a life safety hazard. The code does not specifically prohibit the exit passageway from also being used as a path of entry into a building."

The proposed exception to Section 1022.1 for interior exit stairways and ramps and to Section 1023.1 for exit passageways will add clarity on this issue and will not diminish life safety for the means of egress. Note: the term "Circulation path" is defined in IBC Chapter 2.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Modified**

Modify by replacing the code change with the following:

1022.1 (IFC [B] 1022.1) General *Interior exit stairways* and *interior exit ramps* serving as an *exit* component in a *means of egress system* shall comply with the requirements of this section. *Interior exit stairways* and *ramps* shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an *exit passageway* conforming to the requirements of Section 1023, except as permitted in Section 1027.1. An *interior exit stairway* or *ramp* shall not be used for any purpose other than as a means of egress and a circulation path.

1023.1 (IFC [B] 1023.1) General E*xit passageways* serving as an *exit* component in a *means of egress system* shall comply with the requirements of this section. An *exit passageway* shall not be used for any purpose other than as a means of egress and a circulation path.

Committee Reason: The published change mistakenly printed two options to address the issue – one in the text and one in the exception. The errata showed the original proposal, with the allowance in the exception. The committee preferred the option of including the proposed text in the main paragraph. The proposal as modified will clarify that stairways can be used for both ingress and egress. There have been some misinterpretations with the current text that would limit the stairs to only be used for emergency egress and not allow normal use.

Assembly Action: **None**

Final Hearing Results

E138-12 **AM**

Code Change No: E139-12

Original Proposal

Section(s): 1022.2 (IFC [B] 1022.2)

Proponent: David S. Collins, FAIA, The Preview Group, Inc. representing The American Institute of Architects (dcollins@preview-group.com)

Revise as follows:

1022.2 (IFC [B] 1022.2) Construction. Enclosures for interior exit stairways and ramps shall be constructed as fire barriers in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. Interior exit stairway and ramp enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the interior exit stairways or ramps shall include any basements, but not any mezzanines. Interior exit stairways and ramps shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours.

Exceptions:

1. Interior exit stairways and ramps in Group I-3 occupancies in accordance with the provisions of Section 408.3.8.
2. Interior exit stairways within an atrium enclosed in accordance with Section 404.6.

Reason: Section 1022.2 requires an enclosure of an interior exit stair by a 1 hour or 2 hour passive enclosure. Section 1022.1 limits the use of the enclosure to only egress purposes. Section 404 for atriums requires that the space be enclosed by a 1-hour passive enclosure and also protected by various active systems including fire suppression and smoke control features. The natural configuration of an atrium affords building occupants with immediate views of the entire egress to the bottom of the atrium.

In addition to immediate additional life safety of the occupants because of the openness, there are ancillary health benefits for building occupants to safely use the stairs to traverse from one level to another even when the stair is not being used in an emergency.

Cost Impact: The use of the atrium as an exit stair will reduce the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Enclosed atriums should be permitted as an option for an exit stairway enclosure.

Assembly Action: **None**

Final Hearing Results

E139-12 **AS**

Code Change No: E140-12

Original Proposal

Section(s): 1022.3 (IFC [B] 1022.3)

Proponent: Dennis Richardson, PE; Building Official, City of Salinas, representing Tri-Chapter (Peninsula, East Bay and Monterey Bay Chapters of ICC) (dennisrichardsonpe@yahoo.com)

Revise as follows:

1022.3 (IFC [B] 1022.3) Termination. *Interior exit stairways* and *ramps* shall terminate at an *exit discharge* or a *public way*.

Exception: ~~*Interior exit stairways* and *ramps* shall be permitted to terminate at an *exit passageway* complying with Section 1023, provided the *exit passageway* terminates at an *exit discharge* or a *public way*.~~ A combination of interior exit stairways, interior exit ramps and exit passageways, constructed in accordance with Sections 1022.2, 1022.3.1 and 1023 and forming a continuous protected enclosure, shall be permitted to extend an interior exit stairway or ramp to the exit discharge or a public way.

Reason: Current language requires interior exit stairways and ramps (formerly exit enclosures) to lead directly to the exterior of the building or shall be extended by an exit passageway to the exterior of the building. This change would allow a combination of interior exit stairs, ramps, and passageways to from a continuous protected enclosure to the exterior of a building. It is practice to utilize exit passageways and ramps as required to extend or connect the exit enclosure protection horizontally at building offsets and other obstructions until the stairway can then again proceed downward ultimately terminating at a discharge or being extended to the discharge. The code language does not appear to recognize this practice although the 2012 IBC Code and Commentary, Figure 1011.1 gives this example to illustrate exit signs within an exit enclosure.

Cost Impact: This code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This option permits exit passageways to be used on upper levels as horizontal transfer elements between stairway enclosures rather than only allowing them on the level of exit discharge. This is currently a common occurrence in high rise construction.

Assembly Action: **None**

Final Hearing Results

E140-12 **AS**

Code Change No: E141-12

Original Proposal

Section(s): 1022.3.1 (IFC [B] 1022.3.1)

Proponent: Dennis Richardson, PE; Building Official, City of Salinas, representing Tri-Chapter (Peninsula, East Bay and Monterey Bay Chapters of ICC) (dennisrichardsonpe@yahoo.com)

Revise as follows:

1022.3.1 (IFC [B] 1022.3.1) Extension. Where *interior exit stairways* and *ramps* are extended to an *exit discharge* or a *public way* by an *exit passageway*, the *interior exit stairway* and *ramp* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be at least equal to that required for the *interior exit stairway* and *ramp*. A *fire door* assembly complying with Section 716.5 shall be installed in the *fire barrier* to provide a *means of egress* from the *interior exit stairway* and *ramp* to the *exit passageway*. Openings in the *fire barrier* other than the *fire door* assembly are prohibited. Penetrations of the *fire barrier* are prohibited.

~~Exception~~ Exceptions:

1. Penetrations of the *fire barrier* in accordance with Section 1022.5 shall be permitted.
2. Separation between an interior exit stairway or ramp and the exit passageway shall not be required if there are no openings or penetrations in the exit passageway.

Reason: It is practice to utilize exit passageways and ramps as required to extend or connect the exit enclosure protection horizontally at building offsets and other obstructions until the stairway can then again proceed downward ultimately terminating at a discharge or being extended to the discharge. The purpose in having a door at this interface in the existing requirement is to prevent smoke from a possible open door or other penetration in the passageway from traveling up the exit enclosure. This is prevented if there are no openings or penetrations in the exit passageway. The exit passageway is constructed strictly as an extension of the enclosure at a horizontal offset. Egress can proceed faster if there are not intermediate doors contained at the enclosure transitions.

Cost Impact: This code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This proposed language is too restrictive for the exit passageway. It is not possible to build an exit passageway with no openings (i.e., lights, ventilation, sprinklers). Where interior exit stairways are connected by a passageway, a door should be provided for compartmentation of the exit path.

Assembly Action: **None**

Public Comments

Public Comment:

Dennis Richardson, PE, CBO, City of Salinas, representing Tri-Chapter (Peninsula, East Bay and Monterey Chapters, ICC), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1022.3.1 Extension. Where *interior exit stairways* and *ramps* are extended to an *exit discharge* or a *public way* by an *exit passageway*, the *interior exit stairway* and *ramp* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be at least equal to that required for the *interior exit stairway* and *ramp*. A *fire door* assembly complying with Section 716.5 shall be installed in the *fire barrier* to provide a *means of egress* from the *interior exit stairway* and *ramp* to the *exit passageway*. Openings in the *fire barrier* other than the *fire door* assembly are prohibited. Penetrations of the *fire barrier* are prohibited.

Exceptions:

1. Penetrations of the *fire barrier* in accordance with Section 1022.5 shall be permitted.
2. Separation between an interior exit stairway or ramp and the exit passageway extension shall not be required if there are no openings ~~or penetrations~~ in the exit passageway extension.

Commenter's Reason: The original proposed code change mistakenly included penetrations (along with openings) in exception 2 as prohibited from the exit passageway extension if no doors are provided. Members of the Egress Committee correctly pointed out that only openings would need to be prohibited in the passageway extension to obtain this exception and the original proposed exception was overly restrictive. This public comment has been revised accordingly.

Final Hearing Results

E141-12 **AMPC**

Code Change No: E143-12

Original Proposal

Section(s): 1022.5, 1023.5, 1023.6 (IFC [B] 1022.5, 1023.5, 1023.6)

Proponent: Gregory R. Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com)

Revise as follows:

1022.5 (IFC [B] 1022.5) Penetrations. Penetrations into ~~and openings~~ or through interior exit stairways and ramps are prohibited except for ~~required exit doors,~~ equipment and ductwork necessary for independent ventilation or pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication systems and electrical raceway serving the interior exit stairway and ramp and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 713. There shall be no penetrations or communication openings, whether protected or not, between adjacent interior exit stairways and ramps.

Exception: Membrane penetrations shall be permitted on the outside of the interior exit stairway and ramp. Such penetrations shall be protected in accordance with Section 713.3.2.

1023.5 (IFC [B] 1023.5) Openings ~~and penetrations~~. Exit passageway opening protectives shall be in accordance with the requirements of Section 716.

Except as permitted in Section 402.8.7, openings in exit passageways other than unprotected exterior openings shall be limited to those necessary for exit access to the exit passageway from normally occupied spaces and for egress from the exit passageway.

Where an interior exit stairway or ramp is extended to an exit discharge or a public way by an exit passageway, the exit passageway shall also comply with Section 1022.3.1.

Elevators shall not open into an exit passageway.

1023.6 (IFC [B] 1023.6) Penetrations. Penetrations into ~~and openings~~ or through an exit passageway are prohibited except for ~~required exit doors~~, equipment and ductwork necessary for independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the exit passageway and terminating at a steel box not exceeding 16 square inches (0.010m^2). Such penetrations shall be protected in accordance with Section 714. There shall be no penetrations or communicating openings, whether protected or not, between adjacent exit passageways.

Exception: Membrane penetrations shall be permitted on the outside of the exit passageway. Such penetrations shall be protected in accordance with Section 714.3.2.

Reason: Section 1022 subsection titles were revised for 2012. Section 1022.4 is re-titled, "Openings." Formerly, the section was titled "Openings and penetrations" in the 2009 Edition of the IBC although former Section 1022.4 (current section 1022.5) was titled "Penetrations." It is consistent with many IBC sections to distinguish between provisions applicable to openings and penetrations.

Although the section titles were corrected, the provisions contained within the sections were not. This proposal removes the references to opening protection requirements from Section 1022.5. There is no need to relocate them since Section 1022.4 already addresses identical interior exit stairway and ramp door limitations. Approval of this proposal will create editorial consistency in IBC opening and penetration protection requirements.

The proposed changes to Section 1023.5 is for consistency between exit stairway or ramp requirements and exit passageway requirements.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This completes the separation between penetrations and openings in Section 1022 and 1023 started last cycle. This is a good cleanup and encourages consistency.

Assembly Action: **None**

Final Hearing Results

E143-12	**AS**

Code Change No: E144-12

Original Proposal

Section(s): 1022.10(New); [IFC [B] 1022.10 (New)]

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Add new text as follows:

1022.10 (IFC [B] 1022.10) Elevator Lobby identification signs. At landings in interior exit stairways where two or more doors lead to the floor level, the door leading to the elevator lobby shall be identified by signage located on the door or directly adjacent to the door stating "Elevator Lobby." Signage shall be in accordance with Section 1022.9.1 Items 4, 5 and 6.

(Renumber subsequent sections)

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

This proposal is one of several proposals submitted by the CTC Elevator lobby SG. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- Review the need for elevator lobbies**,** with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- Review related code provisions, such as egress from and through elevator lobbies.
- Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- Review applicable code change history, technical studies and loss statistics as part of this review.

Based upon the extensive nature of this area of study**,** 5 Task Groups were formed during the process to provide in-depth review and to manage the number of issues. These task groups developed a number of proposals that were coordinated throughout the process.

More information on this CTC area of study can be found at the following link.
http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

The focus is on necessary signage for entrance into elevator lobbies from interior exit stairway landings. This issue is more specific to Fire service access elevators and the potential for multiple required doors. The code currently requires direct access from the lobby to a stairway and additionally the same stairway must have a door that opens directly to the floor based upon standpipe access issues (i.e. limiting the number of doors that need to be open to lay hose during a fire). Fire fighters and occupants need to readily determine which door leads to the enclosed elevator lobby therefore signage is necessary to assist in wayfinding. The enclosed elevator lobby could be for fire service access elevators (FSAE) or occupant evacuation elevators. Since the signage need can apply to either type of enclosed elevator lobby and is related to interior exit stairways the requirements are proposed in Section 1022.

See discussion on CTC elevator lobby proposal coordination in code change FS##-12

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This signage is necessary for fire fighters when there is a fire service access elevator lobby. However, there could be some situations where there are two doors to the same level which do not have a fire service access elevator lobbies. There are also provisions that were approved by the General committee that would allow access to the fire service access elevator via a rated corridor. Additional revisions may be needed for further coordination.

Assembly Action: **None**

Public Comments

Public Comment 2:

Jonathan Siu, representing City of Seattle Dept of Planning & Development, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1022.10 (IFC [B] 1022.10) Elevator Lobby identification signs. At landings in interior exit stairways where two or more doors lead to the floor level, ~~the~~ any door ~~leading~~ with *direct access* to ~~the~~ an enclosed elevator lobby shall be identified by signage located on the door or directly adjacent to the door stating "Elevator Lobby." Signage shall be in accordance with Section 1022.9.1 Items 4, 5 and 6.

Commenter's Reason: As stated in the original proposal's reason statement, these signs are needed to provide direction for firefighters and building occupants where more than one door is provided for access to a floor from an interior exit stairway.

In approving this proposal as submitted, the Means of Egress Committee pointed out the text as proposed applies broadly to all elevator lobbies, as opposed to only those associated with fire service access or occupant evacuation elevators. Our response is if the signs are being provided to prevent confusion, both for firefighters and building occupants who are in the stairs, then it is immaterial as to what kind of lobby the door opens into—any "extra" doors are likely to cause confusion, and therefore, they should be provided with signs.

The change in the text to require the signage only for doors providing "direct access" to an enclosed lobby is to coordinate this proposal with Item G175-12, which was approved as submitted by the General Committee. G175-12 provides exceptions to the requirement that fire service access and occupant evacuation elevator lobbies have direct access to an interior exit stairway. The result of this public comment is if the door does not provide direct access to an enclosed lobby, it is not required to have signage.

For reference, the relevant approved-as-submitted text of G175-12 follows:

G175-12 (Approved as Submitted)

Revise as follows:

3007.7.1 Interior exit stairway access. The fire service access elevator lobby shall have direct access from the enclosed elevator lobby to an enclosure for an *interior exit stairway*.

Exception: Access to an interior exit stairway shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.

3008.7.1 Interior exit stairway access. The occupant evacuation elevator lobby shall have direct access from the enclosed elevator lobby to an *interior exit stairway* or *ramp*.
Exception: Access to an interior exit stairway shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.

Add new definition as follows:

DIRECT ACCESS. A path of travel from a space to an immediately adjacent space through an opening in the common wall between the two spaces.

Final Hearing Results

E144-12 **AMPC2**

Code Change No: E145-12

Original Proposal

Section(s): 1022.10, 1022.10.1 (IFC [B] 1022.10, 1022.10.1)

Proponent: Homer Maiel, PE, CBO, Town of Atherton representing ICC Tri-Chapter (Peninsula, East Bay, and Monterey Bay)

Revise as follows:

1022.10 (IFC [B] 1022.10) Smokeproof enclosures ~~and pressurized stairways and ramps~~. Where required by Section 403.5.4 or 405.7.2, *interior exit stairways* and *ramps* shall be *smokeproof enclosure* ~~or pressurized *stairway* or *ramps*~~ in accordance with Section 909.20.

1022.10.1 (IFC [B] 1022.10.1) Termination and extension. A *smokeproof enclosure* ~~or pressurized *stairway*~~ shall terminate at an *exit discharge* or a *public way*. The *smokeproof enclosure* or ~~pressurized *stairway*~~ shall be permitted to be extended by an *exit passageway* in accordance with Section 1022.2. The *exit passageway* shall be without openings other than the *fire door assembly* required by Section 1022.2 and those necessary for egress from the *exit passageway*. The *exit passageway* shall be separated from the remainder of the building by 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both.

Exceptions:

1. Openings in the *exit passageway* serving a *smokeproof enclosure* are permitted where the *exit passageway* is protected and pressurized in the same manner as the *smokeproof enclosure*, and openings are protected as required for access from other floors.
2. ~~Openings in the exit passageway serving a pressurized stairway are permitted where the exit passageway is protected and pressurized in the same manner as the smokeproof enclosure or pressurized stairway.~~
2~~3~~. The *fire barrier* separating the *smokeproof enclosure* ~~or pressurized *stairway*~~ from the *exit passageway* is not required, provided the *exit passageway* is protected and pressurized in the same manner as the *smokeproof enclosure* ~~or pressurized *stairway*~~.
3~~4~~. A *smokeproof enclosure* ~~or pressurized *stairway*~~ shall be permitted to egress through areas on the level of discharge or vestibules as permitted by Section 1027.

Reason: The way that the current code language is, it gives the code users the impression that pressurized stairway is different from smokeproof enclosure. It is not. In fact pressurized stairway is a SPECIAL case of the smokeproof enclosure. In Chapter 9, smokeproof enclosure is covered under Section 909.20. In there, it specifies that in order to enter a smokeproof enclosure, one needs to first enter either an open exterior balcony or a ventilated vestibule. Then this section is followed by sub-Sections 909.20.1 through 909.20.4 on how to build this smokeproof enclosure. Then, comes Section 909.20.5 which is also a subsection to 909.20. In there, it gives the individual the option of eliminating vestibule if the enclosure is pressurized. All other subsections to 909.20 that deal with smoke proof enclosure still apply (ie, construction, door closure, etc.). By striking “pressurized stairway” this section becomes much simpler and cleaner. Also by doing so, Exception 2 becomes redundant

Cost Impact: This code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: There are three basic alternatives for smokeproof enclosures. This deletion would clarify this and would be consistent with the definition for smokeproof enclosures.

Assembly Action: **None**

Final Hearing Results

E145-12 **AS**

Code Change No: E148-12

Original Proposal

Section(s): 1023.7(New) [IFC [B] 1023.7(New)]

Proponent: Larry Lincoln, Salt Lake City Corporation representing Utah Chapter of International Code Council

Add new text as follows:

1023.7 (IFC [B] 1023.7) Ventilation. Equipment and ductwork for *exit passageway* ventilation as permitted by Section 1023.6 shall comply with one of the following:

1. The equipment and ductwork shall be located exterior to the building and shall be directly connected to the *exit passageway* by ductwork enclosed in construction as required for shafts.
2. Where the equipment and ductwork is located within the *exit passageway*, the intake air shall be taken directly from the outdoors and the exhaust air shall be discharged directly to the outdoors, or the air shall be conveyed through ducts enclosed in construction as required for shafts.
3. Where located within the building, the equipment and ductwork shall be separated from the remainder of the building, including other mechanical equipment, with construction as required for shafts.

In each case, openings into the fire-resistance-rated construction shall be limited to those needed for maintenance and operation and shall be protected by opening protectives in accordance with Section 716 for shaft enclosures.

Exit passageway ventilation systems shall be independent of other building ventilation systems.

Reason: Ventilation for exit passageways is currently not addressed in (2012) IBC section 1023. Since an exit passageway is essentially an extension/continuation of the interior exit stairway to the exit discharge or to a public way, the sterility of the environment of the exit passageway should reflect that of an interior exit stairway. Therefore, this new section reflects and is essentially the same ventilation requirements found in IBC section 1022.6 for interior enclosed exit stairways.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The exit passageway should be consistent with the exit enclosures. This added text is needed for coordination between requirements.

Assembly Action: **None**

Final Hearing Results

E148-12 **AS**

Code Change No: E149-12

Original Proposal

Section(s): 1024.5 (IFC [B] 1024.5)

Proponents: Jack Bailey, One Lux Studio, representing The International Association of Lighting Designers (jbailey@oneluxstudio.com)

Revise as follows:

1024.5 (IFC [B] 1024.5) Illumination. Where *photoluminescent* exit path markings are installed, they shall be provided with ~~the minimum *means of egress* illumination required by Section 1006~~ not less than 1 footcandle (11 lux) of illumination for at least 60 minutes prior to periods when the building is occupied.

Reason: Stating the required illumination level here makes the code easier to use, and also makes it clear that illumination requirements for photoluminescent exit path markings are unrelated to illumination requirements for human vision. Furthermore, many people are confused by the two separate illumination requirements in Section 1006 (a **minimum** of 1 footcandle under normal power conditions, and an **average** of 1 footcandle under emergency power conditions), so a simple, clear statement in Section 1024.5 is better.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1024.5 (IFC [B] 1024.5) Illumination. Where *photoluminescent* exit path markings are installed, they shall be provided with not less than 1 footcandle (11 lux) of illumination for at least 60 minutes prior to periods when the building is occupied and continuously during the building occupancy.

Committee Reason: The modification picks up language proposed in E28-12. The added language will clarify that not only must the lights turn on before occupancy, but stay on while the building is occupied. The 1 footcandle is adequate to charge photoluminescent stripes. This requirement also aligns with the UL standard for charging photoluminescent stripes as required in Section 1024.

Assembly Action: **None**

Final Hearing Results

E149-12 **AM**

Code Change No: E153-12

Original Proposal

Section(s): 202, 1026.6 (IFC [B] 202, 1026.6)

Proponent: Al Godwin, CBO, CPM, Aon Fire Protection Engineering representing Aon Fire Protection Engineering (al.godwin@aon.com)

Add new definition as follows:

SECTION 202
DEFINITIONS

OPEN-ENDED CORRIDOR. An interior corridor that is open on each end, and connects to an exterior *stairway* or *ramp* at each end with no intervening doors or separation from the corridor.

Revise as follows:

SECTION 1026 (IFC [B] 1026)
EXTERIOR EXIT STAIRWAYS AND RAMPS

1026.6 (IFC [B] 1026.6) Exterior stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the building as required in Section 1022.2. Openings shall be limited to those necessary for egress from normally occupied spaces.

Exceptions:

1. Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are no more than two stories above grade plane where a level of exit discharge serving such occupancies is the first story above grade plane.
2. Separation from the interior of the building is not required where the exterior stairway or ramp is served by an exterior ramp or balcony that connects two remote exterior stairways or other approved exits with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the openings no less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the interior of the building is not required for an exterior stairway or ramp located in a building or structure that is permitted to have unenclosed exit access stairways in accordance with Section 1009.3.
4. Separation from the ~~interior~~ *open-ended corridor* of the building is not required for *exterior stairways* or *ramps* ~~connected to open-ended *corridors*~~, provided that Items 4.1 through 4.5 are met:
   - 4.1 The building, including *open-ended corridors*, and *stairways* and *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
   - 4.2 The *open-ended corridors* comply with Section 1018.
   - 4.3 The *open-ended corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1026.
   - 4.4 The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section1022.7.
   - 4.5 At any location in an *open-ended corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or

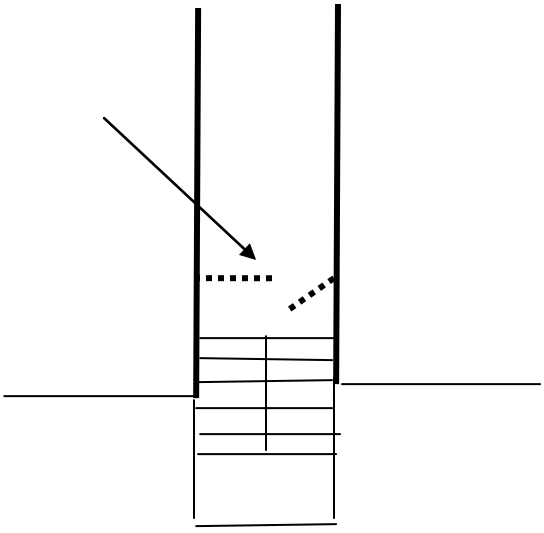
an *exterior stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

Reason: Breezeway stairs is what this section is talking about. Whether straight through the building with a stair on each side, or taking a turn somewhere during its path through the building with a stair on either end, it is still a breezeway with exterior stairs. This point is not clear in the current language.

There is this opinion that an open breezeway stairs are allowed by basic code. They are not. 2012 IBC Section 1026.6 states that exterior stairs must be separated from the interior of the building. The breezeway (interior "open ended" corridor) is part of the interior of the building. I have conferred with the original drafter of this code change many times and confirmed that the intent was to allow the removal of the wall and door that separates the stair from the corridor, creating a breezeway.

Many designers and jurisdictions assume that breezeway stairs are allowed by right. However, in order to not have to build the wall and fire door separating the exterior stair from the interior corridor, exception 4 must be complied with, which includes sprinklers in this breezeway.

The following is a representation of the intent of Exception 4, allowing the removal of the separation wall and door:



We are all familiar with the required protection on each side of the exterior stair as represented in the following clip from the 2000 International Building Code Commentary.

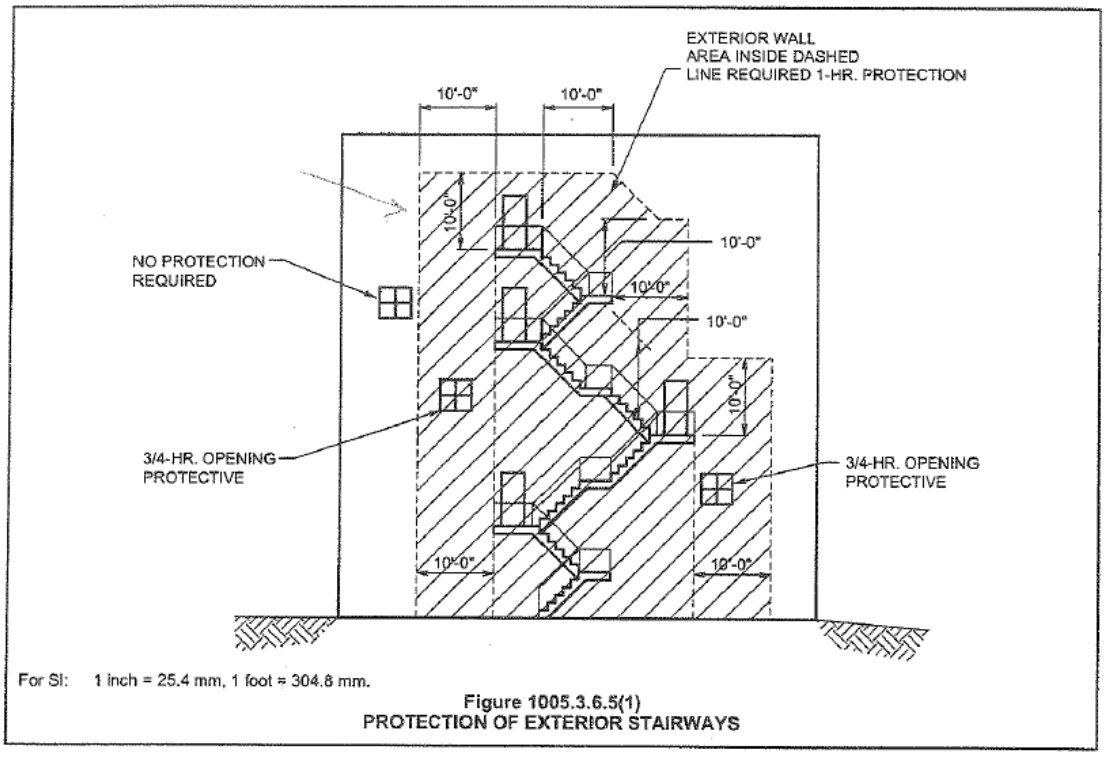
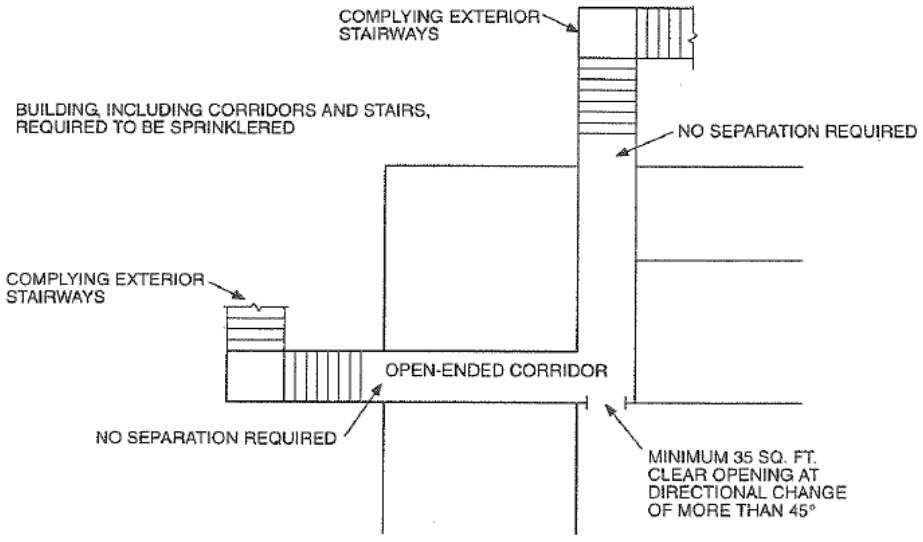


Figure 1005.3.6.5(1)
PROTECTION OF EXTERIOR STAIRWAYS

So, if the walls on each side of the stair have to be protected, how can a large opening where the door occurs be removed and have an unprotected connection to the interior corridor.

The 2000 IBC Handbook, provided the following accurate depiction of what this code change applied to as follows:



OPEN-ENDED CORRIDOR

FIGURE 1005-10

Here is the original code change that inserted the provision. Notice the statement "The purpose of this analysis was to determine if an equivalent level of life safety could be achieved by the design of an open breezeway in comparison to an enclosed corridor or balcony for these multifamily buildings." The code change was not to eliminate the protection between the unit and the stair, but to remove the protection (wall and fire rated door) between the stair and what would have been an interior corridor.

technical change.

Public Hearing: Committee: AS AM D
Assembly: ASF DF

1008.7-2

Proponent: Ron Nickson, National Multi Housing Council/National Apartment Association

1. Revise as follows:

1008.7 Exterior exit stairways. Exterior exit stairways that conform to the requirements for interior exit stairways except for the enclosure requirements, are permitted as an element of a required means of egress for buildings not exceeding six stories or 75 feet (22.9 m) in height for occupancies other than Group I-2.

An exterior exit stairway that serves as an exit component shall be open to the outside on at least one side except for required structural columns beams, ~~and open-type~~ handrails and guards. A minimum of 35 square feet (3.22 m^2) of aggregate open area shall be provided within the horizontal projection of each floor to ceiling level at each exterior stair or within the horizontal projection of the floor to ceiling level of the stairway landing that is located no more than 1/2 level above the corridor floor.

The adjoining open areas shall be either yards, courts or public ways; the remaining sides are permitted to be enclosed by the exterior walls of the building. Any stairway not meeting the definition of an exterior stairway shall comply with the requirements for interior stairways.

Exterior stairways shall be located in accordance with Section 1009.1.

2. Revise the definition of Stairway, Exterior as follows:

SECTION 1002
DEFINITIONS

STAIRWAY, EXTERIOR A stairway that is open on at least one side, except for required structural columns, beams, ~~and open-type~~ handrails, and guards. The adjoining open areas shall be either yards, courts or public ways; the other sides of the exterior stairway need not be open.

Reason: To establish minimum requirements for open area on exterior exit stairways and permit the use of enclosed guards and handrail systems.

The 35 sq. ft. of open area is based on computer fire studies of six multifamily projects in Virginia containing more than 2000 individual dwelling units. The analysis was completed by the Sullivan Code Group using HAZARD I, a fire hazard assessment method developed by the United States National Institute of Standards and Technology. The procedures used by the Sullivan Code Group were reviewed by Professor Jonathan Barnett, Ph.D., Associate Professor, Center for Firesafety Studies, Worcester Polytechnic Institute who checked for conformity with the fire modeling expectations and limitations.

The findings, which are based on the provisions in the 1996 BOCA National Building Code, apply equally to the provisions in the IBC. The results, summarized by the Sullivan Code Group in the following Executive Summary, for the six buildings included in the studies were very similar. The buildings studied were multifamily apartments with various configurations of corridors connected to exterior open stairs.

EXECUTIVE SUMMARY

The purpose of this analysis was to determine if an equivalent level of life safety could be achieved by the design of an open breezeway in comparison to an enclosed corridor or a balcony for these multifamily buildings.

The multifamily buildings were analyzed using engineering judgement, referenced literature, the suite of computer programs called FASTlite, and CFAST and, computer-based fire models developed by the United States National Institute of Standards and Technology, Building and Fire Research Laboratory.

The reasonable worst case fire scenario modeled was an arson fire on the breezeway. By assuming that the design fire is a fast growing arson fire, this analysis goes beyond the requirements of the Building Code which does not consider arson fire situations in determining building fire safety regulations. Therefore, this analysis is evaluating the building under more adverse conditions than are addressed in the Building Code. The results of the analysis are:

1. For the life safety of the building occupants on the floor of fire origin, the open breezeway configuration is superior to the enclosed corridor configuration.
2. For the life safety of the building occupants on floors other than the floor of fire origin, the open breezeway configuration meets the intent of the egress provisions in the BOCA Code. With the open breezeway configuration, at least one stairwell should maintain tenable egress conditions depending on the wind direction. In all cases analyzed, one stairwell was capable of handling the occupant load. Therefore, the intent of the code is met.
3. Smoke conditions on floors other than the floor of fire origin will remain safe for a suitable period of time to allow occupant egress with the open breezeway configuration, even without sprinklers. If there is a wind, the tenability in the open breezeways is improved.
4. With the enclosed corridor configuration, sprinkler activation is predicted to occur after the time at which the upper smoke layer reaches a level that could impede egress. With the open breezeway configuration, sprinkler activation is predicted to occur prior to the time at which the upper smoke layer reaches a level that could impede egress.
5. The results of this analysis have demonstrated that an open breezeway protected by quick response automatic sprinklers provides occupant egress conditions which are better than code-complying balcony designs. Therefore an open breezeway protected by quick response sprinklers, as designed for this project, should be regulated by the same requirements as the open balcony which does not require a fire resistance rated floor when standard response automatic sprinklers are present. The design of the open breezeway provides a level of life safety equivalent or superior to that required by the BOCA Code Sections 106.2 and 106.4.

Copies of the Fire Studies are submitted for reference (see NMHC/NAA proposal for Section 1004.7). Additional copies are available from the proponent.

Public Hearing: Committee: AS AM D
Assembly: ASF DF

Last cycle, code change E134-09/10 made it clear that this exception only applied to the wall and door that would normally separate an exterior stair from the interior corridor. This exception does not apply to other separation requirements on the sides of the stairs.

The specific section reasoning for this code change is as follows:

Section 202, provide a definition of an open-corridor. The term open-ended *corridor* is already used in the provision. Hopefully this will expand on code change E134-09/10 to clarify that this provision is only to eliminate the separation required between the stair and the interior corridor. Not the units on either side.

Section 1026.6, expanding the same concept, adding clarity.

In the Group B cycle, the following code change is to be submitted:

Part III

IBC/IFC, Add new Section 903.3.1.2.2 to read as follows:

903.3.1.2.2 Open-ended Corridors. Sprinkler protection shall be provided in *open-ended corridors* serving *exterior stairways* and *ramps* as specified in Section 1026.6, exception 4.

Section 903.3.1.2.2 will now clarify that when a 13R system is used, extra heads must be installed in the open ended corridor in order to claim a breezeway stair. As with Section 903.3.1.2.1, this protection is above the requirements of a standard 13R system. If not checked in the design, these heads will not be installed. As such, the open-ended corridor will not be in compliance with code.

Also for discussion in the Group B cycle is the following possible change:

Part IV

IFC Section 1104.21, change to read as follows:

1104.21 Exterior stairway protection. Exterior *exit stairs* shall be separated from the interior of the building as required in Section 1026.6 . Openings shall be limited to those necessary for egress from normally occupied spaces.

Exceptions:

1. (unchanged)
2. (unchanged)
3. (unchanged)

4. Separation from the ~~interior~~ *open-ended corridor* of the building is not required for *exterior stairways* ~~connected to open-ended *corridors*~~, provided that:

~~4.1 The building, including *corridors*, and stairs, is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.~~

4.~~2~~ 1 The *open-ended corridors* comply with Section 1018.

4.~~3~~ 2 The *open-ended corridors* are connected on each end to an *exterior exit stairway* complying with Section 1026.

4.~~4~~ 3 At any location in an *open-ended corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an *exterior stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

In Texas, there a thousands of existing breezeway stair apartments. Although not addressed by the UBC it was felt that breezeway stairs were allowed by right. Many of these apartments are either:

1. not sprinklered; or
2. sprinklered with a 13R system and do not have extra heads in the breezeway.

As such, item 4.1 would retroactively require sprinklers in non-sprinklered apartments on office buildings with breezeways, or the installation of extra heads in 13R apartments. This constitutes a retroactive Group R and B sprinkler provision.

Cost Impact: This code proposal will not increase the cost of construction since no extra construction costs are involved.

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal clarifies the requirements for open ended corridors that are used as breezeways. There was a concern with the definition. Perhaps there should be clarification on what the ends of the corridor needs to be open too (i.e., the outside).

Assembly Action: None

Final Hearing Results

E153-12 **AS**

Code Change No: E154-12

Original Proposal

Section(s): 1026.6 (IFC [B] 1026.6)

Proponent: Dennis Richardson, PE; Building Official, City of Salinas, representing Tri-Chapter (Peninsula, East Bay and Monterey Bay Chapters of ICC) (dennisrichardsonpe@yahoo.com)

Revise as follows:

1026.6 (IFC [B] 1026.6) Exterior stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the building as required in Section 1022.2. Openings shall be limited to those necessary for egress from normally occupied spaces. Where a vertical projection of the planes of the guard of an exterior stairway or ramp including landings are exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the exterior wall shall be rated in accordance with Section 1022.7.

Exceptions:

1. Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are no more than two stories above grade plane where a level of exit discharge serving such occupancies is the first story above grade plane.
2. Separation from the interior of the building is not required where the exterior stairway or ramp is served by an exterior ramp or balcony that connects two remote exterior stairways or other approved exits, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the openings no less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the interior of the building is not required for an exterior stairway or ramp located in a building or structure that is permitted to have unenclosed exit access stairways in accordance with Section 1009.3.
4. Separation from the interior of the building is not required for exterior stairways or ramps connected to open-ended corridors, provided that Items 4.1 through 4.5 are met:
   - 4.1 The building, including corridors, stairways or ramps, shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
   - 4.2 The open-ended corridors comply with Section 1018.
   - 4.3 The open-ended corridors are connected on each end to an exterior exit ramp or stairway complying with Section 1026.
   - 4.4 The exterior walls and openings adjacent to the exterior exit stairway or ramp comply with Section 1022.7.
   - 4.5 At any location in an open-ended corridor where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an exterior stairway or ramps shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

Reason: Current practice as explained in the past two IBC Code and Commentary editions is to require this protection consistent with the requirement in Section 1022.7 for protection of interior stairways and ramp exterior walls. Section 1022.7 is not referenced in 1026.6 or in 1022.2. The proposed language is similar to 1022.7 except that instead of measuring the angle between the building exterior walls and the unprotected walls at the exterior of the stairway or ramp, the proposed language measures between the building exterior walls and a vertical projection for the planes of the guard of the exterior stairway and ramp including landings. If the current practice as outlined in the IBC Code and Commentary is not correct then this code change should be disapproved and the Code and Commentary should be updated.

Cost Impact: This code change will not increase the cost of construction from current practice.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The idea of protecting the exterior stairway in a corner is valid, however, the proposed verbiage is confusing.

Assembly Action: **None**

Public Comments

Public Comment:

Dennis Richardson, PE, CBO, City of Salinas, representing Tri-Chapter (Peninsula, East Bay and Monterey Chapters, ICC), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1026.6 Exterior stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the building as required in Section 1022.2. Openings shall be limited to those necessary for egress from normally occupied spaces. Where a vertical plane projecting from the edge ~~projection of the planes of the guard~~ of an exterior stairway or ramp and ~~including~~ landings is ~~are~~ exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the exterior wall shall be rated in accordance with Section 1022.7.

Exceptions:

1. Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are no more than two stories above grade plane where a level of exit discharge serving such occupancies is the first story above grade plane.
2. Separation from the interior of the building is not required where the exterior stairway or ramp is served by an exterior ramp or balcony that connects two remote exterior stairways or other approved exits, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the openings no less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the interior of the building is not required for an exterior stairway or ramp located in a building or structure that is permitted to have unenclosed exit access stairways in accordance with Section 1009.3.
4. Separation from the interior of the building is not required for exterior stairways or ramps connected to open-ended corridors, provided that Items 4.1 through 4.5 are met:
   - 4.1 The building, including corridors, stairways or ramps, shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
   - 4.2 The open-ended corridors comply with Section 1018.
   - 4.3 The open-ended corridors are connected on each end to an exterior exit ramp or stairway complying with Section 1026.
   - 4.4 The exterior walls and openings adjacent to the exterior exit stairway or ramp comply with Section 1022.7.
   - 4.5 At any location in an open-ended corridor where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an exterior stairway or ramps shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

Commenter's Reason: Current practice as explained in the past two IBC Code and Commentary editions is to require this protection consistent with the requirement in Section 1022.7 for protection of interior stairways and ramp exterior walls. Section 1022.7 is not referenced in 1026.6 or in 1022.2. The proposed language is similar to 1022.7 except that instead of measuring the angle between the building exterior walls and the unprotected walls at the exterior of the stairway or ramp, the proposed language measures between the building exterior walls and a vertical projection of the edge of an exterior stairway or ramp including landings. According to the egress committee, this concept is valid. The simplified language in this public comment conveys the interpretation found in the 2012 Code and Commentary.

Final Hearing Results

E154-12 **AMPC**

Code Change No: E155-12

Original Proposal

Section(s): 1027.1 (IFC [B] 1027.1)

Proponent: Robert J Davidson, Davidson Code Concepts LLC, representing SaftiFirst a Division of O'Keeffes, Inc. (rjd@davidsoncodeconcepts.com)

Revise as follows:

1027.1 (IFC [B] 1027.1) General. Exits shall discharge directly to the exterior of the building. The exit discharge shall be at grade or shall provide direct access to grade. The exit discharge shall not reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and capacity of the required exits.

1. A maximum of 50 percent of the number and capacity of interior exit stairways and ramps is permitted to egress through areas on the level of exit discharge provided all of the following are met:
   1.1. Such enclosures egress to a free and unobstructed path of travel to an exterior exit door and such exit is readily visible and identifiable from the point of termination of the enclosure.
   1.2. The entire area of the level of exit discharge is separated from areas below by construction conforming to the fire-resistance rating for the enclosure.
   1.3. The egress path from the interior exit stairway and ramp on the level of exit discharge is protected throughout by an approved automatic sprinkler system. All portions of the level of exit discharge with access to the egress path shall either be protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of interior exit stairways or ramps.
2. A maximum of 50 percent of the number and capacity of the interior exit stairways and ramps is permitted to egress through a vestibule provided all of the following are met:
   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the fire-resistance rating for the enclosure.
   2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
   2.3. The area is separated from the remainder of the level of exit discharge by construction providing <u>45 minutes of fire-resistance rated</u> protection ~~at least the equivalent of approved wired glass in steel frames~~.
   2.4. The area is used only for means of egress and exits directly to the outside.
3. *Horizontal exits* complying with Section 1025 shall not be required to discharge directly to the exterior of the building.

Reason: The purpose of this proposal is to eliminate a left over reference to "wired glass" for purposes of fire protection. The last few cycles references to wired glass have been replaced with references to fire-rated glazing or other generic terms to eliminate a reference to a specific product.

The reference here is replaced with a requirement of 45 minutes of fire resistance because that is the level of fire-resistance rating historically associated with wired glass in steel frames and the code section is looking for that equivalent.

From NFPA 257-2007, "Standard on Fire Test for Window and Glass Block Assemblies":

> ***B.2.3*** *The current requirements for fire test duration are open, whereas previous editions limited the duration to 45 minutes. With the advent of new glazing materials that provide various levels of fire protection, the current requirements have responded to the needs of the industry and the fire protection community by establishing various fire protection ratings that are both longer and shorter than the previous 45-minute specification.* <u>*The 45-minute limit was based on the ability of standard wired glass to perform satisfactorily in accordance with earlier editions of NFPA 257.*</u>

Cost Impact: This code change will not increase construction costs.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed change for a 45 minutes fire resistance rating is an increase without technical justification. Wired glass is typically considered equivalent to a 45 minutes fire protection rating.

Assembly Action: **None**

Public Comments

Public Comment:

Robert J Davidson, Davidson Code Concepts, LLC, representing SaftiFirst a Division of O'Keefes, Inc., requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1027.1 (IFC [B] 1027.1) General. Exits shall discharge directly to the exterior of the building. The exit discharge shall be at grade or shall provide direct access to grade. The exit discharge shall not reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and capacity of the required exits.

1. A maximum of 50 percent of the number and capacity of interior exit stairways and ramps is permitted to egress through areas on the level of exit discharge provided all of the following are met:
   1.1. Such enclosures egress to a free and unobstructed path of travel to an exterior exit door and such exit is readily visible and identifiable from the point of termination of the enclosure.
   1.2. The entire area of the level of exit discharge is separated from areas below by construction conforming to the fire-resistance rating for the enclosure.
   1.3. The egress path from the interior exit stairway and ramp on the level of exit discharge is protected throughout by an approved automatic sprinkler system. All portions of the level of exit discharge with access to the egress path shall either be protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of interior exit stairways or ramps.
2. A maximum of 50 percent of the number and capacity of the interior exit stairways and ramps is permitted to egress through a vestibule provided all of the following are met:
   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the fire-resistance rating for the enclosure.
   2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
   2.3. The area is separated from the remainder of the level of exit discharge by ~~construction providing 45 minutes of fire-resistance rated protection~~ a fire partition constructed in accordance with Section 708.

      Exception: The maximum transmitted temperature rise is not required.

   2.4. The area is used only for means of egress and exits directly to the outside.
3. *Horizontal exits* complying with Section 1025 shall not be required to discharge directly to the exterior of the building.

Commenter's Reason: The committee's reason for denial is confusing in that the statement indicates the suggested reference to a 45 minutes fire resistance rating is an increase without justification, then they state that the wired glass equivalent that currently exists is considered equivalent to a 45 minutes of protection.

I believe they were referring to the fact that the referenced wired glass equivalent does not have a maximum transmitted temperature rise rating. The suggested modification refers to a fire partition for the method of construction. Though the fire partition requires a one hour rating in accordance with Section 708, the impact is negligible based upon common construction methods and the use of code recognized terms and methods will provide for clarity in design and construction.

To address the committee's concern an exception to the maximum transmitted temperature rise has been added.

Final Hearing Results

E155-12 **AMPC**

Code Change No: E159-12

Original Proposal

Section(s): 1028.9.5, 1028.9.7(New), 1028.9.8(New), 1028.10-1028.10.3(New); [IFC [B] 1028.9.5, 1028.9.7(New), 1028.9.8(New), 1028.10-1028.10.3(New)]

Proponent: Ed Roether, Ed Roether Consulting, representing self (ed@edroetherconsulting.com)

Revise as follows:

1028.9.5 (IFC [B] 1028.9.5) Assembly aisle termination. Each end of an *aisle* shall terminate at cross *aisle*, foyer, doorway, vomitory, ~~or~~ concourse or stairway in accordance with Section 1029.9.7 having access to an *exit*.

Exceptions:

1. Dead-end *aisles* shall not be greater than 20 feet (6096 mm) in length.
2. Dead-end *aisles* longer than 20 feet (6096 mm) are permitted where seats beyond the 20-foot (6096 mm) dead-end *aisle* are no more than 24 seats from another *aisle*, measured along a row of seats having a minimum clear width of 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row.
3. For *smoke-protected assembly seating*, the dead-end *aisle* length of vertical *aisles* shall not exceed a distance of 21 rows.
4. For *smoke-protected assembly seating*, a longer dead-end *aisle* is permitted where seats beyond the 21-row dead-end *aisle* are not more than 40 seats from another *aisle*, measured along a row of seats having an *aisle* accessway with a minimum clear width of 12 inches (305 mm) plus 0.3 inch (7.6 mm) for each additional seat above seven in the row.

1028.9.6 (IFC [B] 1028.9.6) Assembly aisle obstructions. There shall be no obstructions in the required width of aisles except for handrails as provided in Section 1028.13.

1028.9.7 (IFC [B] 1028.9.7) Stairways connecting to aisle stairs. A stairway that connects an aisle stair to a cross aisle or concourse shall be permitted to comply with the assembly aisle walking surface requirements of Section 1028.11. Transitions between stairways and aisle stairs shall comply with Section 1028.10.

1028.9.8 (IFC [B] 1028.9.8) Stairways connecting to vomitories. A stairway that connects a vomitory to a cross aisle or concourse shall be permitted to comply with the assembly aisle walking surface requirements of Section 1028.11. Transitions between stairways and aisle stairs shall comply with Section 1028.10.

1028.10 (IFC [B] 1028.10) Transitions. Transitions between stairways and aisle stairs shall comply with either Section 1028.10.1 or 1028.2.

1028.10.1 (IFC [B] 1028.10.1) Transitions and stairways that maintain aisle stair riser and tread dimensions. Aisle stairs, transitions and stairways that maintain riser and tread dimensions shall comply with Section 1028.11 as one exit access component.

1028.10.2 (IFC [B] 1028.10.2) Transitions to stairways that do not maintain aisle stair riser and tread dimensions. Transitions between aisle stairs with riser and tread dimensions that differ from the stairways shall comply with this section

1028.10.2.1 (IFC [B] 1028.10.2.1) Stairways and aisle stairs in a straight run. Transitions where the stairway is a straight run from the aisle stair shall have a minimum depth of 22 inches (559 mm) where the treads on the descending side of the transition have greater depth and 30 inches (762 mm) where the treads on the descending side of the transition have lesser depth.

1028.10.2 (IFC [B] 1028.10.2) Stairways and aisle stairs that change direction. Transitions where the stairway changes direction from the aisle stair shall have a minimum depth of 11 inches (280 mm) or the aisle stair tread depth, whichever is greater, between the aisle stair and stairway.

1028.10.3 (IFC [B] 1028.10.3) Transition marking. A distinctive marking stripe shall be provided at each nosing or leading edge adjacent to the transition. Such stripe shall be a minimum of 1 inch (25 mm), and a maximum of 2 inches (51 mm), wide. The edge marking stripe shall be distinctively different from the aisle stair contrasting marking stripe.

(Renumber remaining sections)

Reason: Stepped elements that connect aisles having direct connection to aisle accessways and other exit access components is dictated by lines of sight requirements similar to the aisles. These stepped elements are commonly considered aisles rather than stairways given the current definition of an aisle. However, there is confusion regarding these stepped elements and there are many types of conditions that are found for these elements within assembly seating. This proposal is intended to address these stepped elements and provide criteria specifically for them and eliminate the confusion related to them. Line of sight requirements prevent these stairways from complying with the stairway criteria including landing provisions. Traversing an aisle requires more attention than traversing an exit stairway and the minimum depths for the transitions of this proposal coordinate with the line of sight limitations and cadence of traversing an aisle. It also draws attention to the transition similar to aisle locations where a change in riser height occurs.

Cost Impact: Minimal

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal will work with E88. This provides technical criteria for the transition between 'aisle stairs' and 'stairways.'

Assembly Action: **None**

Final Hearing Results

E159-12 **AS**

Code Change No: E160-12

Original Proposal

Section(s): 1028.9.5, 1028.10.2.1, Table 1028.10.2.1, 1028.10.2.2; (IFC [B] 1028.9.5, 1028.10.2.1, Table 1028.10.2.1, 1028.10.2.2)

Proponent: Dan Casella, Chair, ICC 300 Development Committee, Standard for Bleachers, Folding and Telescopic Seating and Grandstands

Revise as follows:

1028.9.5 (IFC [B] 1028.9.5) Assembly aisle termination. Each end of an *aisle* shall terminate at cross *aisle*, foyer, doorway, vomitory or concourse having access to an *exit*.

Exceptions:

1. Dead-end *aisles* shall not be greater than 20 feet (6096 mm) in length.
2. Dead-end *aisles* longer than 16 rows ~~20 feet (6096 mm)~~ are permitted where seats beyond the 16th row ~~20-foot (6096 mm)~~ dead-end *aisle* are no more than 24 seats from another *aisle*, measured along a row of seats having a minimum clear width of 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row where seats have backrests or beyond ten where seats are without backrests in the row.
3. For *smoke-protected assembly seating*, the dead end *aisle* length of vertical *aisles* shall not exceed a distance of 21 rows.
4. For *smoke-protected assembly seatin*g, a longer dead-end *aisle* is permitted where seats beyond the 21-row dead-end *aisle* are not more than 40 seats from another *aisle*, measured along a row of seats having an *aisle* accessway with a minimum clear width of 12 inches (305 mm) plus 0.3 inch (7.6 mm) for each additional seat above seven in the row where seats have backrests or beyond ten where seats are without backrests in the row.

1028.10.2.1 (IFC [B] 1028.10.2.1) Dual access. For rows of seating served by *aisles* or doorways at both ends, there shall not be more than 100 seats per row. The minimum clear width of 12 inches (305 mm) between rows shall be increased by 0.3 inch (7.6 mm) for every additional seat beyond 14 seats where seats have backrests or beyond 21 where seats are without backrests. ~~,but~~ The minimum clear width is not required to exceed 22 inches (559 mm).

Exception: For s*moke-protected assembly seating*, the row length limits for a 12-inch-wide (305 mm) *aisle accessway*, beyond which the *aisle accessway* minimum clear width shall be increased, are in Table 1028.10.2.1.

TABLE 1028.10.2.1 (IFC [B] TABLE 1028.10.2.1)
SMOKE-PROTECTED ASSEMBLY AISLE ACCESSWAYS

TOTAL NUMBER OF SEATS IN THE SMOKE PROTECTED ASSEMBLY OCCUPANCY	**MAXIMUM NUMBER OF SEATS PER ROW PERMITTED TO HAVE A MINIMUM 12-INCH CLEAR WIDTH AISLE ACCESSWAY**			
	Aisle or doorway at both ends of row		**Aisle or doorway at one end of row only**	
	Seats with backrests	Seats without backrests	Seats with backrests	Seats without backrests
Less than 4,000	14	21	7	10
4,000	15	22	7	10

TOTAL NUMBER OF SEATS IN THE SMOKE PROTECTED ASSEMBLY OCCUPANCY	MAXIMUM NUMBER OF SEATS PER ROW PERMITTED TO HAVE A MINIMUM 12-INCH CLEAR WIDTH AISLE ACCESSWAY			
	Aisle or doorway at both ends of row		Aisle or doorway at one end of row only	
	Seats with backrests	Seats without backrests	Seats with backrests	Seats without backrests
7,000	16	23	8	11
10,000	17	24	8	11
13,000	18	25	9	12
16,000	19	26	9	12
19,000	20	27	10	13
22,000 and greater	21	28	11	14

For SI: 1 inch = 25.4 mm.

1028.10.2.2 (IFC [B] 1028.10.2.2) Single access. For rows of seating served by an *aisle* or doorway at only one end of the row, the minimum clear width of 12 inches (305 mm) between rows shall be increased by 0.6 inch (15.2 mm) for every additional seat beyond seven seats where seats have backrests or beyond ten where seats are without backrests. ~~,but~~ the minimum clear width is not required to exceed 22 inches (559 mm).

> **Exception:** For *smoke-protected assembly seating*, the row length limits for a 12-inch-wide (305 mm) *aisle accessway*, beyond which the *aisle accessway* minimum clear width shall be increased, are in Table 1028.10.2.1.

Reason: The intent of this proposal is for coordination with ICC 300 Section 407.3, 407.4 and 407.5.

This proposal is an extension of the recognition of the fact that bench seating without backrests allows easier and quicker lateral movement along a bleacher type row as compared with rows of seating which are provided with backrests. In seating with backrests, occupants typically must remain facing forward or approximately perpendicular to the aisle access and side step toward the aisle. The wider the aisle access, the more the occupants are allowed to turn and walk toward the aisle. When backrests are not present it is possible to turn and face parallel to the aisle access regardless of aisle access width. This in turn allows a walking style motion instead of side stepping.

Seating without backrests also allows easier vertical movements between rows without climbing over seatbacks or using aisles. Although this is not a consideration during normal egress, the benefits to crowd management, security, and emergency medical personnel are obvious.

Current IBC aisle access requirements are based on seating with backrests. For the minimum 12” aisle access, 6 seats are allowed between any seat and an aisle. From there that number of seats is increased with increases in aisle access width and smoke protection. This proposal increases the basic number of seats between any seat and an aisle for the minimum 12” aisle access from 6 to 9(single access) or 10(dual access). The increase factors for width and smoke protection remain unchanged.

Once the increased number is exceeded in a dual access or single access row, the calculation for the increased access aisle width would start at this point. Example of dual access:

Seats with backs – 30 seats; 30 – 14 = 16; 16 x 0.3” + 12” = 16.8” minimum access aisle width
Seats without backs – 30 seats; 30 – 21 = 7; 7 x 0.3” + 12” = 14.1” minimum access aisle width

This proposal also re-introduces the long standing and time tested dead end aisle limit of 16 rows for non-smoke protected seating. The 16 row limit is reasonable considering the attentiveness of people and typically shorter periods of occupancy involved with assembly. It also matches well with the 21 row limit already afforded to smoke protected seating.

The purpose of the ICC 300 standard is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, and safety to life and property relative to the construction, alteration, repair, operation, and maintenance of new and existing temporary and permanent bench bleachers, folding and telescopic seating, and grandstands. Information can be downloaded from the following website: http://www.iccsafe.org/cs/standards/IS-BLE/Pages/default.aspx. Since its inception in March 2000, the committee has produced 3 editions, the latest edition being 2012. All meeting are open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: There was no technical justification provided for quicker vertical movement claimed in the reason or an increase in the dead end length.

Assembly Action: **None**

Public Comments

Public Comment:

Dan Casella, Chair, ICC 300 – Development Committee, Standard for Bleachers, Folding and Telescopic Seating and Grandstands; Gene Boecker, AIA, Code Consultants, Inc (CCI); requests Approval as Submitted.

Commenter's Reason (Casella): The proposal should be approved as submitted as part of the harmonization efforts between the assembly seating arrangements in IBC and the ICC 300 standard.

Quicker vertical movement applies only where seats are without backrests as indicated in the second paragraph of the reason statement.

Per IBC 1018.4, dead-end corridors may be extended from 20 feet to 50 feet under exceptions 1 and 2. 50 feet is approximately equivalent to a maximum of 16 rows of seating. Per IBC 903, sprinklers will typically be required for the A-1 and A-4 nonsmoke-protected applications where assembly aisles are provided. Again, the attentiveness of the people and the shorter period of occupancy allow for an increased dead-end length. In addition, ceilings must be higher to accommodate site lines in assembly seating. This results in larger room volumes for smoke accumulation and affords greater egress time to walk the increased length.

When the IBC was assembled from the BOCA, SBC and UBC codes, all three recognized the proposed 16 row dead-end limit for nonsmoker-protected assembly seating. We believe it was merely an oversight that this was not included in the IBC.

References:

- 1999 BOCA Section 1013.6.1 Exception 1
- 1997 SBC Section 1019.11.6.1 Exception 5
- 1997 UBC Section 1004.3.2.4 Exception 2

The purpose of the ICC 300 standard is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, and safety to life and property relative to the construction, alteration, repair, operation, and maintenance of new and existing temporary and permanent bench bleachers, folding and telescopic seating, and grandstands. Information can be downloaded from the following website: http://www.iccsafe.org/cs/standards/IS-BLE/Pages/default.aspx. Since its inception in March 2000, the committee has produced 3 editions, the latest edition being 2012. All meeting are open to the public.

Commenter's Reason (Boecker): The proposal should be approved.

The proposal seeks to harmonize the IBC with the ICC 300 standard. The ICC 300 committee had extensive discussions on this issue and agreed that the revision was in keeping with the needs for assembly seating of this type. If this is not approved, there will be a gap between what is allowed in the ICC 300 Standard and what is allowed in the IBC. In a facility such as a high school with fixed seating on one side and a telescoping seating on the other, two different sets of rules would be in place if this is not approved.

The history of use demonstrates that this is an appropriate method of seating where no seat backs are provided

The purpose of the ICC 300 standard is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, and safety to life and property relative to the construction, alteration, repair, operation, and maintenance of new and existing temporary and permanent bench bleachers, folding and telescopic seating, and grandstands. Information can be downloaded from the following website: http://www.iccsafe.org/cs/standards/IS-BLE/Pages/default.aspx. Since its inception in March 2000, the committee has produced 3 editions, the latest edition being 2012. All meeting are open to the public.

Final Hearing Results

E160-12 **AS**

Code Change No: E161-12

Original Proposal

Section(s): 1028.11.2.1(New) [IFC [B] 1028.11.2.1(New)]

Proponent: Ed Roether, Ed Roether Consulting, representing self (ed@edroetherconsulting.com)

Add new test as follows:

1028.11.2 (IFC [B] 1028.11.2) Risers. Where the gradient of aisle stairs is to be the same as the gradient of adjoining seating areas, the riser height shall not be less than 4 inches (102 mm) nor more than 8 inches (203 mm) and shall be uniform within each flight.

Exceptions:

1. Riser height nonuniformity shall be limited to the extent necessitated by changes in the gradient of the adjoining seating area to maintain adequate sightlines. Where nonuniformities exceed 3/16 inch (4.8 mm) between adjacent risers, the exact location of such nonuniformities shall be indicated with a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers. Such stripe shall be a minimum of 1 inch (25 mm), and a maximum of 2 inches (51 mm), wide. The edge marking stripe shall be distinctively different from the contrasting marking stripe.
2. Riser heights not exceeding 9 inches (229 mm) shall be permitted where they are necessitated by the slope of the adjacent seating areas to maintain sightlines.

1028.11.2.1 (IFC [B] 1028.11.2.1) Construction Tolerances. The tolerance between adjacent risers on an aisle stair that were designed to be equal height shall not exceed 3/16 inch (4.8 mm). Where the aisle stair is designed in accordance with Exception 1 of Section 1028.11.2, the aisle stair shall be constructed so that each riser of unequal height, determined in the direction of descent, is not more than 3/8 inch (10 mm) in height different from adjacent risers where aisle stair treads are less than 22 inches (560 mm) in depth and 3/4 inch (19 mm) in height different from adjacent risers where aisle stair treads are 22 inches (560 mm) or greater in depth.

Reason: Construction tolerances are addressed elsewhere in the building code and the provisions of exception #1 should not support the lack of construction diligence on aisle construction. Without construction tolerance limits, each aisle riser could vary in height due to construction and stripe in accordance to exception #1 which nullifies the purpose of the striping to identify hazardous locations. Also, currently there is no maximum limit where riser heights vary and there should be. The limits of this proposal have been coordinated with the tolerances specified for cast-in-place concrete construction (ACI) and precast concrete construction (PCI).

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This text will appropriately deal with the real world situation of tolerances within assembly parabolic seating.

Assembly Action: **None**

Final Hearing Results

E161-12 **AS**

Code Change No: E164-12

Original Proposal

Section(s): 1012.4, 1028.9.1, 1028.13.1, 1028.13.2; (IFC [B] 1012.4, 1028.9.1, 1028.13.1, 1028.13.2)

Proponent: Dan Casella, Chair, ICC 300 Development Committee, Standard for Bleachers, Folding and Telescopic Seating and Grandstands

Revise as follows:

1028.13 Handrails. Ramped *aisles* having a slope exceeding one unit vertical in 15 units horizontal (6.7-percent slope) and *aisle stairs* shall be provided with *handrails* located either at the side or within the *aisle* width.

Exceptions:

1. *Handrails* are not required for ramped *aisles* having a gradient no greater than one unit vertical in eight units horizontal (12.5-percent slope) and seating on both sides.
2. *Handrails* are not required if, at the side of the *aisle*, there is a *guard* that complies with the graspability requirements of *handrails*.
3. *Handrail* extensions are not required at the top and bottom of *aisle stairs* and *aisle ramps* to *permit* crossovers within the *aisles*.

1028.13.1 (IFC [B] 1028.13.1) Discontinuous handrails. Where there is seating on both sides of the aisle, the mid-aisle handrails shall be discontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to permit crossing from one side of the aisle to the other. These gaps or breaks shall have a clear width of at least 22 inches (559 mm) and not greater than 36 inches (914 mm), measured horizontally, and the mid-aisle handrail shall have rounded terminations or bends.

1028.13.2 (IFC [B] 1028.13.2) Handrail termination. Handrails located on the side of aisle stairs shall return to a wall, guard or the walking surfaces or shall be continuous to the handrail of an adjacent aisle stair flight.

1028.13.3 (IFC [B] 1028.13.3) Mid-aisle termination. Mid-aisle handrails shall not extend beyond the lowest riser and shall terminate within 18 inches (381 mm), measured horizontally, from the lowest riser. Handrail extensions are not required.
Exception: Mid-aisle handrails shall be permitted to extend beyond the lowest riser where the handrail extensions do not obstruct the width of the cross aisle.

~~**1028.13.2**~~ **1028.13.4 (IFC [B] ~~1028.13.2~~ 1028.13.4) Intermediate ~~hand~~rails.** Where mid-aisle *handrails* are provided in ~~the middle of~~ *aisle stairs*, there shall be an additional intermediate rail ~~*handrail*~~ located approximately 12 inches (305 mm) below the ~~main~~ *handrail*.

1012.4 (IFC [B] 1012.4) Continuity. *Handrail* gripping surfaces shall be continuous, without interruption by newel posts or other obstructions.

Exceptions:

1. *Handrails* within *dwelling units* are permitted to be interrupted by a newel post at a turn or landing.

2. Within a *dwelling unit*, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.
3. Handrail brackets or balusters attached to the bottom surface of the *handrail* that do not project horizontally beyond the sides of the *handrail* within 11/2 inches (38 mm) of the bottom of the *handrail* shall not be considered obstructions. For each 1/2 inch (12.7 mm) of additional *handrail* perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of 11/2 inches (38 mm) shall be permitted to be reduced by 1/8 inch (3 mm).
4. Where *handrails* are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the handrail gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper guards.
5. Mid-aisle handrails in rooms or spaces used for assembly purposes in accordance with Section 1028.13.

1028.9.1 (IFC [B] 1028.9.1) Minimum aisle width. The minimum clear width for *aisles* shall be as shown:

1. Forty-eight inches (1219 mm) for *aisle stairs* having seating on each side.

   Exception: Thirty-six inches (914 mm) where the *aisle* serves less than 50 seats.

2. Thirty-six inches (914 mm) for *aisle stairs* having seating on only one side.

   Exception: Twenty-three inches (584 mm) between an *aisle stair handrail* and seating where an *aisle* does not serve more than five rows on one side.

3. Twenty-three inches (584 mm) between an *aisle stair handrail* or *guard* and seating where the aisle is subdivided by a mid-aisle *handrail*.
4. Forty-two inches (1067 mm) for level or ramped *aisles* having seating on both sides.

   Exceptions:

   1. Thirty-six inches (914 mm) where the *aisle* serves less than 50 seats.
   2. Thirty inches (762 mm) where the *aisle* does not serve more than 14 seats.

. 5. Thirty-six inches (914 mm) for level or ramped *aisles* having seating on only one side.

   Exception: Thirty inches (762 mm) where the *aisle* does not serve more than 14 seats.

Reason: There are three intents for this proposal. The breaks in mid-aisle handrails are a continuity issue, and there was not an exception for this in Section 1014.4. New Section 1028.13.1.2 will clarify how far that handrail can stop from the bottom of a aisle stair and still allow for a person to get past the front of the rail to enter the first row of seating. This is coordinated with revisions to ICC 300, Section 409.5.1. The rail below the handrail is to stop people from going under the handrail or swinging on the rail. It is not intended to meet all the handrail provisions for graspability. This is coordinated with ICC 300, Section 409.1.1.

Changes throughout are for consistency in using the term, mid-aisle handrail.

The purpose of the ICC 300 standard is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, and safety to life and property relative to the construction, alteration, repair, operation, and maintenance of new and existing temporary and permanent bench bleachers, folding and telescopic seating, and grandstands. Information can be downloaded from the following website: http://www.iccsafe.org/cs/standards/IS-BLE/Pages/default.aspx. Since its inception in March 2000, the committee has produced 3 editions, the latest edition being 2012. All meeting are open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The breaks and extensions for handrails in assembly seating are commonly misunderstood. This proposal improves handrail safety in assembly spaces. The new language improves understanding.

Assembly Action: **None**

Final Hearing Results

E164-12 **AS**

Code Change No: E165-12

Original Proposal

Section(s): 1009.16(New), 1010.11, 1013.2, 1013.3, 1028.14, 1028.14.1, 1028.14.2, 1028.14.3; (IFC [B] 1009.16(New), 1010.11, 1013.2, 1013.3, 1028.14, 1028.14.1, 1028.14.2, 1028.14.3)

Proponent: Dan Casella, Chair, ICC 300 Development Committee, Standard for Bleachers, Folding and Telescopic Seating and Grandstands

Revise as follows:

1028.14 (IFC [B] 1028.14) Assembly guards. Guards adjacent to seating in a building, room or space used for assembly purposes shall be provided where required by Section 1013 and shall be constructed in accordance with Section 1013 except where provided in accordance with ~~comply~~ Sections 1028.14.1 through 1028.14.~~3~~4. At bleachers, grandstands and folding and telescopic seating, guards must be provided where required by ICC 300 and Section 1028.14.1.

1028.14.1 (IFC [B] 1028.14.1) Perimeter guards. Perimeter guards shall be provided where the footboards or walking surface of seating facilities are more than 30 inches (762 mm) above the floor or grade below. Where the seatboards are adjacent to the perimeter, guard height shall be 42 inches (1067 mm) high minimum, measured from the seatboard. Where the seats are self-rising, guard height shall be 42 inches (1067 mm) high minimum, measured from the floor surface. Where there is an aisle between the seating and the perimeter, the guard height shall be measured in accordance with Section 1013.2.

Exceptions:

1. Guards that impact line-of-sight shall be permitted to comply with Section 1028.14.3.
2. Bleachers, grandstands and folding and telescopic seating shall not be required to have perimeter guards where the seating is located adjacent to a wall and the space between the wall the seating is less than 4 inches (102 mm).

~~1028.14.1~~ 1028.14.2 (IFC [B] ~~1028.14.1~~ 1028.14.2) Cross aisles. Cross aisles located more than 30 inches (762 mm) above the floor or grade below shall have guards in accordance with Section 1013.

Where an elevation change of 30 inches (762 mm) or less occurs between a cross aisle and the adjacent floor or grade below, guards not less than 26 inches (660 mm) above the aisle floor shall be provided.

Exception: Where the backs of seats on the front of the cross aisle project 24 inches (610 mm) or more above the adjacent floor of the aisle, a guard need not be provided.

~~1028.14.2~~ 1028.14.3 (IFC [B] ~~1028.14.2~~ 1028.14.3) Sightline-constrained guard heights. Unless subject to the requirements of Section ~~1028.14.3~~ 1028.14.4, a fascia or railing system in accordance with the guard requirements of Section 1013 and having a minimum height of 26 inches (660 mm) shall be provided where the floor or footboard elevation is more than 30 inches (762 mm) above the floor or grade below and the fascia or railing would otherwise interfere with the sightlines of immediately adjacent seating. ~~At bleachers, a guard must be provided where required by ICC 300.~~

~~**Exception:** The height of the guard in front of seating shall be measured from the adjacent walking surface.~~

~~1028.14.3~~ 1028.14.4 (IFC [B] ~~1028.14.3~~ 1028.14.4) Guards at the end of aisles. A fascia or railing system complying with the guard requirements of Section 1013 shall be provided for the full width of the aisle where the foot of the aisle is more than 30 inches (762 mm) above the floor or grade below. The fascia or railing shall be a minimum of 36 inches (914 mm) high and shall provide a minimum 42 inches (1067 mm) measured diagonally between the top of the rail and the nosing of the nearest tread.

1009.16 (IFC [B] 1009.16) Guards. Guards shall be provided where required by Section 1013 and shall be constructed in accordance with Section 1013.

1010.10 ~~1010.11~~ (IFC [B] 1010.10 ~~1010.11~~) Guards. Guards shall be provided where required by Section 1013 and shall be constructed in accordance with Section 1013.

1013.2 (IFC [B] 1013.2) Where required. *Guards* shall be located along open-sided walking surfaces, including *mezzanines*, *equipment platforms*, aisles, *stairs*, *ramps* and landings that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. *Guards* shall be adequate in strength and attachment in accordance with Section 1607.8.

Exception: *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of *stages* and raised *platforms*, including ~~steps~~ stairways leading up to the *stage* and raised *platforms*.
3. On raised *stage* and *platform* floor areas, such as runways, *ramps* and side *stages* used for entertainment or presentations.
4. At vertical openings in the performance area of stages and *platforms*.
5. At elevated walking surfaces appurtenant to *stages* and *platforms* for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating where *guards* in accordance with Section 1028.14 are permitted and provided.

1013.3 (IFC [B] 1013.3) Height. Required guards shall not be less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces,
2. On ~~stairs~~ stairways and aisle stairs, from the line connecting the leading edges of the tread nosings, and
3. On ramps and ramped aisles, from the ramp surface at the guard.

Exceptions:

1. For occupancies in Group R-3 not more than three stories above grade in height and within individual dwelling units in occupancies in Group R-2 not more than three stories above grade in height with separate means of egress, required guards shall not be less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces or fixed seating.
2. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
3. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.

4. The guard height in assembly seating areas shall comply with Section 1028.14 as applicable.
5. Along alternating tread devices and ship ladders, guards whose top rail also serves as a handrail, shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread nosing.

Reason: The intent is to deal with guards consistently for stairways, ramps and aisles (level, stepped and ramped). The situations unique to assembly seating will be addressed in 1028: at the outside perimeter; at cross aisles; where sightline-constraints are present; and at the end of the aisle. Guards at other locations will be address by the general provisions in Section 1013.

The 2012 ICC 300 does not include provisions for perimeter guards. It is the intent of the ICC 300 bleacher committee to propose the perimeter guard requirement into the bleacher standard during the next update cycle.

- 1009.16 – Add language to require guards at sides of stairways the same as at ramps.
- 1010.10 – Relocate guard requirement at ramps to immediately follow handrails. The handrails and guards should work as a unit.
- 1013.2 – Add aisles to the general requirements so that raised aisles that are not specifically addressed in Section 1028.14 are also be required to have guards.
- 1013.3 – Add aisle descriptors so that the guard height is 42" for aisles unless specifically addressed in Section 1028.14. An example would be side aisles.
- 1028.14 –The reference back to Section 1013 for guard construction is consistent with stairways and ramps. This will address situation other than that covered by subsections. The allowance to use ICC 300 is a general reference for similar guard situation, so it was relocated from 1028.14.2.
- 1028.14.1 (new) – There is a question regarding where guards are required around the perimeter of assembly seating since the walking surface for the last row of seating is not immediately adjacent to a drop off. This question exists for ICC 300 and other assembly seating arrangements. ICC 300 requires guards with 4" openings where the floor surface has an adjacent 30" drop off (ICC 300 Section 408). The dropoff is measure from the floor rather than the seatboard because the ICC 300 committee did not feel it was appropriate to require guards in a two or three row bleacher system. The guard height would be measured from the seatboard to address when people stand on the seats. Where seats are self rising, the guard height would be measured from the floor. Self-rising seats have backs and are very difficult to stand on.
  - Exception 1 is to allow for the limited situation where the guards at the sides of the seating may possible affect the line-or-sight in wide venues.
  - Exception 2 will permit bleacher systems constructed inside the building to use the building walls are perimeter guards if the opening between the bleacher and the wall is less than the opening permitted for guards.
- 1028.14.2 (renumbered 1028.14.3) – The allowance to look at ICC 300 for guards is relocated to the general guard requirement in 1028.14. The exception is not required for two reasons – guard height measured from the seat is addressed in the new section for perimeter guards in 1028.14.1 and the existing text in 1028.14.2 does not require measurement from the seatboard in front of the first balcony row.

The purpose of the ICC 300 standard is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, and safety to life and property relative to the construction, alteration, repair, operation, and maintenance of new and existing temporary and permanent bench bleachers, folding and telescopic seating, and grandstands. Information can be downloaded from the following website: http://www.iccsafe.org/cs/standards/IS-BLE/Pages/default.aspx. Since its inception in March 2000, the committee has produced 3 editions, the latest edition being 2012. All meeting are open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal clarifies requirements for perimeter guards around assembly seating areas. Use of the phase 'seatboards' is understood in these types of facilities.

Assembly Action: **None**

Final Hearing Results

E165-12 **AS**

Code Change No: E167-12

Original Proposal

Section(s): 1101.1, 1103.1, E101.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1101.1 Scope. The provisions of this chapter shall control the design and construction of facilities for accessibility for individuals with disabilities ~~to physically disabled persons~~.

1103.1 Where required. Sites, buildings, structures, facilities, elements and spaces, temporary or permanent, shall be accessible to individuals ~~persons~~ with ~~physical~~ disabilities.

E101.1 Scope. The provisions of this appendix shall control the supplementary requirements for the design and construction of facilities for *accessibility* for individuals with disabilities ~~to physically disabled persons~~.

Reason: The intent of this provision is to revise for more correct 'people first' language. (ADA 201.1)

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The revised language is more precise and appropriate for the general scoping of Chapter 11. This proposed language will also coordinate with the phraseology in the 2020 ADA Standard for Accessible Design.

Assembly Action: **None**

Final Hearing Results

E167-12 **AS**

Code Change No: E168-12

Original Proposal

Section(s): 1103.2.3-1103.2.15

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1103.2 General exceptions. Sites, buildings, structures, facilities, elements and spaces shall be exempt from this chapter to the extent specified in this section.

1103.2.1 Specific requirements. Accessibility is not required in buildings and facilities, or portions thereof, to the extent permitted by Sections 1104 through 1110.

1103.2.2 Existing buildings. Existing buildings shall comply with Section 3411.

1103.2.3 Employee work areas. Spaces and elements within employee work areas shall only be required to comply with Sections 907.5.2.3.2, 1007 and 1104.3.1 and shall be designed and constructed so that individuals with disabilities can approach, enter and exit the work area. Work areas, or portions of work areas, other than raised courtroom stations in accordance with Section 1108.4.1.4, that are less than 300 square feet (30 m^2) in area and located 7 inches (178 mm) or more above or below the ground or finish floor where the change in elevation is essential to the function of the space shall be exempt from all requirements.

1103.2.4 Detached dwellings. Detached one- and two- family dwellings, ~~and~~ their accessory structures, and their associated sites and facilities, are not required to ~~be accessible~~ comply with this Chapter.

1103.2.5 Utility buildings. ~~Occupancies in~~ Group U occupancies are not required to comply with ~~exempt from the requirements of~~ this chapter other than the following~~:~~

1. In agricultural buildings, access is required to paved work areas and areas open to the general public.
2. Private garages or carports that contain required accessible parking.

1103.2.6 Construction sites. Structures, sites and equipment directly associated with the actual processes of construction including, but not limited to, scaffolding, bridging, materials hoists, materials storage or construction trailers are not required to ~~be~~ comply with this Chapter.

1103.2.7 Raised areas. Raised areas used primarily for purposes of security, life safety or fire safety including, but not limited to, observation galleries, prison guard towers, fire towers or lifeguard stands are not required to ~~be accessible or to be served by an accessible route~~ comply with this Chapter.

1103.2.8 Limited access spaces. ~~Nonoccupiable~~ Spaces accessed only by ladders, catwalks, crawl spaces, freight elevators or very narrow passageways are not required to ~~be accessible~~ comply with this Chapter.

1103.2.9 Equipment spaces. Spaces frequented only by service personnel for maintenance, repair or occasional monitoring of equipment are not required to ~~be accessible~~ to comply with this Chapter. ~~Such spaces include, but are not limited to, elevator pits, elevator penthouses, mechanical, electrical or~~

~~communications equipment rooms, piping or equipment catwalks, water or sewage treatment pump rooms and stations, electric substations and transformer vaults, and highway and tunnel utility facilities.~~

1103.2.10 Single-occupant structures. Single-occupant structures, accessed only by passageways below grade or above grade including, but not limited to, toll booths that are accessed only by underground tunnels, are not required to ~~be accessible~~. comply with this Chapter.
1103.2.11 Residential Group R-1. Buildings of Group R-1 containing not more than five *sleeping unit*s for rent or hire that are also occupied as the residence of the proprietor are not required to ~~be *accessible*~~ comply with this Chapter.

1103.2.12 Day care facilities. Where a day care facility is part of a *dwelling unit*, only the portion of the structure utilized for the day care facility is required to be accessible.

1103.2.13 Live/work units. In live/work units constructed in accordance with Section 419, the portion of the unit utilized for nonresidential use is required to be *accessible*. The residential portion of the live/work unit is required to be evaluated separately in accordance with Sections 1107.6.2 and 1107.7.

1103.2.14 Detention and correctional facilities. In detention and correctional facilities, *common use* areas that are used only by inmates or detainees and security personnel, and that do not serve holding cells or housing cells required to be ~~*accessible*~~ Accessible units, are not required to ~~be *accessible* or to be served by an *accessible route*~~ comply with this Chapter.

1103.2.15 Walk-in coolers and freezers. Walk-in coolers and freezers intended for employee use only are not required to ~~be accessible~~ comply with this Chapter.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The purpose of this proposal is to clarify how these exceptions are applied.

1103.2.3 - Courtrooms work stations are more specifically addressed in 1108.4.1.4. (ADA 203.9)
1103.2.4 - This change is to provide consistency in language between sections by changing "to be accessible" with "comply with this chapter". (not in ADA)
1103.2.5 - Consistency in language between sections. (not in ADA)
1103.2.6 - Consistency in language between sections. (ADA 203.2)
1103.2.7 - Consistency in language between sections. (ADA 203.3)
1103.2.8 – The term "non-occupiable" is not needed because areas accessed only by these methods cannot be occupiable spaces by definition. The second change is for consistency in language between sections. Furthermore the ADA does not require the area to be non-occupiable and intends to allow this to be okay for areas such as stage lighting and sound catwalks (ADA 203.4)
1103.2.9 - The performance language is made clearer and intended to keep this exception from being used for areas that are regularly staffed and could be staffed by a person with disabilities. The laundry list is not needed with the improved performance language and is proposed to be removed. Lastly the consistent terminology was added. (ADA 203.5)
1103.2.10 - Consistency in language between sections. (ADA 203.6)
1103.2.11 - Consistency in language between sections. (ADA definition of Transient Lodging threshold)
1103.2.14 - Consistency in terminology for the section. In addition, jails are only required to have Accessible units in accordance with Section 1107.5.5. This would also be more consistent with the ADA reference (ADA 203.7).
1103.2.15 - Consistency in language between sections (not in ADA).

The intent is for this proposal to correlate with other proposals to revise, remove or relocate specific exceptions.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The changes throughout the general exceptions will provide consistency in the terminology. The phrase 'complying with this chapter' makes it apparent that these are general exceptions for Chapter 11.

Assembly Action: **None**

Final Hearing Results

E168-12 **AS**

Code Change No: E169-12

Original Proposal

Section(s): 1103.2.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Delete without substitution:

~~**1103.2.2 Existing buildings.** Existing buildings shall comply with Section 3411.~~

Reason: This exception is being deleted because it is not needed. Application of the building code for existing buildings begins in chapter 34. The scope of accessibility requirements for existing buildings is specified in chapter 34, specifically in section 3411. IBC chapter 11 is not the scoping chapter for existing building accessibility, therefore this exception in chapter 11 is simply redundant and not needed. It is technically an invalid exception because it is a scoping exception for a chapter that does not scope accessibility for existing buildings. Other chapters of the IBC do not have a similar exception because the general scope of the IBC is for new construction with Chapter 34 applicable to scope the IBC or IEBC for existing construction. The general scope of application of the IBC and IEBC to existing buildings is established in IBC Chapter 34; the IEBC as referenced by IBC section 3401.6 as an alternative to IBC chapter 34.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: While the committee agreed with the proponents reason that existing buildings are covered in Chapter 34, the pointer to the existing building requirements in Chapter 34 for accessibility requirements is needed for the more casual user. Coordination with the IEBC may also be necessary depending on other code changes in regards to Chapter 34.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, Code Technologies Committee, requests Approval as Submitted.

Commenter's Reason: Code change G201 removed the existing building requirements from the IBC, therefore this reference is no longer valid. Accessibility requirements for existing buildings can be found in the IEBC.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "IBC Coordination with the new ADAAG". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website http://www.iccsafe.org/cs/CTC/Pages/IBCCoordination-ADAAG.aspx. Since its

inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

E169-12 **AS**

Code Change No: E171-12

Original Proposal

Section(s): 1103.2.8 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Add text as follows:

1103.2.8 Areas in places of religious worship. Raised or lowered areas, or portions of areas, in places of religious worship that are less than 300 sq.ft. (30 m^2) in area and located 7 inches or more (178 mm) or more above or below the finished floor and used primarily for the performance of religious ceremonies are not required to comply with this chapter.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The IBC requires religious buildings to be fully accessible. Many religious architectural building features based on traditions and rituals result in raised areas or recessed areas within the sanctuary or worship area. It can be difficult, beyond a reasonable accommodation, to provide full accessibility to these raised and lowered areas for religious use. Some examples of these types of architectural features are: Altars, bimahs, baptisteries, pulpits, minbars, and minarets. Some pictures of these features are provided below. An additional issue is the Americans with Disabilities act section 307 exempts' religious organizations and religions buildings (the entire building) from compliance with the act. Do to the ADA exemption accessibility to specific church architectural elements such as those listed above have never been developed and are not specifically addressed in the ADA, A117.1 standard, or IBC. Therefore, even if an accessible route is provided to these areas there is no guidance in the A117.1 standard as to how to make a religious feature such as a baptistery accessible. This proposed exception is similar to the practical allowances already permitted for raised employee areas in courtrooms, raised employee work areas, and raised areas within some sports facilities (i.e., referee stands). The proposed Section 1103.2.8 would exempt reasonably sized areas in recognition of the religious practices and traditions incorporated into the religious architectural features common in religious architecture. A similar change was submitted during the 09/10 code development cycle (E158 09/10). The Egress Committee denied the code change and stated in their reason that such an exemption has merit but a size limitation was needed. To respond to the committee comment a 300 square foot area limitation was added. The 300 square foot area is based on the employee work area exemption area limit (IBC 1103.2.3).

Report of the hearings for E158 09/10:

E158-09/10
Committee Action: Disapproved
Committee Reason: While there should be allowances for some areas within a church, there needs to be some sort of size limitations. A possible interpretation could be that the entire church was used for religious ceremonies, which is not consistent with the intent of the proponent.

Raised pulpit in Washington cathedral.

Minbar in mosque.

Full immersion baptisteries in Baptist or Greek orthodox.

High alter in Greek orthodox.

Raised area in synagogue for torah

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This is a valid exception for a variety of common practices in religious facilities. This proposal addresses concerns for area limits brought up on similar proposals brought forward during previous code change cycles.

Assembly Action: **None**

Final Hearing Results

E171-12 **AS**

Code Change No: E173-12

Original Proposal

Section(s): 1103.2.10

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1103.2.10 Highway toll-booths ~~Single-occupant structures~~. Highway toll-booths where the access is only provided by bridges above the vehicular traffic or underground tunnels, are not required to comply with this Chapter. ~~Single-occupant structures, accessed only by passageways below grade or above grade including, but not limited to, toll booths that are accessed only by underground tunnels, are not required to be accessible.~~

Reason: This exception was based on ADA section 203.6. The intent of the federal exception was that it apply exclusively to highway toll booths. The problem with the current IBC text is that this exception is currently miss-used for a variety of structures that were not intended to be exempted. Since the intent of the exception was specific to toll booths that required access from above or below the highway, and that are typically elevated on a curb, this proposal changes the exception be specific to highway toll booths.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason:. While this language will differ from the exact language in the 2010 ADA Standard for Accessible Design, the intent was specifically for highway toll-booths. This proposed language will limit the exception to what is line with the intent of the ADA. The current language is being interpreted to allow for variety of structures which could be considered an ADA violation.

Assembly Action: **None**

Final Hearing Results

E173-12 **AS**

Code Change No: E175-12

Original Proposal

Section(s): 1103.2.13, 1107.6.2.1, 1107.6.2.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

~~**1103.2.13**~~ **1107.6.2.1 Live/work units.** In live/work units constructed in accordance with Section 419, the nonresidential portion ~~of the unit utilized for nonresidential use~~ is required to be *accessible*. In a structure, where there are four or more live/work units intended to be occupied as a residence, the residential portion of the live/work unit ~~is required to be evaluated separately in accordance with Sections 1107.6.2 and 1107.7~~ shall be a Type B unit.

Exception: The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

~~**1107.6.2.1**~~ **1107.6.2.2 Apartment houses, monasteries and convents.** *(no change to text)*

~~**1107.6.2.2**~~ **1107.6.2.3 Group R-2 other than live/work units, apartment houses, monasteries and convents.** In Group R-2 occupancies, other than live/work units, apartment houses, monasteries and convents not falling within the scope of Section 1107.6.2.1 and 1107.6.2, Accessible units and Type B units shall be provided in accordance with Sections 1107.6.2.2.1 and 1107.6.2.2.2.

Reason: This section regarding live/work units is not an exception, it provides specific requirements for accessibility in live/work units, and therefore the section is incorrectly located in the general exceptions section. This code change will move the section to the appropriate section within chapter 11. Since a Live/work unit is a Group R-2 occupancy, the provisions should be grouped with R-2 dwelling unit requirements in section 1107. The change to the first sentence is just to simplify the sentence by replacing seven words with one. The change to the second sentence and added exception accomplishes the same thing as the current reference to Section 1107.6.2 and 1107.7 but provides the requirements and exceptions for Type B units in the section so that the code user does not need to go the referenced sections to discover the four unit threshold for Type B unit requirements.

The changes to 1107.6.2.2 are correlative due to the relocation of 1103.2.13.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Movement to Section 1107.6.2.1 is a more appropriate location for live/work units. This current requirement for a live/work units in not an exception, so it does not belong under 1103.2.

Assembly Action: **None**

Final Hearing Results

E175-12 **AS**

Code Change No: E177-12

Original Proposal

Section(s): 1104.1, 1104.3

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1104.1 Site arrival points. At least one accessible ~~routes~~ route within the site shall be provided from public transportation stops; accessible parking; accessible passenger loading zones; and public streets or sidewalks to the accessible building entrance served.

1104.3 Connected spaces. When a building or portion of a building is required to be accessible, ~~an~~ at least one accessible route shall be provided to each portion of the building, to accessible building entrances connecting accessible pedestrian walkways and to the public way.

Reason: Adding 'at least one' would clarify that one route is to be accessible, not necessarily every route. This is consistent with ADA 206.2.1 and 206.2.4.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This a simple but good clarification for accessible routes.

Assembly Action: **None**

Final Hearing Results

E177-12 **AS**

Code Change No: E178-12

Original Proposal

Section(s): 1104.3, 1104.4

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1104.3 Connected spaces. When a building or portion of a building is required to be *accessible*, an *accessible route* shall be provided to each portion of the building, to *accessible* building entrances connecting *accessible pedestrian walkways* and the *public way*.

Exceptions:

1. Stories and mezzanines exempted by Section 1104.4.
2. ~~1~~In a building, room or space used for assembly purposes with *fixed seating*, an *accessible route* shall not be required to serve levels where *wheelchair spaces* are not provided.
3. ~~2~~In Group I-2 facilities, doors to *sleeping unit*s shall be exempted from the requirements for maneuvering clearance at the room side provided the door is a minimum of 44 inches (1118 mm) in width.
4. Vertical access to elevated employee work stations within a courtroom is not required at the time of initial construction, provided a *ramp*, lift or elevator can be installed without requiring reconfiguration or extension of the courtroom or extension of the electrical system.

1104.4 Multilevel buildings and facilities. At least one *accessible route* shall connect each *accessible* ~~level~~ story~~, including mezzanines~~ and *mezzanine*, in multilevel buildings and facilities.

Exceptions:

1. An *accessible route* is not required to stories and *mezzanines* that have an aggregate area of not more than 3,000 square feet (278.7 m^2) and are located above and below *accessible* levels. This exception shall not apply to:
   1.1. Multiple tenant facilities of Group M occupancies containing five or more tenant spaces used for the sales or rental of goods and where at least one such tenant space is located on a floor level above or below the accessible levels;
   1.2. ~~Levels~~ Stories or mezzanines containing offices of health care providers (Group B or I); or
   1.3. Passenger transportation facilities and airports (Group A-3 or B).
   1.4 Government buildings.
2. ~~Levels~~ Stories or mezzanines that do not contain *accessible* elements or other spaces as determined by Section 1107 or 1108 are not required to be served by an *accessible route* from an *accessible* level.
3. In air traffic control towers, an *accessible route* is not required to serve the cab and the floor immediately below the cab.
4. Where a two-story building or facility has one *story* or mezzanine with an *occupant load* of five or fewer persons that does not contain *public use* space, that *story* or mezzanine shall not be required to be connected by an *accessible route* to the *story* above or below.
5. ~~Vertical access to elevated employee work stations within a courtroom is not required at the time of initial construction, provided a *ramp*, lift or elevator can be installed without requiring reconfiguration or extension of the courtroom or extension of the electrical system.~~

Reason: The intent is to address vertical access within a floor, and between stories. The committee proposes to provide exceptions consistent with 2010 ADA with the exception of the 2nd story limitation currently in the code (1104.3 Exception 1).

Therefore, this proposal is to coordinate with ADA accessibility provisions that are less than currently in IBC or more specifically addressed than in IBC. Sections 1104.3 is intended to deal with connecting all accessible spaces, with a reference to 1104.4 for changes in elevation of a story or to a mezzanine. Section 1104.4 addresses changes in elevation where typically the route is via an elevator. There is a similar proposal for coordination between Sections 1107.3 and 1107.4.

Specific reasons for each revision are as follows:

- 1104.3 Connected spaces –
  - New exception 1 is coordination with the 'elevator' exception between mezzanines and stories in Section 1104.4. (ADA 206.2.4 main text and Exp. 3)
  - Current exception 1, now exception 2, addresses tiered seating in assembly areas that comply with 1108 for wheelchair spaces and dispersion. (ADA 206.2.4, Exp. 2)
  - Current exception 2, new Exception 3 – Coordination with ADA 404.2.4 Exception for maneuvering clearance at Group I-2 hospital doors is addressed in a separate proposal.
  - New exception 4 – relocated from 1104.4 exception 5, since courtroom access is a level change, not a story change (AD 206.2.4, exp. 1).
- 1104.4 Multilevel buildings and facilities – An accessible route must connect stories and mezzanine. The intent is for this section to mainly deal with changes that typically use an elevator (ADA 206.2.3). The ADA and IBC refer to stories and mezzanines with a difference in terminology.
  - Exception 1.1 – further coordination with the ADA description of shopping mall or shopping center and the intent of this limitation to apply only to when a tenant is only on a non-accessible level. (ADA 206.2.3. Exp. 1)
  - Exception 1.2 – clarifies the terminology differences between ADA and IBC for mezzanines
  - Exception 1.4 – the intent is to address Title II buildings and/or public entities without having to go into funding issues. The description does not have to be as extensive because the IBC 2nd floor exception is much smaller than ADA Title III.
  - Exception 2 – clarifies the terminology differences between ADA and IBC for mezzanines
  - Exception 5 – relocated to 1104.3

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The exceptions in Section 1104.4 are more closely aligned with the Americans with Disabilities Act. Adding in the term 'mezzanines' provides additional clarification for major changes in level. This will coordinate with E185 for routes in residential and institutional facilities. The committee has some concerns on how the term 'government buildings' might be interpreted.

Assembly Action: **None**

Final Hearing Results

E178-12 **AS**

Code Change No: E179-12

Original Proposal

Section(s): 1104.3, 1107.3, 1107.5.3.1

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1104.3 Connected spaces. When a building or portion of a building is required to be *accessible*, an *accessible route* shall be provided to each portion of the building, to *accessible* building entrances connecting *accessible pedestrian walkways* and the *public way*.

Exceptions:

1. In a building, room or space used for assembly purposes with *fixed seating*, an *accessible route* shall not be required to serve levels where *wheelchair spaces* are not provided.
2. ~~In Group I-2 facilities, doors to *sleeping units* shall be exempted from the requirements for maneuvering clearance at the room side provided the door is a minimum of 44 inches (1118 mm) in width.~~

1107.3 Accessible spaces. Rooms and spaces available to the general public or available for use by residents and serving *Accessible units*, *Type A units* or *Type B units* shall be *accessible*. *Accessible* spaces shall include toilet and bathing rooms, kitchen, living and dining areas and any exterior spaces, including patios, terraces and balconies.

Exceptions:

1. Recreational facilities in accordance with Section 1109.15.
2. ~~In Group I-2 facilities, doors to *sleeping units* shall be exempted from the requirements for maneuvering clearance at the room side provided the door is a minimum of 44 inches (1118 mm) in width.~~

1107.5.3 Group I-2 hospitals. *Accessible units* and *Type B units* shall be provided in general-purpose hospitals, psychiatric facilities and detoxification facilities of Group I-2 occupancies in accordance with Sections 1107.5.3.1 and 1107.5.3.2.

1107.5.3.1 Accessible units. At least 10 percent, but not less than one, of the *dwelling units* and *sleeping unit*s shall be *Accessible units*.

Exception: Entry doors to Accessible dwelling or sleeping units shall not be required to provide the maneuvering clearance beyond the latch side of the door.

Reason: The intent of the proposal is for coordination with the 2010 ADA Standard of Accessible Design for hospital doors. The 2010 ADA includes the following.

404.2.4 Maneuvering Clearances. Minimum maneuvering clearances at doors and gates shall comply with 404.2.4. Maneuvering clearances shall extend the full width of the doorway and the required latch side or hinge side clearance.

EXCEPTION: Entry doors to hospital patient rooms shall not be required to provide the clearance beyond the latch side of the door.

The current IBC text is written for all Group I-2 while the ADA requirements have exceptions for hospitals. The exception for the maneuvering clearances do not match ADA. By relocating the requirement as an exception specifically for the rooms which are required to be Accessible (Section 1107.5.3.1), it is clear that the entrances to the Accessible patient sleeping rooms are the rooms that can use the exception, as well making it clear that the intent is to allow these rooms to not meet the unit entry requirements in ICC A117.1 Section 1002.5.

Patients in hospitals are typically moved around the hospitals on stretchers or gurney's and if not, they are accompanied by staff when being moved in wheelchairs. The ADA recognized this difference in hospitals and included an exception. At this time, the ICC A117.1 does not include an exception specific to hospital room doors.

This proposal is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This will coordinate the door maneuvering clearances for Accessible units in hospitals with the 2010 ADA Standard for Accessible Design. The current language could be utilized for nursing home Accessible units, which would be a conflict with the 2010 ADA.

Assembly Action: **None**

Final Hearing Results

E179-12 **AS**

Code Change No: E180-12

Original Proposal

Section(s): 1104.3.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1104.3.2 Press boxes. Press boxes in a building, room or space used for assembly purposes shall be on an accessible route.

Exceptions:

1. An accessible route shall not be required to press boxes in bleachers that have a single point ~~points~~ of entry ~~at only one level~~ from the bleachers, provided that the aggregate area of all press boxes for each playing field is not more than 500 square feet (46 m^2) ~~maximum~~.
2. An accessible route shall not be required to free-standing press boxes that are ~~elevated~~ more than ~~above grade~~ 12 feet (3660 mm) above grade ~~minimum~~ provided that the aggregate area of all press boxes for each playing field is not more than 500 square feet (46 m^2) ~~maximum~~.

Reason: This proposed change takes into consideration the intent of the ADA requirements and adds language consistent with that intent but clarifies the intended limitations of the exceptions. It should be noted however, that remaining questions exist regarding press boxes. For example what constitutes a "press box"? Would a small raised platform used by an announcer at a small community softball field be considered a press box? What if that raised platform is less than 50 sq. ft. in area, but accessed by a ladder and less than 12 ft. above grade? A "press box" is undefined. The intent of these exceptions relates to a more substantial "press box", and these proposed changes address questions that have been raised about those "press boxes". (*ADA 206.2.7)*

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This clarifies the exceptions for press boxes within the existing text. This coordinates with the 2010 ADA Standard for Accessible Design. However, press boxes with separate stairway access should be also addressed.

Assembly Action: **None**

Final Hearing Results

E180-12 **AS**

Code Change No: E181-12

Original Proposal

Section(s): 1104.4

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1104.4 Multilevel buildings and facilities. At least one accessible route shall connect each accessible level, including mezzanines, in multilevel buildings and facilities.

Exception:

1 through 4. *(No change to text)*

5. Vertical access to elevated employee work stations within a courtroom ~~is not required at the time of initial construction, provided a ramp, lift or elevator can be installed without requiring reconfiguration or extension of the courtroom or extension of the electrical system.~~ complying with Section 1108.4.1.4.

Reason: The intent of this proposal is remove redundant text and to coordinate with Section 1108.4.1.4. There is no technical change. This allowance is addressed in ADA 206.2.4 Exception 1.

Section 1108.4.1.4 reads as follows:

1108.4.1.4 Employee work stations. The judge's bench, clerk's station, bailiff's station, deputy clerk's station and court reporter's station shall be located on an accessible route. The vertical access to elevated employee work stations within a courtroom is not required at the time of initial construction, provided a ramp, lift or elevator can be installed without requiring reconfiguration or extension of the courtroom or extension of the electrical system.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal eliminates redundant language in the code.

Assembly Action: **None**

Final Hearing Results

E181-12 **AS**

Code Change No: E182-12

Original Proposal

Section(s): 1105.1.6, 1105.1.7 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1105.1.6 Tenant spaces, ~~dwelling units and sleeping units~~. At least one accessible entrance shall be provided to each tenant, ~~dwelling unit and sleeping unit~~ in a facility.

Exception~~s~~:

1. ~~1.~~ An accessible entrance is not required to self-service storage facilities ~~tenants~~ that are not required to be accessible.
2. ~~2. An accessible entrance is not required to dwelling units and sleeping units that are not required to be Accessible units, Type A units or Type B units.~~

1105.1.7 Dwelling units and sleeping units. At least one accessible entrance shall be provided to each dwelling unit and sleeping unit in a facility.

Exception: An accessible entrance is not required to dwelling units and sleeping units that are not required to be Accessible units, Type A units or Type B units.

Reason: Grouping tenant spaces, dwelling and sleeping spaces together in this section has created some unintended confusion related to this section and other provisions. Some users of the code have referred to this section as an indication that "tenant" means a tenant in an apartment building also and have misapplied provisions intended specifically for commercial buildings.

The term "tenant" is not used in the code or in the federal rules or law to relate to residential conditions. By separating the terms, the misapplication will be eliminated.

The exception was added to distinguish the limitations related to units in self-storage facilities consistent with Section 1108.3 and the 2010 ADA Standards..(ADA 206.4.5) This will cause no conflict with Fair Housing.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: There was a concern that 'self-service storage facilities' may not be the only tenant that does not have to have an accessible entrance. Splitting the tenant entrances and dwelling unit entrances into two sections helps clarify the requirements for each type.

Assembly Action: **None**

Final Hearing Results

E182-12 **AS**

Code Change No: E183-12

Original Proposal

Section(s): 1106.1, 1106.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1106.1 Required. Where parking is provided, accessible parking spaces shall be provided in compliance with Table 1106.1, ~~except~~ and as required by Sections 1106.2 through 1106.4. Where more than one parking facility is provided on a site, the number of parking spaces required to be accessible shall be calculated separately for each parking facility.

1106.2 Groups I-1, R-1, R-2 and R-4 ~~R-2 and R-3~~. In addition to the parking required by Table 1106.1, in Groups I-1, R-1, R-2 and R-4, where parking is provided for Accessible and Type A units, at least one accessible parking space shall be provided for each unit. ~~At least 2 percent, but not less than one, of each type of parking space provided for occupancies in Groups R-2 and R-3, which are required to have Accessible, Type A or Type B dwelling or sleeping units, shall be accessible.~~ Where parking is provided within or beneath a building, accessible parking spaces shall also be provided within or beneath the building.

1106.3 Hospital outpatient facilities. At least 10 percent, but not less than one, of care recipient and visitor parking spaces provided to serve hospital outpatient facilities shall be accessible.

1106.4 Rehabilitation facilities and outpatient physical therapy facilities. At least 20 percent, but not less than one, of the portion of care recipient and visitor parking spaces serving rehabilitation facilities specializing in treating conditions that affect mobility and outpatient physical therapy facilities shall be accessible.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

When parking is provided for residents, this proposal would require an accessible space for each Accessible and Type A unit, as well as accessible parking for the remainder of the units. This should meet both ADA and FHA. Literally, current IBC is asking for 2% of the parking provided for the three types of accessible units. 2010 ADA requires 2% of parking for all units that are not Accessible or Type A only when there is more than one parking space per unit. Table 1106.1 already gets you more than 2%. (2010 *ADA 208.3.2)*

Since Accessible units also required in Group I-1 assisted living, and these facilities may provide parking for residents, this Group has been added to the list. If the assisted living facility does not provide parking spaces for residents, the parking lots would just meet the general parking lot requirements.

Section 1106.3 and 1106.4 are relevant to only portions of the parking facilities for hospitals and rehabilitation facilities. Areas such as employee parking should use Table 1106.1 for the number of accessible spaces.

Cost Impact: None

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proponent requested disapproval so that they can work with the National Association of Home Builders to address parking for Type B units and single family and townhouse complexes with no accessible units. There was also a question if the percentage asked for was consistent with the Fair Housing Act requirements.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, Code Technologies Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1106.1 Required. Where parking is provided, accessible parking spaces shall be provided in compliance with Table 1106.1, except ~~and~~ as required by Sections 1106.2 through 1106.4. Where more than one parking facility is provided on a site, the number of parking spaces required to be accessible shall be calculated separately for each parking facility.

1106.2 Groups I-1, R-1, R-2, R-3 and R-4. Accessible parking spaces shall be provided in Groups I-1, R-1, R-2, R-3 and R-4 occupancies in accordance with items 1 through 4 as applicable.

1. In Groups R-2, R-3, and R4 occupancies which are required to have Accessible, Type A or Type B dwelling or sleeping units, at least 2 percent, but not less than one, of each type of parking space provided shall be accessible.
2. In Groups I-1 and R-1 occupancies accessible parking shall be provided in accordance with Table 1106.1.
3. ~~In addition~~ Where at least one parking space is provided for each dwelling unit or sleeping unit, ~~to the parking required by Table 1106.1, in Groups I-1, R-1, R-2 and R-4, where parking is provided for Accessible and Type A units,~~ at least one accessible parking space shall be provided for each Accessible and Type A unit.
4. Where parking is provided within or beneath a building, accessible parking spaces shall also be provided within or beneath the building.

Commenter's Reason: The intent of this public comment is to clarify and coordinate parking requirements for what may be considered residential occupancies under Fair Housing and ADA. The additional language in the base paragraph is to editorial to clarify requirements.

Item 1 - The proposed comment reintroduces the basic requirement that for Group R-2 and R-3 (and R-4 per Section 310.6) when parking is made available at least 2%, but no less than one, space must meet the accessible requirements. See also E218-12 for signage requirements. These spaces are not required to be signed as accessible providing the space is provided.

Item 2 – This is added as coordination with item 3. If this section will include where Accessible units are required, then accessible parking for R-1 and I-1 must be clear.

Item 3 - This comment also address the change in the ADA which requires a one-to-one ratio when parking is provided for each dwelling unit, an accessible parking space is required for each dwelling unit that is an Accessible or Type A dwelling Unit.

Item 4 – This is existing text.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "IBC Coordination with the new ADAAG". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website http://www.iccsafe.org/cs/CTC/Pages/IBCCoordination-ADAAG.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

E183-12 **AMPC**

Code Change No: E185-12

Original Proposal

Section(s): 1107.3, 1107.4, 1109.8

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1107.3 Accessible spaces. Rooms and spaces available to the general public or available for use by residents and serving *Accessible units*, *Type A units* or *Type B units* shall be *accessible*. *Accessible* spaces shall include toilet and bathing rooms, kitchen, living and dining areas and any exterior spaces, including patios, terraces and balconies.

Exceptions:

1. Stories and mezzanines exempted by Section 1107.4.
2. ~~1.~~ Recreational facilities in accordance with Section 1109.15.
3. ~~2.~~ In Group I-2 facilities, doors to *sleeping unit*s shall be exempted from the requirements for maneuvering clearance at the room side provided the door is a minimum of 44 inches (1118 mm) in width.
4. Exterior decks, patios or balconies that are part of *Type B units* and have impervious surfaces, and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the unit.

1107.4 Accessible route. At least one *accessible route* shall connect *accessible* building or facility entrances with the primary entrance of each *Accessible unit*, *Type A unit* and *Type B unit* within the building or facility and with those exterior and interior spaces and facilities that serve the units.

Exceptions:

1. If due to circumstances outside the control of the owner, either the slope of the finished ground level between *accessible* facilities and buildings exceeds one unit vertical in 12 units horizontal (1:12), or where physical barriers or legal restrictions prevent the installation of an *accessible route*, a vehicular route with parking that complies with Section 1106 at each *public* or *common use* facility or building is permitted in place of the *accessible route*.
2. ~~Exterior decks, patios or balconies that are part of *Type B units* and have impervious surfaces, and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the unit.~~
2. In Group I-3 facilities, an accessible route is not required to connect stories or mezzanines where Accessible units, all common use areas serving Accessible units and all public use areas are on an accessible route.
3. In Group R-2 facilities with Type A units complying with Section 1107.6.2.1.1 an accessible route is not required to connect stories or mezzanines where Type A units, all common use areas serving Type A units and all public use areas are on an accessible route.
4. In other than Group R-2 dormitory housing provided by places of education, in Group R-2 facilities with Accessible units complying with Section 1107.6.2.2.1 an accessible route is not required to connect stories or mezzanines where Accessible units, all common use areas serving Accessible units and all public use areas are on an accessible route.
5. In Group R-1 an accessible route is not required to connect stories or mezzanines within individual units, provided the accessible level meets the provisions for Accessible units and

sleeping accommodations for two persons minimum and a toilet facility are provided on that level.

6. In Group R-3 and R-4 congregate residences, an accessible route is not required to connect floors or mezzanines where Accessible units or Type B units, all common use areas serving Accessible units and Type B units and all public use areas serving Accessible and Type B units are on an accessible route.
7. An accessible route between stories is not required where Type B units are exempted by Sections 1107.7.

1109.8 Lifts. Platform (wheelchair) lifts are permitted to be a part of a required *accessible route* in new construction where indicated in Items 1 through 10. Platform (wheelchair) lifts shall be installed in accordance with ASME A18.1.

1. An *accessible route* to a performing area and speaker platforms in Group A occupancies.
2. An *accessible route* to *wheelchair spaces* required to comply with the *wheelchair space* dispersion requirements of Sections 1108.2.2 through 1108.2.6.
3. An *accessible route* to spaces that are not open to the general public with an *occupant load* of not more than five.
4. An *accessible route* within ~~a~~ an individual *dwelling* or *sleeping unit* required to be an Accessible unit, Type A unit or Type B unit.
5. An *accessible route* to wheelchair seating spaces located in outdoor dining terraces in Group A-5 occupancies where the *means of egress* from the dining terraces to a *public way* are open to the outdoors.
6. An *accessible route* to jury boxes and witness stands; raised courtroom stations including judges' benches, clerks' stations, bailiffs' stations, deputy clerks' stations and court reporters' stations; and to depressed areas such as the well of the court.
7. An *accessible route* to load and unload areas serving amusement rides.
8. An *accessible route* to play components or soft contained play structures.
9. An *accessible route* to team or player seating areas serving areas of sport activity.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent is to address vertical access within a floor, and between stories. The committee proposes to provide exceptions consistent with 2010 ADA, however, the decision was not to differentiate between public or private schools when dealing with dorm access.

Therefore, this proposal is to coordinate with ADA accessibility provisions that are less than currently in IBC or more specifically addressed than in IBC. Sections 1107.3 is intended to deal with connecting all accessible spaces within a building, with a reference to 1107.4 for changes in elevation of a story or to a mezzanine. Section 1107.4 addresses changes in elevation where typically the route is via an elevator and access on the site. There is a similar proposal for coordination between Sections 1104.3 and 1104.4.

Specific reasons for each revision are as follows:

- 1107.3 Accessible spaces –
  - New exception 1 is a reference to the 'elevator' exception between mezzanines and stories in Section 1107.4. (ADA 206.2.4 main text and Exp. 3)
  - Current exception 2, new Exception 3 – Coordination with ADA 404.2.4 Exception for maneuvering clearance at Group I-2 hospital doors is addressed in a separate proposal.
  - New exception 4 – relocated exception 2 from 1107.4 since this is an elevation change, not a story change
- 1107.4 Accessible routes –
  - Current exception 2 – relocated to 1107.3
  - New exception 2 – an accessible route is not required in jails where there are no Accessible units on upper levels. (ADA 206.2.3, Exp. 3)
  - New exception 3 – In large apartments, convents or monasteries, where Type A units are required, a route is not required to other stories in the building if all common use spaces are also on the accessible level. This is also consistent with FHA exception for Type B units. (ADA 206.2.2 Exp. 4)
  - New exception 4 – In sororities or fraternities, an accessible route is not required to other stories when the Accessible units and public and common spaces are on the accessible level. Dormitories in places of education, as Title II buildings, are required to have an accessible on all levels. (ADA 206.2.3 Exp. 4)

- New exception 5 – Multi-story hotel rooms in hotels are not required to have an route between floors where a sleeping area and toilet are located on the accessible level (ADA 206.2.3 Exp. 5)
- New exception 6 – In small sororities, fraternities and group homes, an accessible route is not required to a 2nd floor if Accessible and Type B units and all public and common spaces are on the accessible level.
- New exception 7 – coordination with buildings without elevators and FHA Type B units in 1107.7.

- 1109.8 Lifts –
  - Item 4 – coordination with limits for platform lifts serving only individual units in ADA 206.7.3.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This coordinates with E175 regarding accessible routes between levels. This proposal addresses accessible routes between levels within residential and institutional occupancies. This is consistent with the 2010 ADA Standard for Accessible design and in addition has brought in some additional information from the Department of Justice Regulations specific to dorms and other housing typically associated with universities.

Assembly Action: **None**

Final Hearing Results

E185-12 **AS**

Code Change No: E186-12

Original Proposal

Section(s): 1107.5.1.1, 1107.6.4.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1107.5.1 Group I-1. *Accessible units* and *Type B units* shall be provided in Group I-1 occupancies in accordance with Sections 1107.5.1.1 and 1107.5.1.2.

1107.5.1.1 Accessible units. In Group I-1, other than assisted living facilities, at least 4 percent, but not less than one, of the *dwelling units* and *sleeping unit*s shall be *Accessible units*. In Group I-1 assisted living facilities, at least 10 percent, but not less than one, of the *dwelling units* and *sleeping unit*s shall be *Accessible units.*

1107.5.1.2 Type B units. In structures with four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence*, every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*.
Exception: The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.

1107.6.4 Group R-4. *Accessible units* and *Type B units* shall be provided in Group R-4 occupancies in accordance with Sections 1107.6.4.1 and 1107.6.4.2.

1107.6.4.1 Accessible units. In Group R-4, other than assisted living facilities, at least one of the *dwelling* or *sleeping unit*s shall be an *Accessible unit*. In Group R-4 assisted living facilities, at least two of the *dwelling* or *sleeping unit*s shall be an *Accessible unit*.

1107.6.4.2 Type B units. In structures with four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence*, every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*.

Exception: The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent of this code change is to establish a minimum number of Accessible units required in Assisted Living Facilities for Group I-1 and R-4. The 10% Accessible units is based on anticipated need in these types of facilities.

The curre nt ADA requirements address residential facilities and long term care facilities, typically hospitals and nursing homes. The text does not directly address what the International Codes refer to as Assisted Living or Group I-1 facilities. The current text requires the following: 100% Accessible units in Group I-2 rehabilitation facilities; 50% Accessible units in Group I-2 nursing homes; 4% Accessible units in all Group I-1 and 2% Type A units in Group R-2 apartment buildings. The 2009 IBC had 10% Accessible units for residential board and care facilities, but the deletion of that term in the 2012 IBC resulted in the loss of that requirement. This addition will establish a minimum level for Group I-1 assisted living facilities while leaving other Group I-1 facilities to remain at 4%. Facilities can always choose to exceed this limit depending on the needs of their clientele and the desire of the facility to have optimum flexibility. Since these facilities are custodial care, and not nursing care, 10% Accessible units should meet demand.

The committee feels that if the building code addresses the minimum accessibility needs for these types of facilities, then the federal government may not feel that they need to establish additional accessibility requirements.

Cost Impact: Increase

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal fills a gap between apartment living and nursing homes. The 10% is based on the anticipated need in assisted living facilities. This provision was lost when the definition for residential care facilities was removed during the last cycle.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, Code Technologies Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1107.5.1.1 Accessible units. In Group I-1, ~~other than assisted living facilities~~ Condition 1, at least 4 percent, but not less than one, of the *dwelling units* and *sleeping unit*s shall be *Accessible units*. In Group I-1 ~~assisted living facilities~~ Condition 2, at least 10 percent, but not less than one, of the *dwelling units* and *sleeping unit*s shall be *Accessible units.*

1107.6.4.1 Accessible units. In Group R-4, ~~other than assisted living facilities~~ Condition 1,at least one of the *dwelling* or *sleeping unit*s shall be an *Accessible unit*. In Group R-4 ~~assisted living facilities~~ Condition 2, at least two of the *dwelling* or *sleeping unit*s shall be an *Accessible unit*.

Commenter's Reason: Code change E186 is a technical change which proposes to increase the required number of Accessible sleeping unit for assisted living arrangements where the anticipated need is greater than the current 4%. For Group I-1, Condition 2, this proposal will be consistent with anticipated need within these types of facilities. This proposal was approved by the committee in Dallas. The purpose of this public comment is limited to the editorial coordination of terminology with the approval of Code change G31-12.

At the Code Development Hearing, the IBC - General committee approved as submitted G31-12 which created two occupancy conditions for Group I-1, similar to what is currently in the IBC for Group I-3 and was approved for Group I-2 in G257. The end result is that where warranted, the code would call out Group I-1 into Condition 1, where residents can evacuate without assistance, and Group I-1, Condition 2, where residents may need limited assistance in evacuation. As indicated in the reason statement for G31, the benefit of the condition concept, when compared to creating new use groups, (i.e. Group I-5 or I-6) is that a majority of code requirements would still apply to all Group I-1 occupancies.

Following the successful action on G31, the Care Study Group for the Code Technologies Committee (CTC) did a a review of code changes submitted in the 2012 Cycle which are unique to Group I-1 to determine whether or not the condition designation was necessary in order to distinguish between the two Group I-1 conditions. Code change E186 is one such application where the Group I-1, Condition 1 and Group I-1, Condition 2 designation is warranted, and therefore this public comment is being submitted by the CTC.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "Care Facilities". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/CareFacilities.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Staff analysis: Code changes G31 was Approved as Submitted and G257 was Approved as Modified at the Code Development Hearings. A public comment has not been submitted for either proposal. Accordingly it has been placed on the consent agenda.

Final Hearing Results

E186-12 **AMPC**

Code Change No: E187-12

Original Proposal

Section(s): 1107.5.5.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1107.5.5.1 Group I-3 sleeping units. In Group I-3 occupancies, at least ~~2~~ 3 percent of the total number of sleeping units in the facility, but not less than one unit in each classification level, ~~of the dwelling units and sleeping units~~ shall be Accessible units.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The purpose is to coordinate with DOJ regulations which have increased the requirement in 2010 ADA.

DOJ Regulations regarding jails includes the following:

DOJ Regulations 35.151 (k)(1) New construction of jails, prisons, and other detention and correctional facilities shall comply with the 2010 Standards except that public entities shall provide accessible mobility features complying with section 807.2 of the 2010 Standards for a minimum of 3%, but no fewer than one, of the total number of cells in a facility. Cells with mobility features shall be provided in each classification levels.(ADA 232.2.1)

Based on this information this proposal is asking for an increase in the percentage of Accessible units over the 2% specified in ADA Section 232.2.1. The term, 'dwelling units' is struck because there are no dwelling units within jails. The proposal does not specifically follow the language regarding dispersion because IBC Section 1107.5.5.2 and 1107.5.5.3 already have additional Accessible cells required for specialty cells and medical cells.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: While the committee agreed with the increase for Accessible units in jails as a coordination piece with the Department of Justice Regulations, they suggested that some additional guidance may be needed to clarify the term ' classification level.'

Assembly Action: **None**

Final Hearing Results

E187-12 **AS**

Code Change No: E188-12

Original Proposal

Section(s): 1107.6.1.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1107.6.1.1 Accessible units. Accessible dwelling units and sleeping units shall be provided in accordance with Table 1107.6.1.1. Where buildings contain more than 50 dwelling or sleeping units, the number of Accessible units shall be determined per building. Where buildings contain 50 or fewer dwelling or sleeping units, all dwelling units and sleeping units on a site shall be considered to determine the total number of Accessible units. Accessible units shall be dispersed among the various classes of units. ~~Roll-in showers provided in Accessible units shall include a permanently mounted folding shower seat.~~

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent of this proposal is to coordinate with the counting unit requirements within hotels with ADA (224.5) and the DOJ regulations. IBC addresses multiple buildings on a site making up the whole hotel. DOJ regulations address units in multiple buildings depending on the size of the buildings.

DOJ regulations are as follows:

36.406 (c) Places of lodging. Places of lodging subject to this part shall comply with the provisions of the 2010 Standards applicable to transient lodging, including, but not limited to, the requirements for transient lodging guest rooms in sections 224 and 806 of the 2010 Standards (pp. 82 and 210).

(1) Guest rooms. Guest rooms with mobility features in places of lodging subject to the transient lodging requirements of 2010 Standards shall be provided as follows—

(i) Facilities that are subject to the same permit application on a common site that each have 50 or fewer guest rooms may be combined for the purposes of determining the required number of accessible rooms and type of accessible bathing facility in accordance with table 224.2 to section 224.2 of the 2010 Standards (pp 83).

(ii) Facilities with more than 50 guest rooms shall be treated separately for the purposes of determining the required number of accessible rooms and type of accessible bathing facility in accordance with table 224.2 to section 224.2 of the 2010 Standards (p. 83).

The last sentence is no longer needed since ICC A117.1 requires all roll-in showers to have transfer seats.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal will coordinate with how Group R-1 Accessible hotel rooms will be calculated with the 2010 ADA Standard for Accessible Design.

Assembly Action: **None**

Final Hearing Results

E188-12 **AS**

Code Change No: E189-12

Original Proposal

Section(s): 1107.6.1.1.1, E104.2, E104.2.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Delete without substitution:

~~**1107.6.1.1.1 Accessible unit facilities.** All interior and exterior spaces provided as part of or serving an Accessible dwelling unit or sleeping unit shall be accessible and be located on an accessible route.~~

~~**Exceptions:**~~

1. ~~Where multiple bathrooms are provided within an Accessible unit, at least one full bathroom shall be accessible.~~
2. ~~Where multiple family or assisted bathrooms serve an Accessible unit at least 50 percent but not less than one room for each use at each cluster shall be accessible.~~
3. ~~Five percent, but not less than one bed shall be accessible.~~

~~**E104.2 Accessible beds.** In rooms or spaces having more than 25 beds, 5 percent of the beds shall have a clear floor space complying with ICC A117.1.~~

~~**E104.2.1 Sleeping areas.** A clear floor space complying with ICC A117.1 shall be provided on both sides of the accessible bed. The clear floor space shall be positioned for parallel approach to the side of the bed.~~

~~**Exception:** This requirement shall not apply where a single clear floor space complying with ICC A117.1 positioned for parallel approach is provided between two beds.~~

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

These requirements are addressed in A117.1 in a more complete package and with better coordination with ADA.
IBC 1107.6.1.1.1 main text is already stated in IBC 1107.3.
Exception 1 is now addressed in ICC A117.1 1002.11. In a multi-bathroom unit, only one is required to be accessible.
Exception 2 is already addressed in IBC 1109.2 Exception 3.
Exception 3 would provide higher access in rooms with 25 beds or fewer, and the same for rooms with more than 25.
Appendix E104.2 and 104.2.1 can be deleted since addressed in ICC A117.1 Sections 1002.15.1 and 1002.15.2.

ADA reads as follows:

ADA 224.3 - DOJ Regulations 35.151 (e) 36.406 (d) Social service center establishments.
Group homes, halfway houses, shelters, or similar social service center ….
(1) In sleeping rooms with more than 25 beds covered by this section, a minimum of 5% of the beds shall have clear floor space complying with section 806.2.3 of the 2010 Standards.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The deletion removes redundant language for issues that area addressed for Group R-1 hotel rooms addressed elsewhere in the code or in the ICC A117.1. This will reduce the chance of possible conflicts between requirements over time.

Assembly Action: **None**

Final Hearing Results

E189-12 **AS**

Code Change No: E191-12

Original Proposal

Section(s): 1107.6.2.1.1, 1107.6.2.2, 1107.6.3, 1107.6.4, 1107.6.4.1, 1107.6.4.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1107.6.2 Group R-2. Accessible units, Type A units and Type B units shall be provided in Group R-2 occupancies in accordance with Sections 1107.6.2.1 and 1107.6.2.2.

1107.6.2.1 Apartment houses, monasteries and convents. Type A units and Type B units shall be provided in apartment houses, monasteries and convents in accordance with Sections 1107.6.2.1.1 and 1107.6.2.1.2.

1107.6.2.1.1 Type A units. In Group R-2 occupancies containing more than 20 dwelling units or sleeping units, at least 2 percent but not less than one of the units shall be a Type A unit. All Group R-2 units on a site shall be considered to determine the total number of units and the required number of Type A units. Type A units shall be dispersed among the various classes of units. Bedrooms within monasteries and convents shall be counted as sleeping units for the purpose of determining the number of units.

Exceptions:

1. The number of Type A units is permitted to be reduced in accordance with Section 1107.7.
2. Existing structures on a site shall not contribute to the total number of units on a site.

1107.6.2.1.2 Type B units. Where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit.

Exception: The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

1107.6.2.2 Group R-2 other than apartment houses, monasteries and convents. In Group R-2 occupancies, other than apartment houses, monasteries and convents, Accessible units and Type B units shall be provided in accordance with Sections 1107.6.2.2.1 and 1107.6.2.2.2. Bedrooms within congregate living facilities shall be counted as sleeping units for the purpose of determining the number of units.

1107.6.2.2.1 Accessible units. Accessible dwelling units and sleeping units shall be provided in accordance with Table 1107.6.1.1.

1107.6.2.2.2 Type B units. Where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling unit and every sleeping unit intended to be occupied as a residence shall be a Type B unit.

Exception: The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

1107.6.3 Group R-3. In Group R-3 occupancies where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit. Bedrooms within congregate living facilities shall be counted as sleeping units for the purpose of determining the number of units.

Exception: The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

1107.6.4 Group R-4. Accessible units and Type B units shall be provided in Group R-4 occupancies in accordance with Sections 1107.6.4.1 and 1107.6.4.2. Bedrooms within congregate living facilities shall be counted as sleeping units for the purpose of determining the number of units.

1107.6.4.1 Accessible units. At least one of the ~~dwelling or~~ sleeping units shall be an Accessible unit.

1107.6.4.2 Type B units. In structures with four or more ~~dwelling units or~~ sleeping units intended to be occupied as a residence, every ~~dwelling unit and~~ sleeping unit intended to be occupied as a residence shall be a Type B unit.

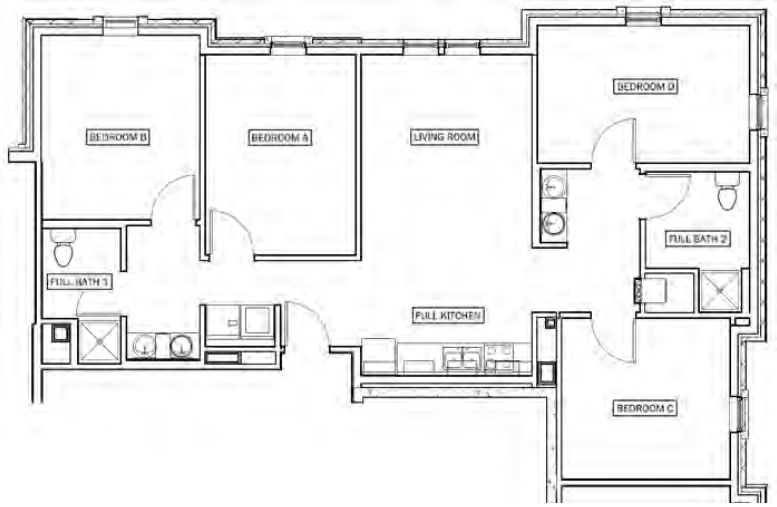
Exception: The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent is to try and address the new style of dormitory facilities that operate like dorms, but look like apartments. There has also been the interpretation that fraternities and sororities are a single dwelling unit for purposes of accessibility. The statement about congregate residences should help address how to count units for these types of facilities. This should be extended to the 16 or fewer congregate residences permitted in Group R-3 and R-4.

Group R-4 facilities are group homes and therefore are always congregate residences; therefore they will not include dwelling units.

Below is an example of student on-campus housing at Indiana University. While it looks like an apartment, it is handled administratively by the university exactly the same as typical dorm room assignments.



Cost Impact: None

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proponent asked for disapproval in order to allow them to work on coordination between the 2010 ADA Standard for Accessible Design and the Fair Housing Act for the new style of dormitories that look more like apartments than the old style dorm layouts.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, Code Technologies Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1107.6.2.1.1 Type A units. In Group R-2 occupancies containing more than 20 dwelling units or sleeping units, at least 2 percent but not less than one of the units shall be a Type A unit. All Group R-2 units on a site shall be considered to determine the total number of units and the required number of Type A units. Type A units shall be dispersed among the various classes of units. Bedrooms within monasteries and convents shall be counted as sleeping units for the purpose of determining the number of units. Where the sleeping units are grouped into suites, only one sleeping unit in each suite shall be permitted to count towards the number of required Type A units.

Exceptions:

1. The number of Type A units is permitted to be reduced in accordance with Section 1107.7.
2. Existing structures on a site shall not contribute to the total number of units on a site.

1107.6.2.1.2 Type B units. Where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit.

Exception: The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

1107.6.2.2 Group R-2 other than apartment houses, monasteries and convents. In Group R-2 occupancies, other than apartment houses, monasteries and convents, Accessible units and Type B units shall be provided in accordance with Sections 1107.6.2.2.1 and 1107.6.2.2.2. Bedrooms within congregate living facilities shall be counted as sleeping units for the purpose of determining the number of units. Where the sleeping units are grouped into suites, only one sleeping unit in each suite shall be permitted to count towards the number of required Accessible units.

(Portions of proposal not shown remain unchanged.)

Commenter's Reason: The new style of dorm setups are looking like dwelling units but still operate as dormitories. In large facilities, the Accessible rooms should not be all grouped into one suite, so that the students have options. In congregate living arrangements in Group R-3 and R-4, with the maximum size at 16 occupants, this is not an issue, therefore further modification of these sections is not needed. This proposal is consistent with the intent in the DOJ Regulations for housing for education in the adoption of the 2010 ADA Standards for Accessible Design.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "IBC Coordination with the new ADAAG". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website http://www.iccsafe.org/cs/CTC/Pages/IBCCoordination-ADAAG.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

E191-12 **AMPC**

Code Change No: E192-12

Original Proposal

Section(s): 1107.7.2

Proponent: Cheryl Kent, U.S. Department of Housing and Urban Development (cheryl.d.kent@hud.gov)

Revise as follows:

1107.7.2 Multistory units. A multistory dwelling or sleeping unit which is not provided with elevator service is not required to be a Type B unit. Where a multistory unit is provided with external elevator service to only one floor, the floor provided with elevator service shall be the primary entry to the unit, shall comply with the requirements for a Type B unit and a kitchen and toilet facility shall be provided on that floor.

Reason: At the time that HUD's Fair Housing Accessibility Guidelines were drafted, HUD included provisions for multistory units when such units may be located in a building with a public elevator, requiring that the story that is served by the building elevator be the primary entry to the unit, that this story comply with the accessibility requirements of the Fair Housing Act with respect to the rooms located on the entry/accessible floor, and that this floor include a complying bathroom or powder room. It was HUD's expectation that the main living areas, including the kitchen, living and dining rooms would be on this story/floor, but that this story may not always include an accessible bathroom or powder room, so the Guidelines specifically stated that it would. Since that time, there have been new building types introduced into the housing market, including a few situations where multistory units, located in a building with a public elevator, did not have the kitchen located on the story with the primary entry; or there were multiple floors, rather than the typical, 2-story unit with kitchen, living and dining on the main entry level and bedrooms and bathrooms above. As the Fair Housing Act requires usable kitchens and bathrooms, it has been our position that the kitchen also needs to be on the primary entry level of such multistory units. This code change proposal is intended to incorporate this requirement.

Cost Impact: There should be no significant cost impact because the typical building situation in which a multistory unit may be located in a building with public elevator service most often already does include the primary living areas and the kitchen on the primary entry level. In those few situations where this may not be the case, this changed code language will make it clear, from the outset, before design and construction, that the story of the unit that is served by the building elevator will be the primary entry to the unit, will have rooms on this level that comply with the accessibility requirements, including an accessible kitchen and bathroom or powder room; thus assuring that costs, if any, will be minimal.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed language could be read to require bathrooms and kitchens within a sleeping unit. Adding the words "where provided within the unit" would address the concern.

Assembly Action: **None**

Public Comments

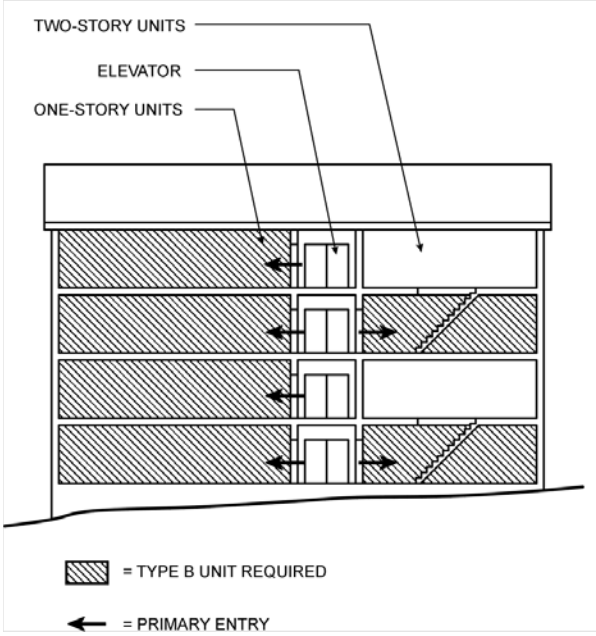
Public Comment 1:

Cheryl Kent, representing U.S. Department of Housing and Urban Development, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1107.7.2 Multistory units. A multistory dwelling or sleeping unit which is not provided with elevator service is not required to be a Type B unit. Where a multistory unit is provided with external elevator service to only one floor, the floor provided with elevator service shall be the primary entry to the unit, shall comply with the requirements for a Type B unit and, where provided within the unit, a living area, a kitchen and a toilet facility shall be provided on that floor.

Commenter's Reason: The Committee indicated that the language as originally written was unclear as to whether HUD wanted the kitchen to be accessible (even if located on the upper story of the multistory unit, or whether HUD wanted to ensure that the kitchen was located on the accessible level. The Committee also expressed concern that some types of dwelling units may not have a kitchen within the unit. The changes above are intended to address the Committee's concerns and also further clarify HUD's interpretation of the language in HUD's Fair Housing Accessibility Guidelines, which this provision in the code is intended to reflect. As HUD explained in its reason statement for this proposed change, at the time that HUD's Fair Housing Accessibility Guidelines (the Guidelines) were drafted, HUD included provisions for multistory units when such units may be located in a building with a public elevator, requiring that the story that is served by the building elevator be the primary entry to the unit, that this story comply with the accessibility requirements of the Fair Housing Act with respect to the rooms located on the entry/accessible floor, and that this floor include a complying bathroom or powder room. It was HUD's expectation that the primary entry level of the dwelling unit would include those living areas typically found on the lower story of a multistory unit and would include the kitchen and the living area, but may not include a powder room or bathroom. For this reason, the Guidelines specified a powder room or bathroom would be included on the primary entry level. (See attached graphic). It has since come to HUD's attention that some multistory dwelling units are being built with only the primary entry to the unit and a bathroom or powder room on the story served by the building elevator, with no other rooms or spaces on this level that would comply with the requirements for a Type B unit. This is not what HUD intended and it is not how HUD interprets the language in the Guidelines. HUD is proposing the above modification to address the concerns of the Committee and to also make clear that the primary entry level must include the living area, as well as the kitchen and a toilet facility, with the understanding that this is when these facilities are provided within the dwelling unit. Once again, HUD wishes to emphasize that this proposed change applies only to multistory dwelling units or sleeping units that are located in a building with a public elevator, and not multistory units located in buildings without a public elevator (e.g. townhouses). While most multistory dwelling units that are located in a building with a public elevator will be likely to have a living area, a kitchen and a toilet facility within the unit, the language as modified makes it clear that when those facilities are, in fact, provided within the unit, they must be on the accessible/primary entry level. We believe the language as modified addresses the Committee's concerns.



Final Hearing Results

E192-12 **AMPC1**

Code Change No: E194-12

Original Proposal

Section(s): 1108.2.7.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1108.2.7.1 Receivers. The number and type of receivers shall be provided for assistive listening systems in accordance with Table 1108.2.7.1.

Exceptions:

1. Where a building contains more than one room or space used for assembly purposes, the total number of required receivers shall be permitted to be calculated according to the total number of seats in the building, provided that all receivers are usable with all systems and if the rooms or spaces used for assembly purposes required to provide assistive listening are under one management.
2. Where all seats in a building, room or space used for assembly purposes are served by an induction loop assistive listening system, the minimum number of receivers required by Table 1108.2.7.1 to be hearing-aid compatible shall not be required.

TABLE 1108.2.7.1
RECEIVERS FOR ASSISTIVE LISTENING SYSTEMS

CAPACITY OF SEATING IN ASSEMBLY AREAS	MINIMUM REQUIRED NUMBER OF RECEIVERS	MINIMUM NUMBER OF RECEIVERS TO BE HEARING-AID COMPATIBLE
50 or less	2	2
51 to 200	2, plus 1 per 25 seats over 50 seats*	2
201 to 500	2, plus 1 per 25 seats over 50 seats*	1 per 4 receivers*
501 to 1,000	20, plus 1 per 33 seats over 500 seats*	1 per 4 receivers*
1,001 to 2,000	35, plus 1 per 50 seats over 1,000 seats*	1 per 4 receivers*
Over 2,000	55, plus 1 per 100 seats over 2,000 seats*	1 per 4 receivers*

*Note: * = or fraction thereof

Reason: The requirements for hearing-aid compatible devices is currently in Table 1108.2.7.1, but it is not in the text.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The added language is better scoping language for the table and terminology used.

Assembly Action: **None**

Final Hearing Results

E194-12 **AS**

Code Change No: E195-12

Original Proposal

Section(s): 1108.2.9, 1109.8

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1108.2.9 Dining and drinking areas. In dining and drinking areas, all interior and exterior floor areas shall be *accessible* and be on an accessible route.

Exceptions:

1. An *accessible route* between *accessible* leels and stories above or below is not required where permitted by Section 1104.4, Exception 1.
2. ~~In buildings or facilities not required to provide an *accessible route* between stories,~~ an *accessible route* to dining and drinking areas in a *mezzanine* is not required, provided that the *mezzanine* contains less than 25 percent of the total combined area for dining and drinking and the same services~~,~~ and decor ~~and amenities~~ are provided in the *accessible* area.
3. In sports facilities, tiered dining areas providing seating required to be *accessible* shall be required to have *accessible routes* serving at least 25 percent of the dining area, provided that *accessible routes* serve *accessible* seating and where each tier is provided with the same services.
4. Employee only work areas shall comply with Sections 1103.2.3 and 1104.3.1.

1109.8 Lifts. Platform (wheelchair) lifts are permitted to be a part of a required *accessible route* in new construction where indicated in Items 1 through 10. Platform (wheelchair) lifts shall be installed in accordance with ASME A18.1.

1. An *accessible route* to a performing area and speaker platforms ~~in Group A occupancies~~.

(No changes to items 2 through 10)

Reason: This proposal accomplishes a couple of things: First, Section 1108.2.9, is coordinates with the ADA by clarifying that the amount of area allowed not to be on an ac cessible route is a 25 % of the total area, not potentially 25% of the area with an accessible route, and that the amount of area used for calculation is limited to areas for dining and drinking regardless of whether people sit or stand while drinking or dining. Remaining area of a restaurant that is not part of the drinking or dining area should not be used to determine the allowable area for drinking or dining that is not on an ac cessible route. Second, the proposed language focuses on the requirement for mezzanines rather than confusing it with requirements for stories and eliminates the unenforceable "amenities". This term is not used in the ADA and should not be included in the IBC.

In Section 1109.8, performing areas and speaker platforms are not limited to Group A occupancies and the ADA does not limit it to assembly occupancies. This deletion is needed to coordinate with the ADA.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Section 1109.8 broadens the application of platform lifts to speakers platforms to address where these platform appear in other uses. Section 1108.2.9 is a good cleanup of language, however, perhaps 'décor' should be stricken along with 'amenities' because this is also outside the scope of the building code review.

Assembly Action: **None**

Final Hearing Results

E195-12 **AS**

Code Change No: E196-12

Original Proposal

Section(s): 1108.4.3, 1108.4.3.1, 1108.4.3.2, 1109.11, E104.4

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1109.11 Seating at tables, counters and work surfaces. Where seating or standing space at fixed or built-in tables, counters or work surfaces is provided in accessible spaces, at least 5 percent of the seating and standing spaces, but not less than one, shall be accessible. ~~In Group I-3 occupancy visiting areas at least 5 percent, but not less than one, cubicle or counter shall be accessible on both the visitor and detainee sides.~~

Exception~~s~~:

1. ~~1.~~ Check-writing surfaces at check-out aisles not required to comply with Section 1109.11.2 are not required to be accessible.
2. ~~2. In Group I-3 occupancies, the counter or cubicle on the detainee side is not required to be accessible at noncontact visiting areas or in areas not serving accessible holding cells or sleeping units.~~

1109.11.1 Dispersion. Accessible fixed or built-in seating at tables, counters or work surfaces shall be distributed throughout the space or facility containing such elements and located on a level accessed by an accessible route.

~~**1108.4.3**~~ **1109.11.2 Visiting areas.** Visiting areas in Judicial facilities in accordance with Section 1108.4 and Group I-3 shall comply with Sections ~~1108.4.3.1 and 1108.4.3.2~~ 1109.11.2.1 and 1109.11.2.2.

~~**1108.4.3.1**~~ **1109.11.2.1 Cubicles and counters.** At least 5 percent, but ~~no fewer~~ not less than one of the cubicles, shall be accessible on both the visitor and detainee sides. Where counters are provided, at least one shall be accessible on both the visitor and detainee sides.

Exception: This requirement shall not apply to the detainee side of cubicles or counters at noncontact visiting areas not serving Accessible unit holding cells.

~~**1108.4.3.2**~~ **1109.11.2.2 Partitions.** Where solid partitions or security glazing separate visitors from detainees, at least one of each type of cubicle or counter partition shall be accessible.

~~**E104.4 Partitions.** Solid partitions or security glazing that separates visitors from detainees in Group I-3 occupancies shall provide a method to facilitate voice communication. Such methods are permitted to include, but are not limited to, grilles, slats, talk-through baffles, intercoms or telephone handset devices. The method of communication shall be accessible to individuals who use wheelchairs and individuals who have difficulty bending or stooping. Hand-operable communication devices, if provided, shall comply with Section E106.3.~~

Reason: The current requirement for visiting cubicles, by being in Section1108.4.3, is literally only applicable to visiting areas in courthouses. The text is only partially repeated in Section 1109.11. For complete requirement in courthouses and jails, the requirements should be relocate to a general section and add requirements for glazed partitions. Section E104.4 should be deleted since it is redundant with Section 1109.11.2.2 and includes advisory language from ADA 232.5.2. This would be coordinated with ADA 213.4, 232.5 and 232.5.2.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This relocation of the text for visiting areas associated with prisoners, visitors and lawyers will result in the criteria being applicable to courthouses and jails. This is appropriate for both areas.

Assembly Action: **None**

Final Hearing Results

E196-12 **AS**

Code Change No: E197-12

Original Proposal

Section(s): 1109.2, 1109.2.2

Proponent: Dominic Marinelli, representing Accessibility Services/United Spinal Association (dmarinelli@unitedspinal.org)

Revise as follows:

1109.2 Toilet and bathing facilities. Each toilet room and bathing room shall be accessible. Where a floor level is not required to be connected by an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. Except as provided for in Sections 1109.2.2 and 1109.2.3, at ~~At~~ least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.

Exceptions:

1. In toilet rooms or bathing rooms accessed only through a private office, not for common or public use and intended for use by a single occupant, any of the following alternatives are allowed:
   1.1. Doors are permitted to swing into the clear floor space, provided the door swing can be reversed to meet the requirements in ICC A117.1;
   1.2. The height requirements for the water closet in ICC A117.1 are not applicable;
   1.3. Grab bars are not required to be installed in a toilet room, provided that reinforcement has been installed in the walls and located so as to permit the installation of such grab bars; and
   1.4. The requirement for height, knee and toe clearance shall not apply to a lavatory.
2. This section is not applicable to toilet and bathing rooms that serve dwelling units or sleeping units that are not required to be accessible by Section 1107.
3. Where multiple single-user toilet rooms or bathing rooms are clustered at a single location, at least 50 percent but not less than one room for each use at each cluster shall be accessible.
4. Where no more than one urinal is provided in a toilet room or bathing room, the urinal is not required to be accessible.
5. Toilet rooms that are part of critical care or intensive care patient sleeping rooms are not required to be accessible.
6. Where toilet facilities are primarily for children's use, required accessible water closets, toilet compartments and lavatories shall be permitted to comply with children's provision of ICC A117.1.

1109.2.2 Water closet compartment. Where water closet compartments are provided in a toilet room or bathing room, at least ~~one~~ five percent of the total number of compartments shall be wheelchair-accessible ~~compartment~~ compartments ~~shall be provided~~. Where the combined total water closet compartments and urinals provided in a toilet room or bathing room is six or more, at least ~~one~~ five percent of the total number of compartments shall be ambulatory-accessible water closet compartment shall be provided in addition to the wheelchair-accessible compartment.

1109.2.3 Lavatories. Where lavatories are provided, at least 5 percent, but not less than one, shall be accessible. Where the total lavatories provided in a toilet room or bathing facility is six or more, at least one lavatory with enhanced reach ranges shall be provided.

Reason: Code change will provide proportionate accessibility in large toilet rooms necessary to accommodate the increasing number of people with ambulatory disabilities. People who walk with crutches, a cane, a walker, or who have limited balance generally find it easier and safer to use a stall that has parallel grab bars, hence the recommended increase to 5% scoping for ambulatory stalls. Additionally, The University of California, San Francisco Disability Statistics Center estimates that there are 6.1 million users of mobility devices, such as canes, crutches, and walkers and 1.7 million wheelchair or scooter riders. In the US in 2009, among the six types of disabilities identified in the American Community Survey, the highest prevalence rate amongst all age groups was for "Ambulatory Disability," 6.9 percent. (Source: 2009 Disability Status Report - United States | © 2011 Cornell University). When you only examine the prevalence of ambulatory disabilities for people ages 65-74 (a portion of the population continuing to grow annually) the prevalence rate jumps to 16.5%. Given the fact that we are an aging society and more and more people require the use of either wheelchairs, crutches, canes or other devices –combined with the need for many people with disabilities to use parallel grab bars in stalls, we feel that this code change is necessary and serves the needs of our aging population.

Cost Impact: The code change will increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: A second accessible stall will not be required until a toilet room has 20 or more units in one toilet room, so will only affect very large facilities. This is consistent with accessible lavatory numbers. Accessible stalls are used by more than just persons using wheelchairs. Accessible stalls are often used by people with mobility devices such as walkers, canes and crutches, as well as families. This provides equity for access to accessible stalls.

Assembly Action: **None**

Final Hearing Results

E197-12 **AS**

Code Change No: E198-12

Original Proposal

Section(s): 1109.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1109.2 Toilet and bathing facilities. Each toilet room and bathing room shall be accessible. Where a floor level is not required to be connected by an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. At least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.

Exceptions:

1. ~~In~~ toilet rooms or bathing rooms accessed only through a private office, not for common or public use and intended for use by a single occupant, ~~any of the following alternatives are allowed:~~ shall be permitted to comply with the specific exceptions in ICC A117.1.
   - ~~1.1 Doors are permitted to swing into the clear floor space, provided the door swing can be reversed to meet the requirements in ICC A117.1;~~
   - ~~1.2 The height requirements for the water closet in ICC A117.1 are not applicable;~~
   - ~~1.3 Grab bars are not required to be installed in a toilet room, provided that reinforcement has been installed in the walls and located so as to permit the installation of such grab bars; and~~
   - ~~1.4 The requirement for height, knee and toe clearance shall not apply to a lavatory.~~
2. This section is not applicable to toilet and bathing rooms that serve dwelling units or sleeping units that are not required to be accessible by Section 1107.
3. Where multiple single-user toilet rooms or bathing rooms are clustered at a single location, at least 50 percent but not less than one room for each use at each cluster shall be accessible.
4. Where no more than one urinal is provided in a toilet room or bathing room, the urinal is not required to be *accessible*.
5. Toilet rooms that are part of critical care or intensive care patient sleeping rooms are not required to be *accessible*.
6. Where toilet facilities are primarily for children's use, required *accessible* water closets, toilet compartments and lavatories shall be permitted to comply with children's provision of ICC A117.1.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The intent of this proposal is to delete this allowance because it is a technical item addressed in ICC A117.1. This exception would be consistent with Title I modifications for employee work areas and the exemptions under 2010 ADA 203.9 and IBC 1103.2.3. Permitted by ADA/ABA as follows:

For text in ADA/ABA:
1.1. – 603.2.3 Exp.1
1.2. - 604.4 Exp 1
1.3. - 604.5 Exp 1
1.4. - 606.2 Exp 2

For text in ICC:

1.1 – 603.2.2 Exp. 1
1.2 - 604.4 Exp
1.3 - 604.5 Exp 1
1.4 – 606.2 Exp. 2

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal removes language that is covered in ICC A117.1. The exceptions are technical in nature, so ICC A117.1 is the appropriate location.

Assembly Action: **None**

Final Hearing Results

E198-12 **AS**

Code Change No: E199-12

Original Proposal

Section(s): 1109.2

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care

Revise as follows:

1109.2 Toilet and bathing facilities. Each toilet room and bathing room shall be *accessible*. Where a floor level is not required to be connected by an *accessible route*, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. At least one of each type of fixture, element, control or dispenser in each *accessible* toilet room and bathing room shall be *accessible*.

Exceptions:

1. In toilet rooms or bathing rooms accessed only through a private office, not for *common* or *public use* and intended for use by a single occupant, any of the following alternatives are allowed:
   - 1.1 Doors are permitted to swing into the clear floor space, provided the door swing can be reversed to meet the requirements in ICC A117.1;
   - 1.2. The height requirements for the water closet in ICC A117.1 are not applicable;
   - 1.3. Grab bars are not required to be installed in a toilet room, provided that reinforcement has been installed in the walls and located so as to permit the installation of such grab bars; and
   - 1.4. The requirement for height, knee and toe clearance shall not apply to a lavatory.
2. This section is not applicable to toilet and bathing rooms that serve *dwelling units* or *sleeping unit*s that are not required to be *accessible* by Section 1107.
3. Where multiple single-user toilet rooms or bathing rooms are clustered at a single location, at least 50 percent but not less than one room for each use at each cluster shall be *accessible*.
4. Where no more than one urinal is provided in a toilet room or bathing room, the urinal is not required to be *accessible*.
5. Toilet rooms or bathing rooms that are part of critical care or intensive care patient sleeping rooms serving Accessible units are not required to be *accessible*.
6. Toilet rooms or bathing rooms that serve an Accessible sleeping unit designed for a bariatric patient are not required to comply with the toilet room and bathing room requirement in ICC A117.1.
7. Where toilet facilities are primarily for children's use, required *accessible* water closets, toilet compartments and lavatories shall be permitted to comply with children's provision of ICC A117.1.

Reason: The intent of the new exception 6 is to address rooms specifically designed for bariatric patients. This issue is not addressed in new ADA requirements. The physical size of bariatric patients would not allow for water closets to be located with the center line 16" to 18" from the wall. In addition, if a nurse needs to get next to a patient to offer assistance in rising or sitting down, there is no space between the toilet and the wall. There is also a problem with the size of 36" x 36" for transfer showers. Designing for bariatric patients will result in toilet rooms and bathing rooms that are accessible for these patients, just not bathrooms that are accessible in accordance with ICC A117.1.

While Exception 2 would exempt the toilet rooms in the 90% of the hospital rooms not required to be accessible, the additional language in Exception 5 would reinforce that intent.

Providing the Accessible units in other areas of the hospital is no longer an option. The Department of Justice regulations state that the Accessible rooms must be distributed by type of medical specialty provided in the hospital.

DOJ regulations 35.151 (h) and 36.406 (g) Medical care facilities. Medical care facilities that are subject to this section shall comply with the provisions of the 2010 Standards applicable to medical care facilities, including, but not limited to, sections 223

and 805. In addition, medical care facilities that do not specialize in the treatment of conditions that affect mobility shall disperse the accessible patient bedrooms required by section 223.2.1 of the 2010 Standards in a manner that is proportionate by type of medical specialty.

This proposal is submitted by the ICC Ad Hoc Committee on Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1109.2 Toilet and bathing facilities. *(No change)*

Exceptions:

1. through 5. *(No change)*
6. Toilet rooms or bathing rooms ~~that serve an Accessible sleeping unit~~ designed for a bariatric patient are not required to comply with the toilet room and bathing room requirement in ICC A117.1. The sleeping units served by bariatric toilet or bathing rooms shall not count toward the required number of Accessible sleeping units.
7. *(No change)*

Committee Reason: The modification is due to a concern that a facility could literally count all the bariatric units to meet the required number of Accessible rooms. If other types of services are provided in the hospital, it is appropriate that at least some should be provided in other types of rooms and have bathrooms that comply with ICC A117.1. While this modification would not allow for the bariatric rooms to count as any of the Accessible units, a public comment might be proposed that would allow for a proportional number of Accessible units. In regards to the main motion, if bathrooms are specifically designed for bariatric patients, there are requirements in A117.1 that would not allow equity for bariatric patients and their unique needs (i.e., space from the centerline of the water closet to the wall). While there are not specific requirements for bariatric bathrooms in ICC A117.1 there are standards/guidelines in the industry that could be used as a basis for design of these facilities.

Assembly Action: **None**

Final Hearing Results

E199-12 **AM**

Code Change No: E200-12

Original Proposal

Section(s): 1109.2.3

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1109.2.3 Lavatories. Where lavatories are provided, at least 5 percent, but not less than one, shall be accessible. Where an accessible lavatory is located within the accessible water closet compartment that lavatory shall not be the only accessible lavatory in the multi-compartment toilet room. Where the total lavatories provided in a toilet room or bathing facility is six or more, at least one lavatory with enhanced reach ranges shall be provided.

Reason: Accessible lavatories must be available to all users of the toilet room any time the room is open. If the only accessible lavatory is within the accessible stall, others in the bathroom would not have access to that lavatory within the stall when the stall was in use. To prevent this, an additional accessible lavatory within the room should still be available for all users. It is not the intent of this section to prohibit someone from providing an accessible lavatory within an accessible stall, only that it not be the only one. This would be coordinated with ADA 213.3.4.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal will prevent someone from placing the only accessible lavatory within the accessible stall. This is consistent with the 2010 ADA Standard for Accessible Design.

Assembly Action: **None**

Public Comments

Public Comment:

Gene Boecker, AIA, Code Consultants, Inc (CCI), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1109.2.3 Lavatories. Where lavatories are provided, at least 5 percent, but not less than one, shall be accessible. Where an accessible lavatory is located within the accessible water closet compartment ~~that~~ at least one additional accessible lavatory shall ~~not~~ be provided ~~the only accessible lavatory~~ in the multi-compartment toilet room outside the water closet compartment. Where the total lavatories provided in a toilet room or bathing facility is six or more, at least one lavatory with enhanced reach ranges shall be provided.

Commenter's Reason: The proposed language does not change the intent of the section. It rephrases the text into a requirement instead of something to avoid. As originally written, it is conceivable that a second accessible lavatory in a second accessible water closet compartment would meet the requirement. That is not the original intent and not in keeping with the intent to harmonize the

text with the ADA. The proposed language is specific in the manner in which the second lavatory must be provided and consistent with Section 213.3.4 of the 2010 ADA Standards for Accessible Design.

Final Hearing Results

E200-12 **AMPC**

Code Change No: E201-12

Original Proposal

Section(s): 1109.5.1 (IPC [B] 410.2)

Proponent: Lee J. Kranz, City of Bellevue, Washington, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov)

Revise as follows:

1109.5.1 Minimum Number. No fewer than two drinking fountains shall be provided. One drinking fountain shall comply with the requirements for people who use a wheel-chair and one drinking fountain shall comply with the requirements for standing persons.

Exceptions:

1. A single drinking fountain <u>with two separate spouts</u> that comply with the requirements for people who use a wheelchair and standing persons shall be permitted to be substituted for two separate drinking fountains.
2. Where drinking fountains are primarily for children's use, drinking fountains for people using wheelchairs shall be permitted to comply with the children's provisions in ICC A117.1 and drinking fountains for standing children shall be permitted to provide the spout at 30 inches (762 mm) minimum above the floor.

IPC [B] 410.2 Minimum number. Where drinking fountains are required, not fewer than two drinking fountains shall be provided. One drinking fountain shall comply with the requirements for people who use a wheelchair and one drinking fountain shall comply with the requirements for standing persons.

Exception: A single drinking fountain <u>with two separate spouts</u> that complies with the requirements for people who use a wheelchair and standing persons shall be permitted to be substituted for two separate drinking fountains.

Reason: The current language is not specific enough. It isn't clear that for the single drinking fountain, two separate spouts are required to meet the needs of the people in the wheelchairs and the standing people. The proposed verbiage clarifies this.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The current language is continuously misapplied, resulting in a reduction of accessibility for either wheelchair users or the standing users. The proposal would add clarity to the exception. Allowing for two spouts on one bowl would not be a violation of ICC A117., but would clarify that this can be one bowl that has clearances and two spouts complying with requirements for wheelchair and standing fountains.

Assembly Action: **None**

Final Hearing Results

E201-12 **AS**

Code Change No: E202-12

Original Proposal

Section(s): 1007.5 (IFC [B] 1007.5), 1109.8

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1109.8 Lifts. Platform (wheelchair) lifts are permitted to be a part of a required *accessible route* in new construction where indicated in Items 1 through 10. Platform (wheelchair) lifts shall be installed in accordance with ASME A18.1.

1. An *accessible route* to a performing area and speaker platforms in Group A occupancies.
2. An *accessible route* to *wheelchair spaces* required to comply with the *wheelchair space* dispersion requirements of Sections 1108.2.2 through 1108.2.6.
3. An *accessible route* to spaces that are not open to the general public with an *occupant load* of not more than five.
4. An *accessible route* within a *dwelling* or *sleeping unit* .
5. ~~An *accessible route* to wheelchair seating spaces located in outdoor dining terraces in Group A-5 occupancies where the *means of egress* from the dining terraces to a *public way* are open to the outdoors~~
5<u>6</u>. An *accessible route* to jury boxes and witness stands; raised courtroom stations including judges' benches, clerks' stations, bailiffs' stations, deputy clerks' stations and court reporters' stations; and to depressed areas such as the well of the court.
6<u>7</u>. An *accessible route* to load and unload areas serving amusement rides.
7<u>8</u>. An *accessible route* to play components or soft contained play structures.
8<u>9</u>. An *accessible route* to team or player seating areas serving areas of sport activity.
9<u>10</u>. An *accessible route* where existing exterior *site* constraints make use of a ramp or elevator infeasible.

1007.5 (IFC [B] 1007.5) Platform lifts. Platform (wheelchair) lifts shall not serve as part of an *accessible means of egress*, except where allowed as part of a required *accessible route* in Section 1109.7, Items 1 through <u>8</u> ~~9~~. Standby power shall be provided in accordance with Chapter 27 for platform lifts permitted to serve as part of a *means of egress*.

Reason: Section 1108.2.9 allows at least 25% of a dining area to be on an accessible route regardless of whether it is interior or exterior. Exception #5 only allows a lift to be used for outdoor dining areas. Providing 25% of an outdoor dining area on an accessible route is no more challenging than providing 25% of an indoor dining area. This exception was first included in the code when there was no exception for tiered dining in a sports facility. It is no longer needed and should be deleted for greater coordination with the ADA. The change to Section 1007.5 is correlative only.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The removal of this allowance for platform lifts is appropriate since the scoping for the tiered dining areas to have an accessible route is now 25%, rather than 100% (Section 1109.8). This option was originally put in the code when 100% of the tiered dining was required to be accessible. With 25%, this should be achievable with a ramp or level accessible route.

Assembly Action: **None**

Final Hearing Results

E202-12 **AS**

Code Change No: E204-12

Original Proposal

Section(s): 1109.12.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1109.12.2 Check-out aisles. Where check-out aisles are provided, accessible check-out aisles shall be provided in accordance with Table 1109.12.2. Where check-out aisles serve different functions, ~~at least one accessible check-out aisle shall be provided for each function. Where checkout aisles serve different functions~~, accessible check-out aisles shall be provided in accordance with Table 1109.12.2 for each function. Where check-out aisles are dispersed throughout the building or facility, accessible check-out aisles shall also be dispersed. Traffic control devices, security devices and turnstiles located in accessible check-out aisles or lanes shall be accessible.

Exception: Where the public use area is under 5000 square feet (465 m^2) no more than one accessible check-out aisle shall be required.

Reason: Two sentences are combined for clarity and coordination with ADA 227.2. The exception is permitted in ADA 227.2. This allowance seems reasonable for small spaces.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The revision to the main paragraph simplifies the requirement. The allowance in the exception is reasonable for small stores and coordinates with the 2010 ADA Standard for Accessible Design.

Assembly Action: **None**

Final Hearing Results

E204-12 **AS**

Code Change No: E205-12

Original Proposal

Section(s): 1109.13

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1109.13 Controls, operating mechanisms and hardware. Controls, operating mechanisms and hardware intended for operation by the occupant, including switches that control lighting and ventilation and electrical convenience outlets, in accessible spaces, along accessible routes or as parts of accessible elements shall be accessible.

1. through 6. *(No change)*
7. Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to ~~have operable parts of the release of latch on self-latching devices at 54 inches (1370 mm) maximum and 48 inches minimum above the finished floor or ground, provided the self-latching devices are not also self-locking devices, operated by means of a key, electronic opener, or integral combination lock.~~ comply with Section 1008.1.9.2.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

The purpose of this proposal is to delete redundant language in order to maintain consistent requirements over time between Section 1109.13 and 1008.1.9.2. This exception is in ADA/ABA 404.2.7 Doors and Gates Hardware, Exp. 2. The exception is allowed as a safety concern with children and pool access. IBC Section 1008.1.9.2 reads as follows:

1008.1.9.2 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

> **Exception:** Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the release of latch on self-latching devices at 54 inches (1370 mm) maximum above the finished floor or ground, provided the self-latching devices are not also self-locking devices operated by means of a key, electronic opener or integral combination lock.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal removes redundant language in the codes.

Assembly Action: **None**

Final Hearing Results

E205-12 **AS**

Code Change No: E206-12

Original Proposal

Section(s): 1109.13.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Delete without substitution:

~~**1109.13.1 Operable window.** Where operable windows are provided in rooms that are required to be accessible in accordance with Sections 1107.5.1.1, 1107.5.2.1, 1107.5.3.1, 1107.5.4, 1107.6.1.1, 1107.6.2.1.1, 1107.6.2.2.1 and 1107.6.4.1, at least one window in each room shall be accessible and each required operable window shall be accessible.~~

Reason: This list is a reference for Accessible units and Type A units. Windows within dwelling units and sleeping units are addressed in ICC A117.1, therefore they are not needed here. The ADA/ABA 229.1 has some requirements for operable windows, but has a series of exceptions, including one for residential uses.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proponent asked for disapproval in order to address scoping issues/differences between transient and non-transient lodging found in the 2010 ADA Standard for Accessible Design.

Assembly Action: **None**

Public Comments

Public Comment:

Carl Baldassarra, Code Technologies Committee, requests Approval as Submitted.

Commenter's Reason: The MOE committee disapproved this change because the CTC representative asked for some additional time to investigate some possible conflicts with ADA. The concern was over operable windows in Accessible units in transient lodging. Since there are window requirement in Accessible Units (ICC A117.1 1002.13) it would be appropriate to address the technical requirements at that location. Therefore, in our opinion there is no scoping conflict with ADA by removing this section from the IBC. A change proposal has been submitted to the ICC A117.1 to deal with the technical criteria for windows within Accessible or Type A dwelling units.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "IBC Coordination with the new ADAAG". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website http://www.iccsafe.org/cs/CTC/Pages/IBCCoordination-ADAAG.aspx. Since its inception in April, 2005, the

CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

E206-12 **AS**

Code Change No: E207-12

Original Proposal

Section(s): 1109.15 (New), E105.3

Proponent: Wesley Walters, Clark County Development Services, representing self (hww@clarkcountynv.gov)

Add new text as follows:

1109.15 Gaming machines and gaming tables. Where provided, two percent, but not less than one of each type of gaming tables provided shall be accessible and provided with a front approach. Where provided, two percent of gaming machines provided shall be accessible and provided with a front approach. Accessible gaming machines shall be distributed throughout the different types of gaming machines provided.

Revise as follows:

E105.3 Depositories, vending machines, change machines and similar equipment. Where provided, at least one of each type of depository, vending machine, change machine and similar equipment shall be accessible. Where provided, two percent of gaming machines provided shall be accessible and provided with a front approach. Accessible gaming machines shall be distributed throughout the different types of gaming machines provided.

Exception: Drive-up-only depositories are not required to comply with this section.

Reason: Gaming machines and tables are now found nation wide. All people need adequate access to these services/ games. Side approach access is not practical or comfortable for extended playing time. Front access allows integration with other players for equal play time and communication. When gaming tables are provide (i.e., black-jack, roulette, craps, poker), at least one of each type should be accessible. With gaming machines, there may be many different games and amounts within one facility. With so many options, distribution throughout the types should provide players with a variety of options. Gaming machines should be in the code and Appendix E since gaming tables can be mostly permanent, or just brought in like a vending machine.

Cost Impact: The code change proposal will not increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Providing accessibility scoping requirements for gaming tables and machines is needed in locations such as Las Vegas and Atlantic City. However, the committee expressed a concern that 'type' might be interpreted as each type of game rather than a type of table or machine; or that this might be interpreted as applying to video games.

Assembly Action: **None**

Final Hearing Results

E207-12 **AS**

Code Change No: E208-12

Original Proposal

Section(s): 1104.2, 1104.3, 1108.2.2.4, 1109.15, 1110 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows

SECTION 1110
RECREATIONAL FACILITIES

1110.1 ~~1109.15~~ General ~~Recreational and sports facilities~~. Recreational ~~and sports~~ facilities shall be provided with accessible features in accordance with Sections 1110.2 ~~1109.15.1~~ through 1110.4 ~~1109.15.4~~.

1110.2 Facilities serving Group R-2, R-3 and R-4 occupancies. Recreational facilities that serve Group R-2, R-3 and Group R-4 shall comply with Section 1110.2.1 through 1110.2.3 as applicable.

1110.2.1 Facilities serving Accessible units. In Group R-2 and R-4 occupancies where recreational facilities serve Accessible units, every recreational facility of each type serving Accessible units shall be accessible.

1110.2.2 ~~1109.15.1~~ Facilities serving Type A and Type B units in a single building. In Group R-2, ~~and~~ R-3 and R-4 occupancies where recreational facilities ~~are provided serving~~ serve a single building containing Type A units or Type B units, 25 percent, but not less than one, of each type of recreational facility shall be accessible. Every recreational facility of each type on a site shall be considered to determine the total number of each type that is required to be accessible.

1110.2.3 ~~1109.15.2~~ Facilities serving Type A and Type B units in multiple buildings. In Group R-2, ~~and~~ R-3 and R-4 occupancies on a single site where multiple buildings containing Type A units or Type B units are served by recreational facilities, 25 percent, but not less than one, of each type of recreational facility serving each building shall be accessible. The total number of each type of recreational facility that is required to be accessible shall be determined by considering every recreational facility of each type serving each building on the site.

1110.3 ~~1109.15.3~~ Other occupancies. All recreational facilities not falling within the purview of Section 1110.2 ~~1109.15.1 or 1109.15.2~~ shall be accessible.

1110.4 ~~1109.15.4~~ Recreational ~~and sports~~ facilities ~~exceptions~~. Recreational ~~and sports~~ facilities shall be ~~required to be~~ accessible ~~shall be exempt from this chapter to~~ and shall be on an accessible route to the extent specified in this section.

1110.4.1 ~~1108.2.2.4~~ Team or player seating. At least one wheelchair space shall be provided in team or player seating areas serving areas of sport activity.

> **Exception:** Wheelchair spaces shall not be required in team or player seating areas serving bowling lanes that are not required to be ~~located on an~~ accessible ~~route~~ in accordance with Section ~~1109.15.4.1~~ 1110.4.2.

1110.4.2 ~~1109.15.4.1~~ Bowling lanes. An accessible route shall be provided to at least 5 percent, but no less than one, of each type of bowling lane.

1110.4.3 ~~1109.15.4.2~~ Court sports. In court sports, at least one accessible route shall directly connect both sides of the court.

1110.4.4 ~~1109.15.4.3~~ Raised boxing or wrestling rings. Raised boxing or wrestling rings are not required to be accessible or to be on an accessible route.

1110.4.5 ~~1109.15.4.4~~ Raised refereeing, judging and scoring areas. Raised structures used solely for refereeing, judging or scoring a sport are not required to be accessible or to be on an accessible route.

1110.4.6 ~~1109.15.4.5~~ Raised diving boards and diving platforms. Raised diving boards and diving platforms are not required to be accessible or to be on an accessible route.

1104.2 Within a site. At least one accessible route shall connect accessible buildings, accessible facilities, accessible elements and accessible spaces that are on the same site.

Exceptions:

1. An accessible route is not required between accessible buildings, accessible facilities, accessible elements and accessible spaces that have, as the only means of access between them, a vehicular way not providing for pedestrian access.
2. An accessible route to recreational facilities shall only be required to the extent specified in Section 1110.

1104.3 Connected spaces. When a building or portion of a building is required to be accessible, an accessible route shall be provided to each portion of the building, to accessible building entrances connecting accessible pedestrian walkways and the public way.

Exceptions:

1. In assembly areas with fixed seating, an accessible route shall not be required to serve levels where wheelchair spaces are not provided.
2. In Group I-2 facilities, doors to sleeping units shall be exempted from the requirements for maneuvering clearance at the room side provided the door is a minimum of 44 inches (1118 mm) in width.
3. An accessible route to recreational facilities shall only be required to the extent specified in Section 1110.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

This proposal is part of a coordination effort with the 2010 ADA Standard for Accessible Design and the new technical provisions for recreational facilities found in 2009 ICC A117.1 Chapter 11. This overall proposal for recreational facilities has been divided into parts so that the membership can look at each type of recreational facilities on its own merit. The overall intent is to provide access to recreational facilities so that persons with mobility impairments can participate to the best of their ability. The requirements are not intended to change any essential aspects of that recreational activity.

The intent of this proposal is to move recreational scoping currently in the code to a separate section, Section 1110, Recreational Facilities, instead of being a part of Section 1109, Other Features and Facilities.

1104.2 & 1104.3 - The exceptions for accessible routes in Section 1104.2 and 1104.3 is correlative.

1110.2 through 1110.2.3 - When Group R-2 facilities, such as dormitory buildings, have Accessible units, all recreational facilities provided for residents in the dormitory must be accessible. This is consistent with 2010 ADA. When Group R-2 facilities (with Type A and Type B units), such as apartments and condominiums, have recreational facilities provided for residents, the requirement for 25% of each type is consistent with Fair Housing requirements.

1110.3 – Recreational facilities on their own, or associated with other occupancies are required to be accessible.

1110.4 through 11104.4.6 – the existing recreational provisions in the code are clarified for when they must be accessible, and when an accessible route is required. Please note that the allowances for diving boards is expanded in the proposal dealing with swimming pools.

The following is how this section would look if all proposals were approved. The order of the provisions from Section 1110.4.6 through 1110.4.14 is correlated with the order of the specific technical provisions found in ICC A117.1 and 2010 ADA.

Revise as follows

202 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in the code, have the meanings shown herein:

AREA OF SPORT ACTIVITY. That portion of an indoor or outdoor space, where the play or practice of a sport occurs.

1104.2 Within a site. At least one accessible route shall connect accessible buildings, accessible facilities, accessible elements and accessible spaces that are on the same site.

Exceptions:

1. An accessible route is not required between accessible buildings, accessible facilities, accessible elements and accessible spaces that have, as the only means of access between them, a vehicular way not providing for pedestrian access.
2. An accessible route to recreational facilities shall only be required to the extent specified in Section 1110

1104.3 Connected spaces. When a building or portion of a building is required to be accessible, an accessible route shall be provided to each portion of the building, to accessible building entrances connecting accessible pedestrian walkways and the public way.

Exceptions:

1. In assembly areas with fixed seating, an accessible route shall not be required to serve levels where wheelchair spaces are not provided.
2. In Group I-2 facilities, doors to sleeping units shall be exempted from the requirements for maneuvering clearance at the room side provided the door is a minimum of 44 inches (1118 mm) in width.
3. An accessible route to recreational facilities shall only be required to the extent specified in Section 1110.

1109.7 Lifts. Platform (wheelchair) lifts are permitted to be a part of a required accessible route in new construction where indicated in Items 1 through ~~10~~ 11. Platform (wheelchair) lifts shall be installed in accordance with ASME A18.1.

1. An accessible route to a performing area and speaker platforms in Group A occupancies.
2. An accessible route to wheelchair spaces required to comply with the wheelchair space dispersion requirements of Sections 1108.2.2 through 1108.2.6.
3. An accessible route to spaces that are not open to the general public with an occupant load of not more than five.
4. An accessible route within a dwelling or sleeping unit.
5. An accessible route to wheelchair seating spaces located in outdoor dining terraces in Group A-5 occupancies where the means of egress from the dining terraces to a public way are open to the outdoors.
6. An accessible route to jury boxes and witness stands; raised courtroom stations including judges' benches, clerks' stations, bailiffs' stations, deputy clerks' stations and court reporters' stations; and to depressed areas such as the well of the court.
7. An accessible route to load and unload areas serving amusement rides.
8. An accessible route to play components or soft contained play structures.
9. An accessible route to team or player seating areas serving areas of sport activity.
10. An accessible route instead of gangways serving recreational boating facilities and fishing piers and platforms.
11. An accessible route where existing exterior site constraints make use of a ramp or elevator infeasible.

SECTION 1110
RECREATIONAL FACILITIES

1110.1 ~~1109.15~~ General ~~Recreational and sports facilities.~~ Recreational ~~and sports~~ facilities shall be provided with accessible features in accordance with Sections 1110.2 ~~1109.15.1~~ through 1110.4 ~~1109.15.4~~.

1110.2 Facilities serving Group R-2, R-3 and R-4 occupancies. Recreational facilities that serve Group R-2, R-3 and Group R-4 shall comply with Section 1110.2.1 through 1110.2.3 as applicable.

1110.2.1 Facilities serving Accessible units. In Group R-2 and R-4 occupancies where recreational facilities serve Accessible units, every recreational facility of each type serving Accessible units shall be accessible.

1110.2.2 ~~1109.15.1~~ Facilities serving Type A and Type B units in a single building. In Group R-2, ~~and~~ R-3 and R-4 occupancies where recreational facilities ~~are provided serving~~ serve a single building containing Type A units or Type B units, 25 percent, but not less than one, of each type of recreational facility shall be accessible. Every recreational facility of each type on a site shall be considered to determine the total number of each type that is required to be accessible.

1110.2.3 ~~1109.15.2~~ Facilities serving Type A and Type B units in multiple buildings. In Group R-2, ~~and~~ R-3 and R-4 occupancies on a single site where multiple buildings containing Type A units or Type B units are served by recreational facilities, 25 percent, but not less than one, of each type of recreational facility serving each building shall be accessible. The total number of each type of recreational facility that is required to be accessible shall be determined by considering every recreational facility of each type serving each building on the site.

1110.3 ~~1109.15.3~~ Other occupancies. All recreational facilities not falling within the purview of Section 1110.2 ~~1109.15.1 or 1109.15.2~~ shall be accessible ~~be accessible~~.

1110.4 ~~1109.15.4~~ Recreational ~~and sports~~ facilities ~~exceptions~~. Recreational ~~and sports~~ facilities shall be ~~required to be~~ accessible ~~shall be exempt from this chapter to~~ and shall be on an accessible route to the extent specified in this section.

1110.4.1 Areas of sports activity. Each area of sport activity shall be on an accessible route and shall not be required to be accessible except as provided for in Section 1110.4.2 through 1110.4.15.

1110.4.2 ~~1108.2.2.4~~ Team or player seating. At least one wheelchair space shall be provided in team or player seating areas serving areas of sport activity.

> **Exception:** Wheelchair spaces shall not be required in team or player seating areas serving bowling lanes that are not required to be ~~located on an~~ accessible ~~route~~ in accordance with Section ~~1109.15.4.1~~ 1110.4.3.

1110.4.3 ~~1109.15.4.1~~ Bowling lanes. An accessible route shall be provided to at least 5 percent, but no less than one, of each type of bowling lane.

1110.4.4 ~~1109.15.4.2~~ Court sports. In court sports, at least one accessible route shall directly connect both sides of the court.

1110.4.5 ~~1109.15.4.3~~ Raised boxing or wrestling rings. Raised boxing or wrestling rings are not required to be accessible or to be on an accessible route.

1110.4.6 ~~1109.15.4.4~~ Raised refereeing, judging and scoring areas. Raised structures used solely for refereeing, judging or scoring a sport are not required to be accessible or to be on an accessible route.

1110.4.7 Animal Containment Areas. Animal containment areas that are not within public use areas are not required to be accessible or to be on an accessible route.

1110.4.8 Amusement rides. Amusement rides that moves persons through a fixed course within a defined area shall comply with Section 1110.4.8.1 through 1110.4.8.3.

> **Exception:** Mobile or portable amusement rides shall not be required to be accessible.

1110.4.8.1 Load and unload areas. Load and unload areas serving amusement rides shall be accessible and be on an accessible route. Where load and unload areas have more than one loading or unloading position, at least one loading and unloading position shall be on an accessible route.

1110.4.8.1.1 Wheelchair spaces, ride seats designed for transfer, and transfer devices. Where amusement rides are in the load and unload position, the position serving a wheelchair spaces, amusement ride seats designed for transfer and transfer devices shall be on an accessible route.

1110.4.8.2 Minimum number. Amusement rides shall provide at least one wheelchair space, amusement ride seat designed for transfer, or transfer device.

> **Exceptions:**
>
> 1. Amusement rides that are controlled or operated by the rider are not required to comply with this section.
> 2. Amusement rides designed primarily for children, where children are assisted on and off the ride by an adult, are not required to comply with this section.
> 3. Amusement rides that do not provide seats that are built-in or mechanically fastened shall not be required to comply with this section.

1110.4.9 Recreational Boating Facilities. Boat slips required to be accessible by Section 1110.4.9.1 and 1110.4.9.2 and boarding piers at boat launch ramps required to be accessible by Section 1110.4.9.3 shall be on an accessible route.

1110.4.9.1 Boat Slips. Accessible boat slips shall be provided in accordance with Table 1110.4.9.1. All units on the site shall be combined to determine the number of accessible boat slips required. Where the number of boat slips is not identified, each 40 feet (12 m) of boat slip edge provided along the perimeter of the pier shall be counted as one boat slip for the purpose of this section.

> **Exception:** Boat slips not designed for embarking or disembarking are not required to be accessible or be on an accessible route.

TABLE 1110.4.9.1
BOAT SLIPS

Total Number of Boating Slips Provided	Minimum Number of Required Accessible Boating Slips
1 to 25	1
26 to 50	2
51 to 100	3
101 to 150	4
151 to 300	5
301 to 400	6
401 to 500	7
501 to 600	8
601 to 700	9
701 to 800	10
801 to 900	11
901 to 1000	12
1001 and over	12, plus 1 for every 100, or fraction thereof, over 1000

1110.4.9.2 Dispersion. Accessible boat slips shall be dispersed throughout the various types of boat slips provided. Where the minimum number of accessible boat slips has been met, no further dispersion shall be required.

1110.4.9.3 Boarding Piers at Boat Launch Ramps. Where boarding piers are provided at boat launch ramps, at least 5 percent, but no fewer than one, of the boarding piers shall be accessible.

1110.4.10 Exercise Machines and Equipment. At least one of each type of exercise machine and equipment shall be on an accessible route.

1110.4.11 Fishing Piers and Platforms. Fishing piers and platforms shall be accessible and be on an accessible route.

1110.4.12 Miniature golf facilities. Miniature golf facilities shall comply with 1110.4.12.1 through 1110.4.12.3.

1110.4.12.1 Minimum Number. At least 50 percent of holes on miniature golf courses shall be accessible.

1110.4.12.2 Miniature Golf Course Configuration. Miniature golf courses shall be configured so that the accessible holes are consecutive. Miniature golf courses shall provide an accessible route from the last accessible hole to the course entrance or exit without requiring travel through any other holes on the course.
Exception: One break in the sequence of consecutive holes shall be permitted provided that the last hole on the miniature golf course is the last hole in the sequence.

1110.4.12.3 Accessible route. Holes required to comply with 1110.4.11.1, including the start of play, shall be on an accessible route.

1110.4.13 Play Areas. Play areas containing play components designed and constructed for children shall be accessible and be located on an accessible route.

1110.4.14 Swimming pools, wading pools, hot tubs and spas. Swimming pools, wading pools, hot tubs and spas shall be accessible and be on an accessible route.

Exceptions:

1. Pools or a designated section of a pool used as a terminus for a water slide flume shall not be required to provide an accessible means of entry, provided that a portion of the catch pool edge is on an accessible route.
2. Where spas or hot tubs are provided in a cluster, at least 5 percent, but no less than one spa or hot tub in each cluster, shall be accessible and be on an accessible route.

1110.4.14.1 ~~1109.15.4.5~~ Raised diving boards and diving platforms. Raised diving boards and diving platforms are not required to be accessible or to be on an accessible route.

1110.4.14.2 Water Slides. Water slides are not be required to be accessible or to be on an accessible route.

1110.4.15 Shooting Facilities with Firing Positions. Where shooting facilities with firing positions are designed and constructed at a site, at least 5 percent, but no less than one, of each type of firing position shall be accessible and be on an accessible route.

~~1110.3~~ 1111.3 Other signs. Signage indicating special accessibility provisions shall be provided as shown.

1. Each assembly area required to comply with Section 1108.2.7 shall provide a sign notifying patrons of the availability of assistive listening systems.

Exception: Where ticket offices or windows are provided, signs are not required at each assembly area provided that signs are displayed at each ticket office or window informing patrons of the availability of assistive listening systems .

2. At each door to an area of refuge, an exterior area for assisted rescue, an egress stairway, exit passageway and exit discharge, signage shall be provided in accordance with Section 1011.4.
3. At areas of refuge, signage shall be provided in accordance with Section 1007.11.
4. At exterior areas for assisted rescue, signage shall be provided in accordance with Section 1007.11.
5. At two-way communication systems, signage shall be provided in accordance with Section 1007.8.2.
6. Within interior exit stairways and ramps, signage shall be provided in accordance with Section 1022.9.
7. Signs identifying the type of access provided on amusement rides required to be accessible by Section 1110 shall be provided at entries to queues and waiting lines. In addition, where accessible unload areas also serve as accessible load areas, signs indicating the location of the accessible load and unload areas shall be provided at entries to queues and waiting lines. These directional sign characters shall meet the visual character requirements in accordance with ICC A117.1

3411.8 (IEBC [B] 410.8) Scoping for alterations. The provisions of Sections 3411.8.1 through ~~3411.8.14~~ 3411.8.15 shall apply to alterations to existing buildings and facilities.

3411.8.15 (IEBC [B] 410.8.15) Amusement rides. Where the structural or operational characteristics of an amusement ride are altered to the extent that the amusement ride's performance differs from that specified by the manufacturer or the original design, the amusement ride shall comply with requirements for new construction in Section 1110.4.8.

APPENDIX E
SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS

SECTION E106
RECREATIONAL FACILITIES

E106.1 Golf Facilities. Golf facilities shall comply with E106.1.1 through E106.1.4.

E106.1.1 Golf Courses. Golf courses shall comply with E106.1.1.1 through E106.1.1.3.

E106.1.1.1 Teeing Grounds. Where one teeing ground is provided for a hole, the teeing ground shall be designed and constructed so that a golf car can enter and exit the teeing ground. Where two teeing grounds are provided for a hole, the forward teeing ground shall be designed and constructed so that a golf car can enter and exit the teeing ground. Where three or more teeing grounds are provided for a hole, at least two teeing grounds, including the forward teeing ground, shall be designed and constructed so that a golf car can enter and exit each teeing ground.

E106.1.1.2 Putting Greens. Putting greens shall be designed and constructed so that a golf car can enter and exit the putting green.

E106.1.1.3 Weather Shelters. Where provided, weather shelters shall be designed and constructed so that a golf car can enter and exit the weather shelter and shall be accessible.

E106.1.2 Practice Putting Greens, Practice Teeing Grounds, and Teeing Stations at Driving Ranges. At least 5 percent, but no fewer than one, of practice putting greens, practice teeing grounds, and teeing stations at driving ranges shall be designed and constructed so that a golf car can enter and exit.

E106.1.3 Accessible route. At least one accessible route shall connect accessible elements and spaces within the boundary of the golf course. In addition, accessible routes serving golf car rental areas; bag drop areas; course weather shelters complying with Section E106.1.1.3; course toilet rooms; practice putting greens; practice teeing grounds; and teeing stations at driving ranges complying with Section E106.1.2 shall comply with the accessible route requirements for golf courses in ICC A117.1.
Exception: Accessible golf car passages shall be permitted to be used for all or part of accessible routes required by this section.

E106.1.4 Teeing Grounds. When teeing grounds are being altered, teeing grounds shall comply with, Section E106.1.1.1.
Exception: In existing golf courses, the forward teeing ground shall not be required to be one of the teeing grounds on a hole designed and constructed so that a golf car can enter and exit the teeing ground where compliance is not feasible due to terrain.

Part II

Revise as follows:

IEBC 705.1 General. A *facility* that is altered shall comply with the applicable provisions in Sections 705.1.1 through ~~705.1.14~~ 705.1.15, and Chapter 11 of the *International Building Code* unless it is *technically infeasibl*e. Where compliance with this section is *technically infeasible*, the alteration shall provide access to the maximum extent that is technically feasible. A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy.

Exceptions:

1. The altered element or space is not required to be on an accessible route unless required by Section 705.2.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities*.
3. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing *facilities* undergoing less than a Level 3 *alteration*.
4. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.

IEBC 705.1.15 Amusement rides. Where the structural or operational characteristics of an amusement ride are altered to the extent that the amusement ride's performance differs from that specified by the manufacturer or the original design, the amusement ride shall comply with requirements for new construction in the International Building Code, Section 1110.4.8.

Cost Impact: None – This will be required by the 2010 ADA Standard for Accessible Design.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal for recreational facilities sets up a bas ic framework for accessibility to recreational facilities. This will work with subsequent proposals dealing with specifics for each type of recreational facilities. The changes to the accessible route sections in Section 1104.4 is correlative. Residential occupancies with shared recreational facilities should also be accessible.

Assembly Action: **None**

Final Hearing Results

E208-12 **AS**

Code Change No: E209-12

Original Proposal

Section(s): 202, 1109.15.4, 1110(New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

SECTION 1110
RECREATIONAL FACILITIES

1110.4 ~~1109.15.4~~ Recreational ~~and sports~~ facilities ~~exceptions~~. Recreational ~~and sports~~ facilities shall be ~~required to be~~ accessible ~~shall be exempt from this chapter to~~ and shall be on an accessible route to the extent specified in this section.

1110.4.1 Areas of sports activity. Each area of sport activity shall be on an accessible route and shall not be required to be accessible except as provided for in Sections 1110.4.2 through 1110.4.15.

Add new definition as follows:

SECTION 202
DEFINITIONS

AREA OF SPORT ACTIVITY. That portion of an indoor or outdoor space, where the play or practice of a sport occurs.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

This proposal is part of a coordination effort with the 2010 ADA Standard for Accessible Design and the new technical provisions for recreational facilities found in 2009 ICC A117.1 Chapter 11. This overall proposal for recreational facilities has been divided into parts so that the membership can look at each type of recreational facilities on its own merit. The overall intent is to provide access to recreational facilities so that persons with mobility impairments can participate to the best of their ability. The requirements are not intended to change any essential aspects of that recreational activity.

The definition for 'area of sport activity' is correlated with 2010 ADA. Technical guidance provided by the Access Board indicates that "area of sports activity" is a broad term intended to cover a diverse number of indoor and outdoor sports fields and areas. The "area of sports activity" is "that portion of a room or space where the play or practice of a sport occurs." In addition, a safety border is provided around the field. Players may temporarily be in the space between the boundary lines and the safety border when they are pushed out of bounds or momentum carries them forward when receiving a pass. As in football, that space is used as part of the game and is included in the area of sports activity.

The intent is that an accessible route is required to each location where a sports activity takes place, such as to the baseball field, ice rink, tennis court or swimming pool. It is not intended for there to be accessibility requirements into or onto the playing surface unless specifically addressed. For example, an accessible route is required to the baseball field or ice rink, but participation on the field is based on the individual's ability. The baseball field or ice rink itself is not required to be modified. Areas such as tennis courts have to have a route to each side of the court, because playing tennis includes changing sides between sets (this requirement is in current language). Swimming pools are also areas of sports activities. The new provisions in ICC A117.1 will address how to provide access into the water based on the type of pool and options for entry. (There is a companion proposal to provide additional guidance for pools.)

Cost Impact: None – This will be required by the 2010 ADA Standard for Accessible Design.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The exception for area of sports activity is appropriate. This also coordinates with 2010 ADA Standard for Accessible Design and ICC A117.1.

Assembly Action: **None**

Final Hearing Results

E209-12 **AS**

Code Change No: E210-12

Original Proposal

Section(s): 1109.15.4, 1110 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

SECTION 1110
RECREATIONAL FACILITIES

1110.4 ~~1109.15.4~~ Recreational ~~and sports~~ facilities ~~exceptions~~. Recreational ~~and sports~~ facilities shall be ~~required to be~~ accessible ~~shall be exempt from this chapter to~~ and shall be on an accessible route to the extent specified in this section.

1110.4.7 Animal Containment Areas. Animal containment areas that are not within public use areas are not required to be accessible or to be on an accessible route.

Reason: This proposal is part of a coordination effort with the 2010 ADA Standard for Accessible Design and the new technical provisions for recreational facilities found in 2009 ICC A117.1 Chapter 11. This overall proposal for recreational facilities has been divided into parts so that the membership can look at each type of recreational facilities on its own merit. The overall intent is to provide access to recreational facilities so that persons with mobility impairments can participate to the best of their ability. The requirements are not intended to change any essential aspects of that recreational activity.

Technical guidance provided by the Access Board indicates that "If the public has access to animal containment areas, accessible routes must connect to each animal containment areas. Examples may include petting zoos, petting farms, public pathways for viewing livestock display tents, or other area where public has access to animals. Horse riding arenas would be considered 'areas of sports activity'. Animal containment areas not open to the public are exempt.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None – This will be required by the 2010 ADA Standard for Accessible Design.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The exception for animal containment areas is appropriate. This also coordinates with 2010 ADA Standard for Accessible Design and ICC A117.1.

Assembly Action: **None**

Final Hearing Results

E210-12 **AS**

Code Change No: E211-12

Original Proposal

Section(s): 1109.15.4, 1110 (New), 1110.3, 3411.8.15 (New) [IEBC [B] 410.8.15 (New)]

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

SECTION 1110
RECREATIONAL FACILITIES

1110.4 ~~1109.15.4~~ Recreational ~~and sports~~ facilities ~~exceptions~~. Recreational ~~and sports~~ facilities shall be ~~required to be~~ accessible ~~shall be exempt from this chapter to~~ and shall be on an accessible route to the extent specified in this section.

1110.4.8 Amusement rides. Amusement rides that moves persons through a fixed course within a defined area shall comply with Section 1110.4.8.1 through 1110.4.8.3.

Exception: Mobile or portable amusement rides shall not be required to be accessible.

1110.4.8.1 Load and unload areas. Load and unload areas serving amusement rides shall be accessible and be on an accessible route. Where load and unload areas have more than one loading or unloading position, at least one loading and unloading position shall be on an accessible route.

1110.4.8.1.1 Wheelchair spaces, ride seats designed for transfer, and transfer devices. Where amusement rides are in the load and unload position, the position serving a wheelchair spaces, amusement ride seats designed for transfer and transfer devices shall be on an accessible route.

1110.4.8.2 Minimum number. Amusement rides shall provide at least one wheelchair space, amusement ride seat designed for transfer, or transfer device.

Exceptions:

1. Amusement rides that are controlled or operated by the rider are not required to comply with this section.
2. Amusement rides designed primarily for children, where children are assisted on and off the ride by an adult, are not required to comply with this section.
3. Amusement rides that do not provide seats that are built-in or mechanically fastened shall not be required to comply with this section.

1111.3 ~~1110.3~~ Other signs. Signage indicating special accessibility provisions shall be provided as shown.

1. Each assembly area required to comply with Section 1108.2.7 shall provide a sign notifying patrons of the availability of assistive listening systems.

   Exception: Where ticket offices or windows are provided, signs are not required at each assembly area provided that signs are displayed at each ticket office or window informing patrons of the availability of assistive listening systems .

2. At each door to an *area of refuge*, an exterior area for assisted rescue, an egress *stairway*, *exit passageway* and *exit discharge*, signage shall be provided in accordance with Section 1011.4.
3. At *areas of refuge*, signage shall be provided in accordance with Section 1007.11.
4. At exterior areas for assisted rescue, signage shall be provided in accordance with Section 1007.11.
5. At two-way communication systems, signage shall be provided in accordance with Section 1007.8.2.
6. Within interior exit stairways and ramps, signage shall be provided in accordance with Section 1022.9.
7. Signs identifying the type of access provided on *amusement rides* required to be accessible by Section 1110 shall be provided at entries to queues and waiting lines. In addition, where *accessible* unload areas also serve as *accessible* load areas, signs indicating the location of the *accessible* load and unload areas shall be provided at entries to queues and waiting lines. These directional sign characters shall meet the visual character requirements in accordance with ICC A117.1

3411.8 (IEBC [B] 410.8) Scoping for alterations. The provisions of Sections 3411.8.1 through ~~3411.8.14~~ 3411.8.15 shall apply to *alterations* to existing buildings and facilities.

3411.8.15 (IEBC [B] 410.8.15) Amusement rides. Where the structural or operational characteristics of an amusement ride are altered to the extent that the amusement ride's performance differs from that specified by the manufacturer or the original design, the amusement ride shall comply with requirements for new construction in Section 1110.4.8.

Reason: This proposal is part of a coordination effort with the 2010 ADA Standard for Accessible Design and the new technical provisions for recreational facilities found in 2009 ICC A117.1 Chapter 11. This overall proposal for recreational facilities has been divided into parts so that the membership can look at each type of recreational facilities on its own merit. The overall intent is to provide access to recreational facilities so that persons with mobility impairments can participate to the best of their ability. The requirements are not intended to change any essential aspects of that recreational activity.

This proposal contains scoping provisions for amusement rides. To the extent that amusement rides are subject to the code, they should be accessible and usable by individuals with disabilities. These scoping provisions are flexible permitting latitude in terms of the method of access e.g. transfer seat, roll-on seat or transfer device to lift the rider. Mobile and portable rides are exempted in Section 1110.4.8. Rides without seats, those designed for children who are assisted onto the ride and those rides controlled by the user are also exempted under 1110.4.8.2 from providing wheelchair transfer spaces. Technical criteria can be found in the 2009 edition of the ICC A117.1, Section 1102 and includes accessible routes, load and unload areas, wheelchair spaces on rides, seats for transfer, and transfer devices.

There is a correlative change to IEBC for existing amusement rides.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None – This will be required by the 2010 ADA Standard for Accessible Design.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: To the extent that amusement rides are addressed by the codes they should be accessible. Since mobile and portable amusement rides are not typically covered by the codes, the exception to Section 1110.4.8 is appropriate. This also coordinates with 2010 ADA Standard for Accessible Design and ICC A117.1.

Assembly Action: **None**

Final Hearing Results

E211-12 **AS**

Code Change No: E212-12

Original Proposal

Section(s): 1109.7, 1109.15.4, 1110 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

SECTION 1110
RECREATIONAL FACILITIES

1110.4 ~~1109.15.4~~ Recreational ~~and sports~~ facilities ~~exceptions~~. Recreational ~~and sports~~ facilities shall be ~~required to be~~ accessible ~~shall be exempt from this chapter to~~ and shall be on an accessible route to the extent specified in this section.

1110.4.9 Recreational Boating Facilities. Boat slips required to be accessible by Section 1110.4.9.1 and 1110.4.9.2 and boarding piers at boat launch ramps required to be accessible by Section 1110.4.9.3 shall be on an accessible route.

1110.4.9.1 Boat Slips. Accessible boat slips shall be provided in accordance with Table 1110.4.9.1. All units on the site shall be combined to determine the number of accessible boat slips required. Where the number of boat slips is not identified, each 40 feet (12 m) of boat slip edge provided along the perimeter of the pier shall be counted as one boat slip for the purpose of this section.

Exception: Boat slips not designed for embarking or disembarking are not required to be accessible or be on an accessible route.

TABLE 1110.4.9.1
BOAT SLIPS

Total Number of Boating Slips Provided	Minimum Number of Required Accessible Boating Slips
1 to 25	1
26 to 50	2
51 to 100	3
101 to 150	4
151 to 300	5
301 to 400	6
401 to 500	7
501 to 600	8
601 to 700	9
701 to 800	10
801 to 900	11
901 to 1000	12
1001 and over	12, plus 1 for every 100, or fraction thereof, over 1000

1110.4.9.2 Dispersion. Accessible boat slips shall be dispersed throughout the various types of boat slips provided. Where the minimum number of accessible boat slips has been met, no further dispersion shall be required.

1110.4.9.3 Boarding Piers at Boat Launch Ramps. Where boarding piers are provided at boat launch ramps, at least 5 percent, but no fewer than one, of the boarding piers shall be accessible.

1110.4.11 Fishing Piers and Platforms. Fishing piers and platforms shall be accessible and be on an accessible route.

1109.7 Lifts. Platform (wheelchair) lifts are permitted to be a part of a required accessible route in new construction where indicated in Items 1 through ~~10~~ 11. Platform (wheelchair) lifts shall be installed in accordance with ASME A18.1.

1. An accessible route to a performing area and speaker platforms in Group A occupancies.
2. An accessible route to wheelchair spaces required to comply with the wheelchair space dispersion requirements of Sections 1108.2.2 through 1108.2.6.
3. An accessible route to spaces that are not open to the general public with an occupant load of not more than five.
4. An accessible route within a dwelling or sleeping unit.
5. An accessible route to wheelchair seating spaces located in outdoor dining terraces in Group A-5 occupancies where the means of egress from the dining terraces to a public way are open to the outdoors.
6. An accessible route to jury boxes and witness stands; raised courtroom stations including judges' benches, clerks' stations, bailiffs' stations, deputy clerks' stations and court reporters' stations; and to depressed areas such as the well of the court.
7. An accessible route to load and unload areas serving amusement rides.
8. An accessible route to play components or soft contained play structures.
9. An accessible route to team or player seating areas serving areas of sport activity.
10. An accessible route instead of gangways serving recreational boating facilities and fishing piers and platforms.
11. An accessible route where existing exterior site constraints make use of a ramp or elevator infeasible.

Reason: This proposal is part of a coordination effort with the 2010 ADA Standard for Accessible Design and the new technical provisions for recreational facilities found in 2009 ICC A117.1 Chapter 11. This overall proposal for recreational facilities has been divided into parts so that the membership can look at each type of recreational facilities on its own merit. The overall intent is to provide access to recreational facilities so that persons with mobility impairments can participate to the best of their ability. The requirements are not intended to change any essential aspects of that recreational activity.

This proposal contains scoping provisions for boating and fishing piers. It is common for boating and fishing piers to be constructed as part of waterfront development that is subject to the building code. Technical criteria can be found in the 2009 edition of the ICC A117.1, Sections 1103 and 1105 and includes accessible routes and clearances for boat docks and accessible routes, railings, edge protection, clear floor space and turning space for fishing piers. If a guard is provided or required, it is not required to be lowered for fishermen with disabilities.

Section 1110.4.9.3 does not require accessibility to the boat launch ramp, but only where a boarding pier is provided adjacent to the boat launch ramp.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None – This will be required by the 2010 ADA Standard for Accessible Design.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: To the extent that boating and fishing facilities are addressed by the code, they should be accessible. This also coordinates with 2010 ADA Standard for Accessible Design and ICC A117.1.

Assembly Action: **None**

Final Hearing Results

E212-12 **AS**

Code Change No: E213-12

Original Proposal

Section(s): 1109.15.4, 1110 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

SECTION 1110
RECREATIONAL FACILITIES

1110.4 ~~1109.15.4~~ Recreational ~~and sports~~ facilities ~~exceptions~~. Recreational ~~and sports~~ facilities shall be ~~required to be~~ accessible ~~shall be exempt from this chapter to~~ and shall be on an accessible route to the extent specified in this section.

1110.4.10 Exercise Machines and Equipment. At least one of each type of exercise machine and equipment shall be on an accessible route.

Reason: This proposal is part of a coordination effort with the 2010 ADA Standard for Accessible Design and the new technical provisions for recreational facilities found in 2009 ICC A117.1 Chapter 11. This overall proposal for recreational facilities has been divided into parts so that the membership can look at each type of recreational facilities on its own merit. The overall intent is to provide access to recreational facilities so that persons with mobility impairments can participate to the best of their ability. The requirements are not intended to change any essential aspects of that recreational activity.

This proposal contains scoping provisions for areas that contain exercise machines and equipment. A preliminary layout is typically supplied as part of the construction drawings, similar to table layouts for restaurants. The technical criteria do not require the equipment and machines to be accessible; they merely require clearances adjacent to the machines so that individuals with a mobility impairment can get to them. Technical criteria for the clear floor space can be found in the 2009 edition of the ICC A117.1, Section 1104.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None – This will be required by the 2010 ADA Standard for Accessible Design.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The requirement to provide an accessible route to exercise machines is similar to current requirements for providing an accessible route throughout dining areas. Examination of the proposed layout for routes is within the scope of the building official's duties. This proposal does not require any changes or accessibility to the actual machines. This also coordinates with 2010 ADA Standard for Accessible Design and ICC A117.1.

Assembly Action: **None**

Final Hearing Results

E213-12 **AS**

Code Change No: E214-12

Original Proposal

Section(s): 1109.15.4, 1110 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

SECTION 1110
RECREATIONAL FACILITIES

1110.4 ~~1109.15.4~~ Recreational ~~and sports~~ facilities ~~exceptions~~. Recreational ~~and sports~~ facilities shall be ~~required to be~~ accessible ~~shall be exempt from this chapter to~~ and shall be on an accessible route to the extent specified in this section.

1110.4.12 Miniature golf facilities. Miniature golf facilities shall comply with Section 1110.4.12.1 through 1110.4.12.3.

1110.4.12.1 Minimum Number. At least 50 percent of holes on miniature golf courses shall be accessible.

1110.4.12.2 Miniature Golf Course Configuration. Miniature golf courses shall be configured so that the accessible holes are consecutive. Miniature golf courses shall provide an accessible route from the last accessible hole to the course entrance or exit without requiring travel through any other holes on the course.

> **Exception:** One break in the sequence of consecutive holes shall be permitted provided that the last hole on the miniature golf course is the last hole in the sequence.

1110.4.12.3 Accessible route. Holes required to comply with Section 1110.4.12.1, including the start of play, shall be on an accessible route.

Reason: This proposal is part of a coordination effort with the 2010 ADA Standard for Accessible Design and the new technical provisions for recreational facilities found in 2009 ICC A117.1 Chapter 11. This overall proposal for recreational facilities has been divided into parts so that the membership can look at each type of recreational facilities on its own merit. The overall intent is to provide access to recreational facilities so that persons with mobility impairments can participate to the best of their ability. The requirements are not intended to change any essential aspects of that recreational activity.

This proposal contains scoping provisions for miniature golf facilities. Today, miniature golf facilities are likely to be structures comprised of components and materials that are subject to the IBC. To the extent that such facilities are subject to the IBC, they should be accessible to individuals with mobility impairments. Technical criteria can be found in the 2009 edition of the ICC A117.1, Section 1107 and includes accessible routes and criteria for each hole.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None – This will be required by the 2010 ADA Standard for Accessible Design.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The requirement provides appropriate exceptions for areas of miniature golf facilities while encouraging access. This also coordinates with 2010 ADA Standard for Accessible Design and ICC A117.1.

Assembly Action: **None**

Final Hearing Results

E214-12 **AS**

Code Change No: E216-12

Original Proposal

Section(s): 1109.15.4, 1109.15.4.5, 1110 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

SECTION 1110
RECREATIONAL FACILITIES

1110.4 ~~1109.15.4~~ Recreational ~~and sports~~ facilities ~~exceptions~~. Recreational ~~and sports~~ facilities shall be ~~required to be~~ accessible ~~shall be exempt from this chapter to~~ and shall be on an accessible route to the extent specified in this section.

1110.4.14 Swimming pools, wading pools, hot tubs and spas. Swimming pools, wading pools, hot tubs and spas shall be accessible and be on an accessible route.

Exceptions:

1. *Catch Pools or a designated section of a pool used as a terminus for a water slide flume* shall not be required to provide an *accessible* means of entry, provided that a portion of the *catch pool* edge is on an *accessible* route.
2. Where spas or hot tubs are provided in a cluster, at least 5 percent, but no less than one spa or hot tub in each cluster, shall be accessible and be on an accessible route.

1110.4.14.1 ~~1109.15.4.5~~ Raised diving boards and diving platforms. Raised diving boards and diving platforms are not required to be accessible or to be on an accessible route.

1110.4.14.2 Water Slides. Water slides are not be required to be accessible or to be on an accessible route.

Reason: This proposal is part of a coordination effort with the 2010 ADA Standard for Accessible Design and the new technical provisions for recreational facilities found in 2009 ICC A117.1 Chapter 11. This overall proposal for recreational facilities has been divided into parts so that the membership can look at each type of recreational facilities on its own merit. The overall intent is to provide access to recreational facilities so that persons with mobility impairments can participate to the best of their ability. The requirements are not intended to change any essential aspects of that recreational activity.

This proposal contains scoping provisions for swimming pools, wading pools, hot tubs and spas. This is especially important that use swimming pools for exercise or rehabilitation. The exceptions for Section 1110.4.14 are exceptions for pools used only be water slides, and a per centage of hot tubs. These exceptions, along with the exceptions for diving boards and water slides are logical, and consistent with ADA. The 2009 edition of the ICC A117.1, Section 1109, contains technical criteria for play areas consistent with the 2010 ADA Standard. Criteria for entry points include options for pool lifts, sloped entries, transfer walls, transfer systems and pool stairs.

The *International Swimming Pool and Spa Code*, Section 307.9, references the IBC for accessibility requirements for pools.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None – This will be required by the 2010 ADA Standard for Accessible Design.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The current text requires pools to be accessible. This proposal basically adds exceptions for water slides and catchment pools. This also coordinates with 2010 ADA Standard for Accessible Design and ICC A117.1.

Assembly Action: **None**

Public Comments

Public Comment 1:

Carl Baldassarra, Code Technologies Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1110.4.14 Swimming pools, wading pools, hot tubs and spas. Swimming pools, wading pools, hot tubs and spas shall be accessible and be on an accessible route.

Exceptions:

1. *Catch Pools or a designated section of a pool used as a terminus for a water slide flume* shall not be required to provide an *accessible* means of entry, provided that a portion of the *catch pool* edge is on an *accessible* route.
2. Where spas or hot tubs are provided in a cluster, at least 5 percent, but no less than one spa or hot tub in each cluster, shall be accessible and be on an accessible route.
3. Swimming pools, wading pools, spas and hot tubs that are required to be accessible by Section 1110.2.2 and 1110.2.3 are not required to provide accessible means of entry into the water.

(Portions of proposal not shown remain unchanged.)

Commenter's Reason: Code change E208 initiates the new recreation scoping section in Chapter 11. Section 1110.2 clarifies what recreational facilities associated with residential units are required to be fully accessible. Where units do not contain Accessible units, but do contain type B units, the Fair Housing Act only requires an accessible route to the pool, not access into the water. Lifts are very expensive to install and maintain. This proposal is asking for a step back for these limited residential facilities. Note that in both current and proposed language (E208) residential complexes that do not have Type B units (i.e., townhouse complex or group of single family homes) would not be required to provide even an accessible route to the pool.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "Areas of Study". The Area of Study for this code change and public comment is called "IBC Coordination with the new ADAAG". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website http://www.iccsafe.org/cs/CTC/Pages/IBCCoordination-ADAAG.aspx. Since its inception in April, 2005, the CTC has held twenty-four meetings – all open to the public. In addition to holding face-to-face meetings, the CTC established Study Groups where any interested party can participate in conference calls on specific subjects such as this area of study without having to attend the face-to-face meetings.

Final Hearing Results

E216-12 **AMPC1**

Code Change No: E217-12

Original Proposal

Section(s): 1109.15.4, 1110 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

SECTION 1110
RECREATIONAL FACILITIES

1110.4 ~~1109.15.4~~ Recreational ~~and sports~~ facilities ~~exceptions~~. Recreational ~~and sports~~ facilities ~~required to be~~ shall be accessible ~~shall be exempt from this chapter to~~ and shall be on an accessible route to the extent specified in this section.

1110.4.15 Shooting Facilities with Firing Positions. Where shooting facilities with firing positions are designed and constructed at a site, at least 5 percent, but no fewer than one, of each type of firing position shall be accessible and be on an accessible route.

Reason: This proposal is part of a coordination effort with the 2010 ADA Standard for Accessible Design and the new technical provisions for recreational facilities found in 2009 ICC A117.1 Chapter 11. This overall proposal for recreational facilities has been divided into parts so that the membership can look at each type of recreational facilities on its own merit. The overall intent is to provide access to recreational facilities so that persons with mobility impairments can participate to the best of their ability. The requirements are not intended to change any essential aspects of that recreational activity.

This proposal contains scoping provisions for shooting facilities where fixed firing positions are provided. Technical criteria can be found in the 2009 edition of the ICC A117.1, Section 1110. Technical criteria for a turning space at the firing position can be found in the 2009 edition of the ICC A117.1, Section 1106.

By types of firing positions, the intent is to address types of weapons, rifle, handgun, bow and arrow; lighted; and covered or not covered.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None – This will be required by the 2010 ADA Standard for Accessible Design.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Where fixed firing positions are provided, the ICC A117.1 provides technical criteria for how to make them accessible. This also coordinates with 2010 ADA Standard for Accessible Design and ICC A117.1.

Assembly Action: **None**

Final Hearing Results

E217-12 **AS**

Code Change No: E218-12

Original Proposal

Section(s): 1110.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1110.1 Signs. Required accessible elements shall be identified by the International Symbol of Accessibility at the following locations:

1. Accessible parking spaces required by Section 1106.1 except where the total number of parking spaces provided is four or less.
2. In Group I-1, R-2 and R-3 facilities, where parking *spaces* are assigned to specific *dwelling units* or *sleeping units*, identification of *accessible* parking *spaces* shall not be required.
3. Accessible passenger loading zones.
4. Accessible rooms where multiple single-user toilet or bathing rooms are clustered at a single location.
5. Accessible entrances where not all entrances are accessible.
6. Accessible check-out aisles where not all aisles are accessible. The sign, where provided, shall be above the check-out aisle in the same location as the checkout aisle number or type of check-out identification.
7. Family or assisted-use toilet and bathing rooms.
8. Accessible dressing, fitting and locker rooms where not all such rooms are accessible.
9. Accessible areas of refuge in accordance with Section 1007.9.
10. Exterior areas for assisted rescue in accordance with Section 1007.9.

Reason: This proposal will coordinate with ADA 216.5 Exception 2. While accessible parking spaces would still be required to be provided within the lot, those spaces would not have to be signed when parking was assigned to specific dwelling units or sleeping units.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This exception for parking signage is appropriate for assigned spaces. This also coordinates with the 2010 ADA Standard for Accessible Design.

Assembly Action: **None**

Final Hearing Results

E218-12 **AS**

Code Change No: E219-12

Original Proposal

Section(s): 1110.1

Proponent: Jerome Seville, Commonwealth of Pennsylvania representing self

Revise as follows:

1110.1 Signs. Required *accessible* elements shall be identified by the International Symbol of Accessibility at the following locations:

1. *Accessible* parking spaces required by Section 1106.1 except where the total number of parking spaces provided is four or less.
2. *Accessible* passenger loading zones.
3. *Accessible* rooms where multiple single-user toilet or bathing rooms are clustered at a single location.
4. *Accessible* entrances where not all entrances are accessible.
5. *Accessible* check-out aisles where not all aisles are accessible. The sign, where provided, shall be above the check-out aisle in the same location as the checkout aisle number or type of check-out identification.
6. Family or assisted-use toilet and bathing rooms.
7. *Accessible* dressing, fitting and locker rooms where not all such rooms are *accessible*.
8. *Accessible areas of refuge* in accordance with Section 1007.9.
9. Exterior areas for assisted rescue in accordance with Section 1007.9.
10. In recreational facilities, lockers that are required to be accessible in accordance with Section 1109.9.

Reason: To readily identify accessible lockers to those individuals who need them when the lockers occur in a public setting. e.g. Locker room of a public golf course or swimming pool.

Cost Impact: Minimal. Just the cost of signs.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Since this is typically a transient environment, adding signage for lockers within recreational facilities is information needed for person who may need the accessible lockers.

Assembly Action: **None**

Final Hearing Results

E219-12 **AS**

Code Change No: E221-12

Original Proposal

Section(s): 1110.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1110.2 Directional signage. Directional signage indicating the route to the nearest like accessible element shall be provided at the following locations. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1:

1. Inaccessible building entrances.
2. Inaccessible public toilets and bathing facilities.
3. Elevators not serving an *accessible route*.
4. At each separate-sex toilet and bathing room indicating the location of the nearest family or assisted-use toilet or bathing room where provided in accordance with Section 1109.2.1.
5. At exits and exit stairways serving a required accessible space, but not providing an approved accessible means of egress, signage shall be provided in accordance with Section 1007.10.

Reason: These revisions would be consistent with ADA 216.2, 216.4.1, and 216.10. The intent of this proposal is to add requirements for visual signage where appropriate. In addition, the pictogram for hearing impaired is added for where assistive listening systems are provided.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal provides guidance as to the types of signage required. This also coordinates with the 2010 ADA Standard for Accessible Design.

Assembly Action: **None**

Final Hearing Results

E221-12 **AS**

Code Change No: E222-12

Original Proposal

Section(s): 1110.2

Proponent: Jerome Seville, Commonwealth of Pennsylvania representing self (Jseville@pa.gov)

Revise as follows:

1110.2 Directional signage. Directional signage indicating the route to the nearest like *accessible* element shall be provided at the following locations. These directional signs shall include the International Symbol of Accessibility:

1. Inaccessible building entrances.
2. Inaccessible public toilets and bathing facilities.
3. Elevators not serving an *accessible route*.
4. At each separate-sex toilet and bathing room indicating the location of the nearest family or assisted-use toilet or bathing room where provided in accordance with Section 1109.2.1.
5. At *exits* and *exit stairways* serving a required *accessible* space, but not providing an *approved accessible means of egress*, signage shall be provided in accordance with Section 1007.10.
6. Where drinking fountains for persons using wheelchairs and drinking fountains for standing persons are not located adjacent to each other, directional signage shall be provided indicating the location of the other drinking fountains.

Reason: IBC 1109.5.1 and 1109.5.2 mandates that at a minimum two drinking fountains are required. One for wheelchair users, one for ambulatory individuals. Should it be determined to locate these fountains at two different locations, signage would assist those disabled individuals locate the accessible drinking fountain.

Cost Impact: None.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Directional signage at single drinking fountains is keeping with the spirit of the Americans with Disabilities Act. Since this would only be required where drinking fountains serving seated and standing persons were not provided together, the impact will be minimal.

Assembly Action: **None**

Final Hearing Results

E222-12 **AS**

Code Change No: E223-12

Original Proposal

Section(s): 1007.8.2, 1007.9, 1007.11, 1011.4, 1022.9, 1110.3 (IFC [B] 1007.8.2, 1007.9, 1007.11, 1011.4, 1022.9)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

1110.3 Other signs. Signage indicating special accessibility provisions shall be provided as shown.

1. Each assembly area required to comply with Section 1108.2.7 shall provide a sign notifying patrons of the availability of assistive listening systems complying with the ICC A117.1 requirements for visual characters and shall include the International Symbol of Access for Hearing Loss.

   Exception: Where ticket offices or windows are provided, signs are not required at each assembly area provided that signs are displayed at each ticket office or window informing patrons of the availability of assistive listening systems .

2. At each door to an *area of refuge*, an exterior area for assisted rescue, an egress *stairway*, *exit passageway* and *exit discharge*, signage shall be provided in accordance with Section 1011.4.
3. At *areas of refuge*, signage shall be provided in accordance with Section 1007.11.
4. At exterior areas for assisted rescue, signage shall be provided in accordance with Section 1007.11.
5. At two-way communication systems, signage shall be provided in accordance with Section 1007.8.2.
6. Within interior exit stairways and ramps, floor level signage shall be provided in accordance with Section 1022.9.

1007.8.2 (IFC [B] 1007.8.2) Directions. Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system and written identification of the location shall be posted adjacent to the two-way communication system. Signage shall comply with the ICC A117.1 requirements for visual characters.

1007.9 (IFC [B] 1007.9) Signage. Signage indicating special accessibility provisions shall be provided as shown:

1. Each door providing access to an area of refuge from an adjacent floor area shall be identified by a sign stating: AREA OF REFUGE.
2. Each door providing access to an exterior area for assisted rescue shall be identified by a sign stating: EXTERIOR AREA FOR ASSISTED RESCUE.

Signage shall comply with the ICC A117.1 requirements for visual characters and include the International Symbol of Accessibility. Where exit sign illumination is required by Section 1011.3, the signs shall be illuminated. Additionally, visual characters, raised character and braille signage complying with ICC A117.1 shall be located at each door to an *area of refuge* and exterior area for assisted rescue in accordance with Section 1011.4.

1007.11 (IFC [B] 1007.11) Instructions. In *areas of refuge* and exterior areas for assisted rescue, instructions on the use of the area under emergency conditions shall be posted. Signage shall comply with the ICC A117.1 requirements for visual characters. The instructions shall include all of the following:

1. Persons able to use the *exit stairway* do so as soon as possible, unless they are assisting others.
2. Information on planned availability of assistance in the use of *stairs* or supervised operation of elevators and how to summon such assistance.
3. Directions for use of the two-way communications system where provided.

1011.4 (IFC [B] 1011.4) Raised character and Braille exit signs. A sign stating EXIT in visual characters, raised characters and Braille and complying with ICC A117.1 shall be provided adjacent to each door to an area of refuge, an exterior area for assisted rescue, an exit stairway, an exit ramp, an exit passageway and the exit discharge.

1022.9 (IFC [B] 1022.9) Stairway identification signs. A sign shall be provided at each floor landing in an *interior exit stairway* and *ramp* connecting more than three stories designating the floor level, the terminus of the top and bottom of the *interior exit stairway* and *ramp* and the identification of the *stair* or *ramp*. The signage shall also state the story of, and the direction to, the *exit discharge* and the availability of roof access from the *interior exit stairway* and *ramp* for the fire department. The sign shall be located 5 feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. In addition to the *stairway* identification sign, a floor level sign in visual characters, raised characters and braille complying with ICC A117.1 shall be located at each floor level landing adjacent to the door leading from the *interior exit stairway* and *ramp* into the *corridor* to identify the floor level.

Reason: These revisions would be consistent with ADA 216.2, 216.4.1, and 216.10. The intent of this proposal is to add requirements for visual signage where appropriate. In addition, the pictogram for hearing impaired is added for where assistive listening systems are provided.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as “areas of study”. Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal provides guidance as to the types of signage required. This also coordinates with the 2010 ADA Standard for Accessible Design.

Assembly Action: **None**

Final Hearing Results

E223-12 **AS**

Code Change No: E226-12

Original Proposal

Section(s): E107.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

Revise as follows:

E107.2 Designations. Interior and exterior signs identifying permanent rooms and spaces shall be visual characters, raised characters and braille complying with ICC A117.1. Where pictograms are provided as designations of interior rooms and spaces, the pictograms shall have visual characters, raised characters and braille complying with ICC A117.1.

Reason: The addition of visual character requirements for room designation signage would be consistent with ADA 216.2. These types of signs are required to provided visual characters, raised character and braille. Currently, IBC only requires raised character and braille.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal provides guidance as to the types of signage required. This also coordinates with the 2010 ADA Standard for Accessible Design.

Assembly Action: **None**

Final Hearing Results

E226-12 **AS**

Code Change No: S2-12

Original Proposal

Section(s): 202, 1505.8, 1507.17, 1507.17.1, 1507.17.2, 1507.17.3

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Revise as follows:

SECTION 202
DEFINITIONS

PHOTOVOLTAIC ~~MODULES/~~SHINGLES. A *roof covering* ~~composed of flat-plate photovoltaic modules fabricated in sheets that resemble three-tab composite~~ resembling shingles that incorporates photovoltaic modules.

Revise as follows:

1505.8 Photovoltaic systems. Rooftop installed photovoltaic systems that are adhered or attached to the roof covering or photovoltaic ~~modules/~~shingles installed as roof coverings shall be labeled to identify their fire classification in accordance with the testing required in Section 1505.1.

1507.17 Photovoltaic ~~modules/~~shingles. The installation of photovoltaic modules/shingles shall comply with the provisions of this section.

1507.17.1 Material standards. Photovoltaic ~~modules/~~shingles shall be listed and labeled in accordance with UL1703.

1507.17.2 Attachment. Photovoltaic ~~modules/~~shingles shall be attached in accordance with the manufacturer's installation instructions.

1507.17.3 Wind resistance. Photovoltaic modules/shingles shall be tested in accordance with procedures and acceptance criteria in ASTM D 3161. Photovoltaic ~~modules/~~shingles shall comply with the classification requirements of Table 1507.2.7.1(2) for the appropriate maximum nominal design wind speed. Photovoltaic ~~modules/~~shingle packaging shall bear a label to indicate compliance with the procedures in ASTM D 3161 and the required classification from Table 1507.2.7.1(2).

Reason: This code change proposal is intended to clarify the term and definition for "Photovoltaic modules/shingles" in Chapter 2-Definitions and carrying this clarification through to the specific requirements for photovoltaic shingles in Section 1507.17

The word "modules" is being deleted from the term and definition because it is not defined in the code in the context of photovoltaic applications and it is not necessary to clearly identify and define the term. Similarly, "/" is being deleted because it is not necessary to identify or define the term; it is not clear whether the "/" is intended to mean "and" or "or". Also, "flat-plate", "three-tab" and "composite" are being deleted because these are not defined in the IBC and these are not necessary to clearly define the term.

The changes in Section 1505.8 and Section 1507.17 are intended to make the terminology consistent with the revised term in Chapter 2-Definitions.

No changes in the current code's technical requirements are intended with this code change proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1505.8 Photovoltaic systems. Rooftop installed photovoltaic systems that are adhered or attached to the roof covering or photovoltaic modules/shingles installed as roof coverings shall be labeled to identify their fire classification in accordance with the testing required in Section 1505.1.

(Portions of proposal not shown are unchanged)

Committee Reason: This code change clarifies terminology referring to photovoltaic shingles. Testimony indicates industry support for this revision. The modification rolls back the proposed changes in Section 1505.8, so that it is left unchanged by S2-12, in order that the revisions made to Section 1505.8 in S21-12 will govern.

Assembly Action: **None**

Final Hearing Results

S2-12 **AM**

Code Change No: S3-12

Original Proposal

Section(s): 202 (NEW), 1505.8, 1509.7, 1509.7.1, 1509.7.2, 1509.7.3, 1511, 1511.1, 3111, 3111.1

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Add new text as follows:

SECTION 202
DEFINITIONS

PHOTOVOLTAIC MODULE. A complete, environmentally protected unit consisting of solar cells, optics, and other components, exclusive of tracker, designed to generate DC power when exposed to sunlight.

PHOTVOLTAIC PANEL. A collection of modules mechanically fastened together, wired, and designed to provide a field-installable unit.

Revise as follows:

1505.8 Photovoltaic ~~systems~~ panels and modules. Rooftop installed photovoltaic ~~systems~~ panels and modules that are adhered or attached to the roof covering or photovoltaic modules/shingles installed as roof coverings shall be labeled to identify their fire classification in accordance with the testing required in Section 1505.1.

1509.7 Photovoltaic ~~systems~~ panels and modules. Rooftop mounted photovoltaic ~~systems~~ panels and modules shall be designed in accordance with this section.

1509.7.1 Wind resistance. Rooftop mounted photovoltaic ~~systems~~ panels and modules shall be designed for wind loads for component and cladding in accordance with Chapter 16 using an effective wind area based on the dimensions of a single unit frame.

1509.7.2 Fire classification. Rooftop mounted photovoltaic ~~systems~~ panels and modules shall have the same fire classification as the roof assembly required by Section 1505.

1509.7.3 Installation. Rooftop mounted photovoltaic ~~systems~~ panels and modules shall be installed in accordance with the manufacturer's installation instructions.

SECTION 1511
SOLAR PHOTOVOLTAIC PANELS AND MODULES

1511.1 Solar photovoltaic panels and modules. Solar photovoltaic panels/modules installed upon a roof or as an integral part of a roof assembly shall comply with the requirements of this code and the *International Fire Code*.

1511.1.1 Structural fire resistance. The structural frame and roof construction supporting the load imposed upon the roof by the photovoltaic panels and modules shall comply with the requirements of Table 601.

Revise as follows:

SECTION 3111
SOLAR PHOTOVOLTAIC PANELS AND MODULES

3111.1 General. Solar photovoltaic panels and modules shall comply with the requirements of this code and the *International Fire Code.*

Reason: This code change proposal is intended to clarify the code by providing specific terms and definitions for photovoltaic devices addressed in the code and then carrying these terms and definitions through to the code's current specific requirements in Section 1505.8, 1509.7, 1511 and 3111.

IBC 2012 currently uses the terminology "photovoltaic systems", which is currently not defined and is not widely recognized in the PV industry. For example, some have questioned whether the term "photovoltaic systems" includes racking and mounting systems, and external wiring. As a result, there appears to be some confusion and possible misinterpretation of the IBC's requirements.

The definitions for the terms "Photovoltaic module" and "Photovoltaic panel" are taken from NFPA 70, "National Electrical Code, 2011 Edition." NFPA is not currently referenced in the IBC; however , it is referenced as a requirement in the *International Fire Code*, Section 605.11.

In Section 1505, the change from "…systems…" to "…panels and modules…" is being made for consistency with the new definitions ion Chapter 2. Also, photovoltaic modules and panels are fire classified according to ASTM E108 or UL790 (and UL1703), which are already included in the IBC. Other photovoltaic system components--such as racking and mounting systems, and external wiring—are not currently fire classified.

In Section 1509.7 and Section 1511, the change from "…systems…" to "…panels and modules…" is being made for consistency with the new definitions in Chapter 2. Also, the terminology "…panels and modules…" already occurs in IBC 2012's Section 1509.7.4.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1505.8 Photovoltaic systems ~~panels and modules.~~ Rooftop installed photovoltaic systems ~~panels and modules~~ that are adhered or attached to the roof covering or photovoltaic modules/shingles installed as roof coverings shall be labeled to identify their fire classification in accordance with the testing required in Section 1505.1.

1509.7.2 Fire classification. Rooftop mounted photovoltaic systems ~~panels and modules~~ shall have the same fire classification as the roof assembly required by Section 1505.

1511.1 Solar photovoltaic panels and modules. Solar photovoltaic panels~~/~~ and modules installed upon a roof or as an integral part of a roof assembly shall comply with the requirements of this code and the *International Fire Code*.

(Portion of proposal not shown are not change)

Committee Reason: The proposal adds definitions that clarify terminology for photovoltaic devices. The modification rolls back the proposed changes in Sections 1505.8 and 1509.7.2, so that they are left unchanged by S3-12, in order that the revisions made to Sections 1505.8 and 1509.7.2 in S21-12 and S19-12, respectively, will govern.

Assembly Action: **None**

Final Hearing Results

S3 **AM**

Code Change No: S4-12

Original Proposal

Section(s): 202 (NEW), 1507.16, 1507.16.1, 1607.12.3, 1607.12.3.1

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Add new text as follows:

SECTION 202
DEFINITIONS

Vegetative roof. An assembly of interacting components designed to waterproof and normally insulate a building's top surface that includes, by design, vegetation and related landscape elements.

Revise as follows:

1507.16 Vegetative roofs, roof gardens and landscaped roofs. Vegetative roofs, roof gardens and landscaped roofs shall comply with the requirements of this chapter and Sections 1607.12.3 and 1607.12.3.1 and the *International Fire Code*.

1507.16.1 Structural fire resistance. The structural frame and roof construction supporting the load imposed upon the roof by the vegetative roof, roof gardens or landscaped roofs shall comply with the requirements of Table 601.

Revise as follows:

1607.12.3 Occupiable roofs. Areas of roofs that are occupiable, such as vegetative roofs, roof gardens, or for assembly or other similar purposes, and marquees are permitted to have their uniformly distributed live loads reduced in accordance with Section 1607.10.

1607.12.3.1 Vegetative and landscaped roofs. The uniform design live load in unoccupied landscaped areas on roofs shall be 20 psf (0.958 kN/m2). The weight of all landscaping materials shall be considered as dead load and shall be computed on the basis of saturation of the soil.

Reason: This code change proposal is intended to use terminology in the IBC that is consistent with that of the *International Green Construction Code* (IgCC). IgCC uses the terminology "vegetative roof" for what is referred to in the IBC as a "roof garden" or "landscaped roof".

This code change proposal adds a definition for the term "vegetative roof" in Section 202. The definition is identical to that in the IgCC and ASTM D1079, "Standard Terminology Relating to Roofing and Waterproofing." The term "vegetative roof" is also added where appropriate in Section 1507.16 and Section 1607.12.3.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposed definition of "vegetative roof" coordinates the IBC with the IGCC, providing a needed link.

Assembly Action: **None**

Final Hearing Results

S4 **AS**

Code Change No: S5-12

Original Proposal

Section(s): 202 (NEW)

Proponent: Christine Covington, Solar Energy Industries Association

Add new text as follows:

SECTION 202
DEFINITIONS

BUILDING INTEGRATED PHOTOVOLTAIC (BIPV) SYSTEM. A system that incorporates photovoltaic modules, which covert solar radiation into electricity, as a component of building products that simultaneously provide protection against weather and water entry into the building envelope.

PHOTOVOLTAIC PANEL SYSTEM. A system that incorporates discrete photovoltaic panels, which covert solar radiation into electricity, onto rack support systems which are supported by building structural systems such as roof, floor, or wall assemblies.

Reason: The IBC references different applications of photovoltaic systems in various locations throughout the code without definition. The intent of this change is to provide basic definitions for photovoltaic systems that are embedded in building construction elements (BIPV's) and for systems that are installed extraneous to new or existing building elements (Panel Systems). This is critical in determining the type of testing that will be appropriate for each system. Currently, BIPV's used as roof shingles must pass UL 790 or ASTM E108 to determine fire classification while panel systems used above fire classified roofs must undergo testing in conjunction with UL 1703.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

~~**BUILDING INTEGRATED PHOTOVOLTAIC (BIPV) SYSTEM**. A system that incorporates photovoltaic modules, which covert solar radiation into electricity, as a component of building products that simultaneously provide protection against weather and water entry into the building envelope.~~

PHOTOVOLTAIC PANEL SYSTEM. A system that incorporates discrete photovoltaic panels, which converts solar radiation into electricity, ~~onto~~ including rack support systems~~ which are supported by building structural systems such as roof, floor, or wall assemblies~~.

Committee Reason: The committee agreed that the added d efinition provides clarity to the related code provisions. The modification reflects industry consensus as well as the previous action of the IBC Fire Safety committee.

Assembly Action: **None**

Final Hearing Results

S5 **AM**

Code Change No: S7-12

Original Proposal

Section(s): 1503.5

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Revise as follows:

1503.5 ~~Roof~~ Attic ventilation. Intake and exhaust vents shall be provided in accordance with Section 1203.2 and the roof covering manufacturer's installation instructions.

Reason: This code change proposal is intended to clarify the intent of the Code.

While Section 1503.5 is titled "Roof ventilation," the section that is referenced is Section 1203.2-Attic Spaces. On this basis, change the title of Section 1503.5 to "Attic ventilation" appears appropriate.

Also, the code language also makes reference "…the manufacturer's installation instruction." But does not clearly stipulate the manufacturer of which product (roof covering, roof deck, etc.) is intended. "…roof covering…" is added in this proposal to clarify compliance with the roof covering manufacturer's installation instruction are intended to required.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1503.5 Attic ventilation. Intake and exhaust vents shall be provided in accordance with Section 1203.2 and the ~~roof covering~~ vent product manufacturer's installation instructions.

Committee Reason: Agreement with the proponent's reason which indicates the proposal clarifies attic ventilation requirements. The modification refers to vent products because it is the vent manufacturer's instructions that should be followed.

Assembly Action: **None**

Final Hearing Results

S7 **AM**

Code Change No: S8-12

Original Proposal

Section(s): 1504.1.1, Table 1504.1.1(1), Table 1504.1.1(2), 1507.2.7.1, Table 1507.2.7.1(1), Table 1507.2.7.1(2), 1609.5.2

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Revise as follows:

1504.1.1 Wind resistance of asphalt shingles. Asphalt shingles shall ~~comply with Section 1507.2.7~~.be tested in accordance with ASTM D 7158. Asphalt shingles shall meet the classification requirements of Table 1504.1.1(1) for the appropriate maximum basic wind speed. Asphalt shingle packaging shall bear a label to indicate compliance with ASTM D 7158 and the required classification in Table 1504.1.1(1).

Exception: Asphalt shingles not included in the scope of ASTM D 7158 shall be tested and labeled to indicate compliance with ASTM D 3161 and the required classification in Table 1504.1.1(2).

TABLE 1504.1.1(1)
CLASSIFICATION OF ASPHALT
ROOF SHINGLES IN ACCORDANCE WITH ASTM D 7158[a]

NOMINAL DESIGN WIND SPEED, V_{asd}[b] (mph)	CLASSIFICATION REQUIREMENT
85	D, G or H
90	D, G or H
100	G or H
110	G or H
120	G or H
130	H
140	H
150	H

For SI: 1 foot = 304.8 mm; 1 mph = 0.447 m/s.

a. The standard calculations contained in ASTM D 7158 assume exposure category B or C and building height of 60 feet or less. Additional calculations are required for conditions outside of these assumptions.

b. V_{asd} shall be determined in accordance with Section 1609.3.1.

TABLE 1504.1.1(2)
CLASSIFICATION OF ASPHALT SHINGLES IN ACCORDANCE WITH ASTM D 3161

NOMINAL DESIGN WIND SPEED, V_{asd}[a] (mph)	CLASSIFICATION REQUIREMENT
85	A, D or F
90	A, D or F
100	A, D or F
110	F
120	F
130	F
140	F
150	F

For SI: 1 mph = 0.447 m/s.

a. V_{asd} shall be determined in accordance with Section 1609.3.1.

~~**1507.2.7.1 Wind resistance.** Asphalt shingles shall be tested in accordance with ASTM D 7158. Asphalt shingles shall meet the classification requirements of Table 1507.2.7.1(1) for the appropriate maximum basic wind speed. Asphalt shingle packaging shall bear a label to indicate compliance with ASTM D 7158 and the required classification in Table 1507.2.7.1(1).~~

~~**Exception:** Asphalt shingles not included in the scope of ASTM D 7158 shall be tested and labeled to indicate compliance with ASTM D 3161 and the required classification in Table 1507.2.7.1(2).~~

~~**TABLE 1507.2.7.1(1)**~~
~~**CLASSIFICATION OF ASPHALT**~~
~~**ROOF SHINGLES PER ASTM D 7158[a]**~~

~~**NOMINAL DESIGN WIND SPEED, V_{asd}[b] (mph)**~~	~~**CLASSIFICATION REQUIREMENT**~~
~~85~~	~~D, G or H~~
~~90~~	~~D, G or H~~
~~100~~	~~G or H~~
~~110~~	~~G or H~~
~~120~~	~~G or H~~
~~130~~	~~H~~
~~140~~	~~H~~
~~150~~	~~H~~

~~For SI: 1 foot = 304.8 mm; 1 mph = 0.447 m/s.~~
~~a. The standard calculations contained in ASTM D 7158 assume exposure category B or C and building height of 60 feet or less. Additional calculations are required for conditions outside of these assumptions.~~
~~b. V_{asd} shall be determined in accordance with Section 1609.3~~

~~**TABLE 1507.2.7.1(2)**~~
~~**CLASSIFICATION OF ASPHALT SHINGLES PER ASTM D 3161**~~

~~**NOMINAL DESIGN WIND SPEED, V_{asd}[a] (mph)**~~	~~**CLASSIFICATION REQUIREMENT**~~
~~85~~	~~A, D or F~~
~~90~~	~~A, D or F~~
~~100~~	~~A, D or F~~
~~110~~	~~F~~
~~120~~	~~F~~
~~130~~	~~F~~
~~140~~	~~F~~
~~150~~	~~F~~

~~For SI: 1 mph = 0.447 m/s.~~
~~a. V_{asd} shall be determined in accordance with Section 1609.3.1.~~

Revise as follows:

1609.5.2 Roof coverings. Roof coverings shall comply with Section 1609.5.1.

Exception: Rigid tile roof coverings that are air permeable and installed over a roof deck complying with Section 1609.5.1 are permitted to be designed in accordance with Section 1609.5.3.

Asphalt shingles installed over a roof deck complying with Section 1609.5.1 shall comply with the wind resistance requirements of Section ~~1507.2.7.1~~ 1504.1.1.

Reason: This code change proposal is intended to relocate the Code's wind resistance requirements for asphalt shingles to the same section where similar wind resistance requirements are provided for other roof system types.

Wind resistance requirements (e.g., testing, classification) for all roof system types and components—other than those for asphalt shingles—are provided in Section 1504-Performance Requirements. The wind resistance requirements for asphalt shingles are currently provided in Section 1507-Requirements for Roof Coverings, specifically in Section 1507.2.7.1-Wind Resistance. The placement of the wind resistance requirements in the asphalt shingle section instead of the performance requirements section dates back to the legacy codes era when wind resistance for asphalt shingles was addressed by prescriptive language (e.g., four or six

fasteners per strip shingle) instead of performance-based measures. Today, specific test methods (ASTM D7158 and ASTM D3161) and classifications (Class D, Class F, Class G, etc.) exist and are incorporated into the IBC making placement of the requirements for asphalt singles in Section 1504-Performance Requirements appropriate. Section 1504.1.1-Wind Resistance of Asphalt Shingles already exists in Section 1504-Performance Requirements and currently serves as a pointer to Section 1507.2.7. This code change proposals moves the applicable wind resistance language from Section 1507.2.7 to Section 1504.1.1, replacing the pointer. Also, in Chapter 16-Structural Design, a pointer to Section 1507.2.7.1 occurs in the Exception to Section 1509.5.2-Roof Coverings; this pointer is redirected to Section 1504.1.1.

This code change proposal does not include any technical changes in the wind resistance requirements for asphalt shingles. This code change proposal is merely a rearrangement into the proper location of the Code's existing requirements for asphalt shingles wind resistances.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change moves asphalt shingle wind resistance requirements to a more logical location in Chapter 15.

Assembly Action: **None**

Final Hearing Results

S8 **AS**

Code Change No: S11-12

Original Proposal

Section(s): 1504.3.1

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1504.3.1 Other roof systems. ~~Roof systems with built~~ Built-up, modified bitumen, fully adhered or mechanically attached single-ply ~~through fastened metal panel~~ roof systems, and other types of membrane roof coverings shall also be tested in accordance with FM 4474, UL 580 or UL 1897.

Reason: The first change is purely editorial – the sentence doesn't need to reference "roof systems" twice. Also, this section should not include reference to through fastened metal panel roof systems, since they are covered in Section 1504.3.2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1504.3.1 Other roof systems. Built-up, modified bitumen, fully adhered or mechanically attached single-ply roof systems, metal panel roof systems applied to a solid or closely fitted deck, and other types of membrane roof coverings shall also be tested in accordance with FM 4474, UL 580 or UL 1897.

Committee Reason: This proposal is editorial in nature, deleting redundant wording. The modification assures that metal panel roof systems that are installed over solid decking are covered.

Assembly Action: **None**

Public Comments

Public Comment:

John C. Harrington, representing FM Global, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1504.3.2 Metal panel roof systems. This section applies to structural metal panel roof systems where the roof panel deck acts as the roof deck and roof covering and provides both weather protection and support for structural loads. Structural standing seam metal panel roof systems shall be tested in accordance with ASTM E 1592 or FM 4474. Structural through-fastened metal panel roof systems shall be tested in accordance with FM 4474, UL 580 or ASTM E 1592.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: The existing language in 1504.3.1 included FM 4474 as a means of testing metal panel roof systems. Code proposal S11-12 (Approved as Modified) changed the language in this section of the code and narrowed the scope of what type of metal panel roof systems that FM 4474 could be used for. We were fine with the existing 1504.3.1 but after this scope change was made, we need to provide this comment for the broader category of metal panel roof systems in 1504.3.2 to include FM 4474 as a means of testing on any type of metal panel roof system in accordance with the scope of this testing standard. The scope of FM 4474 includes both standing seam and lap seam (through-fastened) metal roof systems. There are numerous roof manufacturers who already have certified their metal panel roofing systems to FM 4474 and many other systems where the roofs

are in the process of this testing certification and it is critical to the roofing industry that this alternate means of roofing certification be maintained. Note that this modification to Section 1504.3.2 uses the updated wording based on S13-12 (AM).

Final Hearing Results

S11-12	AMPC

Code Change No: S12-12

Original Proposal

Section(s): 1504.3.2

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Revise as follows:

1504.3.2 Metal panel roof systems. Metal panel roof systems through fastened or standing seam shall be tested in accordance with UL 580 or ASTM E 1592.

Exceptions:

1. Metal roofs constructed of cold-formed steel, where the roof deck acts as the roof covering and provides both weather protection and support for structural loads, shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2210.1.
2. Metal roofs constructed of aluminum, where the roof deck acts as the roof covering and provides both weather protection and support for structural loads, shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2002.1.

Reason: This code change proposal is intended to permit the use of the Aluminum Association's *Aluminum Design Manual* (ADM1), which is already referenced in Section 2002.1, for the design of wind resistance for aluminum structural panel roof systems in lieu of the test methods prescribed in Section 1504.3.2.

A similar exception for structural metal panels fabricated from cold-formed steel already exists in Section 1504.3.2; it allows the use of AISI S100, "North American Specification for the Design of Cold-formed Steel Structural members."

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1504.3.2 Metal panel roof systems. Metal panel roof systems through fastened or standing seam shall be tested in accordance with UL 580 or ASTM E 1592.

Exceptions:

1. Metal roofs constructed of cold-formed steel, where the roof deck acts as the roof covering and provides both weather protection and support for structural loads, shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2210.1.
2. Metal roofs constructed of aluminum~~, where the roof deck acts as the roof covering and provides both weather protection and support for structural loads,~~ shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2002.1.

Committee Reason: This code change puts an appropriate reference to the standard for aluminum into Chapter 15. The modification coordinates the wording of the exception with the revision to this section that are made by S13-12.

Assembly Action: **None**

Final Hearing Results

S12 **AM**

Code Change No: S13-12

Original Proposal

Section(s): 1504.3.2

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org) and Lee Shoemaker, Metal Building Manufacturer's Association

Revise as follows:

1504.3.2 Metal panel roof systems. ~~Metal~~ Standing seam metal panel roof systems ~~through-fastened or standing seam~~ shall be tested in accordance with ~~UL 580 or~~ ASTM E 1592. Through-fastened metal panel roof systems shall be tested in accordance with UL 580 or ASTM E1592.

> **Exception:** Metal roofs constructed of cold-formed steel, where the roof deck acts as the roof covering and provides both weather protection and support for structural loads, shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2210.1.

Reason: The recommended language provides consistency with the uplift test requirements for standing seam roofs systems as specified in AISI S100, Section D6.2.1. AISI S100 requires that standing seam roofs be tested in accordance with ASTM E1592 to determine panel strength and UL580 is not an optional test for this type of roof system. Panel strengths for through fastened roofs, on the other hand, as specified in AISI S100, can be developed either analytically or through testing in accordance with either UL 580 or ASTM E1592.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1504.3.2 Metal panel roof systems. This section applies to structural metal panel roof systems where the roof panel deck acts as the roof deck and roof covering and provides both weather protection and support for structural loads. Structural standing seam metal panel roof systems shall be tested in accordance with ASTM E 1592. Structural through-fastened metal panel roof systems shall be tested in accordance with UL 580 or ASTM E1592.

> **Exception:** Metal roofs constructed of cold-formed steel~~, where the roof deck acts as the roof covering and provides both weather protection and support for structural loads,~~ shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2210.1.

Committee Reason: This proposal clarifies the application of this section to different types of structural metal panel roof systems and better coordinates these requirements with other code provisions. The modification provides clarity by stating that this section applies to metal panel roof systems that are structural.

Assembly Action: **None**

Public Comments

Public Comment:

Jonathan Humble, AIA, NCARB, LEED BD&C, representing American Iron and Steel Institute, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1504.3.2 Structural metal panel roof systems. ~~This section applies to structural metal panel roof systems~~ Where the roof panel ~~deck acts~~ functions as the roof deck and roof covering and provides both weather protection and support for ~~structural~~ loads, the structural metal panel roof system shall comply with this section. Structural standing seam metal panel roof systems shall be tested in accordance with ASTM E 1592. Structural through-fastened metal panel roof systems shall be tested in accordance with UL 580 or ASTM E1592.

Exception: Metal roofs constructed of cold-formed steel shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2210.1.

Commenter's Reason: The public comment proposes to further modify the committee recommendation to effectively overcome some grammatical and ICC manual of style issue. We propose to:

- Change the first sentence in order to read as a mandatory introduction.
- Use a more appropriate word "functions" in place of "deck acts".
- Change the title to reflect the content of the section.

Final Hearing Results

S13-12 **AMPC**

Code Change No: S19-12

Original Proposal

Section(s): 1505.1, 1509.7.2

Proponent: Christine Covington, Solar Energy Industries Association

THIS CODE CHANGE PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE. SEE THE HEARING ORDER OF THE IBC FIRE SAFETY CODE DVELOPMENT COMMITTEE.

Revise as follows:

1505.1 General. Roof assemblies shall be divided into the classes defined below. Class A, B and C roof assemblies and roof coverings required to be listed by this section shall be tested in accordance with ASTM E 108 or UL 790. In addition, *fire-retardant-treated wood* roof coverings shall be tested in accordance with ASTM D 2898. The minimum roof coverings installed on buildings shall comply with Table 1505.1 based on the type of construction of the building.

Exceptions:

1. Skylights and sloped glazing that comply with Chapter 24 or Section 2610.

2. Rooftop mounted photovoltaic panel systems shall be listed and labeled in accordance with UL 1703 for fire classification. The minimum photovoltaic panel system fire classification listing shall be as required by Table 1505.1 or as otherwise required by this code.

1509.7.2 Fire classification. Rooftop mounted photovoltaic panel systems shall have ~~the same~~ a fire classification as ~~the roof assembly~~ required by Section 1505.

Reason: The current IBC requirement to classify photovoltaic systems consistent with the requirement for roof covering materials does not adequately address fire performance evaluation considerations. Fire testing of rooftop mounted (stand-off, rack-mounted) photovoltaic systems was conducted by the Solar America Board for Codes and Standards in conjunction with Underwriter's Laboratories. Their test results did not confirm that a Class A classified roof combined with a Class A classified photovoltaic module would automatically result in an overall Class A assembly. In some cases, systems would perform better, in many worse. This lack of correlation does not address the overall fire performance concern expressed by ICC members at previous hearings.

The intent of this code change is to control roof surface fire propagation and fire spread from the roof surface to a building's interior.

The UL 1703 Standards Committee has been working on revised roofing classification testing employing a complete system comprised of a representative roof covering combined with the photovoltaic panels/modules being evaluated. This will provide assurance that the roof will be rated as the code intends with the specific panel or module system being used.

For further information on Solar ABC's on-going fire testing, visit http://www.solarabcs.org/current-issues/fire_class_rating.html

The revisions to 1509.7.2 direct the user to 1505 where the roof covering and PV panel testing is located. A new second exception is added to 1505.1 to require that the panel is to be evaluated to UL1703, not UL790 or ASTM E108. The exception's second sentence intends that the Class A, B, or C fire classification listed PV panel/module system be consistent with any other fire classification requirement for the roof covering contained within the IBC. In some cases, the code may restrict the roof classification to a higher category than what is required simply based on type of construction.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Fire Safety code development committee.

Committee Action: **Approved as Modified**

Modify proposal as follows:

1505.1 General. Roof assemblies shall be divided into the classes defined below. Class A, B and C roof assemblies and roof coverings required to be listed by this section shall be tested in accordance with ASTM E 108 or UL 790. In addition, *fire-retardant-treated wood* roof coverings shall be tested in accordance with ASTM D 2898. The minimum roof coverings installed on buildings shall comply with Table 1505.1 based on the type of construction of the building.

Exceptions:

~~1.~~ Skylights and sloped glazing that comply with Chapter 24 or Section 2610.

~~2. Rooftop mounted photovoltaic panel systems shall be listed and labeled in accordance with UL 1703 for fire classification. The minimum photovoltaic panel system fire classification listing shall be as required by Table 1505.1 or as otherwise required by this code.~~

1505.9 Photovoltaic panels and modules. Rooftop mounted photovoltaic panel systems shall be tested, listed and identified with a fire classification in accordance with UL 1703. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.

1509.7.2 Fire classification. Rooftop mounted photovoltaic panels and modules ~~systems~~ shall have ~~a~~ the fire classification as required by Section 1505.9.

Committee Reason: The committee agreed that stand-off rack mounted photovoltaic panel or module systems are better tested in accordance with UL 1703. Further, the revisions to Section 1509.7.2 clarify this requirement by incorporating the term panel systems and removing the term roof assembly. The modification appropriately puts requirements for rooftop mounted photovoltaic panels and modules in its own section rather than as an exception to 1505.1.

Assembly Action: **None**

Final Hearing Results

S19 **AM**

Code Change No: S20-12

Original Proposal

Section(s): 1505.2

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

THIS CODE CHANGE PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE. SEE THE HEARING ORDER OF THE IBC FIRE SAFETY CODE DVELOPMENT COMMITTEE.

Revise as follows:

1505.2 Class A roof assemblies. Class A roof assemblies are those that are effective against severe fire test exposure. Class A roof assemblies and roof coverings shall be *listed* and identified as Class A by an *approved* testing agency. Class A roof assemblies shall be permitted for use in buildings or structures of all types of construction.

Exceptions:

1. Class A roof assemblies include those with coverings of brick, masonry or an exposed concrete roof deck.
2. Class A roof assemblies also include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile or slate installed on noncombustible decks or ferrous, copper or metal sheets installed without a roof deck on noncombustible framing.
3. Class A roof assemblies include minimum 16 oz/sq. ft. (0.0416 kg/m2) copper sheets installed over combustible decks.
4. Class A roof assemblies include slate installed over ASTM D226, Type II underlayment over combustible decks.

Reason: In IBC 2009, the Exceptions to Section 1505.2 were amended to require ASTM E 108 or UL 790 fire testing to determine the fire classification of certain roof assemblies, including copper sheets and slate, that had historically been exempted for fire testing. At the time, a lack of adequate fire test data was cited as the reason for this change.

In IBC 2012, Exception 3 was added based upon fire testing that was conducted by the Copper Development Association. The National Roofing Contractor Association and the National Slate Association have conducted fire tests at Underwriters Laboratories, Inc. (UL) that documents slate installed over a specific underlayment (ASTM D226, Type II) over a combustible deck meets the requirements of UL 790 Class A. This testing substantiates the addition of Exception 4 as a Class A roof assembly.

A copy of this test report has been submitted with this code change proposal; additional copies are available by contacting the proponent.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Fire Safety code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the addition of slate roofing as a Class A roof covering was appropriate based on testing performed in accordance with UL 790.

Assembly Action: **None**

Final Hearing Results

S20 **AS**

Code Change No: S21-12

Original Proposal

Section(s): 1505.8

Proponent: Christine Covington, Solar Energy Industries Association

THIS PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE

Revise as follows:

1505.8 Building integrated photovoltaic systems. Rooftop installed building integrated photovoltaic systems that ~~are adhered or attached to~~ serve as the roof covering ~~or photovoltaic modules/shingles installed as roof coverings~~ shall be listed and labeled ~~to identify their~~ for fire classification in accordance with ~~the testing required in~~ Section 1505.1.

Reason: This section intends to require flush mounted PV roof coverings or PV integrated roof cladding systems to comply with UL790 or ASTM E108. This is appropriate for these types of systems.

The current language used in this section implies that a stand-off rack mounted panel or module system is also required to be evaluated to UL790 or ASTM E108. These types of stand-off systems have differing fire characteristics that are better evaluated using UL1703 method for fire classification. This is currently required under Section 1509.7.2.

The proposed change will clarify which test is appropriate for BIPV systems used in a roofing application.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Fire Safety code development committee.

Committee Action: **Approved as Modified**

Modify proposal as follows:

Add new definition to Chapter 2 as follows:

BUILDING INTEGRATED PHOTOVOLTAIC (BIPV) PRODUCT. A building product that incorporates photovoltaic modules, and functions as a component of the building envelope.

1505.8 Building integrated photovoltaic ~~systems~~ products. ~~Rooftop installed~~ Building integrated photovoltaic ~~systems~~ products ~~that serve as~~ installed as the roof covering shall be tested, listed and labeled for fire classification in accordance with Section 1505.1.

Committee Reason: The committee agreed that stand-off rack mounted photovoltaic panel or module systems are better tested in accordance with UL 1703 that is proposed in S19-12. The modification adds a definition for BUILDING INTEGRATED PHOTOVOATAIC (BIPV) PRODUCT that clarifies the types of photovoltaic (BIPV) that must meet the requirements of Section 1505.1.

Assembly Action: **None**

Final Hearing Results

S21 **AM**

Code Change No: S24-12

Original Proposal

Section(s): 1505.9 (NEW), Chapter 35 (NEW)

Proponent: Mike Ennis, Single Ply Roofing Industry (SPRI) (m.ennis@mac.com)

THIS CODE CHANGE PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE. SEE THE HEARING ORDER FOR THE IBC FIR SAFETY CODE DEVELOPMENT COMMITTTEE

Add new text as follows:

1505.9 Roof gardens and landscaped roofs. Roof gardens and landscaped roofs shall comply with Section 1507.16 and shall be installed in accordance with ANSI/SPRI VF-1.

Add new standard to Chapter 35 as follows:

SPRI
VF-1-2010 External Fire Design Standard for Vegetative Roofs

Reason: Section 1507.16 requires that roof gardens and landscaped roofs comply with the requirements of Chapter 15. Section 1505 requires that roofing assemblies be fire classified. The current test procedures used to provide this fire classification are not applicable to garden and landscape roofs due to the many variables (plant types, moisture content, etc.) that exist for these types of systems. ANSI/SPRI VF-1 is a national consensus standard that has been developed in conjunction with Green Roofs for Healthy Cities with input from roof membrane manufacturers, component suppliers, contractors, green roofing professionals, testing organizations, and consultants. This standard provides a design method to assure an acceptable level of performance of roof gardens and landscaped roofs when exposed to exterior fire sources. The general approach used in this standard is to design in fire breaks for large roof areas, around rooftop equipment and penetrations, and next to adjacent walls. Some of the specific requirements are:

- Exposed membrane areas must conform to the designed fire resistance requirements as determined by the authority having jurisdiction.
- For all vegetated roofing systems abutting combustible vertical surfaces, a Class A (per ASTM E108 or UL790) rated assembly must be achieved for a minimum 6 ft (1.83 m) wide continuous border placed around rooftop structures and all rooftop equipment.

For large roof areas: Partition the roof area into sections not exceeding 15,625 ft2 (1,450 m^2), with each section having no dimension greater than 125 ft (39 m) by installing a a minimum of 3ft. (0.9 m) wide, Class A rated assembly barrier zones.

Cost Impact: The code change proposal may increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

This code change was heard by the IBC Fire Safety code development committee.

Note: For staff analysis of the content of SPRI VF-1 relative to CP#28, Section 3.6, please visit:
http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that fire design contained within the SPRI VF-1 standard was appropriate for roof gardens and landscaped roofs rather than the traditional test methods used to determine fire classification. Further, the committee felt that the standard was compliant with ICC Council Policy 28 (CP28).

Assembly Action: **None**

Final Hearing Results

S24 **AS**

Code Change No: S26-12

Original Proposal

Section(s): 1506.2

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Delete without substitution:

~~**1506.2 Compatibility of materials.** Roofs and roof coverings shall be of materials that are compatible with each other and with the building or structure to which the materials are applied.~~

Reason: This code change proposal is intended to facilitate better compliance and easier enforcement of the Code relating to roof coverings.

Specific criteria are not provided in the Code for determining roofing materials' compatibility or incompatibility. Material compatibility is best determined by material manufacturers and should be explained or restricted in manufacturers' installation instructions, which are already provided for in Section 1506.1-Scope.

Deleting this section relieves the building official for making determinations of materials' compatibility or incompatibility without specific criteria.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agrees with deletion of Section 1506.2, since it does not provide criteria to determine what roof materials are compatible. Compatibility of the materials can be in accordance with the manufacturer's instructions.

Assembly Action: **None**

Final Hearing Results

S26 **AS**

Code Change No: S27-12

Original Proposal

Section(s): 1506.3

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Revise as follows:

1506.3 Material specifications and physical characteristics. Roof-covering materials shall conform to the applicable standards *listed* in this chapter. In the absence of applicable standards or where materials are of questionable suitability, ~~testing by an *approved* agency shall be required by the *building code official* to determine the character, quality and limitations of application of~~ the materials shall be *approved* by the *building official* in accordance with Section 104.11.

Reason: This code change proposal is intended to clarify the code's intent relating to the use of roofing materials that do not specifically conform to the requirements of this Chapter.

It can be interpreted that Section 1506.3 may conflict somewhat with Section 104.11-Alternative Materials, Design and Methods of Construction and Equipment. The proposal clarifies the Code's language and provides a direct reference to Section 104.11

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1506.3 Material specifications and physical characteristics. Roof-covering materials shall conform to the applicable standards *listed* in this chapter. ~~In the absence of applicable standards or where materials are of questionable suitability, the materials shall be *approved* by the *building official* in accordance with Section 104.11.~~

Committee Reason: This code change clarifies the intent of the code regarding roofing materials, by removing conflicting wording. The modification removes the second sentence in its entirety because the proposed reference to Section 104.11 would be redundant.

Assembly Action: **None**

Final Hearing Results

S27 **AM**

Code Change No: S32-12

Original Proposal

Section(s): 1507.2.7.1, Table 1507.2.7.1(1), Table 1507.2.7.1(2),

Proponent: Michael D. Fischer, Kellen Company, representing Asphalt Roofing Manufacturers Association (mfischer@kellencompany.com)

Revise as follows:

1507.2.7.1 Wind resistance. Asphalt shingles shall be tested in accordance with ASTM D 7158. Asphalt shingles shall meet the classification requirements of Table ~~1507.2.7.1(1)~~ 1507.2.7.1 for the appropriate maximum basic wind speed. Asphalt shingle packaging shall bear a label to indicate compliance with ASTM D 7158 and the required classification in Table ~~1507.2.7.1(1).~~ 1507.2.7.1.

Exception: Asphalt shingles not included in the scope of ASTM D 7158 shall be tested and labeled to indicate compliance with ASTM D 3161 and the required classification in Table ~~1507.2.7.1(2).~~ 1507.2.7.1.

~~**TABLE 1507.2.7.1(1)**~~
~~**CLASSIFICATION OF ASPHALT**~~
~~**ROOF SHINGLES PER ASTM D 7158[a]**~~

~~NOMINAL DESIGN WIND SPEED, V_{asd}[b] (mph)~~	~~CLASSIFICATION REQUIREMENT~~
~~85~~	~~D, G or H~~
~~90~~	~~D, G or H~~
~~100~~	~~G or H~~
~~110~~	~~G or H~~
~~120~~	~~G or H~~
~~130~~	~~H~~
~~140~~	~~H~~
~~150~~	~~H~~

~~For SI: 1 foot = 304.8 mm; 1 mph = 0.447 m/s.~~

~~a. The standard calculations contained in ASTM D 7158 assume exposure category B or C and building height of 60 feet or less. Additional calculations are required for conditions outside of these assumptions.~~

~~b. V_{asd} shall be determined in accordance with Section 1609.3~~

~~**TABLE 1507.2.7.1(2)**~~
~~**CLASSIFICATION OF ASPHALT SHINGLES PER ASTM D 3161**~~

~~NOMINAL DESIGN WIND SPEED, V_{asd}[a] (mph)~~	~~CLASSIFICATION REQUIREMENT~~
~~85~~	~~A, D or F~~
~~90~~	~~A, D or F~~
~~100~~	~~A, D or F~~
~~110~~	~~F~~
~~120~~	~~F~~
~~130~~	~~F~~
~~140~~	~~F~~
~~150~~	~~F~~

~~For SI: 1 mph = 0.447 m/s.~~

~~a. V_{asd} shall be determined in accordance with Section 1609.3.1.~~

TABLE 1507.2.7.1
CLASSIFICATION OF ASPHALT SHINGLES

Maximum Basic Wind Speed, V_{ult} from Figure 1609A, B, C or ASCE-7	Maximum Basic Wind Speed, V_{asd} from Table 1609.3.1	ASTM D 7158[a] Shingle Classification	ASTM D 3161 Shingle Classification
110	85	D, G or H	A, D or F
116	90	D, G or H	A, D or F
129	100	G or H	A, D or F
142	110	G or H	F
155	120	G or H	F
168	130	H	F
181	140	H	F
194	150	H	F

For SI: 1 foot = 304.8 mm; 1 mph = 0.447 m/s.

a. The standard calculations contained in ASTM D 7158 assume exposure category B or C and building height of 60 feet or less. Additional calculations are required for conditions outside of these assumptions.

Reason: With the introduction of the updated ASCE-7 into the IBC, there is a disconnect between the referenced standards for the wind resistance of asphalt shingles and the revised wind speed maps in the code. The proposal is based on revisions to the Florida Building Code and will provide for a simpler process for code officials to verify the appropriate selection of asphalt shingles. This is necessary to eliminate confusion in the marketplace caused by the change in how wind speeds are characterized.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that combining the classification of asphalt shingles into a single table is a good simplification. Further this code change addresses the conversion to ultimate design wind speed.

Assembly Action: **None**

Final Hearing Results

S32 **AS**

Code Change No: S36-12

Original Proposal

Section(s): 1507.2.9.3

Proponent: Gary J. Ehrlich, P.E., National Association of Home Builders (NAHB) (gehrlich@nahb.org)

Revise as follows:

1507.2.9.3 Drip edge. ~~Provide~~ A drip edge shall be provided at eaves and ~~gables~~ rake edges of shingle roofs. ~~Overlap to be~~ Adjacent segments of drip edge shall be lapped a minimum of 2 inches (51 mm). ~~Eave~~ The vertical leg of drip edges shall be a minimum of 1-1/2 inches (38 mm) in width, extend a minimum of 1/4 inch (6.4 mm) below sheathing ~~and~~ ,and have a minimum clearance of 3/8" (9.5 mm) from the face of the structure. The drip edge shall extend back on the roof a minimum of 2 inches (51 mm). Underlayment shall be installed over drip edges along eaves. Drip edges shall be installed over underlayment along rake edges. Drip edges shall be mechanically fastened a maximum of 12 inches (305 mm) o.c. Unless specified differently by the shingle manufacturer, shingles are permitted to be flush with the drip edge.

Reason: The purpose of this code change is to revise the IBC drip edge language. The current language is not in proper code format (instructive rather than mandatory) and omits a number of important details necessary for drip edges to function. Notably, the placement of the drip edge relative to the underlayment along eaves and rake edges is critical and differs for each location. Along eaves, the underlayment should be installed on top of the drip edge so that moisture migrating down the roof passes over both the underlayment and drip edge and into the gutter. Along rake edges, the drip edge should be installed over the underlayment to prevent wind-blown moisture from getting below the underlayment. Most of these changes correlate with the language approved last cycle in Section R905.2.8.5 of the IRC. The one provision not appearing in the IRC is the minimum 3/8" clearance from the face of structure. This requirement appears in ICC 600 Section 502.4.2 and gives additional protection to the fascia board or other facing materials overlapped by the vertical leg of the drip edge.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1507.2.9.3 Drip edge. A drip edge shall be provided at eaves and rake edges of shingle roofs. Adjacent segments of drip edge shall be lapped a minimum of 2 inches (51 mm). The vertical leg of drip edges shall be a minimum of 1-1/2 inches (38 mm) in width and extend a minimum of 1/4 inch (6.4 mm) below sheathing~~, and have a minimum clearance of 3/8" (9.5 mm) from the face of the structure~~. The drip edge shall extend back on the roof a minimum of 2 inches (51 mm). Underlayment shall be installed over drip edges along eaves. Drip edges shall be installed over underlayment along rake edges. Drip edges shall be mechanically fastened a maximum of 12 inches (305 mm) o.c. ~~Unless specified differently by the shingle manufacturer, shingles are permitted to be flush with the drip edge.~~

Committee Reason: This code change provides direction on drip edge installation that provides coordination with the IRC. The modification assures that this provision conforms to industry practices.

Assembly Action: **None**

Final Hearing Results

S36 **AM**

Code Change No: S38-12

Original Proposal

Section(s): 1507.4.4

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1507.4.4 Attachment. Metal roof panels shall be secured to the supports in accordance with the *approved* manufacturer's fasteners. In the absence of manufacturer recommendations, the following fasteners shall be used:

1. Galvanized fasteners shall be used for steel roofs.
2. Copper, brass, bronze, copper alloy or 300 series stainless-steel fasteners shall be used for copper roofs.
3. Stainless-steel fasteners are acceptable for all types of metal roofs.
4. Aluminum fasteners are acceptable for aluminum roofs attached to aluminum supports.

Reason: New language provides acceptable construction methods for aluminum-only roof systems.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change adds an appropriate requirement to allow proper fastening of aluminum roof panels.

Assembly Action: **None**

Final Hearing Results

S38 **AS**

Code Change No: S40-12

Original Proposal

Section(s): 1507.7.3

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Revise as follows:

1507.7.3 Underlayment. Underlayment shall comply with ASTM D 226, Type ~~I~~ II or ASTM D 4869, Type III or Type IV.

Reason: This code change proposal is intended to update the Code's minimum requirement for underlayment used with slate roof systems.

Both *The NRCA Roofing Manual* and the National Slate Association's *Slate Roofs Design and Installation Manual* recommend a minimum No. 30 underlayment be used for slate roof systems. A No. 30 designation is consistent with underlayment products designated ASTM D226, Type II or ASTM D4869, Type III or Type IV. Use of these Type classes in the Code is necessary to differentiate to the products from lighter-weight No. 15 underlayment products.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change clarifies slate roof underlayment requirements by specifying a heavier product which is consistent with the longer life expected of a slate roof.

Assembly Action: **None**

Final Hearing Results

S40 **AS**

Code Change No: S43-12

Original Proposal

Section(s): 1507.12.3, 1507.13.3, Chapter 35 (NEW)

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Revise as follows:

1507.12.3 Ballasted thermoset low-slope roofs. Ballasted thermoset low-slope roofs (roof slope < 2:12) shall be installed in accordance with this section and Section 1504.4. Stone used as ballast shall comply with ASTM D 448 or ASTM D 7655.

1507.13.3 Ballasted thermoplastic low-slope roofs. Ballasted thermoplastic low-slope roofs (roof slope < 2:12) shall be installed in accordance with this section and Section 1504.4. Stone used as ballast shall comply with ASTM D448 or ASTM D 7655.

Add new standard to Chapter 35 as follows:

ASTM

D 7655-12 Standard Classification for Size of Aggregate Used as Ballast for Roof Membrane Systems

Reason: This code change proposal is intended to add a new recognized standard to the Code for the size classification of aggregate used as ballast for membrane roof systems.

ASTM D 7655, "Standard Classification for Size of Aggregate Used as Ballast for Membrane Roof Systems," has just been published in 2012 and provides a method for the definition of sizes of aggregate used as ballast for membrane roof systems.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of ASTM D 7655 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This code change add a new ASTM reference standard the is specifically aimed at ballasted roofs,

Assembly Action: **None**

Final Hearing Results

S43 **AS**

Code Change No: S47-12

Original Proposal

Section(s): 1507.17.1 (NEW), 1507.17.2 (NEW), 1507.17.3 (NEW), 1507.17.4 (NEW), 1507.17.4.1 (NEW), 1507.17.4.2 (NEW), 1507.17.5 (NEW)

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Add new text as follows:

1507.17.1 Deck requirements. Photovoltaic shingles shall be applied to a solid or closely fitted deck, except where the roof covering is specifically designed to be applied over spaced sheathing.

1507.17.2 Deck slope. Photovoltaic shingles shall not be installed on roof slopes less than three units vertical in 12 units horizontal (25-percent slope).

1507.17.3 Underlayment. Unless otherwise noted, required underlayment shall conform to ASTM D 226, ASTM D 4869, or ASTM D 6757.

1507.17.4 Underlayment application. Underlayment shall be applied shingle fashion, parallel to and starting from the eave, lapped 2 inches (51 mm) and fastened sufficiently to hold in place.

1507.17.4.1 High wind attachment. Underlayment applied in areas subject to high winds [V_{asd} greater than 110 mph (49 m/s) as determined in accordance with Section 1609.3.1] shall be applied with corrosion-resistant fasteners in accordance with the manufacturer's instructions. Fasteners shall be applied along the overlap at a maximum spacing of 36 inches (914 mm) on center. Underlayment installed where V_{asd}, in accordance with Section 1609.3.1, equals or exceeds 120 mph (54 m/s) shall comply with ASTM D 226 Type II, ASTM D 4869 Type IV, or ASTM D 6757. The underlayment shall be attached in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps. Underlayment shall be applied in accordance with Section 1507.2.8 except all laps shall be a minimum of 4 inches (102 mm). Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 1 inch (25 mm) with a thickness of not less than 32-gauge [0.0134 inch (0.34 mm)] sheet metal. The cap nail shank shall be a minimum of 12 gauge [0.105 inch (2.67 mm)] with a length to penetrate through the roof sheathing or a minimum of 3/4 inch (19.1 mm) into the roof sheathing.

> **Exception:** As an alternative, adhered underlayment complying with ASTM D 1970 shall be permitted.

1507.17.4.2 Ice barrier. In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier that consists of at least two layers of underlayment cemented together or of a self adhering polymer modified bitumen sheet shall be used instead of normal underlayment and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the *exterior wall* line of the building.

> **Exception:** Detached accessory structures that contain no conditioned floor area.

1507.17.5 Fasteners. Fasteners for photovoltaic shingles shall be galvanized, stainless steel, aluminum or copper roofing nails, minimum 12 gage [0.105 inch (2.67 mm)] shank with a minimum 3/8 inch-diameter (9.5 mm) head, of a length to penetrate through the roofing materials and a minimum of 3/4 inch (19.1 mm)

into the roof sheathing. Where the roof sheathing is less than 3/4 inch (19.1 mm) thick, the nails shall penetrate through the sheathing. Fasteners shall comply with ASTM F 1667.

Reason: This code change proposal adds specific requirements for roof decks, roof deck slope, underlayment, underlayment application, underlayment attachment in high wind regions, ice barrier and fasteners to Section 1507.17 on photovoltaic shingles.

The specific requirements being added are consistent with similar attributes for other steep-slope, shingle-type roof coverings. For example, the added Section 1507.17.1 and Section 1507.7.2 are adapted from Section 1507.5.1 and Section 1507.5.2, respectively. Section 1507.3 and Section 1507.4 are adapted from Section 1507.2.3 and Section 1507.2.8, respectively. Section 1507.17.5 is adapted from Section 1507.2.6

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1507.17.1 Deck requirements. Photovoltaic shingles shall be applied to a solid or closely fitted deck, except where the ~~roof covering is~~ shingles are specifically designed to be applied over spaced sheathing.

(Portions of proposal not shown are unchanged)

Committee Reason: This proposal fills a void in the code with requirements that have an industry consensus. The modification corrects the terminology.

Assembly Action: **None**

Final Hearing Results

S47 **AM**

Code Change No: S50-12

Original Proposal

Section(s): Table 1508.2

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE.

Revise as follows:

TABLE 1508.2
MATERIAL STANDARDS FOR ROOF INSULATION

Cellular glass board	ASTM C 552
Composite boards	ASTM C 1289, Type III, IV, V or VI
Expanded polystyrene	ASTM C 578
Extruded polystyrene	ASTM C 578
Fiber-reinforced gypsum board	ASTM C 1278
Glass-faced gypsum board	ASTM C 1177
Mineral fiber insulation board	ASTM C 726
Perlite board	ASTM C 728
Polyisocyanurate board	ASTM C1289, Type I or Type II
Wood fiberboard	ASTM C 208

Reason: This code change proposal is intended to add recognized product standards to Table 1508.2-Material Standards for Roof Insulation for fiber-reinforced gypsum board and glass-faced gypsum board commonly used in roof assemblies.

ASTM C1278, "Standard Specification for Fiber-Reinforced Gypsum Panel," is the U.S. product standard applicable to fiber-reinforced gypsum board used in roof assemblies.

ASTM C1177, "Standard Specification for Glass Matt Substrate Used as Sheathing," is the U.S. product standard applicable to glass-faced gypsum board used in roof assemblies.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC Fire Safety code development committee.

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the addition of the materials and standards in Table 1508.2 was appropriate and allowed for materials that are currently widely used.

Assembly Action: **None**

Final Hearing Results

S50 **AS**

Code Change No: S51-12

Original Proposal

Section(s): 202 (New), 1509 (New), 1509.1 (New), 1509.2 (New), 1509.3 (New), Chapter 35 (New)

Proponent: Ken Sagan, NRG Code Advocates, representing Reflective Insulation Mfg. Assoc. International (ken@nrgcodeadvocates.com)

THIS CODE CHANGE PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE. SEE THE HEARING ORDER FOR THE IBC FIRE SAFETY CODE DEVELOMPENT COMMITTEE.

Add new text as follows:

SECTION 202
DEFINITIONS

RADIANT BARRIER. A material having a low emittance surface (0.1 or less) and where installed in building assemblies, the low emittance surface shall face a ventilated or unventilated air space.

Add new text as follows:

SECTION 1509
RADIANT BARRIER-ABOVE DECK

1509.1 General. The use of above-deck radiant barriers shall be p ermitted provided that the radiant barrier is covered with an *approved* roof covering and passes the tests of FM 4450 or UL 1256 when tested as an assembly.

1509.2 Radiant barrier. Installed above-deck shall have a continuous 0.5 inch (minimum) air space on the low emittance side of the product.

1509.3 Material standards, Above-deck radiant barrier shall comply with ASTM C1313/1313M

Add new standard to Chapter 35 as follows:

ASTM

C1313/C1313M-10 Standard Specification for Sheet Radiant Barriers for Building Construction Applications

Reason: There is a common misunderstanding in the market that some radiant barrier products installed above-deck, typically between the deck and the felt, provide some level of thermal benefit. This is not the case and this proposal intends to clarify the air gap requirements for above-deck radiant barriers.

References:
ASTM C1313/C1313M-10 Standard Specification for Sheet Radiant Barriers for Building Construction Applications

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

This code change was heard by the IBC Fire Safety code development committee.

Note: For staff analysis of the content of ASTM C 1313 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Disapproved**

Committee Reason: The committee felt that the proposal needed too many modifications; the proponent wants to substitute an updated version of the standard, modification of the definition of "radiant barrier" is suggested to be consistent with industry standards and clarification of the radiant barrier airspace as being minimum or maximum in necessary.

Assembly Action: **None**

Public Comments

Public Comment 1:

Marcelo M Hirschler, GBH International, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

Section 202 - Definitions

RADIANT BARRIER. A material having a low emittance surface of ~~(~~0.1 or less~~)~~ ~~and when~~ installed in building assemblies~~, the low emittance surface shall face a ventilated or unventilated air space~~.

SECTION 1509
RADIANT BARRIER-ABOVE DECK

1509.1 General. ~~The use of above-deck radiant barriers shall be permitted provided that the radiant barrier is covered with an *approved* roof covering and passes the tests of FM 4450 or UL 1256 when tested as an assembly.~~ A radiant barrier installed above a deck shall comply with Sections 1509.2 through 1509.4.

~~**1509.2 Radiant barrier.** Installed above-deck shall have a continuous 0.5 inch (minimum) air space on the low emittance side of the product.~~

1509.2 Fire Testing. Radiant barriers shall be permitted for use above decks where the radiant barrier is covered with an *approved* roof covering and the system consisting of the radiant barrier and the roof covering complies with the requirements of either FM 4550 or UL 1256.

~~**1509.3 Material standards,** Above-deck radiant barrier shall comply with ASTM C1313/1313M.~~

1509.3 Installation. The low emittance surface of the radiant barrier shall face the continuous air space between the radiant barrier and the roof covering.

1509.4 Material standards. A radiant barrier installed above a deck shall comply with ASTM C1313/C1313M.

Add new standard to Chapter 35 as follows:

ASTM

C1313/C1313M-~~10~~ 12 Standard Specification for Sheet Radiant Barriers for Building Construction Applications

Commenter's Reason: A key issue that needs to be addressed in the new proposed section 1509, and that was unclear in the original proposal, was how the fire testing of the system is to be done. The comment clarifies that the testing must be done using the combination of the radiant barrier **and** the approved roof covering and that the system needs to pass the fire test.

The new text is necessary because there are differences between a reflective insulation and a radiant barrier, even if there are many similarities and the fire testing is similar. For example, one difference is that a radiant barrier often does not provide thermal insulation. ASTM has issued separate specifications for radiant barriers used in buildings (ASTM C1313, Standard Specification for Sheet Radiant Barriers for Building Construction Applications) and for reflective insulations used in buildings (ASTM C1224, Standard Specification for Reflective Insulation for Building Applications).

The original proposal also contained a definition that was incorrect in that it did not just explain what a radiant barrier is but it also told users how to install products, which it should not do.

The public comment also includes the reference standard specification and includes the updated edition, without the non-mandatory language identified by the ICC standards committee. The abstract of the ASTM C1313 specification reads as follows. "This specification covers the general physical property requirements of radiant barrier materials for use in building construction. The scope is specifically limited to requirements for radiant barrier sheet materials that consist of at least one surface, such as metallic foils or metallic deposits mounted or unmounted on substrates. Sheet radiant barrier materials shall consist of low emittance surface(s) that may be in combination with any substrates and adhesives required to meet the specified physical material properties. The following test methods shall be performed: surface emittance; water vapor transmission; surface burning characteristics; corrosivity; tear resistance; and adhesive performance."

There is a companion proposal, FS199, dealing with a radiant barrier section in Chapter 26, and it proposes the same definition as this one. The proposals can be handled independently and are not a function of each other.

Final Hearing Results

S51-12	AMPC1

Code Change No: S59-12

Original Proposal

Section(s): 1510.1

Proponent: Michael D. Fischer, Kellen Company, representing Asphalt Roofing Manufacturers Association (mfischer@kellencompany.com)

Revise as follows:

1510.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15.

Exception: ~~Reroofing~~ Roof replacement or roof recover of existing low-slope roof coverings shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide positive roof drainage.

Reason: The current text is not clear that steep slope roof coverings are not included in the exception to the ¼ minimum slope requirement. This change is largely editorial since the roof covering approvals should govern.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal is primarily editorial, and clarifies the applicability of the exception to material and methods of reroofing.

Assembly Action: **None**

Final Hearing Results

S59	AS

Code Change No: S60-12

Original Proposal

Section(s): 1510.1

Proponent: Mark S. Graham, National Roofing Contractors Association (mgraham@nrca.net)

Revise as follows:

1510.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15.

Exceptions:

1. Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide positive roof drainage.
2. Recovering or replacing an existing roof covering shall not be required to meet the requirement for secondary (emergency overflow) drains or scuppers in Section 1503.4 for roofs that provide for positive roof drainage.

Reason: IBC 2006 and subsequent editions include a requirement in Section 1503.4-Roof Drainage that for roof drainage systems with roof drains or scuppers, secondary (emergency overflow) drains or scuppers also be provided in the event the primary roof drainage system becomes clogged.

Section 1510-Reroofing requires all materials and methods used in recovering or replacing an existing roof covering comply with the requirements of Chapter 15 (except the minimum roof slope requirement of ¼:12 can be waived for roofs that provide "…positive roof drainage."). This can be interpreted to require the secondary (emergency overflow) drains and scupper provision also apply in reroofing. Since many existing buildings were designed and constructed before the code included a secondary drainage requirement, the secondary drainage provision being applicable in reroofing and the need for adding secondary drains in exsiting buildings during reroofing can be a very costly and disruptive undertaking for owners and occupants.

This proposed code change adds an exception in Section 1510-Reroofing that waives the secondary drainage provision when reroofing existing buildings when the roof drains properly, that being hat provide for positive roof drainage. The term "positive roof drainage' is already defined in Section 202.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1510.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15.

Exceptions:

1. Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide positive roof drainage.
2. Recovering or replacing an existing roof covering shall not be required to meet the requirement for secondary (emergency overflow) drains or scuppers in Section 1503.4 for roofs that provide for positive roof drainage and are not required to have secondary drains or scuppers.

Committee Reason: This code change adds an exception that recognizes in existing buildings without these drains, they would be difficult to add when reroofing. The modification addresses an unintended consequence of roofs with secondary drainage using the exception to eliminate the required drains.

Assembly Action: **None**

Public Comments

Public Comment 2:

Jonathan Siu representing City of Seattle Dept of Planning & Development, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1510.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15.

Exceptions:

1. Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide positive roof drainage.
2. Recovering or replacing an existing roof covering shall not be required to meet the requirement for secondary (emergency overflow) drains or scuppers in Section 1503.4 for roofs that provide for positive roof drainage ~~and are not required to have secondary drains or scuppers~~. For the purposes of this exception, existing secondary drainage or scupper systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or scuppers designed and installed in accordance with Section 1503.4.

Commenter's Reason: The intent of the original proposal was to provide an exception to make sure secondary roof drains would not required to be installed if the only extent of the work was to re-cover or replace the existing roof covering. The Report of Hearings states the Structural Committee's reason for modifying the proposal was that it didn't want to give the false impression that existing secondary roof drains could be removed. However, as actually modified by the Committee, this exception is only allowed to apply where the secondary drains are not required. This modification essentially makes the exception useless—very few building owners would install secondary drainage if it is not required, and if the secondary drainage is required, the exception no longer applies, so the owner has to install the secondary drains. This goes against the whole intent of the original proposal.

The proposed modification in this public comment is intended to preserve the original intent of the proposal, but clarifies this exception cannot be used to remove a required, existing secondary drainage system, unless it is replaced by a code-compliant system.

Final Hearing Results

S60-12 **AMPC2**

Code Change No: S62-12

Original Proposal

Section(s): 1510.3 (New), 1510.4

Proponent: Michael D. Fischer, Kellen Company, representing Asphalt Roofing Manufacturers Association (mfischer@kellencompany.com)

Revise as follows:

1510.3 Roof replacement. Roof replacement shall include the removal of all existing layers of roof coverings down to the roof deck.

Exceptions:

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs where applied in accordance with Section 1510.4.
3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.
4. Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507.
5. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
6. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
7. Where the existing roof has two or more applications of any type of roof covering.

~~**1510.3**~~ **1510.4** ~~**Recovering versus replacement**~~ **Roof recovering.** ~~New roof coverings shall not be installed without first removing all existing layers of roof coverings down to the roof deck~~ Roof recovering shall be prohibited where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.

Exceptions:

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1510.4.
3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.

4. Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507.

Reason: The current text is confusing and contains directions on what NOT to do regarding roof recovering. The proposal reorganizes the text without making any technical changes in order to add clarity to the code. The revisions provide clear distinction between roof replacement and roof recovering

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed text is not clear and contains errors. The proponent requested disapproval, recognizing there was too much to fix with a floor modification.

Assembly Action: **None**

Public Comments

Public Comment:

Michael D. Fischer, Kellen company, representing Asphalt Roofing Manufacturers Association, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

~~**1510.3 Recovering versus replacement.** New roof coverings shall not be installed without first removing all existing layers of roof coverings down to the roof deck where any of the following conditions occur:~~

~~1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.~~
~~2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.~~
~~3. Where the existing roof has two or more applications of any type of roof covering.~~

~~**Exceptions:**~~

~~1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.~~
~~2. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1510.4.~~
~~3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.~~
~~4. Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507.~~

1510.3 Roof replacement. Roof replacement shall include the removal of all existing layers of roof coverings down to the roof deck.

Exception: Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507.

1510.3.1 Roof recover. The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. Where the new roof covering is installed in accordance with the roof covering manufacturers approved installation instructions.
2. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.

3. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1510.4.
4. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.

1510.3.1.1 A *roof recover* shall not be permitted where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.

Commenter's Reason: This proposal was submitted as part of a package. The proponent requested disapproval of the proposal due to a scoping error and other technical issues. The intent of this proposal is to clarify the requirements for roof recover and roof replacement. In the new Section 1510.3, the requirements for roof replacement (and the exception for ice barrier membranes) remain intact. The new Section 1510.3.1 provides a much clearer path to identify those conditions where recover is permitted by the code. The current provisions for roof recover remain intact, except for two technical changes:
1. The current code contains a conflict related to the covering of wood shakes. The public comment provides a remedy by eliminating the prohibition contained in the source text for the new 1510.3.1.1, which is in conflict the application in accordance with Section 1510.4.
2. The code lists several prescriptive options for recover, but does not specifically provide for other conditions where products have been evaluated for recover applications. The modified proposal includes that option, but requires installation in accordance with the manufacturer's instructions.

Final Hearing Results

S62-12 **AMPC**

Code Change No: S65-12

Original Proposal

Section(s): 1511.1.1

THIS CODE CHANGE WILL BE HEARD BY THE IBC GENERAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Proponent: Maureen Traxler, City of Seattle Department of Planning & Development (Maureen.traxler@seattle.gov); Thomas Meyers, City of Central, CO, representing self

Delete without substitution:

~~**1511.1.1 Structural fire resistance.** The structural frame and roof construction supporting the load imposed upon the roof by the photovoltaic panels/modules shall comply with the requirements of Table 601~~.

Reason:
(Traxler) This section is not needed because Table 601 will apply regardless of this section. In addition, the terminology used is not consistent with the terms used in Table 601, creating confusion about whether the "structural frame…supporting the load imposed upon the roof" is different than the primary structural frame and secondary members referenced in Table 601. If they are different, then Table 601 doesn't have any applicable requirements. If they are the same, the section isn't necessary because compliance with Table 601 is already required by Chapter 6.
(Meyers) This new section was added as part of a comprehensive code change submitted to the IFC and ultimately approved as modified by public comment at the Dallas Final Action Hearings. The new subsection 1511.1.1 has generated considerable confusion. It has been interpreted to require any of the stand-off rack frame used to mount solar panels to the roof to be fire resistance rated consistent with the Type of Construction used by the building. In the case of I-A construction, this interpretation would require the typical aluminum square tube "column" supports to exhibit 3 hour fire endurance. This is extremely excessive and very difficult to achieve in an exposed, exterior application.

It appears that the intent may have been to ensure that the underlying supporting roof structure be provided with the fire performance prescribed by Chapter 6 when supporting any loads imposed by the solar panel array system that includes the racking system. The code already ensures that in Chapter 6. Therefore, this section is completely redundant. As such, it should be eliminated to avoid confusion.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

This code change was heard by the IBC General code development committee.

Committee Action: **Disapproved**

Committee Reason: The committee did agree with the intent that the photovoltaics were not considered part of the structure but there was concern with the deletion of the section in its entirety. Without this section the potential loading on the roof would not be properly addressed.

Assembly Action: **None**

Public Comments

Public Comment 2:

Thomas Meyers and Stephen Thomas, Colorado Code Consulting, LLC representing the Colorado Chapter of ICC, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

~~**1511.1.1**~~ **1509.9 Structural fire resistance**. The structural frame and roof construction supporting ~~the load~~ imposed loads upon the roof by ~~the photovoltaic panels/modules~~ any rooftop structure shall comply with the requirements of Table 601. The fire resistance reduction permitted by Table 601, Footnote a shall not apply to roofs containing rooftop structures.

Reason: During the public hearing, some opponents indicated that they believed this section's intent is to direct the user to Table 601, Footnote A. Should this cross reference be necessary, this proposal would apply the requirement to ALL rooftop structures. This eliminates the current discriminatory condition where only solar PV is addressed. This clarity modification is provided as an alternative to our other public comment that would approved as submitted the original proposal to delete this confusing language altogether.

Final Hearing Results

S65-12 **AMPC2**

Code Change No: S66-12

Original Proposal

Section(s): 202

Proponent: Phillip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Delete without substitution:

~~**ARCHITECTURAL TERRA COTTA.** Plain or ornamental hard-burned modified clay units, larger in size than *brick*, with glazed or unglazed ceramic finish.~~

~~**BOND BEAM.** A horizontal grouted element within *masonry* in which reinforcement is embedded.~~

~~**DURATION OF LOAD.** The period of continuous application of a given *load*, or the aggregate of periods of intermittent applications of the same *load*.~~

~~**GLUED BUILT-UP MEMBER.** A structural element, the section of which is composed of built-up lumber, wood structural panels or wood structural panels in combination with lumber, all parts bonded together with structural adhesives.~~

~~**INSPECTION CERTIFICATE.** An identification applied on a product by an *approved agency* containing the name of the manufacturer, the function and performance characteristics, and the name and identification of an *approved agency* that indicates that the product or material has been inspected and evaluated by an *approved agency* (see Section 1703.5 and "*Label*," "Manufacturer's designation" and "*Mark*").~~

~~**RUBBLE MASONRY.** *Masonry* composed of roughly shaped stones.~~
~~**Coursed rubble.** Masonry composed of roughly shaped stones fitting approximately on level beds and well bonded.~~
~~**Random rubble.** Masonry composed of roughly shaped stones laid without regularity of coursing but well bonded and fitted together to form well-divided *joints*.~~
~~**Rough or ordinary rubble.** Masonry composed of unsquared field stones laid without regularity of coursing but well bonded.~~

~~**STACK BOND.** The placement of *masonry units* in a bond pattern is such that head *joints* in successive courses are vertically aligned. For the purpose of this code, requirements for stack bond shall apply to *masonry* laid in other than *running bond*.~~

~~**SUBDIAPHRAGM.** A portion of a larger wood *diaphragm* designed to anchor and transfer local forces to primary *diaphragm* struts and the main *diaphragm*.~~

Revise as follows:

[A] LABEL. An identification applied on a product by the manufacturer that contains the name of the manufacturer, the function and performance characteristics of the product or material, and the name and identification of an *approved agency* and that indicates that the representative sample of the product or material has been tested and evaluated by an *approved agency* (see Section 1703.5 and "~~Inspection certificate~~," "Manufacturer's designation" and "*Mark*").

[A] MANUFACTURER'S DESIGNATION. An identification applied on a product by the manufacturer indicating that a product or material complies with a specified standard or set of rules (see also "~~Inspection certificate~~," "*Label*" and "*Mark*").

[A] MARK. An identification applied on a product by the manufacturer indicating the name of the manufacturer and the function of a product or material (see also "~~Inspection certificate~~," "*Label*" and "Manufacturer's designation").

Reason: The definitions are being deleted because they serve no purpose in the building code. There are no instances of any of the defined terms in the 2012 IBC other than as shown in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agrees with the proposal to remove definitions of terms that not used in the code. The balance of the changes is for consistency with these deletions.

Assembly Action: **None**

Final Hearing Results

S66 **AS**

Code Change No: S67-12

Original Proposal

Section(s): 1602

Proponent: Charles S. Bajnai, Chesterfield County, VA, representing ICC Building Code Action Committee (bajnaic@chesterfield.gov)

Revise as follows:

DIAPHRAGM. A horizontal or sloped system acting to transmit lateral forces to ~~the vertical-resisting elements~~ vertical elements of the lateral-force-resisting-system. When the term "diaphragm" is used, it shall include horizontal bracing systems.

Reason: This proposal cleans up a grammatical error with the current language. The current definition reads, "…transmit lateral forces to the **vertical-resisting** elements."

As written with the hyphenated term **"vertical-resisting"**, it means that the "elements" resist "vertical" which doesn't make sense. The definition should convey that the vertical elements of the system resist the lateral forces transmitted from the diaphragm(s). The current definition is the same as the definition in American Forest & Paper Associations' *Special Design Provisions for Wind and Seismic* (SDPWS) with the exception of the hyphen between "vertical" and "resisting" that does not occur in SDPWS. Better language is provided in American Society of Civil Engineers', *ASCE 7* where it states, for "Diaphragm Flexibility" in Section 12.3.1, ***"The structural analysis shall consider the relative stiffnesses of diaphragms and the vertical elements of the lateral-force-resisting systems."*** The ASCE 7 language is the best definition of the three and this proposal corrects the error in the current language and aligns it with ASCE 7.

IBC section 1604.4 reads correctly and states,

*The total lateral force shall be distributed to the various **vertical elements of the lateral force-resisting system** in proportion to their rigidities, considering the rigidity of the horizontal bracing system or diaphragm.*

This proposal does not change any technical requirements of the code. It merely addresses a grammar error and promotes consistency with ASCE 7 standard.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change corrects the definition of diaphragm. Doing so coordinates the IBC with ASCE 7.

Assembly Action: **None**

Final Hearing Results

S67	AS

Code Change No: S69-12

Original Proposal

Section(s): 1603.1.3

Proponent: Edwin Huston, National Council of Structural Engineers Association (NCSEA), representing NCSEA Code Advisory Subcommittee – General Requirements Subcommittee (huston@smithustoninc.com)

Revise as follows:

1603.1.3 Roof snow load data. The ground snow load, P_g, shall be indicated. In areas where the ground snow load, P_g, exceeds 10 pounds per square foot (psf) (0.479 kN/m2), the following additional information shall also be provided, regardless of whether snow loads govern the design of the roof:

1. Flat-roof snow load, P_f.
2. Snow exposure factor, C_e.
3. Snow load importance factor, I.
4. Thermal factor, C_t.
5. Drift surcharge load, p_d, where the sum of p_d and P_f exceeds 20 pounds per square foot (psf).
6. Width of snow drift, w.

Reason: The addition of loading information and design assumptions to drawings has been valuable to owners and the engineers who are tasked with re-evaluating existing structures. This additional requirement of snow drift design information supplements the information already required and indicates how the registered design professional interpreted the design codes relative to snow drift intensity and width.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1603.1.3 Roof snow load data. The ground snow load, P_g, shall be indicated. In areas where the ground snow load, P_g, exceeds 10 pounds per square foot (psf) (0.479 kN/m2), the following additional information shall also be provided, regardless of whether snow loads govern the design of the roof:

1. Flat-roof snow load, P_f.
2. Snow exposure factor, C_e.
3. Snow load importance factor, I.
4. Thermal factor, C_t.
5. Drift surcharge load(s), p_d, where the sum of p_d and P_f exceeds 20 pounds per square foot (psf).
6. Width of snow drift(s), w.

Committee Reason: The committee agreed that the drift load and the width of snow drift are important to have on the plans. The increased transparency it affords makes it easier on the plans examiner. It also is beneficial for alterations to existing buildings. The modification is a clarification that recognizes there can be multiple drifts in some cases.

Assembly Action: **None**

Final Hearing Results

S69 **AM**

Code Change No: S71-12

Original Proposal

Section(s): 1603.1.7

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov) (gregory.p.wilson@dhs.gov), Rebecca C. Quinn, RCQuinn Consulting, Inc., representing Department of Homeland Security, Federal Emergency Management Agency (rcquinn@earthlink.net)

Revise as follows:

1603.1.7 Flood design data. For buildings located in whole or in part in *flood hazard areas* as established in Section 1612.3, the documentation pertaining to design, if required in Section 1612.5, shall be included and the following information, referenced to the datum on the community's Flood Insurance Rate Map (FIRM), shall be shown, regardless of whether flood loads govern the design of the building:

1. *Risk Category* assigned according to ASCE 24.
~~1.~~ 2. In *flood hazard areas* not subject to high-velocity wave action, the elevation of the proposed lowest floor, including the basement.
~~2.~~3. In *flood hazard areas* not subject to high-velocity wave action, the elevation to which any nonresidential building will be dry flood proofed.
~~3.~~ 4. In *flood hazard areas* subject to high-velocity wave action, the proposed elevation of the bottom of the lowest horizontal structural member of the lowest floor, including the basement.

Reason: The current edition of ASCE 24 uses the assigned occupancy/structure category primarily to determine elevation of buildings above the design flood elevation, in keeping with the general approach that more important buildings be designed for less frequent environmental loads. The next edition of ASCE 24 will include the Risk Category table from ASCE 7-10. The ASCE committee recognized that ASCE 7-10 eliminated the lists of buildings for each category and determined it important to ensure that the assignment of risk category be guided by definitions that are specifically developed to ensure that buildings in flood hazard areas are appropriately protected. Therefore, the next edition of ASCE 24 requires the user to reevaluate and possibly reassign a risk category specifically for the purpose of flood loads and flood resistant construction requirements.

ASCE began the process of updating ASCE 24-05 in early 2011 and the next edition is expected to be published late 2012 or early 2013. The ASCE committee expects to have the near-final draft prepared and available at least a month before the Group A hearings and copies will be provided to the ICC committee.

Cost Impact: The code change proposal will not increase the cost of construction. The definitions of each risk category that will be in the revised ASCE 24 and used only for the purpose of assigning risk category for flood-resistant design essentially retain the descriptions from the 2012 IBC Table 1604.5 of which buildings fall into each of the risk categories.

Analysis: Will the proposal introduce a conflict with Section 1604.5?

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: There was concern with having to consult an additional table in a standard for a risk category for flood purposes. Consideration should be given to identifying it as a flood risk category.

Assembly Action: **None**

Public Comments

Public Comment:

John Ingargiola, Gregory Wilson representing Department of Homeland Security, Federal Emergency Management Agency, Rebecca Quinn, RCQuinn Consulting, Inc, representing Department of Homeland Security, Federal Emergency Management Agency, request Approval as Modified by this Public Comment.

Modify the proposal as follows:

1603.1.7 Flood design data. For buildings located in whole or in part in *flood hazard areas* as established in Section 1612.3, the documentation pertaining to design, if required in Section 1612.5, shall be included and the following information, referenced to the datum on the community's Flood Insurance Rate Map (FIRM), shall be shown, regardless of whether flood loads govern the design of the building:

1. ~~*Risk Category*~~ Flood design class assigned according to ASCE 24.
2. In *flood hazard areas* not subject to high-velocity wave action, the elevation of the proposed lowest floor, including the basement.
3. In *flood hazard areas* not subject to high-velocity wave action, the elevation to which any nonresidential building will be dry flood proofed.
4. In *flood hazard areas* subject to high-velocity wave action, the proposed elevation of the bottom of the lowest horizontal structural member of the lowest floor, including the basement.

Commenter's Reason: The near-final draft of ASCE 24 based on the third ballot no longer uses the structure/risk category designation. Instead, ASCE 24-12 will require each building and structure to be assigned to a "Flood Design Class", which is then used throughout the standard to specify elevation requirements and floodproofing limitations.

Final Hearing Results

S71-12 **AMPC**

Code Change No: S72-12

Original Proposal

Section(s): 1603.1.8.1 (New), 1607.12.5 (New), 1607.12.5.1 (New), 1607.12.5.2 (New), 1607.12.5.3 (New), 1607.12.5.4 (New)

Proponent: Edwin Huston, National Council of Structural Engineers Associations (NCSEA), representing NCSEA Code Advisory Subcommittee – General Requirements Subcommittee (huston@smithhustoninc.com)

Add new text as follows:

1603.1.8.1 Solar Photovoltaic (PV) Panels/Modules. The Roof/PV live load used in the design of Solar PV Panels shall be indicated on the construction documents.

1607.12.5 Solar Photovoltaic (PV) panels/modules. Solar PV panels/modules shall be designed in accordance with Sections 1607.12.5.1 through 1607.12.5.4, as applicable.

1607.12.5.1 Roof/PV live load. The roof/PV live load is a 20 psf uniform load. Unless each Solar PV panel/module is clearly and permanently marked "Do not walk on this surface – not intended for maintenance access or pedestrian traffic", and appropriate maintenance access paths are provided a non-concurrent 300 pound concentrated load as set forth in Table 1607.1 shall also be applied. The individual Solar PV panels/modules shall be designed to withstand the Roof/PV live load, in combination with other applicable loads.

1607.12.5.2 PV panels/modules. Solar PV panels/modules designed to be installed over and supported by a roof, shall have the structural supports of the roof designed to accommodate the full dead load, including the Solar PV panels/modules dead load; the Roof/PV live load in the areas of the Solar PV panels/modules in combination with other applicable loads. The roof area underneath any Solar PV panels/modules shall also be designed for load combinations including roof live load, in combination with other applicable loads, without the Solar PV panels/modules.

1607.12.5.3 PV panels/modules installed as an independent structure. Solar PV panels/modules that are independent structures and do not have accessible /occupied space underneath are not required to accommodate a roof/PV live load, provided they are marked as required in Section 1607.12.5.1, and the area under the structure is restricted to keep the public away. All other loads and combinations per Section 1605 shall be accommodated.

Solar PV panels/modules that are designed to be the roof, and span to structural supports, and have accessible/occupied space underneath shall have the panels/modules and all supporting structure designed to support a Roof/PV live load, as defined in section 1607.12.5.1 in combination with other applicable loads. Solar PV panels/modules in this application are not permitted to be classified as "not accessible" per 1607.12.5.1.

1607.12.5.4 Ballasted systems. Solar PV panels/modules installed on a roof as a ballasted system need not be rigidly attached to the roof or supporting structure. Ballasted systems shall be designed and installed only on roofs with slopes of ½" per foot or less. The structural supports of the roof under a ballasted system shall be designed, or analyzed, per section 1604.4; checked in accordance with Section 1604.3.6 for deflections; and checked in accordance with Section 1611 for ponding. The ballasted system shall be designed to resist sliding and uplift resulting from lateral and vertical forces as required by Section 1605, using a coefficient of friction determined by acceptable engineering principles.

Reason: This new section is bringing in requirements for Solar PV panels that is currently absent in the code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1603.1.8.1 Solar photovoltaic (PV) panels~~/~~ or modules. The ~~Roof/PV live~~ dead load ~~used in the design~~ of ~~Solar PV Panels~~ solar PV panels or modules, including accessories, shall be indicated on the construction documents.

1607.12.5 Solar photovoltaic (PV) panels~~/~~ or modules. Solar PV panels~~/~~ or modules shall be designed in accordance with Sections 1607.12.5.1 through 1607.12.5.4, as applicable.

1607.12.5.1 Roof/PV live load. ~~The roof/PV live load is a 20 psf uniform load. Unless each Solar PV panel/module is clearly and permanently marked "Do not walk on this surface – not intended for maintenance access or pedestrian traffic", and appropriate maintenance access paths are provided a non-concurrent 300 pound concentrated load as set forth in Table 1607.1 shall also be applied. The individual Solar PV panels/modules shall be designed to withstand the Roof/PV live load, in combination with other applicable loads.~~ Roof surfaces to be covered by solar PV panels or modules shall be designed for the roof live load, L_r, assuming that the PV panels or module are not present. The roof/PV live load in areas covered by solar PV panels or modules shall be in addition to the panel loading unless the area covered by each solar PV panel or module is inaccessible. Areas where the clear space between the panels and the rooftop is 24 inches or less shall be considered inaccessible. Roof surfaces not covered by PV panels shall be designed for the roof live load.

1607.12.5.2 PV panels~~/~~ or modules. ~~Solar PV panels/modules designed to be installed over and supported by a roof, shall have the structural supports of the roof designed to accommodate the full dead load, including the Solar PV panels/modules dead load; the Roof/PV live load in the areas of the Solar PV panels/modules in combination with other applicable loads. The roof area underneath any Solar PV panels/modules shall also be designed for load combinations including roof live load, in combination with other applicable loads, without the Solar PV panels/modules.~~ The structure of a roof that supports solar PV panels or modules shall be designed to accommodate the full solar PV panels or modules and ballast dead load, including concentrated loads from support frames in combination with the loads from Section 1607.12.5.1 and other applicable loads. Where applicable, snow drift loads created by the PV panels or modules shall be included.

1607.12.5.3 PV panels~~/~~ or modules installed as an independent structure. Solar PV panels~~/~~ or modules that are independent structures and do not have accessible /occupied space underneath are not required to accommodate a roof/PV live load, provided ~~they are marked as required in Section 1607.12.5.1, and~~ the area under the structure is restricted to keep the public away. All other loads and combinations in accordance with Section 1605 shall be accommodated.

Solar PV panels~~/~~ or modules that are designed to be the roof, and span to structural supports, and have accessible/occupied space underneath shall have the panels~~/~~ or modules and all supporting structure designed to support a roof/PV live load, as defined in Section 1607.12.5.1 in combination with other applicable loads. Solar PV panels~~/~~ or modules in this application are not permitted to be classified as not accessible in accordance with Section 1607.12.5.1.

1607.12.5.4 Ballasted systems. Solar PV panels~~/~~ or modules installed on a roof as a ballasted system need not be rigidly attached to the roof or supporting structure. Ballasted systems shall be designed and installed only on roofs with slopes of ~~½"~~ 1 inch per foot or less. The structural supports of the roof under a ballasted system shall be designed, or analyzed, in accordance with Section 1604.4; checked in accordance with Section 1604.3.6 for deflections; and checked in accordance with Section 1611 for ponding. The ballasted system shall be designed to resist sliding and uplift resulting from lateral and vertical forces as required by Section 1605, using a coefficient of friction determined by acceptable engineering principles. In sites where the Seismic Design Category is C or above, the system shall be designed to accommodate seismic displacement determined by nonlinear response-history analysis or shake-table testing, using input motions consistent with ASCE 7 lateral and vertical seismic forces for non-structural components on roofs.

Committee Reason: This code change adds needed provisions for live loads related to solar photovoltaic panels and modules. The modification, which represents the consensus of the structural engineering community and the industry, reflects prior committee actions related to photovoltaics. It also clarifies treatment of live loads snow drifts, load combinations as well as seismic considerations.

Assembly Action: **None**

Public Comments

Public Comment 1:

Joseph H. Cain, P.E., SolarCity Corporation, representing self and John Smirnow, Solar Energy Industries Association (SEIA), requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1603.1.8.1 ~~Solar photovoltaic (PV) panels or modules~~ Photovoltaic panel systems. The dead load of ~~solar PV panels or modules~~ rooftop mounted photovoltaic panel systems, including ~~accessories~~ rack support systems, shall be indicated on the construction documents.

1607.12.5 ~~Solar photovoltaic (PV) panels or modules~~ Photovoltaic panel systems. ~~Solar PV panels or modules~~ Roof structures that provide support for photovoltaic panels sytems shall be designed in accordance with Sections 1607.12.5.1 through 1607.12.5.4, as applicable.

(Portions of proposal not show remain unchanged)

Commenter's Reason: This change is intended to clarify the requirements using language that correlates with newly revised and approved terms while using language that can be easily understood by all users of the code. These revisions are provided in response to comments from the Structural Committee as part of their approval as modified of S72-12.

Sections 1603.1.8.1 and 1607.12.5 are revised for clarity, using newly defined term "photovoltaic panel system," as approved in S5-12.

Language is revised to clarify that this section applies to roof loads for design of the roof structure, not to the design of photovoltaic panels or modules themselves.

Public Comment 5:

Joseph H. Cain, P.E., SolarCity Corporation, representing self and John Smirnow, Solar Energy Industries Association (SEIA), requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1607.12.5.4 Ballasted photovoltaic panel systems. ~~Solar PV panels/ or modules installed on a roof as a ballasted system need not be rigidly attached to the roof or supporting structure. Ballasted systems shall be designed and installed only on roofs with slopes of ½" 1 inch per foot or less. The structural supports of the roof under a~~ Roof structures that provide support for ballasted photovoltaic panel systems shall be designed, or analyzed, in accordance with Section 1604.4; checked in accordance with Section 1604.3.6 for deflections; and checked in accordance with Section 1611 for ponding. ~~The ballasted system shall be designed to resist sliding and uplift resulting from lateral and vertical forces as required by Section 1605, using a coefficient of friction determined by acceptable engineering principles. In sites where the Seismic Design Category is C or above, the system shall be designed to accommodate seismic displacement determined by nonlinear response-history analysis or shake-table testing, using input motions consistent with ASCE 7 lateral and vertical seismic forces for non-structural components on roofs.~~

1613.5 Ballasted photovoltaic panel systems. Ballasted, roof-mounted photovoltaic panel systems need not be rigidly attached to the roof or supporting structure. Ballasted non-penetrating systems shall be design and installed only on roofs with slopes of 1 inch per foot or less. Ballasted non-penetrating systems shall be designed to resist sliding and uplift resulting from lateral and vertical forces as required by Section 1605, using a coefficient of friction determined by acceptable engineering principles. In structures assigned to, Seismic Design Category C, D, E or F, ballasted non-penetrating the systems shall be designed to accommodate seismic displacement determined by nonlinear response-history analysis or shake-table testing, using input motions consistent with ASCE 7 lateral and vertical seismic forces for non-structural components on roofs.

(Portions of proposal not show remain unchanged)

Commenter's Reason: This change is intended to clarify the requirements using language that correlates with newly revised and approved terms while using language that can be easily understood by all users of the code. These revisions are provided in response to comments from the Structural Committee as part of their approval as modified of S72-12.

Section 1607.12.5.3 is revised for clarity, using newly defined term "photovoltaic panel system," as approved in S5-12. Language is revised and re-ordered to clarify those statements in the first paragraph apply to all ballasted photovoltaic panel systems, and the statements in the second paragraph apply only to those ballasted systems that are "non-penetrating," and do not have anchorage to the roof structure. The second paragraph is relocated to new Section 1613.5, under Section 1613 Earthquake loads, as it is not appropriate under Section 1607.12 Roof loads.

Final Hearing Results

S72-12 **AMPC1, 5**

Code Change No: S73-12

Original Proposal

Section(s): 1603.1.9

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Delete without substitution:

~~**1603.1.9 Systems and components requiring special inspections for seismic resistance.** ***C****onstruction documents* or specifications shall be prepared for those systems and components requiring *special inspection* for seismic resistance as specified in Section 1705.11 by the *registered design professional* responsible for their design and shall be submitted for approval in accordance with Section 107.1. Reference to seismic standards in lieu of detailed drawings is acceptable.~~

Reason: Section 1603.1.9 is being deleted because it serves no purpose not already being served by Section 107.1, which requires construction documents that are submitted with each permit application to be prepared by a registered design professional but only where required by the statutes of the jurisdiction in which the construction or work is located. Section 1603.1.9, however, requires preparation of construction documents or specifications by the registered design professional responsible for the design of the system or component and references Section 107.1 for the submittal, but not the preparation, of the construction documents.

The deletion also eliminates a conflict with the charging language in Section 1603.1, which requires design loads and other information pertinent to the structural design to be specified on the construction documents. Section 1603.1.9, however, specifies no such design loads or other pertinent information.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal removes a redundant requirement regarding the submittal of construction documents. The requirement for preparation of construction documents by a registered design professional is already covered in Chapter 1 and there's no reason to have the seismic only requirement to be repeated here.

Assembly Action: **None**

Final Hearing Results

S73 **AS**

Code Change No: S74-12

Original Proposal

Section(s): Table 1604.3

Proponent: Edwin Huston, National Council of Structural Engineers Associations (NCSEA), representing NCSEA Code Advisory Subcommittee – General Requirements Subcommittee (huston@smithhustoninc.com)

Revise as follows:

TABLE 1604.3
DEFLECTION LIMITS[a,b,c,h,i]

CONSTRUCTION	L	S or W[f]	D + L[d,g]
Roof Members:[e]			
Supporting plaster ceiling	*l* / 360	*l* / 360	*l* / 240
Supporting plaster ceiling	*l* / 240	*l* / 240	*l* / 180
Not supporting ceiling	*l* / 180	*l* / 180	*l* / 120
Floor Members	*l* / 360	-	*l* / 240
Exterior walls and interior partitions:			
With plaster or stucco finishes	-	*l* / 360	-
With other brittle finishes	-	*l* / 240	-
With flexible finishes	-	*l* / 120	-
Farm buildings	-	-	*l* / 180
Greenhouses	-	-	*l* / 120

b. ~~Interior partitions not exceeding 6ft in height and~~ Flexible, folding and portable partitions are not governed by the provisions of this section. The deflection criterion for interior partitions is based on the horizontal load defined in section 1607.14.

(Portions of Table not shown remain unchanged)

Reason: In footnote b the reference to interior partitions not exceeding 6ft in height is redundant and not needed. The second sentence of the footnote refers the user to Section 1607.14 (attached to the proposed change for reference) which already limits the live loading to partitions exceeding 6 feet.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that removing unnecessary wording on partition height from footnote b in Table 1604.3 is an editorial improvement.

Assembly Action: **None**

Final Hearing Results

S74 **AS**

Code Change No: S75-12

Original Proposal

Section(s): Table 1604.3, 1607.14, 1607.14.1

Proponent: Edwin Huston, National Council of Structural Engineers Associations (NCSEA), representing NCSEA Code Advisory Subcommittee – General Requirements Subcommittee (huston@smithhustoninc.com)

Revise as follows:

TABLE 1604.3
DEFLECTION LIMITS[a, b, c, h, i]

CONSTRUCTION	L	S or W[f]	D + L[d,g]
Roof Members:[e]			
Supporting plaster ceiling	*l* / 360	*l* / 360	*l* / 240
Supporting plaster ceiling	*l* / 240	*l* / 240	*l* / 180
Not supporting ceiling	*l* / 180	*l* / 180	*l* / 120
Floor Members	*l* / 360	-	*l* / 240
Exterior walls ~~and interior partitions~~:			
With plaster or stucco finishes	-	*l* / 360	-
With other brittle finishes	-	*l* / 240	-
With flexible finishes	-	*l* / 120	-
Interior Partitions:[b]			
With plaster or stucco finishes	*l* / 360	-	-
With other brittle finishes	*l* / 240	-	-
With flexible finishes	*l* / 120	-	-
Farm buildings	-	-	//180
Greenhouses	-	-	//120

(Portions of Table not shown remain unchanged)

1607.14 Interior walls and partitions. Interior walls and partitions that exceed 6 feet (1829 mm) in height, including their finish materials, shall have adequate strength and stiffness to resist the loads to which they are subjected but not less than a horizontal load of 5 psf (0.240 kN/m2).

Exception: Fabric partitions complying with Section 1607.14.1 shall not be required to resist the minimum horizontal load of 5 psf (0.24 kN/m2).

1607.14.1 Fabric partitions. Fabric partitions that exceed 6 feet (1829 mm) in height, including their finish materials, shall have adequate strength and stiffness to resist the following load conditions:

1. A horizontal distributed load of 5 psf (0.24 kN/m2) applied to the partition framing. The total area used to determine the distributed load shall be the area of the fabric face between the framing members to which the fabric is attached. The total distributed load shall be uniformly applied to such framing members in proportion to the length of each member.
2. A concentrated load of 40 pounds (0.176 kN) applied to an 8-inch diameter (203 mm) area [50.3 square inches (32 452 mm2)] of the fabric face at a height of 54 inches (1372 mm) above the floor.

Reason: Currently Table 1604.3 does not have deflection limits for Live Loads on Interior walls. The 5.0psf requirement in section 1607.14 is classified as a live load and would not require a deflection check. Under the legacy Uniform Building Code this load was treated as an "other load" and was required to meet the deflection limits similar to those in IBC Table 1604.3. To avoid confusion for walls, and to require deflection checks on interior walls, the proposed code change is necessary.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change separates the deflection limits for interior partitions from those for exterior walls. Furthermore, it appropriately bases the interior partition limits on live load rather than wind.

Assembly Action: **None**

Final Hearing Results

S75 **AS**

Code Change No: S76-12

Original Proposal

Section(s): Table 1604.3

Proponent: Brad Douglas, PE, American Wood Council (pcoats@awc.org)

Revise as follows:

TABLE 1604.3
DEFLECTION LIMITS[a, b, c, h, i]

(Portions of Table and footnotes not shown remain unchanged)

~~d For wood structural members having a moisture content of less than 16 percent at time of installation and used under dry conditions, the deflection resulting from *L* + 0.5*D* is permitted to be substituted for the deflection resulting from *L* + *D*.~~

d. The deflection limit for the *D*+*L* load combination only applies to the deflection due to the creep component of long-term dead load deflection plus the short-term live load deflection. For wood structural members that are dry at time of installation and used under dry conditions, the creep component of the long-term deflection shall be permitted to be estimated as the immediate dead load deflection resulting from 0.5*D*. For wood structural members at all other moisture conditions, the creep component of the long-term deflection is permitted to be estimated as the immediate dead load deflection resulting from *D*. The value of 0.5D shall not be used in combination with NDS provisions for long-term loading.

Reason: Deflection limits for the load combination *D*+*L*, were taken from the UBC deflection limits. However, the intent of the UBC limits was not brought forward. The original intent of these provisions was to limit the total deflection based on the combination of live load deflection and the creep component of the dead load deflection. As a result, there have been several prior code cycle modifications to these provisions to re-instate the original intent, such as the addition of footnote "g" for steel structural members which effectively excludes steel from checking for the creep component of dead load deflection. As currently written and formatted, the *D*+*L* deflection provision can be misinterpreted to suggest that the total deflection due to dead load, *D*, including both the immediate and creep components of the dead load deflection, should be used with the deflection limit in this column. Additionally, use of 0.5*D* in footnote "d" is potentially non-conservative without clarification that the 0.5*D* load reduction approach is a numerically consistent alternative to the NDS provisions. Without this clarification, a potential misinterpretation is that the creep component of dead load deflection is to be calculated using NDS provisions and the reduced dead load (i.e. 0.5*D*). This change makes calculation of *D*+*L* deflection for comparison against the *D*+*L* deflection limit in Table 1604.3 consistent with the provisions in NDS 3.5.2 for long-term loading and consistent with the stated intent in the UBC and with similar provisions in ACI 318 as described in the ACI 318 Commentary. The applicable NDS provisions are shown below for reference.

NDS 3.5.2 Long-Term Loading:

3.5 Bending Members – Deflection

3.5.1 Deflection Calculations

If deflection is a factor in design, it shall be calculated by standard methods of engineering mechanics considering bending deflections and, when applicable, shear deflections. Consideration for shear deflection is required when the reference modulus of elasticity has not been adjusted to include the effects of shear deflection (see Appendix F).

3.5.2 Long-Term Loading

Where total deflection under long-term loading must be limited, increasing member size is one way to provide extra stiffness to allow for this time dependent deformation (see Appendix F). Total deflection, Δ_T, shall be calculated as follows:

$$\Delta_T = K_{cr}\Delta_L + \Delta_S \quad (3.5\text{-}1)$$

where:

K_{cr} = time dependent deformation (creep) factor

= 1.5 for seasoned lumber, structural glued laminated timber, prefabricated wood I-joists, or structural composite lumber used in dry service conditions as defined in 4.1.4, 5.1.4, 7.1.4, and 8.1.4, respectively.

= 2.0 for structural glued laminated timber used in wet service conditions as defined in 5.1.4.

= 2.0 for wood structural panels used in dry service conditions as defined in 9.1.4.

= 2.0 for unseasoned lumber or for seasoned lumber used in wet service conditions as defined in 4.1.4.

Δ_{LT} = immediate deflection due to the long-term component of the design load, in.

Δ_{ST} = deflection due to the short-term or normal component of the design load, in.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

TABLE 1604.3
DEFLECTION LIMITS[a, b, c, h, i]

(Portions of Table and footnotes not shown remain unchanged)

d. The deflection limit for the *D+L* load combination only applies to the deflection due to the creep component of long-term dead load deflection plus the short-term live load deflection. For wood structural members that are dry at time of installation and used under dry conditions in accordance with the *AF&PA NDS*, the creep component of the long-term deflection shall be permitted to be estimated as the immediate dead load deflection resulting from 0.5*D*. For wood structural members at all other moisture conditions, the creep component of the long-term deflection is permitted to be estimated as the immediate dead load deflection resulting from *D*. The value of 0.5D shall not be used in combination with *AF&PA* NDS provisions for long-term loading.

Committee Reason: This proposal makes the deflection limit determination in Table 1604.3 consistent with the AF&PA NDS. The modification provides clarification on the meaning of dry conditions.

Assembly Action: **None**

Final Hearing Results

S76 **AM**

Code Change No: S78-12

Original Proposal

Section(s): Table 1604.3

Proponent: Thomas S. Zaremba, Roetzel & Andress, representing Glazing Industry Code Committee (tzaremba@ralaw.com)

Revise as follows:

TABLE 1604.3
DEFLECTION LIMITS[a, b, c, h, i]

CONSTRUCTION	*L*	*S* or *W*[f]	*D* + *L*[d, g]
Roof members:[e]			
Supporting plaster or stucco ceiling	*1*/360	*1*/360	*1*/240
Supporting nonplaster ceiling	*1*/240	*1*/240	*1*/180
Not supporting ceiling	*1*/180	*1*/180	*1*/120
Floor members	*1*/360	---	*1*/240
Exterior walls and interior partitions:			
With plaster or stucco finishes	---	*1*/360	---
With other brittle finishes	---	*1*/240	---
With flexible finishes	---	*1*/120	---
Farm buildings	---	---	*1*/180
Greenhouses	---	---	*1*/120

For SI: 1 foot = 304.8 mm.

a. For structural roofing and siding made of formed metal sheets, the total load deflection shall not exceed *1*/60. For secondary roof structural members supporting formed metal roofing, the live load deflection shall not exceed *1*/150. For secondary wall members supporting formed metal siding, the design wind load deflection shall not exceed *1*/90. For roofs, this exception only applies when the metal sheets have no roof covering.
b. Interior partitions not exceeding 6 feet in height and flexible, folding and portable partitions are not governed by the provisions of this section. The deflection criterion for interior partitions is based on the horizontal load defined in Section 1607.14.
c. See Section 2403 for glass supports.
d. For wood structural members having a moisture content of less than 16 percent at time of installation and used under dry conditions, the deflection resulting from *L* + 0.5*D* is permitted to be substituted for the deflection resulting from *L* + *D*.
e. The above deflections do not ensure against ponding. Roofs that do not have sufficient slope or camber to assure adequate drainage shall be investigated for ponding. See Section 1611 for rain and ponding requirements and Section 1503.4 for roof drainage requirements.
f. W shall be taken as the nominal load for wind. The wind load is permitted to be taken as 0.42 times the "component and cladding" loads for the purpose of determining deflection limits ~~herein~~ for main windforce-resisting systems.
g. For steel structural members, the dead load shall be taken as zero.
h. For aluminum structural members or aluminum panels used in skylights and sloped glazing framing, roofs or walls of sunroom additions or patio covers, not supporting edge of glass or aluminum sandwich panels, the total load deflection shall not exceed *1*/60. For continuous aluminum structural members supporting edge of glass, the total load deflection shall not exceed *1*/175 for each glass lite or *1*/60 for the entire length of the member, whichever is more stringent. For aluminum sandwich panels used in roofs or walls of sunroom additions or patio covers, the total load deflection shall not exceed *1*/120.
i. For cantilever members, *1* shall be taken as twice the length of the cantilever.

Reason: Section 1605.2 of the IBC provides load combinations using strength or factored load design while 1605.3 provides load combinations using allowable stress design. For wind load determination, ASCE 7-10 is now based on strength design and ultimate wind speeds. Conversion to allowable working stress (nominal) loads is accomplished by multiplying the factored wind load by 0.6.

The original reduction of 0.7 in footnote (f) in earlier editions of the IBC was changed last cycle by multiplying 0.7 and 0.6 to get the 0.42 factor now shown in the current code. The added sentence to the beginning of the footnote is a clarification to use nominal loads for wind used in allowable stress design to determine deflection which corresponds to the use of the 0.42 reduction.

A second clarification is also added at the end of footnote (f) to properly restrict the use of the 0.42 reduction to deflection calculations of main structural members shown in the Table 1604.3 when using "component and cladding wind load and preventing users from inappropriately combining this reduction with component and cladding deflections described in footnotes (a), (c), and (h) of this table.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

TABLE 1604.3
DEFLECTION LIMITS[a, b, c, h, i]

(Portions of Table and footnotes not shown remain unchanged)

f. ~~W shall be taken as the nominal load for wind.~~ The wind load is permitted to be taken as 0.42 times the "component and cladding" loads for the purpose of determining deflection limits herein ~~for main wind force-resisting systems~~. Where members support glass in accordance with Section 2403 using the deflection limit therein, the wind load shall be no less than 0.6 times the component and cladding loads for the purpose of determining deflection.

Committee Reason: This code change properly addresses defection criteria for glazing under wind loading. The modification corrects the footnote for use with the deflection limits in Section 2403.

Assembly Action: **None**

Final Hearing Results

S78 **AM**

Code Change No: S79-12

Original Proposal

Section(s): 202, 1602.1, 1604.4, 1610.1 1613.5.6.1

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee

Delete without substitution:

SECTION 202
DEFINITIONS

DIAPHRAGM. A horizontal or sloped system acting to transmit lateral forces to the vertical-resisting elements. When the term "diaphragm" is used, it shall include horizontal bracing systems.

~~**Diaphragm flexible.** A diaphragm is flexible for the purpose of distribution of story shear and torsional moment where so indicated in Section 12.3.1 of ASCE 7.~~

~~**Diaphragm, rigid.** A diaphragm is rigid for the purpose of distribution of story shear and torsional moment when the lateral deformation of the diaphragm is less than or equal to two times the average story drift.~~

Revise as follows:

SECTION 1602
DEFINITIONS AND NOTATIONS

1602.1 Definitions. The following terms are defined in Chapter 2:

DIAPHRAGM.
Diaphragm, blocked.
Diaphragm boundary.
Diaphragm chord.
~~**Diaphragm flexible.**~~
~~**Diaphragm, rigid.**~~

(Portions of text not shown remains unchanged)

1604.4 Analysis. *Load effects* on structural members and their connections shall be determined by methods of structural analysis that take into account equilibrium, general stability, geometric compatibility and both short- and long-term material properties.

Members that tend to accumulate residual deformations under repeated service loads shall have included in their analysis the added eccentricities expected to occur during their service life.

Any system or method of construction to be used shall be based on a rational analysis in accordance with well-established principles of mechanics. Such analysis shall result in a system that provides a complete load path capable of transferring loads from their point of origin to the load-resisting elements.

The total lateral force shall be distributed to the various vertical elements of the lateral force-resisting system in proportion to their rigidities, considering the rigidity of the horizontal bracing system or diaphragm. Rigid elements assumed not to be a part of the lateral force-resisting system are permitted to be incorporated into buildings provided their effect on the action of the system is considered and provided

for in the design~~. Except where diaphragms are flexible, or are permitted to be analyzed as flexible~~, Provisions shall be made for the increased forces induced on resisting elements of the structural system resulting from torsion due to eccentricity between the center of application of the lateral forces and the center of rigidity of the lateral force-resisting system, except where diaphragms are considered as flexible, permitted to be idealized as flexible or semi-rigid, in accordance with Section 12.3.1 of ASCE for seismic loads or Chapter 26 of ASCE 7 for wind loads.

Every structure shall be designed to resist the overturning effects caused by the lateral forces specified in this chapter. See Section 1609 for wind loads, Section 1610 for lateral soil loads and Section 1613 for earthquake loads.

1610.1 General. Foundation walls and retaining walls shall be designed to resist lateral soil loads. Soil loads specified in Table 1610.1 shall be used as the minimum design lateral soil loads unless determined otherwise by a geotechnical investigation in accordance with Section 1803. Foundation walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure. Retaining walls free to move and rotate at the top shall be permitted to be designed for active pressure. Design lateral pressure from surcharge loads shall be added to the lateral earth pressure load. Design lateral pressure shall be increased if soils at the site are expansive. Foundation walls shall be designed to support the weight of the full hydrostatic pressure of undrained backfill unless a drainage system is installed in accordance with Sections 1805.4.2 and 1805.4.3.

> **Exception:** Foundation walls extending not more than 8 feet (2438 mm) below grade and laterally supported at the top by ~~flexible~~ diaphragms considered as flexible, permitted to be idealized as flexible or semi-rigid, in accordance with Section 12.3.1 of ASCE for seismic loads or Chapter 26 of ASCE for wind loads shall be permitted to be designed for active pressure.

1613.3.5.1 Alternative seismic design category determination. Where S_1 is less than 0.75, the *seismic design category* is permitted to be determined from Table 1613.3.5(1) alone when all of the following apply:

1. In each of the two orthogonal directions, the approximate fundamental period of the structure, T_a, in each of the two orthogonal directions determined in accordance with Section 12.8.2.1 of ASCE 7, is less than 0.8 T_s determined in accordance with Section 11.4.5 of ASCE 7.
2. In each of the two orthogonal directions, the fundamental period of the structure used to calculate the story drift is less than T_s.
3. Equation 12.8-2 of ASCE 7 is used to determine the seismic response coefficient, C_s.
4. The diaphragms are rigid as defined in Section 12.3.1 of ASCE 7 or, for diaphragms that are considered flexible, permitted to be idealized as flexible or semi-rigid in accordance with Section 12.3.1 of ASCE 7, the distances between vertical elements of the seismic force-resisting system do not exceed 40 feet (12 192 mm).

Reason: The ICC Building Code Action Committee was asked to look at clearing up potential conflicts between the references to, and definitions of, flexible and rigid diaphragms in the IBC and ASCE-7-10. The BCAC did identify potential conflicts between the IBC's definition of a rigid diaphragm and the ASCE 7-10 criteria for classifying a diaphragm as rigid, semi-rigid or flexible. Also, it is considered inappropriate to include enforceable code requirements or references to standards as part of a definition. Thus, by this proposal, the BCAC proposes to remove the separate definitions for flexible and rigid diaphragms from the IBC and supply direct references in IBC Chapter 16 to the relevant requirements in the ASCE 7 seismic and wind chapters for when a diaphragm can be idealized as flexible or semi-rigid. This reference only occurs in the IBC in the sections noted in the code change proposal. In practical application, the code user will be turning to the requirements of ASCE-7 to categorize the diaphragm and perform the design. Therefore, there is no real need or advantage to provide the definitions in the IBC and this will prevent future maintenance of the terms and/or conflict between them.

For reference, ASCE 7-10 states,

12.3.1 Diaphragm Flexibility

The structural analysis shall consider the relative stiffnesses of diaphragms and the vertical elements of the seismic force-resisting system. Unless a diaphragm can be idealized as either flexible or rigid in accordance with Sections 12.3.1.1, 12.3.1.2, or 12.3.1.3, the structural analysis shall explicitly include consideration of the stiffness of the diaphragm (i.e., semirigid modeling assumption).

12.3.1.1 Flexible Diaphragm Condition

Diaphragms constructed of untopped steel decking or wood structural panels are permitted to be idealized as flexible if any of the following conditions exist:

a. In structures where the vertical elements are steel braced frames, steel and concrete composite braced frames or concrete, masonry, steel, or steel and concrete composite shear walls.

b. In one-and two-family dwellings.

c. In structures of light-frame construction where all of the following conditions are met:

1. Topping of concrete or similar materials is not placed over wood structural panel diaphragms except for nonstructural topping no greater than 1 ½" in (38mm) thick.

2. Each line of vertical elements of the seismic force-resisting system complies with the allowable story drift of Table 12.12-1

12.3.1.2 Rigid Diaphragm Condition

Diaphragms of concrete slabs or concrete filled metal deck with span-to-depth ratios of 3 or less in structures that have no horizontal irregularities are permitted to be idealized as rigid.

12.3.1.3 Calculated Flexible Diaphragm Condition

Diaphragms not satisfying the conditions of Sections 12.3.1.1 or 12.3.1.2 are permitted to be idealized as flexible where the computed maximum in-plane deflection of the diaphragm under lateral load is more than two times the average story drift of adjoining vertical elements of the seismic force-resisting system of the associated story under equivalent tributary lateral load as shown in Fig. 12.3-1. The loadings used for this calculation shall be those prescribed by Section 12.8.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This proposal would introduce the term "semi-rigid diaphragm" into the IBC and actually conflict with ASCE 7. A public comment was suggested in hopes the various stakeholders are able to work out some of the conflicts.

Assembly Action: **None**

Public Comments

Public Comment 1:

Chuck Bajnai, Chesterfield County, VA, representing ICC Building Code Action Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

SECTION 202
DEFINITIONS

DIAPHRAGM. A horizontal or sloped system acting to transmit lateral forces to the vertical-resisting elements. When the term "diaphragm" is used, it shall include horizontal bracing systems.

Revise as follows:

SECTION 1602
DEFINITIONS AND NOTATIONS

1602.1 Definitions. The following terms are defined in Chapter 2:

DIAPHRAGM.
Diaphragm, blocked.
Diaphragm boundary.
Diaphragm chord.

(Portions of text not shown remains unchanged)

1604.4 Analysis. *Load effects* on structural members and their connections shall be determined by methods of structural analysis that take into account equilibrium, general stability, geometric compatibility and both short- and long-term material properties.

Members that tend to accumulate residual deformations under repeated service loads shall have included in their analysis the added eccentricities expected to occur during their service life.

Any system or method of construction to be used shall be based on a rational analysis in accordance with well-established principles of mechanics. Such analysis shall result in a system that provides a complete load path capable of transferring loads from their point of origin to the load-resisting elements.

The total lateral force shall be distributed to the various vertical elements of the lateral force-resisting system in proportion to their rigidities, considering the rigidity of the horizontal bracing system or diaphragm. Rigid elements assumed not to be a part of the lateral force-resisting system are permitted to be incorporated into buildings provided their effect on the action of the system is considered and provided for in the design. A diaphragm is rigid for the purpose of distribution of story shear and torsional moment when the lateral deformation of the diaphragm is less than or equal to two times the average story drift. Where required by ASCE 7, provisions shall be made for the increased forces induced on resisting elements of the structural system resulting from torsion due to eccentricity between the center of application of the lateral forces and the center of rigidity of the lateral force-resisting system, ~~except where diaphragms are considered as flexible, permitted to be idealized as flexible or semi-rigid, in accordance with Section 12.3.1 of ASCE for seismic loads or Chapter 26 of ASCE 7 for wind loads~~.

Every structure shall be designed to resist the overturning effects caused by the lateral forces specified in this chapter. See Section 1609 for wind loads, Section 1610 for lateral soil loads and Section 1613 for earthquake loads.

1610.1 General. Foundation walls and retaining walls shall be designed to resist lateral soil loads. Soil loads specified in Table 1610.1 shall be used as the minimum design lateral soil loads unless determined otherwise by a geotechnical investigation in accordance with Section 1803. Foundation walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure. Retaining walls free to move and rotate at the top shall be permitted to be designed for active pressure. Design lateral pressure from surcharge loads shall be added to the lateral earth pressure load. Design lateral pressure shall be increased if soils at the site are expansive. Foundation walls shall be designed to support the weight of the full hydrostatic pressure of undrained backfill unless a drainage system is installed in accordance with Sections 1805.4.2 and 1805.4.3.

> **Exception:** Foundation walls extending not more than 8 feet (2438 mm) below grade and laterally supported at the top by flexible diaphragms ~~considered as flexible, permitted to be idealized as flexible or semi-rigid, in accordance with Section 12.3.1 of ASCE for seismic loads or Chapter 26 of ASCE for wind loads~~ shall be permitted to be designed for active pressure.

1613.3.5.1 Alternative seismic design category determination. Where S_1 is less than 0.75, the *seismic design category* is permitted to be determined from Table 1613.3.5(1) alone when all of the following apply:

1. In each of the two orthogonal directions, the approximate fundamental period of the structure, T_a, in each of the two orthogonal directions determined in accordance with Section 12.8.2.1 of ASCE 7, is less than 0.8 T_s determined in accordance with Section 11.4.5 of ASCE 7.
2. In each of the two orthogonal directions, the fundamental period of the structure used to calculate the story drift is less than T_s.
3. Equation 12.8-2 of ASCE 7 is used to determine the seismic response coefficient, C_s.
4. The diaphragms are rigid or are permitted to be idealized as rigid in accordance with ~~as defined in~~ Section 12.3.1 of ASCE 7 or, for diaphragms ~~that are considered flexible,~~ permitted to be idealized as flexible ~~or semi-rigid~~ in accordance with Section 12.3.1 of ASCE 7, the distances between vertical elements of the seismic force-resisting system do not exceed 40 feet (12 192 mm).

Commenter's Reason: The purpose of this public comment is to address issues raised by the FEMA Code Resource Support Community, NCSEA and others, including members of the ICC BCAC work group which developed this change. Four revisions are made to the original proposal:

1) IBC Section 1604.4 is further revised to eliminate conflicts between the proposed language and the ASCE 7 wind load provisions. For wind loads, an automatic exemption from torsional requirements only applies to one-story buildings less than 30 feet in height, one- and two-story light frame buildings, and one- and two-story buildings with flexible diaphragms. Buildings three or more stories in height with flexible diaphragms are not exempt from torsional wind load cases unless additional exemptions in ASCE 7-10 Appendix D based on building dimensions and symmetry of the vertical MWFRS apply. Thus, to avoid having the IBC incorrectly exempt a building from consideration of torsional effects, a simple reference to ASCE 7 is provided in lieu of the extended reference to the wind and seismic sections.
2) Also, the traditional building code definition of a rigid diaphragm is restored to Section 1604.4. This is necessary to avoid requiring semi-rigid analysis per ASCE 7 for a large number of buildings for which such an analysis has not been done in the past and is neither necessary nor an effective use of the engineer's time.
3) The original 2012 IBC language for IBC Section 1610.1 is restored. This section is intended for design of foundation walls to resist active or passive soil pressure, which is a function solely of the soil classification and the diaphragm flexibility. Wind and seismic design requirements do not come into play. Also, a semi-rigid diaphragm will probably be too stiff to permit the use of active pressures. The revisions will leave selecting the appropriate criteria to justify a flexible diaphragm assumption to the engineer's judgment.
4) IBC Section 1613.5.6.1, Item #4 is further revised to more closely mirror ASCE 7 Section 11.6. The key alignment is to use the "permitted to be idealized as flexible" language from ASCE 7 Sections 12.3.1.2 and 12.3.1.3. Thus, the current "considered

flexible" phrasing should be deleted and replaced with the ASCE statement. Also, the 40-foot limitation does not apply when a semi-rigid modeling assumption is used because the actual stiffness of the diaphragm will be taken into account. Thus, the reference to semi-rigid diaphragms should be deleted.

Final Hearing Results

S79-12 **AMPC1**

Code Change No: S82-12

Original Proposal

Section(s): 1604.5

Proponent: Edwin Huston, National Council of Structural Engineers Associations (NCSEA), representing NCSEA Code Advisory Subcommittee – General Requirements Subcommittee (huston@smithustoninc.com)

Revise as follows:

1604.5 Risk category. Each building and structure shall be assigned a *risk category* in accordance with Table 1604.5. Where a referenced standard specifies an occupancy category, the *risk category* shall not be taken as lower than the occupancy category specified therein. Where a referenced standard specifies that the assignment of a risk category be in accordance with ASCE 7, Table 1.5-1, Table 1604.5 shall be used in lieu of ASCE 7, Table 1.5-1.

Reason: IBC Table 1604.5 has a concise and extensive list of various occupancies, whereas ASCE 7, Table 1.5-1 is limited and , being a standard, rather than a code, much more general. This can lead to confusion in the appropriate determination of a risk category, if one tries to comply with both.

As examples of when one can be referred to both tables, consider:

1. IBC Section 1609 Wind Loads requires wind loads to be determined in accordance with ASCE 7, chapters 26 thru 30. The confusion comes in when you are in those chapters of ASCE 7, risk categories per Table 1.5-1 are referenced (26.5.1; Table 27.5-1; Table 28.2-1; Table 29.1-1; Tables 30.4-1 thru 30.7-1).
2. AISC 360-10, Section N5.5b also references ASCE 7 Table 1.5-1 as follows:

5b. CJP Groove Weld NDT

For structures in Risk Category III or IV of Table 1.5-1, Risk Category of Buildings and Other Structures for Flood, Wind, Snow, Earthquake and Ice Loads, of ASCE/SEI 7, *Minimum Design Loads for Buildings and Other Structures*, UT shall be performed by QA on all CJP groove welds subject to transversely applied tension loading in butt, T- and corner joints, in materials 5/16 in. (8 mm) thick or greater. For structures in Risk Category II, UT shall be performed by QA on 10% of CJP groove welds in butt, T- and corner joints subject to transversely applied tension loading, in materials 5/16 in. (8 mm) thick or greater.

This code change is intended to provide consistency by using only IBC Table 1604.5.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: Does IBC Section 102.4.1 already provide sufficient clarification?

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee believes this code change eliminates possible conflicts with the code and referenced standards.

Assembly Action: **None**

Final Hearing Results

S82 **AS**

Code Change No: S83-12

Original Proposal

Section(s): Table 1604.5

Proponent: William W. Stewart, FAIA, representing self (codedoc@sbcglobal.net)

Revise as follows:

TABLE 1604.5
RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to: • Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300. • Buildings and other structures containing ~~elementary school, secondary school or day care facilities~~ Group E occupancies with an occupant load greater than 250. • Buildings and other structures containing ~~adult education facilities, such as colleges and universities~~, educational occupancies for students above the 12th grade with an occupant load greater than 500. • Group I-2 occupancies with an occupant load of 50 or more resident care recipients but not having surgery or emergency treatment facilities. • Group I-3 occupancies. • Any other occupancy with an occupant load greater than 5,000[a]. • Power-generating stations, water treatment facilities for potable water, waste water treatment facilities and other public utility facilities not included in Risk Category IV. • Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that: Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the *International Fire Code*; and Are sufficient to pose a threat to the public if released [b].

(Portions of table not shown remain unchanged)

Reason: Consistency. The laundry list in the second bullet is exactly the same as the entire list of items that make up E Occupancies in 305. This just substitutes a defined term for a laundry list. My change has the added advantage of making it clearer that the 250 occupant load trigger applies to all, not just day care facilities.

The change in bullet 3 uses the words from 304. Current text says the same thing as in 304 but uses different words.. Additionally it relieves the code from deciding which college freshmen are adults.

This change also makes it clear that trade schools are covered .

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal provides a necessary clarification of Risk Category III in Table 1604.5 by correlating the table entries with Chapter 3 occupancy groups.

Assembly Action: **None**

Final Hearing Results

S83 **AS**

Code Change No: S87-12

Original Proposal

Section(s): 202, Table 1607.1

Proponent: Gary J. Ehrlich, P.E., National Association of Home Builders (NAHB) (gehrlich@nahb.org)

Delete without substitution:

SECTION 202
DEFINITIONS

~~**MARQUEE.** A *canopy* that has a top surface which is sloped less than 25 degrees from the horizontal and is located less than 10 feet (3.05 m) from operable openings above or adjacent to the level of the marquee.~~

Revise as follows:

TABLE 1607.1
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
~~21. Marquees~~	~~75~~	-
26. Roofs		
All roof surfaces subject to maintenance workers		300
Awnings and canopies:		
Fabric construction supported by a skeleton structure	5 Nonreducible	
All other construction	20[n]	
Ordinary flat, pitched, and curved roofs (that are not occupiable)	20	
Where primary roof members are exposed to a work floor, at single panel point of lower chord of roof trusses or any point along primary structural members supporting roofs:		
Over manufacturing, storage warehouses, and repair garages		2,000
All other primary roof members		300
Occupiable roofs:		
Roof gardens	100	
Assembly areas	100[m]	
All other similar areas	Note 1	Note 1

n Where a canopy has a top surface sloped less than 25 degrees from the horizontal and is located less than 10 feet (3.05 m) from operable openings above or adjacent to the level of the canopy, the minimum live load shall be taken as the live load of the adjacent room or space, but not less than 40psf. The maximum live load for canopies less than or equal to 100 square feet in area shall be 60psf.

(Portions of Table and footnotes not shown remain unchanged)

Reason: The purpose of this amendment is to revise the 2012 IBC language regarding canopies and marquees. The language approved for the 2012 IBC will substantially change the design requirements for many small porch and patio roofs on buildings nowhere near public streets. These roofs are currently designed for standard roof live loads or local ground snow loads (typically in the range of 20 or 30 pounds per square foot). These elements will now need to be designed for 75psf if they happen to be less than 10 feet vertically from a window above or horizontally from a window at the level of the canopy. This represents a substantial increase in design requirements for apartment or condominium complexes with these elements, as well as a substantial issue for renovations. This change deletes the definition for marquees in its entirety and transfers the language regarding canopy slope and ability to access the top surface from nearby openings to a footnote on the standard canopy live load. It also requires the window to be operable. The live load for the accessible canopy condition is set to the adjacent occupancy, with a minimum floor of 40psf (equivalent to the traditional load for a residential deck). To avoid effectively further raising the live load requirement from 75psf to 100psf for a small canopy accessible from an egress hallway or stair, a maximum live load of 60psf is established for canopies not exceeding 100 square feet in area (similar to what the traditional load cases were for residential balconies).

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal would remove the definition of marquee which in turn leaves Section 3106 without the definition that ties it into code requirements. The increased canopy loads may have been an unintended consequence of prior code changes, but come up with an alternative that leaves the definition of marquees.

Assembly Action: **None**

Public Comments

Public Comment:

Gary J. Ehrlich, P.E, representing National Association of Home Builders (NAHB), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

MARQUEE. A canopy that has a top surface which is sloped less than 25 degrees from the horizontal and is located less than 10 feet (3.05 m) from operable openings above or adjacent to the level of the marquee.

TABLE 1607.1
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
21. Marquees, except one- and two-family dwellings	75	—
~~21~~22. Office Buildings		
~~22~~23. Penal Institutions		
~~23~~24. Recreational uses		
~~24~~25. Residential		
One- and two-family dwellings		
Uninhabitable attics without storage[i]	10	
Uninhabitable attics with storage [f, j, k]	20	
Habitable attics and sleeping areas[k]	30	
Canopies, including marquees	20	
All other areas	40	
Hotels and multifamily dwellings		
Private rooms and corridors serving them	40	
Public rooms[m] and corridors serving them	100	
~~25~~26. Roofs		
All roof surfaces subject to maintenance workers		300
Awnings and canopies:		
Fabric construction supported by a skeleton structure	5	
All other construction, except one- and two-family dwellings	nonreducible	
Ordinary flat, pitched, and curved roofs (that are not occupiable)	20[n]	
Where primary roof members are exposed to a work floor, at single panel	20	

point of lower chord of roof trusses or any point along primary structural members supporting roofs:		
Over manufacturing, storage warehouses, and repair garages	100	2,000
All other primary roof members	100[m]	300
Occupiable roofs:		
Roof gardens	Note l	Note l
Assembly areas		
All other similar areas		

a. ~~Where a canopy has a top surface sloped less than 25 degrees from the horizontal and is located less than 10 feet (3.05 m) from operable openings above or adjacent to the level of the canopy, the minimum live load shall be taken as the live load of the adjacent room or space, but not less than 40psf. The maximum live load for canopies less than or equal to 100 square feet in area shall be 60psf.~~

(Portions of Table and footnotes not shown remain unchanged)

Commenter's Reason: The purpose of this public comment is to revise our proposal to address issues raised by the IBC Structural Committee and testimony from the floor. The two primary issues were that the committee and testifiers noted a need to retain a definition for marquees, to go with the provisions of Section 3106, and to retain the higher live load for the types of appurtenances likely to be climbed by drunk football fans or used by rock bands filming videos.

NAHB's concern with NCSEA's change last cycle is that it could result in a significant design load increase for canopies and canopy-like structures (porch and patio roofs) associated with Group R-3 dwellings and townhouses and with Group R-2 low-rise apartment and condominium buildings. In addressing this issue, it is difficult to separate Group R-2 buildings in urban environments, where NCSEA's concerns may be applicable, with Group R-2 buildings in planned communities in the suburbs where many of the issues likely do not exist. Addressing Group R-3 dwellings and townhouses, however, can be more easily accomplished. The occupant load of Group R-3 structures is low, so even if a flat or low-slope canopy or canopy-like (porch or patio) roof is used for egress or the family chooses to sit on it to watch fireworks the loads are light and the standard 20psf roof live load is sufficient.

So, the proposal is amended to replace the proposed footnote with an added line under table 1607.1 Item 21 – Residential – One and two-family dwellings for canopies (including marquees) with a live load of 20psf, regardless of roof slope, access or support conditions. This will restore the traditional design requirement for Group R-3 dwellings and maintain consistency with the IRC.

This public comment also restores the definition for marquees as requested by the committee to coordinate with the design provisions for marquees in IBC Section 3106. It is noted that Section 3106.5 indicates that a "marquee" must be supported entirely off of the building, which leaves a potential conflict with the definition in that a canopy supported at both the building and on independent columns becomes a "marquee" if it has a low-slope roof. It is left to future code cycles to address this conflict.

Final Hearing Results

S87-12 **AMPC**

Code Change No: S88-12

Original Proposal

Section(s): Table 1607.1

Proponent: Edwin Huston, National Council of Structural Engineers Associations (NCSEA), representing NCSEA Code Advisory Subcommittee – General Requirements Subcommittee (Huston@smithhustoninc.com)

Revise as follows:

TABLE 1607.1
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs)
24.Recreational uses:		
Ice Skating Rink	250[m]	See Section 1607.7.4
Roller Skating Rink	100[m]	

m. Live load reduction is not permitted unless specific exceptions of Section 1607.10 apply.

(Portions of Table and footnotes not shown remain unchanged)

Reason: : Uniformly distributed live load for rinks were in previous editions of the IBC. They were removed from the IBC 2009, as part of a larger CCP. The intent of this code change proposal is to once again list the recommended minimum uniform live load for rinks back into IBC. The proposed loads are consistent with the recommendations in ASCE7 commentary for minimum uniformly distributed live load.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change puts the uniformly distributed live loads for ice rinks and roller rinks back into the IBC.

Assembly Action: **None**

Final Hearing Results

S88 **AS**

Code Change No: S89-12

Original Proposal

Section(s): 1607.5

Proponent: Edwin Huston, National Council of Structural Engineers Associations- Code Advisory Committee - General Requirements Subcommittee (huston@smithhustoninc.com)

Revise as follows:

1607.5 Partition loads. In office buildings and in other buildings where partition locations are subject to change, provisions for partition weight shall be made, whether or not partitions are shown on the *construction documents*, unless the specified live load ~~exceeds~~ is 80 psf (3.83 kN/m^2) or greater. The partition load shall not be less than a uniformly distributed live load of 15 psf (0.72 kN/m^2).

Reason: IBC Table 1607.1, item #22 requires a live load of 80 psf for corridors above the first floor. It is a common practice to design an entire floor for an 80 psf live load, and thereby not need to worry about the locations of the corridors, or whether the corridor locations may be moved in the future. The way the code is written now, a floor would have to be designed for a live load of 81 psf (it must "exceed" 80 psf) to be able to take advantage of the exception written into section 1607.5. Otherwise one has to add a 15 psf partition load on top of an 80 psf corridor live load.

This change does not alter the requirements of ASCE 7, section 12.7.2 Effective Seismic Weight, #2 (the greater of 10 psf or the actual weight of the partitions must be used for calculating the seismic weight of a building).

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This is a relatively minor clarification of the partition loading requirement that brings consistency with the live load value of 80 psf for corridors that is commonly applied to an entire floor.

Assembly Action: **None**

Final Hearing Results

S89 **AS**

Code Change No: S90-12 Part I

Original Proposal

Section(s): 901.5, 1004.3, 1607.7.2, 1703.4.1, 1703.6, 1703.6.1, 17042, 1704.2.4, 1704.4, 1704.5, 1707.1, 1803.6, 2211.3.3, 2303.4.1.3, 3306.8, 3401.2, G104.1, J106.1, K102.3

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

THIS IS A FOUR PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

PART I – IBC STRUCTURAL

Revise as follows:

1607.7.5 Posting. The maximum weight of the vehicles allowed into or on a garage or other structure shall be posted by the owner or the owner's authorized agent in accordance with Section 106.1.

1703.4.1 Research and investigation. Sufficient technical data shall be submitted to the *building official* to substantiate the proposed use of any material or assembly. If it is determined that the evidence submitted is satisfactory proof of performance for the use intended, the *building official* shall approve the use of the material or assembly subject to the requirements of this code. The costs, reports and investigations required under these provisions shall be paid by the ~~applicant~~ owner or the owner's authorized agent.

1703.6 Evaluation and follow-up inspection services. Where structural components or other items regulated by this code are not visible for inspection after completion of a prefabricated assembly, the ~~applicant~~ owner or the owner's authorize agent shall submit a report of each prefabricated assembly. The report shall indicate the complete details of the assembly, including a description of the assembly and its components, the basis upon which the assembly is being evaluated, test results and similar information and other data as necessary for the *building official* to determine conformance to this code. Such a report shall be *approved* by the *building official*.

1703.6.1 Follow-up inspection. The ~~applicant~~ owner or the owner's authorized agent shall provide for *special inspections* of fabricated items in accordance with Section 1704.2.5.

1704.2 Special inspections. Where application is made for construction as described in this section, the owner or the *registered design professional in responsible charge* acting as the owner's authorized agent shall employ one or more *approved agencies* to perform inspections during construction on the types of work listed under Section 1705. These inspections are in addition to the inspections identified in Section 110.

Exceptions:

1. *Special inspections* are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as *approved* by the *building official*.
2. Unless otherwise required by the *building official*, *special inspections* are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.

3. Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the conventional light-frame construction provisions of Section 2308.

1704.2.4 Report requirement. Special inspectors shall keep records of inspections. The special inspector shall furnish inspection reports to the *building official*, and to the *registered design professional in responsible charge*. Reports shall indicate that work inspected was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the *registered design professional in responsible charge* prior to the completion of that phase of the work. A final report documenting required *special inspections* and correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon prior to the start of work by the ~~applicant and~~ owner or the owner's authorized agent to the *building official*.

1704.4 Contractor responsibility. Each contractor responsible for the construction of a main wind- or seismic force-resisting system, designated seismic system or a wind- or seismic-resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the *building official,* and the owner or the owner's authorized agent, prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain acknowledgement of awareness of the special requirements contained in the statement of *special inspection*.

1704.5 Structural observations. Where required by the provisions of Section 1704.5.1 or 1704.5.2, the owner or the owner's authorized agent shall employ a *registered design professional* to perform structural observations as defined in Section 1702. Prior to the commencement of observations, the structural observer shall submit to the *building official* a written statement identifying the frequency and extent of structural observations. At the conclusion of the work included in the permit, the structural observer shall submit to the *building official* a written statement that the site visits have been made and identify any reported deficiencies ~~which~~ that, to the best of the structural observer's knowledge, have not been resolved.

1707.1 General. In the absence of *approved* rules or other *approved* standards, the *building official* shall make, or cause to be made, the necessary tests and investigations; or the *building official* shall accept duly authenticated reports from *approved agencies* in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.11. The cost of all tests and other investigations required under the provisions of this code shall be borne by the ~~applicant~~ owner or the owner's authorized agent.

Revise as follows:

1803.6 Reporting. Where geotechnical investigations are required, a written report of the investigations shall be submitted to the *building official* by the ~~owner or authorized agent~~ permit applicant at the time of *permit* application. This geotechnical report shall include, but need not be limited to, the following information:

1. A plot showing the location of the soil investigations.
2. A complete record of the soil boring and penetration test logs and soil samples.
3. A record of the soil profile.
4. Elevation of the water table, if encountered.
5. Recommendations for foundation type and design criteria, including but not limited to: bearing capacity of natural or compacted soil; provisions to mitigate the effects of expansive soils; mitigation of the effects of liquefaction, differential settlement and varying soil strength; and the effects of adjacent loads.
6. Expected total and differential settlement.
7. Deep foundation information in accordance with Section 1803.5.5.

8. Special design and construction provisions for foundations of structures founded on expansive soils, as necessary.
9. Compacted fill material properties and testing in accordance with Section 1803.5.8.
10. Controlled low-strength material properties and testing in accordance with Section 1803.5.9.

Revise as follows:

2211.3.3 Trusses spanning 60 feet or greater. The owner or the owner's authorized agent shall contract with a *registered design professional* for the design of the temporary installation restraint/bracing and the permanent individual truss member restraint/ bracing for trusses with clear spans 60 feet (18 288 mm) or greater. *Special inspection* of trusses over 60 feet (18 288 mm) in length shall conform to Section 1705.

2303.4.1.3 Trusses spanning 60 feet or greater. The owner or the owner's authorized agent shall contract with any qualified *registered design professional* for the design of the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing for all trusses with clear spans 60 feet (18 288 mm) or greater.

G104.1 Required. Any person, owner or owner's authorized agent who intends to conduct any development in a flood hazard area shall first make application to the *building official* and shall obtain the required *permit*.

J106.1 Maximum slope. The slope of cut surfaces shall be no steeper than is safe for the intended use, and shall be no steeper than two units horizontal to one unit vertical (50-percent slope) unless the owner or the owner's authorized agent furnishes a geotechnical report justifying a steeper slope.

Exceptions:

1. A cut surface shall be permitted to be at a slope of 1.5 units horizontal to one unit vertical (67-percent slope) provided that all of the following are met:
   1.1. It is not intended to support structures or surcharges.
   1.2. It is adequately protected against erosion.
   1.3. It is no more than 8 feet (2438 mm) in height.
   1.4. It is approved by the building code official.
   1.5. Ground water is not encountered.
2. A cut surface in bedrock shall be permitted to be at a slope of one unit horizontal to one unit vertical (100-percent slope).

K102.3 Maintenance. Electrical systems, equipment, materials and appurtenances, both existing and new, and parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe, hazard-free condition. Devices or safeguards that are required by this code shall be maintained in compliance with the code edition under which installed. The owner or the owner's ~~designated~~ authorized agent shall be responsible for the maintenance of the electrical systems and equipment. To determine compliance with this provision, the *building official* shall have the authority to require that the electrical systems and equipment be re-inspected.

Reason: The purpose for the proposal is to update the references to "applicant" and "owner" throughout the building code by changing them to the "owner or the owner's authorized agent" where it is warranted. In conjunction with this proposal there are also changes to Chapter 1 and 2, which are in a separate proposal that will be heard by the Administration Committee. In Sections 1703.4.1 and 1707.1, "the applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible for the costs of required tests, reports and investigations. In Sections 1703.6 and 1704.2.4, "the applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible for submitting required reports to the building official. In Section 1703.6.1, the applicant" is changed to "the owner or the owner's authorized agent" for consistency with Section 1704.2 that requires the latter to employ the approved agencies. In Section 1803.6, the "owner or authorized agent" is changed to the "permit applicant" because it should be permissible for the latter to submit the geotechnical report with the other submittal documents at the time of permit application.

The 2012 IBC contains additional references to "owner" but, based on the context in which they are used, it is not considered appropriate or useful to revise the language in conjunction with this proposal (e.g., from "the owner" to "the owner or the owner's

authorized agent"). See Sections 101.4.4, 104.6, 111.2, 112.3, 116.3, 116.4, 402.3, 913.4, 1107.4-Exc. 1, 1607.7.4, 3108.2, 3307.1, 3412.4, 3412.4.1, G101.2, G105.6-Item 3, K103.1 and L101.3.

The 2012 IBC contains additional references to "applicant" but, based on the context in which they are used, it is also not considered appropriate or useful to revise the language in conjunction with this proposal (e.g., from "the applicant" to "the owner or the owner's authorized agent"). See Sections 104.10.1-Item 5, 105.1.1, 105.3, 107.3.1, 109.3, 109.5, 1612.3.1, 1612.3.2, 1704.2.3, 1704.3, G103.3, G103.4, G103.5.1, G103.6, G104.2, G105.7-Item 5 and J104.1.

All instances in the 2012 IBC of "applicant" and "owner," other than listed above, are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

PART I – IBC STRUCTURAL

Committee Action: **Approved as Submitted**

Committee Reason: This proposal clarifies the owner's responsibilities and recognizes that the owner's authorized agent can also be responsible. The use of these terms throughout makes the provisions easier to apply.

Assembly Action: **None**

Final Hearing Results

S90 Part I **AS**

Code Change No: S90-12 Part II

Original Proposal

Section(s): 901.5, 1004.3, 1607.7.2, 1703.4.1, 1703.6, 1703.6.1, 17042, 1704.2.4, 1704.4, 1704.5, 1707.1, 1803.6, 2211.3.3, 2303.4.1.3, 3306.8, 3401.2, G104.1, J106.1, K102.3

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

THIS IS A FOUR PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

PART II – IBC GENERAL

Revise as follows:

3306.8 Repair, maintenance and removal. Pedestrian protection required by this chapter shall be maintained in place and kept in good order for the entire length of time pedestrians are subject to being endangered. The *owner* or the *owner's* authorized agent, upon the completion of the construction activity, shall immediately remove walkways, debris and other obstructions and leave such public property in as good a condition as it was before such work was commenced.

3401.2 Maintenance. Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in conformance with the code edition under which installed. The owner or the owner's ~~designated~~ authorized agent shall be responsible for the maintenance of buildings and structures. To determine compliance with this subsection, the *building official* shall have the authority to require a building or structure to be re-inspected. The requirements of this chapter shall not provide the basis for removal or abrogation of fire protection and safety systems and devices in existing structures.

Reason: The purpose for the proposal is to update the references to "applicant" and "owner" throughout the building code by changing them to the "owner or the owner's authorized agent" where it is warranted. In conjunction with this proposal there are also changes to Chapter 1 and 2, which are in a separate proposal that will be heard by the Administration Committee. In Sections 1703.4.1 and 1707.1, "the applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible for the costs of required tests, reports and investigations. In Sections 1703.6 and 1704.2.4, "the applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible for submitting required reports to the building official. In Section 1703.6.1, the applicant" is changed to "the owner or the owner's authorized agent" for consistency with Section 1704.2 that requires the latter to employ the approved agencies. In Section 1803.6, the "owner or authorized agent" is changed to the "permit applicant" because it should be permissible for the latter to submit the geotechnical report with the other submittal documents at the time of permit application.

The 2012 IBC contains additional references to "owner" but, based on the context in which they are used, it is not considered appropriate or useful to revise the language in conjunction with this proposal (e.g., from "the owner" to "the owner or the owner's authorized agent"). See Sections 101.4.4, 104.6, 111.2, 112.3, 116.3, 116.4, 402.3, 913.4, 1107.4-Exc. 1, 1607.7.4, 3108.2, 3307.1, 3412.4, 3412.4.1, G101.2, G105.6-Item 3, K103.1 and L101.3.

The 2012 IBC contains additional references to "applicant" but, based on the context in which they are used, it is also not considered appropriate or useful to revise the language in conjunction with this proposal (e.g., from "the applicant" to "the owner or the owner's authorized agent"). See Sections 104.10.1-Item 5, 105.1.1, 105.3, 107.3.1, 109.3, 109.5, 1612.3.1, 1612.3.2, 1704.2.3, 1704.3, G103.3, G103.4, G103.5.1, G103.6, G104.2, G105.7-Item 5 and J104.1.

All instances in the 2012 IBC of "applicant" and "owner," other than listed above, are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

PART II – IBC GENERAL
Committee Action: **Approved as Submitted**

Committee Reason: See reason for S90-12, Part I.

Assembly Action: **None**

Final Hearing Results

S90 Part II	**AS**

Code Change No: S90-12 Part III

Original Proposal

Section(s): 901.5, 1004.3, 1607.7.2, 1703.4.1, 1703.6, 1703.6.1, 17042, 1704.2.4, 1704.4, 1704.5, 1707.1, 1803.6, 2211.3.3, 2303.4.1.3, 3306.8, 3401.2, G104.1, J106.1, K102.3

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

THIS IS A FOUR PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

PART III – IBC FIRE SAFETY

Revise as follows:

901.5 Acceptance tests. *Fire protection systems* shall be tested in accordance with the requirements of this code and the *International Fire Code*. When required, the tests shall be conducted in the presence of the *building official*. Tests required by this code, the *International Fire Code* and the standards listed in this code shall be conducted at the expense of the owner or the owner's ~~representative~~ authorized agent. It shall be unlawful to occupy portions of a structure until the required *fire protection systems* within that portion of the structure have been tested and *approved*.

Reason: The purpose for the proposal is to update the references to "applicant" and "owner" throughout the building code by changing them to the "owner or the owner's authorized agent" where it is warranted. In conjunction with this proposal there are also changes to Chapter 1 and 2, which are in a separate proposal that will be heard by the Administration Committee. In Sections 1703.4.1 and 1707.1, "the applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible for the costs of required tests, reports and investigations. In Sections 1703.6 and 1704.2.4, "the applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible for submitting required reports to the building official. In Section 1703.6.1, the applicant" is changed to "the owner or the owner's authorized agent" for consistency with Section 1704.2 that requires the latter to employ the approved agencies. In Section 1803.6, the "owner or authorized agent" is changed to the "permit applicant" because it should be permissible for the latter to submit the geotechnical report with the other submittal documents at the time of permit application.

The 2012 IBC contains additional references to "owner" but, based on the context in which they are used, it is not considered appropriate or useful to revise the language in conjunction with this proposal (e.g., from "the owner" to "the owner or the owner's authorized agent"). See Sections 101.4.4, 104.6, 111.2, 112.3, 116.3, 116.4, 402.3, 913.4, 1107.4-Exc. 1, 1607.7.4, 3108.2, 3307.1, 3412.4, 3412.4.1, G101.2, G105.6-Item 3, K103.1 and L101.3.

The 2012 IBC contains additional references to "applicant" but, based on the context in which they are used, it is also not considered appropriate or useful to revise the language in conjunction with this proposal (e.g., from "the applicant" to "the owner or the owner's authorized agent"). See Sections 104.10.1-Item 5, 105.1.1, 105.3, 107.3.1, 109.3, 109.5, 1612.3.1, 1612.3.2, 1704.2.3, 1704.3, G103.3, G103.4, G103.5.1, G103.6, G104.2, G105.7-Item 5 and J104.1.

All instances in the 2012 IBC of "applicant" and "owner," other than listed above, are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

PART III – IBC FIRE SAFETY
Committee Action: **Approved as Submitted**

Committee Reason: See reason for S90-12, Part I.

Assembly Action: **None**

Final Hearing Results

S90 Part III **AS**

Code Change No: S90-12 Part IV

Original Proposal

Section(s): 901.5, 1004.3, 1607.7.2, 1703.4.1, 1703.6, 1703.6.1, 17042, 1704.2.4, 1704.4, 1704.5, 1707.1, 1803.6, 2211.3.3, 2303.4.1.3, 3306.8, 3401.2, G104.1, J106.1, K102.3

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

THIS IS A FOUR PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

PART IV – IBC MEANS OF EGRESS

Revise as follows:

1004.3 Posting of occupant load. Every room or space that is an assembly occupancy shall have the *occupant load* of the room or space posted in a conspicuous place, near the main *exit* or *exit access doorway* from the room or space. Posted signs shall be of an *approved* legible permanent design and shall be maintained by the owner or the owner's authorized agent.

Reason: The purpose for the proposal is to update the references to "applicant" and "owner" throughout the building code by changing them to the "owner or the owner's authorized agent" where it is warranted. In conjunction with this proposal there are also changes to Chapter 1 and 2, which are in a separate proposal that will be heard by the Administration Committee. In Sections 1703.4.1 and 1707.1, "the applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible for the costs of required tests, reports and investigations. In Sections 1703.6 and 1704.2.4, "the applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible for submitting required reports to the building official. In Section 1703.6.1, the applicant" is changed to "the owner or the owner's authorized agent" for consistency with Section 1704.2 that requires the latter to employ the approved agencies. In Section 1803.6, the "owner or authorized agent" is changed to the "permit applicant" because it should be permissible for the latter to submit the geotechnical report with the other submittal documents at the time of permit application.

The 2012 IBC contains additional references to "owner" but, based on the context in which they are used, it is not considered appropriate or useful to revise the language in conjunction with this proposal (e.g., from "the owner" to "the owner or the owner's authorized agent"). See Sections 101.4.4, 104.6, 111.2, 112.3, 116.3, 116.4, 402.3, 913.4, 1107.4-Exc. 1, 1607.7.4, 3108.2, 3307.1, 3412.4, 3412.4.1, G101.2, G105.6-Item 3, K103.1 and L101.3.

The 2012 IBC contains additional references to "applicant" but, based on the context in which they are used, it is also not considered appropriate or useful to revise the language in conjunction with this proposal (e.g., from "the applicant" to "the owner or the owner's authorized agent"). See Sections 104.10.1-Item 5, 105.1.1, 105.3, 107.3.1, 109.3, 109.5, 1612.3.1, 1612.3.2, 1704.2.3, 1704.3, G103.3, G103.4, G103.5.1, G103.6, G104.2, G105.7-Item 5 and J104.1.

All instances in the 2012 IBC of "applicant" and "owner," other than listed above, are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

PART IV – IBC MEANS OF EGRESS
Committee Action: **Approved as Submitted**

Committee Reason: See reason for S90-12, Part I.

Assembly Action: **None**

Final Hearing Results

S90 Part IV **AS**

Code Change No: S92-12

Original Proposal

Section(s): 1607.9.3 (New)

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc, representing self

Add new text as follows:

1607.9.3 Elements supporting hoists for façade access equipment: In addition to any other applicable live loads, structural elements that support hoists for façade access equipment shall be designed for a live load consisting of the larger of the rated load of the hoist times 2.5 and the stall load of the hoist.

Reason: Historically, the code has been silent on structural requirements for elements that support facade access equipment, such as swing stages and window washing platforms. The Occupational Safety & Health Administration (OSHA) requires that facade access platforms be designed for four to four-and-a-half times the rated load of the suspended platform. Another OSHA requirement is that the platforms should be designed for one-and-a-half times the stall load of the hoist (this applies to platforms that are used for painting and hanging signs or holiday lights as well as other construction activities). Although OSHA requirements are not written in either code language or engineering language, this proposed change closely matches OSHA requirements for suspended platforms. Using a design live load of 2.5 times the rated load, when combined with a live load factor of 1.6, results in a total factored load of 4.0 times the rated load, which matches OSHA's requirements for scaffolds used for building maintenance. Although this overall factor might appear excessive, it is intended by OSHA to address accidental hang-up-and-fall scenarios as well as starting and stopping forces that the platforms experience on a day-to-day basis.

Designing for the stall load of the hoist also makes sense, because suspended platforms can get hung up while ascending, generating forces much larger than the rated load of the platform or hoist. If the stall cut-off is working properly, the stall load should be the maximum load that can be delivered to the structural elements supporting the hoist. The load factor of 1.6 typically associated with live loads should safely accommodate variability in the stall load cut-off mechanism, and provides a factored load that closely matches the requirements of OSHA for facade access platforms that are used for construction activities.

These loads have been missing from the building code for far too long and many engineers do not even know that there are specific design requirements for these elements; these are important loads and need to be provided in the building code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change fills a void in the code in regards to supporting facade access equipment. It provides necessary information for designing structural elements that support these loads. It should benefit the building official who is regularly involved with these installations.

Assembly Action: **None**

Final Hearing Results

S92 **AS**

Code Change No: S93-12

Original Proposal

Section(s): 1607.9.3 (New)

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing self

Add new text as follows:

1607.9.3 Lifeline anchorages for façade access equipment: In addition to any other applicable live loads, lifeline anchorages and structural elements that support lifeline anchorages shall be designed for a live load of at least 3100 pounds (13.8 kN) per attached lifeline, in every direction that a fall arrest load may be applied.

Reason: Historically, the code has been silent on structural requirements for elements that support lifelines used to safely access the facades of buildings.

The Occupational Safety & Health Administration (OSHA) requires that lifeline anchorages be designed for an ultimate load of at least 5,000 pounds per attached person. Although OSHA requirements are not written in either code language or engineering language, this proposed change closely matches OSHA requirements for lifeline anchorages. Using a design live load of 3,100 pounds, when combined with a live load factor of 1.6, results in a total factored load of 4,960 pounds, which essentially matches OSHA's requirements for lifeline anchorages. Although this load might appear excessive, it is intended by OSHA to address the fall arrest loads that can and do reasonably occur in typical lanyards for body harnesses, and which are highly variable. OSHA allows stopping forces as high as 2540 pounds to be generated by a person free-falling six feet. Since sometimes people weigh more than the weight assumed by OSHA, since sometimes people may fall more than six feet, and since the lifeline anchorages are used if something has gone wrong with the primary suspension system (and thus represents the user's last hope of avoiding a potentially fatal fall), the effective factor of safety of two -- from an ideal design load of 2540 pounds to an ultimate design load of 5,000 pounds -- is what OSHA deems necessary to provide an acceptable level of safety.

These loads have been missing from the building code for far too long and many engineers do not even know that there are specific design requirements for these elements; these are important loads and need to be provided in the building code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal adds necessary requirements to the code for supporting lifeline anchorages. Translating these requirements into engineering terms and having in code will be helpful. Ultimately the ASCE 7 committee should take up these load requirements.

Assembly Action: **None**

Final Hearing Results

S93 **AS**

Code Change No: S94-12

Original Proposal

Section(s): 1607.10.2

Proponent: Gary R. Searer/Wiss, Janney, Elstner Associates, Inc., representing self

Revise as follows:

1607.10.2 Alternative uniform live load reduction. As an alternative to Section 1607.10.1 and subject to the limitations of Table 1607.1, uniformly distributed live loads are permitted to be reduced in accordance with the following provisions. Such reductions shall apply to slab systems, beams, girders, columns, piers, walls and foundations.

1. A reduction shall not be permitted where the live load exceeds 100 psf (4.79 kN/m^2) except that the design live load for members supporting two or more floors is permitted to be reduced by a maximum of 20 percent.

   Exception: For uses other than storage, where *approved*, additional live load reductions shall be permitted where shown by the *registered design professional* that a rational approach has been used and that such reductions are warranted.

2. A reduction shall not be permitted in passenger vehicle parking garages except that the live loads for members supporting two or more floors are permitted to be reduced by a maximum of 20 percent.
3. For live loads not exceeding 100 psf (4.79 kN/m^2), the design live load for any structural member supporting 150 square feet (13.94 m^2) or more is permitted to be reduced in accordance with Equation 16-24.
4. For one-way slabs, the area, *A*, for use in Equation 16-24 shall not exceed the product of the slab span and a width normal to the span of 0.5 times the slab span.

$R = 0.08(A - 150)$ **(Equation 16-24)**

For SI: $R = 0.861(A - 13.94)$

Such reduction shall not exceed the smallest of:

1. 40 percent for ~~horizontal~~ members supporting one floor;
2. 60 percent for ~~vertical~~ members supporting two or more floors; or
3. *R* as determined by the following equation.

$R = 23.1(1 + D/L_o)$ **(Equation 16-25)**

where:

A = Area of floor supported by the member, square feet (m^2).
D = Dead load per square foot (m^2) of area supported.
L_o = Unreduced live load per square foot (m^2) of area supported.
R = Reduction in percent.

Reason: The alternate live load reductions contained in Section 1607.9.2 originated in the Uniform Building Code and were the primary live load reduction formulas used in the western United States for decades. When the live load reductions were brought into

the IBC, they were incorporated as an alternate to Section 1607.9.1. During the incorporation of these reductions into the IBC, the maximum reductions were changed from "40 percent for members receiving load from one level only" and "60 percent for other members" (in the 1997 UBC) to the current 40/60 differentiation between horizontal and vertical members. This current differentiation does not match the original wording (because some horizontal members receive live load from more than one floor and because many vertical elements do not receive live load from more than one floor) and does not match the differentiation in Section 1607.9.1, which, like the UBC, differentiates reductions based on whether a member supports one floor or more than one floor: "L shall not be less than $0.50L_o$ for members supporting one floor and L shall not be less than $0.40L_o$ for members supporting two or more floors." The premise behind differentiating between supporting one floor or more than one floor is basically probability-based, and reasonably assumes that the probability that two or more floors are experiencing a relatively large live load is smaller than that of a single floor experiencing a relatively large live load; hence the larger reduction for elements that support more than one floor. The same premise cannot be said of differentiating live load reductions based on horizontality or verticality of the element under consideration.

Since basing allowable live load reductions on number of floors supported as opposed to whether a member is horizontal or vertical makes more sense, this proposal restores the original intent of the UBC provision and brings the provision into better alignment with Section 1607.9.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed clarification to the alternative live load reduction method, seemed reasonable but the omission of roof loads was not adequately explained.

Assembly Action: **None**

Public Comment

Public Comment:

Gary Searer, Wiss Janney, Elstner Associates, Inc. (WJE), representing self, requests Approval as Submitted.

Commenter's Reason: During the code hearings and the consideration of S94, the IBC-Structural Committee raised a question regarding reduction of roof live loads in the 1997 UBC versus how they are handled in the 2012 IBC. Since no one had a copy of the language from the 1997 UBC, the Committee opted to disapprove the proposed change until the question could be answered.

As it turns out, roof live loads are not an issue, because roof live load reductions are handled via a different method. The language in this code change proposal is well thought out. The proposal corrects a mistake that was made years ago in moving the UBC language into the IBC.

The alternate live load reductions contained in Section 1607.9.2 originated in the *Uniform Building Code* and were the primary live load reduction formulas used in the western United States for decades. When the live load reductions were brought into the IBC, they were incorporated as an alternate to Section 1607.9.1. During the incorporation of these reductions into the IBC, the maximum reductions were changed from "40 percent for members receiving load from one level only" and "60 percent for other members" (in the 1997 UBC) to the current 40/60 differentiation between horizontal and vertical members.

This current differentiation does not match the original wording (because some horizontal members receive live load from more than one floor and because many vertical elements do not receive live load from more than one floor) and does not match the differentiation in IBC Section 1607.9.1, which, like the UBC, differentiates reductions based on whether a member supports one floor or more than one floor: "L shall not be less than $0.50L_o$ for members supporting one floor and L shall not be less than $0.40L_o$ for members supporting two or more floors."

The premise behind differentiating between supporting one floor or more than one floor is basically probability-based, and reasonably assumes that the probability that two or more floors are experiencing a relatively large live load is smaller than that of a single floor experiencing a relatively large live load; hence the larger reduction for elements that support more than one floor. The same premise cannot be said of differentiating live load reductions based on horizontality or verticality of the element under consideration, which is what the existing language does.

To correct this error, I respectfully ask that this code change be considered for approval as submitted.

Final Hearing Results

S94 **AS**

Code Change No: S95-12

Original Proposal

Section(s): 1607.12.3.1, Chapter 35 (NEW)

Proponent: Jonathan Siu, City of Seattle, Department of Planning & Development (jon.siu@seattle.gov), Mark S. Graham, National Roofing Contractors Association

Revise as follows:

1607.12.3.1 Landscaped roofs. ~~The uniform design live load in unoccupied landscaped areas on roofs shall be 20 psf (0.958 kN/m^2).~~ The weight of all landscaping materials shall be considered as dead load and shall be computed on the basis of saturation of the soil as determined in accordance with ASTM E 2397. The uniform design live load in unoccupied landscaped areas on roofs shall be 20 psf (0.958 kN/m^2). The uniform design live load for occupied landscaped areas on roofs shall be determined in accordance with Table 1607.1.

Add new standard to Chapter 35 as follows:

ASTM

E 2397-11 – Standard Practice for Determination of Dead Loads and Live Loads Associated with Green Roof Systems

Reason: ASTM E 2397 is the standard for how to determine the dead load of soils. This is being inserted in the IBC to coordinate with the IGCC, which has many provisions regarding landscaped roofs (aka "vegetative roofs"). This proposal addresses a gap in the regulations, providing an appropriate standard for addressing soil loads. The other changes are editorial:

- The weight of landscaping materials applies to all landscaped roofs, and therefore is more appropriate at the beginning of the paragraph.

Adding the reference to Table 1607.1 for occupied landscaped areas is for clarification.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of ASTM E 2397 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This code change clarifies the roof live load applicable to vegetative roofs and also adds a reference standard that will provide a uniform approach for determining the weight of the landscaping materials.

Assembly Action: **None**

Final Hearing Results

S95 **AS**

Code Change No: S96-12

Original Proposal

Section(s): 1607.14, 1607.14.1

Proponent: Edwin Huston, National Council of Structural Engineers Associations- Code Advisory Committee - General Requirements Subcommittee (Huston@smithhustoninc.com)

Revise as follows:

1607.14 Interior walls and partitions. Interior walls and partitions that exceed 6 feet (1829 mm) in height, including their finish materials, shall have adequate strength to resist the loads to which they are subjected but not less than a horizontal load of 5 psf (0.240 kN/m^2).

~~**Exception:** Fabric partitions complying with Section 1607.14.1 shall not be required to resist the minimum horizontal load of 5 psf (0.24 kN/m^2).~~

1607.14.1 Fabric partitions. Fabric partitions that exceed 6 feet (1829 mm) in height, including their finish materials, shall have adequate strength to resist the following load conditions:

1. ~~A horizontal distributed load of 5 psf (0.24 kN/m^2)~~ The horizontal distributed load need only be applied to the partition framing. The total area used to determine the distributed load shall be the area of the fabric face between the framing members to which the fabric is attached. The total distributed load shall be uniformly applied to such framing members in proportion to the length of each member.
2. A concentrated load of 40 pounds (0.176 kN) applied to an 8-inch diameter (203 mm) area [50.3 square inches (32 452 mm^2)] of the fabric face at a height of 54 inches (1372 mm) above the floor.

Reason: Section 1607.14.1, which is limited to only fabric partitions, restates the loading criteria found in Section 1607.14. Since the 5psf loading for partitions under 1604.14 the load is also applicable to fabric partitions. Having the exception to Section 1607.14 is redundant and not necessary

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this proposal eliminated redundant requirements for interior partition loads and it is appropriate to treat them in one section only.

Assembly Action: **None**

Final Hearing Results

S96 **AS**

Code Change No: S98-12

Original Proposal

Section(s): 1609.1.1, 1609.3.1

Proponent: Randall Shackelford, P.E., Simpson Strong-Tie Company, Inc. (rshackelford@strongtie.com)

Revise as follows:

1609.1.1 Determination of wind loads. Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. The type of opening protection required, the ultimate design wind speed, V_{ult}, and the exposure category for a site is permitted to be determined in accordance with Section 1609 or ASCE 7. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

Exceptions:

1. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 buildings.
2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AF&PA WFCM.
3. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AISI S230.
4. Designs using NAAMM FP 1001.
5. Designs using TIA-222 for antenna-supporting structures and antennas, provided the horizontal extent of Topographic Category 2 escarpments in Section 2.6.6.2 of TIA-222 shall be 16 times the height of the escarpment.
6. Wind tunnel tests in accordance with Chapter 31 of ASCE 7.

The wind speeds in Figures 1609A, 1609B and 1609C are ultimate design wind speeds, V_{ult}, and shall be converted in accordance with Section 1609.3.1 to nominal design wind speeds, V_{asd}, when the provisions of the standards referenced in Exceptions ~~1~~ 3 through 5 are used.

1609.3.1 Wind speed conversion. When required, the ultimate design wind speeds of Figures 1609A, 1609B and 1609C shall be converted to nominal design wind speeds, V_{asd}, using Table 1609.3.1 or Equation 16-33.

$$V_{asd} = V_{ult}\sqrt{0.6} \qquad \textbf{(Equation 16-33)}$$

where:

V_{asd}= nominal design wind speed applicable to methods specified in Exceptions ~~1~~ 3 through 5 of Section 1609.1.1 and other standards not based on ultimate wind speeds.
V_{ult}= ultimate design wind speeds determined from Figures 1609A, 1609B or 1609C.

Reason: The 2012 WFCM, as referenced in Exception 2 above, is based on Ultimate Wind Speeds, V_{ult}, and therefore does not require conversion of the ultimate wind speed to the nominal wind speed, V_{asd}.
Further, the WFCM is the reference standard for wood framing in the ICC-600, so conversion should not take place when using ICC-600 to design wood framing. A committee has been appointed to revise ICC-600, and this code change is written assuming that the basis of ICC-600 will be changed to V_{ult} windspeeds, with conversion factors in the standard for converting to V_{asd} where needed. If

by the Public Comment deadline it is not clear that this will be the case, I will prepare a Public Comment to restore Exception 1 to the list of items where conversion is required.

If this code change is not approved, structures designed using the 2012 WFCM with converted windspeeds will be designed for pressures that are only 60% of the pressures they should be designed for.

Section 1609.3.1 needs to be revised for similar reasons. Also, there are other building materials that require testing to "nominal" windspeeds, such as composition shingles in Section 1507.2.7.1. So nominal wind speeds, V_{asd}, is not just used in the Exceptions to 16009.1.1.

Cost Impact: This is not really a fair question for this code change. Yes, there will be a cost impact, because it would definitely be cheaper to design to wind loads that are 40% too low. But you don't want to do that.

Public Hearing Results

Committee Action: Approved as Modified

Modify proposal as follows:

1609.1.1 Determination of wind loads. Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. The type of opening protection required, the ultimate design wind speed, V_{ult}, and the exposure category for a site is permitted to be determined in accordance with Section 1609 or ASCE 7. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

Exceptions:

1. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 buildings.
2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AF&PA WFCM.
3. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AISI S230.
4. Designs using NAAMM FP 1001.
5. Designs using TIA-222 for antenna-supporting structures and antennas, provided the horizontal extent of Topographic Category 2 escarpments in Section 2.6.6.2 of TIA-222 shall be 16 times the height of the escarpment.
6. Wind tunnel tests in accordance with Chapter 31 of ASCE 7.

The wind speeds in Figures 1609A, 1609B and 1609C are ultimate design wind speeds, V_{ult}, and shall be converted in accordance with Section 1609.3.1 to nominal design wind speeds, V_{asd}, when the provisions of the standards referenced in Exceptions 3 through 5 are used.

1609.3.1 Wind speed conversion. When required, the ultimate design wind speeds of Figures 1609A, 1609B and 1609C shall be converted to nominal design wind speeds, V_{asd}, using Table 1609.3.1 or Equation 16-33.

$$V_{asd} = V_{ult}\sqrt{0.6} \qquad \textbf{(Equation 16-33)}$$

where:

V_{asd}= nominal design wind speed applicable to methods specified in Exceptions 3 through 5 of Section 1609.1.1 ~~and other standards not based on ultimate wind speeds~~.
V_{ult}= ultimate design wind speeds determined from Figures 1609A, 1609B or 1609C.

Committee Reason: This proposal corrects the exceptions that are referred to in regards to nominal design wind speeds for consistency. The modification removes a proposed reference to "other standards" that is too vague.

Assembly Action: None

Public Comments

Public Comment:

Bonnie Manley, American Iron and Steel Institute, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1609.1.1 Determination of wind loads. Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. The type of opening protection required, the ultimate design wind speed, V_{ult}, and the exposure category for a site is permitted to be determined in accordance with Section 1609 or ASCE 7. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

Exceptions:

1. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 buildings.
2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AF&PA WFCM.
3. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AISI S230.
4. Designs using NAAMM FP 1001.
5. Designs using TIA-222 for antenna-supporting structures and antennas, provided the horizontal extent of Topographic Category 2 escarpments in Section 2.6.6.2 of TIA-222 shall be 16 times the height of the escarpment.
6. Wind tunnel tests in accordance with Chapter 31 of ASCE 7.

The wind speeds in Figures 1609A, 1609B and 1609C are ultimate design wind speeds, V_{ult}, and shall be converted in accordance with Section 1609.3.1 to nominal design wind speeds, V_{asd}, when the provisions of the standards referenced in Exceptions ~~3 through~~ 4 and 5 are used.

1609.3.1 Wind speed conversion. When required, the ultimate design wind speeds of Figures 1609A, 1609B and 1609C shall be converted to nominal design wind speeds, V_{asd}, using Table 1609.3.1 or Equation 16-33.

$$V_{asd} = V_{ult}\sqrt{0.6} \qquad \textbf{(Equation 16-33)}$$

where:

V_{asd}= nominal design wind speed applicable to methods specified in Exceptions ~~3 through~~ 4 and 5 of Section 1609.1.1
V_{ult}= ultimate design wind speeds determined from Figures 1609A, 1609B or 1609C.

Commenter's Reason: AISI has recently completed the development of Supplement 3-12 for AISI S230-07, which converts the standard to the Ultimate Wind Speed, V_{ult}, basis. Therefore, using it no longer requires conversion of the ultimate wind speed to the nominal wind speed, V_{as}, as specified in Section 1609.3.1. The modifications recommended in this public comment reflect this change.

AISI S230-07 w/S3-12 will be recommended for adoption during the ICC Group B Administrative update process in 2013. It can be downloaded for review from the AISI website: www.steel.org.

Final Hearing Results

S98-12 **AMPC**

Code Change No: S99-12

Original Proposal

Section(s): 1609.1.2

Proponent: Edward L. Keith, P.E., APA – The Engineered Wood Association (ed.keith@apawood.org)

Revise as follows:

1609.1.2 Protection of openings. In *wind-borne debris regions*, glazing in buildings shall be impact resistant or protected with an impact-resistant covering meeting the requirements of an *approved* impact-resistant standard or ASTM E 1996 and ASTM E 1886 referenced herein as follows:

1. Glazed openings located within 30 feet (9144 mm) of grade shall meet the requirements of the large missile test of ASTM E 1996.
2. Glazed openings located more than 30 feet (9144 mm) above grade shall meet the provisions of the small missile test of ASTM E 1996.

Exceptions:

1. Wood structural panels with a minimum thickness of 7/16 inch (11.1 mm) and maximum panel span of 8 feet (2438 mm) shall be permitted for opening protection in ~~one- and two-story buildings~~ buildings with a mean roof height of 33 feet or less classified as Group R-3 or R-4 occupancy. Panels shall be precut so that they shall be attached to the framing surrounding the opening containing the product with the glazed opening. Panels shall be predrilled as required for the anchorage method and shall be secured with the attachment hardware provided. Attachments shall be designed to resist the components and cladding loads determined in accordance with the provisions of ASCE 7, with corrosion-resistant attachment hardware provided and anchors permanently installed on the building. Attachment in accordance with Table 1609.1.2 with corrosion-resistant attachment hardware provided and anchors permanently installed on the building is permitted for buildings with a mean roof height of 45 feet (13 716 mm) or less where V_{asd} determined in accordance with Section 1609.3.1 does not exceed 140 mph (63 m/s).
2. Glazing in *Risk Category* I buildings as defined in Section 1604.5, including greenhouses that are occupied for growing plants on a production or research basis, without public access shall be permitted to be unprotected.
3. Glazing in *Risk Category* II, III or IV buildings located over 60 feet (18 288 mm) above the ground and over 30 feet (9144 mm) above aggregate surface roofs located within 1,500 feet (458 m) of the building shall be permitted to be unprotected.

Reason: In the early days of the development of the SBCCI Deemed-to-Comply document (The precursor to the SBCCI Standard for Hurricane Resistant Residential Construction, SSTD-10, and ultimately the ICC Standard for Residential Construction in High Wind Regions, ICC 600), limits were developed to the geometry of the structures covered by the standard. These limits included a height limit of 33 feet mean roof height. The 33 feet was based on then-current height zoning regulations, the referenced wind speed height in the contemporary ASTM wind standard, as well as height of most anemometers (wind measuring devices). As the Deemed-to-Comply and later documents were limited for wood buildings to two stories in height and as the standards evolved, the height limit was changed from 33 feet mean roof height to simply two stories. Note that the information in the code is based on a mean roof height of 33 feet and NOT two stories. APA developed this information and it is based on 33 feet mean roof height. (APA Form Number T450, free PDF download at apawood.org.)

From a wind perspective, only the geometry of the structure matters. Its internal make-up of floors and walls affect the *resistance* of the structure to the wind but has no impact on the load on the structure. The reason for this change is that the "two story-only" requirement puts artificial limitations on the use of the shutter provisions. This requirement has been used to limit the use of the shutter provisions from 3-story residential structures built on sloped surfaces or with the first story partially embedded in the ground. In either of the cases, the mean roof height may be 33 feet or less.

From the building geometry perspective, the two-story house could be such that the mean roof height exceeds 33 feet. This would make the analytical basis for the shutter design incorrect.

Note that there is no conflict with this proposal and the references to 30 feet in the body of Section 1609.1.2. These provisions are measurements to the glazed openings and are still appropriate with a mean main roof height of 33 feet.

The provisions in the code were originally based on a mean roof height of 33 feet. The shift to two-story was an unfortunate attempt at simplifying the provisions of the early high-wind prescriptive publications. Approval of this change will correct an unintended consequence of this attempt at simplification. Please vote for approval of this provision.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change restores the applicability of the exception allowing wood structural panel opening protection. It is more appropriate to link the requirement to the building height in feet as opposed to the number of stories.

Assembly Action: **None**

Final Hearing Results

S99	**AS**

Code Change No: S100-12

Original Proposal

Section(s): 1609.1.1, Chapters 35 (NEW)

Proponent: Jennifer Goupil, P.E., The Structural Engineering Institute of ASCE, representing self (jgoupil@asce.org)

Revise as follows:

1609.1.1 Determination of wind loads. Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. The type of opening protection required, the ultimate design wind speed, V_{ult}, and the exposure category for a site is permitted to be determined in accordance with Section 1609 or ASCE 7. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

Exceptions:

1. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 buildings.
2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AF&PA WFCM.
3. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AISI S230.
4. Designs using NAAMM FP 1001.
5. Designs using TIA-222 for antenna-supporting structures and antennas, provided the horizontal extent of Topographic Category 2 escarpments in Section 2.6.6.2 of TIA-222 shall be 16 times the height of the escarpment.
6. Wind tunnel tests in accordance with ~~Chapter 31 of ASCE 7~~ ASCE 49 and with Sections 31.4 and 31.5 of ASCE 7.

The wind speeds in Figures 1609A, 1609B and 1609C are ultimate design wind speeds, V_{ult}, and shall be converted in accordance with Section 1609.3.1 to nominal design wind speeds, V_{asd}, when the provisions of the standards referenced in Exceptions 1 through 5 are used.

Add new standard to Chapter 35 as follows:

ASCE/SEI

49-07 Wind Tunnel Testing for Buildings and Other Structures

Reason: This change proposes to add the new referenced standard *ASCE 49 Wind Tunnel Testing for Buildings and Other Structures.* This standard provides minimum requirements for wind-tunnel tests to determine wind loads on and responses of buildings and other structures. Loads considered in this standard are wind loads for main wind-force resisting systems and for individual structural components and cladding of buildings and other structures. Loads produced by these tests are suitable for use in building codes and standards.

Provisions of this standard satisfy the requirements for wind-tunnel testing of the ASCE Standard *ASCE 7, Minimum Design Loads for Buildings and Other Structures*. Wind-tunnel testing has the capability to perform measurements beyond those specifically addressed in this standard, including pedestrian wind evaluations, dispersion of airborne pollutants, fugitive particulates, and wind energy siting studies. These studies are permitted to be included within the test report addressing wind loads.

Limited by the scope of ASCE 49, ASCE 7 Sections 31.4 Load Effects and ASCE 7 Section 31.5 Wind-Borne Debris are still essential for determining wind loads and are retained by this proposal.

ASCE/SEI 49 is published and maintained by the Structural Engineering Institute of the American Society of Civil Engineers (SEI/ASCE). The document is a nationally recognized consensus standard developed in full compliance with the ASCE *Rules for Standards Committees*. The ASCE standards process is fully accredited by the American National Standards Institute (ANSI).

The ASCE 49 committee developed the Standard in coordination with the ASCE 7 Wind Loads Subcommittee with the expectation that the ASCE 7 subcommittee will fully adopt ASCE 49. Further, the ASCE 49 standard is expected to be considered for adopted by reference by the ASCE 7 Main Committee during the next revision cycle.

As of the submission date of this code change proposal, the Standard is currently being published by ASCE. The document is designated ASCE 49 *Wind Tunnel Testing for Buildings and Other Structures* it is expected that it will be completed and available for purchase prior to the ICC Final Action Hearings in October of 2012. Any person interested in obtaining a public comment copy of ASCE/SEI 49-07 may do so by contacting the proponent at jgoupil@asce.org. A copy of the standard has been submitted with this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of ASCE 49 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This proposal adds a new referenced standard that provides more comprehensive requirements for wind tunnel testing.

Assembly Action: **None**

Final Hearing Results

S100 **AS**

Code Change No: S102-12

Original Proposal

Section(s): 202 (New), 1403.7, 1603.1.7, 1612.4, 1612.5, G103.7, G301.2, G401.2; IPC 309.3; IMC 301.16.1

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net).

Add new text as follows:

SECTION 202
DEFINITIONS

COASTAL A ZONE. Area within a special flood hazard area, landward of a V zone or landward of an open coast without mapped V Zones. In a coastal A zone, the principal source of flooding must be astronomical tides, storm surges, seiches, or tsunamis, not riverine flooding. During the base flood conditions, the potential for breaking wave height shall be greater than or equal to 1.5 ft. The inland limit of the coastal A zone is (a) the Limit of Moderate Wave Action if delineated on a FIRM, or (b) designated by the authority having jurisdiction.

LIMIT OF MODERATE WAVE ACTION. Line that may be shown on FIRMs to indicate the inland limit of the 1.5-foot wave height during the base flood.

Revise as follows:

1403.7 Flood resistance for high-velocity wave action areas and coastal A zones. For buildings in flood hazard areas subject to high-velocity wave action and coastal A zones as established in Section 1612.3, electrical, mechanical and plumbing system components shall not be mounted on or penetrate through exterior walls that are designed to break away under flood loads.

Revise as follows:

1603.1.7 Flood design data. For buildings located in whole or in part in *flood hazard areas* as established in Section 1612.3, the documentation pertaining to design, if required in Section 1612.5, shall be included and the following information, referenced to the datum on the community's Flood Insurance Rate Map (FIRM), shall be shown, regardless of whether flood loads govern the design of the building:

1. In *flood hazard areas* not subject to high-velocity wave action or coastal A zones, the elevation of the proposed lowest floor, including the basement.
2. In *flood hazard areas* not subject to high-velocity wave action or coastal A zones, the elevation to which any nonresidential building will be dry flood proofed.
3. In *flood hazard areas* subject to high-velocity wave action or coastal A zones, the proposed elevation of the bottom of the lowest horizontal structural member of the lowest floor, including the basement.

1612.4 Design and construction. The design and construction of buildings and structures located in *flood hazard areas*, including flood hazard areas subject to high-velocity wave action and coastal A zones, shall be in accordance with Chapter 5 of ASCE 7 and with ASCE 24.

1612.5 Flood hazard documentation. The following documentation shall be prepared and sealed by a *registered design professional* and submitted to the *building official*:

1. For construction in *flood hazard areas* not subject to high-velocity wave action or coastal A zones:
   1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3.3.
   1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.6.2.1 of ASCE 24, c*onstruction documents* shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.6.2.2 of ASCE 24.
   1.3. For dry floodproofed nonresidential buildings, *construction documents* shall include a statement that the dry floodproofing is designed in accordance with ASCE 24.
2. For construction in flood hazard areas subject to high-velocity wave action and coastal A zones:
   2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3.
   2.2. *Construction documents* shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.
   2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m^2) determined using allowable stress design, *construction documents* shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

Revise as follows:

G103.7 Alterations in coastal areas. Prior to issuing a permit for any alteration of sand dunes and mangrove stands in flood hazard areas subject to high velocity wave action and coastal A zones, the *building official* shall require submission of an engineering analysis which demonstrates that the proposed alteration will not increase the potential for flood damage.

G301.2 Subdivision requirements. The following requirements shall apply in the case of any proposed subdivision, including proposals for manufactured home parks and subdivisions, any portion of which lies within a flood hazard area:

1. The flood hazard area, including floodways, ~~and~~ areas subject to high velocity wave action, and coastal A zones, as appropriate, shall be delineated on tentative and final subdivision plats;
2. Design flood elevations shall be shown on tentative and final subdivision plats;
3. Residential building lots shall be provided with adequate buildable area outside the floodway; and
4. The design criteria for utilities and facilities set forth in this appendix and appropriate *International Codes* shall be met.

G401.2 Flood hazard areas subject to high-velocity wave action and coastal A zones. In *flood hazard areas* subject to high-velocity wave action and coastal A zones:

1. New buildings and buildings that are substantially improved shall only be authorized landward of the reach of mean high tide.
2. The use of fill for structural support of buildings is prohibited.

[B] 309.3 Flood hazard areas subject to high-velocity wave action and coastal A zones. Structures located in flood hazard areas subject to high-velocity wave action and coastal A zones shall meet the requirements of Section 309.2. The plumbing systems, pipes and fixtures shall not be mounted on or penetrate through walls intended to break away under flood loads.

[B] 301.16.1 High-velocity wave action and coastal A zones. In flood hazard areas subject to high-velocity wave action and coastal A zones, mechanical systems and *equipment* shall not be mounted on or penetrate walls intended to break away under flood loads.

Reason: The IBC achieves compliance with the NFIP in Sec. 1612, by reference to ASCE 24 for the specific design and construction requirements. This proposal is to insert the term "coastal A zone" wherever the term "flood hazard area subject to high velocity wave action" appears, to be consistent with ASCE 24. Because of the way the term is defined, only if the Limit of Moderate Wave Action is delineated (or otherwise designated by the AHJ), is the area to be regulated as coastal A zone. ASCE 24-05 has provisions that apply in all Coastal High Hazard Areas (Zone V) and coastal A zones, essentially treating them the same (there are some slight differences because coastal A zones are shown as "Zone A" on Flood Insurance Rate Maps). When 1612.4 refers the user to ASCE 24, one of the first determinations is which flood hazard zone affects the building site. Currently, ASCE 24-05 requires the designer to determine whether conditions landward of Zone V meet the characteristics necessary for coastal A zone conditions. The proposed definition is consistent with the next edition of ASCE 24 that will specify that only if the Limit of Moderate Wave Action (LiMWA) is delineated on the FIRM (or otherwise designated by the AHJ) will the requirements for CAZ apply. FEMA uses the LiMWA to delineate the inland extend of CAZ.

A separate proposal was submitted to change the term "flood hazard area subject to high velocity wave action" to be "coastal high hazard area," which is the term used in the IRC and ASCE 24.

ASCE began the process of updating ASCE 24-05 in early 2011 and the next edition is expected to be published late 2012 or early 2013. The ASCE committee expects to have the near-final draft prepared and available at least a month before the Group A hearings and copies will be provided to the ICC committee.

Cost Impact: Costs will be lower because the RDP and the building official will not have to made independent determinations as to whether a site landward of a Zone V does or does not have coastal A zone conditions. For areas that are subject to coastal A zone conditions there is no change in construction costs because ASCE 24 already has specifications based on whether a building site is or is not subject to coastal A zone conditions.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed definitions included questionable code wording. The committee felt it was difficult to approve language for consistency with the next edition of ASCE 24 when that standard update was not available to the committee.

Assembly Action: **None**

Public Comments

Public Comment:

John Ingargiola, Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency and Rebecca C. Quinn, R CQuinn Consulting, Inc., representing Department of Homeland Security, Federal Emergency Management Agency, request Approval as Modified by this Public Commnet.

Modify the proposal as follows:

SECTION 202
DEFINITIONS

COASTAL A ZONE. Area within a special flood hazard area, landward of a V zone or landward of an open coast without mapped ~~V Zones~~ *coastal high hazard areas*. In a coastal A zone, the principal source of flooding must be astronomical tides, storm surges, seiches, or tsunamis, not riverine flooding. During the base flood conditions, the potential for breaking wave height shall be greater than or equal to 1.5 ft. The inland limit of the coastal A zone is (a) the Limit of Moderate Wave Action if delineated on a FIRM, or (b) designated by the authority having jurisdiction.

LIMIT OF MODERATE WAVE ACTION. Line ~~that may be~~ shown on FIRMs to indicate the inland limit of the 1.5-foot breaking wave height during the base flood.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: The committee indicated support for the proposal to define the Coastal A Zone not just by the presence of specific wave conditions, but whether the Limit of Moderate Wave Action has been delineated, or the coastal A zone is otherwise designated by the AHJ. This change mirrors the change to the revised ASCE 24 that's nearing completion. Currently, ASCE 24-05 requires designers to determine if moderate wave conditions are present, without reference to a source of that information. The

committee commented on “questionable” wording that was in the proposed definitions (appearing permissive); that wording is proposed to be removed – and the same deletions were included in the third ballot for ASCE 24. The committee also commented that the term “V Zone” should be replaced with the “coastal high hazard area,” which is now defined and used in the IBC.

NOTE: The original S102-12 proposal modified everywhere the term “flood hazard areas subject to high velocity wave action” appears to add “and coastal A zones” in the following sections: 1403.7, 1603.1.7, 1612.4, 1612.5, G103.7, G301.2, G401.2, P309.3 and M301.16.1. Code change S103-12 was Approved as Submitted to replace the phrase “flood hazard areas subject to high velocity wave action” with “coastal high hazard areas.”

Final Hearing Results

S102-12	AMPC

Code Change No: S103-12 Part I

Original Proposal

Section(s): 202, 1403.7, 1603.1.7, 1612.3, 1612.5, 1804.4, G103.7, G301.2, G401.2, G601.1; IPC P309.3, IMC M301.16.1

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net).

THIS IS A THREE PART CODE CHANGE. ALL THREE PARTS WILL BE HEARD BY THE STRUCTURAL COMMITTEE AS THREE SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

PART I – IBC STRUCTURAL

Revise as follows:

SECTION 202
DEFINITIONS

~~**FLOOD HAZARD AREA SUBJECT TO HIGHVELOCITY WAVE ACTION**~~ **COASTAL HIGH HAZARD AREA.** Area within the special *flood hazard area* extending from offshore to the inland limit of a primary dune along an open coast and any other area that is subject to high-velocity wave action from storms or seismic sources, and shown on a Flood Insurance Rate Map (FIRM) or other flood hazard map as velocity zones Zone V, VO, VE or V1-30.

Revise as follows:

1403.7 Flood resistance for ~~high-velocity wave action areas~~ coastal high hazard areas. For buildings in ~~flood hazard areas subject to high-velocity wave action~~ coastal high hazard area as established in Section 1612.3, electrical, mechanical and plumbing system components shall not be mounted on or penetrate through exterior walls that are designed to break away under flood loads.

Revise as follows:

1603.1.7 Flood design data. For buildings located in whole or in part in *flood hazard areas* as established in Section 1612.3, the documentation pertaining to design, if required in Section 1612.5, shall be included and the following information, referenced to the datum on the community's Flood Insurance Rate Map (FIRM), shall be shown, regardless of whether flood loads govern the design of the building:

1. In *flood hazard areas* ~~not subject to high-velocity wave action~~ other than coastal high hazard areas, the elevation of the proposed lowest floor, including the basement.
2. In *flood hazard areas* ~~not subject to high-velocity wave action~~ other than coastal high hazard areas, the elevation to which any nonresidential building will be dry flood proofed.
3. In ~~*flood hazard areas* subject to high-velocity wave action~~ coastal high hazard areas, the proposed elevation of the bottom of the lowest horizontal structural member of the lowest floor, including the basement.

1612.4 Design and construction. The design and construction of buildings and structures located in *flood hazard areas*, including ~~flood hazard areas subject to high-velocity wave action~~ coastal high hazard areas, shall be in accordance with Chapter 5 of ASCE 7 and with ASCE 24.

1612.5 Flood hazard documentation. The following documentation shall be prepared and sealed by a *registered design professional* and submitted to the *building official*:

1. For construction in *flood hazard areas* ~~not subject to high-velocity wave action~~ other than coastal high hazard areas:
   1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3.3.
   1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.6.2.1 of ASCE 24, *construction documents* shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.6.2.2 of ASCE 24.
   1.3. For dry floodproofed nonresidential buildings, *construction documents* shall include a statement that the dry floodproofing is designed in accordance with ASCE 24.
2. For construction in ~~flood hazard areas subject to high-velocity wave action~~ coastal high hazard areas:
   2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3.
   2.2. *Construction documents* shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.
   2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m2) determined using allowable stress design, *construction documents* shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

Revise as follows:

1804.4 Grading and fill in flood hazard areas. In *flood hazard areas* established in Section 1612.3, grading and/or fill shall not be *approved*:

1. Unless such fill is placed, compacted and sloped to minimize shifting, slumping and erosion during the rise and fall of flood water and, as applicable, wave action.
2. In floodways, unless it has been demonstrated through hydrologic and hydraulic analyses performed by a *registered design professional* in accordance with standard engineering practice that the proposed grading or fill, or both, will not result in any increase in flood levels during the occurrence of the *design flood*.
3. In ~~flood hazard areas subject to high-velocity wave action~~ coastal high hazard areas, unless such fill is conducted and/or placed to avoid diversion of water and waves toward any building or structure.
4. Where design flood elevations are specified but floodways have not been designated, unless it has been demonstrated that the cumulative effect of the proposed *flood hazard area* encroachment, when combined with all other existing and anticipated *flood hazard area* encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point.

Revise as follows:

G103.7 Alterations in coastal areas. Prior to issuing a permit for any alteration of sand dunes and mangrove stands in ~~flood hazard areas subject to high velocity wave action~~ coastal high hazard areas,

the *building official* shall require submission of an engineering analysis which demonstrates that the proposed alteration will not increase the potential for flood damage.

G301.2 Subdivision requirements. The following requirements shall apply in the case of any proposed subdivision, including proposals for manufactured home parks and subdivisions, any portion of which lies within a flood hazard area:

1. The flood hazard area, including floodways ~~and areas subject to high velocity wave action~~ coastal high hazard areas, as appropriate, shall be delineated on tentative and final subdivision plats;
2. Design flood elevations shall be shown on tentative and final subdivision plats;
3. Residential building lots shall be provided with adequate buildable area outside the floodway; and
4. The design criteria for utilities and facilities set forth in this appendix and appropriate *International Codes* shall be met.

G401.2 ~~Flood hazard areas subject to high-velocity wave action~~ Coastal high hazard areas. In ~~*flood hazard areas* subject to high-velocity wave action~~ coastal high hazard areas:

1. New buildings and buildings that are substantially improved shall only be authorized landward of the reach of mean high tide.
2. The use of fill for structural support of buildings is prohibited.

G601.1 Placement prohibited. The placement of recreational vehicles shall not be authorized in ~~*flood hazard areas* subject to high-velocity wave action~~ coast high hazard areas and in *floodways*.

Reason: This proposal is to simply replace one term with another and edit the definition to be consistent with how the term is defined in ASCE 24. The term “Flood Hazard Area Subject to High-Velocity Wave Action” is descriptive of the flood hazard areas designated Zone V on Flood Insurance Rate Maps. However, the term is not used by the NFIP, nor is it used in the IRC or in ASCE 24, which is referenced by the IBC (1612.4). The NFIP regulations define “coastal high hazard area” at 40 CFR 59.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

PART I – IBC STRUCTURAL
Committee Action: **Approved as Submitted**

Committee Reason: This code change provides consistency with the definition of “coastal high hazard area” in the IRC as well as ASCE 24.

Assembly Action: **None**

Final Hearing Results

S103 Part I **AS**

Code Change No: S103-12 Part II

Original Proposal

Section(s): 202, 1403.7, 1603.1.7, 1612.3, 1612.5, 1804.4, G103.7, G301.2, G401.2, G601.1; IPC P309.3, IMC M301.16.1

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net).

THIS IS A THREE PART CODE CHANGE. ALL THREE PARTS WILL BE HEARD BY THE STRUCTURAL COMMITTEE AS THREE SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

PART II – IPC

Revise as follows:

[B] P309.3 ~~Flood hazard areas subject to high-velocity wave action~~ Coastal high hazard areas. Structures located in ~~flood hazard areas subject to high-velocity wave action~~ coastal high hazard areas shall meet the requirements of Section 309.2. The plumbing systems, pipes and fixtures shall not be mounted on or penetrate through walls intended to break away under flood loads.

Reason: This proposal is to simply replace one term with another and edit the definition to be consistent with how the term is defined in ASCE 24. The term "Flood Hazard Area Subject to High-Velocity Wave Action" is descriptive of the flood hazard areas designated Zone V on Flood Insurance Rate Maps. However, the term is not used by the NFIP, nor is it used in the IRC or in ASCE 24, which is referenced by the IBC (1612.4). The NFIP regulations define "coastal high hazard area" at 40 CFR 59.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

PART II – IPC
Committee Action: **Approved as Submitted**

Committee Reason: See S103-12, Part I.

Assembly Action: **None**

Final Hearing Results

S103 Part II **AS**

Code Change No: S103-12 Part III

Original Proposal

Section(s): 202, 1403.7, 1603.1.7, 1612.3, 1612.5, 1804.4, G103.7, G301.2, G401.2, G601.1; IPC P309.3, IMC M301.16.1

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net).

THIS IS A THREE PART CODE CHANGE. ALL THREE PARTS WILL BE HEARD BY THE STRUCTURAL COMMITTEE AS THREE SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

PART III – IMC

Revise as follows:

[B] 301.16.1 ~~High-velocity wave action~~ Coastal high hazard areas. In ~~flood hazard areas subject to high-velocity wave action~~ coastal high hazard areas, mechanical systems and *equipment* shall not be mounted on or penetrate walls intended to break away under flood loads.

Reason: This proposal is to simply replace one term with another and edit the definition to be consistent with how the term is defined in ASCE 24. The term “Flood Hazard Area Subject to High-Velocity Wave Action” is descriptive of the flood hazard areas designated Zone V on Flood Insurance Rate Maps. However, the term is not used by the NFIP, nor is it used in the IRC or in ASCE 24, which is referenced by the IBC (1612.4). The NFIP regulations define “coastal high hazard area” at 40 CFR 59.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

PART III – IMC
Committee Action: **Approved as Submitted**

Committee Reason: See S103-12, Part I.

Assembly Action: **None**

Final Hearing Results

S103 Part III	**AS**

Code Change No: S104-12

Original Proposal

Section(s): 202

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, pregory.p.wilson@dhs.gov), Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Revise as follows:

DRY FLOODPROOFING. A combination of design modifications that results in a building or structure, including the attendant ~~utility~~ utilities and equipment and sanitary facilities, being water tight with walls substantially impermeable to the passage of water and with structural components having the capacity to resist *loads* as identified in ASCE 7.

Reason: This editorial change is proposed for consistency with term as used in the next edition of ASCE 24. The current edition, ASCE 25-05, uses both the term "attendant utilities and equipment" (preferred) and the term "utilities and attendant equipment." All uses of the latter will be revised for consistency.

ASCE began the process of updating ASCE 24-05 in early 2011 and the next edition is expected to be published late 2012 or early 2013. The ASCE committee expects to have the near-final draft prepared and available at least a month before the Group A hearings and copies will be provided to the ICC committee.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that this editorial change to the definition of "dry floodproofing" provides consistency with ASCE 24.

Assembly Action: **None**

Final Hearing Results

S104 **AS**

Code Change No: S106-12

Original Proposal

Section(s): 1612.5

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov) (gregory.p.wilson@dhs.gov), Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Revise as follows:

1612.5 Flood hazard documentation. The following documentation shall be prepared and sealed by a *registered design professional* and submitted to the *building official*:

1. For construction in *flood hazard areas* not subject to high-velocity wave action:
   1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.10.1.
   1.2 For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.6.2.1 of ASCE 24, *construction documents* shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.6.2.2 of ASCE 24.
   1.3. For dry floodproofed nonresidential buildings, *construction documents* shall include a statement that the dry floodproofing is designed in accordance with ASCE 24.
2. For construction in flood hazard areas subject to high velocity wave action:
   2.1 The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.10.1.
   2.2. *Construction documents* shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.
   2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m2) determined using allowable stress design, *construction documents* shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

Reason: This proposal achieves consistency with Section 110. The 2012 IBC includes a requirement, added in the last code change cycle, that surveyed building elevations be submitted to the building official prior to the final inspection (approved by ADM14-09/10).

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This revision to Section 1612.5 is necessary to provide coordination with Section 110 based a prior approved code change.

Assembly Action: **None**

Final Hearing Results

S106 **AS**

Code Change No: S109-12

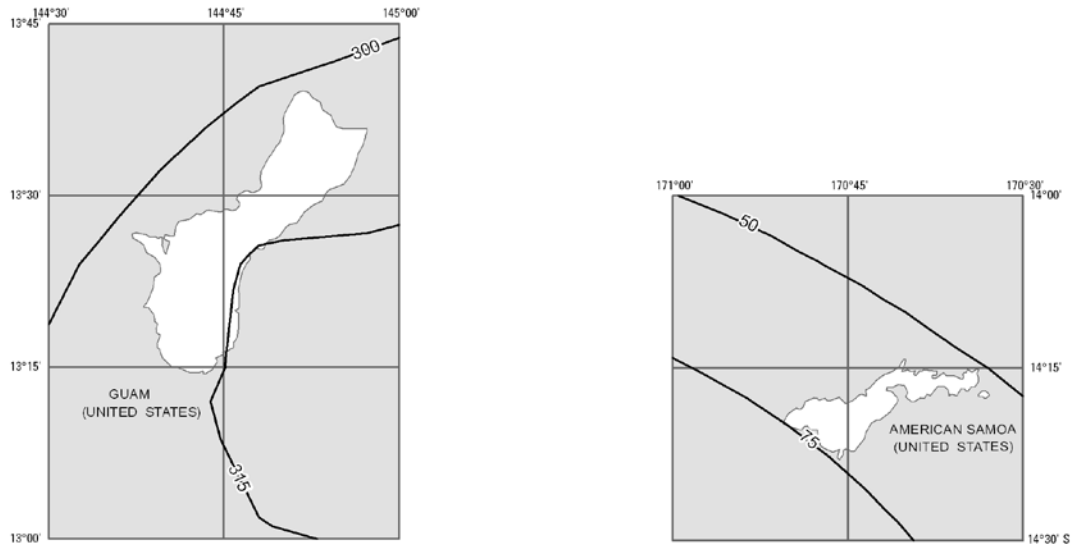
Original Proposal

Section(s): 1613.3.1

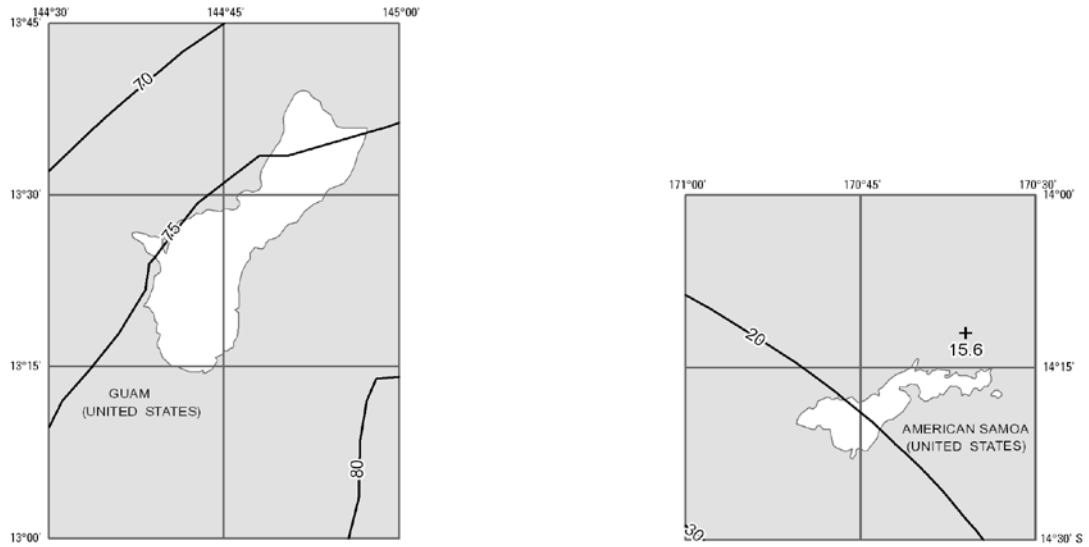
Proponent: Nicolas Luco, US Geological Survey (USGS), representing National Earthquake Hazards Reduction Program (nluco@usgs.gov), Michael Mahoney, Federal Emergency Management Agency (FEMA), representing National Earthquake Hazards Reduction Program

Revise as follows:

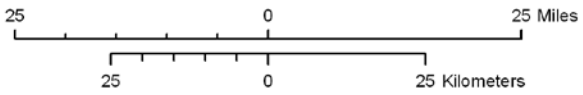
1613.3.1 Mapped acceleration parameters. The parameters S_S and S_1 shall be determined from the 0.2 and 1-second spectral response accelerations shown on Figures 1613.3.1(1) through 1613.3.1(~~6~~7) Where S_1 is less than or equal to 0.04 and S_S is less than or equal to 0.15, the structure is permitted to be assigned *Seismic Design Category* A. ~~The parameters Ss and S1 shall be, respectively, 1.5 and 0.6 for Guam and 1.0 and 0.4 for American Samoa.~~



0.2-Second Spectral Response Acceleration (5% of Critical Damping)



1.0-Second Spectral Response Acceleration (5% of Critical Damping)



Risk-Targeted Maximum Considered Earthquake (MCE_R) Ground Motion Response Accelerations for Guam and American Samoa of 0.2-Second Spectral Response Acceleration (5% of Critical Damping), Site Class B

FIGURE 1613.3.1(7) RISK-TARGETED MAXIMUM CONSIDERED EARTHQUAKE (MCE_R) GROUND MOTION RESPONSE ACCELERATIONS FOR GUAM AND AMERICAN SAMOA OF 0.2- AND 1-SECOND SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B

Reason: The US Geological Survey (USGS) has the responsibility under the National Earthquake Hazards Reduction Program to develop and maintain seismic hazard maps that are the basis of the Risk-Targeted Maximum Considered Earthquake (MCE_R) Ground Motion maps in the nation's model building codes. As part of that responsibility, the USGS recently developed seismic hazard and MCE_R ground motion maps for Guam and American Samoa, using the same methodology as for the conterminous US, Hawaii, Alaska, and Puerto Rico and the US Virgin Islands. The MCE_R ground motion maps developed are being proposed as an addition to the existing maps in Figure 1613.3.1.

Cost Impact: The code change proposal will increase or decrease the cost of construction, depending on the geographic location.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee supports the addition of the ground motion maps for Guam and American Samoa. Their disapproval is in accordance with the proponent testimony that the maps still need work.

Assembly Action: **None**

Public Comments

Public Comment:

Nicolas Luco, U.S. Geological Survey (USGS), representing National Earthquake Hazards Reduction Program (NEHRP) and Michael Mahoney, Federal Emergency Management Agency, representing National Earthquake Hazards Reduction Program (NEHRP), request Approval as Modified by this Public Comment.

Replace the proposal as follows:

1613.3.1 Mapped acceleration parameters. The parameters S_S and S_1 shall be determined from the 0.2 and 1-second spectral response accelerations shown on Figures 1613.3.1(1) through 1613.3.1(~~7~~ 8) Where S_1 is less than or equal to 0.04 and S_S is less than or equal to 0.15, the structure is permitted to be assigned *Seismic Design Category* A. ~~The parameters Ss and S1 shall be, respectively, 1.5 and 0.6 for Guam and 1.0 and 0.4 for American Samoa.~~

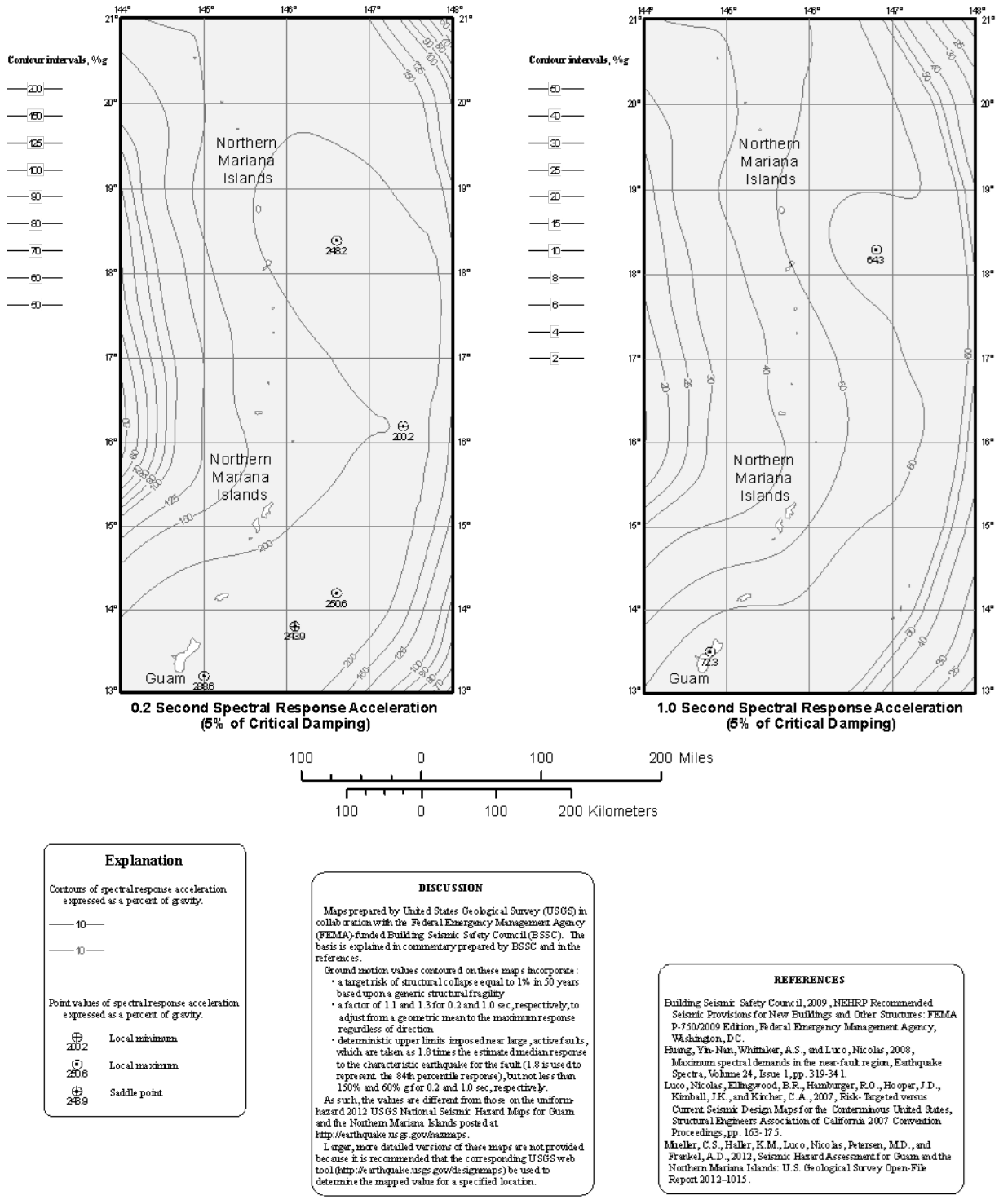


Figure 1613.3.1(7) Risk-Targeted Maximum Considered Earthquake (MCE_R) Ground Motion Response Accelerations for Guam and the Northern Mariana Islands of 0.2- and 1-Second Spectral Response Acceleration (5% of Critical Damping), Site Class B

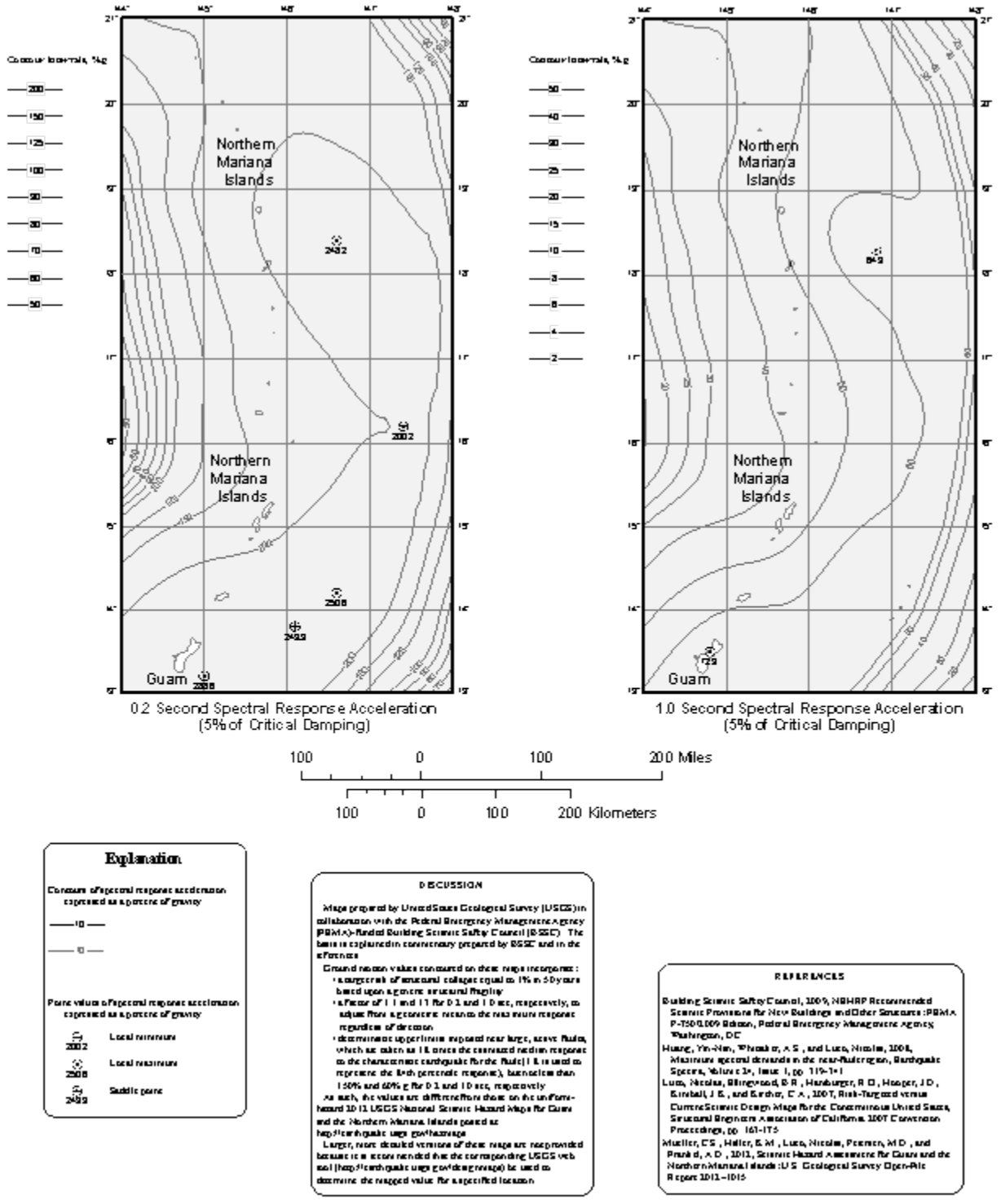


Figure 1613.3.1(7) Risk-Targeted Maximum Considered Earthquake (MCE_R) Ground Motion Response Accelerations for Guam and the Northern Mariana Islands of 0.2- and 1-Second Spectral Response Acceleration (5% of Critical Damping), Site Class B

FIGURE 1613.3.1(7) Risk-Targeted Maximum Considered Earthquake (MCE_R) Ground Motion Response Accelerations for Guam and the Northern Mariana Islands 0f 0.2- and 1-Second Spectral Response Acceleration (5% of Critical Damping), Site Class B

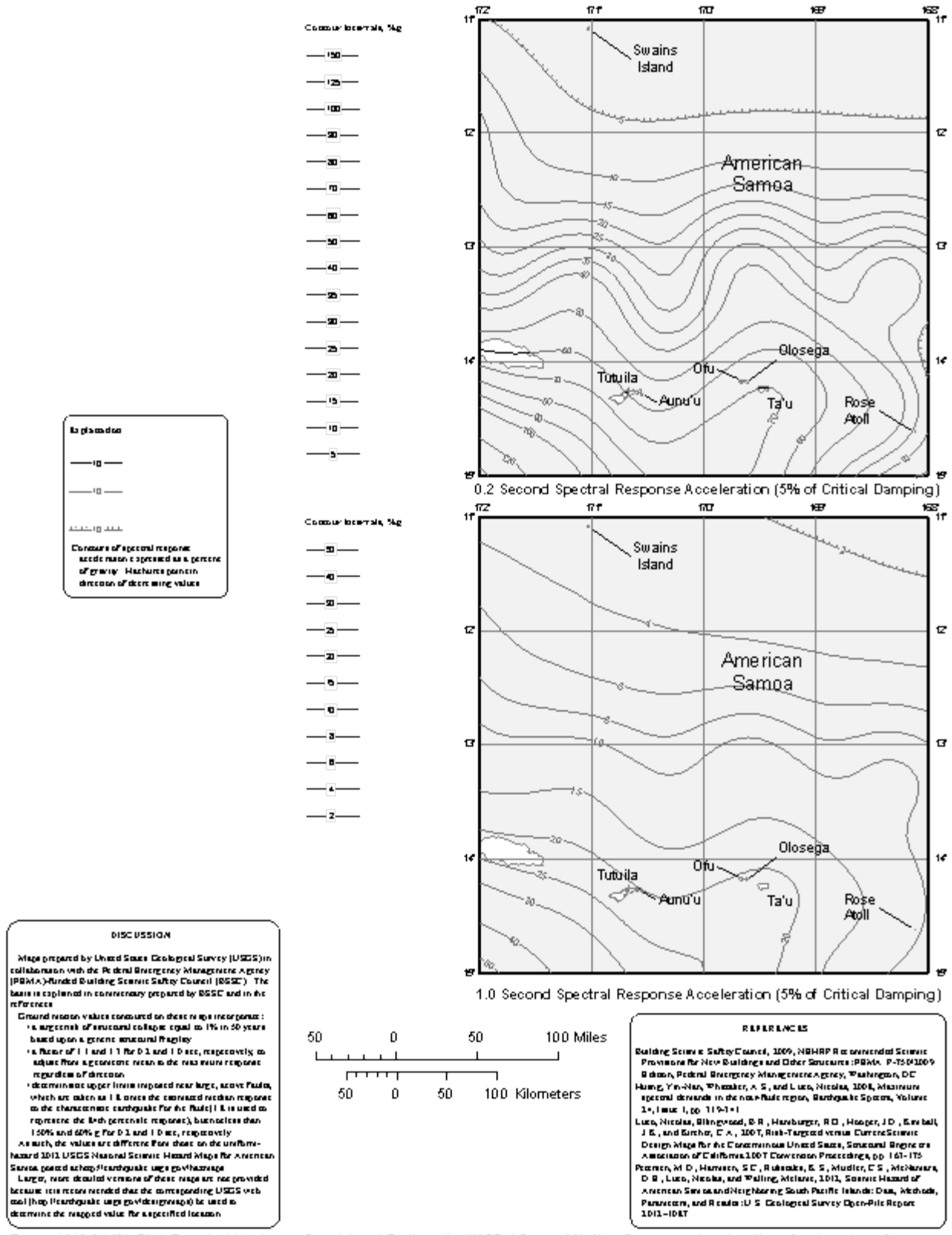


Figure 1613.3.1(8) Risk-Targeted Maximum Considered Earthquake (MCE_R) Ground Motion Response Accelerations for American Samoa of 0.2- and 1-Second Spectral Response Acceleration (5% of Critical Damping), Site Class B

Figure 1613.3.1(8) Risk-Targeted Maximum Considered Earthquake (MCE_R) Ground Motion Response Accelerations for American Samoa of 0.2- and 1-Second Spectral Response Acceleration (5% of Critical Damping), Site Class B

Commenter's Reason: The 2012 ICC Public Hearing Results explain that "the [code development] committee supports the addition of ground motion maps for Guam and American Samoa." As we testified at the hearing, however, at that time the proposed maps still needed work. Since then, the USGS has finalized the maps, via further internal and external review, including a public review workshop. Now, in this public comment, we provide the final maps. With respect to the previously proposed maps, the final values herein are roughly 10% smaller for Guam and 0-15% larger for American Samoa, reflecting relatively minor changes. Before the Final Action Hearing (more specifically, by October 10, 2012), these final maps (which now include the Northern Mariana Islands with Guam) will also have been balloted by the Building Seismic Safety Council (BSSC) Provisions Update Committee.

As stated in the proposal, "the US Geological Survey (USGS) has the responsibility under the National Earthquake Hazards Reduction Program to develop and maintain seismic hazard maps that are the basis of the Risk-Targeted Maximum Considered Earthquake (MCE_R) Ground Motion maps in the nation's model building codes. As part of that responsibility, the USGS has recently developed seismic hazard and MCE_R ground motion maps for Guam and American Samoa, using the same methodology as for the conterminous US, Hawaii, Alaska, and Puerto Rico and the US Virgin Islands. The MCE_R ground motion maps developed are being proposed as an addition to the existing maps in Figure 1613.3.1."

In comparing the proposed MCE_R ground motion maps (as modified herein) to the geographically-constant ground motion values stipulated in the 2012 IBC, it is important to bear in mind that the latter values are not based on seismic hazard analyses. According to the commentary of the 1997 *NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures* (FEMA 303), the values in the 2012 IBC are merely conversions, via rough approximations, from values on the 1994 *NEHRP Recommended Provisions* maps that had been in use for nearly 20 years. As such, they do not take into account the 1993 Guam earthquake that was the largest ever recorded in the region and caused considerable damage, the 2009 earthquake near American Samoa that caused a tsunami, nor the 2008 "Next Generation Attenuation (NGA)" and another 2006 empirical ground motion prediction equations that can be used for both Guam and American Samoa. This and other such information is directly used in the seismic hazard analyses that are the basis for the proposed MCE_R ground motion maps, as documented in the USGS Open-File Reports referenced on the maps. This same type of information is already the basis for the MCE_R ground motions maps for the conterminous US, Hawaii, Alaska, and Puerto Rico and the US Virgin Islands that are in the 2012 IBC.
"

Final Hearing Results

S109-12 **AMPC**

Code Change No: S111-12

Original Proposal

Section(s): 1613.5 (NEW), 1613.5.1 (NEW)

Proponent: Kelly Cobeen, representing self; Dana Deke Smith and Steve Winkel, Building Seismic Safety Council, representing FEMA/Code Resource Support Committee (dsmith@nibs.org) (swinkel@preview-group.com)

Add new text as follows:

1613.5 Amendments to ASCE 7. The provisions of Section 1613.5 shall be permitted as an amendment to the relevant provisions of ASCE 7.

1613.5.1 Transfer of anchorage forces into diaphragm. Modify ASCE 7 Section 12.11.2.2.1 as follows:

12.11.2.2.1 Transfer of anchorage forces into diaphragm. Diaphragms shall be provided with continuous ties or struts between diaphragm chords to distribute these anchorages forces into the diaphragms. Diaphragm connections shall be positive, mechanical, or welded. Added chords are permitted to be used to form subdiaphragms to transmit the anchorage forces to the main continuous cross-ties. The maximum length-to-width ratio of a wood, wood structural panel, or untopped steel deck sheathed structural subdiaphragm that serves as part of the continuous tie system shall be 2.5 to 1. Connections and anchorages capable of resisting the prescribed forces shall be provided between the diaphragm and the attached components. Connections shall extend into the diaphragm a sufficient distance to develop the force transferred into the diaphragm.

Reason: The subdiaphragm aspect ratio is indicated in this proposal as only applying to wood sheathed diaphragms, wood structural panel sheathed diaphragms, and untopped metal deck diaphragm. When limitation of subdiaphragms was first submitted as a proposed change to the 1997 UBC by Kariotis [code change proposal 1631.2.8-95-1 K.A.S.E.] in the form of an allowable shear limitation, the reason focused on tilt-up buildings with nailed diaphragms and contemporary designs not meeting the intent of provisions written after observed poor performance in the 1973 Sylmar Earthquake. When approved for inclusion in the 1997 UBC [code change proposal 16-96-2 SEAOC/ Seismology] the approved wording for the aspect ratio limitation specifically applied only to wood structural subdiaphragms. In the process of being included in the IBC and ASCE 7, the wording designating wood subdiaphragms was dropped, making the requirement applicable to all subdiaphragms. This code change proposes to reintroduce the limit to wood subdiaphragms because they are the original system of concerns and observed poor performance, and include untopped steel deck diaphragms due to the similarities in construction and perceived structural behavior. This aspect ratio limit is not perceived to be necessary for good performance for other diaphragm types; once this aspect ratio limit is removed for concrete, composite deck, and other diaphragm types, other diaphragm limitations within the referenced material standards will govern design.

Cost Impact: The code change proposal will not increase the cost of construction and may reduce cost for some structural systems.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change corrects a mistake by amending the ASCE 7 provision for diaphragm anchorage forces. This clarifies that the subdiaphragm aspect ratio limit applies only to specific types of diaphragms.

Assembly Action: **None**

Final Hearing Results

S111 **AS**

Code Change No: S112-12

Original Proposal

Section(s): 1701.3

Proponent: Stephen Kerr, S.E., Josephson Werdowatz and Associates, representing Structural Engineers Association of California (SEAOC) (skerr@jwa-se.com)

Delete without substitution:

~~**1701.3 Used materials.** The use of second-hand materials that meet the minimum requirements of this code for new materials shall be permitted.~~

Reason: This is nearly identical to 104.9.1 and is thus redundant here.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the provision on used materials was redundant and did not need to remain in Chapter 17, since Section 104.9.1 is sufficient.

Assembly Action: **None**

Final Hearing Results

S112 **AS**

Code Change No: S113-12 Part I

Original Proposal

Section(s): 1703.1.3, 1703.5.2, 1703.6, 1703.6.2, 1704.1, 1704.2, 1704.2.1, 1704.2.2, 1704.2.4, 1704.3, 1704.3.1, 1704.3.2, 1705.1, 1705.1.1, Table 1705.2.2, 1705.3, Table 1705.3, 1705.3.1, 1705.4, 1705.4.1, 1705.4.2, 1705.6, Table 1705.6, 1705.7, Table 1705.7, 1705.8, Table 1705.8, 1705.9, 1705.11.1, 1705.13, 1705.13.1, 1705.13.2, 1705.14, 1901.4, [F] 909.18.8, [F] 909.18.8.1, [F] 909.21.7[F] 1705.17, [F] 1705.17.1

Proponent: Phillip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

THIS IS A TWO PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. PART II WILL BE HEARD BY THE IFC COMMITTEE, AS TWO SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES

PART I – IBC STRUCTURAL

Revise as follows:

1703.1.3 Personnel. An *approved agency* shall employ experienced personnel educated in conducting, supervising and evaluating tests and/or *special* inspections.

1703.5.2 Inspection and identification. The *approved agency* shall periodically perform ~~an~~ a *special* inspection, which shall be in-plant if necessary, of the product or material that is to be *labeled*. The ~~inspection~~ *special inspector* shall verify that the labeled product or material is representative of the product or material tested.

1703.6 Evaluation and follow-up inspection services. Where structural components or other items regulated by this code are not visible for *special* inspection after completion of a prefabricated assembly, the applicant shall submit a report of each prefabricated assembly. The report shall indicate the complete details of the assembly, including a description of the assembly and its components, the basis upon which the assembly is being evaluated, test results and similar information and other data as necessary for the *building official* to determine conformance to this code. Such a report shall be *approved* by the *building official*.

1703.6.2 Test and inspection records. Copies of necessary test and *special* inspection records shall be filed with the *building official*.

SECTION 1704
SPECIAL INSPECTIONS AND TESTS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATIONS

1704.1 General. This section provides minimum requirements for special inspections and tests, the statement of special inspections, contractor responsibility and structural observations.

1704.2 Special inspections and tests. Where application is made for construction as described in this section, the owner or the *registered design professional in responsible charge* acting as the owner's agent shall employ one or more *approved agencies* to perform *special* inspections and tests during construction on the types of work listed under Section 1705. These *special* inspections and tests are in addition to the inspections by the building official that are identified in Section 110.

Exceptions:

1. *Special inspections* and tests are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as *approved* by the *building official*.
2. Unless otherwise required by the *building official*, *special inspections* and tests are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.
3. *Special inspections* and tests are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the conventional light-frame construction provisions of Section 2308.

1704.2.1 Special inspector qualifications. The special inspector shall provide written documentation to the building official demonstrating his or her competence and relevant experience or training. Experience or training shall be considered relevant ~~when~~ where the documented experience or training is related in complexity to the same type of *special inspection* or testing activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in other sections of this code. The *registered design professional in responsible charge* and engineers of record involved in the design of the project are permitted to act as the *approved agency* and their personnel are permitted to act as the special inspectors for the work designed by them, provided they qualify as special inspectors.

1704.2.2 Access for special inspection. The construction or work for which special inspection or testing is required shall remain accessible and exposed for special inspection or testing purposes until completion of the required special inspections or tests.

1704.2.4 Report requirement. Special inspectors shall keep records of *special* inspections and tests . The special inspector shall ~~furnish~~ submit reports of *special* inspections ~~reports~~ and tests to the *building official*, and to the *registered design professional in responsible charge*. Reports shall indicate that work inspected or tested was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the *registered design professional in responsible charge* prior to the completion of that phase of the work. A final report documenting required *special inspections* or tests, and correction of any discrepancies noted in the inspections or tests, shall be submitted at a point in time agreed upon prior to the start of work by the applicant and the *building official*.

1704.3 Statement of special inspections. Where *special inspections* or ~~testing is~~ tests are required by Section 1705, the *registered design professional in responsible charge* shall prepare a statement of special inspections in accordance with Section 1704.3.1 for submittal by the applicant in accordance with Section 1704.2.3.

Exception: The statement of *special inspections* is permitted to be prepared by a qualified person *approved* by the *building official* for construction not designed by a *registered design professional*.

1704.3.1 Content of statement of special inspections. The statement of special inspections shall identify the following:

1. The materials, systems, components and work required to have *special inspections* or ~~testing~~ tests by the *building official* or by the *registered design professional* responsible for each portion of the work.
2. The type and extent of each *special inspection*.
3. The type and extent of each test.
4. Additional requirements for *special inspections* or ~~testing~~ tests for seismic or wind resistance as specified in Sections 1705.10, 1705.11 and 1705.12.
5. For each type of *special inspection*, identification as to whether it will be continuous *special inspection* or periodic *special inspection*.

1704.3.2 Seismic requirements in the statement of special inspections. Where Section 1705.11 or 1705.12 specifies special inspection, testing or qualification for seismic resistance, the statement of special inspections shall identify the designated seismic systems and seismic force-resisting systems that are subject to the *special inspections* or tests

SECTION 1705
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS AND TESTS

1705.1 General. ~~Verification and~~ *Special* inspections and tests of elements of buildings and structures shall ~~be as required by~~ meet the applicable requirements of this section.

1705.1.1 Special cases. *Special inspections* and tests shall be required for proposed work that is, in the opinion of the *building official*, unusual in its nature, such as, but not limited to, the following examples:

1. Construction materials and systems that are alternatives to materials and systems prescribed by this code.
2. Unusual design applications of materials described in this code.
3. Materials and systems required to be installed in accordance with additional manufacturer's instructions that prescribe requirements not contained in this code or in standards referenced by this code.

TABLE 1705.2.2
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL

~~VERIFICATION AND INSPECTION~~ TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]
1. Material verification of cold-formed steel deck:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents	—	X	Applicable ASTM material standards
b. Manufacturers' certified test reports.	—	X	
2. Special inspection of welding:			
a. Cold–formed steel deck			
1. Floor and roof deck welds	—	X	AWS D1.3
b. Reinforcing steel:			
1. Verification of weldability of reinforcing steel other than ASTM A706	—	X	
2. Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	—	AWS D1.4 ACI 318: Section 3.5.2
3. Shear reinforcement.	X	—	
4. Other reinforcing steel	—	X	

For SI: 1 inch = 25.4 mm.
a. Where applicable, see also Section 1705.11, Special inspections for seismic resistance.

1705.3 Concrete construction. ~~The~~ S*pecial inspections* and ~~verifications for~~ tests of concrete construction shall be as ~~required~~ by performed in accordance with this section and Table 1705.3.

Exception: *Special inspections* and tests shall not be required for:

(Portions of section not shown remain unchanged)

TABLE 1705.3

REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

~~VERIFICATION AND INSPECTION~~ TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]	IBC REFERENCE

(Portions of table not shown remain unchanged)

1705.3.1 Materials ~~tests~~. In the absence of sufficient data or documentation providing evidence of conformance to quality standards for materials in Chapter 3 of ACI 318, the building official shall require testing of materials in accordance with the appropriate standards and criteria for the material in Chapter 3 of ACI 318. Weldability of reinforcement, except that which conforms to ASTM A 706, shall be determined in accordance with the requirements of Section 3.5.2 of ACI 318.

1705.4 Masonry construction. *Special inspections* and tests of masonry construction shall be ~~inspected and verified~~ in accordance with the quality assurance program requirements of TMS 402/ACI 530/ASCE 5 and TMS 602/ACI 530.1/ASCE 6 ~~quality assurance program requirements~~.

Exception: *Special inspections* and tests shall not be required for:

1. Empirically designed masonry, glass unit masonry or masonry veneer designed by Section 2109, 2110 or Chapter 14, respectively, where they are part of a structure~~s~~ classified as *Risk Category* I, II or III in accordance with Section 1604.5.
2. Masonry foundation walls constructed in accordance with Table 1807.1.6.3(1), 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4).
3. Masonry fireplaces, masonry heaters or masonry chimneys installed or constructed in accordance.

1705.4.1 Empirically designed masonry, glass unit masonry and masonry veneer in Risk Category IV. ~~The minimum *special inspection* program~~ *Special inspections* and tests for empirically designed masonry, glass unit masonry or masonry veneer designed by Section 2109, 2110 or Chapter 14, respectively, ~~in~~ where they are part of a structure~~s~~ classified as *Risk Category* IV, in accordance with Section 1604.5, shall ~~comply~~ be performed in accordance with TMS 402/ACI 530/ASCE 5, Level B Quality Assurance.

1705.4.2 Vertical masonry foundation elements. *Special inspections* and tests of vertical masonry foundation elements shall be performed in accordance with Section 1705.4 ~~for vertical masonry foundation elements~~.

1705.6 Soils. *Special inspections* ~~for~~ and tests of existing site soil conditions, fill placement and load-bearing requirements shall be ~~as required by~~ performed in accordance with this section and Table 1705.6. The *approved* geotechnical report, and the *construction documents* prepared by the *registered design professionals* shall be used to determine compliance. During fill placement, the special inspector shall ~~determine~~ verify that proper materials and procedures are used in accordance with the provisions of the *approved* geotechnical report.

Exception: Where Section 1803 does not require reporting of materials and procedures for fill placement, the special inspector shall verify that the in-place dry density of the compacted fill is not less than 90 percent of the maximum dry density at optimum moisture content determined in accordance with ASTM D 1557.

TABLE 1705.6
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS AND TESTS OF SOILS

~~VERIFICATION AND INSPECTION TASK~~ TYPE	CONTINUOUS ~~DURING TASK LISTED~~ SPECIAL INSPECTION	~~PERIODICALLY DURING TASK LISTED SPECIAL INSPECTION~~ PERIODIC

(Portions of table not shown remain unchanged)

1705.7 Driven deep foundations. *Special inspections* and tests shall be performed during installation ~~and testing~~ of driven deep foundation elements as ~~required by~~ specified in Table 1705.7. The *approved instruction documents* prepared by the *registered design professionals*, shall be used to determine compliance.

TABLE 1705.7
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS AND TESTS OF DRIVEN DEEP FOUNDATION ELEMENTS

~~VERIFICATION AND INSEPCTION TASK~~ TYPE	CONTINUOUS ~~DURING TASK LISTED~~ SPECIAL INSPECTION	~~PERIODICALLY DURING TASK LISTED~~ PERIODIC SPECIAL INSPECTION
5. For steel elements, perform additional special inspections in accordance with Section 1705.2.	–	-
6. For concrete elements and concrete-filled elements, perform tests and additional special inspections in accordance with Section 1705.3.	–	-

(Portions of table not shown remain unchanged)

1705.8 Cast-in-place deep foundations. *Special inspections* and tests shall be performed during installation ~~and testing~~ of cast-in place deep foundation elements as ~~required by~~ specified in Table 1705.8. The *approved* geotechnical report, and the *construction documents* prepared by the *registered design professionals*, shall be used to determine compliance.

TABLE 1705.8
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS AND TESTS OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS

~~VERIFICATION AND INSPECTION TASK~~ TYPE	CONTINUOUS ~~DURING TASK LISTED~~ SPECIAL INSPECTION	~~PERIODICALLY DURING TASK LISTED~~ SPECIAL INSPECTION
3. For concrete elements, perform tests and additional special inspections in accordance with Section 1705.3.	—	—

1705.9 Helical pile foundations. *Continuous* s*pecial inspections* ~~s~~ shall be performed ~~continuously~~ during installation of helical pile foundations. The information recorded shall include installation equipment used, pile dimensions, tip elevations, final depth, final installation torque and other pertinent installation data as required by the *registered design professional in responsible charge*. The *approved* geotechnical report and the *construction documents* prepared by the *registered design professional* shall be used to determine compliance.

1705.11.1 Structural steel. *Special inspection* ~~for~~ of structural steel shall be performed in accordance with the quality assurance requirements of AISC 341.

> **Exception:** *Special inspections* of structural steel in structures assigned to *Seismic Design Category* C that are not specifically detailed for seismic resistance, with a response modification coefficient, *R*, of 3 or less, excluding cantilever column systems.

1705.13 Sprayed fire-resistant materials. *Special inspections* ~~for~~ and tests of sprayed fire-resistant materials applied to floor, roof and wall assemblies and structural members shall be performed in accordance with Sections 1705.13.1 through 1705.13.6. *Special inspections* shall be based on the fire-resistance design as designated in the *approved construction documents*. The tests set forth in this section shall be based on samplings from specific floor, roof and wall assemblies and structural members. *Special inspections* and tests shall be performed after the rough installation of electrical, automatic sprinkler, mechanical and plumbing systems and suspension systems for ceilings, where applicable.

1705.13.1 Physical and visual tests. The *special inspections* and tests shall include the ~~following tests and observations~~ to demonstrate compliance with the listing and the fire-resistance rating:

1. Condition of substrates.
2. Thickness of application.
3. Density in pounds per cubic foot (kg/m^3).
4. Bond strength adhesion/cohesion.
5. Condition of finished application.

1705.13.2 Structural member surface conditions. The surfaces shall be prepared in accordance with the *approved* fire-resistance design and the written instructions of *approved* manufacturers. The prepared surface of structural members to be sprayed shall be inspected by the *special inspector* before the application of the sprayed fire-resistant material.

1705.14 Mastic and intumescent fire-resistant coatings. *Special inspections* and tests for mastic and intumescent fire-resistant coatings applied to structural elements and decks shall be performed in accordance with AWCI 12-B. *Special inspections* and tests shall be based on the fire-resistance design as designated in the *approved construction documents*.

Revise as follows:

1901.4 Special inspections and tests. ~~The~~ *Special inspections* and tests of concrete elements of buildings and structures and concreting operations shall be as required by Chapter 17.

Reason: The proposal has several purposes. It distinguishes between inspections by the building official and special inspections by special inspectors by adding "special" after "inspection" where special inspections by special inspectors are intended. It adds "tests" after "special inspections" to recognize that the requirements of Chapter 17 distinguish between (1) special inspections by the special inspector, and (2) tests by the special inspector or other individuals employed or retained by the approved agency at the construction site or testing facilities. It deletes references to "verification," which is considered superfluous given that a primary purpose for inspection, including special inspection, is to verify that the construction complies with the building code and the approved construction documents. It also changes the charging language in several places to state that special inspections and tests shall be "performed" rather than be "as required by" for consistency with the charging language elsewhere in Chapter 17.

The titles of Tables 1705.3, 1705.6, 1705.7 and 1705.8 are revised to specify tests as well as special inspections due to the tests that are specified in the first column of each table. The columns labeled "continuous" and "periodic" are changed to "continuous special inspection" and "periodic special inspection" because these distinctions apply to special inspections but not to tests. These changes are not made to Table 1705.2.2 because there are no tests specified in the table.

In Section 1705.4.1, "where they are part of" a structure is added for consistency with similar language in Section 1705.4, Exception, Item #1. In Section 1705.17, the title is changed from "special inspection" to "testing" because there are requirements for testing in the section but there are none for special inspection.

An additional benefit of the proposal is that replacement of Table 1705.4 in the 2009 IBC with a reference to TMS 402/ACI 530/ASCE 5 in the 2012 IBC effectively eliminated requirements for special inspection by continuing the use of "inspected." The changes above clarify the intended requirements for special inspection.

Changes to Sections 1705.2 through 1705.2.2 were included in early drafts of this proposal but they were deleted after the changes were incorporated into separate proposals, which was the result of collaboration with the steel industry.

Note that separate proposals:

1. Further modify Section 1704.2 by changing the title from "special inspections" to "approved agency"
2. Further modify Section 1704.3.2 by deleting "qualification"
3. Change "inspection" to "inspections" in Sections 1705.10.1, Exception; 1705.10.2, Exception; 1705.11.2, Exception; and 1705.11.3, Exception
4. Further modify Section 1704.3.1 by deleting Item #1 and
5. Change "inspection" to "inspections" in Sections 1705.2.2 and 1705.2.2.1.2 .

Public Hearing Results

Errata: Revise as follows:

THIS IS A TWO PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

1703.1.3 Personnel. An *approved agency* shall employ experienced personnel educated in conducting, supervising and evaluating tests and~~/or~~ *special* inspections.

1704.2.1 Special inspector qualifications. The special inspector shall provide written documentation to the building official

demonstrating his or her competence and relevant experience or training. Experience or training shall be considered relevant ~~when~~ where the documented experience or training is related in complexity to the same type of *special inspection* or testing activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in other sections of this code.

The *registered design professional in responsible charge* and engineers of record involved in the design of the project are permitted to act as the *approved agency* and their personnel are permitted to act as ~~the~~ special inspectors for the work designed by them, provided they qualify as *special inspectors.*

1704.2.4 Report requirement. Special inspectors shall keep records of *special* inspections and tests. The special inspector shall ~~furnish~~ submit reports of *special* inspections ~~reports~~ and tests to the *building official*, and to the *registered design professional in responsible charge*. Reports shall indicate that work inspected or tested was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the *registered design professional in responsible charge* prior to the completion of that phase of the work. A final report documenting required *special inspections* and tests, and correction of any discrepancies noted in the inspections or tests, shall be submitted ……..

1704.3 Statement of special inspections. Where *special inspections* or ~~testing is~~ tests are required by Section 1705, the *registered design professional in responsible charge* shall prepare a statement of special inspections in accordance with Section 1704.3.1 for submittal by the applicant in accordance with Section 1704.2.3.

Exception: The statement of *special inspections* is permitted to be prepared by a qualified person *approved* by the *building official* for construction not designed by a *registered design professional*.

1704.3.1 Content of statement of special inspections. The statement of special inspections shall identify the following:

1. The materials, systems, components and work required to have *special inspections* or ~~testing~~ tests by the *building official* or by the *registered design professional* responsible for each portion of the work.
2. The type and extent of each *special inspection*.
3. The type and extent of each test.
4. Additional requirements for *special inspections* or ~~testing~~ tests for seismic or wind resistance as specified in Sections 1705.10, 1705.11 and 1705.12.
5. For each type of *special inspection*, identification as to whether it will be continuous *special inspection* or periodic *special inspection*.

TABLE 1705.2.2
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL

TABLE 1705.3
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

~~VERIFICATION AND INSPECTION~~ TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]	IBC REFERENCE

(Portions of table not shown remain unchanged)

TABLE 1705.6
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS AND TESTS OF SOILS

~~VERIFICATION AND INSPECTION TASK~~ TYPE	CONTINUOUS ~~DURING TASK LISTED~~ SPECIAL INSPECTION	~~PERIODICALLY DURING TASK LISTED SPECIAL INSPECTION~~ PERIODIC SPECIAL INSPECTION

(Portions of table not shown remain unchanged)

TABLE 1705.8
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS AND TESTS OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS

~~VERIFICATION AND INSPECTION TASK~~ TYPE	CONTINUOUS ~~DURING TASK LISTED~~ SPECIAL INSPECTION	~~PERIODICALLY DURING TASK LISTED~~ PERIODIC SPECIAL INSPECTION

(Portions of table not shown remain unchanged)

1705.11.1 Structural steel. *Special inspections* ~~for~~ of structural steel shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: *Special inspections* of structural steel in structures assigned to *Seismic Design Category* C that are not specifically detailed for seismic resistance, with a response modification coefficient, *R*, of 3 or less, excluding cantilever column systems.

1705.13.1 Physical and visual tests. The *special inspections* and tests shall include the following ~~tests and observations~~ to demonstrate compliance with the listing and the fire-resistance rating:

1. Condition of substrates.
2. Thickness of application.
3. Density in pounds per cubic foot (kg/m^3).

4. Bond strength adhesion/cohesion.
5. Condition of finished application.

(Portions of code change not shown remain unchanged)

PART I – IBC STRUCTURAL
Committee Action: **Approved as Modified**

Modify proposal as follows:

1703.5.2 Inspection and identification. The *approved agency* shall periodically perform an ~~*special*~~ inspection, which shall be in-plant if necessary, of the product or material that is to be *labeled*. The inspection ~~*special inspector*~~ shall verify that the labeled product or material is representative of the product or material tested.

1703.6 Evaluation and follow-up inspection services. Where structural components or other items regulated by this code are not visible for ~~*special*~~ inspection after completion of a prefabricated assembly, the applicant shall submit a report of each prefabricated assembly. The report shall indicate the complete details of the assembly, including a description of the assembly and its components, the basis upon which the assembly is being evaluated, test results and similar information and other data as necessary for the *building official* to determine conformance to this code. Such a report shall be *approved* by the *building official*.

(Portions of proposal not shown are unchanged)

Committee Reason: This proposal clarifies special inspection and testing provisions by providing consistent terminology throughout Chapter 17. The modification retains the current wording in two sections that don't apply to special inspection.

Assembly Action: **None**

Final Hearing Results

S113 Part I **AM**

Code Change No: S113-12 Part II

Original Proposal

Section(s): 1703.1.3, 1703.5.2, 1703.6, 1703.6.2, 1704.1, 1704.2, 1704.2.1, 1704.2.2, 1704.2.4, 1704.3, 1704.3.1, 1704.3.2, 1705.1, 1705.1.1, Table 1705.2.2, 1705.3, Table 1705.3, 1705.3.1, 1705.4, 1705.4.1, 1705.4.2, 1705.6, Table 1705.6, 1705.7, Table 1705.7, 1705.8, Table 1705.8, 1705.9, 1705.11.1, 1705.13, 1705.13.1, 1705.13.2, 1705.14, 1901.4, [F] 909.18.8, [F] 909.18.8.1, [F] 909.21.7[F] 1705.17, [F] 1705.17.1

Proponent: Phillip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

THIS IS A TWO PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. PART II WILL BE HEARD BY THE IFC COMMITTEE, AS TWO SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES

PART II - IFC

Revise as follows:

[F] 909.18.8 ~~Special inspections~~ Testing for smoke control. Smoke control systems shall be tested by a special inspector.

[F] 909.18.8.1 Scope of testing. ~~*Special inspections*~~ Testing shall be conducted in accordance with the following:

1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording of device location.
2. Prior to occupancy and after sufficient completion for the purposes of pressure-difference testing, flow measurements, and detection and control verification.

909.21.7 ~~Special inspection~~ Testing. ~~*Special inspection*~~ Testing for performance shall be required in accordance with Section 909.18.8. System acceptance shall be in accordance with Section 909.19.

[F] 1705.17 ~~Special inspection~~ Testing for smoke control. Smoke control systems shall be tested by a special inspector.

Reason: The proposal has several purposes. It distinguishes between inspections by the building official and special inspections by special inspectors by adding "special" after "inspection" where special inspections by special inspectors are intended. It adds "tests" after "special inspections" to recognize that the requirements of Chapter 17 distinguish between (1) special inspections by the special inspector, and (2) tests by the special inspector or other individuals employed or retained by the approved agency at the construction site or testing facilities. It deletes references to "verification," which is considered superfluous given that a primary purpose for inspection, including special inspection, is to verify that the construction complies with the building code and the approved construction documents. It also changes the charging language in several places to state that special inspections and tests shall be "performed" rather than be "as required by" for consistency with the charging language elsewhere in Chapter 17.

The titles of Tables 1705.3, 1705.6, 1705.7 and 1705.8 are revised to specify tests as well as special inspections due to the tests that are specified in the first column of each table. The columns labeled "continuous" and "periodic" are changed to "continuous special inspection" and "periodic special inspection" because these distinctions apply to special inspections but not to tests. These changes are not made to Table 1705.2.2 because there are no tests specified in the table.

In Section 1705.4.1, "where they are part of" a structure is added for consistency with similar language in Section 1705.4, Exception, Item #1. In Section 1705.17, the title is changed from "special inspection" to "testing" because there are requirements for testing in the section but there are none for special inspection.

An additional benefit of the proposal is that replacement of Table 1705.4 in the 2009 IBC with a reference to TMS 402/ACI 530/ASCE 5 in the 2012 IBC effectively eliminated requirements for special inspection by continuing the use of "inspected." The changes above clarify the intended requirements for special inspection.

Changes to Sections 1705.2 through 1705.2.2 were included in early drafts of this proposal but they were deleted after the changes were incorporated into separate proposals, which was the result of collaboration with the steel industry.

Note that separate proposals:

1. Further modify Section 1704.2 by changing the title from “special inspections” to “approved agency”
2. Further modify Section 1704.3.2 by deleting “qualification”
3. Change “inspection” to “inspections” in Sections 1705.10.1, Exception; 1705.10.2, Exception; 1705.11.2, Exception; and 1705.11.3, Exception
4. Further modify Section 1704.3.1 by deleting Item #1 and
5. Change “inspection” to “inspections” in Sections 1705.2.2 and 1705.2.2.1.2 .

Public Hearing Results

PART II – IFC
Committee Action: **Approved as Modified**

Modify proposal as follows:

[F] 909.18.8 Testing for smoke control. Smoke control systems shall be tested by a special inspector in accordance with Section 1705.17.

(Portions of proposal not shown are unchanged)

Committee Reason: See S113-12, Part I. The modification references the Section in Chapter 17 where the requirements are found.
Assembly Action: **None**

Final Hearing Results

S113 Part II **AM**

Code Change No: S114-12

Original Proposal

Section(s): 1703.1, 1703.1.1, 1703.3

Proponent: Phillip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1703.1 Approved agency. An *approved agency* shall provide all information as necessary for the *building official* to determine that the agency meets the applicable requirements specified in Sections 1703.1.1 through 1703.1.4.

1703.1.1 Independence. An *approved agency* shall be objective, competent and independent from the contractor responsible for the work being inspected. The agency shall also disclose to the *building official* and the *registered design professional in responsible charge* possible conflicts of interest so that objectivity can be confirmed.

1703.3 ~~Approved~~ Record of approval. For any material, appliance, equipment, system or method of construction that has been *approved*, a record of such approval, including the conditions and limitations of the approval, shall be kept on file in the *building official's* office and shall be ~~open to~~ available for public ~~inspection~~ review at appropriate times.

Reason: Section 1703.1 requires approved agencies to provide the information necessary for the building official to verify that the agency meets the applicable requirements but these requirements are not identified. The proposal specifies the sections containing the requirements.

Section 1703.1.1 requires approved agencies to disclose possible conflicts of interest so that objectivity can be confirmed but the recipient of the disclosure is not identified. The proposal specifies the building official and the registered design professional in responsible charge as the recipients.

Section 1703.3 is clarifies the requirement of the building official to provide access to the public for records of approval.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1703.1 Approved agency. An *approved agency* shall provide all information as necessary for the *building official* to determine that the agency meets the applicable requirements specified in Sections 1703.1.1 through ~~1703.1.4~~ 1703.1.3.

(Portions of proposal not shown are unchanged)

Committee Reason: The committee supports clarifying to whom an approved agency must disclose conflicts of interest and including the registered design professional in addition to the building official in a good idea. Te floor modification corrects a section reference.

Assembly Action: **None**

Final Hearing Results

S114 **AM**

Code Change No: S116-12

Original Proposal

Section(s): 1703.4, 1703.4.1, 1703.4.2, 1703.5, 1703.5.1, 1703.5.2, 1703.5.3, 1703.5.4

Proponent: Phillip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1703.4 Performance. Specific information consisting of test reports conducted by an *approved* testing agency in accordance with the appropriate referenced standards, or other such information as necessary, shall be provided for the *building official* to determine that the product, material or assembly meets the applicable code requirements.

1703.4.1 Research and investigation. Sufficient technical data shall be submitted to the *building official* to substantiate the proposed use of any product, material or assembly. If it is determined that the evidence submitted is satisfactory proof of performance for the use intended, the *building official* shall approve the use of the product material or assembly subject to the requirements of this code. The costs, reports and investigations required under these provisions shall be paid by the applicant.

1703.4.2 Research reports. Supporting data, where necessary to assist in the approval of products, materials or assemblies not specifically provided for in this code, shall consist of valid research reports from *approved* sources.

1703.5 Labeling. ~~Where materials or assemblies are required by this code to be labeled, such materials and assemblies shall be labeled by an approved agency in accordance with Section 1703.~~ Products, ~~and~~ materials or assemblies required to be labeled shall be labeled in accordance with the procedures set forth in Sections 1703.5.1 through 1703.5.4.

1703.5.1 Testing. An approved agency shall test a representative sample of the product, ~~or~~ material or assembly being labeled to the relevant standard or standards. The approved agency shall maintain a record of the tests performed. The record shall provide sufficient detail to verify compliance with the test standard.

1703.5.2 Inspection and identification. The *approved agency* shall periodically perform an inspection, which shall be in-plant if necessary, of the product or material that is to be *labeled*. The inspection shall verify that the labeled product, ~~or~~ material or assembly is representative of the product, ~~or~~ material or assembly tested.

1703.5.3 Label information. The *label* shall contain the manufacturer's ~~or distributor's~~ identification, model number, serial number or definitive information describing ~~the product or material's~~ performance characteristics of the product, material or assembly and the *approved agency's* identification.

1703.5.4 Method of labeling. Information required to be permanently identified on the product, material or assembly shall be acid etched, sand blasted, ceramic fired, laser etched, embossed or of a type that, once applied, cannot be removed without being destroyed.

Reason: The purpose for the proposal is to update the language in Sections 1703.4 and 1703.5 by correlating the references to "product," "material" and "assembly" for internal consistency. In Section 1703.5, the first sentence is deleted because it is superfluous given that the requirements for labeling in this section are specified in its subsections and the second sentence is sufficient to serve as charging language for the section.

In Section 1703.5.3, the reference to the distributor is deleted for consistency with the definition of "label" in Section 202, which specifies that the label is applied by the manufacturer. Note that Section 1703.5.3 requires the label to contain the identifications of the manufacturer and the approved agency and this is consistent with the definition of "label" that specifies the same identifications.

Note that separate proposals:

1. Delete "testing" from Section 1703.4 so that it reads "…approved agency…" and

Change "the applicant" to "the owner or the owner's authorized agent" in Section 1703.4.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agrees with the proposal that including products with materials and assemblies and referring to them consistently is necessary.

Assembly Action: **None**

Final Hearing Results

S116 **AS**

Code Change No: S117-12, Part I

Original Proposal

Section(s): 202, 1703.4, 1704.2.5.2, 1705.16.1, 1705.16.2, [F]909.18.8.2, [F]909.18.8.3, [F]1705.17.2

Proponent: Phillip Brazil P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

THIS IS A THREE PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. PART II WILL BE HEARD BY THE IBC ADMINISTRATION COMMITTEE. PART III WILL BE HEARD BY THE IFC COMMITTEE AS SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IBC STRUCUTRAL

Revise as follows:

1703.4 Performance. Specific information consisting of test reports conducted by an *approved* ~~testing~~ agency in accordance with the appropriate referenced standards, or other such information as necessary, shall be provided for the *building official* to determine that the material meets the applicable code requirements.

1704.2.5.2 Fabricator approval. *Special inspections* required by Section 1705 are not required where the work is done on the premises of a fabricator registered and *approved* to perform such work without *special inspection*. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an *approved* ~~*special inspection*~~ agency. At completion of fabrication, the *approved* fabricator shall submit a *certificate of compliance* to the *building official* stating that the work was performed in accordance with the *approved construction documents*.

1705.16.1 Penetration firestops. Inspections of penetration fire-stop systems that are tested and listed in accordance with Sections 714.3.1.2 and 714.4.1.2 shall be conducted by an approved ~~inspection~~ agency in accordance with ASTM E 2174.

1705.16.2 Fire-resistant joint systems. Inspection of fire-resistant joint systems that are tested and listed in accordance with Sections 715.3 and 715.4 shall be conducted by an approved ~~inspection~~ agency in accordance with ASTM E 2393.

Reason: The purpose for the proposal is to update references to "approved agency" throughout the building code. Approved agencies (defined in Section 202) are regularly engaged in conducting tests and employ or retain special inspectors (also defined in Section 202) who are qualified to perform inspections, including special inspections.

In Section 1704.2.5.2, "registered" is deleted because no purpose is served by requiring a fabricator who is approved by the building official to also be registered with the same building official.

Note that a separate proposal changes "special inspections" to "testing" in the title of Section 909.18.8 and in Section 909.18.8.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Errata: Revise as follows:

THIS IS A THREE PART CODE CHANGE. ALL THREE PARTS WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

(Portions of code change not shown remain unchanged)

PART I – IBC STRUCTURAL
Committee Action: **Approved as Submitted**

Committee Reason: This proposal updates the references to approved agencies throughout the Chapter for consistency.

Assembly Action: **None**

Final Hearing Results

S117, Part I **AS**

Code Change No: S117-12, Part II

Original Proposal

Section(s): 202, 1703.4, 1704.2.5.2, 1705.16.1, 1705.16.2, [F]909.18.8.2, [F]909.18.8.3, [F]1705.17.2

Proponent: Phillip Brazil P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

THIS IS A THREE PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. PART II WILL BE HEARD BY THE IBC ADMINISTRATION COMMITTEE. PART III WILL BE HEARD BY THE IFC COMMITTEE AS SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART II – IBC ADMINISTRATION

Revise as follows:

[A] LABELED. Equipment, materials or products to which has been affixed a *label*, seal, symbol or other identifying *mark* of a nationally recognized testing laboratory, ~~inspection~~ *approved* agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and whose labeling indicates either that the equipment, material or product meets identified standards or has been tested and found suitable for a specified purpose.

Reason: The purpose for the proposal is to update references to "approved agency" throughout the building code. Approved agencies (defined in Section 202) are regularly engaged in conducting tests and employ or retain special inspectors (also defined in Section 202) who are qualified to perform inspections, including special inspections.

In Section 1704.2.5.2, "registered" is deleted because no purpose is served by requiring a fabricator who is approved by the building official to also be registered with the same building official.

Note that a separate proposal changes "special inspections" to "testing" in the title of Section 909.18.8 and in Section 909.18.8.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Errata: Revise as follows:

THIS IS A THREE PART CODE CHANGE. ALL THREE PARTS WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

(Portions of code change not shown remain unchanged)

PART II – IBC ADMINISTRATION
Committee Action: **Approved as Submitted**

Committee Reason: See S117, Part I.

Assembly Action: **None**

Final Hearing Results

S117-12, Part I I **AS**

Code Change No: S117-12, Part III

Original Proposal

Section(s): 202, 1703.4, 1704.2.5.2, 1705.16.1, 1705.16.2, [F]909.18.8.2, [F]909.18.8.3, [F]1705.17.2

Proponent: Phillip Brazil P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

THIS IS A THREE PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. PART II WILL BE HEARD BY THE IBC ADMINISTRATION COMMITTEE. PART III WILL BE HEARD BY THE IFC COMMITTEE AS SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART III – IFC

Revise as follows:

[F] 909.18.8.2 Qualifications. ~~*Special inspection*~~ Approved agencies for smoke control shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.

[F] 909.18.8.3 Reports. A complete report of testing shall be prepared by the ~~special inspector or *special inspection*~~ *approved* agency. The report shall include identification of all devices by manufacturer, nameplate data, design values, measured values and identification tag or *mark*. The report shall be reviewed by the responsible *registered design professional* and, when satisfied that the design intent has been achieved, the responsible *registered design professional* shall seal, sign and date the report.

[F] 1705.17.2 Qualifications. ~~*Special inspection* agencies~~ *Special inspectors* for smoke control shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.

Reason: The purpose for the proposal is to update references to "approved agency" throughout the building code. Approved agencies (defined in Section 202) are regularly engaged in conducting tests and employ or retain special inspectors (also defined in Section 202) who are qualified to perform inspections, including special inspections.

In Section 1704.2.5.2, "registered" is deleted because no purpose is served by requiring a fabricator who is approved by the building official to also be registered with the same building official.

Note that a separate proposal changes "special inspections" to "testing" in the title of Section 909.18.8 and in Section 909.18.8.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

PART III – IFC
Committee Action: **Approved as Modified**

Modify proposal as follows:

[F] 909.18.8.2 Qualifications. Approved agencies for smoke control testing shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.

[F] 909.18.8.3 Reports. A complete report of testing shall be prepared by the *approved* agency. The report shall include identification of all devices by manufacturer, nameplate data, design values, measured values and identification tag or *mark*. The report shall be reviewed by the responsible *registered design professional* and, when satisfied that the design intent has been achieved, the responsible *registered design professional* shall seal, sign and date the report.

[F] 1705.17.2 Qualifications. ~~*Special inspectors*~~ Approved agencies for smoke control testing shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.

Committee Reason: See S117, Part I. The modification makes an additional correction to “approved agencies”.

Assembly Action: **None**

Final Hearing Results

S117-12, Part III **AM**

Code Change No: S118-12

Original Proposal

Section(s): 1704.1, 1704.2.5.2, 1704.5 (New), 1705.12.3, 1910.5, 2207.5

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1704.1 General. This section provides minimum requirements for special inspections, the statement of special inspections, contractor responsibility, submittals to the *building official* and structural observations.

1704.2.5.2 Fabricator approval. *Special inspections* required by Section 1705 are not required where the work is done on the premises of a fabricator registered and *approved* to perform such work without *special inspection*. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an *approved special inspection* agency. At completion of fabrication, the *approved* fabricator shall submit a *certificate of compliance* to the owner or the owner's authorized agent for submittal to the *building official* as specified in Section 1704.5 stating that the work was performed in accordance with the *approved construction documents*.

1704.5 Submittals to the building official. In addition to the submittal of reports of *special inspections* and tests in accordance with Section 1704.2.4, reports and certificates shall be submitted by the owner or the owner's authorized agent to the *building official* after review and acceptance by a *registered design professional* and prior to the construction or work being performed for each of the following:

1. *Certificates of compliance* for the fabrication of structural, load-bearing or lateral load-resisting members or assemblies on the premises of an *approved fabricator* in accordance with Section 1704.2.5.2
2. *Certificates of compliance* for the seismic qualification of nonstructural components, supports and attachments in accordance with Section 1705.12.3
3. *Certificates of compliance* for *designated seismic systems* in accordance with Section 1705.12.4
4. Reports of preconstruction tests for shotcrete in accordance with Section 1910.5
5. *Certificates of compliance* for open web steel joists and joist girders in accordance with Section 2207.5

(Renumber subsequent sections)

1705.12.3 Seismic certification of nonstructural components. The *registered design professional* shall specify on the construction documents the requirements for certification by analysis, testing or experience data for nonstructural components and designated seismic systems in accordance with Section 13.2 of ASCE 7, where such certification is required by Section 1705.12. *Certificates of compliance* shall be submitted to the *building official* as specified in Section 1704.5.

Revise as follows:

1910.5 Preconstruction tests. ~~When~~ Where preconstruction tests are required by ~~the *building official*~~ Section 1910.4, a test panel shall be shot, cured, cored or sawn, examined and tested prior to commencement of the project. The sample panel shall be representative of the project and simulate job conditions as closely as possible. The panel thickness and reinforcing shall reproduce the thickest and most congested area specified in the structural design. It shall be shot at the same angle, using the same nozzleman and with the same concrete mix design that will be used on the project. The equipment used

in preconstruction testing shall be the same equipment used in the work requiring such testing, unless substitute equipment is *approved* by the *building official*. Reports of preconstruction tests shall be submitted to the *building official* as specified in Section 1704.5.

Revise as follows:

2207.5 Certification. At completion of manufacture, the steel joist manufacturer shall submit a *certificate of compliance* ~~in accordance with~~ to the owner or the owner's authorized agent for submittal to the *building official* as specified in Section ~~1704.2.5.2~~ 1704.5 stating that work was performed in accordance with *approved construction documents* and with SJI standard specifications.

Reason: The purpose for the proposal is to provide a new section (Section 1704.5) in the building code that comprehensively specifies the requirements for the submittal of reports and certificates related to construction that is subject to special inspections and tests required by Chapter 17 of the building code. Typically, these documents certify or otherwise verify that a material or product meets certain special requirements, or are alternatives to the general requirements, of the building code.

The items in new Section 1704.5 are typically references to provisions elsewhere in the building code or a referenced standard. The charging language of the new section specifies the requirements for submittal to the building official (e.g., by whom, after review and acceptance, and before the work begins) and the requirements apply equally to each listed submittal. The referenced provisions, however, contain additional requirements unique to each situation. The proposal modifies these provisions to be consistent with the submittal requirements in new Section 1704.5. For example, Item 2 requires submittal of the certificate of conformance "in accordance with Section 1705.12.3." Section 1705.12.3, in turn, requires submittal of the certificate of conformance "to the building official as specified in Section 1704.5." Similar language is found in Item 4 and corresponding Section 1910.5.

Item 1 is similar to Item 2 in that it requires submittal of the certificate of conformance "in accordance with Section 1704.2.5.2." Section 1704.2.5.2, however, requires submittal of the certificate of conformance to "the owner or the owner's authorized agent for submittal to the building official as specified in Section 1704.5...". This is because of the requirement in Section 1704.2.5.2 for submittal of the certificate of compliance by the approved fabricator and is done to avoid a conflict with new Section 1704.5. Similar language is found in Item 5 of new Section 1704.5 and corresponding Section 2207.5.

The charging statement in new Section 1704.5 states that the submittals are in addition to the submittal of reports of special inspections and tests because also listing them in the new section is not needed since this activity is already covered in Section 1704.2.4. It is also not advisable because the submittal of reports of special inspections and tests is the responsibility of approved agencies but the submittals listed in this new section are the responsibility of the owner or owner's authorized agent. Examples of reports of special inspections and tests submitted by approved agencies are: tests of concrete for strength, slump and air content (see Table 1705.3); tests of masonry units, grout and mortar (see Section 1705.4); and strength tests of shotcrete (see Table 1705.3).

Item 4 is included in new Section 1704.5 because the preconstruction tests required by Section 1910.4 are not also a requirement in Chapter 17 of the building code and requiring the submittal of test reports to the building official will enable the building official to verify, before construction begins, the validity of structural design assumptions based on the success of the preconstruction tests. Text requiring the submittal of the test reports to the building official is added to Section 1910.5 in conjunction with Item 4.

For Items 2 and 3 of new Section 1704.5, a separate proposal places the provisions of Section 1705.12.3 into two subsections (Sections 1705.12.3 and 1705.12.4) to provide effective charging language for the corresponding provisions in ASCE 7-10. In that proposal, requirements for the submittal of certificates of compliance to the building official are added to each subsection. This proposal for a new Section 1704.5 also adds a similar requirement to Section 1705.12.3 but the only purpose for doing so is to specify Section 1704.5. Should both proposals be approved by the ICC membership, our intent is that Section 1705.12.3 reads: "Certificates of compliance for the seismic qualification shall be submitted to the building official as specified in Section 1704.5;" and Section 1705.12.4 reads: "Certificates of compliance documenting that the requirements are met shall be submitted to the building official as specified in Section 1704.5."

Note that separate proposals:

1. Transfer the requirements of Section 1705.12.1 to new Section 1704.5;
2. Add additional requirements for submittals that are related to structural steel ;
3. Correlate the language in Section 1704.2.5 with the definition of "fabricated item" in Section 202;
4. Add additional requirements for submittals that are related to the welding of concrete reinforcement and anchor bolts;
5. Add additional requirements for submittals that are related to masonry;
6. Change "the owner" to "the owner or the owner's authorized agent";
7. Add a new Section 107.1.1 that correlates with this proposal; and
8. Add "responsible" before "registered design professional".

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee feels the compilation of required submittals is a good idea, but there apparent confusion over the proposed wording. There's concern with requiring these before the start of construction could delay the construction process.

There is also some concern with contractual issues being introduced into the code as well as with the registered design professional's acceptance of submittals.

Assembly Action: **None**

Public Comments

Public Comment:

Philip Brazil, P.E., S.E., representing self, and Lee Kranz, City of Bellevue, representing Washington Association of Building Officials, Technical Code Development Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1704.5 Submittals to the building official. In addition to the submittal of reports of *special inspections* and tests in accordance with Section 1704.2.4, reports and certificates shall be submitted by the owner or the owner's authorized agent to the *building official* ~~after review and acceptance by a *registered design professional* and prior to the construction or work being performed~~ for each of the following:

1. *Certificates of compliance* for the fabrication of structural, load-bearing or lateral load-resisting members or assemblies on the premises of a registered and *approved fabricator* in accordance with Section 1704.2.5.2
2. *Certificates of compliance* for the seismic qualification of nonstructural components, supports and attachments in accordance with Section 1705.12.3
3. *Certificates of compliance* for *designated seismic systems* in accordance with Section 1705.12.4
4. Reports of preconstruction tests for shotcrete in accordance with Section 1910.5
5. *Certificates of compliance* for open web steel joists and joist girders in accordance with Section 2207.5

(Portions of code change proposal not shown remain unchanged)

Commenter's Reason: In response to the Committee Reason and the testimony at the Dallas Code Development Hearing, the language for review and acceptance by a registered design professional and submittal prior to the construction or work being performed is deleted.

Note that separate proposals:

a. Change "the owner" to "the owner or the owner's authorized agent" throughout the IBC (S90-12-AS); and
b. Place the provisions of Section 1705.12.3 into two subsections (1705.12.3 and 1705.12.4) to provide effective charging language for the corresponding provisions in ASCE 7-10 (S129-12-AS).

"

Final Hearing Results

S118-12 **AMPC**

Code Change No: S119-12

Original Proposal

Section(s): 1704.1

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1704.1 General. ~~This section provides minimum requirements for~~ Special inspections, ~~the~~ statements of special inspections, responsibilities of contractors ~~responsibility~~ and structural observations shall meet the applicable requirements of this section.

Reason: The changes revise the language from being declarative to being mandatory.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee believes this editorial change to Section 1704.1 provides proper, mandatory code language.

Assembly Action: **None**

Final Hearing Results

S119-12	**AS**

Code Change No: S120-12

Original Proposal

Section(s): 1704.2

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1704.2 Special inspections. Where application is made for construction as described in this section, the owner or the ~~*registered design professional in responsible charge* acting as the~~ owner's agent, other than the contractor, shall employ one or more *approved agencies* to perform inspections during construction on the types of work listed under Section 1705. These inspections are in addition to the inspections identified in Section 110.

Exceptions:

1. *Special inspections* are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as *approved* by the *building official*.
2. Unless otherwise required by the *building official*, *special inspections* are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.
3. Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the conventional light-frame construction provisions of Section 2308.
4. The contractor is permitted to employ the approved agencies where the contractor is also the owner.

Reason: The purpose for the proposal is to delete the requirement that only the registered design professional in responsible charge is permitted to serve as the owner's agent for employing an approved agency to perform special inspections and tests required by Section 1705 of the building code. We are not aware of any abilities of registered design professionals in responsible charge that make them uniquely qualified for this role.

The purpose for adding language to prohibit the contractor from employing the approved agencies is to prevent the contractor from serving as the owner's agent. The employment of approved agencies should be the responsibility of the owner. The contractor should not perform this function to avoid potential conflicts of interest. Note that Section 1703.1.1 requires the approved agency to be independent from the contractor responsible for the work being inspected. Exception #4 is added, however, to permit the contractor to do so where the contractor is also the owner.

Note that a separate proposal adds "authorized" before "agent" in Section 1704.2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal will allow owners who are also the contractor to hire the special inspectors.

Assembly Action: **None**

Final Hearing Results

S120-12 **AS**

Code Change No: S121-12

Original Proposal

Section(s): 1704.2, 1704.2.1, 1704.2.4

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1704.2 Special inspections. Where application is made for construction as described in this section, the owner or the *registered design professional in responsible charge* acting as the owner's agent shall employ one or more *approved agencies* to ~~perform~~ provide inspections during construction on the types of work listed under Section 1705 and identify them to the *building official*. These inspections are in addition to the inspections identified in Section 110.

Exceptions:

1. *Special inspections* are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as *approved* by the *building official*.
2. Unless otherwise required by the *building official*, *special inspections* are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.
3. Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the conventional light-frame construction provisions of Section 2308.

1704.2.1 Special inspector qualifications. Prior to the start of the construction, **t**he ~~special inspector~~ *approved agencies* shall provide written documentation to the building official demonstrating ~~his or her~~ the competence and relevant experience or training of the *special inspectors* who will perform the *special inspections* and tests during construction. Experience or training shall be considered relevant when the documented experience or training is related in complexity to the same type of *special inspection* activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in other sections of this code. The *registered design professional in responsible charge* and engineers of record involved in the design of the project are permitted to act as the *approved agency* and their personnel are permitted to act as the special inspector for the work designed by them, provided they qualify as special inspectors.

1704.2.4 Report requirement. ~~Special inspectors~~ *Approved agencies* shall keep records of inspections. The ~~special inspector~~ *approved agency* shall furnish inspection reports to the *building official*, and to the *registered design professional in responsible charge*. Reports shall indicate that work inspected was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the *registered design professional in responsible charge* prior to the completion of that phase of the work. A final report documenting required *special inspections* and correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon prior to the start of work by the applicant and the *building official*.

Reason: Section 1704.2 requires the owner or owner's agent to employ approved agencies to perform special inspections and tests required by Section 1705. The act of an owner or owner's agent to employ an approved agency for this purpose, however, is a private matter (typically contractual) and not an appropriate subject for a building code that requires compliance with its provisions. The proposal revises the language to require the owner or owner's agent to identify to the building official the approved agencies

who will provide the special inspections and tests required by Section 1705 that will be performed by special inspectors and others (e.g., testing lab personnel) employed or retained by the approved agency.

Section 1704.2.1 requires special inspectors to provide documentation of their qualifications to the building official but it does not specify when this is required to occur. Being a subsection of Section 1704.2, Section 1704.2.1 also does not specify the relationship between the special inspector providing documentation of qualifications and the owner or owner's agent employing an approved agency. Special inspectors are employed or retained by an approved agency to perform special inspections (see definition of "special inspector" in Section 202). The proposal revises the language to require the approved agency to provide to the building official prior to the start of construction documentation of the qualifications for the special inspectors who will perform the special inspections and tests during construction.

An example of written documentation demonstrating the competence and relevant experience of an approved agency would be evidence of accreditation as an approved agency by the International Accreditation Service (IAS), Inc. The requirements for obtaining and maintaining such accreditation from the IAS are in the Accreditation Criteria for Special inspection Agencies, AC291. Notable provisions in AC291 are definitions, many of which are from 2012 IBC Section 202 (Section 2); information required to be submitted by the agency for accreditation (Section 3); requirements for inspection reports issued by the agency, including compliance with the reporting requirements of IBC Chapter 17 (Section 4); requirements for training, supervision and monitoring of special inspectors (Section 5); and minimum qualifications of special inspectors for specific classes of construction, including those in 2012 IBC Section 1705 (Section 6).

Section 1704.2.4 requires special inspectors to keep records of inspections and furnish inspection reports to the building official and the registered design professional in responsible charge. Special inspectors do generate records of their actions but these are typically kept for submittal by the approved agency that employs or retains them. Section 1704.2.4 is changed to require approved agencies to keep records of special inspections and tests and to submit the reports to the building official and the registered design professional in responsible charge.

Note that separate proposals also revise Section 1704.2 to:

1. Distinguish between special inspections and tests by approved agencies and inspections by the building official;
2. Clarify that the application is made to the building official as specified in Section 105 ; and
3. Update references to "approved agency" throughout the building code, including instances of "special inspection agency".

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: Approved as Modified

Modify proposal as follows:

1704.2 Special inspections. Where application is made for construction as described in this section, the owner or the *registered design professional in responsible charge* acting as the owner's agent shall employ one or more *approved agencies* to provide inspections during construction on the types of work listed under Section 1705 and i dentify ~~them~~ the inspections to the *building official*. These inspections are in addition to the inspections identified in Section 110.

Exceptions:

1. *Special inspections* are not required for construction of a m inor nature or as warranted by conditions in the jurisdiction as *approved* by the *building official*.
2. Unless otherwise required by the *building official*, *special inspections* are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.
3. Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the conventional light-frame construction provisions of Section 2308.

(Portions of proposal not shown are unchanged)

Committee Reason: This code clarifies when the documentation of special inspector qualification must be submitted to the building official. It also clears up who keeps the inspection records and furnishes them to the building official. The modification makes it clear that the inspections are to be identified.

Assembly Action: None

Public Comments

Public Comment:

Philip Brazil, P.E., S.E., representing self; and Lee Kranz, City of Bellevue, representing Washington Association of Building Officials, Technical Code Development Committee, request Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1704.2 Special Inspections. Where application is made for construction as described in this section, the owner or the *registered design professional in responsible charge* acting as the owner's agent shall employ one or more *approved agencies* to provide inspections during construction on the types of work listed under Section 1705 and identify the ~~inspections~~ approved agencies to the *building official*. These inspections are in addition to the inspections specified in Section 110.

Exceptions:

1. *Special inspections* are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as *approved* by the *building official*.
2. Unless otherwise required by the *building official*, *special inspections* are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.
3. Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the conventional light-frame construction provisions of Section 2308

(Portions of proposal not shown remain unchanged)

Commenter's Reason: The purpose for the public comments is to correct an inadvertent error in the approved proposal. In the originally submitted proposal, "them" meant the approved agencies, not the inspections. This was also noted in the first paragraph of the reason statement. The public comment makes the necessary adjustment to the language.
"

Final Hearing Results

S121-12 **AMPC**

Code Change No: S122-12

Original Proposal

Section(s): 202, 1704.2

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1704.2 ~~Special inspections~~ Approved agency. Where application is made for to the *building official* construction as ~~described in this~~ specified in Section 105, the owner or the *registered design professional in responsible charge* acting as the owner's agent shall employ one or more *approved agencies* to perform inspections during construction on the types of work ~~listed under~~ specified in Section 1705. These inspections are in addition to the inspections identified in Section 110.

Exceptions:

1. *Special inspections* are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as *approved* by the *building official*.
2. Unless otherwise required by the *building official*, *special inspections* are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.
3. Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the conventional light-frame construction provisions of Section 2308.

Revise as follows:

SECTION 202
DEFINITIONS

STRUCTURAL OBSERVATION. The visual observation of the structural system by a *registered design professional* for general conformance to the *approved construction documents*. Structural observation does not include or waive the responsibility for the inspections ~~required by~~ in Section 110~~,~~ or the *special inspections* in Section 1705 ~~or other sections of this code~~.

Reason: The current language in Section 1704.2 references that section for requirements applicable to applications for construction but Section 1704.2 contains no such requirements. The requirements for applications to the building official for permits are located in Section 105.

The definition of structural observation is revised because the current language refers to inspections in Section 110, Section 1705 or other sections of the code but Section 110 specifies inspections to be performed by the building official, Section 1705 specifies special inspections to be performed by special inspectors employed or retained by an approved agency, and there are no other sections in the *International Building Code* with inspections or special inspections to reference other than for smoke control systems, which are not subject to structural observations. The changes will also make the definition consistent with the last sentence of Section 1704.2 ("in addition to the inspections specified in Section 110").

Note that a separate proposal also revises Section 1704.2 to distinguish between special inspections and tests by approved agencies and inspections by the building official.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal provides editorial changes that clarify special inspections and structural observation and in addition provides the correct section reference to applications for construction.

Assembly Action: **None**

Final Hearing Results

S122-12	**AS**

Code Change No: S123-12

Original Proposal

Section(s): 1704.2.5, 1704.2.5.1, 1704.2.5.2, 1705.10 (New)

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing self (pbrazil@reidmiddleton.com)

Revise as follows:

1704.2.5 Special inspection of ~~fabricators~~ fabricated items. Where fabrication of structural load-bearing members and assemblies is being ~~performed~~ conducted on the premises of a fabricator's shop, *special inspections* of the fabricated items shall be ~~required by this section and as required elsewhere in this code~~ performed during fabrication.

Exceptions:

1. ~~**Fabrication and implementation procedures.**~~ *Special inspections* during fabrication are not required where the special inspector ~~shall verify~~ verifies that the fabricator maintains detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and the fabricator's ability to conform to *approved construction documents* and referenced standards. The special inspector shall review the procedures for completeness and adequacy relative to the code requirements for the fabricator's scope of work.

2. *Special inspections* ~~as required by Section 1704.2.5 shall~~ are not ~~be~~ required where the fabricator is registered and *approved* in accordance with Section 1704.2.5.2.

~~**1704.2.5.2**~~ **1704.2.5.1 Fabricator approval.** *Special inspections* ~~required by Section 1705~~ during fabrication are not required where the work is done on the premises of a fabricator registered and *approved* to perform such work without *special inspection*. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an *approved special inspection* agency. At completion of fabrication, the *approved* fabricator shall submit a *certificate of compliance* to the *building official* stating that the work was performed in accordance with the *approved construction documents*.

1705.10 Fabricated items. Special inspections of fabricated items shall be performed in accordance with Section 1704.2.5.

(Renumber subsequent sections)

Reason: Section 1704.2.5 requires special inspections to be performed for all structural load-bearing members and assemblies that are fabricated on the premises of a fabricator's shop (e.g., not at the construction site) as specified in the section and elsewhere in the building code. One example of this is the fabrication of metal-plate-connected wood trusses, which is subject to the special inspections required by Section 1704.2.5. Special inspections of the installation of the trusses at the construction site is not required except for trusses spanning 60 feet or greater (Section 1705.5.2).

A second example is the fabrication of precast, prestressed, concrete members (e.g., hollow-core slabs), which is also subject to the special inspections required by Section 1704.2.5 as well as those of Section 1705.3 for concrete construction. Note that Item 9 of Table 1705.3 specifies inspection of prestressed concrete.

Section 1704.2.5 requires special inspections of the fabricated items. Section 1704.2.5.1 specifies duties of the special inspector but these duties are not directly related to special inspections of the fabricated items. Instead, the specified duties are typical of what is conducted by an approved agency for the accreditation of a fabricator by a nationally recognized accreditation service such as the International Accreditation Service. Based on Section 1704.2.5, these duties are required in addition to special inspections of the fabricated items that are required elsewhere in the building code, such as for precast, prestressed, concrete members.

The proposal modifies the provisions in Section 1704.2.5 by requiring special inspections of fabricated items during fabrication. Section 1704.2.5.1 is changed to an exception making it an alternative to the basic requirement for special inspection in Section 1704.2.5.

The other changes in the proposal are made to clarify the language. Section 1705.10 is added because Section 1704.2.5 requires special inspections except where the work is done on the premises of an approved fabricator (Section 1704.2.5.2) and should be included in Section 1705, which specifies required special inspection and tests.

The current provisions in Section 1704.2.5.2 (renumbered to Section 1704.2.5.1 are an acknowledgement that there are fabricators who (1) fabricate products or assemblies with sufficient quality and through the application of documented procedures (e.g., quality management systems), and (2) and are recognized for this through certification, accreditation or qualification by a national recognized organization providing such services, that they should be exempt from further requirements for special inspection of fabrication. Examples are:

1. The certification program of steel fabricators and erectors by the American Institute of Steel Construction (AISC), which is audited by the Quality Management Company;
2. The accreditation of the fabrication inspection programs for reinforced concrete and precast/prestressed concrete, structural steel and wood wall panels by the International Accreditation Service (IAS) (see AC157, AC172 and AC196, respectively, for accreditation criteria);
3. The accreditation of the inspection programs for manufacturers of metal building systems by the International Accreditation Service (IAS) (see AC472 for accreditation criteria); and
4. Qualification of prefabricated items such as prefabricated wood shear panels, cold-formed, pin-connected open-web trusses with wood chords and tubular or angular steel webs, and steel lateral-force-resisting vertical assemblies, as alternatives to applicable requirements in the IBC or other codes by the ICC Evaluation Service (ICC-ES) (see AC130, AC306 and AC322, respectively, for acceptance criteria).
5. The certification of structural and architectural concrete products by the Precast, Prestressed Concrete Institute (PCI).
6. The certification of precast concrete products by the National Precast Concrete Association (NPCA).

Note that separate proposals:

1. Revise Section 1704.2.5.2 to specify that the approved fabricator is required to submit the certificate of compliance to the owner or the owner's authorized agent in conjunction with the requirement in proposed Section 1704.5 for submittal of the certificate to the building official;
2. Revise Sections 1704.2.5 and 1704.2.5.1 for consistency with and to correlate with the definition of "fabricated item" in Section 202; and
3. Revise Section 1704.2.5.2 and other sections to update references to "approved agency" throughout the building code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change properly identifies conditions under which special inspections of fabricators are required.

Assembly Action: **None**

Public Comments

Public Comment 1:

Philip Brazil, P.E., S.E., representing self; and Lee Kranz, City of Bellevue, representing Washington Association of Building Officials, Technical Code Development Committee; and Constadino (Gus) Sirakis, PE, representing New York City Department of Buildings, request Approval as Modified by this Public Comment.

Modify the proposal as follows:

1704.2.5 Special inspection of fabricated items. Where fabrication of structural load-bearing members and assemblies is being conducted on the premises of a fabricator's shop, *special inspections* of the fabricated items shall be performed during fabrication.

Exceptions:

1. *Special inspections* during fabrication are not required where the ~~special inspector verifies that the~~ fabricator maintains *approved* detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and the fabricator's ability to conform to *approved construction documents* and referenced standards. ~~The special inspector shall review the procedures for completeness and adequacy relative to the code requirements for the fabricator's scope of work.~~ Approval shall be based upon review of fabrication and quality control procedures and periodic inspection of fabrication practices by the building official.

2. *Special inspections* are not required where the fabricator is registered and *approved* in accordance with Section 1704.2.5.2.

1704.2.5.1 Fabricator approval. *Special inspections* during fabrication are not required where the work is done on the premises of a fabricator registered and *approved* to perform such work without *special inspection*. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an *approved special inspection* agency. At completion of fabrication, the *approved* fabricator shall submit a *certificate of compliance* to the *building official* stating that the work was performed in accordance with the *approved construction documents*.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: The purpose for the public comment is to clarify that the exemption from required special inspections in Exception #1 is permitted only when approved by the building official. The language is revised to require the fabricator to maintain *approved* detailed fabrication and quality control procedures and *approved* is defined in IBC Section 202 as "acceptable to the *building official* or authority having jurisdiction." The added language for approval to be based upon review of fabrication and quality control procedures and periodic inspection by the building official is for consistency with language in Section 1704.2.5.1 for similar actions by the approved agency.

Note that separate proposals:

a. Revise Section 1704.2.5.2 and other sections to update references to "approved agency" throughout the building code (e.g., change from "approved special inspection agency" to "approved agency," S117-12-AM); and
b. Revise Sections 1704.2.5 and 1704.2.5.1 for consistency with and to correlate with the definition of "fabricated item" in Section 202 (e.g., change from "referenced standards" to "this code," S124-12-AS).

"

Final Hearing Results

S123-12 **AMPC1**

Code Change No: S124-12

Original Proposal

Section(s): 202, 1704.2.5, 1704.2.5.1

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1704.2.5 Inspection of fabricators. Where fabrication of structural, load-bearing or lateral load-resisting members ~~and~~ or assemblies is being ~~performed~~ conducted on the premises of a fabricator's shop, *special inspection* of the fabricated items shall be performed as required by this section and ~~as required~~ elsewhere in this code.

1704.2.5.1 Fabrication and implementation procedures. The special inspector shall verify that the fabricator maintains detailed fabrication and quality control procedures that provide a basis for ~~inspection~~ control of the workmanship and the fabricator's ability to conform to *approved construction documents* and ~~referenced standards~~ this code. The special inspector shall review the procedures for completeness and adequacy relative to the ~~code~~ requirements ~~for~~ applicable to the fabricator's scope of work.

> **Exception:** *Special inspections* as required by Section 1704.2.5 shall not be required where the fabricator is *approved* in accordance with Section 1704.2.5.2.

Revise as follows:

SECTION 202
DEFINITIONS

FABRICATED ITEM. Structural, load-bearing or lateral load-resisting members or assemblies consisting of materials assembled prior to installation in a building or structure, or subjected to operations such as heat treatment, thermal cutting, cold working or reforming after manufacture and prior to installation in a building or structure. Materials produced in accordance with standards ~~specifications~~ referenced by this code, such as rolled structural steel shapes, steel reinforcing bars, *masonry units* and wood structural panels, or in accordance with a referenced standard ~~which~~ that provides requirements for quality control done under the supervisions of a third-party quality control agency, ~~shall not be considered~~ are not "fabricated items."

Reason: The purpose for the proposal is to correlate the provisions for fabrication on the premises of a fabricator's shop. Section 1704.2.5 and the definition of "fabricated item" in Section 202 are revised for internal consistency. The change from "shall not be" to "are not" in the definition of "fabricated item" eliminates mandatory language, which is not appropriate in a definition. Also, "specifications" is deleted because the building code references standards, not specifications.

In Section 1704.2.5.1, "referenced standards" is replaced with "this code" for consistency with Section 102.4, which establishes that standards referenced by the building code are considered part of the code's requirements to the prescribed extent of the standard. The other changes are made because there are no requirements in the building code for the fabricator's scope of work and the requirements applicable to the fabricator are not limited to the requirements in the building code but also include what is specified in the approved construction documents.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Agreement with the proponent's reason which indicates that this proposal makes editorial clarifications that correlate the provisions for fabrication on the premises of a fabricator's shop.

Assembly Action: **None**

Final Hearing Results

S124-12 **AS**

Code Change No: S128-12

Original Proposal

Section(s): 1704.3.1

Proponent: Stephen Kerr, S.E., Josephson Werdowatz and Associates, representing Structural Engineers Association of California (SEAOC) (skerr@jwa-se.com)

Revise as follows:

1704.3.1 Content of statement of special inspections. The statement of special inspections shall identify the following:

1. The materials, systems, components and work required to have *special inspection* or testing by the *building official* or by the *registered design professional* responsible for each portion of the work.
2. The type and extent of each *special inspection*.
3. The type and extent of each test.
4. Additional requirements for *special inspection* or testing for seismic or wind resistance as specified in Sections 1705.10, 1705.11 and 1705.12.
5. For each type of *special inspection*, ~~identification as to~~ whether it will be continuous *special inspection*, ~~or~~ periodic *special inspection*, or performed at a frequency in accordance with the notation used in the reference standard where the inspections are defined.

Reason: The quality assurance requirements of AISC 360 and AISC 341, which are referenced as the standard for special inspections and testing for structural steel, do not describe the frequency of the inspections as “periodic” or ”continuous.” Rather, detailed inspection tasks are defined, and the level of effort for each task is described by the terms “Observe” and “Perform”. This proposal accommodates this alternate approach to the frequency of special inspection.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee prefers that special inspections be referred to strictly as continuous or periodic. There is no requirement to add wording frequencies according to reference standards.

Assembly Action: **None**

Public Comments

Public Comment:

Stephen Kerr, representing Structural Engineers Association of California, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1704.3.1 Content of statement of special inspections. The statement of special inspections shall identify the following:

1. The materials, systems, components and work required to have *special inspection* or testing by the *building official* or by the *registered design professional* responsible for each portion of the work.
2. The type and extent of each *special inspection*.

3. The type and extent of each test.
4. Additional requirements for *special inspection* or testing for seismic or wind resistance as specified in Sections 1705.10, 1705.11 and 1705.12.
5. For each type of *special inspection*, identification as to whether it will be continuous special inspection, periodic special inspection, or performed ~~at a frequency~~ in accordance with the notation used in the reference standard where the inspections are defined.

Commenter's Reason: The quality assurance requirements of AISC 360 and AISC 341, which are referenced as the standard for special inspections and testing for structural steel, do not describe the frequency of the inspections as "periodic" or "continuous." Rather, detailed inspection tasks are defined, and the level of effort for each task is described by the terms "Observe" and "Perform". Whereas inspection frequency "periodic or continuous" is time dependent, interval to "observe or perform" is project dependent based on design. Neither the building official nor the design professional of record can control the work of the contractor or that of the special inspector, except to identify the critical elements which need special inspection. This proposal accommodates this alternate approach to the frequency of special inspection in accordance with the commentary on section N of AISC 360.
"

Final Hearing Results

S128-12 **AMPC**

Code Change No: S129-12

Original Proposal

Section(s): 1704.3.2, 1705.11.4, 1705.12, 1705.12.3, 1705.12.4 (New)

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1704.3.2 Seismic requirements in the statement of special inspections. Where Section 1705.11 or 1705.12 specifies special inspections~~, testing or qualification~~ or tests for seismic resistance, the statement of special inspections shall identify the designated seismic systems and seismic force-resisting systems that are subject to the *special inspections* or tests.

1705.11.4 Designated seismic systems. The special inspector shall examine designated seismic systems requiring seismic qualification in accordance with Section ~~1705.12.3~~ 13.2.2 of ASCE 7 and verify that the *label*, anchorage ~~or~~ and mounting conforms to the *certificate of compliance*.

1705.12 Testing ~~and qualification~~ for seismic resistance. ~~The~~ Testing ~~and qualification~~ for seismic resistance is required as specified in Sections 1705.12.1 through ~~1705.12.4~~ 1705.12.5, unless exempted from *special inspections* by the exceptions of Section 1704.2 are required as follows:

1. The seismic force-resisting systems in structures assigned to *Seismic Design Category* C, D, E or F shall meet the requirements of Sections 1705.12.1 and 1705.12.2, as applicable.
2. Designated seismic systems in structures assigned to *Seismic Design Category* C, D, E or F and subject to the certification requirements of ASCE 7 Section 13.2.2 shall comply with Section 1705.12.3.
3. Architectural, mechanical and electrical components in structures assigned to *Seismic Design Category* C, D, E or F and where the requirements of ASCE 7 Section 13.2.1 are met by submittal of manufacturer's certification, in accordance with Item 2 therein, shall comply with Section 1705.12.3.
4. The seismic isolation system in seismically isolated structures shall meet the testing requirements of Section 1705.12.4.

1705.12.3 ~~Seismic certification of~~ Nonstructural components. . For *structures* assigned to *Seismic Design Category* B, C, D, E or F, where the requirements of Section 13.2.1 of ASCE 7 for nonstructural components, supports or attachments are met by seismic qualification as specified in Item 2 therein, the *registered design professional* shall specify on the construction documents the requirements for ~~certification~~ seismic qualification by analysis, testing or experience data ~~for nonstructural components and designated seismic systems in accordance with Section 13.2 of ASCE 7, where such certification is required by Section 1705.12~~ *Certificates of compliance* for the seismic qualification shall be submitted to the *building official*.

1705.12.4 Designated seismic systems. For *structures* assigned to *Seismic Design Category* C, D, E or F and with *designated seismic systems* that are subject to the requirements of Section 13.2.2 of ASCE 7 for certification, the *registered design professional* shall specify on the *construction documents* the requirements to be met by analysis, testing or experience data as specified therein. *Certificates of compliance* documenting that the requirements are met shall be submitted to the *building official*.

(Renumber subsequent sections)

Reason: The provisions in Section 1705.12.3 are placed in two sections to provide effective charging language for the corresponding provisions in ASCE 7-10 for nonstructural components meeting special requirements and designated seismic systems, which differ substantially from each other. References to "certification" and "qualification" in this section as well as other sections in the proposal are also revised for consistency with the corresponding provisions of ASCE 7-10. Seismic qualification and certification are technical requirements that are covered by the provisions in ASCE 7-10 (Sections 13.2.1 and 13.2.2). What is relevant in the building code is the submittal of certificates of compliance (manufacturer's certification in ASCE 7-10) to the building official for verification that the requirements for seismic qualification and certification are met and language is added to both sections for this purpose.

The requirement to submit certificates of compliance to the building official is also added to both sections for consistency with corresponding language in ASCE 7-10. Items #1 and #2 in Section 13.2.2 of ASCE 7-10 both specify submittal "for approval to the authority having jurisdiction after review and acceptance by a registered design professional." Item #1 in Section 13.2.1 of ASCE 7-10 contains similar language. Item #2 in Section 13.2.1, however, specifies submittal but not to whom. This has been judged to be an oversight on the part of the ASCE 7 Committee whose membership includes two members of the WABO Technical Code Development Committee. This has been brought to the attention of the ASCE 7 Committee and a proposal that addresses the issue will be submitted for consideration in the next development cycle for the standard.

The current language in Section 1705.12.3 for the registered design professional to specify on the construction documents the requirements to be met by analysis, testing or experience data is not substantively changed by this proposal.

Also in Section 1705.12.3, the scope is expanded to include structures assigned to Seismic Category B. For a nonstructural component in a structure where the option of seismic qualification by analysis, testing or experience data in Section 13.2.1, Item 2, of ASCE 7-10 is chosen, the requirements to document the parameters for seismic qualification on the construction documents and to submit the certificate of compliance for seismic qualification to the building official will apply. These requirements, however, are the consequence of the owner, design team or construction team choosing to comply with Section 13.2.1 of ASCE 7-10 through seismic qualification rather than the design option in Section 13.2.1, Item 1 of ASCE 7-10.

Note that a separate proposal modifies the requirement in Sections 1705.12.3 and 1705.12.4 to submit certificates of compliance for consistency with the changes in that proposal by stating that they shall be submitted to the building official "as specified in Section 1704.5".

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change clarifies the seismic certification of nonstructural components by separating designated seismic systems from nonstructural components meeting special requirements.

Assembly Action: **None**

Final Hearing Results

S129-12 **AS**

Code Change No: S130-12

Original Proposal

Section(s): 1704.3.3, 1705.10

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing self (pbrazil@reidmiddleton.com)

Revise as follows:

1704.3.3 Wind requirements in the statement of special inspections. Where Section 1705.10 specifies special inspection for wind ~~requirements~~ resistance, the statement of special inspections shall identify the main windforce-resisting systems and wind-resisting components that are subject to *special inspection*.

1705.10 Special inspections for wind resistance. *Special inspections* ~~itemized~~ for wind resistance specified in Sections 1705.10.1 through 1705.10.3, unless exempted by the exceptions to Section 1704.2, are required for buildings and structures constructed in the following areas:

1. In wind Exposure Category B, where V_{asd} as determined in accordance with Section 1609.3.1 is 120 miles per hour (52.8 m/sec) or greater.
2. In wind Exposure Category C or D, where V_{asd} as determined in accordance with Section 1609.3.1 is 110 mph (49 m/sec) or greater.

Reason: The purpose for the proposal is to correlate the language that specifies special inspections for wind resistance with separate proposals that make similar changes to Section 1705.11 on special inspections for seismic resistance and to Section 1705.12 on testing for seismic resistance .

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that these are editorial changes that help to clarify the applicability of special inspections for wind resistance.

Assembly Action: **None**

Final Hearing Results

S130-12 **AS**

Code Change No: S131-12

Original Proposal

Section(s): 202, 1704.5

Proponent: D. Kirk Harman, P.E., S.E., SECB, FACI, The Harman Group, representing the National Council of Structural Engineers Associations (NCSEA) Code Advisory Committee, Quality Assurance and Special Inspection Subcommittee

Revise as follows:

SECTION 202
DEFINITIONS

STRUCTURAL OBSERVATION. The visual observation of the structural system by a *registered design professional* for general conformance to the *approved construction documents*. ~~Structural observation does not include or waive the responsibility for the inspection required by Section 110, 1705 or other sections of this code.~~

Revise as follows:

1704.5 Structural observations. Where required by the provisions of Section 1704.5.1 or 1704.5.2, the owner shall employ a *registered design professional* to perform structural observations as defined in ~~Section 202~~ Chapter 2. Structural observation does not include or waive the responsibility for the inspections in Section 110 or the *special inspections* in Section 1705.

Prior to the commencement of observations, the structural observer shall submit to the *building official* a written statement identifying the frequency and extent of structural observations.

At the conclusion of the work included in the permit, the structural observer shall submit to the *building official* a written statement that the site visits have been made and identify any reported deficiencies which, to the best of the structural observer's knowledge, have not been resolved.

Reason: The last sentence of the definition in section 202 is moved to section 1704.5 because rules and relationships to other requirements should not be in the definition. The sentence is slightly revised to distinguish between "inspections" and *special inspections* and the reference to "other sections of this code" is deleted as there are no other sections that deal with inspections. The first sentence in 1704.5 is revised to make reference to Chapter 2 where definitions are now located.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1704.5 Structural observations. Where required by the provisions of Section 1704.5.1 or 1704.5.2, the owner shall employ a *registered design professional* to perform structural observations as defined in Chapter 2. Structural observation does not include or waive the responsibility for the inspections in Section 110 or the *special inspections* in Section 1705 or other sections of this code.

Prior to the commencement of observations, the structural observer shall submit to the *building official* a written statement identifying the frequency and extent of structural observations.

At the conclusion of the work included in the permit, the structural observer shall submit to the *building official* a written statement

that the site visits have been made and identify any reported deficiencies which, to the best of the structural observer's knowledge, have not been resolved.

(Portions of proposal not shown are unchanged)

Committee Reason: This proposal relocates requirements from a definition to the appropriate location in the code. The modification adds a phrase from the definition that was overlooked in the original proposal.

Assembly Action: **None**

Final Hearing Results

S131-12 **AM**

Code Change No: S136-12

Original Proposal

Section(s): 1704.5 (New), 1705.3.1, 1705.12.1

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1704.5 Submittals to the building official. In addition to the submittal of reports of *special inspections* and tests in accordance with Section 1704.2.4, reports and certificates shall be submitted by the owner or the owner's authorized agent to the *building official* after review and acceptance by a *registered design professional* and prior to the construction or work being performed for each of the following:

1. Reports of material properties verifying compliance with the requirements of AWS D1.4 for weldability as specified in Section 3.5.2 of ACI 318 for reinforcing bars in concrete complying with a standard other than ASTM A 706 that are to be welded; and
2. Reports of mill tests in accordance with Section 21.1.5.2 of ACI 318 for reinforcing bars complying with ASTM A 615 and used to resist earthquake-induced flexural or axial forces in the special moment frames, special structural walls, or coupling beams connecting special structural walls, of *seismic force-resisting systems* in *structures* assigned to *Seismic Design Category* B, C, D, E or F.

1705.3.1 Materials. In the absence of sufficient data or documentation providing evidence of conformance to quality standards for materials in Chapter 3 of ACI 318, the building official shall require testing of materials in accordance with the appropriate standards and criteria for the material in Chapter 3 of ACI 318. ~~Weldability of reinforcement, except that which conforms to ASTM A 706, shall be determined in accordance with the requirements of Section 3.5.2 of ACI 318.~~

~~**1705.12.1 Concrete reinforcement.** Where reinforcement complying with ASTM A 615 is used to resist earthquake induced flexural and axial forces in special moment frames, special structural walls and coupling beams connecting special structural walls, in structures assigned to *Seismic Design Category* B, C, D, E or F, the reinforcement shall comply with Section 21.1.5.2 of ACI 318. Certified mill test reports shall be provided for each shipment of such reinforcement. Where reinforcement complying with ASTM A 615 is to be welded, chemical tests shall be performed to determine weldability in accordance with Section 3.5.2 of ACI 318.~~

Reason: This proposal is a continuation of a separate proposal that adds a new Section 1704.5 specifying submittals to the building official. This proposal adds two items to those in the separate proposal and the charging language in new Section 1704.5 is identical in both proposals.

The requirement in Section 1705.12.1 to provide certified mill test reports for reinforcement in special moment frames, special structural walls and coupling beams is relocated to Item 2 of new Section 1704.5 because the subject of Section 1705.12 is testing and qualification for seismic resistance but there is no testing specified in Section 1705.12.1. The submittal of certified mill test reports is specified but there is no corresponding requirement in ACI 318-11 that the reports be certified or that the act of submittal amounts to a "qualification." Also ACI 318 has consistently specified "mill tests" since the alternative to reinforcement complying with ASTM A 706 first appeared in the 1983 edition. The limitation in Section 1705.12.1 to reinforcement complying with ASTM A 615 is retained in Item 2 for consistency with the same limitation in the referenced section of ACI 318-11 (Section 21.1.5.2).

Relocating the requirement in Section 1705.12.1 to Item 2 of new Section 1704.5 has an additional benefit that is provided by the charging language in the new section. Section 1705.12.1 requires mill test reports to be provided with each shipment of reinforcement but that does not ensure the reports will be available to the owner, design team, construction team or building official. New Section 1704.5, however, requires the owner or authorized agent to submit the reports to the building official after review and acceptance by a registered design professional and prior to the construction or work begin performed. Also, the current requirement in Section 1705.12.1 that the reports be provided for each shipment means that they are available for submittal to the building official.

The charging language in Section 21.1.5.2 of ACI 318-11 specifies deformed reinforcement but Item 2 specifies reinforcing bars for consistency with (1) the basic requirement in Section 21.1.5.2 for compliance with ASTM A 706, which is limited in scope to "deformed and plain low-alloy steel bars…for concrete reinforcement" (Section 1.1), and (2) the alternative of compliance with ASTM A 615, which is limited in scope to "deformed and plain carbon steel bars for concrete reinforcement," provided the special requirements of Section 21.1.5.2 are also met.

The source document for some of the language in Section 1705.12.1 is the *NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures* (Section 3.4.1.2 of FEMA 368 and Section 2.4.1.2 of FEMA 450-1).

In Item 1 of new Section 1704.5, the requirement in the last sentence of Section 1705.1.2.1 for chemical tests of reinforcement complying with ASTM A 615 that is to be welded is replaced with a requirement to submit reports of material properties for reinforcing bars complying with a standard other than ASTM A 706 that verify compliance with the requirements of AWS D1.4 for weldability. These changes correct several errors. First, the current language in Section 1705.1.2.1 is limited in scope to Seismic Design Categories B through F by that section, and to Seismic Design Categories C through F by the charging language in Section 1705.12 (Item 1), but verification of weldability is not a seismic issue. Verifying weldability is important for concrete reinforcement designed to resist all load effects, not merely seismic load effects.

Second, the current language in Section 1705.1.2.1 requires chemical tests of reinforcement be performed to determine weldability in accordance with Section 3.5.2 of ACI 318 but Section 3.5.2 of ACI 318 does not require chemical tests to be performed. Instead, it requires the ASTM specification to be supplemented by specifying a "report of material properties."

Third, Section 1705.12.1 requires the chemical tests for reinforcement complying with ASTM A 615 but Section 3.5.2 of ACI 318 specifies the report of material properties for reinforcement complying with a standard other than ASTM A 706. In ACI 318-11, specified standards other than ASTM A 615 and A 706 include A 955, A 996 and A 1035 (see Section 3.5.3.1).

Fourth, Section 1705.12.1 specifies concrete reinforcement but Section 3.5.2 of ACI 318 specifies reinforcing bars, which is done to exclude other types of concrete reinforcement such as plain reinforcement, headed shear studs, structural steel, steel pipe and steel tubing. Refer to Section 3.5, and the definition of "reinforcement" in Section 2.2, in ACI 318-11 for further information.

The language in Item 1 of new Section 1704.5 is consistent with the provisions in Section 3.5.2 of ACI 318 as discussed above. Section 3.5.2 of ACI 318 has consistently specified (1) a report of material properties, (2) a standard other than ASTM A 706 and (3) reinforcing bars, ever since the section first appeared in the 1977 edition. Section 3.5.2 also requires the applicable ASTM specifications for reinforcing bars to be "supplemented to require a report of material properties necessary to conform to the requirements in AWS D1.4." The requirement means that reports of material properties are available for submittal to the building official. Requiring their submittal to the building official will enable the building official to verify whether the reinforcing bars meet the applicable requirements for weldability.

For Items 1 and 2, neither ACI 318-11 nor ACI 301 ("Specifications for Structural Concrete," not an IBC referenced standard) specifies submittals to applicable regulatory officials (e.g., building official or authority having jurisdiction). In ACI 318, (1) Section 1.2.2 specifies the filing of calculations pertinent to the design with the contract documents when required by the building official, (2) Section 1.3.1 specifies inspection as required by the legally adopted general building code, and (3) Sections 1.3.2 through 1.3.4 specify requirements for the keeping and retention of inspection records, but (4) reports of mill tests and material properties are not included. In ACI 301-05, (1) Section 1.5.1 specifies that submittals required by the standard be submitted for review and acceptance; (2) Section 1.2 defines "submitted" as being provided to the architect/engineer for review **or** acceptance and "architect/engineer" as the individual or firm that issues the project drawings and specifications **or** administers the work under the contract documents ("approved" is not defined); (3) Section 1.5.2 specifies reporting by the testing agency of test results to the owner, architect/engineer and contractor; and (4) Section 1.6.2 specifies requirements for testing agencies, including acceptance by the architect/engineer before performing any work.

Note that Section 1.3.4 of AWS D1.4-98 requires the calculation of carbon equivalent for all reinforcing bars, including those complying with ASTM A 706. If mill test reports are not available to enable the calculation, chemical analysis is permitted to be performed. If the chemical composition is not known, special preheat temperatures are required (see Section 1.3.4.3).

Also, the likely source document for the current requirement to perform chemical tests, the *NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures* (Section 3.4.1.3 of FEMA 368 and Section 2.4.1.3 of FEMA 450-1) did not require chemical tests to be performed. It required verification "that chemical tests have been performed to determine weldability in accordance with Section 3.5.2 of ACI 318."

Note that separate proposals:

1. Add additional requirements for submittals that are related to structural steel (Sxx-12/13);
2. Add additional requirements for submittals that are related to the welding of concrete reinforcement and anchor bolts (Sxx-12/13);
3. Add additional requirements for submittals that are related to masonry (Sxx-12/13); and
4. Add a new Section 107.1.1 that correlates with this proposal (Sxx-12/13).

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal would add inspection requirements that could delay the construction process.

Assembly Action: None

Public Comments

Public Comment:

Philip Brazil, P.E., S.E. representing self; and Lee Kranz, City of Bellevue, representing Washington Association of Building Officials, Technical Code Development Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1704.5 Submittals to the building official. In addition to the submittal of reports of *special inspections* and tests in accordance with Section 1704.2.4, reports and certificates shall be submitted by the owner or the owner's authorized agent to the *building official* ~~after review and acceptance by a *registered design professional* and prior to the construction or work being performed~~ for each of the following:

1. Reports of material properties verifying compliance with the requirements of AWS D1.4 for weldability as specified in Section 3.5.2 of ACI 318 for reinforcing bars in concrete complying with a standard other than ASTM A 706 that are to be welded; and
2. Reports of mill tests in accordance with Section 21.1.5.2 of ACI 318 for reinforcing bars complying with ASTM A 615 and used to resist earthquake-induced flexural or axial forces in the special moment frames, special structural walls, or coupling beams connecting special structural walls, of *seismic force-resisting systems* in *structures* assigned to *Seismic Design Category* B, C, D, E or F.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: In response to the Committee Reason and the testimony at the Dallas Code Development Hearing, the language for review and acceptance by a registered design professional and submittal prior to the construction or work being performed is deleted from the charging text.

In contrast with the public comments on Proposals S133-12, S134-12 and S135-12, the section references in the items are not deleted to be consistent with the current language in IBC Sections 1705.3.1 and 1705.12.1, which specify the section references.

Note that a separate proposal changes "the owner" to "the owner or the owner's authorized agent" throughout the IBC (S90-12-AS).

"

Final Hearing Results

S136-12 **AMPC**

Code Change No: S137-12

Original Proposal

Section(s): 1704.5.1, 1705.11, 1705.11.7, 1905.1.8, 2209.1

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1704.5.1 Structural observations for seismic resistance. Structural observations shall be provided for those structures assigned to *Seismic Design Category* D, E or F where one or more of the following conditions exist:

1. The structure is classified as *Risk Category* III or IV in accordance with Table 1604.5.
2. The height of the structure is greater than 75 feet (22 860 mm) above the base as defined in Section 11.2 of ASCE 7.
3. The structure is assigned to *Seismic Design Category* E, is classified as *Risk Category* I or II in Accordance with Table 1604.5, and is greater than two *stories above grade plane*.
4. When so designated by the *registered design professional* responsible for the structural design.
5. When such observation is specifically required by the *building official*.

1705.11 Special inspections for seismic resistance. *Special inspections* itemized in Sections 1705.11.1 through 1705.11.8, unless exempted by the exceptions of Section 1704.2, are required for the following:

1. The seismic force-resisting systems in structures assigned to *Seismic Design Category* C, D, E or F in accordance with Sections 1705.11.1 through 1705.11.3, as applicable.
2. Designated seismic systems in structures assigned to *Seismic Design Category* C, D, E or F in accordance with Section 1705.11.4.
3. Architectural, mechanical and electrical components in accordance with Sections 1705.11.5 and 1705.11.6.
4. Storage racks as defined in Section 11.2 of ASCE 7 that are in structures assigned to *Seismic Design Category* D, E or F in accordance with Section 1705.11.7.
5. Seismic isolation systems in accordance with Section 1705.11.8.

   Exception: Special inspections itemized in Sections 1705.11.1 through 1705.11.8 are not required for structures designed and constructed in accordance with one of the following:

   1. The structure consists of light-frame construction; the design spectral response acceleration at short periods, *SDS*, as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 35 feet (10 668 mm).
   2. The seismic force-resisting system of the structure consists of reinforced masonry or reinforced concrete; the design spectral response acceleration at short periods, *SDS*, as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 25 feet (7620 mm).
   3. The structure is a detached one- or two-family dwelling not exceeding two *stories above grade plane* and does not have any of the following horizontal or vertical irregularities in accordance with Section 12.3 of ASCE 7:

3.1. Torsional or extreme torsional irregularity.
3.2. Nonparallel systems irregularity.
3.3. Stiffness-soft story or stiffness-extreme soft story irregularity.
3.4. Discontinuity in lateral strength-weak story irregularity.

1705.11.7 Storage racks. Periodic *special inspection* is required during the anchorage of storage racks as defined in Section 11.2 of ASCE 7 that are 8 feet (2438 mm) or greater in height in structures assigned to *Seismic Design Category* D, E or F.

Revise as follows:

1905.1.8 ACI 318, Section 22.10. Delete ACI 318, Section 22.10, and replace with the following:

22.10 - Plain concrete in structures assigned to Seismic Design Category C, D, E or F.

22.10.1 - Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:

(a) Structural plain concrete basement, foundation or other walls below the base as defined in Section 11.2 of ASCE 7 are permitted in detached one- and two-family dwellings three stories or less in height constructed with stud-bearing walls. In dwellings assigned to Seismic Design Category D or E, the height of the wall shall not exceed 8 feet (2438 mm), the thickness shall not be less than 71/2 inches (190 mm), and the wall shall retain no more than 4 feet (1219 mm) of unbalanced fill. Walls shall have reinforcement in accordance with 22.6.6.5.

(b) Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.

***Exception:** In detached one- and two-family dwellings three stories or less in height, the projection of the footing beyond the face of the supported member is permitted to exceed the footing thickness.*

(c) Plain concrete footings supporting walls are permitted, provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing. For footings that exceed 8 inches (203 mm) in thickness, a minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.

Exceptions:

1. *In Seismic Design Categories A, B and C, detached one- and two-family dwellings three stories or less in height constructed with stud-bearing walls, are permitted to have plain concrete footings without longitudinal reinforcement.*
2. *For foundation systems consisting of a plain concrete footing and a plain concrete stemwall, a minimum of one bar shall be provided at the top of the stemwall and at the bottom of the footing.*
3. *Where a slab on ground is cast monolithically with the footing, one No. 5 bar is permitted to be located at either the top of the slab or bottom of the footing.*

Revise as follows:

2209.1 Storage racks. The design, testing and utilization of ~~industrial steel~~ storage racks as defined in Section 11.2 of ASCE 7 and made of cold-formed or hot-rolled steel structural members, shall be in accordance with RMI/ANSI MH 16.1. Where required by ASCE 7, the seismic design of storage racks

shall be in accordance with the provisions of Section 15.5.3 of ASCE 7, except that the mapped acceleration parameters, S_s and S_1, shall be determined in accordance with Section 1613.3.1.

Reason: The purpose for the proposal is to clarify the meaning of "base" and "storage rack," which are defined in ASCE 7-10 but are not also defined in the building code. Both of these terms have meanings that necessitate knowing their definitions to fully understand the technical provisions related to them. Therefore, the proposal adds references to Section 11.2 of ASCE 7-10 for their definitions. The only instances of these terms in the 2012 IBC where they are directly related to their corresponding definitions in ASCE 7-10 are in this proposal.

For storage racks, adding a reference to the definition in ASCE 7-10 in Section 1705.11.7 also has the effect of narrowing the scope to those that are defined. Note that "storage rack" is defined in ASCE 7-10 as including "industrial pallet racks, moveable shelf racks and stacker racks made of cold-formed or hot-rolled structural members;" but excluding "other types of racks such as drive-in and drive-through racks, cantilever racks, portable racks or racks made of materials other than steel."

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1704.5.1 Structural observations for seismic resistance. Structural observations shall be provided for those structures assigned to *Seismic Design Category* D, E or F where one or more of the following conditions exist:

1. The structure is classified as *Risk Category* III or IV in accordance with Table 1604.5.
2. The height of the structure is greater than 75 feet (22 860 mm) above the base as defined in ~~Section 11.2 of~~ ASCE 7.
3. The structure is assigned to *Seismic Design Category* E, is classified as *Risk Category* I or II in Accordance with Table 1604.5, and is greater than two *stories above grade plane*.
4. When so designated by the *registered design professional* responsible for the structural design.
5. When such observation is specifically required by the *building official*.

1705.11 Special inspections for seismic resistance. *Special inspections* itemized in Sections 1705.11.1 through 1705.11.8, unless exempted by the exceptions of Section 1704.2, are required for the following:

1. The seismic force-resisting systems in structures assigned to *Seismic Design Category* C, D, E or F in accordance with Sections 1705.11.1 through 1705.11.3, as applicable.
2. Designated seismic systems in structures assigned to *Seismic Design Category* C, D, E or F in accordance with Section 1705.11.4.
3. Architectural, mechanical and electrical components in accordance with Sections 1705.11.5 and 1705.11.6.
4. Storage racks as defined in ~~Section 11.2 of~~ ASCE 7 that are in structures assigned to *Seismic Design Category* D, E or F in accordance with Section 1705.11.7.
5. Seismic isolation systems in accordance with Section 1705.11.8.

   Exception: Special inspections itemized in Sections 1705.11.1 through 1705.11.8 are not required for structures designed and constructed in accordance with one of the following:

   1. The structure consists of light-frame construction; the design spectral response acceleration at short periods, *SDS*, as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 35 feet (10 668 mm).
   2. The seismic force-resisting system of the structure consists of reinforced masonry or reinforced concrete; the design spectral response acceleration at short periods, *SDS*, as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 25 feet (7620 mm).
   3. The structure is a detached one- or two-family dwelling not exceeding two *stories above grade plane* and does not have any of the following horizontal or vertical irregularities in accordance with Section 12.3 of ASCE 7:
      3.1. Torsional or extreme torsional irregularity.
      3.2. Nonparallel systems irregularity.
      3.3. Stiffness-soft story or stiffness-extreme soft story irregularity.
      3.4. Discontinuity in lateral strength-weak story irregularity.

1705.11.7 Storage racks. Periodic *special inspection* is required during the anchorage of storage racks as defined in ~~Section 11.2 of~~ ASCE 7 that are 8 feet (2438 mm) or greater in height in structures assigned to *Seismic Design Category* D, E or F.

1905.1.8 ACI 318, Section 22.10. Delete ACI 318, Section 22.10, and replace with the following:

22.10 - Plain concrete in structures assigned to Seismic Design Category C, D, E or F.

22.10.1 - Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:

(a) Structural plain concrete basement, foundation or other walls below the base as defined in ~~Section 11.2 of~~ ASCE 7 are permitted in detached one- and two-family dwellings three stories or less in height constructed with stud-bearing walls. In dwellings assigned to Seismic Design Category D or E, the height of the wall shall not exceed 8 feet (2438 mm), the thickness shall not be less than 71/2 inches (190 mm), and the wall shall retain no more than 4 feet (1219 mm) of unbalanced fill. Walls shall have reinforcement in accordance with 22.6.6.5.

(b) Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.

***Exception:** In detached one- and two-family dwellings three stories or less in height, the projection of the footing beyond the face of the supported member is permitted to exceed the footing thickness.*

(c) Plain concrete footings supporting walls are permitted, provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing. For footings that exceed 8 inches (203 mm) in thickness, a minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.

Exceptions:

1. *In Seismic Design Categories A, B and C, detached one- and two-family dwellings three stories or less in height constructed with stud-bearing walls, are permitted to have plain concrete footings without longitudinal reinforcement.*
2. *For foundation systems consisting of a plain concrete footing and a plain concrete stemwall, a minimum of one bar shall be provided at the top of the stemwall and at the bottom of the footing.*
3. *Where a slab on ground is cast monolithically with the footing, one No. 5 bar is permitted to be located at either the top of the slab or bottom of the footing.*

2209.1 Storage racks. The design, testing and utilization of storage racks as defined in ~~Section 11.2~~ of ASCE 7 and made of cold-formed or hot-rolled steel structural members, shall be in accordance with RMI/ANSI MH 16.1. Where required by ASCE 7, the seismic design of storage racks shall be in accordance with the provisions of Section 15.5.3 of ASCE 7, except that the mapped acceleration parameters, S_s and S_1, shall be determined in accordance with Section 1613.3.1.

Committee Reason: This code change clarifies structural terms that rely on definitions in ASCE 7, The modification deletes the specific section references to make the code text easier to maintain.

Assembly Action: **None**

Public Comments

Public Comment:

Bonnie E. Manley, American Iron and Steel Institute, representing Rack Manufacturers Institute, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

STORAGE RACKS: Cold-formed or hot-rolled steel structural members which are formed into steel storage racks, including pallet storage racks, movable-shelf racks, rack-supported systems, and automated storage and retrieval systems (stacker racks), push-back racks, pallet-flow racks, case-flow racks, pick modules, and rack supported platforms. Other types of racks, such as drive-in or drive-through racks, cantilever racks, portable racks, or racks made of materials other than steel, are not considered storage racks for the purpose of this code.

1705.11 Special inspections for seismic resistance. *Special inspections* itemized in Sections 1705.11.1 through 1705.11.8, unless exempted by the exceptions of Section 1704.2, are required for the following:

1. The seismic force-resisting systems in structures assigned to *Seismic Design Category* C, D, E or F in accordance with Sections 1705.11.1 through 1705.11.3, as applicable.
2. Designated seismic systems in structures assigned to *Seismic Design Category* C, D, E or F in accordance with Section 1705.11.4.
3. Architectural, mechanical and electrical components in accordance with Sections 1705.11.5 and 1705.11.6.
4. *Storage racks* ~~Storage racks as defined in ASCE 7~~ that are in structures assigned to *Seismic Design Category* D, E or F in accordance with Section 1705.11.7.
5. Seismic isolation systems in accordance with Section 1705.11.8.
   Exception: Special inspections itemized in Sections 1705.11.1 through 1705.11.8 are not required for structures designed and constructed in accordance with one of the following:

1. The structure consists of light-frame construction; the design spectral response acceleration at short periods, *SDS*, as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 35 feet (10 668 mm).
2. The seismic force-resisting system of the structure consists of reinforced masonry or reinforced concrete; the design spectral response acceleration at short periods, *SDS*, as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 25 feet (7620 mm).
3. The structure is a detached one- or two-family dwelling not exceeding two *stories above grade plane* and does not have any of the following horizontal or vertical irregularities in accordance with Section 12.3 of ASCE 7:
   3.1. Torsional or extreme torsional irregularity.
   3.2. Nonparallel systems irregularity.
   3.3. Stiffness-soft story or stiffness-extreme soft story irregularity.
   3.4. Discontinuity in lateral strength-weak story irregularity.

1705.11.7 Storage racks. Periodic *special inspection* is required during the anchorage of *storage racks* ~~storage racks as defined in ASCE 7~~ that are 8 feet (2438 mm) or greater in height in structures assigned to *Seismic Design Category* D, E or F.

2209.1 Storage racks. The design, testing and utilization of *storage racks* ~~storage racks as defined in ASCE 7 and~~ made of cold-formed or hot-rolled steel structural members, shall be in accordance with RMI/ANSI MH 16.1. Where required by ASCE 7, the seismic design of storage racks shall be in accordance with the provisions of Section 15.5.3 of ASCE 7, except that the mapped acceleration parameters, S_s and S_1, shall be determined in accordance with Section 1613.3.1.

Commenter's Reason: It doesn't make sense to send a user to ASCE 7 to find the definition for storage racks. Currently, ASCE 7-10 includes the following definition for storage racks:

> **STORAGE RACKS:** Include industrial pallet racks, moveable shelf racks, and stacker racks made of cold-formed or hot-rolled structural members. Does not include other types of racks such as drive-in and drive-through racks, cantilever racks, portable racks, or racks made of materials other than steel.

Originally, this ASCE 7 definition was sourced from the scope of the 2008 edition of RMI/ANSI MH 16.1. Proposal S243-12, which was approved as submitted, adopts the 2012 edition of RMI/ANSI MH 16.1, which states the following in the scope:

> **1.1 SCOPE**
> This Specification and companion Commentary (hereinafter referred to as the Specification) applies to industrial steel storage racks, movable-shelf racks, rack-supported systems and automated storage and retrieval systems (stacker racks) made of cold-formed or hot-rolled steel structural members. Such rack types also include push-back rack, pallet-flow rack, case-flow rack, pick modules, and rack-supported platforms. This Specification is intended to be applied to the design of the storage rack portion of any rack structure that acts as support for the exterior walls and roof, except as noted. It does not apply to other types of racks, such as drive-in or drive-through racks, cantilever racks, portable racks, or to racks made of material other than steel.

By approving Proposal S137-12, the ICC Structural Code Committee has indicated a desire to source a clear definition for storage racks. Rather than send the user outside of the IBC, our recommendation is to bring the most up-to-date definition into the IBC. Therefore, this public comment introduces a definition to Section 202 for storage racks, which is based upon the 2012 edition of RMI/ANSI MH 16.1, and deletes the references to ASCE 7 in Sections 1705.11(4), 1705.11.7 and 2209.1.

Final Hearing Results

S137-12 **AMPC**

Code Change No: S138-12

Original Proposal

Section(s): 1704.5, 1705.4, 1705.4.1

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1704.5 Structural observations. Where required by the provisions of Section 1704.5.1 or 1704.5.2, the owner shall employ a *registered design professional* to perform structural observations ~~as defined in Section 1702~~. Prior to the commencement of observations, the structural observer shall submit to the *building official* a written statement identifying the frequency and extent of structural observations. At the conclusion of the work included in the permit, the structural observer shall submit to the *building official* a written statement that the site visits have been made and identify any reported deficiencies which, to the best of the structural observer's knowledge, have not been resolved.

1705.4 Masonry construction. Masonry construction shall be inspected and verified in accordance with TMS 402/ACI 530/ASCE 5 and TMS 602/ACI 530.1/ASCE 6 quality assurance program requirements.

Exception: *Special inspections* shall not be required for:

1. Empirically designed masonry, glass unit masonry or masonry veneer designed by Section 2109, 2110 or Chapter 14, respectively, where they are part of structures classified as *Risk Category* I, II or III ~~in accordance with Section 1604.5~~.
2. Masonry foundation walls constructed in accordance with Table 1807.1.6.3(1), 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4).
3. Masonry fireplaces, masonry heaters or masonry chimneys installed or constructed in accordance with Section 2111, 2112 or 2113, respectively.

1705.4.1 Empirically designed masonry, glass unit masonry and masonry veneer in Risk Category IV. The minimum *special inspection* program for empirically designed masonry, glass unit masonry or masonry veneer designed by Section 2109, 2110 or Chapter 14, respectively, in structures classified as *Risk Category* IV~~, in accordance with Section 1604.5,~~ shall comply with TMS 402/ACI 530/ASCE 5 Level B Quality Assurance.

Reason: The purpose for the proposal is to delete language considered superfluous given the definitions in Section 202 for "structural observation" and "risk category." These are the only instances of such language in the structural chapters of the 2012 IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the proposal removes superfluous text in order to simplify these code sections.

Assembly Action: **None**

Final Hearing Results

S138-12 **AS**

Code Change No: S139-12

Original Proposal

Section(s): 202, 1705.1, 1705.10.1, 1705.10.2, 1705.11, 1705.11.2, 1705.11.3, 1705.11.6

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Delete without substitution:

SECTION 202
DEFINITIONS

~~**MECHANICAL SYSTEMS.** For the purposes of determining seismic *loads* in ASCE 7, mechanical systems shall include plumbing systems as specified therein.~~

Revise as follows:

1705.1 General. Verification and inspection of elements and nonstructural components of buildings and structures shall be as required by this section.

1705.10.1 Structural wood. Continuous special inspection is required during field gluing operations of elements of the main windforce-resisting system. Periodic special inspection is required for nailing, bolting, anchoring and other fastening of ~~components within~~ elements of the main windforce-resisting system, including wood shear walls, wood diaphragms, drag struts, braces and hold-downs.

Exception: *Special inspections* ~~is~~ are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other ~~components~~ elements of the main windforce-resisting system, where the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.

1705.10.2 Cold-formed steel light-frame construction. Periodic special inspection is required during welding operations of elements of the main windforce-resisting system. Periodic special inspection is required for screw attachment, bolting, anchoring and other fastening of ~~components within~~ elements of the main windforce-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.

Exception: *Special inspections* ~~is~~ are not required for cold-formed steel light-frame shear walls braces, diaphragms, collectors (drag struts) and hold-downs where either of the following apply:

1. The sheathing is gypsum board or fiberboard.
2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center (o.c.).

1705.11 Special inspections for seismic resistance. *Special inspections* itemized in Sections 1705.11.1 through 1705.11.8, unless exempted by the exceptions of Section 1704.2, are required for the following:

1. The seismic force-resisting systems in structures assigned to *Seismic Design Category* C, D, E or F in accordance with Sections 1705.11.1 through 1705.11.3, as applicable.

2. Designated seismic systems in structures assigned to *Seismic Design Category* C, D, E or F in accordance with Section 1705.11.4.
3. ~~Architectural, mechanical and electrical~~ Nonstructural components in accordance with Sections 1705.11.5 and 1705.11.6.
4. Storage racks in structures assigned to *Seismic Design Category* D, E or F in accordance with Section 1705.11.7.
5. Seismic isolation systems in accordance with Section 1705.11.8.

Exception: Special inspections itemized in Sections 1705.11.1 through 1705.11.8 are not required for structures designed and constructed in accordance with one of the following:

1. The structure consists of light-frame construction; the design spectral response acceleration at short periods, *SDS*, as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 35 feet (10 668 mm).
2. The seismic force-resisting system of the structure consists of reinforced masonry or reinforced concrete; the design spectral response acceleration at short periods, *SDS*, as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 25 feet (7620 mm).
3. The structure is a detached one- or two-family dwelling not exceeding two *stories above grade plane* and does not have any of the following horizontal or vertical irregularities in accordance with Section 12.3 of ASCE 7:
   3.1. Torsional or extreme torsional irregularity.
   3.2. Nonparallel systems irregularity.
   3.3. Stiffness-soft story or stiffness-extreme soft story irregularity.
   3.4. Discontinuity in lateral strength-weak story irregularity.

1705.11.2 Structural wood. Continuous special inspection is required during field gluing operations of elements of the seismic force-resisting system. Periodic special inspection is required for nailing, bolting, anchoring and other fastening of ~~components within~~ elements of the seismic force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, shear panels and hold-downs.

Exception: *Special inspections* ~~is~~ are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other ~~components~~ elements of the seismic force-resisting system, where the fastener spacing of the sheathing is more than 4 inches (102 mm) on center (o.c.).

1705.11.3 Cold-formed steel light-frame construction. Periodic special inspection is required during welding operations of elements of the seismic force-resisting system. Periodic special inspection is required for screw attachment, bolting, anchoring and other fastening of ~~components within~~ elements of the seismic force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.

Exception: *Special inspections* ~~is~~ are not required for coldformed steel light-frame shear walls, braces, diaphragms, collectors (drag struts) and hold-downs where either of the following apply:

1. The sheathing is gypsum board or fiberboard.
2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) o.c.

1705.11.6 Plumbing, mechanical and electrical components. *Special inspection* for plumbing, mechanical and electrical components shall be as follows:

1. Periodic special inspection is required during the anchorage of electrical equipment for emergency or standby power systems in structures assigned to *Seismic Design Category* C, D, E or F;

2. Periodic special inspection is required during the anchorage of other electrical equipment in structures assigned to *Seismic Design Category* E or F;

3. Periodic special inspection is required during the installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units in structures assigned to *Seismic Design Category* C, D, E or F;
4. Periodic special inspection is required during the installation and anchorage of ductwork designed to carry hazardous materials in structures assigned to *Seismic Design Category* C, D, E or F; and
5. Periodic special inspection is required during the installation and anchorage of vibration isolation systems in structures assigned to *Seismic Design Category* C, D, E or F where the *construction documents* require a nominal clearance of 1/4 inch (6.4 mm) or less between the equipment support frame and restraint.

Reason: The purpose for the proposal is to correlate the provisions of the building code related to nonstructural components with the corresponding provisions for nonstructural components in ASCE 7-10. Essentially, the seismic chapters of ASCE 7-10 apply to the seismic force-resisting system except for Chapter 13, which applies to nonstructural components. The language in these chapters consistency refers to the seismic force-resisting system in terms of structural members or elements, and to other materials or products that are required to be designed for resistance to seismic load effects as "nonstructural components." Chapter 13 consistently uses the term "nonstructural component" until later in the chapter where there are individual requirements for groups of nonstructural components. Materials and products subject to the requirements of Chapter 13 are grouped according to whether they are architectural, mechanical or electrical components, and "nonstructural" is dropped because it is, by then, considered redundant. The proposal revises the corresponding provisions in the building code for consistency with this phraseology.

The definition of "mechanical system" is deleted because it isn't a definition but a requirement, which is incorporated into the building code by adding "plumbing" to Section 1705.11.6. Also, the requirement in the definition that mechanical systems include plumbing systems for "the purposes of determining seismic loads in ASCE 7" serves no purpose in the building code. Section 1613.1 references ASCE 7 for the design and construction of structures to resist the effects of earthquake motions. Chapter 13 of ASCE 7-10 clearly indicates that plumbing systems are included in the provisions for mechanical systems.

In Item 3 of Section 1705.11, "architectural, mechanical and electrical" is replaced with "nonstructural" for consistency with Chapter 13 of ASCE 7-10 and because distinguishing among the groups of nonstructural components in Section 1705.11 serves no purpose but it does serve a purpose in Sections 1705.11.5 and 1705.11.6 where the requirements for architectural components differ from those for plumbing, mechanical and electrical components.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the correlation of the IBC terminology for nonstructural components with ASCE 7 terminology is a necessary clarification.

Assembly Action: **None**

Final Hearing Results

S139-12 **AS**

Code Change No: S140-12

Original Proposal

Section(s): 1705.2, Table 1705.2.2, 1705.2.2.1.1, 1705.2.2.2, 1705.11.1, 1705.11.1.1 (NEW), 1705.11.1.2 (NEW), 1705.12.2, 1705.12.2.1 (NEW), 1705.12.2.2 (NEW)

Proponent: Bonnie Manley, P.E. American Iron and Steel Institute, representing American Institute of Steel Construction (bmanley@steel.org)

Revise as follows:

1705.2 Steel construction. The *special inspections* ~~for~~ and nondestructive testing of steel ~~elements of~~ construction in buildings, ~~and~~ structures, and portions thereof shall be ~~as required~~ in accordance with this section.

Exception: *Special inspections* of the steel fabrication process shall not be required where the fabricator does not perform any welding, thermal cutting or heating operation of any kind as part of the fabrication process. In such cases, the fabricator shall be required to submit a detailed procedure for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, and grade for the main stress-carrying elements are capable of being determined. Mill test reports shall be identifiable to the main stress-carrying elements when required by the approved construction documents.

1705.2.1 Structural steel. Special inspections and nondestructive testing ~~for~~ of ~~structural steel~~ *structural steel elements* in buildings, structures, and portions thereof shall be in accordance with the quality assurance inspection requirements of AISC 360.

Exception: Special inspection of railing systems composed of *structural steel elements* shall be limited to welding inspection of welds at the base of cantilevered rail posts.

1705.2.2 Cold-formed steel ~~construction other than structural steel~~ deck and reinforcing. Special inspections ~~for steel construction other than structural steel~~ of cold-formed steel deck and reinforcing steel in buildings, structures, and portions theeof shall be in accordance with Table 1705.2.2 and this section.

1705.2.2.1.1 Cold-formed steel deck. Welding inspection and welding inspector qualification for cold-formed steel floor and roof decks shall be in accordance with AWS D1.3.

~~1705.2.2.2~~ 1705.2.3 Cold-formed steel trusses spanning 60 feet or greater. Where a cold-formed steel truss clear span is 60 feet (18 288 mm) or greater, the special inspector shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the *approved* truss submittal package.

TABLE 1705.2.2
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS OF ~~STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL~~ COLD-FORMED STEEL DECK AND REINFORCING STEEL

~~VERIFICATION AND INSPECTION~~TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]
1. Material verification of cold-formed steel deck:			

~~VERIFICATION AND INSPECTION~~TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	Applicable ASTM material standards
b. Manufacturers' certified test reports.	—	X	
2. Special inspection of welding: a. Cold-formed steel deck:			
1) Floor and roof deck welds.	—	X	AWS D1.3
b. Reinforcing steel:			
1) Verification of weldability of reinforcing steel other than ASTM A 706.	—	X	AWS D1.4 or ACI 318: Section 3.5.2
2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls and shear reinforcement.	X	—	
3) Shear reinforcement.	X	—	
4) Other reinforcing steel.	—	X	

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section 1705.11, Special inspections for seismic resistance.

1705.11.1 Structural steel. Special inspections for seismic resistance shall be in accordance with Sections 1705.11.1.1 or 1705.11.1.2, as applicable.

1705.11.1.1 *Special inspections* ~~for structural steel~~ of structural steel seismic-force resisting systems of buildings and structures assigned to *Seismic Design Category* B, C, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: *Special inspections* ~~of structural steel~~ are not required in the seismic-force resisting systems of buildings and structures assigned to *Seismic Design Category* B or C that are not specifically detailed for seismic resistance, with a response modification coefficient, *R*, of 3 or less, excluding cantilever column systems.

1705.11.1.2 *Special inspections* of *structural steel elements* in seismic-force resisting systems of buildings and structures assigned to *Seismic Design Category* B, C, D, E or F other than those covered in Section 1705.11.1.1, including struts, collectors, chords and foundation elements, shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: *Special inspections* of *structural steel elements* are not required in the seismic-force resisting systems of buildings and structures assigned to *Seismic Design Category* B or C with a response modification coefficient, *R*, less than 3.

1705.12.2 Structural steel. Nondestructive testing for seismic resistance shall be in accordance with Sections 1705.12.2.1 or 1705.12.2.2, as applicable.

1705.12.2.1 Nondestructive testing ~~for~~ of structural steel seismic-force resisting systems in buildings and structures assigned to *Seismic Design Category* B, C, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: Nondestructive testing ~~for structural steel~~ is not required in the seismic-force resisting systems of buildings and structures assigned to *Seismic Design Category* B or C that are not specifically detailed for seismic resistance, with a response modification coefficient, *R*, of 3 or less, excluding cantilever column systems.

1705.12.2.2 Nondestructive testing of *structural steel elements* in seismic-force resisting systems of buildings and structures assigned to *Seismic Design Category* B, C, D, E or F other than those covered in Section 1705.12.2.1, including struts, collectors, chords and foundation elements, shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: Nondestructive testing of *structural steel elements* is not required in the seismic-force resisting systems of buildings and structures assigned to *Seismic Design Category* B or C with a response modification coefficient, *R*, less than 3.

Reason: This comprehensive proposal not only makes a number of editorial modifications for clarification purposes, it also introduces into Chapter 17 the term and associated requirements for "structural steel elements", which is handled in a companion proposal for Chapter 22. In that companion proposal, the definition of "structural steel member" is recommended for replacement by "structural steel element", which is defined as follows:

STEEL ELEMENT, STRUCTURAL. Any steel structural member of a building or structure consisting of rolled shapes, pipe, hollow structural sections, plates, bars, sheets, rods, or steel castings other than cold-formed steel or steel joist members.

The Chapter 22 companion proposal includes a comprehensive discussion in the reason statement – please refer to it for additional background. Building on that proposal's reason statement, this proposal coordinates the existing special inspection and nondestructive testing requirements with the new terminology for structural steel elements. In Section 1705.2.1, changes clarify that structural steel elements in buildings, structures and portions thereof are to be inspected and tested in accordance with the quality assurance requirements in AISC 360. Current code requirements limit the special inspections to "structural steel." The change to "structural steel elements" was made to explicitly include steel construction that is typically designed, fabricated, and constructed in accordance with AISC 360, but that does fall within the definition of structural steel in AISC 360 and the AISC Code of Standard Practice for Buildings and Bridges. An exception is provided for railing systems to reflect what is currently done for these systems and prevent the implementation of excessive requirements.

In Section 1705.11.1 on special inspections for seismic resistance the distinction is drawn between structural steel seismic-force resisting systems, which include the sixteen structural steel systems currently listed in ASCE 7-10, Table 12.2-1, and structural steel elements that work as struts, collectors, chords and foundation elements in seismic-force resisting systems composed of other structural materials. These structural steel elements should be inspected in accordance with the quality assurance requirements of AISC 341, if they are used in a seismic-force resisting system that relies heavily on non-elastic energy dissipation, in this case chosen as a system with a response modification coefficient, R, greater than 3. A parallel change is made in Section 1705.12.2 on nondestructive testing for seismic resistance.

Finally, the proposal includes a number of editorial modifications, including the following:

- It adds reference to "nondestructive testing" to clarify that the quality assurance provisions of AISC 360 and AISC 341covers not only special inspections but also testing of welds. The use of "nondestructive" is the appropriate industry terminology.
- It modifies "steel elements" to "steel construction" in order to match the terminology used in Chapter 22.
- It recognizes that special inspections and testing may be required in buildings, structures or *portions thereof*.
- It changes the title in Section 1705.2.2 to specifically recognize the types of steel construction covered – cold-formed steel deck and reinforcing steel and to get away from the use of "structural steel". Since the section is limited to cold-formed steel deck, Section 1705.2.2.2 on cold-formed steel trusses is shifted to a new sub-section, 1705.2.3.
- It clarifies that the requirements in Sections 1705.11.1 and 1705.12.2 apply to the seismic-force resisting systems of buildings and other structures.

Finally, it clarifies the appropriate SDCs for the requirements and exceptions in both Sections 1705.11.1 and 1705.12.2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Errata: Title to Section 1705.2.2 should read as follows:

1705.2.2 Cold-formed steel ~~construction other than structural steel~~ deck and reinforcing steel.

Committee Action: **Approved as Submitted**

Committee Reason: This code change makes editorial changes to the special inspection provisions that clarify when special inspection is required.

Assembly Action: **None**

Final Hearing Results

S140-12 **AS**

Code Change No: S141-12

Original Proposal

Section(s): 1705.2, 1705.2.1, 1705.2.2, Table 1705.2.2, 1705.2.2.1.1, 1705.2.2.2, 1705.11.1, 1705.12.2

Proponent: Bonnie Manley, P.E. American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1705.2 Steel construction. ~~The~~ *Special inspections* ~~for~~ and nondestructive tests of steel ~~elements of~~ construction in buildings, ~~and~~ structures, and portions thereof shall be ~~as required~~ in accordance with this section.

> **Exception:** *Special inspection* of the steel fabrication process shall not be required where the fabricator does not perform any welding, thermal cutting or heating operation of any kind as part of the fabrication process. In such cases, the fabricator shall be required to submit a detailed procedure for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, and grade for the main stress-carrying elements are capable of being determined. Mill test reports shall be identifiable to the main stress-carrying elements when required by the approved construction documents.

1705.2.1 Structural steel. Special inspections ~~for~~ and nondestructive testing of structural steel in buildings, structures, and portions thereof shall be in accordance with the quality assurance inspection requirements of AISC 360.

1705.2.2 Cold-formed steel ~~construction other than structural steel~~ deck and reinforcing steel. Special inspections ~~for steel construction other than structural steel~~ of cold-formed steel deck and reinforcing steel in buildings, structures, and portions thereof shall be in accordance with Table 1705.2.2 and this section.

1705.2.2.1.1 Cold-formed steel deck. Welding inspection and welding inspector qualification for cold-formed steel floor and roof decks shall be in accordance with AWS D1.3.

~~1705.2.2.2~~ 1705.2.3 Cold-formed steel trusses spanning 60 feet or greater. Where a cold-formed steel truss clear span is 60 feet (18 288 mm) or greater, the special inspector shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the *approved* truss submittal package.

TABLE 1705.2.2
REQUIRED ~~VERIFICATION AND~~ SPECIAL INSPECTIONS OF ~~STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL~~ COLD-FORMED STEEL DECK AND REINFORCING STEEL

~~VERIFICATION AND INSPECTION~~TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]
1. Material verification of cold-formed steel deck:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	Applicable ASTM material standards
b. Manufacturers' certified test reports.	—	X	

~~VERIFICATION AND INSPECTION~~TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]
2. Special ~~i~~nspection of welding: a. Cold-formed steel deck:			
1) Floor and roof deck welds.	—	X	AWS D1.3
b. Reinforcing steel:			
1) Verification of weldability of reinforcing steel other than ASTM A 706.	—	X	AWS D1.4 or ACI 318: Section 3.5.2
2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls and shear reinforcement.	X	—	
3) Shear reinforcement.	X	—	
4) Other reinforcing steel.	—	X	

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section 1705.11, Special inspections for seismic resistance.

1705.11.1 Structural steel. *Special inspections* ~~for~~ of structural steel in the seismic force-resisting systems of buildings and structures assigned to *Seismic Design Category* B, C, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: *Special inspections* of structural steel are not required in the seismic force-resisting systems of buildings and structures assigned to *Seismic Design Category* B or C that are not specifically detailed for seismic resistance, with a response modification coefficient, *R*, of 3 or less, excluding cantilever column systems.

1705.12.2 Structural steel. Nondestructive testing ~~for~~ of structural steel in the seismic force-resisting systems of buildings and structures assigned to *Seismic Design Category* B, C, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: Nondestructive testing ~~for~~ of structural steel is not required in the seismic-force resisting systems of buildings and structures assigned to *Seismic Design Category* B or C that are not specifically detailed for seismic resistance, with a response modification coefficient, *R*, of 3 or less, excluding cantilever column systems.

Reason: This proposal is primarily editorial in nature and makes the following modifications:

- It adds reference to “nondestructive testing” to clarify that Chapter 17 covers not only special inspections but also testing. The use of “nondestructive” is the appropriate industry terminology.
- It modifies “steel elements” to “steel construction” in order to match the terminology used in Chapter 22.
- It adds recognition that special inspections and testing may be required in buildings, structures or *portions thereof*.
- It changes the title in Section 1705.2.2 to specifically recognize the types of steel construction covered – cold-formed steel deck and reinforcing steel. Since the section is limited to cold-formed steel deck, Section 1705.2.2.2 on cold-formed steel trusses is shifted to a new sub-section, 1705.2.3.
- It adds reference to “special” inspections in Table 1705.2.2 and coordinates the title with the changes in the charging text.
- It clarifies that the requirements in Sections 1705.11.1 and 1705.12.2 apply to the seismic-force resisting systems of buildings and other structures.

Finally, it clarifies the appropriate SDCs for the requirements and exceptions in both Sections 1705.11.1 and 1705.12.2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Errata: Revise as follows:

1705.2 Steel construction. ~~The~~ *Special inspections* ~~for~~ and nondestructive tests of steel ~~elements of~~ construction in buildings, ~~and~~ structures, and portions thereof shall be ~~as required~~ in accordance with this section.

Exception: *Special inspections* of the steel fabrication process shall not be required where the fabricator does not perform any welding, thermal cutting or heating operation of any kind as part of the fabrication process. In such cases, the fabricator shall be required to submit a detailed procedure for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, and grade for the main stress-carrying elements are capable of being determined. Mill test reports shall be identifiable to the main stress-carrying elements when required by the approved construction documents.

(Portions of code change not shown remain unchanged)

Committee Action: **Approved as Submitted**

Committee Reason: This proposal is an editorial cleanup of the special inspection and testing requirements for steel. In addition, it brings in the term “nondestructive testing” in order to match terminology of referenced standards.

Assembly Action: **None**

Final Hearing Results

S141-12 **AS**

Code Change No: S142-12

Original Proposal

Section(s): 1705.2.2 (NEW), Table 1705.2.2, Chapter 35 (NEW)

Proponent: Thomas Sputo, Ph.D., P.E., S.E., Steel Deck Institute

Revise as follows:

1705.2.2 Cold-formed steel deck. Special inspections and qualification of welding special inspectors for cold-formed steel floor and roof deck shall be in accordance with the quality assurance inspection requirements of SDI QA/QC,

~~1705.2.2~~ 1705.2.3 ~~Steel construction other than structural steel~~ Reinforcing steel. Reinforcing steel special inspections ~~for steel construction other than structural steel~~ shall be in accordance with Table ~~1705.2.2~~ 1705.2.3 and this section.

TABLE ~~1705.2. 2~~ 1705.2.2.3 REQUIRED VERIFICATION AND INSPECTION OF ~~STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL~~ REINFORCING STEEL

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]
~~1. Material verification of cold-formed steel deck:~~			
~~a. Identification markings to conform to ASTM standards specified in the approved construction documents.~~	~~—~~	~~X~~	~~Applicable ASTM material standards~~
~~b. Manufacturer's certified test reports.~~	~~—~~	~~X~~	-
1. ~~2~~. Inspection of welding:			
~~a. Cold-formed steel deck:~~			
~~1) Floor and roof deck welds.~~	~~—~~	~~X~~	~~AWS D1.3~~
a. ~~b~~. Reinforcing steel:			
1) Verification of weldability of reinforcing steel other than ASTM A 706.	—	X	AWS D1.4 ACI 318: Section 3.5.2

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]
2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	—	
3) Shear reinforcement.	X	—	
4) Other reinforcing steel.	—	X	

For SI: 1 inch = 25.4 mm.
a. Where applicable, see also Section 1705.11, Special inspections for seismic resistance.

~~**1705.2.2.1**~~ **1705.2.3.1 Welding.** Welding inspection and welding inspector qualification for reinforcing steel shall be in accordance with AWS D1.4 AND ACI 318.

~~**1705.2.2.1.1 Cold-formed steel.** Welding inspection and welding inspector qualification for coldformed steel floor and roof decks shall be in accordance with AWS D1.3.~~

~~**1705.2.2.1.2 Reinforcing steel.** Welding inspection and welding inspector qualification for reinforcing steel shall be in accordance with AWS D1.4 and ACI 318.~~

Add new standard to Chapter 35 as follows:

Steel Deck Institute

SDI QA/QC-2011, Standard for Quality Control and Quality Assurance for Installation of Steel Deck.

Reason: The SDI QA/QC-2011 Standard contains provisions for quality assurance inspection of steel floor and roof deck, and is intended to coordinate with the requirements of AISC 360, as contained in Section 1705.2.1.

The Standard complies with the Special Inspection requirements of the 2012 IBC Chapter 17, and clarifies the scope of required inspections and responsibilities of both the installer's quality control personnel and the quality assurance inspector. The Standard contains tables of inspection tasks that specifically list inspection requirements for material verification, deck installation, welding, and mechanical fastening. These tables amplify and clarify the basic special inspection requirements for steel deck that were contained in the 2012 IBC, and bring all special inspection requirements for steel deck into one place.

This Standard contains the 2012 IBC requirements of using AWS D1.3 for weld quality and requiring material verification. This Standard was developed and approved through a consensus process under ANSI guidelines, and complies with ICC CP 28. This Standard, along with all other Steel Deck Institute (SDI) Standards, will be available for free download from the SDI website for all parties.

For review purposes, the SDI QA/QC-2011 Standard that is being proposed is available for download and review from this website: **http://www.sputoandlammert.com/standard.html**

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of SDI QA/QC relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: By adding the referenced standard on quality assurance for steel deck installation, this code change moves the method for these inspections into a forum of the industry experts.

Assembly Action: **None**

Final Hearing Results

S142-12 **AS**

Code Change No: S144-12

Original Proposal

Section(s): 1705.2.2, Table 1705.2.2, 1705.2.2.1, 1705.2.2.1.2, Table 1705.3

Proponent: Philip Brazil, P.E., S.E., Senior Structural Engineer, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1705.2.2 ~~Steel construction other than structural~~ Cold-formed steel deck. Special inspections ~~for steel construction other than structural~~ of cold-formed steel deck shall be in accordance with Table 1705.2.2 and this section.

TABLE 1705.2.2
REQUIRED VERIFICATION AND INSPECTION OF ~~STEEL CONSTRUCTION OTHER THAN STRUCTURAL~~ COLD-FORMED STEEL DECK

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]
1. Material verification ~~of cold-formed steel deck~~:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	Applicable ASTM material standards
b. Manufacturers' certified test reports.	—	X	
2. Inspection of welding:	—	—	
~~a. Cold-formed steel deck~~			
~~1~~ a. Floor and roof deck welds		X	AWS D1.3
~~b. Reinforcing steel:~~			
~~1. Verification of weldability of reinforcing steel other than ASTM A 706.~~	~~—~~	~~X~~	~~AWS D1.4 ACI 318 Section 3.5.2~~
~~2. Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.~~	~~X~~	~~—~~	
~~3. Shear reinforcement.~~	~~X~~	~~—~~	
~~4. Other reinforcing steel.~~	~~—~~	~~X~~	

For SI: 1 inch = 25.4 mm.
a. Where applicable, see also Section 1705.11, Special inspection for seismic resistance.

1705.2.2.1 Welding. ~~Welding inspection and welding inspector qualification shall be in accordance with this section.~~ **~~1705.2.2.1.1 Cold-formed steel.~~** Welding inspection and welding inspector qualification for cold-formed steel floor and roof decks shall be in accordance with AWS D1.3.

TABLE 1705.3
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]	IBC REFERENCE
1. Inspection of reinforcing steel, including prestressing tendons, and placement.	—	X	ACI 318: 3.5, 7.1–7.7	1910.4
~~2. Inspection of reinforcing steel welding in accordance with Table 1705.2.2, Item 2b.~~	~~—~~	~~—~~	~~AWS D1.4 ACI 318: 3.5.2~~	~~—~~
2. Inspection of reinforcing bar welding:				
a. Verification of weldability of reinforcing bars other than ASTM A 706.	—	X	AWS D1.4 ACI 318: 3.5.2	
b. Reinforcing bars resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	—		
c. Shear reinforcement.	X	—		
d. Other reinforcing bars.	—	X		
3. Inspection of anchors cast in concrete where allowable loads have been increased or where strength design is used.		X	ACI 318: 8.1.3, 21.2.8	1908.5, 1909.1
4. Inspection of anchors post-installed in hardened concrete members. [b]		X	ACI 318: 3.8.6, 8.1.3, 21.2.8	1912.1
5. Verifying use of required design mix.	—	X	ACI 318: Ch. 4, 5.2–5.4	1904.2.2, 1910.2, 1910.3
6. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1910.10
7. Inspection of concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: 5.9, 5.10	1910.6, 1910.7, 1910.8
8. Inspection for maintenance of specified curing temperature and techniques.	—	X	ACI 318: 5.11–5.13	1910.9
9. Inspection of prestressed concrete: a. Application of prestressing forces. b. Grouting of bonded prestressing tendons in the seismic force-resisting system.	 X X	—	ACI 318: 18.20 ACI 318: 18.18.4	—
10. Erection of precast concrete members.	—	X	ACI 318: Ch. 16	—
11. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: 6.2	—

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]	IBC REFERENCE
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.	—	X	ACI 318: 6.1.1	—

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section 1705.11, Special inspection for seismic resistance.

b. Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with ACI 355.2 or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.

~~**1705.2.2.1.2**~~ **1705.3.1 Welding of reinforcing ~~steel~~ bars.** ~~Welding~~ Special inspections of welding and ~~welding inspector~~ qualifications of *special inspectors* for reinforcing ~~steel~~ bars shall be in accordance with the inspection requirements of AWS D1.4 ~~and ACI 318~~ for *special inspection* and the qualification requirements of AWS D1.4 for *special inspector* qualification.

Reason: This proposal is a continuation of a separate proposal that correlates Tables 1705.2.2 and 1705.3.3 with ACI 318-11. The purpose for this proposal is to relocate the requirements for special inspection of reinforcing bar welding in concrete from Item 2b of Table 1705.2.2 for steel construction to Item 2 of Table 1705.3 for concrete construction. Reinforcing bars are related to concrete construction, not steel construction. Note that the referenced standard listed in Table 1705.2.2 for reinforcing bar welding is ACI 318 for structural concrete (e.g., not also for TMS 402/ACI 530/ASCE 5 for masonry structures).

The other changes in the proposal are a consequence of the relocation, which reduces the scope of Table 1705.2.2 to specifying special inspections of cold-formed steel deck. These other changes eliminate language that becomes superfluous with the relocation.

Note that separate proposals:

1. Make several modifications to the titles and column headings of Tables 1705.2.2 and 1705.3 that are related to special inspections and tests as well as continuous and periodic special inspection ; and
2. Further modify Item 2b of Table 1705.2.2 by replacing the last three listings under the item .

The final language in the titles and column headings of Tables 1705.2.2 and 1705.3 from this proposal and the proposal in Item #1 above is shown below for reference.

TABLE 1705.2.2
REQUIRED SPECIAL INSPECTIONS OF COLD-FORMED DECK

TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]

TABLE 1705.3
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD [a]	IBC REFERENCE

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change appropriately separates inspections for concrete from those for steel.

Assembly Action: **None**

Final Hearing Results

S144-12 **AS**

Code Change No: S146-12

Original Proposal

Section(s): Table 1705.2.2

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing myself (pbrazil@reidmiddleton.com)

Revise as follows:

TABLE 1705.2.2
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]
1. Material verification of cold-formed steel deck:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	Applicable ASTM material standards
b. Manufacturers' certified test reports.	—	X	
2. Inspection of welding:	—	—	
a. Cold-formed steel deck			
1. Floor and roof deck welds		X	AWS D1.3
b. Reinforcing steel:			
1. Verification of weldability of reinforcing steel other than ASTM A 706.	—	X	AWS D1.4 ACI 318 Section 3.5.2
2. Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	—	
3. Shear reinforcement.	X	—	
4. Other reinforcing steel.	—	X	
3. Installation of open web steel joists and joist girders in accordance with the approved construction documents and steel joist placement plans		X	

For SI: 1 inch = 25.4 mm.
a. Where applicable, see also Section 1705.11, Special inspection for seismic resistance.

Reason: The purpose for this proposal is to require special inspections for the installation of open web steel joists and joist girders. Their structural design is sufficiently complex to warrant inspection from a person with the expertise of a special inspector who is approved by the building official as having the competence necessary to inspect the installation of the joists. Refer to the definitions of "special inspection" and "special inspector" for further information. Examples of the complexity of the structural design that warrant special inspection of the installation are the bearing seat attachments, field splices and bridging attachments.

The standard specifications for open web steel joists (SJI-K-2010 and SJI-LH/DLH-2010), joist girders (SJI-JG-2010) and composite steel joists (SJI-CJ-2010) by the Steel Joist Institute contain provisions for inspections but these are limited to inspections by the manufacturer before shipment to verify compliance and workmanship with the requirements of the specifications. Refer to Section 5.12 of SJI-K-2010, Section 104.13 of SJI-LH/DLH-2010, Section 1004.10 of SJI-JG-2010 and Section 104.13 of SJI-CJ-2010. The sections of the SJI standards noted above are also referenced in Section 4 of the codes of standard practice for steel joists and joist girders (no identifier) and composite steel joists (SJI-CJCOSP-2010). The identifiers cited above match those from the published documents but they are abbreviated in Chapter 35 of the 2012 IBC to K-10, LH/LDH-10, JG-10 and CJ-10, respectively; and are specified as SJI-K-1.1, SJI-LH/LDH-1.1, SJI-JG-1.1 and SJI-CJ-1.0, respectively, in Section 2207.1. Note that the codes of standard practice published by the Steel Joist Institute are not referenced standards of the 2012 IBC.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

TABLE 1705.2.2
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]
1. Material verification of cold-formed steel deck:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	Applicable ASTM material standards
b. Manufacturers' certified test reports.	—	X	
2. Inspection of welding:	—	—	
a. Cold-formed steel deck			
1. Floor and roof deck welds		X	AWS D1.3
b. Reinforcing steel:			
1. Verification of weldability of reinforcing steel other than ASTM A 706.	—	X	AWS D1.4 ACI 318 Section 3.5.2
2. Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	—	
3. Shear reinforcement.	X	—	
4. Other reinforcing steel.	—	X	
3. Installation of open web steel joists and joist girders ~~in accordance with the approved construction documents and steel joist placement plans~~		~~X~~	
a. End connections – welding or bolted		X	SJI – Standard Specification
b. Bridging – horizontal or diagonal		X	SJI – Standard Specification

For SI: 1 inch = 25.4 mm.
a. Where applicable, see also Section 1705.11, Special inspection for seismic resistance.

Committee Reason: The committee believes that the installation of joist and j oist girders warrants special inspection. The modification provides specificity on these inspections and removed the reference to steel joist placement plans.

Assembly Action: **None**

Public Comments

Public Comment:

Bonnie E. Manley, American Iron and Steel Institute, representing Steel Joist Institute, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1705.2.2 Open web steel joists and joist girders. Special inspections of open web steel joists and joist girders shall be in accordance with Table 1705.2.2

TABLE 1705.2.2 REQUIRED SPECIAL INSPECTIONS OF COLD-FORMED STEEL DECK, REINFORCING STEEL AND OPEN WEB STEEL JOISTS AND JOIST GIRDERS ~~VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL~~

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]
1. Material verification of cold-formed steel deck:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	Applicable ASTM material standards
b. Manufacturers' certified test reports.	—	X	
2. inspection of welding: a. Cold-formed steel deck:			
1) Floor and roof deck welds.	—	X	AWS D1.3
a. Reinforcing steel:			
1) Verification of weldability of reinforcing steel other than ASTM A 706.	—	X	AWS D1.4 or ACI 318: Section 3.5.2
2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls and shear reinforcement.	X	—	
3) Shear reinforcement.	X	—	
4) Other reinforcing steel.	—	X	
3. Installation of open web steel joists and joist girders			
a. End connections – welded or bolted		X	**~~SJI – Standard Specification~~SJI specifications listed in Section 2207.1.**
b. Bridging – horizontal or diagonal		~~X~~	**~~SJI – Standard Specification~~**
1. Standard Bridging		X	**SJI specifications listed in Section 2207.1.**
2. Bridging that differs from the SJI specifications listed in Section 2207.1		X	

Commenter's Reason: The purpose of public comment is twofold. First, it fully charges the new special inspection requirements for open web steel joists and joist girders by adding a new Section 1705.2.2 and correctly identifying this type of construction in the title of Table 1705.2.2. Please note that Proposal S142-12 deletes the cold-formed steel deck provisions in Table 1705.2.2 and Proposal S144-12 deletes the reinforcing steel provisions in Table 1705.2.2. Both proposals were approved as submitted. Consequently, the change to the title is not intended to reintroduce these references, but rather to make sure that, when the dust settles, the title of Table 1705.2.2 correctly reads: "Required Special Inspections of Open Web Steel Joists and Joist Girders."

The second purpose of this public comment is to modify the text in Table 1705.2.2 to reflect the editorial changes successfully made in Proposal S240-12. That proposal, which was approved as modified, eliminated the generic reference to "SJI – Standard Specifications" in favor of the more accurate "SJI specifications listed in Section 2207.1". Proposal S240-12 also better clarified the difference between "standard bridging" and "bridging that differs from the SJI specifications listed in Section 2207.1". This language needs to be accurately reflected in this Table as well.

Final Hearing Results

S146-12 AMPC

Code Change No: S147-12

Original Proposal

Section(s): Table 1705.2.2, Table 1705.3

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

TABLE 1705.2.2
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]
1. Material verification of cold-formed steel deck:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	Applicable ASTM material standards
b. Manufacturers' certified test reports.	—	X	
2. Inspection of welding:	—	—	
a. Cold-formed steel deck			
1. Floor and roof deck welds		X	AWS D1.3
b. Reinforcing ~~steel~~ bars:			
1. Verification of weldability of reinforcing ~~steel~~ bars other than ASTM A 706.	—	X	AWS D1.4 ACI 318 Section 3.5.2
2. Reinforcing ~~steel~~ bars resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	—	
3. Shear reinforcement.	X	—	
4. Other reinforcing ~~steel~~ bars.	—	X	

For SI: 1 inch = 25.4 mm.
a. Where applicable, see also Section 1705.11, Special inspection for seismic resistance.

TABLE 1705.3
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]	IBC REFERENCE
1. Inspection of ~~reinforcing steel~~ reinforcement, including prestressing tendons, and placement.	—	X	ACI 318: 3.5, 7.1–7.7	1910.4
2. Inspection of reinforcing ~~steel~~ bar welding in accordance with Table 1705.2.2, Item 2b.	—	—	AWS D1.4 ACI 318: 3.5.2	—

(Portions of table not shown remain unchanged)

Reason: The purpose for the proposal is to update Tables 1705.2.2 and 1705.3 for consistency with ACI 318-11, which does not use the term "reinforcing steel" but does use "(concrete) reinforcement" and "reinforcing bars." In Section 2.2 of ACI 318-11, "deformed reinforcement" is defined as including bar mats, deformed wire and welded wire reinforcement as well as deformed

reinforcing bars. Section 3.5.1 requires reinforcement in concrete to be deformed reinforcement except that plain reinforcement is permitted for spirals and prestressing steel and reinforcement consisting of headed shear studs, structural steel, steel pipe or steel tubing is also permitted. Section 3.5.2 on welding, however, only specifies reinforcing bars. Note that Section 2.2 of ACI 318-11 also defines “reinforcement,” “plain reinforcement,” “headed deformed bars,” “prestressing steel” and “tendon.”

Note that separate proposals:

1. Make several modifications to the titles and column headings of Tables 1705.2.2 and 1705.3 that are related to special inspections and tests as well as continuous and periodic special inspection; and
2. Further modify Item 2b of Table 1705.2.2 by relocating the language to Table 1705.3; and replacing the last three listings under the item.

The final language in the titles and column headings of Tables 1705.2.2 and 1705.3 from the proposal in Item #1 above is shown below for reference.

TABLE 1705.2.2
REQUIRED SPECIAL INSPECTIONS OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL

TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]

TABLE 1705.3
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD [a]	IBC REFERENCE

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal changes references to reinforcing bars and r einforcement for consistency with ACI 318 terminology.

Assembly Action: **None**

Final Hearing Results

S147-12 **AS**

Code Change No: S148-12

Original Proposal

Section(s): Table 1705.2.2

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

TABLE 1705.2.2
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]
1. Material verification of cold-formed steel deck:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	Applicable ASTM material standards
b. Manufacturers' certified test reports.	—	X	
2. Inspection of welding:	—	—	
a. Cold-formed steel deck			
1. Floor and roof deck welds		X	AWS D1.3
b. Reinforcing ~~steel~~ bars:			
1. Verification of weldability of reinforcing ~~steel~~ bars other than ASTM A 706.	—	X	AWS D1.4 ACI 318 Section 3.5.2
~~2. Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.~~	~~X~~	~~—~~	
~~3. Shear reinforcement.~~	~~X~~	~~—~~	
~~4. Other reinforcing steel.~~	~~—~~	~~X~~	
2. Single-pass fillet welds, maximum 5/16"		X	
3. All other welds	X		

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section 1705.11, Special inspection for seismic resistance.

Reason: This proposal is a continuation of separate proposals that correlate Tables 1705.2.2 and 1705.3.3 with ACI 318-11 and relocate the requirements for special inspection of reinforcing bar welding from Table 1705.2.2 to Table 1705.3.3. The purpose for this proposal is to simplify the required extent (continuous or periodic) of special inspection for the welding of reinforcing bars, which is currently based on the structural design (e.g., resisting flexural, axial or shear forces). The proposal changes the extent to continuous special inspection of all welding of reinforcing bars except for single-pass fillet welds that are a maximum of 5/16-inch where periodic special inspection is permitted. This will also be consistent with the historical approach taken by the building code for the extent of special inspections related to welding.

Should this proposal and the proposal to relocate the requirements for special inspection of reinforcing bar welding from Table 1705.2.2 to Table 1705.3.3 both be approved by the ICC membership, our intent is that the language in this proposal at Item 2b of Table 1705.2.2 be placed in Item 2 of Table 1705.3 and that Item 2 of Table 1705.3 read as follows:

2. Inspection of reinforcing bar welding:				
a. Verification of weldability of reinforcing bars other than ASTM A 706.	—	X	AWS D1.4 ACI 318: 3.5.2	
b. Single-pass fillet welds, maximum 5/16"	—	X		
c. All other welds	X	—		

Note that a separate proposal also makes several modifications to the title and column headings of Table 1705.2.2 that are related to special inspections and tests as well as continuous and periodic special inspection.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change simplifies the special inspections for steel by removing requirements for reinforcing bars that don't belong under steel.

Assembly Action: **None**

Final Hearing Results

S148-12 **AS**

Code Change No: S149-12

Original Proposal

Section(s): 202, 1705.3, 1705.11.6, 1705.12.3, 2105.1, 2105.2.2.2.1, 2204.2.1, 2207.4

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

SECTION 202
DEFINITIONS

SPECIFIED COMPRESSIVE STRENGTH OF MASONRY, f'_m. Minimum compressive strength, expressed as force per unit of net cross-sectional area, required of the *masonry* used in construction by the *approved construction documents*, and upon which the project design is based. Whenever the quantity f'_m is under the radical sign, the square root of numerical value only is intended and the result has units of pounds per square inch (psi) (MPa).

Revise as follows:

1705.3 Concrete construction. The *special inspections* and verifications for concrete construction shall be as required by this section and Table 1705.3.

Exception: *Special inspections* shall not be required for:

1. Isolated spread concrete footings of buildings three stories or less above *grade plane* that are fully supported on earth or rock.
2. Continuous concrete footings supporting walls of buildings three stories or less above *grade plane* that are fully supported on earth or rock where:
   2.1. The footings support walls of light-frame construction;
   2.2. The footings are designed in accordance with Table 1809.7; or
   2.3. The structural design of the footing is based on a specified compressive strength, f'_c, no greater than 2,500 pounds per square inch (psi) (17.2 MPa), regardless of the compressive strength specified in the *approved construction documents* or used in the footing construction.
3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 MPa).
4. Concrete foundation walls constructed in accordance with Table 1807.1.6.2.

1705.11.6 Mechanical and electrical components. *Special inspection* for mechanical and electrical components shall be as follows:

1. Periodic special inspection is required during the anchorage of electrical equipment for emergency or standby power systems in structures assigned to *Seismic Design Category* C, D, E or F;
2. Periodic special inspection is required during the anchorage of other electrical equipment in structures assigned to *Seismic Design Category* E or F;
3. Periodic special inspection is required during the installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units in structures assigned to *Seismic Design Category* C, D, E or F;

4. Periodic special inspection is required during the installation and anchorage of ductwork designed to carry hazardous materials in structures assigned to *Seismic Design Category* C, D, E or F; and
5. Periodic special inspection is required during the installation and anchorage of vibration isolation systems in structures assigned to *Seismic Design Category* C, D, E or F where the *approved construction documents* require a nominal clearance of 1/4 inch (6.4 mm) or less between the equipment support frame and restraint.

1705.12.3 Seismic certification of nonstructural components. The *registered design professional* shall specify on the *approved* construction documents the requirements for certification by analysis, testing or experience data for nonstructural components and designated seismic systems in accordance with Section 13.2 of ASCE 7, where such certification is required by Section 1705.12.

Revise as follows:

2105.1 General. A quality assurance program shall be used to ensure that the constructed masonry is in compliance with the *approved construction documents*. The quality assurance program shall comply with the inspection and testing requirements of Chapter 17.

2105.2.2.2.1 General. The compressive strength of clay and concrete masonry shall be determined by the prism test method:

1. Where specified in the *approved construction documents*.
2. Where masonry does not meet the requirements for application of the unit strength method in Section 2105.2.2.1.

Revise as follows:

2204.2.1 Anchor rods. Anchor rods shall be set in accordance with the *approved construction documents*. The protrusion of the threaded ends through the connected material shall fully engage the threads of the nuts, but shall not be greater than the length of the threads on the bolts.

2207.4 Steel joist drawings. Steel joist placement plans shall be provided to show the steel joist products as specified on the *approved construction documents* and are to be utilized for field installation in accordance with specific project requirements as stated in Section 2207.2. Steel placement plans shall include, at a minimum, the following:

1. Listing of all applicable loads as stated in Section 2207.2 and used in the design of the steel joists and joist girders as specified in the *approved construction documents*.
2. Profiles for nonstandard joist and joist girder configurations (standard joist and joist girder configurations are as indicated in the SJI catalog).
3. Connection requirements for:
   3.1. Joist supports;
   3.2. Joist girder supports;
   3.3. Field splices; and
   3.4. Bridging attachments.
4. Deflection criteria for live and total loads for non-SJI standard joists.
5. Size, location and connections for all bridging.
6. Joist headers.

Steel joist placement plans do not require the seal and signature of the joist manufacturer's *registered design professional*.

Reason: The purpose for the proposal is to update references to "construction documents" in the building code. Section 107.1 contains the requirements for the submittal of construction documents with each permit application and Section 107.3 requires the building official to approve the construction documents for permit issuance. The building code typically specifies "construction documents" before permit issuance and "approved construction documents" after permit issuance but there are exceptions and this proposal adds "approved" for those cases.

The instances of “construction documents” not preceded by “approved” in the building code typically occur in provisions that require the designers to specify information in the construction documents or to design the building or structure to meet specified requirements. Compliance with these provisions is only possible before the construction documents are approved. These are located in Sections 104.2, 105.3(4), 105.3.1, 105.4, 107.1, 107.1, 107.2, 107.2.1, 107.2.2, 107.2.3, 107.2.4, 107.2.5, 107.3.1, 107.3.2, 107.3.3, 107.3.4.1, 414.1.3, 907.1.1, 909.2, 909.3, 909.4, 909.21.2, 1603.1, 1603.1.6, 1603.1.9, 1607.5, 1705.11.6(5), 1705.12.3, 1901.3, 2101.3, 2101.3.1, 2207.2, 2403.2, 3103.2, 3303.2, G104.2, H105.2, K104.1, K104.2 and K105.5.

The instances of “approved construction documents” in the building code are located in Sections 107.4, 107.5, 114.4, 202 (“certificate of compliance” and “structural observation”), 1704.2.4, 1704.2.5.1, 1704.2.5.2, 1705.2-Exc., 1705.6, 1705.8, 1705.9, 1705.13, 1705.14, 1810.3.5.2.2-Exc., 1910.7, 2207.5, and 2403.1; and Table 1705.2.2. Note that “approved” precedes “geotechnical report and the construction documents” in Sections 1705.6, 1705.8 and 1705.9. In Section 1705.7, however, “*approved*” precedes “*instruction documents*,” which is apparently an advertent error made during the development of the 2012 IBC. On August 9, 2011, I submitted a request to the ICC that this be posted as errata but, as of January 3, 2012, the submittal deadline for Group A change proposals, a posting for the 2012 IBC had not yet been made on the ICC website.

All instances of “construction documents” in the building code were considered and are either in the proposal or are listed in the paragraphs immediately above.

A separate proposal places the provisions of Section 1705.12.3 into two subsections (Sections 1705.12.3 and 1705.12.4) to provide effective charging language for the corresponding provisions in ASCE 7-10. Should both proposals be approved by the ICC membership, our intent is that Sections 1705.12.3 and 1705.12.4 both read: “…the *registered design professional* shall specify on the *approved construction documents* the requirements…”

A separate proposal deletes the definition of “specified” in Section 202. Should both proposals be approved by the ICC membership, our intent is that the definition be deleted.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agrees that consistently referring to approved construction documents will avoid question in the field. This will help building officials and contractors understand that changes must be approved.

Assembly Action: **None**

Final Hearing Results

S149-12 **AS**

Code Change No: S151-12

Original Proposal

Section(s): Table 1705.3, Table 1705.6, Table 1705.7, Table 1705.8

Proponent: D. Kirk Harman, P.E., S.E., SECB, FACI, The Harman Group, representing the National Council of Structural Engineers Associations (NCSEA) Code Advisory Committee, Quality Assurance and Special Inspection Subcommittee

Revise as follows:

SECTION 202
DEFINITIONS

STRUCTURAL OBSERVATION. The visual observation of the structural system by a *registered design professional* for general conformance to the *approved construction documents*. ~~Structural observation does not include or waive the responsibility for the inspection required by Section 110, 1705 or other sections of this code.~~

Revise as follows:

1704.5 Structural observations. Where required by the provisions of Section 1704.5.1 or 1704.5.2, the owner shall employ a *registered design professional* to perform structural observations as defined in ~~Section 202~~ Chapter 2. Structural observation does not include or waive the responsibility for the inspections in Section 110 or the *special inspections* in Section 1705.

Prior to the commencement of observations, the structural observer shall submit to the *building official* a written statement identifying the frequency and extent of structural observations.

At the conclusion of the work included in the permit, the structural observer shall submit to the *building official* a written statement that the site visits have been made and identify any reported deficiencies which, to the best of the structural observer's knowledge, have not been resolved.

Reason: The last sentence of the definition in section 202 is moved to section 1704.5 because rules and relationships to other requirements should not be in the definition. The sentence is slightly revised to distinguish between "inspections" and *special inspections* and the reference to "other sections of this code" is deleted as there are no other sections that deal with inspections. The first sentence in 1704.5 is revised to make reference to Chapter 2 where definitions are now located.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

TABLE 1705.3
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]	IBC REFERENCE
1. Inspect reinforcing steel, including prestressing tendons, and verify placement.	—	X	ACI 318: 3.5, 7.1–7.7	1910.4

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]	IBC REFERENCE
2. Reinforcing bar welding: a. Verify weldability of reinforcing bars other than ASTM A 706; b. Inspect single-pass fillet welds, maximum 5/16"; and c. Inspect all other welds	— — X	— — X 	AWS D1.4 ACI 318: 3.5.2	—
3. Inspect anchors cast in concrete where allowable loads have been increased or where strength design is used.		X	ACI 318: 8.1.3, 21.1.8	1908.5, 1909.1
4 Inspect anchors post-installed in hardened concrete members. [b]		X	ACI 318: 3.8.6, 8.1.3, 21.1.8	1909.1
5. Verify use of required design mix.	—	X	ACI 318: Ch. 4, 5.2–5.4	1904.2.2, 1910.2, 1910.3
6. ~~During~~ Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1910.10
7. Inspect concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: 5.9, 5.10	1910.6, 1910.7, 1910.8
8. Verify maintenance of specified curing temperature and techniques.	—	X	ACI 318: 5.11–5.13	1910.9
9. Inspect prestressed concrete for: a. Application of prestressing forces; and b. Grouting of bonded prestressing tendons.	X X	—	ACI 318: 18.20 ACI 318: 18.18.4	—
10. Inspect erection of precast concrete members.	—	X	ACI 318: Ch. 16	—
11. Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: 6.2	—
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.	—	X	ACI 318: 6.1.1	—

(Portions of proposal not shown are unchanged)

Committee Reason: Agreement with the proponent's reason which indicates that this proposal clarifies the scope of concrete special inspections. The modification claries when the concrete tests must be performed.

Assembly Action: **None**

Final Hearing Results

S151-12 **AM**

Code Change No: S152-12

Original Proposal

Section(s): 1705.5.1

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1705.5.1 High-load diaphragms. High-load diaphragms designed in accordance with Section 2306.2 shall be installed with *special inspections* as indicated in Section 1704.2. The special inspector shall inspect the wood structural panel sheathing to ascertain whether it is of the grade and thickness shown on the *approved* ~~building plans~~ *construction documents*. Additionally, the special inspector must verify the nominal size of framing members at adjoining panel edges, the nail or staple diameter and length, the number of fastener lines and that the spacing between fasteners in each line and at edge margins agrees with the *approved* ~~building plans~~ *construction documents*.

Reason: The purpose for the proposal is to replace the term "building plans," which is not defined in the building code, with "construction documents," which is defined in Section 202. The instances of "building plans" in the proposal are the only ones in the 2012 *International Building Code* other than in Section 911.1.5(12) where the context is such that changing the term would not be appropriate.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change clarifies the intent of Section 1705.5.1 by substituting a defined term.

Assembly Action: **None**

Final Hearing Results

S152-12 **AS**

Code Change No: S153-12

Original Proposal

Section(s): 1705.5

Proponent: Stephen Kerr, S.E., Josephson Werdowatz and Associates, representing Structural Engineers Association of California (SEAOC) (skerr@jwa-se.com)

Revise as follows:

1705.5 Wood construction. *Special inspections* of the fabrication ~~process~~ of prefabricated wood structural elements and assemblies shall be in accordance with Section 1704.2.5. ~~*Special inspections* of site-built assemblies shall be in accordance with this section.~~

Reason: Special inspection should be of the item, not the "process". The last sentence is not necessary and confuses the issues. The next two sections of 1705.5 (regarding high-load diaphragms and metal-plate-connected wood truss bracing) state the special inspections required and do not need to be invoked by the deleted language.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1705.5 Wood construction. *Special inspections* ~~of the fabrication~~ of prefabricated wood structural elements and assemblies shall be in accordance with Section 1704.2.5. *Special inspections* of site-built assemblies shall be in accordance with this section.

Committee Reason: This proposal clarifies what special inspections are necessary for wood construction. The modification retains the second sentence and further claries that it is the element, not the fabrication that requires inspection.

Assembly Action: **None**

Final Hearing Results

S153 **AM**

Code Change No: S157-12

Original Proposal

Section(s): 1705.10.2, 1705.11.3, 1705.11.5, 1705.11.6, 1705.11.7

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing self (pbrazil@reidmiddleton.com)

Revise as follows:

1705.10.2 Cold-formed steel light-frame construction. Periodic special inspection is required ~~during~~ for welding operations of elements of the main windforce-resisting system. Periodic special inspection is required for screw attachment, bolting, anchoring and other fastening of components within the main windforce-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.

Exception: *Special inspection* is not required for cold-formed steel light-frame shear walls, braces, diaphragms, collectors (drag struts) and hold-downs where either of the following apply:

1. The sheathing is gypsum board or fiberboard.
2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center (o.c.).

1705.11.3 Cold-formed steel light-frame construction. Periodic special inspection is required ~~during~~ for welding operations of elements of the seismic force-resisting system. Periodic special inspection is required for screw attachment, bolting, anchoring and other fastening of components within the seismic force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.

Exception: *Special inspection* is not required for cold-formed steel light-frame shear walls, braces, diaphragms, collectors (drag struts) and hold-downs where either of the following apply:

1. The sheathing is gypsum board or fiberboard.
2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) o.c.

1705.11.5 Architectural components. Periodic *special inspection* is required ~~during~~ for the erection and fastening of exterior cladding, interior and exterior nonbearing walls and interior and exterior veneer in structures assigned to *Seismic Design Category* D, E or F.

Exceptions:

1. *Special inspection* is not required for exterior cladding, interior and exterior nonbearing walls and interior and exterior veneer 30 feet (9144 mm) or less in height above grade or walking surface.
2. *Special inspection* is not required for exterior cladding and interior and exterior veneer weighing 5 psf (24.5 N/m_2) or less.
3. *Special inspection* is not required for interior nonbearing walls weighing 15 psf (73.5 N/m_2) or less.

1705.11.6 Mechanical and electrical components. *Special inspection* for mechanical and electrical components shall be as follows:

1. Periodic special inspection is required ~~during~~ for the anchorage of electrical equipment for emergency or standby power systems in structures assigned to *Seismic Design Category* C, D, E or F;
2. Periodic special inspection is required ~~during~~ for the anchorage of other electrical equipment in structures assigned to *Seismic Design Category* E or F;
3. Periodic special inspection is required ~~during~~ for the installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units in structures assigned to *Seismic Design Category* C, D, E or F;
4. Periodic special inspection is required ~~during~~ for the installation and anchorage of ductwork designed to carry hazardous materials in structures assigned to *Seismic Design Category* C, D, E or F; and
5. Periodic special inspection is required ~~during~~ for the installation and anchorage of vibration isolation systems in structures assigned to *Seismic Design Category* C, D, E or F where the *construction documents* require a nominal clearance of 1/4 inch (6.4 mm) or less between the equipment support frame and restraint.

1705.11.7 Storage racks. Periodic *special inspection* is required ~~during~~ for the anchorage of storage racks 8 feet (2438 mm) or greater in height in structures assigned to *Seismic Design Category* D, E or F.

Reason: The purpose for this proposal is to correlate the requirements for periodic special inspection in Section 1705 with the definition of periodic special inspection in Section 202, which defines it as special inspection "by the special inspector who is intermittently present where the work to be inspected **has been** (emphasis mine) or is being performed." The proposal changes "during," which is consistent with the definition of continuous special inspection, to "for," which is consistent with the definition of periodic special inspection. The proposal also makes the requirements for periodic special inspection in Section 1705 internally consistent in that the other requirements for periodic special inspection state "for" and not "during" (e.g., Sections 1705.10.1, 1705.10.3, 1705.11.2, 1705.11.5.1 and 1705.11.8).

For more information on the intent of the definition of periodic special inspection, as well the definitions of special inspection and continuous special inspection, refer to ICC Proposal S111-09/10-AMPC, notably the reason statement that accompanied the public comment.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal correlates provisions requiring periodic special inspection with the definitions of periodic special inspection.

Assembly Action: **None**

Final Hearing Results

S157-12 **AS**

Code Change No: S158-12

Original Proposal

Section(s): 1705.10.2

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1705.10.2 Cold-formed steel light-frame construction. Periodic special inspection is required during welding operations of elements of the main windforce-resisting system. Periodic special inspection is required for screw attachment, bolting, anchoring and other fastening of ~~components within~~ elements of the main windforce-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.

Exception: *Special inspections* ~~is~~ are not required for cold- formed steel light-frame shear walls~~, braces,~~ and diaphragms ~~collectors (drag struts) and hold-downs~~, including screwing, bolting, anchoring, and other fastening to components of the seismic-force resisting system where either of the following apply:

1. The sheathing is gypsum board or fiberboard.
2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center (o.c.).

Reason: This proposal makes minor changes to this section. In the exception, word “braces” is deleted, since Items 1 and 2 of the exception discuss only sheathing used on shear walls and not braced walls.
Revisions to the remainder of the section are to ensure consistency with the wood exception in Section 1705.10.1 and eliminate confusion.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change clarifies when cold-formed steel light-frame construction requires special inspection.

Assembly Action: **None**

Final Hearing Results

S158-12 **AS**

Code Change No: S159-12

Original Proposal

Section(s): 1705.10.3

Proponent: Stephen Kerr, S.E. Josephson Werdowatz and Associates, representing Structural Engineers Association of California (SEAOC) (skerr@jwa-se.com)

Revise as follows:

1705.10.3 Wind-resisting components. Periodic special inspection is required for fastening of the following systems and components:

1. Roof ~~cladding~~ covering, roof deck, and roof framing connections.
2. ~~Wall cladding~~ Exterior covering, and wall connections to roof and floor diaphragms and framing.

Reason: The purpose of this change is to provide clarity and detail for the special inspection requirements for wind-resisting components in high-wind regions. The 2009 IBC identified "roof cladding and roof framing connections" and "wall connections to roof and floor diaphragms and framing" as wind-resisting components that needed to be included in the statement of special inspections, but only referenced "roof cladding" and "wall cladding" in the section describing the actual inspection. However, as part of the reorganization of Chapter 17 approved in the previous code change cycle, the more detailed language was deleted when the inspection requirements were combined with the requirements for inclusion in the statement of special inspections. In addition, "cladding" is not defined.

This proposal restores the more detailed description of the elements requiring special inspection, and uses terms defined in the code to identify the elements.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1705.10.3 Wind-resisting components. Periodic special inspection is required for fastening of the following systems and components:

1. Roof covering, roof deck, and roof framing connections.
2. Exterior wall covering and wall connections to roof and floor diaphragms and framing.

Committee Reason: This proposal makes the requirements for special inspections of wind-resisting components more specific, clarifying that the scope of this section should be focused on fastening and connections rather than the framing. The modification clarifies the applicability to exterior wall coverings.

Assembly Action: **None**

Final Hearing Results

S159 **AM**

Code Change No: S160-12

Original Proposal

Section(s): 1705.11.1, 1705.12.2

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing self (pbrazil@reidmiddleton.com)

Revise as follows:

1705.11.1 Structural steel. *Special inspection* for structural steel in the *seismic force-resisting systems* of *structures* assigned to *Seismic Design Category* B, C, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: *Special inspections* of structural steel are not required in the *seismic force-resisting systems of* structures assigned to *Seismic Design Category B or* C that are not specifically detailed for seismic resistance, with a response modification coefficient, *R*, of 3 or less, excluding cantilever column systems.

1705.12.2 Structural steel. Testing ~~for~~ of structural steel in the *seismic force-resisting systems* of *structures* assigned to *Seismic Design Category* B, C, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: Testing of structural steel is not required in the *seismic force-resisting systems* of structures assigned to *Seismic Design Category B or* C that are not specifically detailed for seismic resistance, with a response modification coefficient, *R*, of 3 or less, excluding cantilever column systems.

Reason: The proposal correlates the requirements for special inspections and testing of structural steel in Section 1705.11.1 and 1705.11.2 with the applicability of AISC 341-10. The proposal is also a continuation of separate proposals that simplify the provisions of Section 1705.11 on required special inspections for seismic resistance and Section 1705.12.2 on required tests for seismic resistance. The changes in this proposal are identical to the changes in those proposals except Seismic Design Category B is added to the charging language and the exception in both sections of this proposal.

Summarizing, AISC 341-10 applies to:

1. The seismic force-resisting systems in structures assigned to Seismic Design Category D, E or F; and
2. The seismic force-resisting systems designed for a response modification coefficient, *R*, greater than 3 in structures assigned to Seismic Design Category B or C.

This is only a summary because there are additional details affecting the standard's applicability, including nonbuilding structures and cantilever column systems, but these details are not affected by the proposed changes.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change correlates the special inspection of structural steel for seismic resistance with the referenced standard, AISC 341. These are the triggers needed to assure that the required inspections will match the required ductility.

Assembly Action: **None**

Final Hearing Results

S160-12 **AS**

Code Change No: S161-12

Original Proposal

Section(s): 1705.11.3

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1705.11.3 Cold-formed steel light-frame construction. Periodic special inspection is required during welding operations of elements of the seismic force-resisting system. Periodic special inspection is required for screw attachment, bolting, anchoring and other fastening of ~~components within~~ elements of the seismic force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.

Exception: *Special inspections* ~~is~~ are not required for coldformed steel light-frame shear walls~~,~~ ~~braces,~~ and diaphragms, ~~collectors (drag struts) and hold-downs~~ including screw installation, bolting, anchoring, and other fastening to components of the seismic-force resisting system where either of the following apply:

1. The sheathing is gypsum board or fiberboard.
2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) o.c.

Reason: This proposal makes minor changes to this section. In the exception, word “braces” is deleted, since Items 1 and 2 of the exception discuss only sheathing used on shear walls and not braced walls.
Revisions to the remainder of the section are to ensure consistency with the wood exception in Section 1705.10.1 and eliminate confusion.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Approval is consistent with the committee’s action on S158-12.

Assembly Action: **None**

Final Hearing Results

S161-12 **AS**

Code Change No: S162-12

Original Proposal

Section(s): 1705.11.5, 1705.11.6

Proponent: Philip Brazil, P.E., S.E., Senior Structural Engineer, Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1705.11.5 Architectural components. Periodic *special inspection* is required during the erection and fastening of exterior cladding, interior and exterior nonbearing walls and interior and exterior veneer in structures assigned to *Seismic Design Category* D, E or F.

Exceptions: *Periodic special inspection* is not required for the following:

1. ~~*Special inspection* is not required for~~ Exterior cladding, interior and exterior nonbearing walls and interior and exterior veneer 30 feet (9144 mm) or less in height above grade or walking surface.
2. ~~*Special inspection* is not required for~~ Exterior cladding and interior and exterior veneer weighing 5 psf (24.5N/m^2) or less.
3. ~~*Special inspection* is not required for~~ Interior nonbearing walls weighing 15 psf (73.5 N/m^2) or less.

1705.11.6 Mechanical and electrical components. *Periodic special inspection* ~~for~~ of mechanical and electrical components ~~shall be as follows~~ shall be required for the following:

1. ~~Periodic special inspection is required during the~~ Anchorage of electrical equipment for emergency or standby power systems in structures assigned to *Seismic Design Category* C, D, E or F.
2. ~~Periodic special inspection is required during the~~ Anchorage of other electrical equipment in structures assigned to *Seismic Design Category* E or F.
3. ~~Periodic special inspection is required during the~~ Installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units in structures assigned to *Seismic Design Category* C, D, E or F.
4. ~~Periodic special inspection is required during the~~ Installation and anchorage of ductwork designed to carry hazardous materials in structures assigned to *Seismic Design Category* C, D, E or F.
5. ~~Periodic special inspection is required during the~~ Installation and anchorage of vibration isolation systems in structures assigned to *Seismic Design Category* C, D, E or F where the *construction documents* require a nominal clearance of 1/4 inch (6.4 mm) or less between the equipment support frame and restraint.

Reason: The purpose for the proposal is to delete superfluous language.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal makes the special inspection requirements for nonstructural components easier to understand by deleting superfluous wording.

Assembly Action: **None**

Final Hearing Results

S162-12 **AS**

Code Change No: S165-12

Original Proposal

Section(s): 1705.11.9 (NEW)

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing self (pbrazil@reidmiddleton.com)

Add new text as follows:

1705.11.9 Cold-formed steel special bolted moment frames. Periodic special inspection shall be provided for the installation of cold-formed steel special bolted moment frames in the *seismic force-resisting systems* of *structures* assigned to *Seismic Design Category* D, E or F.

Reason: The purpose for this proposal is to require special inspections for the installation of cold-formed steel special bolted moment frames, which are a new type of seismic force-resisting system and are listed in Table 12.2-1 of ASCE 7-10 in the category of moment-resisting frame systems (Item C.12). Their structural design is sufficiently complex to warrant inspection from a person with the expertise of a special inspector who is approved by the building official as having the competence necessary to inspect the installation of the joists. Refer to the definitions of "special inspection" and "special inspector" for further information. Examples of the complexity of the structural design that warrant special inspection of the installation are the beam-to-column connections and the anchorage to the foundation.

The standard for Seismic Design of Cold-formed Steel Structural Systems: Special Bolted Moment Frames with Supplement No. 1, AISI S110-07/S1-09, contain provisions for inspections but these are limited to quality control by the fabricator and inspections by qualified inspectors representing the owner. Refer to Section E of the standard.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agrees that cold-formed steel special bolted moment frames require special inspection in areas of high seismicity.

Assembly Action: **None**

Final Hearing Results

S165-12	**AS**

Code Change No: S166-12

Original Proposal

Section(s): 1705.11, 1705.11.1, 1705.11.2, 1705.11.3, 1705.11.4, 1705.11.8

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing self (pbrazil@reidmiddleton.com)

Revise as follows:

1705.11 Special inspections for seismic resistance. *Special inspections* ~~itemized~~ for seismic resistance shall be required as specified in Sections 1705.11.1 through 1705.11.8, unless exempted by the exceptions of Section 1704.2~~, are required for the following:~~

~~1. The seismic force-resisting systems in structures assigned to *Seismic Design Category* C, D, E or F in accordance with Sections 1705.11.1 through 1705.11.3, as applicable.~~
~~2. Designated seismic systems in structures assigned to *Seismic Design Category* C, D, E or F in accordance with Section 1705.11.4.~~
~~3. Architectural, mechanical and electrical components in accordance with Sections 1705.11.5 and 1705.11.6.~~
~~4. Storage racks in structures assigned to *Seismic Design Category* D, E or F in accordance with Section 1705.11.7.~~
~~5. Seismic isolation systems in accordance with Section 1705.11.8~~.

Exception: The special inspections ~~itemized~~ specified in Sections 1705.11.1 through 1705.11.8 are not required for structures designed and constructed in accordance with one of the following:

1. The structure consists of light-frame construction; the design spectral response acceleration at short periods, *SDS*, as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 35 feet (10 668 mm).
2. The seismic force-resisting system of the structure consists of reinforced masonry or reinforced concrete; the design spectral response acceleration at short periods, *SDS*, as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 25 feet (7620 mm).
3. The structure is a detached one- or two-family dwelling not exceeding two *stories above grade plane* and does not have any of the following horizontal or vertical irregularities in accordance with Section 12.3 of ASCE 7:
   3.1. Torsional or extreme torsional irregularity.
   3.2. Nonparallel systems irregularity.
   3.3. Stiffness-soft story or stiffness-extreme soft story irregularity.
   3.4. Discontinuity in lateral strength-weak story irregularity.

1705.11.1 Structural steel. *Special inspection* for structural steel in the *seismic force-resisting systems* of *structures* assigned to *Seismic Design Category* C, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: *Special inspections* of structural steel are not required in the *seismic force-resisting systems* of structures assigned to *Seismic Design Category* C that are not specifically detailed for seismic resistance, with a response modification coefficient, *R*, of 3 or less, excluding cantilever column systems.

1705.11.2 Structural wood. For the *seismic force-resisting systems* of *structures* assigned to *Seismic Design Category* C, D, E or F:

1. Continuous special inspection shall be required during field gluing operations of elements of the seismic force-resisting system and
2. Periodic special inspection shall be required for nailing, bolting, anchoring and other fastening of components within the seismic force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, shear panels and hold-downs.

   Exception: *Special inspection* is not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other components of the seismic force-resisting system, where the fastener spacing of the sheathing is more than 4 inches (102 mm) on center (o.c.).

1705.11.3 Cold-formed steel light-frame construction. For the *seismic force-resisting systems* of *structures* assigned to *Seismic Design Category* C, D, E or F, periodic special inspection shall be required:

1. ~~Periodic special inspection is required~~ During welding operations of elements of the seismic force-resisting system and
2. ~~Periodic special inspection is required~~ For screw attachment, bolting, anchoring and other fastening of components within the seismic force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.

   Exception: *Special inspection* is not required for cold-formed steel light-frame shear walls, braces, diaphragms, collectors (drag struts) and hold-downs where either of the following apply:

   1. The sheathing is gypsum board or fiberboard.
   2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) o.c.

1705.11.4 Designated seismic systems. For structures assigned to *seismic Design Category* C, D, E or F, the special inspector shall examine designated seismic systems requiring seismic qualification in accordance with Section 1705.12.3 and verify that the *label*, anchorage or mounting conforms to the *certificate of compliance*.

1705.11.8 Seismic isolation systems. Periodic special inspection shall be provided for seismic isolation systems in seismically isolated structures assigned to *Seismic Design Category* B, C, D, E or F during the fabrication and installation of isolator units and energy dissipation devices.

Reason:
This proposal is the result of collaboration with the steel industry and makes changes to Section 1705.11 similar to the changes made to Section 1705.12 in a separate proposal.

As in Section 1705.12, determining applicable requirements in Section 1705.11 necessitates combining the governing item in Section 1705.11 with the corresponding subsection that follows. This exercise would be useful if it avoided duplication of the language in several of the subsections and this currently occurs for four sections (Sections 1705.11.1, 1705.11.2, 1705.11.3 and 1705.11.4). Because of the collaboration with the steel industry, however, it will now occur in only three sections and, with that, has outlived its usefulness. Any advantage gained is more than offset by the disadvantage in combining the applicable provisions, which can lead to errors by readers of the code. The proposal simplifies the requirements by transferring the language from the items in Section 1705.11 to the applicable subsections where comprehensive provisions are specified for each instance of required special inspections. Changes to Sections 1705.11.5, 1705.11.5.1, 1705.11.6 and 1705.11.7 are not made because none are needed in that the applicable provisions are already present.

Note that a separate proposal revises Section 1705.11.1 for consistency with the scope of AISC 341-10.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Agreement with the proponents reason indicating that the removal of duplicate language clarifies the provisions for special inspections for seismic resistance.

Assembly Action: **None**

Final Hearing Results

S166-12 **AS**

Code Change No: S169-12

Original Proposal

Section(s): 1705.12, 1705.12.1, 1705.12.2, 1705.12.3, 1705.12.4

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

Revise as follows:

1705.12 Testing and qualification for seismic resistance. ~~The~~ Testing and qualification for seismic resistance shall be required as specified in Sections 1705.12.1 through 1705.12.4, unless exempted from *special inspections* by the exceptions of Section 1704.2. ~~are required as follows:~~

~~1. The seismic force-resisting systems in structures assigned to *Seismic Design Category* C, D, E or F shall meet the requirements of Sections 1705.12.1 and 1705.12.2, as applicable.~~
~~2. Designated seismic systems in structures assigned to *Seismic Design Category* C, D, E or F and subject to the certification requirements of ASCE 7 Section 13.2.2 shall comply with Section 1705.12.3.~~
~~3. Architectural, mechanical and electrical components in structures assigned to *Seismic Design Category* C, D, E or F and where the requirements of ASCE 7 Section 13.2.1 are met by submittal of manufacturer's certification, in accordance with Item 2 therein, shall comply with Section 1705.12.3.~~
~~4. The seismic isolation system in seismically isolated structures shall meet the testing requirements of Section 1705.12.4~~.

1705.12.1 Concrete reinforcement. In the *seismic force-resisting systems* of *structures* assigned to *Seismic Design Category* B, C, D, E or F, where reinforcement complying with ASTM A 615 is used to resist earthquake-induced flexural and axial forces in special moment frames, special structural walls ~~and~~ or coupling beams connecting special structural walls, ~~in structures assigned to *Seismic Design Category* B, C, D, E or F,~~ the reinforcement shall comply with Section 21.1.5.2 of ACI 318. Certified mill test reports shall be ~~provided for each shipment of such reinforcement~~ submitted to the *building official*. Where reinforcement complying with ASTM A 615 is to be welded, chemical tests shall be performed to determine weldability in accordance with Section 3.5.2 of ACI 318.

1705.12.2 Structural steel. Testing ~~for~~ of structural steel in the *seismic force-resisting systems* of *structures* assigned to *Seismic Design Category* C, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: Testing for structural steel is not required in the *seismic force-resisting systems* of structures assigned to *Seismic Design Category* C that are not specifically detailed for seismic resistance, with a response modification coefficient, *R*, of 3 or less, excluding cantilever column systems.

1705.12.3 Seismic certification of nonstructural components. For *structures* assigned to *Seismic Design Category* C, D, E or F, **t**he *registered design professional* shall specify on the construction documents the requirements for certification by analysis, testing or experience data for nonstructural components and designated seismic systems in accordance with Section 13.2 of ASCE 7, where such certification is required by Section 1705.12.

1705.12.4 Seismic isolation systems. Seismic isolation systems in seismically isolated structures assigned to *Seismic Design Category* B, C, D, E or F shall be tested in accordance with Section 17.8 of ASCE 7.

Reason: Determining applicable requirements in Section 1705.12 necessitates combining the governing item in Section 1705.12 with the corresponding subsection that follows. This exercise would be useful if it avoided duplication of the language in the items in several of the subsections but this only occurs once (Sections 1705.12.1 and 1705.12.2). Any advantage gained is more than offset by the disadvantage in combining the applicable provisions, which can lead to errors by readers of the code. Also, the applicability of Section 1705.12.1 to Seismic Design Category B conflicts with corresponding Item 1 of Section 1705.12, which is limited to Seismic Design Categories C, D, E and F. The proposal simplifies the requirements by transferring the language from the items in Section 1705.12 to each of the subsections where comprehensive provisions are specified for each instance of required testing.

In Section 1705.12.1, the language requiring certified mill test reports "be provided for each shipment of such reinforcement" is replaced with "be submitted to the building official" because the details of providing the reports are not relevant to the provisions of the building code but submittal to the building official is relevant and critical to verifying that the reinforcement meets the applicable requirements in Section 21.1.5.2 of ACI 318-11.

The source document for some of the language in Section 1705.12 is the *NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures* (Sections 3.2 and 3.4 of FEMA 368, and Sections 2.2 and 2.4 of FEMA 450-1).

Note that separate proposals:

1. Delete "qualification" in Section 1705.12 and place the provisions of Section 1705.12.3 into two subsections to provide effective charging language for the corresponding provisions in ASCE 7-10 ;
2. Transfer the requirements of Section 1705.12.1 to a new section on submittals to the building official ; and
3. Revise Section 1705.12.2 for consistency with the scope of AISC 341-10.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change relocates charging language to the appropriate sections under testing for seismic resistance.

Assembly Action: **None**

Final Hearing Results

S169-12 **AS**

Code Change No: S170-12

Original Proposal

Section(s): 1708.1, 1710.1

Proponent: D. Kirk Harman, The Harman Group, representing the National Council of Structural Engineers Associations (NCSEA) Code Advisory Committee, Quality Assurance and Special Inspection Subcommittee.

Revise as follows:

~~**SECTION 1708**~~
~~**TEST SAFE LOAD**~~

~~**1708.1 Where required.** Where proposed construction is not capable of being designed by *approved* engineering analysis, or where proposed construction design method does not comply with the applicable material design standard, the system of construction or the structural unit and the connections shall be subjected to the tests prescribed in Section 1710. The *building official* shall accept certified reports of such tests conducted by an *approved* testing agency, provided that such tests meet the requirements of this code and *approved* procedures.~~

(Renumber subsequent sections)

~~**1710.1 General.** In evaluating the physical properties of materials and methods of construction that are not capable of being designed by *approved* engineering analysis or do not comply with the applicable referenced standards, the structural adequacy shall be predetermined based on the load test criteria established in this section.~~

1710.1 General. Where proposed construction is not capable of being designed by *approved* engineering analysis, or where proposed construction design method does not comply with the applicable material design standard, the system of construction or the structural unit and the connections shall be subjected to the tests prescribed in Section 1710. The *building official* shall accept certified reports of such tests conducted by an *approved* testing agency, provided that such tests meet the requirements of this code and *approved* procedures.

Reason: Section 1708 is entirely comprised of section 1708.1. Section 1708.1 references section 1710. Therefore, for clarity, the text of section 1708 should be relocated to section 1710. Furthermore, section 1708.1 essentially restates the text of section 1710.1, but in greater detail. Therefore, current section 1710.1 should be deleted after the substitution as it is redundant.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with eliminating redundant language and combining what is needed into a single provision.

Assembly Action: **None**

Final Hearing Results

S170-12 **AS**

Code Change No: S171-12

Original Proposal

Section(s): 1709.3.2

Proponent: Gary R. Searer, Wiss, Janey, Elstner Associates Inc., representing self

Revise as follows:

1709.3.2 Load test procedure not specified. In the absence of applicable load test procedures contained within a standard referenced by this code or acceptance criteria for a specific material or method of construction, such *existing structure* shall be subjected to a test procedure developed by a *registered design professional* that simulates applicable loading and deformation conditions. For components that are not a part of the seismic load-resisting system, the test load shall be equal ~~to two times the unfactored design loads~~ to the minimum of the specified factored design loads. For statically loaded components, the test load shall be left in place for a period of 24 hours. For components such as machine supports or fall arrest anchors that carry dynamic loads, the load shall be left in place for a period consistent with the component's actual function. The structure shall be considered to have successfully met the test requirements where the following criteria are satisfied:

1. Under the design load, the deflection shall not exceed the limitations specified in Section 1604.3.
2. Within 24 hours after removal of the test load, the structure shall have recovered not less than 75 percent of the maximum deflection.
3. During and immediately after the test, the structure shall not show evidence of failure.

Reason: This code change proposal does two things: 1) changes the required static test load from *precisely* "two times the unfactored design load" to a "minimum of the specified factored design loads", and 2) specifies how to test components that carry dynamic loads.

It is essentially not possible for the test load to be precisely two times any particular load, and the requirement to test to two times the unfactored load is arbitrary (i.e., why should you test to 2.0D+2.0L if the commonly accepted and statistically based load combination is 1.2D+1.6L?). By adding the phrase "a minimum of" to the requirement and by referencing factored loads, the intent of the provision is made clear -- that the test load should be *at least* the specified factored design load. Nationally recognized design standards such as the AISC Steel Specifications and ACI 318 have been developed with the intent to ensure that very few elements are unable to carry factored loads. To put it another way, if every element in a structure could carry factored loads, the structure's reliability would be consistent with the intent of such standards. In fact, the load testing provisions in each of the AISC and ACI standards make this clear by requiring proof test loads to essentially the full factored loads. This proposal is in-line with both AISC and ACI standards.

When an element is designed to carry short duration or dynamic loads, there is no need to sustain a proof test load for 24 hours.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1709.3.2 Load test procedure not specified. In the absence of applicable load test procedures contained within a standard referenced by this code or acceptance criteria for a specific material or method of construction, such *existing structure* shall be subjected to a test procedure developed by a *registered design professional* that simulates applicable loading and deformation conditions. For components that are not a part of the seismic load-resisting system, at a minimum the test load shall be equal to ~~the minimum of~~ the specified factored design loads. For statically loaded components, the test load shall be left in place for a period of 24 hours. For components such as machine supports or fall arrest anchors that carry dynamic loads, the load shall be left in place for a period consistent with the component's actual function. The structure shall be considered to have successfully met the test requirements where the following criteria are satisfied:

1. Under the design load, the deflection shall not exceed the limitations specified in Section 1604.3.
2. Within 24 hours after removal of the test load, the structure shall have recovered not less than 75 percent of the maximum deflection.
3. During and immediately after the test, the structure shall not show evidence of failure.

Committee Reason: This proposal clears up the issue of duration of load for the test procedure and removes the arbitrary factor of two. The modification improves the wording to indicate you don't have to test to all load combinations.

Assembly Action: **None**

Public Comments

Public Comment:

Gary Searer, Wiss, Janney, Elstner Associates, Inc. (WJE) representing self, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1709.3.2 Load test procedure not specified. In the absence of applicable load test procedures contained within a standard referenced by this code or acceptance criteria for a specific material or method of construction, such existing structure shall be subjected to a test procedure developed by a registered design professional that simulates applicable loading and deformation conditions. For components that are not a part of the seismic load-resisting system, at a minimum the test load shall be equal to the specified factored design loads. For materials such as wood that have strengths that are dependent on load duration, the test load shall be adjusted to account for the difference in load duration of the test compared to the expected duration of the design loads being considered. For statically loaded components, the test load shall be left in place for a period of 24 hours. For components such as machine supports or fall arrest anchors that carry dynamic loads, the load shall be left in place for a period consistent with the component's actual function. The structure shall be considered to have successfully met the test requirements where the following criteria are satisfied:

1. Under the design load, the deflection shall not exceed the limitations specified in Section 1604.3.
2. Within 24 hours after removal of the test load, the structure shall have recovered not less than 75 percent of the maximum deflection.
3. During and immediately after the test, the structure shall not show evidence of failure.

Commenter's Reason: I am the author of the original code change proposal, which was approved by the IBC-Structural Committee. The code change proposal was written to bring the testing requirements into line with the standards of most major materials, including concrete (ACI) and steel (AISC). However, wood responds differently under short duration loads and long duration loads, and the test load needs to be adjusted to account for differences caused by load duration. This change accomplishes this goal.

Consequentially, I respectfully ask that the proposed code change be approved as modified by this public comment.

Final Hearing Results

S171-12 **AMPC**

Code Change No: S173-12

Original Proposal

Section(s): 1710.5

Proponent: Julie Ruth, P.E., JRuth Code Consulting, representing American Architectural Manufacturers (AAMA) and Joseph R. Hetzel, P.E., Thomas Associates, Inc., representing Door & Access Systems Manufacturers Association (DASMA) International

Revise as follows:

1710.5 Exterior window and door assemblies. The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1710.5.1 or 1710.5.2. For the purposes of this section, the required design pressure shall be determined using the allowable stress design load combinations of Section 1605.3.

Exception: Structural wind load design pressures for window units smaller than the size tested in accordance with Section 1710.5.1 or 1710.5.2 shall be permitted to be higher than the design value of the tested unit provided such higher pressures are determined by accepted engineering analysis. All components of the small unit shall be the same as the tested unit. Where such calculated design pressures are used, they shall be validated by an additional test of the window unit having the highest allowable design pressure.

Reason: The standards referenced in Section 1710.5 are based upon allowable stress design. This includes AAMA/WDMA/CSA 101/I.S.2/440, ASTM E330 and ANSI/DASMA 108. This proposal adds a sentence to the beginning of the section that clarifies that ASD loads are to be used in the application of this section.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agrees that it is reasonable to provide the link between the allowable stress design loads and the testing required for exterior doors and windows.

Assembly Action: **None**

Final Hearing Results

S173-12 **AS**

Code Change No: S176-12

Original Proposal

Section(s): 202, 1710.6, 2404.2, 2405.5, 2405.5.1, 2405.5.2

Proponent: Julie Ruth, P.E., JRuth Code Consulting, representing American Architectural Manufacturers Association (AAMA) (julruth@aol.com)

Revise as follows:

SECTION 202
DEFINITIONS

SKYLIGHTS AND SLOPED GLAZING. Glass or other transparent or translucent glazing material installed at a slope of 15 degrees (0.26 rad) or more from vertical. Glazing material in skylights, including *unit skylights*, tubular daylighting devices, solariums, *sunrooms*, roofs and sloped walls, are included in this definition.

Revise as follows:

1710.6 Skylights and sloped glazing. ~~Unit skylights and tubular daylighting devices (TDDs) shall comply with the requirements of Section 2405. All other~~ Skylights and sloped glazing shall comply with the requirements of Chapter 24.

Revise as follows:

2404.2 Sloped glass. Glass sloped more than 15 degrees (0.26 rad) from vertical in skylights, sunrooms, sloped roofs and other exterior applications shall be designed to resist the most critical of the following combinations of loads.

Exception: The design pressure rating of unit skylights and tubular daylighting devices shall be ~~designed~~ determined in accordance with Section 2405.5.

(Portions of section not shown remain unchanged)

2405.5 Unit skylights and tubular daylighting devices. Unit skylights and tubular devices shall be tested and labeled as complying with AAMA/WDMA/CSA 101/I.S./A440. The *label* shall state the name of the manufacturer, the *approved* labeling agency, the product designation and the performance grade rating as specified in AAMA/WDMA/CSA 101/I.S.2/A440. If the product manufacturer has chosen to have the performance grade of the skylight rated separately for positive and negative design pressure, then the *label* shall state both performance grade ratings as specified in AAMA/ WDMA/CSA 101/I.S.2/A440 and the skylight shall comply with Section 2405.5.2. If the skylight is not rated separately for positive and negative pressure, then the performance grade rating shown on the *label* shall be the performance grade rating determined in accordance with AAMA/WDMA/ CSA 101/I.S.2/A440 for both positive and negative design pressure and the skylight shall conform to Section 2405.5.1.

2405.5.1 ~~Unit~~ Skylights rated for the same performance grade for both positive and negative design pressure. The design of ~~unit~~ skylights shall be based on the following equation:

$F_g \leq PG$ **(Equation 24-13)**

where:

F_g = Maximum load on the skylight determined from Equations 24-2 through 24-4 in Section 2404.2.
PG = Performance grade rating of the skylight.

2405.5.2 ~~Unit~~ Skylights rated for separate performance grades for positive and negative design pressure. The design of ~~unit~~ skylights rated for performance grade for both positive and negative design pressures shall be based on the following equations:

$F_{gi} \le PG_{Po}$ **(Equation 24-14)**
$F_{go} \le PG_{Ne}$ **(Equation 24-15)**

where:

PG_{Pos} = Performance grade rating of the skylight under positive design pressure;
PG_{Neg} = Performance grade rating of the skylight under negative design pressure; and
F_{gi} and F_{go} are determined in accordance with the following:

For $W_o \ge D$,

where:

W_o = Outward wind force, psf (kN/m^2) as calculated in Section 1609.
D = The dead weight of the glazing, psf (kN/m^2) as determined in Section 2404.2 for glass, or by the weight of the plastic, psf (kN/m^2) for plastic glazing.
F_{gi} = Maximum load on the skylight determined from Equations 24-3 and 24-4 in Section 2404.2.
F_{go}= Maximum load on the skylight determined from Equation 24-2.

For $W_o < D$,

where:

W_o = Is the outward wind force, psf (kN/m^2) as calculated in Section 1609.
D = The dead weight of the glazing, psf (kN/m^2) as determined in Section 2404.2 for glass, or by the weight of the plastic for plastic glazing.
F_{gi} = Maximum load on the skylight determined from Equations 24-2 through 24-4 in Section 2404.2.
F_{go}= 0.

Reason: The overall intent of this proposal is to clarify the requirements for tubular daylighting devices, within the context of skylights and sloped glazing in the IBC.

Tubular daylighting devices are a type of skylights, just as unit skylights are. The 2012 IBC contains a definition of TDDs that is consistent with the 2012 IRC. Part I of this proposal simply clarifies that, like unit skylights, TDDs are a type of skylight. This change would also bring consistency to the definition of skylights and sloped glazing between the IRC and IBC.

Section 1710.6 was intended to point the code user to the structural testing provisions of Chapter 24 for skylights and sloped glazing. As currently written, however, it may be misinterpreted as only requiring unit skylights and TDDs to comply with Section 2405.5, and not Chapter 24 in its entirety. This is not correct. The removal of a separate reference for unit skylights and TDDs will help to clarify this.

As currently written, the exception to Section 2404.2 may be interpreted as only requiring unit skylights and TDDs to meet Section 2405.5. This is not the intent of this exception. The proposed revision clarifies that only the design pressure rating of unit skylights and TDDs is to be determined in accordance with Section 2405.5. These products must still meet the other requirements of Chapter 24, and specifically of Section 2405.

Section 2405.5 is revised to clarify that both unit skylights and TDDs are to be tested and labeled in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Errata: Revise as follows:

2405.5 Unit skylights and tubular daylighting devices. Unit skylights and tubular daylighting devices shall be tested and labeled as complying with AAMA/WDMA/CSA 101/I.S./A440. The *label* shall state the name of the manufacturer, the *approved* labeling agency, the product designation and the performance grade rating as specified in AAMA/WDMA/CSA 101/I.S.2/A440. If the product manufacturer has chosen to have the performance grade of the skylight rated separately for positive and negative design pressure, then the *label* shall state both performance grade ratings as specified in AAMA/ WDMA/CSA 101/I.S.2/A440 and the skylight shall comply with Section 2405.5.2. If the skylight is not rated separately for positive and negative pressure, then the performance grade rating shown on the *label* shall be the performance grade rating determined in accordance with AAMA/WDMA/ CSA 101/I.S.2/A440 for both positive and negative design pressure and the skylight shall conform to Section 2405.5.1.

(Portions of code change not shown remain unchanged)

Committee Action: **Approved as Modified**

Modify proposal as follows:

2404.2 Sloped glass. Glass sloped more than 15 degrees (0.26 rad) from vertical in skylights, sunrooms, sloped roofs and other exterior applications shall be designed to resist the most critical of the following combinations of loads.

> **Exception:** The ~~design pressure~~ performance grade rating of unit skylights and tubular daylighting devices shall be determined in accordance with Section 2405.5.

(Portions of section not shown remain unchanged)

(Portions of proposal not shown are unchanged)

Committee Reason: This code change makes requirements applicable to tubular daylighting devices and this proposal is preferred over S301-12. The modification substitutes performance grade in the exception for consistency with Section 2404.5.

Assembly Action: **None**

Final Hearing Results

S176 **AM**

Code Change No: S177-12

Original Proposal

Section(s): 1711.1, 2303.5, 2304.9.3, Chapter 35 (NEW)

Proponent: Brad Douglas, P.E., American Wood Council

Delete without substitution:

~~**1711.1 Joist hangers.** Testing of joist hangers shall be in accordance with Sections 1711.1.1 through 1711.1.3, as applicable.~~

~~**1711.1.1 General.** The vertical load-bearing capacity, torsional moment capacity and deflection characteristics of joist hangers shall be determined in accordance with ASTM D 1761 using lumber having a specific gravity of 0.49 or greater, but not greater than 0.55, as determined in accordance with AF&PA NDS for the joist and headers.~~

~~**Exception:** The joist length shall not be required to exceed 24 inches (610 mm).~~

~~**1711.1.2 Vertical load capacity for joist hangers.** The vertical load capacity for the joist hanger shall be determined by testing a minimum of three joist hanger assemblies as specified in ASTM D 1761. If the ultimate vertical load for any one of the tests varies more than 20 percent from the average ultimate vertical load, at least three additional tests shall be conducted. The allowable vertical load of the joist hanger shall be the lowest value determined from the following:~~

1. ~~The lowest ultimate vertical load for a single hanger from any test divided by three (where three tests are conducted and each ultimate vertical load does not vary more than 20 percent from the average ultimate vertical load).~~
2. ~~The average ultimate vertical load for a single hanger from all tests divided by three (where six or more tests are conducted).~~
3. ~~The average from all tests of the vertical loads that produce a vertical movement of the joist with respect to the header of $^{1}/_{8}$ inch (3.2 mm).~~
4. ~~The sum of the allowable design loads for nails or other fasteners utilized to secure the joist hanger to the wood members and allowable bearing loads that contribute to the capacity of the hanger.~~
5. ~~The allowable design load for the wood members forming the connection.~~

~~**1711.1.2.1 Design value modifications for joist hangers.** Allowable design values for joist hangers that are determined by Item 4 or 5 in Section 1711.1.2 shall be permitted to be modified by the appropriate duration of loading factors as specified in AF&PA NDS but shall not exceed the direct loads as determined by Item 1, 2 or 3 in Section 1711.1.2. Allowable design values determined by Item 1, 2 or 3 in Section 1711.1.2 shall not be modified by duration of loading factors.~~

~~**1711.1.3 Torsional moment capacity for joist hangers.** The torsional moment capacity for the joist hanger shall be determined by testing at least three joist hanger assemblies as specified in ASTM D 1761. The allowable torsional moment of the joist hanger shall be the average torsional moment at which the lateral movement of the top or bottom of the joist with respect to the original position of the joist is $^{1}/_{8}$ inch (3.2 mm).~~

(Renumber subsequent sections)

Revise as follows:

2303.5 Test standard for joist hangers. ~~For the required test standards for joist hangers see Section 1711.1~~ Joist hangers shall conform to requirements of ASTM D 7147.

Revise as follows:

2304.9.3 Joist hangers and framing anchors. Connections depending on joist hangers or framing anchors, ties and other mechanical fastenings not otherwise covered are permitted where *approved*. The vertical load-bearing capacity, torsional moment capacity and deflection characteristics of joist hangers shall be determined in accordance with ~~Section 1711.1~~ ASTM D 7147.

Add new standard to Chapter 35 as follows:

ASTM

D 7147-05, Specification for Testing and Establishing Allowable Loads of Joist Hangers

Reason: The 2009 IBC updated the reference to ASTM D 1761 from a prior edition to a 2006 edition for the testing of joist hangers. However, ASTM D1761-06 no longer contains provisions for testing of joist hangers. These provisions were moved to and revised in ASTM D7147. The revisions included sampling and evaluation criteria (currently included in IBC section 1711.1) as well as further refinements regarding quality of test materials, adjustments for variation in test materials, and limits on design values with materials other than those tested. In addition, since ASTM D7147 is specific to joist hangers used with wood and contains provisions that go beyond testing, it is more appropriate to reference it in Chapter 23 rather than Chapter 17.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Note: For staff analysis of the content of ASTM D 7147 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This proposal removes provisions and a referenced standard from Chapter 17 and adds a new reference standard for testing joists in Chapter 23.

Assembly Action: **None**

Final Hearing Results

S177-12 **AS**

Code Change No: S180-12

Original Proposal

Section(s): 1803.5.6

Proponent: Theodore L Droessler, Clark County Nevada, representing Clark County Development Services, and R. David Charles, P.E., representing ASFE, the Geoprofessional Business Association.

Revise as follows:

1803.5.6 Rock strata. Where subsurface explorations at the project site indicate ~~variations or doubtful characteristics in the structure of~~ the presence of rock upon which foundations are to be constructed, a sufficient number of borings shall be made to a depth of not less than 10 feet (3048 mm) below the level of the foundations ~~to provide assurance of the soundness of the foundation bed~~ assess the competency of the rock and its load-bearing capacity in terms of the rock strength and the presence, orientation, and condition of discontinuities, weathering profiles and other similar profiles of the sampled rock as they apply at a particular site.

Reason: The proposed modification is intended to make the wording of the Code addressing the evaluation of rock materials for foundation support more consistent with current geotechnical engineering practice.

The current wording suggests that it is possible to provide "assurance of the soundness of rock" during the geotechnical evaluation phase. Unfortunately, experience has shown that even at sites where rigorous evaluation of rock conditions is undertaken, it is often determined during construction that rock conditions between the locations sampled can vary significantly. Many times the actual rock conditions at foundation locations are exposed or better defined (through excavation, proof-drilling, etc.) during construction, and interpretations of the conditions exposed during the construction process are necessary to complete the design of the foundation element.

The proposed modifications to Section 1803.5.6 express the characteristics necessary to assess the rock strata and estimate a load-bearing capacity based on observations and testing.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1803.5.6 Rock strata. Where subsurface explorations at the project site indicate variations in the ~~presence~~ structure of rock upon which foundations are to be constructed, a sufficient number of borings shall be ~~made to a depth of not less than 10 feet (3048 mm) below the level of the foundations~~ drilled to sufficient depths to assess the competency of the rock and its load-bearing capacity ~~in terms of the rock strength and the presence, orientation, and condition of discontinuities, weathering profiles and other similar profiles of the sampled rock as they apply at a particular site~~.

Committee Reason: This proposal improves the provision for evaluating rock materials by using more performance language. The modification further clarifies the intent of the proposal.

Assembly Action: **None**

Final Hearing Results

S180 **AM**

Code Change No: S181-12

Original Proposal

Section(s): 1803.5.7, 1804.1, 1804.2 (New), 1804.2.1 (New)

Proponent: Gary R. Searer, Wiss, Janey, Elstner Associates Inc., representing self

Proponent: Edwin Huston, National Council of Structural Engineers Associations- Code Advisory Committee - General Requirements Subcommittee (huston@smithhustoninc.com)

Revise as follows:

1803.5.7 Excavation near foundations. Where excavation will remove ~~lateral~~ support from any foundation~~, an investigation shall be conducted to assess the potential consequences and address mitigation measures~~ a Registered Design Professional shall prepare a report summarizing the condition of the structure as determined from examination of the structure, the review of available design documents and if necessary, the excavation of test pits. The Registered Design Professional shall determine the requirements for underpinning and protection and prepare site-specific plans, details, and sequence of work for submission. Such support may be provided by underpinning, sheeting, and bracing, or by other means acceptable to the building official.

1804.1 Excavation near foundations. Excavation for any purpose shall not remove lateral support from any foundation or adjacent foundation without first underpinning or protecting the foundation against settlement or lateral translation.

1804.2 Underpinning. Where the protection and/or support of adjacent structures is required, the underpinning system shall be designed and installed in accordance with provisions of this chapter and Chapter 33.

1804.2.1 Underpinning and bracing installation. Where underpinning is used for the support of adjacent structures, the piers, wall piles or footings shall be installed in such manner so as to prevent the lateral or vertical displacement of the adjacent structure, to prevent deterioration of the foundations or other effects that would disrupt the adjacent structure. The sequence of installation shall be identified in the design.

Reason: At present, excavation of foundations is not specifically addressed in relation to adjacent structures. Section 3307, Protection of Adjacent Property, states: “Adjoining public and private property shall be protected from damage during construction, remodeling and demolition work. Protection shall be provided for footings, foundations, party walls, chimneys, skylights and roofs.”

The code currently has minimal and vague requirements of the due diligence required for investigation for excavation near a neighboring structure. Failures to perform proper pre-construction investigations and monitoring procedures have led to failures in construction during underpinning and excavation operations. Improper excavations result nationally in doors and windows that don’t open, increasing through cracking of bearing walls and support members, failures of structural members and to collapse and fatalities.

Specific guidelines are provided to identify responsibilities and basic requirements for providing safe and successful underpinning and excavations.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This code change is considered a good effort to clarify requirements for excavations near a neighboring structure, but the committee believes there are details that must be worked out. Requirements for underpinning should make it clear that its not the only means permitted. There should be a link to Chapter 33. The report requirement may not be needed in all cases.

Assembly Action: **None**

Public Comments

Public Comment:

Edwin Huston, National Council of Structural Engineers Associations (NCSEA), representing NCSEA Code Advisory Subcommittee – General Requirements Subcommittee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1803.5.7 Excavation near foundations. Where excavation will ~~remove~~ reduce support from any foundation, a Registered Design Professional shall prepare ~~a report summarizing the condition~~ an assessment of the structure as determined from examination of the structure, the review of available design documents and if necessary, the excavation of test pits. The Registered Design Professional shall determine the requirements for underpinning and protection and prepare site-specific plans, details, and sequence of work for submission. Such support may be provided by underpinning, sheeting, and bracing, or by other means acceptable to the building official.

1804.1 Excavation near foundations. Excavation for any purpose shall not ~~remove~~ reduce lateral support from any foundation or adjacent foundation without first underpinning or protecting the foundation against detrimental lateral or vertical movement, or both ~~settlement or lateral translation~~.

1804.2 Underpinning. Where underpinning is chosen to provide the protection ~~and/~~or support of adjacent structures ~~is required~~, the underpinning system shall be designed and installed in accordance with provisions of this chapter and Chapter 33.

~~**1804.2.1 Underpinning and bracing installation**. Where underpinning is used for the support of adjacent structures, the piers, wall piles or footings shall be installed in such manner so as to prevent the lateral or vertical displacement of the adjacent structure, to prevent deterioration of the foundations or other effects that would disrupt the adjacent structure. The sequence of installation shall be identified in the design.~~

1804.2.1 Underpinning Sequencing. Underpinning shall be installed in a sequential manner that protects the neighboring structure and the working construction site. The sequence of installation shall be identified in the construction documents.

Commenter's Reason: At present, excavation of foundations is not specifically addressed in relation to adjacent structures. Section 3307, Protection of Adjacent Property, states: "Adjoining public and private property shall be protected from damage during construction, remodeling and demolition work. Protection shall be provided for footings, foundations, party walls, chimneys, skylights and roofs."

The code currently has minimal and vague requirements of the due diligence required for investigation for excavation near a neighboring structure. Failures to perform proper pre-construction investigations and monitoring procedures have led to failures in construction during underpinning and excavation operations. Improper excavations result nationally in doors and windows that don't open, increasing through cracking of bearing walls and support members, failures of structural members and to collapse and fatalities.

At the Code Development Hearings the Structural Committee struggled with the prohibition of preventing all settlement or lateral translation, which is not possible. Alternate wording was considered. But the committee chose to disapprove this proposal and asked that it be reconsidered under a Public Comment. During testimony for a companion Code Change Proposal, S184-15, it was pointed out that the term "detrimental" is currently used to discuss settlement in Section 1805.1, 1808.4 and 1807.7.2, as well as in other chapters of the IBC and the structural committee approved S184-12 "As Modified" using the term "detrimental". This Public comment seeks to use that same terminology.

One member of the committee noted that a report is not always necessary, so we changed that requirement to require an assessment of the need for underpinning, or other means of providing support.

We are also changing remove support to reduce support, because removal of support could lead to failure.

As 1803.5.7 points out, underpinning is one way of providing support. So in 1804.2, we are noting requirements when underpinning is chosen to provide support.

We urge your support for AMPC.

Final Hearing Results

S181-12 **AMPC**

Code Change No: S184-12

Original Proposal

Section(s): 1808.3.2 (New)

Proponent: Edwin Huston, National Council of Structural Engineers Associations (NCSEA), representing NCSEA Code Advisory Subcommittee – General Requirements Subcommittee (huston@smithhustoninc.com)

Add new text as follows:

1808.3.2 Surcharge. No fill or other surcharge loads shall be placed adjacent to any building or structure unless such building or structure is capable of withstanding the additional loads caused by the fill or the surcharge. Existing footings or foundations which will be affected by any excavation shall be underpinned or otherwise protected against settlement and shall be protected against lateral movement.

Reason: The code does not comment on permanent loads surcharging a neighboring structure. It references surcharge loads only in reference to construction loading in Chapter 33.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1808.3.2 Surcharge. No fill or other surcharge loads shall be placed adjacent to any building or structure unless such building or structure is capable of withstanding the additional loads caused by the fill or the surcharge. Existing footings or foundations which will be affected by any excavation shall be underpinned or otherwise protected against settlement and shall be protected against detrimental lateral or vertical movement, or both.

Committee Reason: This code change adds a needed provision on surcharge loads that affect an adjacent structure. Although Chapter 33 covers this during construction, the committee believes the proposed addition to Chapter 18 is useful and will help the building official. The modification clarifies that the vertical movement is also a concern and further states the protection is against detrimental movements. A public comment is suggested to provide an objective determination of detrimental movements.

Assembly Action: **None**

Public Comments

Public Comment:

Gary J. Ehrlich, P.E., National Association of Home Builders (NAHB), requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1808.3.2 Surcharge. No fill or other surcharge loads shall be placed adjacent to any building or structure unless such building or structure is capable of withstanding the additional loads caused by the fill or the surcharge. Existing footings or foundations which will be affected by any excavation shall be underpinned or otherwise protected against settlement and shall be protected against detrimental lateral or vertical movement, or both.

Exception: Minor grading for landscaping purposes shall be permitted where done with walk-behind equipment, where the grade is not increased more than one foot from original design grade, or where approved by the building official.

Commenter's Reason: : As written, the proposed language would not permit any grading or landscaping against an existing building, even minor amounts placed for landscaping purposes (e.g. maintaining a French drain or adding mulch to plant bends) done with light-duty walk-behind equipment unless the owner hires an engineer to evaluate the foundation and foundation walls. This is unreasonable when the primary issue is major grading done with heavy-duty equipment, particularly where grading and compaction of soil is done perpendicular to the building wall. An exception is proposed for minor grading done with walk-behind equipment (which does not induce high forces against the wall), limited grading heights, or as approved by the building official.

It is noted that many jurisdictions require a "minor grading" permit for work of the nature covered by the exception. These permits typically limit the total cubic yards or square footage of grading, limit the work to the lot covered by the permit (i.e. a permit would not be granted for grading against a building on an adjacent lot), and typically require plans and details signed and sealed by a civil engineer. This permitting process supplies protection against abuse of the exception.

Final Hearing Results

S184-12 **AMPC**

Code Change No: S185-12

Original Proposal

Section(s): 1810.2.5

Proponent: Lori A. Simpson, P.E., GE, Treadwell & Roll, a Langan Company, representing Deep Foundations Institute

Revise as follows:

1810.2.5 Group effects. The analysis shall include group effects on lateral behavior where the center-to-center spacing of deep foundation elements in the direction of lateral force is less than eight times the least horizontal dimension of an element. The analysis shall include group effects on axial behavior where the center-to-center spacing of deep foundation elements is less than three times the least horizontal dimension of an element. Group effects shall be evaluated using an approved method of analysis; the analysis for uplift of grouped elements with center-to-center spacing less than three times the least horizontal dimension shall be evaluated in accordance with Section 1810.3.3.1.6.

Reason: To make the evaluation of group effects on uplift more clear that it needs to be performed where spacing is less than three times the least horizontal dimension. While this section may seem clear without the change, Section 1810.3.3.1.6 makes it unclear what spacing necessitates evaluation of group effects for uplift. Cross referencing the other section, plus changes made to Section 1810.3.3.1.6 (see another Code Change Proposal), will clarify this issue.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1810.2.5 Group effects. The analysis shall include group effects on lateral behavior where the center-to-center spacing of deep foundation elements in the direction of lateral force is less than eight times the least horizontal dimension of an element. The analysis shall include group effects on axial behavior where the center-to-center spacing of deep foundation elements is less than three times the least horizontal dimension of an element. Group effects shall be evaluated using ~~an approved~~ a generally accepted method of analysis; the analysis for uplift of grouped elements with center-to-center spacing less than three times the least horizontal dimension of an element shall be evaluated in accordance with Section 1810.3.3.1.6.

Committee Reason: This proposal adds guidance and clarifies the evaluation of grouped elements for uplift. The modification substitutes preferred wording that is intended to allow standard practice in various regions.

Assembly Action: **None**

Final Hearing Results

S185 **AM**

Code Change No: S187-12

Original Proposal

Section(s): 1810.3.2.3, Table 1810.3.2.6, 1810.3.5.3.1, 1810.3.5.3.2 (NEW), 1810.3.5.3.3 (NEW), Chapter 35 (NEW)

Proponent: Bonnie Manley, American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

1810.3.2.3 ~~Structural steel~~ Steel. Structural steel H-piles and structural steel sheet piling shall conform to the material requirements in ASTM A6. Steel pipe piles shall conform to the material requirements in ASTM A 252. ~~and~~ Fully welded steel piles shall be fabricated from plates ~~shall~~ that conform to the material requirements in ASTM A 36, ~~ASTM A 252~~, ASTM A 283, ASTM A 572, ASTM A 588 or ASTM A 690~~, ASTM A 913 or ASTM A 992~~.

TABLE 1810.3.2.6
ALLOWABLE STRESSES FOR MATERIALS USED IN DEEP FOUNDATION ELEMENTS

MATERIAL TYPE AND CONDITION	MAXIMUM ALLOWABLE STRESS[a]
3. ~~Structural steel~~ Steel in compression	
Cores within concrete-filled pipes or tubes	0.5 $F_y \le$ 32,000 psi
Pipes, tubes or H-piles, where justified in accordance with Section 1810.3.2.8	0.5 $F_y \le$ 32,000 psi
Pipes or tubes for micropiles	0.4 $F_y \le$ 32,000 psi
Other pipes, tubes or H-piles	0.35 $F_y \le$ 16,000 psi
Helical piles	0.6 $F_y \le$ 0.5 F_u
5. ~~Structural steel~~ Steel in tension	
Pipes, tubes or H-piles, where justified in accordance with Section 1810.3.2.8	0.5 $F_y \le$ 32,000 psi
Other pipes, tubes or H-piles	0.35 $F_y \le$ 16,000 psi
Helical piles	0.6 $F_y \le$ 0.5 F_u

a. f'_c is the specified compressive strength of the concrete or grout; f_{pc} is the compressive stress on the gross concrete section due to effective prestress forces only; f_y is the specified yield strength of reinforcement; F_y is the specified minimum yield stress of ~~structural~~ steel; F_u is the specified minimum tensile stress of ~~structural~~ steel.

(Portions of Table not shown remain unchanged)

1810.3.5.3.1 Structural steel H-piles. Sections of structural steel H-piles shall comply with the requirements for HP shapes in ASTM A6, or the following:

1. The flange projections shall not exceed 14 times the minimum thickness of metal in either the flange or the web and the flange widths shall not be less than 80 percent of the depth of the section.
2. The nominal depth in the direction of the web shall not be less than 8 inches (203 mm).
3. Flanges and web shall have a minimum nominal thickness of 3/8 inch (9.5 mm).

1810.3.5.3.2 Fully welded steel piles fabricated from plates. Sections of fully welded steel piles fabricated from plates shall comply with the following:

1. The flange projections shall not exceed 14 times the minimum thickness of metal in either the flange or the web and the flange widths shall not be less than 80 percent of the depth of the section.
2. The nominal depth in the direction of the web shall not be less than 8 inches (203 mm).
3. Flanges and web shall have a minimum nominal thickness of 3/8 inch (9.5 mm).

1810.3.5.3.3 Structural steel sheet piling. Individual sections of structural steel sheet piling shall conform to the profile indicated by the manufacturer, and shall conform to the general requirements specified by ASTM A 6.

Add new standard to Chapter 35 as follows:

ASTM

A6/A6M-11 Standard Specifications for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling

Reason: Section 1810.3.2.3 of this proposal improves the clarity of Section 1810.3.2.3 as it applies to steel foundation elements. First, it coordinates the title with the language that follows. Structural steel is defined in Section 202 and steel pipe piles and fully welded steel piles do not necessarily fall into that classification. Second, the section assigns the appropriate ASTM references to the applicable foundation elements. ASTM A 252 applies only to steel pipe piles. ASTM A 913 and ASTM A 992 both apply to structural shapes and not plates, thus they are not appropriate for fully welded steel piles fabricated from plates. Finally, ASTM A 6 has been added as the appropriate reference for the material requirements for H-piles and another common steel foundation system -- sheet piling. Since ASTM A 6 includes references to all of the applicable listed ASTM standards – ASTM A 36, ASTM A 572, ASTM A 690, ASTM A 913, or ASTM A 992 – duplicate reference of those standards is not necessary for H-piles and sheet piling.

Table 1810.3.2.6 of this proposal coordinates the title change in Section 1810.3.2.3 with requirements in Table 1810.3.2.6. Structural steel is defined in Section 202 and steel pipe and fully welded steel piles do not necessarily fall into that classification, but the intent is to apply the allowable stress limits to those sections as well. Consequently, the term "structural" has been deleted.

1810.3.5.3.1, 1810.3.5.3.2 of this proposal clarifies the Section 1810.3.5.3 by separating the requirements for structural steel H-piles from fully welded steel piles fabricated from plates and adding a new section on structural steel sheet piling. Within the section on structural steel H-piles, Section 1810.3.5.3.1, reference is made to ASTM A 6 for HP shapes, which automatically satisfy the three specified dimensional limitations. Additionally, allowance is made for other structural steel H-pile shapes, if they meet the three dimensional limitations. Clarifying language is added as a new Section 1810.3.5.3.2 permitting the three dimensional limitations to be applied to fully welded steel piles fabricated from plates. Finally, Section 1810.3.5.3.3 is introduced for structural steel sheet piling requiring that the profiles conform to manufacturer's specifications and the general requirements in ASTM A 6.

Chapter 35 of this proposal adopts the latest edition of ASTM A 6 into Chapter 35.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of ASTM D 7147 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This code change corrects and clarifies the requirements for steel foundation elements and adds a necessary material referenced standard.

Assembly Action: **None**

Final Hearing Results

S187-12 **AS**

Code Change No: S190-12

Original Proposal

Section(s): 1810.3.3.1.6

Proponent: Lori A. Simpson, P.E., GE, Treadwell & Rollo, a Langan Company, representing Deep Foundations Institute

Revise as follows:

1810.3.3.1.6 Uplift capacity of grouped deep foundation elements. For grouped deep foundation elements subjected to uplift, the allowable working uplift load for the group shall be calculated by an *approved* method of analysis. Where the deep foundation elements in the group are placed at a center-to-center spacing ~~of at least 2.5~~ less than three times the least horizontal dimension of the largest single element, the allowable working uplift load for the group is permitted to be calculated as the lesser of:

1. The proposed individual allowable working uplift ~~working~~ load times the number of elements in the group.
2. Two-thirds of the effective weight of the group and the soil contained within a block defined by the perimeter of the group and the length of the element, plus two-thirds of the ultimate shear resistance long the soil block.

Reason: A period is added because there was a run on sentence which rendered the section unclear. Also, the spacing is clarified to be consistent with Section 1810.2.5. Section 1810.3.3.1.6 had defined the need to evaluate group effects where spacing is at least 2.5 times the least horizontal dimension, but did not define a maximum spacing at which group effects did not need to be evaluated. The minimum spacing for evaluation of group effects on uplift capacity is not appropriate. Section 1810.2.5 says that group effects only need to be evaluated where the spacing is less than 3 times the least horizontal dimension, so that is repeated herein for consistency.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1810.3.3.1.6 Uplift capacity of grouped deep foundation elements. For grouped deep foundation elements subjected to uplift, the allowable working uplift load for the group shall be calculated by ~~an *approved*~~ a generally accepted method of analysis. Where the deep foundation elements in the group are placed at a center-to-center spacing less than three times the least horizontal dimension of ~~the largest single~~ an element, the allowable working uplift load for the group is permitted to be calculated as the lesser of:

1. The proposed individual allowable working uplift load times the number of elements in the group.
2. Two-thirds of the effective weight of the group and the soil contained within a block defined by the perimeter of the group and the length of the element, plus two-thirds of the ultimate shear resistance along the soil block.

Committee Reason: Approval of these group effect clarifications is consistent with the committee's action on S185-12. The modification substitutes preferred wording that is intended to allow standard practice in various regions.

Assembly Action: **None**

Public Comments

Public Comment:

Lori A. Simpson, P.E., G.E., Treadwell & Rollo, a Langan Company, representing Deep Foundations Institute, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

1810.3.3.1.6 Uplift capacity of grouped deep foundation elements. For grouped deep foundation elements subjected to uplift, the allowable working uplift load for the group shall be calculated by a generally accepted method of analysis. Where the deep foundation elements in the group are placed at a center-to-center spacing less than three times the least horizontal dimension of ~~an~~ the largest single element, the allowable working uplift load for the group is permitted to be calculated as the lesser of:

1. The proposed individual allowable working uplift load times the number of elements in the group.
2. Two-thirds of the effective weight of the group and the soil contained within a block defined by the perimeter of the group and the length of the element, plus two-thirds of the ultimate shear resistance along the soil block.

Commenter's Reason: The text "of the largest single" was deleted during the Code Change Proposal Hearing, however, it was realized that some foundation elements may have different dimensions (a belled pier, for example); in evaluating if the deep foundation elements are less than three times the least horizontal dimension, the least horizontal dimension of the largest element should be used. Therefore, the text "of the largest single" should be put back in.

Final Hearing Results

S190-12 **AMPC**

Code Change No: S196-12

Original Proposal

Section(s): 1903.1, 1903.2 (NEW), Chapter 35 (NEW)

Proponent: Stephen V. Skalko, Portland Cement Association

Revise as follows:

1903.1 General. Materials used to produce concrete, concrete itself and testing thereof shall comply with the applicable standards listed in ACI 318.

Exception. The following standards as referenced in Chapter 35 shall be permitted to be used.

1. ASTM C 150
2. ASTM C 595
3. ASTM C 1157

1903.2 Special Inspections. *Where required, special inspections and tests shall be in accordance with Chapter 17.*

Add new standards to Chapter 35:

ASTM

C150-12 Specification for Portland Cement

C595-12 Specification for Blended Hydraulic Cement

C1157-11 Standard Performance Specification for Hydraulic Cement

Reason: To update the specifications standards for Portland Cement, Blended Hydraulic Cement, and Hydraulic Cement referenced for use in concrete. Due to the change in the IBC code development cycle, ACI 318-11 may be the edition finally referenced for concrete in IBC 2015. ACI 318-11 references the 2009 editions of C150, C595 and C1157, which would be more than five years out of date by 2015.

ASTM Committee C01 approved modifications included in the most recent editions of these cement standards that are compatible with ACI 318-11 or ACI 318-14 and provide improvements to the standards as follows:

ASTM C150-12

Compared to ASTM C150-09 referenced in ACI 318-11, ASTM C150-12 includes revisions that:

1. Make the air permeability test the default method for determining compliance with specific surface fineness requirements and moves determination by the turbidimetric method to the optional table. This reflects industry practice.
2. Clarification on Type II (MH) moderate heat and moderate sulfate resistant cement heat index requirements, clarification on procedure for determining potential phase (Bogue) composition, and some additional minor improvements. No changes are made to the physical or chemical requirements of C150.

Additionally, compared to ASTM C150-07*a* referenced in IBC 2012 Chapter 35, ASTM C150-12 includes revisions to:

1. Distinguish between organic and inorganic processing additions and include a limit of 5% on inorganic processing additions and 1% on organic processing additions.
2. Modify procedures for determining potential phase composition to account for effect of inorganic processing additions in cement on potential phase composition calculations.
3. Include provisions for a Type II (MH) designation for moderate heat and moderate sulfate resistant cement.
4. Various other minor improvements. Again no changes were made to the physical or chemical requirements of C150 for portland cements.

The variations in product that will result from the use of C150-12 versus C150-07 will not adversely impact the performance of concrete with regard to compliance with ACI 318 or the provisions of the IBC.

C595-12

Compared to C595-09 referenced in ACI 318-11, ASTM C595-12 includes revisions to:

1. Include provisions for a new Type IL portland-limestone blended cement designation for cement containing from 5% to 15% limestone. C595 Type IL has same physical requirements as Type IP and IS (<70), which are also comparable to ASTM C150 physical requirements. Portland-limestone cement provides an alternative for improving the sustainability of concrete.
2. Several clarifications and improvements to the C595 provisions for Type IT ternary blended cements.
3. Clarifications and improvements to C595 naming practice used to identify amount slag, pozzolan or limestone contained in blended cements.

Additionally, compared to C595-08a referenced in IBC 2012 Chapter 35, ASTM C595-12 also includes provisions for Type IT ternary blended cement (cements containing portland cement with either a combination of two different pozzolans, or slag cement and a pozzolan, a pozzolan and a limestone, or a slag cement and a limestone). Ternary blended cements have the same physical requirements as Type IT and Type IS (<70) cements. Ternary blended cements were first introduced in the 2009 edition of ASTM C595.

The variations in product that will result from the use of C595-12 versus C595-08a will not adversely impact the performance of concrete with regard to compliance with ACI 318 or the provisions of the IBC.

ASTM C1157-12

Compared to C1157-09 referenced in ACI 318-11, ASTM C595-12 includes revisions to:

1. Include provisions for distinguishing between air entraining and non air-entraining C1157 cements with appropriate designations and limits consistent with those of ASTM C150 and C595 for air entraining and non air entraining cements.
2. A minor modification to correct the significant figures for minimum strength limits for SI unit values listed in Table 1.

The variations in product that will result from the use of C1157-12 versus C1157-09 will not adversely impact the performance of concrete with regard to compliance with ACI 318 or the provisions of the IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Errata: Updates to ASTM C 150 & C 595 moved to administrative standards update in Group B

Add new standards to Chapter 35:

ASTM
~~C150-12 Specification for Portland Cement~~
~~C595-12 Specification for Blended Hydraulic Cement~~
C1157-11 Standard Performance Specification for Hydraulic Cement

(Portions of proposal not shown are unchanged)

Note: For staff analysis of the content of ASTM C 1157 relative to CP#28, Section 3.6, please visit:
http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This proposal updates concrete construction requirements by adding a new referenced standard which will includes up-to-date requirements for hydraulic cement.

Assembly Action: **None**

Final Hearing Results

S196-12 **AS**

Code Change No: S199-12

Original Proposal

Section(s): 1904.1, 1904.2, Figure 1904.2, Table 1904.2

Proponent: Matthew Senecal, P.E., American Concrete Institute (ACI)

Delete and substitute as follows:

~~**1904.1 Exposure categories and classes.** Concrete shall be assigned to exposure classes in accordance with the durability requirements of ACI 318 based on:~~

~~1. Exposure to freezing and thawing in a moist condition or deicer chemicals;~~
~~2. Exposure to sulfates in water or soil;~~
~~3. Exposure to water where the concrete is intended to have low permeability; and~~
~~4. Exposure to chlorides from deicing chemicals, salt, saltwater, brackish water, seawater or spray from these sources, where the concrete has steel reinforcement.~~

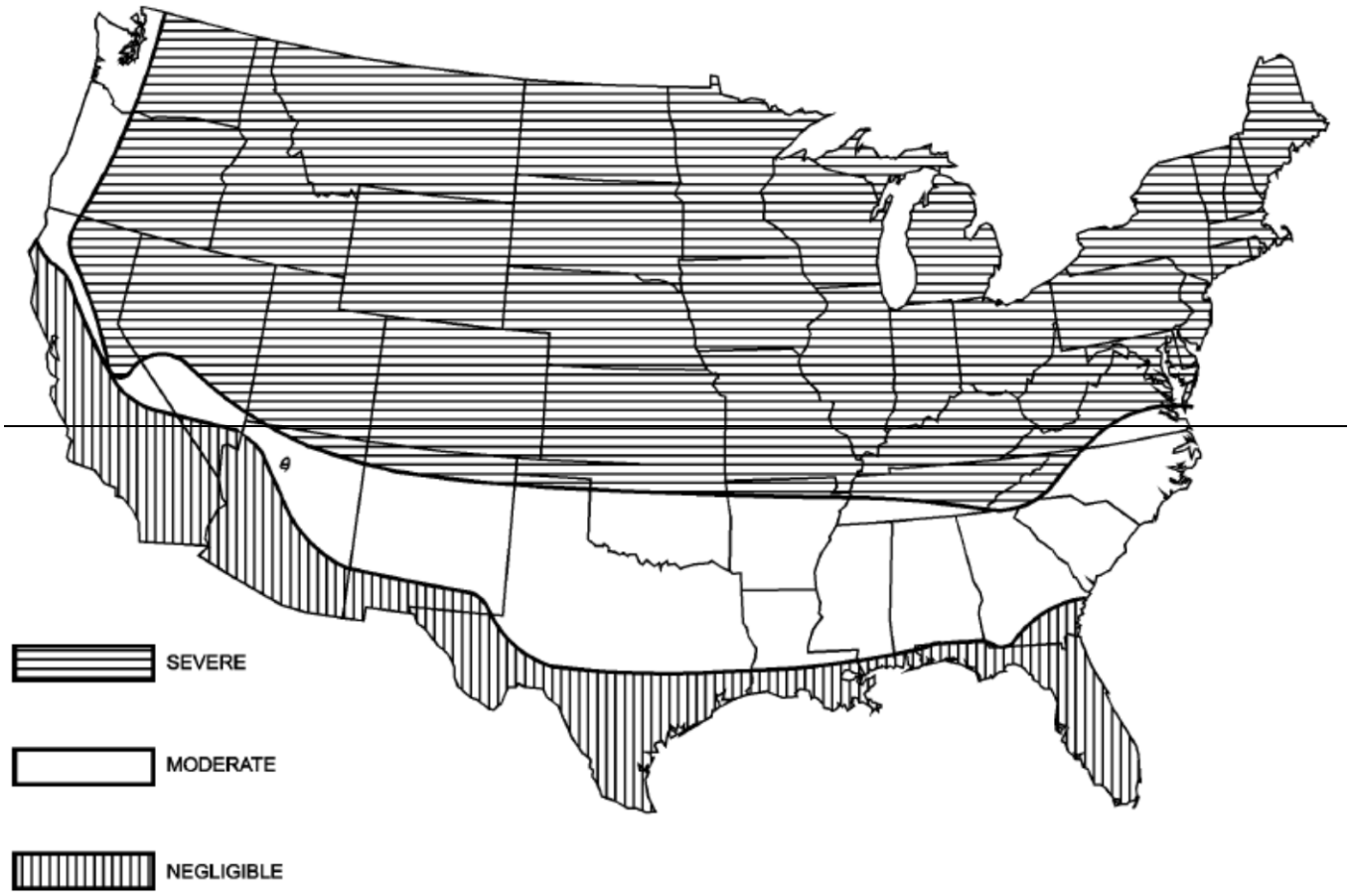
~~**1904.2 Concrete properties.** Concrete mixtures shall conform to the most restrictive maximum water-cementitious materials ratios, maximum cementitious admixtures, minimum air entrainment and minimum specified concrete compressive strength requirements of ACI 318 based on the exposure classes assigned in Section 1904.1.~~

~~**Exception:** For occupancies and appurtenances thereto in Group R occupancies that are in buildings less than four stories above grade plane, normal-weight aggregate concrete is permitted to comply with the requirements of Table 1904.2 based on the weathering classification (freezing and thawing) determined from Figure 1904.2 in lieu of the durability requirements of ACI 318.~~

~~**TABLE 1904.2**~~
~~**MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'_c)**~~

~~TYPE OR LOCATION OF CONCRETE CONSTRUCTION~~	~~MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'_c at 28 days, psi)~~		
	~~Negligible exposure~~	~~Moderate exposure~~	~~Severe exposure~~
~~Basement walls[c] and foundations not exposed to the weather~~	~~2,500~~	~~2,500~~	~~2,500[a]~~
~~Basement slabs and interior slabs on grade, except garage floor slabs~~	~~2,500~~	~~2,500~~	~~2,500[a]~~
~~Basement walls[c], foundation walls, exterior walls and other vertical concrete surfaces exposed to the weather~~	~~2,500~~	~~3,000[b]~~	~~3,000[b]~~
~~Driveways, curbs, walks, patios, porches, carport slabs, steps and other flatwork exposed to the weather, and garage floor slabs~~	~~2,500~~	~~3,000[b,d]~~	~~3,500[b,d]~~

~~For SI: 1 pound per square inch = 0.00689 MPa.~~
~~a. Concrete in these locations that can be subjected to freezing and thawing during construction shall be of air-entrained concrete in accordance with Section 1904.2.~~
~~b. Concrete shall be air entrained in accordance with ACI 318.~~
~~c. Structural plain concrete basement walls are exempt from the requirements for exposure conditions of Section 1904.2.~~
~~d. For garage floor slabs where a steel trowel finish is used, the total air content required by ACI 318 is permitted to be reduced to not less than 3 percent, provided the minimum specified compressive strength of the concrete is increased to 4,000 psi.~~



~~FIGURE 1904.2~~
~~WEATHERING PROBABILITY MAP FOR CONCRETE[a,b,c]~~

~~a. Lines defining areas are approximate only. Local areas can be more or less severe than indicated by the region classification.~~
~~b. A "severe" classification is where weather conditions encourage or require the use of deicing chemicals or where there is potential for a continuous presence of moisture during frequent cycles of freezing and thawing. A "moderate" classification is where weather conditions occasionally expose concrete in the presence of moisture to freezing and thawing, but where deicing chemicals are not generally used. A "negligible" classification is where weather conditions rarely expose concrete in the presence of moisture to freezing and thawing.~~
~~c. Alaska and Hawaii are classified as severe and negligible, respectively.~~

1904.1 Structural concrete. Structural concrete shall conform to the durability requirements of ACI 318.

1904.2 Nonstructural concrete. The registered design professional shall assign nonstructural concrete a freeze-thaw exposure class, as defined in ACI 318, based on the anticipated exposure of nonstructural concrete. Nonstructural concrete shall have a minimum specified compressive strength, f'_c, of 2500 psi for Class F0; 3000 psi for Class F1; and 3500 psi for Classes F2 and F3. Nonstructural concrete shall be air entrained in accordance with ACI 318.

Reason: This proposal replaces the weathering probability map with ACI 318's performance requirements; removes the exception for structural concrete; and clarifies the durability requirements for nonstructural concrete.

Probability map: The weathering probability map for concrete can be inaccurate since it is possible to have "severe," "moderate," or "negligible" environments in any of the predefined zones shown on the map. ACI 318 requires the designer to classify concrete into one of the freezing and thawing classes as follows:

F0 – Concrete not exposed to freezing-and-thawing cycles
F1 – Concrete exposed to freezing-and-thawing cycles and occasional exposure to moisture

F2 – Concrete exposed to freezing-and-thawing cycles and in continuous contact with moisture
F3 – Concrete exposed to freezing-and-thawing cycles and in continuous contact with moisture and exposed to deicing chemicals

The concrete classes must be applied by the designer, regardless of geographic location. The commentary to ACI 318 provides further discussion and examples to help the designer determine the appropriate class. It is therefore recommended to remove the map and adopt the ACI 318 approach.

Table: The first and second rows of the table provide limits for interior concrete. Interior concrete is equivalent to Class F0 in ACI 318, which requires a minimum concrete compressive strength of 2500 psi. Therefore, the minimum concrete compressive strength requirements listed in the first two rows are the same as the minimum requirements of ACI 318 and may be removed.

The third row of the table provides an exception for exterior structural concrete walls above or below ground. The exception allows for 3000 psi concrete for any environment other than "negligible" or Class F0. Research[1-2] shows that concrete with a minimum amount of hydrated cement resists the negative effects of freezing and thawing. ACI 318 has determined that 4500 psi concrete provides adequate cement hydration for the range of available concrete mixtures used in construction. It is therefore recommended to remove this exception for structural concrete.

The fourth row of the table states strength limits for exterior nonstructural concrete. ACI 318 does not have durability requirements for nonstructural concrete. Therefore, these limits are not an exception to 318 but a requirement. These limits are simply restated in terms of exposure classes as shown in the revision. The limitation on building category and concrete type have been removed, since this appears to be a misunderstanding of what is required in ACI 318.

References:

1. Klieger, P., 1956, "Curing Requirements for Scale Resistance of Concrete," Highway Research Board Bulletin 150, pp.18-31. (PCA Bulletin 82)
2. Mather, B., 1990, "How to Make Concrete that will be Immune to the Effects of Freezing and Thawing," Paul Klieger Symposium on Performance of Concrete, SP-122, D. Whiting, ed., American Concrete Institute, Farmington Hills, MI, pp. 1-18.

Cost Impact: The code change proposal may increase the cost of construction for structural concrete but decrease the cost for nonstructural concrete. By changing the requirement from geometric location to performance criteria, the cost will increase or decrease depending on location and exposure.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal promotes coordination with ACI 318 durability requirements. A public comment is encouraged to bring back the current IBC exception for Group R occupancies with appropriate limitations.

Assembly Action: **None**

Public Comments

Public Comment 2:

Gary J. Ehrlich, P.E. National Association of Home Builders (NAHB), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1904.1 Structural concrete. Structural concrete shall conform to the durability requirements of ACI 318.

Exception: For Group R-2 and R-3 occupancies not more than three stories above grade plane, the specified compressive strength, f'c, for concrete in basement walls, foundation walls, exterior walls and other vertical surfaces exposed to the weather shall be not less than 3000 psi.

1904.2 Nonstructural concrete. The registered design professional shall assign nonstructural concrete a freeze-thaw exposure class, as defined in ACI 318, based on the anticipated exposure of nonstructural concrete. Nonstructural concrete shall have a minimum specified compressive strength, f'_c, of 2500 psi for Class F0; 3000 psi for Class F1; and 3500 psi for Classes F2 and F3. Nonstructural concrete shall be air entrained in accordance with ACI 318.

SECTION 202
DEFINITIONS

NONSTRUCTURAL CONCRETE. Any element made of plain or reinforced concrete that is not part of a structural system required to transfer either gravity or lateral loads to the ground.

Commenter's Reason: The purpose of this public comment is to restore an exemption from the ACI 318 durability requirements for Group R-2 and R-3 occupancies. A definition for "nonstructural concrete" is also added for increased clarity, so that a code user does not have to go to ACI 318 first to decide whether Section 1904.1 or 1904.2 applies.

Group R-3 occupancies are typically one- and two-family dwellings and townhouses either constructed in jurisdictions that have not adopted the IRC, or that are outside the scope of the IRC limits for the purposes of the structural design. Reasons for the latter include being in areas prone to Category 3 or higher hurricanes, assigned to Seismic Design Category E, irregular dwellings in other moderate or high-Seismic Design Categories, or dwellings that exceed wall and story height limits. These dwellings often are designed without the involvement of an engineer and using the provisions of Section 2308 or prescriptive engineering-based standards such as ICC-600 or the Wood Frame Construction Manual. In these cases, the builder or designer has used prescriptive concrete requirements such as the Section 1904.2 exception and Table 1904.2 that were in the 2012 IBC and previous editions in lieu of purchasing and designing to ACI 318.

Group R-2 covers a range of residential buildings where the dwelling units or sleeping units are occupied for more than a month. Many of the structures covered under this group, such as fraternity and sorority houses, back-to-back rows of townhouses, and low-rise "garden style" condominium and apartment buildings typically containing 8-12 units. These structures are very similar in construction and loading to R-3 structures and often also designed using Section 2308 or other prescriptive standards.

This will maintain consistency between dwellings constructed to the IRC and those designed using the IBC, as well as between Group R-3 structures and similar Group R-2 structures. Otherwise, the IBC through reference to ACI 318 will require 4500 psi for concrete exposed to freeze/thaw action or deicing chemicals in Group R-3 structures, where such concrete has traditionally been designed using 3000 psi concrete. It is also noted that ACI 332 *Building Code Requirements for Residential Concrete*, which is referenced in the IRC, also specifies 3000 psi concrete for this condition. Since neither the IRC nor ACI 332 use the new exposure classes (F0, F1, F2, F3), the traditional "exposed to the weather" language is also retained.

Final Hearing Results

S199-12 **AMPC2**

Code Change No: S203-12

Original Proposal

Section(s): 1905.1, 1905.1.1, 1905.1.3, 1905.1.4

Proponent: Matthew Senecal, P.E., American Concrete Institute (ACI)

Revise as follows:

1905.1 General. The text of ACI 318 shall be modified as indicated in Sections 1905.1.1 through ~~1905.1.10~~ 1905.1.9.

~~***WALL PIER.*** *A wall segment with a horizontal length-tothickness ratio of at least 2.5, but not exceeding 6, whose clear height is at least two times its horizontal length.*~~

1905.1.3 ACI 318, Section 21.4. Modify ACI 318, Section 21.4, by adding new Section 21.4.3 and renumbering existing Section 21.4.3 to become 21.4.4. ~~and adding new Sections 21.4.3, 21.4.5, 21.4.6 and 21.4.7 to read as follows:~~

21.4.3 - Connections that are designed to yield shall be capable of maintaining 80 percent of their design strength at the deformation induced by the design displacement or shall use Type 2 mechanical splices.

21.4.4 - Elements of the connection that are not designed to yield shall develop at least 1.5 S_y.

~~*21.4.5 - Wall piers in Seismic Design Category D, E or F shall comply with Section 1905.1.4 of the International Building Code.*~~

~~*21.4.6 - Wall piers not designed as part of a moment frame in buildings assigned to Seismic Design Category C shall have transverse reinforcement designed to resist the shear forces determined from 21.3.3. Spacing of transverse reinforcement shall not exceed 8 inches (203 mm). Transverse reinforcement shall be extended beyond the pier clear height for at least 12 inches (305 mm).*~~

~~***Exceptions:***~~

~~1. *Wall piers that satisfy 21.13.*~~
~~2. *Wall piers along a wall line within a story where other shear wall segments provide lateral support to the wall piers and such segments have a total stiffness of at least six times the sum of the stiffnesses of all the wall piers.*~~

~~*21.4.7 - Wall segments with a horizontal length-to thickness ratio less than 2.5 shall be designed as columns.*~~

~~**1905.1.4 ACI 318, Section 21.9.** Modify ACI 318, Section 21.9, by deleting Section 21.9.8 and replacing with the following:~~

~~*21.9.8 - Wall piers and wall segments.*~~

~~*21.9.8.1 - Wall piers not designed as a part of a special moment frame shall have transverse reinforcement designed to satisfy the requirements in 21.9.8.2.*~~

~~***Exceptions:***~~

~~*1. Wall piers that satisfy 21.13.*~~
~~*2. Wall piers along a wall line within a story where other shear wall segments provide lateral support to the wall piers and such segments have a total stiffness of at least six times the sum of the stiffnesses of all the wall piers.*~~

~~*21.9.8.2 - Transverse reinforcement with seismic hooks at both ends shall be designed to resist the shear forces determined from 21.6.5.1. Spacing of transverse reinforcement shall not exceed 6 inches (152 mm). Transverse reinforcement shall be extended beyond the pier clear height for at least 12 inches (305 mm).*~~

~~*21.9.8.3 - Wall segments with a horizontal length-to thickness ratio less than 2.5 shall be designed as columns.*~~

Reason: This proposal removes the requirements for wall piers. Wall pier requirements are in 1905 because ACI 318-08 did not address the design of this component. ACI 318 incorporated wall pier design in the 2011 edition. Therefore, these amendments should now be removed.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

1905.1.3 ACI 318, Section 21.4. Modify ACI 318, Section 21.4, by adding new Section 21.4.3 and renumbering existing Sections 21.4.3 and 21.4.4 to become 21.4.4 and 21.4.5, respectively.

21.4.3 - Connections that are designed to yield shall be capable of maintaining 80 percent of their design strength at the deformation induced by the design displacement or shall use Type 2 mechanical splices.

21.4.4 - Elements of the connection that are not designed to yield shall develop at least 1.5 S_y.

21.4.5 – In structures assigned to SDC D, E, or F, wall piers shall be designed in accordance with 21.9 or 21.13 *in ACI 318*.

(Portions of proposal not shown are unchanged)

Committee Reason: The committee feels that adopting these provisions for wall piers from the consensus standard with fewer modifications allows that process to work. The modification reflects a renumbered section that keeps the ACI 318 provision intact.

Assembly Action: **None**

Final Hearing Results

S203 **AM**

Code Change No: S213-12

Original Proposal

Section(s): Table 1705.3, 1908, 1908.1, 1908.2, Table 1908.2, 1908.3, 1908.4, 1908.5

Proponent: Stephen V. Skalko, Portland Cement Association

Proponent: Matthew Senecal, P.E., American Concrete Institute (ACI)

Revise as follows:

TABLE 1705.3
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]	IBC REFERENCE
3. Inspection of anchors cast in concrete ~~where allowable loads have been increased or where strength design is used~~.	—	X	ACI 318: 8.1.3, 21.2.8	~~1908.5,~~ 1909.1

(Portions of Table not shown remain unchanged)

Delete without substitution:

~~**SECTION 1908 ANCHORAGE TO CONCRETE—ALLOWABLE STRESS DESIGN**~~

~~**1908.1 Scope.** The provisions of this section shall govern the *allowable stress design* of headed bolts and headed stud anchors cast in normal-weight concrete for purposes of transmitting structural loads from one connected element to the other. These provisions do not apply to anchors installed in hardened concrete or where load combinations include earthquake loads or effects. The bearing area of headed anchors shall be not less than one and one-half times the shank area. Where strength design is used, or where load combinations include earthquake loads or effects, the design strength of anchors shall be determined in accordance with Section 1909. Bolts shall conform to ASTM A 307 or an *approved* equivalent.~~

~~**1908.2 Allowable service load.** The allowable service load for headed anchors in shear or tension shall be as indicated in Table 1908.2. Where anchors are subject to combined shear and tension, the following relationship shall be satisfied:~~

~~$(Ps / Pt)5/3 + (Vs / Vt) 5/3 \leq 1$ **(Equation 19-1)**~~

~~where:~~

~~*Ps* = Applied tension service load, pounds (N).~~
~~*Pt* = Allowable tension service load from Table 1908.2, pounds (N).~~
~~*Vs* = Applied shear service load, pounds (N).~~
~~*Vt* = Allowable shear service load from Table 1908.2, pounds (N).~~

TABLE 1908.2
ALLOWABLE SERVICE LOAD ON EMBEDDED BOLTS (pounds)

BOLT DIAMETER (inches)	MINIMUM EMBEDMENT (inches)	EDGE DISTANCE (inches)	SPACING (inches)	MINIMUM CONCRETE STRENGTH (psi)					
				f_c' = 2,500		f_c' = 3,000		f_c' = 4,000	
				Tension	Shear	Tension	Shear	Tension	Shear
1/4	2-1/2	1-1/2	3	200	500	200	500	200	500
3/8	3	2-1/4	4-1/2	500	1,100	500	1,100	500	1,100
1/2	4 4	3 5	6 6	950 1,450	1,250 1,600	950 1,500	1,250 1,650	950 1,550	1,250 1,750
5/8	4-1/2 4-1/2	3-3/4 6-1/4	7-1/2 7-1/2	1,500 2,125	2,750 2,950	1,500 2,200	2,750 3,000	1,500 2,400	2,750 3,050
3/4	5 5	4-1/2 7-1/2	9 9	2,250 2,825	3,250 4,275	2,250 2,950	3,560 4,300	2,250 3,200	3,560 4,400
7/8	6	5-1/4	10-1/2	2,550	3,700	2,550	4,050	2,550	4,050
1	7	6	12	3,050	4,125	3,250	4,500	3,650	5,300
1-1/8	8	6-3/4	13-1/2	3,400	4,750	3,400	4,750	3,400	4,750
1-1/4	9	7-1/2	15	4,000	5,800	4,000	5,800	4,000	5,800

1908.3 Required edge distance and spacing. The allowable service loads in tension and shear specified in Table 1908.2 are for the edge distance and spacing specified. The edge distance and spacing are permitted to be reduced to 50 percent of the values specified with an equal reduction in allowable service load. Where edge distance and spacing are reduced less than 50 percent, the allowable service load shall be determined by linear interpolation.

1908.4 Increase in allowable load. Increase of the values in Table 1908.2 by one-third is permitted where the provisions of Section 1605.3.2 permit an increase in allowable stress for wind loading.

1908.5 Increase for special inspection. Where *special inspection* is provided for the installation of anchors, a 100- percent increase in the allowable tension values of Table 1908.2 is permitted. No increase in shear value is permitted.

Reason: This proposal removes allowable stress design for anchoring to concrete. This approach to anchor design is not consistent with the standards published by ACI, AISC, or ASCE

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change removes out of date provisions for concrete anchorage using allowable stress design.

Assembly Action: **None**

Final Hearing Results

S213-12 **AS**

Code Change No: S215-12

Original Proposal

Section(s): Table 1705.3, 1901.3 (NEW), 1909

Proponent: Matthew Senecal, P.E, American Concrete Institute (ACI)

Revise as follows:

TABLE 1705.3
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]	IBC REFERENCE
3. Inspection of anchors cast in concrete where allowable loads have been increased or where strength design is used.	—	X	ACI 318: D.9.2 ~~8.1.3, 21.1.8~~	1908.5, ~~1909.1~~
4. Inspection of anchors post-installed in hardened concrete members[b] ~~.~~:	~~—~~	~~X~~	~~ACI 318: 3.8.6, 8.1.3, 21.1.8~~	~~1909.1~~
a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads	X		ACI 318: D.9.2.4	—
b. Mechanical anchors and adhesive anchors not defined in 4.a.		X	ACI 318: D.9.2	—

b. Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with ~~ACI 355.2~~ D.9.2 in ACI 318, or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.

(Portions of table not shown remain unchanged)

1901.3 Anchoring to concrete. Anchoring to concrete shall be in accordance with ACI 318 as amended in Section 1905, and applies to cast-in (headed bolts, headed studs, and hooked J- or L-bolts) anchors and post-installed expansion (torque-controlled and displacement-controlled), undercut, and adhesive anchors.

Delete without substitution:

~~SECTION 1909~~
~~ANCHORAGE TO CONCRETE—STRENGTH DESIGN~~

~~**1909.1 Scope.** The provisions of this section shall govern the strength design of anchors installed in concrete for purposes of transmitting structural loads from one connected element to the other. Headed bolts, headed studs and hooked (J- or L-) bolts cast in concrete and expansion anchors and undercut anchors installed in hardened concrete shall be designed in accordance with Appendix D of ACI 318 as modified by Sections 1905.1.9 and 1905.1.10, provided they are within the scope of Appendix D.~~

~~The strength design of anchors that are not within the scope of Appendix D of ACI 318, and as amended in Sections 1905.1.9 and 1905.1.10, shall be in accordance with an *approved* procedure.~~

Reason: Requirements for the design and installation of adhesive anchors was included in ACI 318-11. Requirements for continuous inspection were added for adhesive anchors installed horizontally or in upwardly inclined orientations with sustained loads.

The difficulty of installing adhesive anchors greatly increases when gravity works to drain the placed epoxy out of the predrilled hole. For consistent installation, trained personnel are essential.

Under sustained tension loads, epoxy will creep and debond as evidenced by the epoxy anchors that supported the ceiling panels in the I-90 connector tunnel in Boston. A proper installation is critical in this case and requires continuous inspection.

In the interest of writing concise code language, recommend deleting this section 1909 and providing a general requirement just after 1901.2, “Plain and reinforced concrete.”

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal updates the special inspection requirements for concrete anchors to be based on the latest edition of ACI 318.

Assembly Action: **None**

Final Hearing Results

S215-12 **AS**

Code Change No: S217-12

Original Proposal

Section(s): 1911, 2501.1.1, 2514 (NEW)

Proponent: Matthew Senecal, P.E., American Concrete Institute (ACI) and Michael Gardner, Gypsum Association

Revise as follows:

SECTION ~~1911~~ 2514 REINFORCED GYPSUM CONCRETE

~~1911.1~~ 2514.1 General. Reinforced gypsum concrete shall comply with the requirements of ASTM C 317 and ASTM C 956.

~~1911.2~~ 2514.2 Minimum thickness. The minimum thickness of reinforced gypsum concrete shall be 2 inches (51 mm) except the minimum required thickness shall be reduced to 11/2 inches (38 mm), provided the following conditions are satisfied:

1. The overall thickness, including the formboard, is not less than 2 inches (51 mm).
2. The clear span of the gypsum concrete between supports does not exceed 33 inches (838 mm).
3. Diaphragm action is not required.
4. The design live load does not exceed 40 pounds per square foot (psf) (1915 Pa).

2501.1.1 General. Provisions of this chapter shall govern the materials, design, construction and quality of gypsum board, lath, gypsum plaster ~~and~~ cement plaster, and reinforced gypsum concrete.

Reason: The design and construction of gypsum concrete roof decks and slabs are governed by ASTM C317 and ASTM C956. The product is gypsum-based and maintained by the ASTM C 11 Gypsum Products group; thus, making it more appropriate for inclusion in Chapter 25.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee concurs with the proponent that the gypsum concrete provisions more appropriately belong in Chapter 25.

Assembly Action: **None**

Final Hearing Results

S217-12 **AS**

Code Change No: S218-12

Original Proposal

Section(s): 1901.3 (NEW), 1912

Proponent: Matthew Senecal, P.E., American Concrete Institute (ACI)

Revise as follows:

1901.3 Composite structural steel and concrete structures. Systems of structural steel acting compositely with reinforced concrete shall be designed in accordance with Section 2206 of this code.

~~**SECTION 1912 CONCRETE-FILLED PIPE COLUMNS**~~

~~**1912.1 General.** Concrete-filled pipe columns shall be manufactured from standard, extra-strong or double-extra-strong steel pipe or tubing that is filled with concrete so placed and manipulated as to secure maximum density and to ensure complete filling of the pipe without voids.~~

~~**1912.2 Design.** The safe supporting capacity of concrete filled pipe columns shall be computed in accordance with the *approved* rules or as determined by a test.~~

~~**1912.3 Connections**. Caps, base plates and connections shall be of *approved* types and shall be positively attached to the shell and anchored to the concrete core. Welding of brackets without mechanical anchorage shall be prohibited. Where the pipe is slotted to accommodate webs of brackets or other connections, the integrity of the shell shall be restored by welding to ensure hooping action of the composite section.~~

~~**1912.4 Reinforcement.** To increase the safe load-supporting capacity of concrete-filled pipe columns, the steel reinforcement shall be in the form of rods, structural shapes or pipe embedded in the concrete core with sufficient clearance to ensure the composite action of the section, but not nearer than 1 inch (25 mm) to the exterior steel shell. Structural shapes used as reinforcement shall be milled to ensure bearing on cap and base plates.~~

~~**1912.5 Fire-resistance-rating protection.** Pipe columns shall be of such size or so protected as to develop the required fire-resistance ratings specified in Table 601. Where an outer steel shell is used to enclose the fire protective covering, the shell shall not be included in the calculations for strength of the column section. The minimum diameter of pipe columns shall be 4 inches (102 mm) except that in structures of Type V construction not exceeding three *stories above grade plane* or 40 feet (12 192 mm) in *building height*, pipe columns used in basements and as secondary steel members shall have a minimum diameter of 3 inches (76 mm).~~

~~**1912.6 Approvals.** Details of column connections and splices shall be shop fabricated by *approved* methods and shall be *approved* only after tests in accordance with the *approved* rules. Shop-fabricated concrete-filled pipe columns shall be inspected by the *building official* or by an *approved* representative of the manufacturer at the plant.~~

Reason: The design and construction of concrete-filled pipe columns is covered in the reference standards stated in 2206 of this code. The requirements above are not complete nor have they been maintained. Recommend adding a general statement that directs the user to the appropriate section.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

704.2 Column protection. Where columns are required to have protection to be fire-resistance rated, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column length, including connections to other structural members, with materials having the required fire-resistance rating. Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

Where a concrete-filled pipe column or hollow structural section is used, protection shall not be required provided the composite section is designed in accordance with Appendix 4 of AISC 360. Pipe columns or hollow structural sections shall be a minimum of 4 inches (102 mm) in diameter.

Exception: In structures of Type V construction no exceeding three stories above grade plane or 40 feet (12 1992 mm) in building height, pipe columns or hollow structural sections used in basements or as secondary steel members shall be permitted to be a minimum of 3 inches (76 mm) in diameter.

(Portions of proposal not shown are unchanged)

Committee Reason: This code change replaces obsolete requirements in Chapter 19 of the IBC with a reference to Section 2206. The modification retains provisions allowing unprotected concrete-filled pipe columns by adding them to Section 704.2.

Assembly Action: **None**

Final Hearing Results

S218 **AM**

Code Change No: S219-12

Original Proposal

Section(s): 202, 2101.2, 2101.2.1, 2101.2.2, 2101.2.3, 2101.2.4, 2101.2.5, 2101.2.7, 2101.3, 2101.3.1, 2102.1, 2111.2

Proponent: Jason Thompson, National Concrete Masonry Association, representing Masonry Alliance for Codes and Standards (jthompson@ncma.org), Phil Samblanet, Masonry Alliance for Codes and Standards, representing The Masonry Society (psamblanet@masonrysociety.org)

Delete without substitution:

SECTION 202
DEFINITIONS

~~**ANCHOR.** Metal rod, wire or strap that secures *masonry* to its structural support.~~

Revise as follows:

2101.2 Design methods. Masonry shall comply with the provisions of ~~one of the following design methods in this chapter~~ TMS 402/ACI 530/ASCE 5 or TMS 403 as well as the ~~requirements of Sections 2101 through 2104. Masonry designed by the *allowable stress design* provisions of Section 2101.2.1, the strength design provisions of Section 2101.2.2, the prestressed masonry provisions of Section 2101.2.3, or the direct design requirements of Section 2101.2.7 shall comply with Section 2105~~ applicable requirements of this chapter.

~~**2101.2.1 Allowable stress design.** Masonry designed by the *allowable stress design* method shall comply with the provisions of Sections 2106 and 2107.~~

~~**2101.2.2 Strength design.** Masonry designed by the strength design method shall comply with the provisions of Sections 2106 and 2108, except that autoclaved aerated concrete (AAC) masonry shall comply with the provisions of Section 2106 and Chapter 1 and Appendix A of TMS 402/ACI 530/ASCE 5.~~

~~**2101.2.3 Prestressed masonry.** Prestressed masonry shall be designed in accordance with Chapters 1 and 4 of TMS 402/ACI 530/ASCE 5 and Section 2106. *Special inspection* during construction shall be provided as set forth in Section 1705.4.~~

~~**2101.2.4 Empirical design.** Masonry designed by the empirical design method shall comply with the provisions of Sections 2106 and 2109 or Chapter 5 of TMS 402/ACI 530/ASCE 5.~~

~~**2101.2.5 Glass unit masonry.** Glass unit masonry shall comply with the provisions of Section 2110 or Chapter 7 of TMS 402/ACI 530/ASCE 5.~~

~~**2101.2.6**~~ **2101.2.1 Masonry veneer.** Masonry veneer shall comply with the provisions of Chapter 14 ~~or Chapter 6 of TMS 402/ACI 530/ASCE 5~~.

~~**2101.2.7 Direct design.** Masonry designed by the direct design method shall comply with the provisions of TMS 403.~~

~~**2101.3 Construction documents.** The *construction documents* shall show all of the items required by this code including the following:~~

~~1. Specified size, grade, type and location of reinforcement, anchors and wall ties.~~
~~2. Reinforcing bars to be welded and welding procedure.~~
~~3. Size and location of structural elements.~~
~~4. Provisions for dimensional changes resulting from elastic deformation, creep, shrinkage, temperature and moisture.~~
~~5. Loads used in the design of masonry.~~
~~6. Specified compressive strength of masonry at stated ages or stages of construction for which masonry is designed, except where specifically exempted by this code.~~
~~7. Details of anchorage of masonry to structural members, frames and other construction, including the type, size and location of connectors.~~
~~8. Size and permitted location of conduits, pipes and sleeves.~~
~~9. The minimum level of testing and inspection as defined in Chapter 17, or an itemized testing and inspection program that meets or exceeds the requirements of Chapter 17.~~

2101.3 Special Inspection. The special inspection of masonry shall be as defined in Chapter 17, or an itemized testing and inspection program shall be provided that meets or exceeds the requirements of Chapter 17.

~~**2101.3.1**~~ **2111.2 Fireplace drawings.** The *construction documents* shall describe in sufficient detail the location, size and construction of masonry fireplaces. The thickness and characteristics of materials and the clearances from walls, partitions and ceilings shall be indicated.

2102.1 General. For the purposes of this chapter and as used elsewhere in this code, the following terms are defined in Chapter 2:

~~**ANCHOR.**~~

Reason: Section 2101 provides a series of pointers to specific sections of the IBC as well as the referenced masonry standards that, due largely to the evolution of Chapter 21 over time, has become a source of confusion. In addition, the 2013 edition of TMS 402 standard has been substantially reorganized to be more user friendly; requiring in turn that a number of the Chapters and Sections referenced in TMS 402 be updated. Instead of updating these pointers, this change proposal simply consolidates the charging language of Section 2101. No technical change is intended or implied. Specific discussion related to this change:
1) The reference to Chapter 14 for masonry veneers is maintained as Chapter 14 addresses some types of masonry veneer not covered by the reference standard (for example, anchored stone veneer). Chapter 14 already contains a reference to Chapter 6 of the reference standard.
2) The construction document requirements of Section 2101.3 are virtually identical to the requirements of Section 1.2.2 of TMS 402 and are therefore proposed to be deleted.
3) Although somewhat redundant, a reference to Chapter 17 for special inspection is maintained as a new Section 2101.3 to reinforce compliance with these requirements.
4) Section 2101.3.1 for fireplace drawings is relocated to Section 2111.2, which covers requirements specific to fireplaces.
5) While the term anchor (or anchorage) is used generically throughout the IBC for all types of building materials, this term (as applied specifically to masonry construction) is used only in Section 2101.3, which is proposed for deletion. As such, the IBC definition is proposed for deletion as well. The definition of 'anchor' in TMS 402 is identical to the IBC definition.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The removal of unnecessary portions of 2101 cleans up this section and will provide better coordination with the TMS 402 standard.

Assembly Action: **None**

Final Hearing Results

S219-12 **AS**

Code Change No: S220-12

Original Proposal

Section(s): 202

Proponent: Phillip Brazil, P.E., S.E., Reid Middleton, Inc., representing self (pbrazil@reidmiddleton.com)

Revise as follows:

CLEANOUT (for Chapter 21). An opening to the bottom of a grout space of sufficient size and spacing to allow the removal of debris.

DIMENSIONS (for Chapter 21).

Nominal. The *specified* dimension plus an allowance for the *joints* with which the units are to be laid. Nominal dimensions are usually stated in whole numbers. Thickness is given first, followed by height and then length.
Specified. Dimensions specified for the manufacture or construction of a unit, *joint* or element.

~~**EXISTING CONSTRUCTION.** Any buildings and structures for which the *start of construction* commenced before the effective date of the community's first flood plain management code, ordinance or standard. "Existing construction" is also referred to as "existing structures."~~

~~**EXISTING STRUCTURE (For Section 1612.2).** See "Existing construction".~~

FOUNDATION PIER (for Chapter 21). An isolated vertical foundation member whose horizontal dimension measured at right angles to its thickness does not exceed three times its thickness and whose height is equal to or less than four times its thickness.

OTHER STRUCTURES (for Chapters 16-23). Structures, other than buildings, for which *loads* are specified in Chapter 16.

WALL (for Chapter 21). A vertical element with a horizontal length-to-thickness ratio greater than three, used to enclose space.

Cavity wall. A wall built of *masonry units* or of concrete, or a combination of these materials, arranged to provide an airspace within the wall, and in which the inner and outer parts of the wall are tied together with metal ties.
Composite wall. A wall built of a combination of two or more *masonry units* bonded together, one forming the backup and the other forming the facing elements.
Dry-stacked, surface-bonded wall. A wall built of concrete *masonry units* where the units are stacked dry, without *mortar* on the bed or *head joints*, and where both sides of the wall are coated with a surface-bonding *mortar*.
Masonry-bonded hollow wall. A multi-*wythe* wall built of *masonry units* arranged to provide an air space between the *wythes* and with the *wythes* bonded together with *masonry units.*
Parapet wall. The part of any wall entirely above the roof line.

Reason: The purpose for this proposal is to adjust the definitions in Section 202 to (1) clarify their purpose and (2) to correct errors from approved changes in previous ICC code development cycles that were not made in the building code.

Adding "for Chapter 21" to the definitions of "cleanout," "dimensions," "foundation pier" and "wall" is done to reduce their applicability to what is their intended purpose, namely the structural provisions for masonry in Chapter 21. The terms are sufficiently common in use to justify this action and will make them consistent with the definitions of "area," "cell," "shear wall" and "strength," which are identified in a similar manner.

Adding "for Chapter 21" to the definition of "wall" is also done because of ICC Proposal FS85-07/08-AS, Part II, which added to Section 2102.1 after the definition of "wall" the following: "The definition of 'wall' is limited in application to the provisions of Chapter 21." I was the proponent of this proposal and I requested that this be posted as errata but a posting did not occur nor was the language incorporated into later printings of the 2009 IBC or into the 2012 IBC.

The definitions of "existing construction" and "existing structure" are being deleted because they serve no purpose in the building code. There are no instances of "existing construction" in the 2012 IBC other than as shown in this proposal. There are numerous instances of "existing structure" in the 2012 IBC but there are none in Section 1612 and the definition of "existing structure" is limited to that section as specified in Section 202.

The addition of "for Chapters 16-23" to the definition of "other structures" is because of the use of the term in other sections of the building code (e.g., Sections 402.6.2, 424.3 and 3102.1). The source document for the term is ASCE 7 and it was in 2009 IBC Section 1602.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: Approved as Modified

Modify proposal as follows:

EXISTING STRUCTURE~~(For Chapter 34)~~. A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building *permit* has been issued. For application of provisions in flood hazard areas, an existing structure is any building or structure for which the start of construction commenced before the effective date of the community's first floodplain management code, ordinance or standard.

3403.2 Flood hazard areas. For buildings and structures in *flood hazard areas* established in Section 1612.3, any *addition* that constitutes substantial improvement of the existing structure~~, as defined in Section 1612.2,~~ shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3, any additions that do not constitute substantial improvement of the existing structure~~, as defined in Section 1612.2,~~ are not required to comply with the flood design requirements for new construction.

3404.2 Flood hazard areas. For buildings and structures in *flood hazard areas* established in Section 1612.3, any *alteration* that constitutes *substantial improvement* of the *existing structure*~~, as defined in Section 1612.2,~~ shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3, any *alterations* that do not constitute *substantial improvement* of the *existing structure*~~, as defined in Section 1612.2,~~ are not required to comply with the flood design requirements for new construction.

3405.5 Flood hazard areas. For buildings and structures in *flood hazard areas* established in Section 1612.3, any *repair* that constitutes substantial improvement of the existing structure~~, as defined in Section 1612.2,~~ shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3, any *repairs* that do not constitute substantial improvement or repair of substantial damage of the existing structure~~, as defined in Section 1612.2,~~ are not required to comply with the flood design requirements for new construction.

3409.2 Flood hazard areas. Within *flood hazard areas* established in accordance with Section 1612.3, where the work proposed constitutes *substantial improvement* ~~as defined in Section 1612.2~~, the building shall be brought into compliance with Section 1612.

Exception: *Historic buildings* that are:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places;
2. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district; or
3. Designated as historic under a state or local historic preservation program that is *approved* by the Department of Interior.

(Portions of proposal not shown are unchanged)

Committee Reason: This proposal deletes unnecessary definitions and when and where certain definitions apply. The modification retains verbiage from the definition of existing construction that is important in applying the flood provision to Chapter 34.

Assembly Action: None

Final Hearing Results

S220 **AM**

Code Change No: S222-12

Original Proposal

Section(s): 202, 2102.1, 2103.1, 2103.2, 2103.3, 2103.4, 2103.5, 2103.6, 2103.7, 2103.8, 2103.9, 2103.12, 2103.13, 2103.14

Proponent: Jason Thompson, National Concrete Masonry Association, representing Masonry Alliance for Codes and Standards, (jthompson@nema.org), Phil Samblanet, Masonry Alliance for Codes and Standards, representing The Masonry Society (psamblanet@masonrysociety.org)

Delete without substitution:

SECTION 202
DEFINITIONS

~~**THIN-BED MORTAR.** *Mortar* for use in construction of AAC unit masonry with *joints* 0.06 inch (1.5 mm) or less.~~

Revise as follows:

2102.1 General. For the purposes of this chapter and as used elsewhere in this code, the following terms are defined in Chapter 2:

~~**THIN-BED MORTAR.**~~

2103.1 Masonry units. Concrete masonry units, clay or shale masonry units, stone masonry units, glass unit masonry, and AAC masonry units shall comply with Article 2.3 of TMS 602/ACI 530.1/ASCE 6. Architectural cast stone shall conform to ASTM C1364.

~~**2103.1 Concrete masonry units.** Concrete masonry units shall conform to the following standards: ASTM C 55 for concrete brick; ASTM C 73 for calcium silicate face brick; ASTM C 90 for load-bearing concrete masonry units or ASTM C 744 for prefaced concrete and calcium silicate masonry units.~~

~~**2103.2 Clay or shale masonry units.** Clay or shale masonry units shall conform to the following standards: ASTM C 34 for structural clay *load-bearing wall* tile; ASTM C 56 for structural clay nonload-bearing wall tile; ASTM C 62 for building brick (solid masonry units made from clay or shale); ASTM C 1088 for solid units of thin veneer brick; ASTM C 126 for ceramic-glazed structural clay facing tile, facing brick and solid masonry units; ASTM C 212 for structural clay facing tile; ASTM C 216 for facing brick (solid masonry units made from clay or shale); ASTM C 652 for hollow brick (hollow masonry units made from clay or shale) or ASTM C 1405 for glazed brick (single-fired solid brick units).~~

> **Exception:** Structural clay tile for nonstructural use in fireproofing of structural members and in wall furring shall not be required to meet the compressive strength specifications. The fire-resistance rating shall be determined in accordance with ASTM E 119 or UL 263 and shall comply with the requirements of Table 602.

~~**2103.3 AAC masonry.** AAC masonry units shall conform to ASTM C 1386 for the strength class specified.~~

~~**2103.4 Stone masonry units.** Stone masonry units shall conform to the following standards: ASTM C 503 for marble building stone (exterior); ASTM C 568 for limestone building stone; ASTM C 615 for granite building stone; ASTM C 616 for sandstone building stone; or ASTM C 629 for slate building stone.~~

~~**2103.5 Architectural cast stone.** Architectural cast stone shall conform to ASTM C 1364.~~

~~**2103.6 Ceramic tile.** Ceramic tile shall be as defined in, and shall conform to the requirements of, ANSI A137.1.~~

~~**2103.7 Glass unit masonry.** Hollow glass units shall be partially evacuated and have a minimum average glass face thickness of 3/16 inch (4.8 mm). Solid glass block units shall be provided when required. The surfaces of units intended to be in contact with mortar shall be treated with a polyvinyl butyral coating or latex-based paint. Reclaimed units shall not be used.~~

~~**2103.8**~~ **2103.1.1 Second-hand units.** Second-hand masonry units shall not be reused unless they conform to the requirements of new units. The units shall be of whole, sound materials and free from cracks and other defects that will interfere with proper laying or use. Old mortar shall be cleaned from the unit before reuse.

~~**2103.9 Mortar.** Mortar for use in masonry construction shall conform to ASTM C 270 and Articles 2.1 and 2.6 A of TMS 602/ACI 530.1/ASCE 6, except for mortars listed in Sections 2103.10, 2103.11 and 2103.12. Type S or N mortar conforming to ASTM C 270 shall be used for glass unit masonry.~~

2103.2 Mortar. Mortar for masonry construction shall comply with Section 2103.2.1, 2103.2.2, or 2103.2.3.

2103.2.1 Masonry mortar. Mortar for use in masonry construction shall conform to Articles 2.1 and 2.6 A of TMS 602/ACI 530.1/ASCE 6.

~~**2103.10**~~ **2103.2.2 Surface-bonding mortar.** Surface-bonding mortar shall comply with ASTM C 887. Surface bonding of concrete masonry units shall comply with ASTM C 946.

~~**2103.11**~~ **2103.2.3 Mortars for ceramic wall and floor tile.** Portland cement mortars for installing ceramic wall and floor tile shall comply with ANSI A108.1A and ANSI A108.1B and be of the compositions indicated in Table 2103.11.

~~**2103.12 Mortar for AAC masonry.** Thin-bed mortar for AAC masonry shall comply with Article 2.1 C.1 of TMS 602/ ACI 530.1/ASCE 6. Mortar used for the leveling courses of AAC masonry shall comply with Article 2.1 C.2 of TMS 602/ ACI 530.1/ASCE 6.~~

~~**2103.13**~~ **2103.3 Grout.** Grout shall comply with Article 2.2 of TMS 602/ACI 530.1/ASCE 6.

~~**2103.14**~~ **2103.4 Metal reinforcement and accessories.** Metal reinforcement and accessories shall conform to Article 2.4 of TMS 602/ACI 530.1/ASCE 6. Where unidentified reinforcement is *approved* for use, not less than three tension and three bending tests shall be made on representative specimens of the reinforcement from each shipment and grade of reinforcing steel proposed for use in the work.

Reason: The modifications proposed here simply consolidate the material requirements of Section 2103 by referencing the appropriate articles in TMS 602 instead of transcribing these provisions into the IBC. No substantive change is intended or implied. Some provisions are maintained in Section 2103 as they are not addressed by TMS 602. These include: architectural cast stone meeting ASTM C1364, compressive strength exemptions for structural clay tile used as fireproofing, second-hand units, surface-bonding mortar, mortars for tile, and testing of unidentified reinforcement and accessories.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agrees with replacing 2103 material references with appropriate reference to the TMS 402 standard.

Assembly Action: **None**

Final Hearing Results

S222-12 **AS**

Code Change No: S225-12

Original Proposal

Section(s): 2104.1, 2104.1.1, 2104.1.2, 3104.1.3, 2104.1.4, 2104.1.5, 2104.1.6, 2104.2, 2104.2.1, 2104.3, 2104.4

Proponent: Jason Thompson, National Concrete Masonry Association, representing Masonry Alliance for Codes and Standards (jthompson@nema.org), Phil Samblanet, The Masonry Society, representing The Masonry Society (psamblanet@masonrysociety.org)

Revise as follows:

2104.1 Masonry construction. Masonry construction shall comply with the requirements of Sections ~~2104.1.1 through 2104.4~~ 2104.1.1, 2104.1.2 and with TMS 602/ACI 530.1/ASCE 6.

~~**2104.1.1 Tolerances.** Masonry, except masonry veneer, shall be constructed within the tolerances specified in TMS 602/ACI 530.1/ASCE 6.~~

~~**2104.1.2 Placing mortar and units.** Placement of mortar, grout, and clay, concrete, glass, and AAC masonry units shall comply with TMS 602/ACI 530.1/ASCE 6.~~

~~**2104.1.3 Installation of wall ties.** Wall ties shall be installed in accordance with TMS 602/ACI 530.1/ASCE 6.~~

~~**2104.1.4 Chases and recesses.** Chases and recesses shall be constructed as masonry units are laid. Masonry directly above chases or recesses wider than 12 inches (305 mm) shall be supported on lintels.~~

~~**2104.1.5 Lintels.** The design for lintels shall be in accordance with the masonry design provisions of either Section 2107 or 2108.~~

~~**2104.1.6**~~ **2104.1.1 Support on wood.** Masonry shall not be supported on wood girders or other forms of wood construction except as permitted in Section 2304.12.

~~**2104.2 Corbeled masonry.** Corbeled masonry shall comply with the requirements of Section 1.12 of TMS 402/ACI 530/ ASCE 5.~~

~~**2104.2.1**~~ **2104.1.2 Molded cornices.** Unless structural support and anchorage are provided to resist the overturning moment, the center of gravity of projecting masonry or molded cornices shall lie within the middle one-third of the supporting wall. Terra cotta and metal cornices shall be provided with a structural frame of *approved* noncombustible material anchored in an *approved* manner.

~~**2104.3 Cold weather construction.** The cold weather construction provisions of TMS 602/ACI 530.1/ASCE 6, Article 1.8 C, shall be implemented when the ambient temperature falls below 40°F (4°C).~~

~~**2104.4 Hot weather construction.** The hot weather construction provisions of TMS 602/ACI 530.1/ASCE 6, Article 1.8 D, shall be implemented when the ambient air temperature exceeds 100°F (37.8°C), or 90°F (32.2°C) with a wind velocity greater than 8 mph (12.9 km/hr).~~

Reason: The modifications proposed here simply consolidate the masonry construction requirements of Section 2104 by referencing the requirements of TMS 602 instead of transcribing these provisions into the IBC. No substantive change is intended or implied. Some provisions are maintained in Section 2104 as they are not addressed by TMS 602. These include: support of masonry on wood construction and support/anchorage of molded cornices and terra cotta.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal removes duplicate language from Section 2104 to better coordinate masonry construction requirements with the TMS 402 standard.

Assembly Action: **None**

Final Hearing Results

S225-12 **AS**

Code Change No: S226-12

Original Proposal

Section(s): 202, 2102.1, 2105.1 thru 2105.3.3

Proponent: Jason Thompson, National Concrete Masonry Association, representing Masonry Alliance for Codes and Standards (jthompson@ncma.org), Phil Samblanet, The Masonry Society, representing The Masonry Society (psamblanet@masonrysociety.org)

Delete without substitution:

SECTION 202
DEFINITIONS

~~**COMPRESSIVE STRENGTH OF MASONRY.** Maximum compressive force resisted per unit of net cross-sectional *area* of *masonry*, determined by the testing of masonry *prisms*.~~

~~**PRISM.** An assemblage of *masonry units* and *mortar* with or without grout used as a test specimen for determining properties of the *masonry*.~~

Revise as follows:

2102.1 General. For the purposes of this chapter and as used elsewhere in this code, the following terms are defined in Chapter 2:

~~**COMPRESSIVE STRENGTH OF MASONRY.**~~

~~**PRISM**~~

~~**SECTION 2105**~~
~~**QUALITY ASSURANCE**~~

~~**2105.1 General.**~~

~~**2105.2 Acceptance relative to strength requirements.**~~

~~**2105.2.1 Compliance with *f'm* and *f'AAC*.**~~

~~**2105.2.2 Determination of compressive strength.**~~

~~**2105.2.2.1 Unit strength method.**~~

~~**2105.2.2.1.1 Clay masonry.**~~

~~**TABLE 2105.2.2.1.1**~~
~~**COMPRESSIVE STRENGTH OF CLAY MASONRY**~~

~~**2105.2.2.1.2 Concrete masonry.**~~

~~**TABLE 2105.2.2.1.2**~~
~~**COMPRESSIVE STRENGTH OF CONCRETE MASONRY**~~

~~**2105.2.2.1.3 AAC masonry.**~~

~~**2105.2.2.2 Prism test method.**~~

~~**2105.2.2.2.1 General.**~~

~~**2105.2.2.2.2 Number of prisms per test.**~~

~~**2105.3 Testing prisms from constructed masonry.**~~

~~**2105.3.1 Prism sampling and removal.**~~

~~**2105.3.2 Compressive strength calculations.**~~

~~**2105.3.3 Compliance.**~~

SECTION 2105
QUALITY ASSURANCE

2105.1 General. A quality assurance program shall be used to ensure that the constructed masonry is in compliance with the *construction documents*.

The quality assurance program shall comply with the inspection and testing requirements of Chapter 17 and TMS 602/ACI 530.1/ASCE 6.

Reason: The modifications proposed here simply consolidate the masonry quality assurance requirements of Section 2105 by referencing the requirements of TMS 602 instead of transcribing these provisions into the IBC. No substantive change is intended or implied. The provisions of Section 2105 are virtually identical to the corresponding requirements in TMS 602.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change removes masonry QA material that does not need to be in the building code since the virtually identical TMS 602 requirements can be referenced.

Assembly Action: **None**

Final Hearing Results

S226-12 **AS**

Code Change No: S228-12

Original Proposal

Section(s): 2108.3

Proponent: Charles S. Bajnai, Chesterfield County, VA, representing ICC Building Code Action Committee

Revise as follows:

2108.3 TMS 402/ACI 530/ASCE 5, Section 3.3.3.4, splices. Modify items (c) and (d) of Section 3.3.3.4 as follows:

3.3.3.4 (c). A welded splice shall have the bars butted and welded to develop at least 125 percent of the yield strength, f_y, of the bar in tension or compression, as required. Welded splices shall be of ASTM A 706 steel reinforcement. Welded splices shall not be permitted in plastic hinge zones of intermediate or special reinforced walls ~~or special moment frames of masonry~~.

3.3.3.4 (d). Mechanical splices shall be classified as Type 1 or 2 according to Section 21.2.6.1 of ACI 318. Type 1 mechanical splices shall not be used within a plastic hinge zone or within a beam-column joint of intermediate or special reinforced masonry shear walls ~~or special moment frames~~. Type 2 mechanical splices are permitted in any location within a member.

Reason: The International Code Council's Building Code Action Committee was asked to look at addressing the "special moment frames" reference in the code. This term actually refers to masonry wall frames [a.k.a. special moment frames] which were located in Section 2108.9.6 of the 2000 IBC. The requirements for masonry wall frames were removed from the IBC by code change S145-02 which, along with S122-02, substituted a reference to the strength requirements of the 2002 MSJC for the masonry strength design provisions of the IBC. No other current code or standard contains requirements for masonry wall frames so the reference serves no purpose. The committee also conferred with the Masonry Society and it was affirmed that the deletion of this term is appropriate.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal removes unnecessary wording referring to a masonry structural system that is not used.

Assembly Action: **None**

Final Hearing Results

S228-12 **AS**

Code Change No: S229-12

Original Proposal

Section(s): 2111.1, 2111.3, 2111.4, 2113.1, 2113.3, 2113.4

Proponent: Charles S. Bajnai, Chesterfield County, VA, representing ICC Building Code Action Committee (bajnaic@chesterfield.gov)

Revise as follows:

SECTION 2111
MASONRY FIREPLACES

~~**2111.1 Definition.** A masonry fireplace is a fireplace constructed of concrete or masonry. Masonry fireplaces shall be constructed in accordance with this section.~~

2111.1 General. The construction of masonry fireplaces consisting of concrete or masonry shall be in accordance with this section.

~~**2111.3 Seismic reinforcing.** In structures assigned to Seismic Design Category A or B, reinforcement and seismic anchorage are not required. Masonry or concrete fireplaces shall be constructed, anchored, supported and reinforced as required in this chapter. In structures assigned to *Seismic Design Category* C or D, masonry and concrete fireplaces shall be reinforced and anchored as detailed in Sections 2111.3.1, 2111.3.2, 2111.4 and 2111.4.1 for chimneys serving fireplaces. In structures assigned to *Seismic Design Category* E or F, masonry and concrete chimneys shall be reinforced in accordance with the requirements of Sections 2101 through 2108.~~

2111.3 Seismic reinforcing. In structures assigned to *Seismic Design Category* A or B, seismic reinforcement is not required. In structures assigned to *Seismic Design Category* C or D, masonry fireplaces shall be reinforced and anchored as detailed in Sections 2111.3.1, 2111.3.2 and 2111.4. In structures assigned to *Seismic Design Category* E or F, masonry fireplaces shall be reinforced in accordance with the requirements of Sections 2101 through 2108.

~~**2111.4 Seismic anchorage.** Masonry and concrete chimneys in structures assigned to *Seismic Design Category* C or D shall be anchored at each floor, ceiling or roof line more than 6 feet (1829 mm) above grade, except where constructed completely within the *exterior walls*. Anchorage shall conform to the following requirements.~~

2111.4 Seismic anchorage.. Masonry fireplaces and foundations shall be anchored at each floor, ceiling or roof line more than 6 feet (1829 mm) above grade with two 3/16-inch by 1-inch (4.8 mm by 25 mm) straps embedded a minimum of 12 inches (305 mm) into the chimney. Straps shall be hooked around the outer bars and extend 6 inches (152 mm) beyond the bend. Each strap shall be fastened to a minimum of four floor joists with two 1/2-inch (12.7 mm) bolts.

Exception: Seismic anchorage is not required for the following;

1. In structures assigned to *Seismic Design Category* A or B.
2. Where the masonry fireplace is constructed completely within the *exterior walls*.

~~**2111.4.1 Anchorage.** Two 3/16-inch by 1-inch (4.8 mm by 25.4 mm) straps shall be embedded a minimum of 12 inches (305 mm) into the chimney. Straps shall be hooked around the outer bars and~~

~~extend 6 inches (152 mm) beyond the bend. Each strap shall be fastened to a minimum of four floor joists with two 1/2-inch (12.7 mm) bolts.~~

~~**2113.1 Definition.** A masonry chimney is a chimney constructed of solid masonry units, hollow masonry units grouted solid, stone or concrete, hereinafter referred to as "masonry." Masonry chimneys shall be constructed, anchored, supported and reinforced as required in this chapter.~~
2113.1 General. The construction of masonry chimneys consisting of solid masonry units, hollow masonry units grouted solid, stone or concrete shall be in accordance with this section.

~~**2113.3 Seismic reinforcing.** Masonry or concrete chimneys shall be constructed, anchored, supported and reinforced as required in this chapter. In structures assigned to *Seismic Design Category* C or D, masonry and concrete chimneys shall be reinforced and anchored as detailed in Sections 2113.3.1, 2113.3.2 and 2113.4. In structures assigned to *Seismic Design Category* A or B, reinforcement and Seismic anchorage is not required. In structures assigned to *Seismic Design Category* E or F, masonry and concrete chimneys shall be reinforced in accordance with the requirements of Sections 2101 through 2108.~~

2113.3 Seismic reinforcing. In structures assigned to *Seismic Design Category* A or B, seismic reinforcement is not required. In structures assigned to *Seismic Design Category* C or D, masonry chimneys shall be reinforced and anchored as detailed in Sections 2113.3.1, 2113.3.2 and 2113.4. In structures assigned to *Seismic Design Category* E or F, masonry chimneys shall be reinforced in accordance with the requirements of Sections 2101 through 2108 and anchored as detailed in Section 2113.4.

~~**2113.4 Seismic anchorage.** Masonry and concrete chimneys and foundations in structures assigned to *Seismic Design Category* C or D shall be anchored at each floor, ceiling or roof line more than 6 feet (1829 mm) above grade, except where constructed completely within the *exterior walls*. Anchorage shall conform to the following requirements.~~

2113.4 Seismic anchorage.. Masonry chimneys and foundations shall be anchored at each floor, ceiling or roof line more than 6 feet (1829 mm) above grade with two 3/16-inch by 1-inch (4.8 mm by 25 mm) straps embedded a minimum of 12 inches (305 mm) into the chimney. Straps shall be hooked around the outer bars and extend 6 inches (152 mm) beyond the bend. Each strap shall be fastened to a minimum of four floor joists with two 1/2-inch (12.7 mm) bolts.

Exception: Seismic anchorage is not required for the following;

1. In structures assigned to *Seismic Design Category* A or B.
2. Where the masonry fireplace is constructed completely within the *exterior walls*.

~~**2113.4.1 Anchorage.** Two 3/16-inch by 1-inch (4.8 mm by 25 mm) straps shall be embedded a minimum of 12 inches (305 mm) into the chimney. Straps shall be hooked around the outer bars and extend 6 inches (152 mm) beyond the bend. Each strap shall be fastened to a minimum of four floor joists with two 1/2-inch (12.7 mm) bolts.~~

Reason: The ICC Building Code Action Committee was asked to look at several concerns with sections 2111 and 2113.

First, it was suggested that a definition for masonry fireplaces and chimneys be added to section 202 instead of the current code language that provides a definition of masonry fireplaces and masonry chimneys within the text of the code, Sections 2111.1 and 2113.1 respectively. However, the was the opinion of the committee that definitions are not necessary for this section. The word "Definitions" is proposed to be removed from the titles of Section 2111.1 and Section 2113.1 as shown and the language was modified from the current "defining" language to be "directive" language. No technical changes were made.

Secondly, there have been errors in the code masonry fireplaces and masonry chimneys were split into two separate sections (S261-99). Sections 2111.3 and 2111.4 refer to seismic reinforcement and anchorage for **fireplaces** while 2113.3 and 2113.4 refer to the seismic reinforcement and anchorage requirements for **chimneys**.

In section 2111.3 it states that "In structures assigned to Seismic Design Category C or D, masonry and concrete **fireplaces** shall be reinforced and anchored….." Then the following sentence says, "In structures assigned to Seismic Design Category E or F, masonry and concrete **chimneys** shall be reinforced in accordance with….". Section 2111 is describing **fireplaces** while 2113 describes **chimneys.** So, the reference to "chimneys" should be to "fireplaces". In addition to the wrong word being used, as

written, it implies that fireplaces in SDC C and D are required to be “anchored” while (by omission due to the wrong word) they are not required to be “anchored” in SDC E and F.

In this proposal, sections 2111.3 and 2113.3 have been re-written to address those items as well as to re-organize them to be more clear. In addition, the “Seismic anchorage” and “Anchorage” sections 2111.4/2111.4.1 and 2113.4/2113.4.1, respectively, have been combined for clarity and to remove unnecessary language.

No technical changes have been made and no additional requirements have been added to either section.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change removes confusing language in order to clarify the requirements for fireplaces and chimneys.

Assembly Action: **None**

Final Hearing Results

S229-12 **AS**

Code Change No: S234-12

Original Proposal

Section(s): 2112.2, 2112.5, Chapter 35 (NEW)

Proponent: Timothy N. Seaton, B.S.C.E, Empire Masonry Heaters LLC (tseaton@masonryheater.com)

Revise as follows:

2112.2 Installation. Masonry heaters shall be installed in accordance with this section and comply with one of the following:

1. Masonry heaters shall comply with the requirements of ASTM E 1602; or
2. Masonry heaters shall be *listed* and labeled in accordance with UL 1482 or EN 15250 and installed in accordance with the manufacturer's installation instructions.

2112.5 Masonry heater clearance. Combustible materials shall not be placed within 36 inches (765 mm) of the outside surface of a masonry heater in accordance with NFPA 211, Section 8-7 (clearances for solid fuel-burning appliances), and the required space between the heater and combustible material shall be fully vented to permit the free flow of air around all heater surfaces.

Exceptions:

1. When the masonry heater wall thickness is at least 8 inches (203 mm) thick of solid masonry and the wall thickness of the heat exchange channels is at least 5 inches (127 mm) thick of solid masonry, combustible materials shall not be placed within 4 inches (102 mm) of the outside surface of a masonry heater. A clearance of at least 8 inches (203 mm) shall be provided between the gas-tight capping slab of the heater and a combustible ceiling.
2. Masonry heaters *listed* and labeled in accordance with UL 1482 or EN 15250 and installed in accordance with the manufacturer's instructions.

Add new standard to Chapter 35 as follows:

EN

EN 15250 - Slow heat release appliances fired by solid fuel – Requirements and test methods

Reason: UL 1482, *Solid-Fuel Type Room Heaters*, was created to evaluate wood stoves and similar appliances. It does not address thermal mass storage devices of masonry construction such as masonry heaters and contains significant deficiencies in evaluating them. Specifically, UL 1482 stipulates fueling the appliance until temperature equilibrium is reached at which point the safety clearances are verified. This is not an appropriate end of test for masonry heaters and cannot in testing application actually be clearly reached. While UL 1482 may eventually be modified to specifically address masonry heaters, in 2007 the European standard EN 15250, *Slow heat release appliances fired by solid fuel. Requirements and test method,* was finalized specifically to address masonry heaters and similar devices and has since been adopted by 37 countries in Europe and elsewhere. Since Europe is the original source of virtually all masonry heater technology and since IBC already references European Union standards elsewhere, it is appropriate to reference this standard here. EN 15250 stipulates the same allowable temperature elevations of adjacent combustible materials as UL 1482 but uses an appropriate test fueling method.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Note: For staff analysis of the content of EN 15250 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: The committee believes that the proposed reference standard is appropriate for masonry heaters. It provides an option to the current UL 1482 standard. EN 15250 is different, but not unsafe.

Assembly Action: **None**

Final Hearing Results

S234-12 **AS**

Code Change No: S236-12

Original Proposal

Section(s): 2112.5

Proponent: Timothy N. Seaton, B.S.C.E., Empire Masonry Heaters LLC (tseaton@masonryheater.com)

Revise as follows:

2112.5 Masonry heater clearance. Combustible materials shall not be placed within 36 inches (~~765~~ 914 mm) or the distance of the allowed reduction method ~~of~~ from the outside surface of a masonry heater in accordance with NFPA 211, Section ~~8-7 (clearances for solid fuel-burning appliances),~~ 12.6 Clearances from Solid Fuel-Burning Appliances, and the required space between the heater and combustible material shall be fully vented to permit the free flow of air around all heater surfaces.

Exceptions:

1. When the masonry heater wall thickness is at least 8 inches (203 mm) thick of solid masonry and the wall thickness of the heat exchange channels is at least 5 inches (127 mm) thick of solid masonry, combustible materials shall not be placed within 4 inches (102 mm) of the outside surface of a masonry heater. A clearance of at least 8 inches (203 mm) shall be provided between the gas-tight capping slab of the heater and a combustible ceiling.
2. Masonry heaters *listed* and labeled in accordance with UL 1482 and installed in accordance with the manufacturer's instructions.

Reason: 1) Metric conversion is incorrect; 2) NFPA 211 citation is incorrect; and 3) NFPA 211 Section 12.6 allows clearances under 36" with stipulated distance reduction strategies.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Note: For staff analysis of the content of EN 15250 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: The proposal is mainly editorial and corrects the reference to the standard for clearance to combustibles.

Assembly Action: **None**

Final Hearing Results

S236-12 **AS**

Code Change No: S238-12

Original Proposal

Section(s): 202, 722.5.1, 722.5.1.1, 722.6.1.4, 722.5.1.4.1, 722.5.1.4.5, 722.5.2, 722.5.2.1, 722.5.2.2.1, 1615.3.2, 1809.11, 2205.1, 2205.2 (NEW), 2205.2.1 (NEW), 2205.2.1.1 (NEW), 2205.2.1.2 (NEW), 2205.2.2 (NEW), 2203.1, 2203.2, 2206.1, 2206.2, 2206.2.1 (NEW),

Proponent: Bonnie Manley, American Iron and Steel Institute, representing American Institute of Steel Construction (bmanley@steel.org)

Revise as follows:

SECTION 202
DEFINITIONS

STEEL ~~MEMBER~~ ELEMENT, STRUCTURAL. Any steel structural member of a building or structure consisting of ~~a rolled steel structural shape~~ rolled shapes, pipe, hollow structural sections, plates, bars, sheets, rods or steel castings other than cold-formed steel, or steel joist members.

Revise as follows:

722.5.1 Structural steel columns. The *fire-resistance ratings* of structural steel columns shall be based on the size of the element and the type of protection provided in accordance with this section.

722.5.1.1 General. These procedures establish a basis for determining the *fire resistance* of column assemblies as a function of the thickness of fire-resistant material and, the weight, *W*, and heated perimeter, *D*, of structural steel columns. As used in these sections, *W* is the average weight of a structural steel column in pounds per linear foot. The heated perimeter, *D*, is the inside perimeter of the fire-resistant material in inches as illustrated in Figure 722.5.1(1).

722.5.1.4 Concrete-protected columns. The *fire resistance* of structural steel columns protected with concrete, as illustrated in Figure 722.5.1(6) (a) and (b), shall be permitted to be determined from the following expression:

$$R = R_o(1 + 0.03_m) \qquad \textbf{(Equation 7-14)}$$

where:

$$R_o = 10\,(W/D)^{0.7} + 17\,(h^{1.6}/k_c^{0.2}) \times [1 + 26\,\{H/p_c c_c h\,(L + h)\}^{0.8}]$$

As used in these expressions:

R = Fire endurance at equilibrium moisture conditions (minutes).
R_o = Fire endurance at zero moisture content (minutes).
m = Equilibrium moisture content of the concrete by volume (percent).
W = Average weight of the structural steel column (pounds per linear foot).
D = Heated perimeter of the structural steel column (inches).
h = Thickness of the concrete cover (inches).
k_c = Ambient temperature thermal conductivity of the concrete (Btu/hr ft °F).
H = Ambient temperature thermal capacity of the structural steel column = 0.11W (Btu/ ft °F).
p_c = Concrete density (pounds per cubic foot).

c_c = Ambient temperature specific heat of concrete (Btu/lb °F).
L = Interior dimension of one side of a square concrete box protection (inches).

722.5.1.4.1 Reentrant space filled. For wide-flange structural steel columns completely encased in concrete with all reentrant spaces filled [Figure 722.5.1(6)(c)], the thermal capacity of the concrete within the reentrant spaces shall be permitted to be added to the thermal capacity of the steel column, as follows:

$$H = 0.11\ W + (p_c c_c/144)\ (b_f d - A_s) \qquad \textbf{(Equation 7-15)}$$

where:

b_f = Flange width of the structural steel column (inches).
d = Depth of the structural steel column (inches).
A_s = Cross-sectional area of the steel column (square inches).

FIGURE 721.5.1(5)
WIDE FLANGE ~~STRUCTURE~~ STRUCTURAL STEEL COLUMNS WITH SPRAYED FIRE-RESISTANT MATERIALS

(No change to figure)

722.5.1.4.5 Masonry protection. The *fire resistance* of structural steel columns protected with concrete masonry units or clay masonry units as illustrated in Figure 722.5.1(7), shall be permitted to be determined from the following expression:

$$R = 0.17\ (W/D)^{0.7} + [0.285\ (T_e^{1.6}/K^{0.2})]\ [1.0 + 42.7\ \{(A_s/d_m\ T_e)/(0.25p + T_e)\}^{0.8}] \qquad \textbf{(Equation 7-16)}$$

where:

R = *Fire-resistance rating* of column assembly (hours).
W = Average weight of structural steel column (pounds per foot).
D = Heated perimeter of structural steel column (inches) [see Figure 722.5.1(7)].
T_e = Equivalent thickness of concrete or clay masonry unit (inches) (see Table 722.3.2 Note a or Section 722.4.1).
K = Thermal conductivity of concrete or clay masonry unit (Btu/hr · ft · °F) [see Table 722.5.1(3)].
A_s = Cross-sectional area of structural steel column (square inches).
d_m = Density of the concrete or clay masonry unit (pounds per cubic foot).
p = Inner perimeter of concrete or clay masonry protection (inches) [see Figure 722.5.1(7)].

722.5.2 Structural steel beams and girders. The *fire resistance ratings* of structural steel beams and girders shall be based upon the size of the element and the type of protection provided in accordance with this section.

722.5.2.1 Determination of *fire resistance*. These procedures establish a basis for determining resistance of structural steel beams and girders which differ in size from that specified in *approved* fire-resistance-rated assemblies as a function of the thickness of fire-resistant material and the weight (W) and heated perimeter (D) of the beam or girder. As used in these sections, W is the average weight of a ~~structural steel member~~ *structural steel element* in pounds per linear foot (plf). The heated perimeter, D, is the inside perimeter of the fire-resistant material in inches as illustrated in Figure 722.5.2.

722.5.2.2.1 Minimum thickness. The use of Equation 7-17 is subject to the following conditions:

1. The weight-to-heated-perimeter ratio for the substitute beam or girder (*W2/D2*) shall not be less than 0.37.

2. The thickness of fire protection materials calculated for the substitute beam or girder (*T1*) shall not be less than 3/8 inch (9.5 mm).
3. The unrestrained or restrained beam rating shall not be less than 1 hour.
4. When used to adjust the material thickness for a restrained beam, the use of this procedure is limited to structural steel sections classified as compact in accordance with the ~~AISC *Specification for Structural Steel Buildings*~~, (AISC 360-~~05~~).

Revise as follows:

1615.3.2 Structural steel, open web steel joist or joist girder, or composite steel and concrete frame structures. Frame structures constructed with a structural steel frame or a frame composed of open web steel joists, joist girders with or without other ~~structural steel elements~~ *structural steel elements* or a frame composed of composite steel or composite steel joists and reinforced concrete elements shall conform to the requirements of this section.

Revise as follows:

1809.11 Steel grillage footings. Grillage footings of ~~structural steel shapes~~ *structural steel elements* shall be separated with *approved* steel spacers and be entirely encased in concrete with at least 6 inches (152 mm) on the bottom and at least 4 inches (102 mm) at all other points. The spaces between the shapes shall be completely filled with concrete or cement grout.

Revise as follows:

2203.1 Identification. Identification of ~~structural steel members~~ *structural steel elements* shall comply with the requirements contained in AISC 360. Identification of cold-formed steel members shall comply with the requirements contained in AISI S100. Identification of cold-formed steel light-frame construction shall also comply with the requirements contained in AISI S200. Other steel furnished for structural load-carrying purposes shall be properly identified for conformity to the ordered grade in accordance with the specified ASTM standard or other specification and the provisions of this chapter. Steel that is not readily identifiable as to grade from marking and test records shall be tested to determine conformity to such standards.

2203.2 Protection. Painting of ~~structural steel members~~ *structural steel elements* shall comply with the requirements contained in AISC 360. Painting of open-web steel joists and joist girders shall comply with the requirements of SJI CJ-1.0, SJI JG-1.1, SJI K-1.1 and SJI LH/DLH-1.1. Individual structural members and assembled panels of cold-formed steel construction shall be protected against corrosion in accordance with the requirements contained in AISI S100. Protection of cold-formed steel light-frame construction shall also comply with the requirements contained in AISI S200.

2205.1 General. The design, fabrication and erection of *structural steel elements* in ~~for~~ buildings, ~~and~~ structures, and portions thereof shall be in accordance with AISC 360. ~~Where required, the seismic design of structural steel structures shall be in accordance with the additional provisions of Section 2205.2.~~

2205.2 Seismic design. Where required, the seismic design, fabrication and erection of buildings, structures, and portions thereof shall be in accordance with Sections 2205.2.1 or 2205.2.2, as applicable.

2205.2.1 ~~Seismic requirements for structural steel structures~~ Structural steel seismic-force resisting systems. The design, fabrication and erection of structural steel ~~structures to resist seismic forces~~ seismic-force resisting systems shall be in accordance with the provisions of Section ~~2205.2.1~~ 2205.2.1.1 or ~~2205.2.2~~ 2205.2.1.2, as applicable.

~~**2205.2.1**~~ **2205.2.1.1 Seismic Design Category B or C.** ~~Structural steel~~ Structures assigned to *Seismic Design Category* B or C shall be of any construction permitted in Section 2205. Where a response modification coefficient, R, in accordance with ASCE 7, Table 12.2-1 is used for the design of ~~structural~~

~~steel~~ structures assigned to *Seismic Design Category* B or C, the structures shall be designed and detailed in accordance with the requirements of AISC 341.

Exception: The response modification coefficient, R, designated for "Steel systems not specifically detailed for seismic resistance, excluding cantilever column systems" in ASCE 7, Table 12.2-1 shall be permitted for systems designed and detailed in accordance with AISC 360, and need not be designed and detailed in accordance with AISC 341.

2205.2.2 Seismic Design Category D, E or F. ~~Structural steel~~ Structures assigned to *Seismic Design Category* D, E or F shall be designed and detailed in accordance with AISC 341, except as permitted in ASCE 7, Table 15.4-1.

2205.2.2 Structural steel elements. The design, fabrication and erection of *structural steel elements* in seismic-force resisting systems other than those covered in Section 2205.2.1, including struts, collectors, chords and foundation elements, shall be designed and detailed in accordance with AISC 341 if:

1. The structure is assigned to Seismic Design Category D, E or F, except as permitted in ASCE 7, Table 15.4-1.
2. A response modification coefficient, R, greater than 3 in accordance with ASCE 7, Table 12.2-1 is used for the design of the structure assigned to Seismic Design Category B or C.

2206.1 General. Systems of ~~structural steel~~ *structural steel elements* acting compositely with reinforced concrete shall be designed in accordance with AISC 360 and ACI 318, excluding ACI 318 Chapter 22. ~~Where required, the seismic design of composite steel and concrete systems shall be in accordance with the additional provisions of Section 2206.2.~~

2206.2 Seismic design. Where required, the seismic design, fabrication and erection of composite steel and concrete systems shall be in accordance with the additional provisions of this section.

~~2206.2~~ 2206.2.1 Seismic requirements for composite structural steel and concrete construction. Where a response modification coefficient, R, in accordance with ASCE 7, Table 12.2-1 is used for the design of systems of structural steel acting compositely with reinforced concrete, the structures shall be designed and detailed in accordance with the requirements of AISC 341.

Reason: This comprehensive proposal not only makes a number of editorial modifications for clarification purposes, it also introduces into Chapter 22 the term and associated requirements for "structural steel elements" and carries that change throughout the remainder of the IBC, as necessary. Note that the Chapter 17 proposal introducing this term is handled in a separate, companion proposal. Please refer to it for additional background.

The purpose of introducing this new term and its associated requirements is to ensure that the wide range of structural steel components in buildings, structures and portions thereof are appropriately covered for design, fabrication and erection. Concerns have been expressed by the structural engineering community regarding the limited definition of *structural steel* contained in AISC 360-10:

> *Structural steel.* Steel elements as defined in Section 2.1 of the AISC *Code of Standard Practice for Steel Buildings and Bridges (AISC COSP).*

Section 2.1 of AISC COSP goes on to list many items that are considered structural steel, and Section 2.1 identifies those items that are specifically excluded from the definition. However, these provisions in AISC COSP are intended to provide a default separation of scope between the work of the structural steel fabricator and erector, and the entity providing miscellaneous iron and steel.

Thus, the AISC COSP provides a definition of *structural steel* for default trade practices. Upon reflection, this is not an ideal definition for use in a model building code. To rectify this situation, this proposal introduces the defined term "structural steel element". The specific change from "member" to "element" was to get away from the confusion caused by the difference between the general term, "steel structural member", and the specific AISC-related term, "structural steel member", used throughout the code. Also, language was added clarifying the types of rolled product that fall under this category of steel construction.

Once the definition was settled upon, the new term was integrated into Section 2205. In Section 2205.1, the intent is for all structural steel elements to be designed, fabricated and erected in accordance with AISC 360. Within the seismic design section, the distinction was drawn between structural steel seismic-force resisting systems, which refer to the sixteen structural steel systems currently listed in ASCE 7-10, Table 12.2-1, and structural steel elements that work as struts, collectors, chords and foundation elements in seismic-force resisting systems composed primarily of other structural materials. These structural steel elements are intended to be designed and detailed in accordance with AISC 341, if they are used in a structural in a high seismic area (SDC D, E or F) or they are utilized in a system that relies heavily on non-elastic energy dissipation, in this case chosen to be a system with a response modification coefficient, R, greater than 3.

The remainder of this proposal simply carries the newly defined term through the rest of the IBC.

Cost Impact:.No impact to the cost of construction is anticipated.

Public Hearing Results

Errata: The first Section 2205.2.2 should be numbered as follows:
2205.2.1.2 Seismic Design Category D, E or F.

(Portions of proposal not shown are unchanged)

Committee Action: **Approved as Submitted**

Committee Reason: This code change improves the existing wording to better match current AISC terms and requirements .It provides an editorial correction which clarifies references to structural steel in the IBC that will be consistent with the AISC creating a more general term for proper application of the code.

Assembly Action: **None**

Final Hearing Results

S238-12 **AS**

Code Change No: S239-12

Original Proposal

Section(s): 2204.1, 2204.2, 2204.2.1

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

2204.1 Welding. The details of design, workmanship and technique for welding, ~~inspection of welding~~ and qualification of welding ~~operators~~ personnel shall conform to the requirements of the specifications listed in Sections 2205, 2206, 2207, 2208, 2210 and 2211. For s*pecial inspection* of welding, see ~~shall be provided where required by~~ Section ~~1705~~ 1705.2.

2204.2 Bolting. The design, installation and inspection of bolts shall be in accordance with the requirements of the specifications listed in Sections 2205, 2206, 2207, 2210 and 2211. For *special inspection* of the installation of high-strength bolts ~~shall be provided where required by~~ see Section ~~1705~~ 1705.2.

~~**2204.2.1**~~ **2204.3 Anchor rods.** Anchor rods shall be set in accordance with the *construction documents*. The protrusion of the threaded ends through the connected material shall fully engage the threads of the nuts, but shall not be greater than the length of the threads on the bolts.

Reason: These changes are editorial in nature and include the following:

- Clarification of the relationship between the standards referenced in Chapter 22 and the requirements for special inspection in Chapter 17
- Deletion of the term “operators” in favor of the term “personnel”. The term “operators” excludes welders and tack welders as defined by AWS D1.1. “Personnel” is the more inclusive term.
- Modification of the hierarchy with regard to Anchor Rods. Anchor rods are not bolts. They are rods. They should not be a subsection of bolting, but rather stand on their own.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Agreement with proponent’s reason which indicates these changes are editorial changes that clarify Section 2204.

Assembly Action: **None**

Final Hearing Results

S239-12 **AS**

Code Change No: S240-12

Original Proposal

Section(s): 1604.3.3, 2203.2, 2207.1, 2207.1.1 (New), 2207.2, 2207.3, 2207.4, 2207.5,

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute, representing Steel Joist Institute (bmanley@steel.org)

Revise as follows:

1604.3.3 Steel. The deflection of steel structural members shall not exceed that permitted by AISC 360, AISI S100, ASCE 8, SJI CJ~~-1.0~~, SJI JG~~-1.1~~, SJI K~~-1.1~~ or SJI LH/ DLH~~-1.1~~, as applicable.

2203.2 Protection. Painting of structural steel members shall comply with the requirements contained in AISC 360. Painting of open-web steel joists and joist girders shall comply with the requirements of SJI CJ~~-1.0~~, SJI JG~~-1.1~~, SJI K~~-1.1~~ and SJI LH/DLH~~-1.1~~. Individual structural members and assembled panels of cold-formed steel construction shall be protected against corrosion in accordance with the requirements contained in AISI S100. Protection of cold-formed steel light-frame construction shall also comply with the requirements contained in AISI S200.

2207.1 General. The design, manufacture and use of open web steel joists and joist girders shall be in accordance with one of the following Steel Joist Institute (SJI) specifications:

1. SJI-CJ~~-1.0~~
2. SJI-K~~-1.1~~
3. SJI-LH/DLH~~-1.1~~
4. SJI-JG~~-1.1~~

2207.1.1 Seismic design. Where required, the seismic design of buildings shall be in accordance with the additional provisions of Section 2205.2 or 2211.6.

2207.2 Design. The *registered design professional* shall indicate on the *construction documents* the steel joist and/or steel joist girder designations from the specifications listed in Section 2207.1 and shall indicate the requirements for joist and joist girder design, layout, end supports, anchorage~~, non-SJI standard~~ bridging, bridging termination connections and bearing connection design to resist uplift and lateral loads. These documents shall indicate special requirements as follows:

1. Special loads including:
   1.1. Concentrated loads;
   1.2. Nonuniform loads;
   1.3. Net uplift loads;
   1.4. Axial loads;
   1.5. End moments; and
   1.6. Connection forces.
2. Special considerations including:
   2.1. Profiles for ~~nonstandard~~ joist and joist girder configurations ~~(standard joist and joist girder are as indicated in the SJI catalog)~~ that differ from those defined by the SJI specifications listed in Section 2207.1;
   2.2. Oversized or other nonstandard web openings; and
   2.3. Extended ends.

3. Live and total load deflection criteria ~~for live and total loads~~ for ~~non-SJI standard~~ joists and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1.

2207.3 Calculations. The steel joist and joist girder manufacturer shall design the steel joists and/or steel joist girders in accordance with the ~~current~~ SJI specifications ~~and load tables~~ listed in Section 2207.1 to support the load requirements of Section 2207.2. The *registered design professional* ~~may~~ shall be permitted to require submission of the steel joist and joist girder calculations as prepared by a *registered design professional* responsible for the product design. If requested by the *registered design professional*, the steel joist manufacturer shall submit design calculations with a cover letter bearing the seal and signature of the joist manufacturer's *registered design professional*. In addition to ~~standard~~ the design calculations submitted under ~~this~~ seal and signature, ~~submittal~~ of the following shall be included:

1. ~~Non-SJI standard~~ Bridging ~~details~~ design that differs from the SJI specifications listed in Section 2207.1 (e.g.for cantilevered conditions, net uplift, etc.).
2. Connection ~~details~~ design for:
   2.1. ~~Non-SJI standard~~ Connections that differ from the SJI specifications listed in Section 2207.1 (e.g.flushframed or framed connections);
   2.2. Field splices; and
   2.3. Joist headers.

2207.4 Steel joist drawings. Steel joist placement plans shall be provided to show the steel joist products as specified on the *construction documents* and are to be utilized for field installation in accordance with specific project requirements as stated in Section 2207.2. Steel joist placement plans shall include, at a minimum, the following:

1. Listing of all applicable loads as stated in Section 2207.2 and used in the design of the steel joists and joist girders as specified in the *construction documents*.
2. Profiles for ~~nonstandard~~ joist and joist girder configurations ~~(standard joist and joist girder configurations are as indicated in the SJI catalog)~~ that differ from those defined by the SJI specifications listed in Section 2207.1.
3. Connection requirements for:
   3.1. Joist supports;
   3.2. Joist girder supports;
   3.3. Field splices; and
   3.4. Bridging attachments.
4. Live and total load deflection criteria ~~for live and total loads~~ for ~~non-SJI standard~~ joists and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1.
5. Size, location and connections for all bridging.
6. Joist headers.

Steel joist placement plans do not require the seal and signature of the joist manufacturer's *registered design professional*.

2207.5 Certification. At completion of manufacture, the steel joist manufacturer shall submit a *certificate of compliance* in accordance with Section 1704.2.5.2 stating that work was performed in accordance with *approved construction documents* and with SJI ~~standard~~ specifications listed in Section 2207.1.

Reason: This code change is primarily editorial in nature with the intent to clarify and streamline the requirements for steel joists. Major changes include the following:

- Correction of short titles in Section 2207.1, 1604.3.3 and 2203.2 to reflect the appropriate short title listing in Chapter 35 and correction of SJI address in Chapter 35.
- Deletion of reference to the SJI catalog – it is not an adopted reference.
- Deletion of reference to the load tables; they are now incorporated into the relevant SJI specifications.

- Elimination of the vague terms “nonstandard”, “non SJI standard”, and “standard” used throughout the section. These terms are not defined. To clarify what is intended, a reference to the requirements found in the SJI specifications listed in Section 2207.1 is substituted.

Addition of “joist girders” to Section 2207.2, Item 3 and Section 2207.4, Item 4 for consistency.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

2207.2 Design. The *registered design professional* shall indicate on the *construction documents* the steel joist and/or steel joist girder designations from the specifications listed in Section 2207.1 and shall indicate the requirements for joist and joist girder design, layout, end supports, anchorage, non-SJI standard bridging, bridging termination connections and bearing connection design to resist uplift and lateral loads. These documents shall indicate special requirements as follows:

1. Special loads including:
   1.1. Concentrated loads;
   1.2. Nonuniform loads;
   1.3. Net uplift loads;
   1.4. Axial loads;
   1.5. End moments; and
   1.6. Connection forces.
2. Special considerations including:
   2.1. Profiles for joist and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1;
   2.2. Oversized or other nonstandard web openings; and
   2.3. Extended ends.
3. Live and total load deflection criteria for joists and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1.

(Portions of proposal not shown are unchanged)

Committee Reason: This proposal clarifies the intent of steel joist requirements in Section 2207 by making series of editorial improvements.

Assembly Action: **None**

Public Comments

Public Comment:

Bonnie E. Manley, American Iron and Steel Institute, representing Steel Joist Institute requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

SECTION 2207
STEEL JOISTS

2207.1 General. The design, manufacture and use of open web steel joists and joist girders shall be in accordance with one of the following Steel Joist Institute (SJI) specifications:

1. SJI-CJ
2. SJI-K
3. SJI-LH/DLH
4. SJI-JG

2207.1.1 Seismic design. Where required, the seismic design of buildings shall be in accordance with the additional provisions of Section 2205.2 or 2211.6.

2207.2 Design. The *registered design professional* shall indicate on the *construction documents* the steel joist and/or steel joist girder designations from the specifications listed in Section 2207.1 and shall indicate the requirements for joist and joist girder design, layout, end supports, anchorage, ~~non-SJI standard~~ bridging design that differs from the SJI specifications listed in Section

2207.1, bridging termination connections and bearing connection design to resist uplift and lateral loads. These documents shall indicate special requirements as follows:

1. Special loads including:
   1.1. Concentrated loads;
   1.2. Nonuniform loads;
   1.3. Net uplift loads;
   1.4. Axial loads;
   1.5. End moments; and
   1.6. Connection forces.
2. Special considerations including:
   2.1. Profiles for joist and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1;
   2.2. Oversized or other nonstandard web openings; and
   2.3. Extended ends.
3. Live and total load deflection criteria for joists and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1.

2207.3 Calculations. The steel joist and joist girder manufacturer shall design the steel joists and/or steel joist girders in accordance with the SJI specifications listed in Section 2207.1 to support the load requirements of Section 2207.2. The *registered design professional* shall be permitted to require submission of the steel joist and joist girder calculations as prepared by a *registered design professional* responsible for the product design. If requested by the *registered design professional*, the steel joist manufacturer shall submit design calculations with a cover letter bearing the seal and signature of the joist manufacturer's *registered design professional*. In addition to the design calculations submitted under seal and signature, the following shall be included:

1. Bridging design that differs from the SJI specifications listed in Section 2207.1 (e.g. for cantilevered conditions, net uplift, etc.).
2. Connection design for:
   2.1. Connections that differ from the SJI specifications listed in Section 2207.1 (e.g.flushframed or framed connections);
   2.2. Field splices; and
   2.3. Joist headers.

2207.4 Steel joist drawings. Steel joist placement plans shall be provided to show the steel joist products as specified on the *construction documents* and are to be utilized for field installation in accordance with specific project requirements as stated in Section 2207.2. Steel joist placement plans shall include, at a minimum, the following:

1. Listing of all applicable loads as stated in Section 2207.2 and used in the design of the steel joists and joist girders as specified in the *construction documents*.
2. Profiles for joist and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1.
3. Connection requirements for:
   3.1. Joist supports;
   3.2. Joist girder supports;
   3.3. Field splices; and
   3.4. Bridging attachments.
4. Live and total load deflection criteria joists and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1.
5. Size, location and connections for all bridging.
6. Joist headers.

Steel joist placement plans do not require the seal and signature of the joist manufacturer's *registered design professional*.

2207.5 Certification. At completion of manufacture, the steel joist manufacturer shall submit a *certificate of compliance* in accordance with Section 1704.2.5.2 stating that work was performed in accordance with *approved construction documents* and with SJI specifications listed in Section 2207.1.

Commenter's Reason: The purpose of this public comment is to ensure that consistent language is used throughout Section 2207. The proposal was approved as modified, with the return of the language "non SJI standard" in Section 2207.2. While it is recognized that the deletion of this phrase in the original proposal expanded the applicability of the section beyond what was preferred, the language "non SJI standard" is awkward and unclear. Rather, we would like to see the section include the same exact phrasing that is used and was approved in Section 2207.3 Item 1 – "bridging design that differs from the SJI specifications listed in Section 2207.1."

Final Hearing Results

S240-12 **AMPC**

Code Change No: S243-12

Original Proposal

Section(s): 2209.1

Proponent: Victor D. Azzi, P.E., Consulting Structural Engineer, representing the Rack Manufacturers Institute (victorazzi@comcast.net)

Revise as follows:

2209.1 Storage racks. The design, testing and utilization of industrial steel storage racks made of cold-formed or hot-rolled steel structural members, shall be in accordance with RMI/ANSI MH 16.1. Where required by ASCE 7, the seismic design of storage racks shall be in accordance with the provisions of Section 15.5.3 of ASCE 7~~, except that the mapped acceleration parameters, S_s and S_1, shall be determined in accordance with Section 1613.3.1~~.

Reason: The new USGS maps, and the mapped acceleration parameters included in IBC Section 1613.3.1, are included in the new 2011 edition of the RMI/ANSI MH 16.1 standard, as well as in the ASCE 7-2010 and Supplement 1. The new RMI Standard, which is included by reference in the ASCE 7, also includes clarification of Load Combinations (including vertical seismic effects), Redundancy Factors, Minimum Seismic Force for Above-Grade Installations, Beam-to-Column Rotational Capacity and Testing, and Periodic Inspection.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: This code change proposal references RMI standard MH16.1, which is already referenced in this code. However, the proposed change to code text is written to correlate with a new edition of the standard MH16.1-11 rather than the edition presently referenced in the code, which is the -08 edition. The update to this standard will be considered by the Administrative Code Committee during the 2013 Code Development Cycle. Should this code change proposal be approved, but the update to the standard not be approved, the code text will revert to the text as it appears in the 2012 Edition of the Code.

Public Hearing Results

Analysis: This code change proposal references RMI standard MH16.1, which is already referenced in this code. However, the proposed change to code text is written to correlate with a new edition of the standard MH16.1-11 rather than the edition presently referenced in the code, which is the -08 edition. The update to this standard will be considered by the Administrative Code Committee during the 2013 Code Development Cycle.

Committee Action: **Approved as Submitted**

Committee Reason: There is no need to keep the reference to IBC acceleration parameters since the latest edition of the RMI standard is now coordinated with the ASCE 7 ground motions.

Assembly Action: **None**

Final Hearing Results

S243-12	**AS**

Code Change No: S244-12

Original Proposal

Section(s): 2210.1.1.3 (NEW), Chapter 35 (NEW)

Proponent: Thomas Sputo, Ph.D., P.E., S.E., Steel Deck Institute

Add new text as follows:

2210.1.1.3 Composite slabs on steel decks. Composite slabs of concrete and steel deck shall be permitted to be designed and constructed in accordance with SDI-C.

Add new standard to Chapter 35 as follows:

SDI

SDI-C-2011 Standard for Composite Steel Floor Deck Slabs

Reason: This Standard contains provisions for the design and construction of composite steel deck-slabs of concrete on composite steel deck, and reflects current design and construction industry practices.

The 2012 IBC contains no provisions for the design of composite slabs on steel deck. The previous reference standard that was contained in the 2009 IBC was deleted from the 2012 IBC. Designers and code officials currently must rely on Section 104.11 of the IBC to use this very common structural system. Adding this Standard to the 2015 IBC would fill this gap.

This Standard is an update to the previous 2006 version of this Standard, and was developed and approved through a consensus process under ANSI guidelines, and complies with ICC CP 28. This Standard, along with all other Steel Deck Institute (SDI) Standards, will be available for free download from the SDI website for all parties.

For review purposes, the SDI C-2011 Standard that is being proposed is available for download and review from this website: http://www.sputoandlammert.com/standard.html

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of SDI C relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: The committee feels it is good to include the proposed reference standard for composite slab construction now that it has completed the ANSI standard process.

Assembly Action: **None**

Final Hearing Results

S244-12	**AS**

Code Change No: S245-12

Original Proposal

Section(s): 2201.1, 2203.1, 2203.2, 2211.1, 2211.4, Table 2506.2, Table 2507.2, Chapter 35

Proponent: Bonnie Manley, P.E., American Iron and Steel Institute (bmanley@steel.org)

Revise as follows:

2201.1 Scope. The provisions of this chapter govern the quality, design, fabrication and erection of steel ~~used structurally in buildings or structures~~ construction.

2203.1 Identification. Identification of structural steel members shall comply with the requirements contained in AISC 360. Identification of cold-formed steel members shall comply with the requirements contained in AISI S100. Identification of cold-formed steel light-frame construction shall also comply with the requirements contained in AISI S200 or AISI S220, as applicable. Other steel furnished for structural load-carrying purposes shall be properly identified for conformity to the ordered grade in accordance with the specified ASTM standard or other specification and the provisions of this chapter. Steel that is not readily identifiable as to grade from marking and test records shall be tested to determine conformity to such standards.

2203.2 Protection. Painting of structural steel members shall comply with the requirements contained in AISC 360. Painting of open-web steel joists and joist girders shall comply with the requirements of SJI CJ-1.0, SJI JG-1.1, SJI K-1.1 and SJI LH/DLH-1.1. Individual structural members and assembled panels of cold-formed steel construction shall be protected against corrosion in accordance with the requirements contained in AISI S100. Protection of cold-formed steel light-frame construction shall also comply with the requirements contained in AISI S200 or AISI S220, as applicable.

2211.1 General. The design and installation of structural members and nonstructural members utilized in cold-formed steel light-frame construction where the specified minimum base steel thickness is ~~between 0.0179 inches (0.455 mm) and~~ not greater than 0.1180 inches (2.997 mm) shall be in accordance with AISI S200 and Sections 2211.2 through 2211.7, or AISI S220, as applicable.

2211.4 Structural wall stud design. Structural wall studs shall be designed in accordance with either AISI S211 or AISI S100.

Revise as follows:

TABLE 2506.2
GYPSUM BOARD MATERIALS AND ACCESSORIES

MATERIAL	STANDARD
~~Steel studs, load-bearing~~ Cold-formed steel studs and track, structural	AISI S200 and ASTM C955,Section 8
~~Steel studs, nonload-bearing~~ Cold-formed steel studs and track, nonstructural	AISI S220 and ASTM C645, Section 10

(Portions of Table not shown remain unchanged)

TABLE 2507.2
LATH, PLASTERING MATERIALS AND ACCESSORIES

MATERIAL	STANDARD
~~Steel studs and track~~ Cold-formed steel studs and	~~ASTM C 645~~ AISI S200 and; ASTM C 955,Section

track, structural	8
Cold-formed steel studs and track, nonstructural	AISI S200 and ASTM C645, Section 10

(Portions of Table not shown remain unchanged)

Add new standard to Chapter 35 as follows:

AISI

AISI S220—11 North American Standard for Cold-formed Steel Framing-Nonstructural Members

Reason: This proposal represents the results of a major effort to synchronize and coordinate the industry standards related to cold-formed steel framing. ASTM Committees C11 and A05, and AISI have been working within the steel framing industry on this "Code Synchronization" effort, the goal of which is to organize and maintain a single path for the building code requirements of cold-formed steel light frame construction products. To this end, a new document, AISI S220, was developed to contain all the necessary requirements for nonstructural products. AISI S220 represents a clarification and coordination of industry requirements. The Steel Framing Industry Association (SFIA), the Steel Stud Manufacturers Association (SSMA), the Association of the Wall and Ceiling Industry (AWCI), and the Gypsum Association (GA) all participated in this effort.

The proper integration of AISI S220 into the IBC requires the following changes:

- Section 2201.1: The scope of this chapter now includes products that are non-structural. Therefore, the statement has been simplified to reflect the broad spectrum of steel construction.
- Section 2203: AISI S220, Section A6.5 includes requirements that cover the identification and protection of nonstructural cold-formed steel framing.
- Section 2211.1: Because of the addition of the reference for nonstructural cold-formed steel framing, the lower limit of the minimum base thickness has been deleted.
- Section 2211.4: The charging language to AISI S211 has been clarified to reflect the distinction between AISI S211 and AISI S220.
- Table 2506.2: The material column has been clarified to refer to "structural" and "nonstructural" CFS studs and track. Additionally, AISI S200 and AISI S220 have been incorporated into the table as the primary references. Only ASTM C645 Section 10, and ASTM C955 Section 8, which cover the requirements for the Penetration Test for screws, have been retained. These sections provide a procedure for evaluating the member's ability to pull the head of a screw below the surface of gypsum sheathing. At this time, AISI S220 does not include this test. Future editions may include it, allowing for the eventual deletion of the specific references to ASTM C645 and C955. AISI S200 and AISI S220 incorporate the material and manufacturing provisions previously included in ASTM C955 and ASTM C645 respectively. Limiting the specific references to ASTM C645 Section 10 and C955 Section 8 removes the "dual paths to code compliance", which has caused confusion in the cold-formed steel framing industry.
- Table 2507.2: Entries match what is contained in Table 2506.2.
- Chapter 35: Reflects the necessary changes to the referenced standards.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of SDI C relative to CP#28, Section 3.6, please visit:
http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This code change adds a new performance standard for cold-formed steel which allows removal and clarification of conflicting code text on cold-formed steel framing.

Assembly Action: **None**

Final Hearing Results

S245-12 **AS**

Code Change No: S246-12

Original Proposal

Section(s): 2301.2, 2308.1, 2309 (NEW)

Proponent: Paul Coats, PE, CBO, American Wood Council (pcoats@awc.org)

Revise as follows:

2301.2 General design requirements. The design of structural elements or systems, constructed partially or wholly of wood or wood-based products, shall be in accordance with one of the following methods:

1. *Allowable stress design* in accordance with Sections 2304, 2305 and 2306.
2. *Load and resistance factor design* in accordance with Sections 2304, 2305 and 2307.
3. *Conventional light-frame construction* in accordance with Sections 2304 and 2308.

   ~~**Exception:** Buildings designed in accordance with the provisions of the AF&PA WFCM shall be deemed to meet the requirements of the provisions of Section 2308.~~

4. WFCM in accordance with Section 2309
4~~5~~. The design and construction of log structures shall be in accordance with the provisions of ICC 400.

2308.1 General. The requirements of this section are intended for *conventional light-frame construction*. Other methods are permitted to be used, provided a satisfactory design is submitted showing compliance with other provisions of this code. Interior nonload-bearing partitions, ceilings and curtain walls of *conventional light-frame construction* are not subject to the limitations of this section~~. Alternatively, compliance with AF&PA WFCM shall be permitted subject to the limitations therein and the limitations of this code.~~ Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three *stories above grade plane* in height with a separate *means of egress* and their accessory structures shall comply with the *International Residential Code*.

SECTION 2309
WOOD FRAME CONSTRUCTION MANUAL

2309.1 WFCM. Structural design in accordance with the WFCM shall be permitted for buildings in any use group subject to the limitations of Section 1.1.3 of the WFCM and the load assumptions contained therein. Structural elements beyond these limitations shall be designed in accordance with accepted engineering practice.

Reason: The WFCM is a consensus document that contains both engineering criteria and engineered prescriptive provisions for wood frame construction. It is an ANSI standard developed by technical committees organized by the American Wood Council and it is already referenced in the code for the design of wood frame structures within its scope.

Item #1 revises the manner in which the WFCM is referenced by removing its association with conventional constructions provisions of 2308. The proposed revision in 2301.2 recognizes WFCM as a separate design method.

Item #2 removes the reference to WFCM as an alternative in Section 2308.1 because it is no longer needed and may lead to confusion about its applicability in accordance with its own applicability limits rather than the limits for conventional construction listed in 2308.2.

Item #3 incorporates reference to WFCM under a new 2309 section, and states clearly that the WFCM may be used for buildings of any use group that fit within the WFCM's applicability limits for building size, configuration, and loads as set out in Section 1.1.3 of the standard.

While WFCM provisions are intended primarily for detached one-and two-family dwellings due to the floor live load assumption associated with those occupancies, many of the WFCM provisions for specific geographic wind, seismic, and snow loads may

remain applicable for other buildings. For example, wind provisions for sizing of roof sheathing, wall sheathing, fastening schedule, uplift straps, shear anchorage, shear wall lengths, and wall studs for out of plane wind loads are included in WFCM and are applicable for other use groups within the load limitations of the WFCM tables. Similarly, roof rafter size and spacing for heavy snow, and shear wall lengths and anchorage for seismic are applicable within the load limitations of the WFCM tables. Applications outside the scope of the WFCM tabulated requirements, such as floor joist design for 60 psf loading and design of supporting gravity elements for the additional floor live load is beyond the applicability of the WFCM and must be designed in accordance with accepted engineering practice. This parallels the approach taken in Section R301.1.3 of the IRC, which permits unconventional elements of one and two-family dwellings to be designed per the IBC. This change will expand the availability of engineered but prescriptive options for design of wood frame commercial buildings.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

2309.1 Wood Frame Construction Manual. Structural design in accordance with the WFCM shall be permitted for buildings ~~in any use group~~ assigned to Risk Category I or II subject to the limitations of Section 1.1.3 of the WFCM and the load assumptions contained therein. Structural elements beyond these limitations shall be designed in accordance with accepted engineering practice.

(Portions of proposal not shown are unchanged)

Committee Reason: This proposal will allow wider use of the AWC Wood Frame Construction Manual which is an engineering based design methodology that is a least as good as using conventional construction. The floor modification provides a clarification of its applicability based on risk category.

Assembly Action: **None**

Final Hearing Results

S246-12 **AM**

Code Change No: S248-12

Original Proposal

Section(s): 202 (NEW), 2303.1.12 (NEW), Chapter 35 (NEW)

Proponent: Brad Douglas, American Wood Council

Add new text as follows:

SECTION 202
DEFINITIONS

ENGINEERED WOOD RIM BOARD. A full-depth structural composite lumber, wood structural panel, structural glued laminated timber, or pre-fabricated wood I-joist member designed to transfer horizontal (shear) and vertical (compression) loads, provide attachment for diaphragm sheathing, siding and exterior deck ledgers, and provide lateral support at the ends of floor or roof joists or rafters.

Add new text as follows:

2303.1.12 Engineered wood rim board. Engineered wood rim boards shall conform to ANSI/APA PRR 410 or shall be evaluated in accordance with ASTM D 7672. Structural capacities shall be in accordance with ANSI/APA PRR 410 or established in accordance with ASTM D 7672. Rim boards conforming to ANSI/APA PRR 410 shall be marked in accordance with that standard.

Add new standards to Chapter 35 as follows:

ANSI

ANSI/APA PRR 410-2011 Standard for Performance-Rated Engineered Wood Rim Boards

ASTM

ASTM D 7672-2011e1 Standard Specifications for Evaluating Structural Capacities of Rim Board Products and Assemblies

Reason: Engineered rim board is a key structural element in many engineered wood floor applications where both structural load path through the perimeter member and dimensional change compatibility are design considerations. Two new consensus standards address products intended for engineered wood rim board applications. While both ANSI/APA PRR 410 and ASTM D7672 standards address the fundamental requirements for testing and evaluation of engineered rim board, PRR 410 also includes performance categories for engineered wood products used in engineered rim board applications. Under PRR 410, products are assigned a grade based on performance category (e.g. categories based on structural capacity) and will bear a mark in accordance with the grade. In contrast, ASTM D7672 is applicable for determination of product specific rim board performance (i.e. structural capacities) for engineered wood products that may be recognized in manufacturer's literature or product evaluation reports.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of SDI C relative to CP#28, Section 3.6, please visit:
http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This code change adds a definition of commonly used wood engineered products as well as consensus standards necessary for determining appropriate applications.

Assembly Action: **None**

Final Hearing Results

S248-12 **AS**

Code Change No: S250-12

Original Proposal

Section(s): 202 (NEW), 2303.1.4 (NEW), Chapter 35 (NEW)

Proponent: Sam Francis, representing American Wood Council (sfrancis@awc.org)

Add new definition as follows:

SECTION 202
DEFINITIONS

CROSS-LAMINATED TIMBER. A prefabricated engineered wood product consisting of at least three layers of solid-sawn lumber or *structural composite lumber* where the adjacent layers are cross-oriented and bonded with structural adhesive to form a solid wood element.

Add new text as follows:

2303.1.4 Structural glued cross-laminated timber. Cross-laminated timbers shall be manufactured and identified as required in ANSI/APA PRG 320-2011.

Add new standard to Chapter 35 as follows:

ANSI

ANSI/APA PRG 320-2011 Standard for Performance-Rated Cross-Laminated Timber

Reason: Cross-Laminated Timber (CLT) is a new product in North America. First developed in Europe nearly 20 years ago, it is used extensively in Europe. A new North American product manufacturing standard, ANSI/APA PRG 320-2011, has just been completed. This large section, engineered wood product should be defined by the code, and it should conform to the newly developed consensus manufacturing standard.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of SDI C relative to CP#28, Section 3.6, please visit:
http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: The committee feels this engineered wood product will be used and it is better to have the material reference standard and definition in the code. Doing so keeps pace with the changes in technology in the wood industry.

Assembly Action: **None**

Final Hearing Results

S250-12 **AS**

Code Change No: S260-12

Original Proposal

Section(s): 2304.9.6

Proponent: Jay Crandell, ARES Consulting, representing Foam Sheathing Committee (jcrandell@aresconsulting.biz)

Revise as follows:

2304.9.6 Load path. Where wall framing members are not continuous from foundation sill to roof, the members shall be secured to ensure a continuous load path. Where required, sheet metal clamps, ties or clips shall be formed of galvanized steel not less than 0.0179 inch (0.45 mm) minimum thickness or other *approved* corrosion-resistant material ~~not less than 0.040 inch (1.01 mm) nominal thickness~~ capable of resisting the applied loads.

Reason: The code needs to allow thinner steel based on performance to, when possible, avoid interference of uplift straps with fastening/installation of interior and exterior finishes and sheathings. AISI Standard S105 Product Data permits minimum steel thickness of 0.0179 inches thick for structural and non-structural applications. In addition, 24CFR Section 3280.305 also permits uplift straps of minimum 26 gage (0.0179 inch thick) for manufactured homes even in the highest of wind zones. The current minimum 0.040 inch thickness requirement is not consistent with existing industry consensus standards and needs to be changed such that minimum required steel thickness is governed by performance needed for a specific application.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee believes that additional background on the current minimum steel tie thickness could help in evaluating this proposal.

Assembly Action: **None**

Public Comments

Public Comment 2:

Randall Shackelford, Simpson Strong-Tie Co., requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

2304.9.6 Load path. Where wall framing members are not continuous from foundation sill to roof, the members shall be secured to ensure a continuous load path. Where required, sheet metal clamps, ties or clips shall be formed of galvanized steel ~~not less than 0.0179 inch (0.45 mm) minimum thickness,~~ or other *approved* corrosion-resistant material, not less than 0.0329 inch (0.0836 mm) base metal thickness ~~capable of resisting the applied loads~~.

Commenter's Reason: The intent of this change is to only change the required thickness of steel in this section. The current reference to 0.040" thick steel is not a standard thickness according to the newest AISI Product Data Standard, S201.
The assumption is that the thickness was added to represent galvanized 20 gage steel. The term "gage" is no longer a steel thickness designation. What was traditionally 20 ga is now designated as 33 mils. The base metal thickness for 33 mils according to the newest AISI Product Standard is 0.0329 inches. See table below:

Table B2-1
Standard Thickness

Designation Thickness	Minimum Base Steel Thickness		Design Thickness	
	(inch)	(mm)	(inch)	(mm)
18	0.0179	0.455	0.0188	0.478
27	0.0269	0.683	0.0283	0.719
30	0.0296	0.752	0.0312	0.792
33	0.0329	0.836	0.0346	0.879
43	0.0428	1.087	0.0451	1.146
54	0.0538	1.367	0.0566	1.438
68	0.0677	1.720	0.0713	1.811
97	0.0966	2.454	0.1017	2.583
118	0.1180	2.997	0.1242	3.155

Final Hearing Results

S260-12 **AMPC2**

Code Change No: S261-12

Original Proposal

Section(s): Table 2304.9.1

Proponent: Stephen Kerr, S.E., Josephson Werdowatz and Associates, representing Structural Engineers Association of California (SEAOC) (skerr@jwa-se.com)

Revise as follows:

TABLE 2304.9.1
FASTENING SCHEDULE

CONNECTION	FASTENING[a,m]	LOCATION
12. Rim joist to top plate, or other framing below	8d (21/2" × 0.131") at 6" o.c. 3" × 0.131" nail at 6" o.c. 3" 14 gage staple at 6" o.c.	toenail

(Portions of table not shown remain unchanged)

Reason: The current code language does not explicitly require connections at perimeter joists to a foundation sill ("mudsill") in the case where a framed floor is built over a crawlspace without cripple-walls (the foundation walls extend to the underside of the floor framing).

This item was first introduced in the 1994 UBC to provide a more complete lateral load path to resist earthquake or wind forces. The original intent surely was to provide for lateral strength in all buildings constructed over a raised foundation: not just cases where cripple walls are present, and not to exclude connections along the sides of the building where framing is parallel to the foundation or cripple wall below.

Lack of connection along joists to the parallel supporting members is considered a deficiency under the 2009 IEBC (for buildings with more than one floor above). IEBC Section A304.1.4 requires supplementation of the joist-to-mudsill or joist-to-top plate connection if existing connectors are not present at 6" on center. The current IBC language for this connection requirement allows construction that is immediately in need of strengthening under the IEBC.

Cost Impact: Negligible cost for new construction; Substantial savings in possible retrofit costs in the case where the deficient connection would have to be supplemented to meet IEBC requirements; Immense savings over losing a building in an earthquake due to an incomplete load path.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change provides latitude in fastening a rim joist to whatever framing is below.

Assembly Action: **None**

Final Hearing Results

S261-12 **AS**

Code Change No: S263-12

Original Proposal

Section(s): Table 2304.9.1

Proponent: Stephen Kerr, S.E., Josephson Werdowatz and Associates, representing Structural Engineers Association of California (SEAOC) (skerr@jwa.se.com)

Revise as follows:

TABLE 2304.9.1
FASTENING SCHEDULE

CONNECTION	FASTENING[a,m]	LOCATION
11. Blocking between joists or rafters to top plate, or other framing below	3 - 8d common (21/2" × 0.131") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	toenail

(Portions of table not shown remain unchanged)

Reason: The current code language does not explicitly require connections at blocking to a foundation sill ("mudsill") in the case where a framed floor is built over a crawlspace without cripple-walls (the foundation walls extend to the underside of the floor framing).

This item was first introduced in the 1994 UBC to provide a more complete lateral load path to resist earthquake or wind forces. The original intent surely was to provide for lateral strength in all buildings constructed over a raised foundation, not just cases where cripple walls are present.

Lack of connection to the mudsill is considered a deficiency under the 2009 IEBC (for buildings with more than one floor above). IEBC Section A304.1.3 requires supplementation of the blocking-to-mudsill connection if existing connectors are not present at 6" on center. The current IBC language for this connection requirement allows construction that is immediately in need of strengthening under the IEBC.

Cost Impact: Negligible cost for new construction; Substantial savings in possible retrofit costs in the case where the deficient connection would have to be supplemented to meet IEBC requirements; Immense savings over losing a building in an earthquake due to an incomplete load path.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The revision addresses a framing connection that is not covered and this action is consistent with S216-12.

Assembly Action: **None**

Final Hearing Results

S263-12 **AS**

Code Change No: S265-12

Original Proposal

Section(s): Table 2304.9.1

Proponent: Charles S. Bajnai, Chesterfield County, VA, representing ICC Building Code Action Committee (bajnaic@chesterfield.gov)

Delete and substitute as follows:

~~**TABLE 2304.9.1**~~
~~**FASTENING SCHEDULE**~~

Table 2304.9.1
FASTENING SCHEDULE

	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
		ROOF	
1	Blocking between ceiling joists or rafters to top plate	3-8d common (2.5" x 0.131"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	at each end, toenail
2	Ceiling joists to top plate	3-8d common (2.5" x 0.131"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	per joist, toenail
3	Ceiling joist not attached to parallel rafter, laps over partitions (no thrust) (see Section 2308.10.4.1, Table 2308.10.4.1)	3-16d common (3.5" x 0.162"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
4	Ceiling joist attached to parallel rafter (heel joint) (see Section 2308.10.4.1, Table 2308.10.4.1)	Per table 2308.10.4.1	Face nail
5	Collar tie to rafter	3-10d common (3" x 0.148"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
6	Rafter or roof truss to top plate (See Section 2308.10.1, Table 2308.10.1)	3-10 common (3" x 0.148"); or 3-16d box (3.5" x 0.135"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131 nails; or 4-3" 14 gage staples, 7/16" crown	Toenail[c]
7	Roof rafters to ridge valley or hip rafters; or, roof rafter to 2-inch ridge beam	2-16d common (3.5" x 0.162"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown; or	End nail
		3-10d common (3.5" x 0.148"); or 3-16d box (3.5" x 0.135"); or 4-10d box (3" x 0.128"); or	Toenail

	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
		4-3” x 0.131” nails; or 4-3” 14 gage staples, 7/16” crown	
		WALL	
8	Stud to stud (not at braced wall panels)	16d common (3.5” x 0.162”);	24” o.c. face nail
		10d box (3" x 0.128"); or 3” x 0.131” nails; or 3-3” 14 gage staples, 7/16” crown	16” o.c. face nail
9	Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common (3.5” x 0.162”); or	16” o.c. face nail
		16d box (3.5” x 0.135”); or	12” o.c. face nail
		3” x 0.131” nails; or 3-3” 14 gage staples, 7/16” crown	12” o.c. face nail
10	Built-up header (2-inch to 2-inch header)	16d common (3.5" x 0.162"); or	16” o.c. each edge, face nail
		16d box (3.5” x 0.135”)	12” o.c. each edge, face nail
11	Continuous header to stud	4-8d common (2.5" x 0.131"); or 4-10d box (3" x 0.128")	Toenail
12	Top plate to top plate	16d common (3.5" x 0.162"); or	16” o.c. face nail
		10d box (3" x 0.128"); or 3” x 0.131” nails; or 3” 14 gage staples, 7/16” crown	12” o.c. face nail
13	Top plate to top plate, at end joints	8-16d common (3.5" x 0.162"); or 12-10d box (3" x 0.128"); or 12-3” x 0.131” nails; or 12-3” 14 gage staples, 7/16” crown	Face nail on each side of end joint (minimum 24” lap splice length each side of end joint)
14	Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3.5" x 0.162"); or	16” o.c. face nail
		16d box (3.5" x 0.135"); or 3” x 0.131” nails; or 3” 14 gage staples, 7/16” crown	12” o.c. face nail
15	Bottom plate to joist, rim joist, band joist or blocking at braced wall panels	2-16d common (3.5" x 0.162"); or 3-16d box (3.5" x 0.135"); or 4-3” x 0.131” nails; or 4-3” 14 gage staples, 7/16” crown	16” o.c. face nail
16	Stud to bottom plate	4-8d common (2.5" x 0.131"); or 4-10d box (3" x 0.128"); or 4-3” x 0.131” nails; or 4-3” 14 gage staples, 7/16” crown; or	Toenail
		2-16d common (3.5" x 0.162"); or 3-10d box (3" x 0.128"); or 3-3” x 0.131” nails; or 3-3” 14 gage staples, 7/16” crown	End nail
17	Top or bottom plate to stud	2-16d common (3.5" x 0.162"); or 3-10d box (3" x 0.128"); or 3-3” x 0.131” nails; or 3-3” 14 gage staples, 7/16” crown	End nail
18	Top plates, laps at corners and intersections	2-16d common (3.5" x 0.162"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16” crown	Face nail

	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION	
19	1” brace to each stud and plate	2-8d common (2.5" x 0.131"); or 2-10d box (3" x 0.128"); or 2-3" x 0.131" nails; or 2-3" 14 gage staples, 7/16” crown	Face nail	
20	1” x 6” sheathing to each bearing	2-8d common (2.5" x 0.131"); or 2-10d box (3" x 0.128")	Face nail	
21	1” x 8” and wider sheathing to each bearing	3-8d common (2.5" x 0.131"); or 3-10d box (3" x 0.128")	Face nail	
	FLOOR			
22	Joist to sill, top plate, or girder	3-8d common (2.5" x 0.131"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16” crown	Toenail	
23	Rim joist, band joist, or blocking to sill or top plate	8d common (2.5" x 0.131"); or 10d box (3" x 0.128"); or 3" x 0.131" nails; or 3" 14 gage staples, 7/16” crown	6” o.c., toenail	
24	1” x 6” subfloor or less to each joist	2-8d common (2.5" x 0.131"); or 3-10d box (3" x 0.128")	Face nail	
25	2” subfloor to joist or girder	2-16d common (3.5" x 0.162")	Face nail	
26	2” planks (plank & beam – floor & roof)	2-16d common (3.5" x 0.162")	At each bearing, face nail	
27	Built-up girders and beams, 2-inch lumber layers	20d common (4” x 0.192”)	32” o.c., face nail at top and bottom staggered on opposite sides	
		10d box (3" x 0.128"); or 3" x 0.131" nails; or 3" 14 gage staples, 7/16” crown	24” o.c. face nail at top and bottom staggered on opposite sides	
		And: 2-20d common (4” x 0.192”); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16” crown	Face nail at ends and at each splice	
28	Ledger strip supporting joists or rafters	3-16d common (3.5" x 0.162"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16” crown	At each joist or rafter, face nail	
29	Joist to band joist or rim joist	3-16d common (3.5" x 0.162"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16” crown	End nail	
30	Bridging to joist	2-8d common (2.5" x 0.131"); or 2-10d box (3" x 0.128"); or 2-3" x 0.131" nails; or 2-3" 14 gage staples, 7/16” crown	Each end, toenail	
	Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing[a]			
			Edges (inches)	Intermediate supports (inches)
31	3/8” – 1/2"	6d common or deformed (2” x 0.113”) (subfloor and wall)	6	12

	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION	
		8d box or deformed (2.5" x 0.113") (roof)	6	12
		2 3/8” x 0.113” nail (subfloor and wall)	6	12
		1 ¾” 16 gage staple, 7/16” crown (subfloor and wall)	4	8
		2 3/8 x 0.113” nail (roof)	4	8
		1 ¾” 16 gage staple, 7/16” crown (roof)	3	6
32	19/32” – 3/4"	8d common (2.5" x 0.131"); or 6d deformed (2” x 0.113)	6	12
		2 3/8” x 0.113” nail; or 2” 16 gage staple, 7/16” crown	4	8
33	7/8” – 1 1/4"	10d common (3" x 0.148"); or 8d deformed (2.5" x 0.131")	6	12
Other exterior wall sheathing				
34	1/2" fiberboard sheathing[b]	1 ½” galvanized roofing nail (7/16” head diameter; or 6d common (2” x 0.113”); or 1 ¼” 16 gage staple with 7/16” or 1” crown	3	6
35	25/32” fiberboard sheathing[b]	1 ¾” galvanized roofing nail (7/16” diameter head); or 8d common (2.5" x 0.131"); or 1 ½” 16 gage staple with 7/16” or 1” crown	3	6
Wood structural panels, combination subfloor underlayment to framing				
36	3/4” and less	8d common (2.5" x 0.131"); or6d deformed (2” x 0.113”)	6	12
37	7/8” – 1”	8d common (2.5" x 0.131"); or 8d deformed (2 ½” x 0.131”)	6	12
38	1 1/8” – 1 ¼”	10d common (3" x 0.148"); or 8d deformed (2 ½” x 0.131”)	6	12
Panel Siding to Framing				
39	½” or less	6d corrosion-resistant siding (1 7/8" × 0.106"); or 6d corrosion-resistant casing (2" × 0.099")	6	12
40	5/8”	8d corrosion-resistant siding (2 3/8" × 0.128"); or 8d corrosion-resistant casing (2 1/2" × 0.113")	6	12
Interior Paneling				
41	¼”	4d casing (11/2" × 0.080"); or 4d finish (11/2" × 0.072")	6	12
42	3/8”	6d casing (2" × 0.099"); or 6d finish (Panel supports at 24 inches)	6	12

a. Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and shear walls, refer to Section 2305. Nails for wall sheathing are permitted to be common, box, or casing.
b. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).
c. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is fastened to the top plate in accordance with this schedule, the number of toenails in the rafter shall be permitted to be reduced by one nail.

Reason: The ICC Building Code Action Committee sought to reformat and correlate the current fastening schedule for wood frame construction in Chapter 23 with the current fastening schedule in the IRC. The organization of the IRC table was thought to be easier to use, and it was generally acknowledged that it may help users of both codes if the tables more closely resembled each other in format and content.

Descriptions of specified fastening and their capacities in the IBC and IRC tables were compared. In developing the proposed new table, the committee tried to make as few technical changes as possible while reorganizing and reformatting the IBC table to look more like the IRC table. Care was taken to retain, for the most part, all fastening alternatives currently in the IBC, while at the same time adding appropriate alternatives that appear in the IRC for the same connection, if they were missing.

To attain complete coordination between the two tables was not possible because certain technical changes that would have been required were beyond the chosen scope of the committee's work. However, the proposed table is much closer to the IRC table and the committee will look at the IRC table in the Group B changes to attempt further correlations between the two.

When inconsistencies or apparent anomalies were discovered between tables or within the IBC table itself, in general the following principles were applied:

a. attempt to establish a reference common nail specification for each connection where it appeared to be lacking;
b. provide box nails alternatives, if lacking, where possible
c. retain all current alternatives for power-driven and staple alternatives (though in a few cases the number or size of fastener was adjusted to be consistent with the IRC or to achieve consistency within the IBC table itself based on other entries);
d. in creating box nail alternatives where they currently are missing, for simplicity assume 10d box nails (3" x 0.128") to be equivalent to 3" x 0.131" power-driven fasteners;
e. take into account calculated connection capacities. (These were also compared to the engineered connections specified in the AWC Wood Frame Construction Manual for like connections.)

Finally, this proposed IBC table is much cleaner and more complete than the current table. Besides adding many fastener alternatives, many detailed and difficult-to-use footnotes in the current table were eliminated since their content was incorporated directly into the proposed table.

The following three tables are provided: i) the proposed IBC Table 2304.9.1 with an additional column of notes explaining how it correlates to the existing IBC table, ii) the existing IBC Table 2304.9.1 with an additional column of notes explaining how it correlates to the proposed IBC table, and iii) the existing IRC table, shown for reference.

Proposed Table 2304.9.1 with additional column of explanation:

	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION	*Notes:*
		ROOF		
1	Blocking between ceiling joists or rafters to top plate	3-8d common (2.5" x 0.131"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	at each end, toenail	*-Nailing from IBC Row 11.* *-10d box equivalent to 8d common added.*
2	Ceiling joists to top plate	3-8d common (2.5" x 0.131"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	per joist, toenail	*-Nailing from IBC Row 15.* *-10d box equivalent to 8d common added.* *-Correct power driven number from 5 to 3.*
3	Ceiling joist not attached to parallel rafter, laps over partitions (no thrust) (for parallel rafter case see Section 2308.10.4.1, Table 2308.10.4.1)	3-16d common (3.5" x 0.162"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail	*-Nailing from IBC Row 17.* *-10d box equivalent to power driven nail size added.*
4	Ceiling joist attached to parallel rafter (heel joint) (see Section 2308.10.4.1, Table 2308.10.4.1)	Per table 2308.10.4.1	Face nail	*-Nailing from IBC Row 18.*
5	Collar tie to rafter	3-10d common (3" x 0.148"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail	*-Nailing from IBC Row 26.* *-10d box equivalent to power driven nail size added.*

	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION	*Notes:*
6	Rafter or roof truss to top plate (See Section 2308.10.1, Table 2308.10.1)	3-10 common (3" x 0.148"); or 3-16d box (3.5" x 0.135"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131 nails; or 4-3" 14 gage staples, 7/16" crown	Toenail[c]	*-Nailing from IRC Row 5.* *-10d box equivalent to power driven nail size added.*
7	Roof rafters to ridge valley or hip rafters; or, roof rafter to 2-inch ridge beam	2-16d common (3.5" x 0.162"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown; or	End nail	*-Nailing from IBC Rows 27 and 28.* *-10d box equivalent to power driven nail size added.*
		3-10d common (3.5" x 0.148"); or 3-16d box (3.5" x 0.135"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Toenail	*-Nailing from IBC Rows 27 and 28.* *-10d box equivalent to power driven nail size added.* *-16d box per IRC for toenailing of rafter in Row 6 added.*
		WALL		
8	Stud to stud (not at braced wall panels)	16d common (3.5" x 0.162");	24" o.c. face nail	*-Nailing from IBC Row 9.*
		10d box (3" x 0.128"); or 3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	16" o.c. face nail	*-10d box equivalent to power driven nail size added.* *-Corrected spacing for power driven nail to be equivalent to the specified common nail.*
9	Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common (3.5" x 0.162"); or	16" o.c. face nail	*-Nailing from IBC Row 23.* *-16d box equivalent from IRC Row 8.*
		16d box (3.5" x 0.135"); or 3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	12" o.c. face nail	
10	Built-up header (2-inch to 2-inch header)	16d common (3.5" x 0.162"); or	16" o.c. each edge, face nail	*-Nailing from IBC Row 14.* *-16d box equivalent added but at 12" o.c. spacing.*
		16d box (3.5" x 0.135")	12" o.c. each edge, face nail	
11	Continuous header to stud	4-8d common (2.5" x 0.131"); or 4-10d box (3" x 0.128")	Toenail	*-Nailing from IBC Row 16.* *-10d box equivalent to 8d common added.*
12	Top plate to top plate	16d common (3.5" x 0.162"); or	16" o.c. face nail	*-Nailing from IBC Row 10 except that 16d common specified in lieu of 16d box to align with power driven sizes.* *-10d box equivalent to power driven sizes added.*
		10d box (3" x 0.128"); or 3" x 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail	
13	Top plate to top plate, at end joints	8-16d common (3.5" x 0.162"); or 12-10d box (3" x 0.128"); or 12-3" x 0.131" nails; or 12-3" 14 gage staples, 7/16" crown	Face nail on each side of end joint (minimum 24" lap splice length each side of end joint)	*-Nailing from IBC Row 10.* *-10d box equivalent to power driven sizes added.*

	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION	*Notes:*
14	Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3.5" x 0.162"); or	16" o.c. face nail	*-Nailing from IBC Row 6 except that 16d common used in lieu of 16d box.* *-16d box equivalent added at 12" o.c.*
		16d box (3.5" x 0.135"); or 3" x 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail	
15	Bottom plate to joist, rim joist, band joist or blocking at braced wall panels	2-16d common (3.5" x 0.162"); or 3-16d box (3.5" x 0.135"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	16" o.c. face nail	*-Nailing from IBC Row 6; 16d common equivalent added*
16	Stud to bottom plate	4-8d common (2.5" x 0.131"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown; or	Toenail	*-Nailing per IBC Row 8.* *-10d box equivalent to 8d common added.*
		2-16d common (3.5" x 0.162"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	End nail	*-Nailing per IBC Row 8.* *-10d box equivalent to power driven sizes added.*
17	Top or bottom plate to stud	2-16d common (3.5" x 0.162"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	End nail	*-Nailing per IBC Row 7.* *-10d box equivalent to power driven sizes added.*
18	Top plates, laps at corners and intersections	2-16d common (3.5" x 0.162"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Face nail	*-Nailing per IBC Row 13.* *-10d box equivalent to power driven sizes added.*
19	1" brace to each stud and plate	2-8d common (2.5" x 0.131"); or 2-10d box (3" x 0.128"); or 2-3" x 0.131" nails; or 2-3" 14 gage staples, 7/16" crown	Face nail	*-Nailing per IBC Row 20.* *-10d box equivalent to 8d common added.*
20	1" x 6" sheathing to each bearing	2-8d common (2.5" x 0.131"); or 2-10d box (3" x 0.128")	Face nail	*-Nailing per IRC Row 21 .* *-10d box equivalent to 8d common added.*
21	1" x 8" and wider sheathing to each bearing	3-8d common (2.5" x 0.131"); or 3-10d box (3" x 0.128")	Face nail	*-Nailing per IRC Rows 22 and 23, and IBC Rows 4, 21 and 22.* *-10d box equivalent to 8d common added.*
		FLOOR		
22	Joist to sill, top plate, or girder	3-8d common (2.5" x 0.131"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Toenail	*-Nailing from IBC Row 1.* *-10d box equivalent to 8d common added.*
23	Rim joist, band joist, or blocking to sill or top plate	8d common (2.5" x 0.131"); or 10d box (3" x 0.128"); or 3" x 0.131" nails; or 3" 14 gage staples, 7/16" crown	6" o.c., toenail	*-Nailing from IBC Row 12.* *-10d box equivalent to 8d common added.*

	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION		*Notes:*
24	1" x 6" subfloor or less to each joist	2-8d common (2.5" x 0.131"); or 3-10d box (3" x 0.128")	Face nail		*-Nailing from IBC Row 3.* *-10d box equivalent to 8d common added*
25	2" subfloor to joist or girder	2-16d common (3.5" x 0.162")	Face nail		*-Nailing from IBC Row 5.*
26	2" planks (plank & beam – floor & roof)	2-16d common (3.5" x 0.162")	At each bearing, face nail		*-Nailing from IBC Row 25.*
27	Built-up girders and beams, 2-inch lumber layers	20d common (4" x 0.192")	32" o.c., face nail at top and bottom staggered on opposite sides		*-Nailing from IBC Row 24.* *-10d box equivalent to power driven nail size added.*
		10d box (3" x 0.128"); or 3" x 0.131" nails; or 3" 14 gage staples, 7/16" crown	24" o.c. face nail at top and bottom staggered on opposite sides		
		And: 2-20d common (4" x 0.192"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Face nail at ends and at each splice		*-Nailing from IBC Row 24.* *-10d box equivalent to power driven nail sizes added.*
28	Ledger strip supporting joists or rafters	3-16d common (3.5" x 0.162"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	At each joist or rafter, face nail		*-Nailing from IBC Row 30.* *-10d box equivalent to power driven nail size added.*
29	Joist to band joist or rim joist	3-16d common (3.5" x 0.162"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	End nail		*-Nailing from IBC Row 29.* *-10d box equivalent to power driven nail size added.*
30	Bridging to joist	2-8d common (2.5" x 0.131"); or 2-10d box (3" x 0.128"); or 2-3" x 0.131" nails; or 2-3" 14 gage staples, 7/16" crown	Each end, toenail		*-Nailing from IBC Row 2.* *-10d box equivalent to 8d common nail added.*
Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing[a]					
			Edges (inches)	Intermediate supports (inches)	
31	3/8" – 1/2"	6d common or deformed (2" x 0.113") (subfloor and wall)	6	12	*-Nailing from IBC Row 31.*
		8d box or deformed (2.5" x 0.113") (roof)	6	12	*-Nailing from IBC Row 31 footnote "L".*
		2 3/8" x 0.113" nail (subfloor and wall)	6	12	*-Nailing from IBC Row 31.*
		1 ¾" 16 gage staple, 7/16" crown (subfloor and wall)	4	8	*-Nailing from IBC Row 31 and footnote "o".*
		2 3/8 x 0.113" nail (roof)	4	8	*-Nailing from IBC Row 31 and footnote "n".*
		1 ¾" 16 gage staple, 7/16" crown (roof)	3	6	*-Nailing from IBC Row 31 and footnote "o".*
32	19/32" – 3/4"	8d common (2.5" x 0.131"); or 6d deformed (2" x 0.113)	6	12	*-Nailing from IBC Row 31.*
		2 3/8" x 0.113" nail; or 2" 16 gage staple, 7/16" crown	4	8	*-Nailing from IBC Row 31 and footnote "p".*
33	7/8" – 1 1/4"	10d common (3" x 0.148"); or 8d deformed (2.5" x 0.131")	6	12	*-Nailing from IBC Row 31 and footnote "e".*
Other exterior wall sheathing					
34	1/2" fiberboard sheathing[b]	1 ½" galvanized roofing nail (7/16" head diameter; or 6d common (2" x 0.113"); or	3	6	*-Nailing from IBC Row 33 and footnote "g" and "h" and "i".*

	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION		*Notes:*
		1 ¼" 16 gage staple with 7/16" or 1" crown			
35	25/32" fiberboard sheathing[b]	1 ¾" galvanized roofing nail (7/16" diameter head); or 8d common (2.5" x 0.131"); or 1 ½" 16 gage staple with 7/16" or 1" crown	3	6	*-Nailing from IBC Row 33 and footnote "g" and "h" and "i".*
Wood structural panels, combination subfloor underlayment to framing					
36	3/4" and less	8d common (2.5" x 0.131"); or6d deformed (2" x 0.113")	6	12	*-Nailing from IBC Row 31 and footnote "e" and IRC Row 39 for common nail size.*
37	7/8" – 1"	8d common (2.5" x 0.131"); or 8d deformed (2 ½" x 0.131")	6	12	*-Nailing from IBC Row 31 and footnote "e" and IRC Row 40 for common nail size.*
38	1 1/8" – 1 ¼"	10d common (3" x 0.148"); or 8d deformed (2 ½" x 0.131")	6	12	*-Nailing from IBC Row 31 for common and deformed nail size.*
Panel Siding to Framing					
39	½" or less	6d corrosion-resistant siding (1 7/8" × 0.106"); or 6d corrosion-resistant casing (2" × 0.099")	6	12	*-Nailing from IBC Row 32 and footnote "f".*
40	5/8"	8d corrosion-resistant siding (2 3/8" × 0.128"); or 8d corrosion-resistant casing (2 1/2" × 0.113")	6	12	*-Nailing from IBC Row 32 and footnote "f".*
Interior Paneling					
41	¼"	4d casing (11/2" × 0.080"); or 4d finish (11/2" × 0.072")	6	12	*-Nailing from IBC Row 34 and footnote "j".*
42	3/8"	6d casing (2" × 0.099"); or 6d finish (Panel supports at 24 inches)	6	12	*-Nailing from IBC Row 34 and footnote "k".*

a. Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and shear walls, refer to Section 2305. Nails for wall sheathing are permitted to be common, box or casing.

b. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).

c. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is fastened to the top plate in accordance with this schedule, the number of toenails in the rafter shall be permitted to be reduced by one nail.

<u>Current (Existing)</u> Table 2304.9.1 with additional column indicating new location:

CONNECTION	FASTENING[a, m]	LOCATION	*Notes:*
1. Joist to sill or girder	3-8d common (2 ½ " x 0.131") 3-3" x 0.131" nails 3-3" 14 gage staples	toenail	*to new row 22*
2. Bridging to joist	2-8d common (2 ½" x 0.131") 2-3" x 0.131" nails 2-3" 14 gage staples	toenail each end	*to new row 30*
3. 1" x 6" subfloor or less to each joist	2-8d common (2 ½" x 0.131")	face nail	*to new row 24*
4. Wider than 1" x 6" subfloor to each joist	3-8d common (2 ½" x 0.131")	face nail	*deleted from table, wider condition addressed by row 21*
5. 2" subfloor to joist or girder	2-16d common (3 ½" x 0.162")	Blind and face nail	*to new row 25*
6. sole plate to joist or blocking	16d (3 ½" x 0.135") at 16" o.c. 3" x 0.131" nails at 8 o.c. 3" 14 gage staples at 12" o.c.	typical face nail	*to new row 14*
Sole plate to joist or blocking at braced wall panel	3-16d (3 ½" x 0.135") at 16" o.c. 4-3" x 0.131" nails at 16" o.c. 4-3" 14 gage staples at 16" o.c.	braced wall panels	*to new row 15*

CONNECTION	FASTENING[a, m]	LOCATION	*Notes:*
7. Top plate to stud	2-16d common (3 ½" x 0.162") 3-3" x 0.131" nails 3-3" 14 gage staples	end nail	*to new row 17*
8. Stud to sole plate	4-8d common (2 ½" x 0.131") 4-3" x 0.131" nails 3-3" 14 gage staples	toenail	*to new row 16 and 17*
	2-16d common (3 ½" x 0.162") 3-3" x 0.131" nails 3-3" 14 gage staples	end nail	*to new row 16 and 17*
9. Double studs	16d (3 ½" x 0.135") at 24" o.c. 3" x 0.131" nail at 8" o.c. 3" 14 gage staple at 8" o.c.	face nail	*to new rows 8 and 9*
10. Double top plates Double top plates	16d (3 ½" x 0.135") at 16" o.c. 3" x 0.131" nail at 12" o.c. 3" 14 gage staple at 8" o.c. 8-16d common (3 ½" x 0.162") 12-3" x 0.131" nails 12-3" 14 gage staples	typical face nail lap splice	*to new rows 12*
11. Blocking between joists or rafters to top plate	3-8d common (2 ½" x 0.131") 3-3" x 0.131" nails 3-3" 14 gage staples	toenail	*to new row 1*
12. Rim joist to top plate	8d (2 ½" x 0.131") at 6" o.c. 3" x 0.131" nail at 6" o.c. 3" 14 gage staple at 6" o.c.	toenail	*to new row 23*
13. Top plates, laps and intersections	2-16d common (3 ½" x 0.162") 3-3" x 0.131" nails 3-3" 14 gage staples	face nail	*to new row 18*
14. Continuous header, two pieces	16d common (3 ½" 0.162")	16" o.c. along edge	*to new row 10*
15. Ceiling joists to plate	3-8d common (2 ½" x 0.131") 5-3" x 0.131" nails 5-3" 14 gage staples	toenail	*to new row 2*
16. Continuous header to stud	4-8d common (2 ½" x 0.131")	toenail	*to new row 11*
17. Ceiling joists, laps over partitions (see Section 2308.10.4.1, Table 2308.10.4.1)	3-16d common (3 ½" x 0.162") minimum,Table 2308.10.4.1 4-3" x 0.131" nails 4-3" 14 gage staples	face nail	*to new rows 3 and 4*
18. Ceiling joists to parallel rafters (see Section 2308.10.4.1, Table 2308.10.4.1)	3-16d common (3 ½" x 0.162") minimum,Table 2308.10.4.1 4-3" x 0.131" nails 4-3" 14 gage staples	face nail	*to new row 4*
19. Rafter to plate (see Section 2308.10-.1, Table 2308.10.1)	3-8d common (2 ½" x 0.131") 3-3" x 0.131" nails 3-3" 14 gage staples	Face nail	*to new row 6*
20. 1" diagonal brace to each stud and plate	2-8d common (2 ½" x 0.131") 2-3" x 0.131" nails 3-3" 14 gage staples	Face nail	*to new row 19*
21. 1" x 8" sheathing to each bearing	3-8d common (2 ½" x 0.131")	face nail	*to new row 21*
22. Wider than 1" x 8" sheathing to each bearing	3-8d common (2 ½" x 0.131")	face nail	*to new row 21*
23. Built-up corner studs	16d common (2 ½" x 0.131") 3" x 0.131" nails 3" 14 gage staples	24" o.c. 16" o.c. 16" o.c.	*to new row 9*
24. Built-up girder and beams	20d common (4" x 0.192") 32" o.c. 3" x 0.131" nails @ 24" o.c. 3" 14 gage staples @ 24" o.c.	face nail at top and bottom staggered on opposite sides	*to new row 27*
	2-20d common (4" x 0.192") 3-3" x 0.131" nails @ 24" o.c. 3-3" 14 gage staples @ 24" o.c.	face nail at ends and at each splice	*to new row 27*
25. 2" planks	16d common (3 ½" x 0.162")	at each bearing	*to new row 26*
26. Collar tie to rafter	3-10d common (3" x 0.148") 4-3" x 0.131" nails	face nail	*to new row 5*

CONNECTION	FASTENING[a, m]		LOCATION	*Notes:*
	4-3" 14 gage staples			
27. Jack rafter to hip	3-10d common (3" x 0.148") 4-3" x 0.131" nails 4-3" 14 gage staples		toenail	*to new row 7*
	2-16d common (3 ½" x 0.162") 3-3" x 0.131" nails 3-3" 14 gage staples		face nail	*to new row 7*
28. Roof rafter to 2-by ridge beam	2-16d common (3 ½" x 0.162") 3-3" x 0.131" nails 3-3" 14 gage staples		toenail	*to new row 7 except 10d common is specified for toe-nail case to match jack to hip nailing.*
	2-16d common (3 ½" x 0.162") 3-3" x 0.131" nails 3-3" 14 gage staples		face nail	*to new row 7*
29. Joist to band joist	3-16d common (3 ½" x 0.162") 4-3" x 0.131" nails 4-3" 14 gage staples		face nail	*to new row 29*
30. Ledger strip	3-16d common (3 ½" x 0.162") 4-3" x 0.131" nails 4-3" 14 gage staples		face nail at each joist	*to new row 28*
31. Wood structural panels and particleboard[b] Subfloor, roof and wall sheathing (to framing)	½" and less	6d[c,l] 2 3/8" x 0.113" nail[n] 1 ¾" 16 gage[o]		*to new row 31*
	19/32" to ¾"	8d[d] or 6d[e] 2 3/8" x 0.113" nail[p] 2" 16 gage[p]		*to new rows 32-33*
	7/8" to 1"	8d[c]		
	1 1/8" to 1 ¼"	10d[d] or 8d[e]		*to new rows 36, 37, 38*
Single floor (combination subfloor-underlayment to framing)	¾" and less	6d[e]		
	7/8" to 1"	8d[e]		
	1 1/8" to 1 ¼"	10d[d] or 8d[e]		
32. Panel siding (to framing)	½" or less	6d[f]		*to new rows 39 and 40*
	5/8"	8d[f]		
33. Fiberboard sheathing[g]	½"	No. 11 gage roofing nail[h] 6d common nail (2" x 0.113") No. 16 gage staple[i]		*to new row 34*
	25/32"	No. 11 gage roofing nail[h] 8d common nail (2" x 0.113") No. 16 gage staple[i]		*to new row 35*
34. Interior paneling	¼"	4d[j]		*to new row 41*
	3/8"	6d[k]		*to new row 42*

For SI: 1 inch = 25.4 mm.

a. common or box nails are permitted to be used except where otherwise stated.
b. Nails spaced at 6 inches on center at edges, 12 inches at intermediate supports except 6 inches at supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and shear walls, refer to Section 2305. Nails for wall sheathing are permitted to be common, box or casing.
c. Common or deformed shank (6d-2" x 0.113"; 8d-2 ½" x 0.131"; 10d-3" x 0.148").
d. Common (6d-2" x 0.113"; 8d-2 ½" x 0.131"; 10d-3" x 0.148").
e. Deformed shank (6d-2" x 0.113"; 8d-2 ½" x 0.131"; 10d-3" x 0.148").
f. Corrosion-resistant siding (6d-1 7/8 x 0.106"; 8d-2 3/8" x 0.128") or casing (6d-2" x 0.099"; 8d-2 ½" x 0.113") nail.
g. Fasteners spaced 3 inches on center at exterior edges and 6 inches on center at intermediate supports, when used as structural sheathing. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications.
h. Corrosion-resistant roofing nails with 7/16-inch-diameter head and d1 1 1/2"-inch length for ½-inch sheathing and 1 ¾-inch length for 25/32-inch sheathing.
i. Corrosion-resistant staples with nominal 7/16-inch crown or 1-inch crown and 1 ¼-inch length for ½-inch sheathing and 1 ½-inch length for 25/32-inch sheathing. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).

j. Casing (1 ½" x 0.080") or finish (1 ½" x 0.072") nails spaced 6 inches on panel edges, 12 inches at intermediate supports
k. Panel supports at 24 inches. Casing or finish nails spaced 6 inches on panel edges, 12 inches at intermediate supports.
l. For roof sheathing applications, 8d nails (2 ½" x 0.113") are the minimum required for wood structural panels.
m. Staples shall have a minimum crown width of 7:16 inch.
n. For roof sheathing applications, fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports.
o. Fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports for subfloor and wall sheathing and 3 inches on center at edges, 6 inches at intermediate supports for roof sheathing.
p. Fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports.

(The 2012 IRC fastener schedule is shown below for reference)

TABLE R602.3(1)
FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING OF FASTENERS
		Roof	
1	Blocking between joists or rafters to top plate, toe nail	3-8d ($2^1/_2$″ × 0.113″)	—
2	Ceiling joists to plate, toe nail	3-8d ($2^1/_2$″ × 0.113″)	—
3	Ceiling joists not attached to parallel rafter, laps over partitions, face nail	3-10d	—
4	Collar tie to rafter, face nail or $1^1/_4$″ × 20 gage ridge strap	3-10d (3″ × 0.128″)	—
5	Rafter or roof truss to plate, toe nail	3-16d box nails ($3^1/_2$″ × 0.135″) or 3-10d common nails (3″ × 0.148″)	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss[j]
6	Roof rafters to ridge, valley or hip rafters: toe nail face nail	4-16d ($3^1/_2$″ × 0.135″) 3-16d ($3^1/_2$″ × 0.135″)	—
		Wall	
7	Built-up studs-face nail	10d (3″ × 0.128″)	24″ o.c.
8	Abutting studs at intersecting wall corners, face nail	16d (3 ½" x 0.135")	12″ o.c.
9	Built-up header, two pieces with $^1/_2$″ spacer	16d ($3^1/_2$″ × 0.135″)	16″ o.c. along each edge
10	Continued header, two pieces	16d ($3^1/_2$″ × 0.135″)	16″ o.c. along each edge
11	Continuous header to stud, toe nail	4-8d ($2^1/_2$″ × 0.113″)	—
12	Double studs, face nail	10d (3″ × 0.128″)	24″ o.c.
13	Double top plates, face nail	10d (3″ × 0.128″)	24″ o.c.
14	Double top plates, minimum 24-inch offset of end joints, face nail in lapped area	8-16d ($3^1/_2$″ × 0.135″)	—
15	Sole plate to joist or blocking, face nail	16d ($3^1/_2$″ × 0.135″)	16″ o.c.
16	Sole plate to joist or blocking at braced wall panels	3-16d ($3^1/_2$″ × 0.135″)	16″ o.c.
17	Stud to sole plate, toe nail	3-8d ($2^1/_2$″ × 0.113″) or 2-16d ($3^1/_2$″ × 0.135″)	— —
18	Top or sole plate to stud, end nail	2-16d ($3^1/_2$″ × 0.135″)	—
19	Top plates, laps at corners and intersections, face nail	2-10d (3″ × 0.128″)	—
20	1″ brace to each stud and plate, face nail	2-8d ($2^1/_2$″ × 0.113″) 2 staples $1^3/_4$″	— —
21	1″ × 6″ sheathing to each bearing, face nail	2-8d ($2^1/_2$″ × 0.113″) 2 staples $1^3/_4$″	— —
22	1″ × 8″ sheathing to each bearing, face nail	2-8d ($2^1/_2$″ × 0.113″) 3 staples $1^3/_4$″	— —
23	Wider than 1″ × 8″ sheathing to each bearing, face nail	3-8d ($2^1/_2$″ × 0.113″) 4 staples $1^3/_4$″	— —
		Floor	
24	Joist to sill or girder, toe nail	3-8d ($2^1/_2$″ × 0.113″)	—
25	Rim joist to top plate, toe nail (roof applications also)	8d ($2^1/_2$″ × 0.113″)	6″ o.c.
26	Rim joist or blocking to sill plate, toe nail	8d (2 ½″ × 0.113″)	6″ o.c.
27	1″ × 6″ subfloor or less to each joist, face nail	2-8d ($2^1/_2$″ × 0.113″) 2 staples $1^3/_4$″	— —
28	2″ subfloor to joist or girder, blind and face nail	2-16d ($3^1/_2$″ × 0.135″)	—
29	2″ planks (plank & beam - floor & roof)	2-16d ($3^1/_2$″ × 0.135″)	at each bearing
30	Built-up girders and beams, 2-inch lumber layers	10d (3″ × 0.128″)	Nail each layer as follows: 32″ o.c. at top and bottom and staggered. Two nails at ends and at each splice.
31	Ledger strip supporting joists or rafters	3-16d ($3^1/_2$″ × 0.135″)	At each joist or rafter

(continued)

TABLE R602.3(1)—continued
FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

ITEM	DESCRIPTION OF BUILDING MATERIALS	DESCRIPTION OF FASTENER[b, c, e]	SPACING OF FASTENERS	
			Edges (inches)[i]	Intermediate supports[c, e] (inches)
Wood structural panels, subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing				
32	3/8" - 1/2"	6d common (2" × 0.113") nail (subfloor wall)[j] 8d common (2 1/2" × 0.131") nail (roof)[f]	6	12[g]
33	19/32" - 1"	8d common nail (2 1/2" × 0.131")	6	12[g]
34	1 1/8" - 1 1/4"	10d common (3" × 0.148") nail or 8d (2 1/2" × 0.131") deformed nail	6	12
Other wall sheathing[h]				
35	1/2" structural cellulosic fiberboard sheathing	1/2" galvanized roofing nail, 7/16" crown or 1" crown staple 16 ga., 1 1/4" long	3	6
36	25/32" structural cellulosic fiberboard sheathing	1 3/4" galvanized roofing nail, 7/16" crown or 1" crown staple 16 ga., 1 1/2" long	3	6
37	1/2" gypsum sheathing[d]	1 1/2" galvanized roofing nail; staple galvanized, 1 1/2" long; 1 1/4 screws, Type W or S	7	7
38	5/8" gypsum sheathing[d]	1 3/4" galvanized roofing nail; staple galvanized, 1 5/8" long; 1 5/8" screws, Type W or S	7	7
	Wood structural panels, combination subfloor underlayment to framing			
39	3/4" and less	6d deformed (2" × 0.120") nail or 8d common (2 1/2" × 0.131") nail	6	12
40	7/8" - 1"	8d common (2 1/2" × 0.131") nail or 8d deformed (2 1/2" × 0.120") nail	6	12
41	1 1/8" - 1 1/4"	10d common (3" × 0.148") nail or 8d deformed (2 1/2" × 0.120") nail	6	12

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s; 1 Ksi = 6.895 MPa.

a. All nails are smooth-common, box or deformed shanks except where otherwise stated. Nails used for framing and sheathing connections shall have minimum average bending yield strengths as shown: 80 ksi for shank diameter of 0.192 inch (20d common nail), 90 ksi for shank diameters larger than 0.142 inch but not larger than 0.177 inch, and 100 ksi for shank diameters of 0.142 inch or less.

b. Staples are 16 gage wire and have a minimum 7/16-inch on diameter crown width.

c. Nails shall be spaced at not more than 6 inches on center at all supports where spans are 48 inches or greater.

d. Four-foot by 8-foot or 4-foot by 9-foot panels shall be applied vertically.

e. Spacing of fasteners not included in this table shall be based on Table R602.3(2).

f. For regions having basic wind speed of 110 mph or greater, 8d deformed (2 1/2" × 0.120) nails shall be used for attaching plywood and wood structural panel roof sheathing to framing within minimum 48-inch distance from gable end walls, if mean roof height is more than 25 feet, up to 35 feet maximum.

g. For regions having basic wind speed of 100 mph or less, nails for attaching wood structural panel roof sheathing to gable end wall framing shall be spaced 6 inches on center. When basic wind speed is greater than 100 mph, nails for attaching panel roof sheathing to intermediate supports shall be spaced 6 inches on center for minimum 48-inch distance from ridges, eaves and gable end walls; and 4 inches on center to gable end wall framing.

h. Gypsum sheathing shall conform to ASTM C 1396 and shall be installed in accordance with GA 253. Fiberboard sheathing shall conform to ASTM C 208.

i. Spacing of fasteners on floor sheathing panel edges applies to panel edges supported by framing members and required blocking and at all floor perimeters only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roof or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this code. Floor perimeter shall be supported by framing members or solid blocking.

j. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule, provide two toe nails on one side of the rafter and toe nails from the ceiling joist to top plate in accordance with this schedule. The toe nail on the opposite side of the rafter shall not be required.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This reformatting and reorganizing of the fastener schedule makes it easier to use and is an excellent idea. Note that the changes approved in S261-12 and S263-12 will be incorporated in items 1, 6, 14 and 23.

Assembly Action: **None**

Public Comments

Public Comment:

Paul Coats, P.E., CBO, American Wood Council, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

Table 2304.9.1
FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
24	1” x 6” subfloor or less to each joist	2-8d common (2.5" x 0.131"); or 2 ~~3~~-10d box (3" x 0.128")	Face nail

(Portions of table not shown remain unchanged)

Commenter’s Reason: As part of the overall table revision, the 10d box nail (3” x 0.128”) was added as an equivalent to the 8d common nail (2.5” x 0.131”). The correct number of 10d box nails is 2 which matches the required number of 8d common nails.

Final Hearing Results

S265-12 **AMPC2**

Code Change No: S266-12

Original Proposal

Section(s): Table 2304.9.1

Proponent: Paul Coats, American Wood Council (pcoats@awc.org)

Revise as follows:

TABLE 2304.9.1
FASTENING SCHEDULE

CONNECTION	FASTENING[a,m]		LOCATION
33. Fiberboard sheathing[g]	1/2"	No. 11 gage roofing nail[h] ~~6d common nail (2" × 0.113")~~ No. 16 gage staple[i]	
	25/32"	No. 11 gage roofing nail[h] ~~8d common nail (21/2" × 0.131")~~ No. 16 gage staple[i]	

(Portions of table not shown remain unchanged)

Reason: Recommended fastening for fiberboard sheathing no longer includes 6d common or 8d common nails. Removal of these common nail fastener sizes coordinates with revisions made in the 2008 Special Design Provisions for Wind and Seismic (SDPWS) and 2012 Wood Frame Construction Manual (WFCM) referenced in this code and applicable for design of structural fiberboard shear walls. Specified roofing nails and staples incorporate a larger head/crown size per footnotes h and i for increased head pull-through resistance.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal removes fasteners for fiberboard sheathing that are no longer recommended.

Assembly Action: **None**

Final Hearing Results

S266-12 **AS**

Code Change No: S267-12

Original Proposal

Section(s): Table 2304.9.1

Proponent: Jay Crandell, ARES Consulting, representing the Foam Sheathing Committee of the American Chemistry Council- Plastics Division (jcrandell@aresconsulting.biz)

Revise as follows:

TABLE 2304.9.1
FASTENING SCHEDULE

7. Top plate to stud	2 - 16d common ($3^1/_2$" × 0.162") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	end nail
	4 - 8d common (21/2" × 0.131") 4 - 3" × 0.131" nails 3 - 3" 14 gage staples	toenail

(Portions of table not shown remain unchanged)

Reason: The code already provides a toenail connection option for the stud to bottom plate connection (see Item 8 in the same table). This code change proposal makes requirements consistent for connection of the stud to the top plate. Toe nail connections provide a better uplift load path than end nails, so this option should be provided for both ends of the stud, not just at the bottom end of the stud.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Providing the proposed toenail option for top plate to stud connection is consistent with what is currently permitted at the sole plate connection. This revision will be made to item 16 in reformatted table in accordance with S265-12.

Assembly Action: **None**

Final Hearing Results

S267-12 **AS**

Code Change No: S268-12

Original Proposal

Section(s): 2304.11, 2304.11.1, 2304.11.2, 2304.11.2.1, 2304.11.2.2, 2304.11.2.3, 2304.2.4, 2304.11.2.5, 2304.11.2.6, 2304.11.2.7, 2304.11.3, 2304.11.4, 2304.11.4.1, 2304.11.4.2, 2304.11.5, 2304.11.6, 2304.11.7

Proponent: Dennis Pitts, American Wood Council, (dpitts@awc.org)

Revise as follows:

2304.11 Protection against decay and termites. Wood shall be protected from decay and termites in accordance with the applicable provisions of Sections 2304.11.1 through ~~2304.11.9~~ 2304.11.7.

~~**2304.11.1 General.** Where required by this section, protection from decay and termites shall be provided by the use of naturally durable or *preservative-treated wood*.~~

~~**2304.11.2 Wood used above ground**~~ **2304.11.1 Location requiring water-borne preservatives.** Wood used above ground in the locations specified in Sections ~~2304.11.2.1~~ 2304.11.1.1 through ~~2304.11.2.7~~ 2304.11.1.5, 2304.11.3 and 2304.11.5 shall be naturally durable wood or *preservative-treated wood* using water-borne preservatives, in accordance with AWPA U1 ~~(Commodity Specifications A or F)~~ for above-ground use.

~~**2304.11.2.1**~~ **2304.11.1.1 Joists, girders and subfloor.** ~~Where~~ Wood joists or ~~the bottom of~~ a wood structural floor ~~without joists are~~ closer than 18 inches (457 mm), or wood girders ~~are~~ closer than 12 inches (305 mm) to the exposed ground in crawl spaces or unexcavated areas located within the perimeter of the building foundation~~, the floor construction (including posts, girders, joists and subfloor)~~ shall be of naturally durable or *preservative-treated wood*.

~~**2304.11.2.2**~~ **2304.11.1.2 Wood supported by exterior foundation walls.** Wood framing members, including wood sheathing, that ~~rest on~~ are in contact with exterior foundation walls and are less than 8 inches (203 mm) from exposed earth shall be of naturally durable or *preservative-treated wood*.

~~**2304.11.2.3**~~ **2304.11.1.3 Exterior walls below grade.** Wood framing members and furring strips ~~attached directly to~~ in direct contact with the interior of exterior masonry or concrete walls below grade shall be of naturally durable or *preservative-treated wood*.

~~**2304.11.2.4**~~ **2304.11.1.4 Sleepers and sills.** Sleepers and sills on a concrete or masonry slab that is in direct contact with earth shall be of naturally durable or *preservative-treated wood*.

~~**2304.11.2.6**~~ **2304.11.1.5 Wood siding.** Clearance between wood siding and earth on the exterior of a building shall not be less than 6 inches (152 mm) or less than 2 inches (51 mm) vertical from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather except where siding, sheathing and wall framing are of naturally durable or *preservative-treated wood*.

2304.11.2 Other locations. Wood used in the locations specified in Sections 2304.11.2.1 through 2304.11.2.5 shall be naturally durable wood or *preservative treated wood* in accordance with AWPA U1. Preservative treated wood used in interior locations shall be protected with two coats of urethane, shellac, latex epoxy, or varnish unless waterborne preservatives are used. Prior to application of the protective finish, the wood shall be dried in accordance with the manufacturer's recommendations.

~~2304.11.2.5~~ 2304.11.2.1 **Girder ends.** The ends of wood girders entering exterior masonry or concrete walls shall be provided with a 1/2-inch (12.7 mm) air space on top, sides and end, unless naturally durable or pr*eservative-treated wood* is used.

~~2304.11.2.7~~ 2304.11.2.2 **Posts or columns.** Posts or columns supporting permanent structures and supported by a concrete or masonry slab or footing that is in direct contact with the earth shall be of naturally durable or *preservative-treated wood*.

Exceptions:

1. ~~either~~ not exposed to the weather ~~or located in basements or cellars,~~ are supported by concrete piers or metal pedestals projected at least 1 inch (25 mm) above the slab or deck and ~~6~~ 8 inches (152 mm) above exposed earth, and are separated ~~therefrom~~ by an impervious moisture barrier.
2. ~~Posts or columns in enclosed crawl spaces or unexcavated areas located within the periphery of the building, supported by a concrete pier or metal pedestal at a height greater than 8 inches (203 mm) from exposed ground, and are separated therefrom by an impervious moisture barrier.~~

~~2304.11.5~~ 2304.11.2.3 **Supporting member for permanent appurtenances.** Naturally durable or *preservative-treated wood* shall be utilized for those portions of wood members that form the structural supports of buildings, balconies, porches or similar permanent building appurtenances where such members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering to prevent moisture or water accumulation on the surface or at joints between members.

Exception: When a building is located in a geographical region where experience has demonstrated that climatic conditions preclude the need to use durable materials where the structure is exposed to the weather.

~~2304.11.3~~ 2304.11.2.4 **Laminated timbers.** The portions of glued-laminated timbers that form the structural supports of a building or other structure and are exposed to weather and not fully protected from moisture by a roof, eave or similar covering shall be pressure treated with preservative or be manufactured from naturally durable or *preservative-treated wood*.

2304.11.2.5. **Supporting members for permeable floors and roofs.** Wood structural members that support moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, shall be of naturally durable or *preservative-treated wood* unless separated from such floors or roofs by an impervious moisture barrier.

~~2304.11.4~~ 2304.11.3 **Wood in contact with the ground or fresh water.** Wood used in contact with the ground (exposed earth) ~~in the locations specified in Sections 2304.11.4.1 and 2304.11.4.2~~ shall be naturally durable (species for both decay and termite resistance) or preservative treated ~~using water-borne preservatives~~ in accordance with AWPA U1 ~~(Commodity Specifications A or F)~~ for soil or fresh water use.

Exception: Untreated wood is permitted where such wood is continuously and entirely below the groundwater level or submerged in fresh water.

~~2304.11.4.1~~ 2304.11.3.1 **Posts or columns.** Posts and columns supporting permanent structures that are embedded in concrete that is ~~in direct contact with the earth, embedded in concrete that is~~ exposed to the weather or in direct contact with the earth shall be of *preservative-treated wood*.

~~2304.11.4.2 Wood structural members.~~ ~~Wood structural members that support moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, shall be of naturally durable or *preservative-treated wood* unless separated from such floors or roofs by an impervious moisture barrier.~~

~~2304.11.6~~ **2304.11.4 Termite protection.** In geographical areas where hazard of termite damage is known to be very heavy, wood floor framing in the locations specified in Section 2304.11.1.1 and exposed framing of exterior decks or balconies shall be of naturally durable species (termite resistant) or preservative treated in accordance with AWPA U1 for the species, product preservative and end use or provided with *approved* methods of termite protection.

~~2304.11.7~~ **2304.11.5 Wood used in retaining walls and cribs.** Wood installed in retaining or crib walls shall be preservative treated in accordance with AWPA U1 ~~(Commodity Specifications A or F)~~ for soil and fresh water use.

Reason: This code change contains few technical changes but addresses many editorial clean-ups and some re-organization. The technical change is a delineation of exactly where waterborne preservatives should be required and where they should not. In a reorganization of this section in the 2005 code change cycle, glued laminated and certain exterior applications were lumped under a general section for the purposes of citing the new AWPA U1 standard, but a requirement for waterborne preservatives was inadvertently imposed for all applications in that reorganization. This proposed code change restores the ability for glued laminated beams and wood in exterior applications to be treated with other-than waterborne preservatives in accordance with the U1 standard. As a precaution, a requirement for the drying of treated wood and its sealing was added where used on the interior of a building (proposed section 2304.11.2).

Other changes are explained as follows:

Existing section 2304.11.1 deletion: This section became superfluous.

Proposed 2304.11.1: Section references are changed, and the specific mention of commodity specifications in the U1 standard was deleted because it is unnecessary.

Proposed 2304.11.1.1: Removing "the floor construction (including posts, girders, joists and subfloor)" makes it clear that only those floor elements within proximity to exposed ground need to be protected.

Proposed 2304.11.1.2: Better wording to meet current intent.

Proposed 2304.11.1.3: Better wording to meet current intent.

Proposed 2304.11.2: This new section is needed to introduce the subsections for locations where other-than waterborne preservatives are permitted under certain circumstances, as long as treatment is in accordance with the AWPA U1 standard.

Proposed 2304.11.2.2 Exceptions: The first exception was worded incorrectly and would seem to exempt exposed wood from protection; the proposed wording is a fix. With Exception 1 fixed, exception 2 was so similar in requirement that it was combined with Exception 1 and the clearance dimension was changed from 6 to 8 inches to preserve the intent of the deleted exception and be consistent with the clearance required for wood supported by exterior foundation walls in proposed Section 2304.11.1.2.

Proposed 2304.11.2.5: This is not a new section, but is re-titled and moved up in the text from Section 2304.11.4.2 (shown struck-out further down). There is no obvious reason why it must be a subsection of current 2304.11.4.

Proposed 2304.11.3: The requirement that water-borne preservatives be used exclusively has been struck in accordance with the purpose of this change, which indicates those locations where water-borne preservatives must be used up in proposed Section 2304.11.1 and subsections.

Existing section 2304.11.4.1 and 2304.11.4.2 (shown struck out): These were not lost. The current 2304.11.4.2 was moved up to become proposed 2304.11.2.5, and the current 2304.11.4.1 became 2304.11.3.1 with some editorial rewording for clarity.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code makes improvements to the current language regarding preservative treated and naturally durable wood.

Assembly Action: **None**

Final Hearing Results

S268-12 **AS**

Code Change No: S273-12

Original Proposal

Section(s): 2308 (New)

Proponent: Robert Rice, Josephine County, OR (structdesigner@yahoo.com)

Delete and substitute as follows:

~~**SECTION 2308**~~
~~**CONVENTIONAL LIGHT-FRAME CONSTRUCTION**~~

SECTION 2308
CONVENTIONAL LIGHT-FRAME CONSTRUCTION

2308.1 General. The requirements of this section are intended for *conventional light-frame construction*. Other construction methods are permitted to be used, provided a satisfactory design is submitted showing compliance with other provisions of this code. Interior non-load-bearing partitions, ceilings and curtain walls of *conventional light-frame construction* are not subject to the limitations of section 2308.2. Alternatively, compliance with AF&PA WFCM shall be permitted subject to the limitations therein and the limitations of this code. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three *stories above grade plane* in height with a separate *means of egress* and their accessory structures shall comply with the *International Residential Code*.

2308.2 Limitations. Buildings are permitted to be constructed in accordance with the provisions of *conventional light-frame construction*, subject to the following limitations;

2308.2.1 Stories. Structures of *conventional light-frame construction* shall be limited in story height according to Table 2308.2.1

TABLE 2308.2.1
ALLOWABLE STORY HEIGHT

Seismic Design Category	Allowable Story above grade plane
A and B	Three stories
C	Two Stories
D and E [a]	One story

a. For the purposes of this section, for buildings assigned to *Seismic Design Category* D or E, cripple walls shall be considered to be a *story* unless cripple walls are solid blocked and do not exceed 14 inches in height,

2308.2.2 Allowable floor-to-floor height. Maximum floor-to-floor height shall not exceed 11 feet, 7 inches (3531 mm). Exterior bearing wall and interior braced wall heights shall not exceed a stud height of 10 feet (3048 mm).

2308.2.3 Allowable Loads. Loads shall be in accordance with Chapter 16 and shall not exceed the following:

1. Average dead loads shall not exceed 15 psf (718 N/m^2) for combined roof and ceiling, exterior walls, floors and partitions.

Exceptions:

1. Subject to the limitations of Section 2308.6.10.2, stone or masonry veneer up to the lesser of 5 inches (127 mm) thick or 50 psf (2395 N/m^2) and installed in accordance with Chapter 14 is permitted to a height of 30 feet (9144 mm) above a noncombustible foundation, with an additional 8 feet (2438 mm) permitted for gable ends.

2. Concrete or masonry fireplaces, heaters and chimneys shall be permitted in accordance with the provisions of this code.

2. Live loads shall not exceed 40 psf (1916 N/m^2) for floors.
3. Ground snow loads shall not exceed 50 psf (2395 N/m^2).

2308.2.4 Allowable wind speed. V_{asd} as determined in accordance with Section 1609.3.1 shall not exceed 100 miles per hour (mph) (44 m/s) (3-second gust).

Exceptions:

1. V_{asd} as determined in accordance with Section 1609.3.1 shall not exceed 110 mph (48.4 m/s) (3-second gust) for buildings in Exposure Category B that are not located in a *hurricane-prone region*.
2. Where V_{asd} as determined in accordance with Section 1609.3.1 exceeds 100 mph (3-second gust), the provisions of either AF&PA WFCM or ICC 600 are permitted to be used. Wind speeds in Figures 1609A, 1609B, and 1609C shall be converted in accordance with Section 1609.3.1 for use with AF&PA WFCM or ICC 600.

2308.2.5 Allowable roof span. Roof trusses and rafters shall not span more than 40 feet (12 192 mm) between points of vertical support.

2308.2.6 Risk Category limitation. The use of the provisions for *conventional light-frame construction* in this section shall not be permitted for *Risk Category* IV buildings, as determined by Section 1604.5, assigned to *Seismic Design Category* B, C, D or E.

2308.2.7 Portions exceeding limitations of conventional light-frame construction. When portions of a building of otherwise conventional light-frame construction exceed the limits of Section 2308.2, those portions and the supporting load path shall be designed in accordance with accepted engineering practice and the provisions of this code. For the purposes of this section, the term “portions” shall mean parts of buildings containing volume and area such as a room or a series of rooms. The extent of such design need only demonstrate compliance of the non-conventionally light-framed elements with other applicable provisions of this code and shall be compatible with the performance of the conventional light-framed system.

2308.3 Foundations and footings. Foundations and footings shall be designed and constructed in accordance with Chapter 18 . Connections to foundations and footings shall comply with this section.

2308.3.1 Foundation plates or sills. Foundation plates or sills resting on concrete or masonry foundations shall comply with Section 2304.3.1. Foundation plates or sills shall be bolted or anchored to the foundation with not less than 1/2-inch-diameter (12.7 mm) steel bolts or *approved* anchors spaced to provide equivalent anchorage as the steel bolts. Along *braced wall lines* in structures assigned to *Seismic Design Category* E, steel bolts with a minimum nominal diameter of 5/8 inch (15.9 mm) or approved anchor straps load rated in accordance with Section 1706.1 and spaced to provide equivalent anchorage shall be used. Bolts shall be embedded at least 7 inches (178 mm) into concrete or masonry.

Bolts shall be spaced not more than 6 feet (1829 mm) apart and there shall be a minimum of two bolts or anchor straps per piece with one bolt or anchor strap located not more than 12 inches (305 mm) or less than 4 inches (102 mm) from each end of each piece. Bolts in *braced wall lines* in structures over two

stories above grade shall be spaced not more the 4 feet (1219 mm) o.c.. A properly sized nut and washer shall be tightened on each bolt to the plate.

2308.3.2 Braced wall line sill plate anchorage in *Seismic Design Category* D and E. Sill plates along *braced wall lines* shall be anchored with anchor bolts with steel plate washers between the foundation sill plate and the nut, or *approved* anchor straps load rated in accordance with Section 1706.1. Such washers shall be a minimum of 0.229 inch by 3 inches by 3 inches (5.82 mm by 76 mm by 76 mm) in size. The hole in the plate washer is permitted to be diagonally slotted with a width of up to 3/16 inch (4.76 mm) larger than the bolt diameter and a slot length not to exceed 1-3/4 inches (44 mm), provided a standard cut washer is placed between the plate washer and the nut.

2308.4 Floor framing. Floor framing shall comply with this section.

2308.4.1 Girders. Girders for single-story construction or girders supporting loads from a single floor shall not be less than 4 inches by 6 inches (102 mm by 152 mm) for spans 6 feet (1829 mm) or less, provided that girders are spaced not more than 8 feet (2438 mm) o.c. Spans for built-up 2-inch girders shall be in accordance with Table 2308.4.1(1) or 2308.4.1(2). Other girders shall be designed to support the loads specified in this code. Girder end joints shall occur over supports.

Where a girder is spliced over a support, an adequate tie shall be provided. The ends of beams or girders supported on masonry or concrete shall not have less than 3 inches (76 mm) of bearing.

~~TABLE 2308.9.5~~ TABLE 2308.4.1(1)
HEADER AND GIRDER SPANS[a] FOR EXTERIOR BEARING WALLS
(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and Required Number of Jack Studs)

(Portions of table not shown remain unchanged)

~~TABLE 2308.9.6~~ TABLE 2308.4.1(2)
HEADER AND GIRDER SPANS[a] FOR INTERIOR BEARING WALLS
(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and Required Number of Jack Studs)

(Portions of table not shown remain unchanged)

2308.4.2 Floor joists. Floor joists shall comply with this section.

2308.4.2.1 Span. Spans for floor joists shall be in accordance with Tables 2308.4.2.1(1) or 2308.4.2.1(2) or the *AF&PA Span Tables for Joists and Rafters*.

2308.4.2.2 Bearing. The ends of each joist shall not have less than 1-1/2 inches (38 mm) of bearing on wood or metal, or not less than 3 inches (76 mm) on masonry, except where supported on a 1-inch by 4-inch (25.4 mm by 102 mm) ribbon strip and nailed to the adjoining stud,

2308.4.2.3 Framing details. Joists shall be supported laterally at the ends and at each support by solid blocking except where the ends of the joists are nailed to a header, band or rim joist or to an adjoining stud or by other means. Solid blocking shall not be less than 2 inches (51mm) in thickness and the full depth of the joist. Joist framing from opposite sides of a beam, girder or partition shall be lapped at least 3 inches (76 mm) or the opposing joists shall be tied together in an approved manner. Joists framing into the side of a wood girder shall be supported by framing anchors or on ledger strips not less than 2 inches by 2 inches (51 mm by 51 mm).

TABLE ~~2308.8(1)~~ 2308.4.2.1(1)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential Sleeping Areas, Live Load = 30 psf, L/Δ = 360)

(Portions of table not shown remain unchanged)

TABLE ~~2308.8(2)~~ 2308.4.2.1(2)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential Living Areas, Live Load = 40 psf, L/Δ = 360)

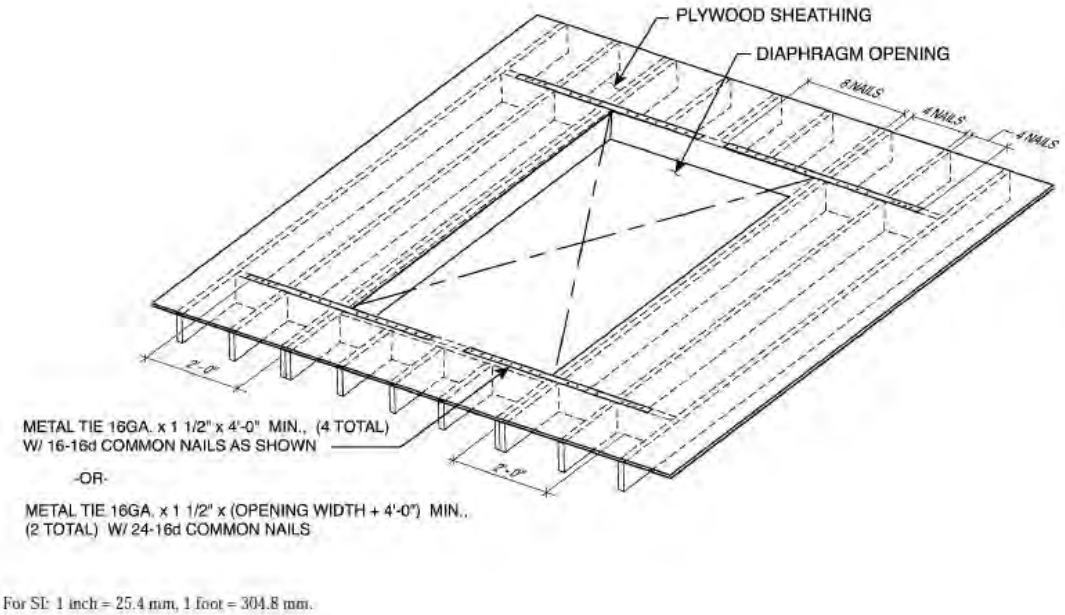
(Portions of table not shown remain unchanged)

2308.4.2.4 Notches and holes. Notches on the ends of joists shall not exceed one-fourth the joist depth. Notches in the top or bottom of joists shall not exceed one sixth the depth and shall not be located in the middle third of the span. Holes bored in joists shall not be within 2 inches (51 mm) of the top or bottom of the joist and the diameter of any such hole shall not exceed one-third the depth of the joist.

2308.4.3 Engineered wood products. Engineered wood products shall be installed in accordance with manufacturer's recommendations. Cuts, notches and holes bored in trusses, structural composite lumber, structural glue-laminated members or I-joists are not permitted except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.

2308.4.4 Framing around openings. Trimmer and header joists shall be doubled, or of lumber of equivalent cross section, where the span of the header exceeds 4 feet (1219 mm). The ends of header joists more than 6 feet (1829 mm) long shall be supported by framing anchors or joist hangers unless bearing on a beam, partition or wall. Tail joists over 12 feet (3658 mm) long shall be supported at the header by framing anchors or on ledger strips not less than 2 inches by 2 inches (51 mm by 51 mm).

2308.4.4.1 Openings in floor diaphragms in *Seismic Design Categories* B, C, D and E. Openings in horizontal diaphragms with a dimension perpendicular to the joist that is greater than 4 feet (1219 mm) shall be constructed with metal ties and blocking in accordance with this section and Figure 2308.4.4.1(1). Metal ties shall not be less than 0.058 inch [1.47 mm (16 galvanized gage)] thick by 1-1/2 inches (38 mm) wide with a minimum yield stress of 33,000 psi (227 Mpa). Blocking shall be provided 2 feet minimum beyond headers. Ties shall be attached to blocking with eight 16d common nails on each side of the header-joist intersection.



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE 2308.4.4.1(1)
OPENINGS IN FLOOR AND ROOF DIAPHRAGMS

Openings in floor diaphragms in *Seismic Design Categories D and E* shall not exceed a dimension greater than 50 percent of the distance between braced wall lines or an area greater than 25 percent of the area between orthogonal pairs of braced wall lines [see Figure 2308.4.4.1(2)], or shall be designed in accordance with accepted engineering practice.

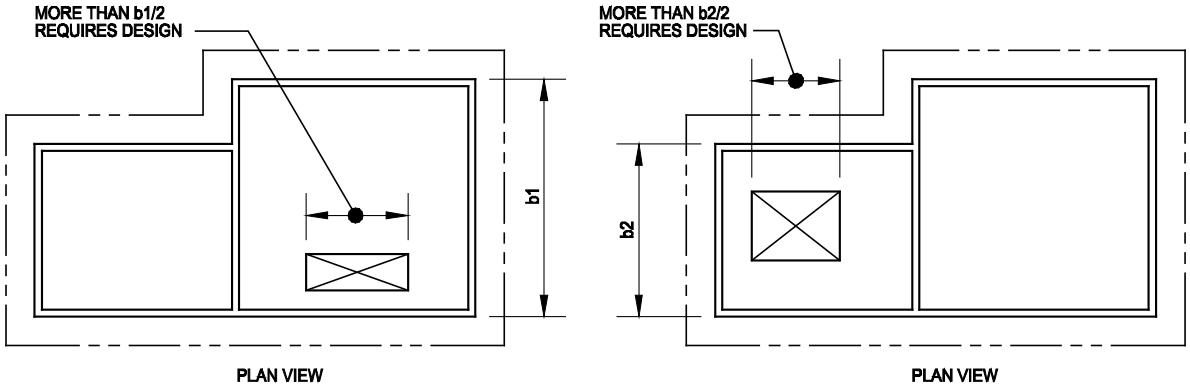


FIGURE 2308.4.4.1(2)
OPENING LIMITATIONS FOR FLOOR AND ROOF DIAPHRAGMS

2308.4.4.2 Vertical offsets in floor diaphragms in *Seismic Design Categories* D and E. Portions of a floor level shall not be vertically offset such that the framing members on either side of the offset cannot be lapped or tied together in an *approved* manner in accordance with Figure 2308.4.4.2.

Exception: Framing supported directly by foundations need not be lapped or tied directly together.

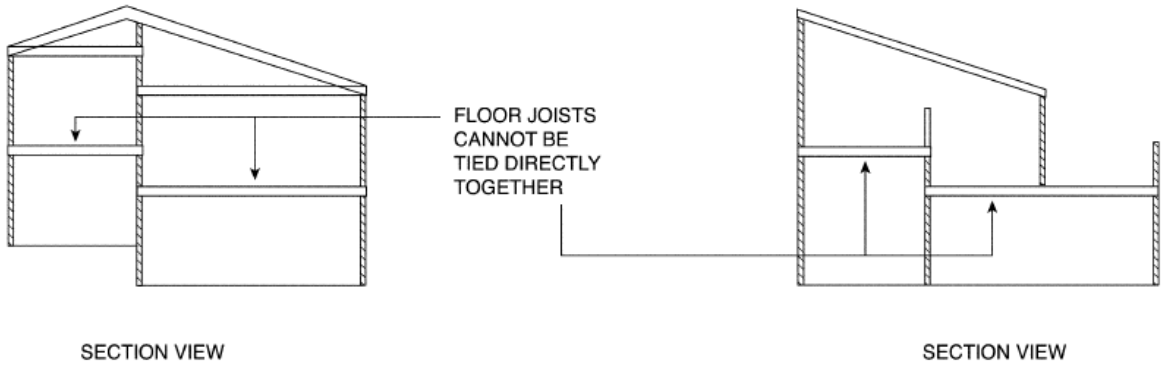


FIGURE 2308.4.4.2
PORTIONS OF FLOOR LEVEL OFFSET VERTICALLY

2308.4.5 Joists supporting bearing partitions. Bearing partitions parallel to joists shall be supported on beams, girders, doubled joists, walls or other bearing partitions. Bearing partitions perpendicular to joists shall not be offset from supporting girders, walls or partitions more than the joist depth unless such joists are of sufficient size to carry the additional load.

2308.4.6 Lateral support. Floor and ceiling framing with a nominal depth-to-thickness ratio greater than or equal to 5:1 shall have one edge held in line for the entire span. Where the nominal depth-to- thickness ratio of the framing member exceeds 6:1, there shall be one line of bridging for each 8 feet (2438 mm) of span, unless both edges of the member are held in line. The bridging shall consist of not less than 1-inch

by 3-inch (25 mm by 76 mm) lumber, double nailed at each end, of equivalent metal bracing of equal rigidity, full-depth solid blocking or other *approved* means. A line of bridging shall also be required at supports where equivalent lateral support is not otherwise provided.

2308.4.7 Structural floor sheathing. Structural floor sheathing shall comply with the provisions of Section 2304.7.1.

2308.4.8 Under-floor ventilation. For under-floor ventilation, see Section 1203.3.

2308.4.9 Floor framing supporting *braced wall panels*. When *braced wall panels* are supported by cantilevered floors or are setback from the floor joist support the floor framing shall comply section 2308.6.7.

2308.4.10 Anchorage of exterior means of egress components in *Seismic Design Category D and E*. Exterior egress balconies, exterior exit stairways and similar *means of egress* components in structures assigned to *Seismic Design Category D or E* shall be positively anchored to the primary structure at not over 8 feet (2438 mm) o.c. or shall be designed for lateral forces. Such attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

2308.5 Wall construction. Walls of *conventional light-frame construction* shall be in accordance with this section.

2308.5.1 Stud size, height and spacing. The size, height and spacing of studs shall be in accordance with Table 2308.5.1

Studs shall be continuous from a support at the sole plate to a support at the top plate to resist loads perpendicular to the wall. The support shall be a foundation or floor, ceiling or roof diaphragm or shall be designed in accordance with accepted engineering practice.

Exception: Jack studs, trimmer studs and cripple studs at openings in walls that comply with Table 2308.4.1(1) or 2308.4.1(2).

2308.5.2 Framing details. Studs shall be placed with their wide dimension perpendicular to the wall. Not less than three studs shall be installed at each corner of an *exterior wall*.

Exceptions:

1. In interior nonbearing walls and partition, studs are permitted to be set with the long dimension parallel to the wall.

2. At corners, two studs are permitted, provided wood spacers or backup cleats of 3/8-inch-thick (9.5 mm) wood structural panel, 3/8-inch (9.5 mm) Type M “Exterior Glue” particleboard, 1-inch-thick (25 mm) lumber or other *approved* devices that will serve as an adequate backing for the attachment of facing materials are used. Where fire-resistance ratings or shear values are involved, wood spacers, backup cleats or other devices shall not be used unless specifically *approved* for such use.

TABLE 2308.5.1
SIZE, HEIGHT AND SPACING OF WOOD STUDS[c]

STUD SIZE (inches)	BEARING WALLS				NONBEARING WALLS	
	Laterally unsupported stud height[a] (feet)	Supporting roof and ceiling only	Supporting one floor, roof and ceiling	Supporting two floors, roof and ceiling	Laterally unsupported stud height[a] (feet)	Spacing (inches)
	Spacing (inches)					
2 × 3[b]	NP	NP	NP	NP	10	16
2 × 4	10	24	16	NP	14	24
3 × 4	10	24	24	16	14	24
2 × 5	10	24	24	NP	16	24
2 × 6	10	24	24	16	20	24

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
NP=Not Permitted
a. Listed heights are distances between points of lateral support placed perpendicular to the plane of the wall. Increases in unsupported height are permitted where justified by an analysis.
b. Shall not be used in exterior walls.
c. Utility-grade studs shall not be spaced more than 16 inches (406 mm) o.c., or support more than a roof and ceiling, or exceed 8 feet (2438 mm) in height for exterior walls and load-bearing walls or 10 feet (3048 mm) for interior non-load-bearing walls.

2308.5.3 Plates and sills. Studs shall have plates and sills according to this section.

2308.5.3.1. Bottom plate or sill. Studs shall have full bearing on a plate or sill. Plates or sills shall not be less than 2 inches (51 mm) nominal in thickness and have a width at least equal to the width of the wall studs.

2308.5.3.2 Top plates. Studs shall be capped with double top plates installed to provide overlapping at corners and at intersections with other partitions. End joints in double top plates shall be offset at least 48 inches (1219 mm), and shall be nailed in accordance with Table 2304.9.1. Plates shall be a nominal 2 inches (51 mm) in depth and have a width at least equal to the width of the studs.

> **Exception:** A single top plate is permitted, provided the plate is adequately tied at joints, corners and intersecting walls by at least the equivalent of 3-inch by 6-inch (76 mm by 152 mm) by 0.036-inch-thick (0.914 mm) galvanized steel connector that is nailed to each wall or segment of wall by six 8d nails or equivalent, provided the rafters, joists or trusses are centered over the studs with a tolerance of not more than 1 inch (25 mm).

Where bearing studs are spaced at 24-inch (610 mm) intervals and top plates are less than two 2- inch by 6-inch (51 mm by 152 mm) or two 3-inch by 4- inch (76 mm by 102 mm) members and where the floor joists, floor trusses or roof trusses that they support are spaced at more than 16-inch (406 mm) intervals, such joists or trusses shall bear within 5 inches (127 mm) of the studs beneath or a third plate shall be installed.

2308.5.4 Nonbearing walls and partitions. In nonbearing walls and partitions, studs shall be spaced not more than 28 inches (711 mm) o.c. and in interior nonbearing walls and partitions, are permitted to be set with the long dimension parallel to the wall. Interior nonbearing partitions shall be capped with no less than a single top plate installed to provide overlapping at corners and at intersections with other walls and partitions. The plate shall be continuously tied at joints by solid blocking at least 16 inches (406 mm) in length and equal in size to the plate or by 1/2-inch by 1-1/2-inch (12.7 mm by 38 mm) metal ties with spliced sections fastened with two 16d nails on each side of the joint.

2308.5.5 Openings in walls and partitions. Openings in exterior and interior walls and partitions shall comply with sections 2308.5.5.1 through 2308.5.5.3

2308.5.5.1 Openings in exterior bearing walls. Headers shall be provided over each opening in exterior bearing walls. The size and spans in Table 2308.4.1(1) are permitted to be used for one- and two-family *dwellings*. Headers for other buildings shall be designed in accordance with Section 2301.2, Item 1 or 2. Headers shall be of two pieces of nominal 2-inch (51mm) framing lumber set on edge as permitted by Table 2308.4.1(1) and nailed together in accordance with Table 2304.9.1 or of solid lumber of equivalent size.

Wall studs shall support the ends of the header in accordance with Tables 2308.4.1(1). Each end of a lintel or header shall have a bearing length of not less than 1-1/2 inches (38 mm) for the full width of the lintel.

2308.5.5.2 Openings in interior bearing partitions. Headers shall be provided over each opening in interior bearing partitions as required in Section 2308.5.5.1 The spans in Table 2308.4.1(2) are permitted to be used. Wall studs shall support the ends of the header in accordance with Table 2308.4.1(1) or 2308.4.1(2), as appropriate.

2308.5.5.3 Openings in interior nonbearing partitions. Openings in nonbearing partitions are permitted to be framed with single studs and headers. Each end of a lintel or header shall have a bearing length of not less than 11/2 inches (38 mm) for the full width of the lintel.

2308.5.6 Cripple walls. Foundation cripple walls shall be framed of studs not less in size than the studding above with a minimum length of 14 inches (356 mm), or shall be framed of solid blocking. Where exceeding 4 feet (1219 mm) in height, such walls shall be framed of studs having the size required for an additional *story*. See section 2308.6.5 for cripple wall bracing.

2308.5.7 Bridging. Unless covered by interior or *exterior wall coverings* or sheathing meeting the minimum requirements of this code, stud partitions or walls with studs having a height-to-least-thickness ratio exceeding 50 shall have bridging not less than 2 inches (51 mm) in thickness and of the same width as the studs fitted snugly and nailed thereto to provide adequate lateral support. Bridging shall be placed in every stud cavity and at a frequency such that no stud so braced shall have a height-to-least-thickness ratio exceeding 50 with the height of the stud measured between horizontal framing and bridging or between bridging, whichever is greater.

2308.5.8 Pipes in walls. Stud partitions containing plumbing, heating or other pipes shall be so framed and the joists underneath so spaced as to give proper clearance for the piping. Where a partition containing such piping runs parallel to the floor joists, the joists underneath such partitions shall be doubled and spaced to *permit* the passage of such pipes and shall be bridged. Where plumbing, heating or other pipes are placed in or partly in a partition, necessitating the cutting of the soles or plates, a metal tie not less than 0.058 inch (1.47 mm) (16 galvanized gage) and 11/2 inches (38 mm) wide shall be fastened to each plate across and to each side of the opening with not less than six 16d nails.

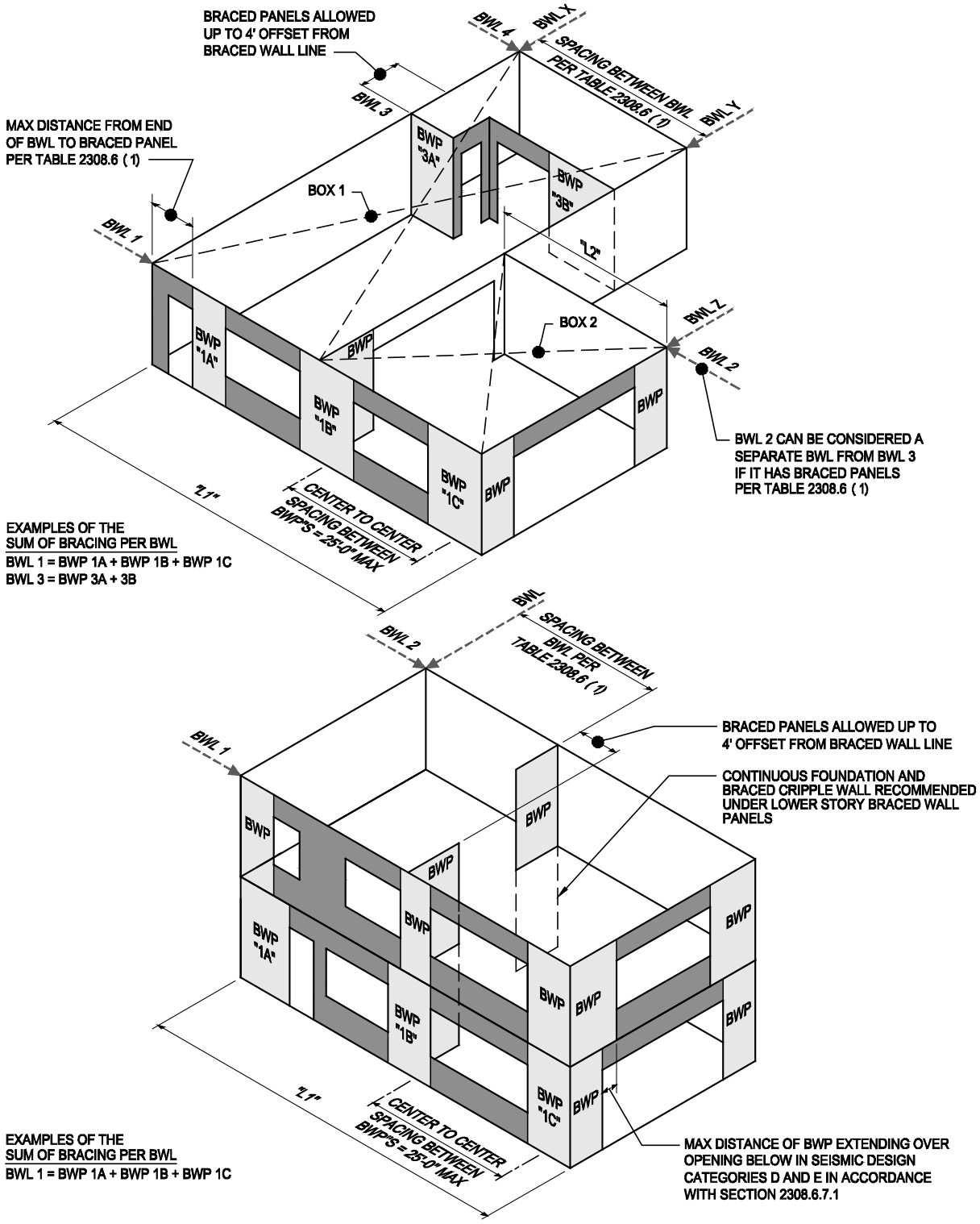
2308.5.9 Cutting and notching. In exterior walls and bearing partitions, any wood stud is permitted to be cut or notched to a depth not exceeding 25 percent of its width. Cutting or notching of studs to a depth not greater than 40 percent of the width of the stud is permitted in nonbearing partitions supporting no loads other than the weight of the partition.

2308.5.10 Bored holes. A hole not greater in diameter than 40 percent of the stud width is permitted to be bored in any wood stud. Bored holes not greater than 60 percent of the width of the stud are permitted in nonbearing partitions or in any wall where each bored stud is doubled, provided not more than two such successive doubled studs are so bored. In no case shall the edge of the bored hole be nearer than 5/8 inch (15.9 mm) to the edge of the stud. Bored holes shall not be located at the same section of stud as a cut or notch.

2308.6 Wall Bracing. Buildings shall be provided with exterior and interior braced wall lines as described in Sections 2308.6.1 through 2308.6.9.2.

2308.6.1 *Braced wall lines*. For the purpose of determining the amount and location of bracing required along each story level of a building, *braced wall lines* shall be designated as straight lines through the building plan in both the longitudinal and transverse direction and placed in accordance with Table 2308.6.1 and Figure 2308.6.1. *Braced wall line* spacing shall not exceed the distance specified in Table 2308.6.1. In structures assigned to Seismic Design Category D or E, braced wall lines shall intersect perpendicularly to each other.

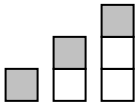
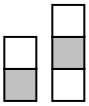
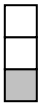
2308.6.2 *Braced wall panels*. *Braced wall panels* shall be placed along *braced wall lines* in accordance with Table 2308.6.1 and Figure 2308.6(1) and specified in Table 2308.6.2(1). A *braced wall panel* must be located at each end of the braced wall line and at the corners of intersecting *braced wall lines* or may begin within the maximum distance from the end of the *braced wall line* in accordance with Table 2308.6(1). *Braced wall panels* in a *braced wall line* shall not be offset from each other by more than 4 feet (1219 mm). Braced wall panels shall be clearly indicated on the plans.



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
BWL = BRACED WALL LINE, BWP = BRACED WALL PANEL

Figure 2308.6(1)
BASIC COMPONENTS OF THE LATERAL BRACING SYSTEM

TABLE 2308.1
WALL BRACING REQUIREMENTS

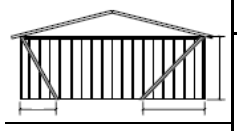
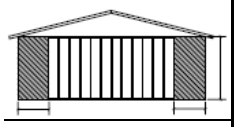
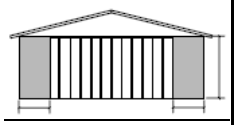
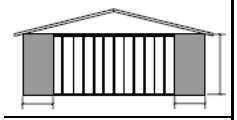
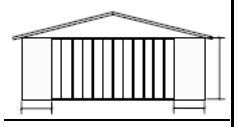
Seismic Design Category	Story Condition (See section 2308.2)	Maximum spacing of braced wall lines	Braced panel location, spacing (o.c.) and minimum percentage (x)			Maximum distance of braced wall panels from each end of braced wall line
			Bracing Method			
			LIB	DWB WSP	SFB PBS PCP HPS GB, [c,d]	
A and B		35’-0”	Each end and ≤25’-0” o.c.	Each end and ≤25’-0” o.c.	Each end and ≤25’-0” o.c.	12’-6”
		35’-0”	Each end and ≤25’-0” o.c.	Each end and ≤25’-0” o.c.	Each end and ≤25’-0” o.c.	12’-6”
		35’-0”	NP	Each end and ≤25’-0” o.c.	Each end and ≤25’-0” o.c.	12’-6”
C		35’-0”	NP	Each end and ≤25’-0” o.c.	Each end and ≤25’-0” o.c.	12’-6”
		35’-0”	NP	Each end and ≤25’-0” o.c. (min 25% of wall length) [e]	Each end and ≤25’-0” o.c. (min 25% of wall length) [e]	12’-6”
D and E		25’-0”	NP	Sds < 0.50: Each end and ≤25’-0” o.c. (min 21% of wall length) [e]	Sds < 0.50: Each end and ≤25’-0” o.c. (min 43% of wall length) [e]	8’-0”
				0.5 ≤ Sds < 0.75: Each end and ≤25’-0” o.c. (min 32% of wall length) [e]	0.5 ≤ Sds < 0.75: Each end and ≤25’-0” o.c. (min 59% of wall length) [e]	
				0.75 ≤Sds ≤ 1.00: Each end and ≤25’-0” o.c. (min 37% of wall length) [e]	0.75 ≤Sds ≤ 1.00: Each end and ≤25’-0” o.c. (min 75% of wall length) [e]	
				Sds > 1.00: Each end and ≤25’-0” o.c. (min 48% of wall length) [e]	Sds > 1.00: Each end and ≤25’-0” o.c. (min 100% of wall length) [e]	

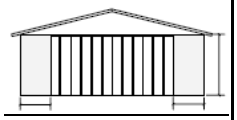
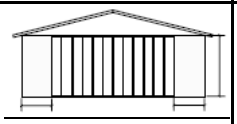
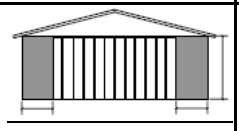
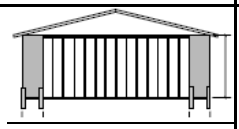
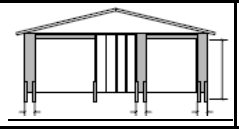
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
NP = Not Permitted

a. This table specifies minimum requirements for *braced wall panels* along interior or exterior *braced wall lines*.
b. See Section 2308.6.2 for full description of bracing methods.
c. Gypsum wallboard applied to framing supports that are spaced at 16 inches on center.
d. The required lengths shall be doubled for gypsum board applied to only one face of a braced wall panel.
e. Percentage shown represents the minimum amount of bracing required along the building length (or wall length if the structure has an irregular shape)

2308.6.3 Braced wall panel methods. Construction of *braced wall panels* shall be by one or a combination of the methods in Table 2308.6.3(1). *Braced wall panel* length shall be in accordance with Section 2308.6.4 or 2308.6.5.

TABLE 2308.6.3(1)
BRACING METHODS

METHODS, MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA [a]	
			Fasteners	**Spacing**
LIB[a] Let-in-bracing	1x4 wood or approved metal straps attached at 45° to 60° angles to studs at maximum of 16" o.c.		Per Fastener Table 2304.9.1, item 20 Metal strap: installed per manufacturer's installation recommendations	Wood: per stud plus top and bottom plates Metal strap: installed per manufacturer's installation recommendations
DWB Diagonal wood boards	3/4" thick (1" nominal) x 6" minimum width to studs at maximum of 24" o.c.		Per Fastener Table 2304.9.1, item 21 or 22	Per stud
WSP Wood structural panel	3/8" Per TABLE 2308.6.3(2) or 2308.6.3(3)		Per Fastener Table 2304.9.1, item 31	6" edges 12" field
SFB Structural fiberboard sheathing	1/2" Per TABLE 2308.6.3(4)		Per Fastener Table 2304.9.1, item 33	3" edges 6" field
GB Gypsum board (Double sided)	1/2" by a minimum of 4 feet wide to studs at maximum of 24" o.c.		Exterior and interior sheathing: with 5d cooler nails (1-5/8" x 0.086") or 1¼" screws (type W or S) for ½" gypsum board or 1 5/8" screws (type	For all braced wall panel locations: 7" o.c. along panel edges (including top and bottom plates) and

METHODS, MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA [a]	
			W or S) for 5/8" gypsum board.	7" o.c.in the field
PBS Particle-board sheathing	3/8" or 1/2" per Table 2308.9.3(4) to studs at maximum of 16" o.c.		6d common (2" long x0.113" dia.) nails for 3/8" thick sheathing or 8d common (2½" long x 0.131" dia.) nails for 1/2" thick sheathing	3" edges 6" field
PCP Portland cement plaster	See Section 2510 to studs at maximum of 16" o.c.		1½" long, 11 gage, 7/16" dia. head nails or 7/8" long, 16 gage staples	6" o.c. on all framing members
HPS Hardboard panel siding	7/16" TABLE 2308.6.3(5)		Per Fastener Table 2308.9.1	4" edges 8" field
ABW Alternate braced wall.	3/8"		See Figure 2308.6.5(1) and Section 2308.6.5.1	See Figure 2308.6.3(1)
PFH Portal frame with hold-downs	3/8		See Figure 2308.6.5(2) and Section 2308.6.5.2	See Figure 2308.6.3(2)

For SI: 1 foot 305 mm

a. Method LIB shall have gypsum board fastened to at least one side with nails or screws.

TABLE 2308.6.3(2)

EXPOSED PLYWOOD PANEL SIDING

MINIMUM THICKNESS[a] (inch)	MINIMUM NUMBER OF PLIES	STUD SPACING (inches) Plywood siding applied directly to studs or over sheathing
3/8	3	16[b]
1/2	4	24

For SI: 1 inch = 25.4 mm.

a. Thickness of grooved panels is measured at bottom of grooves.

b. Spans are permitted to be 24 inches if plywood siding applied with face grain perpendicular to studs or over one of the following: (1) 1-inch board sheathing, (2) 7/16-inch wood structural panel sheathing or (3) 3/8-inch wood structural panel sheathing with strength axis (which is the long direction of the panel unless otherwise marked) of sheathing perpendicular to studs.

TABLE 2308.6.3(3)

WOOD STRUCTURAL PANEL WALL SHEATHING[b]
(Not Exposed to the Weather, Strength Axis Parallel or Perpendicular to Studs Except as Indicated Below)

MINIMUM THICKNESS (inch)	PANEL SPAN RATING	STUD SPACING (inches)		
		Siding nailed to studs	Nailable sheathing	
			Sheathing parallel to studs	Sheathing perpendicular to studs
3/8, 15/32, 1/2	16/0, 20/0, 24/0, 32/16 Wall—24″ o.c.	24	16	24
7/16, 15/32, 1/2	24/0, 24/16, 32/16 Wall—24″ o.c.	24	24[a]	24

For SI: 1 inch = 25.4 mm.
a. Plywood shall consist of four or more plies.
b. Blocking of horizontal joints shall not be required except as specified in Sections 2306.3 and 2308.12.4.

TABLE 2308.6.3(4)

ALLOWABLE SPANS FOR PARTICLEBOARD WALL SHEATHING
(Not Exposed to the Weather, Long Dimension of the Panel Parallel or Perpendicular to Studs)

GRADE	THICKNESS (inch)	STUD SPACING (inches)	
		Siding nailed to studs	Sheathing under coverings specified in Section 2308.9.3 parallel or perpendicular to studs
M-S "Exterior Glue" and M-2 "Exterior Glue"	3/8	16	—
	1/2	16	16

For SI: 1 inch = 25.4 mm.

TABLE 2308.6.3(5)

HARDBOARD SIDING

SIDING	MINIMUM NOMINAL THICKNESS (inch)	2 × 4 FRAMING MAXIMUM SPACING	NAIL SIZE[a, b, d]	NAIL SPACING	
				General	Bracing panels[c]
1. Lap siding					
Direct to studs	3/8	16″ o.c.	8d	16″ o.c.	Not applicable
Over sheathing	3/8	16″ o.c.	10d	16″ o.c.	Not applicable
2. Square edge panel siding					
Direct to studs	3/8	24″ o.c.	6d	6″ o.c. edges; 12″ o.c. at intermediate supports	4″ o.c. edges; 8″ o.c. at intermediate supports
Over sheathing	3/8	24″ o.c.	8d	6″ o.c. edges; 12″ o.c. at intermediate supports	4″ o.c. edges; 8″ o.c. at intermediate supports
3. Shiplap edge panel siding					
Direct to studs	3/8	16″ o.c.	6d	6″ o.c. edges; 12″ o.c. at intermediate supports	4″ o.c. edges; 8″ o.c. at intermediate supports
Over sheathing	3/8	16″ o.c.	8d	6″ o.c. edges; 12″ o.c. at intermediate supports	4″ o.c. edges; 8″ o.c. at intermediate supports

For SI: 1 inch = 25.4 mm.
a. Nails shall be corrosion resistant.
b. Minimum acceptable nail dimensions:

	Panel Siding (inch)	Lap Siding (inch)
Shank diameter	0.092	0.099
Head diameter	0.225	0.240

c. Where used to comply with Section 2308.9.3.
d. Nail length must accommodate the sheathing and penetrate framing 1 1/2 inches.

2308.6.4 Length of *braced wall panels*. For Methods DWB, WSP, SFB, PBS, PCP and HPS each panel must be at least 48 inches (1219 mm) in length, covering three stud spaces where studs are

spaced 16 inches (406 mm) apart and covering two stud spaces where studs are spaced 24 inches (610 mm) apart. *Braced wall panels* less than the required 48" length shall not contribute towards the amount of bracing required. *Braced wall panels* longer than the required length shall be credited for their actual length. For Method GB, each panel must be at least 96 inches (2438 mm) in length where applied to one side of the studs or 48 inches (1219 mm) where applied to both sides.

All vertical joints of panel sheathing shall occur over studs and adjacent panel joints shall be nailed to common framing members. Horizontal joints shall occur over blocking or other framing equal in size to the studding except where waived by the installation requirements for the specific sheathing materials. Sole plates shall be nailed to the floor framing in accordance with Section 2308.3.2 and top plates shall be connected to the framing above in accordance with Section 2308.5.3. Where joists are perpendicular to braced wall lines above, blocking shall be provided under and in line with the *braced wall panels.*

2308.6.5 Alternative bracing. An Alternate Braced Wall (ABW) or a Portal Frame with Hold-downs (PFH) described in this section is permitted to substitute for a 48" braced wall panel of methods DWB, WSP, SFB, PBS, PCP or HPS. For method GB, each 96- inch (2438 mm) section (applied to one face) or 48-inch (1219 mm) section (applied to both faces) or portion thereof required by Table 2308.6.1 is permitted to be replaced by one panel constructed in accordance with method ABW or PFH.

2308.6.5.1. Alternate Braced Wall (ABW). An ABW shall be constructed in accordance with this section and Figure 2308.6.5.1. In one-story buildings, each panel shall have a length of not less than 2 feet 8 inches (813 mm) and a height of not more than 10 feet (3048 mm). Each panel shall be sheathed on one face with 3/8- inch-minimum-thickness (9.5 mm) wood structural panel sheathing nailed with 8d common or galvanized box nails in accordance with Table 2304.9.1 and blocked at wood structural panel edges. Two anchor bolts installed in accordance with Section 2308.3.1 shall be provided in each panel. Anchor bolts shall be placed at each panel outside quarter points. Each panel end stud shall have a hold-down device fastened to the foundation, capable of providing an *approved* uplift capacity of not less than 1,800 pounds (8006 N). The hold-down device shall be installed in accordance with the manufacturer's recommendations. The ABW shall be supported directly on a foundation or on floor framing supported directly on a foundation that is continuous across the entire length of the braced wall line. This foundation shall be reinforced with not less than one No. 4 bar top and bottom. Where the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing or turned down slab edge is permitted at door openings in the braced wall line. This continuous footing or turned down slab edge shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped 15 inches (381 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

When the ABW is installed at the first *story* of two-story buildings, the wood structural panel sheathing shall be provided on both faces, three anchor bolts shall be placed at one-quarter points, and tie-down device uplift capacity shall not be less than 3,000 pounds (13 344 N).

2308.6.5.2 Portal Frame with Hold-downs (PFH). A PFH shall be constructed in accordance with this section and Figure 2308.6.5.2. The adjacent door or window opening shall have a full-length header.

In one-story buildings, each panel shall have a length of not less than 16 inches (406 mm) and a height of not more than 10 feet (3048 mm). Each panel shall be sheathed on one face with a single layer of 3/8 inch (9.5 mm) minimum thickness wood structural panel sheathing nailed with 8d common or galvanized box nails in accordance with Figure 2308.6.5.2. The wood structural panel sheathing shall extend up over the solid sawn or glued-laminated header and shall be nailed in accordance with Figure 2308.6.5. A built-up header consisting of at least two 2 × 12s and fastened in accordance with Item 24 of Table 2304.9.1 shall be permitted to be used. A spacer, if used, shall be placed on the side of the built-up beam opposite the wood structural panel sheathing. The header shall extend between the inside faces of the first full-length outer studs of each panel. The clear span of the header between the inner studs of each panel shall be not less than 6 feet (1829 mm) and not more than 18 feet (5486 mm) in length. A strap with an uplift capacity of not less than 1,000 pounds (4,400 N) shall fasten the header to the inner studs opposite the sheathing. One anchor bolt not less than 5/8 inch (15.9 mm) diameter and installed in accordance

with Section 2308.3.1 shall be provided in the center of each sill plate. The studs at each end of the panel shall have a hold-down device fastened to the foundation with an uplift capacity of not less than 4,200 pounds (18 480 N).

Where a panel is located on one side of the opening, the header shall extend between the inside face of the first full-length stud of the panel and the bearing studs at the other end of the opening. A strap with an uplift capacity of not less than 1,000 pounds (4400 N) shall fasten the header to the bearing studs. The bearing studs shall also have a hold-down device fastened to the foundation with an uplift capacity of not less than 1,000 pounds (4400 N). The hold-down devices shall be an embedded strap type, installed in accordance with the manufacturer's recommendations. The PFH panels shall be supported directly on a foundation that is continuous across the entire length of the braced wall line. This foundation shall be reinforced with not less than one No. 4 bar top and bottom. Where the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing or turned down slab edge is permitted at door openings in the braced wall line. This continuous footing or turned down slab edge shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped not less than 15 inches (381 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

When a PFH is installed at the first *story* of two-story buildings, each panel shall have a length of not less than 24 inches (610 mm).

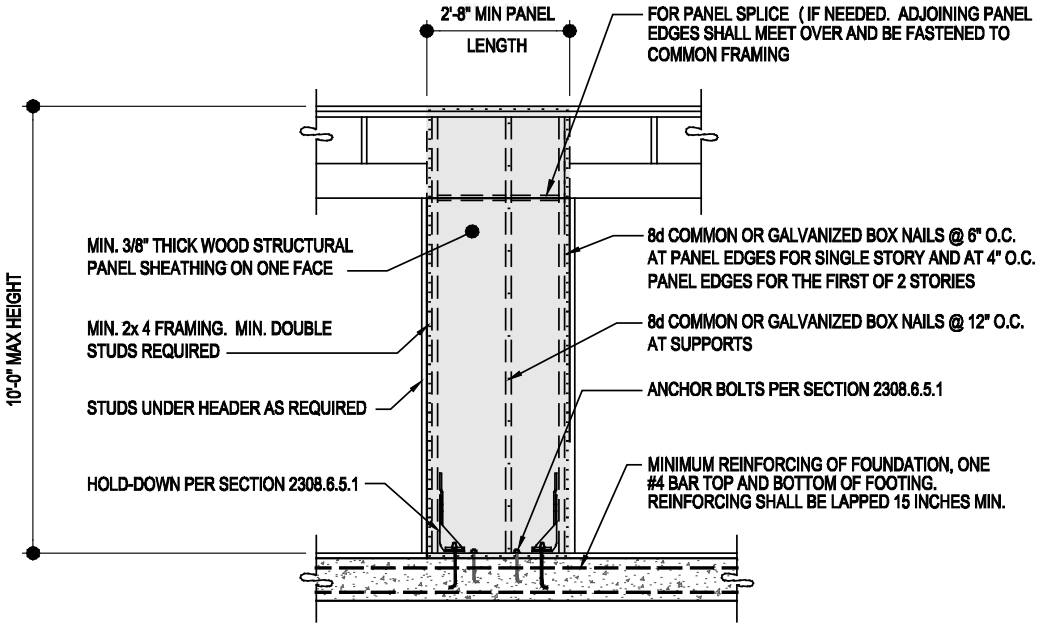


FIGURE 2308.6.5.1
ALTERNATE BRACED WALL PANEL (ABW)

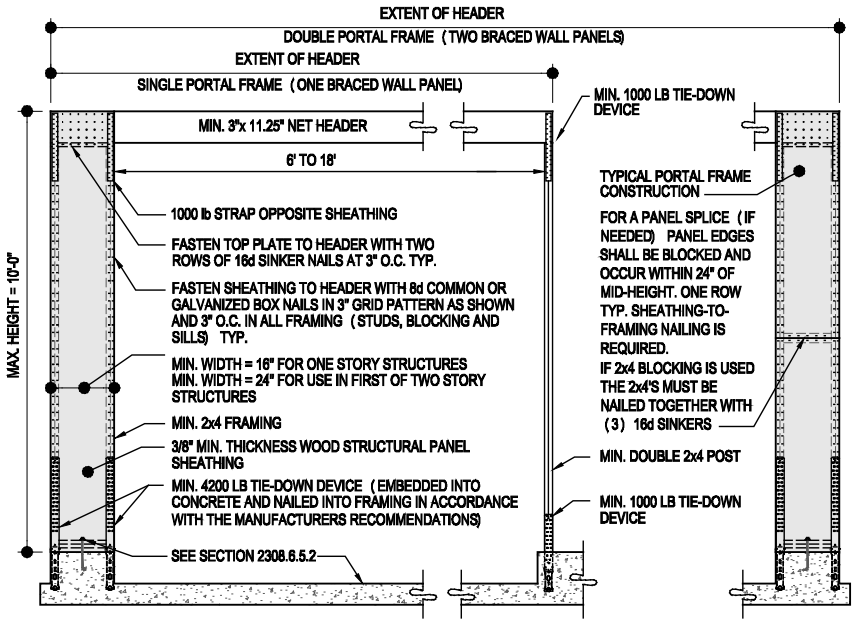


Figure 2308.6.5.2
PORTAL FRAME WITH HOLD-DOWNS (PFH)

2308.6.5 Cripple wall bracing. Cripple walls shall be braced in accordance with the following.

2308.6.5.1 Cripple wall bracing in *Seismic Design Category* A, B and C.. For the purposes of this section, cripple walls having a stud height exceeding 14 inches (356 mm) shall be considered a *story* and shall be braced in accordance with Table 2308.6(1). Spacing of edge nailing for required cripple wall bracing shall not exceed 6 inches (152mm) o.c. along the foundation plate and the top plate of the cripple wall. Nail size, nail spacing for field nailing and more restrictive boundary nailing requirements shall be as required elsewhere in the code for the specific bracing material used.

2308.6.5.2 Cripple wall bracing in *Seismic Design Category* D and E For the purposes of this section, cripple walls having a stud height exceeding 14 inches (356 mm) shall be considered a *story* and shall be braced in accordance with Table 2308.6(1). Where interior braced wall lines occur without a continuous foundation below, the length of parallel exterior cripple wall bracing shall be one and one-half times the lengths required by Table 2308.6(1). Where the cripple wall sheathing type used is method WSP or DWB and this additional length of bracing cannot be provided, the capacity of WSP or DWB sheathing shall be increased by reducing the spacing of fasteners along the perimeter of each piece of sheathing to 4 inches (102 mm) o.c.

2308.6.6 Connections of *braced wall panels*. Braced wall panel joints shall occur over studs or blocking. *Braced wall panels* shall be fastened to studs, top and bottom plates and at panel edges. *Braced wall panels* shall be applied to nominal 2-inch-wide [actual 1-1/2 inch (38 mm)] or larger stud framing.

2308.6.6.1 Bottom plate connection. Braced wall line bottom plates shall be connected to joists or full-depth blocking below in accordance with Table 2304.9.1, Item 6, or to foundations in accordance with Section 2308.3.3.

2308.6.6.2 Top plate connection. Where joists and/or rafters are used, braced wall line top plates shall be fastened over the full length of the braced wall line to joists, rafters, rim boards or blocking above in accordance with Table 2304.9.1, as applicable, based on the orientation of

the joists or rafters to the braced wall line. Blocking at joists with walls above shall be equal to the depth of the joist at the braced wall line. Blocking at rafters need not be full depth but shall extend to within 2 inches (51 mm) from the roof sheathing above. Blocking shall be a minimum of 2 inches (51 mm) nominal thickness and shall be fastened to the braced wall line top plate as specified in Table 2304.9.1, Item 11. Notching or drilling of holes in blocking in accordance with the requirements of Section 2308.8.2 or Section 2308.10.4.2 shall be permitted.

At exterior gable end walls braced wall panel sheathing in the top *story* shall be extended and fastened to roof framing where the spacing between parallel exterior braced wall lines is greater than 50 feet (15 240 mm).

Where roof trusses are used and are installed perpendicular to an exterior braced wall line, lateral forces shall be transferred from the roof diaphragm to the braced wall over the full length of the braced wall line by blocking of the ends of the trusses or by other *approved* methods providing equivalent lateral force transfer. Blocking shall be minimum 2 inches (51 mm) nominal thickness and shall extend to within 2 inches (51 mm) from the roof sheathing above and shall be fastened to the braced wall line top plate as specified in Table 2304.9.1. Notching or drilling of holes in blocking in accordance with the requirements of Section 2308.4.2.4 or Section 2308.7.4 shall be permitted.

2308.6.6.3 Sill anchorage. Where foundations are required by Section 2308.6.7, braced wall line sills shall be anchored to concrete or masonry foundations. Such anchorage shall conform to the requirements of Section 2308.3. The anchors shall be distributed along the length of the braced wall line. Other anchorage devices having equivalent capacity are permitted.

2308.6.6.4 Anchorage to all-wood foundations. Where all-wood foundations are used, the force transfer from the braced wall lines shall be determined based on calculation and shall have a capacity greater than or equal to the connections required by Section 2308.3.

2308.6.7 Braced wall line and diaphragm support. Braced wall lines and floor and roof diaphragms shall be supported in accordance to this section.

2308.6.7.1 Foundation requirements. Braced wall lines shall be supported by continuous foundations.

Exception: For structures with a maximum plan dimension not over 50 feet (15 240 mm), continuous foundations are required at exterior walls only.

For structures in *Seismic Design Category D and E*, exterior *braced wall panels* shall be in the same plane vertically with the foundation or the braced wall line shall be designed in accordance with accepted engineering practice according to section 2308.1.1

Exceptions:

1. Exterior *braced wall panels* may be located up to 4 feet from the foundation below when supported by a floor constructed in accordance with all the following:
   - 1.1 Cantilevers or setbacks shall not exceed four times the nominal depth of the floor joists
   - 1.2. Floor joists shall be 2 inches by 10 inches (51 mm by 254 mm) or larger and spaced not more than 16 inches (406 mm) o.c.
   - 1.3. The ratio of the back span to the cantilever shall be at least 2:1.
   - 1.4. Floor joists at ends of *braced wall panels* shall be doubled.
   - 1.5. A continuous rim joist shall be connected to the ends of cantilevered joists. The rim joist is permitted to be spliced using a metal tie not less than 0.058 inch (1.47 mm) (16 galvanized gage) and 11/2 inches (38 mm) wide fastened with six 16d common nails on each side. The metal tie shall have a minimum yield stress of 33,000 psi (227 MPa).

1.6. Joists at setbacks or the end of cantilevered joists shall not carry gravity loads from more than a single *story* having uniform wall and roof loads, nor carry the reactions from headers having a span of 8 feet (2438 mm) or more.

2. The end of a required braced wall panel shall be allowed to extend not more than 1 foot (305 mm) over an opening in the wall below. This requirement is applicable to *braced wall panels* offset in plane and to *braced wall panels* offset out of plane as permitted by the exception to Item 1 above in this section.

   Exception: *Braced wall panels* are permitted to extend over an opening not more than 8 feet (2438 mm) in width where the header is a 4-inch by 12-inch (102 mm by 305 mm) or larger member.

2308.6.7.2 Floor and roof diaphragm support in *Seismic Design Category D and E*. In structures assigned to *Seismic Design Category D or E,* floor and roof diaphragms shall be laterally supported by braced wall lines on all edges and connected in accordance with Section 2308.3.2 [see Figure 2308.6.7.2(1)].

Exception: Portions of roofs or floors that do not support *braced wall panels* above are permitted to extend up to 6 feet (1829 mm) beyond a braced wall line [see Figure 2308.6.7.2(2)] provided that the framing members are connected to the braced wall line below in accordance with Section 2308.6.6.

2308.6.7.3 Stepped footings in Seismic Design Category B, C, D and E . Where the height of a required braced wall panel extending from foundation to floor above varies more than 4 feet (1219 mm), the following construction shall be used:

1. Where the bottom of the footing is stepped and the lowest floor framing rests directly on a sill bolted to the footings, the sill shall be anchored as required in Section 2308.3.3.
2. Where the lowest floor framing rests directly on a sill bolted to a footing not less than 8 feet (2438 mm) in length along a line of bracing, the line shall be considered to be braced. The double plate of the cripple stud wall beyond the segment of footing extending to the lowest framed floor shall be spliced to the sill plate with metal ties, one on each side of the sill and plate. The metal ties shall not be less than 0.058 inch [1.47 mm (16 galvanized gage)] by 11/2 inches (38 mm) wide by 48 inches (1219 mm) with eight 16d common nails on each side of the splice location (see Figure 2308.6.7.3(1). The metal tie shall have a minimum yield stress of 33,000 pounds per square inch (psi) (227 MPa).
3. Where cripple walls occur between the top of the footing and the lowest floor framing, the bracing requirements for a *story* shall apply.

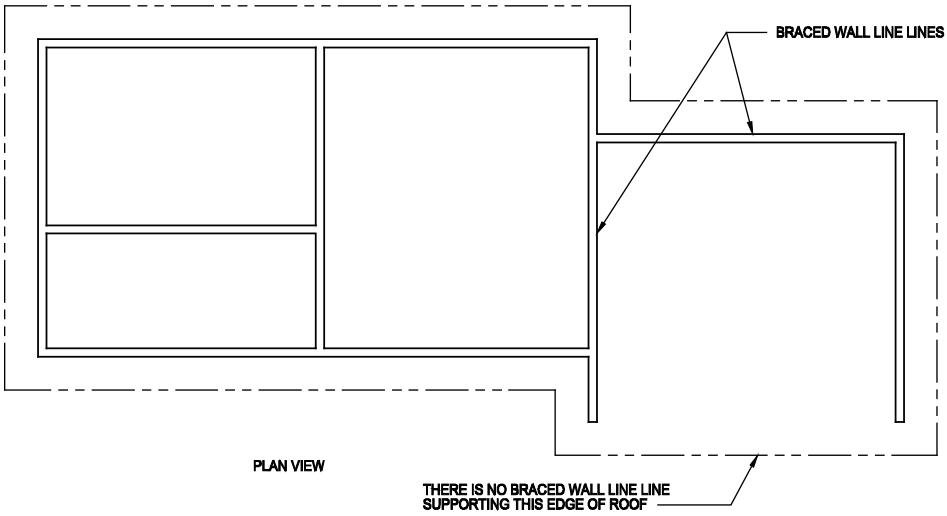


FIGURE 2308.6.7.2(1)
ROOF IN SDC D OR E NOT SUPPORTED ON ALL EDGES

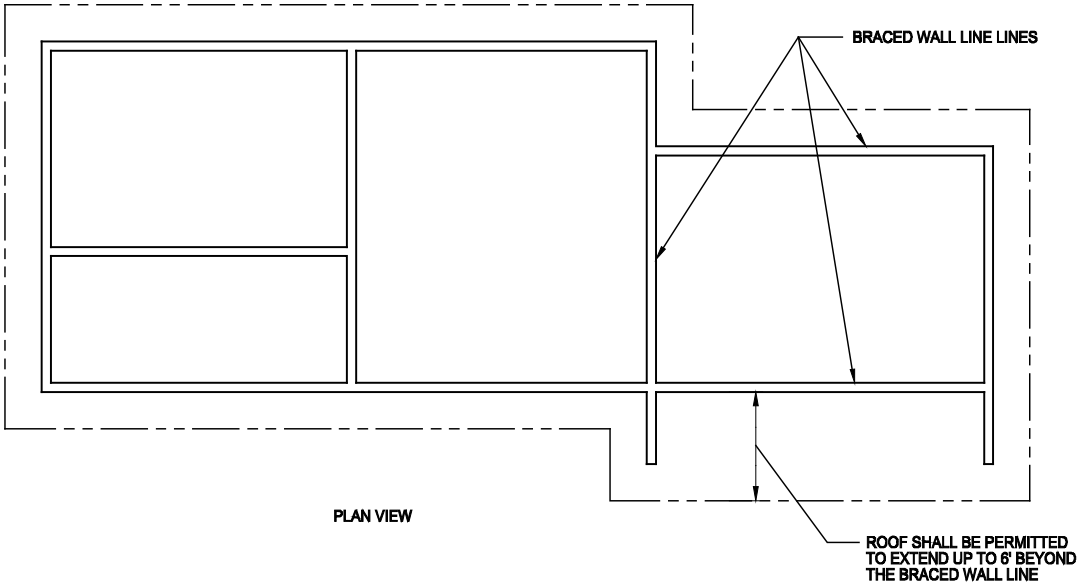
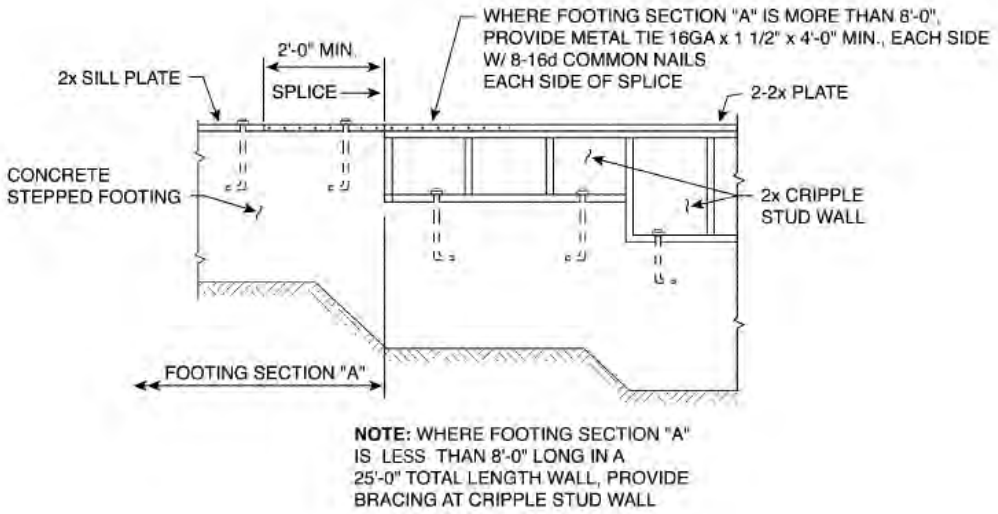


FIGURE 2308.6.7.2(2)
ROOF EXTENSION IN SDC D OR E BEYOND BRACED WALL LINE



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE 2308.6.7.3(1)
STEPPED FOOTING CONNECTION DETAILS

2308.6.8 Attachment of sheathing. Fastening of braced wall panel sheathing shall not be less than that prescribed in Tables 2308.6(1) and 2304.9.1. Wall sheathing shall not be attached to framing members by adhesives.

2308.6.9 Limitations of concrete or masonry veneer. Concrete or masonry veneer shall comply with Chapter 14 and this section.

2308.6.9.1 Limitations of concrete or masonry veneer in *Seismic Design Categories* B or C. Concrete or masonry walls and stone or masonry veneer shall not extend above a basement.

Exceptions:

1. In structures assigned to *Seismic Design Category* B, stone and masonry veneer is permitted to be used in the first two stories above grade plane or the first three stories above grade plane where the lowest story has concrete or masonry walls, provided that structural use panel wall bracing is used and the length of bracing provided is one and one-half times the required length as determined in Table 2308.9.3(1).
2. Stone and masonry veneer is permitted to be used in the first story above grade plane or the first two stories above grade plane where the lowest story has concrete or masonry walls.
3. Stone and masonry veneer is permitted to be used in both stories of buildings with two stories above grade plane, provided the following criteria are met:
   - 3.1. Type of brace per Section 2308.9.3 shall be WSP and the allowable shear capacity in accordance with Section 2306.3 shall be a minimum of 350 plf (5108 N/m).
   - 3.2. *Braced wall panels* in the second *story* shall be located in accordance with Section 2308.9.3 and not more than 25 feet (7620 mm) on center, and the total length of braced wall panels shall be not less than 25 percent of the braced wall line length. *Braced wall panels* in the first *story* shall be located in accordance with Section 2308.9.3 and not more than 25 feet (7620 mm) on center, and the total length of *braced wall panels* shall be not less than 45 percent of the braced wall line length.
   - 3.3. Hold-down connectors shall be provided at the ends of each *braced wall panel* for the second *story* to first *story* connection with an allowable capacity of 2,000 pounds (8896 N). Hold-down connectors shall be provided at the ends of each *braced wall panel* for the first story to foundation connection with an allowable capacity of 3,900

pounds (17 347 N). In all cases, the hold-down connector force shall be transferred to the foundation.

3.4. Cripple walls shall not be permitted.

2308.6.9.2 Limitations of concrete or masonry in *Seismic Design Categories D and E* Concrete or masonry walls and stone or masonry veneer shall not extend above a basement.

Exception: In structures assigned to *Seismic Design Category* D, stone and masonry veneer is permitted to be used in the first story above grade plane, provided the following criteria are met:

1. Type of brace in accordance with Section 2308.9.3 shall be WSP and the allowable shear capacity in accordance with Section 2306.3 shall be a minimum of 350 plf (5108 N/m).
2. The bracing of the first *story* shall be located at each end and at least every 25 feet (7620 mm) o.c. but not less than 45 percent of the braced wall line.
3. Hold-down connectors shall be provided at the ends of braced walls for the first floor to foundation with an allowable capacity of 2,100 pounds (9341 N).
4. Cripple walls shall not be permitted.

2308.7 Roof and ceiling framing. The framing details required in this section apply to roofs having a minimum slope of three units vertical in 12 units horizontal (25-percent slope) or greater. Where the roof slope is less than three units vertical in 12 units horizontal (25-percent slope), members supporting rafters and ceiling joists such as ridge board, hips and valleys shall be designed as beams.

2308.7.1 Ceiling joist spans. Allowable spans for ceiling joists shall be in accordance with Table 2308.7.1(1) or 2308.7.1(2). For other grades and species, refer to the *AF&PA Span Tables for Joists and Rafters*.

~~TABLE 2308.10.2(1)~~ TABLE 2308.7.1(1)
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable Attics Without Storage, Live Load = 10 pounds psf, L/Δ = 240)

(Portions of Table not shown remain unchanged)

~~TABLE 2308.10.2(2)~~ TABLE 2308.7.1(2)
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable Attics With Limited Storage, Live Load = 20 pounds per square foot, L/Δ = 240)

(Portions of Table not shown remain unchanged)

2308.7.2 Rafter spans. Allowable spans for rafters shall be in accordance with Table 2308.7.2(1), 2308.7.2(2), 2308.7.2(3), 2308.7.2(4), 2308.7.2(5) or 2308.7.2(6). For other grades and species, refer to the *AF&PA Span Tables for Joists and Rafters*.

~~TABLE 2308.10.3(1)~~ TABLE 2308.7.2(1)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof Live Load = 20 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)

(Portions of Table not shown remain unchanged)

~~TABLE 2308.10.3(2)~~ TABLE 2308.7.2(2)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof Live Load = 20 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)

(Portions of Table not shown remain unchanged)

~~TABLE 2308.10.3(3)~~ TABLE 2308.7.2(3)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 30 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)

(Portions of Table not shown remain unchanged)

~~TABLE 2308.10.3(4)~~ TABLE 2308.7.2(4)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 50 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)

(Portions of Table not shown remain unchanged)

~~TABLE 2308.10.3(5)~~ TABLE 2308.7.2(5)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 30 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)

(Portions of Table not shown remain unchanged)

~~TABLE 2308.10.3(6)~~ TABLE 2308.7.2(6)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 50 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)

(Portions of Table not shown remain unchanged)

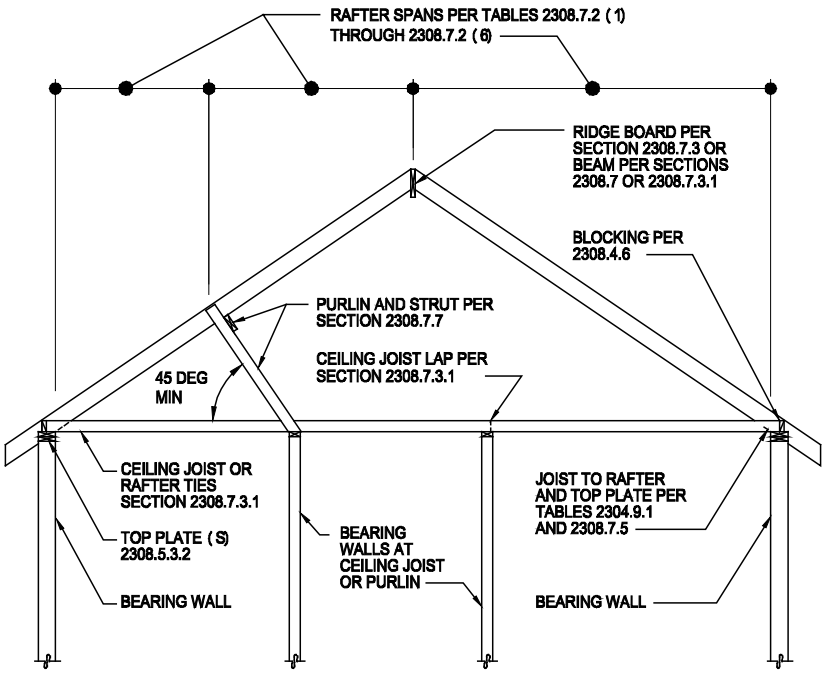
2308.7.3 Ceiling joist and rafter framing. Rafters shall be framed directly opposite each other at the ridge. There shall be a ridge board at least 1-inch (25 mm) nominal thickness at ridges and not less in depth than the cut end of the rafter. At valleys and hips, there shall be a single valley or hip rafter not less than 2-inch (51 mm) nominal thickness and not less in depth than the cut end of the rafter.

2308.7.3.1 Ceiling joist and rafter connections. Ceiling joists and rafters shall be nailed to each other and the assembly shall be nailed to the top wall plate in accordance with Tables 2304.9.1 and 2308.7.5. Ceiling joists shall be continuous or securely joined where they meet over interior partitions and be fastened to adjacent rafters in accordance with Tables 2304.9.1 and 2308.7.3.1 to provide a continuous rafter tie across the building where such joists are parallel to the rafters. Ceiling joists shall have a bearing surface of not less than 1-1/2 inches (38 mm) on the top plate at each end.

Where ceiling joists are not parallel to rafters, an equivalent rafter tie shall be installed in a manner to provide a continuous tie across the building, at a spacing of not more than 4 feet (1219 mm) o.c. The connections shall be in accordance with Tables 2308.7.3.1 and 2304.9.1, or connections of equivalent capacities shall be provided. Where ceiling joists or rafter ties are not provided at the top of the rafter support walls, the ridge formed by these rafters shall also be supported by a girder conforming to Section 2308.2.7. Rafter ties shall be spaced not more than 4 feet (1219 mm) o.c.

Rafter tie connections shall be based on the equivalent rafter spacing in Table 2308.7.3.1. Rafter/ceiling joist connections and rafter/tie connections shall be of sufficient size and number to prevent splitting from nailing.

Roof framing member connection to braced wall lines shall be in accordance with 2308.6.6.2.



For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 degree = 0.018 rad.
Note: Where ceiling joints run perpendicular to the rafter, rafter ties shall be installed per section 2308.7.3.1

FIGURE 2308.7
ROOF CEILING FRAMING

~~TABLE 2308.10.4.1~~ TABLE 2308.7.3.1
RAFTER TIE CONNECTIONS[g]

(Portions of Table not shown remain unchanged)

2308.7.4 Notches and holes. Notching at the ends of rafters or ceiling joists shall not exceed one-fourth the depth. Notches in the top or bottom of the rafter or ceiling joist shall not exceed one-sixth the depth and shall not be located in the middle one-third of the span, except that a notch not exceeding one-third of the depth is permitted in the top of the rafter or ceiling joist not further from the face of the support than the depth of the member. Holes bored in rafters or ceiling joists shall not be within 2 inches (51 mm) of the top and bottom and their diameter shall not exceed one-third the depth of the member.

2308.7.5 Wind uplift. The roof construction shall have rafter and truss ties to the wall below. Resultant uplift loads shall be transferred to the foundation using a continuous load path. The rafter or truss to wall connection shall comply with Tables 2304.9.1 and 2308.7.5

~~TABLE 2308.10.1~~ TABLE 2308.7.5
REQUIRED RATING OF APPROVED UPLIFT CONNECTORS (pounds)[a, b, c, e, f, g, h]

(Portions of Table not shown remain unchanged)

2308.7.6 Framing around openings. Trimmer and header rafters shall be doubled, or of lumber of equivalent cross section, where the span of the header exceeds 4 feet (1219 mm). The ends of header rafters more than 6 feet (1829 mm) long shall be supported by framing anchors or rafter hangers unless bearing on a beam, partition or wall.

2308.7.6.1 Openings in roof diaphragms in *Seismic Design Categories* B, C, D and E. Openings in horizontal diaphragms with a dimension perpendicular to the joist that is greater than 4 feet (1219 mm)

shall be constructed with metal ties and blocking in accordance with this section and Figure 2308.4.4.1(1). Metal ties shall not be less than 0.058 inch [1.47 mm (16 galvanized gage)] thick by 1-1/2 inches (38 mm) wide with a minimum yield stress of 33,000 psi (227 Mpa). Blocking shall be provided 2 feet minimum beyond headers. Ties shall be attached to blocking with eight 16d common nails on each side of the header-joist intersection.

2308.7.7 Purlins. Purlins to support roof loads are permitted to be installed to reduce the span of rafters within allowable limits and shall be supported by struts to bearing walls. The maximum span of 2-inch by 4-inch (51 mm by 102 mm) purlins shall be 4 feet (1219 mm). The maximum span of the 2-inch by 6-inch (51 mm by 152 mm) purlin shall be 6 feet (1829 mm), but in no case shall the purlin be smaller than the supported rafter. Struts shall not be smaller than 2-inch by 4-inch (51 mm by 102 mm) members. The unbraced length of struts shall not exceed 8 feet (2438 mm) and the minimum slope of the struts shall not be less than 45 degrees (0.79 rad) from the horizontal.

2308.7.8 Blocking. Roof rafters and ceiling joists shall be supported laterally to prevent rotation and lateral displacement in accordance with the provisions of Section 2308.8.5 and connected to braced wall lines per Section 2308.6.6.2.

2308.7.9 Engineered wood products. Prefabricated wood I-joists, structural glued-laminated timber and structural composite lumber shall not be notched or drilled except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.

2308.7.10 Roof sheathing. Roof sheathing shall be in accordance with Tables 2304.7(3) and 2304.7(5) for wood structural panels, and Tables 2304.7(1) and 2304.7(2) for lumber and shall comply with Section 2304.7.2.

2308.7.11 Joints. Joints in lumber sheathing shall occur over supports unless *approved* end-matched lumber is used, in which case each piece shall bear on at least two supports.

2308.7.12 Roof planking. Planking shall be designed in accordance with the general provisions of this code.

In lieu of such design, 2-inch (51 mm) tongue-and groove planking is permitted in accordance with Table 2308.10.9. Joints in such planking are permitted to be randomly spaced, provided the system is applied to not less than three continuous spans, planks are center matched and end matched or splined, each plank bears on at least one support, and joints are separated by at least 24 inches (610 mm) in adjacent pieces.

2308.7.13 Wood trusses. Wood trusses shall be designed in accordance with Section 2303.4. Connection to braced wall lines shall be in accordance with Section 2308.6.6.2.

2308.7.14 Attic ventilation. For *attic* ventilation, see Section 1203.2.

Reason: This proposal is intended to completely replace the existing section 2308 "Conventional Light-Frame Construction" with a re-formatted version. This proposal is not intended to introduce any new requirements into, nor remove any requirements from, the existing section 2308.

As a result of many code cycles, Section 2308 has become fragmented and is not organized in a logical manner and is difficult to use. With this proposal, Section 2308 is formatted to begin with general requirements then proceed to foundations, floor framing, wall framing, wall bracing and roof-ceiling construction in that order. The additional requirements for *Seismic Design Categories* in the 2012 IBC Sections 2308.11 and 2308.12 (SDC B/C and SDC D/E respectively) have been merged into the appropriate new sections based on the type of construction such as floor framing, wall bracing and roof framing.

Terminology has been coordinated throughout the section such as the terms, "conventional light-frame construction", "braced wall line" and "braced wall panel".

This proposal is intended to be non-technical and separate proposals have been submitted to address technical items in section 2308.

In order to make the prescriptive provisions of the IBC more closely resemble the format of the similar provisions in the IRC, much of the wall bracing terminology is replicated from the IRC, namely:

- The requirements for braced wall line spacing were put into a single table format based on Seismic Design Category rather than scattered throughout all of Section 2308.
- The wall bracing methods were compiled into a table similar to the IRC, including abbreviations for the methods, rather

than referring to them by a number. The fasteners specified in this table were cross-referenced to the fastener table 2308.9.3.1 where applicable.

- For the section, "Alternate bracing" a figure (copied from the IRC) was introduced, but no technical changes were made.
- Similarly, for Section 2308.9.3.2, "Alternate bracing wall panel adjacent to a door or window opening" was renamed since it aligned perfectly with the Portal Frame with Hold-downs method (PFH) in the IRC. The figure was already in the IBC, so the title was changed to reflect the new name.

Comparison of the proposed 2015 to the existing 2012

<table>
<tr><th>Proposed 2015</th><th>2012 IBC</th></tr>
<tr><td>2308 Conventional Light-Frame Construction</td><td>2308 Conventional Light-Frame Construction</td></tr>
<tr><td>2308.1 General. The requirements of this section are intended for conventional light-frame construction. Other <u>construction</u> methods are permitted to be used, provided a satisfactory design is submitted showing compliance with other provisions of this code. Interior non-load-bearing partitions, ceilings and curtain walls of conventional light-frame construction are not subject to the limitations of ~~this~~ section <u>2308.2</u>.</td><td>2308.1 General. As shown modified to the left</td></tr>
<tr><td></td><td>2308.1.1 Portions exceeding limitations of conventional construction. Moved to 2308.2.8</td></tr>
<tr><td>2308.2 Limitations</td><td>2308.2 Limitations. Included reference to items in 2308.11 (SDC B and C) and 2308.12 (SDC D and E). Those items have been moved here and elsewhere in the section as noted.</td></tr>
<tr><td>2308.2.1 Stories. The height limitations in the table are from:

2308.2.1 Stories. Structures of conventional light-frame construction shall be limited in story height according to the following:
<table>
<tr><th>Seismic Design Category</th><th>Allowable Story above grade plane</th></tr>
<tr><td>A and B</td><td>Three stories</td></tr>
<tr><td>C</td><td>Two Stories</td></tr>
<tr><td>D and E [a]</td><td>One story</td></tr>
</table>
a. For the purposes of this section, for buildings assigned to Seismic Design Category D or E, unless cripple walls are solid blocked and do not exceed 14 inches in height, cripple walls shall be considered to be a story.</td><td>2308.2 Limitations. Buildings are permitted to be constructed in accordance with the provisions of conventional light-frame construction, subject to the following limitations, and to further limitations of Sections 2308.11 and 2308.12.
1. Buildings shall be limited to a maximum of three stories above grade plane. For the purposes of this section, for buildings assigned to Seismic Design Category D or E, cripple stud walls shall be considered to be a story.
Exception: Solid blocked cripple walls not exceeding 14 inches (356 mm) in height need not be considered a story.

2308.11.1 Number of stories. Structures of conventional light-frame construction and assigned to Seismic Design Category C shall not exceed two stories above grade plane.

2308.12.1 Number of stories. Structures of conventional light-frame construction and assigned to Seismic Design Category D or E shall not exceed one story above grade plane.</td></tr>
<tr><td>2308.2.2 Allowable floor-to-floor height</td><td>Moved from 2308.2, item 2</td></tr>
<tr><td>2308.2.3 Allowable Loads</td><td>Moved from 2308.2, item 3</td></tr>
<tr><td>2308.2.4 Allowable wind speed</td><td>Moved from 2308.2, item 4</td></tr>
<tr><td>2308,2,5 Allowable roof span</td><td>Moved from 2308.2, item 5</td></tr>
<tr><td>2308.2.6 Risk Category limitation</td><td>Moved from 2308.2, item 6. SDC "F" was deleted since the provisions of 2308 are not allowed in SDC F.</td></tr>
<tr><td>2308.2.8 Portions exceeding limitations of conventional light-frame construction</td><td>Moved from 2308.1.1 and unchanged. The last sentence was moved here from the last sentence of 2308.4.2. The rest of 2308.4.2 was redundant.</td></tr>
<tr><td><u>2308.3 Foundations and footings. Foundations and footings shall be as specified in Chapter 18.</u></td><td>Moved from 2308.6</td></tr>
<tr><td>2308.3.1 Foundation plates or sills</td><td>Moved from 2308.12.9</td></tr>
<tr><td>2308.3.2 Sill plate anchorage in Seismic Design Category D and E.</td><td>2308.12.8 Sill plate anchorage</td></tr>
<tr><td>2308.4 Floor framing</td><td></td></tr>
<tr><td>2308.4.1 Girders</td><td>Moved from 2308.7</td></tr>
<tr><td>2308.4.2 Floor joists</td><td></td></tr>
<tr><td>2308.4.2.1 Span</td><td>Moved from 2308.8</td></tr>
</table>

2308.4.2.2 Bearing	Moved from 2308.8.1. Switched first sentence to end of paragraph
2308.4.2.3 Framing details	Moved from 2308.8.2. Notches portion removed and placed in section 2308.4.2.4
2308.4.2.4 Notches and holes	Moved from 2308.8.2
2308.4.3 Engineered wood products	Moved from 2308.8.2.1. First sentence is new.
2308.4.4 Framing around openings	Moved from 2308.8.3
2308.4.4.1 Openings in horizontal diaphragms in SDC B, C, D and E	From 2308.11.3.3 The text of this section has been re-arranged for clarity. The first sentence states that a tie and blocking are required. Then, the tie is described followed by the blocking.
2308.4.5 Joists supporting bearing partitions	Moved from 2308.8.4
2308.4.6 Lateral support	Moved from 2308.8.5. Changed "Floor, attic and roof…." to "Floor and ceiling…"
2308.4.7 Structural floor sheathing	Moved from 2308.8.6
2308.4.8 Under-floor ventilation	Moved from 2308.8.7
2308.4.9 Floor framing supporting braced wall panels	Reference to existing requirements from 2308.12.6 that have been moved to 2308.6.7
2308.4.10 Anchorage of exterior means of egress components in Seismic Design Category D or E	Moved from 2308.12.7
2308.5 Wall Construction	
2308.5.1 Stud size, height and spacing	Moved from 2308.9.1.
2308.5.2 Framing details	Moved from 2308.9.2 Exception #1 from 2308.9.2.3 Exception #2 from 2308.9.2
Table 2308.5.1	From existing Table 2308.9.1 Footnote "c" is from existing language in section 2308.9.1
2308.5.3 Plates and sills	
2308.5.3.1 Bottom plate or sill	From 2308.9.2.4
2308.5.3.2 Top plates	From 2308.9.2.1
2308.5.4 Nonbearing walls and partitions	From 2308.9.2.3
2308.5.5 Openings in walls and partitions	From 2308.9.5.
2308.5.5.1 Openings in exterior bearing walls "Wall studs shall support……"	From 2308.9.5.1 From 2308.9.5.2
2308.5.5.2 Openings in interior bearing partitions	From 2308.9.6
2308.5.5.2 Openings in interior nonbearing partitions	From 2308.9.7.
2308.5.6 Cripple walls	From 2308.9.4
2308.5.7 Bridging	From 2308.9.9
2308.5.8 Pipes in walls	From 2308.9.8
2308.5.9 Cutting and notching	From 2308.9.10
2308.5.10 Bored holes	From 2308.9.11
2308.6 Wall bracing	
2308.6.1 Braced wall line spacing Refers to new Table 2308.6.1 that contains spacing information from:	 BWL at 35' o.c. from 2308.3.1 BWL in SDC D/E at 25' o.c. from 2308.12.3
2308.6.2 Location of braced panels	From 2308.9.3. Distance of panel from end of wall line (12 ½ feet) was moved to Table 2308.6.1 along with SDC D and E limitation of 8 feet from 2308.12.4
2308.6.3 Braced wall panel methods New Table 2308.6.3(1)	From 2308.9.3. items 1 through 8 are re-located into Table 2308.6.3.(1) and renamed;

	1 LIB Let In Bracing 2 DWB Diagonal Wood Boards 3 WSP Wood Structural Panels 4 SFB Structural Fiberboard Sheathing 5 GB Gypsum Board 6 PBS Particle Board Sheathing 7 PCP Portland Cement Plaster 8 HPS Hardboard Panel Siding The two “Alternative bracing” options from 2308.9.3.1 are incorporated into Table 2308.6.3(1) as items 9 and 10 9 Alt bracing from 2308.9.3.1 ABW (Alternate Braced Wall) 10 Alt bracing wall panel adjacent to a door or window opening PFH (Portal Frame w/ Hold-downs)
2308.6.4 Length of braced wall panels	From 2308.9.3
2308.6.5 Alternative bracing	From 2308.9.3.1
2308.6.5.1 Alternate Braced Wall (ABW)	From 2308.9.3.1
2308.6.5.2 Portal Frame w/ Hold-downs (PFH)	From 2308.9.3.2 “Alternate bracing wall panel adjacent to a door or window opening”
2308.6.6 Cripple wall bracing	From 2308.9.4.1
2308.6.6.1 Cripple wall bracing in Seismic Design Category A, B and C	From 2308.9.4.1 and 2308.9.4.2
2308.6.6.2 Cripple wall bracing in Seismic Design Category D and E	From 2308.12.4
2308.6.7 Connections of braced wall panels	From 2308.12.4
2308.6.6.1 Bottom plate connection	From 2308.3.2.1
2308.6.6.2 Top plate connection	From 2308.3.2.2
2308.6.6.3 Sill anchorage	From first portion of 2308.3.3. The remainder of 2308.3.3 is moved to 2308.3.1 “Foundation Plates and Sills”
2308.6.6.4 Anchorage to all-wood foundations	From 2308.3.3.1
2308.6.7 Braced wall line support	
2308.6.7.1 Foundation requirements Cantilever floor provisions Braced panel over beam below	From 2308.3.4 From 2308.12.6, Item 1 (re-worded) From 2308.12.6, Item 3 (re-worded and shown in Fig. 2308.6(1)
2308.6.7.2 Floor and roof diaphragm support in Seismic Design Category D and E	From 2308.12.6, item 2
2308.6.7.3 Stepped footings in SDC B,C,D and E	From 2308.11.3.2
2308.6.8 Attachment of sheathing	From 2308.12.5
2308.6.9 Limitation of concrete or masonry veneer	
2308.6.9.1 Concrete or masonry veneer in Seismic Design Category B and C	From 2308.11.2
2308.6.9.2 Concrete or masonry veneer in Seismic Design Category D and E	From 2308.12.2
2308.7 Roof and ceiling framing	From 2308.10. Figure 2308.7 is new and is similar to the Figure in the IRC
2308.7.1 Ceiling joist spans	From 2308.10.2
2308.7.2 Rafter spans	From 2308.10.3
2308.7.3 Ceiling joist and rafter framing	From 2308.10.4
2308.7.3 Ceiling joist and rafter connections	From 2308.10.4
2308.7.4 Notches and holes	From 2308.10.4.2
2308.7.5 Wind uplift	From 2308.10.1
2308.7.6 Framing around openings	From 2308.10.4.3

2308.7.6 Openings in roof diaphragms in SDC B, C, D and E	From 2308.11.3.3 The text of this section has been re-arranged for clarity. The first sentence states that a tie and blocking are required. Then, the tie is described followed by the blocking.
2308.7.7 Purlins	From 2308.10.5
2308.7.9 Engineered wood products	From 2308.10.7
2308.7.10 Roof sheathing	From 2308.10.8
2308.7.11 Joints	From 2308.10.8.1
2308.7.12 Roof planking	From 2308.10.9
2308.7.13 Trusses	From 2308.10.10
2308.7.14 Attic ventilation	From 2308.10.11

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee feels this is a good reorganization of convention construction requirements, but with the number of editorials issues this disapproval will assure that they get done. Proponent is encouraged to work with FEMA and AWC on a public comment.

Assembly Action: **None**

Public Comments

Public Comment 1:

Chuck Bajnai, Chesterfield County, VA, representing ICC Building Code Action Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

~~2308.2.7~~ **2308.1.1 Portions exceeding limitations of conventional light-frame construction.** When portions of a building of otherwise conventional light-frame construction exceed the limits of Section 2308.2, those portions and the supporting load path shall be designed in accordance with accepted engineering practice and the provisions of this code. For the purposes of this section, the term "portions" shall mean parts of buildings containing volume and area such as a room or a series of rooms. The extent of such design need only demonstrate compliance of the non-conventionally light-framed elements with other applicable provisions of this code and shall be compatible with the performance of the conventional light-framed system.

2308.1.2 Connections and fasteners. Connectors and fasteners used in conventional construction shall comply with the requirements of Section 2304.9.

2308.2.3 Allowable Loads. Loads shall be in accordance with Chapter 16 and shall not exceed the following:

1. Average dead loads shall not exceed 15 psf (718 N/m^2) for combined roof and ceiling, exterior walls, floors and partitions.

   Exceptions:

   1. Subject to the limitations of Section ~~2308.6.10.2~~ 2308.6.9.2, stone or masonry veneer up to the lesser of 5 inches (127 mm) thick or 50 psf (2395 N/m^2) and installed in accordance with Chapter 14 is permitted to a height of 30 feet (9144 mm) above a noncombustible foundation, with an additional 8 feet (2438 mm) permitted for gable ends.
   2. Concrete or masonry fireplaces, heaters and chimneys shall be permitted in accordance with the provisions of this code.

2. Live loads shall not exceed 40 psf (1916 N/m^2) for floors.
3. Ground snow loads shall not exceed 50 psf (2395 N/m^2).

2308.3.1 Foundation plates or sills: Foundation plates or sills resting on concrete or masonry foundations shall comply with Section 2304.3.1. Foundation plates or sills shall be bolted or anchored to the foundation with not less than ½-inch-diameter 912.7 mm) steel bolts or approved anchors spaced to provide equivalent anchorage as the steel bolts. ~~Along braced wall lines in~~

~~structures assigned to Seismic Design Category E, steel bolts with a minimum nominal diameter of 5/8 inch (15.9 mm) or approved anchor straps load rated in accordance with Section 1706.1 and spaced to provide equivalent anchorage shall be used.~~ Bolts shall be embedded at least 7 inches (178 mm) into concrete or masonry. Bolts shall be spaced not more than 6 feet (1829 mm) apart and there shall be a minimum of two bolts or anchor straps per piece with one bolt or anchor strap located not more than 12 inches (305 mm) or less than 4 inches (102 mm) from each end of each piece. ~~Bolts in braced wall lines in structures over two stories above grade shall be spaced not more the 4 feet (1219 mm) o.c..~~ A properly sized nut and washer shall be tightened on each bolt to the plate.

Exceptions:

1. Along braced wall lines in structures assigned to Seismic Design Category E, steel bolts with a minimum nominal diameter of 5/8 inch (15.9 mm) or approved anchor straps load rated in accordance with Section 1711.1 and spaced to provide equivalent anchorage shall be used.
2. Bolts in braced wall lines in structures over two stories above grade shall be spaced not more than 4 feet (1219 mm) o.c.

2308.4.4.1 Openings in floor diaphragms in Seismic Design Categories B, C, D, and E: Openings in horizontal diaphragms in Seismic Design Categories B, C, D and E with a dimension perpendicular to the joist that is greater than 4 feet (1219 mm) shall be constructed with metal ties and blocking in accordance with this section and Figure 2308.4.4.1(1). Metal ties shall not be less than 0.058 inch [1.47 mm (16 galvanized gage)] thick by 1-1/2 inches (38 mm) wide with a minimum yield stress of 33,000 psi (227 Mpa). Blocking shall be provided 2 feet minimum beyond headers. Ties shall be attached to blocking with eight 16d common nails on each side of the header-joist intersection.

Openings in floor diaphragms in Seismic Design Categories D and E ~~shall not exceed a dimension greater than 50 percent~~ shall not have any dimension exceeding 50 percent of the distance between braced wall lines or an area greater than 25 percent of the area between orthogonal pairs of braced wall lines [see Figure 2308.4.4.1(2)], or the portion of the structure containing the opening shall be designed in accordance with accepted engineering practice to resist the forces specified in Chapter 16, to the extent such irregular opening affects the performance of the conventional framing system.

2308.4.4.2 Vertical offsets in floor diaphragms in Seismic Design Categories D and E: In Seismic Design Categories D and E, portions of a floor level shall not be vertically offset such that the framing members on either side of the offset cannot be lapped or tied together in an approved manner in accordance with Figure 2308.4.4.2 unless the portion of the structure containing the irregular offset is designed in accordance with accepted engineering practice.

Exception: Framing supported directly by foundations need not be lapped or tied directly together.

2308.5.3.2 Top plates: Bearing and exterior wall studs shall be capped with double top plates installed to provide overlapping at corners and at intersections with other partitions. End joints in double top plates shall be offset at least 48 inches (1219 mm), and shall be nailed in accordance with Table 2304.9.1. Plates shall be a nominal 2 inches (51 mm) in depth and have a width at least equal to the width of the studs.

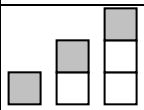
Exception: A single top plate is permitted, provided the plate is adequately tied at joints, corners and intersecting walls by at least the equivalent of 3-inch by 6-inch (76 mm by 152 mm) by 0.036-inch-thick (0.914 mm) galvanized steel connector that is nailed to each wall or segment of wall by six 8d nails or equivalent, provided the rafters, joists or trusses are centered over the studs with a tolerance of not more than 1 inch (25 mm).

Where bearing studs are spaced at 24-inch (610 mm) intervals and top plates are less than two 2- inch by 6-inch (51 mm by 152 mm) or two 3-inch by 4- inch (76 mm by 102 mm) members and where the floor joists, floor trusses or roof trusses that they support are spaced at more than 16-inch (406 mm) intervals, such joists or trusses shall bear within 5 inches (127 mm) of the studs beneath or a third plate shall be installed.

2308.5.6 Cripple walls. *(No change to first two sentences.)* See Section ~~2308.6.5~~ 2308.6.6 for cripple wall bracing.

2308.6.1 Braced wall lines: For the purpose of determining the amount and location of bracing required along each story of a building, braced wall lines shall be designated as straight lines through the building plan in both the longitudinal and transverse direction and placed in accordance with Table 2308.6.1 and Figure ~~2308.6.1~~ 2308.6(1). *(no change to the rest of the section)*

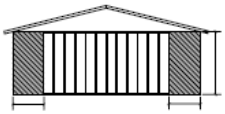
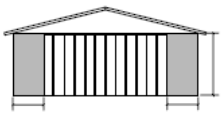
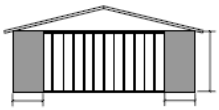
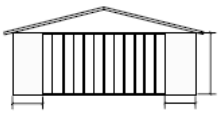
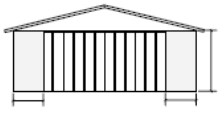
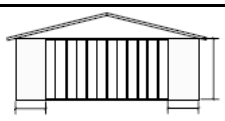
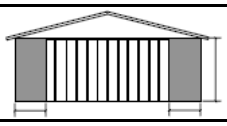
Table ~~2308.1~~ 2308.6.1
WALL BRACING REQUIREMENTS

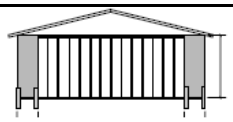
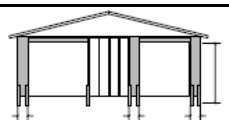
Seismic Design Category	Story Condition (See section 2308.2)	Maximum spacing of braced wall lines	Braced panel location, spacing (o.c.) and minimum percentage (x)			Maximum distance of braced wall panels from each end of braced wall line
			Bracing Method			
			LIB	DWB WSP	SFB PBS PCP HPS GB, [c,d]	
A and B		35'-0"	Each end and ≤25'-0" o.c.	Each end and ≤25'-0" o.c.	Each end and ≤25'-0" o.c.	12'-6"
		35'-0"	Each end and ≤25'-0" o.c.	Each end and ≤25'-0" o.c.	Each end and ≤25'-0" o.c.	12'-6"
		35'-0"	NP	Each end and ≤25'-0" o.c.	Each end and ≤25'-0" o.c.[c]	12'-6"
C		35'-0"	NP	Each end and ≤25'-0" o.c.	Each end and ≤25'-0" o.c.	12'-6"
		35'-0"	NP	Each end and ≤25'-0" o.c. (min 25% of wall length) [e]	Each end and ≤25'-0" o.c. (min 25% of wall length) [e,c]	12'-6"
D and E		25'-0"	NP	Sds < 0.50: Each end and ≤25'-0" o.c. (min 21% of wall length) [e]	Sds < 0.50: Each end and ≤25'-0" o.c. (min 43% of wall length) [e]	8'-0"
				0.5 ≤ Sds < 0.75: Each end and ≤25'-0" o.c. (min 32% of wall length) [e]	0.5 ≤ Sds < 0.75: Each end and ≤25'-0" o.c. (min 59% of wall length) [e]	
				0.75 ≤Sds ≤ 1.00: Each end and ≤25'-0" o.c. (min 37% of wall length) [e]	0.75 ≤Sds ≤ 1.00: Each end and ≤25'-0" o.c. (min 75% of wall length) [e]	
				Sds > 1.00: Each end and ≤25'-0" o.c. (min 48% of wall length) [e]	Sds > 1.00: Each end and ≤25'-0" o.c. (min 100% of wall length) [e]	

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
NP = Not Permitted

a. This table specifies minimum requirements for *braced wall panels* along interior or exterior *braced wall lines*.
b. See Section 2308.6.2 for full description of bracing methods.
c. For method GB, gypsum wallboard applied to framing supports that are spaced at 16 inches on center.
d. The required lengths shall be doubled for gypsum board applied to only one face of a braced wall panel.
e. Percentage shown represents the minimum amount of bracing required along the building length (or wall length if the structure has an irregular shape)

TABLE 2308.6.3(1)
BRACING METHODS

METHODS, MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA [a]	
			Fasteners	**Spacing**
LIB [a] Let-in-bracing	1x4 wood or approved metal straps attached at 45° to 60° angles to studs at maximum of 16" o.c.		Per Fastener Table 2304.9.1~~, item 20~~ Metal strap: installed per manufacturer's installation recommendations	Wood: per stud plus top and bottom plates Metal strap: installed per manufacturer's installation recommendations
DWB Diagonal wood boards	$^3/_4$" thick (1" nominal) x 6" minimum width to studs at maximum of 24" o.c.		Per Fastener Table 2304.9.1~~, item 21 or 22~~	Per stud
WSP Wood structural panel	$^3/_8$" Per TABLE 2308.6.3(2) or 2308.6.3(3)		Per Fastener Table 2304.9.1~~, item 31~~	6" edges 12" field
SFB Structural fiberboard sheathing	$^1/_2$" Per TABLE ~~2308.6.3(4)~~ 2304.9.1 to studs at maximum 16" o.c.		Per Fastener Table 2304.9.1~~, item 33~~	3" edges 6" field
GB Gypsum board (Double sided)	$^1/_2$" by a minimum of 4 feet wide to studs at maximum of 24" o.c.		Exterior and interior sheathing: with 5d cooler nails (1-5/8" x 0.086") or 1¼" screws (type W or S) for ½" gypsum board or $1^5/_8$" screws (type W or S) for $^5/_8$" gypsum board.	For all braced wall panel locations: 7" o.c. along panel edges (including top and bottom plates) and 7" o.c.in the field
PBS Particle-board sheathing	$^3/_8$" or $^1/_2$" per Table ~~2308.9.3(4)~~ 2308.6.3(4) to studs at maximum of 16" o.c.		6d common (2" long x0.113" dia.) nails for $^3/_8$" thick sheathing or 8d common (2½" long x 0.131" dia.) nails for $^1/_2$" thick sheathing	3" edges 6" field
PCP Portland cement plaster	See Section 2510 to studs at maximum of 16" o.c.		1½" long, 11 gage, $^7/_{16}$" dia. head nails or $^7/_8$" long, 16 gage staples	6" o.c. on all framing members
HPS Hardboard panel siding	$^7/_{16}$" TABLE 2308.6.3(5)		Per Fastener Table ~~2308.9.1~~ 2304.9.1	4" edges 8" field

METHODS, MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA [a]	
ABW Alternate braced wall.	$^3/_8$"		See Figure 2308.6.5(1) and Section 2308.6.5.1	See Figure ~~2308.6.3(1)~~ 2308.6.5(1)
PFH Portal frame with hold-downs	$^3/_8$		See Figure 2308.6.5(2) and Section 2308.6.5.2	See Figure ~~2308.6.3(2)~~ 2308.6.5(2)

For SI: 1 foot 305 mm

a. Method LIB shall have gypsum board fastened to at least one side with nails or screws.

TABLE 2308.6.3(3)
WOOD STRUCTURAL PANEL WALL SHEATHING

(No change to table)

a. *(no change)*
b. Blocking of horizontal joints shall not be required except as specified in Sections ~~2306.3 and 2308.12.4~~ 2308.6.4.

TABLE 2308.6.3(5)
HARDBOARD SIDING

(No change to table)

a. *(no changes)*
b. *(no changes)*
c. Where used to comply with Section ~~2308.9.3~~ 2308.6.
d. *(no changes)*

2308.6.4 Length of braced wall panels. For Methods DWB, WSP, SFB, PBS, PCP and HPS each panel must be at least 48 inches (1219 mm) in length, covering three stud spaces where studs are spaced 16 inches (406 mm) apart and covering two stud spaces where studs are spaced 24 inches (610 mm) apart. *Braced wall panels* less than the required 48" length shall not contribute towards the amount of bracing required. *Braced wall panels* longer than the required length shall be credited for their actual length. For Method GB, each panel must be at least 96 inches (2438 mm) in length where applied to one side of the studs or 48 inches (1219 mm) where applied to both sides.

All vertical joints of panel sheathing shall occur over studs and adjacent panel joints shall be nailed to common framing members. Horizontal joints shall occur over blocking or other framing equal in size to the studding except where waived by the installation requirements for the specific sheathing materials. Sole plates shall be nailed to the floor framing in accordance with Section ~~2308.3.2~~ 2308.6.7 and top plates shall be connected to the framing above in accordance with Section 2308.5.3. Where joists are perpendicular to braced wall lines above, blocking shall be provided under and in line with the braced wall panels.

2308.6.5.2 Portal Fame with Hold-downs (PFH). A PFH shall be constructed in accordance with this section and Figure 2308.6.5.2. The adjacent door or window opening shall have a full-length header.

In one-story buildings, each panel shall have a length of not less than 16 inches (406 mm) and a height of not more than 10 feet (3048 mm). Each panel shall be sheathed on one face with a single layer of 3/8 inch (9.5 mm) minimum thickness wood structural panel sheathing nailed with 8d common or galvanized box nails in accordance with Figure 2308.6.5.2. The wood structural panel sheathing shall extend up over the solid sawn or glued-laminated header and shall be nailed in accordance with Figure ~~2308.6.5~~ 2308.6.5.2. A built-up header consisting of at least two 2 × 12s and fastened in accordance with Item 24 of Table 2304.9.1 shall be permitted to be used. A spacer, if used, shall be placed on the side of the built-up beam opposite the wood structural panel sheathing. The header shall extend between the inside faces of the first full-length outer studs of each panel. The clear span of the header between the inner studs of each panel shall be not less than 6 feet (1829 mm) and not more than 18 feet (5486 mm) in length. A strap with an uplift capacity of not less than 1,000 pounds (4,400 N) shall fasten the header to the inner studs opposite the sheathing. One anchor bolt not less than 5/8 inch (15.9 mm) diameter and installed in accordance with Section 2308.3.1 shall be provided in the center of each sill plate. The studs at each end of the panel shall have a hold-down device fastened to the foundation with an uplift capacity of not less than 4,200 pounds (18 480 N).

Where a panel is located on one side of the opening, the header shall extend between the inside face of the first full-length stud of the panel and the bearing studs at the other end of the opening. A strap with an uplift capacity of not less than 1,000 pounds (4400 N) shall fasten the header to the bearing studs. The bearing studs shall also have a hold-down device fastened to the foundation with an uplift capacity of not less than 1,000 pounds (4400 N). The hold-down devices shall be an embedded strap type, installed in accordance with the manufacturer's recommendations. The PFH panels shall be supported directly on a foundation that is continuous across the entire length of the braced wall line. This foundation shall be reinforced with not less than one No. 4 bar top and bottom. Where the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing or turned down slab edge is permitted at door openings in the braced wall line. This continuous footing or turned down slab edge shall be reinforced with not less than one No. 4 bar top and bottom. This

reinforcement shall be lapped not less than 15 inches (381 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

When a PFH is installed at the first *story* of two-story buildings, each panel shall have a length of not less than 24 inches (610 mm).

2308.6.5.1 Cripple wall bracing in Seismic Design Category A, B and C. For the purposes of this section, cripple walls in Seismic Design Categories A, B, and C having a stud height exceeding 14 inches (356 mm) shall be considered a *story* and shall be braced in accordance with Table 2308.6(1). Spacing of edge nailing for required cripple wall bracing shall not exceed 6 inches (152mm) o.c. along the foundation plate and the top plate of the cripple wall. Nail size, nail spacing for field nailing and more restrictive boundary nailing requirements shall be as required elsewhere in the code for the specific bracing material used.

2308.6.5.2 Cripple wall bracing in Seismic Design Category D and E. For the purposes of this section, cripple walls in Seismic Design Category D and E having a stud height exceeding 14 inches (356 mm) shall be considered a story and shall be braced in accordance with Table ~~2308.6(1)~~ 2308.6.1. Where interior braced wall lines occur without a continuous foundation below, the length of parallel exterior cripple wall bracing shall be one and one-half times the lengths required by Table ~~2308.6(1)~~ 2308.6.1. Where the cripple wall sheathing type used is method WSP or DWB and this additional length of bracing cannot be provided, the capacity of WSP or DWB sheathing shall be increased by reducing the spacing of fasteners along the perimeter of each piece of sheathing to 4 inches (102 mm) o.c.

2308.6.6.1 Bottom plate connection. Braced wall line bottom plates shall be connected to joists or full-depth blocking below in accordance with Table 2304.9.1, ~~Item 6~~ or to foundations in accordance with Section ~~2308.3.3~~ 2308.3.1.

2308.6.6.2 Top plate connection. Where joists and/or rafters are used, braced wall line top plates shall be fastened over the full length of the braced wall line to joists, rafters, rim boards or blocking above in accordance with Table 2304.9.1, as applicable, based on the orientation of the joists or rafters to the braced wall line. Blocking at joists with walls above shall be equal to the depth of the joist at the braced wall line. Blocking at rafters need not be full depth but shall extend to within 2 inches (51 mm) from the roof sheathing above. Blocking shall be a minimum of 2 inches (51 mm) nominal thickness and shall be fastened to the braced wall line top plate as specified in Table 2304.9.1~~, Item 11~~. Notching or drilling of holes in blocking in accordance with the requirements of Section ~~2308.8.2~~ 2308.4.2.4 or Section ~~2308.10.4.2~~ 2308.7.4 shall be permitted.

At exterior gable end walls braced wall panel sheathing in the top *story* shall be extended and fastened to roof framing where the spacing between parallel exterior braced wall lines is greater than 50 feet (15 240 mm).

Where roof trusses are used and are installed perpendicular to an exterior braced wall line, lateral forces shall be transferred from the roof diaphragm to the braced wall over the full length of the braced wall line by blocking of the ends of the trusses or by other *approved* methods providing equivalent lateral force transfer. Blocking shall be minimum 2 inches (51 mm) nominal thickness and shall extend to within 2 inches (51 mm) from the roof sheathing above and shall be fastened to the braced wall line top plate as specified in Table 2304.9.1. Notching or drilling of holes in blocking in accordance with the requirements of Section 2308.4.2.4 or Section 2308.7.4 shall be permitted.

2308.6.7.1 Foundation requirements. *(no change to first sentence and Exception.)* For structures in Seismic Design Category D and E, exterior braced wall panels shall be in the same plane vertically with the foundation or the ~~braced wall line~~ portion of the structure containing the offset shall be designed in accordance with accepted engineering practice according to section 2308.1.1

For structures in *Seismic Design Category D and E,* exterior *braced wall panels* shall be in the same plane vertically with the foundation or the ~~braced wall line~~ portion of the structure containing the offset shall be designed in accordance with accepted engineering practice according to section 2308.1.1

Exceptions:

1. Exterior *braced wall panels* may be located up to 4 feet from the foundation below when supported by a floor constructed in accordance with all the following:
   - 1.1 Cantilevers or setbacks shall not exceed four times the nominal depth of the floor joists
   - 1.2. Floor joists shall be 2 inches by 10 inches (51 mm by 254 mm) or larger and spaced not more than 16 inches (406 mm) o.c.
   - 1.3. The ratio of the back span to the cantilever shall be at least 2:1.
   - 1.4. Floor joists at ends of *braced wall panels* shall be doubled.
   - 1.5. A continuous rim joist shall be connected to the ends of cantilevered joists. The rim joist is permitted to be spliced using a metal tie not less than 0.058 inch (1.47 mm) (16 galvanized gage) and 11/2 inches (38 mm) wide fastened with six 16d common nails on each side. The metal tie shall have a minimum yield stress of 33,000 psi (227 MPa).
   - 1.6. Joists at setbacks or the end of cantilevered joists shall not carry gravity loads from more than a single *story* having uniform wall and roof loads, nor carry the reactions from headers having a span of 8 feet (2438 mm) or more.
2. The end of a required braced wall panel shall be allowed to extend not more than 1 foot (305 mm) over an opening in the wall below. This requirement is applicable to *braced wall panels* offset in plane and to *braced wall panels* offset out of plane as permitted by the exception to Item 1 above in this section.

Exception: *Braced wall panels* are permitted to extend over an opening not more than 8 feet (2438 mm) in width where the header is a 4-inch by 12-inch (102 mm by 305 mm) or larger member

2308.6.7.2 Floor and roof diaphragms support in Seismic Design Category D and E. In structures assigned to *Seismic Design Category D or E,* floor and roof diaphragms shall be laterally supported by braced wall lines on all edges and connected in accordance with Section ~~2308.3.2~~ 2308.6.7 [see Figure 2308.6.7.2(1)].

Exception: Portions of roofs or floors that do not support *braced wall panels* above are permitted to extend up to 6 feet (1829 mm) beyond a braced wall line [see Figure 2308.6.7.2(2)] provided that the framing members are connected to the braced wall line below in accordance with Section 2308.6.6.

2308.6.7.3 Stepped footings in Seismic Design Category B, C, D, and E. In Seismic Design Category B, C, D, and E, where the height of a required braced wall panel extending from foundation to floor above varies more than 4 feet (1219 mm), the following construction shall be used:

1. Where the bottom of the footing is stepped and the lowest floor framing rests directly on a sill bolted to the footings, the sill shall be anchored as required in Section ~~2308.3.3~~ 2308.3.
2. Where the lowest floor framing rests directly on a sill bolted to a footing not less than 8 feet (2438 mm) in length along a line of bracing, the line shall be considered to be braced. The double plate of the cripple stud wall beyond the segment of footing extending to the lowest framed floor shall be spliced to the sill plate with metal ties, one on each side of the sill and plate. The metal ties shall not be less than 0.058 inch [1.47 mm (16 galvanized gage)] by 11/2 inches (38 mm) wide by 48 inches (1219 mm) with eight 16d common nails on each side of the splice location (see Figure 2308.6.7.3(1). The metal tie shall have a minimum yield stress of 33,000 pounds per square inch (psi) (227 MPa).
3. Where cripple walls occur between the top of the footing and the lowest floor framing, the bracing requirements for a *story* shall apply.

2308.6.8 Attachment of sheathing. Fastening of braced wall panel sheathing shall not be less than that prescribed in Tables ~~2308.6(1)~~ 2308.6.1 and 2304.9.1. Wall sheathing shall not be attached to framing members by adhesives.

2308.6.9.1 Limitations of concrete and masonry veneer in Seismic Design Categories B or C. In Seismic Design Categories B and C, concrete or masonry walls and stone or masonry veneer shall not extend above a basement.

Exceptions:

1. In structures assigned to *Seismic Design Category* B, stone and masonry veneer is permitted to be used in the first two stories above grade plane or the first three stories above grade plane where the lowest story has concrete or masonry walls, provided that structural use panel wall bracing is used and the length of bracing provided is one and one-half times the required length as determined in Table ~~2308.9.3(1)~~ 2308.6.1.

2. Stone and masonry veneer is permitted to be used in the first story above grade plane or the first two stories above grade plane where the lowest story has concrete or masonry walls.

3. Stone and masonry veneer is permitted to be used in both stories of buildings with two stories above grade plane, provided the following criteria are met:

    3.1. Type of brace per Section ~~2308.9.3~~ 2308.6.1 shall be WSP and the allowable shear capacity in accordance with Section 2306.3 shall be a minimum of 350 plf (5108 N/m).

    3.2. *Braced wall panels* in the second *story* shall be located in accordance with Section ~~2308.9.3~~ 2308.6.1 and not more than 25 feet (7620 mm) on center, and the total length of braced wall panels shall be not less than 25 percent of the braced wall line length. *Braced wall panels* in the first *story* shall be located in accordance with Section ~~2308.9.3~~ 2308.6.1 and not more than 25 feet (7620 mm) on center, and the total length of *braced wall panels* shall be not less than 45 percent of the braced wall line length.

    3.3. Hold-down connectors shall be provided at the ends of each *braced wall panel* for the second *story* to first *story* connection with an allowable capacity of 2,000 pounds (8896 N). Hold-down connectors shall be provided at the ends of each *braced wall panel* for the first story to foundation connection with an allowable capacity of 3,900 pounds (17 347 N). In all cases, the hold-down connector force shall be transferred to the foundation.

    3.4. Cripple walls shall not be permitted.

2308.6.9.2 Limitations of concrete or masonry in Seismic Design Categories D and E: In Seismic Design Categories D and E, concrete or masonry walls and stone or masonry veneer shall not extend above a basement.

Exception: In structures assigned to *Seismic Design Category* D, stone and masonry veneer is permitted to be used in the first story above grade plane, provided the following criteria are met:

1. Type of brace in accordance with Section ~~2308.9.3~~ 2308.6.1 shall be WSP and the allowable shear capacity in accordance with Section 2306.3 shall be a minimum of 350 plf (5108 N/m).
2. The bracing of the first *story* shall be located at each end and at least every 25 feet (7620 mm) o.c. but not less than 45 percent of the braced wall line.
3. Hold-down connectors shall be provided at the ends of braced walls for the first floor to foundation with an allowable capacity of 2,100 pounds (9341 N).

4. Cripple walls shall not be permitted.

2308.7.8 Blocking. Roof rafters and ceiling joists shall be supported laterally to prevent rotation and lateral displacement in accordance with the provisions of Section ~~2308.8.5~~ 2308.4.6 and connected to braced wall lines per Section 2308.6.6.2.

2308.7.12 Roof planking. Planking shall be designed in accordance with the general provisions of this code.

In lieu of such design, 2-inch (51 mm) tongue-and groove planking is permitted in accordance with Table ~~2308.10.9~~ 2308.7.12. Joints in such planking are permitted to be randomly spaced, provided the system is applied to not less than three continuous spans, planks are center matched and end matched or splined, each plank bears on at least one support, and joints are separated by at least 24 inches (610 mm) in adjacent pieces.

TABLE ~~2308.10.9~~ 2308.7.12
ALLOWABLE SPANS FOR 2-INCH TONGUE-AND-GROOVE DECKING

(No change to table contents)

2308.8 Design of elements. Combining of engineered elements or systems and conventionally specified elements or systems shall be permitted subject to the following limits.

2308.8.1 Elements exceeding limitations of conventional construction. When a building of otherwise conventional construction contains structural elements exceeding the limits of Section 2308.2, these elements and the supporting load path shall be designed in accordance with accepted engineering practice and the provisions of this code.

2308.8.2 Structural elements or systems not described herein. When a building of otherwise conventional construction contains structural elements or systems not described in Section 2308, these elements or systems shall be designed in accordance with accepted engineering practice and the provisions of this code. The extent of such design need only demonstrate compliance of the nonconventional elements with other applicable provisions of this code and shall be compatible with the performance of the conventionally framed system.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: This public comment is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 5 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

This proposed modification to S273 addresses concerns that were raised at the Code Development Hearings. The original proposal, S273, was the product of countless hours by the Building Code Action Committee members. The proposal was not completely free of editorial errors by the deadline for submission.

The committee strongly supported the proposal and felt that it was a good reorganization of section 2308 but that it needed corrections. At the time of the Code Development Hearings in May, most, if not all, of the concerns had been identified and preliminarily addressed. This modification, the work of the BCAC members, addresses the necessary corrections and editorial changes and is submitted with the full support of the BCAC and we request approval of this modification. Due to the overall length of the original code change, this Public Comment shows only the specific items that required correction.
The inconsistencies and mistakes in the original proposal that are cleaned up by this public comment, as explained below:

Section 2308.2.3: corrects an incorrect section reference.

Section 2308.1.1 (new): location as a subsection of 2308.1, as it is in the current code, is appropriate to avoid a circular reference to 2308.2 in the text, and the more prominent location in 2308.1 is appropriate.

Section 2308.1.2 (new): This requirement for connectors and fasteners was inadvertently omitted from the code change; it is inserted here.

Section 2308.3.1: relocates two sentences as exceptions for clear application of the rest of the requirements of the section.

2308.4.4.1: Since titles are editorial the seismic design category needs to be contained in the text of the section; and clarity of wording for floor opening limitations. It is not the opening that needs to be designed but the portion of the structure containing an opening that exceeds the limitations for size.

2308.4.4.2: The Seismic Design Categories need to be named in the text, and the alternative for design of the portion of the structure containing an irregular offset in the current code should be preserved.

2308.5.3.2: This clarification is necessary due to the reorganization of the sections.

2308.5.6: Corrects an incorrect reference.

2308.6.1: Corrects an incorrect Figure number reference.

Table 2308.1: Corrects an incorrect Table number from Table 2308.1 to 2308.6.1; the text has it correct. Also, corrects the footnote "c" placement and text to reflect the current application in current Table 2308.9.3(1).

Table 2308.6.3(1): eliminating reference to items numbers of Table 2304.9.1 in the "Connection Criteria" column will preclude cross-referencing difficulties if the fastener table is changed; the item numbers are not necessary for a correct reference. Several incorrect numbers references are corrected. Also, an existing 16-inch stud spacing limitation is inserted for the Structural Fiberboard method (SFB).

Table 2308.6.3(3): deletes a non-existent section reference and replaces the other with the correct section reference.

Table 2308.6.3(5): corrects an incorrect reference.

2308.6.4: corrects an incorrect section reference.

Section 2308.6.5.2: corrects an incorrect reference.

2308.6.5.1: the Seismic Design Categories need to be named in the text since titles are editorial.

2308.6.5.2: corrects an incorrect table number in two places.

2308.6.6.1: eliminates an unnecessary use of a table item number designation to preclude correlation problems later; also corrects an incorrect reference.

2308.6.6.2: eliminates an unnecessary use of a table item number designation to preclude correlation problems later; also corrects two incorrect references.

2308.6.7.1: reworded to make it clear that it is not the braced wall line that needs to be designed but the portion of the structure containing the offset which causes the structure to be "irregular" in regard to the limitations.

2308.6.7.2: corrects an incorrect section reference.

2308.6.7.3: the Seismic Design Categories need to be named in the text since titles are editorial; also corrects an incorrect section reference.

2308.6.8: corrects an incorrect table reference.

2308.6.9.1: the Seismic Design Categories need to be named in the text since titles are editorial; also corrects incorrect references in four places.

2308.6.9.2: the Seismic Design Categories need to be named in the text since titles are editorial; also corrects an incorrect reference.

2308.7.8: corrects an incorrect reference.

2308.7.12: coordinates the number of the referenced table with the section number.

Table 2308.7.12: coordinates the number of the table with the section that references it.

2308.8 (new): This section currently appears in 2012 IBC Section but was omitted from the proposal. It addresses individual engineered elements within the building and therefore differs from proposed 2308.1.1 which addresses entire portions of structures. These provisions are important for guidance regarding engineered elements and systems within a conventionally framed structure, and should be retained.

The following renumbering to be done by staff editorial.

~~2308.6.5~~ 2308.6.6 Cripple wall bracing.
~~2308.6.5.1~~ 2308.6.6.1 Cripple wall bracing in Seismic Design Category A, B and C.
~~2308.6.5.2~~ 2308.6.6.2 Cripple wall bracing in Seismic Design Category D and E.
~~2308.6.6~~ 2308.6.7 Connections of braced wall panels.
~~2308.6.6.1~~ 2308.6.7.1 Bottom plate connection.
~~2308.6.6.2~~ 2308.6.7.2 Top plate connection.
~~2308.6.6.3~~ 2308.6.7.3 Sill anchorage.
~~2308.6.6.4~~ 2308.6.7.4 Anchorage to all-wood foundations.
~~2308.6.7~~ 2308.6.8 Braced wall line and diaphragm support.
~~2308.6.7.1~~ 2308.6.8.1 Foundation requirements.

~~2308.6.7.2~~ 2308.6.8.2 Floor and roof diaphragm support in Seismic Design Category D and E.
Figure ~~2308.6.7.2(1)~~ 2308.6.8.2(1) ROOF IN SDC D OR E NOT SUPPORTED ON ALL EDGES
Figure ~~2308.6.7.2(2)~~ 2308.6.8.2(2) ROOF EXTENSION IN SDC D OR E BEYOND BRACED WALL LINE
~~2308.6.7.3~~ 2308.6.8.3 Stepped footings in Seismic Design Category B, C, D, and E.
Figure ~~2308.6.7.3(1)~~ 2308.6.8.3(1) STEPPED FOOTING CONNECTION DETAILS
~~2308.6.8~~ 2308.6.9 Attachment of sheathing.
~~2308.6.9~~ 2308.6.10 Limitations of concrete or masonry veneer.
~~2308.6.9.1~~ 2308.6.10.1 Limitations of concrete or masonry veneer in Seismic Design Categories B or C.
~~2308.6.9.2~~ 2308.6.10.2 Limitations of concrete or masonry in Seismic Design Categories D and E.

Corresponding update, to Section references are staff edits.

Final Hearing Results

S273-12	AMPC1

Code Change No: S274-12

Original Proposal

Section(s): 2308.2.1

Proponent: Philip Line, American Wood Council

Revise as follows:

2308.2.1 Nominal design wind speed greater than ~~100~~ 130 mph (3-second gust). Where ~~V_{asd} as determined in accordance with Section 1609.3.1~~ V_{ult} exceeds ~~100~~ 130 mph (3-second gust), the provisions of either AF&PA WFCM, or the ICC 600 are permitted to be used. Wind speeds in Figures 1609A, 1609B, and 1609C shall be converted to V_{asd} wind speed in accordance with Section 1609.3.1 for use with ~~AF&PA WFCM or~~ ICC 600.

Reason: ASD wind speeds, V_{asd}, are converted to V_{ult} wind speeds to work directly with V_{ult} wind speed maps in the IBC (Figure 1609A, Figure 1609B, and Figure 1609C). For 2012 WFCM, the conversion to V_{asd} is not applicable as the updated AWC's 2012 WFCM utilizes V_{ult} wind speeds. Text is added to clarify application of 1609.3.1 for determination of V_{asd} wind speeds for use with ICC 600.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

2308.2.1 ~~Nominal~~ Ultimate design wind speed greater than 130 mph (3-second gust). Where V_{ult} exceeds 130 mph (3-second gust), the provisions of either AF&PA WFCM, or the ICC 600 are permitted to be used. ~~Wind speeds in Figures 1609A, 1609B, and 1609C shall be converted to V_{asd} wind speed in accordance with Section 1609.3.1 for use with ICC 600.~~

Committee Reason: This proposal improved the alignment of the wind threshold with the referenced standards. The modification removes a sentence that is no longer necessary.

Assembly Action: **None**

Final Hearing Results

S274 **AM**

Code Change No: S277-12

Original Proposal

Section(s): 2308.2

Proponent: Philip Line, American Wood Council

Revise as follows:

2308.2 Limitations. Buildings are permitted to be constructed in accordance with the provisions of *conventional light-frame construction*, subject to the following limitations, and to further limitations of Sections 2308.11 and 2308.12.

1. Buildings shall be limited to a maximum of three *stories above grade plane*. For the purposes of this section, for buildings assigned to *Seismic Design Category* D or E, cripple stud walls shall be considered to be a *story*.

   Exception: Solid blocked cripple walls not exceeding 14 inches (356 mm) in height need not be considered a *story*.

2. Maximum floor-to-floor height shall not exceed 11 feet, 7 inches (3531 mm). Bearing wall height shall not exceed a stud height of 10 feet (3048 mm).
3. Loads as determined in Chapter 16 shall not exceed the following:
   3.1. Average dead loads shall not exceed 15 psf (718 N/m^2) for combined roof and ceiling, exterior walls, floors and partitions.

   Exceptions:

   1. Subject to the limitations of Sections 2308.11.2 and 2308.12.2, stone or masonry veneer up to the lesser of 5 inches (127 mm) thick or 50 psf (2395 N/m^2) and installed in accordance with Chapter 14 is permitted to a height of 30 feet (9144 mm) above a noncombustible foundation, with an additional 8 feet (2438 mm) permitted for gable ends.
   2. Concrete or masonry fireplaces, heaters and chimneys shall be permitted in accordance with the provisions of this code.

   3.2. Live loads shall not exceed 40 psf (1916 N/m^2) for floors.
   3.3. Ground snow loads shall not exceed 50 psf (2395 N/m^2).

4. ~~V_{asd} as determined in accordance with Section 1609.3.1~~ V_{ult} shall not exceed ~~100~~ 130 miles per hour (mph) (~~44~~ 57.2 m/s) (3- second gust).

   Exception: ~~V_{asd} as determined in accordance with Section 1609.3.1~~ V_{ult} shall not exceed ~~110~~ 140 mph (~~48.4~~ 61.6 m/s) (3-second gust) for buildings in Exposure Category B that are not located in a *hurricane-prone region*.

5. Roof trusses and rafters shall not span more than 40 feet (12 192 mm) between points of vertical support.
6. The use of the provisions for *conventional light-frame construction* in this section shall not be permitted for *Risk Category* IV buildings assigned to *Seismic Design Category* B, C, D, E or F.
7. *Conventional light-frame construction* is limited in irregular structures assigned to *Seismic Design Category* D or E, as specified in Section 2308.12.6.

Reason: ASD wind speeds, V_{asd}, are converted to V_{ult} wind speeds to work directly with V_{ult} wind speed maps in the IBC (Figure 1609A, Figure 1609B, and Figure 1609C). This change will allow direct comparison of the wind speed limits in 2308.2 Item 4 with IBC wind speed maps for determination of applicability of provisions in 2308 eliminating potential error due to mathematical conversion of V_{asd} to V_{ult}. Use of V_{ult} also better coordinates with the V_{ult} wind speed of 115 mph defined in Chapter 2 for hurricane prone region. Additionally, this change will allow better coordination with V_{ult} basis of WFCM wind design provisions and strength design basis ASCE 7-10 wind load provisions.

The value of 130 mph comes from the solving Equation 16-33 for V_{ult} and rounding as follows:
V_{ult} = (V_{asd})/(0.6^0.5)
V_{ult} = (100 mph)/(0.6^0.5) = 129.099 mph
V_{ult} = 130 mph

The value of 140 mph comes from solving Equation 16-33 for V_{ult} and rounding as follows:
V_{ult} = (V_{asd})/(0.6^0.5)
V_{ult} = (110 mph)/(0.6^0.5) = 142.009 mph
V_{ult} = 140 mph

With the exception of rounding to facilitate use of mapped wind speed contours, this change does not introduce technical change to existing wind speed limitations. Rounding up to 130 mph affects locations with V_{ult} wind speed between 129 mph and 130 mph such that provisions of 2308 are now applicable in those locations. Rounding down to 140 mph affects locations with V_{ult} wind speed between 140 mph and 142 mph such that provisions of 2308 are no longer applicable in those locations.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal updates the wind speed thresholds in 2308.2 to be consistent with the wind maps of Section 1609.

Assembly Action: **None**

Final Hearing Results

S277-12 **AS**

Code Change No: S278-12

Original Proposal

Section(s): 2308.2

Proponent: Robert Rice, Josephine County, OR, representing Oregon Building Officials Association (structdesigner@yahoo.com)

Revise as follows:

2308.2 Limitations. Buildings are permitted to be constructed in accordance with the provisions of *conventional light-frame construction*, subject to the following limitations, and to further limitations of Sections 2308.11 and 2308.12.

1. Buildings shall be limited to a maximum of three *stories above grade plane*. For the purposes of this section, for buildings assigned to *Seismic Design Category* D or E, cripple stud walls shall be considered to be a *story*.

   Exception: Solid blocked cripple walls not exceeding 14 inches (356 mm) in height need not be considered a *story*.

2. Maximum floor-to-floor height shall not exceed 11 feet, 7 inches (3531 mm). Bearing wall height shall not exceed a stud height of 10 feet (3048 mm).
3. Loads as determined in Chapter 16 shall not exceed the following:
   3.1. Average dead loads shall not exceed 15 psf (718 N/m_2) for combined roof and ceiling, exterior walls, floors and partitions.

      Exceptions:

      1. Subject to the limitations of Sections 2308.11.2 and 2308.12.2, stone or masonry veneer up to the lesser of 5 inches (127 mm) thick or 50 psf (2395 N/m_2) and installed in accordance with Chapter 14 is permitted to a height of 30 feet (9144 mm) above a noncombustible foundation, with an additional 8 feet (2438 mm) permitted for gable ends.
      2. Concrete or masonry fireplaces, heaters and chimneys shall be permitted in accordance with the provisions of this code.

   3.2. Live loads shall not exceed 40 psf (1916 N/m_2) for floors.
   3.3. Ground snow loads shall not exceed 50 psf (2395 N/m_2).
4. V_{asd} as determined in accordance with Section 1609.3.1 shall not exceed 100 miles per hour (mph) (44 m/s) (3- second gust).

   Exception: V_{asd} as determined in accordance with Section 1609.3.1 shall not exceed 110 mph (48.4 m/ s) (3-second gust) for buildings in Exposure Category B that are not located in a *hurricane-prone region*.

5. ~~Roof trusses and~~ Ceiling joist and-rafters framing constructed in accordance with Section 2308.10 and trusses shall not span more than 40 feet (12 192 mm) between points of vertical support. A ridge board in accordance with Section 2308.10 or 2308.10.4.1 shall not be considered a vertical support.

6. The use of the provisions for *conventional light-frame construction* in this section shall not be permitted for *Risk Category* IV buildings assigned to *Seismic Design Category* B, C, D, E or F.
7. *Conventional light-frame construction* is limited in irregular structures assigned to *Seismic Design Category* D or E, as specified in Section 2308.12.6.

Reason: This proposal clarifies the requirements of the existing code language. The provisions of the existing code defining the construction of roof/ceiling assemblies with *conventional light-frame construction* are predicated on the fact that a "ridge-board" does not provide "vertical support". According to the commentary, the current code limitation of *"Roof trusses and rafters shall not span more than 40 feet (12 192 mm) between points of vertical support."* is intended to limit the use the rafter/ceiling joist (or rafter tie) provisions of *"Conventional light-frame construction".*

The commentary states:

"In buildings with roof framing spans in excess of 40 feet (12192 mm), the horizontal thrust of that framing on the top plate on which it rests is greater than can be resisted by the ceiling joist and rafter connections specified in Section 2308.10.4.1. Note that the limitation is on the span of the truss or rafter and not on the width of the building. The building width could exceed 40 feet (12192 mm) as long as the actual span of the roof framing is no more than 40 feet (12192 mm)."

The commentary correctly identifies that there are "horizontal thrust" forces in a rafter/ceiling joist assembly. Those forces are addressed in Section 2308.10.4.1 where it states, *"Ceiling joists shall be continuous or securely joined where they meet over interior partitions and fastened to adjacent rafters in accordance with* ***Tables 2308.10.4.1*** *and 2304.9.1 to provide a continuous rafter tie across the building where such joists are parallel to the rafters."* Table 2308.10.4.1 contains the necessary rafter tie connections based on rafter slope, snow load and roof span. The roof span, per the table, is up to 36 feet. In addition, footnote "c" of Table 2308.10.4.1 further verifies this with the statement that, *"Rafter tie heel joint connections are not required where the ridge is supported by a load-bearing wall, header or ridge beam."* An error exists in the statement of the commentary in that trusses do not impose the "horizontal thrust" on the top plate of the wall like rafter/ceiling joist framing does. The horizontal forces of a truss at it's bearing points are non-existent, or negligible, due to the fact that the forces are resolved within the chords and web members of the truss and only vertical loads exist at it's bearing points such as on the exterior walls.

However, a second concern exists and is a factor in limiting the roof span to 40 feet. The bearing wall studs in Table 2308.9.1 are limited in their capacity to resist buckling due to the vertical (axial) forces and the unbraced length of the studs. When considering the load limitations of 2308.2 item 3.1, 15 psf dead load, and item 3.3, snow load of 50 psf, the combined roof load could be 65 psf. A 40 foot span would result in a load of 65 x 40/2 = 1300 plf to the top plates. With studs at 16 inch o.c. the load/stud = 1300 x (16/12) = 1733#/stud.

Therefore, the purpose of this proposal is to clarify that a non-vertically-supporting "ridge board" is not to be considered a "vertical support". If it were to be mistakenly considered to be a support, the tributary roof load would far exceed that capacity of the studs as well as the limitations of the values in the rafter tie table. This clarification will not effect the requirements for wall bracing and the location, or spacing, of braced wall lines. Currently, braced wall lines are required at 35 feet o.c. in each direction in *Seismic Design Category* A, B and C and 25 feet o.c. in each direction in *Seismic Design Category* D and E.

For reference, sections 2308.10 and 2308.10.4.1 state:

2308.10 Roof and ceiling framing. *The framing details required in this section apply to roofs having a minimum slope of three units vertical in 12 units horizontal (25-percent slope) or greater.* ***Where the roof slope is less than three units vertical in 12 units horizontal (25-percent slope), members supporting rafters and ceiling joists such as ridge board, hips and valleys shall be designed as beams.***

2308.10.4.1 Ceiling joist and rafter connections. *Ceiling joists and rafters shall be nailed to each other and the assembly shall be nailed to the top wall plate in accordance with Tables 2304.9.1 and 2308.10.1. Ceiling joists shall be continuous or securely joined where they meet over interior partitions and fastened to adjacent rafters in accordance with Tables 2308.10.4.1 and 2304.9.1 to provide a continuous rafter tie across the building where such joists are parallel to the rafters. Ceiling joists shall have a bearing surface of not less than 11/2 inches (38 mm) on the top plate at each end. Where ceiling joists are not parallel to rafters, an equivalent rafter tie shall be installed in a manner to provide a continuous tie across the building, at a spacing of not more than 4 feet (1219 mm) o.c. The connections shall be in accordance with Tables 2308.10.4.1 and 2304.9.1, or connections of equivalent capacities shall be provided.* ***Where ceiling joists or rafter ties are not provided at the top of the rafter support walls, the ridge formed by these rafters shall also be supported by a girder conforming to Section 2308.4.***

Cost Impact: The code change proposal will not increase the cost of construction. This proposal does not add any new requirement or limitation to the code. It is intended to clarify the code for consistency in application.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change clarifies permitted roof framing spans and eliminates a potential hole regarding permitted joist spans.

Assembly Action: **None**

Final Hearing Results

S278-12 **AS**

Code Change No: S279-12

Original Proposal

Section(s): 2308.3.2.2

Proponent: Robert Rice, C.B.O, Josephine County, OR, representing Oregon Building Officials Association (structdesigner@yahoo.com), R. Terry Malone, P.E., S.E., representing self

Revise as follows:

2308.3.2.2 Top plate connection. Where joists and/or rafters are used, braced wall line top plates shall be fastened over the full length of the braced wall line to joists, rafters, rimboards or full-depth blocking above in accordance with Table 2304.9.1, Items 11, 12, 15 or 19, as applicable, based on the orientation of the joists or rafters to the braced wall line. ~~Blocking at joists with walls above shall be equal to the depth of the joist at the braced wall line. Blocking at rafters need not be full depth but shall extend to within 2 inches (51 mm) from the roof sheathing above.~~ Blocking shall be a minimum of 2 inches (51 mm) nominal thickness and shall be fastened to the braced wall line top plate as specified in Table 2304.9.1, Item 11. Notching or drilling of holes in blocking in accordance with the requirements of Section 2308.8.2 or Section 2308.10.4.2 shall be permitted.

At exterior gable end walls braced wall panel sheathing in the top *story* shall be extended and fastened to roof framing where the spacing between parallel exterior braced wall lines is greater than 50 feet (15 240 mm).

Where roof trusses are used and are installed perpendicular to an exterior braced wall line, lateral forces shall be transferred from the roof diaphragm to the braced wall over the full length of the braced wall line by blocking of the ends of the trusses or by other *approved* methods providing equivalent lateral force transfer. Blocking shall be minimum 2 inch (51 mm) nominal thickness and ~~shall extend to within 2 inches (51 mm) from the roof sheathing above~~ equal to the depth of the truss at the wall line and shall be fastened to the braced wall line top plate as specified in Table 2304.9.1, Item 11. Notching or drilling of holes in blocking in accordance with the requirements of Section 2308.8.2 or Section 2308.10.4.2 shall be permitted.

Reason: In the last code cycle for the development of the 2012 code, section 2308.3.2 was modified. The proposal (S211) re-arranged the section into bottom plate connections (2308.3.2.1) and top plate connections (2308.3.2.2). Another proposal was submitted (S212) to make technical changes to this section regarding the blocking between joists, rafters or trusses particularly at high-heel or cantilevered trusses. The 2009 IBC language specifically stated that the blocking was required to be "full-height". As a result of working with other stake-holders and industry representatives, a provision was written into S211 to allow the blocking to stop 2 inches short of the roof sheathing. This provision was intended as a method of allowing for the required venting. Reports and analysis were cited that indicated that the cross-grain bending of the rafter or truss chord was not a significant concern and that the diaphragm forces could be transferred through typical connections and fastening per Table 2304.9.1. However, there has been concern raised since that time that the 2 inch gap at the top causes a disconnect in the lateral load path and is not consistent with referenced standards and other sections of the IBC.

All diaphragm testing and accepted allowable diaphragm shear value tables (past and present) are based on diaphragms having boundary nailing. This nailing is required to transfer diaphragm shears into the boundary elements (shear walls and/or collectors and struts), in accordance with IBC section 1602.1 and ASCE7 section 11.2. If a 2" air gap is allowed between the sheathing and the top of the blocking, this shear transfer cannot happen and the allowable shear values should not be allowed to be used.

The definition of a diaphragm boundary from the 2012 IBC states;

Diaphragm boundary. *In light-frame construction, a location where shear is transferred into or out of the diaphragm sheathing. Transfer is either to a boundary element or to another force-resisting element.*

IBC section 1604.4, ASCE 7 section 1.3.5, and SDPWS sections 4.1.1 and 4.2.6 all require complete load paths. Since the 2" air gap does not allow a direct load path for the transfer of diaphragm shears to the blocking, then down into the shear walls or collectors, an alternate load path must be provided. With the 2" gap, the diaphragm shears and resulting load path must be transferred through the unsupported diaphragm sheathing, which must act as the initial diaphragm boundary element taking tension and compression (not allowed by IBC section 2305.1.2 and SDPWS section 4.1.4), then into the trusses or joists, then by bearing

(assuming full bearing is achieved) into the blocking, and then down into the boundary element. Past and present testing has shown that eliminating blocking, providing partial (skip) blocking or reducing the height of blocking produces failure modes that are undesirable (i.e. trust/joist rotation, loss of gang-nail plates by popping off from cross grain shear forces being applied, or shifting of loads to other members that were not designed to receive those loads). At the very least, the gap should occur at the bottom of the blocking so that the boundary nailing can be installed. However, doing so will not resolve the bad testing failure modes.

Installing blocking only over the shear walls would create shears in the blocking and its connections (transferring the shears into the framing) in excess the connection capacity shown in the prescriptive fastening schedules in the IBC tables, and would also eliminate the boundary elements connecting the shear walls together. This violates IBC sections 1602.1 (boundary member and chord), 2302, 2305.1.2, SDPWS sections 4.1.4, 4.1.1 and 4.2.6, and ASCE 7 sections 11.2, 12.10.2 and 1.3.5. The shears are not only being applied in the plane of the wall. Loads are applied to the diaphragm in both the transverse and longitudinal directions. When the loads are applied in the transverse direction (perpendicular to the wall), without blocking, or if installed only at the shear walls, the diaphragm sheathing is the only element that can act as the diaphragm chord because the shears cannot be transferred to the blocking and therefore the sheathing must take all of the tension and compression forces, which is in direct violation with the code.

Cost Impact: This change would require that the blocking be 2 inches taller than what is currently required. The additional cost would be negligible. In addition, this change would require boundary nailing (6 inch o.c.) of the roof sheathing to the blocking along the braced wall line. That would be an additional, but undetermined, cost.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This revision to the top plate connection requirements corrects an er ror and makes it clear the blocking extends to the diaphragm.

Assembly Action: **None**

Final Hearing Results

S279-12 **AS**

Code Change No: S280-12

Original Proposal

Section(s): 2308.2.2

Proponent: Robert Rice, C.B.O., Josephine County, OR, representing Oregon Building Officials Association (structdesigner@yahoo.com)

Revise as follows:

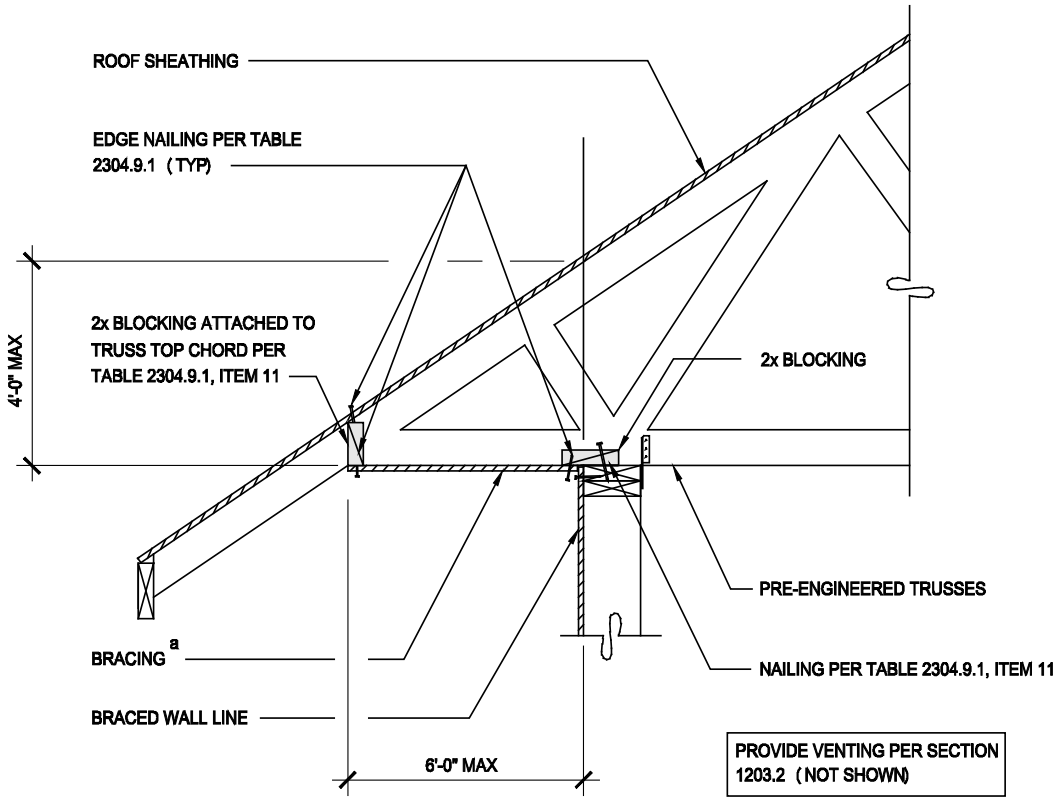
2308.3.2.2 Top plate connection. Where joists and/or rafters are used, braced wall line top plates shall be fastened over the full length of the braced wall line to joists, rafters, rimboards or blocking above in accordance with Table 2304.9.1, Items 11, 12, 15 or 19, as applicable, based on the orientation of the joists or rafters to the braced wall line. Blocking at joists with walls above shall be equal to the depth of the joist at the braced wall line. Blocking at rafters need not be full depth but shall extend to within 2 inches (51 mm) from the roof sheathing above. Blocking shall be a minimum of 2 inches (51 mm) nominal thickness and shall be fastened to the braced wall line top plate as specified in Table 2304.9.1, Item 11. Notching or drilling of holes in blocking in accordance with the requirements of Section 2308.8.2 or Section 2308.10.4.2 shall be permitted.

At exterior gable end walls braced wall panel sheathing in the top *story* shall be extended and fastened to roof framing where the spacing between parallel exterior braced wall lines is greater than 50 feet (15 240 mm).

Where roof trusses are used and are installed perpendicular to an exterior braced wall line, lateral forces shall be transferred from the roof diaphragm to the braced wall over the full length of the braced wall line by blocking of the ends of the trusses or by other *approved* methods providing equivalent lateral force transfer. Blocking shall be minimum 2 inch (51 mm) nominal thickness and shall extend to within 2 inches (51 mm) from the roof sheathing above and shall be fastened to the braced wall line top plate as specified in Table 2304.9.1, Item 11. Notching or drilling of holes in blocking in accordance with the requirements of Section 2308.8.2 or Section 2308.10.4.2 shall be permitted.

Exception. Where the roof sheathing is greater than 9-1/4 inches (235 mm) above the top plate solid blocking is not required when the framing members are connected in accordance with one of the following methods:

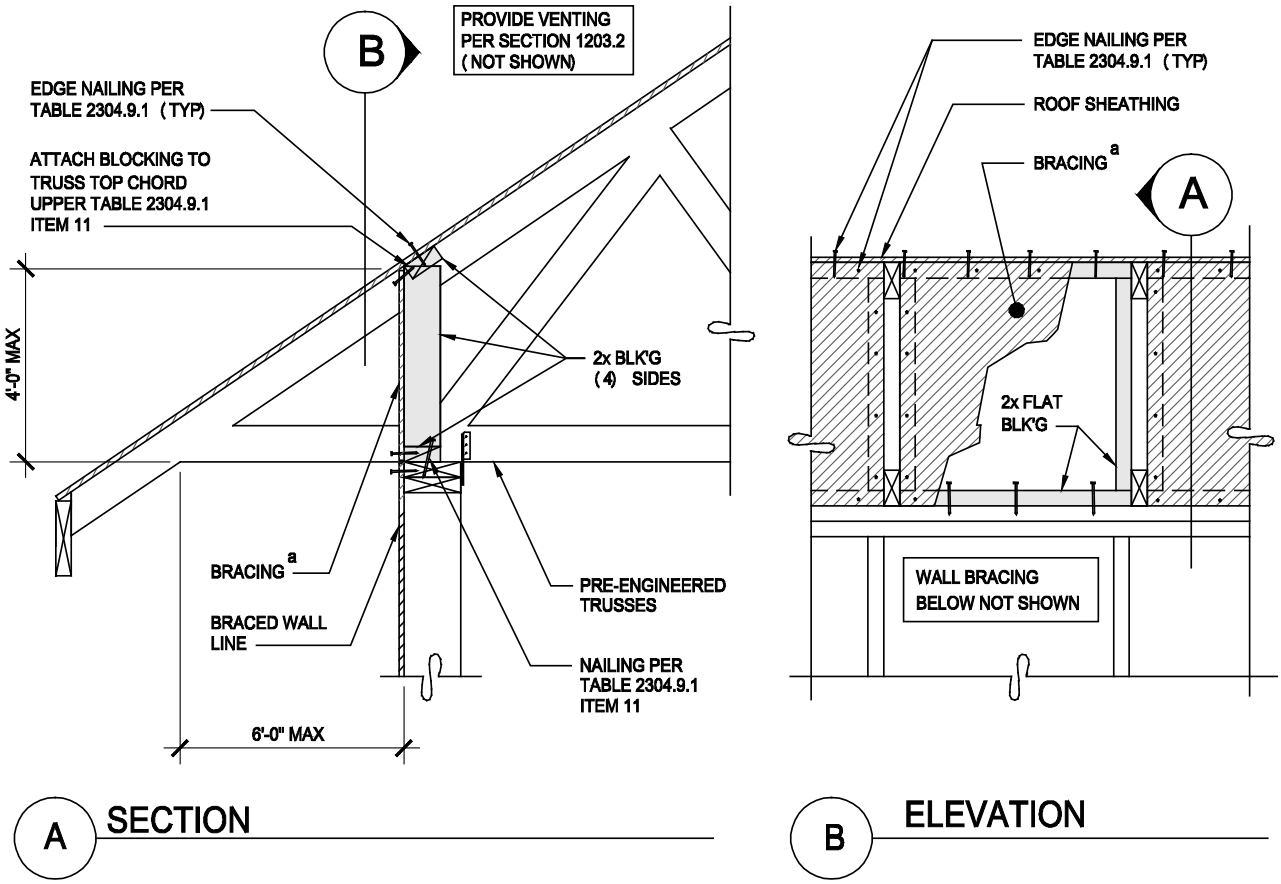
1. In accordance with Figure 2308.3.2 (1)
2. In accordance with Figure 2308.3.2 (2)
3. With full height engineered blocking panels designed for values listed in American Forest and Paper Association (AF&PA) Wood Frame Construction Manual for One- and Two-Family Dwellings (WFCM).
4. Designed in accordance with accepted engineering methods.



a. Methods of bracing shall be as described in Section 2308.9.3 method 2, 3, 4, 6, 7 or 8

For SI: 1 inch = 25.4 mm
a. Methods of bracing shall be as described in Section 2308.9.3, method 2,3,4,6,7 or 8

FIGURE 2308.3.2(1)
BRACED WALL LINE TOP PLATE CONNECTION



For SI: 1 inch = 25.4 mm

a. Methods of bracing shall be as described in Section 2308.9.3, method 2,3,4,6,7 or 8

FIGURE 2308.3.2 (2)
BRACED WALL PANEL TOP PLATE CONNECTION

TABLE 2304.9.1
FASTENING SCHEDULE

CONNECTION	FASTENING[a]	LOCATION
1. Joist to sill or girder	3 - 8d common (2 1/2" x 0.131") 3 – 3 x 0.131 nails 3 – 3" x 14 gage staples	toenail
2. Bridging or blocking to joist, rafter or truss	2 - 8d common (2 1/2" 0.131") 2 – 3 x 0.131" nails 2 – 3" x 14 gage staples	toenail each end
11. Blocking between joists, ~~or~~ rafters or truss to top plate	3 - 8d common (2 1/2" x 0.131") 3 – 3" x 0.131 nails 3 – 3" 14 gage staples	toenail
Blocking between rafters or truss not at the wall top plate, to rafter or truss	2 - 8d common (2 1/2" x 0.131") 2 – 3" x 0.131" nails 2 – 3" 14 gage staples	toenail each end
	2 - 16d common (3 1/2" x 0.162") 3 – 3" x 0.131" nails 3 – 3" x 14 gage staples	endnail

(Portions of table not shown remain unchanged)

Reason: The 2012 IBC has fairly clear wording in Section 2308.3.2 that when the Conventional Light-Frame Construction provisions are used that the diaphragms need to be connected to the braced wall line to resist wind and seismic (lateral) forces and states.

The prescriptive provisions of "conventional light-frame construction" as provided for in section 2308 are very limited in scope. In section 2308.2 they are limited to:

1. Three stories max (two stories max in SDC C, one story in SDC D and above)
2. Max floor to floor height of 11'-7"
3. Max dead loads of 15 psf
4. Floor live load of 40 psf max
5. Ground snow of 50 psf max
6. Wind speeds of 100 max
7. Roof truss span of 40 feet max between vertical supports
8. Not allowed to be used for Occupancy Category IV buildings in SDC B,C,D,E

9 More restrictive requirements for SDC B,C, D and E defined in 2308.11.

10 Even more restrictive requirements specifically for SDC D and E

11. Limited by "irregular structures" definitions in 2308.12.6
12. Braced wall line spacing 35 feet max each direction, each floor.
13. In SDC D and E max spacing is 25 feet. (IRC allow exception up to 50 feet)

In other words, due to the limitations listed above as well as the other limitations in the code not listed here, the structures that are built with the provisions of section 2308 are small, light-framed buildings that do not have the significant lateral loading that other buildings do.

The alternate provisions in the exceptions are intended to address the increasingly common occurrence of cantilevered/high-heel trusses. This occurs due to insulation requirements and to provide a cantilevered portion of roof to be an exterior covered porch. The current provisions of this section of code do not cover this common condition. The current code language requires that "Blocking shall be a minimum of 2 inches (51 mm) nominal thickness…" This does not work for heights greater than what a 2x 10 or 2x 12 will accommodate.

The current code text (IBC) states the intention of connecting the braced wall line to the roof or floor diaphragm above in section 2308.3.2. A similar version of this proposal was adopted as an Oregon amendment in 2006 for the adoption of the 2006 IBC and has worked well for many years and two more code cycles Since then, countless hours have gone into developing proposals for both the IRC and the IBC code development process. The IRC proposal was approved in Minneapolis for the 2009 code. During the process of resolving concerns and developing a consensus changes were made to the proposal. Based on engineering reports and historical data, an exception was made for low heel connections (9 ¼") in lower wind and seismic zones to not require the blocking.

This proposal does not add additional requirements to the code. This proposal clarifies that the connection needs to occur and provides prescriptive solutions when solid blocking, per the current text, is not possible or is impractical..

Per accepted engineering practice for lateral design loads, the floor and roof diaphragms transmit wind and seismic loads into the braced walls (engineered shearwalls or prescriptive braced panels). The fact that the diaphragm needs to be connected to the braced wall line to complete the load path is often not fully understood by plans examiners, inspectors and contractors. The typical requirement that is intended by the code is that full height solid blocking occur at this connection with edge nailing to the blocking and the blocking connected to the top plate of the wall to transfer the diaphragm (plf) force to the wall top plates. This is evidenced in the IBC by the exception to irregular structures stating, *"..lateral forces shall be transferred from the roof diaphragm to the braced wall by blocking of the ends of the trusses.."*. In order for the forces to be transferred there has to be a connection capable of transferring the diaphragm shear evenly to the top plates.

Without this clarification of the text it is a connection that may or may not occur based on what I have seen in the field and have discussed with code officials. The blocking that is called for in the code serves three functions. It provides closure to prevent animals, birds, etc. from entering the attic space, it prevents the trusses or rafters from "rolling over" and it transfers the diaphragm forces to the wall. Most code officials, inspectors and contractors understand the first two objectives. However, the latter is a concept that is often not fully understood. This needs to be perceived, understood and implemented in a uniform way.

In addition, rather than identify a problem without providing a solution, my proposal includes two details to accomplish this connection simply. The solutions are, in principle, fundamentally extending the roof diaphragm sheathing to the wall top plates either vertically in the truss bays or horizontally through the soffit. No design is required since it is just completing the load path with the already defined sheathing and nailing.

Without prescriptive provisions in the current code this condition would require engineering or, as stated in 2308.3.2, Exception to item 1 "..by other approved methods." would be left up to the Authority Having Jurisdiction to determine what is acceptable without any guidance or uniformity between jurisdictions.

Typically, the engineering solution would provide details similar to those included in this proposal. Therefore, the solution and construction costs would not change. Costs would be reduced by eliminating additional costs for engineering where these prescriptive solutions work.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Disapproval is based on a number of deficiencies in the proposed figures, including nailing, panel uplift and continuous vent effect on load path. It would require the connections along braced wall lines that are preferred at braced wall panels only.

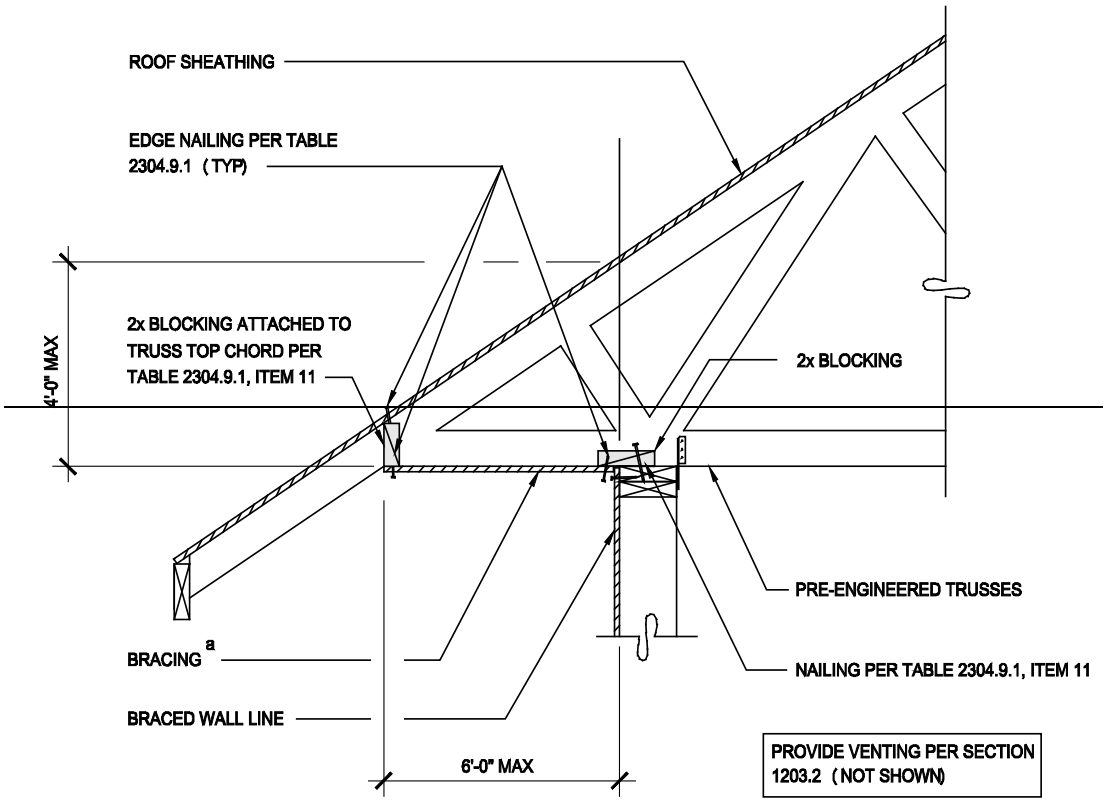
Assembly Action: **None**

Public Comments

Public Comment:

Robert Rice, Josephine County Oregon representing Oregon Building Officials Association and J. Daniel Dolan representing FEMA Code Resource Support Committee, requests Approval as Modified by this Public Comment.

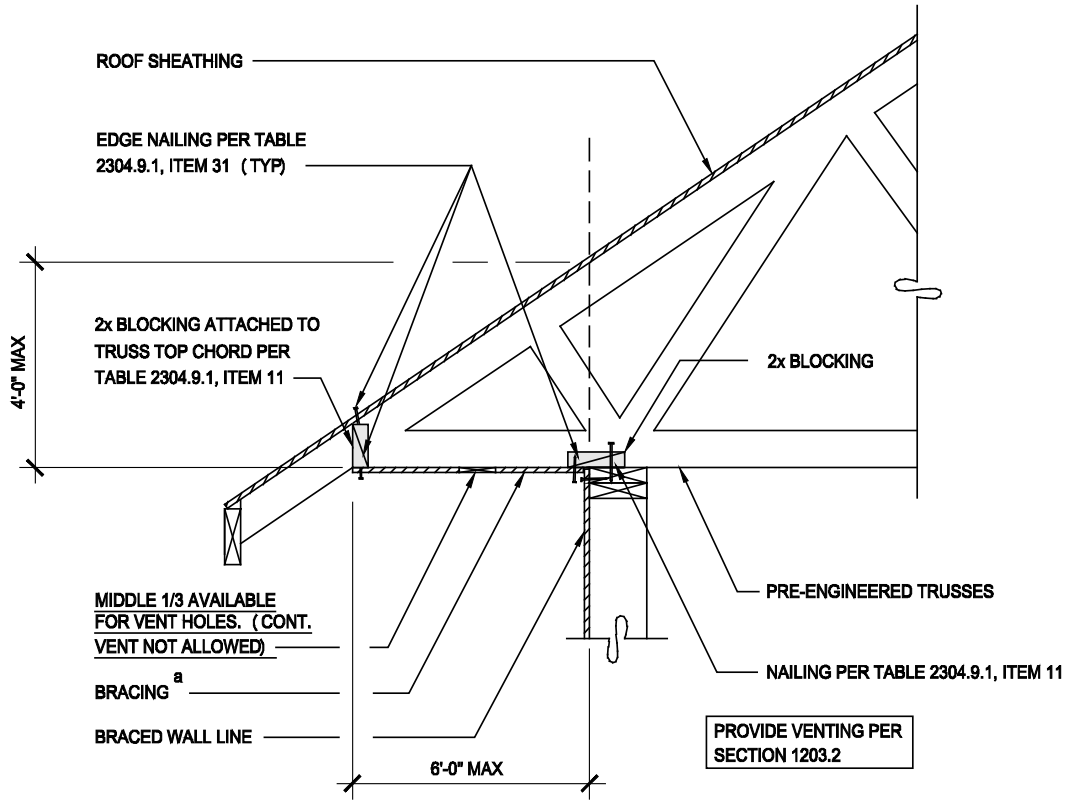
Modify the proposal as follows:



a. Methods of bracing shall be as described in Section 2308.9.3 method 2, 3, 4, 6, 7 or 8

~~For SI: 1 inch = 25.4 mm~~
~~a. Methods of bracing shall be as described in Section 2308.9.3, method 2,3,4,6,7 or 8~~

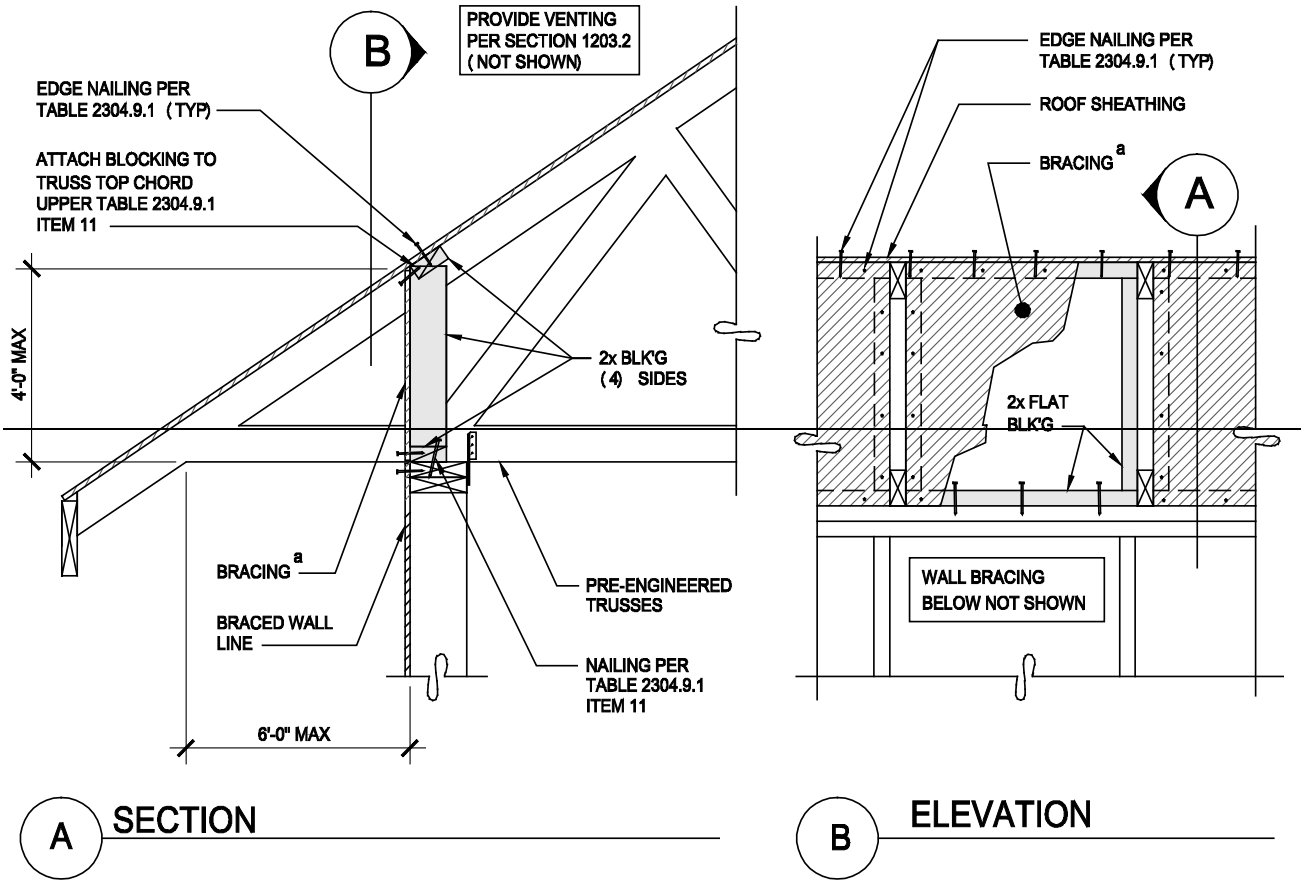
~~FIGURE 2308.3.2(1)~~
~~BRACED WALL LINE TOP PLATE CONNECTION~~



a. Methods of bracing shall be as described in Section 2308.9.3 methods 2, 3, 4, 6, 7 or 8

For SI: 1 inch = 25.4 mm

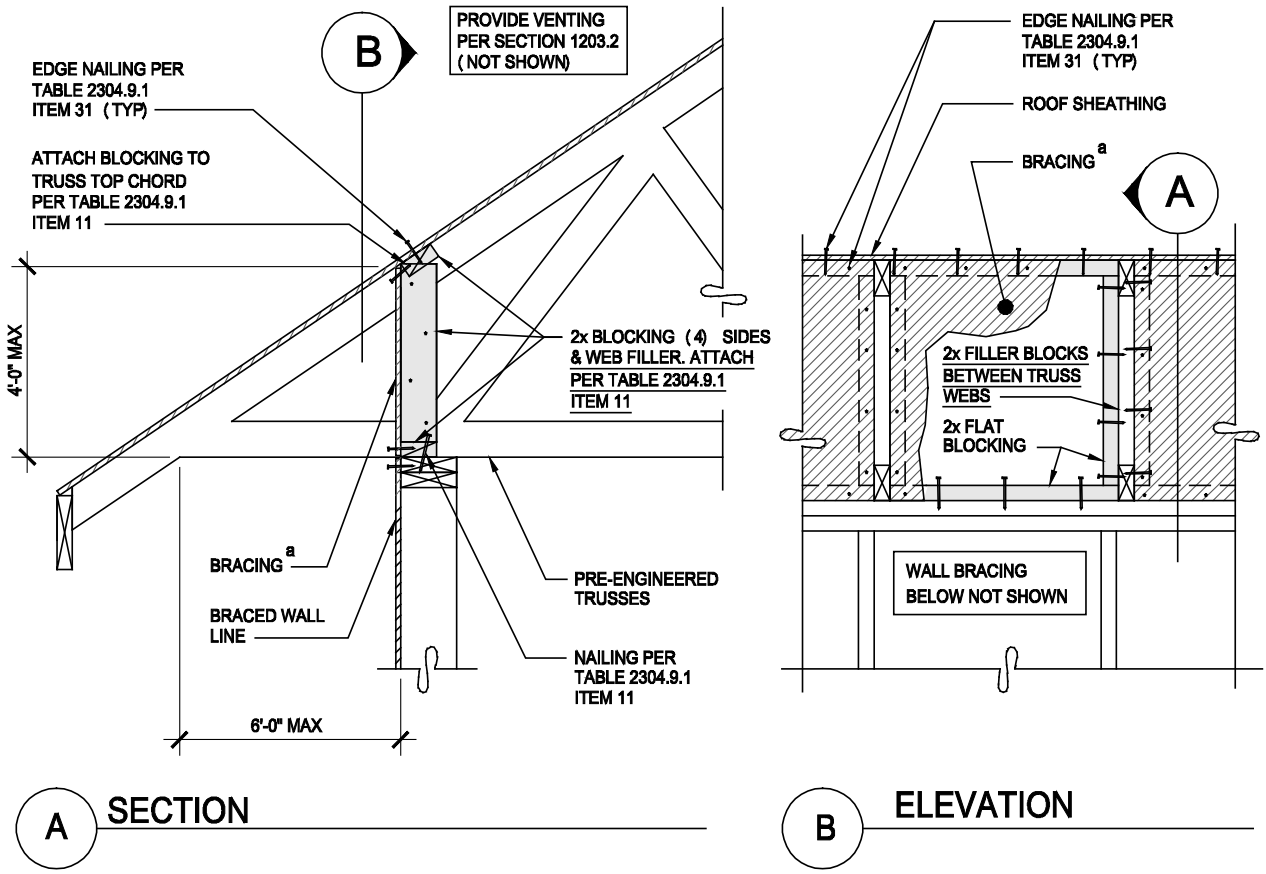
FIGURE 2308.3.2(1)
BRACED WALL LINE TOP PLATE CONNECTION



~~For SI: 1 inch = 25.4 mm~~

~~a. Methods of bracing shall be as described in Section 2308.9.3, method 2,3,4,6,7 or 8~~

~~FIGURE 2308.3.2 (2)~~
~~BRACED WALL PANEL TOP PLATE CONNECTION~~



a. Methods of bracing shall be as described in Section 2308.9.3 methods 2, 3, 4, 6, 7 or 8

For SI: 1 inch = 25.4 mm

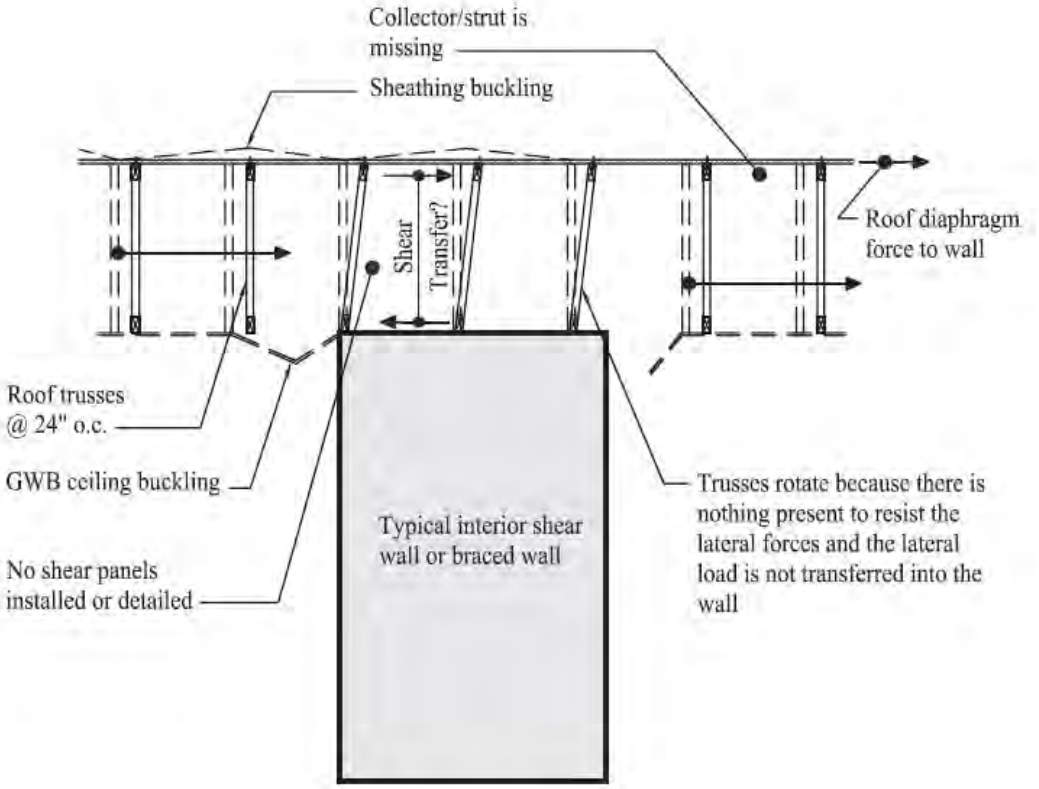
FIGURE 2308.3.2 (2)
BRACED WALL PANEL TOP PLATE CONNECTION

TABLE 2304.9.1
FASTENING SCHEDULE

CONNECTION	FASTENING[a]	LOCATION
11. Blocking between joists, rafters or truss to top plate	3 - 8d common (2 1/2" x 0.131") 3 – 3" x 0.131 nails 3 – 3" 14 gage staples	toenail
Blocking between rafters or truss not at the wall top plate, to rafter or truss	2 - 8d common (2 1/2" x 0.131") 2 – 3" x 0.131" nails 2 – 3" 14 gage staples	toenail each end
	2 - 16d common (3 1/2" x 0.162") 3 – 3" x 0.131" nails 3 – 3" x 14 gage staples	endnail
Flat blocking to truss and web filler	16d common (3 1/2" x 0.162") @ 6" o.c. 3" x 0.131" nails @ 6" o.c. 3" x 14 gage staples @ 6" o.c.	face nail

(Portions of Table and proposal not shown remain unchanged)

Commenter's Reason: The original proposal, as submitted, addresses a construction condition that is becoming much more common with an increase in the use of cantilevered and high-heel trusses. Cantilevered trusses are often incorporated to create a covered entry way for a portion of a wall line. Additionally, high-heel stub trusses are becoming more common to accommodate deeper attic insulation to meet increased energy-efficiency requirements. The concern regarding the lack of load path from the roof diaphragm to the braced wall line is illustrated in the example below from the publication, *Analysis of Irregular Shaped Structures: Diaphragms and Shearwalls, McGraw/Hill – ICC 2011,*



The details shown in the original proposal, and further modified by this public comment, provide the necessary load path from the roof diaphragm to the braced wall line. Reality is, this condition often occurs without consideration of the incomplete load path either by the plans examiner or the inspector. IBC Section 2308, *Conventional Light-Frame Construction,* is very limited in scope and only applies to smaller, lightly loaded structures with additional restrictions for structures in seismic design categories B, C, D and E as noted in the original proposals reason statement. The prescriptive details from the original proposal as modified by this public comment will ensure that the condition is addressed and provide sufficient connection for structures within the scope of section 2308.

Further, these details are consistent with engineering reports addressing light-framed wood structures such as ATC-7 *Proceedings of a Workshop on Design of Horizontal Wood Diaphragms, November 19-20, 1979* - Applied Technology Council and ICC 600-2008, *Standard for Residential Construction in High-wind Regions.* The figures shown below from those two publications essentially provide the same detail and have been used and considered accepted engineering practice for many decades.

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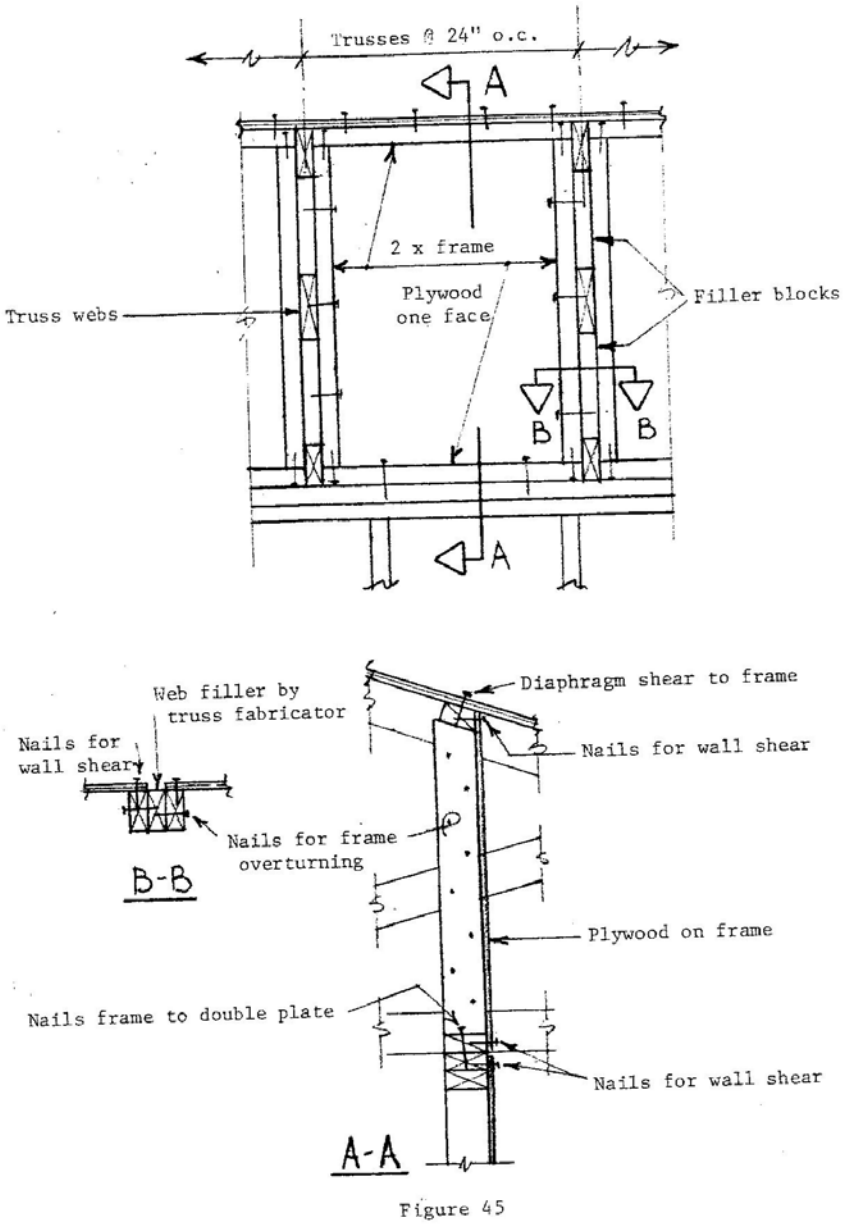


Figure 45

Figure 45 from ATC-7. ***Proceedings of a Workshop on Design of Horizontal Wood Diaphragms, November 19-20, 1979*** **- Applied Technology Council**

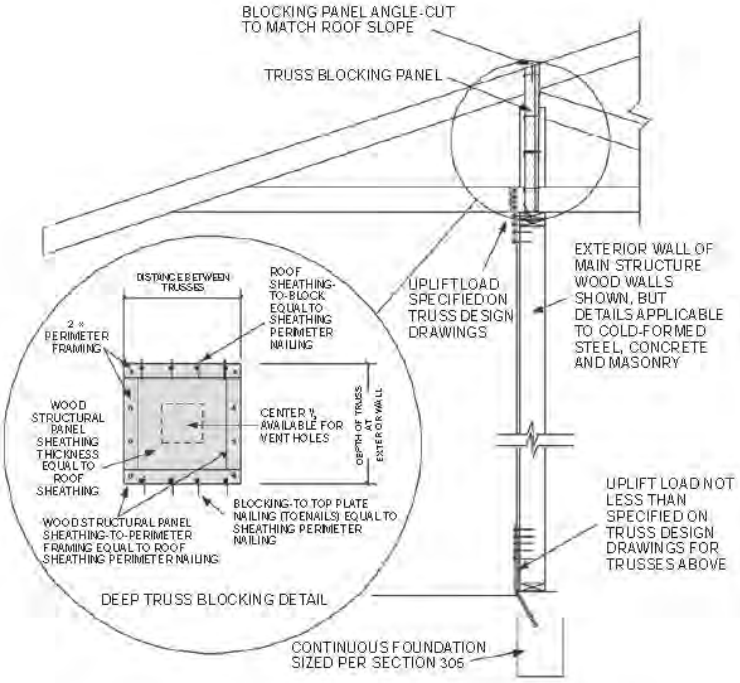


FIGURE 308(3)
SECTION A-A—OVERHANG UPLIFT RESISTANCE DESIGNED ROOF TRUSS

STANDARD FOR RESIDENTIAL CONSTRUCTION IN HIGH-WIND REGIONS—2008

Figure 308(3) from ICC 600-2008, *Standard for Residential Construction in High-wind Regions, ICC*

As stated in the original proposal, structures built per section 2308 have the following limitations;

1. *Three stories max (two stories max in SDC C, one story in SDC D and above)*
2. *Max floor to floor height of 11'-7"*
3. *Max dead loads of 15 psf*
4. *Floor live load of 40 psf max*
5. *Ground snow of 50 psf max*
6. *Wind speeds of 100 max*
7. *Roof truss span of 40 feet max between vertical supports*
8. *Not allowed to be used for Occupancy Category IV buildings in SDC B,C,D,E*
9 *More restrictive requirements for SDC B,C, D and E defined in 2308.11.*
10 *Even more restrictive requirements specifically for SDC D and E*
11. *Limited by "irregular structures" definitions in 2308.12.6*
12. *Braced wall line spacing 35 feet max each direction, each floor.*
13. *I n SDC D and E max spacing is 25 feet*

At the Code Development Hearings (CDH), concern was expressed about panel uplift at the individual panels when resisting lateral forces. This could be a concern especially if the panels or blocking only occurred at the individual *Braced Wall Panels*. IBC Section 2308.3.2.2 requires that *"….lateral forces shall be transferred from the roof diaphragm to the braced wall* ***over the full length of the braced wall line*** *by blocking of the ends of the trusses or by other approved methods providing equivalent lateral force transfer."* As shown below in a sample (Figure 9.19) from the publication, *Analysis of Irregular Shaped Structures: Diaphragms and Shearwalls*, McGraw/Hill – ICC 2012, when the panels occur continuously the net uplift force at each panel is zero as the adjacent panels counteract with a downward force. This is accomplished by adequate connection between adjacent panels and has been addressed in this public comment by the addition of 2x web filler and nailing that was not specified in the original proposal.

Figure 2308.3.2(2) has been modified in this public comment to include specific nailing requirements for the vertical blocking and calls for truss web infill blocking. The fasteners required for this connection have been added to the fastener table, Table 2304.9.1

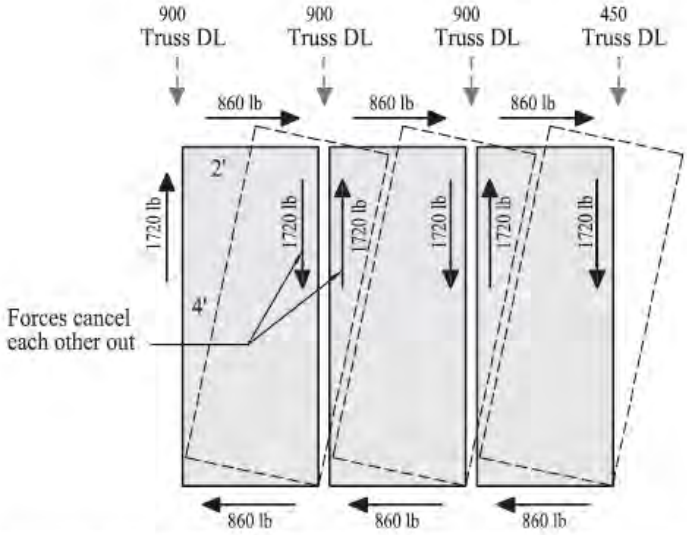


FIGURE 9.19 Individual shear panel forces.

Figure 9.19 from the publication*, Analysis of Irregular Shaped Structures: Diaphragms and Shearwalls,* McGraw/Hill – ICC 2012,

The details provided in this proposal, as with the already-required 2x solid blocking at lower depth heel areas, will satisfy the requirement of the code and the details would provide "*..equivalent lateral force transfer".*

It is important to note that, in addition to the details provided for prescriptive solutions, the text (2308.3.2.2 exceptions 3 and 4) also provide allowance for the option of engineered blocking panels provided by the truss manufacturer as well as a design in accordance with accepted engineering methods. In other words, these details are just prescriptive options. There are other options available to the code user

Another issue raised at the CDH was that, *"It would require the connections along **braced wall lines** that are preferred at **braced wall panels** only.* This is nearly opposite of the other concerns expressed and implied that it would be too strict and demanding. This concern is a moot point since, as stated above, section 2308.3.2.2 already requires that *"….lateral forces shall be transferred from the roof diaphragm to the braced wall over the **full length of the braced wall line**….*and no change in that requirement is proposed. Without these prescriptive solutions the solution to provide a complete load path would require engineering in every case. The result of the engineering would likely mimic these details.

Question arose at the CDH regarding the venting in figure 2308.3.2(1). There was concern that the figure, as shown in the original proposal, would allow a continuous vent in the soffit which would disrupt the continuity of the sheathing and may reduce the sheathings capacity to transfer the required shear force to the wall line. The modified figure in this public comment defines the allowed area for vent holes and specifically prohibits continuous venting without an engineered design.

As a footnote, the figures in this proposal refer to the current tables and bracing methods in the 2012 IBC. Upon passage of S273, the figures in this proposal that will be submitted to ICC will reflect the new table numbers and bracing methods. S273 does not change the technical requirements. Only the table and method numbers and names have changed. Both proposals have been developed by the same group of interested parties and upon approval, they will be coordinated with ICC staff to work seamlessly together.

This proposal, as amended by this public comment, adequately addresses the issues of providing a complete load path with prescriptive solutions that would other wise require additional engineering services and, in most cases, produce the same or similar details.

Bibliography:

1. Malone, R. Terry, and Robert W. Rice. *Analysis of Irregular Shaped Structures: Diaphragms and Shearwalls,* Washington DC: McGraw/Hill 2012 (Co-branded with International Code Council)
2. ATC. *Proceedings of a Workshop on Design of Horizontal Wood Diaphragms,* Redwood City, CA: Applied Technology Council.
3. ICC. ICC 600-2008, *Standard for Residential Construction in High-wind Regions.* Washington DC: International Code Council

Final Hearing Results

S280-12 AMPC

Code Change No: S281-12

Original Proposal

Section(s): 2308.7, 2308.9.1, 2308.9.5.1, 2308.9.5.2, 2308.9.6, Table 2308.9.5, Table 2308.9.6

Proponent: Paul Coats, PE, CBO, American Wood Council (pcoats@awc.org)

Revise as follows:

2308.7 Girders. Girders for single-story construction or girders supporting loads from a single floor shall not be less than 4 inches by 6 inches (102 mm by 152 mm) for spans 6 feet (1829 mm) or less, provided that girders are spaced not more than 8 feet (2438 mm) o.c. ~~Spans for built-up 2-inch (51 mm) girders shall be in accordance with Table 2308.9.5 or 2308.9.6. Other girders~~ Girders shall be designed to support the loads specified in this code. Girder end joints shall occur over supports. Where a girder is spliced over a support, an adequate tie shall be provided. The ends of beams or girders supported on masonry or concrete shall not have less than 3 inches (76 mm) of bearing.

2308.9.1 Size, height and spacing. The size, height and spacing of studs shall be in accordance with Table 2308.9.1 except that utility-grade studs shall not be spaced more than 16 inches (406 mm) o.c., or support more than a roof and ceiling, or exceed 8 feet (2438 mm) in height for exterior walls and load-bearing walls or 10 feet (3048 mm) for interior nonload-bearing walls. Studs shall be continuous from a support at the sole plate to a support at the top plate to resist loads perpendicular to the wall. The support shall be a foundation or floor, ceiling or roof diaphragm or shall be designed in accordance with accepted engineering practice.

Exception: Jack studs, trimmer studs and cripple studs at openings in walls that comply with ~~Table 2308.9.5~~ Section 2308.9.5.2.

2308.9.5.1 Headers. Headers shall be provided over each opening in exterior-bearing walls. ~~The spans in Table 2308.9.5 are permitted to be used for one- and two-family *dwellings*.~~ Headers ~~for other buildings~~ shall be designed in accordance with Section 2301.2, Item 1 or 2. Headers shall be of two or more pieces of nominal 2-inch (51 mm) framing lumber set on edge ~~as permitted by Table 2308.9.5~~ and nailed together in accordance with Table 2304.9.1 or of solid lumber of equivalent size.

2308.9.5.2 Header support. Wall studs shall be designed to support the ends of the header ~~in accordance with Table 2308.9.5~~. Each end of a lintel or header shall have a length of bearing of not less than 1½ inches (38 mm) for the full width of the lintel.

2308.9.6 Openings in interior bearing partitions. Headers shall be provided over each opening in interior bearing partitions as required in Section 2308.9.5. ~~The spans in Table 2308.9.6 are permitted to be used.~~ Wall studs shall support the ends of the header in accordance with ~~Table 2308.9.5 or 2308.9.6, as appropriate~~ Section 2308.9.5.2.

~~**TABLE 2308.9.5**~~
~~**HEADER AND GIRDER SPANS[a] FOR EXTERIOR BEARING WALLS**~~
~~**(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and Required Number of Jack Studs)**~~

~~**TABLE 2308.9.6**~~
~~**HEADER AND GIRDER SPANS[a] FOR INTERIOR BEARING WALLS**~~

~~**(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and Required Number of Jack Studs)**~~

Reason: Deletion of Table 2308.9.5 and Table 2308.9.6 without replacement is proposed because of limited applicability of the tabulated header spans resulting from the exclusion of detached one- and two-family dwellings from the scope of 2308 and the live load limitation of 40 psf per 2308.2. In addition, the species-based header spans are subject to being dated should design values change. Design value-based prescriptive engineered options for header spans are available from other sources. For example, header spans for conditions covered by Table 2308.9.5 and Table 2308.9.6, as well as support of headers by use of jack studs providing full bearing, can be found in the WFCM.

Specific reference to "one- and two- family dwellings" from 2308.9.5.1 is deleted to coordinate with the exclusion of detached one-and two-family dwellings from the scope of 2308. Other text sections are revised to coordinate with removal of the Tables.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee believes that the header span tables are needed in the conventional construction provisions. Outside of Southern Pine, there was no testimony to justify the removal of other wood species. Where there are problems the committee would like to see them fixed. Also adding requirements for "to be designed" is not appropriate for conventional construction.

Assembly Action: **None**

Public Comments

Public Comment:

Paul D. Coats, American Wood Council, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

2308.7 Girders. Girders for single-story construction or girders supporting loads from a single floor shall not be less than 4 inches by 6 inches (102 mm by 152 mm) for spans 6 feet (1829 mm) or less, provided that girders are spaced not more than 8 feet (2438 mm) o.c. ~~Spans for built-up 2-inch (51 mm) girders shall be in accordance with Table 2308.9.5 or 2308.9.6.~~ Other girders shall be designed to support the loads specified in this code. Girder end joints shall occur over supports. Where a girder is spliced over a support, an adequate tie shall be provided. The ends of beams or girders supported on masonry or concrete shall not have less than 3 inches (76 mm) of bearing.

2308.7.1 Allowable girder spans. The allowable spans of girders fabricated of dimension lumber shall not exceed the values set forth in Tables 2308.9.5 and 2308.9.6

TABLE 2308.9.5

~~**HEADER AND GIRDER SPANS[a] FOR EXTERIOR BEARING WALLS**~~

~~**(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and Required Number of Jack Studs)**~~

GIRDER SPANS[a] AND HEADER SPANS[a] FOR EXTERIOR BEARING WALLS (Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir[b] and required number of jack studs)

EXTRACT TABLE R502.5(1) (except 70 psf snow load columns) of the International Residential Code

TABLE 2308.9.6

~~**HEADER AND GIRDER SPANS[a] FOR INTERIOR BEARING WALLS**~~

~~**(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and Required Number of Jack Studs)**~~

GIRDER SPANS[a] AND HEADER SPANS[a] FOR INTERIOR BEARING WALLS (Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir[b] and required number of jack studs)

EXTRACT entire TABLE R502.5(2) of the International Residential Code

Commenter's Reason: The spans in the girder tables in the IBC and IRC are identical, and buildings that qualify for conventional construction in the IBC have loading limitations commensurate with residential buildings--buildings within the scope of the IRC. It is also our intent to propose adjustments to spans in the IRC code which will automatically update the spans in these tables in the IBC.

In this way species-specific spans for girder and headers will be automatically correlated between the two codes, even though the codes themselves are developed in separate code change cycles.

To facilitate the maintenance of these tables by the IRC committee, a new section of charging text, identical to the charging text for these tables in IRC Section R502.5, has been added and the existing charging text in 2308.7 has been deleted.

Further information about this change is posted at: http://www.awc.org/Code-Officials/2012-IBC-Challenges.

Analysis. The result of this public comment if successful would be to extract the span tables from the 2012 IRC and, in order to achieve consistency between the IBC and IRC, would also include any changes made to the subject IRC span tables during the 2013 Code Change Cycle. Any changes to code change committee responsibilities in future code development cycles are not part of this code change, but are the responsibility of the ICC Code Correlation Committee.

Final Hearing Results

S281-12 **AMPC**

Code Change No: S283-12

Original Proposal

Section(s): 2308.8, Table 2308.8(1), Table 2308.8(2), 2308.10.2, Table 2308.10.2(1), Table 2308.10.2(2), 2308.10.3, Table 2308.10.3(1), Table 2308.10.3(2), Table 2308.10.3(3), Table 2308.10.3(4), Table 2308.10.3(5), Table 2308.10.3(6)

Proponent: Paul Coats, P.E. CBO, American Wood Council (pcoats@awc.org)

Revise as follows:

2308.8 Floor joists. Spans for floor joists shall be in accordance with ~~Table 2308.8(1) or 2308.8(2). For other grades and or species, refer to~~ the *AF&PA Span Tables for Joists and Rafters*.

~~**TABLE 2308.8(1)**~~
~~**FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES**~~
~~**(Residential Sleeping Areas, Live Load = 30 psf, L/Δ = 360)**~~

~~**TABLE 2308.8(2)**~~
~~**FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES**~~
~~**(Residential Living Areas, Live Load = 40 psf, L/Δ = 360)**~~

2308.10.2 Ceiling joist spans. Allowable spans for ceiling joists shall be in accordance with ~~Table 2308.10.2(1) or 2308.10.2(2). For other grades and species, refer to~~ the ~~*AF&PA*~~ *AWC Span Tables for Joists and Rafters*.

~~**TABLE 2308.10.2(1)**~~
~~**CEILING JOIST SPANS FOR COMMON LUMBER SPECIES**~~
~~**(Uninhabitable Attics Without Storage, Live Load = 10 pounds psf, L/Δ = 240)**~~

~~**TABLE 2308.10.2(2)**~~
~~**CEILING JOIST SPANS FOR COMMON LUMBER SPECIES**~~
~~**(Uninhabitable Attics With Limited Storage, Live Load = 20 pounds per square foot, L/Δ = 240)**~~

2308.10.3 Rafter spans. Allowable spans for rafters shall be in accordance with ~~Table 2308.10.3(1), 2308.10.3(2), 2308.10.3(3), 2308.10.3(4), 2308.10.3(5) or 2308.10.3(6). For other grades and species, refer to the *AF&PA*~~ the *AWC Span Tables for Joists and Rafters*.

~~**TABLE 2308.10.3(1)**~~
~~**RAFTER SPANS FOR COMMON LUMBER SPECIES**~~
~~**(Roof Live Load = 20 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)**~~

~~**TABLE 2308.10.3(2)**~~
~~**RAFTER SPANS FOR COMMON LUMBER SPECIES**~~
~~**(Roof Live Load = 20 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)**~~

~~**TABLE 2308.10.3(3)**~~
~~**RAFTER SPANS FOR COMMON LUMBER SPECIES**~~
~~**(Ground Snow Load = 30 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)**~~

~~**TABLE 2308.10.3(4)**~~

~~**RAFTER SPANS FOR COMMON LUMBER SPECIES**~~
~~**(Ground Snow Load = 50 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)**~~

~~**TABLE 2308.10.3(5)**~~
~~**RAFTER SPANS FOR COMMON LUMBER SPECIES**~~
~~**(Ground Snow Load = 30 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)**~~

~~**TABLE 2308.10.3(6)**~~
~~**RAFTER SPANS FOR COMMON LUMBER SPECIES**~~
~~**(Ground Snow Load = 50 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)**~~

Reason: Species- and grade-specific span tables are subject to becoming dated if design values for specific species or grades change, and therefore it is proposed to directly reference the AWC Span Tables for Joists and Rafters. The design value format of the tabulated spans in Span Tables for Joists and Rafters is not sensitive to design value changes for specific species and grades. Span Tables for Joists and Rafters is currently included as a reference in IBC 2306.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Similar to S281-12 if there is a problem with the span table, the committee feels it should be fixed rather than removed since Sectin2308 should be a cook book approach.

Assembly Action: **None**

Public Comments

Public Comment:

Paul D. Coats, American Wood Council, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

2308.8 Floor joists. Spans for floor joists shall be in accordance with Table 2308.8(1) or 2308.8(2). For other grades and or species, refer to the ~~*AF&PA*~~ *AWC Span Tables for Joists and Rafters*.

Table 2308.8(1) ~~**FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES (Residential Sleeping Areas, Live Load = 30 psf, L/Δ = 360**~~ **FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES (Residential Sleeping Areas, Live Load = 30 psf, L/Δ = 360** ~~**)**~~
EXTRACT Table R502.3(1) from the International Residential Code (do not extract footnote a)

Table 2308.8(2) ~~**FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES (Residential Living Areas, Live Load = 40 psf, L/Δ = 360)**~~ **FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES (Residential living areas, live load = 40 psf, L/Δ = 360)**
EXTRACT Table R502.3(2) from the International Residential Code (do not extract footnote b)

2308.10.2 Ceiling joist spans. ~~Allowable s~~Spans for ceiling joists shall be in accordance with Table 2308.10.2(1) or Table 2308.10.2(2). For other grades and species, and for other loading conditions, refer to the ~~*AF&PA*~~ *AWC* Span Tables for Joists and Rafters.

Table 2308.10.2(1) ~~**CEILING JOIST SPANS FOR COMMON LUMBER SPECIES (Uninhabitable Attics Without Storage, Live Load = 10 pounds psf, L/Δ = 240)**~~ **CEILING JOIST SPANS FOR COMMON LUMBER SPECIES (Uninhabitable attics without storage, live load = 10 psf, L/Δ = 240)**
EXTRACT Table R802.4(1) from the International Residential Code

Table 2308.10.2(2) ~~**CEILING JOIST SPANS FOR COMMON LUMBER SPECIES (Uninhabitable Attics With Limited Storage, Live Load = 20 pounds per square foot, L/Δ = 240)**~~ **CEILING JOIST SPANS FOR COMMON LUMBER SPECIES (Uninhabitable attics with limited storage, live load = 20 psf, L/Δ = 240)**
EXTRACT Table R802.4(2) from the International Residential Code

2308.10.3 Rafter spans. ~~Allowable s~~Spans for rafters shall be in accordance with Table 2308.10.3(1), 2308.10.3(2), 2308.10.3(3), 2308.10.3(4), 2308.10.3(5) or 2308.10.3(6). For other grades and species and for other loading conditions, refer to the ~~*AF&PA*~~ *AWC Span Tables for Joists and Rafters*. The span of each rafter shall be measured along the horizontal projection of the rafter.

TABLE 2308.10.3(1) ~~RAFTER SPANS FOR COMMON LUMBER SPECIES (Roof Live Load = 20 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)~~ RAFTER SPANS FOR COMMON LUMBER SPECIES (Roof live load = 20 psf, ceiling not attached to rafters, L/Δ = 180)
EXTRACT Table R802.5.1(1) from the International Residential Code

TABLE 2308.10.3(2) ~~RAFTER SPANS FOR COMMON LUMBER SPECIES (Roof Live Load = 20 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)~~ RAFTER SPANS FOR COMMON LUMBER SPECIES (Roof Live Load = 20 psf, ceiling attached to rafters, L/Δ = 240)
EXTRACT Table R803.5.1(2) from the International Residential Code

TABLE 2308.10.3(3) ~~RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground Snow Load = 30 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)~~ RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground Snow Load = 30 psf, ceiling not attached to rafters, L/Δ = 180)
EXTRACT Table R802.5.1(3) from the International Residential Code

TABLE 2308.10.3(4) ~~RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground Snow Load = 50 pounds per square foot, Ceiling Not Attached to Rafters, L/Δ = 180)~~ RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground Snow Load = 50 psf, ceiling not attached to rafters, L/Δ = 180)
EXTRACT Table R802.5.1(4) from the International Residential Code

TABLE 2308.10.3(5) ~~RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground Snow Load = 30 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)~~ RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground Snow Load = 30 psf, ceiling attached to rafters, L/Δ = 240)
EXTRACT Table R803.5.1(5) from the International Residential Code

TABLE 2308.10.3(6) ~~RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground Snow Load = 50 pounds per square foot, Ceiling Attached to Rafters, L/Δ = 240)~~ RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground Snow Load = 50 psf, ceiling attached to rafters, L/Δ = 240)
EXTRACT Table R802.5.1(6) from the International Residential Code

Commenter's Reason: The spans for joists and rafters in the conventional construction provisions of the IBC and IRC are identical, and buildings that qualify for conventional construction in the IBC have loading limitations commensurate with residential buildings--buildings within the scope of the IRC. It is also our intent to propose adjustments to spans in the IRC code which will automatically update the spans in these tables in the IBC. In this way species-specific spans for joists and rafters will be automatically correlated between the two codes, even though the codes themselves are developed in separate code change cycles.

To facilitate the maintenance of these tables by the IRC committee, the sections containing the charging text have been modified to read exactly like the corresponding sections in the IRC. Footnotes to the IRC tables that would not apply will not be extracted, as indicated in the public comment.

Further information about this change is posted at: http://www.awc.org/Code-Officials/2012-IBC-Challenges.

Analysis. The result of this public comment if successful would be to extract the span tables from the 2012 IRC and, in order to achieve consistency between the IBC and IRC, would also include any changes made to the subject IRC span tables during the 2013 Code Change Cycle. Any changes to code change committee responsibilities in future code development cycles are not part of this code change, but are the responsibility of the ICC Code Correlation Committee.

Final Hearing Results

S283-12 **AMPC**

Code Change No: S284-12

Original Proposal

Section(s): 2308.9.2.1

Proponent: Edward L. Keith, APA – The Engineered Wood Association (ed.keith@apawood.org)

Revise as follows:

2308.9.2.1 Top plates. Bearing and *exterior wall* studs shall be capped with double top plates installed to provide overlapping at corners and at intersections with other partitions. End joints in double top plates shall be offset at least 48 inches (1219 mm), and shall be nailed with not less than eight 16d face nails on each side of the joint. Plates shall be a nominal 2 inches (51 mm) in depth and have a width at least equal to the width of the studs.

Exception: A single top plate is permitted, provided the plate is adequately tied at joints, corners and intersecting walls by at least the equivalent of 3-inch by 6-inch (76 mm by 152 mm) by 0.036-inch-thick (0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by six 8d 2-1/2" x 0.113") nails or equivalent on each side of the joint. For the butt-joint splice between adjacent single top plates at least the equivalent of 3-inch by 12-inch (76 mm by 304 mm) by a 0.036-inch-thick (0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by twelve 8 d (2-1/2" x 0.113") nails on each side of the joint shall be required, provided the rafters, joists or trusses are centered over the studs with a tolerance of no more than 1 inch (25 mm). The top plate may be omitted over headers that are adequately tied to adjacent wall sections with steel plates or equivalent as previously described for the butt joint splice between adjacent single top plates

Reason: Item 10 of the 2012 IBC Table 2304.9.1 establishes the minimum capacity required to insure an adequate tension splice in top plates. Aside from simply providing continuity between wall segments, the top-plate splice also acts as a tension tie (often called a collector or drag strut) to distribute the roof and floor shear loads into the bracing elements often spaced as much as 20 feet apart. Assuming spruce-pine-fir top plates, Table 2304.9.1, item 10 requires a top-plate splice with eight 16d box nails on each side of the splice. In accordance with the NDS Table 11N, assuming SPF plates and a duration of load of 1.6 for lateral loads, the design capacity of the item 10 connection is (88 lb/nail x 8 nails x 1.6 dol =) 1,126 lbf.

While sufficient for intersections and corners the *3-inch by 6-inch (76 mm by 152 mm) by a 0.036-inch-thick (0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by six 8d nails on each side…"* only provides about 600 lbf tension capacity (NDS Table 11P, SPF framing, box nails: 60 lbf/nail x 6 nails x 1.6 dol = 576 lbf). This is about ½ of what is required in Table 2304.9.1, item 10. As such, the splice plate requirement for in-line butt joints in single top plate systems should be twice what is currently required:

"… the equivalent of 3-inch by 12-inch (76 mm by 304) by a 0.036-inch-thick (0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by twelve 8d (2-1.2" x 0.113") nails on each side…"

As a matter of clarification, the type of nail to be used was defined by description as only the penny-weight was specified. This is in keeping with current code style guidelines. I also specified which splice type was appropriate for headers when present. This was taken from the IRC. As these are neither corners nor intersections, it is clear that the butt-joint splice was the appropriate reference.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Errata: Revise as follows:

2308.9.2.1 Top plates. Bearing and *exterior wall* studs shall be capped with double top plates installed to provide overlapping at corners and at intersections with other partitions. End joints in double top plates shall be offset at least 48 inches (1219 mm), and shall be nailed with not less than eight 16d face nails on each side of the joint. Plates shall be a nominal 2 inches (51 mm) in depth and have a width at least equal to the width of the studs.

Exception: A single top plate is permitted, provided the plate is adequately tied at ~~joints~~, corners and intersecting walls by at least the equivalent of 3-inch by 6-inch (76 mm by 152 mm) by 0.036-inch-thick (0.914 mm) galvanized steel plate that is nailed

to each wall or segment of wall by six 8d (2-1/2" x 0.113") nails or equivalent on each side of the joint. For the butt-joint splice between adjacent single top plates at least the equivalent of 3-inch by 12-inch (76 mm by 304 mm) by a 0.036-inch-thick (0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by twelve 8 d (2-1/2" x 0.113") nails on each side of the joint shall be required, provided the rafters, joists or trusses are centered over the studs with a tolerance of no more than 1 inch (25 mm). The top plate may be omitted over headers that are adequately tied to adjacent wall sections with steel plates or equivalent as previously described for the butt joint splice between adjacent single top plates

Committee Action: **Approved as Modified**

Modify proposal as follows:

2308.9.2.1 Top plates. Bearing and *exterior wall* studs shall be capped with double top plates installed to provide overlapping at corners and at intersections with other partitions. End joints in double top plates shall be offset at least 48 inches (1219 mm), and shall be nailed with not less than eight 16d face nails on each side of the joint. Plates shall be a nominal 2 inches (51 mm) in depth and have a width at least equal to the width of the studs.

Exception: A single top plate is permitted, provided the plate is adequately tied at corners and intersecting walls by at least the equivalent of 3-inch by 6-inch (76 mm by 152 mm) by 0.036-inch-thick (0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by six 8d (2-1/2" x 0.113") box nails or equivalent on each side of the joint. For the butt-joint splice between adjacent single top plates at least the equivalent of 3-inch by 12-inch (76 mm by 304 mm) by 0.036-inch-thick (0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by twelve 8 d (2-1/2" x 0.113") box nails on each side of the joint shall be required, provided the rafters, joists or trusses are centered over the studs with a tolerance of no more than 1 inch (25 mm). The top plate ~~may~~ shall be permitted to be omitted over headers that are in the same plane and in line with the upper surface of the adjacent top plates and are ~~adequately~~ tied to adjacent wall sections with steel plates or equivalent as previously described for the butt joint splice between adjacent single top plates.

Committee Reason: This revision corrects the exception allowing a s ingle top plate. The modification clarifies the header positioning that allows the top plate to be discontinued.

Assembly Action: **None**

Final Hearing Results

S284 **AM**

Code Change No: S285-12

Original Proposal

Section(s): Table 2308.9.1, 2308.9.2.3

Proponent: Edwin Huston, National Council of Structural Engineers Associations (NCSEA), representing NCSEA Code Advisory Subcommittee – General Requirements Subcommittee (huston@smithhustoninc.com)

Revise as follows:

TABLE 2308.9.1
SIZE, HEIGHT, AND SPACING OF WOOD STUDS

STUD SIZE (INCHES)	BEARING WALLS				NONBEARING WALLS	
	Laterally unsupported stud height[a] (feet)	Supporting roof and ceiling only	Supporting one floor, roof and ceiling	Supporting two floors, roof and ceiling	Laterally unsupported stud height[a] (feet)	Maximum Stud ~~S~~spacing (inches)
	Maximum Stud ~~S~~spacing (inches)					
2x3[b]	-	-	-	-	10	16
2x4	10	24	16	-	14	24
3x4	10	24	24	16	14	24
2x5	10	24	24	-	16	24
2x6	10	24	24	16	20	24

For SI: 1 inch = 25.4mm, 1 foot = 304.8 mm.

a. Listed heights are distances between points of lateral support placed perpendicular to the plane of the wall. Increases in unsupported height are permitted where justified by an analysis.

b. Shall not be used in exterior walls.

2308.9.2.3 Non<u>load-</u>bearing walls and partitions. In non<u>load-</u>bearing walls and partitions, <u>when not part of a braced wall line,</u> studs shall be spaced not more than ~~28~~ <u>24</u> inches (~~711~~ <u>610</u> mm) o.c. ~~and~~ In interior non<u>load-</u>bearing walls and partitions, are permitted to be set with the long dimension parallel to the wall. <u>Where studs are set with the long dimensions parallel to the wall use of utility grade lumber or studs exceeding 10 feet (3048 mm) is not permitted.</u> Interior nonbearing partitions shall be capped with no less than a single top plate installed to provide overlapping at corners and at intersections with other walls and partitions. The plate shall be continuously tied at joints by solid blocking at least 16 inches (406 mm) in length and equal in size to the plate or by 1/2-inch by 11/2-inch (12.7 mm by 38 mm) metal ties with spliced sections fastened with two 16d nails on each side of the joint.

Reason: Several minor modifications to nonbearing walls and partitions are proposed. Changes include:

1. Limit spacing to 24". Studs bending about the strong axis, as shown in Table 2308.9.1, are limited to 24" on center, so the same should also be applied to flat wise (weak axis bending) studs. Also note that the NDS, National Design Specification, the Repetitive Member Factor Cr is limited to framing members spaced not more than 24 inches on center.
2. Exclude the use of utility grade flat wise studs and studs over 10 feet in height because the bending stress exceeds the NDS allowable stress limits. For example, 2x4 #3 Spruce-Pine-Fir studs @ 28" o.c. have an allowable maximum span of 7'-6" versus the Table 2308.9.1 limit of 14'-0".
3. Limit to exclude braced wall lines, to match the requirements of IRC R602.5 which states the following: "**R602.5 Interior nonbearing walls.** Interior nonbearing walls shall be permitted to be constructed with 2 inch by 3 inch (51 mm by 76 mm) studs spaced 24 inches (610 mm) on center or, when part of a *braced wall line*, 2 inch by 4 inch (51 mm by 102 mm) flat studs spaced at 16 inches (406 mm) on center. Interior nonbearing walls shall be capped with at least a single top plate. Interior nonbearing walls shall be fireblocked in accordance with Section R602.8."

3. Add the words *Maximum Stud* before Spacing to better define the spacing limit. This will also to match the language in the wood stud table in the International Residential Code, IRC Table R602.3(5).
4. Change wording of nonbearing to nonload-bearing to match the definition as shown in IBC Section 202 and Section 2308.9.1

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

TABLE 2308.9.1
SIZE, HEIGHT, AND SPACING OF WOOD STUDS

STUD SIZE (INCHES)	BEARING WALLS				NONBEARING WALLS	
	Laterally unsupported stud height[a] (feet)	Supporting roof and ceiling only	Supporting one floor, roof and ceiling	Supporting two floors, roof and ceiling	Laterally unsupported stud height[a] (feet)	Maximum stud spacing (inches)
		Maximum stud spacing (inches)				
2x3[b]	-	-	-	-	10	16
2x4	10	24	16	-	14	24
3x4	10	24	24	16	14	24
2x5	10	24	24	-	16	24
2x6	10	24	24	16	20	24

For SI: 1 inch = 25.4mm, 1 foot = 304.8 mm.

a. Listed heights are distances between points of lateral support placed perpendicular to the plane of the wall. Increases in unsupported height are permitted where justified by an analysis.
b. Shall not be used in exterior walls.

2308.9.2.3 Nonload-bearing walls and partitions. In nonload-bearing walls and partitions, when not part of a braced wall ~~line~~ panel, studs shall be spaced not more than 24 inches (610 mm) o.c. In interior nonload-bearing walls and partitions, studs are permitted to be set with the long dimension parallel to the wall. Where studs are set with the long dimensions parallel to the wall, use of utility grade lumber or studs exceeding 10 feet (3048 mm) is not permitted. Interior nonbearing partitions shall be capped with no less than a single top plate installed to provide overlapping at corners and at intersections with other walls and partitions. The plate shall be continuously tied at joints by solid blocking at least 16 inches (406 mm) in length and equal in size to the plate or by 1/2-inch by 11/2-inch (12.7 mm by 38 mm) metal ties with spliced sections fastened with two 16d nails on each side of the joint.

Committee Reason: This code change makes minor corrections to Section 2308.9.2.3 and clarifies the stud table. The modification clarifies that the concern is with studs that are not in a braced wall panel.

Assembly Action: **None**

Final Hearing Results

S285 **AM**

Code Change No: S287-12

Original Proposal

Section(s): 202 (New), 2302, 2308.9.3 (New), 2304.6, Table 2304.6, 2304.6.1, 2304.6.2

Proponent: Paul Coats, American Wood Council, (pcoats@awc.org)

Add new text as follows:

SECTION 202
DEFINITIONS

GABLE. The triangular portion of the wall beneath a dual-slope, pitched, or mono-slope roof.

Revise as follows:

2302.1 Definitions. For the purposes of this chapter, and as used elsewhere in this code the following terms are defined in Chapter 2:

GABLE

2304.6 Exterior wall sheathing. ~~Except as provided for in Section 1405 for weatherboarding or where stucco construction that complies with Section 2510 is installed, enclosed buildings shall be sheathed with one of the materials of the nominal thickness specified in Table 2304.6 or any other *approved* material of equivalent strength or durability~~ Wall sheathing on the outside of exterior walls, including gables, and the connection of sheathing to framing shall be designed in accordance with the general provisions of this code and shall be capable of resisting wind pressures in accordance with Section 1609..

2304.6.1 Wood structural panel sheathing. Where wood structural panel sheathing is used as the exposed finish on the outside of exterior walls, it shall have an exterior exposure durability classification. Where wood structural panel sheathing is used elsewhere, but not as the exposed finish, it shall be of a type manufactured with exterior glue (Exposure 1 or Exterior). ~~Wood structural panel wall sheathing or siding used as structural sheathing shall be capable of resisting wind pressures in accordance with Section 1609. Maximum wind speeds for wood~~ Wood structural panel sheathing ~~used to resist wind pressures~~, connections, and framing spacing shall be in accordance with Table 2304.6.1 for the applicable wind speed and exposure category when used with enclosed buildings with a mean roof height not greater than 30 feet (9144 mm) and a topographic factor (K_{zt}) of 1.0.

~~**2304.6.2**~~ **2304.7 Interior paneling.** Softwood wood structural panels used for interior paneling shall conform to the provisions of Chapter 8 and shall be installed in accordance with Table 2304.9.1. Panels shall comply with DOC PS 1, DOC PS 2 or ANSI/APA PRP 210. Prefinished hardboard paneling shall meet the requirements of CPA/ANSI A135.5. Hardwood plywood shall conform to HPVA HP-1.

2308.9.3 Exterior wall sheathing. Except where stucco construction that complies with Section 2510 is installed, the outside of exterior walls, including gables, of enclosed buildings shall be sheathed with one of the materials of the nominal thickness specified in Table 2308.9.3. with fasteners in accordance with requirements of 2304.9 or fasteners designed in accordance with accepted engineering practice.

TABLE ~~2304.6~~ 2308.9.3
MINIMUM THICKNESS OF WALL SHEATHING

SHEATING TYPE	MINIMUM THICKNESS	MAXIMUM WALL STUD SPACING
Wood boards	5/8 inch	24 inches on center
Fiberboard	1/2 inch	16 inches on center
Wood structural panel	In accordance with Tables 2308.9.3(2) and 2308.9.3(3)	--
M-S "Exterior Glue" and M-2 "Exterior Glue" Particleboard	In accordance with Section 2306.3 and Table 2308.9.3(4)	--
Gypsum sheathing	½ inch	16 inches on center
~~Gypsum wallboard~~	~~½ inch~~	~~24 inches on center~~
Reinforced cement mortar	1 inch	24 inches on center

For SI: 1 inch = 25.4 mm.

Reason: (2308.9.3) This new section comes from existing Section 2304.6. The content of the current section is moved to 2308.9.3 because it contains prescriptive minimum sheathings more suitable for wind speeds in accordance with limitations of 2308. The section is clarified as being applicable to exterior wall sheathing. The term "gable" is included to clarify that exterior wall sheathing recommendations are equally applicable to the gable.

Table 2304.6 is moved and renumbered as Table 2308.9.3. Gypsum wallboard is removed from the table to make it clear the table applies to exterior wall sheathing, in accordance with the proposed Section 2308.9.3.

Section 2304.6 is rewritten to establish minimum structural performance requirements and clarify that wall sheathing on the outside of exterior walls, as well as connection of sheathing to framing, must be capable of resisting wind pressures in accordance with Section 1609. The term "gable" is included to clarify that exterior wall sheathing recommendations for out of plane wind resistance are equally applicable to the gable.

Revisions to 2304.6.1 coordinate with the minimum structural performance requirements added in the new 2304.6. Prior language covering design for out of plane wind resistance is deleted because it is addressed in new section 2304.6. Reference to Table 2304.6.1 is revised to clarify that several factors are critical for determination of the applicable maximum wind speed including fastener schedule and stud spacing.

This renumbers Section 2304.6.2 to 2304.7 to separate provisions for Interior Paneling from 2306.6 which would contain new provisions applicable to exterior wall sheathing but not to interior paneling.

A definition is added for "gable" used in proposed revisions in Item #1 and #2 to clarify that gables should be sheathed in accordance with provisions for walls.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

2308.9.3 Exterior wall sheathing. Except where stucco construction that complies with Section 2510 is installed, the outside of exterior walls, including gables, of enclosed buildings shall be sheathed with one of the materials of the nominal thickness specified in Table 2308.9.3 with fasteners in accordance with requirements of 2304.9 or fasteners designed in accordance with accepted engineering practice. Alternatively, sheathing materials and fasteners complying with Section 2304.6 shall be permitted.

(Portions of proposal not shown are unchanged)

Committee Reason: This change clarifies the details of exterior wall sheathing. The modification recognizes that sheathing meeting the performance requirements should be a permitted alternative.

Assembly Action: **None**

Public Comments

Public Comment:

P Gary J. Ehrlich, P.E., National Association of Home Builders (NAHB), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

SECTION 202
DEFINITIONS

GABLE. The triangular portion of a ~~the~~ wall beneath the end of a dual-slope, pitched, or mono-slope roof or portion thereof and above the top plates of the story or level of the ceiling below.

2308.9.3 Exterior wall sheathing. Except where stucco construction that complies with Section 2510 is installed, the outside of exterior walls, including gables, of enclosed buildings shall be sheathed with one of the materials of the nominal thickness specified in Table 2308.9.3 with fasteners in accordance with requirements of 2304.9 or fasteners designed in accordance with accepted engineering practice. Alternatively, sheathing materials and fasteners complying with Section 2304.6 shall be permitted.

TABLE 2308.9.3
MINIMUM THICKNESS OF WALL SHEATHING

SHEATHING TYPE	MINIMUM THICKNESS	MAXIMUM WALL STUD SPACING
Diagonal w~~W~~ood boards	5/8 inch	24 inches on center
Structural f~~F~~iberboard	1/2 inch	16 inches on center
Wood structural panel	In accordance with Tables 2308.9.3(2) and 2308.9.3(3)	--
M-S "Exterior Glue" and M-2 "Exterior Glue" Particleboard	In accordance with Section 2306.3 and Table 2308.9.3(4)	--
Gypsum sheathing	½ inch	16 inches on center
Reinforced cement mortar	1 inch	24 inches on center
Hardboard panel siding	In accordance with Tables 2308.9.3(5)	--

(portions of proposal not shown remain unchanged)

Commenter's Reason: The purpose of this public comment is to address NAHB's concerns as identified in our testimony against the proposal.

Under Section 2308.9.3, Item #5, gypsum board sheathing a minimum of ½ inch in thickness used as bracing is permitted when attached to studs up to 24 inches on center. Table 2308.9.3(1) limits the stud spacing to 16" for the bottom story of a 3-story house in Seismic Design Category A and B, and the bottom of a two-story house in Seismic Design Category C, but otherwise 24" in spacing is permitted. There is no limit under Table 2308.12.4 for gypsum sheathing used as bracing on a one-story house in Seismic Design Categories D and E.

The definition of Gable is flawed. As written, it is not clear the end of a gambrel ("barn-shaped") roof on a Dutch Colonial house is a gable. The shape of the end wall is actually an irregular pentagon, not a triangle. Also, if the structure is balloon-framed, the definition technically makes the entire end wall of the structure a "gable", even the portions of the wall that are associated with the story or stories below.

Finally, Table 2308.9.3 needs to be revised to reflect all of the permitted structural sheathing methods on exterior walls and coordinate with the revisions to the wall bracing portions of Section 2308 under S273.

Final Hearing Results

S287-12 **AMPC**

Code Change No: S288-12

Original Proposal

Section(s): 2308.9.3

Proponent: Paul Coats, P.E., CBO, American Wood Council (pcoats@awc.org)

Revise as follows:

2308.9.3 Bracing. Braced wall lines shall consist of braced wall panels that meet the requirements for location, type and amount of bracing as shown in Figure 2308.9.3, specified in Table 2308.9.3(1) and are in line or offset from each other by not more than 4 feet (1219 mm). Braced wall panels shall start not more than 12 1/2 feet (3810 mm) from each end of a braced wall line. Braced wall panels shall be clearly indicated on the plans. Construction of braced wall panels shall be by one of the following methods:

1. Nominal 1-inch by 4-inch (25 mm by 102 mm) continuous diagonal braces let into top and bottom plates and intervening studs, placed at an angle not more than 60 degrees (1.0 rad) or less than 45 degrees (0.79 rad) from the horizontal and attached to the framing in conformance with Table 2304.9.1.
2. Wood boards of 5/8 inch (15.9 mm) net minimum thickness applied diagonally on studs spaced not over 24 inches (610 mm) o.c.
3. Wood structural panel sheathing with a thickness not less than 3/8 inch (9.5 mm) for 16-inch (406 mm) or 24-inch (610 mm) stud spacing in accordance with Tables 2308.9.3(2) and 2308.9.3(3).
4. Fiberboard sheathing panels not less than 1/2 inch (12.7 mm) thick applied vertically or horizontally on studs spaced not over 16 inches (406 mm) o.c. where installed with fasteners in accordance with ~~Section 2306.6 and Table 2306.6~~ Table 2304.9.1.
5. Gypsum board [sheathing 1/2-inch-thick (12.7 mm) by 4-feet-wide (1219 mm) wallboard or veneer base] on studs spaced not over 24 inches (610 mm) o.c. and nailed at 7 inches (178 mm) o.c. ~~with nails as required by Table 2306.7~~ along panel edges (including top and bottom plates) and 7" o.c. in the field with 5d (0.086 inch diameter) cooler nails.
6. Particleboard wall sheathing panels where installed in accordance with Table 2308.9.3(4).
7. Portland cement plaster on studs spaced 16 inches (406 mm) o.c.installed in accordance with Section 2510.
8. Hardboard panel siding where installed in accordance with Section 2303.1.6 and Table 2308.9.3(5).

For cripple wall bracing, see Section 2308.9.4.1. For Methods 2, 3, 4, 6, 7 and 8, each panel must be at least 48 inches (1219 mm) in length, covering three stud spaces where studs are spaced 16 inches (406 mm) apart and covering two stud spaces where studs are spaced 24 inches (610 mm) apart.

For Method 5, each panel must be at least 96 inches (2438 mm) in length where applied to one face of a panel and 48 inches (1219 mm) where applied to both faces. All vertical joints of panel sheathing shall occur over studs and adjacent panel joints shall be nailed to common framing members. Horizontal joints shall occur over blocking or other framing equal in size to the studding except where waived by the installation requirements for the specific sheathing materials. Sole plates shall be nailed to the floor framing and top plates shall be connected to the framing above in accordance with Section 2308.3.2. Where joists are perpendicular to braced wall lines above, blocking shall be provided under and in line with the braced wall panels.

Reason: In the 2012 code, some provisions for fasteners in Chapter 23 were removed and the AF&PA Special Design Provisions for Wind and Seismic was referenced instead. This proposed change cleans up some references to tables that are no longer applicable, while retaining prescriptive guidance in the code for conventional wall bracing methods. For fiberboard sheathing

attachment, Section 2306.6 and Table 2306.6 are no longer applicable. In the 2012 IBC, Table 2304.9.1 would be an appropriate reference for fastener size for attachment of fiberboard sheathing. Table 2306.7 is no longer the correct reference in the 2012 IBC for gypsum wallboard attachment. The appropriate fastener, 5d cooler nails, is proposed for consistency with Table 2308.12.4 which addresses nail size for gypsum wallboard bracing used in Seismic Design Category D and E.
Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Agreement with the proponent's reason which indicates that the changes clean up references to tables that are no longer appropriate. It also coordinates the bracing requirements with other code sections on gypsum board.

Assembly Action: **None**

Public Comments

Public Comment:

Paul D. Coats, P.E., CBO, American Wood Council, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

2308.9.3 Bracing. Braced wall lines shall consist of braced wall panels that meet the requirements for location, type and amount of bracing as shown in Figure 2308.9.3, specified in Table 2308.9.3(1) and are in line or offset from each other by not more than 4 feet (1219 mm). Braced wall panels shall start not more than 121/2 feet (3810 mm) from each end of a braced wall line. Braced wall panels shall be clearly indicated on the plans. Construction of braced wall panels shall be by one of the following methods:

1. Nominal 1-inch by 4-inch (25 mm by 102 mm) continuous diagonal braces let into top and bottom plates and intervening studs, placed at an angle not more than 60 degrees (1.0 rad) or less than 45 degrees (0.79 rad) from the horizontal and attached to the framing in conformance with Table 2304.9.1.
2. Wood boards of 5/8 inch (15.9 mm) net minimum thickness applied diagonally on studs spaced not over 24 inches (610 mm) o.c.
3. Wood structural panel sheathing with a thickness not less than 3/8 inch (9.5 mm) for 16-inch (406 mm) or 24-inch (610 mm) stud spacing in accordance with Tables 2308.9.3(2) and 2308.9.3(3).
4. Fiberboard sheathing panels not less than 1/2 inch (12.7 mm) thick applied vertically or horizontally on studs spaced not over 16 inches (406 mm) o.c. where installed with fasteners in accordance with Table 2304.9.1.
5. Gypsum board [sheathing 1/2-inch-thick (12.7 mm) or 5/8-inch thick (15.9 mm) by 4-feet-wide (1219 mm) wallboard or veneer base] on studs spaced not over 24 inches (610 mm) o.c. and ~~nailed~~ fastened to studs at 7 inches (178 mm) o.c. ~~along panel edges (including top and bottom plates) and 7" o.c. in the field with 5d (0.086 inch diameter) cooler nails.~~ in the field of the board and at board edges with nails or screws complying with Section 2506.2. Nails shall be 5d annular ringed (1 5/8 inch x 0.086 inch diameter) cooler nails and screws shall be not less than 1 ¼ inches in length.
6. Particleboard wall sheathing panels where installed in accordance with Table 2308.9.3(4).
7. Portland cement plaster on studs spaced 16 inches (406 mm) o.c. installed in accordance with Section 2510.
8. Hardboard panel siding where installed in accordance with Section 2303.1.6 and Table 2308.9.3(5).

For cripple wall bracing, see Section 2308.9.4.1. For Methods 2, 3, 4, 6, 7 and 8, each panel must be at least 48 inches (1219 mm) in length, covering three stud spaces where studs are spaced 16 inches (406 mm) apart and covering two stud spaces where studs are spaced 24 inches (610 mm) apart.

For Method 5, each panel must be at least 96 inches (2438 mm) in length where applied to one face of a panel and 48 inches (1219 mm) where applied to both faces. All vertical joints of panel sheathing shall occur over studs and adjacent panel joints shall be nailed to common framing members. Horizontal joints shall occur over blocking or other framing equal in size to the studding except where waived by the installation requirements for the specific sheathing materials. Sole plates shall be nailed to the floor framing and top plates shall be connected to the framing above in accordance with Section 2308.3.2. Where joists are perpendicular to braced wall lines above, blocking shall be provided under and in line with the braced wall panels.

Commenter's Reason: This comment combines the original changes to item 5 made by S288 and S289 which were both approved by the Structural Committee, and is necessary for the clear wording of the section resulting from both approvals. It also adds the correct nail length (1 5/8-inch) for the 5d cooler nail. Screw dimensions other than the minimum length are specified in the standards listed in Section 2506.2 for screws used with gypsum.

Final Hearing Results

S288-12 **AMPC**

Code Change No: S289-12

Original Proposal

Section(s): 2308.9.3

Proponent: Michael Gardner, Gypsum Association (mgardner@gypsum.org)

Revise as follows:

2308.9.3 Bracing. Braced wall lines shall consist of braced wall panels that meet the requirements for location, type and amount of bracing as shown in Figure 2308.9.3, specified in Table 2308.9.3(1) and are in line or offset from each other by not more than 4 feet (1219 mm). Braced wall panels shall start not more than 12 1/2 feet (3810 mm) from each end of a braced wall line. Braced wall panels shall be clearly indicated on the plans. Construction of braced wall panels shall be by one of the following methods:

1. Nominal 1-inch by 4-inch (25 mm by 102 mm) continuous diagonal braces let into top and bottom plates and intervening studs, placed at an angle not more than 60 degrees (1.0 rad) or less than 45 degrees (0.79 rad) from the horizontal and attached to the framing in conformance with Table 2304.9.1.
2. Wood boards of 5/8 inch (15.9 mm) net minimum thickness applied diagonally on studs spaced not over 24 inches (610 mm) o.c.
3. Wood structural panel sheathing with a thickness not less than 3/8 inch (9.5 mm) for 16-inch (406 mm) or 24-inch (610 mm) stud spacing in accordance with Tables 2308.9.3(2) and 2308.9.3(3).
4. Fiberboard sheathing panels not less than 1/2 inch (12.7 mm) thick applied vertically or horizontally on studs spaced not over 16 inches (406 mm) o.c. where installed with fasteners in accordance with Section 2306.6 and Table 2306.6.
5. Gypsum board [sheathing 1/2-inch-thick (12.7 mm) or 5/8-inch-thick (15.9 mm) by 4-feet-wide (1219 mm) wallboard or veneer base] on studs spaced not over 24 inches (610 mm) o.c. and ~~nailed~~ fastened to studs at 7 inches (178 mm) o.c. with nails ~~as required by Table 2306.7.~~ or screws. Nails or screws shall be installed in the field of the board and at board edges. Nails and screws shall comply with Section 2506.2. Nails shall be annular ringed and not less than 1 ½ inches in length. Screws shall be not less than 1 ¼ inches in length.
6. Particleboard wall sheathing panels where installed in accordance with Table 2308.9.3(4).
7. Portland cement plaster on studs spaced 16 inches (406 mm) o.c.installed in accordance with Section 2510.
8. Hardboard panel siding where installed in accordance with Section 2303.1.6 and Table 2308.9.3(5).

For cripple wall bracing, see Section 2308.9.4.1. For Methods 2, 3, 4, 6, 7 and 8, each panel must be at least 48 inches (1219 mm) in length, covering three stud spaces where studs are spaced 16 inches (406 mm) apart and covering two stud spaces where studs are spaced 24 inches (610 mm) apart.

For Method 5, each panel must be at least 96 inches (2438 mm) in length where applied to one face of a panel and 48 inches (1219 mm) where applied to both faces. All vertical joints of panel sheathing shall occur over studs and adjacent panel joints shall be nailed to common framing members. Horizontal joints shall occur over blocking or other framing equal in size to the studding except where waived by the installation requirements for the specific sheathing materials. Sole plates shall be nailed to the floor framing and top plates shall be connected to the framing above in accordance with Section 2308.3.2. Where joists are perpendicular to braced wall lines above, blocking shall be provided under and in line with the braced wall panels.

Reason: The proposal adds screws as an acceptable method of panel attachment when gypsum board is used as bracing. It also adds 5/8-inch-thick gypsum board to the list of materials used for bracing in structures constructed to the IBC.

The ability to use screws for the attachment of gypsum board used as bracing was inserted into the International Residential Code by the approval of Public Comment 2 on Proposal RB143 – 07/08. For consistency, similar language should be inserted into the IBC.

The addition of 5/8-inch-thick gypsum board to the text reflects the use of the thicker, when compared to ½ thick gypsum board, material commonly installed in structures constructed to the IBC. The bracing capability of the thicker material is greater than that of the thinner material, so the addition of the reference will not diminish the bracing attributes of the structure.

The reference to Section 2506.2 establishes that the nail or screw must comply with the minimum head size and shank diameter requirements in the appropriate standard in Table 2506.2. The standards referenced in Table 2506.2 are the same standards referenced in the IRC.

The nail and screw length minimum contained in the proposal establishes a fastener length that is no less than the length of the equivalent fastener as prescribed by the IRC for installation of gypsum board used as bracing. Because Table R702.3.5. of the IRC lists four potential nail types, the language requiring the use of an annular ringed nail – a common drywall nail – is inserted. Fastener lengths also reflect the minimum fastener length requirements contained in GA-216, Application and Finishing of Gypsum Board that is referenced in Section 2508 of the IBC.

While the literature presented as substantiation for the IRC modification indicated that a broader spacing for screws, when compared to nails, is justified, it is recommended that, for simplicity and consistency of installation, a one-for-one swap of screws for nails reflecting the current spacing contained in the text is more appropriate. The spacing in this proposal is identical to the spacing presently contained in Table R602.10.4 of the IRC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The code change recognizes screws for fastening gypsum board braced wall panels and is consistent with the IRC.

Assembly Action: **None**

Final Hearing Results

S289-12 **AS**

Code Change No: S291-12

Original Proposal

Section(s): 2308.9.3.2, Figure 2308.9.3.2

Proponent: Edward L. Keith, P.E., APA – The Engineered Wood Association (ed.keith@apawood.org)

Revise as follows:

2308.9.3.2 Alternate bracing wall panel adjacent to a door or window opening. Any bracing required by Section 2308.9.3 is permitted to be replaced by the following when used adjacent to a door or window opening with a full-length header:

1. In one-story buildings, each panel shall have a length of not less than 16 inches (406 mm) and a height of not more than 10 feet (3048 mm). Each panel shall be sheathed on one face with a single layer of 3/8 inch (9.5 mm) minimum thickness wood structural panel sheathing nailed with 8d common or galvanized box nails in accordance with Figure 2308.9.3.2. The wood structural panel sheathing shall extend up over the solid sawn or glued-laminated header and shall be nailed in accordance with Figure 2308.9.3.2. A built-up header consisting of at least two 2 × 12s and fastened in accordance with Item 24 of Table 2304.9.1 shall be permitted to be used. A spacer, if used, shall be placed on the side of the built-up beam opposite the wood structural panel sheathing. The header shall extend between the inside faces of the first full-length outer studs of each panel. The clear span of the header between the inner studs of each panel shall be not less than 6 feet (1829 mm) and not more than 18 feet (5486 mm) in length. A strap with an uplift capacity of not less than 1,000 pounds (4,400 N) shall fasten the header to the inner studs opposite the sheathing. One anchor bolt not less than 5/8 inch (15.9 mm) diameter and installed in accordance with Section 2308.6 shall be provided in the center of ach sill plate. The studs at each end of the panel shall have a tie-down device fastened to the foundation with an uplift capacity of not less than ~~4,200~~ 3,500 pounds (~~18 480~~ 15 570 N).

   Where a panel is located on one side of the opening, the header shall extend between the inside face of the first full-length stud of the panel and the bearing studs at the other end of the opening. A strap with an uplift capacity of not less than 1,000 pounds (4400 N) shall fasten the header to the bearing studs. The bearing studs shall also have a tie-down device fastened to the foundation with an uplift capacity of not less than 1,000 pounds (4400 N).

   The tie-down devices shall be an embedded strap type, installed in accordance with the manufacturer's recommendations. The panels shall be supported directly on a foundation that is continuous across the entire length of the braced wall line. This foundation shall be reinforced with not less than one No. 4 bar top and bottom.

   Where the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing or turned down slab edge is permitted at door openings in the braced wall line. This continuous footing or turned down slab edge shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped not less than 15 inches (381 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

2. In the first *story* of two-story buildings, each wall panel shall be braced in accordance with Item 1 bove, except that each panel shall have a length of not less than 24 inches (610 mm).

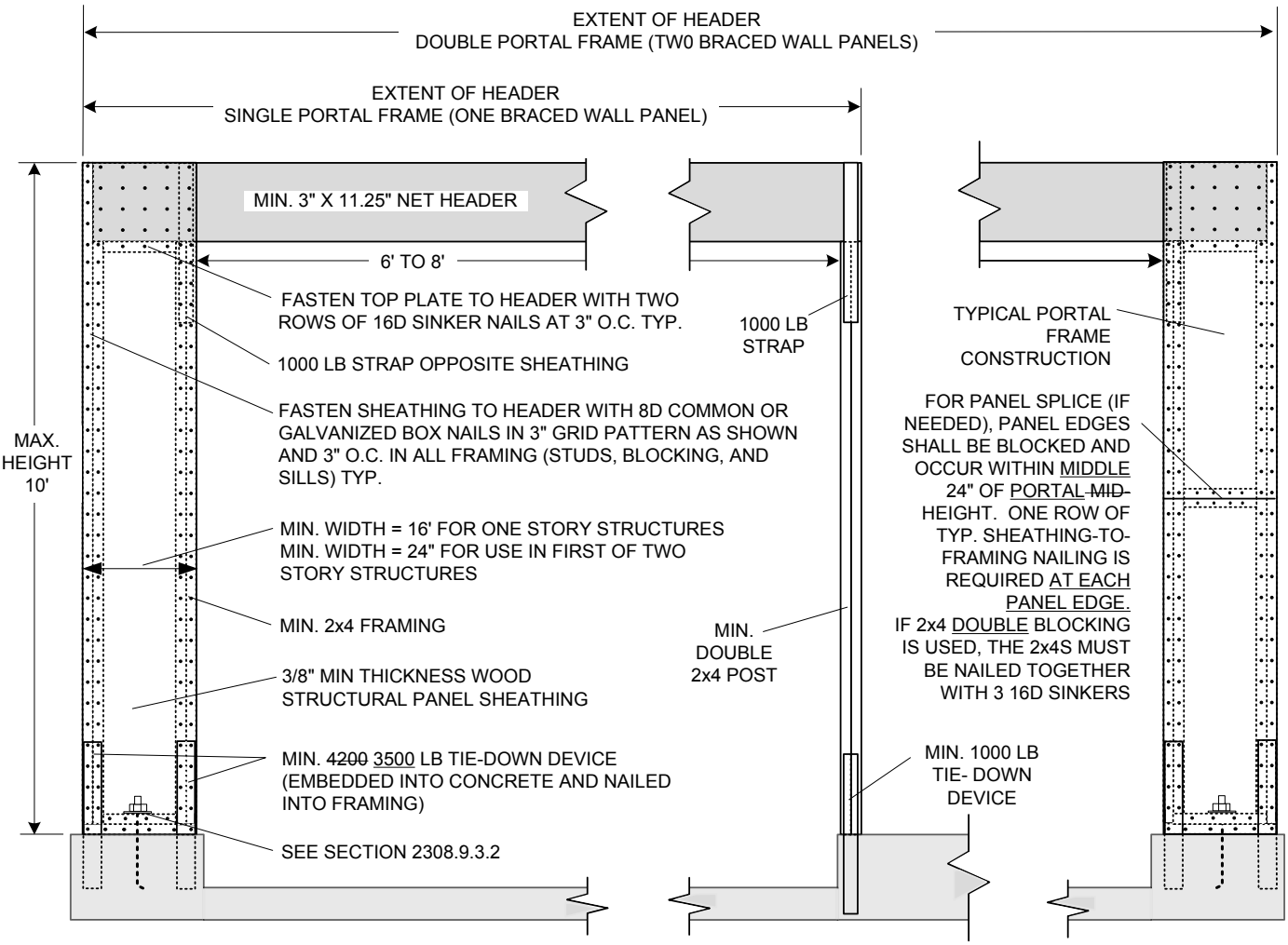


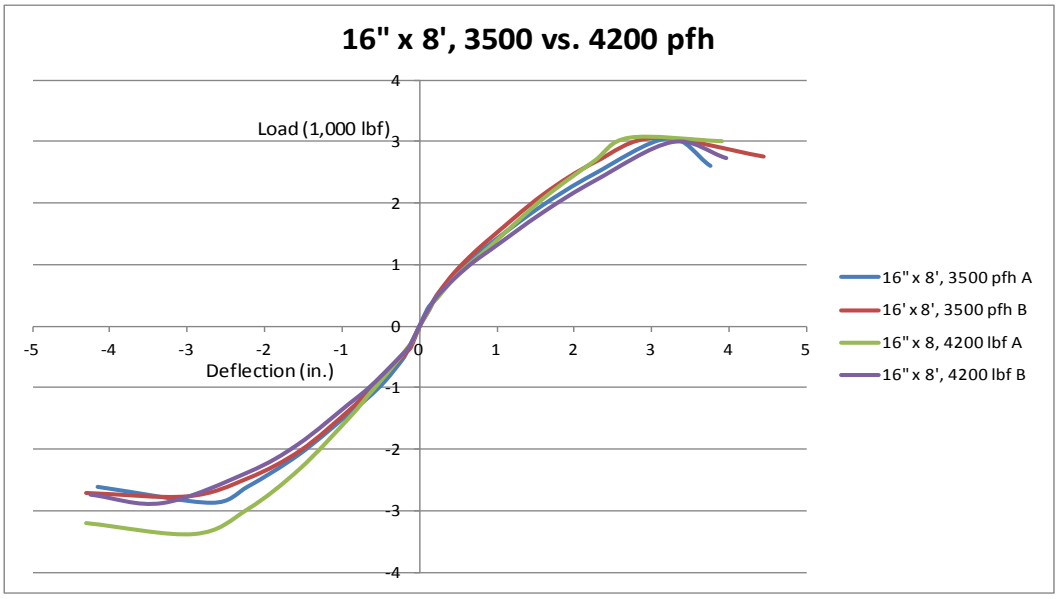
FIGURE 2308.9.3.2
ALTERNATE BRACED WALL PANEL ADJACENT TO A DOOR OR WINDOW OPENING

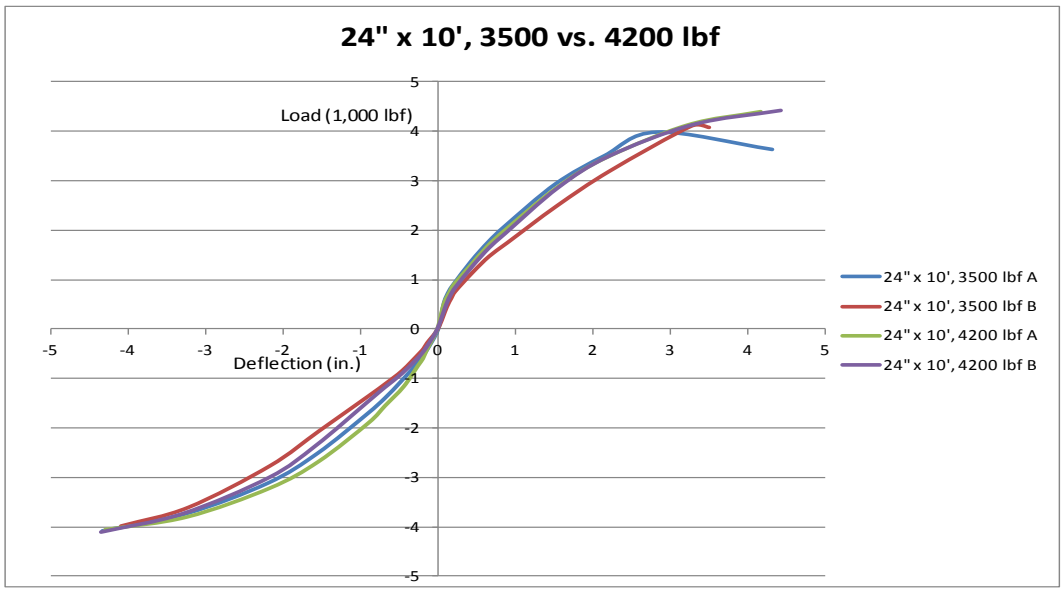
Reason: 1) There are a couple of types of changes to Figure 2308.9.3.2 proposed. There are both technical changes and editorial changes.

Technical changes: The two technical changes made to the figure are the reduction of the capacity of the portal frame leg tie-down devices from 4200 lbf to 3500 lbf and the removal of the third bottom plate at the portal frame leg. (Note that the third bottom plate we propose to delete is NOT shown in the figure above. The normal strikethrough and underline procedures are difficult to apply to figure changes.)

A. The first technical change is the reduction of the tie-down from 4200 lbf to 3500 lbf. The initial testing was conducted on the portal frames utilizing the 4200 lbf hold down because that was what was readily available and in common use by the construction industry. At the time of initial testing, no attempt was made to determine the sensitivity of the system to such a reduction in tie-down capacity. As the initial prescriptive parameters of the portal frame were based on testing, there was no latitude for determining the impact of the industry wide reduction to such tie-downs in response to the cracked-concrete provisions of ACI 318. As such, retesting of the portal frames with both 4200 lbf and 3500 lbf tie-downs was necessary to determine the impact on the performance of the system, if any. Portals with 16” wide legs x 8 ft height as well as 24” wide x 10 ft high were recently retested by APA. Pairs of each size were tested with 4200 lbf tie-downs and then retested with 3500 lbf tie-downs. The results of these tests showed that the system was relatively insensitive to the reduction in tie-down capacity from 4200 lbf to 3500 lbf. No attempt was made to determine how low the tie-down capacity could be reduced before an impact on the performance of the portal frames could be seen.

These tests were conducted using the CUREe method, as described in ASTM E2126, with a frequency of 0.5 Hz. The following charts show the backbone curves for the Method PFH portal frames tested with 3500 lbf and 4200 lbf tie-downs at both the 16” wide leg portals 8’ high as well as the 24” wide portals 10’ high.





Free PDF Copies of the full lab report on this testing program entitled APA Report T2011-15, *Bracing Method PFH (Portal Frame with Hold down) – Alternative Attachment,* can be obtained at http://www.apawood.org.

B. The second technical change is the removal of the third bottom plate. As mentioned above the original testing was conducted with the third plate in place. The third plate causes numerous difficulties in the field, not the least of which is that the normal length threaded anchors are too short to accommodate the third plate and provide the required depth of penetration into the foundation. This results in inadequate anchor depth-of-embedment or the use of threaded sleeves and all-thread to extend the bolt length to accommodate the third plate. When investigating the change to the 3500 lbf hold down, we utilized this opportunity to run the tests with only double bottom plates. All subsequent testing was done without the third bottom plate. The results of this testing indicated that the third bottom plate has negligible impact on the performance of the portal frames.

Non-technical changes:

1. The intent of the note concerning the location of the portal-leg sheathing-splice, when present, is to place the splice butt joint within the middle 24" of the portal frame height. As currently written "within 24" of mid height" means the splice could be placed within 24 inches either above or below of mid height, or within a band 48" wide. This was never the intent. The proposed language is clearer that the joint must "occur within the middle 24" of portal height", where portal height is illustrated in the figure.
2. At the splice plate, the current wording requires a single row of nailing. The proposed change required this at <u>each panel edge</u> at the splice as was the original intent.
3. In the same annotation, a provision is provided that would permit the splice to be made over a pair of 2x4s as long as they are spliced together. The proposal changes "blocking" to "double blocking" to clarify the intent.

2) The revision to Section 2308.9.3.2 is as explained above.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

2308.9.3.2 Alternate bracing wall panel adjacent to a door or window opening. Any bracing required by Section 2308.9.3 is permitted to be replaced by the following when used adjacent to a door or window opening with a full-length header:

1. In one-story buildings, each panel shall have a length of not less than 16 inches (406 mm) and a height of not more than 10 feet (3048 mm). Each panel shall be sheathed on one face with a single layer of 3/8 inch (9.5 mm) minimum thickness wood structural panel sheathing nailed with 8d common or galvanized box nails in accordance with Figure 2308.9.3.2. The wood structural panel sheathing shall extend up over the solid sawn or glued-laminated header and shall be nailed in accordance with Figure 2308.9.3.2. A built-up header consisting of at least two 2 × 12s and fastened in accordance with Item 24 of Table 2304.9.1 shall be permitted to be used. A spacer, if used, shall be placed on the side of the built-up beam opposite the wood structural panel sheathing. The header shall extend between the inside faces of the first full-length outer studs of each panel. The clear span of the header between the inner studs of each panel shall be not less than 6 feet (1829 mm) and not more than 18 feet (5486 mm) in length. A strap with an uplift capacity of not less than 1,000 pounds (4,400 N) shall fasten the header to the inner studs opposite the sheathing. One anchor bolt not less than 5/8 inch (15.9 mm) diameter and installed in accordance with Section 2308.6 shall be provided in the center of ach sill plate. The studs at each end of the panel shall have a tie-down device fastened to the foundation with an uplift capacity of not less than 4,200 ~~3,500~~ pounds (18 480 ~~15 570~~ N).

   Where a panel is located on one side of the opening, the header shall extend between the inside face of the first full-length stud of the panel and the bearing studs at the other end of the opening. A strap with an uplift capacity of not less than 1,000 pounds (4400 N) shall fasten the header to the bearing studs. The bearing studs shall also have a tie-down device fastened to the foundation with an uplift capacity of not less than 1,000 pounds (4400 N).

   The tie-down devices shall be an embedded strap type, installed in accordance with the manufacturer's recommendations. The panels shall be supported directly on a foundation that is continuous across the entire length of the braced wall line. This foundation shall be reinforced with not less than one No. 4 bar top and bottom.

   Where the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing or turned down slab edge is permitted at door openings in the braced wall line. This continuous footing or turned down slab edge shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped not less than 15 inches (381 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

2. In the first *story* of two-story buildings, each wall panel shall be braced in accordance with Item 1 above, except that each panel shall have a length of not less than 24 inches (610 mm).

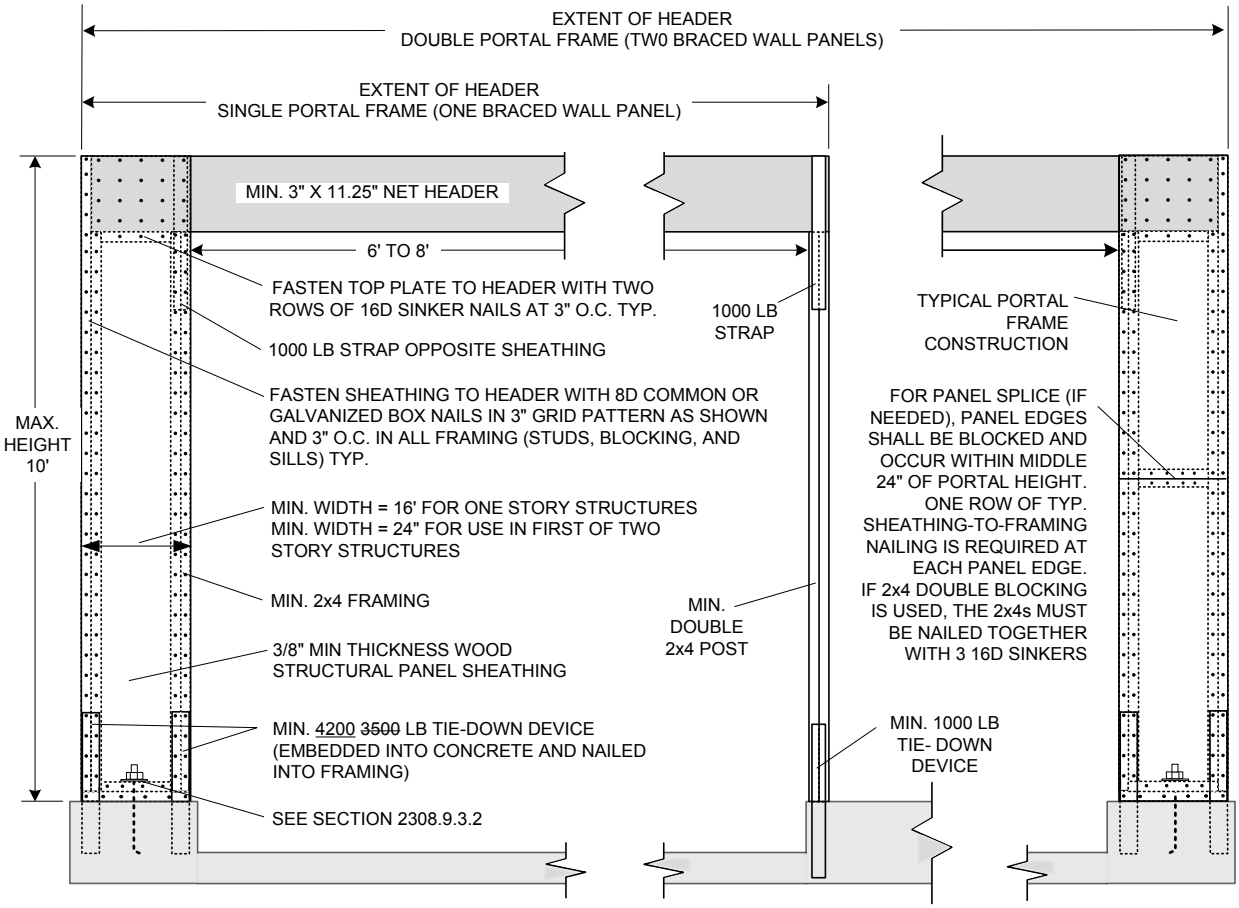


FIGURE 2308.9.3.2
ALTERNATE BRACED WALL PANEL ADJACENT TO A DOOR OR WINDOW OPENING

Committee Reason: This proposal updates the prescriptive portal frame bracing alternative. The modification is acknowledges that the hold-down capacity needs to remain 4200 pounds.

Assembly Action: **None**

Public Comments

Public Comment:

Edward L. Keith, representing APA – The Engineered Wood Association, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

2308.9.3.2 Alternate bracing wall panel adjacent to a door or window opening. Any bracing required by Section 2308.9.3 is permitted to be replaced by the following when used adjacent to a door or window opening with a full-length header:

1. In one-story buildings, each panel shall have a length of not less than 16 inches (406 mm) and a height of not more than 10 feet (3048 mm). Each panel shall be sheathed on one face with a single layer of 3/8 inch (9.5 mm) minimum thickness wood structural panel sheathing nailed with 8d common or galvanized box nails in accordance with Figure 2308.9.3.2. The wood structural panel sheathing shall extend up over the solid sawn or glued-laminated header and shall be nailed in accordance with Figure 2308.9.3.2. A built-up header consisting of at least two 2 × 12s and fastened in accordance with Item 24 of Table 2304.9.1 shall be permitted to be used. A spacer, if used, shall be placed on the side of the built-up beam opposite the wood structural panel sheathing. The header shall extend between the inside faces of the first full-length outer studs of each panel. The clear span of the header between the inner studs of each panel shall be not less than 6 feet (1829 mm) and not more than 18 feet (5486 mm) in length. A strap with an uplift capacity of not less than 1,000 pounds (4,400 N) shall fasten the header to the inner studs opposite the sheathing. One anchor bolt not less than

5/8 inch (15.9 mm) diameter and installed in accordance with Section 2308.6 shall be provided in the center of ach sill plate. The studs at each end of the panel shall have a tie-down device fastened to the foundation with an uplift capacity of not less than ~~4,200~~ 3,500 pounds (~~18 480~~ 15 570 N).

Where a panel is located on one side of the opening, the header shall extend between the inside face of the first full-length stud of the panel and the bearing studs at the other end of the opening. A strap with an uplift capacity of not less than 1,000 pounds (4400 N) shall fasten the header to the bearing studs. The bearing studs shall also have a tie-down device fastened to the foundation with an uplift capacity of not less than 1,000 pounds (4400 N).

The tie-down devices shall be an embedded strap type, installed in accordance with the manufacturer's recommendations. The panels shall be supported directly on a foundation that is continuous across the entire length of the braced wall line. This foundation shall be reinforced with not less than one No. 4 bar top and bottom.

Where the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing or turned down slab edge is permitted at door openings in the braced wall line. This continuous footing or turned down slab edge shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped not less than 15 inches (381 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

2. In the first *story* of two-story buildings, each wall panel shall be braced in accordance with Item 1 above, except that each panel shall have a length of not less than 24 inches (610 mm).

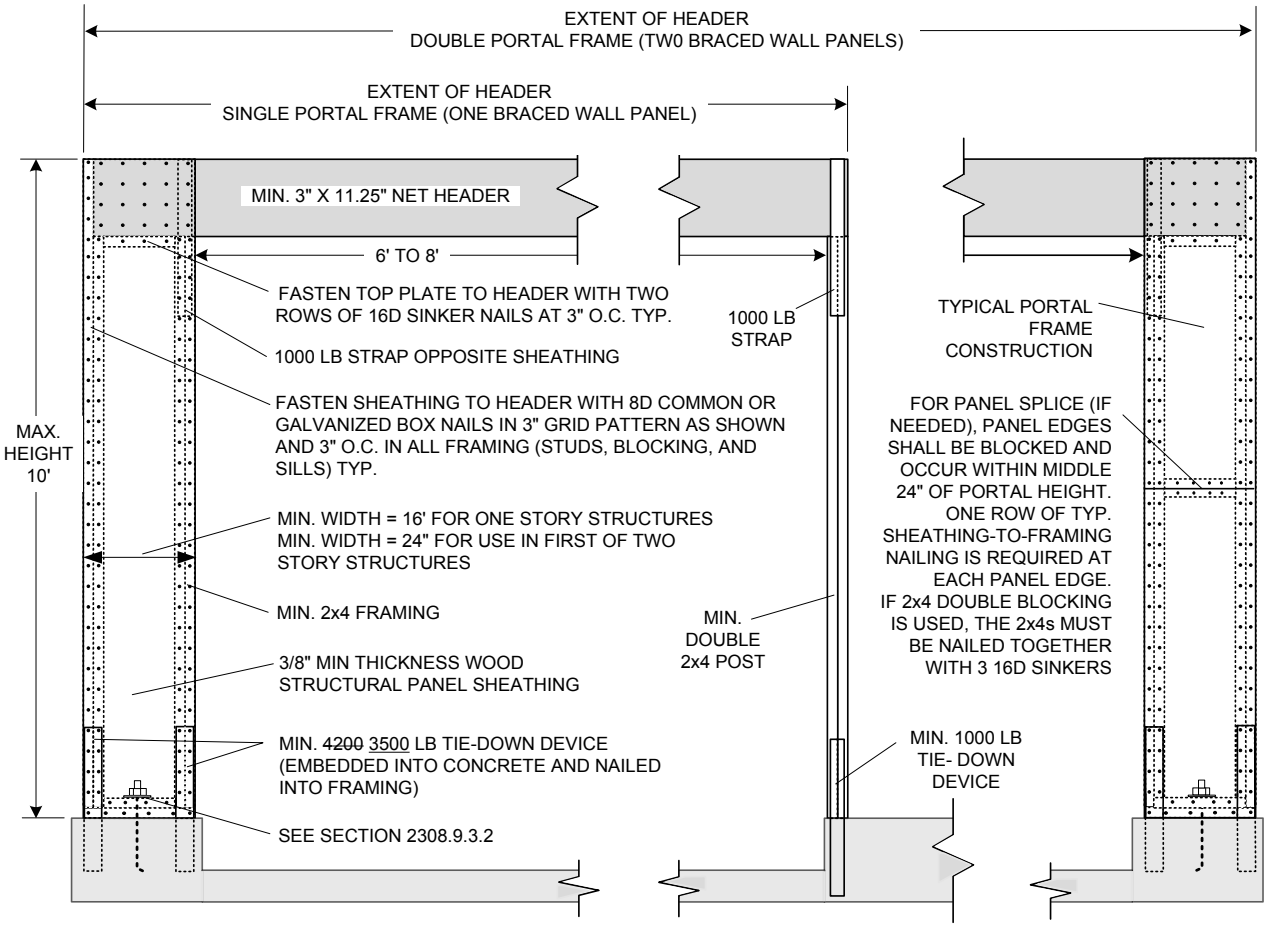
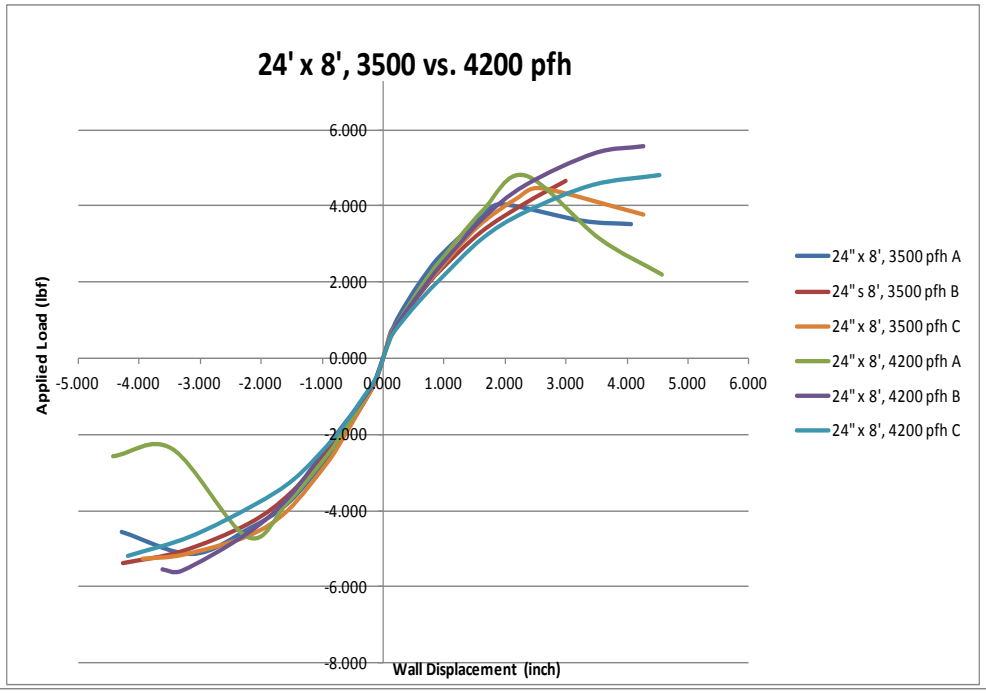


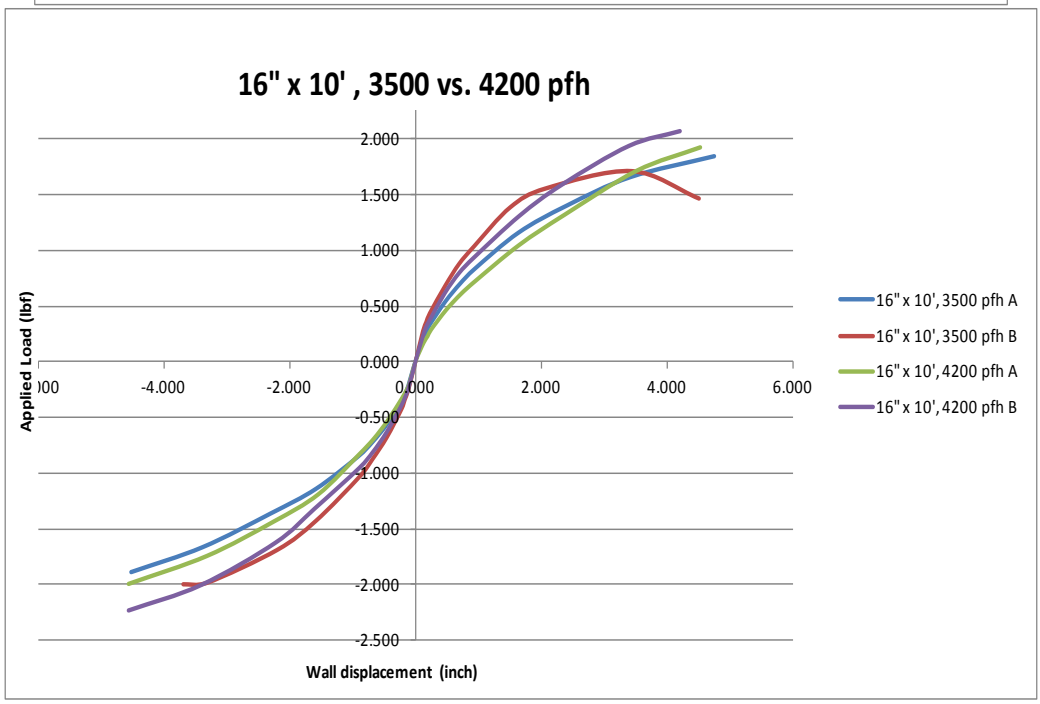
FIGURE 2308.9.3.2
ALTERNATE BRACED WALL PANELADJACENT TO A DOOR OR WINDOW OPENING

Commenter's Reason: The original proposal as submitted included a proposed change for the hold-down capacity in Section 2308.9.3.2 and Figure 2308.9.3.2 from 4,200 lbf to 3,500 lbf along with a number of other minor changes. This change in hold-down capacity was based on some preliminary research done at APA Research Center that was incomplete at the time the proposal was heard by the Committee. At the time, Simpson Strong-Tie was also in the process of developing a 4,200 lbf hold-down solution for such applications. Anticipating the success of Simpson's testing program, APA worked with Simpson to develop a floor modification to return the hold-down capacity to the original 4,200 lbf capacity. This floor modification was accepted and the original proposal was recommended for approval as modified.

Subsequent to the Code Development Hearings, those specific hold-down solutions that Simpson Strong-Tie was testing were unable to develop a 4,200 lbf hold-down capacity at a foundation end (immediately adjacent to a door opening). As there was insufficient time to develop and test additional hold-down solutions, APA, with assistance from Simpson's technical staff, completed a testing program verifying that reducing the recommended hold-down capacity from 4,200 to 3,500 lbf resulted in no appreciable difference in the performance of the hold down.

In addition to the geometries previously tested and reported in the original code change proposal, as reproduced below, two additional geometries were tested by APA. The results of these two geometries can be seen in the load deflection backbone curves shown below. The legends for the plots indicate the leg width of the portal x the height of the portal, the hold-down capacity, and replication letter.





It is clear from the plots below and those provided in the original reason statement, also provided below, that the reduction in the capacity of the hold-down strap from 4,200 to 3,500 lbf has no significant impact on the performance of the portal frame.

As such, we request that by this public comment, the reference to the hold-down capacity be changed from 4,200 to 3,500 lbf in both the figure and corresponding text.

A free copy of *APA Report T2012L-24 - Alternative Attachment (IBC), Portal Frame with Hold Downs (Bracing Method PFH) (IRC) – Hold-Down Strap Capacity Variations* is available at http://www.apawood.org/pdfs/TSD/T-Reports/T2012L-24.pdf

Final Hearing Results

S291-12 **AMPC**

Code Change No: S292-12

Original Proposal

Section(s): 2308.11.3.3

Proponent: Robert Rice, C.B.O., Josephine County, OR, representing Oregon Building Officials Association (structdesigner@yahoo.com), R. Terry Malone, P.E., S.E.

Revise as follows:

2308.11.3.3 Openings in horizontal diaphragms. Horizontal diaphragms with openings having dimension perpendicular to the joist that is greater than 4 feet (1219 mm) shall be designed in accordance with accepted engineering practice. Openings in horizontal diaphragms with a dimension perpendicular to the joist that is not greater than 4 feet (1219 mm) shall be constructed ~~in accordance with the following:~~ with metal ties and blocking in accordance with this section and Figure 2308.11.3.3.

~~1. Blocking shall be provided beyond headers.~~

~~2.~~ Metal ties shall not be less than 0.058 inch thick [1.47 mm (16 galvanized gage)] by 1 1/2 inches (38 mm) wide and shall have a minimum yield strength of 33,000 psi (227 MPa). Blocking shall extend 2 feet minimum beyond headers. Ties shall be attached to blocking with eight 16d common nails on each side of the header-joist intersection ~~shall be provided (see Figure 2308.11.3.3). The metal ties shall have a minimum yield of 33,000 psi (227 MPa)~~.

Reason: This proposal re-arranges the existing text to read more clearly, corrects an error in the code and clarifies the requirements and limitations of openings in diaphragms in structures assigned to Seismic Design Category B, C, D and E. The text of the current code is intended to provide a prescriptive solution for diaphragm openings, in high seismic design categories, that are 4 feet or less. The current code is missing the word "not" which would make this section correct. The commentary for this code section correctly states,

Horizontal diaphragms are floor and roof assemblies that are usually clad with structural wood sheathing panels, such as plywood or OSB. Though more complicated and difficult to visualize, lateral forces that are applied to a building from wind or seismic events follow a load path that distributes and transfers shear and overturning forces from the lateral loads. When openings are built into the diaphragm, they disrupt the continuity of load across the diaphragm and they must be reinforced to compensate. Another concern is the stiffness of the diaphragm. These provisions are a prescriptive solution for openings not greater than 4 feet (1219 mm) in dimension and provide a general means for a load path in these specific cases in lieu of an engineered design.- 2009 IBC Commentary, International Code Council

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: There is confusion over this proposal to revise the provision on openings in horizontal diaphragms and the source document [NEHRP] for this requirement. The committee would like to see better justification for this change.

Assembly Action: **None**

Public Comments

Public Comment 2:

Robert Rice, Josephine County, OR, representing Oregon Building Officials Association and R. Terry Malone, P.E. S.E., representing self and Dr. J. Daniel Dolan, P.E representing self, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

2308.11.3.3 Openings in horizontal diaphragms. ~~Horizontal diaphragms with openings having a dimension perpendicular to the joist that is greater than 4 feet (1219 mm) shall be designed in accordance with accepted engineering practice.~~ Openings in horizontal diaphragms with a dimension ~~perpendicular to the joist~~ that is ~~not~~ greater than 4 feet (1219 mm) shall be constructed with metal ties and blocking in accordance with this section and Figure 2308.11.3.3.

Metal ties shall not be less than 0.058 inch thick [1.47 mm (16 galvanized gage)] by 1-1/2 inches (38 mm) wide and shall have a minimum yield strength of 33,000 psi (227 MPa). Blocking shall extend ~~2 feet minimum beyond headers~~ not less than the dimension of the opening in the direction of the tie and blocking. Ties shall be attached to blocking in accordance with the manufacturer's instructions but with not less than ~~with~~ eight 16d common nails on each side of the header-joist intersection.

Replace figure as shown:

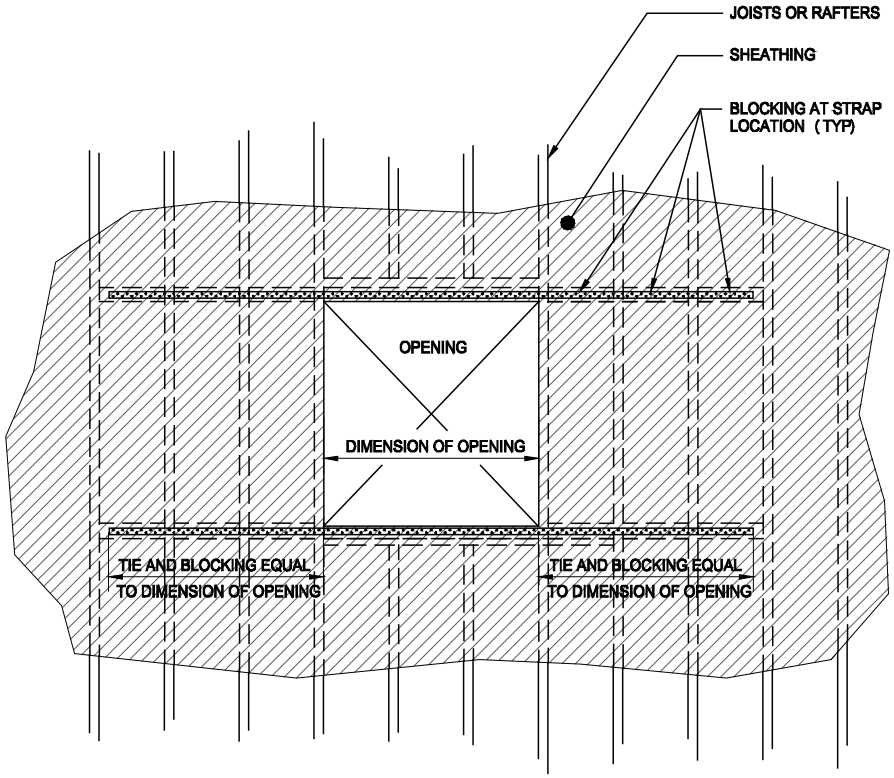


FIGURE 2308.11.3.3
OPENINGS IN HORIZONTAL DIAPHRAGMS

Commenter's Reason: The original proposal attempted to accomplish two goals. First, the existing code language read poorly and the necessary information for the treatment of openings was in the referenced figure (Figure 2308.11.3.3) but not in the text. One goal of the original proposal was to rearrange the text for clarity to add the requirements from the figure into the text. A separate Public Comment has been submitted to address those portions of the original proposal.

The second intent of the original proposal was to clarify that this prescriptive solution was not incorporated into the IBC as originally intended by the supporting background reports and documents and was actually in direct conflict with the description in the IBC commentary. The current IBC text says that this prescriptive detail is to be used for openings **over** 4 feet in SDC B, C, D and E. The commentary says that the detail can be used as a prescriptive solution **up to 4 feet** in those SDC's. The language and implication of the commentary would require an engineered design when the opening is greater than 4 feet.

The commentary reads;

Horizontal diaphragms are floor and roof assemblies that are usually clad with structural wood sheathing panels, such as plywood or OSB. Though more complicated and difficult to visualize, lateral forces that are applied to a building from wind or seismic events follow a load path that distributes and transfers shear and overturning forces from the lateral loads. When openings are built into the diaphragm, they disrupt the continuity of load across the diaphragm and they must be reinforced to compensate. Another concern is the stiffness of the diaphragm. ***These provisions are a prescriptive solution for openings not greater than 4 feet (1219 mm) in***

***dimension and provide a general means for a load path in these specific cases in lieu of an engineered design.**- 2009 IBC Commentary, International Code Council*

Despite efforts to research the source of this code provision, it wasn't until after submission of the proposal for the Code Development Hearings in Dallas that the background for this became more clear. In the 2003 NEHRP; The detail is required for openings greater than 4 feet in all SDC's and for **all openings in SDC D and E** .

The 2003 NEHRP provisions state;

"12.4.3.7 Detailing for openings in diaphragms. For openings with a dimension greater than 4 ft (1.2m), or openings in structures assigned to Seismic Design Category D or E, the following minimum detail shall be provided. Blocking beyond headers and metal ties not less than 0.058 in (16 gauge; 2 mm) thick by 1.5 in. (38 mm) wide by 48 in. (1220 mm) long with eight 16d (0.162 by 3.5 in.; 4 by 89 mm) common nails on each side of the header-joist intersection shall be provided (see Figure 12.4-11). Steel used shall have a minimum yield of 33,000 psi (228 MPa) such as ASTM A 653 SS, Grade 33, ASTM A 792 SS, Grade 33, or ASTM A 875 SS, Grade 33."

Further, APA Research Report 138 states,

*"The forces generated by the opening may be calculated by applying the principles of statics. …..However, **when openings are relatively small**, chord forces do not increase significantly and it is usually sufficient simply to reinforce perimeter framing and assure that it is continuous. Continuous framing should extend from each corner of the opening both directions into the diaphragm, **a distance equal to the largest dimension of the opening**."*

As stated in the book, *Analysis of Irregular Shaped Structures, McGraw/Hill (Malone/Rice),* for small openings, *"ATC 7 and Diekmann recommend that at **small openings** minimal reinforcing at the corners of the opening should extend **a minimum distance equal to the depth or width of the opening** in the direction under consideration. In other words, the minimum distance left and right would be equal to the width "w" of the opening, and the minimum distance above and below the opening would be equal to the depth "d"."*

An example of what is meant, or not meant, in APA 138 by the term*, "…when openings are **relatively small**….",* is given further in the document when in the design considerations of Diaphragm No. 4 in APA report 138 it states, *"The 8-ft x 8-ft openings, **very large relative** to the size of the diaphragm, removed 50% of the plywood from the high shear areas near each reaction."*

While no definition of a "large opening" is given, it is clear that the force transfer around openings is a critical design feature to ensure a complete load path for wind and seismic loads. As with many requirements in the code, the true effect of inadequate load paths often are not realized until a significant load event occurs. The connection at openings in diaphragms is a critical element in the overall structural integrity of a building and the minimal cost and effort of installing the appropriate strapping and blocking required by this section is justified.

References:

APA The Engineered Wood Association. Rev. 2000 *Research Report 138 – Plywood Diaphragms,* APA, Tacoma, WA.

Final Hearing Results

S292-12 **AMPC2**

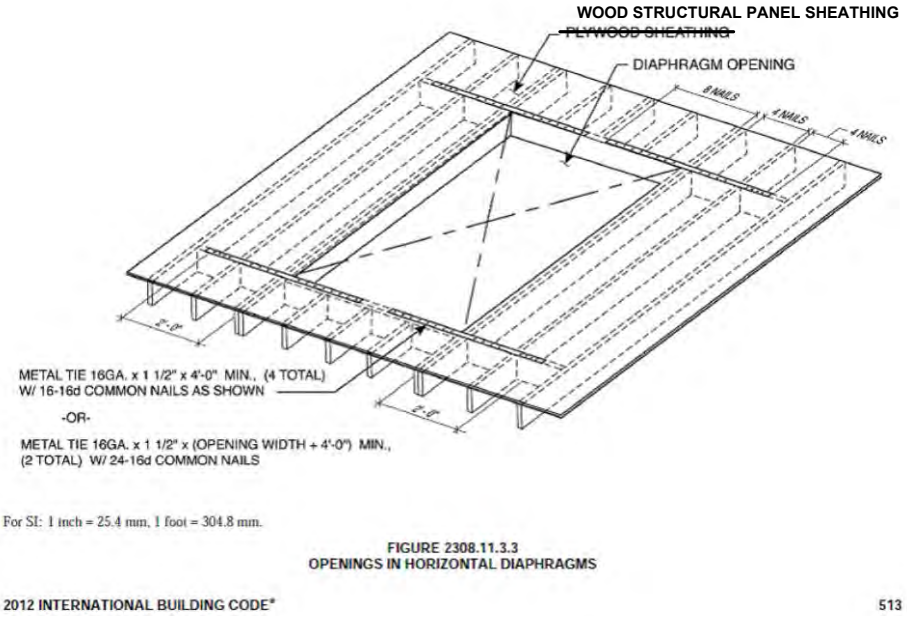
Code Change No: S293-12

Original Proposal

Section(s): Figure 2308.11.3.3

Proponent: Edward L. Keith, P.E., APA – The Engineered Wood Association (ed.keith@apawood.org)

Revise as follows:



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE 2308.11.3.3
OPENINGS IN HORIZONTAL DIAPHRAGMS

2012 INTERNATIONAL BUILDING CODE® 513

Reason: This is one of the last remaining references to "plywood" in the code that should have been converted to the more generic "wood structural panel" (WSP) in the 2000 first printing of the IBC. In terms of structural capacity, the IBC makes no distinction to the type of wood structural panel sheathing used. In addition, the type of floor sheathing is inconsequence to the subject of the figure, which relates to floor framing. We request approval of the code change proposal for the sake of consistency in the IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change corrects Figure 2308.11.3.3 by updating the terminology to wood structural panels.

Assembly Action: **None**

Final Hearing Results

S293-12 **AS**

Code Change No: S294-12

Original Proposal

Section(s): 1504.2.1.1 (NEW), 1504.2.1.2 (NEW), 1711.1, 1711.1.1, 1711.1.2, 1711.1.2.1, 1711.1.3, 1711.2, 1711.2.1, 1711.2.2, 2309 (NEW)

Proponent: D. Kirk Harman, P.E., S.E., SECB, FACI, The Harman Group, Inc., National Council of Structural Engineering Association

Revise as follows:

~~**SECTION 1711**~~
~~**MATERIAL AND TEST STANDARDS**~~

SECTION 2409
JOIST HANGERS

~~**1711.1**~~ **2309 Joist hangers**. Testing of joist hangers shall be in accordance with Sections 1711.1.1 through 1711.1.3, as applicable.

~~**1711.1.1**~~ **2309.1 General.** The vertical load-bearing capacity, torsional moment capacity and deflection characteristics of joist hangers shall be determined in accordance with ASTM D 1761 using lumber having a specific gravity of 0.49 or greater, but not greater than 0.55, as determined in accordance with AF&PA NDS for the joist and headers.

Exception: The joist length shall not be required to exceed 24 inches (610 mm).

1711.1.2 2309.2 Vertical load capacity for joist hangers. The vertical load-bearing capacity for the joist hanger shall be determined by testing a minimum of three joist hanger assemblies as specified in ASTM D 1761. If the ultimate vertical load for any one of the tests varies more than 20 percent from the average ultimate vertical load, at least three additional tests shall be conducted. The allowable vertical load-bearing of the joist hanger shall be the lowest value determined from the following:

1. The lowest ultimate vertical load for a single hanger from any test divided by three (where three tests are conducted and each ultimate vertical load does not vary more than 20 percent from the average ultimate vertical load).
2. The average ultimate vertical load for a single hanger from all tests divided.by three (where six or more tests are conducted)
3. The average from all tests of the vertical loads that produce a vertical movement of the joist with respect to the header of 1/8 inch (3.2 mm).
4. The sum of the allowable design loads for nails or other fasteners utilized to secure the joist hanger to the wood members and allowable bearing loads that contribute to the capacity of the hanger.
5. The allowable design load for the wood members forming the connection.

~~**1711.1.2.1**~~ **2309.2.1 Design value modifications for joist hangers.** Allowable design values for joist hangers that are determined by Item 4 or 5 in Section 1711.1.2 shall be permitted to be modified by the appropriate load duration factors as specified in AF&PA NDS but shall not exceed the direct loads as determined by Item 1, 2 or 3 in Section 1711.1.2. Allowable design values determined by Item 1, 2 or 3 in Section 1711.1.2 shall not be modified by load duration factors.

~~1711.1.3~~ **2309.3 Torsional moment capacity for joist hangers.** The torsional moment capacity for the joist hanger shall be determined by testing at least three joist hanger assemblies as specified in ASTM D 1761. The allowable torsional moment of the joist hanger shall be the average torsional moment at which the lateral movement of the top or bottom of the joist with respect to the original position of the joist is 1/8 inch (3.2 mm).

~~1711.2 Concrete and clay roof tiles~~ **1504.2.1 Testing.** Testing of concrete and clay roof tiles shall be in accordance with ~~Sections 1711.2.1 and 1711.2.2, as applicable.~~ this section.

~~1711.2.1~~ **1504.2.1.1 Overturning resistance.** Concrete and clay roof tiles shall be tested to determine their resistance to overturning due to wind in accordance with SBCCI SSTD 11 and Chapter 15.

~~1711.2.2~~ **1504.2.1.2 Wind tunnel testing.** Where concrete and clay roof tiles do not satisfy the limitations in Chapter 16 for rigid tile, a wind tunnel test shall be used to determine the wind characteristics of the concrete or clay tile roof covering in accordance with SBCCI SSTD 11 and Chapter 15.

Reason: Chapter 17 is titled “Special Inspections and Tests” and as such, is intended to be primarily reserved for the special inspection and testing associated with the actual construction work. NCSEA holds the opinion that material compliance testing for joist hangers belongs in Chapter 23 as this testing is not associated with the actual construction work. Similarly, wind tunnel testing to determine overturning resistance of roof tiles belongs in Chapter 15 as these tests are also not associated with the actual construction work and an existing section dealing with wind resistance for concrete and clay roof tiles currently exists as section 1502.1. Current Section 1711 is comprised solely of the two sections proposed to be relocated, and can therefore be deleted subsequent to the relocations.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

SECTION 1711
MATERIAL AND TEST STANDARDS

~~**SECTION 2409**~~
~~**JOIST HANGERS**~~

1711.1 ~~**2309**~~ **Joist hangers**. Testing of joist hangers shall be in accordance with Sections 1711.1.1 through 1711.1.3, as applicable.

1711.1.1 ~~**2309.1**~~ **General.** The vertical load-bearing capacity, torsional moment capacity and deflection characteristics of joist hangers shall be determined in accordance with ASTM D 1761 using lumber having a specific gravity of 0.49 or greater, but not greater than 0.55, as determined in accordance with AF&PA NDS for the joist and headers.

Exception: The joist length shall not be required to exceed 24 inches (610 mm).

1711.1.2 ~~**2309.2**~~ **Vertical load capacity for joist hangers.** The vertical load-bearing capacity for the joist hanger shall be determined by testing a minimum of three joist hanger assemblies as specified in ASTM D 1761. If the ultimate vertical load for any one of the tests varies more than 20 percent from the average ultimate vertical load, at least three additional tests shall be conducted. The allowable vertical load-bearing of the joist hanger shall be the lowest value determined from the following:

1. The lowest ultimate vertical load for a single hanger from any test divided by three (where three tests are conducted and each ultimate vertical load does not vary more than 20 percent from the average ultimate vertical load).
2. The average ultimate vertical load for a single hanger from all tests divided by three (where six or more tests are conducted)
3. The average from all tests of the vertical loads that produce a vertical movement of the joist with respect to the header of 1/8 inch (3.2 mm).
4. The sum of the allowable design loads for nails or other fasteners utilized to secure the joist hanger to the wood members and allowable bearing loads that contribute to the capacity of the hanger.
5. The allowable design load for the wood members forming the connection.

1711.1.2.1 ~~**2309.2.1**~~ **Design value modifications for joist hangers.** Allowable design values for joist hangers that are determined by Item 4 or 5 in Section 1711.1.2 shall be permitted to be modified by the appropriate load duration factors as specified in AF&PA NDS but shall not exceed the direct loads as determined by Item 1, 2 or 3 in Section 1711.1.2. Allowable design values determined

by Item 1, 2 or 3 in Section 1711.1.2 shall not be modified by load duration factors.

1711.1.3 ~~2309.3~~ Torsional moment capacity for joist hangers. The torsional moment capacity for the joist hanger shall be determined by testing at least three joist hanger assemblies as specified in ASTM D 1761. The allowable torsional moment of the joist hanger shall be the average torsional moment at which the lateral movement of the top or bottom of the joist with respect to the original position of the joist is 1/8 inch (3.2 mm).

1504.2.1 Testing. Testing of concrete and clay roof tiles shall be in accordance with this Sections 1504.2.1.1 and 1504.2.1.2.

1504.2.1.1 Overturning resistance. Concrete and clay roof tiles shall be tested to determine their resistance to overturning due to wind in accordance with SBCCI SSTD 11 and Chapter 15.

1504.2.1.2 Wind tunnel testing. Where concrete and clay roof tiles do not satisfy the limitations in Chapter 16 for rigid tile, a wind tunnel test shall be used to determine the wind characteristics of the concrete or clay tile roof covering in accordance with SBCCI SSTD 11 and Chapter 15.

Committee Reason: This code change moves testing requirements to an appropriate location in Chapter 15. The modification restores the proposed changes to joist hanger requirements so that this proposal leaves them unaffected. Prior committee actions on these joist hanger provisions are preferred.

Assembly Action: **None**

Final Hearing Results

S294 **AM**

Code Change No: S295-12

Original Proposal

Section(s): 2404.1, 2404.2, 2404.3.1, 2404.3.2, 2404.3.3, 2404.3.4, 2404.3.5, 2405.5.2

Proponent: Julie Ruth, JRuth Code Consulting, representing American Architectural Manufacturers Association (julruth@aol.com)

Revise as follows:

2404.1 Vertical glass. Glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors and other exterior applications shall be designed to resist the wind loads due to ultimate design wind speed V_{ult} in Section 1609 for components and cladding. Glass in glazed curtain walls, glazed storefronts and glazed partitions shall meet the seismic requirements of ASCE 7, Section 13.5.9. The load resistance of glass under uniform load shall be determined in accordance with ASTM E 1300.

The design of vertical glazing shall be based on the following equation:

$0.6F_{gw} \le F_{ga}$ **(Equation 24-1)**

where:

F_{gw} = Wind load on the glass due to ultimate design wind speed V_{ult}, computed in accordance with Section 1609.
F_{ga} = Short duration load on the glass as determined in accordance with ASTM E 1300.

2404.2 Sloped glass. Glass sloped more than 15 degrees (0.26 rad) from vertical in skylights, sunrooms, sloped roofs and other exterior applications shall be designed to resist the most critical of the following combinations of loads.

$F_g = 0.6Wo - D$ **(Equation 24-2)**
$F_g = 0.6W_i + D + 0.5\,S$ **(Equation 24-3)**
$F_g = \sout{0.5}\ 0.3W_i + D + S$ **(Equation 24-4)**

where:

D = Glass dead load psf (kN/m2).
For glass sloped 30 degrees (0.52 rad) or less from horizontal,
= 13 t_g (For SI: 0.0245 tg).
For glass sloped more than 30 degrees (0.52 rad) from horizontal,
= 13 t_g cos θ (For SI: 0.0245 tg cos θ).
F_g = Total load, psf (kN/m2) on glass.
S = Snow load, psf (kN/m2) as determined in Section 1608.
t_g = Total glass thickness, inches (mm) of glass panes and plies.
W_i = Inward wind force, psf (kN/m2) due to ultimate design wind speed V_{ult} as calculated in Section 1609.
W_o = Outward wind force, psf (kN/m2) due to ultimate design wind speed V_{ult}, as calculated in Section 1609.
θ = Angle of slope from horizontal.

Exception: Unit skylights shall be designed in accordance with Section 2405.5.

The design of sloped glazing shall be based on the following equation:

$F_g \leq F_{ga}$ **(Equation 24-5)**

where:

F_g = Total load on the glass determined from the load combinations above.
F_{ga} = Short duration load resistance of the glass as determined according to ASTM E 1300 for Equations 24-2 and 24-3; or the long duration load resistance of the glass as determined according to ASTM E 1300 for Equation 24-4.

2404.3.1 Vertical wired glass. Wired glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors and other exterior applications shall be designed to resist the wind loads in Section 1609 for components and cladding according to the following equation:

$0.6F_{gw} < 0.5\ F_{ge}$ **(Equation 24-6)**

where:

F_{gw} = Is the wind load on the glass due to ultimate design wind speed V_{ult}, computed per Section 1609.
F_{ge} = Nonfactored load from ASTM E 1300 using a thickness designation for monolithic glass that is not greater than the thickness of wired glass.

2404.3.2 Sloped wired glass. Wired glass sloped more than 15 degrees (0.26 rad) from vertical in skylights, sunspaces, sloped roofs and other exterior applications shall be designed to resist the most critical of the combinations of loads from Section 2404.2.

For Equations 24-2 and 24-3:

$F_g < 0.5\ F_{ge}$ **(Equation 24-7)**

For Equation 24-4:

$F_g < 0.3\ F_{ge}$ **(Equation 24-8)**

where:

F_g = Total load on the glass, as determined by equations 24-2, 24-3 or 24-4.
F_{ge} = Nonfactored load from ASTM E 1300.

2404.3.3 Vertical patterned glass. Patterned glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors and other exterior applications shall be designed to resist the wind loads in Section 1609 for components and cladding according to the following equation:

$F_{gw} < 1.0\ F_{ge}$ **(Equation 24-9)**

where:

F_{gw} = Wind load on the glass due to ultimate design wind speed V_{ult} computed per Section 1609.
F_{ge} = Nonfactored load from ASTM E 1300. The value for patterned glass shall be based on the thinnest part of the glass. Interpolation between nonfactored load charts in ASTM E 1300 shall be permitted.

2404.3.4 Sloped patterned glass. Patterned glass sloped more than 15 degrees (0.26 rad) from vertical in skylights, sunspaces, sloped roofs and other exterior applications shall be designed to resist the most critical of the combinations of loads from Section 2404.2.

For Equations 24-2 and 24-3:

$F_g < 1.0\ F_{ge}$ **(Equation 24-10)**

For Equation 24-4:

$F_g < 0.6F_{ge}$ **(Equation 24-11)**

Where

F_g = Total load on the glass, as determined by equations 24-2, 24-3 or 24-4.
F_{ge} = Nonfactored load from ASTM E 1300. The value for patterned glass shall be based on the thinnest part of the glass. Interpolation between the nonfactored load charts in ASTM E 1300 shall be permitted.

2404.3.5 Vertical sandblasted glass. Sandblasted glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors, and other exterior applications shall be designed to resist the wind loads in Section 1609 for components and cladding according to the following equation:

~~Fg~~$0.6F_{gw} < 0.5\ F_{ge}$ **(Equation 24-12)**

where:

~~F_g~~ F_{gw} = ~~Total~~ Wind load on the glass due to ultimate design wind speed V_{ult} computed per Section 1609.
F_{ge} = Nonfactored load from ASTM E 1300. The value for sandblasted glass is for moderate levels Of sandblasting.

2405.5.2 Unit skylights rated for separate performance grades for positive and negative design pressure. The design of unit skylights rated for performance grade for both positive and negative design pressures shall be based on the following equations:

$F_{gi} \le PG_{Po}$ **(Equation 24-14)**
$F_{go} \le PG_{Ne}$ **(Equation 24-15)**

where:

PG_{Pos} = Performance grade rating of the skylight under positive design pressure;
PG_{Neg} = Performance grade rating of the skylight under negative design pressure; and

F_{gi} and F_{go} are determined in accordance with the following:

For $0.6W_o \ge D$,

where:

W_o = Outward wind force, psf (kN/m2) due to ultimate design wind speed V_{ult}, as calculated in Section 1609.
D = The dead weight of the glazing, psf (kN/m2) as determined in Section 2404.2 for glass, or by the weight of the plastic, psf (kN/m2) for plastic glazing.
F_{gi} = Maximum load on the skylight determined from Equations 24-3 and 24-4 in Section 2404.2.
F_{go} = Maximum load on the skylight determined from Equation 24-2.

For $\underline{0.6}W_o < D$, where:

W_o = Is the outward wind force, psf (kN/m2) due to ultimate design wind speed $V_{\underline{ult}}$ as calculated in Section 1609.
D = The dead weight of the glazing, psf (kN/m2) as determined in Section 2404.2 for glass, or by the weight of the plastic for plastic glazing.
F_{gi} = Maximum load on the skylight determined from Equations 24-2 through 24-4 in Section 2404.2.
F_{go} = 0.

Reason: The purpose of this proposal is to coordinate the glass design load equations of Chapter 24 with those of Chapter 16.

The design load equations of Chapter 16 of the 2012 IBC were revised as appropriate to respond to the change of design wind load model from Allowable Stress Design to Strength Design in ASCE 7-10. These revisions, however, were not carried back to the glass design load equations of Chapter 24.

This proposal corrects this previous omission.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal provides a needed update to ultimate design wind speed in Chapter 24.

Assembly Action: **None**

Final Hearing Results

S295-12 **AS**

Code Change No: S297-12

Original Proposal

Section(s): 2604.7

Proponent: Tim Pate, City & County of Broomfield Building Division, representing Colorado Chapter Code Change Committee

Revise as follows:

2406.4.7 Glazing adjacent to the bottom stair landing. Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than ~~36 inches (914 mm)~~ 60 inches (1524 mm) above the landing and within 60 inches (1524 mm) horizontally of the bottom tread shall be considered a hazardous location.

Exception: Glazing that is protected by a guard complying with Sections 1013 and 1607.8 where the plane of the glass is greater than 18 inches (457 mm) from the guard.

Reason: Previous editions of the IBC before the 2012 required glazing that is less than 60" above the landing to be approved safety glazing. It is not clear why this requirement was changed in the 2012. It does not make sense that section 2406.4.6 applies to glazing that is less than 60" above the stairs and intermediate landings but the glazing at bottom landing is treated differently – only when below 36" The potential for falling through the glazing at bottom landing is the same. This change will bring back the 60" height which will then match the requirement at intermediate landings and stairs.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agrees that the requirement for safety glazing that is less than 60 inches above the landing should be restored.

Assembly Action: **None**

Final Hearing Results

S297-12	**AS**

Code Change No: S298-12

Original Proposal

Section(s): 2406.4.7

Proponent: Tim Pate, City & County of Broomfield Building Division, representing self

Revise as follows:

2406.4.7 Glazing adjacent to the bottom stair landing. Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 36 inches (914 mm) above the landing and within a 60 inch~~es~~ (1524 mm) horizontall~~y of~~ arc less than 180 degrees from the bottom tread shall be considered a hazardous location.

Exception: Glazing that is protected by a guard complying with Sections 1013 and 1607.8 where the plane of the glass is greater than 18 inches (457 mm) from the guard.

Reason: Previous editions of the IBC before the 2012 required glazing that is 60" horizontally in any direction to be approved safety glazing. It is not clear why this requirement was changed in the 2012. The previous editions had the additional wording "in any direction" when applying the 60" horizontal rule. This is due to the "splay" factor for when someone gets to the last tread and falls. The tendency is for someone to flail out in any direction. This added wording will make this section apply to any glazing that is in a wall that is less than 180 degrees from the bottom tread. This will make it very clear what the intent was and still is with this section.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This code change does not clarify the requirements for glazing adjacent to the bottom stair landing. The term arc is not necessary and an illustration in the reason could help clarify the intent of this revision.

Assembly Action: **None**

Public Comments

Public Comment:

Tim Pate, City & County of Broomfield Building Department, representing Colorado Chapter Code Change Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

2406.4.7 Glazing adjacent to the bottom stair landing. Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 36 inches (914 mm) above the landing and within a 60 inch (1524 mm) horizontal arc less than 180 degrees from the bottom tread nosing shall be considered a hazardous location.

Exception: Glazing that is protected by a guard complying with Sections 1013 and 1607.8 where the plane of the glass is greater than 18 inches (457 mm) from the guard.

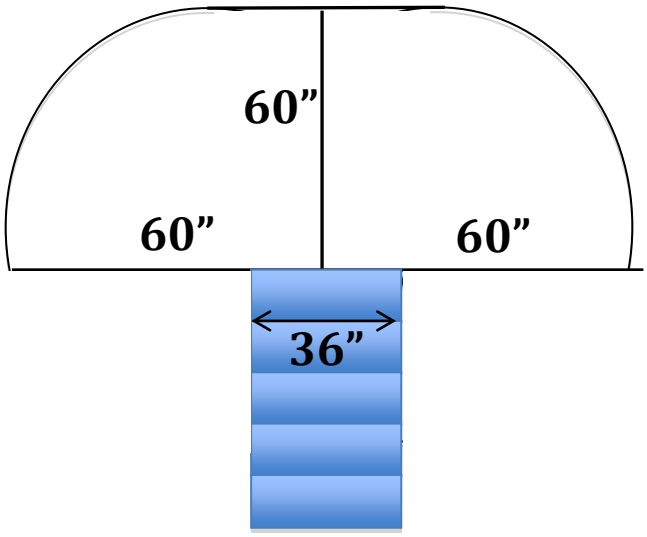
Commenter's Reason: This code change does not clarify the requirements for glazing adjacent to the bottom stair landing. The term arc is not necessary and an illustration in the reason could help clarify the intent of this revision.

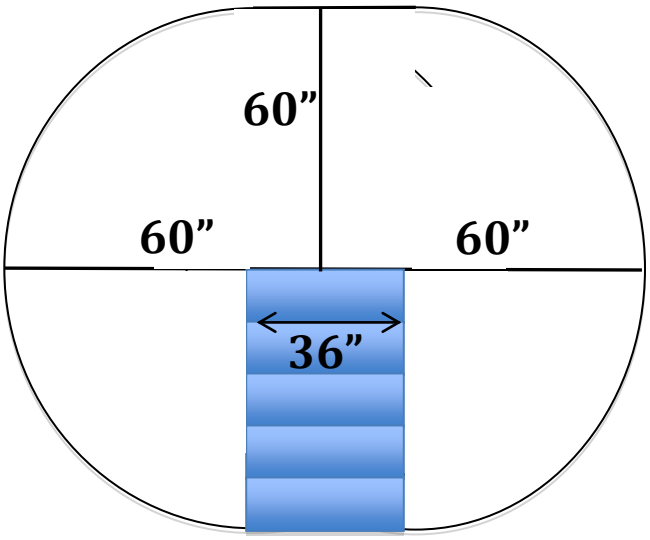
Previous editions of the IBC before the 2012 required glazing that is 60" horizontally in any direction to be approved safety glazing. It is not clear why this requirement was changed in the 2012. The previous editions had the additional wording "in any direction" when applying the 60" horizontal rule. This is due to the "splay" factor for when someone gets to the last tread and falls. The tendency is for someone to flail out in any direction.

This added wording will make this section only apply to any glazing that is in a wall that is less than 180 degrees from the bottom tread nosing. I believe that adding the wording which would limit the area needing safety glazing to any glazing that falls within a 180 degree arc from bottom tread nosing and extending out 60” makes more sense since it is extremely unlikely that someone will fall out and backwards. I have added an illustration which should help everyone see what this changed wording will do.

Please note that there is still a requirement to provide approved safety glazing when located within 36” horizontally of the sides of the stairs.

The new code language will incorporate the areas shown on the left diagram while the current code language covers the areas on the right diagram.





Final Hearing Results

S298-12 **AMPC**

Code Change No: S300-12

Original Proposal

Section(s): 2407.1, 2407.1.1

Proponent: Thomas S. Zaremba, Roetzel & Andress, representing Glazing Industry Code Committee (tzaremba@ralaw.com)

Revise as follows:

2407.1 Materials. Glass used ~~as~~ in a handrail ~~assembly~~ , guardrail or a *guard* section shall be laminated glass constructed of ~~either single fully tempered glass, laminated~~ fully tempered glass or ~~laminated~~ heat-strengthened glass and shall comply with Category II of CPSC 16 CFR Part 1201 or Class A of ANSI Z97.1. Glazing in railing in-fill panels shall be of an *approved* safety glazing material that conforms to the provisions of Section 2406.1.1. For all glazing types, the minimum nominal thickness shall be 1/4 inch (6.4 mm). ~~Fully tempered glass and laminated glass shall comply with Category II of CPSC 16 CFR Part 1201 or Class A of ANSI Z97.1.~~

Exception: Single fully tempered glass complying with Category II of CPSC 16 CFR Part 1201 or Class A of ANSI Z97.1 may be used in handrails and guardrails if there is no walking surface beneath them or the walking surface is permanently protected from the risk of falling glass.

2407.1.1 Loads. The panels and their support system shall be designed to withstand the loads specified in Section 1607.8. A ~~safety~~ design factor of four shall be used for safety.

Reason: Several recent incidents involving spontaneous breakage of fully tempered glass in handrail or guardrail systems on high rise balconies has prompted the Glazing Industry Code Committee to seek this change which, if adopted, will make mandatory the use of the retentive characteristics of laminated glass in these applications unless there is no walking surface below or it is permanently protected from falling glass, in which case, fully tempered glass meeting the safety criteria of Cat. II of CPSC 16 CFR 1201 or Class A of ANSI Z97.1 would be permitted. Additionally, the proposal adds the term "guardrail" to section 2407.1 since that term is also used in various locations throughout the I-codes in connection with these types of systems.

Finally, proposal changes Section 2407.1.1 are intended to make it clear that a "design" factor of four is required "for safety." The intent of this section is to use a "design" factor of four when determining the loads of these panels and their support systems. Using the word "safety" in the way it is currently found in this section is ambiguous and may or may not achieve the section's intended purpose.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Disapproval is due to confusing testimony on this code change. A cited incident was in an exterior guard yet the proposal would also affect interior installations. No documentation of failures was provided for committee review.

Assembly Action: **None**

Public Comment

Public Comment:

Thomas S. Zaremba, Roetzel & Andress, representing Glazing Industry Code Committee, requests Approval as Submitted.

Commenter's Reason: Starting last summer, panes of tempered glass in guard and handrail assemblies on balconies in 13 different buildings in Toronto and Montreal, Canada spontaneously broke dropping broken tempered glass onto the ground below. See photo below showing a broken tempered pane in a guardrail.

In June of this year, several tempered glass guard and handrail assemblies on balconies on a high rise hotel and residence in Austin, Texas spontaneously broke and fell to the ground.

In September of last year, several tempered glass guard and handrail assemblies on balconies in a Four Season's Hotel in Seattle, Washington spontaneously failed.

Fortunately, no one was injured in any of these events. However, they have resulted in the replacement of thousands of glass guard and handrail assemblies. The fully tempered glass assemblies that were originally installed are being replaced either with fully tempered laminated glass assemblies or heat strengthened laminated glass assemblies.

July 2012 - Broken tempered glass assembly 15th floor condo at 33 Mill Street, in Toronto.

S300-12 was submitted by the Glazing Industry Code Committee in direct response to these glass guard and handrail failures. While fully tempered glass is a safety glazing appropriate for use in many hazardous locations, it is not appropriate for use in guard and handrail assemblies unless it is laminated or walking surfaces below them are permanently protected from the risk of falling glass. If adopted, that is exactly what S300-12 would require.

At the hearings in Dallas, opponents testified that the cost of laminating glass guard and handrail assemblies would increase their cost and that, while the proposed change would apply to glass guard and handrail assemblies in both exterior and interior locations, Proponent failed to come forward with any specific evidence of an interior glass guard or handrail failure.

It is true that laminating glass used in guards and handrails will increase their cost. However, the increased cost is justified by the life safety issue addressed by S300-12, namely, the risk of unexpectedly being struck by falling glass from a fully tempered glass guard or handrail assembly located above a walking surface.

It is also true that Proponent did not come forward with any specific instances of interior failures. However, the cause of the failures at issue has nothing to do with whether the glass guards or handrails are located on the inside or on the outside of buildings.

Fully tempered glass on rare occasion may suffer spontaneous breakage due to nickel sulfide inclusions or other impurities in the glass which are undetectable when they are present. However, if they exist, they may cause fully tempered glass to spontaneously break at one point during its useful life. That breakage may occur sooner, later or not at all. In short, it has nothing to do with whether the glass is used inside or outside of the building.

If a pane of tempered glass in a guard or handrail does break spontaneously, the entire pane of tempered glass will fracture into many, small particles (typically less than the size of a dime), many of which may fall from the frame. The photo above shows a fractured pane of tempered glass where some of the particles had fallen from the opening. These particles can fall as individual particles or as clusters of loosely joined particles. If people happen to be standing or walking below a tempered glass guard or handrail when it spontaneously breaks, it is possible they may be hit by individual particles or clusters of broken glass.

If, on the other hand, a laminated pane of tempered or heat strengthened glass breaks, the plastic used to laminate the glass will tend to hold the broken pieces together so that they won't fall out of the frame. Other than lamination, the only other way to protect against the risk of falling glass from such installations is to require walking surfaces below the glass guards or handrails to be permanently protected from falling glass.

S300-12 presents a life safety issue. The glass industry constantly strives through the ICC code development process and otherwise to ensure that the "right glass is used in the right application." Fully tempered glass that is not laminated is not the right glass for use in guard and handrail locations unless any walking surface below it is permanently protected from the risk of falling glass.

The Glazing Industry Code Committee urges you to support the adoption of S300-12 as submitted. This will require you to vote against the standing motion to disapprove S300-12 and to vote in favor of a subsequent motion to approve S300-12 as submitted.

Final Hearing Results

S300-12 **AS**

Code Change No: S301-12

Original Proposal

Section(s): 2409, 2409.1 (NEW), Chapter 35 (NEW)

Proponent: Thomas S. Zaremba, Roetzel & Andress, representing Glazing Industry Code Committee (tzaremba@ralaw.com)

Revise as follows:

SECTION 2409
GLASS IN WALKWAYS, ELEVATOR HOISTWAYS AND ELEVATOR CARS

2409.1 Glass walkways. Glass installed as a part of a floor/ceiling assembly as a walking surface and constructed with laminated glass shall comply with ASTM E 2751-11, otherwise it shall comply with the load requirements specified in Chapter 16. Such assemblies shall also comply with the fire-resistance rating requirements of this code where applicable.

Add new standard to Chapter 35 as follows:

ASTM

E 2751 Standard Practice for Design and Performance of Supported Glass Walkways

Reason: : In the development cycle leading to the 2006 IBC, the Glazing Industry Code Committee ("GICC") asked this body to delete the glass walkway provisions found in Chapter 24 of the 2003 IBC. The reason for its request was that the glass walkway provisions found in the 2003 IBC used load requirements derived from ASTM E1300 and glass walkways are not within the scope of ASTM E1300. As a result, the glass walkway provisions of Chapter 24 were deleted from the 2006 IBC.

Since then, ASTM E2751-11 has been issued and specifically addresses load-bearing glass walkways constructed of laminated glass. If adopted, this new section 2409.1 would apply to glass walkways constructed of laminated glass, otherwise the load requirements of Chapter 16 would apply to glass walkways constructed of non-laminated glass, for example, walkways constructed using glass block.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of ASTM E 2751 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This proposal adds criteria for glass walkways to the IBC and includes an appropriate design standard.

Assembly Action: **None**

Final Hearing Results

S301-12 **AS**

Code Change No: S304-12 Part I

Original Proposal

Section(s): [A]110.3.5, 202, 2501.1.1, 2502.1, 2503.1, 2504, 2505, 2506 and 2508

Proponent: Michael Gardner, Gypsum Association (mgardner@gypsum.org)

THIS IS A TWO PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC ADMINISTRATION COMMITTEE. PART II WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE, AS TWO SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IBC ADMINISTATION

Revise as follows:

[A] 110.3.5 Lath, ~~and~~ gypsum board, and gypsum panel product inspection. Lath, ~~and~~ gypsum board and gypsum panel product inspections shall be made after lathing, ~~and~~ gypsum board, and gypsum panel products, interior and exterior, ~~is~~ are in place, but before any plastering is applied or gypsum board or gypsum panel product joints and fasteners are taped and finished.

> **Exception:** Gypsum board and gypsum panel products that ~~is~~ are not part of a fire resistance- rated assembly or a shear assembly.

Reason: This proposal inserts the term gypsum panel product in Chapter 25 where relevant. It also revises Section 110, which is referenced by Section 2503, adds a definition for gypsum panel products to Chapter 2, and revises the existing definition for gypsum board in Chapter 2.

Gypsum panel product is a term that was created by the gypsum manufacturing industry to describe gypsum sheet products that are manufactured unfaced or with a facing other than paper. Glass mat-faced and unfaced gypsum sheet materials are examples of gypsum panel products.

Some gypsum application standards referenced by the code, such as GA 216, ASTM C 840, and ASTM C 1280, are used to define application requirements for both board and panel products, a dual role that is not reflected in current code text. In addition, while the ASTM manufacturing standards for many gypsum panel products (ref. C 1278; C1178; C1658; C1177) were incorporated into Chapter 25 during the past decade, the general text of Chapter 25 was not updated to reflect the incorporation of the new standards. This proposal addresses both issues. It adds text to Table 2508.1 to indicate where the application standards may function as an application reference standard for either a board or a panel product, and it inserts the term gypsum panel product throughout the chapter where appropriate.

The definition for gypsum panel product proposed for Chapter 2 is extracted verbatim from ASTM International Standard C 11, *Standard Terminology Relating to Gypsum and Related Building Materials and Systems*.

The first sentence of the proposed revision to the current definition for gypsum board is extracted verbatim from the ASTM International Standard C 11 definition for gypsum board. The existing code text has been retained for clarity, notwithstanding a slight modification.

As a part of this proposal it is also suggested that the phrase “long length” should be removed from Section 2504.1.2. It appears to be extraneous text.

Following action on this proposal, other sections of the code requiring parallel modifications will be addressed in subsequent editions of the code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Errata: Revise as follows:

THIS IS A TWO PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

(Portions of code change not shown remain unchanged)

PART I – IBC ADMINISTRATION

Committee Action: **Approved as Submitted**

Committee Reason: This proposal provides consistent terminology throughout the code for gypsum products.

Assembly Action: **None**

Final Hearing Results

S304-12 Part I **AS**

Code Change No: S304-12 Part II

Original Proposal

Section(s): [A]110.3.5, 202, 2501.1.1, 2502.1, 2503.1, 2504, 2505, 2506 and 2508

Proponent: Michael Gardner, Gypsum Association (mgardner@gypsum.org)

THIS IS A TWO PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC ADMINISTRATION COMMITTEE. PART II WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE, AS TWO SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART II – IBC STRUCTURAL

Revise as follows:

GYPSUM BOARD. The generic name for a family of sheet products consisting of a noncombustible core primarily of gypsum with paper surfacing. Gypsum wallboard, gypsum sheathing, gypsum base for gypsum *veneer* plaster, exterior gypsum soffit board, predecorated gypsum board ~~or~~ and water-resistant gypsum backing board complying with the standards listed in Tables 2506.2, 2507.2 and Chapter 35 are types of gypsum board

Add new text as follows:

SECTION 202
DEFINITIONS

GYPSUM PANEL PRODUCT. The general name for a family of sheet products consisting essentially of gypsum.

Revise as follows:

CHAPTER 25
GYPSUM BOARD, GYPSUM PANEL PRODUCTS, AND PLASTER

2501.1.1 General. Provisions of this chapter shall govern the materials, design, construction and quality of gypsum board, gypsum panel products, lath, gypsum plaster and cement plaster.

2501.1.2 Performance. Lathing, plastering, ~~and~~ gypsum board, and gypsum panel product construction shall be done in the manner and with the materials specified in this chapter, and when required for fire protection, shall also comply with the provisions of Chapter 7.

2502.1 Definitions. For the purposes of this chapter and as used elsewhere in this code, the following terms are defined in Chapter 2:

GYPSUM PANEL PRODUCTS

2503.1 Inspection. Lath, ~~and~~ gypsum board, gypsum panel products shall be inspected in accordance with Section 110.3.5.

2504.1 Scope. The following requirements shall be met where construction involves gypsum board, gypsum panel products, or lath and plaster in vertical and horizontal assemblies.

2504.1.1 Wood framing. Wood supports for lath, ~~or~~ gypsum board, or gypsum panel products, as well as wood stripping or furring, shall not be less than 2 inches (51 mm) nominal thickness in the least dimension.

Exception: The minimum nominal dimension of wood furring strips installed over solid backing shall not be less than 1 inch by 2 inches (25 mm by 51 mm).

2504.1.2 Studless partitions. The minimum thickness of vertically erected studless solid plaster partitions of 3/8- inch (9.5 mm) and 3/4-inch (19.1 mm) rib metal lath or 1/2- inch thick (12.7 mm) ~~long-length~~ gypsum lath, ~~and~~ gypsum board, or gypsum panel product partitions shall be 2 inches (51 mm).

2505.1 Resistance to shear (wood framing). Wood-framed shear walls sheathed with gypsum board, gypsum panel products, or lath and plaster shall be designed and constructed in accordance with Section 2306.3 and are permitted to resist wind and seismic loads. Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7.

2505.2 Resistance to shear (steel framing). Cold-formed steel-framed shear walls sheathed with gypsum board or gypsum panel products, and constructed in accordance with the materials and provisions of Section 2211.6 are permitted to resist wind and seismic loads. Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7.

SECTION 2506
GYPSUM BOARD AND GYPSUM PANEL PRODUCT MATERIALS

2506.1 General. Gypsum board, ~~materials~~ gypsum panel products, and accessories shall be identified by the manufacturer's designation to indicate compliance with the appropriate standards referenced in this section and stored to protect such materials from the weather.

2506.2 Standards. Gypsum board ~~materials~~ and gypsum panel products shall conform to the appropriate standards listed in Table 2506.2 and Chapter 35 and, where required for fire protection, shall conform to the provisions of Chapter 7.

2508.1 General. Gypsum board, gypsum panel product, and gypsum plaster construction shall be of the materials listed in Tables 2506.2 and 2507.2. These materials shall be assembled and installed in compliance with the appropriate standards listed in Tables 2508.1 and 2511.1.1, and Chapter 35.

TABLE 2508.1
INSTALLATION OF GYPSUM CONSTRUCTION

MATERIAL	STANDARD
Gypsum board and gypsum panel products	GA-216; ASTM C 840
Gypsum sheathing and gypsum panel products	ASTM C 1280
Gypsum veneer base	ASTM C 844
Interior lathing and furring	ASTM C 841
Steel framing for gypsum boards and gypsum panel products	ASTM C 754; C 1007

2508.3 Single-ply application. Edges and ends of gypsum boards and gypsum panel products shall occur on the framing members, except those edges and ends that are perpendicular to the framing members. Edges and ends of gypsum boards and gypsum panel products shall be in moderate contact except in concealed spaces where fire-resistance rated construction, shear resistance or diaphragm action is not required.

2508.4 Joint treatment. Gypsum board and gypsum panel product fire-resistance-rated assemblies shall have joints and fasteners treated.

Exception: Joint and fastener treatment need not be provided where any of the following conditions occur:

1. Where the gypsum board or the gypsum panel product is to receive a decorative finish such as wood paneling, battens, acoustical finishes or any similar application that would be equivalent to joint treatment.
2. On single-layer systems where joints occur over wood framing members.
3. Square edge or tongue-and-groove edge gypsum board (V-edge), gypsum panel product, gypsum backing board or gypsum sheathing.
4. On multilayer systems where the joints of adjacent layers are offset from one to another.
5. Assemblies tested without joint treatment.

2508.5 Horizontal gypsum board or gypsum panel product diaphragm ceilings. Gypsum board or gypsum panel products shall be permitted to be used on wood joists to create a horizontal diaphragm ceiling in accordance with Table 2508.5.

2508.5.2 Installation. Gypsum board or gypsum panel products used in a horizontal diaphragm ceiling shall be installed perpendicular to ceiling framing members. End joints of adjacent courses of gypsum board shall not occur on the same joist.

2508.5.3 Blocking of perimeter edges. All perimeter edges shall be blocked using a wood member not less than 2-inch by 6-inch (51 mm by 159 mm) nominal dimension. Blocking material shall be installed flat over the top plate of the wall to provide a nailing surface not less than 2 inches (51 mm) in width for the attachment of the gypsum board or gypsum panel product.

2508.5.4 Fasteners. Fasteners used for the attachment of gypsum board or gypsum panel products to a horizontal diaphragm ceiling shall be as defined in Table 2508.5. Fasteners shall be spaced not more than 7 inches (178 mm) on center (o.c.) at all supports, including perimeter blocking, and not more than 3/8 inch (9.5 mm) from the edges and ends of the gypsum board or gypsum panel product.

2508.5.5 Lateral force restrictions. Gypsum board or gypsum panel products shall not be used in diaphragm ceilings to resist lateral forces imposed by masonry or concrete construction.

TABLE 2508.5
SHEAR CAPACITY FOR HORIZONTAL WOOD FRAMED GYPSUM BOARD DIAPHRAGM CEILING ASSEMBLIES

MATERIAL	THICKNESS OF MATERIAL	SPACING OF FRAMING MEMBERS	SHEAR VALUE	MINIMUM FASTENER SIZE
Gypsum board or gypsum panel product	*No change*	*No change*	*No change*	*No change*
Gypsum board or gypsum panel product	*No change*	*No change*	*No change*	*No change*

(Portions of Table not shown remain unchanged)

Reason: This proposal inserts the term gypsum panel product in Chapter 25 where relevant. It also revises Section 110, which is referenced by Section 2503, adds a definition for gypsum panel products to Chapter 2, and revises the existing definition for gypsum board in Chapter 2.

Gypsum panel product is a term that was created by the gypsum manufacturing industry to describe gypsum sheet products that are manufactured unfaced or with a facing other than paper. Glass mat-faced and unfaced gypsum sheet materials are examples of gypsum panel products.

Some gypsum application standards referenced by the code, such as GA 216, ASTM C 840, and ASTM C 1280, are used to define application requirements for both board and panel products, a dual role that is not reflected in current code text. In addition,

while the ASTM manufacturing standards for many gypsum panel products (ref. C 1278; C1178; C1658; C1177) were incorporated into Chapter 25 during the past decade, the general text of Chapter 25 was not updated to reflect the incorporation of the new standards. This proposal addresses both issues. It adds text to Table 2508.1 to indicate where the application standards may function as an application reference standard for either a board or a panel product, and it inserts the term gypsum panel product throughout the chapter where appropriate.

The definition for gypsum panel product proposed for Chapter 2 is extracted verbatim from ASTM International Standard C 11, *Standard Terminology Relating to Gypsum and Related Building Materials and Systems*.

The first sentence of the proposed revision to the current definition for gypsum board is extracted verbatim from the ASTM International Standard C 11 definition for gypsum board. The existing code text has been retained for clarity, notwithstanding a slight modification.

As a part of this proposal it is also suggested that the phrase “long length” should be removed from Section 2504.1.2. It appears to be extraneous text.

Following action on this proposal, other sections of the code requiring parallel modifications will be addressed in subsequent editions of the code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Errata: Revise as follows:

THIS IS A TWO PART CODE CHANGE. <u>BOTH PARTS WILL BE HEARD BY THE IBC STRUCTURAL COMMITTEE</u>. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

(Portions of code change not shown remain unchanged)

PART II – IBC STRUCTURAL
Committee Action: **Approved as Submitted**

Committee Reason: See reason for Part I.

Assembly Action: **None**

Final Hearing Results

S304-12 Part II AS

Code Change No: S305-12

Original Proposal

Section(s): 202, 2102.1 (New), 2502.1 (New)

Proponent: John Mulder, Intertek Testing Services NA, Inc., representing International Standards Organization Technical Committee 77, *Products in Fibre-reinforced Cement* and self

Revise as follows:

SECTION 202
DEFINITIONS

FIBER-CEMENT ~~SIDING~~ PRODUCTS. ~~A~~ Manufactured, ~~fiber-reinforcing product made with an inorganic hydraulic or calcium silicate binder formed by chemical reaction and reinforced with discrete organic or inorganic nonasbestos fibers, or both. Additives that enhance manufacturing or product performance are permitted.~~ thin section composites of hydraulic cementitious matrices and discrete non-asbestos fibers. Fiber-cement backer board products have either a smooth or textured face and are normally installed to wall or ceiling framing over which paint, wallpaper, resilient flooring, tile, natural stone or dimensioned stone *veneer* are applied. Fiber-cement underlayment products have either a smooth or textured face and are installed on a wood subfloor over which resilient flooring, tile, natural stone or dimensioned stone *veneer* are applied. Fiber-cement lap or panel siding, soffit, and trim products have either smooth or textured faces and are intended for *exterior wall* and related applications.

Add new text as follows:

2102.1 General. For the purposes of this chapter and as used elsewhere in this code, the following terms are defined in Chapter 2:

FIBER-CEMENT PRODUCTS

Add new text as follows:

2502.1 Definitions. The following terms are defined in Chapter 2:

FIBER-CEMENT PRODUCTS

Reason: The current definition is limited to fiber-cement siding products. The proposal corrects the definition to that published in ASTM C1154-06, *Standard Terminology for Non-Asbestos Fiber-reinforced Cement Products* (see attached copy of ASTM C1154-06), for "fiber-cement products". Additional text describes types of fiber-cement products to include also fiber-cement backer board, underlayment, soffit and trim products currently recognized in the Code (IBC Sections 1404.10, 1405.16, and 2509.2). The proposed code change eliminates a barrier to trade by including other fiber-cement products currently permitted by the Code.

A revision to Section 2103 (new Section 2103.15) is proposed to include "fiber-cement backer board and underlayment". The term "fiber-cement products" is proposed to be included in the definitions here consistent with the definition published in the Terminology Standard ASTM C1154-06, *Standard Terminology for Non-Asbestos Fiber-Reinforced Cement Products* (see attached Standard).

"Fiber-cement backer board is currently permitted for use in Section 2509.2. A new term is added to reference the permitted backer board material now defined in proposed new TABLE 2509.2, where all 3 permitted products are now listed and the proposed revision to Section 202 to include "fiber-cement products".

Cost Impact: The code change proposal will not increase the cost of construction because the change simply corrects the current definition to be consistent with the National Standard and provides examples of the types of products covered by the definition.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee felt the language proposed for the definition was confusing and the committee was not convinced on the need to change "fiber-cement siding" to "fiber-cement products".

Assembly Action: **None**

Public Comments

Public Comment:

John Mulder representing Intertek Testing Services NA, Inc. and self, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

FIBER-CEMENT (BACKER BOARD, SIDING, SOFFIT, TRIM, AND UNDERLAYMENT) PRODUCTS. ~~A~~ M~~m~~anufactured thin section composites of hydraulic cementitious matrices and discrete non-asbestos fibers.~~, fiber-reinforced products made with an inorganic hydraulic or calcium silicate binder formed by chemical reaction and reinforced with discrete organic or inorganic nonasbestos fibers, or both. Additives that enhance manufacturing or product performance are permitted.~~

Commenter's Reason: The current definition is limited to fiber-cement siding products. The proposal corrects the definition to that published in ASTM C1154-06, *Standard Terminology for Non-Asbestos Fiber-reinforced Cement Products* (see attached copy of ASTM C1154-06), for "fiber-cement products". Additional text describes types of fiber-cement products to include also fiber-cement backer board, soffit, trim and underlayment products currently recognized in the Code (IBC Sections 1404.10, 1405.16, Table 2304.7(4) a., and 2509.2). The proposed code change eliminates a barrier to trade by including other fiber-cement products currently permitted by the Code.

Cost Impact: The code change proposal will not increase the cost of construction because the change simply corrects the current definition to be consistent with the National Standard and provides examples of the types of products covered by the definition.

Final Hearing Results

S305-12 **AMPC**

Code Change No: S306-12

Original Proposal

Section(s): Table 2507.2, Chapter 35 (New)

Proponent: James K. Hicks, P.E., CeraTech, Inc., representing self

Revise as follows:

TABLE 2507.2
LATH, PLASTERING MATERIALS AND ACCESSORIES

MATERIAL	STANDARD
Hydraulic Cement	ASTM C 1157; C1600

(Portions of table not shown remain unchanged)

Add new standard to Chapter 35 as follows:

ASTM

C 1157-11 Standard Performance Specification for Hydraulic Cement
C 1600-11 Standard Specification for Rapid Hardening Hydraulic Cement

Reason: ASTM C 1157 Cements:

ASTM C 1157 and C 1600 cements are "Green Cements" in deference to other cements that take substantial amounts of energy and use primarily virgin materials.

More flexibility is gained by use of any of ASTM C 1157 and C 1600 cements due to their incorporating recovered materials in much of their production. They can be made by using portland cement in combination with ground granulated blast furnace slag, natural pozzolans or up to 95% fly ash in their production. These cements contrast with cements manufactured from mostly virgin materials and require significant amounts of fuel and electrical energy for their production. The above standards allow in excess of the minimum amounts of recycled materials listed in Sections 503.2 and 503.3. Having the specifications listed allows the specifier information to readily access those standards and provides for better flexibility than language allowed in the IBC.

ASTM C 1157 cements with types GU— Hydraulic cement for general construction, Type HE—High Early-Strength, Type MS—Moderate Sulfate Resistance, Type HS—High Sulfate Resistance, Type MH—Moderate Heat of Hydration, Type LH—Low Heat of Hydration can be specified. They are general counterparts for ASTM C 150 Standard Specification for Portland Cement Type I, Type III, Type II, Type V and Type II with the low heat of hydration option.

C 1600 Cements:

In addition to the above characteristics, for those instances wherein rapid hardening is desired, cements conforming to ASTM C 1600 Standard Specification for Rapid hardening Hydraulic Cements should be useable. ASTM C 1600 can be one of four cement types, General Rapid Hardening (GRH), Moderate Rapid Hardening (MRH), Very Rapid Hardening (VRH) and Ultra Rapid Hardening (URH).

C 1600 is a Specification giving numerous performance requirements. Primary characteristics (with inherent increased design flexibility) are:

- •Can produce rapid-hardening concrete, precast concrete, block, mortar and grout and is used in rapid hardening stuccos and plasters.
- •Depending on the type cement used and the specific mixture, cements meeting ASTM C 1600 can provide either normal, medium or fast time to service (1.5 to 48 h)
- •ASTM C 1600 has rigid durability requirements.

ASTM C 1600 cements are used in products such as:

- • Materials for Concrete Repairs
- •High Strength Grouts
- •Precast
- •Paving
- •Some Cements - Mass Concrete
- •Some Cements – Heat Resistant
- •Some Cements – Chemical Resistant

Cost Impact: Economic cost of plaster utilizing C 1157 cements may be equal or slightly lower than portland cement concrete due to their sometimes lower process and additive costs. Environmental costs are generally lower with C 1157 cements as fuel use is

generally less, costs of components may be less or with the case of activated fly ash based cements, no fuel is used and grinding is not required.

Economic cost of plaster utilizing C 1600 cements, while it may be approximately equal or higher when comparing cementitious to cementitious, is typically negligible for the concrete when considering the costs of other ingredients, transport, placement, finishing and curing.

Environmental costs are generally lower with C 1600 cements as fuel use is generally less, costs of components may be less or with the case of activated fly ash based cements, no fuel is used and grinding is not required.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of ASTM E 2751 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This code change adds new referenced standards on hydraulic cement that can be used in plastering applications.

Assembly Action: **None**

Final Hearing Results

S306-12 **AS**

Code Change No: S307-12

Original Proposal

Section(s): G103.4, G103.5, G103.6.1, G401.1

Proponent: John Mulder, Intertek Testing Services NA, Inc. representing International Standards Organization Technical Committee 77, *Products in Fibre-reinforced cement* and self

Revise as follows:

2509.2 Base for tile. ~~Glass mat water-resistant gypsum backing panels, discrete nonasbestos fiber-cement interior substrate sheets or nonasbestos fiber-mat reinforced cementitious backer units in compliance with ASTM C 1178, C 1288 or C 1325 and installed in accordance with manufacturer recommendations shall be~~ Materials used as a base for wall tile in tub and shower areas and wall and ceiling panels in shower areas shall be of materials listed in Table 2509.2 and installed in accordance with manufacturer recommendations. Water-resistant gypsum backing board shall be used as a base for tile in water closet compartment walls when installed in accordance with GA-216 or ASTM C 840 and manufacturer recommendations. Regular gypsum wallboard is permitted under tile or wall panels in other wall and ceiling areas when installed in accordance with GA-216 or ASTM C 840.

TABLE 2509.2
BACKERBOARD MATERIALS

MATERIAL	STANDARD
Glass mat gypsum backing panel	ASTM C1178
Nonasbestos fiber-cement backer board	ASTM C1288 or ISO 8336
Nonasbestos fiber mat reinforced cementitious backer unit	ASTM C1325

Add new standard to Chapter 35 as follows:

ISO

8336 Fibre-cement flat sheets -- Product specification and test methods

Reason: GYPSUM BOARD" IN SHOWER AND WATER CLOSETS misrepresents the materials permitted for use in this section, specifically fiber-reinforced cement backer board products. The text is revised to reference permitted backer board materials now defined in new TABLE 2509.2, where all 3 permitted products would now be listed. This revision also makes the addition of future recognized products to the Code easier by simple addition to the table.

Performance requirements of ISO 8336, *Fibre-cement flat sheets – Product specification and test methods*, have been harmonized with the performance requirements of ASTM C1288, *Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets*. Fiber-cement producers in Mexico, Central and South America, Europe, Asia, Australia and New Zealand currently manufacture and test their fiber-cement siding products for compliance with ISO 8336. The inclusion of this Standard reference in the IBC will permit manufacturers worldwide to demonstrate product compliance to IBC requirements. The addition of a reference to ISO 8336 in the Code removes a barrier to trade

Cost Impact: The code change proposal will not increase the cost of construction because the proposed code change is editorial in nature to better clarify and present the backer board products currently recognized in the Code.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of ISO 8336 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Modified**

Modify proposal as follows:

TABLE 2509.2
BACKERBOARD MATERIALS

MATERIAL	STANDARD
Glass mat gypsum backing panel	ASTM C 1178
Nonasbestos fiber-cement backer board	ASTM C 1288 or ISO 8336, Category C
Nonasbestos fiber mat reinforced cementitious backer unit	ASTM C 1325

(Portions of proposal not shown are unchanged)

Committee Reason: The committee agrees that the table for backerboard materials helps to clarify this code section. The proposal also adds an additional references standard. The modification identifies the specific product specification that must be met under this new standard.

Assembly Action: **None**

Final Hearing Results

S307-12 **AM**

Code Change No: S308-12

Original Proposal

Section(s): 2509.3

Proponent: Michael Gardner, Gypsum Association (mgardner@gypsum.org)

Revise as follows:

2509.3 Limitations. Water-resistant gypsum backing board shall not be used in the following locations:

1. Over a vapor retarder in shower or bathtub compartments.
2. Where there will be direct exposure to water or in areas subject to continuous high humidity.
3. ~~On ceilings where frame spacing exceeds 12 inches (305 mm) o.c. for 1/2 inch thick (12.7 mm) water-resistant gypsum backing board and more than 16 inches (406 mm) o.c. for 5/8 inch thick (15.9 mm) water-resistant gypsum backing board.~~

Reason: Concurrent language necessitating the addition of supplemental framing members when water-resistant ceiling board is installed on a ceiling has been or is being removed from the code-referenced gypsum board and panel application standards, GA-216 and ASTM C 840.

Testing has shown that water-resistant gypsum board, as presently manufactured, has better sag resistance than regular core board of the same thickness. As a consequence, the supplemental framing limitation is no longer necessary.

Cost Impact: The code change proposal will reduce the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee believes that there was no justification given for removing this provision for supplemental framing when installing water-resistant ceiling board.

Assembly Action: **None**

Public Comment

Public Comment:

Michael Gardner, representing Gypsum Association, requests Approval as Submitted

Commenter's Reason: The requirement to install supplemental framing when water-resistant gypsum board is applied to a ceiling was introduced into the Uniform Building Code many decades ago when the emulsions added during manufacturing to waterproof the core of the board were heavier in weight than those used today. The added weight of the emulsions led to concerns about board sag in an installed environment.

The water-resistive additives now used to manufacture water-resistant gypsum board are significantly lighter in weight. They also produce board with a stiffer core. As a consequence, contemporary water-resistant gypsum board is less susceptible to sag than its predecessor.

Both of the gypsum board application standards, ASTM C840 and GA-216, referenced by the IBC have been modified to eliminate any prescriptive requirements mandating the installation of supplemental framing support members when water-resistant gypsum board is applied to a ceiling. The ASTM C 840 standard is a consensus standard and reflects the input of manufacturers, contractors, and other interested parties. The intent of the original proposal is to make the IBC consistent with the referenced standards.

Both standard wallboard and water-resistant gypsum board are manufactured to the same standard, ASTM C1396. The humidified deflection and flexural strength tolerances for both products are identical. On the basis of the manufacturing standard, water-resistant gypsum board is no more susceptible to sag than is standard wallboard.

The supplemental framing requirement has historically been an often-overlooked catch-point for contractors and inspectors. It has become irrelevant and should be deleted from the code.

Final Hearing Results

S308-12 **AS**

Code Change No: S310-12

Original Proposal

Section(s): 2510.6, Chapter 35 (NEW)

Proponent: Theresa Weston, DuPont Building Innovation (theresa.a.weston@usa.dupont.com)

Revise as follows:

2510.6 Water-resistive barriers. *Water-resistive barrier*s shall be installed as required in Section 1404.2 and, where applied over wood-based sheathing, shall include a water-resistive vapor-permeable barrier with a performance at least equivalent to two layers of ~~Grade D paper~~ water-resistive barrier complying with ASTM E 2556 Type 1. The individual layers shall be installed independently such that each layer provides a separate continuous plane and any flashing (installed in accordance with Section 1405.4) intended to drain to the water-resistive barrier is directed between the layers.

Exception: Where the *water-resistive barrier* that is applied over wood-based sheathing has a water resistance equal to or greater than that of ~~60-minute Grade D paper~~ a water-resistive barrier complying with ASTM E 2556 Type II and is separated from the stucco by an intervening, substantially nonwater-absorbing layer or drainage space.

Add new standard to Chapter 35 as follows:

ASTM

E 2556 - Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment

Reason: The proposal updates the water-resistive barrier reference to the most recent consensus standard. ASTM E2556 includes house wrap materials, building papers and felt, instead of just building paper and therefore is more representative of the state of the industry. Within ASTM E2556 Grade D paper is a Type I WRB and 60 minute Grade D paper is a Type II WRB. ASTM E2556 is consistent with the current ICC-ES acceptance criteria for water-resistive barriers (AC-38) and therefore should not limit the use of current WRBs.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, [IBC] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Note: For staff analysis of the content of ASTM E 2751 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org:8888/cs/codes/Documents/2012-13cycle/Proposed-A/00a_updates.pdf

Committee Action: **Approved as Submitted**

Committee Reason: This proposal replaces Grade D paper which is not defined with a new material referenced standard which will clarify Section 2510.6. The committee concluded that this is strictly a material issue and that the reference to chapter 14 takes care of installation and performance required for a weather-resistive barrier.

Assembly Action: **None**

Final Hearing Results

S310-12 **AS**

Code Change No: S318-12

Original Proposal

Section(s): G1001.4

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net).

Revise as follows:

G1001.4 Enclosures below design flood elevation. Fully enclosed areas below the design flood elevation shall be ~~at or above grade on all sides and conform to the following:~~ constructed in accordance with ASCE 24.

~~1. In *flood hazard areas* not subject to high-velocity wave action, enclosed areas shall have flood openings to allow for the automatic inflow and outflow of floodwaters.~~
~~2. In *flood hazard areas* subject to high-velocity wave action, enclosed areas shall have walls below the design flood elevation that are designed to break away or collapse from a water load less than that which would occur during the design flood, without causing collapse, displacement or other structural damage to the building or structure~~.

Reason: ASCE 24 includes requirements for enclosures below elevated buildings that vary based on flood zone. Referencing ASCE 24 eliminates the need to make coordinating changes if ASCE 24 changes in the future.

ASCE began the process of updating ASCE 24-05 in early 2011 and the next edition is expected to be published late 2012 or early 2013. The ASCE committee expects to have the near-final draft prepared and available at least a month before the Group A hearings and copies will be provided to the ICC committee.

Cost Impact: The code change proposal will not increase the cost of construction. Utility and miscellaneous group U buildings with enclosures should already be required to meet the requirements for enclosures.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal removes requirements for enclosures below design flood elevation and replaces them with reference to ASCE 24.

Assembly Action: **None**

Final Hearing Results

S318-12 **AS**

Code Change No: S319-12

Original Proposal

Section(s): G102.1

Proponent: John Mulder, Intertek Testing Services NA, Inc., representing International Standards Organization Technical Committee 77, *Products in Fibre-reinforced Cement* and self

Revise as follows:

SECTION 202
DEFINITIONS

FIBER-CEMENT ~~SIDING~~ PRODUCTS. ~~A~~ Manufactured, ~~fiber-reinforcing product made with an inorganic hydraulic or calcium silicate binder formed by chemical reaction and reinforced with discrete organic or inorganic nonasbestos fibers, or both. Additives that enhance manufacturing or product performance are permitted.~~ thin section composites of hydraulic cementitious matrices and discrete non-asbestos fibers. Fiber-cement backer board products have either a smooth or textured face and are normally installed to wall or ceiling framing over which paint, wallpaper, resilient flooring, tile, natural stone or dimensioned stone *veneer* are applied. Fiber-cement underlayment products have either a smooth or textured face and are installed on a wood subfloor over which resilient flooring, tile, natural stone or dimensioned stone *veneer* are applied. Fiber-cement lap or panel siding, soffit, and trim products have either smooth or textured faces and are intended for *exterior wall* and related applications.

Add new text as follows:

2102.1 General. For the purposes of this chapter and as used elsewhere in this code, the following terms are defined in Chapter 2:

FIBER-CEMENT PRODUCTS

Add new text as follows:

2502.1 Definitions. The following terms are defined in Chapter 2:

FIBER-CEMENT PRODUCTS

Reason: The current definition is limited to fiber-cement siding products. The proposal corrects the definition to that published in ASTM C1154-06, *Standard Terminology for Non-Asbestos Fiber-reinforced Cement Products* (see attached copy of ASTM C1154-06), for "fiber-cement products". Additional text describes types of fiber-cement products to include also fiber-cement backer board, underlayment, soffit and trim products currently recognized in the Code (IBC Sections 1404.10, 1405.16, and 2509.2). The proposed code change eliminates a barrier to trade by including other fiber-cement products currently permitted by the Code.

A revision to Section 2103 (new Section 2103.15) is proposed to include "fiber-cement backer board and underlayment". The term "fiber-cement products" is proposed to be included in the definitions here consistent with the definition published in the Terminology Standard ASTM C1154-06, *Standard Terminology for Non-Asbestos Fiber-Reinforced Cement Products* (see attached Standard).

"Fiber-cement backer board is currently permitted for use in Section 2509.2. A new term is added to reference the permitted backer board material now defined in proposed new TABLE 2509.2, where all 3 permitted products are now listed and the proposed revision to Section 202 to include "fiber-cement products".

Cost Impact: The code change proposal will not increase the cost of construction because the change simply corrects the current definition to be consistent with the National Standard and provides examples of the types of products covered by the definition.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change aligns the IBC appendix with FEMA requirements and ASE 24. It also clarifies the appendix by coordinating the wording of Section G102.1 with the remainder of the appendix.

Assembly Action: **None**

Public Comments

Public Comment:

Jonathan Siu, City of Seattle Department of Planning & Development requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

~~**G102.1 General.** This appendix, in conjunction with the *International Building Code*, provides minimum requirements for development located in flood hazard areas, including the subdivision of land; site improvements and installation of utilities; placement and replacement of manufactured homes; placement of recreational vehicles; new construction and repair, reconstruction, rehabilitation or additions to new construction; substantial improvement of existing buildings and structures, including restoration after damage, installation of tanks; temporary structures, and temporary or permanent storage, utility and miscellaneous Group U buildings and structures, and certain building work exempt from permit under Section 105.2 and other buildings and development activities.~~

G102.1 General. This appendix, in conjunction with the *International Building Code*, provides minimum requirements for development located in flood hazard areas, including:

1. The subdivision of land;
2. Site improvements and installation of utilities;
3. Placement and replacement of manufactured homes;
4. Placement of recreational vehicles;
5. New construction and repair, reconstruction, rehabilitation or additions to new construction;
6. Substantial improvement of existing buildings and structures, including restoration after damage;
7. Installation of tanks;
8. Temporary structures;
9. Temporary or permanent storage, utility and miscellaneous Group U buildings and structures; and
10. Certain building work exempt from permit under Section 105.2 and other buildings and development activities.

Commenter's Reason: The purpose of this public comment is to reformat the list of activities within the scope of this appendix in to a bullet list. This makes the section more readable and easier to understand. No technical changes are made—the text in the bullet list is taken verbatim from the existing text in the code, and includes the additional items approved by the Structural Committee in Dallas.

Final Hearing Results

S319-12 **AMPC**

Code Change No: S320-12

Original Proposal

Section(s): G103.1

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Revise as follows:

G103.1 Permit applications. All applications for permits must comply with the following

1. The *building official* shall review all *permit* applications to determine whether proposed development ~~sites will be reasonably safe from flooding~~ are located in flood hazard areas established in Section G102.2.
2. If a proposed development site is in a flood hazard area, ~~all site development activities (including grading, filling, utility installation and drainage modification), all new construction and substantial improvements (including the placement of prefabricated buildings and manufactured homes) and certain building work exempt from *permit* under Section 105.2~~ all development to which this appendix is applicable as specified in Section G102.1 shall be designed and constructed with methods, practices and materials that minimize flood damage and that are in accordance with this code and ASCE 24.

Reason: This proposal clarifies that the first step is to determine whether proposed development activities are locate in (or out) of the mapped flood hazard area. The second item is simplified; rather than restate the long list of development activities, it is clearer to refer to the list that is already present in G102.1.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Agreement with the proponent's reason which indicates that this proposal the requirements for permit applications.

Assembly Action: **None**

Final Hearing Results

S320-12 **AS**

Code Change No: S321-12

Original Proposal

Section(s): G103.4, G103.5, G103.6.1, G401.1

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net).

Revise as follows:

G103.4 Activities in riverine flood hazard areas. In riverine *flood hazard areas* where *design flood elevations* are specified but *floodways* have not been designated, the *building official* shall not permit any new construction, substantial improvement or other development, including fill, unless the applicant submits an engineering analysis prepared and sealed by a registered design professional, that demonstrates that the cumulative effect of the proposed development, when combined with all other existing and anticipated flood hazard area encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the community.

G103.5 Floodway encroachment. Prior to issuing a *permit* for any *floodway* encroachment, including fill, new construction, substantial improvements and other development or land-disturbing activity, the *building official* shall require submission of a certification, sealed by a registered design professional, along with supporting technical data, that demonstrates that such development will not cause any increase of the level of the base *flood*.

G103.6.1 Engineering analysis. The *building official* shall require submission of an engineering analysis, prepared and sealed by a registered professional, which demonstrates that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased. Such watercourses shall be maintained in a manner which preserves the channel's flood-carrying capacity.

G103.7 Alterations in coastal areas. Prior to issuing a permit for any alteration of sand dunes and mangrove stands in flood hazard areas subject to high velocity wave action, the *building official* shall require submission of an engineering analysis, prepared and sealed by a registered design professional, which demonstrates that the proposed alteration will not increase the potential for flood damage.

G401.1 Development in floodways. Development or land disturbing activity shall not be authorized in the *floodway* unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice, and prepared and sealed by a registered design professional, that the proposed encroachment will not result in any increase in the level of the base *flood*.

Reason: The analyses referred to in these sections are prepared by engineers. The building official is not expected to have the experience or qualifications to determine whether such analyses were properly prepared. Specifying that the work has to be prepared and sealed by an RDP puts the burden on the RDP to meet standards of practice for these analyses. This requirement is consistent with the NFIP and the same requirement should already appear in local floodplain management regulations.

Cost Impact: The code change proposal will not increase the cost of construction. This requirement is consistent with the NFIP and the same requirement should already appear in local floodplain management regulations.

Public Hearing Results

Errata: Revise as follows:

G103.6.1 Engineering analysis. The *building official* shall require submission of an engineering analysis, prepared and sealed by a registered design professional, which demonstrates that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased. Such watercourses shall be maintained in a manner which preserves the channel's flood-carrying capacity.

(Portions of proposal not shown are unchanged)

Committee Action: **Approved as Modified**

Modify proposal as follows:

G103.4 Activities in riverine flood hazard areas. In riverine *flood hazard areas* where *design flood elevations* are specified but *floodways* have not been designated, the *building official* shall not permit any new construction, substantial improvement or other development, including fill, unless the applicant submits an engineering analysis prepared ~~and sealed~~ by a registered design professional, that demonstrates that the cumulative effect of the proposed development, when combined with all other existing and anticipated flood hazard area encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the community.

G103.5 Floodway encroachment. Prior to issuing a *permit* for any *floodway* encroachment, including fill, new construction, substantial improvements and other development or land-disturbing activity, the *building official* shall require submission of a certification, ~~sealed~~ prepared by a registered design professional, along with supporting technical data, that demonstrates that such development will not cause any increase of the level of the base *flood*.

G103.6.1 Engineering analysis. The *building official* shall require submission of an engineering analysis, prepared ~~and sealed~~ by a registered design professional, which demonstrates that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased. Such watercourses shall be maintained in a manner which preserves the channel's flood-carrying capacity.

G103.7 Alterations in coastal areas. Prior to issuing a permit for any alteration of sand dunes and mangrove stands in flood hazard areas subject to high velocity wave action, the *building official* shall require submission of an engineering analysis, prepared ~~and sealed~~ by a registered design professional, which demonstrates that the proposed alteration will not increase the potential for flood damage.

G401.1 Development in floodways. Development or land disturbing activity shall not be authorized in the *floodway* unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice, and prepared ~~and sealed~~ by a registered design professional, that the proposed encroachment will not result in any increase in the level of the base *flood*.

Committee Reason: This code change clarifies what documents must be prepared by a registered deign professional. The modification removes the requirement to seal these documents as that should be as required by state regulations.

Assembly Action: **None**

Final Hearing Results

S321-12 **AM**

Code Change No: S322-12

Original Proposal

Section(s): G103.8 (New)

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Add new text as follows:

G103.8 Inspections. Development for which a permit under this appendix is required shall be subject to inspection. The building official or the building official's designee shall make or cause to be made, inspections of all development in flood hazard areas authorized by issuance of a permit under this appendix.

Reason: Just as the code requires inspection of permitted buildings, this appendix should require inspection of all other development in flood hazard areas for which permits are issued.

Cost Impact: The code change proposal will not increase the cost of construction. Inspection of non-building development that is permitted in flood hazard areas should already be performed by communities that participate in the NFIP.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal adds a provision that provides the authority for the building official to perform the necessary inspections that are required by Appendix G.

Assembly Action: **None**

Final Hearing Results

S322-12 **AS**

Code Change No: S324-12

Original Proposal

Section(s): G104.2

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Revise as follows:

G104.2 Application for permit. The applicant shall file an application in writing on a form furnished by the *building official*. Such application shall:

1. Identify and describe the development to be covered by the permit.
2. Describe the land on which the proposed development is to be conducted by legal description, street address or similar description that will readily identify and definitely locate the site.
3. Include a site plan showing the delineation of flood hazard areas, floodway boundaries, flood zones, design flood elevations, ground elevations, proposed fill and excavation and drainage patterns and facilities.
4. Include in subdivision proposals and other proposed developments with more than 50 lots or larger than 5 acres, base flood elevation data in accordance with to Section 1612.3.1 if such data are not identified for the flood hazard areas established in Section G102.2.
4~~5~~5. Indicate the use and occupancy for which the proposed development is intended.
5~~6~~6. Be accompanied by construction documents, grading and filling plans and other information deemed appropriate by the building official.
6~~7~~7. State the valuation of the proposed work.
7~~8~~8. Be signed by the applicant or the applicant's authorized agent.

Reason: Appendix G includes requirements for subdivisions which is consistent with the NFIP requirement un federal regulation (44 CFR 60.3(b)(3)). If proposals for larger developments and subdivisions are affected by flood hazard areas shown on FIRMs, but the areas do not have base flood elevations, the requirement is that elevations have to be developed. Section 1612.3.1 allows use of data available from other sources, or authorizes the building official to require such information be developed by the applicant.

Cost Impact: The code change proposal will not increase the cost of construction. This should already be required by communities that participate in the NFIP

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change clarifies the permit requirements for large subdivisions.

Assembly Action: **None**

Final Hearing Results

S324-12 **AS**

Code Change No: S325-12

Original Proposal

Section(s): G501 (NEW)

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Add new text as follows:

G501.4 Protection of mechanical equipment and outside appliances. Mechanical equipment and outside appliances shall be elevated to or above the design flood elevation.

Exception. Where such equipment and appliances are designed and installed to prevent water from entering or accumulating within their components and the systems are constructed to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to the elevation required by Section 1612, the systems and equipment shall be permitted to be located below the elevation required by Section 1612. Electrical wiring systems shall be permitted below the design flood elevation provided they conform to the provisions of NFPA 70.

Reason: This language comes from G1001.6. Adding this does not create a new requirement because the NFIP requires that the same code requirements for equipment and appliances associated with buildings in flood hazard areas also apply to equipment and appliances associated with manufactured homes.. FEMA guidance is found in *Protecting Manufactured Homes from Floods and Other Hazards* (FEMA P-85, issued November 2009).

Cost Impact: The code change proposal will not increase the cost of construction. Elevation or protection of equipment and appliances is already a requirement for communities that participate in the NFIP

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

G501.4 Protection of mechanical equipment and outside appliances. Mechanical equipment and outside appliances shall be elevated to or above the design flood elevation.

Exception. Where such equipment and appliances are designed and installed to prevent water from entering or accumulating within their components and the systems are constructed to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to the elevation required by Section ~~1612~~ R322 of the *International Residential Code,* the systems and equipment shall be permitted to be located below the elevation required by Section ~~1612~~ R322 of the *International Residential Code*. Electrical wiring systems shall be permitted below the design flood elevation provided they conform to the provisions of NFPA 70.

G501.2 Foundations. All new and replacement manufactured homes, including substantial improvement of existing manufactured homes, shall be placed on a permanent, reinforced foundation that is designed in accordance with Section ~~1612~~ R322 of the *International Residential Code*.

Committee Reason: This proposal adds protection requirements for mechanical equipment in flood areas. The modification substitutes an IRC reference which is considered more appropriate for the provisions dealing with manufactured homes.

Assembly Action: **None**

Final Hearing Results

S325-12 **AM**

Code Change No: S326-12

Original Proposal

Section(s): G501.4 (NEW)

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Add new text as follows:

G501.4 Enclosures. Fully enclosed areas below elevated manufactured homes shall comply with the requirements of Section 1612.

Reason: Adding this does not create a new requirement because the NFIP and local floodplain management ordinances require that the same requirements for enclosed areas below elevated buildings also apply to enclosures under elevated manufactured homes (Section 1612 refers to ASCE 24 for specific requirements, which vary based on flood zone). FEMA guidance is found in *Protecting Manufactured Homes from Floods and Other Hazards* (FEMA P-85, issued November 2009).

Cost Impact: The code change proposal will not increase the cost of construction. Already a requirement for communities that participate in the NFIP.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

G501.4 Enclosures. Fully enclosed areas below elevated manufactured homes shall comply with the requirements of Section ~~1612~~ R322 of the *International Residential Code*.

Committee Reason: This proposal adds performance requirements for enclosed areas below manufactured homes. The modification substitutes an IRC reference which is considered more appropriate for the provisions dealing with manufactured homes.

Assembly Action: **None**

Final Hearing Results

S326-12 **AM**

Code Change No: S327-12

Original Proposal

Section(s): G701.1 (NEW)

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net).

Delete and substitute as follows:

~~**G701.1 Underground tanks.** Underground tanks in *flood hazard areas* shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the design *flood*.~~

~~**G701.2 Above-ground tanks.** Above-ground tanks in flood hazard areas shall be elevated to or above the design *flood* elevation or shall be anchored or otherwise designed and constructed to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the design *flood*.~~

~~**G701.3 Tank inlets and vents.** In *flood hazard areas*, tank inlets, fill openings, outlets and vents shall be:~~

~~1. At or above the design flood elevation or fitted with covers designed to prevent the inflow of floodwater or outflow of the contents of the tanks during conditions of the design *flood*.~~
~~2. Anchored to prevent lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the design *flood*.~~

G701.1 Tanks. Underground and above-ground tanks shall be designed, constructed, installed and anchored in accordance with ASCE 24.

Reason: ASCE 24 contains both performance requirements for tanks and the limitations based on flood zone. This proposal references ASCE 24, rather than replicate those requirements in Appendix G, thus eliminating the need to make coordinating changes if ASCE 24 changes in the future.

ASCE began the process of updating ASCE 24-05 in early 2011 and the next edition is expected to be published late 2012 or early 2013. The ASCE committee expects to have the near-final draft prepared and available at least a month before the Group A hearings and copies will be provided to the ICC committee.

Cost Impact: The code change proposal will not increase the cost of construction. Tanks in flood hazard areas are already regulated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change will reference ASCE 24 for tanks thus reducing redundant code requirements and eliminating the need for further coordination.

Assembly Action: **None**

Final Hearing Results

S327-12 **AS**

Code Change No: S328-12

Original Proposal

Section(s): G801.1

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Revise as follows:

G801.1 ~~Detached~~ Garages and accessory structures. ~~Detached accessory structures shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of bouyancy, during conditions of the design *flood*. Fully enclosed accessory structures shall have flood openings to allow for the automatic entry and exit of *flood* waters~~. Garages and accessory structures shall be designed and constructed in accordance with ASCE 24.

Reason: ASCE 24 contains requirements garages and accessory structures that allow them to be constructed without meeting the elevation requirements, provided certain other requirements are met. Those requirements are, in part, based on flood zone. This proposal references ASCE 24, rather than replicate those requirements in Appendix G, thus eliminating the need to make coordinating changes if ASCE 24 changes in the future.

ASCE began the process of updating ASCE 24-05 in early 2011 and the next edition is expected to be published late 2012 or early 2013. The ASCE committee expects to have the near-final draft prepared and available at least a month before the Group A hearings and copies will be provided to the ICC committee.

Cost Impact: The code change proposal will not increase the cost of construction. Garaged and accessory structures in flood hazard areas are development and thus are already regulated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Consistency with the action of S327-12.

Assembly Action: **None**

Final Hearing Results

S328-12 **AS**

Code Change No: S329-12

Original Proposal

Section(s): G801.5

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Revise as follows:

G801.5 Swimming pools. ~~Prefabricated swimming pools~~ Swimming pools shall be designed and constructed in accordance with ASCE 24. Above-ground swimming pools, on-ground swimming pools, and in-ground swimming pools that involve placement of fill in *floodways* shall also meet the requirements of Section G103.5.

Reason: ASCE 24-05 includes requirements for pools which vary by flood zone. The next edition of ASCE 24 will more distinctly clarify requirements for pools in different flood zones. Referencing ASCE 24 eliminates the need to make coordinating changes in the future.

ASCE began the process of updating ASCE 24-05 in early 2011 and the next edition is expected to be published late 2012 or early 2013. The ASCE committee expects to have the near-final draft prepared and available at least a month before the Group A hearings and copies will be provided to the ICC committee.

Cost Impact: The code change proposal will not increase the cost of construction. Pools in flood hazard areas are development and thus are already regulated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Consistency with the action of S327-12.

Assembly Action: **None**

Final Hearing Results

S329-12 **AS**

Code Change No: S330-12

Original Proposal

Section(s): G801.6 (New)

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Add new text as follow:

G801.6 Decks, porches, and patios. Decks, porches and patios shall be designed and constructed in accordance with ASCE 24.

Reason: ASCE 24 includes requirements for decks, porches, and patios which vary by flood zone. Referencing ASCE 24 eliminates the need to make coordinating changes if ASCE 24 changes in the future.

ASCE began the process of updating ASCE 24-05 in early 2011 and the next edition is expected to be published late 2012 or early 2013. The ASCE committee expects to have the near-final draft prepared and available at least a month before the Group A hearings and copies will be provided to the ICC committee.

Cost Impact: The code change proposal will not increase the cost of construction. Decks, porches, and patios in flood hazard areas are development and thus are already regulated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change includes requirements for decks, porches and patios by referencing ASCE 24.

Assembly Action: **None**

Final Hearing Results

S330-12 AS

Code Change No: S331-12

Original Proposal

Section(s): G801.6 (New)

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Add new text as follows:

G801.6 Non-structural concrete slabs in coastal high hazard areas and coastal A zones. In coastal high hazard areas and coastal A zones, non-structural concrete slabs used as parking pads, enclosure floors, landings, decks, walkways, patios and similar nonstructural uses are permitted beneath or adjacent to buildings and structures provided the concrete slabs shall be constructed in accordance with ASCE 24

Reason: ASCE 24 includes requirements for nonstructural slabs, which vary by flood zone. Referencing ASCE 24 eliminates the need to make coordinating changes if ASCE 24 changes in the future.

ASCE began the process of updating ASCE 24-05 in early 2011 and the next edition is expected to be published late 2012 or early 2013. The ASCE committee expects to have the near-final draft prepared and available at least a month before the Group A hearings and copies will be provided to the ICC committee.

Cost Impact: The code change proposal will not increase the cost of construction. Non-structural concrete slabs in flood hazard areas are development and thus are already regulated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change includes requirements for non-structural concrete slabs by referencing ASCE 24.

Assembly Action: **None**

Final Hearing Results

S331-12 **AS**

Code Change No: S332-12

Original Proposal

Section(s): G801.6 (New)

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Add new text as follows:

G801.6 Roads and watercourse crossings in regulated floodways. Roads and watercourse crossings that encroach into regulated floodways, including roads, bridges, culverts, low-water crossings and similar means for vehicles or pedestrians to travel from one side of a watercourse to the other side, shall meet the requirement of Section G103.5.

Reason: The NFIP requires communities to regulate all development. The concern with roads and other crossings is whether they encroach into floodways. Floodway encroachments may cause increases in flood elevations which can increase flooding on other properties and increase the extend of mapped special flood hazard areas.

Cost Impact: The code change proposal will not increase the cost of construction. Waterway crossings are development and thus are already regulated.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This code change includes requirements for road and watercourse crossings and cross-references the appropriate floodway requirements in Appendix G.

Assembly Action: **None**

Final Hearing Results

S332-12	**AS**

Code Change No: S333-12

Original Proposal

Section(s): G901.1

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Revise as follows:

G901.1 Temporary structures. Temporary structures shall be erected for a period of less than 180 days. Temporary structures shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the design *flood*. Fully enclosed temporary structures shall have flood openings that are in accordance with ASCE 24 to allow for the automatic entry and exit of floodwaters.

Reason: Without the reference to ASCE 24, neither the applicant nor the building official has enough specificity to determine whether flood openings are compliant.

Cost Impact: The code change proposal will not increase the cost of construction. Consistent with FEMA guidance for temporary structures that are walled and roofed.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal adds a reference to the criteria that must be used for determining compliance of flood openings.

Assembly Action: **None**

Final Hearing Results

S333-12 **AS**

Code Change No: S334-12

Original Proposal

Section(s): J101.2

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net).

Revise as follows:

G103.4 Activities in riverine flood hazard areas. In riverine *flood hazard areas* where *design flood elevations* are specified but *floodways* have not been designated, the *building official* shall not permit any new construction, substantial improvement or other development, including fill, unless the applicant submits an engineering analysis prepared and sealed by a registered design professional, that demonstrates that the cumulative effect of the proposed development, when combined with all other existing and anticipated flood hazard area encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the community.

G103.5 Floodway encroachment. Prior to issuing a *permit* for any *floodway* encroachment, including fill, new construction, substantial improvements and other development or land-disturbing activity, the *building official* shall require submission of a certification, sealed by a registered design professional, along with supporting technical data, that demonstrates that such development will not cause any increase of the level of the base *flood*.

G103.6.1 Engineering analysis. The *building official* shall require submission of an engineering analysis, prepared and sealed by a registered professional, which demonstrates that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased. Such watercourses shall be maintained in a manner which preserves the channel's flood-carrying capacity.

G103.7 Alterations in coastal areas. Prior to issuing a permit for any alteration of sand dunes and mangrove stands in flood hazard areas subject to high velocity wave action, the *building official* shall require submission of an engineering analysis, prepared and sealed by a registered design professional, which demonstrates that the proposed alteration will not increase the potential for flood damage.

G401.1 Development in floodways. Development or land disturbing activity shall not be authorized in the *floodway* unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice, and prepared and sealed by a registered design professional, that the proposed encroachment will not result in any increase in the level of the base *flood*.

Reason: The analyses referred to in these sections are prepared by engineers. The building official is not expected to have the experience or qualifications to determine whether such analyses were properly prepared. Specifying that the work has to be prepared and sealed by an RDP puts the burden on the RDP to meet standards of practice for these analyses. This requirement is consistent with the NFIP and the same requirement should already appear in local floodplain management regulations.

Cost Impact: The code change proposal will not increase the cost of construction. This requirement is consistent with the NFIP and the same requirement should already appear in local floodplain management regulations.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify proposal as follows:

J101.2 Flood hazard areas. Unless the applicant has submitted an engineering analysis, prepared in accordance with standard engineering practice~~, and sealed~~ by a registered design professional, that demonstrates the proposed work will not result in any increase in the level of the base flood, grading, excavation and earthwork construction, including fills and embankments, shall not be permitted in *floodways* within *flood hazard areas* established in Section 1612.3 or in *flood hazard areas* where design *flood* elevations are specified but floodways have not been designated.

Committee Reason: Consistency with committee's prior approvals on flood criteria. The modification removes the requirement to seal these documents as that should be as required by state regulations.

Assembly Action: **None**

Final Hearing Results

S334-12 **AM**

Code Change No: S340-12

Original Proposal

Section(s): 1905.1.9, 1905.1.10

Proponent: John Ingargiola and Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (john.ingargiola@dhs.gov, gregory.p.wilson@dhs.gov) and Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net).

Revise as follows:

G103.4 Activities in riverine flood hazard areas. In riverine *flood hazard areas* where *design flood elevations* are specified but *floodways* have not been designated, the *building official* shall not permit any new construction, substantial improvement or other development, including fill, unless the applicant submits an engineering analysis prepared and sealed by a registered design professional, that demonstrates that the cumulative effect of the proposed development, when combined with all other existing and anticipated flood hazard area encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the community.

G103.5 Floodway encroachment. Prior to issuing a *permit* for any *floodway* encroachment, including fill, new construction, substantial improvements and other development or land-disturbing activity, the *building official* shall require submission of a certification, sealed by a registered design professional, along with supporting technical data, that demonstrates that such development will not cause any increase of the level of the base *flood*.

G103.6.1 Engineering analysis. The *building official* shall require submission of an engineering analysis, prepared and sealed by a registered professional, which demonstrates that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased. Such watercourses shall be maintained in a manner which preserves the channel's flood-carrying capacity.

G103.7 Alterations in coastal areas. Prior to issuing a permit for any alteration of sand dunes and mangrove stands in flood hazard areas subject to high velocity wave action, the *building official* shall require submission of an engineering analysis, prepared and sealed by a registered design professional, which demonstrates that the proposed alteration will not increase the potential for flood damage.

G401.1 Development in floodways. Development or land disturbing activity shall not be authorized in the *floodway* unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice, and prepared and sealed by a registered design professional, that the proposed encroachment will not result in any increase in the level of the base *flood*.

Reason: The analyses referred to in these sections are prepared by engineers. The building official is not expected to have the experience or qualifications to determine whether such analyses were properly prepared. Specifying that the work has to be prepared and sealed by an RDP puts the burden on the RDP to meet standards of practice for these analyses. This requirement is consistent with the NFIP and the same requirement should already appear in local floodplain management regulations.

Cost Impact: The code change proposal will not increase the cost of construction. This requirement is consistent with the NFIP and the same requirement should already appear in local floodplain management regulations.

Public Hearing Results

Errata: The following code change was contained in the Updates to the 2012 Proposed Changes posted on the ICC website. Please go to http://www.iccsafe.org/cs/codes/Pages/12-13-ProposedChanges-A.aspx

1905.1.9, 1905.1.10

Proponent: S. K. Ghosh, Ph.D., S. K. Ghosh Associates Inc.

Revise as follows:

1905.1.9 ACI 318, Section D.3.3. ~~Delete ACI 318 Sections D.3.3.4 through D.3.3.7 and replace with the following:~~ Modify ACI 318 Sections D.3.3.4.2 and D.3.3.5.2 to read as follows:

~~*D.3.3.4 - The anchor design strength associated with concrete failure modes shall be taken as 0.75ϕNn and 0.75ϕVn, where ϕ is given in D4.3 or D4.4 and Nn and Vn are determined in accordance with D5.2, D5.3, D5.4, D6.2 and D6.3, assuming the concrete is cracked unless it can be demonstrated that the concrete remains uncracked.*~~

~~*D.3.3.5 - Anchors shall be designed to be governed by the steel strength of a ductile steel element as determined in accordance with D.5.1 and D.6.1, unless either D.3.3.6 or D.3.3.7 is satisfied.*~~

D.3.3.4.2 - Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance with D.3.3.4.3. The anchor design tensile strength shall be determined in accordance with D.3.3.4.4

Exceptions:

1. *Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 need not satisfy Section ~~D.3.3.5~~ D.3.3.4.3.*
2. *Anchors in concrete designed to support nonstructural components in accordance with ASCE 7 Section 13.4.2 need not satisfy Section D.3.3.4.3.*

D.3.3.5.2 – Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with D.3.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with D.6.

Exceptions:

~~2~~1. *D.3.3.5.3 need not apply and the design shear strength in accordance with D.6.2.1(c) need not be computed for anchor bolts attaching wood sill plates of bearing or non-bearing walls of light-frame wood structures to foundations or foundation stem walls provided all of the following are satisfied:*
   ~~2.1~~1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AF&PA NDS Table 11E for lateral design values parallel to grain.
   ~~2.2~~ 1.2. The maximum anchor nominal diameter is $^5/_8$ inches (16 mm).
   ~~2.3~~ 1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).
   ~~2.4~~ 1.4. Anchor bolts are located a minimum of $1^3/_4$ inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.
   ~~2.5~~ 1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.
   ~~2.6~~ 1.6. The sill plate is 2-inch or 3-inch nominal thickness.

~~3~~ 2. *Section D.3.3.5.3 need not apply and the design shear strength in accordance with Section D.6.2.1(c) need not be computed for anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of light-frame construction to foundations or foundation stem walls provided all of the following are satisfied:*
   ~~3.1~~ 2.1. The maximum anchor nominal diameter is $^5/_8$ inches (16 mm).
   ~~3.2~~ 2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).
   ~~3.3~~ 2.3. Anchors are located a minimum of $1^3/_4$ inches (45 mm) from the edge of the concrete parallel to the length of the track.
   ~~3.4~~ 2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.
   ~~3.5~~ 2.5. The track is 33 to 68 mil designation thickness.

Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.

~~*4. In light-frame construction, design of anchors in concrete shall be permitted to satisfy D.3.3.8.*~~

~~*D.3.3.6 - Instead of D.3.3.5, the attachment that the anchor is connecting to the structure shall be designed so that the attachment will undergo ductile yielding at a force level corresponding to anchor forces no greater than the design strength of anchors specified*~~

~~*in D.3.3.4.*~~

~~Exceptions:~~

1. ~~*1*~~ *3. Anchors in concrete designed to support nonstructural components in accordance with ASCE 7 Section 13.4.2 need not satisfy Section ~~D.3.3.6~~ D.3.3.5.3.*
2. ~~*2. Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 need not satisfy Section D.3.3.6.*~~

~~*D.3.3.7 - As an alternative to D.3.3.5 and D.3.3.6, it shall be permitted to take the design strength of the anchors as 0.4 times the design strength determined in accordance with D.3.3.4.*~~

~~*D.3.3.8 —*~~ *4. In light-frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to 1 inch [25 mm] in diameter ~~of~~ connecting sill plate or track to foundation or foundation stem wall need not satisfy ~~D.3.3.7~~ D.3.3.5.3 when the design strength of the anchors is determined in accordance with D.6.2.1(c).*

1905.1.10 ACI 318, Section D.4.2.2. Delete ACI 318, Section D.4.2.2, and replace with the following:

~~*D.4.2.2 - The concrete breakout strength requirements for anchors in tension shall be considered satisfied by the design procedure of D.5.2 provided Equation D-7 is not used for anchor embedments exceeding 25 inches. The concrete breakout strength requirements for anchors in shear with diameters not exceeding 2 inches shall be considered satisfied by the design procedure of D.6.2. For anchors in shear with diameters exceeding 2 inches, shear anchor reinforcement shall be provided in accordance with the procedures of D.6.2.9.*~~

D.4.2.2 — For anchors with diameters not exceeding 4 in., the concrete breakout strength requirements shall be considered satisfied by the design procedure of D.5.2 and D.6.2. *For anchors in shear with diameters exceeding 4 inches, shear anchor reinforcement shall be provided in accordance with the procedures of D.6.2.9.*

Reason: The proposed change revises Chapter 19 of the 2012 IBC so that it is consistent with ACI 318-11. Although 2012 IBC Chapter 35 references ACI 318-11, the text in 2012 IBC Chapter 19 erroneously reflects modifications to ACI 318-08. This code change is absolutely critical if the 2015 IBC continues to reference ACI 318-11.

Items 1 and 2 make Sections 1905.1.9 and 1905.1.10 consistent with Appendix D of ACI 318-11, which has undergone significant changes from Appendix D of ACI 318-08.

Cost Impact: The proposed change should have a positive impact on the cost of design by removing confusion resulting from the current inconsistency between 2012 IBC Chapter 19 and ACI 318-11, the standard referenced by that chapter.

Committee Action: Approved as Modified

Modify proposal as follows:

1905.1.9 ACI 318, Section D.3.3. Modify ACI 318 Sections D.3.3.4.2, D3.3.4.3(d) and D.3.3.5.2 to read as follows:

D.3.3.4.2 - Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance with D.3.3.4.3. The anchor design tensile strength shall be determined in accordance with D.3.3.4.4

Exception~~s~~:

1. ~~*1.*~~ *Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 ~~need not~~ shall be deemed to satisfy Section D.3.3.4.3(d).*
2. ~~*2. Anchors in concrete designed to support nonstructural components in accordance with ASCE 7 Section 13.4.2 need not satisfy Section D.3.3.4.3.*~~

D.3.3.4.3(d) – The anchor or group of anchors shall be designed for the maximum tension obtained from design load combinations that include **E**, with **E** increased by Ω_0. The anchor design tensile strength shall *be calculated from D.3.3.4.4.*

D.3.3.5.2 – Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with D.3.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with D.6.

Exceptions:

1. ~~*D.3.3.5.3 need not apply and the design shear strength in accordance with D.6.2.1(c) need not be computed*~~ *For the calculation of the in-plane shear strength of anchor bolts attaching wood sill plates of bearing or non-bearing walls of light-frame wood structures to foundations or foundation stem walls, the in-plane shear strength in accordance with D.6.2 and D.6.3 need not be computed and D.3.3.5.3 shall be deemed to be satisfied provided all of the following are ~~satisfied~~ met:*

1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AF&PA NDS Table 11E for lateral design values parallel to grain.
1.2. The maximum anchor nominal diameter is $^5/_8$ inches (16 mm).
1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).
1.4. Anchor bolts are located a minimum of $1^3/_4$ inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.
1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.
1.6. The sill plate is 2-inch or 3-inch nominal thickness.

2. ~~*Section D.3.3.5.3 need not apply and the design shear strength in accordance with Section D.6.2.1(c) need not be computed*~~ *For* *the calculation of the in-plane shear strength of* *anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of light-frame construction to foundations or foundation stem walls*, *the in-plane shear strength in accordance with D.6.2 and D.6.3 need not be computed and D.3.3.5.3 shall be deemed to be satisfied* *provided all of the following are* ~~*satisfied*~~ *met:*
2.1. The maximum anchor nominal diameter is $^5/_8$ inches (16 mm).
2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).
2.3. Anchors are located a minimum of $1^3/_4$ inches (45 mm) from the edge of the concrete parallel to the length of the track.
2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.
2.5. The track is 33 to 68 mil designation thickness.

Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.

~~*3. Anchors in concrete designed to support nonstructural components in accordance with ASCE 7 Section 13.4.2 need not satisfy Section D.3.3.5.3.*~~

~~*4*~~ *3.* *In light-frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to 1 inch [25 mm] in diameter* ~~*connecting*~~ *of sill plate or track to foundation or foundation stem wall need not satisfy D.3.3.5.3(a) through (c) when the design strength of the anchors is determined in accordance with D.6.2.1(c).*

~~**1905.1.10 ACI 318, Section D.4.2.2.** Delete ACI 318, Section D.4.2.2, and replace with the following:~~

~~D.4.2.2 — For anchors with diameters not exceeding 4 in., the concrete breakout strength requirements shall be considered satisfied by the design procedure of D.5.2 and D.6.2. *For anchors in shear with diameters exceeding 4 inches, shear anchor reinforcement shall be provided in accordance with the procedures of D.6.2.9.*~~

Committee Reason: This code change fixes broken links, by coordinating these modifications to concrete anchorage provisions with the 2011 edition of ACI 318. The modification represents industry consensus between the various competing code change proposals dealing with concrete anchorage.

Assembly Action: **None**

Final Hearing Results

S340-12 **AM**

Code Change No: F43-13 Part III

Original Proposal

Section(s): IFC 505.1; IBC [F] 501.2; IPMC [F] 304.3; IRC R319.1

THIS IS A 4 PART CODE CHANGE. PARTS I THROUGH III WILL BE HEARD BY THE IFC CODE DEVELOPMENT COMMITTEE. PART IV WILL BE HEARD BY THE IRC B/E CODE DEVELOPMENT COMMITTEE. ALL 4 PARTS WILL BE HEARD AS SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azumiamia@yahoo.com)

PART III – INTERNATIONAL PROPERTY MAINTENANCE CODE

Revise as follows:

[F] 304.3 ~~Premises~~ Address identification. Buildings shall ~~have~~ be provided with approved address ~~numbers~~ identification. The address identification shall be legible and placed in a position to be ~~plainly legible and~~ visible from the street or road fronting the property. ~~These numbers~~ Address identification characters shall contrast with their background. Address numbers shall be Arabic numerals ~~or alphabet letters~~. Numbers shall not be spelled out. ~~Numbers~~ Each character shall be a minimum of 4 inches (102 mm) in height with a minimum stroke width of 0.5 inch (12.7 mm). Where required by the fire code official, address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. Address identification shall be maintained.

Reason: When the address numbers are difficult to find, read or identify, the result is a delay in the emergency response, whether it be for fire, medical assistance, or law enforcement. Address numbers which are spelled out in alpha characters, add to this difficultly in quickly responding to emergency situations.

This proposal will require that the address numbers are numeric and clearly identifiable. There are correlating sections in the IBC, IFC, IPMC and IRC with regard to address identification.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

PART III – IPMC
Committee Action: **Approved as Modified**

Modify the proposal as follows:

[F] 304.3 Address identification. Buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position to be visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numerals or alphabetical letters. Numbers shall not be spelled out. Each character shall be a minimum of 4 inches (102 mm) in height with a minimum stroke width of 0.5 inch (12.7 mm). Where required by the fire code official, address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. Address identification shall be maintained.

Committee Reason: The committee agreed with the proponent that the code change brings uniformity to the subject across the codes and clarifies the intent of the section. The modification retains the alphabetical letters to give the code official more flexibility in dealing with existing buildings that may have been addressed with letters years ago.

Assembly Action: **None**

Final Hearing Results

F43-13 Part III **AM**

Code Change No: F53-13

Original Proposal

Section(s): 604.1 (IBC [F] 2702.1), 202

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

604.1 (IBC [F] 2702.1) ~~Installation~~ General. Emergency power systems and standby power systems ~~required by this code or the *International Building Code* shall be installed in accordance with this code, NFPA 110 and NFPA 111. Existing installations shall be maintained in accordance with the original approval.~~ shall comply with Sections 604.1.1 through 604.1.7 (IBC [F] 2702.1.1 through [F] 2702.1.6).

604.1.1 (IBC [F] 2702.1.1) Stationary generators. Stationary emergency and standby power generators required by this code shall be *listed* in accordance with UL 2200.

604.1.2 (IBC [F] 2702.1.2) Electrical. Emergency power systems and standby power systems shall be installed in accordance with NFPA 70, NFPA 110 and NFPA 111.

604.1.3 (IBC [F] 2702.1.3) Load transfer. Emergency power systems shall automatically provide secondary power within 10 seconds after primary power is lost, unless specified otherwise in this code. Standby power systems shall automatically provide secondary power within 60 seconds after primary power is lost unless specified otherwise in this code.

604.1.4 (IBC [F] 2702.1.4) Load duration. Emergency power systems and standby power systems shall be designed to provide the required power for a minimum duration of two hours without being refueled or recharged, unless specified otherwise in this code.

604.1.5 (IBC [F] 2702.1.5) Uninterruptable power source. An uninterrupted source of power shall be provided for equipment when required by the manufacturer's instructions, the listing, this code, or applicable referenced standards.

604.1.6 (IBC [F] 2702.1.6) Interchangeability. Emergency power systems shall be an acceptable alternative for installations that require standby power systems.

604.1.7 Maintenance. Existing installations shall be maintained in accordance with the original approval and Section 604.3.

Add new text as follows:

SECTION 202
DEFINITIONS

EMERGENCY POWER SYSTEM. A source of automatic electric power of a required capacity and duration to operate required life safety, fire alarm, detection and ventilation systems in the event of a failure of the primary power. Emergency power systems are required for electrical loads where interruption of the primary power could result in loss of human life or serious injuries.

STANDBY POWER SYSTEM. A source of automatic electric power of a required capacity and duration to operate required building, hazardous materials or ventilation systems in the event of a failure of the primary power. Standby power systems are required for electrical loads where interruption of the primary power could create hazards or hamper rescue or fire-fighting operations.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

The requirements for emergency and standby power system are not treated in a consistent manner in the I-codes. This is one of several proposals designed to add consistency to these requirements. This proposal accomplishes the following:

1. Introduces definitions for emergency power systems and standby power systems that are consistent with definitions in NFPA 110 and NFPA 111.
2. Provides definitive requirements for maximum load transfer times. Emergency power systems must automatically transfer loads within 10 seconds after primary power is lost and standby power systems must automatically transfer loads within 60 seconds after primary power is lost. These times are allowed to vary if so specified in the code
3. To properly design emergency and standby power systems the minimum load duration must be known. This proposal introduces a default minimum two hour duration for systems unless another load duration is specified.
4. Uninterruptible power sources must be provided if required by the manufacturer's instructions, the listing, the code, or applicable referenced standards, such as NFPA 72.
5. A new section clarifies that an emergency power system can be provided to power loads for equipment that requires a standby power source.

Cost Impact: This code change will not increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Modified**

Modify the proposal as follows:

604.1.2 (IBC [F] 2702.1.2) ~~Electrical.~~ Installation. Emergency power systems and standby power systems required by this code or the *International Building Code* shall be installed in accordance with the *International Building Code*, NFPA 70, NFPA 110 and NFPA 111.

(Portions of the proposal not shown remain unchanged.)

Committee Reason: The committee approved the code change based on the proponent's reason statement and agreed that the proposal provides needed definitions and brings clarity to the emergency and standby power requirements. The modifications clarify which systems are included and also provide an important link to IBC flood plain, structural, etc. requirements.

Assembly Action: **None**

Final Hearing Results

F53-13 **AM**

Code Change No: F57-13

Original Proposal

Section(s): 604.3 (New) [IBC [F] 2702.3 (New)]; Chapter 80 (IBC Chapter 35)

Proponent: Bob Eugene, representing Underwriters Laboratories (Robert.Eugene@ul.com)

Add new text as follows:

604.3 (IBC [F] 2702.3) Critical circuits. Cables used for survivability of critical circuits shall be listed in accordance with UL 2196. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

(Renumber subsequent sections)

Add new standard to Chapter 80 (IBC Chapter 35) as follows:

UL

2196-2001 Tests for Fire Resistive Cables, with revisions through December 7, 2003...604.3 (2703.2)

Reason: UL 2196 is the ANSI approved standard for tests of fire resistive cables. NFPA 20 (fire pumps) and NFPA 72 (fire alarm) include selective survivability requirements to assure integrity of certain critical circuits. NFPA 70 does not specify the applicable standard within the mandatory provisions of the code, but recognizes electrical circuit protective systems as an alternate to listed cables. An electrical circuit protective system is a field assembly of components that must be installed according to the listing requirements and manufacturer's instructions in order to maintain the listing for the system. There are more than two dozen electrical circuit protective systems listed in the UL Fire Resistance Directory.

Cost Impact: The code change proposal may or may not increase the cost of construction. Such systems are already commonly installed.

Public Hearing Results

For staff analysis of the content of UL2196-2001 relative to CP#28, Section 3.6, please visit:
http://www.iccsafe.org/cs/codes/Documents/2012-2014Cycle/Proposed-B/ProposedStandards.pdf

Committee Action: **Approved as Modified**

Modify the proposal as follows:

604.3 (IBC [F] 2702.3) Critical circuits. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

(Portions of the proposal not shown remain unchanged.)

Committee Reason: The committee agreed with the proponent's reason statement that the code change
Brings needed clarity regarding critical circuits and provides correlation with similar language used in many referenced standards, including NFPA 20, 70 and 72. Though the committee expressed some concern that the term "critical circuits" is not defined, it was pointed out that the phrase is widely used and described throughout nationally recognized standards and industry practices. The modification clarifies that the requirement only applies to required critical circuits.

Assembly Action: **None**

Public Comments

Public Comment 1:

Bob Eugene, representing UL LLC, requests Approval as Modified by Public Comment.

Further modify the proposal as follows:

UL	Underwriters Laboratories	
Standard Reference Number	**Title**	**Referenced in Code Section Number**
2196-2001	Tests for Fire Resistive Cables, with revisions through ~~December 7, 2003~~ March 2012	604.3 (2703.2)

(Portions of proposal not shown remain unchanged)

Commenter's Reason: This proposal was originally submitted with the Group A proposals, but held over for the Group B proposals. The revisions to the standard, including ANSI approval, occurred after the original submittal and should be included in the 2015 edition of the codes.

Analysis: The edition of UL2196 that was submitted for review by the IFC Committee included the revisions through March, 2012. For the staff analysis of the content of this standard, please visit: http://www.iccsafe.org/cs/codes/Documents/2012-2014Cycle/Proposed-B/ProposedStandards.pdf

Public Comment 2:

Marcelo M. Hirschler, (GBH International), requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

SECTION 202
GENERAL DEFINITIONS

Add new definition as follows:

CRITICAL CIRCUIT. A **c**ircuit that requires continuous operation to ensure safety of the structure and occupants.

(Portions of proposal not shown remain unchanged.)

Commenter's Reason: During the proposal stage an issue was raised by the committee that the term "critical circuit" is not defined. This proposed definition is based on the definitions in section 645.2 and 708.2 of the National Electrical Code (NFPA 70), which read as shown below. Article 645 deals with Information Technology Equipment and article 708 deals with Critical Operations Power Systems.

> **645.2: Critical Operations Data System.** An information technology equipment system that requires continuous operation for reasons of public safety, emergency management, national security, or business continuity.
>
> **708.2: Critical Operations Power Systems (COPS).** Power systems for facilities or parts of facilities that require continuous operation for the reasons of public safety, emergency management, national security, or business continuity.

The National Electrical Code also states, in article 725 that:

> **Circuit Integrity (CI) Cable.** Cable(s) used for remote control, signaling, or power-limited systems that supply critical circuits to ensure survivability for continued circuit operation for a specified time under fire conditions.
>
> **Circuit Integrity (CI) Cable or Electrical Circuit Protective System.** Cables used for survivability of critical circuits shall be listed as circuit integrity (CI) cable. Cables specified in 725.154(A), (B), (D)(1), and (E), and used for circuit integrity, shall have the additional classification using the suffix "-CI". Cables that are part of a listed electrical circuit protective system shall be considered to meet the requirements of survivability.

Informational Note: One method of defining *circuit integrity* is by establishing a minimum 2-hour fire resistance rating when tested in accordance with UL 2196-2002, *Standard for Tests of Fire Resistive Cables*.

The same concept is shown in several articles, including 760, 770 and 800.

Final Hearing Results

F57-13 **AMPC1, 2**

Code Change No: F59-13 Part I

Original Proposal

Section(s): 604 (IBC [F] 2702) among others; 907.5.2.2.5 (IBC [F] 907.5.2.2.5); IMC [F] 513.11, [F] 513.11.1 (New); IWUIC 404.10.3; IEBC 805.4.5

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IFC COMMITTEE AND PART II WILL BE HEARD BY THE IEBC COMMITTEE AS TWO SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THOSE COMMITTEES.

PART I – INTERNATIONAL FIRE CODE

EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 402.7.3 Emergency ~~Standby~~ power. *Covered mall buildings* greater than 50,000 square feet (4645 m2) in area and *open mall buildings* greater than 50,000 square feet (4645 m2) within the established perimeter line shall be provided with ~~standby~~ emergency power ~~systems~~ that is ~~are~~ capable of operating the *emergency voice/alarm communication system* in accordance with Section 2702.

[F] 907.5.2.2.5 Emergency power. Emergency voice/alarm communications systems shall be provided with ~~an *approved*~~ emergency power ~~source~~ in accordance with Section 2702. The system shall be capable of powering the required load for a duration of not less than 24 hours, as required in NFPA 72.

[F] ~~2702.2.1 Group A occupancies.~~ ~~Emergency power shall be provided for emergency voice/alarm communication systems in Group A occupancies in accordance with Section 907.5.2.2.4.~~

[F] ~~2702.2.14 Covered and open mall buildings.~~ ~~Standby power shall be provided for voice/alarm communication systems in *covered and open mall buildings* in accordance with Section 402.7.3.~~

[F] 2702.2.1 Emergency voice/alarm communication systems. Emergency power shall be provided for emergency voice/alarm communication systems as required in Section 907.5.2.2.5. The system shall be capable of powering the required load for a duration of not less than 24 hours, as required in NFPA 72.

Revise the IFC as follows:

~~604.2.1 Group A occupancies.~~ ~~Emergency power shall be provided for emergency voice/alarm communication systems in Group A occupancies in accordance with Section 907.2.1.1.~~

~~604.2.13 Covered and open mall buildings.~~ ~~Covered mall buildings exceeding 50,000 square feet (4645 m2) and open mall buildings exceeding 50,000 square feet (4645 m2) within the established perimeter line shall be provided with standby power systems that are capable of operating the emergency voice/alarm communication system.~~

604.2.1 Emergency voice/alarm communication systems. Emergency power shall be provided for emergency voice/alarm communication systems as required in Section 907.5.2.2.5. 5. The system shall be capable of powering the required load for a duration of not less than 24 hours, as required in NFPA 72.

907.5.2.2.5 Emergency power. Emergency voice/alarm communications systems shall be provided with ~~an *approved*~~ emergency power ~~source~~ in accordance with Section 604. The system shall be capable of powering the required load for a duration of not less than 24 hours, as required in NFPA 72.

SMOKE CONTROL SYSTEMS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 404.7 Standby power. Equipment required to provide smoke control shall be provided with standby power in accordance with ~~connected to a standby power system in accordance with~~ Section 909.11.

[F] 909.11 Standby power ~~Power systems.~~ ~~The~~ ~~s~~Smoke control systems shall be provided with standby power in accordance with Section 2702. ~~shall be supplied with two sources of power. Primary power shall be from the normal building power systems. Secondary power shall be from an approved standby source complying with Chapter 27 of this code.~~

[F] 909.11.1 Equipment room. The standby power source and its transfer switches shall be in a room separate from the normal power transformers and switch gears and ventilated directly to and from the exterior. The room shall be enclosed with not less than 1-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. ~~The transfer to full standby power shall be automatic and within 60 seconds of failure of the primary power.~~

909.20.6.2 Standby power. Mechanical vestibule and *stair* shaft ventilation systems and automatic fire detection systems shall be provided with ~~powered by an *approved*~~ standby power in accordance with Section 2702. ~~system conforming to Section 403.4.8 and Chapter 27.~~

909.21.5 Standby power. The pressurization system shall be provided with standby power in accordance with Section 2702. ~~from the same source as other required emergency systems for the building.~~

[F] 2702.2.2 Smoke control systems. Standby power shall be provided for smoke control systems as required in ~~in accordance with~~ Sections 404.7, 909.11, 909.20.6.2, and 909.21.5.

[F] ~~2702.2.20 Smokeproof enclosures.~~ ~~Standby power shall be provided for smokeproof enclosures as required by~~ in ~~Section 909.20.6.2.~~

Revise the IFC as follows:

604.2.2 Smoke control systems. Standby power shall be provided for smoke control systems as required in ~~in accordance with~~ Section 909.11.

909.11 Standby power ~~Power systems.~~ ~~The~~ ~~s~~Smoke control systems shall be provided with standby power in accordance with Section 2702. ~~shall be supplied with two sources of power. Primary power shall be from the normal building power systems. Secondary power shall be from an approved standby source complying with Chapter 27 of this code.~~

909.11.1 Equipment room. The standby power source and its transfer switches shall be in a room separate from the normal power transformers and switch gears and ventilated directly to and from the exterior. The room shall be enclosed with not less than 1-hour *fire barriers* constructed in accordance with

Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. ~~The transfer to full standby power shall be automatic and within 60 seconds of failure of the primary power.~~

Revise the IMC as follows:

[F] 513.11 Power systems. ~~The s~~Smoke control system shall be supplied with standby power in accordance with Section 2702 of the International Building Code. ~~two sources of power. Primary power shall be the normal building power systems. Secondary power shall be from an *approved* standby source complying with Chapter 27 of the *International Building Code*.~~

[F] 513.11.1 Equipment room. The standby power source and its transfer switches shall be in a room separate from the normal power transformers and switch gear and ventilated directly to and from the exterior. The room shall be enclosed with not less than 1-hour fire-resistance rated fire barriers constructed in accordance with Section 707 of the *International Building Code* or horizontal assemblies constructed in accordance with Section 711 of the *International Building Code*, or both. Power distribution from the two sources shall be by independent routes. ~~Transfer to full standby power shall be automatic and within 60 seconds of failure of the primary power. The systems shall comply with NFPA 70.~~

EXIT SIGNS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 2702.2.3 Exit signs. Emergency power shall be provided for *exit* signs as required in ~~in accordance with~~ Section 1011.6.3. The system shall be capable of powering the required load for a duration of not less than 90 minutes.

Revise the IFC as follows:

604.2.3 Exit signs. Emergency power shall be provided for *exit* signs as required in ~~in accordance with~~ Section 1011.6.3. The system shall be capable of powering the required load for a duration of not less than 90 minutes.

MEANS OF EGRESS ILLUMINATION

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 2702.2.4 Means of egress illumination. Emergency power shall be provided for *means of egress* illumination as required in ~~in accordance with~~ Section 1006.3. The system shall be capable of powering the required load for a duration of not less than 90 minutes.

Revise the IFC as follows:

604.2.4 Means of egress illumination. Emergency power shall be provided for *means of egress* illumination in accordance with Sections 1006.3 and 1104.5.1.

1104.5.1 Emergency power duration and installation. Emergency power for means of egress illumination shall be provided in accordance with Section 604. In other than Group I-2, ~~the~~ emergency power ~~system shall provide power~~ shall be provided for not less than 60 minutes. ~~and consist of storage batteries, unit equipment or an on-site generator.~~ In Group I-2, ~~the~~ emergency power ~~system shall provide~~

~~power~~ shall be provided for not less than 90 minutes. ~~and consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Section 604.~~

ELEVATORS AND PLATFORM LIFTS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 2702.2.5 Elevators and platform lifts. Standby power shall be provided for elevators and platform lifts as required in Sections 1007.4, 1007.5, 3003.1, 3007.9 and 3008.9.

[F] ~~2702.2.5 Accessible means of egress elevators.~~ ~~Standby power shall be provided for elevators that are part of an *accessible means of egress* in accordance with Section 1007.4.~~

[F] ~~2702.2.6 Accessible means of egress platform lifts.~~ ~~Standby power in accordance with this section or ASME A 18.1 shall be provided for platform lifts that are part of an *accessible means of egress* in accordance with Section 1007.5.~~

[F] ~~2702.2.19 Elevators.~~ ~~Standby power for elevators shall be provided as set forth in Sections 3003.1, 3007.9 and 3008.9.~~

Revise the IFC as follows:

~~604.2.5 Accessible means of egress elevators.~~ ~~Standby power shall be provided for elevators that are part of an accessible *means of egress* in accordance with Section 1007.4.~~

~~604.2.6 Accessible means of egress platform lifts.~~ ~~Standby power in accordance with this section or ASME A18.1 shall be provided for platform lifts that are part of an accessible *means of egress* in accordance with Section 1007.5.~~

604.2.18 Elevators and platform lifts. Standby power shall be provided for elevators and platform lifts as required in Sections 607.2, 1007.4, and 1007.5.

Relocate IFC sections and renumber the remaining sections.

607.2 Standby power. ~~604.2.18 Elevators.~~ In buildings and structures where standby power is required or furnished to operate an elevator, standby power shall be provided in accordance with Section 604. ~~the o~~Operation of the system shall be in accordance with Sections ~~604.2.18.1 through 604.2.18.4~~ 607.2.1 through 607.2.4.

607.2.1 ~~604.2.18.1~~ Manual transfer. (No change to current text.)

607.2.2 ~~604.2.18.2~~ One elevator. (No change to current text.)

607.2.3 ~~604.2.18.3~~ Two or more elevators. (No change to current text.)

607.2.4 ~~604.2.18.4~~ Machine room ventilation. (No change to current text.)

HORIZONTAL SLIDING DOORS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 2702.2.7 Horizontal sliding doors. Standby power shall be provided for horizontal sliding doors as required in ~~in accordance with~~ Section 1008.1.4.3. The standby power supply shall have a capacity to operate a minimum of 50 closing cycles of the door.

Revise the IFC as follows:

604.2.7 Horizontal sliding doors. Standby power shall be provided for horizontal sliding doors as required in ~~in accordance with~~ Section 1008.1.4.3. The standby power supply shall have a capacity to operate a minimum of 50 closing cycles of the door.

MEMBRANE STRUCTURES

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 2702.2.9 Membrane structures. Standby power shall be provided for auxiliary inflation systems in permanent membrane structures as required in ~~in accordance with~~ Section 3102.8.2. Standby power shall be provided for a duration of not less than four hours. Auxiliary inflation systems in temporary air-supported and air-inflated membrane structures shall be provided in accordance with Section 3103.10.4 of ~~Emergency power shall be provided for *exit* signs in temporary tents and membrane structures in accordance with~~ the *International Fire Code*.

Revise the IFC as follows:

604.2.9 Membrane structures. ~~Emergency power shall be provided for *exit* signs in temporary tents and membrane structures in accordance with Section 3103.12.6.1.~~
Standby power shall be provided for auxiliary inflation systems in permanent membrane structures in accordance with Section 2702 of the *International Building Code*. Auxiliary inflation systems shall be provided in temporary air-supported and air-inflated membrane structures in accordance with Section 3103.10.4.

3103.10.4 Auxiliary inflation systems ~~power~~. Places of public assembly for more than 200 persons shall be furnished with an auxiliary inflation system capable of powering a blower with the capacity to maintain full inflation pressure with normal leakage in accordance with Section 3103.10.3 for a minimum duration of four hours. The auxiliary inflation system can be either a fully automatic auxiliary engine-generator set ~~capable of powering one blower continuously for 4 hours,~~ or a supplementary blower powered by an internal combustion engine which shall be automatic in operation. The system shall be capable of automatically operating the required blowers at full power within 60 seconds of a commercial power failure.

SEMICONDUCTOR FABRICATION FACILITIES

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 415.10.10 Emergency power system. An emergency power system shall be provided in Group H-5 occupancies in accordance with Section 2702. ~~where required in Section 415.10.10.1.~~ The emergency power system shall ~~be designed to~~ supply power automatically to ~~required~~ the electrical systems specified in Section 415.10.10.1 when the normal electrical supply system is interrupted.

[F] 415.10.10.1 Required electrical systems. Emergency power shall be provided for electrically operated equipment and connected control circuits for the following systems:

1. through 6. (No change to current text.)
7. Manual and automatic *fire alarm* systems.
8. through 11. (No change to current text.)

[F] 2702.2.8 Semiconductor fabrication facilities. Emergency power shall be provided for semiconductor fabrication facilities as required in ~~in accordance with~~ Section 415.10.10.

Revise the IFC as follows:

604.2.8 Semiconductor fabrication facilities. Emergency power shall be provided for semiconductor fabrication facilities as required in ~~in accordance with~~ Section 2703.15.

2703.15 Emergency power system. An emergency power system shall be provided in Group H-5 occupancies in accordance with ~~where required by~~ Section 604. The emergency power system shall ~~be designed to~~ supply power automatically to ~~required~~ the electrical systems specified in Section 2703.15.1 when the normal supply system is interrupted.

HAZARDOUS MATERIALS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 414.5.3 Emergency or standby power. Where mechanical *ventilation*, treatment systems, temperature control, alarm, detection or other electrically operated systems are required by the *International Fire Code* or this code, such systems shall be provided with ~~an~~ emergency or standby power ~~system~~ in accordance with Section 2702 ~~Chapter 27~~.~~**Exceptions:** 1.~~

[F] 414.5.3.1 Exempt applications. Emergency or standby power are not required for ~~the following storage areas: 1.1. M~~ mechanical ventilation systems provided *for:*

1. S~~s~~torage of Class IB and Class IC flammable and combustible liquids in closed containers not exceeding 6.5 gallons (25 L) capacity.
   ~~1.2~~1.1. Storage ~~areas for~~ of Class 1 and 2 oxidizers.
   ~~1.3~~1.2. Storage ~~areas for~~ of Class II, III, IV and V organic peroxides.
   ~~1.4~~1.3. Storage~~, use and handling areas for~~ of asphyxiant, irritant and radioactive gases.
   ~~1.5. For storage, use and handling areas for highly toxic or toxic materials, see Sections 6004.2.2.8 and 6004.3.4.2 of the *International Fire Code*.~~

[F] 414.5.3.2 Fail-safe engineered systems. Standby power for mechanical ventilation, treatment systems and temperature control systems shall not be required where an *approved* fail-safe engineered system is installed.

[F] 421.8 Standby power. Mechanical *ventilation* and gas detection systems shall be ~~connected to a~~ provided with standby power ~~system~~ in accordance with Section 2702. ~~Chapter 27.~~

[F] 2702.2.10 Hazardous materials. Emergency or standby power shall be provided in occupancies with hazardous materials as required in ~~in accordance with~~ Sections 414.5.3 and 421.8 and the *International Fire Code*.

Revise the IFC as follows:

604.2.10 Hazardous materials. Emergency ~~or standby~~ power shall be provided in occupancies with hazardous materials as required in the following ~~in accordance with~~ sections ~~5004.7 and 5005.1.5.~~:

Hazardous materials – 5001.3.3.10
Highly toxic and toxic gases - 6004.2.2.8, 6004.3.4.2
Organic peroxides - 6204.1.11

5004.7 Standby or emergency power. Where mechanical ventilation, treatment systems, temperature control, alarm, detection or other electrically operated systems are required, such systems shall be provided with ~~an~~ emergency or standby power ~~system~~ in accordance with ~~NFPA 70 and~~ Section 604.

~~Exceptions~~:

5004.7.1 Exempt applications. Standby or emergency power is not required for ~~M~~mechanical ventilation systems provided for:

1. Storage of Class IB and Class IC flammable and *combustible liquids* in closed containers not exceeding 61/2 gallons (25 L) capacity.
2. Storage ~~areas for~~ of Class 1 and 2 oxidizers.
3. Storage ~~areas for~~ of Class II, III, IV and V organic peroxides.
4. Storage ~~areas for~~ of asphyxiant, irritant and radioactive gases.
5. ~~For storage areas for highly toxic or toxic materials, see Sections 6004.2.2.8 and 6004.3.4.2.~~

5004.7.2 Fail-safe engineered systems. ~~6.~~ Standby power for mechanical ventilation, treatment systems and temperature control systems shall not be required where an *approved* fail-safe engineered system is installed.

5005.1.5 Standby or emergency power. Where mechanical ventilation, treatment systems, temperature control, manual alarm, detection or other electrically operated systems are required in this code, such systems shall be provided with ~~an~~ emergency or standby power ~~system~~ in accordance with ~~NFPA 70 and~~ Section 604.

~~Exceptions:~~ ~~1.~~

5005.1.5.1 Exempt applications. Standby power for mechanical ventilation, treatment systems and temperature control systems shall not be required where an *approved* fail-safe engineered system is installed.

~~2. Systems for highly toxic or toxic gases shall be provided with emergency power in accordance with Sections 6004.2.2.8 and 6004.3.4.2.~~

6004.2.2.8 Emergency power. Emergency power shall be provided for the following systems in accordance with the Section 604~~. and NFPA 70 shall be provided in lieu of standby power where any of the following systems are required~~:

1. through 7. *(No change to current text.)*

6004.2.2.8.1 Fail-safe engineered systems. ~~Exception:~~ Emergency power ~~is~~ shall not be required for mechanical exhaust ventilation, treatment systems and temperature control systems where *approved* fail-safe engineered systems are installed.

6204.1.11 Standby power. Standby power ~~in accordance with Section 604 shall be provided for storage areas of Class I and unclassified detonable organic peroxide.~~ shall be provided in accordance with Section 604 for the following systems used to protect Class I and unclassified detonable organic peroxide:

1. through 7. *(No change to current text.)*

6204.1.11.1 Fail-safe engineered systems. ~~Exception:~~ Standby power shall not be required for mechanical exhaust ventilation, treatment systems and temperature control systems where *approved* fail-safe engineered systems are installed.

HIGH RISE BUILDINGS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 403.4.8 Standby and emergency power. A standby power system complying with Section 2702 ~~Chapter 27~~ and Section 3003 shall be provided for the standby power loads specified in 403.4.8.2. An emergency power system complying with Section 2702 shall be provided for the emergency power loads specified in Section 403.4.8.3.~~Where elevators are provided in a *high-rise building* for *accessible means of egress*, fire service access or occupant self-evacuation, the standby power system shall also comply with Sections 1007.4, 3007 or 3008, as applicable.~~

[F] 403.4.8.1 Equipment room. ~~Special requirements for standby power systems.~~ If the standby or emergency power system includes ~~is~~ a generator set inside a building, the system shall be located in a separate room enclosed with 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. System supervision with manual start and transfer features shall be provided at the *fire command center*.

[F] 403.4.8.2 Standby power loads. The following are classified as standby power loads:

1. Power and lighting for the *fire command center* required by Section 403.4.6;
2. *Ventilation* and automatic fire detection equipment for *smokeproof enclosures*; and
3. Elevators.
4. Where elevators are provided in a *high-rise building* for *accessible means of egress*, fire service access or occupant self-evacuation, the standby power system shall also comply with Sections 1007.4, 3007 or 3008, as applicable.

[F] ~~403.4.9 Emergency power systems.~~ ~~An emergency power system complying with Chapter 27 shall be provided for emergency power loads specified in Section 403.4.9.1.~~

[F] ~~403.4.9.1~~ 403.4.8.3 Emergency power loads. The following are classified as emergency power loads:

1. Exit signs and *means of egress* illumination required by Chapter 10;
2. Elevator car lighting;
3. *Emergency voice/alarm communications systems*;
4. Automatic fire detection systems;
5. *Fire alarm* systems; and
6. Electrically powered fire pumps.

[F] 2702.2.15 High-rise buildings. Emergency and standby power systems shall be provided in high-rise buildings as required in ~~in accordance with~~ Section~~s~~ 403.4.8 ~~and 403.4.9~~.

Revise the IFC as follows:

604.2.14 High-rise buildings. Standby power and emergency power ~~, light and emergency systems in high-rise buildings~~ shall be provided as required in Section 403 of the International Building Code, and shall be in accordance with Section 604. ~~comply with the requirements of Sections 604.2.14.1 through 604.2.14.3.~~

~~**604.2.14.1 Standby power.** A standby power system shall be provided. Where the standby system is a generator set inside a building, the system shall be located in a separate room enclosed with 2-hour *fire barriers* constructed in accordance with Section 707 of the *International Building Code* or *horizontal assemblies* constructed in accordance with Section 711 of the *International Building Code*, or both. System supervision with manual start and transfer features shall be provided at the *fire command center*.~~

~~**604.2.14.1.1 Fuel supply.** An on-premises fuel supply, sufficient for not less than 2-hour full-demand operation of the system, shall be provided.~~
~~**Exception:** When *approved*, the system shall be allowed to be supplied by natural gas pipelines.~~

~~**604.2.14.1.2 Capacity.** The standby system shall have a capacity and rating that supplies all equipment required to be operational at the same time. The generating capacity is not required to be sized to operate all of the connected electrical equipment simultaneously.~~

~~**604.2.14.1.3 Connected facilities.** Power and lighting facilities for the *fire command center* and elevators specified in Sections 403.4.8.2 and 403.6 of the *International Building Code*, as applicable, shall be transferable to the standby source. Standby power shall be provided for at least one elevator to serve all floors and be transferable to any elevator.~~

~~**604.2.14.2 Separate circuits and luminaires.** Separate lighting circuits and luminaires shall be required to provide sufficient light with an intensity of not less than 1 footcandle (11 lux) measured at floor level in all *means of egress corridors*, *stairways*, smokeproof enclosures, elevator cars and lobbies, and other areas that are clearly a part of the escape route.~~

~~**604.2.14.2.1 Other circuits.** Circuits supplying lighting for the *fire command center* and mechanical equipment rooms shall be transferable to the standby source.~~

~~**604.2.14.3 Emergency systems.** *Exit* signs, *exit* illumination as required by Chapter 10, electrically powered fire pumps required to maintain pressure, and elevator car lighting are classified as emergency systems and shall operate within 10 seconds of failure of the normal power supply and shall be capable of being transferred to the standby source.~~

> ~~**Exception:** *Exit* sign, *exit* and *means of egress* illumination are permitted to be powered by a standby source in buildings of Group F and S occupancies.~~

UNDERGROUND BUILDINGS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 405.8 Standby and emergency power. A standby power system complying with Section 2702 ~~Chapter 27~~ shall be provided for the standby power loads specified in Section 405.8.1. An emergency

power system complying with Section 2702 shall be provided for the emergency power loads specified in Section 405.8.2.

[F] 405.8.1 Standby power loads. The following loads are classified as standby power loads:

1. Smoke control system.
2. *Ventilation* and automatic fire detection equipment for *smokeproof enclosures.*
3. Fire pumps.
4. ~~Standby power shall be provided for e~~Elevators, as required in ~~in accordance with~~ Section 3003.

[F] ~~405.8.2 Pick-up time.~~ ~~The standby power system shall pick up its connected loads within 60 seconds of failure of the normal power supply.~~

[F] ~~405.9 Emergency power.~~ ~~An emergency power system complying with Chapter 27 shall be provided for emergency power loads specified in Section 405.9.1.~~

[F] ~~405.9.1~~ 405.8.2 Emergency power loads. The following loads are classified as emergency power loads:

1. through 5. *(No change to current text.)*

[F] 2702.2.16 Underground buildings. Emergency and standby power shall be provided in underground buildings as required in ~~in accordance with~~ Sections 405.~~8 and 405.9~~.

Revise the IFC as follows:

604.2.15 Underground buildings. Emergency and standby power ~~systems~~ shall be provided in underground buildings ~~covered~~ as required in ~~Chapter 4~~ Section 405 of the *International Building Code* ~~shall comply with Sections 604.2.15.1 and 604.2.15.2.~~ and shall be in accordance with Section 604.

~~**604.2.15.1 Standby power.** A standby power system complying with this section and NFPA 70 shall be provided for standby power loads as specified in Section 604.2.15.1.1.~~

~~**604.2.15.1.1 Standby power loads.** The following loads are classified as standby power loads:~~

~~1. Smoke control system.~~
~~2. Ventilation and automatic fire detection equipment for smokeproof enclosures.~~
~~3. Fire pumps.~~
~~4. Standby power shall be provided for elevators in accordance with Section 3003 of the *International Building Code*.~~

~~**604.2.15.1.2 Pickup time.** The standby power system shall pick up its connected loads within 60 seconds of failure of the normal power supply.~~

~~**604.2.15.2 Emergency power.** An emergency power system complying with this code and NFPA 70 shall be provided for emergency power loads as specified in Section 604.2.15.2.1.~~

~~**604.2.15.2.1 Emergency power loads.** The following loads are classified as emergency power loads:~~

~~1. Emergency voice/alarm communication systems.~~
~~2. Fire alarm systems.~~
~~3. Automatic fire detection systems.~~
~~4. Elevator car lighting.~~
~~5. *Means of egress* lighting and *exit* sign illumination as required by Chapter 10.~~

GROUP I-3 OCCUPANCY DOOR LOCKS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part. See Part XX for this subject in the IEBC.*

Revise the IBC as follows:

[F] 408.4.2 Power-operated doors and locks. Power-operated sliding doors or power-operated locks for swinging doors shall be operable by a manual release mechanism at the door. Emergency power shall be provided for the doors and locks in accordance with Section 2702. ~~and either emergency power or a remote mechanical operating release shall be provided.~~

Exceptions:

1. Emergency power is not required in facilities with 10 or fewer locks complying with the exception to Section 408.4.1.
2. Emergency power is not required when remote mechanical operating releases are provided.

[F] 2702.2.17 Group I-3 occupancies. Emergency power shall be provided for power operated doors and locks in Group I-3 occupancies as required in ~~in accordance with~~ Section 408.4.2.

Revise the IFC as follows:

604.2.16 Group I-3 occupancies. Power-operated sliding doors or power-operated locks for swinging doors shall be operable by a manual release mechanism at the door. Emergency power shall be provided for the doors and locks in accordance with Section 604. ~~and either emergency power or a remote mechanical operating release shall be provided.~~

Exceptions:

1. Emergency power is not required in facilities with 10 or fewer locks complying with the exception to Section 408.4.1.
2. Emergency power is not required when remote mechanical operating releases are provided.

AIRPORT TRAFFIC CONTROL TOWERS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

~~**[F] 2702.2.18 Airport traffic control towers.** Standby power shall be provided in airport traffic control towers in accordance with Section 412.3.4.~~

~~**[F] 412.3.4 Standby power.** A standby power system that conforms to Chapter 27 shall be provided in airport traffic control towers more than 65 feet (19 812 mm) in height.~~
~~Power shall be provided to the following equipment:~~

~~1. Pressurization equipment, mechanical equipment and lighting.~~
~~2. Elevator operating equipment.~~
~~3. *Fire alarm* and smoke detection systems.~~

Revise the IFC as follows:

~~**604.2.17 Airport traffic control towers.** A standby power system shall be provided in airport traffic control towers more than 65 feet (19 812 mm) in height. Power shall be provided to the following equipment:~~

~~1. Pressurization equipment, mechanical equipment and lighting.~~
~~2. Elevator operating equipment.~~
~~3. Fire alarm and smoke detection systems.~~

SMOKE ALARMS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 907.2.11.4 Power source. In new construction, required smoke alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system in accordance with Section 2702. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exception: Smoke alarms are not required to be equipped with battery backup where they are connected to an emergency electrical system that complies with Section 2702.

Revise the IFC as follows:

907.2.11.4 Power source. In new construction, required smoke alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery back-up shall be connected to an emergency electrical system in accordance with Section 604. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exception: Smoke alarms are not required to be equipped with battery backup where they are connected to an emergency electrical system that complies with Section 604.

EMERGENCY ALARM SYSTEMS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Revise the IBC as follows:

[F] 414.7.4 Emergency alarm systems. *Emergency alarm systems* shall be provided with emergency power in accordance with Section 2702.

[F] 2702.2.21 Emergency alarm systems. Emergency power shall be provided for emergency alarm systems as required by Section 414.7.4.

Revise the IFC as follows:

604.2.19 Emergency alarm systems. Emergency power shall be provided for emergency alarm systems as required by Section 414 of the International Building Code.

EMERGENCY RESPONDER RADIO COVERAGE SYSTEMS

NOTE: *The normal convention for portraying code changes to duplicated texts is by showing the parallel section numbers (e.g., "**907.5.2 (IBC [F] 907.5.2)**" or "**1011.6.3 (IFC [B] 1011.6.3**"). In this code change, however, for improved clarity, duplicate texts are shown for each code in this part.*

Add a new Section 2702.2.21 to the IBC as follows:

[F] 2702.2.21 Emergency responder radio coverage systems. Standby power shall be provided for emergency responder radio coverage systems required in Section 915 and the *International Fire Code*. The standby power supply shall be capable of operating the emergency responder radio coverage system for a duration of not less than 24 hours.

Revise the IFC as follows:

510.4.2.3 Standby power. ~~Secondary power~~. Emergency responder radio coverage systems shall be provided with ~~an *approved* secondary source of~~ standby power in accordance with Section 604. The ~~secondary~~ standby power supply shall be capable of operating the emergency responder radio coverage system for a ~~period of at least~~ duration of not less than 24 hours. ~~When primary power is lost, the power supply to the emergency responder radio coverage system shall automatically transfer to the secondary power supply.~~

604.2.19 Emergency responder radio coverage systems. Standby power shall be provided for emergency responder radio coverage systems as required in Section 510.4.2.3. The standby power supply shall be capable of operating the emergency responder radio coverage system for a duration of not less than 24 hours.

FLARING SYSTEMS FOR MECHANICAL REFRIGERATION

Revise the IFC as follows:

606.12.5 Flaring systems. Flaring systems for incineration of flammable refrigerants shall be designed to incinerate the entire discharge. The products of refrigerant incineration shall not pose health or environmental hazards. Incineration shall be automatic upon initiation of discharge, shall be designed to prevent blowback and shall not expose structures or materials to threat of fire. Standby fuel, such as LP gas, and standby power shall have the capacity to operate for one and one-half the required time for complete incineration of refrigerant in the system. Standby electrical power, where required to complete the incineration process, shall be in accordance with Section 604.

WATER SUPPLY POWER

Revise the IWUIC as follows:

404.10.3 Standby power. Standby power shall be provided to pumps, controllers and related electrical equipment so that ~~S~~stationary water supply facilities within the *wildland-urban interface area* that are dependent on electrical power can provide the required ~~to meet adequate~~ water supply. The standby power system shall be ~~demands shall provide standby power systems~~ in accordance with Section 2702 ~~Chapter 27~~ of the *International Building Code*~~,~~ and Section 604 of the *International Fire Code.* ~~and NFPA 70 to ensure that an uninterrupted water supply is maintained.~~ The standby power source shall be capable of providing power for a minimum of two hours.

Exceptions: *(No change to current text.)*

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.
This proposal is part of a comprehensive rewrite of the I-Codes emergency and standby power requirements. Some edits are made to provide consistency in how standby power is referenced in the codes.

Part I - INTERNATIONAL FIRE CODE

Emergency voice/alarm communication systems: Emergency voice/alarm communication systems are required to include an emergency power source in IBC/IFC Section 907.5.2.2.5. A reference to these systems has been added to IBC 2702.2 and IFC 604.2. With the addition of this requirement it is no longer necessary to indicate that these systems are required in covered malls and Group A occupancies, which are just two of the many occupancies and building types that require emergency voice/alarm communication systems.
All reference in the IFC and IBC to emergency voice/alarm communication systems requires them to be provided with a source of emergency power, except for IBC Section 402.7.3. This oversight was corrected.

Smoke control systems: Smoke control systems are required to include a standby power source in IBC/IFC Section 909.11. In addition the IBC requires standby power to be provided for smoke control systems or components of the systems in Sections 404.7, 909.20.6.2, and 909.21.5. A reference to these section have been added to IBC 2702.2.
By referencing section 909.20.6.2 in Section 2702.2.2, it is no longer necessary to include Section 2702.2.20 smokeproof enclosure reference.
IBC/IFC 909.11and IMC 513.11 were rather lengthy and included requirements for standby power equipment rooms. These were broken off and put in Section 909.11.1 and 513.11.1. The reference to automatically transferring to standby power within 60 seconds is included in a separate code proposal for Sections 2702.1 and 604.1, and does not need to be repeated here.

Exit signs: The proposal updates references to emergency power requirements by including the appropriate IFC and IBC code sections that specify requirements for emergency power supply and operation of Exit Signs.

Means of egress illumination: Details on system components in 1006.3.1 have been eliminated because these are covered in the revised IFC Section 604.1 and IBC Section 2702.1 requirements. The last part of IFC Section 1006.3 was renumbered 1006.3.1 to match the format used in the equivalent IBC requirements.

Elevators and platform lifts: In IBC Section 2702.2 and IFC Section 604.2, references to three types of elevators or platform lifts were consolidated into a single reference to elevators and platform lifts.
Requirements for the specific rating of the standby systems required in 3007.9 and 3008.9 were removed since they are covered under another comprehensive rewrite of IBC Section 2702.1 and IFC Section 604.1.
Elevator requirements in IFC Section 604.2.18 were relocated to IFC Section 607, which covers similar elevator requirements.

Horizontal sliding doors: The requirement for the standby power supply to have a capacity to operate a minimum of 50 opening and closing cycles of the door is based on requirements in NFPA 80, Section 9.4.2.2.2.

Membrane structures: The IBC and IFC require auxiliary inflation systems to be provided for air-supported and air-inflated membrane structures. (The IBC covers permanent membrane structures and the IFC covers temporary membrane structures). The differences are that permanent air-inflated membrane structures include standby power as covered by Section 2702 of the IBC. Temporary air-inflated membrane structures are required to include an automatic engine-generator set or a blower powered by an internal combustion engine to serve as an auxiliary inflation system in the event of a commercial power failure. These are not required to be permanently installed.

Semiconductor fabrication facilities: Automatic fire alarm systems are required to be provided with emergency power, which is consistent with NFPA 72.

Hazardous materials: Reference in Section 2702 of the IBC for emergency power for pyrophoric materials to be provided in accordance with the IFC was removed since backup power is not required in IFC Chapter 64.
IBC Section 414.5.3 and IFC Section 5004.7 were reformatted with no substantive changes to the systems that do not require emergency or standby power and fail-safe engineered systems.
In IBC Section 414.5.3 the requirements to provide emergency power for ventilation systems required by the IBC (or this code) were removed. This eliminates the need to provide emergency power for normal building ventilation systems as required by Section 1203.
In looking at the hazardous material related systems that require a secondary power source, they all fall under the definition of emergency power system as included in NFPA 110. Therefore reference to standby power was removed from this section.
References for emergency power were added to Sections 53, 54, 55, 57, 61 and 63 since these sections include requirements for system that require emergency power per Section 5001.3.3.10.

High rise buildings: The scope of IFC Section 604 covers emergency and standby power system, and yet sections 604.2.14.1 through 604.2.14.3 either duplicated requirements in revised Section 604.1, (covered under a separate proposal), or covered electrical system components that are not part of the standby or emergency power system. These requirements were eliminated. If the desire is to include these systems in the IFC they should be placed in a more appropriate location.

Underground buildings: Sections 604.2.15.1 through 604.2.15.2.1 duplicate some, but not all of the IBC requirements for underground buildings, and were therefore eliminated. If the desire is to include these details in the IFC they should be added in their entirety.

Group I-3 occupancy door locks: The proposal updates references to emergency power requirements by including the appropriate IFC and IFC code sections that specify requirements for emergency power supply and operation of power-operated door locks.

Airport traffic control towers: There is no reason to call out emergency and standby power requirements for aircraft traffic control towers. These requirements are specified for the types of electrical systems that will be provided, such as exit signs, egress illumination, elevators, smoke control, etc. In addition there is an error in some of the criteria since emergency power is required for fire alarm and smoke detection equipment and lighting of the means of egress. If the desire is to include a list of all possible emergency and standby power loads that can be included in these towers that can be done.

Smoke alarms: The proposal updates references to emergency power requirements by including the appropriate IFC and IBC code sections that specify requirements for emergency power supply and operation of Smoke Alarms.

Emergency alarms systems: Emergency power for emergency alarm systems is not currently required in either the IBC or the IFC, but it should be, based on the proposed definition of emergency power system.

Emergency responder radio coverage systems: Reference to standby power for emergency responder radio coverage systems was inadvertently left out of IBC Section 2702 and IFC Section 604.

Flaring systems for mechanical refrigeration: The proposal updates references to emergency power requirements by including the appropriate IFC code sections that specify requirements for emergency power supply and operation of flaring systems for mechanical refrigeration.

Clothes dryer exhaust systems: The proposal updates IMC references to stand-by power requirements by including the appropriate IBC code sections that specify requirements for stand-by power supply and operation of clothes dryer exhaust systems.

Water supply power: The proposal updates IWUI references to stand-by power requirements for pumps, controllers and related electrical equipment so that stationary water supply facilities within the *wildland-urban interface* by including the appropriate IFC and IBC code sections that specify requirements for stand-by power supply and operation of specified water supply equipment.

Cost Impact: This code change will increase the cost of construction

Public Hearing Results

PART I – IFC

Committee Action: **Approved as Modified**

Modify the proposal as follows:

HIGH-RISE BUILDINGS

IBC [F] 403.4.8.1 Equipment room. If the standby or emergency power system includes a generator set inside a building, the system shall be located in a separate room enclosed with 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. System supervision with manual start and transfer features shall be provided at the *fire command center*.

Exception: In Group I-2 Condition 2, manual start and transfer features for the critical branch of the emergency power are not required to be provided at the fire command center.

(Portions of the proposal not shown remain unchanged.)

Committee Reason: The committee approved the code change based on the proponent's reason statement and agreed that the proposal accomplishes much needed revisions and clarifications to the emergency and standby power system requirements. The modification leaves the control of critical circuits in the hands of the hospital engineers.

Assembly Action: **None**

Public Comments

Public Comment:

Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

[F] 414.5.3 Emergency or standby power. Where required by the International Fire Code or this code mechanical *ventilation*, treatment systems, temperature control, alarm, detection or other electrically operated systems ~~are required by the *International Fire Code* or this code, such systems~~ shall be provided with an emergency or standby power system in accordance with Section 2702.

(Portions of proposal not shown remain unchanged.)

Commenter's Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

This public comment clarifies that mechanical ventilation, treatment systems, temperature control, alarm, detection or other electrically operated systems are only to be provided with an emergency or standby power system where required by the IFC or elsewhere in the IBC.

Final Hearing Results

F59-13 Part I **AMPC**

Code Change No: F59-13 Part II

Original Proposal

Section(s): 604 (IBC [F] 2702) among others; 907.5.2.2.5 (IBC [F] 907.5.2.2.5); IMC [F] 513.11, [F] 513.11.1 (New); IWUIC 404.10.3; IEBC 805.4.5

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IFC COMMITTEE AND PART II WILL BE HEARD BY THE IEBC COMMITTEE AS TWO SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THOSE COMMITTEES.

PART II - INTERNATIONAL EXISTING BUILDING CODE

GROUP I-3 OCCUPANCY DOOR LOCKS

Revise the IEBC as follows:

IEBC 805.4.5 Emergency power source in Group I-3. Power-operated sliding doors or power-operated locks for swinging doors shall be operable by a manual release mechanism at the door. Emergency power shall be provided for the doors and locks in accordance with Section 2702 of the International Building Code.

Exceptions:

1. Emergency power is not required in facilities with 10 or fewer locks complying with the exception to Section 408.4.1.
2. Emergency power is not required where remote mechanical operating releases are provided.

~~Work areas in buildings of Group I-3 occupancy having remote power unlocking capability for more than 10 locks shall be provided with an emergency power source for such locks. Power shall be arranged to operate automatically upon failure of normal power within 10 seconds and for a duration of not less than 1 hour.~~

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.
This proposal is part of a comprehensive rewrite of the I-Codes emergency and standby power requirements. Some edits are made to provide consistency in how standby power is referenced in the codes.

Part II - INTERNATIONAL EXISTING BUILDING CODE

Group I-3 occupancy door locks in the IEBC: The IEBC format was revised to more closely correlate with the IBC and IFC.

Cost Impact: This code change will increase the cost of construction

Public Hearing Results

PART II – IEBC
This code change was heard by the IEBC code development committee.

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved primarily related to concerns with references to sections not found in the IEBC. Specifically, exception 1 references Section 408.4.1 which is not found in the IEBC.

Assembly Action: **None**

Public Comments

Public Comment:

Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

IEBC 805.4.5 Emergency power source in Group I-3. Power-operated sliding doors or power-operated locks for swinging doors shall be operable by a manual release mechanism at the door. Emergency power shall be provided for the doors and locks in accordance with Section 2702 of the International Building Code.

Exceptions:

1. Emergency power is not required in facilities with 10 or fewer locks complying with the exception to Section 408.4.1 of the International Building code.
2. Emergency power is not required where remote mechanical operating releases are provided.

Commenter's Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

The original proposal for F59, Part II was correctly disapproved because reference to the IBC was not included in Exception 1. This has been corrected in this public comment, which accomplishes the following:

1. Correlates the requirements for how emergency and standby power throughout the family of I-Codes so they are treated in a consistent manner.
2. Correlates the requirements for providing emergency power for power operated sliding doors or power operated locks for swinging doors with the requirements in IBC section 408.4.2, which was revised as part of proposal F59-13.

Final Hearing Results

F59-13 Part II **AMPC**

Code Change No: F115-13

Original Proposal

Section(s): 901.4.6 (IBC [F] 901.8)

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

901.4.6 Pump and riser room size. Where provided fire pump rooms and automatic sprinkler system riser rooms shall be designed with adequate space for all equipment necessary for the installation, as defined by the manufacturer, with sufficient working room around the stationary equipment. Clearances around equipment to elements of permanent construction, including other installed equipment and appliances, shall be sufficient to allow inspection, service, repair or replacement without removing such elements of permanent construction or disabling the function of a required fire-resistance-rated assembly. Fire pump and automatic sprinkler system riser rooms shall be provided with a door(s) and unobstructed passageway large enough to allow removal of the largest piece of equipment.

Reason: A fire pump room, an automatic sprinkler riser room, or the combination is not required by this section. This section can be interpreted to require rooms around fire sprinkler risers. The Fire Code committee and proponent verbally clarified this intent during 09/10 cycle. The proponent's intent is to clarify these rooms are not required. When one is provided, it is required to meet Section 901.8.

Cost Impact: This code change will increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal clarifies that this section does not require a pump room or sprinkler riser room but instead simply provides size requirements where such rooms are required. This was felt to be a good clarification.

Assembly Action: **None**

Final Hearing Results

F115-12 **AS**

Code Change No: F118-13

Original Proposal

Section(s): 903.2.1 (IBC [F] 903.2.1)

Proponent: Barry Gupton, PE, NC Department of Insurance, Office of State Fire Marshal, Engineering Division (barry.gupton@ncdoi.gov)

Revise as follows:

903.2.1 (IBC [F] 903.2.1) Group A. An *automatic sprinkler system* shall be provided throughout buildings and portions thereof used as Group A occupancies as provided in this section. For Group A-1, A-2, A-3 and A-4 occupancies, the *automatic sprinkler system* shall be provided throughout the floor area where the Group A-1, A-2, A-3 or A-4 occupancy is located, and in all floors from the Group A occupancy to, and including, the ~~nearest *level*~~ *levels of exit discharge* serving the Group A occupancy. For Group A-5 occupancies, the *automatic sprinkler system* shall be provided in spaces indicated in Section 903.2.1.5.

Reason This change insures that floors adjacent to all exit discharges serving the assembly occupancy are protected with sprinklers to provide the additional time required to egress the higher occupant load. The previous language of "nearest level of exit discharge" may only protect one exit when exit discharge is on more than one level.

Cost Impact: The code change proposal will increase the cost of construction for buildings with more than one level of exit discharge that would not otherwise require sprinklers.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that all levels of exit discharge serving the Group A occupancy should be addressed in Section 903.2.1. The current language only required sprinklers be installed to the nearest level of exit discharge.

Assembly Action: **None**

Final Hearing Results

F118-12 **AS**

Code Change No: F120-13

Original Proposal

Section(s): 903.2.1

Proponent: Carl D. Wren, P.E., Austin Fire Department, representing self (carl.wren@austintexas.gov)

Revise as follows:

903.2.1 Group A. An automatic sprinkler system shall be provided throughout buildings and portions thereof used as Group A occupancies as provided in this section. For Group A-1, A-2, A-3 and A-4 occupancies, the automatic sprinkler system shall be provided throughout the floor ~~area~~ where the fire area containing the Group A-1, A-2, A-3 or A-4 occupancy is located, and ~~in~~ throughout all floors of the building ~~from~~ above or below the Group A occupancy to, and including, the nearest level of exit discharge serving the Group A occupancy. For Group A-5 occupancies, the automatic sprinkler system shall be provided in the spaces indicated in Section 903.2.1.5.

903.2.1.1 Group A-1. An automatic sprinkler system shall be provided for fire areas containing Group A-1 occupancies and intervening floors of the building that impact the egress pathways where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m2).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.
4. The fire area contains a multitheater complex.

903.2.1.2 Group A-2. An automatic sprinkler system shall be provided for fire areas containing Group A-2 occupancies and intervening floors of the building that impact the egress pathways where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464 m2).
2. The fire area has an occupant load of 100 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.1.3 Group A-3. An automatic sprinkler system shall be provided for fire areas containing Group A-3 occupancies and intervening floors of the building that impact the egress pathways where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m2).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.1.4 Group A-4. An automatic sprinkler system shall be provided for fire areas containing Group A-4 occupancies and intervening floors of the building that impact the egress pathways where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m2).
2. The fire area has an occupant load of 300 or more.

3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.1.5 Group A-5. An automatic sprinkler system shall be provided for Group A-5 occupancies in the following areas: concession stands, retail areas, press boxes and other accessory use areas in excess of 1,000 square feet (93 m2).

Reason: The current code language can be somewhat confusing since the charging language in 903.2.1 deals with the occupancy and certain building areas outside the occupancy but the language in subsections 903.2.1.1, 903.2.1.2, 903.2.1.3 and 903.2.1.4 require the "occupancy" to be protected by fire sprinklers while it addresses the thresholds in terms of the size of the "fire area". It is not the intent of this proposal to change the requirements of this section, only to clarify them.

Cost Impact: This code change is being proposed as an effort to clarify potentially confusing language and will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify the proposal as follows:

903.2.1 Group A. An automatic sprinkler system shall be provided throughout buildings and portions thereof used as Group A occupancies as provided in this section. For Group A-1, A-2, A-3 and A-4 occupancies, the automatic sprinkler system shall be provided throughout the floor where the fire area containing the Group A-1, A-2, A-3 or A-4 occupancy is located, and throughout all floors of the building from ~~above or below~~ the Group A occupancy to, and including, the nearest level of exit discharge serving the Group A occupancy. For Group A-5 occupancies, the automatic sprinkler system shall be provided in the spaces indicated in Section 903.2.1.5.

903.2.1.1 Group A-1. An automatic sprinkler system shall be provided for fire areas containing Group A-1 occupancies and intervening floors of the building ~~that impact the egress pathways~~ where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m2).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.
4. The fire area contains a multi-theater complex.

903.2.1.2 Group A-2. An automatic sprinkler system shall be provided for fire areas containing Group A-2 occupancies and intervening floors of the building ~~that impact the egress pathways~~ where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464 m2).
2. The fire area has an occupant load of 100 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.1.3 Group A-3. An automatic sprinkler system shall be provided for fire areas containing Group A-3 occupancies and intervening floors of the building ~~that impact the egress pathways~~ where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m2).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.1.4 Group A-4. An automatic sprinkler system shall be provided for fire areas containing Group A-4 occupancies and intervening floors of the building ~~that impact the egress pathways~~ where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m2).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.1.5 Group A-5. An automatic sprinkler system shall be provided for Group A-5 occupancies in the following areas: concession stands, retail areas, press boxes and other accessory use areas in excess of 1,000 square feet (93 m2).

Committee Reason: The committee felt that this proposal better clarified the application of 903.2.1 than proposal F117-13. Several modifications were made to further clarify the application of the proposal. The first removes "above or below" and restores the term "from." This will address above or below grade situations as necessary. The next modification removes the language "that impact the egress pathways" as the language was felt difficult to enforce.

Assembly Action: **None**

Public Comments

Public Comment 1:

Gregory R. Keith, Professional heuristic Development, representing The Boeing Company, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

903.2.1 Group A. An automatic sprinkler system shall be provided throughout buildings and portions thereof used as Group A occupancies as provided in this section. For Group A-1, A-2, A-3 and A-4 occupancies, the automatic sprinkler system shall be provided throughout the story ~~floor~~ where the fire area containing the Group A-1, A-2, A-3 or A-4 occupancy is located, and throughout all stories ~~floors~~ of the building from the Group A occupancy to, and including, the nearest level of exit discharge serving the Group A occupancy. For Group A-5 occupancies, the automatic sprinkler system shall be provided in the spaces indicated in Section 903.2.1.5.

903.2.1.1 Group A-1. An automatic sprinkler system shall be provided for fire areas containing Group A-1 occupancies and intervening floors of the building where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m2).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.
4. The fire area contains a multi-theater complex.

903.2.1.2 Group A-2. An automatic sprinkler system shall be provided for fire areas containing Group A-2 occupancies and intervening floors of the building where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464 m2).
2. The fire area has an occupant load of 100 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.1.3 Group A-3. An automatic sprinkler system shall be provided for fire areas containing Group A-3 occupancies and intervening floors of the building where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m2).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.1.4 Group A-4. An automatic sprinkler system shall be provided for fire areas containing Group A-4 occupancies and intervening floors of the building where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m2).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.1.5 Group A-5. An automatic sprinkler system shall be provided for Group A-5 occupancies in the following areas: concession stands, retail areas, press boxes and other accessory use areas in excess of 1,000 square feet (93 m2).

Commenter's Reason: This public comment for approval as further modified is intended to be entirely editorial in nature. It replaces the term "floor(s)" with the term "story(s)" in two locations. Floor is not a defined term in the IBC or IFC. Story is a defined term: "That portion of a building included between the upper surface of a floor and the upper surface of the floor… Additionally, Section 903.2.1 refers to the "level of exit discharge." That term is defined as, "The story at the point at which an exit terminates and an exit discharge begins." Replacement of the term "floor" with the term "story" will be consistent with current IBC/IFC terminology and will assist code users by clarifying the application of this important provision.

Final Hearing Results

F120-13 **AMPC1**

Code Change No: F124-13

Original Proposal

Section(s): 903.2.1.6 (New)

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

903.2.1.6 (IBC [F] 903.2.1.6) Assembly use on roofs. Where an occupied roof has an assembly use with an occupant load exceeding 100, all floors between the occupied roof and the level of exit discharge shall be equipped with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

Reason: Currently the code states that if you have a fire area containing an A-2 Assembly on a floor other than the floor of exit discharge, that floor level and all floors to the level of exit discharge must be sprinklered. Frequently, roof tops are being used and occupied as assemblies. Building owners will provide an open air roof-top bar or lounge, or other use similar to a Group A-2 occupancy on the roof of a building.

The roof of the building does not meet the definition of a fire area. So protection of the occupants can be less than what would otherwise be required if the occupancy was on a floor rather than on the roof.

The current fire sprinkler threshold for Group A-2 is an occupant load of 100. It is appropriate to apply this same threshold to the occupant load on the roof.

This proposal will require that when a roof top is occupied for an assembly use AND the occupant load exceeds 100, then the building must be protected with sprinklers. This proposal does not require that the roof top itself is sprinklered, but provides sprinkler protection on all floors to the level of exit discharge.

The reference to Section 903.3.1.2 is added, since this use can occur on the roof of multi-family housing facilities.

Cost Impact: The code change will increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify the proposal as follows:

903.2.1.6 (IBC [F] 903.2.1.6) Assembly ~~use~~ occupancy on roofs. Where an occupied roof has an assembly ~~use~~ occupancy with an occupant load exceeding 100, all floors between the occupied roof and the level of exit discharge shall be equipped with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

Committee Reason: Requiring an automatic sprinkler system within a building where a group A occupancy is located on the roof was felt to be a necessary lifesafety requirement. This is consistent with the requirements in Section 903.2.1 that protect the occupants from hazards they may need to egress through. The occupants of the Group A occupancy, whether within the building or on the roof, are unaware of the hazards in the building and need to evacuate through the building. There was some concern that this proposal along with F122-13 were overly restrictive. Sprinklers would be required when the occupant load of the Group A occupancy exceeds 100. The modification revises the term “use” to “occupancy” to be consistent with the use of the terms in the I-Codes.

Assembly Action: **None**

Public Comments

Public Comment 1:

Emory Rodgers, VDHCO, representing self, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

903.2.1.6 Assembly occupancy on roofs. Where an occupied roof has an assembly occupancy with an occupant load exceeding 100 for Group A-2 and 300 for other Group A occupancies, all floors between the occupied roof and the level of exit discharge shall be equipped with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

Commenter's Reason:

- Other Group A occupancies require sprinklers at 300 occupants not 100 that is only for A-2's. These other Group A's could have roof assemblies.
- The fire data clearly demonstrates there is no need to have such stringency for all other Group A occupancies
- In fact this Group A roof assembly and the 903.2.1 for Group A occupancies already will trigger sprinklers for any unsprinkled occupancy with a Group A-2 occupancy when on a 1st floor for that entire floor to be sprinkled or any other floors to sprinkle the entire building.
- Support the AM challenge for open parking garages and this AM challenge to allow 300 occupants for Group A-1's, A-3's and A-4's.

Public Comment 2:

Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

903.2.1.6 (IBC [F] 903.2.1.6) Assembly occupancy on roofs. Where an occupied roof has an assembly occupancy with an occupant load exceeding 100, all floors between the occupied roof and the level of exit discharge shall be equipped with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

Exception: Open parking garages of Type I or II construction.

Commenter's Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

The proposed exception for open parking garages is consistent with the existing code requirement exception for open parking garages under Section 903.2.11.3 for "Buildings 55 feet or more in height".

It is becoming more common in the urban renewal areas throughout the US that jurisdictions are asking developers to provide additional recreational and green spaces for its citizens to enjoy within their own communities. Because of the limited space available it is not uncommon for such recreational and green spaces to be provided on the roofs of open parking garages. Based on the existing wording of this new Section (903.2.1.6) of code, these recreational and green spaces greater than 700 sq. ft. (based on 7 sq. ft. net /occupant) or 1500 sq. ft. (based on 15 sq. ft. net /occupant) would now require the open parking garage to be sprinklered. In other words, an open recreational or green space on a roof of an open parking structure that is more than a 26' to 39' square would require the garage to be sprinklered with a dry pipe sprinkler system that is initially a major cost to the project as well as a major monthly and yearly maintenance expense. Such an expense would most likely have an adverse affect on developers doing major city urban renewal projects from agreeing to provide such amenities for the local jurisdiction.

There is considerable supporting data for this proposed exception for open parking garages in the following national publications:

1. 2006 NFPA Fire Data Report, "Structure and Vehicle Fires in General Vehicle Parking Garages"
2. 2008 Parking Consultants Council Fire Safety Committee Report, "Parking Structure Fire Facts

These fire reports provide the following justifications for support of this public comment:

1. There is an average of only 660 fire/year in **all** types of parking garages in the US. This represents only 0.006% of all the annual fires/year in the US in all occupancy classifications. These fires caused an annual average of under one death, 11 injuries. However, for parking garages constructed of Construction Type I or II, they account for only 200 fire/year with no

fire deaths, and only 2 injuries/year. Therefore, fires in parking garages occur very infrequently, especially for Construction Type I or Type II parking garages.

2. No structural damage occurred in 98.7% of vehicle fires in parking garages.
3. Vehicle fires in parking garages typically do not spread (external spread of vehicle fires occurred in only 7% of the incidents).

Final Hearing Results

F124-13 **AMPC1, 2**

Code Change No: F128-13

Original Proposal

Section(s): 903.2.9 (IBC [F] 903.2.9), 903.2.9.1 (IBC [F] 903.2.9.1), 903.2.10.1 (IBC [F] 903.2.10.1), 202

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Add new text as follows:

903.2.9 (IBC [F] 903.2.9) Group S-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 fire area exceeds 12,000 square feet (1115 m^2).
2. A Group S-1 fire area is located more than three stories above grade plane.
3. The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2).
4. A Group S-1 fire area used for the storage of ~~commercial trucks or buses~~ commercial motor vehicles where the fire area exceeds 5,000 square feet (464 m^2).
5. A Group S-1 occupancy used for the storage of upholstered furniture or mattresses exceeds 2,500 square feet (232 m^2).

903.2.9.1 (IBC [F] 903.2.9.1) Repair garages. An automatic sprinkler system shall be provided throughout all buildings used as repair garages in accordance with Section 406.8 of the International Building Code, as shown:

1. Buildings having two or more stories above grade plane, including basements, with a fire area containing a repair garage exceeding 10,000 square feet (929 m^2).
2. Buildings no more than one story above grade plane, with a fire area containing a repair garage exceeding 12,000 square feet (1115 m^2).
3. Buildings with repair garages servicing vehicles parked in basements.
4. A Group S-1 fire area used for the repair of ~~commercial trucks or buses~~ commercial motor vehicles where the fire area exceeds 5,000 square feet (464 m^2).

903.2.10.1 (IBC [F] 903.2.10.1) Commercial parking garages. An automatic sprinkler system shall be provided throughout buildings used for storage of ~~commercial trucks or buses~~ commercial motor vehicles where the fire area exceeds 5,000 square feet (464 m^2).

Add new definition as follows:

SECTION 202
GENERAL DEFINITIONS

COMMERCIAL MOTOR VEHICLE. A motor vehicle used to transport passengers or property where the motor vehicle:

1. Has a gross vehicle weight rating of 10,000 pounds or more; or
2. Is designed to transport 16 or more passengers, including the driver.

Reason: The current text is not clear on what constitutes a “commercial” truck or bus. The intent of this proposal is that sprinklers should be installed based on the size of the vehicle. A definition of a commercial motor vehicle is needed. These criteria are from the DOT regulations 49CFR390.5, and correlate with IBC Section 1607.7. (See S70-09/10, AMPC1.)

The fuel load is significantly increased with these larger vehicles. Large commercial vehicles typically have an increased quantity of fuel in the vehicle fuel tanks. The vehicles may have larger amounts of upholstered interior furnishings. Large commercial vehicles may be storing or transporting additional combustibles on-board which also increases the fuel load and fire duration.

Cost Impact: The code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal provides a more appropriate term to clarify what is considered "commercial." The term "Commercial Motor Vehicle" is also defined by the proposal. This will clarify the application of Sections 903.2.9 and 903.2.9.1.

Assembly Action: **None**

Final Hearing Results

F128-12 **AS**

Code Change No: F131-13

Original Proposal

Section(s): 903.2.11.3 (IBC [F] 903.2.11.3)

Proponent: Brad Emerick, Denver Fire Department representing the Fire Marshal's Association of Colorado (FMAC) and the Colorado Chapter of the ICC (CCICC) (brad.emerick@denvergov.org)

Revise as follows:

903.2.11.3 (IBC [F] 903.2.11.3) Buildings 55 feet or more in height. An automatic sprinkler system in accordance with Section 903.3.1.1 shall be installed throughout buildings with a floor level having an occupant load of 30 or more that is located 55 feet (16 764 mm) or more above the lowest level of fire department vehicle access.

Exceptions:

1. Airport control towers.
2. Open parking structures.
3. Occupancies in Group F-2.

Reason: This proposal revises the language to specify a NFPA 13 sprinkler system is required in buildings meeting the height criteria. The proposed change only affects residential buildings on sloping sites where the lowest level of fire department vehicle access is significantly below grade plane. It has no other effect on sprinkler requirements related to the height of a building, namely IBC Section 540.2 which permits NFPA 13R sprinkler systems in residential buildings up to 60 feet in height – measured to the roof from grade plane (vs. lowest level of FD vehicle access).

If the lowest level of fire department vehicle access is at grade plane or on the high-elevation side of a sloping site, and the building height with respect to grade plane is 60 feet, then the highest occupied floor will be 10+ feet below this at a height of 50 feet or less – but below "55 feet to the highest occupied floor" in either case. Per IBC Section 540.2, a 13R sprinkler system is still permitted.

On a sloping site, where the lowest level of fire department vehicle access is on the low-elevation side of the site, firefighters are presented a building face taller in stories and feet than the nominal height of the building. If this face is tall enough that the highest occupied floor is 55 feet above them, the additional protection afforded by an NFPA 13 sprinkler system- especially with combustible construction – is warranted.

Cost Impact: This change will not affect the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify the proposal as follows:

903.2.11.3 (IBC [F] 903.2.11.3) Buildings 55 feet or more in height. An automatic sprinkler system ~~in accordance with Section 903.3.1.1~~ shall be installed throughout buildings that have one or more stories with ~~a floor level having~~ an occupant load of 30 or more ~~that is~~ located 55 feet (16 764 mm) or more above the lowest level of fire department vehicle access, measured to the finished floor.

Exceptions:

1. Airport control towers.
2. Open parking structures.
3. Occupancies in Group F-2.

Committee Reason: This proposal was approved as it helps to clarify how the height of the building is to be measured to determine whether a sprinkler system is required and through the modification the specific requirement for a NFPA 13 system was removed. There are likely very few situations that an NFPA 13R system would be applicable and the justification to restrict the type of sprinkler systems to NFPA 13 was not provided. The modification further clarifies that the measurement is taken to the finished

floor level and not to the ceiling of the story.

Assembly Action: **None**

Final Hearing Results

F131-13 **AM**

Code Change No: F132-13

Original Proposal

Section(s): 903.2.11.3 (IBC [F] 903.2.11.3)

Proponent: Eric R. Rosenbaum, Hughes Associates, Inc. representing the Air Traffic Control Tower Fire Life Safety Task Group (erosenbaum@haifire.com)

Revise as follows:

903.2.11.3 (IBC [F] 903.2.11.3) Buildings 55 feet or more in height. An *automatic sprinkler system* shall be installed throughout buildings with a floor level having an *occupant load* of 30 or more that is located 55 feet (16 764 mm) or more above the lowest level of fire department vehicle access.

Exceptions:

~~1. Airport control towers.~~
~~2.~~1. Open parking structures.
~~3.~~2. Occupancies in Group F-2.

Reason: The proposed change reflects changes accepted in Section 412.3 of the IBC regarding air traffic control towers. The accepted change in the IBC requires an automatic sprinkler system in all air traffic control towers with an occupiable floor 35 ft or more above the lowest level of fire department vehicle access. This accepted change is more restrictive than current IFC requirements and could cause confusion if left in the IFC. A copy of the accepted change is as follows:

412.3 Airport traffic control towers. The provisions of Sections 412.3.1 through 412.3.11 shall apply to airport traffic control towers occupied only for the following uses:

1. Airport traffic control cab.
2. Electrical and mechanical equipment rooms.
3. Airport terminal radar and electronics rooms.
4. Office spaces incidental to the tower operation.
5. Lounges for employees, including sanitary facilities.

412.3.1 Type of construction. Airport traffic control towers shall be constructed to comply with the height limitations of Table 412.3.2.

TABLE 412.3.2
HEIGHT LIMITATIONS FOR AIRPORT TRAFFIC CONTROL TOWERS

TYPE OF CONSTRUCTION	HEIGHT[a] (feet)
IA	Unlimited
IB	240
IIA	100
IIB	85
IIIA	65

a. Height to be measured from grade plane to cab floor

412.3.2 Stairway Stairways in Airport traffic control towers shall conform to the requirements of Section 1009. Such *stairways* shall be a smokeproof enclosure in accordance with Section 909.20. The stair pressurization alternative in accordance with Section 909.20.5 shall be permitted to be used. *Stairways* shall not be required to extend to the roof as specified in Section 1009.11.

412.3.3 Exit access. From observation levels, airport traffic control towers shall be permitted to have a single means of exit access for a distance of travel not exceeding 100 ft (30 m). This means of egress shall be permitted to include exit access utilizing an unenclosed stair at the observation level.

412.3.4 Single means of egress. Not less than one *exit stairway* shall be permitted for airport traffic controls towers of any height provided that the *occupant load* per floor is not greater than 15 and the area per floor does not exceed 1,500 square feet (140 m^2).

412.3.4.1 Arrangement of single means of egress. Airport traffic control towers permitted a single exit and located above another building shall be provided with one of the following:

1. Exit enclosure separated from the other building with no door openings to or from the other building
2. Exit enclosure leading directly to an exit enclosure serving the other building, with walls and door separating the exit enclosures from each other, and another door allowing access to the top floor of the building that provides access to a second exit serving that floor.

412.3.4.2 Interior Finish. Airport traffic control towers permitted a single exit in accordance with Section 412.3.4 shall be restricted to interior wall and ceiling finishes of Class A or Class B.

412.3.5 Automatic fire detection systems. Airport traffic control towers shall be provided with an automatic fire detection system installed in accordance with Section 907.2.

412.3.6 Automatic sprinkler system. Airport traffic control towers shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

412.3.7 Standby power. A standby power system that conforms to Chapter 27 shall be provided in airport traffic control towers more than 65 feet (19 812 mm) in height. Power shall be provided to the following equipment:

1. Pressurization equipment, mechanical equipment and lighting.
2. Elevator operating equipment.
3. Fire alarm and smoke detection systems.

412.3.8 Elevator Protection. Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to elevators shall be protected by construction having a minimum 1-hour *fire resistance rating* or shall be circuit integrity cable having a minimum 1-hour *fire-resistance rating*.

412.3.9 Accessibility. Airport traffic control towers need not be *accessible* as specified in the provisions of Chapter 11.

Cost Impact: This code change will increase the cost of construction from the current code requirements in some instances; however, reflects current building practices of the FAA.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal correlates revisions made in Group A for air traffic control towers. The deletion of the exception for air traffic control towers from the sprinkler requirement was necessary as they would be required to be sprinklered in Chapter 4 of the IBC.

Assembly Action: **None**

Final Hearing Results

F132-12 **AS**

Code Change No: F133-13

Original Proposal

Section(s): 903.3.1.1 (IBC [F] 903.3.1.1), 903.3.1.1.2 (New) [IBC [F] 903.3.1.1.2]

Proponent: Marshall Klein, International Code Consultants, representing Multi Housing Council

Revise as follows:

903.3.1.1 (IBC [F] 903.3.1.1) NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an automatic sprinkler system in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in Sections 903.3.1.1.1 and 903.3.1.1.2.

903.3.1.1.2 (IBC [F] 903.3.1.1.2) Bathrooms. In Group R occupancies, other than Group R residential care facilities, sprinklers shall not be required in bathrooms that do not exceed 55 square feet in area and are located within individual dwelling units or sleeping units, provided that walls and ceilings, including the walls and ceilings behind any shower enclosure or tub, are of noncombustible or limited-combustible materials with a 15-minute thermal barrier rating.

Reason: This change is necessary to reinstate an exception that has been in existence since 1976 but was nevertheless deleted from the 2013 edition of NFPA 13 with no technical justification. Because the 2015 I-codes will reference the 2013 edition of NFPA 13, it is necessary and appropriate for the IBC and IFC to reverse NFPA's unsupported action on this issue.

Although reinstating the small bathroom exception will have a limited impact on new construction because many bathrooms exceed the 55 sq. ft. area limit in the exception to accommodate wheelchair access, the more important consequence will be removing an unnecessary cost increase for building owners who choose to retrofit existing properties with small bathrooms that were built before it was common to provide wheelchair access. Codes and standards should not erect any unnecessary barriers to retrofitting sprinklers into existing properties, such as existing high-rise buildings.

Background: In the 1976 edition of the Life Safety Code, to encourage cost effective fire protection systems for apartment buildings, NFPA 101 Section 11-3.8.3.4.1 provided an exception to permit bathrooms that did not exceed 55 sq. ft within individual dwelling units to omit sprinklers when the apartment building was sprinklered in accordance with NFPA 13. The basis of the 55 sq. ft. area is that this area accommodates a "typical" small bathroom that contains a standard tub, a toilet and a sink…nothing more. This exception was later duplicated from NFPA 101 into the 1991 edition of NFPA 13 with the understanding that the next edition of NFPA 101 (1994) could delete the exception since NFPA 13 would have it covered. NFPA 101-1994 then, as planned, deleted the exception.

The situation remained "status quo" until the cycle that produced the 2010 edition of NFPA 13. A proposal to delete the bathroom exception for apartments was initially rejected by the NFPA 13 Committee during the ROP process (Code Proposal 13-202 Log #79) with the Committee Statement for rejection as "No technical data was provided supporting this change". During the ROC process, a public comment (Comment 13-141 Log #235) was submitted by the National Fire Sprinkler Association (NFSA), and the NFPA 13 Committee reversed itself by accepting the Comment, even though no new technical information had been provided. Nevertheless, the NFPA membership rejected this revision at NFPA's annual conference, and the 2010 edition of NFPA 13 retained the exception.

During the 2013 edition cycle for NFPA 13, the issue was raised again, and this time, still with no technical justification, NFPA accepted the change. As a result, NFPA 13-2013 (Section 8.15.8.1.1) only allows omission of sprinklers from in bathrooms in hotels and motels, not apartments.

The history of apartment unit bathroom fires is statistically minimal. According to the recent NFPA Home Structure Fire Report, January 2009, Table 9B, "Reported Apartment Structure Fires by Area of Origin 2003-2006 Annual Averages", out of 113,000 fires/year, only 1600 (1%) are in bathrooms. Given that we have more than 35 years of experience with the bathroom sprinkler exception being in place (since it was put into NFPA 101 in 1976), one would certainly expect anecdotal or statistical experience to indicate the existence of a problem, if there were one. On the contrary, apartments have consistently rank at the top of the list with respect to sprinkler reliability and performance statistics, and no statistical (or other) evidence was presented to or by the NFPA 13 committee to justify deletion of the bathroom sprinkler exception for apartments.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify the proposal as follows:

903.3.1.1 (IBC [F] 903.3.1.1) NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an automatic sprinkler system in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in Sections 903.3.1.1.1 and 903.3.1.1.2.

903.3.1.1.2 (IBC [F] 903.3.1.1.2) Bathrooms. In Group R occupancies, other than Group R-4 occupancies ~~Group R residential care facilities~~, sprinklers shall not be required in bathrooms that do not exceed 55 square feet in area and are located within individual dwelling units or sleeping units, provided that walls and ceilings, including the walls and ceilings behind any shower enclosure or tub, are of noncombustible or limited-combustible materials with a 15-minute thermal barrier rating.

Committee Reason: The exception for bathrooms has been deleted in the 2013 edition of NFPA 13 with no technical justification. Therefore, to retain this exception for use with the IFC and IBC it is necessary to add a new section 903.3.1.1.2. In addition it was a concern that this particular allowance should be within the IBC and IFC as often the architects miss the 15 minute thermal barrier requirement that NFPA 13 requires. The modification simply replaces “Group R residential care facility” with the proper I-Code occupancy terminology Group R-4.

Assembly Action: **None**

Final Hearing Results

F133-13 **AM**

Code Change No: F134-13

Original Proposal

Section(s): 903.3.1.2 (IBC [F] 903.3.1.2)

Proponent: Brad Emerick, Denver Fire Department representing the Fire Marshal's Association of Colorado (FMAC) and the Colorado Chapter of the ICC (CCICC) (brad.emerick@denvergov.org)

Add new text as follows:

903.3.1.2 (IBC [F] 903.3.1.2) NFPA 13R sprinkler systems. *Automatic sprinkler systems* in Group R occupancies up to and including four stories and 60 feet in height above grade plane shall be permitted to be installed throughout in accordance with NFPA 13R.

Reason: There has been confusion as to where you measure the four story limitation for NFPA 13R sprinkler systems. This proposal clarifies the intent of NFPA 13R limitations by using the correct language for building height and correlating with the NFPA 13R committee.

There is a breakpoint in the codes for building heights between 30 feet above the lowest level of fire department access and four stories. This is the point where stair enclosures have to be 2-hour rated, where at least one stair is required to extend to the roof, when standpipes are required, where emergency escape and rescue windows are no longer required, etc. This height correlates with the upper limit at which fire departments can conduct operations using ground ladders. Hand-carried ladders can typically only reach 30 to 40 feet above the grade from where they're set. A higher degree of safety has historically been required in buildings taller than this because an offensive attack will include – maybe exclusively – internal operations.

In residential buildings, this is also the threshold where sprinkler systems are required to be more robust; i.e., where NFPA 13 systems are required.

With the relaxation in requirements for residential pedestal buildings leading to the consolidation of combustible framing (and the contents) in the highest stories, it makes no sense to also relax the sprinklering requirements for that portion of the building. More stories means more time required for search and rescue. Combustible construction – especially if the attics and interstitial floor/ceiling spaces are not protected, means less time is provided.

Cost Impact: This change will not affect the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify the proposal as follows:

903.3.1.2 (IBC [F] 903.3.1.2) NFPA 13R sprinkler systems. *Automatic sprinkler systems* in Group R occupancies up to and including four stories ~~and 60 feet~~ in height ~~above grade plane~~ in buildings not exceeding 60 feet in height above grade plane shall be permitted to be installed throughout in accordance with NFPA 13R.

Committee Reason: The proposal correlates the limitations on height of the installation of a NFPA 13R sprinkler system with the scope of NFPA 13R. The modification corrects the proposed language to more closely correlate with NFPA 13R. More specifically, as originally written it appeared as if the limitation of 4 stories was related to grade plane but only the building height in feet is intended to relate to grade plane.

Assembly Action: **None**

Final Hearing Results

F134-13 **AM**

Code Change No: F135-13

Original Proposal

Section(s): 903.3.1.2 (IBC [F] 903.3.1.2)

Proponent: Tim Pate, City and County of Broomfield, CO, representing Colorado Chapter Code Change Committee

Revise as follows:

903.3.1.2 (IBC [F] 903.3.1.2) NFPA 13R sprinkler systems. Automatic sprinkler systems in Group R occupancies up to and including four stories ~~in height~~ above grade plane shall be permitted to be installed throughout in accordance with NFPA 13R.

Exception: The number of stories of Group R occupancies constructed in accordance with Section 510.2 and 510.4 of the International Building Code shall be measured from the horizontal assembly creating separate buildings.

Reason: There has been confusion as to where you measure the four story limitation for NFPA 13R sprinkler systems. This proposal clarifies the intent of NFPA 13R limitations by using the correct language for building height and addressing the use of these systems in podium buildings.

Cost Impact: This change will not affect the cost of construction.

Public Hearing Results

Committee Action: **Approved as Modified**

Modify the proposal as follows:

903.3.1.2 (IBC [F] 903.3.1.2) NFPA 13R sprinkler systems. Automatic sprinkler systems in Group R occupancies up to and including four stories in height ~~above grade plane~~ shall be permitted to be installed throughout in accordance with NFPA 13R.

~~**Exception:**~~ The number of stories of Group R occupancies constructed in accordance with Section 510.2 and 510.4 of the International Building Code shall be measured from the horizontal assembly creating separate buildings.

Committee Reason: This proposal was approved as it addresses the scenario where NFPA 13R systems are desired to be installed on residential buildings using the podium building allowance in Section 510.2 and 510.4 of the IBC. The modification clarifies that the number of stories in height is not related to grade plane. In addition the exception was revised to be part of the main section as the provisions of the exception are merely clarification of the application of the provisions in Section 510.2 and 510.4. The committee made it clear that it was not their intention to override the action taken on F134-13.

Assembly Action: **None**

Final Hearing Results

F135-13 **AM**

Code Change No: F136-13

Original Proposal

Section(s): 903.3.1.2.1 (IBC [F] 903.3.1.2.1)

Proponent: Jeffrey M. Hugo, CBO, representing the National Fire Sprinkler Association (hugo@nfsa.org)

Revise as follows:

903.3.1.2.1 (IBC [F] 903.3.1.2.1) Balconies and decks. Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of *dwelling units* and *sleeping units* where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

Reason: According to the current text, a balcony or deck from a sleeping unit would be exempt from fire sprinklers. Sleeping units are common for dormitories, hotel rooms, assisted living, etc. and we do not believe this is the intent of the code to forego protection of these balconies and decks because they lack sanitation or cooking facilities.

DWELLING UNIT. A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

SLEEPING UNIT. A room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a *dwelling unit* are not sleeping units.

Cost Impact: Will not increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The revision was necessary as both dwelling units and sleeping units should be provided with sprinkler protection on exterior balconies, decks and ground floor patios when a NFPA 13R system is installed.

Assembly Action: **None**

Final Hearing Results

F136-12 **AS**

Code Change No: F137-13

Original Proposal

Section(s): 202, 903.3.1.2.2 (New) [IBC [F] 903.3.1.2.2 (New)], 1104.21

Proponent: Al Godwin, CBO, CPM, Aon Fire Protection Engineering, representing Aon Fire Protection Engineering Corporation (al.godwin@aon.com)

Add new text as follows:

SECTION 202
GENERAL DEFINITIONS

OPEN-ENDED CORRIDOR. An interior corridor that is open on each end, and connects to an exterior *stairway* or *ramp* at each end with no intervening doors or separation from the corridor.

Revise as follows:

903.3.1.2.2 (IBC [F] 903.3.1.2.2) Open-ended Corridors. Sprinkler protection shall be provided in *open-ended corridors* and associated *exterior stairways* and *ramps* as specified in Section 1026.6, exception 4.

1104.21 Exterior stairway protection. Exterior *exit stairs* shall be separated from the interior of the building as required in Section 1026. Openings shall be limited to those necessary for egress from normally occupied spaces.

Exceptions:

1 through 3 *(No change to current text)*

4. Separation from the ~~interior~~ *open-ended corridor* of the building is not required for *exterior stairways* ~~connected to open-ended *corridors*~~, provided that:
   - ~~4.1 The building, including *corridors*, and stairs, is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.~~
   - ~~4.2~~ 4.1 The *open-ended corridors* comply with Section 1018.
   - ~~4.3~~ 4.2 The *open-ended corridors* are connected on each end to an *exterior exit stairway* complying with Section 1026.
   - ~~4.4~~ 4.3 At any location in an *open-ended corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an *exterior stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

Reason: This is a correlation with code change E153-12 which was approved last cycle. New Section 903.3.1.2.2 is to clarify that when using a 13R system for this provision, extra heads are required in the breezeway.

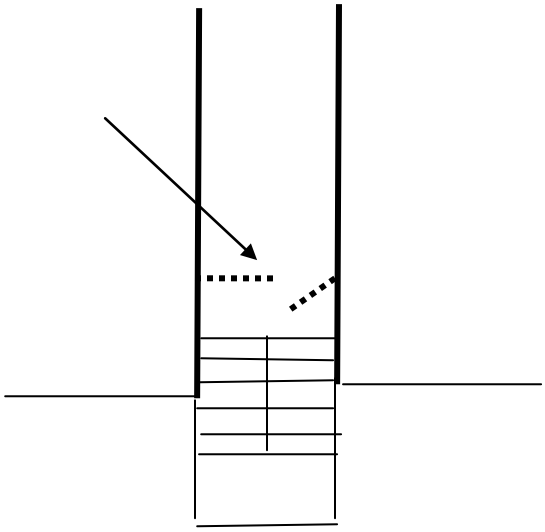
The Reason statement for E153-12 is as follows:

Reason: Breezeway stairs is what this section is talking about. Whether straight through the building with a stair on each side, or taking a turn somewhere during its path through the building with a stair on either end, it is still a breezeway with exterior stairs. This point is not clear in the current language.

There is this opinion that an open breezeway stairs are allowed by basic code. They are not. 2012 IBC Section 1026.6 states that exterior stairs must be separated from the interior of the building. The breezeway (interior corridor) is part of the interior of the building. I have conferred with the original proponent of this code change many times and confirmed that the intent was to allow the removal of the wall and door that separates the stair from the corridor, creating a breezeway.

Many designers and jurisdictions assume that breezeway stairs are allowed by right. However, in order to not have to build the wall and fire door separating the exterior stair from the interior corridor, exception 4 must be complied with, which includes sprinklers in this breezeway.

The following is a representation of the intent of Exception 4, allowing the removal of the separation wall and door:



We are all familiar with the required protection on each side of the exterior stair as represented in this clip from the 2000 International Building Code Commentary.

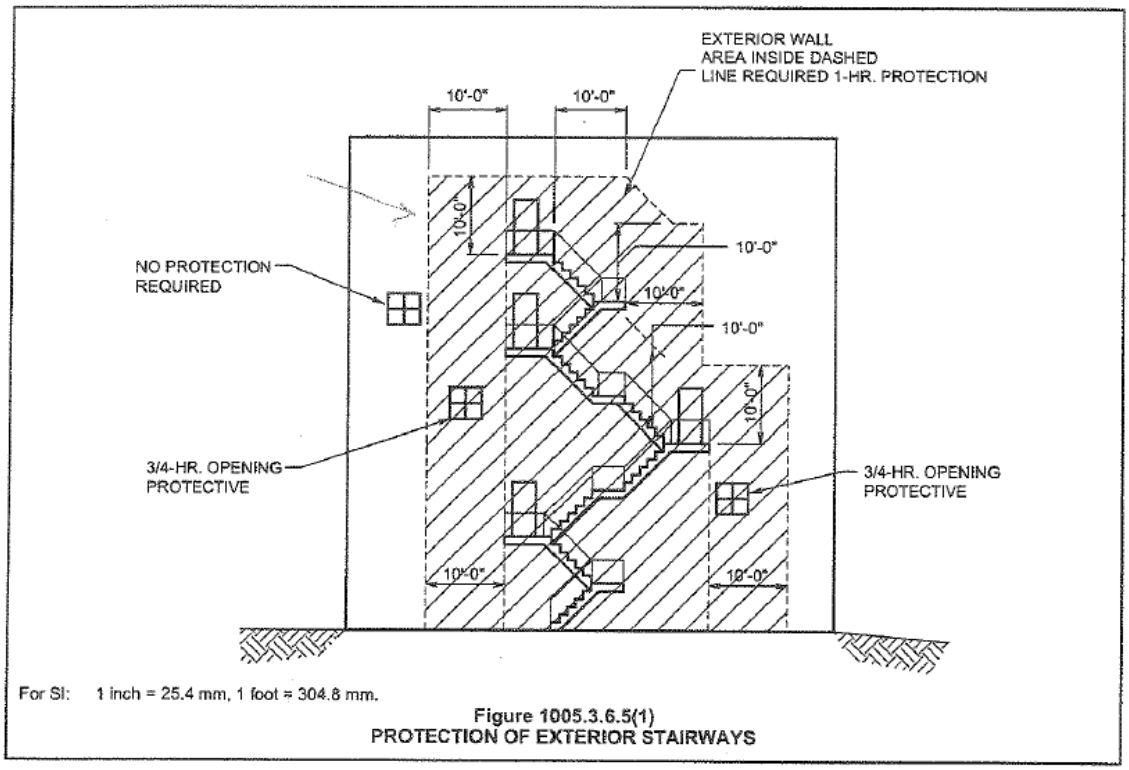
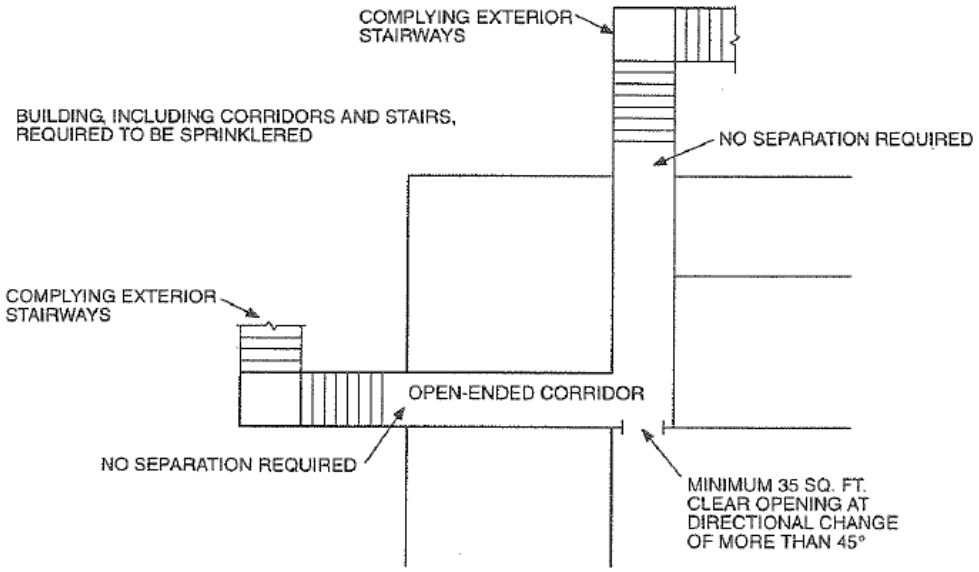


Figure 1005.3.6.5(1)
PROTECTION OF EXTERIOR STAIRWAYS

So, if the walls on each side of the stair have to be protected, how can a large opening where the door occurs be removed and have an unprotected connection to the interior corridor.

The 2000 IBC Handbook, provided an accurate depiction of what this code change applied to as follows:



OPEN-ENDED CORRIDOR

FIGURE 1005-10

Here is the original code change that inserted the provision. Notice the statement "The purpose of this analysis was to determine if an equivalent level of life safety could be achieved by the design of an open breezeway in comparison to an enclosed corridor or balcony for these multifamily buildings."

technical change.

Public Hearing: Committee: AS AM D
Assembly: ASF DF

1008.7-2

Proponent: Ron Nickson, National Multi Housing Council/National Apartment Association

1. Revise as follows:

1008.7 Exterior exit stairways. Exterior exit stairways that conform to the requirements for interior exit stairways except for the enclosure requirements, are permitted as an element of a required means of egress for buildings not exceeding six stories or 75 feet (22.9 m) in height for occupancies other than Group I-2.

An exterior exit stairway that serves as an exit component shall be open to the outside on at least one side except for required structural columns beams, ~~and open-type~~ handrails and guards. A minimum of 35 square feet (3.22 m^2) of aggregate open area shall be provided within the horizontal projection of each floor to ceiling level at each exterior stair or within the horizontal projection of the floor to ceiling level of the stairway landing that is located no more than 1/2 level above the corridor floor.

The adjoining open areas shall be either yards, courts or public ways; the remaining sides are permitted to be enclosed by the exterior walls of the building. Any stairway not meeting the definition of an exterior stairway shall comply with the requirements for interior stairways.

Exterior stairways shall be located in accordance with Section 1009.1.

2. Revise the definition of Stairway, Exterior as follows:

SECTION 1002
DEFINITIONS

STAIRWAY, EXTERIOR A stairway that is open on at least one side, except for required structural columns, beams, ~~and open-type~~ handrails, and guards. The adjoining open areas shall be either yards, courts or public ways; the other sides of the exterior stairway need not be open.

Reason: To establish minimum requirements for open area on exterior exit stairways and permit the use of enclosed guards and handrail systems.

The 35 sq. ft. of open area is based on computer fire studies of six multifamily projects in Virginia containing more than 2000 individual dwelling units. The analysis was completed by the Sullivan Code Group using HAZARD I, a fire hazard assessment method developed by the United States National Institute of Standards and Technology. The procedures used by the Sullivan Code Group were reviewed by Professor Jonathan Barnett, Ph.D., Associate Professor, Center for Firesafety Studies, Worcester Polytechnic Institute who checked for conformity with the fire modeling expectations and limitations.

The findings, which are based on the provisions in the 1996 BOCA National Building Code, apply equally to the provisions in the IBC. The results, summarized by the Sullivan Code Group in the following Executive Summary, for the six buildings included in the studies were very similar. The buildings studied were multifamily apartments with various configurations of corridors connected to exterior open stairs.

EXECUTIVE SUMMARY

The purpose of this analysis was to determine if an equivalent level of life safety could be achieved by the design of an open breezeway in comparison to an enclosed corridor or a balcony for these multifamily buildings.

The multifamily buildings were analyzed using engineering judgement, referenced literature, the suite of computer programs called FASTlite, and CFAST and, computer-based fire models developed by the United States National Institute of Standards and Technology, Building and Fire Research Laboratory.

The reasonable worst case fire scenario modeled was an arson fire on the breezeway. By assuming that the design fire is a fast growing arson fire, this analysis goes beyond the requirements of the Building Code which does not consider arson fire situations in determining building fire safety regulations. Therefore, this analysis is evaluating the building under more adverse conditions than are addressed in the Building Code. The results of the analysis are:

1. For the life safety of the building occupants on the floor of fire origin, the open breezeway configuration is superior to the enclosed corridor configuration.
2. For the life safety of the building occupants on floors other than the floor of fire origin, the open breezeway configuration meets the intent of the egress provisions in the BOCA Code. With the open breezeway configuration, at least one stairwell should maintain tenable egress conditions depending on the wind direction. In all cases analyzed, one stairwell was capable of handling the occupant load. Therefore, the intent of the code is met.
3. Smoke conditions on floors other than the floor of fire origin will remain safe for a suitable period of time to allow occupant egress with the open breezeway configuration, even without sprinklers. If there is a wind, the tenability in the open breezeways is improved.
4. With the enclosed corridor configuration, sprinkler activation is predicted to occur after the time at which the upper smoke layer reaches a level that could impede egress. With the open breezeway configuration, sprinkler activation is predicted to occur prior to the time at which the upper smoke layer reaches a level that could impede egress.
5. The results of this analysis have demonstrated that an open breezeway protected by quick response automatic sprinklers provides occupant egress conditions which are better than code-complying balcony designs. Therefore an open breezeway protected by quick response sprinklers, as designed for this project, should be regulated by the same requirements as the open balcony which does not require a fire resistance rated floor when standard response automatic sprinklers are present. The design of the open breezeway provides a level of life safety equivalent or superior to that required by the BOCA Code Sections 106.2 and 106.4.

Copies of the Fire Studies are submitted for reference (see NMHC/NAA proposal for Section 1004.7). Additional copies are available from the proponent.

Public Hearing: Committee: AS AM D
Assembly: ASF DF

In the 09/10 cycle, code change E134-09/10 made it clear that this exception only applied to the wall and door that would normally separate an exterior stair from the interior corridor. This exception does not apply to other separation requirements on the sides of the stairs.

The specific section reasoning for this code change is as follows:

Section 202, provide a definition of an open-corridor. Hopefully this will expand on code change E134-09/10 to clarify that this provision is only to eliminate the separation required between the stair and the interior corridor. Not the units on either side.

Section 1026.6, expanding the same concept, adding clarity.

Section 903.3.1.2.2, providing an explicit requirement that sprinkler protection must be provided in this open-ended corridor when using a residential system. As with Section 903.3.1.2.1, this protection is above the requirements of a standard 13R system. If not checked in the design, these heads will not be installed. As such, the open-ended corridor will not be in compliance with code.

Section 1104.21, deletes the sprinkler protection requirement for existing buildings. Once understood that in order to have breezeway stairs, the building, the breezeway and associated stairs must be sprinklered, this provision is actually a retroactive sprinkler provision for all existing buildings with breezeway stairs.

If not sprinklered, in order to keep the breezeway stairs, the building and corridor must be sprinklered. If already sprinklered with a 13R, retrofit sprinklers in the corridor must be installed.

Cost Impact: Since this is correlation between the IFC and IBC, no extra construction cost is expected. And, removing the retroactive implication to existing non-sprinklered breezeways, or 13R sprinklered breezeways without breezeway sprinklers, will reduce costs.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved to correlate with the revisions made in Group A through code change E153-12. The retroactive sprinkler requirement found in Chapter 11 exception 4 was felt to be overly restrictive and therefore was appropriate to delete.

Assembly Action: **None**

Final Hearing Results

F137-12 **AS**

Code Change No: F138-13

Original Proposal

Section(s): 903.3, 903.3.8 (New), 903.4 (IBC [F] 903.4), 903.3.5.1 (IBC [F] 903.3.5.1), 903.3.5.2 (IBC [F] 903.3.5.2)

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

903.3 Installation requirements. *Automatic sprinkler systems* shall be designed and installed in accordance with Sections 903.3.1 through 903.3.8~~7~~.

~~**903.3.5.1.1 Limited area sprinkler systems.**~~
~~Limited area sprinkler systems serving fewer than 20 sprinklers on any single connection are permitted to be connected to the domestic service where a wet automatic standpipe is not available. Limited area sprinkler systems connected to domestic water supplies shall comply with each of the following requirements:~~

~~1. Valves shall not be installed between the domestic water riser control valve and the sprinklers.~~

~~**Exception:** An *approved* indicating control valve supervised in the open position in accordance with Section 903.4.~~

~~2. The domestic service shall be capable of supplying the simultaneous domestic demand and the sprinkler demand required to be hydraulically calculated by NFPA 13, NFPA 13D or NFPA 13R.~~

~~**903.3.5.1**~~ **903.3.5.2 (IBC [F] ~~903.3.5.1~~ 903.3.5.2) Residential combination services.** A single combination water supply shall be allowed provided that the domestic demand is added to the sprinkler demand as required by NFPA 13R.

903.3.8 (IBC [F] 903.3.8) Limited area sprinkler systems. Limited area sprinkler systems shall be in accordance with the standards listed in Section 903.3.1 except as provided in Sections 903.3.8.1 through 903.3.8.5.

903.3.8.1 Number of sprinklers. Limited area sprinkler systems shall not exceed 6 sprinklers in any single fire area.

903.3.8.2 Occupancy hazard classification. Only areas classified by NFPA 13 as Light Hazard or Ordinary Hazard Group 1 shall be permitted to be protected by limited area sprinkler systems.

903.3.8.3 Piping arrangement. Where a limited area sprinkler system is installed in a building with an automatic-wet standpipe system, sprinklers shall be supplied by the standpipe system. Where a limited area sprinkler system is installed in a building without a wet-pipe automatic standpipe system, water shall be permitted to be supplied by the plumbing system provided that the plumbing system is capable of simultaneously supplying domestic and sprinkler demands.

903.3.8.4 Supervision. Control valves shall not be installed between the water supply and sprinklers unless the valves are of an approved indicating type that are supervised or secured in the open position.

903.3.8.5 Calculations. Hydraulic calculations in accordance with NFPA 13 shall be provided to demonstrate that the available water flow and pressure are adequate to supply all sprinklers installed in any single fire area with discharge densities corresponding to the hazard classification.

~~903.3.5.2~~ 903.3.5.3 (IBC [F] ~~903.3.5.2~~ 903.3.5.3) Secondary water supply. An automatic secondary on-site water supply having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings in Seismic Design Category C, D, E or F as determined by the *International Building Code*. An additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the *automatic sprinkler system*. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.

Exception: Existing buildings.

903.4 (IBC [F] 903.4) Sprinkler system monitoring and alarms. All valves controlling the water supply for automatic sprinkler systems, pumps, tanks, water levels and temperatures, critical air pressures, and water-flow switches on all sprinkler systems shall be electrically supervised.

Exceptions:

1. Automatic sprinkler systems protecting one- and two-family dwellings.
2. Limited area systems ~~serving fewer than 20 sprinklers~~ in accordance with Section 903.3.8..

3. through 7. (*No change to current text)*

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

This code section as it exists allows the protection of large areas by a system of automatic sprinklers that is not afforded the same level of protection required by NFPA standards 13, 13R and 25. Some of these include waterflow alarms, components listed for fire protection systems, fire department connections, testing and maintenance.

This code change would reduce the number of sprinklers that may be supplied from a building plumbing system to six in a single fire area to eliminate the potential for multiple limited area sprinkler systems and combined water supply demands necessary to control a single fire event.

It also limits the six sprinklers to a discharge density of Light Hazard or Ordinary Hazard Group I. The basis for these values provides coordination with longstanding requirements in NFPA 101, Life Safety Code, Section 9.7.1.2, which limits the number and discharge density of automatic sprinklers supplied from a plumbing system. Such a limit is reasonable in that it can allow for a pipe schedule design if the plumbing system is capable of satisfying the NFPA 13 pipe diameter requirements.

Cost Impact: This code change would increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it is more reasonable to allow limited area sprinkler systems for 6 sprinklers versus 20. There was some concern that now that there are more controls associated with such systems that the number should be revised back to 20.

Assembly Action: **None**

Final Hearing Results

F138-12 **AS**

Code Change No: F139-13

Original Proposal

Section(s): 903.3.5.2 (IBC [F] 903.3.5.2); IBC [F] 403.3

Proponent: Jeffrey M. Hugo, CBO, representing the National Fire Sprinkler Association (hugo@nfsa.org)

Revise as follows:

IBC [F] 403.3 Automatic sprinkler system. Buildings and structures shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and a secondary water supply where required by Section ~~903.3.5.2~~ 403.3.3.

~~**903.3.5.2 (IBC [F] 903.3.5.2)**~~ **IBC [F]403.3.3 Secondary water supply.** An automatic secondary on-site water supply having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings assigned to Seismic Design Category C, D, E or F as determined by the International Building Code. An additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the automatic sprinkler system. The secondary water supply shall have a duration of not less than 30 minutes

IBC [F] ~~403.3.3~~ 403.3.4 Fire pump room. Fire pumps shall be located in rooms protected in accordance with Section 913.2.1.

Reason: Secondary water supply for high rises is in Chapter 9, whereas the requirements for high rises are in Section 403 of the *International Building Code*. Since this secondary water supply requirement only applies to high rises it is more appropriate for designers and users in Section 403.3.3 of the *International Building Code*.

Cost Impact: Will not increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The secondary water supply requirements are very specific to high rise buildings and are more appropriately located within Section 403.3 of the IBC.

Assembly Action: **None**

Public Comments

Public Comment:

Jeffrey M. Hugo, CBO, representing National Fire Sprinkler Association, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

IBC [F] 403.3 Automatic sprinkler system. Buildings and structures shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and a secondary water supply where required by Section 403.3.3.

IBC [F]403.3.3 Secondary water supply. An automatic secondary on-site water supply having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings assigned

to Seismic Design Category C, D, E or F as determined by the International Building Code. An additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the automatic sprinkler system. The secondary water supply shall have a duration of not less than 30 minutes

IBC [F] 403.3.4 Fire pump room. Fire pumps shall be located in rooms protected in accordance with Section 913.2.1.

IFC 914.3.3 Secondary water supply. An automatic secondary on-site water supply having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings assigned to Seismic Design Category C, D, E or F as determined by the *International Building Code*. An additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the *automatic sprinkler system*. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.

Exception: Existing buildings.

Commenter's Reason: The proposal in the Committee Action Hearings did not make the change in the IFC. This public comment moves 903.3.5.2 of the IFC to 914.3.3. Approval of this public comment would make the IBC and the IFC the same in regards to secondary water for high rise buildings.

Final Hearing Results

F139-13 **AMPC**

Code Change No: F141-13

Original Proposal

Section(s): 903.3.7, 905.1 (IBC [F] 905.1), 905.2 (IBC [F] 905.2), 912.1, 912.3 (IBC [F] 912.3); IBC [F] 903.3.7 (New), IBC [F] 912.1

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

903.3.7 Fire department connections. ~~The location of fire~~ Fire department connections for automatic fire sprinkler systems shall be ~~approved by the fire code official~~ in accordance with Section 912.

905.1 (IBC [F] 905.1) General. Standpipe systems shall be provided in new buildings and structures in accordance with ~~this section~~ Sections 905.2 through 905.10. ~~Fire hose threads used in connection with standpipe systems shall be approved and shall be compatible with fire department hose threads. The location of fire department hose connections shall be approved.~~ In buildings used for high-piled combustible storage, fire protection shall be in accordance with Chapter 32.

905.2 (IBC [F] 905.2) Installation standard. Standpipe systems shall be installed in accordance with this section and NFPA 14. Fire department connections for standpipe systems shall be in accordance with Section 912.

912.1 Installation. Fire department connections shall be installed in accordance with the NFPA standard applicable to the system design and shall comply with Sections 912.2 through ~~912.6~~ 912.7.

912.3 (IBC [F] 912.3) Fire hose threads. Fire hose threads used in connection with standpipe systems shall be approved and shall be compatible with fire department hose threads.

IBC [F] 903.3.7 Fire department connections. Fire department connections for automatic fire sprinkler systems shall be in accordance with Section 912.

IBC [F] 912.1 Installation. Fire department connections shall be installed in accordance with the NFPA standard applicable to the system design and shall comply with Sections 912.2 through ~~912.5~~ 912.6.

(Renumber subsequent sections)

Reason: Currently, there are several sections in the code which contain requirements for fire department connections. This proposal will correlate those requirements and place them into Section 912 where the bulk of the requirements exist. This proposal then either deletes the requirements found elsewhere, as in Section 905.1; or it makes reference to the requirements in Section 912. Section 903.3.7 is shown as an addition to the IBC, since the section is in the IFC but it is not currently in the IBC. There is no change in the requirements currently found in the code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it places the details about fire department connections for both sprinklers and standpipes in a more appropriate location. Section 912 focuses upon the details of fire department connections.

Assembly Action: **None**

Final Hearing Results

F141-12 **AS**

Code Change No: F144-13

Original Proposal

Section(s): 904.2 (IBC [F] 904.2), 904.2.1 (New) [IBC [F] 904.2.1 (New)], 904.12 (New) [IBC [F] 904.12 (New)], 202 (IBC 202), 902.1 (IBC [F] 902.1), Chapter 80 (IBC Chapter 35)

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

904.2 (IBC [F] 904.2) Where ~~required~~ permitted. Automatic fire-extinguishing systems installed as an alternative to the required *automatic sprinkler systems* of Section 903 shall be *approved* by the fire code official. ~~Automatic fire-extinguishing systems shall not be considered alternatives for the purposes of exceptions or reductions allowed by other requirements of this code.~~

904.2.1 (IBC [F] 904.2.1) Restriction on using automatic sprinkler system exceptions or reductions. Automatic fire-extinguishing systems shall not be considered alternatives for the purposes of exceptions or reductions allowed for *automatic sprinkler systems* or by other requirements of this code.

~~904.2.1~~ 904.2.2 (~~IBC [F] 904.2.1~~ 904.2.2) Commercial hoods and duct systems. *(no change)*

904.12 (IBC [F] 904.12) Automatic Water Mist Systems. *Automatic water mist systems* shall be permitted in applications that are consistent with the applicable listing or approvals and shall comply with Sections 904.12.1 through 904.12.3.

904.12.1 (IBC [F] 904.12.1) Design and Installation Requirements. *Automatic water mist systems* shall be designed and installed in accordance with Sections 904.12.1.1 through 904.12.1.4.

904.12.1.1 (IBC [F] 904.12.1.1) General. *Automatic water mist systems* shall be designed and installed in accordance with NFPA 750 and the manufacturer's instructions.

904.12.1.2 (IBC [F] 904.12.1.2) Actuation. *Automatic water mist systems* shall be automatically actuated.

904.12.1.3 (IBC [F] 904.12.1.3) Water supplies. Connections to a potable water supply shall be protected against backflow in accordance with the International Plumbing Code.

904.12.1.4 (IBC [F] 904.12.1.4) Secondary water supply. Where a secondary water supply is required for an *automatic sprinkler system*, an *automatic water mist system* shall be provided with an approved secondary water supply.

904.12.2 (IBC [F] 904.12.2) Water mist system supervision and alarms. Supervision and alarms shall be provided as required for *automatic sprinkler systems* in accordance with Section 903.4.

904.12.2.1(IBC [F] 904.12.2.1) Monitoring. Monitoring shall be provided as required for *automatic sprinkler systems* in accordance with Section 903.4.1.

904.12.2.2 (IBC [F] 904.12.2.2) Alarms. Alarms shall be provided as required for *automatic sprinkler systems* in accordance with Section 903.4.2.

904.12.2.3 (IBC [F] 904.12.2.3) Floor control valves. Floor control valves shall be provided as required for *automatic sprinkler systems* in accordance with 903.4.3.

904.12.3 (IBC [F] 904.12.3) Testing and maintenance. *Automatic water mist systems* shall be tested and maintained in accordance with the International Fire Code.

Add new definition as follows:

SECTION 202
GENERAL DEFINITIONS

AUTOMATIC WATER MIST SYSTEM. A system consisting of a water supply, a pressure source, and a distribution piping system with attached nozzles, which, at or above a minimum operating pressure, defined by its listing, discharges water in fine droplets meeting the requirements of NFPA 750 for the purpose of the control, suppression or extinguishment of a fire. Such systems include wet-pipe, dry-pipe and pre-action types. The systems are designed as engineered, pre-engineered, local-application or total flooding systems.

902.1 Definitions. The following terms are defined in Chapter 2:

AUTOMATIC WATER MIST SYSTEM

Add new standard to Chapter 80 as follows:

NFPA

750-14 Standard on Water Mist Fire Protection Systems

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

This proposal recognizes water mist as an alternative, in some applications, to automatic fire sprinkler systems. However, no exceptions, reductions, or "trade-offs" for water mist systems are granted or permitted by this proposal, as automatic water mist systems are not considered equivalent to automatic sprinkler systems. Automatic water mist systems have been approved by FM Global for occupancies similar to Light Hazard (as defined by NFPA 13) and by UL for occupancies similar to Ordinary Hazard Group I (as defined by NFPA 13). These listings permit automatic water mist systems to be installed as the primary suppression system in a variety of occupancy classifications.

In addition to the above text in Section 904, a definition and the installation standard NFPA 750 *Standard on Water Mist Fire Protection Systems* is added as a referenced standard.

Cost Impact: This code change will not increase the cost of construction

Analysis: A review of the standard proposed for inclusion in the code, NFPA 750-14, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28), will be posted on the ICC website on or before April 1, 2013.

Public Hearing Results

For staff analysis of the content of NFPA 750- 14 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org/cs/codes/Documents/2012-2014Cycle/Proposed-B/ProposedStandards.pdf

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it was felt that water mist systems need to be officially recognized by the IFC and IBC. This was felt to be a good first step for such systems. It was suggested that perhaps water mist systems should be located outside Section 904 within their own section.

Assembly Action: **None**

Final Hearing Results

F144-12 **AS**

Code Change No: F146-13

Original Proposal

Section(s): 904.12 (IBC [F] 904.12) (New), 904.12.1 (IBC [F] 904.12.1 (New)), 904.12.2 (IBC [F] 904.12.2 (New)), Table 906.1 (IBC [F] Table 906.1), Chapter 80 (IBC Chapter 35)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee (cbaldassarra@RJAGroup.com)

Revise as follows:

904.12 (IBC [F] 904.12) Domestic cooking system in Group I-2 Condition 1. In Group I-2 Condition 1 occupancies where cooking facilities are installed in accordance with Section 407.2.5 of the *International Building Code*, the domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Pre-engineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions.

904.12.1 (IBC [F] 904.12.1) Manual system operation and interconnection. A manual actuation device for the hood suppression system shall be installed in accordance with Section 904.11.1 and 904.11.2

904.12.2 (IBC [F] 904.12.2) Portable fire extinguishers for domestic cooking equipment in Group I-2 Condition 1. A portable fire extinguisher complying with Section 906 shall be installed within 30 feet (9144 mm) travel distance of domestic cooking appliances.

TABLE 906.1 (IBC [F] TABLE 906.1)
ADDITIONAL REQUIRED PORTABLE FIRE EXTINGUISHERS

Section	Subject
904.12.2 (IBC 407.2.5)	Domestic cooking hoods in Group I-2 Condition 1 occupancies

(Portions of table not shown remain unchanged)

Add new standard to Chapter 80 (IBC Chapter 35) as follows:

UL

300A-2006 Outline of Investigation for Extinguishing System Units for Residential Range Top Cooking Surfaces

Reason: M76 clarified requirements for domestic appliance located in facilities such as nursing homes and assisted living where they are only used for domestic (not commercial) cooking. G65 requires a range hood with a UL300A protection system in a Group I-2 Condition 1 (nursing home). The purpose of this change is for the standard to be required in the Fire Code. The requirements follow what passed in G65 in Items 6, 7 and 9.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/default.aspx. Since its inception in April/2005, the CTC has held twenty five meetings - all open to the public.

Cost Impact: None

Analysis: The standard proposed for inclusion in the code, UL 300A, was accepted as a referenced standard in the IBC by approval of Group A code change G65-12 (AMPC).

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal similar to F145-13 adds UL300A to the IFC and IBC but is more specific to the application to nursing homes. This correlates with actions taken in Group A that allow these domestic cooking settings within nursing homes.

Assembly Action: **None**

Final Hearing Results

F146-12 **AS**

Code Change No: F148-13

Original Proposal

Section(s): 905.4

Proponent: Al Godwin, CBO, CPM, Aon Fire Protection Engineering, representing Aon Fire Protection Engineering Corporation (al.godwin@aon.com)

Revise as follows:

905.4 Location of Class I standpipe hose connections. Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required interior *exit stairway*, a hose connection shall be provided for each floor level above, ~~and~~ below and at grade. Hose connections shall be located at an intermediate floor level landing between floors, unless otherwise approved by the fire code official.

2 through 6 *(No change to current text)*

Reason: Since hose connections are placed at intermediate landings between floors, it is not clear as to which floor the hose connection serves. However, by not listing "at grade" the provision could be read that one is not required to serve the floor at grade, whichever intermediate landing that might be, leading to some challenges of its meaning. Hopefully, this provides clarification.

Cost Impact: This appears to be a correction. As such, it is not an increase in cost over what the original intent of the code provision should require.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it will require the appropriate placement of hose connections including the floor level at grade. Note that there were some concerns with terminology such as "for each floor level" that may be better addressed by language that addresses stories. However, it was noted that use of the term "story" may lose locations such as penthouses and mezzanines.

Assembly Action: **None**

Public Comments

Public Comment 1:

Gregory R. Keith, Professional heuristic Development, representing The Boeing Company, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

905.4 Location of Class I standpipe hose connections. Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required *interior exit stairway*, a hose connection shall be provided for each floor level above~~,~~ and below ~~and at~~ grade plane. Hose connections shall be located at an intermediate floor level landing between floors, unless otherwise approved by the fire code official.

2 through 6 *(No change to current text)*

Commenter's Reason: The original proposal intended to clarify that the provision applied to stories at grade. Unfortunately, it modified currently incorrect terminology. "Grade" is not a defined term in the IBC/IFC. However, "grade plane" is a defined term. Returning to the original "above and below" language and adding "plane" after "grade" solves the problem. "Grade plane" is a

defined term and represents a reference datum plane. “Story above grade plane” is also a defined term. Accordingly, all stories are either above or below grade plane. If a story is precisely at grade plane, it is above grade plane, by definition. Approval of this editorial modification will bring this standpipe provision into context with current IBC/IFC definitions and intent and will provide for more consistent interpretations.

Public Comment 2:

Gregory R. Keith, Professional heuristic Development, representing The Boeing Company, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

905.4 Location of Class I standpipe hose connections. Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required *interior exit stairway*, a hose connection shall be provided for each story ~~floor level~~ above, below and at grade. Hose connections shall be located at an intermediate ~~floor level~~ landing between stories ~~floors~~, unless otherwise approved by the fire code official.

2 through 6 *(No change to current text)*

Commenter’s Reason: When the IFC Code Committee approved this proposal, it mentioned in its reason statement, “Note that there were some concerns with terminology such as “for each floor level” that may be better addressed by language that addresses stories. “Floor” and “floor level” are not defined terms in the IBC/IFC. The term “story” is a defined term. This modification addresses that concern and uses proper terminology that will result in more consistent interpretations of this provision.

Final Hearing Results

F148-13 **AMPC1, 2**

Code Change No: F152-13

Original Proposal

Section(s): 907.1.2 (IBC [F] 907.1.2)

Proponent: Thomas P. Hammerberg, representing Automatic Fire Alarm Association (TomHammerberg@afaa.org)

Revise as follows:

907.1.2 (IBC [F] 907.1.2) Fire alarm shop drawings. Shop drawings for fire alarm systems shall be submitted for review and approval prior to system installation, and shall include, but not be limited to, all of the following where applicable to the system being installed:

1. A floor plan that indicates the use of all rooms.
2. Locations of alarm-initiating devices.
3. Locations of alarm notification appliances, including candela ratings for visible alarm notification appliances.
4. Design minimum audibility level for occupant notification.
4~~5~~. Location of fire alarm control unit, transponders and notification power supplies.
5~~6~~. Annunciators.
6~~7~~. Power connection.
7~~8~~. Battery calculations.
8~~9~~. Conductor type and sizes.
9~~10~~.Voltage drop calculations.
10~~11~~.Manufacturers' data sheets indicating model numbers and listing information for equipment, devices and materials.
11~~12~~.Details of ceiling height and construction.
12~~13~~.The interface of fire safety control functions.
13~~14~~.Classification of the supervising station.

Reason: The "where applicable" addition is necessary to clarify that only those items applicable to the system being installed are required to be submitted. For example, if the system is only to monitor a sprinkler system and no fire alarm notification appliances are required, there is no need to provide voltage drop calculations or minimum audibility levels that the system will be designed to meet.

The other change is necessary to assist fire alarm designers, installers and authorities having jurisdiction with meeting minimum audibility requirements per NFPA 72. This change will decrease the amount of interpretation issues that usually arise at the final acceptance test and will result in better designed and installed systems.

Cost Impact: none

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as audibility is an issue that comes up during testing and providing that data within the shop drawings is necessary.

Assembly Action: **None**

Final Hearing Results

F152-12 **AS**

Code Change No: F157-13

Original Proposal

Section(s): 907.2.3 (IBC [F] 907.2.3)

Proponent: Frank G. Castelvecchi, III, PE, representing County of Henrico, Virginia (cas13@co.henrico.va.us)

Revise as follows:

907.2.3 (IBC [F] 907.2.3) Group E. A manual fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When *automatic sprinkler systems* or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. A manual fire alarm system is not required in Group E occupancies with an *occupant load* of ~~30~~ 50 or less.
2. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
   2.1. Interior *corridors* are protected by smoke detectors.
   2.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by *heat detectors* or other *approved* detection devices.
   2.3. Shops and laboratories involving dusts or vapors are protected by *heat detectors* or other *approved* detection devices.
3. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1, the emergency voice/alarm communication system will activate on sprinkler water flow and manual activation is provided from a normally occupied location.

Reason: Changing the threshold from 50 to 30 imposed this requirement on most school trailers and small daycare centers by moving the classroom size from 1000 sq ft to 600 sq ft. Requiring an expensive voice alarm system in a school trailer or small storefront daycare center is a ludicrous imposition of significant costs to schools and small businesses. In these small buildings any emergency situation would be readily apparent to all occupants—if you cannot see the flames, smell the smoke or feel the heat in a one room schoolhouse-- a synthesized voice is not going to do any good and may well interfere with the children understanding the teachers instructions.

There is no record of fire deaths and injuries in these occupancies to justify these added expenses. The children in these occupancies are required to be under competent adult supervision.

Cost Impact: This will reduce the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it is consistent with the action taken on F158-13. This provides a method of making the change from 30 occupants to 50 occupants if F158-13 should fail in final action.

Assembly Action: **None**

Final Hearing Results

F157-12 **AS**

Code Change No: F158-13

Original Proposal

Section(s): 907.2.3 (IBC [F] 907.2.3)

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

907.2.3 (IBC [F] 907.2.3) Group E. A manual fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. A manual fire alarm system is not required in Group E occupancies with an occupant load of ~~30~~ 50 or less.
2. Emergency voice/ alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.

~~2~~3. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
   ~~2.1~~ 31. Interior corridors are protected by smoke detectors.
   ~~2.2~~ 3.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
   ~~2.3~~ 33. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.

~~3~~4. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, the emergency voice/alarm communication system will activate on sprinkler water flow and manual activation.

Reason: Many small schools or day cares consist of one or two rooms. For such small buildings, there is no need to install a notification system to warn occupants of fires or other emergencies, as occupants are typically in close visual or audible contact with all occupied spaces and with each other. This arrangement provides for adequate means to notify all occupants of the building of potential hazardous conditions to initiate emergency actions, including evacuation.

The threshold in Exception 1 has been reduced from 50 to 30 with no apparent loss history. The testimony presented by the proponent of Code Change F107-09/10 was that the number was modified to correlate the occupant load trigger for 1-HR rated corridors. It is common that individual classrooms contain an occupant load of 30 students. It seems that a more appropriate occupant load trigger is the egress provision which requires a second exit at an occupant load of 50, not 30.

An alarm system in a single classroom, or set of small classrooms, does not appear justified. It appears that the appropriate 'occupant load trigger' is 50 since that is when a fire alarm system has been required for many years without any major incidents. Therefore, this proposal will move the trigger to an occupant load of 50 to determine when a manual fire alarm system is required.

Exception 2 is proposed to be added. This exception would require the emergency voice communication system when the occupant load exceeds 100, as buildings with larger numbers of occupants may necessitate detailed instructions regarding evacuation, relocation, or other actions to ensure safety of building occupants. Often, these buildings include multiple floors, fire areas, and egress paths, and occupants may require notification of more detailed or modified instructions on alternate courses action other than those stated in a standard evacuation plan.

The result of this proposal is that when the occupant load is:

50 or less – fire alarm system is not required

51 to 100 – manual fire alarm system is required
101 or more – manual fire alarm system with emergency voice/alarm communication system

Cost Impact: The code change proposal will reduce the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was felt to be a more reasonable approach for smaller schools. A manual fire alarm system for greater than 50 is reasonable while still maintaining the emergency voice communication system where the occupant load exceeds 100.

Assembly Action: **None**

Final Hearing Results

F158-12 **AS**

Code Change No: F160-13

Original Proposal

Section(s): 907.2.6 (IBC [F] 907.2.6), 907.5.2.1 (IBC [F] 907.5.2.1), 907.5.2.3 (IBC [F] 907.5.2.3)

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care (john.williams@doh.wa.gov)

Revise as follows:

907.2.6 (IBC [F] 907.2.6) Group I. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group I occupancies. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be provided in accordance with Sections 907.2.6.1, 907.2.6.2 and 907.2.6.3.3.

Exceptions:

1. Manual fire alarm boxes in sleeping units of Group I-1 and I-2 occupancies shall not be required at exits if located at all care providers' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that travel distances required in Section 907.4.2.1 are not exceeded.
2. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is approved by the fire code official and staff evacuation responsibilities are included in the fire safety and evacuation plan required by Section 404.

907.5.2.1 (IBC [F] 907.5.2.1) Audible alarms. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm.

Exceptions:

1. ~~Visible alarm notification appliances shall be allowed in lieu of audible alarm notification appliances in critical care areas of Group I-2 occupancies~~. Audible alarm notification appliances are not required in critical care areas of Group I-2 Condition 2 occupancies that are in compliance with Section 907.2.6, Exception 2.
2. A visible alarm notification appliance installed in a nurses' control station or other continuously attended staff location in a Group I-2 Condition 2 suite shall be an acceptable alternative to the installation of audible alarm notification appliances throughout the suite in Group I-2 Condition 2 occupancies that are in compliance with Section 907.2.6, Exception 2.

~~2~~ 3. Where provided, audible notification appliances located in each occupant evacuation elevator lobby in accordance with Section 3008.10.1 of the *International Building Code* shall be connected to a separate notification zone for manual paging only.

907.5.2.3 (IBC [F] 907.5.2.3) Visible alarms. Visible alarm notification appliances shall be provided in accordance with Sections 907.5.2.3.1 through 907.5.2.3.4.

Exceptions:

1. Visible alarm notification appliances are not required in alterations, except where an existing fire alarm system is upgraded or replaced, or a new fire alarm system is installed.
2. Visible alarm notification appliances shall not be required in exits as defined in Section 1002.1.

3. Visible alarm notification appliances shall not be required in elevator cars.
4. Visual alarm notification appliances are not required in critical care areas of Group I-2 Condition 2 occupancies that are in compliance with Section 907.2.6, Exception 2.

Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 8 open meetings and over 100 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx

The proposed changes are a clarification of the application of 'private mode' signaling as allowed by NFPA 72 and provide linkage to the emergency action plan necessary for 'private mode' to be safely implemented. A section-by-section summary follows:

Section 907.2.6: The change to Exception 2 links the use of "private mode" signaling under NFPA 72 to the emergency action plan portion of the code. The use of private mode appliances relies on a trained staff to respond and provide for occupant evacuation/defend in place actions.

Section 907.5.2.1: Exception 1 is proposed for modification to eliminate the requirement for the visible signal and the audible signal in Group I-2 hospital critical care areas, operating rooms for example. In private mode, as permitted by Section 907.2.6, Exception 1, there is still a requirement for an audible alarm notification from appliances, though at a much lower decibel level meant to alert staff of the alarm activation. The current language at Section 907.5.2.1, Exception 1 allows that audible alarm to be eliminated from critical care areas (operating rooms) in exchange for a visual notification device. However, the visual signal device also creates a distraction in critical care areas that may not be able to immediately stop a patient procedure and this proposal is to eliminate the visual alarm notification and to link the exception back to the primary allowance for private mode where we have provided for a link to the emergency action plan. The emergency action plan would include provisions for alerting of critical area staff and the actions to be taken.

A new second exception is added to this section to allow for an alarm indicator in a control area of a hospital suite in lieu of audible devices throughout the suite. In a suite arrangement the "control area" is the centrally manned location for staff monitoring patients in the separate rooms. An alarm indicator at this location will alert staff for response in a more effective and efficient manner.

Section 907.5.2.3: A fourth exception is added here to correlate the allowance for eliminating the audible and visual alarm devices from the critical care areas and to link the exception back to the primary allowance for private mode where we have provided for a link to the emergency action plan.

The emergency plan should reflect the response to the private mode alarm signals including the response necessary in critical care areas and who is responsible for alerting critical care area staff.

Cost Impact: This proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as the exceptions for audible and visible alarm notification were provided with necessary detail regarding care suites and critical care areas. This was also consistent with the federal CMS guidelines.

Assembly Action: **None**

Final Hearing Results

F160-12 **AS**

Code Change No: F161-13

Original Proposal

Section(s): 907.2.9.3 (IBC [F] 907.2.9.3)

Proponent: Jeffrey M. Shapiro, International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

Revise as follows:

907.2.9.3 (IBC [F] 907.2.9.3) Group R-2 college and university buildings. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies operated by a college ~~and~~ or university for student or staff housing ~~buildings~~ in the following locations:

1. Common spaces outside of *dwelling units* and *sleeping units*.
2. Laundry rooms, mechanical equipment rooms, and storage rooms.
3. All interior corridors serving *sleeping units* or *dwelling units*.

Exception: An automatic smoke detection system is not required in buildings that do not have interior *corridors* serving *sleeping units* or *dwelling units* and where each *sleeping unit* or *dwelling unit* either has a *means of egress* door opening directly to an exterior *exit access* that leads directly to an *exit* or a *means of egress* door opening directly to an exit.

Required smoke alarms in *dwelling units* and *sleeping units* in Group R-2 occupancies operated by a college ~~and~~ or university for student or staff housing ~~buildings~~ shall be interconnected with the fire alarm system in accordance with NFPA 72.

~~**Exception:** An automatic smoke detection system is not required in buildings that do not have interior *corridors* serving *sleeping units* or *dwelling units* and where each *sleeping unit* or *dwelling unit* either has a *means of egress* door opening directly to an exterior *exit access* that leads directly to an *exit* or a *means of egress* door opening directly to an exit.~~

Reason: This proposal intends to better define what constitutes "college and university buildings." As proposed, such buildings would include those that are operated by a college or university for student or staff housing (regardless of whether the college or university actually owns the building). The difficulty with the current text is determining how it applies to off-campus housing that is open to the general public. Most apartment complexes near a university will probably contain some percentage of student tenants, and for that matter, complexes many miles away from a campus may have student tenants as well. The current code text provides no guidance in determining a threshold at which a "normal" apartment building becomes subject to the provisions of this section.

Based on a discussion last cycle with the proponents of this section, when it was added to the code, it is our understanding that the intent was to address "dormitory style" student housing that is operated by a college or university, and the proposed text intends to clarify that point so that the intended application of the code will be clearly conveyed.

In addition, the existing exception has been relocated in the section so that it is properly placed with respect to the paragraph that it applies to. No change has been made to the exception text.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The clarification as to which portion of the section that the exception was applicable was seen as an improvement. In addition, the clarification as to what is considered a college or university building was necessary.

Assembly Action: **None**

Final Hearing Results

F161-12 **AS**

Code Change No: F163-13

Original Proposal

Section(s): 907.2.11.2 (IBC [F] 907.2.11.2), 907.2.11.5 (New) (IBC [F] 907.2.11.5 (New))

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

907.2.11.2 (IBC [F] 907.2.11.2) Groups R-2, R-3, R-4 and I-1. Single or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4 and I-1 regardless of *occupant load* at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.
2. In each room used for sleeping purposes.

~~**Exception:** Single- or multiple-station smoke alarms in Group I-1 shall not be required where smoke detectors are provided in the sleeping rooms as part of an automatic smoke detection system.~~

907.2.11.5 (IBC [F] 907.2.11.5) Smoke detection system. Smoke detectors listed in accordance with UL 268 and provided as part of the building's fire alarm system shall be an acceptable alternative to single and multiple-station smoke alarms and shall comply with the following:

1. The fire alarm system shall comply with all applicable requirements in Section 907.
2. Activation of a smoke detector in a dwelling unit or sleeping unit shall initiate alarm notification in the dwelling unit or sleeping unit in accordance with Section 907.5.2.
3. Activation of a smoke detector in a dwelling unit or sleeping unit shall not be required to activate alarm notification appliances outside of the dwelling unit or sleeping unit, provided that a supervisory signal is generated and monitored in accordance with Section 907.6.5.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

This proposal allow smoke detectors, provided as part of the buildings fire alarm system, to be used as an alternative to single and multiple-station smoke alarms in dwelling units or sleeping units. When a smoke detector activates, the system is required to generate an alarm signal in the dwelling unit or sleeping unit, which can easily be accomplished with an addressable fire alarm system.

There are some jurisdictions that currently allow smoke detectors to be installed in dwelling units and sleeping units under the alternate materials and methods provisions of the code. These systems may only generate alarm signals in the dwelling unit or sleeping unit, or may activate alarm notification appliances throughout the building. Both options are allowed in this proposal.

Item (3) requires smoke detection systems that only generate alarm notification in the dwelling unit or sleeping unit to transmit a supervisory alarm to an approved supervising station as required by Section 907.6.5. This monitoring is already required for fire alarm system if it also provides protection for the common areas of the building.

There are advantages if the smoke detection system option provides protection in these facilities. These include being able to automatically test smoke detector sensitivity, receive and act on trouble signals, and not have to provide both a fire alarm system and interconnected smoke alarms in the building. However, the code proposal does not prevent the smoke alarm option from being provided.

The proposal also deletes the exception to Section 907.2.11.2 that already allows these systems to be used in Group I-1 occupancies. The addition of Section 907.2.11.5 makes this exception unnecessary.

Cost Impact: This code change will not increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Modified**

Modify the proposal as follows:

907.2.11.2 (IBC [F] 907.2.11.2) Groups R-2, R-3, R-4 and I-1. Single or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4 and I-1 regardless of *occupant load* at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.
2. In each room used for sleeping purposes.

907.2.11.5 (IBC [F] 907.2.11.5) Smoke detection system. Smoke detectors listed in accordance with UL 268 and provided as part of the building's fire alarm system shall be an acceptable alternative to single and multiple-station smoke alarms and shall comply with the following:

1. The fire alarm system shall comply with all applicable requirements in Section 907.
2. Activation of a smoke detector in a dwelling unit or sleeping unit shall initiate alarm notification in the dwelling unit or sleeping unit in accordance with Section 907.5.2.
3. Activation of a smoke detector in a dwelling unit or sleeping unit shall not ~~be required to~~ activate alarm notification appliances outside of the dwelling unit or sleeping unit, provided that a supervisory signal is generated and monitored in accordance with Section 907.6.5.

Committee Reason: The proposal was felt necessary to provide the option of using a smoke detection system as an alternative to single and multi-station smoke alarms. There was one concern that item 3 would allow someone to design a system that would activate the alarm system throughout the building. The modification deletes this allowance by removing the terms "be required to."

Assembly Action: **None**

Final Hearing Results

F163-13 **AM**

Code Change No: F167-13

Original Proposal

Section(s): 907.2.14 (IBC [F] 907.2.14)

Proponent: Gene Boecker, AIA, Code Consultants, Inc. representing Code Consultants, Inc.

Revise as follows:

907.2.14 (IBC [F] 907.2.14) Atriums Connecting more than two stories. A fire alarm system shall be installed in occupancies with an atrium connecting more than two stories, with smoke detection installed ~~throughout the atrium~~ in locations required by a rational analysis in Section 909.4 and in accordance with the system operation requirements in Section 909.17. The system ~~must~~ shall be activated in accordance with Section 907.5. Such occupancies in Group A, E or M shall be provided with an emergency voice/alarm communication systems complying with the requirements of Section 907.5.2.2.

Reason: The purpose of this code change proposal is to correct a substantial change to the requirements for smoke detection in atriums that was made with the intent of only clarifying the existing requirements.

In the 2003 and 2006 editions, the code required smoke detection in atriums only where required by a rational analysis in accordance with Section 909. Section 909.12.3 of the 2012 edition still indicates that automatic activation of a smoke control system is required to be by, "any smoke detection required by engineering analysis." However, modifications made to Section 907.2.13 in the 2009 edition (now Section 907.2.14 in the 2012 edition), that were intended only to clarify existing requirements, appear to require smoke detection in atriums regardless of the need for smoke detection as determined by a rational analysis.

When Section 907 was modified in the 2009 edition by code change proposal F163-07/08, the intent of the code change was to correlate the organization of Section 907 with Section 903. The main purpose of the code change was to correlate the terms "automatic smoke detection systems" and "manual fire alarm system". During the course of the code change process Section 907.2.13 was modified to require both a fire alarm system and a smoke detection system in atriums, although a smoke detection system had not been required in atriums by Section 907 of the prior edition. This is clear because code change proposal F58-01 that removed the requirement for smoke detection in atriums stated in its justification, "[t]he engineering analysis would determine if (or if not) smoke detectors would be required to maintain a tenable environment for the evacuation or relocation for the occupants of the building."

The modification in this code change proposal maintains the appropriate terminology, but returns the requirements to their original intent: that the requirements for smoke detection in atriums are unique to each atrium and should be determined by the required rational analysis.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it was felt that the placement of smoke detectors as it relates to smoke control should be addressed through the design process in order for the system to operate properly.

Assembly Action: **None**

Final Hearing Results

F167-12 **AS**

Code Change No: F168-13

Original Proposal

Section(s): 907.2.22 (IBC [F] 907.2.22), 907.2.22.1 (New) [IBC [F] 907.2.22.1(New)], 907.2.22.2 (New) [IBC [F] 907.2.22.2(New)]

Proponent: Eric R. Rosenbaum, Hughes Associates, Inc. representing the Air Traffic Control Tower Fire Life Safety Task Group (erosenbaum@haifire.com+

Revise as follows:

907.2.22 (IBC [F] 907.2.22) Airport traffic control towers. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be provided in airport traffic control towers in ~~all occupiable and equipment spaces~~ accordance with Sections 907.2.22.1 and 907.2.22.2.

Exception: Audible appliances shall not be installed within the control tower cab.

907.2.22.1 (IBC [F] 907.2.22.1) Airport traffic control towers with multiple exits and automatic sprinklers. Airport traffic control towers with multiple exits and equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3, shall be provided with smoke detectors in the following locations.

1. Airport traffic control cab
2. Electrical and mechanical equipment rooms
3. Airport terminal radar and electronics rooms
4. Outside each opening into exit enclosures
5. Along the single means of egress permitted from observation levels
6. Outside each opening into the single means of egress permitted from observation levels.

907.2.22.2 (IBC [F] 907.2.22.2) Other airport traffic control towers. ~~-~~Airport traffic control towers with a single exit or where sprinklers are not equipped throughout, shall be provided with smoke detectors in the following locations.

1. Airport traffic control cab
2. Electrical and mechanical equipment rooms
3. Airport terminal radar and electronics rooms
4. Office spaces incidental to the tower operation.
5. Lounges for employees, including sanitary facilities.
6. Means of egress
7. Accessible utility shafts

Reason: The proposed change is the recommendation of the Air Traffic Control Tower Fire/Life Safety Task Group, and reflects the current approach to fire protection and life safety in airport traffic control towers and the provisions of the Life Safety Code. It is suggested that the proposed revisions provide the proper level of protection for facilities with single exits and multiple exits where delayed evacuation of the cab may be required. The change reduces the amount of detection required in multiple exit ATCT with automatic sprinkler protection based on the accepted revision to Section 412.3 of the IBC to require automatic sprinkler protection in towers where an occupied floor is located 35 ft or greater from the lowest level of fire department vehicle access. Automatic sprinklers are provided for detection and control of the fire. Smoke detection is specified as required to also detect a fire that may affect the means of egress for the tower. The changes also are intended to clarify the required locations of smoke detection in single exit ATCT based on the allowed uses in an airport traffic control tower in Section 412.3. The following is the accepted proposal to Section 412.3:

412.3 Airport traffic control towers. The provisions of Sections 412.3.1 through 412.3.~~5~~11 shall apply to airport traffic control towers occupied only for the following uses:

1. Airport traffic control cab.
2. Electrical and mechanical equipment rooms.
3. Airport terminal radar and electronics rooms.
4. Office spaces incidental to the tower operation.
5. Lounges for employees, including sanitary facilities.

412.3.1 Type of construction. Airport traffic control towers shall be constructed to comply with the height limitations of Table 412.3.2.

TABLE 412.3.2
HEIGHT LIMITATIONS FOR AIRPORT TRAFFIC CONTROL TOWERS

TYPE OF CONSTRUCTION	HEIGHT[a] (feet)
IA	Unlimited
IB	240
IIA	100
IIB	85
IIIA	65

a. Height to be measured from grade plane to cab floor

412.3.2 Stairway Stairways in Airport traffic control towers shall conform to the requirements of Section 1009. Such *stairways* shall be a smokeproof enclosure in accordance with Section 909.20. The stair pressurization alternative in accordance with Section 909.20.5 shall be permitted to be used. *Stairways* shall not be required to extend to the roof as specified in Section 1009.11.

412.3.3 Exit access. From observation levels, airport traffic control towers shall be permitted to have a single means of exit access for a distance of travel not exceeding 100 ft (30 m). This means of egress shall be permitted to include exit access utilizing an unenclosed stair at the observation level.

412.3.4 Single means of egress. Not less than one *exit stairway* shall be permitted for airport traffic controls towers of any height provided that the *occupant load* per floor is not greater than 15 and the area per floor does not exceed 1,500 square feet (140 m^2).

412.3.4.1 Arrangement of single means of egress. Airport traffic control towers permitted a single exit and located above another building shall be provided with one of the following:

1. Exit enclosure separated from the other building with no door openings to or from the other building
2. Exit enclosure leading directly to an exit enclosure serving the other building, with walls and door separating the exit enclosures from each other, and another door allowing access to the top floor of the building that provides access to a second exit serving that floor.

412.3.4.2 Interior Finish. Airport traffic control towers permitted a single exit in accordance with Section 412.3.4 shall be restricted to interior wall and ceiling finishes of Class A or Class B.

412.3.5 Automatic fire detection systems. Airport traffic control towers shall be provided with an automatic fire detection system installed in accordance with Section 907.2.

412.3.6 Automatic sprinkler system. Airport traffic control towers shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

412.3.7 Standby power. A standby power system that conforms to Chapter 27 shall be provided in airport traffic control towers more than 65 feet (19 812 mm) in height. Power shall be provided to the following equipment:

1. Pressurization equipment, mechanical equipment and lighting.
2. Elevator operating equipment.
3. Fire alarm and smoke detection systems.

412.3.8 Elevator Protection. Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to elevators shall be protected by construction having a minimum 1-hour *fire resistance rating* or shall be circuit integrity cable having a minimum 1-hour *fire-resistance rating*.

412.3.9 Accessibility. Airport traffic control towers need not be *accessible* as specified in the provisions of Chapter 11.

Cost Impact: This code change will increase the cost of construction from the current code requirements in some instances; however, reflects current building practices of the FAA. Cost will be reduced in instances where detection is not required.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it correlates with the revisions made in Group A for aircraft control towers.

Assembly Action: **None**

Final Hearing Results

F168-12 **AS**

Code Change No: F170-13

Original Proposal

Section(s): 907.4.2.1 (IBC [F] 907.4.2.1)

Proponent: Daniel E. Nichols, P.E., New York State Department of State (dan.nichols@dos.ny.gov)

Revise as follows:

907.4.2.1 (IBC [F] 907.4.2.1) Location. Manual fire alarm boxes shall be located not more than 5 feet (1524 mm) from the entrance to each exit. In buildings not protected by an automatic sprinkler system in accordance with 903.3.1.1 or 903.3.1.2, additional manual fire alarm boxes shall be located so that the exit access travel distance to the nearest box does not exceed 200 feet (60 960 mm).

Reason: This code change proposal both addresses the current situation of manual pull boxes being seldom used to report fires and coordinates with Table 1016.2 on exit access travel distance.

With the exception of F-2, S-2, and U. Travel distance in unsprinklered buildings is a maximum of 200 feet (when such occupancy is permitted not to be sprinklered. Exit access travel distance is permitted to be increased by 50 feet (to 250 feet) for sprinkler installation in A, E, F-1, M, R, S-1 and 100 feet (to 300 feet) for Group B. What this proposal does is it permits the increased travel distance allowed by the sprinkler system to not then require an additional manual pull box.

The second part of the change is to coordinate with the defined term 'exit access' travel distance for the requirements for which measurements should be taken. The first part of 907.4.2.1 states the measurement is taken from each 'exit', which is the end of 'exit access'.

Cost Impact: This proposal will not affect the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it coordinates the additional manual fire alarm box requirements more appropriately with travel distance for unsprinklered buildings. Sprinklered buildings are allowed increased travel distances that are not consistent with this section.

Assembly Action: **None**

Final Hearing Results

F170-12 **AS**

Code Change No: F171-13

Original Proposal

Section(s): 202, 907.5.2.3.1 (IBC [F] 907.5.2.3.1). 907.5.2.3.2 (IBC [F] 907.5.2.3.2)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee (cbaldassarra@RJAGroup.com)

Revise as follows:

IFC 907.5.2.3.1 (IBC [F] 907.5.2.3.1) *Public use areas* and *common use* areas. Visible alarm notification appliances shall be provided in *public use areas* and *common use* areas.

~~**IFC 907.5.2.3.2 (IBC [F [F] 907.5.2.3.2) Employee work areas.**~~ **Exception:** Where *employee work areas* have audible alarm coverage, the notification appliance circuits serving the *employee work areas* shall be initially designed with a minimum of 20-percent spare capacity to account for the potential of adding visible notification appliances in the future to accommodate hearing impaired employee(s).

Add new definitions as follows:

SECTION 202
GENERAL DEFINITIONS

[B] COMMON USE. Interior or exterior *circulation paths*, rooms, spaces or elements that are not for public use and are made available for the shared use of two or more people.

[B] PUBLIC-USE AREAS. Interior or exterior rooms or spaces that are made available to the general public.

[B] EMPLOYEE WORK AREA. All or any portion of a space used only by employees and only for work. *Corridors*, toilet rooms, kitchenettes and break rooms are not employee work areas.

Reason: The intent of this proposal is to use defined terms for public use and common use to avoid confusion for where visible alarms are required. The definitions are copied from IBC. This requirement would be consistent with ADA 215.2.

The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/default.aspx. Since its inception in April/2005, the CTC has held twenty five meetings - all open to the public.

Cost Impact: None – This will be required by the 2010 ADA Standard for Accessible Design.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it coordinates with the accessibility requirements of the IBC and ADA.

Assembly Action: **None**

Final Hearing Results

F171-12 **AS**

Code Change No: F173-13

Original Proposal

Section(s): 907.6 (IBC [F] 907.6)

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

907.6 (IBC [F] 907.6) Installation and monitoring. A fire alarm system shall be installed and monitored in accordance with Sections 907.6.1 through 907.6.5.2 and NFPA 72.

Reason: This section addresses installation and monitoring. The proposal simply clarifies that monitoring is part of the installation. This proposal does not change or alter the exceptions to Section 907.6.5.

Cost Impact: This code change will not increase the cost of construction

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Specifying both installation and monitoring was felt to be more reflective of the requirements within Section 907.6.

Assembly Action: **None**

Final Hearing Results

F173-12 **AS**

Code Change No: F174-13

Original Proposal

Section(s): 907.6.3 (New) (IBC [F] 907.6.3), 907.6.3.1 (New) (IBC [F] 907.6.3.1)

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Add new text as follows:

907.6.3 (IBC [F] 907.6.3) Initiating device identification. The fire alarm system shall identify the specific initiating device address, location, device type, floor level where applicable and status including indication of normal, alarm, trouble and supervisory status, as appropriate.

Exception:

1. Fire alarm systems in single story buildings less than 22,500 square feet (2090 m^2) in area
2. Fire alarm systems that only include manual fire alarm boxes, water flow initiating devices, and not more than 10 additional alarm initiating devices.
3. Special initiating devices that do not support individual device identification.
4. Fire alarm systems or devices that are replacing existing equipment.

907.6.3.1 (IBC [F] 907.6.3.1) Annunciation. The initiating device status shall be annunciated at an approved on-site location.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

This proposal improves the ability of emergency responders to identify the status of initiating devices at the time of an emergency. This proposal will help identify problematic initiating devices and thus reduce nuisance alarms. It also eliminates the requirements for providing zone indication of system status. This is considered particularly important in high-rise buildings, where the number of initiating devices and the geometry of the building warrant a need for point monitoring of individual devices, which is not currently accommodated by single floor zones.

This proposal would allow the fire code official the flexibility to not require individual detection device identification in smaller buildings, where the source of alarm and trouble signals can be more easily determined.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it is consistent with the abilities of new technology as it relates to fire alarms. In addition, it will help the first responders more quickly and effectively fight a fire.

Assembly Action: **None**

Final Hearing Results

F174-12 **AS**

Code Change No: F180-13

Original Proposal

Section(s): 915 (New) [IBC [F] 915 (New)], 908.7(IBC [F] 908.7), 908.7.1 (IBC [F] 908.7.1)

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azumiamia@yahoo.com)

Revise as follows:

SECTION 915
CARBON MONOXIDE DETECTION

~~**908.7(IBC [F] 908.7)**~~ **915.1 (IBC [F] 915.1) Carbon monoxide alarms.** Group I or R occupancies located in a building containing a fuel-burning appliance or in a building which has an attached garage shall be equipped with single-station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in Chapter 2 of the *International Building Code*, or an enclosed parking garage ventilated in accordance with Section 404 of the *International Mechanical Code* shall not be considered an attached garage.

Exception: *Sleeping units* or *dwelling units* which do not themselves contain a fuel-burning appliance or have an attached garage, but which are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The *sleeping unit* or *dwelling unit* is located more than one story above or below any story which contains a fuel-burning appliance or an attached garage;
2. The *sleeping unit* or *dwelling unit* is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and
3. The building is equipped with a common area carbon monoxide alarm system.

~~**908.7.1 (IBC [F] 908.7.1)**~~ **915.2 (IBC [F] 915.2) Carbon monoxide detection systems.** Carbon monoxide detection systems, which include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720 shall be permitted. The carbon monoxide detectors shall be *listed* as complying with UL 2075.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

This proposal simply relocates CO alarm system requirements from Section 908.7 to a new Section 915, with no technical changes whatsoever. This is being done for the following reasons:

1. By definition emergency alarm systems provide indication and warning of emergency situations involving hazardous materials, which relates more closely to warning systems required by the hazardous materials chapters of this code (e.g. Chapter 50 to 67). Carbon monoxide that is generated by motor vehicle exhaust and damaged fuel burning appliances is not regulated by those chapters.
2. As currently written the CO alarm requirements in Section 908.7 stand alone, and do not relate in any way to the emergency alarm requirements in Sections 908.1 through 908.6. Thus there is no advantage to having both emergency alarm and carbon monoxide alarm requirements in the same Section.

3. This proposal relocates the carbon monoxide alarm requirements to a new Section 915, which was done so the current Sections 909 through 914 don't need to be renumbered.
4. It is recognized that there is at least one other proposal to revise the Section 908.7 CO alarm requirements. If that proposal succeeds, approval of this proposal is intended to retain the changes from the other proposal, and relocate the revised provisions into Section 915.

Cost Impact: The proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal to move the CO requirements to a new independent section was approved as such systems are not considered "emergency alarms" as currently addressed in other provisions of Section 908.

Assembly Action: **None**

Final Hearing Results

F180-13 **AS**

Code Change No: F184-13

Original Proposal

Section(s): 909.4.6 (IBC [F] 909.4.6, IMC [F] 513.4.6)

Proponent: Dave Frable representing U.S. General Services Administration, Public Buildings Service

Revise as follows:

909.4.6 (IBC [F] 909.4.6, IMC [F] 513.4.6) Duration of operation. All portions of ~~active or passive~~ engineered smoke control systems shall be capable of continued operation after detection of the fire event for a period of not less than either 20 minutes or 1.5 times the calculated egress time, whichever is ~~less~~ greater.

Reason: The intent of this code change is to provide clarification for determining the duration of operation for smoke control systems to ensure a tenable environment for occupants to either evacuate or relocate to a safe location within a building. In addition, the requirement has also been revised to determine the proper duration for the operation of the smoke control system to run during an emergency by correctly stating "whichever is greater" in lieu of "whichever is less". The 20 minute maximum time duration for the operation of the smoke control system is not sufficient for all evacuation situations and by revising the subject text, a more realistic and reasonable time duration for the operation of the smoke control system will be achieved.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved as it was felt the duration of the smoke control system operation should be tied specifically to the egress time.

Assembly Action: **None**

Final Hearing Results

F184-12	**AS**

Code Change No: F185-13

Original Proposal

Section(s): 909.4 (IBC [F] 909.4, IMC [F] 513.4), 909.4.7 (New) [IBC [F] 909.4.7 (New), IMC [F] 513.4.7 (New)]

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee (cbaldassarra@RJAGroup.com)

Revise as follows:

909.4 (IBC [F] 909.4, IMC [F] 513.4) Analysis. A rational analysis supporting the types of smoke control systems to be employed, their methods of operation, the systems supporting them and the methods of construction to be utilized shall accompany the submitted *construction documents* and shall include, but not be limited to, the items indicated in Sections 909.4.1 through ~~909.4.6~~ 909.4.6.7. [F]

909.4.7 (IBC [F] 909.4.7, IMC [F] 513.4.7) Smoke control system interaction. The design shall consider the interaction effects of the operation of multiple smoke control systems for all design scenarios.

Reason: The focus of this proposal is related to the interaction of multiple mechanical smoke control systems by asking for a specific analysis of the interaction of such systems similar to that required for the interaction of HVAC systems. The study of hoistway pressurization as an option for compliance with enclosed elevator lobby provisions drives the need to understand these interactions as stair pressurization will almost always be present in these buildings as well.

The CTC studied the need for elevator lobbies for traditional elevators (Section 713.14.1), FSAE (3007) and Occupant Evacuation elevators (3008). The Study Group assigned by the CTC conducted a technical analysis that concluded with several recommendations for the need for such lobbies and in addition provided a recommendation on the need for a closer analysis of buildings with more complexities. From this technical analysis the following excerpt is relative to this proposal.

> *In fact in many cases a traditional enclosed elevator lobby was determined to be unnecessary but for unusual building configurations there was more of a concern for interaction of systems and the negative impact of stack effect based upon the findings of the analysis. For instance, high-rise buildings may contain an atrium and will also use stair pressurization. In some cases hoistway pressurization could also be used as an option for compliance with the enclosed elevator lobby requirements. These are three smoke control systems that when running simultaneously may not work as intended. Below is recommendation 5 from the technical analysis.*
>
> *5. Elevator hoistway pressurization design*
>
> - ***The design of pressurization systems for elevator hoistways shall be based on a rational analysis in accordance with Section 909.4 that utilizes a network model approved by the AHJ and which includes an analysis of possible interactions between building shafts pressurized by different systems, and between pressurized and unpressurized shafts that exceed 420 feet in height.***
>
> ***Add guidance to commentary for 909.4 that the rational analysis should show that the pressurization design will maintain the estimated Fractional Effective Dose (FED) below 0.5 and the estimated visibility distance above 25 feet within the stairway for 1.5 times the estimated evacuation time for each of the design fires selected.***
>
> - *Rationale: Taller buildings with more complex flow paths require analysis utilizing a network model that can account for these interacting flow paths. The criteria suggested for commentary represents the standard of practice for a fire hazard analysis performed as the required rational analysis.*

This proposal is one of several proposals submitted by the CTC Elevator lobby SG. The ICC Executive Board directed the Code Technology Committee (CTC) to study the issue of elevator lobby separations in November 2010 due to the number of code change proposals submitted addressing this issue over a number of code change cycles. The Code Technology Committee formed a study group on the elevator lobby separation issue in December 2010. Note that this subject had been previously addressed by CABO/BCMC in 1986 with a similar conclusion. The code change proposals submitted are the result of the CTC's study of the issue. Note that the scope of the activity was as follows:

Scope

- ☐ Review the need for elevator lobbies, with emphasis on building use, building and hoistway height, active and passive fire protection features associated with the aforementioned.
- ☐ Review the differences and specific needs when dealing with elevator lobbies of traditional-use elevators, fire service elevators, and occupant evacuation elevators.
- ☐ Review related code provisions, such as egress from and through elevator lobbies.
- ☐ Review the appropriate use of alternatives including pressurization of hoistways, additional doors, roll-down style barriers, and gasketing systems.
- ☐ Review with members of elevator industry to scope the requirements of applicable elevator reference standards as it deals with elevator lobby design, use and construction.
- ☐ Review design and construction requirements for elevator lobbies, including but not limited to dimensions, location and separation.
- ☐ Review applicable code change history, technical studies and loss statistics as part of this review.

Several proposals were submitted during the Group A Cycle and discussion of the content and outcome of these proposals and the full content of the technical analysis can be found at the following link. http://www.iccsafe.org/cs/CTC/Pages/ElevatorLobbies.aspx

Cost Impact: This proposal will increase the cost of construction where such analysis are not currently undertaken. It can be argued that such an analysis may possibly decrease the cost of construction. Potential delays can be avoided by reducing the need for rework after problems arise during commissioning as result of an upfront analysis. Also the upfront design analysis may eliminate possible excess capacity in the equipment.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The interaction of various smoke control systems such as stair pressurization, hoistway pressurization and atrium smoke control need to be addressed to make sure the systems will perform as designed . It was noted that this particular problem is dealt with on a regular basis.

Assembly Action: **None**

Final Hearing Results

F185-12 **AS**

Code Change No: F186-13

Original Proposal

Section(s): 909.5 (IBC [F] 909.5, IMC [F] 513.5), 909.5.1 (IBC [F] 909.5.1, IMC [F] 513.5.1), 909.5.2 (IBC [F] 909.5.2, IMC [F] 513.5.2)

Proponent: Jeffrey Tubbs, PE, FSFPE, Arup USA, Inc., representing self (jeff.tubbs@arup.com)

Revise as follows:

909.5 (IBC [F] 909.5, IMC [F] 513.5) Smoke barrier construction. *Smoke barriers* required for passive smoke control and a smoke control system using the pressurization method shall comply with Section 709~~, and shall be constructed and sealed to limit leakage areas exclusive of protected openings~~. The maximum allowable leakage area shall be the aggregate area calculated using the following leakage area ratios:

1. Walls: A/A_w = 0.00100
2. Interior *exit stairways* and *ramps* and *exit passageways*: A/A_w = 0.00035
3. Enclosed *exit access stairways* and *ramps* and all other shafts: A/A_w = 0.00150
4. Floors and roofs: A/A_F = 0.00050

where:

A = Total leakage area, square feet (m^2).
A_F = Unit floor or roof area of barrier, square feet (m^2).
A_w = Unit wall area of barrier, square feet (m^2).

The leakage area ratios shown do not include openings due to gaps around doors~~,~~ and operable windows. ~~or similar gaps.~~ The total leakage area of the smoke barrier shall be determined in accordance with Section 909.5.1 and tested in accordance with Section 909.5.2.

909.5.1 (IBC [F] 909.5.1, IMC [F] 513.5.1) Total Leakage area. The total leakage area of the barrier is the product of the *smoke barrier* gross area multiplied by the allowable leakage area ratio, plus the area of other openings such as gaps around doors and operable windows.

909.5.2 (IBC [F] 909.5.2, IMC [F] 513.5.2) Testing of leakage area. Compliance with the maximum total leakage area shall be determined by achieving the minimum air pressure difference across the barrier with the system in the smoke control mode for mechanical smoke control systems utilizing the pressurization method. Compliance with the maximum total leakage area of passive smoke control systems shall be verified through methods such ~~tested using other *approved* means such~~ as door fan testing or other methods ~~shall be~~ as *approved* by the fire code official.

Reason: This code change clarifies leakage area calculation and testing, and clarifies requirements for passive smoke control systems.

Cost Impact: The code change may introduce a small to negligible cost impact to smoke control systems.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was a good clarification of the smoke barrier requirements as they relate to passive and pressurization type smoke control systems.

Assembly Action: **None**

Final Hearing Results

F186-12 **AS**

Code Change No: F199-13

Original Proposal

Section(s): IFC Table 911.1; IBC Table [F] 414.5.1

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

TABLE 911.1
EXPLOSION CONTROL REQUIREMENTS[f]

MATERIAL	CLASS	EXPLOSION CONTROL METHODS	
		Barricade construction	**Explosion (deflagration) venting or explosion (deflagration) prevention systems**
HAZARD CATEGORY			
Combustible dusts[a]	—	Not Required	Required
Cryogenic fluids	Flammable	Not Required	Required
Explosives	Division 1.1 Division 1.2 Division 1.3 Division 1.4 Division 1.5 Division 1.6	Required Required Not Required Not Required Required Required	Not Required Not Required Required Required Not Required Not Required
Flammable gas	Gaseous Liquefied	Not Required Not Required	Required Required
Flammable liquids	IA[b] IB[c]	Not Required Not Required	Required Required
Organic peroxides	Unclassified detonable I	Required Required	Not Permitted Not Permitted
Oxidizer liquids and solids	4	Required	Not Permitted
Pyrophoric	Gases	Not Required	Required
Unstable (reactive)	4 3 Detonable 3 Nondetonable	Required Required Not Required	Not Permitted Not Permitted Required
Water-reactive liquids and solids	3 2[e]	Not Required Not Required	Required Required
SPECIAL USES			
Acetylene generator rooms	—	Not Required	Required
Grain processing	—	Not Required	Required
Liquefied petroleum gas distribution facilities	—	Not Required	Required
Where explosion hazards exist[d]	Detonation Deflagration	Required Not Required	Not Permitted Required

a. Combustible dusts that are generated during manufacturing or processing. See definition of Combustible Dust in Chapter ~~22~~ 2.
b. Storage or use.
c. In open use or dispensing.
d. Rooms containing dispensing and use of hazardous materials when an explosive environment can occur because of the characteristics or nature of the hazardous materials or as a result of the dispensing or use process.

e. A method of explosion control shall be provided when Class 2 water-reactive materials can form potentially explosive mixtures.
f. Explosion venting is not required for Group H-5 Fabrication Areas complying with Chapter 27 and the International Building Code.

Revise as follows:

[F] TABLE 414.5.1
EXPLOSION CONTROL REQUIREMENTS[a,h]

MATERIAL	CLASS	EXPLOSION CONTROL METHODS	
		Barricade construction	Explosion (deflagration) venting or explosion (deflagration) prevention systems[b]
HAZARD CATEGORY			
Combustible dusts[c]	—	Not Required	Required
Cryogenic flammables	—	Not Required	Required
Explosives	Division 1.1 Division 1.2 Division 1.3 Division 1.4 Division 1.5 Division 1.6	Required Required Not Required Not Required Required Required	Not Required Not Required Required Required Not Required Not Required
Flammable gas	Gaseous Liquefied	Not Required Not Required	Required Required
Flammable liquid	IA[d] IB[e]	Not Required Not Required	Required Required
Organic peroxides	U I	Required Required	Not Permitted Not Permitted
Oxidizer liquids and solids	4	Required	Not Permitted
Pyrophoric gas	—	Not Required	Required
Unstable (reactive)	4 3 Detonable 3 Nondetonable	Required Required Not Required	Not Permitted Not Permitted Required
Water-reactive liquids and solids	3 2[g]	Not Required Not Required	Required Required
SPECIAL USES			
Acetylene generator room	—	Not Required	Required
Grain processing	—	Not Required	Required
Liquefied petroleum gas-distribution facilities	—	Not Required	Required
Where explosion hazards exist[f]	Detonation Deflagration	Required Not Required	Not Permitted Required

a. See Section 414.1.3.
b. See the International Fire Code.
c. As generated during manufacturing or processing.
d. Storage or use.
e. In open use or dispensing.
f. Rooms containing dispensing and use of hazardous materials when an explosive environment can occur because of the characteristics or nature of the hazardous materials or as a result of the dispensing or use process.
g. A method of explosion control shall be provided when Class 2 water-reactive materials can form potentially explosive mixtures.
h. Explosion venting is not required for Group H-5 Fabrication Areas complying with Section 415.10.1 and the International Fire Code.

Reason: This proposal is intended to reduce confusion in the application of explosion venting requirements for Group H-5 Occupancies. Currently, IBC and IFC require explosion venting where the MAQs are exceeded per IFC Table 5003.1.1 and IBC Table 307.1. However, fabrication areas of H-5 Occupancies are specifically allowed to exceed these quantities in accordance with IBC 415.10.1.1.1 and IFC 2704.2.2.1 due to the strict controls prescribed for those fabrication areas.

This proposal would clarify that explosion venting is not required in the fabrication areas of H-5 Occupancies. HPM storage rooms and gas rooms are also allowed to exceed the limits of Tables 2704.2.2.1 and IBC 415.10.1.1.1.Explosion venting would still potentially be required in the HPM storage rooms and gas rooms. This is consistent with the current text in IBC 415.10.5.5.

This proposal is consistent with current construction, industry practice and application of explosion venting requirements, as Group H-5 fabrication areas are generally constructed without explosion venting. This proposal simply provides clarification on how the Group H5 requirements correlate with MAQs and explosion venting requirements found elsewhere in code.

Cost Impact: The code change will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The revisions to IFC Table 911.1 and IBC Table 414.5.1 clarify that Group H-5 fabrication areas are not applicable to the explosion venting requirements. This proposal was felt to be consistent industry practice and current construction.

Assembly Action: **None**

Final Hearing Results

F199-12 **AS**

Code Change No: F298-13

Original Proposal

Section(s): IFC: 5004.7; IBC [F] 414.5.3

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Revise as follows:

IFC 5004.7 Standby or emergency power. Where mechanical ventilation, treatment systems, temperature control, alarm, detection or other electrically operated systems are required, such systems shall be provided with an emergency or standby power system in accordance with NFPA 70 and Section 604.

Exceptions:

1. Emergency or standby power are not required for the following:
   ~~1.~~ 1.1. Mechanical ventilation for storage of Class IB and Class IC flammable and combustible liquids in closed containers not exceeding ~~61/2~~ 6.5 gallons (25 L) capacity.
   ~~2.~~ 1.2. Storage areas for Class 1 and 2 oxidizers.
   ~~3.~~ 1.3. Storage areas for Class II, III, IV and V organic peroxides.
   ~~4.~~ 1.4. Storage areas for asphyxiant, irritant and radioactive gases.
~~5. For storage areas for highly toxic or toxic materials, see Sections 6004.2.2.8 and 6004.3.4.2.~~
~~6~~2. Standby power for mechanical ventilation, treatment systems and temperature control systems shall not be required where an approved fail-safe engineered system is installed.

For storage and use areas for highly toxic or toxic materials, see Sections 6004.2.2.8 and 6004.3.4.2.

IBC [F] 414.5.3 Emergency or standby power. Where mechanical ventilation, treatment systems, temperature control, alarm, detection or other electrically operated systems are required by the International Fire Code or this code, such systems shall be provided with an emergency or standby power system in accordance with Chapter 27.

Exceptions:

1. Emergency or standby power are not required for the following ~~storage areas~~:
   1.1. Mechanical ventilation for storage of Class IB and Class IC flammable and combustible liquids in closed containers not exceeding 6.5 gallons (25 L) capacity.
   1.2. Storage areas for Class 1 and 2 oxidizers.
   1.3. Storage areas for Class II, III, IV and V organic peroxides.
   1.4. Storage, use and handling areas for asphyxiant, irritant and radioactive gases.
   ~~1.5. For storage, use and handling areas for highly toxic or toxic materials, see Sections 6004.2.2.8 and 6004.3.4.2 of the International Fire Code~~.
2. Standby power for mechanical ventilation, treatment systems and temperature control systems shall not be required where an approved fail-safe engineered system is installed.

For storage and use areas for highly toxic or toxic materials, see Sections 6004.2.2.8 and 6004.3.4.2 of the International Fire Code.

Reason: This proposal is intended to correlate the IBC requirements with the requirements in the IFC. Section 414.5.3 in the IBC should be the same as Section 5004.7 in the IFC. However, there are slight differences. This proposal will correct those differences and provide consistency between the codes.

The revisions in IFC Section 5004.7 and IBC Section 414.5.3 are based on the following:

1. Item 1 is duplicated from the IBC and placed into the IFC. The item is revised so that it is not limited to storage. This is consistent with the following text in Item 1.4 which currently addresses use and handling areas.
2. The items are renumbered as subsections consistent with the IBC format.
3. Item 1.4 is relocated as a second paragraph in the section. This provision is not an exception, it does not eliminate emergency or standby power, but rather it adds additional criteria. This is further confirmed by IFC Section 604.2.11 which states "Emergency power shall be provided for occupancies with highly toxic or toxic materials in accordance with Sections 6004.2.2.8 and 6004.3.4.2."

These two sections are then consistent and correlate with the other requirements found in the IFC and IBC. There is no change in requirements.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the proponent's reason statement and that the code change would improve correlation with the IBC.

Assembly Action: **None**

Final Hearing Results

F298-12 **AS**

Code Change No: F348-13

Original Proposal

Section(s): 907.2.6.2 (IBC [F] 907.2.6.2); IBC [F] 407.8

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care (john.williams@doh.wa.gov) and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee (cbaldassarra@RJAGroup.com)

Revise as follows:

907.2.6.2 (IBC [F] 907.2.6.2) Group I-2. An automatic smoke detection system shall be installed in *corridors* in Group I-2 Condition 1 ~~*nursing homes*, long term care facilities, detoxification~~ facilities and spaces permitted to be open to the *corridors* by Section 407.2. The system shall be activated in accordance with Section 907.4. Group I-2 Condition 2 ~~Hospitals~~ shall be equipped with an automatic smoke detection system as required in Section 407.

Exceptions:

1. Corridor smoke detection is not required in smoke compartments that contain sleeping units where such units are provided with smoke detectors that comply with UL 268. Such detectors shall provide a visual display on the corridor side of each sleeping unit and shall provide an audible and visual alarm at the care provider's station attending each unit.
2. Corridor smoke detection is not required in smoke compartments that contain sleeping units where sleeping unit doors are equipped with automatic door-closing devices with integral smoke detectors on the unit sides installed in accordance with their listing, provided that the integral detectors perform the required alerting function.

IBC [F] 407.8 Automatic ~~fire~~ smoke detection. An automatic smoke detection system shall be installed in *corridors* in Group I-2 Condition 1 ~~*nursing homes*, long term care facilities, *detoxification* facilities~~ and spaces permitted to be open to the *corridors* by Section 407.2 ~~shall be equipped with an automatic fire detection system~~. The system shall be activated in accordance with Section 907.4. Group I-2 Condition 2 ~~Hospitals~~ shall be equipped with an automatic smoke detection system as required in Section 407.2 and 407.4.3.

Exceptions:

1. *Corridor* smoke detection is not required ~~where sleeping rooms~~ in smoke compartments that contain sleeping units where such units are provided with *smoke detectors* that comply with UL 268. Such detectors shall provide a visual display on the *corridor* side of each sleeping ~~room and~~ unit and shall provide an audible and visual alarm at the care provider's station attending each unit.
2. *Corridor* smoke detection is not required ~~where sleeping room~~ in smoke compartments that contain sleeping units where sleeping unit doors are equipped with automatic door-closing devices with integral *smoke detectors* on the unit sides installed in accordance with their listing, provided that the integral detectors perform the required alerting function.

Reason: The proposed language in IBC 407.8 and IBC/IFC 907.2.6.2 coordinates with the proposed language automatic smoke detection system requirements in IBC 407.4.3 submitted by the Adhoc Health Care committee during Group A hearings. The intent is also to make the language consistent between the two sections.

This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement

representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering, a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April 2011, the AHC has held 8 open meetings and over 150 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

This proposal is being co-sponsored by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/default.aspx. Since its inception in April/2005, the CTC has held twenty five meetings - all open to the public.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it correlates with the clarifications made in the Group A code change cycle regarding the two overall types of Group I-2 occupancies (Condition 1 - nursing homes and Condition 2 – hospitals.) The revision also correlates the requirements in Section 407.8 with the requirements in Section 907.2.6.2.

Assembly Action: **None**

Final Hearing Results

F348-12 **AS**

Code Change No: F359-13

Original Proposal

Section(s): IFC 907.2.11.3 (IBC [F] 907.2.11.3) (New), 907.2.11.4 (IBC [F] 907.2.11.4) (New);

Proponent: Adolf Zubia. Chairman IAFC Fire and Life Safety Section, representing ICC Fire Code Action Committee (azubiamia@yahoo.com)

Add new text as follows:

907.2.11.3 (IBC [F] 907.2.11.3) Installation near cooking appliances. Smoke alarms shall not be installed in the following locations unless this would prevent placement of a smoke alarm in a location required by Sections 907.2.11.1 or 907.2.11.2.

1. Ionization smoke alarms shall not be installed less than 20 feet (6.1 m) horizontally from a permanently installed cooking appliance.
2. Ionization smoke alarms with an alarm-silencing switch shall not be installed less than 10 feet (3 m) horizontally from a permanently installed cooking appliance.
3. Photoelectric smoke alarms shall not be installed less than 6 feet (1.8 m) horizontally from a permanently installed cooking appliance.

907.2.11.4 (IBC [F] 907.2.11.4) Installation near bathrooms. Smoke alarms shall be installed not less than 3 feet (0.91 m) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by Sections 907.2.11.1 or 907.2.11.2.

(Renumber subsequent sections)

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx.

This proposal is intended to reduce nuisance alarms attributed to locating smoke alarms in close proximity to cooking appliances and bathrooms in which steam is produced. The proposed provisions are based on the findings in the Task Group Report - Minimum Performance Requirements for Smoke Alarm Detection Technology - February 22, 2008, and are consistent with similar requirements included in Section 29.8.3.4 of the 2010 and 2013 editions of NFPA 72.

Cost Impact: This code change will not increase the cost of construction

Public Hearing Results

The code change is contained in the Updates to the 2013 Proposed Changes posted on the ICC website. Please go to http://www.iccsafe.org/cs/codes/Documents/2012-2014Cycle/Proposed-B/00-CompleteGroupB-MonographUpdates.pdf for more information.

Committee Action: **Approved as Submitted**

Committee Reason: These more specific requirements on smoke alarm placement were seen as necessary in the IFC. NFPA 72 contains these requirements but most inspectors may not have access to these specific provisions. It was felt that approving this was consistent with other actions to put specific items from standards in the IFC. There was some concern with the proposed

wording of 907.2.11.4 that it may be interpreted as requiring smoke alarms in occupancies not typically required to have smoke alarms. Specifically it may be interpreted that smoke alarms are required outside a shower area in a Group B occupancy.

Assembly Action: **None**

Final Hearing Results

F359-12 **AS**

Code Change No: P26-12

Original Proposal

Section(s): 403.1 (IBC [P] 2902.1)

Proponent: Julius Ballanco, P.E., JB Engineering and Code Consulting, P.C., representing self. (JBEngineer@aol.com)

Revise as follows:

403.1 (IBC [P] 2902.1) Minimum number of fixtures. Plumbing fixtures shall be provided ~~for the type of occupancy and~~ in the minimum number as shown in Table 403.1 based upon the actual use of the building or space. ~~Types of occupancies~~ Uses not shown in Table 403.1 shall be considered individually by the code official. The number of occupants shall be determined by the International Building Code. ~~Occupancy classification shall be determined in accordance with the International Building Code.~~

Reason: The purpose of the table is to provide fixtures based on the use of the building space, not based on the use group classification. By referencing the use group in accordance with the Building Code, an incorrect number of fixtures may be established for a building. A typical example is a mixed use building. Each use must be considered separately as to the fixture demands. Another example would be a high school that has a cafeteria, an auditorium for productions, and a stadium for sporting events. Each space would have different requirements. The listing of the use group in the table was done merely for convenience. The fixture demands have always been based on the use of the space.

Cost Impact: There is no impact to the cost of a building.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal recognizes that a building can have different actual uses with respect to plumbing fixture needs than what the occupancy classification is for the building.

Assembly Action: **None**

Final Hearing Results

P26-12 AS

Code Change No: P30-12

Original Proposal

Section(s): Table 403.1 (IBC [P]2902.1), 410.2 (New) (IBC 2902.6 (New))

Proponent: Matt Archer - Douglas County, CO - representing the Colorado Chapter ICC (marcher@douglas.co.us)

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]

(See Sections 403.2 and 403.3)

BATHTUBS/ SHOWERS	DRINKING FOUNTAIN[e, f] (SEE SECTION 410.~~1~~)	OTHER

(Portions of table not shown remain unchanged.)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the International Building Code.
b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units hall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.
d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
~~e. The minimum number of required drinking fountains shall comply with Table 403.1 and Chapter 11 of the International Building Code.~~
~~f. Drinking fountains are not required for an occupant load of 15 or fewer.~~
~~g~~e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

410.2 (IBC 2902.6)Small occupancies. Drinking fountains shall not be required for an occupant load of 15 or fewer.

(Renumber subsequent section)

Reason: I believe footnotes serve as a guide for how to use the table. Footnotes are not meant to create new requirements or exceptions.

I deleted footnote e because the table will refer you to the main Section 410 where the (existing) section 410.2 stating that 2 drinking fountains are required for accessibility reasons can be found. Therefore, footnote e will be redundant and should be removed.

I deleted footnote f because this footnote applies to the entire table and not a specific function within the table. Therefore, this type of exception should be placed in the body of the code by moving the footnote to a new section under Section 410, drinking fountains.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: This change is simply moving an allowance from the footnotes to a code section. This is an improvement in code clarity.

Assembly Action: **None**

Final Hearing Results

P30-12 **AS**

Code Change No: P35-12

Original Proposal

Section(s): 403.3 (IBC [P] 2902.3)

Proponent: Julius Ballanco, P.E., JB Engineering and Code Consulting, P.C., representing Little Caesar Enterprises (JBEngineer@aol.com)

Revise as follows:

403.3 (IBC [P] 2902.3) Required public toilet facilities. Customers, patrons and visitors shall be provided with *public* toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 403 for all users. Employees shall be provided with toilet facilities in all *occupancies*. Employee toilet facilities shall be either separate or combined employee and *public* toilet facilities.

Exceptions: Public toilet facilities shall not be required in:

1. Open or enclosed parking garages~~. Toilet facilities shall not be required in parking garages~~ where there are no parking attendants.
2. Structures and tenant spaces intended for quick transactions, including take out, pick up and drop off, having a public access area less than or equal to 300 square feet.

Reason: Tenant spaces that are only intended for quick transactions do not need to provide public facilities for customers, patrons, and visitors. The public does not rely on such spaces to provide public toilet rooms. Patrons spend a short period of time completing a transaction, then they depart.

Examples of these types of spaces include: take out food locations, such as Chinese food take outs; pizza take outs; and carry out ribs. Similar quick transaction facilities include: dry cleaners, atm facilities, florists, shoe repair shops, and newspaper stands.

It is recognized that the text of the second exception could be shortened to read: Structures and tenant spaces having a public access area less than or equal to 300 square feet. The added text is provided for clarity.

The purpose of this section has always been to provide comfort facilities for anyone spending a period of time in the public space. Quick transaction spaces are unique, in that people are not in the space for any length of time. Furthermore, the space open to the public is limited to 300 square feet.

It would be a safety and/or health hazard to have the public travel to the working areas of the tenant space to use toilet facilities. Hence, if a public toilet room is added, the space for the toilet room would have to be located in the front space where the small public area is located. This creates a security concern where the public toilet room would block openings in the front tenant space.The 300 square foot dimension is based on the standard large spaces used by these types of facilities. Most tenant spaces of this type have an area less than 300 square feet for the public.

Cost Impact: This change does not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Small spaces intended for momentary occupancy by the public do not require toilet facilities.

Assembly Action: **None**

Final Hearing Results

P35-12 AS

Code Change No: P38-12

Original Proposal

Section(s): 403.4 (IBC [P]2902.4)

Proponent: Larry Brown, National Association of Home Builders (NAHB)

Revise as follows:

403.4 (IBC [P]2902.4)Signage. Required public facilities shall be provided with ~~designated by a~~ ~~legible~~ signs that ~~for each~~ designate the sex as required by Section 403.2. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1110 of the *International Building Code*.

Reason: This modification is proposed as the IPC and IBC do not always require a separate toilet facility for each sex, as shown below in the Exceptions to Section 403.2. As Section 2902.4 (above) only addresses the signs themselves, is it more appropriate that sign itself have the correct designation for the sex, or for a facility that can be used by either sex. This modification achieves this intent.

403.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or fewer.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the proponent's written reason statement.

Assembly Action: **None**

Final Hearing Results

P38-12 AS

Code Change No: P39-12

Original Proposal

Section(s): 403.4.1 (IBC [P]2902.4.1)

Proponent: Shawn Strausbaugh representing the ICC PMG Code Action Committee

Revise as follows:

403.4.1 (IBC [P] 2902.4.1) Directional signage. Directional signage indicating the route to the required public toilet facilities shall be posted ~~in accordance with Section 3107 of the *International Building Code*. Such signage shall be located~~ in a lobby, corridor, ~~or~~ aisle or similar space, such that it can be readily seen from the main ~~at the~~ entrance to the building or tenant space. ~~facilities for customers, and visitors~~.

Reason: IBC Section 3107 is silent with respect to the posting of this directional signage, so the reference to this section is being removed. The current language indicates that that signage should be located at the entrance to the toilet facilities. The intent of this section is to require signage at the entrance of the building or tenant space so that persons entering such spaces are made aware that toilet facilities do exist and the general direction to those facilities. The overall reason why this section is in the code is to prevent the tenant from telling people that toilet facilities are not available. The requirement for a sign to be displayed at the entrance to the building or tenant space puts the tenant on notice that he cannot deny that public toilet facilities exist to those persons needing those facilities. How can the tenant or owner say that he/she has no public toilet facilities when there is a sign clearly indicating the location of those supposedly non-existing facilities?

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the PMGCAC has held 2 open meetings, multiple conference calls and multiple workgroup calls which included members of the PMGCAC. Interested parties also participated in all of the meetings and conference calls to discuss and debate the proposed changes.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the proponent's written reason statement.

Assembly Action: **None**

Final Hearing Results

P39-12 AS

Code Change No: M36-12, Part II

Original Proposal

Section(s): 401.2, Table 403.3; 407 (New); Chapter 15, IBC 1203.1

Proponent: John Williams, CBO, Chair, ICC Ad Hoc Committee on Health Care and Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee

THIS IS A 2 PART CODE CHANGE, BOTH PARTS WILL BE HEARD BY THE MECHANICAL CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

PART II- IBC GENERAL

Revise as follows:

1203.1 General. Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the *International Mechanical Code*. Where the air infiltration rate in a *dwelling unit* is less than 5 air changes per hour when tested with a blower door at a pressure 0.2 inch w.c. (50 Pa) in accordance with Section 402.4.1.2 of the *International Energy Conservation Code*, the *dwelling unit* shall be ventilated by mechanical means in accordance with Section 403 of the *International Mechanical Code*. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407 of the *International Mechanical Code*.

Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April, 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx. This proposal is being co-sponsored by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April, 2005, the CTC has held twenty-two meetings – all open to the public.

Currently Table 403.3 if the IMC has a limited number of spaces identified with ventilation rates, additionally if a room is not identified in the table then one is required to use the ventilation rate of an adjacent room that is on the list which is problematic if the space usage is vastly different. ASHRAE Standard 170, Table 7-1 has more comprehensive in the spaces that are identified as well as the design parameter requirements. Facility Guidelines Institute (FGI) has also incorporated ASHRAE 170 into the ventilation design requirements at health care facilities. ASHRAE 170 is similar in nature to the IMC referenced standard for the International Institute for Ammonia Refrigeration.

Cost Impact: The code change proposal should not increase the cost of construction because compliance with the standard is already required by facility licensure requirements.

Analysis: A review of the standard proposed for inclusion in the code, [ASHRAE170-2008] with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2012.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Approval is based upon the proponent's published reason.

.

Assembly Action: **None**

Final Hearing Results

M36-12, Part II **AS**

Code Change No: ADM2-13

Original Proposal

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE PROVISIONS COMMITTEE. PART II WILL BE HEARD BY THE RESIDENTIAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee and Virginia Building and Code Officials Association (bajnaic@chesterfield.gov)

PART I – IBC

Revise the International Building Code as follows:

IBC [A] 101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, relocation, enlargement, replacement, *repair*, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

> **Exception:** Detached one- and two-family *dwellings* and multiple single-family *dwellings* (*townhouses*) not more than three *stories* above *grade plane* in height with a separate *means of egress*, and their accessory structures not more than three stories above grade plane in height, shall comply with the *International Residential Code*.

PART II – IRC

Revise the International Residential Code as follows:

IRC SECTION R202
DEFINITIONS

ACCESSORY STRUCTURE. A structure ~~not greater than 3,000 square feet (279 m2) in floor area, and not over two stories in height,~~ ~~the use of which~~ that is ~~customarily~~ accessory to and incidental to that of the dwelling(s) and which is located on the same *lot*.

IRC R101.2 Scope. The provisions of the International Residential Code for One- and Two-family Dwellings shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures not more than three stories above grade plane in height.

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 6 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

After a thorough investigation on the history of the code change that introduced a 3,000 square foot limitation on accessory structure, the BCAC discovered that there was no technical justification provided by the original proponent to limit the size of an accessory structure. After some extensive discussion, the BCAC decided that specifying a limitation on the size of the accessory structure should be a decision left to the building official as determined by local zoning ordinances.

Cost Impact: None

Public Hearing Results

PART I - IADMIN
Committee Action: **Approved as Submitted**

Committee Reason: Adding the three story limitation is needed for coordination between the scope in the IBC and IRC. Three stories is an appropriate limit for accessory structures.

Assembly Action: **None**

PART II – IRC
HEARD BY IRC COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved this proposed code change because they felt that it allows the local zoning ordinances to determine the allowable size of accessory structures.

Assembly Action: **None**

Final Hearing Results

ADM2-13, Part I	**AS**
ADM2-13, Part II	**AS**

Code Change No: ADM6-13

Original Proposal

Section: PART I - IBC: [A] 101.3; ICCPC: [A] 101.2.2; IFC: [A] 101.3; IFCG: [A] 101.4; IMC: [A] 101.3; IPC: [A] 101.3; IPSDC: [A] 101.6; IPMC: [A] 101.2
PART II – IRC R101.3

THIS IS A 2 PART CODE CHANGE. PART 1 WILL BE HEARD BY THE ADMINISTRATIVE PROVISIONS COMMITTEE AS ONE CODE CHANGE. PART II WILL BE HEARD BY THE RESIDENTIAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Carl F. Baldassarra, representing Rolf Jensen & Associates, Inc. (cbaldassarra@rjagroup.com)

PART I – IBC; ICCPC; IFC; IFCG; IMC; IPC; IPSDC; IPMC

Revise the International Building Code as follows:

IBC [A] 101.3 Intent. The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, *means of egress* facilities, stability, sanitation, adequate light and ventilation, energy conservation~~;~~ to safeguard ~~and safety to~~ life and property from fire and other hazards attributed to the built environment; and, to safeguard ~~provide safety to~~ fire fighters and emergency responders during emergency operations.

Revise the International Code Council Performance Code as follows:

ICCPC [A] 101.2.2 Fire. Part III of this code establishes requirements necessary ~~to provide an acceptable level~~ to safeguard ~~of~~ life ~~safety~~ and property ~~protection~~ from the hazards of fire, explosion or dangerous conditions in all facilities, equipment and processes.

Revise the International Fire Code as follows:

IFC [A] 101.3 Intent. The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level to safeguard ~~of~~ life ~~safety~~ and property ~~protection~~ from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises, and to safeguard ~~provide safety to~~ fire fighters and emergency responders during emergency operations.

Revise the International Fuel Gas Code as follows:

IFGC [A] 101.4 Intent. The purpose of this code is to provide minimum standards to safeguard life ~~or limb,~~ health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of fuel gas systems.

Revise the International Mechanical Code as follows:

IMC [A] 101.3 Intent. The purpose of this code is to provide minimum standards to safeguard life ~~or limb~~, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of mechanical systems.

Revise the International Plumbing Code as follows:

IPC [A] 101.3 Intent. The purpose of this code is to provide minimum standards to safeguard life ~~or limb~~, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems.

Revise the International Private Sewage Disposal Code as follows:

IPSDC [A] 101.6 Intent. The purpose of this code is to provide minimum standards to safeguard life ~~or limb,~~ health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of *private sewage disposal systems*.

Revise the International Property Maintenance Code as follows:

IPMC [A] 101.2 Scope. The provisions of this code shall apply to all existing residential and nonresidential structures and all existing *premises* and constitute minimum requirements and standards for *premises*, structures, equipment and facilities for light, *ventilation*, space, heating, sanitation, protection from the elements, to safeguard life ~~safety, safety~~ from fire and other hazards, and for safe and sanitary maintenance; the responsibility of *owners*, *operator*s and *occupants*; the *occupancy* of existing structures and *premises*, and for administration, enforcement and penalties.

PART II – IRC

Revise the International Residential Code as follows:

IRC R101.3 Intent. The purpose of this code is to establish minimum requirements to safeguard the public safety, health and general welfare through affordability, structural strength, means of egress facilities, stability, sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment and to safeguard ~~provide safety to~~ fire fighters and emergency responders during emergency operations.

Reason: The intent of this change is to make a minor, but important, clarification of the intent of the code. The section covering the "intent" of the IBC is often used by attorneys and others outside of the code community as the basis for various legal actions. Therefore, it is important that this section reflects both the intention of the code community and the relative level of safety that is reasonably provided through these regulations.

The proposal includes changes that make the levels of intended "safety" the same to the reader by using the same term "safeguard" (used in the first phrase) in the other two phrases. While the language using the term "safeguard" is, perhaps, somewhat vague, it is better than suggesting absolute "safety" can be provided to any person or property through the provisions of the code. There is no intention to reduce the level of safety provided by the code with this change. All users and beneficiaries of the code will be better served through this clarification.

Cost Impact: This code change proposal will not affect the cost of construction.

Staff Analysis: The section on Intent are also found in IEBC 101.3, IWUIC 101.3, IZC 101.2, IECC C101.3, IECC R101.3 and ISPSC 101.3.

Public Hearing Results

PART I - IADMIN
Committee Action: **Disapproved**

Committee Reason: The committee agreed that the scope should be coordinated across the codes, however, they preferred the "reasonable level of life safety" language found in the IFC. The term 'safeguard' is not a match to "provide safety to."

Assembly Action: **None**

PART II – IRC
HEARD BY IRC COMMITTEE

Committee Action: **Disapproved**

Committee Reason: The committee disapproved this code change proposal because they felt that the term 'safeguards is too vague, as the proponent notes. If the proposed requirements were used relative to emergency responders, they need to be further explained or narrowed.

Assembly Action: **None**

Public Comment(s)

Part I - Public Comment:

Carl F. Baldassarra, P.E., representing Rolf Jensen & Associates, Inc., requests Approval as Modified by this Public Comment.

Replace the proposal with the following:

Revise the International Building Code as follows:

IBC [A] 101.3 Intent. The purpose of this code is to establish the minimum requirements to provide a reasonable level of ~~safeguard the~~ public health, safety and general welfare through structural strength, *means of egress* facilities, stability, sanitation, adequate light and ventilation, energy conservation; and safety to life and property from fire and other hazards attributed to the built environment; and, to provide a reasonable level of safety to fire fighters and emergency responders during emergency operations.

Revise the International Code Council Performance Code as follows:

ICCPC [A] 101.2.2 Fire. Part III of this code establishes requirements necessary to provide a reasonable ~~an acceptable~~ level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in all facilities, equipment and processes.

Revise the International Fire Code as follows:

IFC [A] 101.3 Intent. The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises, and to provide a reasonable level of safety to fire fighters and emergency responders during emergency operations.

Revise the International Fuel Gas Code as follows:

IFGC [A] 101.4 Intent. The purpose of this code is to establish ~~provide~~ minimum standards to provide a reasonable level of safety ~~safeguard life or limb~~, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of fuel gas systems.

Revise the International Mechanical Code as follows:

IMC [A] 101.3 Intent. The purpose of this code is to establish ~~provide~~ minimum standards to provide a reasonable level of safety ~~safeguard life or limb~~, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of mechanical systems.

Revise the International Plumbing Code as follows:

IPC [A] 101.3 Intent. The purpose of this code is to establish ~~provide~~ minimum standards to provide a reasonable level of safety ~~safeguard life or limb~~, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems.

Revise the International Private Sewage Disposal Code as follows:

IPSDC [A] 101.6 Intent. The purpose of this code is to establish ~~provide~~ minimum standards to provide a reasonable level of safety ~~safeguard life or limb~~, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of *private sewage disposal systems*.

Revise the International Property Maintenance Code as follows:

IPMC [A] 101.2 Scope. The provisions of this code shall apply to all existing residential and nonresidential structures and all existing *premises* and constitute minimum requirements and standards for *premises*, structures, equipment and facilities for light, *ventilation*, space, heating, sanitation, protection from the elements, a reasonable level of ~~life safety~~, safety from fire and other

hazards, and for a reasonable level of ~~safe and~~ sanitary maintenance; the responsibility of *owners*, *operator*s and *occupants*; the *occupancy* of existing structures and *premises*, and for administration, enforcement and penalties.

Commenter's Reason: The intent of this change is to make minor, but important, clarifications of the intent of the various ICC codes. It is important that these sections reflect both the intention of the code community and the relative level of safety that is reasonably provided through these regulations in a consistent manner. There is no intention to reduce the level of safety provided by the code with this change. All users and beneficiaries of the code will be better served through this clarification.

This modification addresses the reasons for disapproval of both Part I and Part II at the Code Development Hearing in Dallas. Specifically, the reason for Disapproval of Part I by the Administrative Provisions Committee was published as follows:

The committee agreed that the scope should be coordinated across the codes, however, they preferred the "reasonable level of life safety" language found in the IFC. The term 'safeguard' is not a match to "provide safety to."

Also, the reason for Disapproval of Part II by the International Residential Committee was published as follows:

The committee disapproved this code change proposal because they felt that the term "safeguards" (sic) *is too vague, as the proponent notes. If the proposed requirements were used relative to emergency responders, they need to be further explained or narrowed.*

As can be seen by the reviewing the revised proposals, the Committees' comments have been addressed and, therefore, the Proponent requests that the proposals for each code be Approved as Modified by this public comment.

Final Hearing Results

ADM6-13, Part I	**AMPC**
ADM6-13, Part II	**D**

Code Change No: ADM17-13

Original Proposal

Section: IBC: [A] 102.6, [A] 102.6.1 (New), [A] 102.6.2 (New); IEBC: [A] 101.4.1 (New)

Proponent: David S. Collins, FAIA, The Preview Group, Inc./The American Institute of Architects (dcollins@preview-group.com)

Revise the International Building Code as follows:

IBC [A] 102.6 Existing structures. The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the International Existing Building Code, the International Property Maintenance Code or the International Fire Code~~, or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public~~.

IBC [A] 102.6.1 Buildings not previously occupied. A building or portion of a building that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall comply with the provisions of the International Building Code or International Residential Code, as applicable, for new construction or with any current permit for such occupancy.

IBC [A] 102.6.2 Buildings previously occupied. The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the International Fire Code, or the International Property Maintenance Code, or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public.

Revise the International Existing Building Code as follows:

IEBC [A] 101.4 Applicability. This code shall apply to the *repair*, *alteration*, *change of occupancy*, *addition* and relocation of all *existing buildings*, regardless of occupancy, subject to the criteria of Sections 101.4.1 and 101.4.2.

IEBC [A] 101.4.1 Buildings not previously occupied. A building or portion of a building that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall be permitted to comply with the provisions of the laws in existence at the time of its original permit unless such permit has expired. All subsequent permits shall comply with the International Building Code or International Residential Code, as applicable, for new construction ~~or with any current permit for such occupancy.~~

IEBC [A] 101.4.2 Buildings previously occupied. The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the *International Fire Code*, or the *International Property Maintenance Code*, or as is deemed necessary by the *code official* for the general safety and welfare of the occupants and the public.

Reason: The IBC does not now have specific statements regarding the conditions of buildings that have not been or have been previously occupied. The IEBC does include specific requirements for how changes in the code are to be applied. These provisions have been added here to provide the same coverage. In addition, vague language from IBC 102.6 has been removed as likely unenforceable, and certainly would leave an owner/developer/designer in the dark. Finally, the priority for existing permits has been made superior to the current language that says if a new code is adopted it should apply unless there is a permit, which was clumsy and confusing.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposed revisions to the IEBC and IBC will clarify where IEBC applies. This also is a good coordination between the IEBC and IBC requirements.

Assembly Action: **None**

Final Hearing Results

ADM17-13 **AS**

Code Change No: ADM19-13

Original Proposal

Section: IBC: [A] 104.2.1 (New); IEBC: [A] 104.2.1(New)

Proponent: Gregory Wilson, representing Department of Homeland Security, Federal Emergency Management Agency (Gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

Revise the International Building Code and the International Existing Building Code as follows:

IBC [A] 104.2.1 (IEBC [A] 104.2.1) Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, alteration, addition or other improvement of existing buildings or structures located in flood hazard areas, the building official shall determine if the proposed work constitutes substantial improvement or repair of substantial damage. Applications determined to constitute substantial improvement or repair of substantial damage shall require all existing portions of the entire building or structure to meet the requirements of Section 1612 (of the International Building Code).

(Renumber subsequent sections in the IEBC)

Reason: This language is similar to R105.3.1.1, which has the building official making a finding with regard to the value of the proposed work and market value of the building. This change is also proposed for the International Existing Building Code. Application of the IBC Chapter 34 requirements for existing buildings in flood hazard areas depends on the definitions of the terms "substantial improvement" and "substantial damage." The proposed new subsection under Section 104.2 describes what the building official does to determine whether work proposed for existing buildings meets those definitions. A number of code officials have suggested to FEMA that the simple presence of the definitions is insufficient to ensure that these determinations are made and it would be helpful if the building official's responsibilities clearly specified making these determinations.

FEMA published extensive guidance on substantial improvement and substantial damage, including a number of acceptable methods to estimate market value and project costs. Most jurisdictions require the applicant to provide an estimate of costs, which is already required by Section 105.3#5 to be included in the application.

Cost Impact: None. The proposal describes determining whether work meets definitions that are already in the IBC.

Public Hearing Results

Committee Action: **Approved as Modified**

Modification:

Further revise the International Building Code as follows:

IBC [A] 104.2.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, alteration, addition or other improvement of existing buildings or structures located in flood hazard areas, the building official shall determine ~~if~~ where the proposed work constitutes substantial improvement or repair of substantial damage. Where the building official determines that the proposed work constitutes substantial improvement or repair of substantial damage, and where required by this code, the building official shall require the building to meet the requirements of Section 1612. ~~Applications determined to constitute substantial improvement or repair of substantial damage shall require all existing portions of the entire building or structure to meet the requirements of Section 1612.~~

Further revise the International Existing Building Code as follows:

IEBC [A] 104.2.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, alteration, addition or other improvement of existing buildings or structures located in flood hazard areas, the building official shall determine ~~if~~ where the proposed work constitutes substantial improvement or repair of substantial damage. Where the building official determines that the proposed work constitutes substantial improvement or repair of substantial damage, and where required by this code, the building official shall require the building to meet the requirements of Section 1612 of the *International Building Code*. ~~Applications determined to constitute substantial improvement or repair of substantial damage shall require all existing portions of the entire building or structure to meet the requirements of Section 1612 of the *International Building Code*.~~

Committee Reason: The modification clarifies that the building official makes the determination of substantial improvement or substantial damage. The proposed language would coordinate the administrative provisions for flood requirements between the IBC, the IEBC and the IRC (see RB4-13). The administrative provisions will be consistent with the flood requirements found in the body of the code.

Assembly Action: **None**

Final Hearing Results

ADM19-13 **AM**

Code Change No: ADM21-13

Original Proposal

Section: PART I - IBC 104.8; IEBC 104.8; IFC 103.4, 103.4.1; IFGC 103.4; IMC 103.4; IPC 103.4; IPSDC 103.4; IPMC 103.4; IWUIC 104.3; IZC 104.7;
PART II - IRC 104.8;
PART III - ISPSC 103.4

THIS IS A 3 PART CODE CHANGE. PARTS I WILL BE HEARD BY THE ADMINISTRATIVE PROVISIONS COMMITTEE AS ONE CODE CHANGE. PART II WILL BE HEARD BY THE RESIDENTIAL CODE COMMITTEE. PART III WILL BE HEARD BY THE SWIMMING POOL AND SPA CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Mike Metheny, City of Aspen Colorado, representing Colorado Chapter Code Change Committee

PART I – IBC; IEBC; IFC; IFCG; IMC; IPC; IPSDC; IPMC; IWUIC; IZC

Revise the International Building Code as follows:

IBC [A] 104.8 Liability. The building official, member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be civilly or criminally rendered liable personally and is hereby relieved from personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties.

IBC [A] 104.8.1 Legal defense. Any suit or criminal complaint instituted against an officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by legal representative of the jurisdiction until the final termination of the proceedings. The building official or any subordinate shall not be liable for cost in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

Revise the International Existing Building Code as follows:

IEBC [A] 104.8 Liability. The code official, member of the Board of Appeals, or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally and is hereby relieved from personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties.

IEBC [A] 104.8.1 Legal defense. Any suit or criminal complaint instituted against an officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for cost in any action, suit, or proceeding that is instituted in pursuance of the provisions of this code.

Revise the International Fire Code as follows:

IFC [A] 103.4 Liability. The fire code official, member of the board of appeals, officer or employee charged with the enforcement of this code, while acting for the jurisdiction, in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally, and is hereby relieved from all personal liability for any damage accruing to persons or property as a result of an act or by reason of an act or omission in the discharge of official duties.
IFC [A] 103.4.1 Legal defense. Any suit or criminal complaint instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The fire code official or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code; and any officer of the department of fire prevention, acting in good faith and without malice, shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of official duties in connection therewith.

Revise the International Fuel Gas Code as follows:

IFCG [A] 103.4 Liability. The code official, member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally, and is hereby relieved from all personal liability for any damage accruing to persons or property as a result of an act or by reason of an act or omission in the discharge of official duties.

IFGC [A] 103.4.1 Legal defense. Any suit or criminal complaint instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code.

Revise the International Mechanical Code as follows:

IMC [A] 103.4 Liability. The code official, member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally, and is hereby relieved from personal liability for any damage accruing to persons or property as a result of an act or by reason of an act or omission in the discharge of official duties.

IMC [A] 103.4.1 Legal defense. Any suit or criminal complaint instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code.

Revise the International Plumbing Code as follows:

IPC [A] 103.4 Liability. The code official, member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally, and is hereby relieved from all personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties.

IPC [A] 103.4.1 Legal defense. Any suit or criminal complaint instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the

provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for costs in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

Revise the International Private Sewage Disposal Code as follows:

IPSDC [A] 103.4 Liability. The code official, member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally, and is hereby relieved from all personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties.

IPSDC [A] 103.4.1 Legal defense. Any suit or criminal complaint instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for costs in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

Revise the International Property Maintenance Code as follows:

IPMC [A] 103.4 Liability. The code official, member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction, in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally, and is hereby relieved from all personal liability for any damage accruing to persons or property as a result of an act or by reason of an act or omission in the discharge of official duties.

IPMC [A] 103.4.1 Legal defense. Any suit or criminal complaint instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code.

Revise the International Wildland-Urban Interface Code as follows:

IWUIC [A] 104.3 Liability of the code official. The code official, member of the board of appeals or employee charged with the enforcement of this code, acting in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally personally liable for damages that may accrue to persons or property as a result of an act or by reason of an act or omission in the discharge of such duties.

IWUIC [A] 104.3.1 Legal defense. A suit or criminal complaint brought against the code official or employee because of such act or omission performed by the code official or employee in the enforcement of any provision of such codes or other pertinent laws or ordinances implemented through the enforcement of this code or enforced by the code enforcement agency shall be defended by this jurisdiction until final termination of such proceedings, and any judgment resulting there from shall be assumed by this jurisdiction. The code enforcement agency or its parent jurisdiction shall not be held as assuming any liability by reason of the inspections authorized by this code or any permits or certificates issued under this code.

Revise the International Zoning Code as follows:

IZC [A] 104.7 Liability. The code official, or designee, charged with the enforcement of this code, acting in good faith and without malice in the discharge of the duties described in this code, shall not be

personally civilly or criminally liable for any damage that may accrue to persons or property as a result of an act or by reason of an act or omission in the discharge of such duties.

IFGC [A] 104.7.1 Legal defense. A suit or criminal complaint brought against the code official or employee because such act or omission performed by the code official or employee in the enforcement of any provision of such codes or other pertinent laws or ordinances implemented through the enforcement of this code or enforced by the enforcement agency shall be defended by the jurisdiction until final termination of such proceedings, and any judgment resulting therefrom shall be assumed by the jurisdiction.

This code shall not be construed to relieve from or lessen the responsibility of any person owning, operating or controlling any building or parcel of land for any damages to persons or property caused by defects, nor shall the enforcement agency or its jurisdiction be held as assuming any such liability by reason of the reviews or permits issued under this code

PART II – IRC

Revise the International Residential Code as follows:

IRC R104.8 Liability. The building official, member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally and is hereby relieved from personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties.

IRC R104.8.1 Legal defense. Any suit or criminal complaint instituted against an officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by legal representative of the jurisdiction until the final termination of the proceedings. The building official or any subordinate shall not be liable for cost in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

PART III – ISPSC

Revise the International Swimming Pool and Spa Code as follows:

ISPSC 103.4 Liability. The *code official*, member of the board of appeals or employee charged with the enforcement of this code, while acting for the *jurisdiction* in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally and is hereby relieved from personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties.

ISPSC 103.4.1 Legal defense. Any suit or criminal complaint instituted against an officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by legal representative of the jurisdiction until the final termination of the proceedings. The *code official* or any subordinate shall not be liable for cost in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

Reason: An Inspector in Colorado was charged with criminally negligent homicide as well as in a civil case as a result of a carbon monoxide poisoning that occurred in 2008. The inspector found that he was not afforded sovereign immunity for criminal charges even though he was acting in good faith and without malice in the discharge of the duties required by the codes. The jurisdiction was forced to go to City Council to request supplemental funding for his defense. The cost to the jurisdiction in defending the case was in excess of $260,000. The criminal case was eventually dismissed based on a motion that the statute of limitations had run. The criminal case was dismissed on its merits. As code officials we need to know that immunity extends to both criminal and civil actions while discharging our duties and providing for public safety and welfare.

The addition of the title to split the requirements in two parts is for consistency with the IFC.

Cost Impact: This code change proposal will not increase the cost of construction.

Public Hearing Results

PART I - IADMIN
Committee Action: **Approved as Submitted**

Committee Reason: The addition of "or criminal complaint" protects code officials during performance of their jobs. The existing language of "lawful discharge of duties" would protect the jurisdiction from being liable if the code official was taking bribes or performing illegal acts.

Assembly Action: **None**

PART II – IRC
HEARD BY IRC COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved this proposed code change because they felt that it is important to clearly state the code officials' personal liability and the recourse to personal defense. This is consistent with previous action taken on ADM21 Part I.

Assembly Action: **None**

PART III – ISPSC
HEARD BY THE ISPSC COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: Employees of building departments are doing the best that they can do every day. Such employees should be personally protected against civil and criminal actions while performing their duties.

Assembly Action: **None**

Final Hearing Results

ADM21-13, Part I	**AS**
ADM21-13, Part II	**AS**
ADM21-13, Part III	**AS**

Code Change No: ADM22-13

Original Proposal

Section: PART I – IBC: [A] 104.10, [A] 105.1, [A] 106.1, [A] 107.3.4, [A] 110.1, [A] 115.2, 202, 901.5, 1004.3, 1703.4.1, 1703.6, 1703.6.1, 1704.2, 1704.2.4, 1707.1, 1803.6, 3306.8, 3401.2, G104.1, J106.1, K102.3;
ICCPC: [A] 103.3.1, [A] 103.3.1.1, [A] 103.3.1.2, [A] 103.3.1.3, [A] 103.3.1.4, [A] 103.3.1.5, [A] 103.3.1.6, [A] 103.3.1.7, [A] 103.3.1.8, [A] 103.3.1.9, [A] 103.3.4.1.4, [A] 103.3.1.4.6, [A] 103.3.4.2.3, [A] 103.3.8.3, [A] 103.3.9.1.4, [A] 103.3.9.2.3, [A] 103.3.10.1;
IEBC: [A] 104.6, [A] 104.10, [A] 105.1, [A] 106.6, [A] 110.2, [A] 111.3, [A] 114.2, [A] 115.3, [A] 115.4, [A] 116.5, [A] 117.1, [A] 117.3;
IFC: [A] 104.3, [A] 104.3.1, [A] 104.7.2, [A] 105.1.1, [A] 109.2, [A] 109.3.1, [A] 109.3.2, [A] 110.4, [A] 111.2, [A] 112.1;
IFGC: [A] 102.3, [A] 104.4, [A] 105.1, [A] 106.1, [A] 106.3, [A] 108.5, [A] 108.7.2;
IMC: [A] 102.3, [A] 104.4, [A] 105.1, [A] 106.1, [A] 106.3, [A] 108.5, [A] 108.7.2;
IPC: [A] 102.3, [A] 104.4, [A] 105.1, [A] 106.1, [A] 106.3, [A] 108.5, [A] 108.7.2;
IPSDC: [A] 102.5, [A] 104.4, [A] 105.1, [A] 108.5, [A] 108.7.2;
IPMC: [A] 101.2, [A] 102.2, [A] 104.3, [A] 105.1, [A] 107.2, [A] 107.6, [A] 108.2, [A] 108.2.1, [A] 108.3, [A] 108.4, [A] 108.5, [A] 108.6, [A] 109.5, [A] 110.1, [A] 110.3, [A] 112.2;
IWUIC: [A] 101.6, [A] 105.1, [A] 105.2, [A] 109.2.2, [A] 109.3, [A] 109.4.1, [A] 109.4.5.2, [A] 109.4.5.2.1, [A] 109.4.5.3, [A] 109.4.5.4, [A] 113.2, [A] 114.2;
IZC: [A] 103.3, [A] 107.7.3, [A] 109.1
PART II – IECC: C108.2;
PART III – IECC: R108.2;
PART IV – IRC: R104.6, R105.1, R110.3, R111.3, R114.1;
PART V – ISPSC 102.3, 104.6, 104.8, 105.1, 105.2, 107.5, 107.7.2;

THIS IS A 5 PART CODE CHANGE. PARTS I WILL BE HEARD BY THE ADMINISTRATIVE PROVISIONS COMMITTEE AS ONE CODE CHANGE. PART II WILL BE HEARD BY THE ENERGY CONSERVATION CODE-COMMERCIAL COMMITTEE. PART III WILL BE HEARD BY THE ENERGY CONSERVATION CODE-RESIDENTIAL COMMITTEE. PART IV WILL BE HEARD BY THE RESIDENTIAL CODE COMMITTEE. PART V WILL BE HEARD BY THE SWIMMING POOL AND SPA CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Philip Brazil, P.E., S.E., Reid Middleton, Inc., representing Washington Association of Building Officials, Technical Code Development Committee (pbrazil@reidmiddleton.com)

PART I – IBC; ICCPC; IEBC; IFC; IFCG; IMC; IPC; IPSDC; IPMC; IWUIC; IZC

Revise the International Building Code as follows:

IBC SECTION 202
DEFINITIONS

IBC [A] REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A *registered design professional* engaged by the owner or the owner's authorized agent to review and coordinate certain aspects of the project, as determined by the *building official*, for compatibility with the design of the building or structure, including submittal documents prepared by others, deferred submittal documents and phased submittal documents.

Revise the International Building Code as follows:

IBC [A] 104.10 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifications for individual cases, upon application of the owner or the owner's ~~representative~~ authorized agent, provided the *building official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of action granting modifications shall be recorded and entered in the files of the department of building safety.

IBC [A] 105.1 Required. Any owner or owner's authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the *building official* and obtain the required *permit*.

IBC [A] 106.1 Live loads posted. Where the live loads for which each floor or portion thereof of a commercial or industrial building is or has been designed to exceed 50 psf (2.40 kN/m^2), such design live loads shall be conspicuously posted by the owner or the owner's authorized agent in that part of each story in which they apply, using durable signs. It shall be unlawful to remove or deface such notices.

IBC [A] 107.3.4 Design professional in responsible charge. When it is required that documents be prepared by a *registered design professional*, the *building official* shall be authorized to require the owner or the owner's authorized agent to engage and designate on the building *permit* application a *registered design professional* who shall act as the *registered design professional in responsible charge*. If the circumstances require, the owner or the owner's authorized agent shall designate a substitute registered design professional in responsible charge who shall perform the duties required of the original *registered design professional in responsible charge*. The building official shall be notified in writing by the owner or the owner's authorized agent if the *registered design professional in responsible charge* is changed or is unable to continue to perform the duties.
The *registered design professional in responsible charge* shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased and deferred submittal items, for compatibility with the design of the building.

IBC [A] 110.1 General. Construction or work for which a permit is required shall be subject to inspection by the *building official* and such construction or work shall remain accessible and exposed for inspection purposes until *approved*. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the ~~*permit* applicant~~ owner or the owner's authorized agent to cause the work to remain accessible and exposed for inspection purposes. Neither the *building official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

IBC [A] 115.2 Issuance. The stop work order shall be in writing and shall be given to the owner of the property involved, ~~or to~~ the owner's authorized agent, or ~~to~~ the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.

Revise the International Building Code as follows:

IBC 901.5 Acceptance tests. Fire protection systems shall be tested in accordance with the requirements of this code and the *International Fire Code*. When required, the tests shall be conducted in the presence of the building official. Tests required by this code, the *International Fire Code* and the standards listed in this code shall be conducted at the expense of the owner or the owner's ~~representative~~ authorized agent. It shall be unlawful to occupy portions of a structure until the required fire protection systems within that portion of the structure have been tested and approved.

Revise the International Building Code as follows:

IBC 1004.3 (IFC [B] 1004.3) Posting of occupant load. Every room or space that is an assembly occupancy shall have the occupant load of the room or space posted in a conspicuous place, near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or the owner's authorized agent.

Revise the International Building Code as follows:

IBC 1703.4.1 Research and investigation. Sufficient technical data shall be submitted to the *building official* to substantiate the proposed use of any material or assembly. If it is determined that the evidence submitted is satisfactory proof of performance for the use intended, the *building official* shall approve the use of the material or assembly subject to the requirements of this code. The costs, reports and investigations required under these provisions shall be paid by the ~~applicant~~ owner or the owner's authorized agent.

IBC 1703.6 Evaluation and follow-up inspection services. Where structural components or other items regulated by this code are not visible for *inspection* after completion of a prefabricated assembly, the ~~applicant~~ owner or the owner's authorized agent shall submit a report of each prefabricated assembly. The report shall indicate the complete details of the assembly, including a description of the assembly and its components, the basis upon which the assembly is being evaluated, test results and similar information and other data as necessary for the *building official* to determine conformance to this code. Such a report shall be *approved* by the *building official*.

IBC 1703.6.1 Follow-up inspection. The ~~applicant~~ owner or the owner's authorized agent shall provide for *special inspections* of fabricated items in accordance with Section 1704.2.5.

IBC 1704.2 Special Inspections. Where application is made for construction as described in this section, the owner or the *registered design professional in responsible charge* acting as the owner's authorized agent shall employ one or more *approved agencies* to perform inspections during construction on the types of work listed under Section 1705. These inspections are in addition to the inspections specified in Section 110.

Exceptions:

1. *Special inspections* are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as *approved* by the *building official*.
2. Unless otherwise required by the *building official*, *special inspections* are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.
3. Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the conventional light-frame construction provisions of Section 2308.

IBC 1704.2.4 Report requirement. Special inspectors shall keep records of inspections. The special inspector shall furnish inspection reports to the *building official*, and to the *registered design professional in responsible charge*. Reports shall indicate that work inspected was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the *registered design professional in responsible charge* prior to the completion of that phase of the work. A final report documenting required *special inspections* and correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon prior to the start of work by the ~~applicant and~~ owner or the owner's authorized agent to the *building official*.

IBC 1707.1 General. In the absence of *approved* rules or other *approved* standards, the *building official* shall make, or cause to be made, the necessary tests and investigations; or the *building official* shall accept duly authenticated reports from *approved agencies* in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.11. The cost of all tests and other investigations required under the provisions of this code shall be borne by the ~~applicant~~ owner or the owner's authorized agent.

Revise the International Building Code as follows:

IBC 1803.6 Reporting. Where geotechnical investigations are required, a written report of the investigations shall be submitted to the *building official* by the owner or owner's authorized agent at the time of *permit* application. This geotechnical report shall include, but need not be limited to, the following information:

1. A plot showing the location of the soil investigations.
2. A complete record of the soil boring and penetration test logs and soil samples.
3. A record of the soil profile.
4. Elevation of the water table, if encountered.
5. Recommendations for foundation type and design criteria, including but not limited to: bearing capacity of natural or compacted soil; provisions to mitigate the effects of expansive soils; mitigation of the effects of liquefaction, differential settlement and varying soil strength; and the effects of adjacent loads.
6. Expected total and differential settlement.
7. Deep foundation information in accordance with Section 1803.5.5.
8. Special design and construction provisions for foundations of structures founded on expansive soils, as necessary.
9. Compacted fill material properties and testing in accordance with Section 1803.5.8.
10. Controlled low-strength material properties and testing in accordance with Section 1803.5.9.

Revise the International Building Code as follows:

IBC 3306.8 Repair, maintenance and removal. Pedestrian protection required by this chapter shall be maintained in place and kept in good order for the entire length of time pedestrians are subject to being endangered. The *owner* or the *owner's* authorized agent, upon the completion of the construction activity, shall immediately remove walkways, debris and other obstructions and leave such public property in as good a condition as it was before such work was commenced.

Revise the International Building Code as follows:

IBC 3401.2 Maintenance. Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in conformance with the code edition under which installed. The owner or the owner's ~~designated~~ authorized agent shall be responsible for the maintenance of buildings and structures. To determine compliance with this subsection, the building official shall have the authority to require a building or structure to be reinspected. The requirements of this chapter shall not provide the basis for removal or abrogation of fire protection and safety systems and devices in existing structures.

Revise the International Building Code as follows:

IBC G104.1 Required. Any person, owner or owner's authorized agent who intends to conduct any development in a flood hazard area shall first make application to the *building official* and shall obtain the required *permit*.

Revise the International Building Code as follows:

IBC J106.1 Maximum slope. The slope of cut surfaces shall be no steeper than is safe for the intended use, and shall be no steeper than two units horizontal to one unit vertical (50-percent slope) unless the owner or the owner's authorized agent furnishes a geotechnical report justifying a steeper slope.

Exceptions:

1. A cut surface shall be permitted to be at a slope of 1.5 units horizontal to one unit vertical (67-percent slope) provided that all of the following are met:
1.1. It is not intended to support structures or surcharges.
1.2. It is adequately protected against erosion.
1.3. It is no more than 8 feet (2438 mm) in height.
1.4. It is approved by the building code official.
1.5. Ground water is not encountered.
2. A cut surface in bedrock shall be permitted to be at a slope of one unit horizontal to one unit vertical (100-percent slope).

Revise the International Building Code as follows:

IBC K102.3 Maintenance. Electrical systems, equipment, materials and appurtenances, both existing and new, and parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe, hazard-free condition. Devices or safeguards that are required by this code shall be maintained in compliance with the code edition under which installed. The owner or the owner's ~~designated~~ authorized agent shall be responsible for the maintenance of the electrical systems and equipment. To determine compliance with this provision, the *building official* shall have the authority to require that the electrical systems and equipment be reinspected.

Revise the International Code Council Performance Code as follows:

ICCPC [A] 103.3.1 Building owner's or the owner's authorized agent responsibility.

ICCPC [A] 103.3.1.1 Design professional. The owner or the owner's authorized agent shall have the responsibility of retaining and furnishing the services of a design professional, who shall be in responsible charge of preparing and coordinating a complete and comprehensive set of design documents and other services required to prepare reports and other documents in accordance with this code. If the services required by this section are not provided, the use of this code is prohibited.

ICCPC [A] 103.3.1.2 Principal design professional. When the project requires the services of multiple design professionals, a principal design professional shall be retained and furnished, who shall have the contractual responsibility and authority over all required design professional disciplines to prepare and coordinate a complete and comprehensive set of design documents for the project.

ICCPC [A] 103.3.1.3 Peer review. The owner or the owner's authorized agent shall be responsible for retaining and furnishing the services of a design professional or recognized expert, who will perform as a peer reviewer, when required and approved by the code official. See Section 103.3.6.3 of this code.

ICCPC [A] 103.3.1.4 Costs. The costs of all special services, including contract review, when required by the code official, shall be borne by the owner or the owner's authorized agent.

ICCPC [A] 103.3.1.5 Document retention. The owner or the owner's authorized agent shall retain on the premises all documents and reports required by this code and make them available to the code official upon request.

ICCPC [A] 103.3.1.6 Maintenance. The owner or the owner's authorized agent is responsible to operate and maintain a building, structure or facility designed and built under this code in accordance with the bounding conditions and the operations and maintenance manual.

ICCPC [A] 103.3.1.7 Changes. The owner or the owner's authorized agent shall be responsible to ensure that any change to the facility, process or system does not increase the hazard level beyond that originally designed without approval and that all changes shall be documented in accordance with this code.

ICCPC [A] 103.3.1.8 Special expert. Where the scope of work is limited or focused in an area that does not require the services of a design professional or the special knowledge and skills associated with the practice of architecture or engineering, a special expert may be employed by the owner or the owner's authorized agent as the person in responsible charge of the limited or focused activity. It is the intent of this code that the individual shall possess the qualification characteristics required in Appendix D.

ICCPC [A] 103.3.1.9 Occupant requirements. The owner or the owner's authorized agent is responsible and accountable to ensure that all occupants and employees who are required to take certain actions or perform certain functions in accordance with a performance-based design possess the required knowledge and skills and are empowered to perform those actions.

ICCPC [A] 103.3.4.1.4 Deed restriction. Design features with bounding conditions that require continued maintenance or supervision by the owner or the owner's authorized agent throughout the life of the building, facility or process as conditions of compliance with the objectives of this code, shall be recorded as a deed restriction until released by the code official. When required by the code official, the deed restriction shall be modified to reflect specific changes.

ICCPC [A] 103.3.4.1.6 Emergency response capabilities. Design documentation shall clearly describe the level of response expected by emergency responders under the direct control of the owner or the owner's authorized agent. Emergency response capabilities, staffing levels, training requirements and equipment availability shall be documented as a bounding condition.

ICCPC [A] 103.3.4.2.3 Operations and maintenance manual. The operations and maintenance manual shall identify system and component commissioning requirements and the required interactions between these systems. The manual shall identify for the facility owner or the owner's authorized agent and the facility operator those actions that need to be performed on a regular basis to ensure that the components of the performance-based design are in place and operating properly. Furthermore, the operations and maintenance manual shall identify the restrictions or limitations placed upon the use and operation of the facility in order to stay within the bounding conditions of the performance-based design. The operations and maintenance manual shall be submitted at the time of the design documents submittal, unless the code official approves another time based upon the type of project and data needed for a composite review. The operations and maintenance manual shall address but not be limited to the following:

1. Description of critical systems.
2. Description of required system interactions.
3. Occupant responsibilities.
4. Occupant and staff training requirements.
5. Periodic operational requirements.
6. Periodic maintenance requirements.
7. Periodic testing requirements.
8. Limitations on facility operations (due to bounding conditions).
9. Report format for recording maintenance and operation data.
10. System and component commissioning requirements.

ICCPC [A] 103.3.8.3 Deed restrictions. Design features with bounding conditions determined by the design professional to require continued operation and maintenance by the owner or the owner's authorized agent throughout the life of the building as conditions of compliance with the objectives of this code shall be recorded as a deed restriction as required by the code official until released by the code official.

ICCPC [A] 103.3.9.1.4 Revocation and renewal. Failure of the building owner or the owner's authorized agent to demonstrate to the code official that the building is being operated and maintained in compliance with Sections 103.3.1.6 and 103.3.9.1 is cause to revoke or not renew a certificate of occupancy.

ICCPC [A] 103.3.9.2.3 Revocation and renewal. Failure of the owner or the owner's authorized agent to demonstrate compliance with this section is cause to revoke or not renew the certificate of compliance.

ICCPC [A] 103.3.10 Maintenance.

ICCPC [A] 103.3.10.1 Owner~~'s~~ or the owner's authorized agent responsibility. The owner or the owner's authorized agent is responsible for maintaining the building or facility in accordance with the approved documents.

Revise the International Existing Building Code as follows:

IEBC [A] 104.6 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *code official* has reasonable cause to believe that there exists in a structure or upon a premises a condition which is contrary to or in violation of this code which makes the structure or premises unsafe, *dangerous*, or hazardous, the *code official* is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises be unoccupied, the *code official* shall first make a reasonable effort to locate the owner, the owner's authorized agent or other person having charge or control of the structure or premises and request entry. If entry is refused, the *code official* shall have recourse to the remedies provided by law to secure entry.

IEBC [A] 104.10 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of this code, the *code official* shall have the authority to grant modifications for individual cases upon application of the owner or owner's authorized representative, provided the *code official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code, and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of action granting modifications shall be recorded and entered in the files of the Department of Building Safety.

IEBC [A] 105.1 Required. Any owner or owner's authorized agent who intends to *repair*, add to, alter, relocate, demolish, or change the occupancy of a building or to *repair*, install, add, alter, remove, convert, or replace any electrical, gas, mechanical, or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the *code official* and obtain the required permit.

IEBC [A] 106.6 Design professional in responsible charge. When it is required that documents be prepared by a registered design professional, the *code official* shall be authorized to require the owner or the owner's authorized agent to engage and designate on the building permit application a registered design professional who shall act as the *registered design professional in responsible charge*. If the circumstances require, the owner or the owner's authorized agent shall designate a substitute *registered design professional in responsible charge* who shall perform the duties required of the original *registered design professional in responsible charge*. The *code official* shall be notified in writing by the owner or the owner's authorized agent if the *registered design professional in responsible charge* is changed or is unable to continue to perform the duties. The *registered design professional in responsible charge* shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased and deferred submittal items, for compatibility with the design of the building. Where structural observation is required, the inspection program shall name the individual or firms who are to perform structural observation and describe the stages of construction at which structural observation is to occur.

IEBC [A] 110.2 Certificate issued. After the *code official* inspects the building and finds no violations of the provisions of this code or other laws that are enforced by the Department of Building Safety, the *code official* shall issue a certificate of occupancy that shall contain the following:.

1. The building permit number.
2. The address of the structure.
3. The name and address of the owner or the owner's authorized agent.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.
6. The name of the *code official*.
7. The edition of the code under which the permit was issued.
8. The use and occupancy in accordance with the provisions of the *International Building Code*.
9. The type of construction as defined in the *International Building Code*.
10. The design occupant load and any impact the *alteration* has on the design occupant load of the area not within the scope of the work.
11. If fire protection systems are provided, whether the fire protection systems are required.
12. Any special stipulations and conditions of the building permit.

IEBC [A] 111.3 Authority to disconnect service utilities. The *code official* shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by this code and the referenced codes and standards in case of emergency where necessary to eliminate an immediate hazard to life or property or when such utility connection has been made without the approval required by Section 111.1 or 111.2. The *code official* shall notify the serving utility and, wherever possible, the owner or the owner's authorized agent and occupant of the building, structure or service system of the decision to disconnect prior to taking such action. If not notified prior to disconnecting, the owner or occupant of the building, structure or service system shall be notified in writing, as soon as practical thereafter.

IEBC [A] 114.2 Issuance. The stop work order shall be in writing and shall be given to the owner or the owner's authorized agent of the property involved ~~or to the owner's agent~~, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order and the conditions under which the cited work will be permitted to resume.

IEBC [A] 115.3 Notice. If an *unsafe* condition is found, the *code official* shall serve on the owner, the owner's authorized agent, or person in control of the structure a written notice that describes the condition deemed *unsafe* and specifies the required *repairs* or improvements to be made to abate the *unsafe* condition, or that requires the *unsafe* building to be demolished within a stipulated time. Such notice shall require the person thus notified to declare immediately to the *code official* acceptance or rejection of the terms of the order.

IEBC [A] 115.4 Method of service. Such notice shall be deemed properly served if a copy thereof is delivered to the owner or the owner's authorized agent personally; sent by certified or registered mail addressed to the owner or the owner's authorized agent at the last known address with the return receipt requested; or delivered in any other manner as prescribed by local law. If the certified or registered letter is returned showing that the letter was not delivered, a copy thereof shall be posted in a conspicuous place in or about the structure affected by such notice. Service of such notice in the foregoing manner upon the owner's authorized agent or upon the person responsible for the structure shall constitute service of notice upon the owner.

IEBC [A] 116.5 Costs of emergency repairs. Costs incurred in the performance of emergency work shall be paid by the jurisdiction. The legal counsel of the jurisdiction shall institute appropriate action against the owner of the premises or the owner's authorized agent where the unsafe structure is or was located for the recovery of such costs.

IEBC [A] 117.1 General. The *code official* shall order the owner of any premises or the owner's authorized agent upon which is located any structure that in the *code official's* judgment is so old, dilapidated, or has become so out of *repair* as to be *dangerous*, unsafe, insanitary, or otherwise unfit for human habitation or occupancy, and such that it is unreasonable to *repair* the structure, to demolish and remove such structure; or if such structure is capable of being made safe by *repairs*, to *repair* and make safe and sanitary or to demolish and remove at the owner's or the owner's authorized agent's option; or where there has been a cessation of normal construction of any structure for a period of more than two years, to demolish and remove such structure.

IEBC [A] 117.3 Failure to comply. If the owner or the owner's authorized agent of a premises fails to comply with a demolition order within the time prescribed, the *code official* shall cause the structure to be demolished and removed, either through an available public agency or by contract or arrangement with private persons, and the cost of such demolition and removal shall be charged against the real estate upon which the structure is located and shall be a lien upon such real estate.

Revise the International Fire Code as follows:

IFC [A] 104.3 Right of entry. Whenever it is necessary to make an inspection to enforce the provisions of this code, or whenever the *fire code official* has reasonable cause to believe that there exists in a building or upon any premises any conditions or violations of this code which make the building or premises unsafe, dangerous or hazardous, the *fire code official* shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the *fire code official* by this code. If such building or premises is occupied, the *fire code official* shall present credentials to the occupant and request entry. If such building or premises is unoccupied, the *fire code official* shall first make a reasonable effort to locate the *owner*, the owner's authorized agent or other person having charge or control of the building or premises and request entry. If entry is refused, the *fire code official* has recourse to every remedy provided by law to secure entry.

IFC [A] 104.3.1 Warrant. When the *fire code official* has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an *owner*, the owner's authorized agent or occupant or person having charge, care or control of the building or premises shall not fail or neglect, after proper request is made as herein provided, to permit entry therein by the *fire code official* for the purpose of inspection and examination pursuant to this code.

IFC [A] 104.7.2 Technical assistance. To determine the acceptability of technologies, processes, products, facilities, materials and uses attending the design, operation or use of a building or premises subject to inspection by the *fire code official*, the *fire code official* is authorized to require the *owner* or owner's authorized agent to provide, without charge to the jurisdiction, a technical opinion and report. The opinion and report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization acceptable to the *fire code official* and shall analyze the fire safety properties of the design, operation or use of the building or premises and the facilities and appurtenances situated thereon, to recommend necessary changes. The *fire code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

IFC [A] 105.1.1 Permits required. Any property owner or owner's authorized agent who intends to conduct an operation or business, or install or modify systems and equipment which is regulated by this code, or to cause any such work to be done, shall first make application to the *fire code official* and obtain the required permit.

IFC [A] 109.2 Owner/occupant responsibility. Correction and abatement of violations of this code shall be the responsibility of the *owner* or the owner's authorized agent. If an occupant creates, or allows to be created, hazardous conditions in violation of this code, the occupant shall be held responsible for the abatement of such hazardous conditions.

IFC [A] 109.3.1 Service. A notice of violation issued pursuant to this code shall be served upon the *owner*, the owner's authorized agent, operator, occupant or other person responsible for the condition or

violation, either by personal service, mail or by delivering the same to, and leaving it with, some person of responsibility upon the premises. For unattended or abandoned locations, a copy of such notice of violation shall be posted on the premises in a conspicuous place at or near the entrance to such premises and the notice of violation shall be mailed by certified mail with return receipt requested or a certificate of mailing, to the last known address of the *owner*, the owner's authorized agent, or occupant ~~or both~~.

IFC [A] 109.3.2 Compliance with orders and notices. A notice of violation issued or served as provided by this code shall be complied with by the *owner*, the owner's authorized agent, operator, occupant or other person responsible for the condition or violation to which the notice of violation pertains.

IFC [A] 110.4 Abatement. The *owner*, the owner's authorized agent, operator or occupant of a building or premises deemed unsafe by the *fire code official* shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other *approved* corrective action.

IFC [A] 111.2 Issuance. A stop work order shall be in writing and shall be given to the *owner* of the property, or to the *owner's* authorized agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work is authorized to resume.

IFC [A] 112.1 Authority to disconnect service utilities. The *fire code official* shall have the authority to authorize disconnection of utility service to the building, structure or system in order to safely execute emergency operations or to eliminate an immediate hazard. The *fire code official* shall notify the serving utility and, whenever possible, the *owner* or the owner's authorized agent and occupant of the building, structure or service system of the decision to disconnect prior to taking such action if not notified prior to disconnection. The *owner*, the owner's authorized agent or occupant of the building, structure or service system shall be notified in writing as soon as practical thereafter.

Revise the International Fuel Gas Code as follows:

IFGC [A] 102.3 Maintenance. Installations, both existing and new, and parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe condition. Devices or safeguards which are required by this code shall be maintained in compliance with the code edition under which they were installed. The owner or the owner's authorized ~~designated~~ agent shall be responsible for maintenance of installations. To determine compliance with this provision, the code official shall have the authority to require an installation to be reinspected.

IFGC [A] 104.4 Right of entry. Whenever it is necessary to make an inspection to enforce the provisions of this code, or whenever the code official has reasonable cause to believe that there exists in a building or upon any premises any conditions or violations of this code that make the building or premises unsafe, dangerous or hazardous, the code official shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the code official by this code. If such building or premises is occupied, the code official shall present credentials to the occupant and request entry. If such building or premises is unoccupied, the code official shall first make a reasonable effort to locate the owner, the owner's authorized agent or other person having charge or control of the building or premises and request entry. If entry is refused, the code official has recourse to every remedy provided by law to secure entry.

When the code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner, the owner's authorized agent, ~~or~~ occupant or person having charge, care or control of the building or premises shall not fail or neglect, after proper request is made as herein provided, to promptly permit entry therein by the code official for the purpose of inspection and examination pursuant to this code.

IFGC [A] 105.1 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the code official shall have the authority to grant modifications for individual cases, upon application of the owner or owner's authorized agent ~~representative~~, provided that the code official shall first find that special individual reason makes the strict letter of this code impractical and that

such modification is in compliance with the intent and purpose of this code and does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the Department of Inspection.

IFGC [A] 106.1 Where required. An owner, owner's authorized agent or contractor who desires to erect, install, enlarge, alter, repair, remove, convert or replace an installation regulated by this code, or to cause such work to be done, shall first make application to the code official and obtain the required permit for the work.
Exception: Where *appliance* and *equipment* replacements and repairs are required to be performed in an emergency situation, the permit application shall be submitted within the next working business day of the Department of Inspection.

IFGC [A] 106.3 Application for permit. Each application for a permit, with the required fee, shall be filed with the code official on a form furnished for that purpose and shall contain a general description of the proposed work and its location. The application shall be signed by the owner or an owner's authorized agent. The permit application shall indicate the proposed *occupancy* of all parts of the building and of that portion of the site or lot, if any, not covered by the building or structure and shall contain such other information required by the code official.

IFGC [A] 108.5 Stop work orders. Upon notice from the code official that work is being done contrary to the provisions of this code or in a dangerous or unsafe manner, such work shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, the owner's authorized agent, or the person doing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for a fine of not less than [AMOUNT] dollars or more than [AMOUNT] dollars.

IFGC [A] 108.7.2 Authority to disconnect service utilities. The code official shall have the authority to require disconnection of utility service to the building, structure or system regulated by the technical codes in case of emergency where necessary to eliminate an immediate hazard to life or property. The code official shall notify the serving utility, and wherever possible, the owner or the owner's authorized agent and occupant of the building, structure or service system of the decision to disconnect prior to taking such action. If not notified prior to disconnection, the owner or occupant of the building, structure or service system shall be notified in writing, as soon as practicable thereafter.

Revise the International Mechanical Code as follows:

IMC [A] 102.3 Maintenance. Mechanical systems, both existing and new, and parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in compliance with the code edition under which they were installed. The owner or the owner's authorized ~~designated~~ agent shall be responsible for maintenance of mechanical systems. To determine compliance with this provision, the code official shall have the authority to require a mechanical system to be reinspected.

The inspection for maintenance of HVAC systems shall be done in accordance with ASHRAE/ACCA/ANSI Standard 180.

IMC [A] 104.4 Right of entry. Whenever it is necessary to make an inspection to enforce the provisions of this code, or whenever the code official has reasonable cause to believe that there exists in a building or upon any premises any conditions or violations of this code which make the building or premises unsafe, insanitary, dangerous or hazardous, the code official shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the code official by this code. If such building or premises is occupied, the code official shall present credentials to the occupant and request entry. If such building or premises is unoccupied, the code official shall first make a reasonable effort to locate the owner, the owner's authorized agent or other person having charge or

control of the building or premises and request entry. If entry is refused, the code official has recourse to every remedy provided by law to secure entry.

When the code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner, the owner's authorized agent or occupant or person having charge, care or control of the building or premises shall not fail or neglect, after proper request is made as herein provided, to promptly permit entry therein by the code official for the purpose of inspection and examination pursuant to this code.

IMC [A] 105.1 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the code official shall have the authority to grant modifications for individual cases upon application of the owner or owner's authorized agent ~~representative~~, provided that the code official shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the mechanical inspection department.

IMC [A] 106.1 When required. An owner, owner's authorized agent or contractor who desires to erect, install, enlarge, alter, repair, remove, convert or replace a mechanical system, the installation of which is regulated by this code, or to cause such work to be done, shall first make application to the code official and obtain the required permit for the work.
Exception: Where *equipment* and *appliance* replacements or repairs must be performed in an emergency situation, the permit application shall be submitted within the next working business day of the department of mechanical inspection.

IMC [A] 106.3 Application for permit. Each application for a permit, with the required fee, shall be filed with the code official on a form furnished for that purpose and shall contain a general description of the proposed work and its location. The application shall be signed by the owner or ~~an~~ the owner's authorized agent. The permit application shall indicate the proposed *occupancy* of all parts of the building and of that portion of the site or lot, if any, not covered by the building or structure and shall contain such other information required by the code official.

IMC [A] 108.5 Stop work orders. Upon notice from the code official that mechanical work is being done contrary to the provisions of this code or in a dangerous or unsafe manner, such work shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, or to the owner's authorized agent, or to the person doing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for a fine of not less than [AMOUNT] dollars or more than [AMOUNT] dollars.

IMC [A] 108.7.2 Authority to order disconnection of energy sources. The code official shall have the authority to order disconnection of energy sources supplied to a building, structure or mechanical system regulated by this code, when it is determined that the mechanical system or any portion thereof has become hazardous or unsafe. Written notice of such order to disconnect service and the causes therefor shall be given within 24 hours to the owner, the owner's authorized agent and occupant of such building, structure or premises, provided, however, that in cases of immediate danger to life or property, such disconnection shall be made immediately without such notice. Where energy sources are provided by a public utility, the code official shall immediately notify the serving utility in writing of the issuance of such order to disconnect.

Revise the International Plumbing Code as follows:

IPC [A] 102.3 Maintenance. All plumbing systems, materials and appurtenances, both existing and new, and all parts thereof, shall be maintained in proper operating condition in accordance with the original design in a safe and sanitary condition. All devices or safeguards required by this code shall be maintained in compliance with the code edition under which they were installed.
The owner or the owner's authorized ~~designated~~ agent shall be responsible for maintenance of plumbing systems. To determine compliance with this provision, the code official shall have the authority to require any plumbing system to be reinspected.

IPC [A] 104.4 Right of entry. Whenever it is necessary to make an inspection to enforce the provisions of this code, or whenever the code official has reasonable cause to believe that there exists in any building or upon any premises any conditions or violations of this code that make the building or premises unsafe, insanitary, dangerous or hazardous, the code official shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the code official by this code. If such building or premises is occupied, the code official shall present credentials to the occupant and request entry. If such building or premises is unoccupied, the code official shall first make a reasonable effort to locate the owner, the owner's authorized agent or other person having charge or control of the building or premises and request entry. If entry is refused, the code official shall have recourse to every remedy provided by law to secure entry.
When the code official shall have first obtained a proper inspection warrant or other remedy provided by law to secure entry, no owner, owner's authorized agent, ~~or~~ occupant or person having charge, care or control of any building or premises shall fail or neglect, after proper request is made as herein provided, to promptly permit entry therein by the code official for the purpose of inspection and examination pursuant to this code.

IPC [A] 105.1 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the code official shall have the authority to grant modifications for individual cases, upon application of the owner or owner's ~~representative~~ authorized agent, provided the code official shall first find that special individual reason makes the strict letter of this code impractical and the modification conforms to the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the plumbing inspection department.

IPC [A] 106.1 When required. Any owner, owner's authorized agent or contractor who desires to construct, enlarge, alter, repair, move, demolish or change the *occupancy* of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the code official and obtain the required permit for the work.

IPC [A] 106.3 Application for permit. Each application for a permit, with the required fee, shall be filed with the code official on a form furnished for that purpose and shall contain a general description of the proposed work and its location. The application shall be signed by the owner or an owner's authorized agent. The permit application shall indicate the proposed *occupancy* of all parts of the building and of that portion of the site or lot, if any, not covered by the building or structure and shall contain such other information required by the code official.

IPC [A] 108.5 Stop work orders. Upon notice from the code official, work on any plumbing system that is being done contrary to the provisions of this code or in a dangerous or unsafe manner shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, or to the owner's authorized agent, or to the person doing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable to a fine of not less than [AMOUNT] dollars or more than [AMOUNT] dollars.

IPC [A] 108.7.2 Authority to disconnect service utilities. The code official shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by the technical codes in case of an emergency, where necessary, to eliminate an immediate danger to life or property. Where possible, the owner or an owner's authorized agent and occupant of the building, structure or service system shall be notified of the decision to disconnect utility service prior to taking such action. If not notified prior to disconnecting, the owner, an owner's authorized agent or occupant of the building, structure or service systems shall be notified in writing, as soon as practical thereafter.

Revise the International Private Sewage Disposal Code as follows:

IPSDC [A] 102.5 Maintenance. *Private sewage disposal systems*, materials and appurtenances, both existing and new, and all parts thereof shall be maintained in proper operating condition in accordance with the original design in a safe and sanitary condition. Devices or safeguards that are required by this code shall be maintained in compliance with the code edition under which they were installed. The owner or the owner's authorized ~~designated~~ agent shall be responsible for maintenance of *private sewage disposal systems*. To determine compliance with this provision, the code official shall have the authority to require reinspection of any *private sewage disposal system*.

IPSDC [A] 104.4 Right of entry. Whenever it is necessary to make an inspection to enforce the provisions of this code, or whenever the code official has reasonable cause to believe that there exists in any building or upon any premises any conditions or violations of this code that make the building or premises unsafe, insanitary, dangerous or hazardous, the code official shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed on the code official by this code. If such building or premises is occupied, the code official shall present credentials to the occupant and request entry. If such building or premises is unoccupied, the code official shall first make a reasonable effort to locate the owner, the owner's authorized agent or other person having charge or control of the building or premises and request entry. If entry is refused, the code official has recourse to every remedy provided by law to secure entry.
When the code official shall have first obtained a proper inspection warrant or other remedy provided by law to secure entry, no owner, owner's authorized agent or occupant or person having charge, care or control of any building or premises shall fail or neglect, after proper request is made as herein provided, to promptly permit entry therein by the code official for the purpose of inspection and examination pursuant to this code.

IPSDC [A] 105.1 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the code official shall have the authority to grant modifications for individual cases, upon application of the owner or owner's ~~representative~~ authorized agent provided that the code official shall first find that special individual reason makes the strict letter of this code impractical, the modification is in conformity with the intent and purpose of this code and such modification does not lessen health and fire- and life-safety requirements. The details of action granting modifications shall be recorded and entered in the files of the Private Sewage Disposal Inspection Department.

IPSDC [A] 108.5 Stop work orders. Upon notice from the code official, work on any *private sewage disposal system* that is being done contrary to the provisions of this code or in a dangerous or unsafe manner shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, to the owner's authorized agent or to the person doing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable to a fine of not less than [AMOUNT] dollars or more than [AMOUNT] dollars.

IPSDC [A] 108.7.2 Authority to disconnect service utilities. The code official shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by the technical codes in case of emergency, where necessary, to eliminate an immediate danger to life or property.

Where possible, the owner, the owner's authorized agent and occupant of the building, structure or service system shall be notified of the decision to disconnect utility service prior to taking such action. If not notified prior to disconnecting, the owner or occupant of the building, structure or service systems shall be notified in writing as soon as is practical thereafter.

Revise the International Property Maintenance Code as follows:

IPMC [A] 101.2 Scope. The provisions of this code shall apply to all existing residential and nonresidential structures and all existing *premises* and constitute minimum requirements and standards for *premises*, structures, equipment and facilities for light, *ventilation*, space, heating, sanitation, protection from the elements, life safety, safety from fire and other hazards, and for safe and sanitary maintenance; the responsibility of *owners*, an owner's authorized agent, *operator*s and *occupants*; the *occupancy* of existing structures and *premises*, and for administration, enforcement and penalties.

IPMC [A] 102.2 Maintenance. Equipment, systems, devices and safeguards required by this code or a previous regulation or code under which the structure or *premises* was constructed, altered or repaired shall be maintained in good working order. No *owner*, owner's authorized agent, *operator* or *occupant* shall cause any service, facility, equipment or utility which is required under this section to be removed from or shut off from or discontinued for any occupied dwelling, except for such temporary interruption as necessary while repairs or alterations are in progress. The requirements of this code are not intended to provide the basis for removal or abrogation of fire protection and safety systems and devices in existing structures. Except as otherwise specified herein, the *owner* or the *owner's* authorized ~~designated~~ agent shall be responsible for the maintenance of buildings, structures and *premises*.

IPMC [A] 104.3 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or whenever the *code official* has reasonable cause to believe that there exists in a *structure* or upon a *premises* a condition in violation of this code, the *code official* is authorized to enter the structure or *premises* at reasonable times to inspect or perform the duties imposed by this code, provided that if such *structure* or *premises* is occupied the *code official* shall present credentials to the *occupant* and request entry. If such structure or *premises* is unoccupied, the *code official* shall first make a reasonable effort to locate the *owner*, the owner's authorized agent or other person having charge or control of the *structure* or *premises* and request entry. If entry is refused, the *code official* shall have recourse to the remedies provided by law to secure entry.

IPMC [A] 105.1 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the *code official* shall have the authority to grant modifications for individual cases upon application of the *owner* or *owner*'s authorized agent ~~representative~~, provided the *code official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the department files.

IPMC [A] 107.2 Form. Such notice prescribed in Section 107.1 shall be in accordance with all of the following:

1. Be in writing.
2. Include a description of the real estate sufficient for identification.
3. Include a statement of the violation or violations and why the notice is being issued.
4. Include a correction order allowing a reasonable time to make the repairs and improvements required to bring the *dwelling unit* or structure into compliance with the provisions of this code.
5. Inform the property *owner* or the owner's authorized agent of the right to appeal.
6. Include a statement of the right to file a lien in accordance with Section 106.3.

IPMC [A] 107.6 Transfer of ownership. It shall be unlawful for the *owner* of any *dwelling unit* or structure who has received a compliance order or upon whom a notice of violation has been served to sell, transfer, mortgage, lease or otherwise dispose of such *dwelling unit* or structure to another until the

provisions of the compliance order or notice of violation have been complied with, or until such *owner* or the owner's authorized agent shall first furnish the grantee, transferee, mortgagee or lessee a true copy of any compliance order or notice of violation issued by the *code official* and shall furnish to the *code official* a signed and notarized statement from the grantee, transferee, mortgagee or lessee, acknowledging the receipt of such compliance order or notice of violation and fully accepting the responsibility without condition for making the corrections or repairs required by such compliance order or notice of violation.

IPMC [A] 108.2 Closing of vacant structures. If the structure is vacant and unfit for human habitation and *occupancy*, and is not in danger of structural collapse, the *code official* is authorized to post a placard of condemnation on the *premises* and order the structure closed up so as not to be an attractive nuisance. Upon failure of the *owner* or the owner's authorized agent to close up the *premises* within the time specified in the order, the *code official* shall cause the *premises* to be closed and secured through any available public agency or by contract or arrangement by private persons and the cost thereof shall be charged against the real estate upon which the structure is located and shall be a lien upon such real estate and may be collected by any other legal resource.

IPMC [A] 108.2.1 Authority to disconnect service utilities. The *code official* shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by this code and the referenced codes and standards set forth in Section 102.7 in case of emergency where necessary to eliminate an immediate hazard to life or property or when such utility connection has been made without approval. The *code official* shall notify the serving utility and, whenever possible, the *owner* or the owner's authorized agent and *occupant* of the building, structure or service system of the decision to disconnect prior to taking such action. If not notified prior to disconnection the *owner*, the owner's authorized agent or *occupant* of the building structure or service system shall be notified in writing as soon as practical thereafter.

IPMC [A] 108.3 Notice. Whenever the *code official* has *condemned* a structure or equipment under the provisions of this section, notice shall be posted in a conspicuous place in or about the structure affected by such notice and served on the *owner*, the owner's authorized agent or the person or persons responsible for the structure or equipment in accordance with Section 107.3. If the notice pertains to equipment, it shall also be placed on the *condemned* equipment. The notice shall be in the form prescribed in Section 107.2.

IPMC [A] 108.4 Placarding. Upon failure of the *owner* or the owner's authorized agent or person responsible to comply with the notice provisions within the time given, the *code official* shall post on the *premises* or on defective equipment a placard bearing the word "Condemned" and a statement of the penalties provided for occupying the *premises*, operating the equipment or removing the placard.

IPMC [A] 108.5 Prohibited occupancy. Any occupied structure *condemned* and placarded by the *code official* shall be vacated as ordered by the *code official*. Any person who shall occupy a placarded *premises* or shall operate placarded equipment, and any *owner*, the owner's authorized agent or any person responsible for the *premises* who shall let anyone occupy a placarded *premises* or operate placarded equipment shall be liable for the penalties provided by this code.

IPMC [A] 108.6 Abatement methods. The *owner*, the owner's authorized agent, *operator* or *occupant* of a building, *premises* or equipment deemed unsafe by the *code official* shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other *approved* corrective action.

IPMC [A] 109.5 Costs of emergency repairs. Costs incurred in the performance of emergency work shall be paid by the jurisdiction. The legal counsel of the jurisdiction shall institute appropriate action against the *owner* of the *premises* or the owner's authorized agent where the unsafe structure is or was located for the recovery of such costs.

IPMC [A] 110.1 General. The *code official* shall order the *owner* of any *premises* or the owner's authorized agent, upon which is located any structure, which in the *code official* judgment after review is

so deteriorated or dilapidated or has become so out of repair as to be dangerous, unsafe, insanitary or otherwise unfit for human habitation or occupancy, and such that it is unreasonable to repair the structure, to demolish and remove such structure; or if such structure is capable of being made safe by repairs, to repair and make safe and sanitary, or to board up and hold for future repair or to demolish and remove at the *owner's* option; or where there has been a cessation of normal construction of any structure for a period of more than two years, the *code official* shall order the *owner* or the owner's authorized agent to demolish and remove such structure, or board up until future repair. Boarding the building up for future repair shall not extend beyond one year, unless *approved* by the building official.

IPMC [A] 110.3 Failure to comply. If the *owner* of a *premises* or the owner's authorized agent, fails to comply with a demolition order within the time prescribed, the *code official* shall cause the structure to be demolished and removed, either through an available public agency or by contract or arrangement with private persons, and the cost of such demolition and removal shall be charged against the real estate upon which the structure is located and shall be a lien upon such real estate.

IPMC [A] 112.2 Issuance. A stop work order shall be in writing and shall be given to the *owner* of the property, to the *owner's* authorized agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order and the conditions under which the cited work is authorized to resume.

Revise the International Wildland-Urban Interface Code as follows:

IWUIC [A] 101.6 Maintenance. All buildings, structures, landscape materials, vegetation, *defensible space* or other devices or safeguards required by this code shall be maintained in conformance to the code edition under which installed. The owner or the owner's authorized ~~designated~~ agent shall be responsible for the maintenance of buildings, structures, landscape materials and vegetation.

IWUIC [A] 105.1 Practical difficulties. When there are practical difficulties involved in carrying out the provisions of this code, the code official is authorized to grant modifications for individual cases on application in writing by the owner or a ~~duly~~ owner's authorized ~~representative~~ agent. The code official shall first find that a special individual reason makes enforcement of the strict letter of this code impractical, the modification is in conformance to the intent and purpose of this code, and the modification does not lessen any fire protection requirements or any degree of structural integrity. The details of any action granting modifications shall be recorded and entered into the files of the code enforcement agency.

IWUIC [A] 105.2 Technical assistance. To determine the acceptability of technologies, processes, products, facilities, materials and uses attending the design, operation or use of a building or premises subject to the inspection of the code official, the code official is authorized to require the owner, the owner's authorized agent, or the person in possession or control of the building or premises to provide, without charge to the jurisdiction, a technical opinion and report. The opinion and report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization acceptable to the code official and the or the owner's authorized agent and shall analyze the fire safety of the design, operation or use of the building or premises, the facilities and appurtenances situated thereon and fuel management for purposes of establishing fire hazard severity to recommend necessary changes.

IWUIC [A] 109.2.2 Service of orders and notices. Orders and notices authorized or required by this code shall be given or served on the owner, the owner's authorized agent, operator, occupant or other person responsible for the condition or violation either by verbal notification, personal service, or delivering the same to, and leaving it with, a person of suitable age and discretion on the premises; or, if no such person is found on the premises, by affixing a copy thereof in a conspicuous place on the door to the entrance of said premises and by mailing a copy thereof to such person by registered or certified mail to the person's last known address.

Orders or notices that are given verbally shall be confirmed by service in writing as herein provided.

IWUIC [A] 109.3 Right of entry. Whenever necessary to make an inspection to enforce any of the provisions of this code, or whenever the code official has reasonable cause to believe that there exists in any building or on any premises any condition that makes such building or premises unsafe, the code official is authorized to enter such building or premises at all reasonable times to inspect the same or to perform any duty authorized by this code, provided that if such building or premises is occupied, the code official shall first present proper credentials and request entry; and if such building or premises is unoccupied, the code official shall first make a reasonable effort to locate the owner, the owner's authorized agent, or other persons having charge or control of the building or premises and request entry. If such entry is refused, the code official shall have recourse to every remedy provided by law to secure entry. Owners, the owner's authorized agent, occupants or any other persons having charge, care or control of any building or premises, shall, after proper request is made as herein provided, promptly permit entry therein by the code official for the purpose of inspection and examination pursuant to this code.

IWUIC [A] 109.4.1 General compliance. Orders and notices issued or served as provided by this code shall be complied with by the owner, the owner's authorized agent, operator, occupant or other person responsible for the condition or violation to which the corrective order or notice pertains.

If the building or premises is not occupied, such corrective orders or notices shall be complied with by the owner or the owner's authorized agent.

IWUIC [A] 109.4.5.2 Notice. Where an unsafe condition is found, the code official shall serve on the owner, owner's authorized agent or person in control of the building, structure or premises, a written notice that describes the condition deemed unsafe and specifies the required repairs or improvements to be made to abate the unsafe condition, or that requires the unsafe structure to be demolished within a stipulated time. Such notice shall require the person thus notified, or their designee, to declare within a stipulated time to the code official acceptance or rejection of the terms of the order.

IWUIC [A] 109.4.5.2.1 Method of service. Such notice shall be deemed properly served if a copy thereof is (a) delivered to the owner or the owner's authorized agent personally; (b) sent by certified or registered mail addressed to the owner or the owner's authorized agent at the last known address with the return receipt requested; or (c) delivered in any other manner as prescribed by local law. If the certified or registered letter is returned showing that the letter was not delivered, a copy thereof shall be posted in a conspicuous place in or about the structure affected by such notice. Service of such notice in the foregoing manner upon the owner's authorized agent or upon the person responsible for the structure shall constitute service of notice upon the owner.

IWUIC [A] 109.4.5.3 Placarding. Upon failure of the owner, the owner's authorized agent, or person responsible to comply with the notice provisions within the time given, the code official shall post on the premises or on defective equipment a placard bearing the word "UNSAFE" and a statement of the penalties provided for occupying the premises, operating the equipment or removing the placard.

IWUIC [A] 109.4.5.4 Abatement. The owner, the owner's authorized agent, operator or occupant of a building, structure or premises deemed unsafe by the code official shall abate or correct or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other *approved* corrective action.

IWUIC [A] 113.2 Authority to disconnect service utilities. The code official shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by this code and the referenced codes and standards set forth in Section 102.4 in case of emergency where necessary to eliminate an immediate hazard to life or property or when such utility connection has been made without the release required by Section 113.1. The code official shall notify the serving utility and whenever possible the owner or the owner's authorized agent and occupant of the building, structure or service system of the decision to disconnect prior to taking such action if not notified prior to disconnection. The owner, the owner's authorized agent or occupant of the building, structure or service system shall be notified in writing as soon as practical thereafter.

IWUIC [A] 114.2 Issuance. The stop work order shall be in writing and shall be given to the owner of the property involved, to the owner's authorized agent or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order and the conditions under which the cited work will be permitted to resume.

Revise the International Zoning Code as follows:

IZC [A] 103.3 Maintenance. All buildings or uses, both existing and new, and all parts thereof, shall be maintained. The owner or owner's authorized ~~designated~~ agent shall be responsible for the maintenance of buildings and parcels of land. To determine compliance with this section, the code official shall be permitted to cause any structure or use to be inspected.

IZC [A] 107.7.3 Variance review criteria. The board of adjustment shall be permitted to approve, approve with conditions or deny a request for a variance. Each request for a variance shall be consistent with the following criteria:

1. Limitations on the use of the property due to physical, topographical and geologic features.
2. The grant of the variance will not grant any special privilege to the property owner or the owner's authorized agent.
3. The applicant can demonstrate that without a variance there can be no reasonable use of the property.
4. The grant of the variance is not based solely on economic reasons.
5. The necessity for the variance was not created by the property owner or the owner's authorized agent.
6. The variance requested is the minimum variance necessary to allow reasonable use of the property.
7. The grant of the variance will not be injurious to the public health, safety or welfare.
8. The property subject to the variance request possesses one or more unique characteristics generally not applicable to similarly situated properties.

IZC [A] 109.1 Hearings. Upon receipt of an application in proper form, the code official shall arrange to advertise the time and place of public hearing. Such advertisement shall be given by at least one publication in a newspaper of general circulation within the jurisdiction. Such notice shall state the nature of the request, the location of the property, and the time and place of hearing. Reasonable effort shall also be made to give notice by regular mail of the time and place of hearing to each surrounding property owner or the owner's authorized agent; the extent of the area to be notified shall be set by the code official. A notice of such hearing shall be posted in a conspicuous manner on the subject property.

PART II – IECC-COMMERCIAL

Revise the International Energy Conservation Code-Commercial as follows:

IECC C108.2 Issuance. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's authorized agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.

PART III – IECC-RESIDENTIAL

Revise the International Energy Conservation Code-Residential as follows:

IECC R108.2 Issuance. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's authorized agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.

PART IV – IRC

Revise the International Residential Code as follows:

IRC R104.6 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *building official* has reasonable cause to believe that there exists in a structure or upon a premises a condition which is contrary to or in violation of this code which makes the structure or premises unsafe, dangerous or hazardous, the *building official* or designee is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises be unoccupied, the *building official* shall first make a reasonable effort to locate the owner, the owner's authorized agent, or other person having charge or control of the structure or premises and request entry. If entry is refused, the *building official* shall have recourse to the remedies provided by law to secure entry.

IRC R105.1 Required. Any owner or owner's authorized agent who intends to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the *building official* and obtain the required *permit*.

IRC R110.3 Certificate issued. After the *building official* inspects the building or structure and finds no violations of the provisions of this code or other laws that are enforced by the department of building safety, the *building official* shall issue a certificate of occupancy which shall contain the following:

1. The building *permit* number.
2. The address of the structure.
3. The name and address of the owner or the owner's authorized agent.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code.
6. The name of the *building official*.
7. The edition of the code under which the *permit* was issued.
8. If an automatic sprinkler system is provided and whether the sprinkler system is required.
9. Any special stipulations and conditions of the building *permit*.

IRC R111.3 Authority to disconnect service utilities. The *building official* shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by this code and the referenced codes and standards set forth in Section R102.4 in case of emergency where necessary to eliminate an immediate hazard to life or property or when such utility connection has been made without the approval required by Section R111.1 or R111.2. The *building official* shall notify the serving utility and whenever possible the owner or the owner's authorized agent and occupant of the building, structure or service system of the decision to disconnect prior to taking such action if not notified prior to disconnection. The owner, the owner's authorized agent, or occupant of the building, structure or service system shall be notified in writing as soon as practical thereafter.

IRC R114.1 Notice to owner or the owner's authorized agent. Upon notice from the *building official* that work on any building or structure is being prosecuted contrary to the provisions of this code or in an unsafe and dangerous manner, such work shall be immediately stopped. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's authorized agent or to the person doing the work and shall state the conditions under which work will be permitted to resume.

PART V – ISPSC

Revise the International Swimming Pool and Spa Code as follows:

ISPSC 102.3 Maintenance. All *aquatic vessel* and related mechanical, electrical and plumbing systems, both existing and new, and all parts thereof, shall be maintained in proper operating condition in accordance with the original design in a safe and sanitary condition. All devices or safeguards required by this code shall be maintained in compliance with the code edition under which they were installed.

The *owner* or the *owner's* authorized ~~designated~~ agent shall be responsible for maintenance of all systems. To determine compliance with this provision, the *code official* shall have the authority to require any system to be reinspected.

ISPSC 104.6 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *code official* has reasonable cause to believe that there exists in a structure or upon a premises a condition which is contrary to or in violation of this code which makes the structure or premises unsafe, dangerous or hazardous, the *code official* is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises is unoccupied, the *code official* shall first make a reasonable effort to locate the owner, the owner's authorized agent or other person having charge or control of the structure or premises and request entry. If entry is refused, the *code official* shall have recourse to the remedies provided by law to secure entry.

ISPSC 104.8 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of this code, the *code official* shall have the authority to grant modifications for individual cases, upon application of the owner or owner's authorized agent ~~representative~~, provided the *code official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen sustainability, health, accessibility, life safety and structural requirements. The details of action granting modifications shall be recorded and entered in the files of the department of building safety.

ISPSC 105.1 When required. Any *owner*, or owner's authorized agent who desires to construct, enlarge, alter, *repair*, move, or demolish an *aquatic vessel* or to erect, install, enlarge, alter, repair, remove, convert or replace any system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the *code official* and obtain the required *permit* for the work.

ISPSC 105.2 Application for permit. Each application for a permit, with the required fee, shall be filed with the *code official* on a form furnished for that purpose and shall contain a general description of the proposed work and its location. The application shall be signed by the owner or ~~an~~ the owner's authorized agent. The permit application shall contain such other information required by the *code official*.

ISPSC 107.5 Stop work orders. Upon notice from the *code official*, work on any system that is being done contrary to the provisions of this code or in a dangerous or unsafe manner shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, or to the owner's authorized agent, or to the person doing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the *code official* shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable to a fine of not less than [AMOUNT] dollars or more than [AMOUNT] dollars.

ISPSC 107.7.2 Authority to disconnect service utilities. The *code official* shall have the authority to authorize disconnection of utility service to the *aquatic vessel* regulated by the technical codes in case of an emergency, where necessary, to eliminate an immediate danger to life or property. Where possible, the owner or the owner's authorized agent and occupant of the building where the aquatic vessel is located shall be notified of the decision to disconnect utility service prior to taking such action. If not notified prior to disconnecting, the owner or the owner's authorized agent or occupant of the building shall be notified in writing, as soon as practical thereafter.

Reason: The purpose for the proposal is to update the references to "applicant" and "owner" throughout the building code by changing them to the "owner or the owner's authorized agent" where it is warranted. In Section 110.1, "the permit applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible to keep the work accessible and exposed for inspection. In Sections 1703.4.1 and 1707.1, "the applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible for the costs of required tests, reports and investigations. In Sections 1703.6 and 1704.2.4, "the applicant" is changed to "the owner or the owner's authorized agent" because the latter should be responsible for submitting required reports to the building official. In Section 1703.6.1, the applicant" is changed to "the owner or the owner's authorized agent" for consistency with Section 1704.2 that requires the latter to employ the approved agencies. In Section 1803.6, the "owner or authorized agent" is changed to the "permit applicant" because it should be permissible for the latter to submit the geotechnical report with the other submittal documents at the time of permit application.
The 2012 IBC contains additional references to "owner" but, based on the context in which they are used, it is not considered appropriate or useful to revise the language in conjunction with this proposal (e.g., from "the owner" to "the owner or the owner's authorized agent"). See Sections 101.4.4, 104.6, 111.2, 112.3, 116.3, 116.4, 402.3, 913.4, 1107.4-Exc. 1, 1607.7.4, 3108.2, 3307.1, 3412.4, 3412.4.1, G101.2, G105.6-Item 3, K103.1 and L101.3.
The 2012 IBC contains additional references to "applicant" but, based on the context in which they are used, it is also not considered appropriate or useful to revise the language in conjunction with this proposal (e.g., from "the applicant" to "the owner or the owner's authorized agent"). See Sections 104.10.1-Item 5, 105.1.1, 105.3, 107.3.1, 109.3, 109.5, 1612.3.1, 1612.3.2, 1704.2.3, 1704.3, G103.3, G103.4, G103.5.1, G103.6, G104.2, G105.7-Item 5 and J104.1.
All instances in the 2012 IBC of "applicant" and "owner," other than listed above, are included in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Staff analysis: This proposal for IBC indicate a correlative change throughout the code for the changes in Chapter 1. If this proposal is approved, similar revisions will be completed in the other chapters of the codes where the terms similar to "owner and owner's authorized agent".

Public Hearing Results

PART I - IADMIN
Committee Action: **Approved as Submitted**

Committee Reason: The proposal provides a c onsistent and proper designation of "owner and owner's authorized agent" throughout the codes. The proposal will eliminate the confusion called by so many different terms being used in the codes to mean the same person.

Assembly Action: **None**

PART II – IECC – Commercial
HEARD BY IECC COMMERCIAL COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: Provides consistency in use of terminology within the code and with the use of the terms in the other International Codes.

Assembly Action: **None**

PART III – IECC – Residential
HEARD BY IECC RESIDENTIAL COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: This proposed language would clarify the intent of the code.

Assembly Action: **None**

PART IV - IRC
HEARD BY IRC COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved this proposed code change because they felt that it clarifies who is referenced and distinguishes authorized as a legal status.

Assembly Action: **None**

PART V - ISPSC
HEARD BY THE ISPSC COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the proponent's reason statement.

Assembly Action: **None**

Final Hearing Results

ADM22-13, Part I	**AS**
ADM22-13, Part II	**AS**
ADM22-13, Part III	**AS**
ADM22-13, Part IV	**AS**
ADM22-13, Part V	**AS**

Code Change No: ADM23-13

Original Proposal

Section: PART I - IBC: [A] 104.11; IEBC: [A] 104.11 IFC: [A] 104.9; IFGC: [A] 105.2; IMC: [A] 105.2; IPC: [A] 105.2; IPSDC: [A] 105.2; IPMC: [A] 105.2; IWUIC: [A] 105.3
PART II - IRC: R104.11;
PART III - ISPSC 104.9

THIS IS A 3 PART CODE CHANGE. PARTS I WILL BE HEARD BY THE ADMINISTRATIVE PROVISIONS COMMITTEE AS ONE CODE CHANGE. PART II WILL BE HEARD BY THE RESIDENTIAL CODE COMMITTEE. PART III WILL BE HEARD BY THE SWIMMING POOL AND SPA CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Larry Wainright, Qualtim, representing Structural Building Components Association (lwainright@qualtim.com)

PART I – IBC; IEBC; IFC; IFCG; IMC; IPC; IPSDC; IPMC; IWUIC

Revise the International Building Code as follows:

IBC [A] 104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative material, design or method of construction is not approved, the *building official* shall respond in writing, stating the reasons the alternative was not approved.

Revise the International Existing Building Code as follows:

IEBC [A] 104.11 Alternative materials, design and methods of construction, and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design, or method of construction shall be approved where the *code official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and t hat the material, method, or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety. Where the alternative material, design or method of construction is not approved, the *code official* shall respond in writing, stating the reasons the alternative was not approved.

Revise the International Fire Code as follows:

IFC [A] 104.9 Alternative materials and methods. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. The *fire code official* is authorized to approve an alternative material or method of construction where the *fire code official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, *fire resistance*, durability and safety. Where the alternative

material, design or method of construction is not approved, the fire *code official* shall respond in writing, stating the reasons the alternative was not approved.

Revise the International Fuel Gas Code as follows:

IFGC [A] 105.2 Alternative materials, methods, appliances and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material or method of construction shall be *approved* where the code official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative material, design or method of construction is not approved, the *code official* shall respond in writing, stating the reasons the alternative was not approved.

Revise the International Mechanical Code as follows:

IMC [A] 105.2 Alternative materials, methods, equipment and appliances. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material or method of construction shall be *approved* where the code official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative material, design or method of construction is not approved, the *code official* shall respond in writing, stating the reasons the alternative was not approved.

Revise the International Plumbing Code as follows:

IPC [A] 105.2 Alternative materials, methods and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been *approved.* An alternative material or method of construction shall be *approved* where the code official finds that the proposed alternative material, method or equipment complies with the intent of the provisions of this code and is at least the equivalent of that prescribed in this code. Where the alternative material, design or method of construction is not approved, the *code official* shall respond in writing, stating the reasons the alternative was not approved.

Revise the International Private Sewage Disposal Code as follows:

IPSDC [A] 105.2 Alternative materials, methods and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material or method of construction shall be approved where the code official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative material, design or method of construction is not approved, the *code official* shall respond in writing, stating the reasons the alternative was not approved.

Revise the International Property Maintenance Code as follows:

IPMC [A] 105.2 Alternative materials, methods and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material or method of construction shall be *approved* where the *code official* finds that the proposed

design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative material, design or method of construction is not approved, the *code official* shall respond in writing, stating the reasons the alternative was not approved.

Revise the International Wildland-Urban Interface Code as follows:

IWUIC [A] 105.3 Alternative materials or methods. The code official, in concurrence with approval from the *building official* and fire chief, is authorized to approve alternative materials or methods, provided that the code official finds that the proposed design, use or operation satisfactorily complies with the intent of this code and that the alternative is, for the purpose intended, at least equivalent to the level of quality, strength, effectiveness, fire resistance, durability and safety prescribed by this code. Approvals under the authority herein contained shall be subject to the approval of the *building official* whenever the alternate material or method involves matters regulated by the *International Building Code*.
The code official shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding its use. The details of any action granting approval of an alternate shall be recorded and entered in the files of the code enforcement agency. Where the alternative material, design or method of construction is not approved, the *code official* shall respond in writing, stating the reasons the alternative was not approved.

PART II – IRC

Revise the International Residential Code as follows:

IRC R104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code. Compliance with the specific performance-based provisions of the International Codes in lieu of specific requirements of this code shall also be permitted as an alternate. Where the alternative material, design or method of construction is not approved, the *building official* shall respond in writing, stating the reasons the alternative was not approved.

PART III – ISPSC

Revise the International Swimming Pool and Spa Code as follows:

ISPSC 104.9 Alternative materials, methods and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material or method of construction shall be approved where the *code official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, durability and safety. Where the alternative material, design or method of construction is not approved, the *code official* shall respond in writing, stating the reasons the alternative was not approved.

Reason: the language added is similar to that included at 105.3.1 when a permit application is rejected. This proposed change assumes that the non-approval of an alternative method is not the same as the non-approval of a permit, i.e., the permit application may have been approved but an alternative method might not be approved until a later date. However, the reasons for responding to the applicant in writing are the same, as noted in the Commentary to section 105.3.1: 'In order to ensure effective communication and due process of law, the reasons for denial of an application for a permit are required to be in writing. Further, the language is coordinated across all of the I-codes for consistency of enforcement.

Cost Impact: This proposal will not increase the cost of construction.

Public Hearing Results

PART I - IADMIN
Committee Action: **Approved as Submitted**

Committee Reason: The additional language protects the designer, clarifies the decisions and helps in the appeals process. It is good practice for the code official to respond in writing to keep accountability for alternative materials.

Assembly Action: **None**

PART II – IRC
HEARD BY IRC COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved this proposed code change because they felt that it is important to know the reason each time there is input given back. This is a learning experience on behalf of the design professional. The design professional understands what needs to be modified so the plans can be approved. It is important to have a paper trail for posterity.

Assembly Action: **None**

PART III – ISPSC
HEARD BY THE ISPSC COMMITTEE

Committee Action: **Disapproved**

Committee Reason: Requiring written reasons for disapproval for every alternative design, material or method will be a paperwork nightmare for smaller issues. The code official can make the determination as to when a response in writing is prudent.

Assembly Action: **None**

Final Hearing Results

ADM23-13, Part I	**AS**
ADM23-13, Part II	**AS**
ADM23-13, Part III	**D**

Code Change No: ADM43-13

Original Proposal

Section: PART I - IFC: [A] 107.2.1, [A] 107.3 (New),
PART II – IFC: 406.2, 408.5.2, 408.10.2, 507.5.2, 507.5.3, 604.3.2, 604.5.1.1, 604.5.2.1, 606.6, 606.15, 609.3.3.3, 703.1, 703.4, 901.6.2, 901.6.2.1, 904.5, 904.6, 904.7, 904.8, 904.9, 904.10, 907.8, 907.8.2, 907.8.5, 909.20.2, 912.6, 913.5, 913.5.2, 913.5.3, 1030.8, 2006.5.3.2.2, 2006.6.4, 2305.2.1, 2306.2.1.1, 2808.6, 5003.2.9, 5003.3.1.1, 5603.2, 5704.2.11.5.1, 5706.5.4.5, 5806.4.8.2; IBC [F] 904.5, 904.6, 904.7, 904.8, 904.9, 904.10

THIS IS A 2 PART CODE CHANGE. PARTS I WILL BE HEARD BY THE ADMINISTRATIVE PROVISIONS COMMITTEE. PART II WILL BE HEARD BY THE FIRE CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee (cbaldassarra@rjagroup.com)

PART I – Administration

Revise the International Fire Code as follows:

IFC [A] 107.2 Testing and operation. Equipment requiring periodic testing or operation to ensure maintenance shall be tested or operated as specified in this code.

~~**IFC [A] 107.2.1 Testing and inspection records.** Required test and inspection records shall be available to the *fire code official* at all times or such records as the *fire code official* designates shall be filed with the *fire code official*.~~

IFC [A] ~~107.2.2~~ 107.2.1 Reinspection and testing. *(No change to current text)*

IFC [A] 107.3 Recordkeeping. A record of the periodic inspections, tests, servicing, and other operations and maintenance shall be maintained on the premises or other *approved* location for a minimum of 3 years, or the interval where a different period of time is specified in this code or referenced standards. Records shall be made available for inspection by the *fire code official*, and a copy of the records shall be provided to the *fire code official* upon request.

The *fire code official* has the authority to prescribe the form and format of such recordkeeping. The *fire code official* has the authority to require that certain required records be filed with the *fire code official*.

(Renumber subsequent sections)

PART II – IFC

Revise the International Fire Code as follows:

IFC 406.2 Frequency. Employees shall receive training in the contents of fire safety and evacuation plans and their duties as part of new employee orientation and at least annually thereafter. Records of training shall be ~~kept and made available to the *fire code official* upon request~~ maintained.

IFC 408.5.2 Staff training. Employees shall be periodically instructed and kept informed of their duties and responsibilities under the plan. Records of instruction shall be maintained. Such instruction shall be

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reviewed by the staff at least every two months. A copy of the plan shall be readily available at all times within the facility.

IFC 408.10.2 Staff training. Employees shall be periodically instructed and kept informed of their duties and responsibilities under the plan. Records of instruction shall be maintained. Such instruction shall be reviewed by the staff at least every two months. A copy of the plan shall be readily available at all times within the facility.

Revise the International Fire Code as follows:

IFC 507.5.2 Inspection, testing and maintenance. Fire hydrant systems shall be subject to periodic tests as required by the *fire code official*. Fire hydrant systems shall be maintained in an operative condition at all times and shall be repaired where defective. Additions, repairs, *alterations* and servicing shall comply with *approved* standards. Records of tests and required maintenance shall be maintained.

IFC 507.5.3 Private fire service mains and water tanks. Private fire service mains and water tanks shall be periodically inspected, tested and maintained in accordance with NFPA 25 at the following intervals:

1. Private fire hydrants (all types): Inspection annually and after each operation; flow test and maintenance annually.
2. Fire service main piping: Inspection of exposed, annually; flow test every 5 years.
3. Fire service main piping strainers: Inspection and maintenance after each use.

Records of inspections, testing and maintenance shall be maintained.

Revise the International Fire Code as follows:

IFC 604.3.2 ~~Written record~~ Records. ~~Written records~~ Records of the inspection, testing and maintenance of emergency and standby power systems shall include the date of service, name of the servicing technician, a summary of conditions noted and a detailed description of any conditions requiring correction and what corrective action was taken. Such records shall be ~~kept on the premises served by the emergency or standby power system and be available for inspection by the *fire code official*~~ maintained.

IFC 604.5.1.1 Activation test record. Records of tests shall be maintained ~~on the premises for a minimum of three years and submitted to the *fire code official* upon request~~. The record shall include the location of the emergency lighting tested, whether the unit passed or failed, the date of the test, and the person completing the test.

IFC 604.5.2.1 Power test record. Records of tests shall be maintained ~~on the premises for a minimum of three years and submitted to the *fire code official* upon request~~. The record shall include the location of the emergency lighting tested, whether the unit passed or failed, the date of the test, and the person completing the test.

IFC 606.6 Testing of equipment. Refrigeration equipment and systems having a refrigerant circuit containing more than 220 pounds (100 kg) of Group A1 or 30 pounds (14 kg) of any other group refrigerant shall be subject to periodic testing in accordance with Section 606.6.1. ~~A written record of required testing~~ Records of tests shall be maintained ~~on the premises~~. Tests of emergency devices or systems required by this chapter shall be conducted by persons trained and qualified in refrigeration systems.

IFC 606.15 Records. A ~~written~~ record ~~shall be kept~~ of refrigerant quantities brought into and removed from the premises shall be maintained. ~~Such records shall be available to the *fire code official.*~~

IFC 609.3.3.3 Records. Records for inspections shall state the individual and company performing the inspection, a description of the inspection and when the inspection took place. Records for cleanings shall

state the individual and company performing the cleaning and when the cleaning took place. Such records shall be completed after each inspection or cleaning~~,~~ and maintained ~~on the premises for a minimum of three years and be copied to the *fire code official* upon request~~.

Revise the International Fire Code as follows:

IFC 703.1 Maintenance. The required *fire-resistance rating* of fire-resistance-rated construction (including walls, firestops, shaft enclosures, partitions, *smoke barriers*, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems) shall be maintained. Such elements shall be visually inspected by the *owner* annually and properly repaired, restored or replaced when damaged, altered, breached or penetrated. Records of inspections and repairs shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the *owner* unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason shall be protected with *approved* methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic- closing doors of *approved* construction meeting the fire protection requirements for the assembly.

IFC 703.4 Testing. Horizontal and vertical sliding and rolling fire doors shall be inspected and tested annually to confirm proper operation and full closure. ~~A written record~~ Records of inspections and testing shall be maintained ~~and be available to the *fire code official*~~.

Revise the International Fire Code as follows:

IFC 901.6.2 Records. Records of all system inspections, tests and maintenance required by the referenced standards shall be maintained ~~on the premises for a minimum of three years and shall be copied to the *fire code official* upon request~~.

IFC 901.6.2.1 Records information. Initial records shall include the name of the installation contractor, type of components installed, manufacturer of the components, location and number of components installed per floor. Records shall also include the manufacturers' operation and maintenance instruction manuals. Such records shall be maintained ~~on the premises~~ for the life of the installation.

IFC 904.5 (IBC [F] 904.5) Wet-chemical systems. Wet-chemical extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 17A and their listing. Records of inspections and testing shall be maintained.

IFC 904.6 (IBC [F] 904.6) Dry-chemical systems. Dry-chemical extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 17 and their listing. Records of inspections and testing shall be maintained.

IFC 904.7 (IBC [F] 904.7) Foam systems. Foam-extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 11 and NFPA 16 and their listing. Records of inspections and testing shall be maintained.

IFC 904.8 (IBC [F] 904.8) Carbon dioxide systems. Carbon dioxide extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 12 and their listing. Records of inspections and testing shall be maintained.

IFC 904.9 (IBC [F] 904.9) Halon systems. Halogenated extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 12A and their listing. Records of inspections and testing shall be maintained.

IFC 904.10 (IBC [F] 904.10) Clean-agent systems. Clean-agent fire-extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 2001 and their listing. Records of inspections and testing shall be maintained.

IFC 907.8 Inspection, testing and maintenance. The maintenance and testing schedules and procedures for fire alarm and fire detection systems shall be in accordance with Sections 907.8.1 through 907.8.5 and NFPA 72. Records of inspection, testing and maintenance shall be maintained.

IFC 907.8.2 Testing. Testing shall be performed in accordance with the schedules in NFPA 72 or more frequently where required by the *fire code official*. Records of testing shall be maintained.

> **Exception:** Devices or equipment that are inaccessible for safety considerations shall be tested during scheduled shutdowns where *approved* by the *fire code official*, but not less than every 18 months.

IFC 907.8.5 Inspection, testing and maintenance ~~Maintenance, inspection and testing~~. The building *owner* shall be responsible to maintain the fire and life safety systems in an operable condition at all times. Service personnel shall meet the qualification requirements of NFPA 72 for ~~maintaining, inspecting and testing~~ inspection, testing and maintenance of such systems. ~~A written record~~ Records of inspection, testing and maintenance shall be maintained ~~and shall be made available to the *fire code official*~~.

IFC 909.20.2 ~~Written record~~ Records. ~~A written record~~ Records of smoke control system testing and maintenance shall be maintained ~~on the premises~~. The ~~written~~ record shall include the date of the maintenance, identification of the servicing personnel and notification of any unsatisfactory condition and the corrective action taken, including parts replaced.

IFC 912.6 Inspection, testing and maintenance. All fire department connections shall be periodically inspected, tested and maintained in accordance with NFPA 25. Records of inspection, testing and maintenance shall be maintained.

IFC 913.5 Inspection, testing and maintenance. Fire pumps shall be inspected, tested and maintained in accordance with the requirements of this section and NFPA 25. Records of inspection, testing and maintenance shall be maintained.

IFC 913.5.2 Generator sets. Engine generator sets supplying emergency or standby power to fire pump assemblies shall be periodically tested in accordance with NFPA 110. Records of testing shall be maintained.

IFC 913.5.3 Transfer switches. Automatic transfer switches shall be periodically tested in accordance with NFPA 110. Records of testing shall be maintained.

Revise the International Fire Code as follows:

IFC 1030.8 Inspection, testing and maintenance. All two-way communication systems for *areas of refuge* shall be inspected and tested on a yearly basis to verify that all components are operational. When required, the tests shall be conducted in the presence of the *fire code official*. Records of inspection, testing and maintenance shall be maintained.

Revise the International Fire Code as follows:

IFC 2006.5.3.2.2 ~~Documentation~~ Records. The airport fueling-system operator shall maintain records of all training administered to its employees. ~~These records shall be made available to the *fire code official* on request.~~

IFC 2006.6.4 Testing. Emergency fuel shutoff devices shall be operationally tested at intervals not exceeding three months. The fueling-system operator shall maintain ~~suitable~~ testing records ~~of these tests~~.

Revise the International Fire Code as follows:

IFC 2305.2.1 Inspections. Flammable and *combustible liquid* fuel-dispensing and containment equipment shall be periodically inspected where required by the *fire code official* to verify that ~~it~~ the equipment is in proper working order and not subject to leakage. Records of inspections shall be maintained.

IFC 2306.2.1.1 Inventory control for underground tanks. Accurate daily inventory records shall be maintained and reconciled on underground fuel storage tanks for indication of possible leakage from tanks and piping. The records ~~shall be kept at the premises or made available for inspection by the *fire code official* within 24 hours of a written or verbal request and~~ shall include records for each product showing daily reconciliation between sales, use, receipts and inventory on hand. Where there is more than one system consisting of tanks serving separate pumps or dispensers for a product, the reconciliation shall be ascertained separately for each tank system. A consistent or accidental loss of product shall be immediately reported to the *fire code official*.

Revise the International Fire Code as follows:

IFC 2808.6 Static pile protection. Static piles shall be monitored by an *approved* means to measure temperatures within the static piles. Internal pile temperatures shall be monitored and recorded weekly. Such records shall be ~~kept on file at the facility and made available for inspection~~ maintained. An operational plan indicating procedures and schedules for the inspection, monitoring and restricting of excessive internal temperatures in static piles shall be submitted to the *fire code official* for review and approval.

Revise the International Fire Code as follows:

IFC 5003.2.9 Testing. The equipment, devices and systems listed in Section 5003.2.9.1 shall be tested at the time of installation and at one of the intervals listed in Section 5003.2.9.2. ~~Written~~ Records of the tests conducted or maintenance performed shall be maintained.

Exceptions:

1 through 5 *(No change to current text)*

IFC 5003.3.1.1 Records. ~~Accurate records shall be kept~~ Records of the unauthorized discharge of hazardous materials by the permittee shall be maintained.

Revise the International Fire Code as follows:

IFC 5603.2 Transaction record. The permittee shall maintain a record of all transactions involving receipt, removal, use or disposal of *explosive materials*. Such ~~a record~~ records shall be maintained for a period of five years~~, and shall be furnished to the *fire code official* for inspection upon request~~.

Exception: Where only Division 1.4G (consumer fireworks) are handled, records need only be maintained for a period of three years.

Revise the International Fire Code as follows:

IFC 5704.2.11.5.1 Inventory control. Daily inventory records ~~shall be maintained~~ for underground storage tank systems shall be maintained.

IFC 5706.5.4.5 Commercial, industrial, governmental or manufacturing. Dispensing of Class II and III motor vehicle fuel from tank vehicles into the fuel tanks of motor vehicles located at commercial, industrial, governmental or manufacturing establishments is allowed where permitted, provided such dispensing operations are conducted in accordance with the following:

1 through 13 *(No change to current text)*

14. Persons responsible for dispensing operations shall be trained in the appropriate mitigating actions in the event of a fire, leak or spill. Training records shall be maintained by the dispensing company ~~and shall be made available to the *fire code official* upon request~~.

15 through 25 *(No change to current text)*

Revise the International Fire Code as follows:

IFC 5806.4.8.2 Corrosion protection. The vacuum jacket shall be protected by *approved* or *listed* corrosion-resistant materials or an engineered cathodic protection system. Where cathodic protection is utilized, an *approved* maintenance schedule shall be established. Exposed components shall be inspected at least twice a year. ~~Maintenance~~ Records of maintenance and inspection events shall be ~~recorded and those records shall be~~ maintained ~~on the premises for a minimum of three years and made available to the *fire code official* upon request~~.

Reason: This proposed change is a result of the CTC's investigation of the area of study entitled "NIST Charleston Sofa Store Fire Recommendations". The scope of the activity is noted as:

Review the NIST and other investigative reports on the fire that occurred on the evening of June 18, 2007 in the Sofa Super Store in Charleston, South Carolina to identify issues that can be addressed by the International Codes.

In connection with their investigation, NIST analyzed the fire ground, consulted with other experts, and performed computer simulations of fire growth alternatives. Based on these analyses, NIST concluded that the following sequence of events is likely to have occurred. A fire began in packing material and discarded furniture outside an enclosed loading dock area. The fire spread to the loading dock, then into both the retail showroom and warehouse spaces. During the early stages of the fire in the two latter locations, the fire spread was slowed by the limited supply of fresh air. This under-ventilation led to generation of a large mass of pyrolyzed and only partially oxidized effluent. The smoke and combustible gases flowed into the interstitial space below the roof and above the suspended ceiling of the main retail showroom. As this space filled with unburned fuel, the hot smoke also seeped through the suspended ceiling into the main showroom and formed a hot smoke layer below the suspended ceiling. Up to this time, the extent of fire spread into the interstitial space was not visible to fire fighters in the store. If the fire spread had been visible to the fire fighters in the store, it would have provided a direct indication of a fire hazard in the showroom. Meanwhile, the fire at the back of the main showroom and the gas mixture below the suspended ceiling were both still fuel rich. When the front windows were broken out or vented, the inflow of additional air allowed the heat release rate of the fire to intensify rapidly and added air to the layer of unburned fuel below the suspended ceiling enabling the ignition of the unburned fuel/air mixture. The fire swept from the rear to the front of the main showroom extremely quickly, and then into the west and east showrooms. Nine fire fighters were killed in the Sofa Super Store fire. NIST developed eleven recommendations to help mitigate such future losses.

Recommendation 2(c) of the NIST report recommended that that all state and local jurisdictions implement aggressive and effective fire inspection and enforcement programs that address detailed recordkeeping.

Following a review of recommendation 2(c) of the NIST report, changes are proposed to Section 107.2 and 49 other sections of the International Fire Code that address recordkeeping.

The proposed change to Section 107.2 accomplishes several things with regard to recordkeeping. Most significantly, it standardizes recordkeeping requirements for periodic inspection, testing, servicing and other operational and maintenance requirements of the International Fire Code.

The change to Section 107.2 would now make it clear that records must be maintained on the premises or other approved location and that copies of records must be provided to the fire code official upon request. The change would also make clear that records must be maintained for a period of not less than 3 years unless a different time interval were specified in the code or a referenced standard, and that the fire code official is authorized to prescribe the form and format of such records.

The changes proposed to the other sections of the International Fire Code are intended to make clear what records must be maintained.

This proposal is submitted by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/CTC/Pages/default.aspx. Since its inception in April/2005, the CTC has held twenty-five meetings - all open to the public. In 2012, three of the 25 face-to face meetings were held. In addition to the CTC meetings, the CTC established Study Groups (SG) of interested parties for each of the areas of study. These SG's are responsible for reviewing the available information and making recommendations to the CTC. All totaled, the SG's held over 70 conference calls in 2012.

Cost Impact: The code change proposed will not increase the cost of construction.

Staff analysis: Recordkeeping of maintenance and inspections is also addressed in the ICCPC, IPC and IWUIC.

Public Hearing Results

PART I - IADMIN
Committee Action: **Approved as Submitted**

Committee Reason: This requirement for records allows for a format acceptable to the fire officials and at the same time allows for alternatives. This is the first step towards coordination throughout the IFC requirements for all types of records.

Assembly Action: **None**

PART II – IFC
HEARD BY THE IFC COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed that the code change creates needed standardization of record keeping requirements for periodic inspection, testing, servicing and other operational and maintenance requirements of the IFC, makes it clear that records must be maintained on the premises or other approved location for a period of not less than 3 years and that copies of records must be provided to the fire code official upon request.

Assembly Action: **None**

Final Hearing Results

ADM43-13, Part I	**AS**
ADM43-13, Part II	**AS**

Code Change No: ADM44-13

Original Proposal

Section: IBC: [A] 107.2, [A] 107.2.6 (New)

Proponent: Jerry R. Tepe, FAIA, JRT•AIA ARCHITECT, representing The American Institute of Architects

Revise the International Building Code as follows:

IBC [A] 107.2 Construction documents. *Construction documents* shall be in accordance with Sections 107.2.1 through ~~107.2.5~~ 107.2.6.

IBC [A] 107.2.6 Structural. The *construction documents* shall provide the information specified in Section 1603.

Reason: Often the *construction document* requirements of Section 1603 for structural design are overlooked as they are only shown in Chapter 16 and not with the other *construction document* requirements found in Section 107. This places guidance in that section. An alternative approach would be to relocate the entire Section 1603 to Section 107. I do not suggest this as many engineers then would lose track of the requirements. It would also place them in an administrative section while they should remain the responsibility of the Structural Code Development Committee. There is no technical change proposed.

Cost Impact: None

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The requirement for the construction documents to include the structural information is a needed pointer.

Assembly Action: **None**

Final Hearing Results

ADM44-13 **AS**

Code Change No: ADM46-13

Original Proposal

Section: IBC: [A] 107.3.4.1, 202; IEBC: [A] 106.3.4, 202

Proponent: Maureen Traxler, City of Seattle, representing Seattle Department of Planning and Development (maureen.traxler@seattle.gov)

Revise the International Building Code as follows:

IBC [A] 107.3.4.1 Deferred submittals. ~~For the purposes of this section, deferred submittals are defined as those portions of the design that are not submitted at the time of the application and that are to be submitted to the *building official* within a specified period.~~

Deferral of any submittal items shall have the prior approval of the *building official*. The *registered design professional in responsible charge* shall list the deferred submittals on the *construction documents* for review by the *building official*.

Documents for deferred submittal items shall be submitted to the *registered design professional in responsible charge* who shall review them and forward them to the *building official* with a notation indicating that the deferred submittal documents have been reviewed and found to be in general conformance to the design of the building. The deferred submittal items shall not be installed until the deferred submittal documents have been *approved* by the *building official*.

Add new definition as follows:

IBC SECTION 202
DEFINITIONS

DEFERRED SUBMITTAL. Those portions of the design that are not submitted at the time of the application and that are to be submitted to the *building official* within a specified period.

Revise the International Existing Building Code as follows:

IEBC [A] 106.3.4 Deferred submittals. ~~For the purposes of this section, deferred submittals are defined as those portions of the design that are not submitted at the time of the application and that are to be submitted to the *code official* within a specified period~~.

Deferral of any submittal items shall have the prior approval of the *code official*. The *registered design professional in responsible charge* shall list the deferred submittals on the construction documents for review by the *code official*.

Submittal documents for deferred submittal items shall be s ubmitted to the *registered design professional in responsible charge* who shall review them and forward them to the *code official* with a notation indicating that the deferred submittal documents have been reviewed and that they have been found to be in general conformance to the design of the building. The deferred submittal items shall not be installed until their deferred submittal documents have been approved by the *code official*.

Add new definition as follows:

IEBC SECTION 202
DEFINITIONS

DEFERRED SUBMITTAL. Those portions of the design that are not submitted at the time of the application and that are to be submitted to the *code official* within a specified period.

Reason: A definition of "deferred submittal" is buried in IBC Section 107.3.4.1 and IEBC 106.3.4. This proposal moves the definition to Section 202. The term is used at least two places in the code, so placing the definition in Chapter 2 will make it easier to find when applying those sections.

Cost Impact: None.

Public Hearing Results

Committee Action: **Approved as Modified**

Modification:

Further revise the International Building Code as follows:

IBC [A] 107.3.4.1 Deferred submittals. ~~Deferral of~~ Any *deferred submittal* items shall have the prior approval of the *building official*. The *registered design professional in responsible charge* shall list the deferred submittals on the *construction documents* for review by the *building official*.

Documents for *deferred submittal* items shall be submitted to the *registered design professional in responsible charge* who shall review them and forward them to the *building official* with a notation indicating that the *deferred submittal* documents have been reviewed and found to be in general conformance to the design of the building. The *deferred submittal* items shall not be installed until the *deferred submittal* documents have been *approved* by the *building official*.

Further revise the International Existing Building Code as follows:

IEBC [A] 106.3.4 Deferred submittals. ~~Deferral of~~ Any *deferred submittal* items shall have the prior approval of the *code official*. The *registered design professional in responsible charge* shall list the *deferred submittals* on the construction documents for review by the *code official*.

Submittal documents for *deferred submittal* items shall be submitted to the *registered design professional in responsible charge* who shall review them and forward them to the *code official* with a notation indicating that the *deferred submittal* documents have been reviewed and that they have been found to be in general conformance to the design of the building. The *deferred submittal* items shall not be installed until their *deferred submittal* documents have been approved by the *code official*.

Committee Reason: The modification will use the defined term in the text. 'Deferred submittal' as a defined term is cleaner and easier to understand.

Assembly Action: **None**

Public Comment(s)

Public Comment:

Maureen Traxler, representing City of Seattle Dept of Planning & Development, requests Approval as Submitted.

Commenter's Reason: The Code Development Committee approved a floor modification that slightly changed the meaning of IBC Section 107.3.4.1. It's not the deferred items that should have prior approval, it's the deferral of the submittals for those items. This provision is meant to require applicants to get the code official's approval before deferring any submittal. Approval of the deferred submittal items occurs after they've been submitted.

Final Hearing Results

ADM46-13 **AS**

Code Change No: ADM48-13

Original Proposal

Section: IBC: [A] 108.2

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee (bajnaic@chesterfield.gov)

Revise the International Building Code as follows:

IBC [A] SECTION 108
TEMPORARY STRUCTURES AND USES

IBC [A] 108.1 General. The *building official* is authorized to issue a *permit* for temporary structures and temporary uses. Such *permits* shall be limited as to time of service, but shall not be permitted for more than 180 days. The *building official* is authorized to grant extensions for demonstrated cause.

IBC [A] 108.2 Conformance. Temporary structures and uses shall comply with the requirements in Section 3103. ~~conform to the structural strength, fire safety, *means of egress*, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.~~

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 6 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The BCAC was asked during the Group A cycle to look at adding technical requirements for temporary structures in Section 3103. It was determined that there is sufficient language in the code. The problem was, the language was in the administrative section in Chapter 1. Therefore, this two part proposal is simply to move the language from Chapter 1 to Section 3103. The addition of the language to Section 3103 was under the Group A cycle and this removal of the language from Chapter 1 is under Group B cycle.

BCAC Proposal G190-12 shown below was approved in Portland which moved the existing 108.2 language to chapter 31 as they were technical requirements and did not belong in the administrative provisions. This proposal is a follow-up to that change and intends to delete the technical provisions from Chapter 1, leaving only the administrative requirement, which simply references the user to Chapter 31.

SECTION 3103
TEMPORARY STRUCTURES

3103.1 General. The provisions of Sections 3103.1 through 3103.4 shall apply to structures erected for a period of less than 180 days. Tents and other membrane structures erected for a period of less than 180 days shall comply with the *International Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.

Add new section 3103.1.1 and re-number the existing 3103.1.1 as follows:

3103.1.1 Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, *means of egress*, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.

Cost Impact: This proposal will not increase the cost of construction.

Staff analysis: The current language in IBC Section 108.2 is also found in IEBC 107.2, IFGC 110.2, IMC 110.2, IPC 110.2, IPSDC 110.2, IWUIC 111.2 and IRC R107.2.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal removes a vague laundry list and replaces it with a with a reference to specific requirements.

Assembly Action: **None**

Final Hearing Results

ADM48-13 **AS**

Code Change No: ADM49-13

Original Proposal

Section: PART I - IBC: [A] 111.1, IEBC: [A] 110.1, IWUIC [A] 110.1;
PART II – IRC: R110.1

THIS IS A 2 PART CODE CHANGE. PARTS I WILL BE HEARD BY THE ADMINISTRATIVE PROVISIONS COMMITTEE AS ONE CODE CHANGE. PART II WILL BE HEARD BY THE RESIDENTIAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Jerry Anderson, City of Overland Park, Ks, representing self (jerry.anderson@opkansas.org)

PART I – IBC; IEBC; IWUIC

Revise the International Building Code as follows:

IBC [A] SECTION 111
CERTIFICATE OF OCCUPANCY

IBC [A] 111.1 Use and occupancy. No building or structure shall be used or occupied, and no change in the existing use or occupancy classification of a building or structure or portion thereof shall be made, until the *building official* has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction.

Exception: Certificates of occupancy are not required for work exempt from *permits* under Section 105.2.

Revise the International Existing Building Code as follows:

IEBC [A] SECTION 110
CERTIFICATE OF OCCUPANCY

IEBC [A] 110.1 Altered area use and occupancy classification change. No altered area of a building and no relocated building shall be used or occupied, and no change in the existing use or occupancy classification of a building or portion thereof shall be made until the code official has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction.

Revise the International Wildland-Urban Interface Code as follows:

IWUIC SECTION 110
CERTIFICATE OF COMPLETION

IWUIC [A] 110.1 General. No building, structure or premises shall be used or occupied, and no change in the existing use or occupancy classification of a building, structure, premise or portion thereof shall be made until the code official has issued a certificate of completion therefor as provided herein. The certificate of occupancy shall not be issued until the certificate of completion indicating that the project is in compliance with this code has been issued by the code official.

PART II – IRC

Revise the International Residential Code as follows:

IRC SECTION R110
CERTIFICATE OF OCCUPANCY

IRC R110.1 Use and occupancy. No building or structure shall be used or occupied, and no change in the existing use or occupancy classification of a building or structure or portion thereof shall be made until the *building official* has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the *jurisdiction*. Certificates presuming to give authority to violate or cancel the provisions of this code or other ordinances of the *jurisdiction* shall not be valid.

Exceptions:

1. Certificates of occupancy are not required for work exempt from permits under Section R105.2.
2. Accessory buildings or structures.

IRC R110.2 Change in use. Changes in the character or use of an existing structure shall not be made except as specified in Sections 3408 and 3409 of the *International Building Code*.

Reason: The purpose of this code change is to clarify the intent of this code section as it pertains to existing buildings and structures. The current language implies that a new (revised) certificate of occupancy is required only if there is a change in the occupancy classification. I have inserted the word "use" to indicate that there cannot be change in the use of the building or structure regardless if there is a change occupancy classification.

Cost Impact: no cost associated with this change

Public Hearing Results

PART I - IADMIN
Committee Action: **Approved as Submitted**

Committee Reason: The added language clarifies when there is the same occupancy, but with a different level of activity. This proposal will coordinate with the IEBC change to the definition of Change of Occupancy.

Assembly Action: **None**

PART II - IRC
HEARD BY IRC COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved this code change proposal because they felt that it clarifies that a change in the existing occupancy does not grant a change in the existing use.

Assembly Action: **None**

Final Hearing Results

ADM49-13, Part I	**AS**
ADM49-13, Part II	**AS**

Code Change No: ADM55-13

Original Proposal

Section: **PART I - IBC: 202, IFC: 202, IFGC: 202, IMC: 202, IPC: 202, IPMC: 202, IWUIC: 202**
PART II - IECC: C202;
PART III - IECC: R202 (IRC N1101.9);
PART IV - IRC: R202;
PART V - ISPSC 202.

THIS IS A 5 PART CODE CHANGE. PARTS I WILL BE HEARD BY THE ADMINISTRATIVE PROVISIONS COMMITTEE AS ONE CODE CHANGE. PART II WILL BE HEARD BY THE ENERGY CONSERVATION CODE-COMMERCIAL COMMITTEE. PART III WILL BE HEARD BY THE ENERGY CONSERVATION CODE-RESIDENTIAL COMMITTEE. PART IV WILL BE HEARD BY THE RESIDENTIAL CODE COMMITTEE. PART V WILL BE HEARD BY THE SWIMMING POOL AND SPA CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Philip Brazil, P.E., Reid Middletonw, Inc., representing Washington Association of Building Officials, Technical Code Development (pbrazil@reidmiddleton.com)

PART I – IBC; IFC; IFCG; IMC; IPC; IPMC; IWUIC

Revise the International Building Code as follows:

IBC SECTION 202
DEFINITIONS

[A] APPROVED. Acceptable to the *building official* ~~or authority having jurisdiction~~.

[A] PERMIT. An official document or certificate issued by the ~~authority having jurisdiction which~~ building official that authorizes performance of a specified activity.

Revise the International Fire Code as follows:

IFC SECTION 202
DEFINITIONS

[A] APPROVED. Acceptable to the *fire code official*.

[A] PERMIT. An official document or certificate issued by the ~~authority having jurisdiction which~~ fire code official that authorizes performance of a specified activity.

Revise the International Fuel Gas Code as follows:

IFGC SECTION 202
DEFINITIONS

[A] APPROVED. Acceptable to the *code official* ~~or authority having jurisdiction~~.

Revise the International Mechanical Code as follows:

IMC SECTION 202

DEFINITIONS

[A] APPROVED. Acceptable to the *code official* ~~or authority having jurisdiction~~.

Revise the International Plumbing Code as follows:

IPC SECTION 202
DEFINITIONS

[A] APPROVED. Acceptable to the *code official* ~~or authority having jurisdiction~~.

Revise the International Property Maintenance Code as follows:

IPMC SECTION 202
DEFINITIONS

[A] APPROVED. Acceptable to ~~Approved by~~ the *code official*.

Revise the International Wildland-Urban Interface Code as follows:

IWUICC SECTION 202
DEFINITIONS

[A] APPROVED. Acceptable to the code official ~~Approval by the code official as the result of review, investigation or tests conducted by the code official or by reason of accepted principles or tests by national authorities, or technical or scientific organizations.~~

PART II – IECC-COMMERCIAL

Revise the International Energy Conservation Code-Commercial as follows:

IECC SECTION C202
GENERAL DEFINITIONS

APPROVED. Acceptable to ~~Approval by~~ the code official ~~as the result of investigation and tests conducted by him or her, or by reason of accepted principles or tests by national recognized organizations.~~

PART III – IECC-RESIDENTIAL

Revise the International Energy Conservation Code-Residential as follows:

IECC SECTION R202 (IRC N1101.9)
GENERAL DEFINITIONS

APPROVED. Acceptable to ~~Approval by~~ the code official ~~as the result of investigation and tests conducted by him or her, or by reason of accepted principles or tests by national recognized organizations.~~

PART IV – IRC

Revise the International Residential Code as follows:

IRC SECTION R202
DEFINITIONS

APPROVED. Acceptable to the *building official*.

PERMIT. An official document or certificate issued by the ~~authority having jurisdiction~~ building official that authorizes performance of a specified activity.

PART V – ISPSC

Revise the International Swimming Pool and Spa Code as follows:

ISPSC SECTION 202
DEFINITIONS

APPROVED. Acceptable to the *code official* ~~or authority having jurisdiction~~.

PERMIT. An official document or certificate issued by the ~~authority having jurisdiction~~ building official that authorizes performance of a specified activity.

Reason: The purpose for the proposal is to clarify the meaning of the definitions for “approved” and “permit” by specifying the building official rather than the “authority having jurisdiction.” The provisions of the building code consistently identify the building official as the official in charge of administration and enforcement of the building code. The only instances of “authority having jurisdiction” in the 2012 IBC are in this proposal.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

PART I - IADMIN
Committee Action: **Approved as Submitted**

Committee Reason: The phrase ‘authority having jurisdiction’ is already addressed in the definition for code official, therefore, it can be removed from the definition for the term permit and approved. This revision would coordinate the codes and is preferred to the options for the term ‘approved’ offered in ADM53 and ADM 54.

Assembly Action: **None**

PART II – IECC – Commercial
HEARD BY IECC COMMERCIAL COMMITTEE

Committee Action: **Disapproved**

Committee Reason: Current text provides the code official guidance regarding what approved means and how something is 'approved'. This proposal removes that guidance.

Assembly Action: **None**

PART III – IECC – Residential
HEARD BY IECC RESIDENTIAL COMMITTEE

Committee Action: **Disapproved**

Committee Reason: The proposed text would diminish guidance to the code official regarding needed information for approval.

Assembly Action: **None**

PART IV - IRC
HEARD BY IRC COMMITTEE

Committee Action: **Disapproved**

Committee Reason: The committee disapproved this code change proposal because the authority having jurisdiction issues the permit and the building official is the representative of that authority.

Assembly Action: **None**

PART V - ISPSC
HEARD BY THE ISPSC COMMITTEE

Committee Action: **Disapproved**

Committee Reason: The permitting of pools might not be controlled by the building official. This proposal removes the flexibility for other authorities having jurisdiction to do permitting and to approve items.

Assembly Action: **None**

Public Comment(s)

Part II - Public Comment:

Maureen Traxler, City of Seattle Department of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee, requests Approval as Submitted.

Commenter's Reason: This proposal would make the definition of "approved" in the IECC consistent with the definition in the Building, Fire, Fuel Gas, Mechanical, Plumbing, Property Maintenance and Wildland Urban Interface codes as approved in Part I of this proposal. The committees disapproved these 2 parts of the proposal because they felt that building officials need guidance to make approvals. However, the other codes do not include the language the Energy Code Committees found necessary. We can see no reason building officials would need additional guidance to make approvals under the Energy Code. The language provides minimal guidance in any case. It doesn't require anything other than what a building official would normally do. "Accepted principles" and "tests by national recognized organizations" are typical standards for approvals. The deleted language allows "investigations" without defining what constitutes an investigation. Presumably making a phone call or reviewing manufacturer information could be considered investigation.

Part III - Public Comment:

Maureen Traxler, City of Seattle Department of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee, requests Approval as Submitted.

Commenter's Reason: This proposal would make the definition of "approved" in the IECC consistent with the definition in the Building, Fire, Fuel Gas, Mechanical, Plumbing, Property Maintenance and Wildland Urban Interface codes as approved in Part I of this proposal. The committees disapproved these 2 parts of the proposal because they felt that building officials need guidance to make approvals. However, the other codes do not include the language the Energy Code Committees found necessary. We can see no reason building officials would need additional guidance to make approvals under the Energy Code. The language provides minimal guidance in any case. It doesn't require anything other than what a building official would normally do. "Accepted principles" and "tests by national recognized organizations" are typical standards for approvals. The deleted language allows "investigations" without defining what constitutes an investigation. Presumably making a phone call or reviewing manufacturer information could be considered investigation.

Part IV - Public Comment:

Maureen Traxler, City of Seattle Department of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee, requests Approval as Submitted.

Commenter's Reason: The provisions of the International Codes consistently identify the building official as the official in charge of administration and enforcement of the codes. See IRC Section 104 reprinted below. The term "authority having jurisdiction" is not defined and is not used anywhere else in the International Codes. Using it in the definition makes code officials vulnerable to challenges to their authority. It's important that the code state clearly and unequivocally that the code official has ultimate authority to make approvals. This change will make the IRC definitions consistent with the definitions in 7 other codes that were approved in Part I— IBC; IFC; IFGC; IMC; IPC; IPMC; IWUIC.

The reason for disapproval of this part of the proposal misinterprets Chapter 1 of the IRC. Section 104 clearly gives the code official authority sole responsibility to administer this code.

SECTION R104
DUTIES AND POWERS OF THE BUILDING OFFICIAL

R104.1 General. The *building official* is hereby authorized and directed to enforce the provisions of this code. The *building official* shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies and procedures shall be in conformance with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

R104.2 Applications and permits. The *building official* shall receive applications, review *construction documents* and issue permits for the erection and alteration of buildings and structures, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

Part V - Public Comment:

Maureen Traxler, City of Seattle Dept of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee, requests Approval as Modified by this Public Comments.

Modify the proposal as follows:

ISPSC SECTION 202
DEFINITIONS

APPROVED. Acceptable to the *code official*.

PERMIT. An official document or certificate issued by the ~~building~~ code official that authorizes performance of a specified activity.

Commenter's Reason: The provisions of the codes consistently identify the code official as the person in charge of administration and enforcement of the codes. See ISPSC Section 104 reprinted below. The term "authority having jurisdiction" is not defined and is not used anywhere else in the International Codes. Using it in the definition makes code officials vulnerable to challenges to their authority. It's important that the code state clearly and unequivocally that the code official has ultimate authority to make approvals and issue permits. This change will make the ISPSC definitions consistent with the definitions in 7 other codes that were approved in Part I— IBC; IFC; IFGC; IMC; IPC; IPMC; IWUIC.

The reason for disapproval of this part of the proposal misinterprets Chapter 1 of the ISPSC. Section 104 clearly gives the code official authority sole authority to administer this code. Even if other agencies issue permits related to pools and spas, the code official retains responsibility for enforcing the ISPSC and issuing permits under the International Codes. If other agencies issue permits in some jurisdictions, the code official, by definition, may authorize others to perform duties. "**CODE OFFICIAL.** The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative." Disapproval of this proposal would result in inconsistency within the ISPSC between the definition and Section 104, as well as making this Code inconsistent with the other codes.

SECTION 104
DUTIES AND POWERS OF THE CODE OFFICIAL

104.1 General. The *code official* is hereby authorized and directed to enforce the provisions of this code. The code official shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies and procedures shall be in compliance with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

104.2 Applications and permits. The code official shall receive applications, review construction documents and issue permits for the erection, alteration, demolition and moving of aquatic vessels, related mechanical, electrical, plumbing systems, to inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

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Final Hearing Results

ADM55-13, Part I	**AS**
ADM55-13, Part II	**D**
ADM55-13, Part III	**D**
ADM55-13, Part IV	**D**
ADM55-13, Part V	**D**

Code Change No: ADM57-13

Original Proposal

Section: **PART I - IFGC: 202, IMC: 202, IPC: 202**
PART II - IECC: C202 (New);
PART III - IECC: R202 (IRC N1101.9)(New)

THIS IS A 3 PART CODE CHANGE. PARTS I WILL BE HEARD BY THE ADMINISTRATIVE PROVISIONS COMMITTEE AS ONE CODE CHANGE. PART II WILL BE HEARD BY THE ENERGY CONSERVATION CODE-COMMERCIAL COMMITTEE. PART III WILL BE HEARD BY THE ENERGY CONSERVATION CODE-RESIDENTIAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Brenda A. Thompson, Clark County Development Services, Clark County, Nevada, representing Sustainable/Energy/High Performance Code Action Committee (bat@clarkcounty.gov)

PART I – IBC; IFCG; IMC; IPC

Revise the International Building Code as follows:

IBC SECTION 202
DEFINITIONS

[A] APPROVED AGENCY. An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been *approved* by the building official.

Revise the International Fuel Gas Code as follows:

IFGC SECTION 202
GENERAL DEFINITIONS

[A] APPROVED AGENCY. An established and recognized agency ~~that is *approved* by the code official and~~ regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved by the code official.

Revise the International Mechanical Code as follows:

IMC SECTION 202
GENERAL DEFINITIONS

[A] APPROVED AGENCY. An established and recognized agency ~~that is *approved* by the code official and~~ regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved by the code official.

Revise the International Plumbing Code as follows:

IPC SECTION 202
GENERAL DEFINITIONS

[A] APPROVED AGENCY. An established and recognized agency ~~that is *approved* by the code official and~~ regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved by the code official.

PART II – IECC-COMMERCIAL

Add a new definition to the International Energy Conservation Code-Commercial as follows:

IECC SECTION C202
GENERAL DEFINITIONS

APPROVED AGENCY. An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved by the code official.

PART III – IECC-RESIDENTIAL

Add a new definition to the International Energy Conservation Code-Residential as follows:

IECC SECTION R202 (IRC N1101.9)
GENERAL DEFINITIONS

APPROVED AGENCY. An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved by the code official.

Reason: This proposal was submitted by the ICC Sustainability Energy and High Performance Code Action Committee (SEHPCAC). The SEHPCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the SEHPCAC has held 3 open meetings and over 30 workgroup calls which included members of the SEHPCAC as well as any interested party to discuss and debate proposed changes and public comments. Related documentation and reports are posted on the SEHPCAC website at: http://www.iccsafe.org/cs/SEHPCAC/Pages/default.aspx.

Reasons for this specific proposal:

Part I – These revisions are for consistency across codes with the defined term.

Part II and III - The term 'approved agency' is used in the IECC, but not defined. While the term is defined in the *International Building Code*, and therefore available for application to the IECC, the SEHPCAC believes that the definition should be included in the IECC so that it is readily available for code users and the term is consistently applied.

Cost Impact: This code change proposal will not increase the cost of construction.

Staff analysis: The term "Approved Agency" is currently defined in the IBC, IFGC, IMC, IPC, IRC, ISPSC and IgCC. In the IBC, IPC, IMC and IPC, this definition is scoped to Administration. The term proposed for the IECC is the same as defined in the IRC and the ISPSC.

Public Hearing Results

PART I - IADMIN
Committee Action: **Approved as Submitted**

Committee Reason: The term 'approved agency' should be consistent throughout the codes.

Assembly Action: **None**

PART II – IECC – Commercial
HEARD BY IECC COMMERCIAL COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: Adding the definition for 'approved agency' provides a definition to a term already used in this code. This would also be consistent with the other International Codes.

Assembly Action: **None**

PART III – IECC – Residential
HEARD BY IECC RESIDENTIAL COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: The proposal provides a consistent definition of 'approved agency' throughout all of the I-Codes.

Assembly Action: **None**

Final Hearing Results

ADM57-13, Part I	**AS**
ADM57-13, Part II	**AS**
ADM57-13, Part III	**AS**

Code Change No: ADM60-13

Original Proposal

Section: **PART I - IBC: 202; IEBC: 202;**
PART II - IECC: C202;
PART III - IECC: R202 (IRC N1101.9);
PART IV - IRC: R202;
PART V - ISPSC: 202

THIS IS A 5 PART CODE CHANGE. PARTS I WILL BE HEARD BY THE ADMINISTRATIVE PROVISIONS COMMITTEE AS ONE CODE CHANGE. PART II WILL BE HEARD BY THE ENERGY CONSERVATION CODE-COMMERCIAL COMMITTEE. PART III WILL BE HEARD BY THE ENERGY CONSERVATION CODE-RESIDENTIAL COMMITTEE. PART IV WILL BE HEARD BY THE RESIDENTIAL CODE COMMITTEE. PART V WILL BE HEARD BY THE SWIMMING POOL AND SPA CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMMITTEES.

Proponent: Maureen Traxler, City of Seattle, representing Seattle Department of Planning and Development (maureen.traxler@seattle.gov)

PART I – IBC; IEBC

Revise the International Building Code as follows:

IBC SECTION 202
DEFINITIONS

[A] REPAIR. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

Revise the International Existing Building Code as follows:

IEBC SECTION 202
DEFINITIONS

[A] REPAIR. The ~~restoration to good or sound condition~~ reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

PART II – IECC-COMMERCIAL

Revise the International Energy Conservation Code-Commercial as follows:

IECC SECTION C202
GENERAL DEFINITIONS

REPAIR. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

PART III – IECC-RESIDENTIAL

Revise the International Energy Conservation Code-Residential as follows:

IECC SECTION R202 (IRC N1101.9)
GENERAL DEFINITIONS

REPAIR. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

PART IV – IRC

Revise the International Residential Code as follows:

IRC SECTION R202
DEFINITIONS

REPAIR. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage. For definitions applicable in Chapter 11, see Section N1101.9.

PART V – ISPSC

Revise the International Swimming Pool and Spa Code as follows:

ISPSC SECTION 202
DEFINITIONS

REPAIR. The ~~restoration to good or sound condition~~ reconstruction or renewal of any part of an existing *aquatic vessel* for the purpose of its maintenance or to correct damage.

Reason: We are proposing the definition be modified in each of the codes in which it appears. The identical definition appears in the IBC, IEBC, IRC and ISPSC--4 of the 6 ICC codes in which it appears. The IECC definition is "The reconstruction or renewal of any part of an existing building." Note that the term is not defined in the IFC, IMC, IFGC, IPC or IPSDC. The definition of 'repair' in the IGCC definition is identical except that it includes building sites as well as buildings, and can be addressed in Group C.

Limiting repairs to maintenance is not consistent with the use of the term in the codes. IBC Section 3405.1 and IEBC Section 404.1, Repairs, specifically state that repair includes correction of damage. "Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter." IEBC Section 606.2 deals with repairs to damaged buildings—explicitly including correction of damage, which in many cases would be more than "maintenance".

Another possible solution to this inconsistency would be to delete the phrase "for the purpose of its maintenance" as the term is defined in the IECC. However, adding damage to the existing definition more clearly distinguishes repairs from alterations.

Cost Impact: None.

Public Hearing Results

PART I - IADMIN
Committee Action: **Approved as Submitted**

Committee Reason: The revision to the term 'repair' cleans up the difference between the terms repair and alteration. This proposal will also provide consistency throughout the code.

Assembly Action: **None**

PART II – IECC – Commercial
HEARD BY IECC COMMERCIAL COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: The proposal results in the identical definition of repair in multiple International Codes.

Assembly Action: **None**

PART III – IECC – Residential
HEARD BY IECC RESIDENTIAL COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: This proposed change would provide consistency with other I-Codes.

Assembly Action: **None**

PART IV - IRC
HEARD BY IRC COMMITTEE

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved this proposed code change because they felt that it clarifies what the code is commonly interpreted to intend. This action is consistent with prior committee action on ADM60 Part I.

Assembly Action: **None**

PART V - ISPSC
HEARD BY THE ISPSC COMMITTEE

Committee Action: **Disapproved**

Committee Reason: The phrase "to correct damage" is too specific and unnecessary.

Assembly Action: **None**

Public Comment(s)

Part V - Public Comment:

Maureen Traxler, City of Seattle Dept of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee, requests Approval as Submitted.

Commenter's Reason: This is a five-part proposal; four parts were approved. The proposal makes the definition of "repair" consistent in all the codes where it is used. The proposal also makes the definition consistent with the common use of the term to refer to correction of damage as repair.

Final Hearing Results

ADM60-13, Part I	**AS**
ADM60-13, Part II	**AS**
ADM60-13, Part III	**AS**
ADM60-13, Part IV	**AS**
ADM60-13, Part V	**AS**

Code Change No: ADM62-13

Original Proposal

ADM62-13

IBC, IECC, IEBC, IFC, IFGC, IgCC, IMC, IPC, IPMC, IRC, and the ISPSC

The following table provides a comprehensive list of all standards that the respective standards promulgators have indicated have been, or will be, updated from the listing in the 2012 Editions of the International Codes. According to Section 4.5.1 of ICC Council Policy #CP 28, Code Development Policy, the updating of standards referenced by the Codes shall be accomplished administratively by the Administrative code development committee. Therefore, referenced standards that are to be updated for the 2015 edition of any of the I-Codes are listed in this single code change proposal. Note that the table below indicates the change to the standard, and the code or codes in which each standard appears. The list includes standards that the promulgators have already updated or will have updated by December 1, 2014.

***4.5.1 Standards referenced in the I-Codes:** The updating of standards referenced by the Codes shall be accomplished administratively by the Administrative code development committee in accordance with these full procedures except that the deadline for availability of the updated standard and receipt by the Secretariat shall be December 1 of the third year of each code cycle. The published version of the new edition of the Code which references the standard will refer to the updated edition of the standard. If the standard is not available by the deadline, the edition of the standard as referenced by the newly published Code shall revert back to the reference contained in the previous edition and an errata to the Code issued. Multiple standards to be updated may be included in a single proposal.*

AA — Aluminum Association

Standard Reference Number	Title	Referenced in Code(s):						
ADM 1-~~2010~~ 2015	Aluminum Design Manual: Part I Specification for Aluminum Structures	IBC						

AAMA — American Architectural Manufacturers Association

Standard Reference Number	Title	Referenced in Code(s):						
450-~~09~~ 10	Voluntary Performance Rating Method for Mulled Fenestration Assemblies	IRC						
506-~~08~~ 11	Voluntary Specifications for Hurricane Impact and Cycle Testing of Fenestration Products	IRC						
711-~~07~~ 13	Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products	IRC						
1402-~~86~~ 09	Standard Specification for Aluminum Siding, Soffit and Fascia	IBC						

ACCA	Air Conditioning Contractors of America							
Standard Reference Number	Title	Referenced in Code(s):						
Manual D ~~09~~ 2011	Residential Duct Systems	IMC	IRC					
Manual J-2011	Residential Load Calculation - Eighth Edition	IRC	IECC-R					
Manual S-~~10~~ 13	Residential Equipment Selection	IRC	IECC-R					
180-~~2008~~ 2012	Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems	IMC	IRC					
183-2007 (reaffirmed 2011)	Peak Cooling and Heating Load Calculations in Buildings Except Low-Rise Residential Buildings	IMC	IECC					
ACI	**American Concrete Institute**							
Standard Reference Number	Title	Referenced in Code(s):						
216.1-~~07~~ 14	~~Standard Method~~ Code Requirements for Determining Fire Resistance of Concrete and Masonry Construction Assemblies	IBC						
304.2R-~~04~~ 96	Placing Concrete by Pumping Methods (Reapproved 2008)	ISPSC						
305.1-~~06~~ 14	Specification for Hot Weather Concreting	ISPSC						
308.1-~~98~~ 11	~~Standard~~ Specification for Curing Concrete	ISPSC						
318-~~11~~ 14	Building Code Requirements for Structural Concrete	IBC	IRC	ISPSC				
332-~~10~~ 14	Residential Code Requirements for Structural Concrete Construction	IRC						
506.2-~~95~~ 13	Specification for Shotcrete	ISPSC						
530-~~11~~ 13	Building Code Requirements for Masonry Structures	IBC	IRC					
530.1-~~11~~ 13	Specifications for Masonry Structures	IBC	IRC					
~~AF&PA~~ AWC	**~~American Forest & Paper Association~~ American Wood Council**							
Standard Reference Number	Title	Referenced in Code(s):						
~~AF&PA~~ AWC STJR—~~2012~~ 2015	Span Tables for Joists and Rafters	IBC	IRC					
~~ANSI/AF&PA~~ AWC WFCM—~~2012~~ 2015	Wood Frame Construction Manual for One- and Two-Family Dwellings	IBC	IRC					
ANSI/AWC NDS-~~2012~~ 2015	National Design Specification (NDS) for Wood Construction - with 2012 Supplement	IBC	IRC					
~~ANSI/AF&PA~~ AWC SDPWS—~~2008~~ 2015	Special Design Provisions for Wind and Seismic	IBC						
~~AF&PA~~ AWC WCD No. 4-2003	Wood Construction Data-Plank and Beam Framing for Residential Buildings	IBC						

ANSI/~~AF&PA~~ AWC PWF—~~2007~~ 2015	Permanent Wood Foundation Design Specification	IBC	IRC						
AHRI	**Air Conditioning, Heating and Refrigeration Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
210/240-2008 with Addenda 1 and 2	Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment	IECC-C							
310/380-2004 (CSA - C744-04)	Standard for Packaged Terminal Air-Conditioners and Heat Pumps	IECC-C							
340/360-2007 with Addendum 2	Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment	IECC-C							
365 (I-P)-2009	Commercial and Industrial Unitary Air-Conditioning Condensing Units	IECC-C							
366 (SI)-2009	Commercial and Industrial Unitary Air-Conditioning Condensing Units	IECC-C							
400-2001 with Addenda 1 and 2	Liquid to Liquid Heat Exchangers ~~with Addendum 2~~	IECC-C							
440-2008	Performance Rating of Room Fan-Coils	IECC-C							
460-2005	Performance Rating of Remote Mechanical-Draft Air-Cooled Refrigerant Condensers	IECC-C							
550/590-~~03~~ 2011 with Addendum 1	Performance Rating of Water-Chilling ~~Packages~~ and Heat Pump Water-Heating Packages Using the Vapor Compression Cycle ~~with Addenda~~	IECC-C							
700- ~~2006~~ 2011 with Addendum 1	~~Purity~~ Specifications for Fluorocarbon ~~and Other~~ Refrigerants	IECC-C							
870-2~~09~~ 05	Performance Rating of Direct Geoexchange Heat Pumps	IECC-C							
1160-~~08~~ (I-P) 09	Performance Rating of Heat Pump z21.56	IECC-C	ISPSC						
116~~0~~1 (SI)- ~~08~~ -2011	Performance Rating of Heat Pump Pool Heaters	IECC-C	ISPSC						
13256-1~~(2005)~~ (2011)	~~Water-Source Heat Pumps –~~ Water-to-Air and Brine-to-Air Heat Pumps – Testing and Rating for Performance: ~~Part 1-~~	IECC-C							
13256-2~~(1998)~~ (2011)	~~Water source Heat Pumps~~ Water-to-Water and Brine-to-water Heat Pumps - Testing and Rating For Performance: ~~Part 2:~~	IECC-C							

AISI	**American Iron and Steel Institute**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
AISI S100-07/S2-~~10~~ 12	North American Specification for the Design of Cold Formed Steel Structural Members ~~with Supplement 2, dated 2010~~ 2012	IBC	IRC					
AISI S110-07/S1-09 (2012)	Standard for Seismic Design of Cold-Formed Steel Structural Systems-Special Moment Frames, 2007 with Supplement 1, dated 2009, (2012)	IBC						
AISI S200-~~07~~ 2012	North American Standard for Cold-Formed Steel Framing - General Provisions	IBC						
AISI S210-~~07~~ 2012	North American Standard for Cold-formed Steel Framing-Floor and Roof System Design, 2007, (2012)	IBC						
AISI S211-07/S1-12 (2012)	North American Standard for Cold-Formed Steel Framing-Wall Stud Design, 2007, including Supplement 1, dated 2012, (2012)	IBC						
AISI S212-~~07~~ (2012)	North American Standard for Cold-Formed Steel Framing-Header Design, 2007, (2012)	IBC						
AISI S213-07/S1-~~09~~ (2012)	North American Standard for Cold-Formed Steel Framing-Lateral Design, with Supplement 1, dated 2009, (2012)	IBC						
AISI S214-~~07~~ 12	North American Standard for Cold-Formed Steel Framing - Truss Design with Supplement 2, dated ~~2008~~, 2012	IBC						
AISI S230-07-~~07/S2 08~~ /S3-12 (2012)	Standard for Cold-formed Steel Framing-Prescriptive Method for One- and Two-family Dwellings, 2007, with Supplement ~~2~~ 3, dated ~~2008~~ dated 2012, (2012)	IRC	IBC					
~~AITC~~	**~~American Institute of Timber Construction~~** (***Please note that the AITC is no longer promulgating ICC standards. Standards previously promulgated by AITC are now being handled by APA and WCLIB.)***							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
ALI	**Automotive Lift Institute**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						

ALI/ALCTV-~~2006~~ 2011	Standard for Automotive Lifts - Safety Requirements for Construction, Testing, and Validation ~~(ANSI)~~	IBC							
AMCA	**Air Movement and Control Association International**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
205-~~10~~ 12	Energy Efficiency Classification for Fans	IgCC							
220-~~05~~ 08	Laboratory Methods of Testing Air Curtain Units for Aerodynamic Performance Rating	IgCC							
500D-~~10~~ 12	Laboratory Methods for Testing Dampers for Rating	IECC-C							
ANSI	**American National Standards Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
Z97.1- ~~09~~ 2014	Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test	IBC	IRC						
ANSI A137.1-~~88~~ 2012	American National Standard Specifications for Ceramic Tile	IBC	IRC						
Z21.50/CSA 2.22-~~2007~~ 2012	Vented Gas Fireplaces	IRC	IFGC	IgCC					
Z21.88/CSA 2.33-~~09~~ 2015	Vented Gas Fireplace Heaters	IRC	IFGC	IgCC					
LC 1/CSA 6.26-~~2005~~ 2013	Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST)	IFGC							
LC 4/CSA 6.32-~~2007~~ 2012	Press-Connect Metallic Fittings for Use in Fuel Gas Distribution Systems	IFGC	IRC						
Z21.1-~~2005~~ 2010	Household Gas Cooking Appliances	IFGC	IRC						
Z21.5.1/CSA 7.1-~~2006~~ 2014	Gas Clothes Dryers - Volume I - Type 1 Clothes Dryer	IFGC	IRC						
Z21.5.2/CSA 7.2-~~2005~~ 2014	Gas Clothes Dryers - Volume II - Type 2 Clothes Dryer	IFGC							
Z21.10.1/CSA 4.1-~~2009~~ 2012	Gas Water Heaters - Volume I - Storage Water Heaters with Input Ratings of 75,000 Btu per Hour or Less	IFGC	IRC						
Z21.10.3/CSA 4.3-~~2004~~ 2011	Gas Water Heaters - Volume III - Storage Water Heaters with Input Ratings Above 75,000 Btu per Hour, Circulating or Instantaneous	IFGC	IRC						
Z21.11.2-~~2007~~ 2011	Gas-Fired Room Heaters - Volume II - Unvented Room Heaters	IFGC	IRC						
Z21.13/CSA 4.9-~~2010~~ 2011	Gas-Fired Low Pressure Steam and Hot Water Boilers	IFGC	IRC						
A21.40.1/CSA 2.91-96 (R~~2002~~ 2011)	Gas-Fired Heat Activated Air Conditioning and Heat Pump Appliances	IFGC	IRC						
Z21.40.2/CSA 2.92-96 (R~~2002~~ 2011)	Air-Conditioning and Heat Pump Appliances (Thermal Combustion)	IFGC	IRC						
Z21.42-~~1993 (R2002)~~ 2014	Gas-Fired Illuminating Appliances	IFGC	IRC						

Z21.47/CSA 2.3-~~2007~~ 2012	Gas-Fired Central Furnaces	IFGC	IRC					
Z21.50/CSA 2.22-~~2006~~ 2012	Vented Gas Fireplaces	IFGC	IRC					
Z21.56/CSA 4.7-~~2007~~ 2013	Gas-Fired Pool Heaters	IFGC	ISPSC	IRC				
Z21.58/CSA 1.6-~~2003~~ 2013	Outdoor Cooking Gas Appliances	IFGC	IRC					
Z21.60/CSA 2.26-~~2003~~ 2012	Decorative Gas Appliances for Installation in Solid-fuel Burning Fireplaces	IFGC	IRC					
Z21.80/CSA 6.22-~~2003 (R2008)~~ 2011	Line Pressure Regulators	IFGC	IRC					
Z21.84-~~2002~~ 2012	Manually-lighted, Natural Gas Decorative Gas Appliances for Installation in Solid Fuel Burning Fireplaces	IFGC	IRC					
Z21.88/CSA 2.33-~~2009~~ 2015	Vented Gas Fireplace Heaters	IFGC	IRC					
Z21.97-~~2009~~ 2012	Outdoor Decorative Appliances	IFGC	IRC					
Z83.4/CSA 3.7-~~2003~~ 2012	Non-Recirculating Direct Gas-fired Industrial Air Heaters	IFGC						
~~Z83.6-90 (R1998)~~ withdrawn replaced with Z83.19 & Z83.20	Gas-fired Infrared Heaters	IFGC	IRC					
Z83.11/CSA 1.8-~~2006~~ 2013	Gas Food Service Equipment	IFGC						
Z83.18-~~2004~~ 2012	Recirculating Direct Gas-fired Industrial Air Heaters	IFGC						
Z83.19-2001 (R~~2005~~ 2009)	Gas-fired High Intensity Infrared Heaters	IFGC	IRC					
~~Z124.1-95~~ replaced with CSA B45.5-11/ IAPMO Z124-11	Plastic ~~Bathtub Units~~ Plumbing Fixtures	IPC	IRC					
~~Z124.1.2-2005~~ replaced with CSA B45.5-11/ IAPMO Z124-11	Plastic ~~Bathtub and Shower Units~~ Plumbing Fixtures	IPC	IRC					
~~Z124.2-95~~ replaced with CSA B45.5-11/ IAPMO Z124-11	Plastic ~~Shower Receptors and Shower Stalls~~ Plumbing Fixtures	IPC	IRC					
~~Z124.3-95~~ replaced with CSA B45.5-11/ IAPMO Z124-11	Plastic ~~Lavatories~~ Plumbing Fixtures	IPC	IRC					
~~Z124.4-96~~ replaced with CSA B45.5-11/ IAPMO Z124-11	Plastic ~~Water Closet Bowls and Tanks~~ Plumbing Fixtures	IPC	IRC					
~~Z124.6-97~~ replaced with CSA B45.5-11/ IAPMO Z124-11	Plastic ~~Sinks~~ Plumbing Fixtures	IPC	IRC					
~~Z124.7-97~~ replaced with IAPMO Z124.7-2012	Prefabricated Plastic Spa Shells	ISPSC						
~~Z124.9-94~~ replaced with CSA B45.5-11/ IAPMO Z124-11	Plastic ~~Urinal Fixtures~~ Plumbing Fixtures	IPC	IRC					
APA	**APA -The Engineered Wood Association**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
ANSI/~~AITC~~ A 190.1 – ~~07~~ 12	Structural Glued-Laminated Timber	IBC	IRC	IgCC				
APA E30-~~03~~ 11	Engineered Wood Construction Guide	IRC						
APA PDS ~~04~~ 12	Panel Design Specification	IBC						
APA PDS Supplement 5-~~08~~ 12	Design and Fabrication of All-Plywood Beams (revised ~~2008~~ 2013)	IBC						

APA PDS Supplement 1-~~90~~ 12	Design and Fabrication of Plywood Curved Panels (revised ~~1995~~ 2013)	IBC						
APA PDS Supplement 4-~~90~~ 12	Design and Fabrication of Plywood Sandwich Panels (revised ~~1993~~ 2013)	IBC						
APA PDS Supplement 3-~~90~~ 12	Design and Fabrication of Plywood Stressed-skin Panels (revised ~~1996~~ 2013)	IBC						
APA PDS Supplement 2-~~92~~ 12	Design and Fabrication of Glued Plywood-lumber Beams (revised ~~1998~~ 2013)	IBC						
EWS R540-~~02~~ 12	Builders Tips: Proper Storage and Handling of Glulam Beams	IBC						
EWS S475-~~01~~ 07	Glued Laminated Beam Design Tables	IBC						
EWS S560-~~03~~ 10	Field Notching and Drilling of Glued Laminated Timber Beams	IBC						
EWS T300-~~05~~ 07	Glulam Connection Details	IBC						
EWS X440-~~03~~ 08	Product Guide - Glulam	IBC						
API	**API –American Petroleum Institute**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
Publ 2009 7th Edition (2002, R2012)	Safe Welding and Cutting Practices in Refineries, Gas Plants and Petrochemical Plants	IFC						
Publ 2023 3rd Edition (R2001, R2006)	Guide for Safe Storage and Handling of Heated Petroleum-Derived Asphalt Products and Crude Oil Residue	IFC						
Publ 2028 3rd Edition (2002, R2012)	Flame Arrestors in Piping Systems	IFC						
Publ 2201 5th Edition (2003, 2010)	Procedures for Welding or Hot Tapping on Equipment in Service	IFC						
RP 651 ~~(1997)~~ 3rd Edition (2007)	Cathodic Protection of Aboveground Petroleum Storage Tanks	IFC						
RP 752 ~~(2003)~~ 3rd Edition (2009)	Management of Hazards Associated with Location of Process Plant Buildings, CMA Manager's Guide	IFC						
RP 1604 (1996) 3rd Edition, R2010)	Closure of Underground Petroleum Storage Tanks	IFC						
RP 1615 ~~(1996)~~ 6th Edition (2011)	Installation of Underground Petroleum Storage Systems	IFC						
RP 2001 ~~(2005)~~ 9th Edition (2012)	Fire Protection in Refineries	IFC						
RP 2350 ~~(2005)~~ 4th Edition (2012)	Overfill Protection for Storage Tanks in Petroleum Facilities, 3rd Edition	IFC						
RP 2003 ~~(1998)~~ 7th Edition (2008)	Protection Against Ignitions Arising out of Static, Lightening, and Stray Currents	IFC						
Spec 12P 3rd Edition ~~(1995)~~ (Reaffirmed ~~2000~~)	Specification for Fiberglass Reinforced Plastic Tanks	IFC						
Std 653 ~~(2001)~~ 4th Edition ~~(2000)~~ (2009)	Tank Inspection, Repair, Alteration and Reconstruction	IFC						
Std 2015 6th Edition (2001, R2006)	Safe Entry and Cleaning of Petroleum Storage Tanks	IFC						

Std 2000 6th Edition ~~(1998)~~ 2009	Venting Atmosphere and Low-pressure Storage Tanks: Nonrefrigerated and Refrigerated	IFC						
APHA	**American Public Health Association**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
~~2005~~ 2012	Standard Methods for Examination of Water and Waste water ~~2+~~ 2nd Edition	IgCC						
APSP	**The Association of Pool & Spa Professionals**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
ANSI/~~NSPI~~ APSP/ICC 3-~~99~~ 2013	Standard for Permanently Installed Residential Spas	IRC						
ANSI/~~NSPI~~ APSP/ICC 4-~~2007~~ 2012	Standard for Above-ground/On-ground residential swimming pools	IRC						
ANSI/~~NSPI~~ APSP/ICC 5-~~2003~~ 2011	Standard for Residential In-Ground Swimming Pools	IRC						
ANSI/~~NSPI~~ APSP/ICC 6-~~2009~~ 2013	Standard for Residential Portable Spas	IRC						
ANSI/APSP/ICC 7-~~06~~ 2013	Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins	IBC	IRC	ISPSC				
ANSI/APSP/ICC 14-11	Portable Spa Energy Efficiency Standard	IPSPC						
ANSI/APSP/ICC 15-11	Standard for Energy Efficiency for Residential Inground Swimming Pools and Spas with Addenda A Approved 2013)	ISPSC						
ANSI/APSP/ICC16-11	Standard for Suction Fittings for Use in Swimming Pools, Wading Pools, Spas and Hot Tubs	ISPSC						
ASABE	**American Society of Agricultural & Biological Engineers**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
EP 559.1 ~~1997~~ W/Corr. 1 ~~DEC 1996 (R2008)~~ AUG2010	Design Requirements and Bending Properties for Mechanically Laminated Wood ~~Columns~~ Assemblies	IBC						
EP 486.~~1~~ 2 ~~DEC 1999 (R2005)~~ OCT2012	Shallow Post and Pier Foundation Design	IBC						
EP542~~-~~FEB1999 ~~99~~(R2009)	Procedures for Using and Reporting Data Obtained with the Soil Cone Penetrometer	IgCC						

S313.3-~~99~~ FEB1999 (R2009)	Soil Cone Penetrometer	IgCC						
ASCE/SEI	**American Society of Civil Engineers/Structural Engineers Institute**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
5—~~11~~ 13	Building Code Requirements for Masonry Structures	IBC	IRC					
6—11 13	Specification for Masonry Structures	IBC	IRC					
7—10	Minimum Design Loads for Buildings and Other Structures with Supplement No. 1	IBC	IEBC	IRC				
8—~~02~~ 14	Standard Specification for the Design of Cold-formed Stainless Steel Structural Members	IBC						
24-~~05~~ 13	Flood Resistant Design and Construction	IBC	ISPSC	IRC				
29-~~05~~ 14	Standard Calculation Methods for Structural Fire Protection	IBC						
~~31-03-~~ 41-13 Note: will be incorporated into ASCE 41-13	Seismic Evaluation and Retrofit ~~Rehabilitation~~ of Existing Buildings	IEBC						
32-01	Design and Construction of Frost Protected Shallow Foundations	IBC	IRC					
41-~~06~~ 13	Seismic Evaluation and Retrofit ~~Rehabilitation~~ of Existing Buildings	IEBC						
ASHRAE	**American Society of Heating, Refrigerating and Air Conditioning Engineers**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
15-~~2010~~ 2013	Safety Standard for Refrigeration Systems	IMC						
34-~~2010~~ 2013	Designation and Safety Classification of Refrigerants	IRC	IMC					
52.2-~~2007~~ 2012	Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size	IgCC						
55-~~2004~~ 2010	Thermal Environmental Conditions on Human Occupancy	IgCC						
62.1-~~2010~~ 2013	Ventilation for Acceptable Indoor Air Quality	IMC	IECC	IEBC	IgCC			
90.1-~~2010~~ 2013	Energy Standard for Buildings Except Low-Rise Residential Buildings including Addendum G (ANSI/ASHRAE/IESNA 90.1-2007)	IECC	IgCC					

140-20~~10~~ 11	Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs	IECC						
146-~~2006~~ 2011	Testing for Rating Pool Heaters	IECC						
180-~~08~~ 2012	Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems	IMC						
ANSI/ASHRAE/ACCA 183-2007 (RA2011)	Peak Cooling and Heating Load Calculations in Buildings, Except Low-rise Residential Buildings	IECC						
ASHRAE-~~2004~~ 2012	HVAC Systems and Equipment Handbook - 2004	IMC	IECC					
ASHRAE-~~2009~~ 2013	ASHRAE Handbook of Fundamentals	IRC	IECC-R	IMC				
13256-1(~~2005~~) 1998 (RA 2012)	Water-source Heat Pumps - Testing and Rating for Performance - Part 1: Water-to-Air and Brine-to-Air Heat Pumps (ANSI/ASHRAE/IESNA 90.1-2004)	IECC						

ASME — American Society of Mechanical Engineers

Standard Reference Number	Title	Referenced in Code(s):						
ASME A17.1/CSA B44~~—2007~~2013	Safety Code for Elevators and Escalators	IBC	IFC	IEBC	IRC	IPMC		
A112.1.3-2000(R~~eaffirmed~~ 20~~05~~ 11)	Air Gap Fittings for Use with Plumbing Fixtures, Appliances, and Appurtenances	IPC	IRC					
A112.3.4-2000 (R~~eaffirmed~~ 2004) replaced with ASME A112.3.4-2013/CSA B45.9-13	Macerating Toilet Systems and Related Components	IPC	IRC					
A112.4.1-~~1993 (Reaffirmed 2002)~~ 2009	Water Heater Relief Valve Drain Tubes	IPC	IRC					
A112.4.2-~~2003 (R2008)~~ 2009	Water Closet Personal Hygiene Devices	IPC						
A112.4.3-1999 (R~~eaffirmed~~ 20~~04~~ 10)	Plastic Fittings for Connecting Water Closets to the Sanitary Drainage System	IPC	IRC					
A112.6.1M-1997 (R~~eaffirmed~~ 20~~02~~ 08)	Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use	IPC	IRC					
A112.6.2-2000 (R~~eaffirmed~~ 20~~04~~ 10)	Framing-Affixed Supports for Off-the-Floor Water Closets with Concealed Tanks	IPC	IRC					
A112.6.3-2001(R~~eaffirmed~~ 2007)	Floor and Trench Drains	IPC	IRC					
A112.6.7-~~2001(Reaffirmed 2007)~~ 2010	Enameled and Epoxy Coated Cast Iron and PVC Plastic Sanitary Floor Sinks	IPC						
A112.6.9-2005 (R2010)	Siphonic Roof Drains	IPC						
ASME A112.18.1-~~2005~~ 2012/ CSA B125.1-~~2005~~ 2012	Plumbing Supply Fittings	IPC	IRC					
ASME A112.18.2-~~2005~~ 2011/ CSA B125.2-~~2005~~ 2011	Plumbing Waste Fittings	IPC	IRC					
ASME A112.19.1-2013/ CSA B45.2-~~08~~ 13	Enameled Cast-Iron and Enameled Steel Plumbing Fixtures	IPC	IRC					

ASME A112.19.2-~~2008~~ 2013/ CSA B45.1-~~08~~ 13	Ceramic Plumbing Fixtures	IPC	IRC					
ASME A112.19.3-2008/ CSA B45.4-08(R2013)	Stainless-Steel Plumbing Fixtures	IPC	IRC					
ASME A112.19.5-2011/ CSA/B45.15-~~09~~ 11	Flush Valves and Spuds ~~Trim~~ for Water Closets, Urinals ~~Bowls~~ and Tanks	IPC	IRC					
ASME A112.19.7-2012/ CSA B45.10-~~09~~-2012	Hydromassage Bathtubs ~~Appliances~~ Systems	IPC	IRC					
B16.1-~~2005~~ 2010	~~Cast~~ Gray Iron Pipe Flanges and Flanged Fittings~~, Classes 25, 125 and 250~~	IFGC						
B16.3-~~2006~~ 2011	Malleable Iron Threaded Fittings Classes 150 and 300	IPC	IRC	IMC				
B16.4—~~2006~~ 2011	Gray Iron Threaded Fittings ~~Class 125 and 250~~	IPC	IRC					
B16.5-~~2003~~ 2009	Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24	IMC						
B16.11-~~2005~~ 2011	Forged Fittings, Socket-Welding and Threaded	IPC	IRC	IMC				
B16.12-~~1998 (Reaffirmed 2006)~~ 2009	Cast Iron Threaded Drainage Fittings	IPC	IRC					
B16.15-~~2006~~ 2011	Cast Bronze Threaded Fittings	IRC	IMC	IPC	IPSPC			
B16.18-~~2001 (Reaffirmed 2005)~~ 2012	Cast Copper Alloy Solder Joint Pressure Fittings	IPC	IBC	IRC	IMC	IFC		
B16.20-~~1998(Reaffirmed~~ 2007~~)~~	Metallic Gaskets for Pipe Flanges: Ring-Joint, Spiral-Wound, and Jacketed	IFGC						
B16.22-2001~~(Reaffirmed 2005)~~ (R2010)	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings	IPC	IBC	IRC	IFC	IMC		
B16.23-~~2002 (Reaffirmed 2006)~~ 2011	Cast Copper Alloy Solder Joint Drainage Fittings: DWV	IPC	IRC	IMC				
B16.24-~~2006~~ 2011	Cast Copper Alloy Pipe Flanges and Flanged Fittings: Class 150, 300, 400, 600, 900, 1500 and 2500	IMC						
B16.26-~~2006~~ 2011	Cast Copper Alloy Fittings for Flared Copper Tubes	IPC	IRC	IMC				
B16.29-~~2007~~ 2012	Wrought Copper and Wrought-Copper-Alloy Solder Joint Drainage Fittings - (DWV)	IPC	IRC	IMC				
B16.33-~~2002(Reaffirmed 2007)~~ 2012	Manually Operated Metallic Gas Valves for Use in Gas Piping Systems up to 125 psig (Sizes 1/2 through 2)	IFGC	IRC					
B31.1-~~2007~~ 2012	Power Piping	IFC						
B31.3-~~2004~~ 2012	Process Piping	IBC	IFC					
B31.4-~~2006~~ 2012	Pipeline Transportation Systems for Liquid Hydrocarbons and other Liquids	IFC						
B31.9—~~08~~ 2011	Building Services Piping	IFC	IMC					
ASSE 1016/ASME A112.1016/CSA B125.16-2011 is a replacement for ASSE 1016-2010	Performance Requirements for Automatic Compensating, Valves for Individual Showers and Tub/Shower Combinations	IPC	IRC	IgCC				
BPVC-~~2007~~ 2010/2011 addenda	Boiler & Pressure Vessel Code	IFC	IMC	IFGC	IRC			
CSD-1-~~2009~~ 2011	Controls and Safety Devices for Automatically Fired Boilers	IMC						

ASPE	American Society of Plumbing Engineers							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
~~45-2007~~ 2013	Siphonic Roof Drainage Systems	IPC						

ASSE	American Society of Sanitary Engineering							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
~~1016-2010~~ ASSE 1016/ASME A112.1016/CSA B125.16-2011	Performance Requirements for Automatic Compensating, Valves for Individual Showers and Tub/Shower Combinations	IPC	IRC	IgCC				

ASTM	ASTM International							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
A53/A 53M-~~07~~ 12	Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless	IPC	IMC	IRC	IFGC			
A74-~~09~~ 12	Specification for Cast Iron Soil Pipe and Fittings	IPC	IRC	IPSDC				
A82/A 2M-~~05a~~ 07	Specification for Steel Wire, Plain, for Concrete Reinforcement	IRC						
A106/A 106M-~~08~~ 11	Specification for Seamless Carbon Steel Pipe for High-Temperature Service	IMC	IRC	IFGC				
A123/A 123M-~~02~~ 12	Specification of Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products	IBC						
A126-~~04~~(2009)	Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings	IMC	IRC					
A153/A153M-~~05~~ 09	Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware	IBC	IRC					
A182-~~10a~~ 12A	Standard Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings and Valves and Parts for High-Temperature Service	ISPSC						
A185/A 185M-~~06E01~~ 07	Specification for Steel Welded Wire Reinforcement, Plain for Concrete	IBC						
A240/A 240M-~~09~~ 12	Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications	IBC	IRC	IPSPC				
A252-~~98(2007)~~ 10	Specification for Welded and Seamless Steel Pipe Piles	IBC						
A283/A 283M-~~03(2007)~~ 12	Specification for Low and Intermediate Tensile Strength Carbon Steel Plates	IBC						
A307-~~07b~~ 10	Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength	IBC	IRC					
A312/A 312M-~~08a~~ 12A	Specification for Seamless, and Welded, and Heavily Cold Worked Austenitic Stainless Steel	IPC	IRC	ISPSC				

	Pipes							
A377-~~03~~ 2003(2008)e1*	Index of Specification for Ductile-Iron Pressure Pipe	IRC						
A403-~~10a~~ 12	Standard Specification for Wrought Austenitic Stainless Steel Pipe Fittings	ISPSC						
A416/A 416M-~~06~~ 12A	Specification for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete	IBC						
A420/A 420M-~~07~~ 10A	Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service	IMC						
A421/A 421M- ~~05~~ 10	Specification for Uncoated Stress-Relieved Steel Wire for Prestressed Concrete	IBC						
A435/A 435M-90 ~~(2007)~~ 2012	Specification for Straight-Beam Ultrasonic Examination of Steel Plates	IBC						
A463M/A 463M-~~06~~ 10	Specification for Steel Sheet, Aluminum-Coated, by the Hot Dip Process	IBC	IRC					
A480/A480M-~~06b~~ 12	Specification for General Requirements for Flat-Rolled Stainless and Heat-/Resisting Steel Plate, Sheet and Strip	IBC						
A496-~~05~~ 07	Specification for Steel Wire, Deformed for Concrete Reinforcement	IBC						
A497 A497M-~~06e01~~ 07	Specification for Steel Welded Reinforcement Deformed for Concrete	IBC						
A510-~~08~~ 11	Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, Alloy Steel	IBC	IRC					
A572/A 572M-~~07~~ 12	Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel	IBC						
A588/A 588M-05 ~~10~~	Specification for High-Strength Low-Alloy Structural Steel with 50 ksi (345 Mpa) Minimum Yield Point, with Atmospheric Corrosion Resistance	IBC						
A615/A 615M-~~09~~ 12	Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement	IBC	IRC					
A653/A 653M-~~08~~ 11	Specification for Steel Sheet, Zinc-Coated Galvanized or Zinc-Iron Alloy-Coated Galvannealed by the Hot-Dip Process	IBC	IRC					
A690/690M-07(2012)	Standard Specification for High Strength Low-Alloy Nickel, Copper Phosphorus Steel H-Piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments	IBC						
A706/A 706M-09B	Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement	IBC	IRC					
A722/A 722M-~~07~~ 12	Specification for Uncoated High-Strength Steel Bar for Prestressing Concrete	IBC						

A733-2003(2009)e1*	Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples	IPC						
A755/A 755M-03(2008) 2011	Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process and Prepainted by the Coil-coating Process for Exterior Exposed Building Products	IBC	IRC					
A767/A 767M-05 09	Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement	IBC						
A775/A 775M-07b	Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process and Prepainted by the Coil-coating Process for Exterior Exposed Building Products	IBC						
A778-01(2009)e1	Specification for Welded Unannealed Austenitic Stainless Steel Tubular Products	IPC	IRC					
A792/A 792M-08 10	Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process	IBC	IRC					
A875/A 875M-06 10	Standard Specification for Steel Sheet Zinc-5%, Aluminum Alloy-Coated by the Hot-Dip Process	IBC	IRC					
A888-09 11	Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Application	IPC	IPSDC	IRC				
A913/A 913M-07 11	Specification for High-Strength Low-Alloy Steel Shapes of Structural Quality, Produced by Quenching and Self-Tempering Process (QST)	IBC						
A924/A 924M-08a 2010a	Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot Dip Process	IBC	IRC					
A951/A951M-06 11	Specification for Steel Wire Masonry Joint Reinforcement	IRC						
A992/A 992M-06a 11	Standard Specification for Structural Shapes	IBC						
A996/A 996M-20**09**b	Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement	IRC						
A1003/A 1003M-08 12	Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-formed Framing Members	IRC						
A1008/A1008M-07 12	Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, Solution Hardened and Bake Hardenable	IBC						
B42-02e01 10	Specification for Seamless Copper Pipe, Standard Sizes	IPC	IBC	IRC	IFC			
B43-98(2004) 09	Specification for Seamless Red Brass Pipe, Standard Sizes	IPC	IBC	IRC	IFC	IMC		
B68-02 11	Specification for Seamless Copper Tube, Bright Annealed	IBC	IFC	IMC				
B75-02 11	Specification for Seamless Copper Tube	IPC	IPSDC	IRC	IMC			

B88-~~03~~ 09	Specification for Seamless Copper Water Tube	IPC	IBC	IPSDC	IRC	IMC	IFC	IPSPC
B101-~~07~~ 12	Specification for Lead-Coated Copper Sheet and Strip for Building Construction	IBC	IRC					
B135-~~08a~~ 10	Specification for Seamless Brass Tube	IRC	IMC					
B152/B 152M-~~06a~~ 09	Specification for Copper Sheet, Strip Plate and Rolled Bar	IPC						
B209-~~07~~ 10	Specification for Aluminum and Aluminum-Alloy Steel and Plate	IBC	IRC					
B210-~~04~~ 12	Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes	IFGC						
B227-~~04~~ 10	Specification for Hard-Drawn Copper-Clad Steel Wire	IRC						
B241/B 241M-~~02~~ 10	Specification for Aluminum and Aluminum-Alloy, Seamless Pipe and Seamless Extruded Tube	IFGC						
B251-~~02e01~~ 10	Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube	IPC	IPSDC	IBC	IFC	IRC	IMC	
B302-~~07~~ 12	Specification for Threadless Copper Pipe, Standard Sizes	IPC	IRC	IMC				
B370-~~09~~ 12	Specification for ~~Cold Rolled~~ Copper Sheet and Strip for Building Construction	IBC	IRC					
B447-~~07~~ 12a	Specification for Welded Copper Tube	IPC	IRC					
B633-~~07~~ 11	Specification for Electodeposited Coatings of Zinc on Iron and Steel	IRC						
B687-99~~(2005)e01~~ (2011)	Specification for Brass, Copper, and Chromium-Plated Pipe Nipples	IPC						
B695-04(2009)	Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel	IBC	IRC					
B813-~~00(2009)~~ 10	Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube	IPC	IPSDC	IRC	IMC			
B828-02(2010)	Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings	IPC	IPSDC	IRC				
C4-04~~e01~~ (2009)	Specification for Clay Drain Tile and Perforated Clay Drain Tile	IPC	IPSDC	IRC				
C5-~~03~~ 10	Specification for Quicklime for Structural Purposes	IBC	IRC					
C14-~~07~~ 11	Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe	IPC	IPSDC	IRC				
C22/C 22M-00~~(2005)e01~~ (2010)	Specification for Gypsum	IBC	IRC					
C27-98(2008)	Specification for ~~Standard~~ Classification of Fireclay and High-Alumina Refractory Brick	IBC	IRC					
C28/C 28M-~~00(2005~~**)** 10	Specification for Gypsum Plasters	IBC	IRC					
C31/C 31M-~~08b~~ 12	Practice for Making and Curing Concrete Test Specimens in the Field	IBC						
C33/C33M-~~08~~ 11a	Specification for Concrete Aggregates	IBC	IRC					

C34 ~~03~~ 10	Specification for Structural Clay Load-Bearing Wall Tile	IBC	IRC					
C35 ~~01(2005)~~/C35M-1995(2009)	Specification for Inorganic Aggregates for Use in Gypsum Plaster	IBC	IRC					
~~C36/C 36M-03~~ Withdrawn Replaced	Specification for Gypsum Wallboard	IBC						
~~C37/C 37M-01~~ Withdrawn Replaced	Specification for Gypsum Lath	IBC						
C42/C 42M ~~04~~ 12	Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete	IBC						
C55 ~~06e01~~ 2011	Specification for Concrete Building Brick	IBC	IRC					
C56 ~~05~~ 2010	Specification for Structural Clay Non-Load-Bearing Tile	IBC						
C59/C 59M-**00(2006)**	Specification for Gypsum Casting Plaster and Molding Plaster	IBC	IRC					
C61/C 61M-00(2006) (2011)	Specification for Gypsum Keene's Cement	~~IBC~~	IRC					
C62 ~~08~~ 12	Specification for Building Brick (Solid Masonry Units Made From Clay or Shale)	IBC	IRC					
C67 ~~08~~ 12	Test Methods of Sampling and Testing Brick and Structural Clay Tile	IBC						
C73 ~~05~~ 10	Specification for Calcium Silicate ~~Face~~ Brick (Sand-Lime Brick)	IBC	IRC					
C76 ~~08a~~ 12a	Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe	IPC	IPSDC	IRC				
C90 ~~08~~ 12	Specification for Loadbearing Concrete Masonry Units	IBC	IRC	IECC				
C91 ~~05~~ 12	Specification for Masonry Cement	IBC	IRC					
C94/C 94M ~~09~~ 12	Specification for Ready-Mixed Concrete	IBC	IRC					
C109/C 109M ~~05~~ 2001b	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)	IBC						
C126 ~~99(2005)~~ 12	Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units	IBC						
C129 ~~06~~ 11	Specification for Nonload-bearing Concrete Masonry Units	IBC	IRC					
C140 ~~08a~~ 2012a	Test Method Sampling and Testing Concrete Masonry Units and Related Units	IBC	IRC					
C143/C 143M ~~08~~ 2010a	Test Method for Slump of Hydraulic Cement Concrete	IRC						
~~C145-85~~ *Withdrawn Combined*	Specification for Solid-Load Bearing Concrete Masonry Units	IRC						
C150 ~~07~~ 12	Specification for Portland Cement	IBC	IRC					
C172/C172M ~~08~~ 10	Practice for Sampling Freshly Mixed Concrete	IBC						

C199-84 ~~(2005)~~ (2011)	Test Method for Pier Test for Refractory Mortars	IBC	IRC					
C203-~~5a~~ (2012)	Standard Test Methods for Breaking Load and Flexural Properties of Block-type Thermal Insulation	IRC						
C206-03(2009)	Specification for Finishing Hydrated Lime	IBC						
C207-~~06~~ 2011	Specification for Hydrated Lime for Masonry Purposes	IBC	IRC					
C208-~~2008a~~ 12	Specification for Cellulosic Fiber Insulating Board	IBC	IRC					
C212-~~00(2006)~~10	Specification for Structural Clay Facing Tile	IBC						
C216-~~07a~~ 12	Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale)	IBC	IRC					
C270-~~08a~~ 12a	Specification for Mortar for Unit Masonry	IBC	IRC					
C272-~~01(2007)~~/C272M-12	Standard Test Method for Water Absorption of Core Materials for ~~Structural~~ Sandwich Constructions	IRC						
C273/C273M-~~07a~~ 11	Standard Test Method for Shear Properties of Sandwich Core Materials	IRC						
C296-~~00(2004)~~ /C296M-00(2009)e1	Specification for Asbestos-Cement Pressure Pipe	IPC	IRC					
C315-07(2011)	Specification for Clay Flue Liners and Chimney Pots	IBC	IRC	IMC	IFGC			
C317/C 317M-00~~(2005)~~ 2010	Specification for Gypsum Concrete	IBC						
C330-~~05~~/**C330-2009**	Specification for Lightweight Aggregates for Structural Concrete	IBC						
C331-~~05~~ /C331M-2010	Specification for Lightweight Aggregates for Concrete Masonry Units	IBC						
C406-~~06e01~~ /C406M-2010	Specification for Roofing Slate	IBC	IRC					
C411-~~05~~ 11	Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation	IRC	IMC					
C425-04(2009)	Specification for Compression Joints for Vitrified Clay Pipe and Fittings	IPC	IPSDC	IRC				
C428/C428M-05(20~~06~~11)e1	Specification for Asbestos-Cement Nonpressure Sewer Pipe	IPC	IPSDC	IRC				
C443-~~05a~~ 12	Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets	IPC	IPSDC	IRC				
C472-99~~(2004)~~ (2009)	Specification for Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete	IBC						
C473-~~07~~ 12	Test Methods for Physical Testing of Gypsum Panel Products	IBC						
C474-~~05~~ 12	Test Methods for Joint Treatment Materials for Gypsum Board Construction	IBC						
C475/C 475M-~~02(2007)~~ 12	Specification for Joint Compound and Joint Tape for Finishing	IBC	IRC					

	Gypsum ~~Wall~~ Board							
C476-~~08~~ 10	Specification for Grout for Masonry	IRC						
C496/C496M-~~96~~ 11	Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens	IEBC						
C503-~~08a~~ 10	Specification for Marble Dimension Stone (Exterior)	IBC						
C508/C508M-00~~(2004)~~ (2009)e1	Specification for Asbestos-Cement Underdrain Pipe	IPC	IRC					
C514-04(2009)e1	Specification for Nails for the Application of Gypsum Board	IBC	IRC					
C516-08~~a~~	Specification for Vermiculite Loose Fill Thermal Insulation	IBC						
C518-~~04~~ 10	Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	IBC	IECC					
C547-~~07e1~~ 12	Specification for Mineral Fiber Pipe Insulation	IBC						
C549-06(2012)	Specification for Perlite Loose Fill Insulation	IBC						
C552-~~07~~ 12b	Standard Specification for Cellular Glass Thermal Insulation	IBC	IRC					
C557-03(2009)e~~0~~1	Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing	IBC	IRC					
C564-~~08~~ 12	Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings	IPC	IPSDC	IRC				
C568-~~08a~~ 10	Specification for Limestone Dimension Stone	IBC						
C578—~~08b~~12a	Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation	IBC	IRC					
C587-04~~(2009)~~	Specification for Gypsum Veneer Plaster	IBC	IRC					
C595/C95M-~~08a~~ 2012e1	Specification for Blended Hydraulic Cements	IBC	IRC					
C615/C615M-~~03~~ 2011	Specification for Granite Dimension Stone	IBC						
C616/C616M-~~08a~~ 2010	Specification for Quartz Dimension Stone	IBC						
C629-~~08~~ 2010	Specification for Slate Dimension Stone	IBC						
~~C630/C 630M-03~~ *Withdrawn replaced by C1396/C1396M-11*	Specification for Water-Resistant Gypsum Backing Board	IBC	IRC					
C635/C635M-~~07~~ 12	Specification for the Manufacturer, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings	IBC						
C645-~~08a~~ 11A	Specification for Nonstructural Steel Framing Members	IBC	IRC					
C652-~~09~~ 12	Specification for Hollow Brick (Hollow Masonry Units Made from Clay or Shale)	IBC	IRC					
C685/C 685M-~~07~~ 11	Specification for Concrete Made by Volumetric Batching and	IRC						

	Continuous Mixing							
C700-~~07a~~ 11	Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated	IPC	IPSDC	IRC				
C726-~~05e1~~ 12	Standard Specification for Mineral Wool Roof Insulation Board	IBC						
C728-05(2010)	Standard Specification for Perlite Thermal Insulation Board	IBC	IRC					
C744-~~08~~ 11	Specification for Prefaced Concrete and Calcium Silicate Masonry Units	IBC						
C754-~~08~~ 11	Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products	IBC						
C836/C836M-~~06~~ 12	Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course	IBC	IRC					
C840-~~08~~ 11	Specification for Application and Finishing of Gypsum Board	IBC						
C841-03(2008)E1	Specification for Installation of Interior Lathing and Furring	IBC						
C842-~~05~~(2010)E1	Specification for Application of Interior Gypsum Plaster	IBC						
C843-99~~(2006)~~ (2012)	Specification for Application of Gypsum Veneer Plaster	IBC	IRC					
C844-04(2010)	Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster	IBC	IRC					
C847-~~09~~ 12	Specification for Metal Lath	IBC	IRC					
C887-05(2010)	Specification for Packaged, Dry, Combined Materials for Surface Bonding Mortar	IBC	IRC					
C897-05(2009)	Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters	IBC	IRC					
C920-~~08~~ 11	Standard Specification for Elastomeric Joint Sealants	IBC	IRC	IgCC				
C926-~~06~~ 12A	Specification for Application of Portland Cement-Based Plaster	IBC	IRC					
C931/C 931M-04 *Withdrawn Replaced by C1396/C1396M-11*	Specification for Exterior Gypsum Soffit Board	IBC						
C932-06	Specification for Surface-Applied Bonding Compounds ~~Agents~~ for Exterior Plastering	IBC						
C933-~~07b~~ 11	Specification for Welded Wire Lath	IBC						

C946-~~91 (2001)~~ 10	Specification for ~~Practice for~~ Construction of Dry-stacked, Surface-Bonded Walls	IBC						
C954-~~07~~ 11	Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 inch (0.84 mm) to 0.112 inch (2.84 mm) in Thickness	IBC	IRC					
C955-~~09~~ 11C	Standard Specification for Load-bearing Transverse and Axial Steel Studs, Runners Tracks, and Bracing or Bridging, for Screw Application of Gypsum Panel Products and Metal Plaster Bases	IBC	IRC					
C956-04(2010)	Specification for Installation of Cast-in-Place Reinforced Gypsum Concrete	IBC						
C957-~~06~~ 10	Specification for High-Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with Integral Wearing Surface	IBC	IRC					
C989/C989M-~~06~~ 12A	Specification for ~~Ground Granulated Blast Furnace~~ Slag Cement for Use in Concrete and Mortars	IBC						
C1007-~~08a~~ 11a	Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories	IBC						
C1019-~~09~~ 11	Test Method for Sampling and Testing Grout	IBC						
C1029-~~08~~ 10	Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation	IBC	IRC					
C1032-06(2011)	Specification for Woven Wire Plaster Base	IBC	IRC					
C1047-~~09~~ 10A	Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base	IBC	IRC					
C1053-00~~(2005)~~ (2010)	Specification for Borosilicate Glass Pipe and Fittings for Drain, Waste, and Vent (DWV) Applications	IPC						
C1063-~~08~~ 12C	Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster	IBC	IRC					
C1088-09	Specification for Thin Veneer Brick Units Made From Clay or Shale	IBC						
C1072-~~06~~ 11	Standard Text Method for Measurement of Masonry Flexural Bond Strength	IBC						
C1107/C1107-~~08~~ 11	Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)	IRC						

C1116/C1116M-~~08a~~ 10	Standard Specification for Fiber - Reinforced Concrete and Shotcrete	IRC						
C1157-~~08a~~ 11	Standard Performance Specification for Hydraulic Cement	IBC						
C1167-~~03~~ 11	Specification for Clay Roof Tiles	IBC	IRC					
C1173-~~08~~ 10	Specification for Flexible Transition Couplings for Underground Piping Systems	IPC	IPSDC	IRC				
C1178/C 1178M-~~06~~ 11	Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel	IBC	IRC					
C1186-08	Specification for Flat ~~Nonasbestos~~ Fiber Cement Sheets	IBC	IRC					
C1218/C1218M-99(2008)	Test Method for Water-Soluble Chloride in Mortar and Concrete	IBC						
C1240-~~05~~ 12	Specification for Silica Fume Used in Cementitious Mixtures	IBC						
C1261-~~07~~ 10	Specification for Firebox Brick for Residential Fireplaces	IBC	IRC					
C1277-~~08~~ 11	Specification for Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings	IPC	IPSDC	IRC				
C1278/C1278M-07a(2011)	Specification for Fiber-Reinforced Gypsum Panels	IBC	IRC					
C1280-~~09~~ 12A	Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing	IBC						
C1283-~~07a~~ 11	Practice for Installing Clay Flue Lining	IBC	IRC					
C1288-99~~(2004)e1~~ 2010	Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets	IBC	IRC					
C1289—~~08~~-12a	Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board	IBC	IRC					
C1314-~~07~~ 11A	Test Method for Compressive Strength of Masonry Prisms	IBC						
C1325-08b	Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cement ~~Interior Substrate Sheets~~ Backer Units	IBC	IRC					
C1328/C1328M-~~05~~ 12	Specification for Plastic (Stucco Cement)	IBC	IRC					

C1364-~~07~~ 10B	Standard Specification for Architectural Cast Stone	IBC						
C1371-04A(2010)E1	Standard Test Method For Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers	IECC	IgCC					
C1373/C1373-~~03~~ 11	Standard Practice for Determination of Thermal Resistance of Attic Insulation Systems Under Simulated Winter Conditions	IECC						
C1396/1396M-~~06a~~ 11	Specification for Gypsum Ceiling Board	IBC	IRC					
C1405-~~08~~ 12	Standard Specification for Glazed Brick (Single Fired, Solid Brick Units)	IBC						
C1492-03(2009)	Standard Specification for Concrete Roof Tile	IBC	IRC					
C1513-~~04~~ 12	Standard Specification for Concrete Roof Tile	IRC						
C1540-~~08~~ 11	Specification for Heavy Duty Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings	IPC						
C1611/C 1611M-~~05~~09BE1	Standard Test Method for Slump Flow of Self-Consolidating Concrete	IBC						
C1629/C1692M—06(2011)	Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels	IBC						
C1658/C1658-~~06~~ 12	Standard Specification for Glass Mat Gypsum Panels	IBC	IRC					
C1563-08	Standard Test Method for Gaskets for Use in Connection with Hub and Spigot Cast Iron Soil Pipe and Fittings for Sanitary Drain, Waste, Vent and Storm Piping Applications	IPC						
D25-~~99(2005)~~12	Specification for Round Timber Piles	IBC						
D56-05(2010)	Test Method for Flash Point by Tag Closed Tester	IBC						
D86-~~09~~ 2011b	Test Method for Distillation of Petroleum Products at Atmospheric Pressure	IBC	IFC					
D92-~~05a~~ 12	Test Method for Flash and Fire Points by Cleveland Open Cup Tester	IFC						
D93-~~08~~ 11	Test Method for Flash Point by Pensky-Martens Closed Cup Tester	IBC	IFC	IMC				

D226/D226M-~~06~~ 09	Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing	IBC	IRC					
D227/D227M-03(2011)E1	Specification for Coal-Tar-Saturated Organic Felt Used in Roofing and Waterproofing	IBC	IRC					
D635-~~06~~ 10	Test Method for Rate of Burning and/or Extent and Time of Burning of ~~Self-Supporting~~ Plastics in a Horizontal Position	IBC						
D1003-~~07~~ 11e1	Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics	IECC						
D1248-~~05~~ 12	Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable	IRC						
D1557-~~07~~ 12	Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft3(2,700kN-m/m3))	IBC						
D1593-09	Non-rigid vinyl chloride plastic film and sheeting	ISPSC						
D1621-~~04a~~ 10	Standard Test Method for Compressive Properties Of Rigid Cellular Plastics	IRC						
D1623-~~03~~ 09	Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics	IRC						
D1693-~~08~~ 12	Test Method for Environmental Stress-Cracking of Ethylene Plastics	IRC	IMC					
D1784-~~08~~ 11	Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Choloride) (CPVC) Compounds	IRC						
D1785-~~06~~ 12	Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120	IPC	IMC	IRC	ISPSC			
D1863/D1863M-05(2011)E1	Specification for Mineral Aggregate Used on Built-Up Roofs	IBC	IRC					
D1869-95 ~~(2005)e1~~ (2010)	Specification for Rubber Rings for Asbestos-Cement Pipe	IPC	IPSDC	IRC				
D1929-~~96(2001)e01~~-12	Test Method for Determining Ignition ~~Properties~~ Temperature of Plastics	IBC						
D1970/D1970M-~~09~~ 11	Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roof Underlayment for Ice Dam Protection	IBC	IRC					
D2126-~~04~~ 09	Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging	IRC						
D2216-~~05~~ 10	Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass	IBC						
D2235-04 (2011)	Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings	IPC	IPSDC	IMC	IRC			

D2239-~~03~~ 12	Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter	IPC	IRC					
D2241-~~05~~ 09	Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR-Series)	IPC	IRC	IMC	ISPSC			
D2412-~~02(2008)~~ 11	Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading	IRC	IMC					
D2487-~~06e1~~ 2011	Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)	IBC						
D2513-~~08b~~ 12	Specification for ~~Thermoplastic~~ Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings	IRC	IMC	IFGC				
D2559-~~04~~ 12A	Standard Specification for Adhesives for ~~Structural Laminated~~ Bonded Structural Wood Products for Use under Exterior (West Use) Exposure Conditions	IRC						
D2564-~~04e01~~ 12	Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems	IPC	IPSDC	IRC	IMC			
D2626/D2626M-04(2012)E1	Specification for Asphalt-Saturated and Coated Organic Felt Base Sheet Used in Roofing	IBC	IRC					
D2661-~~08~~ 11	Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings	IPC	IPSDC	IRC				
D2665-~~09~~ 12	Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings	IPC	IPSDC	IRC				
D2672-96a~~(2003)~~ (2009)	Specification for Joints for IPS PVC Pipe Using Solvent Cement	IPC	IRC	ISPSC				
D2683-~~04~~ 10	Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing	IPC	IRC	IMC				
D2729-~~03~~ 11	Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings	IRC	IPC	IPSDC				
D2737-~~03~~ 12E1	Specification for Polyethylene (PE) Plastic Tubing	IPC	IRC					
D2822/D2822M-05(2011)E1	Specification for Asphalt Roof Cement, Asbestos Containing	IBC	IRC					
D2823/D2823M-05 (2011)E1	Specification for Asphalt Roof Coatings, Asbestos Containing	IBC	IRC					
D2824-06(2012)E1	Specification for Aluminum-Pigmented Asphalt Roof Coatings, Non-fibered, Asbestos Fibered, and Fibered without Asbestos	IRC	IBC					
D2837-~~08~~ 11	Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products	IRC	IMC					
D2843-~~99(2004)e01~~ 10	Test for Density of Smoke from the Burning or Decomposition of Plastics	IBC						
D2846/D 2846M-09BE1	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic	IPC	IRC	IMC	ISPSC			

	Hot- and Cold-Water Distribution Systems							
D2855-96~~(2002)~~ (2010)	Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings	IPC	IPSDC	IRC				
D2859-06 (2011)	Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials	IBC	IFC					
D2898-~~(04)~~ 10	Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing	IBC	IRC	IWUIC				
D2949-~~01a(2008)~~ 10	Specification for 3.25-in. Outside Diameter Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings	IPC	IPSDC	IRC				
D2974-07~~a~~ A	Standard Test Methods for Moisture, Ash and Organic Matter of Peat and other Organic Soils	IgCC						
D3035-~~08~~ 12	Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter	IPC	IRC	IMC				
D3139-98~~(2005)~~ 2011	Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals	IPC						
D3161/D3161M-~~09~~ 12	Test Method for a Wind Resistance of Asphalt Shingles (Fan Induced Method)	IBC	IRC					
D3200-74~~(2005)~~ 2012	Standard Specification and Test Method for Establishing Recommended Design Stresses for Round Timber Construction Poles	IBC						
D3201-08AE1	Test Method for Hygroscopic Properties of Fire-Retardant Wood and Wood-Based Products	IBC	IRC	IWUIC				
D3261-~~03~~ 12	Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings Plastic Pipe and Tubings	IMC	IPC					
D3278-1996~~(2004)e1~~ (2011)	Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus	IBC	IFC	IMC				
D3311-~~08~~ 11	Specification for Drain, Waste and Vent (DWV) Plastic Fittings Patterns	IPC	IRC					
D3350-~~08~~ 12	Specification for Polyethylene Plastics Pipe and Fittings Materials	IRC	IMC					
D3462/3462M-~~09~~ 10A	Specification for Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules	IBC	IRC					
D3679-~~09~~ 11	Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding	IBC	IRC					
D3689-07	Test Methods for Deep Foundations ~~Piles~~ Under Static Axial Tensile Load	IBC						
D3737-~~08~~ 09E1	Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam)	IBC	IRC					
D3805/D3805M-97~~(2003)e1~~ (2009)	Standard Guide for Application of Aluminum-Pigmented Asphalt Roof Coatings	IBC						
D3909/D3909M-97b~~(2004)~~ 2012e1	Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules	IBC	IRC	IWUIC				
D3957-~~06~~ 09	Standard Practices for Establishing Stress Grades for Structural Members Used In Log	IBC	IRC					

	Buildings							
D4022/D4022M-2007(2012)E1	Specification for Coal Tar Roof Cement, Asbestos Containing	IBC	IRC					
D4068-~~01~~ 09	Specification for Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-Containment Membrane	IPC	IRC					
D4272-~~08a~~ 09	Test Method for Total Energy Impact of Plastic Films by Dart Drop	IBC						
D4318-~~05~~ 10	Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils	IBC	IRC					
D4434/D4434M-~~09~~ 12	Specification for Poly (Vinyl Chloride) Sheet Roofing	IBC	IRC					
D4479/D4479M-07(2012)E1	Specification for Asphalt Roof Coatings - Asbestos-Free	IBC	IRC					
D4551-~~96 (2008)e1~~ 12	Specification for Poly (Vinyl Chloride) (PVC) Plastic Flexible Concealed Water-Containment Membrane	IPC	IRC					
D4586/D4586M-07(2012)E1	Specification for Asphalt Roof Cement, Asbestos-Free	IBC	IRC					
D4601/D4601M-~~08~~ 042012E1	Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing	IBC	IRC					
D4637/D4637M-~~08~~ 12	Specification for EPDM Sheet Used in Single-Ply Roof Membrane	IBC	IRC					
D4829-~~08a~~ 11	Test Method for Expansion Index of Soils	IBC	IRC					
D4869/D4869M-05(2011)e01	Specification for Asphalt-Saturated (Organic Felt) Underlayment Used in Steep Slope Roofing	IBC	IRC					
D4897/D4897M-01(2009)	Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing	IBC	IRC					
D4945-~~08~~ 12	Test Methods for High-Strain Dynamic Testing of Deep Foundations	IBC						
~~D5019-07a~~ Withdrawn/no replacement	Specification for Reinforced CSM Polymeric Sheet Used in Roofing Membrane	IBC	IRC					
D5055-~~10~~ 12	Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists	IBC	IRC	IgCC				
D5197-09E1	Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology)	IgCC						
D5456-~~10~~ 12	Standard Specification for Evaluation of Structural Composite Lumber Products	IBC	IRC	IgCC				
D5516-~~03~~ 09	Test Method of Evaluating the Flexural Properties of Fire-Retardant Treated Softwood Plywood Exposed to the Elevated Temperatures	IBC	IRC					
D5643/D5643M-06 (2012)E1	Specification for Coal Tar Roof Cement, Asbestos-Free	IBC	IRC					
D5664-~~08~~ 10	Test Methods for Evaluating the Effects of Fire-Retardant Treatments and Elevated Temperatures on Strength	IBC	IRC					

	Properties of Fire-Retardant Treated Lumber							
D6162-2000a(2008)	Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements	IBC	IRC					
D6164/D6164M-05e1 11	Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements	IBC	IRC					
D6222/D6222M-08 11	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements	IBC	IRC					
D6223D6223M-02(2009)E1	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements	IBC	IRC					
D6662-09	Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards	IWUIC						
D6694-08	Standard Specification for Liquid-applied Silicone Coating Used In Spray Polyurethane Foam Roofing Systems	IBC	IRC					
D6698-07 12	Standard Test Method for On-Line Measurement of Turbidity Below 5 NTU in Water	IgCC						
D6754/D6745M-02 10	Standard Specification for Ketone Ethylene Ester Based Sheet Roofing	IBC	IRC					
D6757-07	Standard Specification for Inorganic Underlayment Felt Containing Inorganic Fibers used in Steep-Slope Roofing Products	IBC	IRC					
D6878-08e1/D6878-11A	Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing	IBC	IRC					
D6886-11 12	Standard Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis	IgCC						
D7032-08 10a	Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails)	IRC	IWUIC					
D7158-08d /D7158M 2011	Standard Test Method for Wind Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method)	IBC	IRC					
E84-09 2012c	Test Method for Surface Burning Characteristics of Building Materials	IBC	IFC	IRC	IMC			
E96/E96M-05 10	Test Method for Water Vapor Transmission of Materials	IBC	IRC					
E108-07a 2011	Test Methods for Fire Tests of Roof Coverings	IBC	IRC					
E119-2008a 2012a	Standard Test Methods for Fire Tests of Building Construction and Materials	IBC	IRC	IMC	IWUIC			

E136-~~09~~ 2012	Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C	IBC	IRC	IMC	IWUIC			
E519-~~00e1~~ /E519M 2010	Standard Test Method for Diagonal Tension (Shear) in Masonry Assemblages	IEBC						
E605-93(~~2006~~) (2011)	Test Method for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members	IBC						
E681-~~04~~ 2009	Test Method for Concentration Limits of Flammability of Chemicals (Vapors and Gases)	IBC	IFC					
E736-00(~~2006~~) (2011)	Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members	IBC						
E779—~~03~~ 10	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization	IECC	IgCC					
E814-~~08b~~ 2011a	Test Method of Fire Tests of Through-Penetration Firestops	IBC	IRC	IMC				
E970-~~08a~~ 2010	Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source	IBC	IRC					
E1300-~~07e01~~ 12AE1	Practice for Determining Load Resistance of Glass in Buildings	IBC						
E1332-90(2003)	Standard Classification for the Determination of Outdoor-Indoor Transmission Class	IgCC						
E1354-~~09~~ 2011b	Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter	IBC	IFC					
E1465-08A	Standard Practice for Radon Control Options for the Design and Construction of New Low-Rise Residential Buildings	IRC						
E1509-~~04~~ 12	Standard Specification for Room Heaters, Pellet Fuel-Burning Type	IRC	IMC	IgCC				
E1529-~~06~~ 10	Test Method for Determining Effects of Large Hydrocarbon Pool Fires on Structural Members and Assemblies	IFC						
E1537-~~07~~ 12	Test Method for Fire Testing of Upholstered Furniture	IFC						
E1590-~~07~~ 12	Test Method for Fire Testing of Mattresses	IFC						
E1592-05(2012)	Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference	IBC						
E1602-~~03~~ 02(2010)E1	Guide for Construction of Solid Fuel-Burning Masonry Heaters	IBC	IRC					
E1643-~~10~~ 11	Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders used in Contact with Earth or Granular Fill Under Concrete Slabs	IgCC						

E1677-~~05~~ 11	Standard Specification for an Air Retarder (AR) Material or System for Low-Rise Framed Building Walls	IECC						
E1966-07A(2011)	Test Method for Fire resistant Joint Systems	IBC	IFC					
E1980-~~01~~ 11	Standard Practice for Calculating Solar Refluctance Index of Horizontal and Low-sloped Opaque Surfaces	IECC	IgCC					
E1996-~~09~~ 12	Specification for Performance of Exterior Windows, ~~Glazed~~ Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes	IBC	IRC	IFC				
E2072-~~04~~ 10	Standard Specification for Photolumiscent (Phosphorescent) Safety Markings	IBC	IFC					
E2174-~~09~~ 10AE1	Standard Practice for On-Site Inspection of Installed Fire Stops	IBC	IEBC					
E2178-~~03~~ 11	Standard Test Method for Air Permeance of Building Materials	IRC	IECC					
E2231-~~04~~ 09	Standard Practice for Specimen Preparation and Mounting of Pipe and Duct Insulation Materials to Assess to Surface Burning Characteristics	IRC	IMC					
E2273-03(2011)	Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies	IBC	IRC					
E2307 -~~04~~ 12	Standard Test Method for Determining Fire Resistance of a Perimeter ~~Fire Barriers~~ Joint System Between an Exterior Wall Assembly and a Floor Assembly Using the Intermediate-Scale, Multi-story Test Apparatus[1].	IBC						
E2336-04(2009)	Standard Test Methods Fire Resistive Grease Duct Enclosure Systems	IMC						
E2357-~~05~~ 11	Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies	IECC						
E2393-~~09~~ 10A	Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barrier	IBC	IEBC					
E2404—~~08~~ 12	Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Vinyl Wall or Ceiling Coverings to Assess Surface Burning Characteristics	IBC	IFC					
E2568—09e1	Standard Specification of PB Exterior Insulation and Finish Systems ~~(EIFS)~~	IBC	IRC					
E2573—~~07a~~ 12	Standard Practice for Specimen Preparation and Mounting of Site-fabricated Stretch Systems to Assess Surface Burning Characteristics	IBC	IFC					
E2599-~~09~~ 11	Standard Practice for Specimen Preparation and Mounting of Reflective Insulation Materials and Vinyl Stretch Ceiling Materials ~~Radiant Barrier~~ for Building Applications to Assess	IBC						

	Surface Burning Characteristics							
E2634-~~08~~ 11	Standard Specification for Flat Wall Insulating Concrete Form (ICF) Systems	IBC	IRC					
F409-~~02(2008)~~ 12	Specification for Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings	IPC	IRC					
F437-~~06~~ 09	Specification for Threaded Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80	IPC	IRC	IMC	ISPSC			
F438-~~04~~ 09	Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40	IPC	IRC	IMC	ISPSC			
F439-~~06~~ 12	Specification for ~~Socket-Type~~ Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80	IPC	IRC	IMC	ISPSC			
F441/F 441M-~~02(2008)~~ 12	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80	IPC	IRC	IMC				
F442/F 442M-~~99(2005)e1~~ 12	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR)	IPC	IRC	IMC				
F477-~~08~~ 10	Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe	IPC	IPSDC	IRC				
F493-~~04~~ 10	Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings	IPC	IRC	IMC				
F547-~~06~~ (2012)	Terminology of Nails for Use with Wood and Wood-based Materials	IBC						
F656-~~08~~ 10	Specification for Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings	IPC	IPSDC	IRC				
F714-~~08~~ 12E1	Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter	IPC	IRC	IMC				
F876-~~08b~~ 10E1	Specification for Crosslinked Polyethylene (PEX) Tubing	IPC	IRC	IMC				
F877-~~07~~ 11	Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems	IPC	IRC	IMC				
F891-~~07~~ 10	Specification for Coextruded Poly (Vinyl Chloride) (PVC) Plastic Pipe with a Cellular Core	IPC	IPSDC	IRC				
F1055-~~98(2006)~~ 11	Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene Pipe and Tubing	IPC	IRC	IMC				
F1281-~~07~~ 11	Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX)	IPC	IRC	IMC				

	Pressure Pipe							
F1282-~~06~~ 10	Specification for Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure Pipe	IPC	IMC	IRC				
F1346-91 ~~(2003)~~ (2010	Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs	IBC	IRC	IPMC	IgCC	ISPSC		
F1484-~~05~~ 12	Standard Test Methods for Performance of Steam Cookers	IgCC						
F1488-~~03~~ 09E1	Specification for Coextruded Composite Pipe	IPC	IPSDC	IRC	IgCC			
F1496-~~99(2005)e1~~ 12	Standard Test Method for Performance of Convection Ovens	IgCC						
F1499-~~01(2008)~~ 12	Specification for Coextruded Composite Drain, Waste, and Vent Pipe (DWV)	IPSDC						
F1667-05 11A E1	Specification for Driven Fasteners: Nails, Spikes, and Staples	IBC	IRC					
F1673-~~04(2005)~~ 10	Standard Specification for Polyvinylidene Fluoride (PVDF) Corrosive Waste Drainage Systems	IPC						
F1807-~~08~~ 12	Specifications for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing	IPC	IRC	IMC				
F1924-~~05~~ 12	Standard Specification for Plastic Mechanical Fittings for Use on Outside Diameter Controlled Polyethylene Gas Distribution Pipe and Tubing	IMC						
F1960-~~09~~ 12	Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) Tubing	IPC	IRC	IMC				
F1974-~~08~~ 09	Specification for Metal Insert Fittings for Polyethylene/Aluminum/Polyethylene and Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene Composite Pressure Pipe	IPC	IRC	IMC				
F1986-01~~(2006)~~ (2011)	Specification for Multilayer Pipe, Type 2, Compression Fittings and Compression Joints for Hot and Cold Drinking Water Systems	IPC	IRC					
F2080-~~08~~ 09	Specification for Cold-Expansion Fittings with Metal Compression-Sleeves for Cross-linked Polyethylene (PEX) Pipe	IPC	IRC					

F2098-08	Standard Specification for Stainless Steel Clamps for Securing SDR9 Cross-Linked Polyethylene (PEX) Tubing to Metal Insert and Plastic Insert Fittings	IPC	IRC					
F2159-~~05~~ 11	Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing	IPC						
F2200—~~05~~ 11B	Standard Specification for Automated Vehicular Gate Construction	IRC	IFC					
F2262-~~05~~ 09	Standard Specification for Cross-linked Polyethylene/Aluminum/Cross-linked Polyethylene Tubing OD Controlled SDR9	IPC	IRC					
F2306/F 2306M-~~08~~ 11	Specification for 12" to 60" 300 to 1500 mm annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications	IPC						
F2387-04(2012)	Standard Specification for Manufactured Safety Vacuum Release Systems, Swimming (SVRS) for Pools, Spas and Hot Tubs	IBC						
F2389-~~07e1~~ 10	Specification for Pressure-Rated Polypropylene (PP) Piping Systems	IPC	IRC	IMC				
F2434-~~08~~ 09	Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp ring for SDR9 Cross-Linked Polyethylene (PEX) Tubing and SDR9 Cross-Linked Polyethylene/Aluminum/Cross-Linked Polyethylene (PEX-AL-PEX) Tubing	IPC	IRC	IMC				
F2735-09	Standard Specification for Plastic Insert Fittings for SDR9 Cross-linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing	IMC	IPC	IRC				
F2769-~~09~~ 10	Polyethylene of Raised Temperature (PE-RT) Plastic Hot and Cold-Water Tubing and Distribution Systems	IMC	IPC	IRC				

AWCI	**The Association of the Wall & Ceiling Industries International**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
12-B-~~98~~ 04	~~Technical Manual 12-B~~ Standard Practice for the Testing and Inspection of Field Applied Thin Film Intumescent Fire-Resistive Materials; an Annotated Guide, ~~First~~ Second Edition	IBC						

AWPA	**American Wood Protection Association**	
Standard Reference Number	**Title**	**Referenced in Code(s):**

M4—~~08~~ 11	Standard for the Care of Preservative-Treated Wood Products	IBC	IRC					
U1—~~11~~ 14	USE CATEGORY SYSTEM: User Specification for Treated Wood except Section 6, Commodity Specification H	IBC	IRC					
AWS	**American Welding Society**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
A5.8-~~04~~M/A5.8:2011	Specifications for Filler Metals for Brazing and Braze Welding	IRC	IMC	IPC				
D1.3-~~98~~/D1.3M:2008	Structural Welding Code-Sheet Steel	IBC						
D1.4-~~1998~~ /D1.4M:2011	Structural Welding Code - Reinforcing Steel Including Metal Inserts and Connections in Reinforced Concrete Construction	IBC						
AWWA	**American Water Works Association**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
C104-~~98~~/A21.4-08	~~Standard for~~ Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water	IRC	IPC					
C110/A21.10-~~03~~ 12	~~Standard for~~ Ductile-Iron and Gray-Iron Fittings~~, 3 in through 48 Inches for Water~~	IRC	IPC	IMC				
C111-~~00~~/A21.11-12	~~Standard for~~ Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings	IPC	IFGC					
C115-A21.15-~~99~~ 11	~~Standard for~~ Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges	IRC	IPC	IMC				
C151/A21.51-~~02~~ 09	~~Standard for~~ Ductile-Iron Pipe, Centrifugally Cast for Water	IRC	IPC	IMC				
C153/A21.53-~~00~~ 11	~~Standard for~~ Ductile-Iron Compact Fittings for Water Service	IRC	IPC	IMC				
C510-~~00~~ 07	Double Check Valve Backflow Prevention Assembly	IRC	IPC					
C511-~~00~~ 07	Reduced-Pressure Principle Backflow Prevention Assembly	IRC	IPC					
C651-~~99~~ 05	Disinfecting Water Mains	IPC						
C652-~~02~~ 11	Disinfection of Water-Storage Facilities	IPC						
BHMA	**Builders Hardware Manufacturers' Association**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						

A 156.19-~~2007~~ 2013	Power Assist and Low Energy Power Operated Doors	IBC	IFC						
CDPH	**California Department of Public Health**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
CDPH Section 01350	~~EHLB~~ Standard Method for the Testing and Evaluation of ~~VOC~~ Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1(2010)	IgCC							
CGA	**Compressed Gas Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
C-7 (~~2004~~) (2011)	Guide to Preparation of Precautionary Labeling and Marking of Compressed Gas Containers	IFC							
ANSI/CGA P-18-2006	Standard for Bulk Inert Gas Systems ~~at Consumer Sites (an American National Standard)~~	IFC							
P-20 (~~2003~~) (2009)	Standard for Classification of Toxic Mixtures	IFC							
P-23 (~~2003~~) (2008)	Standard for Categorizing Gas Mixtures Containing Flammable and Nonflammable Components	IFC							
S-1.1 (~~2005~~) (2011)	Pressure Relief Device Standards - Part 1 - Cylinders for Compressed Gases	IFC	IFGC						
S-1.3 (~~2005~~) (2008)	Pressure Relief Device Standards - Part 3 - Stationary Storage Containers for Compressed Gases	IFC	IFGC						
CPA	**Composite Panel Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
A135.4-~~2004~~ 2012	Basic Hardboard	IBC	IRC						
A135.5-~~2004~~ 2012	Prefinished Hardboard Paneling	IBC	IRC						
A135.6-~~2006~~ 2012	~~Hardboard~~ Engineered Wood Siding	IBC	IRC						
A208.1-~~99~~ 2009	Particleboard	IBC	IRC						
CRRC	**Cool Roof Rating Council**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
CRRC-1-20~~10~~ 12	Cool Roof Rating Council Standard	IgCC							
CSA	**~~Canadian Standards Association~~ CSA Group**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							

ASME A17.1/CSA B44—2013	Safety Code for Elevators and Escalators	IBC	IFC	IEBC	IRC	IPMC			
ASME A112.18.1-~~2005~~ 2012/ CSA B125.1-~~2005~~ 2012	Plumbing Supply Fittings	IPC	IRC						
ASME A112.18.2-~~2005~~ 2011/ CSA B125.2-~~2005~~ 2011	Plumbing Waste Fittings	IRC	IPC						
ASME A112.19.1 2013/ CSA B45.2-~~08~~ 13	Enameled Cast-Iron and Enameled Steel Plumbing Fixtures	IRC	IPC						
A112.19.2-~~2008~~ 2013/ CSA B45.1-~~08~~ 13	Ceramic Plumbing Fixtures	IPC	IRC						
ASME A112.19.3-2008/ CSA B45.4-08(R2013)	Stainless-Steel Plumbing Fixtures	IRC	IPC						
ASME A112.19.5-2011/ CSA/B45.15-~~09~~ 11	Flush Valves and Spuds ~~Trim~~ for Water Closets, Urinals ~~Bowls~~ and Tanks	IPC	IRC						
ASME A112.19.7-2012/ CSA B45.10-~~09~~ 2012	Hydromassage Bathtubs ~~Appliances~~ Systems	IPC	IRC						
ASME A112.3.4-2013/CSA B45.9-99(~~R2008~~) 13	Macerating Systems and Related Components	IRC	IPC						
ASSE 1016/ASME A112.1016/CSA B125.16-2011 is a replacement for ASSE 1016-2010	Performance Requirements for Automatic Compensating, Valves for Individual Showers and Tub/Shower Combinations	IPC	IRC	IgCC					
CSA B45.5-~~02 (R2008)~~ 11/ IAPMO Z124-2011	Plastic Plumbing Fixtures	IRC	IPC						
B64.1.1-~~01~~ 11	Vacuum Breakers, Atmospheric Type (AVB)	IRC	IPC						
B64.1.2-~~07~~ 11	Pressure Vacuum Breakers (PVB)	IRC	IPC						
B64.1.3-~~07~~ 11	Spill Resistant Pressure Vacuum Breakers (SRPVB)	IPC	IRC						
B64.2-~~01~~ 11	Vacuum Breakers, Hose Connection Type (HCVP)	IRC	IPC						
B64.2.1-~~07~~ 11	Vacuum Breakers, Hose Connection (HCVB) with Manual Draining Feature	IRC	IPC						
B64.2.1.1-~~07~~ 11	Hose Connection Dual Check Vacuum Breakers (HCDVB)	IRC	IPC						
B64.2.2-~~01~~ 11	Vacuum Breakers, Hose Connection Type (HCVP) with Automatic Draining Feature	IRC	IPC						
B64.3-~~07~~ 11	Dual Check Valve Backflow Preventers Atmospheric Port (DCAP)	IRC	IPC						
B64.4-~~07~~ 11	Reduced Pressure Principle Backflow Preventers (RP)	IRC	IPC						
B64.4.1-~~07~~ 11	Reduced Pressure Principle for Fire Systems (RPF)	IRC	IPC						
B64.5-~~07~~ 11	Double Check Backflow Preventers (DCVA)	IRC	IPC						
B64.5.1-~~07~~ 11	Double Check Valve Backflow Preventers for Fire Systems (DCVAF)	IRC	IPC						
B64.6-~~07~~ 11	Dual Backflow Preventers Check Valve (DuC)	IPC	IRC						
B64.7-~~07~~ 11	Laboratory Faucet Vacuum Breakers (LFVB)	IRC	IPC						
B64.10.1-~~07~~ 11	~~Manual for the Selection, Installation,~~ Maintenance and Field Testing of Backflow Preventers ~~ion~~	IPC							

	~~Devices~~								
B79-08 (R2013)	Commercial and Residential Drains, and Cleanouts	IPC							
CSA B125.3-~~2005~~ 12	Plumbing Fittings	IRC	IPC						
B137.1-~~05~~ 13	Polyethylene (PE) Pipe , Tubing and Fittings for Cold Water Pressure Services	IRC	IPC						
B137.2-~~05~~ 13	Polyvinylchloride PVC Injection-Moulded Gasketed Fittings for Pressure Applications	IRC	IPC	ISPSC					
B137.3-~~05~~ 13	Rigid Poly (Vinyl Chloride) (PVC) Pipe for Pressure Applications	IRC	IPC	IPSDC					
B137.5-~~05~~ 13	Cross-Linked Polyethylene (PEX) Tubing Systems for Pressure Applications	IRC	IPC						
B137.6-~~05~~ 13	Chlorinated Polyvinylchloride CPVC Pipe, Tubing and Fittings for Hot and Cold Water Distribution Systems	IRC	IPC	ISPSC					
B137.9-~~02~~ 13	Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure-Pipe Systems	IRC	IPC	IMC					
B137.10M-~~05~~ 13	Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Composite Pressure-Pipe Systems	IRC	IPC	IMC					
B137.11-~~05~~ 13	Polypropylene (PP-R) Pipe and Fittings for Pressure Applications	IRC	IPC						
B181.1-~~06~~ 11	Acrylonitrile-butadiene-stryrene (ABS) Drain, Waste, and Vent Pipe and Pipe Fittings	IRC	IPC	IPSDC					
B181.2-~~06~~ 11	Polyvinylchloride PVC Drain, and chlorinated polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings	IRC	IPC	IPSDC					
B181.3-~~06~~ 11	Polyolefin and polyvinylidene fluoride (PVDF) Laboratory Drainage Systems	IRC	IPC						
B182.1- ~~06~~ 11	Plastic drain and sewer pipe and pipe fittings	IPC	IPSDC						
B182.2-~~06~~ 11	PSM type polyvinylchloride (PVC) sewer pipe and fittings	IRC	IPC	IPSDC					
B182.4-~~06~~ 11	Profile polyvinylchloride PVC Sewer Pipe and Fittings	IRC	IPC	IPSDC					
B182.6-~~06~~ 11	Profile Polyethylene (PE) Sewer Pipe and Fittings for leak proof sewer applications	IRC	IPC						
B182.8-~~06~~ 11	Profile Polyethylene (PE) Storm Sewer and Drainage Pipe and Fittings	IRC	IPC						
B356-~~00(2005)~~ 10	Water Pressure Reducing Valves for Domestic Water Supply Systems	IPC	IRC						
B481.1-~~07~~ 12	Testing and Rating of Grease Interceptors Using Lard	IPC							
B602-~~05~~ 10	Mechanical Couplings for Drain, Waste, and Vent Pipe and Sewer Pipe	IRC	IPC	IPSDC					
CAN/CSA A257.1M-~~92~~ 2009	Circular Concrete Culvert, Storm Drain, Sewer Pipe and Fittings	IRC	IPC	IPSDC					

CAN/CSA A257.2M-~~92~~ 2009	Reinforced Circular Concrete Culvert, Storm Drain, Sewer Pipe and Fittings	IRC	IPC	IPSDC					
CAN/CSA A257.3M-~~92~~ 2009	Joints for Circular Concrete Sewer and Culvert Pipe, Manhole Sections, and Fittings Using Rubber Gaskets	IRC	IPC	IPSDC					
B137.11-~~05~~ 13	Polypropylene (PP-R) Pipe and Fittings for Pressure Applications	IRC	IPC						
B45.3-02 (R2008)	Porcelain Enameled Steel Plumbing Fixtures	IRC	IPC						
0437-Series-93 (R2006)	Standards on OSB and Waferboard (Reaffirmed 2001)	IRC							
ANSI ~~CSA America~~ FC 1-~~2003~~ 2012 to be relocated under ANSI	Stationary Fuel Cell Power Systems	IFGC	IMC	IRC					
CAN/CSA B366.1-~~2009~~ 2011	Solid-Fuel-Fired Central Heating Appliances	IgCC							
B483.1-~~07~~ 14	Drinking Water Treatment Systems	IRC	IPC						
CSA C22.2 No. 218.1-M89(R~~2006~~ 2011)	Spas, Hot Tubs and Associated Equipment	ISPSC							
C22.2 No. 236 ~~05~~ -11 ~~(R2009) M89(R2006)~~	~~Heating and~~ Cooling Equipment (binational standard with UL 1995)	ISPSC							
C22.2 No. 108-01 (R2010)	Liquid Pump	ISPSC							

CTI — Cooling Technology Institute

Standard Reference Number	Title	Referenced in Code(s):								
STD-201 (~~2009~~ 11)	Standard for Certification of Water Cooling Tower Thermal Performance	IECC								

DASMA — Door and Access Systems Manufacturers

Standard Reference Number	Title	Referenced in Code(s):								
105-92~~(R2004)~~ -13	Test Method for Thermal Transmitance and Air Infiltration of Garage Doors	IECC								
107-97 (R~~2004~~ 2012)	Room Fire Test Standard for Garage Doors Using Foam Plastic Insulation	IBC								
108-~~05~~ 12	Standard Method for Testing Sectional Garage Doors and Rolling Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference	IBC	IRC							
115-~~05~~ 12	Standard Method for Testing Sectional Garage Doors and Rolling Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind	IBC	IRC							

	Pressure									
FEMA	**Federal Emergency Management Agency**									
Standard Reference Number	**Title**	**Referenced in Code(s):**								
FEMA P646-~~08~~ 12	Guidelines for Design of Structures for Vertical Evacuation from Tsunamis	IBC								
FEMA- ~~FA/~~ TB-2-08	Flood-D ~~d~~amage Resistant Materials Requirements	IRC								
~~FIA-TB-11—01~~ FEMA-TB 11—01	Crawlspace Construction for Buildings Located in Special Flood Hazard Area	IBC	IRC							
FM	**FM Global**									
Standard Reference Number	**Title**	**Referenced in Code(s):**								
FM 4470 ~~2009~~ 2013	Approval Standard for Single-Ply Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction ~~Covers~~.	IBC								
4474-~~04~~ 11	American National Standard for Evaluating ~~the Simulated Wind Uplift Resistance of~~ Roof/Ceiling Assemblies, ~~-~~Plastic Interior Finish Materials, Plastic Exterior Building Panels, Wall/Ceiling Coating Systems, Interior or Exterior Finish Systems ~~Using Static Positive and/or Negative Differential Pressures~~	IBC								
4880 ~~(2005)~~ 2010	Approval Standard for Class 1 Rating of ~~Evaluating~~ Insulated Wall or Wall and Roof/Ceiling Panels, ~~Assemblies, Plastic~~ Interior Finish Materials, ~~Plastic Exterior Building, Wall/Ceiling~~ or Coatings ~~Systems, Interior or~~ and Exterior Finish Systems	IBC	IRC							
GA	**Gypsum Association**									
Standard Reference Number	**Title**	**Referenced in Code(s):**								
GA 216-~~07~~ 13	Application and Finishing of Gypsum Panel Products	IBC								

GA-253-~~07~~ 12	~~Recommended Standard Specification for the~~ Application of Gypsum Sheathing	IRC								
GA-600-~~09~~ 12	Fire- Resistance Design Manual, ~~18th~~ 20th Edition	IBC								
HPVA	**Hardwood Plywood and Veneer Association**									
Standard Reference Number	**Title**	**Referenced in Code(s):**								
HP-1-~~2009~~ 2013	Standard for Hardwood and Decorative Plywood	IBC	IRC	IgCC						
IAPMO	**International Association of Plumbing and Mechanical Officials**									
Standard Reference Number	**Title**	**Referenced in Code(s):**								
CSA B45.5-11/ IAPMO Z124-2011 replaces ANSI Z124.1, 1.2, 2, 3, 4, 6, 9	Plastic Plumbing Fixtures	IRC	IPC							
IAPMO Z124.7-2012 replaces ANSI Z124.7-97	Prefabricated Plastic Spa Shells	ISPSC								
ICC	**International Code Council**									
Standard Reference Number	**Title**	**Referenced in Code(s):**								
ICC A117.1-09 14	Accessible and Usable Buildings and Facilities	IBC	IFC	IZC	IEBC	IRC				
IBC-~~12~~-15	International Building Code	IRC	IFC	IMC	IPC	IPSDC	IFGC	IECC	IEBC IWUIC	
IECC-~~12~~ 15	International Energy Conservation Code	IBC	IRC	IMC	IPC	IFGC	IgCC	ISPSC		
IEBC-~~12~~ 15	International Existing Building Code	IBC	IMC	IPMC	IgCC					
IFC-~~12~~ 15	International Fire Code	IBC	IRC	IMC	IPC	IFGC	IECC	IEBC	IPMC	
IFGC-~~12~~ 15	International Fuel Gas Code	IBC	IRC	IFC	IMC	IPC	IECC	IEBC	IPMC	
IMC-~~12~~-15	International Mechanical Code	IBC	IRC	IFC	IPC	IFGC	IECC	IEBC	IPMC	
ICCPC-~~12~~ 15	International Performance Code	IgCC								
IPC-~~12~~ 15	International Plumbing Code	IBC	IRC	IFC	IMC	IPSDC	IFGC	IEBC	IPMC	
IPSDC-~~12~~ 15	International Private Sewage Disposal Code	IBC	IPC	IRC						
IPMC-~~12~~ 15	International Property Maintenance Code	IBC	IRC	IFC	IEBC					
IRC-~~12~~ 15	International Residential Code	IBC	IFC	IMC	IFGC	IEBC	IPC	IPMC	IgCC	
IWUIC-~~12~~ 15	International Wildland-Urban Interface Code	IBC	IFC							
IZC-~~12~~ 15	International Zoning Code	IBC	IMC							
ICC 500-~~08~~ 14	ICC/NSSA Standard on the Design and Construction of Storm Shelters	IBC	IRC							

ICC 600-~~08~~ 14	Standard for Residential Construction In High Wind Regions	IBC	IRC						
ICC 700-~~2008~~ 12	National Green Building Standard	IgCC							
IgCC-~~12~~ 15	International Green Construction Code	IBC	ICCPC	IEBC	IECC	IFC	IFGC	IMC	IPC

IES — Illuminating Engineering Society

Standard Reference Number	Title	Referenced in Code(s):							
TM-15-~~07~~ 11	Luminaire Classification System for Outdoor Luminaires	IgCC							

IIAR — International Institute of Ammonia Refrigeration

Standard Reference Number	Title	Referenced in Code(s):							
2-~~99~~ 2014 ~~(Addendum A-2005)~~	~~Addendum A to~~ Equipment, Design, and Installation of Ammonia Mechanical Refrigerating Systems	IMC							

ISEA — International Safety Equipment Association

Standard Reference Number	Title	Referenced in Code(s):							
ANSI/ISEA Z358.1-~~98~~ 2009	Emergency Eyewash and Shower Equipment	IPC							

MSS — Manufacturers Standardization Society of the Valve and Fittings Industry

Standard Reference Number	Title	Referenced in Code(s):							
MSS SP-6-~~01~~ 2012	Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings	IFGC							
ANSI MSS SP-58 ~~1993~~ 2009	Pipe Hangers and Supports –Materials, Design, Manufacture, Selection, Application, and Installation	IRC	IFGC						
~~SP-69-2002~~ ANSI/MSS SP-58-2009	Pipe Hangers and Supports – Materials, Design, Manufacture, Selection ~~and~~ , Application , and Installation (*SP69 will be withdrawn in 2014 and ANSI MSS SP-58-2009 replaces it*)	IMC							

NFPA — National Fire Protection Association

Standard Reference Number	Title	Referenced in Code(s):

10-~~10~~ 13	Standard for Portable Fire Extinguishers	IFC	IBC						
13-~~10~~ 13	Standard for the Installation of Sprinkler Systems	IFC	IBC						
13D-~~10~~ 13	Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes	IFC	IRC	IBC					
13R- ~~10~~ 13	Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies ~~Up to and Including Four Stories in Height~~	IFC	IBC	IEBC					
14-~~10~~ 13	Standard for the Installation of Standpipe, ~~Private Hydrants~~ and Hose Systems	IFC	IBC						
15-12	Standard for the Water Spray Fixed Systems for Fire Protection	IFC							
16-11	Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems	IFC	IBC						
17-~~09~~ 13	Standard for Dry Chemical Extinguishing Systems	IFC	IBC						
17A-~~09~~ 13	Standard for Wet Chemical Extinguishing Systems	IFC	IBC						
20- ~~10~~ 13	Standard for the Installation of Stationary Pumps for Fire Protection	IFC	IBC						
22-~~08~~ 13	Standard for the Water Tanks for Private Fire Protection	IFC							
24- ~~10~~ 13	Standard for the Installation of Private Fire Service Mains and Their Appurtenances	IFC							
25-~~11~~ 13	Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems	IFC	IPMC						
30A-~~12~~ 15	Code for Motor Fuel Dispensing Facilities and Repair Garages	IFC	IMC	IFGC					
30B-~~12~~ 15	Code for the Manufacture and Storage of Aerosol Products	IFC							
31-~~11~~ 15	Standard for the Installation of Oil-Burning Equipment	IFC	IRC	IMC	IBC				

32-~~11~~ 15	Drycleaning Plants	IFC	IBC						
33-~~11~~ 15	Standard for Spray Application Using Flammable or Combustible Materials	IFC							
34-~~11~~ 15	Standard for Dipping and Coating Processes Using Flammable or Combustible Liquids	IFC							
35-~~11~~ 15	Standard for Manufacture of Organic Coatings	IFC							
37-~~10~~ 14	Installation and Use of Stationary Combustion Engines and Gas Turbines	IMC	IFGC						
40-~~11~~ 15	Standard for the Storage and Handling of Cellulose Nitrate Film	IFC	IBC						
45-~~11~~ 15	Standard on Fire Protection for Laboratories Using Chemicals	IMC							
~~50-01~~ replaced with 55-13 that incorporates NFPA 50	~~Bulk Oxygen Systems at Consumer Sites~~ Compressed Gases and Cryogenic Fluids Code	IPC							
51-~~07~~13	Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes	IFC	IPC	IFGC					
51A-12	Standard for Acetylene Cylinder Charging Plants	IFC							
52-~~10~~ 13	Vehicular Fuel Gaseous System Code	IFC							
55-~~10~~-13	~~Standard for the Storage, Use and Handling of~~ Compressed Gases and Cryogenic Fluids Code ~~in Portable and Stationery Containers Cylinders and Tanks~~	IFC							
58-~~11~~ 13	Liquefied Petroleum Gas Code	IFC	IBC	IRC	IMC	IFGC			
59A ~~10~~ 13	Standard for the Production, Storage and Handling of Liquefied Natural Gas (LNG)	IFC							
61-~~08~~ 13	Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities	IFC	IBC						

69-~~08~~ 14	Standard on Explosion Prevention Systems	IFC	IMC						
72- ~~10~~ 13	National Fire Alarm and Signaling Code	IFC	IBC	IRC	IMC	IEBC	IgCC	IWUIC	
80- ~~10~~ 13	Standard for Fire Doors and Other Opening Protectives	IFC	IBC						
82-~~09~~ 14	Standard on Incinerators, Waste and Linen Handling Systems and Equipment~~, 2009 Edition~~	IMC	IFGC	IBC	IRC				
85-11	Boiler and ~~Construction~~ Combustion Systems Hazards Code	IFC	IBC	IRC	IFGC				
86-~~11~~ 15	Standard for Ovens and Furnaces	IFC							
88A-~~11~~ 15	Standard for Parking Structures	IFGC							
91-~~10~~ 15	Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids	IMC							
92~~B~~ – ~~09~~ 12	Smoke Control ~~Management~~ Systems ~~in Malls, Atria, and Large Spaces~~	IFC	IBC	IMC					
96-~~11~~ 13	Standard for Ventilation Control and Fire Protection of Commercial Cooking Operation	IMC							
99-~~12~~ 15	Health Care Facilities Code	IBC	IFC	IEBC	IBC				
101-~~12~~ 15	Life Safety Code	IBC	IFC	IEBC					
105-~~10~~ 15	~~Installation~~ Standard ~~of~~ for Smoke Door Assemblies and Other Opening Protectives	IBC	IFC						
110-~~10~~ 15	Standard for Emergency and Standby Power Systems	IFC	IBC	IECC					
111-~~10~~ 15	Standard on Stored Electrical Energy Emergency and Standby Power Systems	IFC	IECC	IBC					
120-~~10~~ 15	Standard for Fire Prevention and Control in Coal Mines	IFC	IBC						
160-~~11~~ 15	Standard for the Use of Flame Effects Before an Audience	IFC							
170-~~09~~ 15	Standard for Fire Safety and Emergency Symbols	IFC	IBC						

204-~~07~~ 15	Standard for Smoke and Heat Venting	IFC							
211-~~10~~ 13	Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances	IFC	IBC	IRC	IMC	IFGC			
221-~~09~~ 15	Standard for High Challenge Fire Walls, Fire Walls and Fire Barrier Walls~~, 2009 Edition~~	IBC							
241-~~09~~ 13	Standard for Safeguarding Construction, Alteration, and Demolition Operations	IFC							
253-~~11~~ 15	Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source	IBC	IFC						
259-~~08~~ 13	Standard Test Method for Potential Heat of Building Materials	IBC	IRC						
260-~~09~~ 13	Standard Methods of Tests and Classification System for Cigarette Ignition Resistance of Components of Upholstered Furniture	IFC							
261-~~09~~ 13	Standard Method of Test for Determining Resistance of Mock-Up Upholstered Furniture Material Assemblies to Ignition by Smoldering Cigarettes	IFC							
262-~~11~~ 15	Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces	IMC							
274-~~09~~ 13	Standard Test Method to Evaluate Fire Performance Characteristics of Pipe Insulation	IMC							
275-~~10~~ 13	Standard Method of Fire Tests for the Evaluation of Thermal Barriers ~~Used Over Foam Plastic Insulation~~	IBC	IRC						
285-11	Standard Fire Test Method ~~of~~ for the Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible	IBC							

	Components								
286-~~11~~ 15	Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth	IFC	IBC	IRC					
288-12	Standard Methods of Fire Tests of ~~Floor~~ Horizontal Fire Door Assemblies Installed in Horizontal~~ly~~ Fire-Resistance-Rated Floor Systems	IBC							
289-~~09~~ 13	Standard Method of Fire Test for Individual Fuel Packages	IFC	IBC						
318-~~09~~ 15	Standard for the Protection of Semiconductor Fabrication Facilities	IFC							
385- ~~07~~ 12	Standard for Tank Vehicles for Flammable and Combustible Liquids	IFC							
407-12	Standard for Aircraft Fuel Servicing	IFC							
409-~~11~~ 15	Aircraft Hangers	IFC	IBC	IFGC					
~~430-04~~ 400-13	~~Storage of Liquid and Solid Oxidizers~~ Hazardous Material Code	IFC							
484-~~12~~ 15	Standard for Combustible Metals	IFC	IBC						
~~490-10~~ 400-13	Storage of Ammonium Nitrate Hazardous Material Code	IFC							
495-~~10~~ 13	Explosive Materials Code	IFC							
498-~~10~~ 13	Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives	IFC							
501-~~10~~ 13	Standard on Manufactured Housing	IRC							
505-~~11~~ 13	Fire Safety Standard Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operations	IFC							
654-~~06~~ 13	Standard for Prevention of Fire & Dust Explosions from the Manufacturing, Processing, and	IBC	IFC						

	Handling of Combustible Particulate Solids								
655-12	Standard for the Prevention of Sulfur Fires and Explosions	IBC	IFC						
664-12	Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities	IBC	IFC						
701-10	Standard Methods of Fire Tests for Flame-Propagation of Textiles and Films	IFC	IBC						
703-12 15	Standard for Fire Retardant Treated Wood and Fire Retardant Coatings for Building Materials	IFC							
704-12	Standard System for the Identification of the Hazards of Materials for Emergency Response	IFC	IMC	IBC					
720-09 15	Standard for the Installation of Carbon Monoxide (CO) Warning Equipment Dwelling Units	IFC	IBC	IRC					
750-10 13	Standard on Water Mist Fire Protection Systems	IFC	IMC	IFGC					
853-10 15	Installation of Stationary Fuel Cell Power Systems	IRC							
1122- 08 13	Code for Model Rocketry	IFC							
1123-10 13	Code for Fireworks Display	IFC							
1124- 08 13	Code for the Manufacture-ing, Transportation, Storage and Retail Sales of Fireworks and Pyrotechnic Articles	IFC	IBC						
1125-12	Code for the Manufacture of Model Rocket and High Power Rocket Motors	IFC							
1126-11 15	Standard for the Use of Pyrotechnics Before a Proximate Audience	IFC							
1127- 08 13	Code for High Power Rocketry	IFC							
1142-12	Standard on Water Supply for Suburban and Rural Fire Fighting	IFC							
2001-12	Standard on Clean Agent Fire Extinguishing	IFC	IBC						

	Systems								
NSF	**NSF International**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
3 ~~2008~~ 2010	Commercial Warewashing Equipment	IPC	IgCC						
14 ~~2008e~~ 2011	Plastics Piping System Components and Related Materials	IRC	IPC	ISPSC					
18 ~~2007~~ 2012	Manual Food and Beverage Dispensing Equipment	IPC							
40 ~~2000~~ 2012	Residential Wastewater Treatment Systems	IPSDC							
41 ~~1999~~ 2011	Nonliquid Saturated Treatment Systems ~~(Composing Toilets)~~	IPSDC							
42 ~~2007ae~~ 2011	Drinking Water Treatment Units - Aesthetic Effects	IRC	IPC						
44 ~~2007~~ 2012	Residential Cation Exchange Water Softeners	IRC	IPC	IgCC					
50 ~~2009~~ 2012	Equipment for Swimming Pools, Spas, Hot Tubs, and other Recreational Water Facilities	IgCC	ISPSC						
53 ~~2007a~~ 2011a	Drinking Water Treatment Units - Health Effects	IRC	IPC						
58 ~~2007~~ 2012	Reverse Osmosis Drinking Water Treatment Systems	IRC	IPC	IgCC					
61 ~~2008~~ 2012	Drinking Water System Components - Health Effects	IRC	IPC	IgCC					
62 ~~2007~~ 2012	Drinking Water Distillation Systems	IPC							
350-2011	Onsite Residential and Commercial Water Reuse Treatment Systems	IgCC							
PCA	**Portland Cement Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
100 ~~07~~ 12	Prescriptive Design of Exterior Concrete Walls for One and Two-Family Dwellings (Pub. No. EB241)	IRC							
PCI	**Prestressed Concrete Institute**								

Standard Reference Number	Title	Referenced in Code(s):							
MNL 124-~~89~~ 11	Design for Fire Resistance of Precast Prestressed Concrete	IBC							
PDI	**Plumbing and Draining Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
PDI G101 ~~(2003)~~ 2012	Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation Data	IPC							
PTI	**Post-Tensioning Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
PTI DC ~~2007~~ 10.5-12	Standard Requirements for Design and Analysis of Shallow Post-tensioned Concrete Foundation on Expansive Soils~~,~~ ~~Second Edition~~	IBC							
~~PTI DC 2007 10.5-12~~	~~Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils, Third Edition~~	~~IBC~~							
RMI	**Rack Manufacturers Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/MH16.1~~—08~~ 12	Specification for Design, Testing and Utilization of Industrial Steel Storage Racks	IBC							
SBCA	**Structural Building Components Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
BCSI-~~2008~~ 2013	Building Component Safety Information Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected	IRC							

	Wood Trusses								
CFS-BCSI-2008	Cold Formed Steel Building Component Safety Information (CFSBCSI) Guide to Good Practice for Handling, Installing & Bracing of Cold-formed Steel Trusses	IRC							
SMACNA	**Sheet Metal & Air Conditioning Contractors National Assoc. Inc.**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
SMACNA-~~85~~ 2012	HVAC Air Duct Leakage Test Manual 2nd Edition	IECC-C	IgCC						
SMACNA-~~/ANSI 2005~~ 2015	HVAC Duct Construction Standards - Metal and Flexible 4th Edition (ANSI)	IMC							
SPRI	**Single-Ply Roofing Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/SPRI RP-4-~~08~~ 13	Wind Design Guide for Ballasted Single-ply Roofing Systems	IBC							
ANSI/SPRI/FM4435-ES-1-~~03~~ 11	Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems	IBC							
TIA	**Telecommunications Industry Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
222-G-2005	Structural Standards for Antenna Supporting Structures and Antennas, including - Addendum 1, 222-G-1 dated 2007, ~~and~~ Addendum 2, 222-G-2 Dated 2009, Addendum 3, 222-3 dated 2013, and Addendum 4, 222-G-4 dated 2014	IBC							
TMS	**The Masonry Society**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
216-~~97~~ 2013	Standard Method for Determining Fire Resistance of	IBC							

	Concrete and Masonry Construction Assemblies								
302-~~07~~ 2012	Standard Method for Determining the Sound Transmission ~~Class~~ Rating for Masonry Walls	IBC	IRC	IgCC					
402-~~11~~ 2013	Building Code for Masonry Structures	IBC	IRC						
403-~~10~~ 2013	Direct Design Handbook for Masonry Structures	IBC	IRC						
602-~~11~~ 2013	Specification for Masonry Structures	IBC	IRC						

TPI Truss Plate Institute

Standard Reference Number	Title	Referenced in Code(s):							
TPI 1-2007 2012	National Design Standards for Metal Plate Connected Wood Truss Construction	IBC	IRC						

UL Underwriters Laboratories

Standard Reference Number	Title	Referenced in Code(s):							
9−2009	Fire Tests of Window Assemblies~~, with Revisions through April 2005~~	IBC							
14B-2008	Sliding Hardware for Standard Horizontally Mounted Tin Clad Fire Doors ~~– with Revisions through July 2000~~	IBC							
14C-2006	Swinging Hardware for Standard Tin Clad Fire Doors Mounted Singly and in Pairs, with revisions through December 2008	IBC							
17-2008	Vent or Chimney Connector Dampers for Oil-Fired Appliances, with Revisions through January 2010	IRC	IMC						
80-2007	Steel Tanks for Oil-Burner Fuels and Other Combustible Liquids with Revisions through August 2009	IRC	IFC						

103-~~2001~~ 2010	Factory-Built Chimneys, for Residential Type and Building Heating Appliances with Revisions through July 2012	IBC	IMC	IFGC	IRC			
127-~~08~~ 2011	Factory-Built Fireplaces ~~- with Revisions through January 2010~~	IBC	IRC	IMC				
142-06	Steel Aboveground Tanks for Flammable and Combustible Liquids with Revisions through February 2010	IFC						
174-04	Household Electric Storage Tank Water Heaters - with Revisions through ~~May 2006~~ September 2012	IRC	IMC					
180-~~03~~ 2012	Liquid-level Indicating Guarges for Oil Burner Fuels~~- with revision through March 2007~~ and Other Combustible Liquids	IRC	IMC					
197-~~2003~~ 2010	Commercial Electric Cooking Appliances - with revisions through ~~March 2006~~ June 2011	IMC						
217–2006	Single and Multiple Stations Smoke Alarms - with revisions through April ~~2010~~ 2012	IBC	IRC	IFC				
263-~~03~~ 2011	Standard for Fire Test of Building Construction and Materials ~~with revisions through October 2007~~	IBC	IRC	IWUIC	IMC			
294-1999	Access Control Systems Units with Revisions through September 2010	IBC	IFC					
300-2005 (R2010)	Fire Testing of Fire Extinguishing Systems for Protection of Restaurant Cooking Equipment with Revisions through July 16, 2010	IBC	IFC					
305-~~97~~ 2012	Panic Hardware	IBC	IFC					
325-2002	Door, Drapery, Gate, Louver and Window Operators and Systems - with Revisions through	IBC	IFC	IRC				

	~~February 2010~~ January 2012							
372-2007	Automatic Electrical Controls for Household and Similar Use - Part 2: Particular Requirements for Burner Ignition Systems and Components with revisions through July ~~25, 2011~~ 2012	ISPSC						
378-06	Draft Equipment, with Revisions through January 2010	IRC	IMC					
391-~~2006~~ 2010	Solid-Fuel and Combination-Fuel Central and Supplementary Furnaces	IMC						
412-~~2004~~ 2011	Refrigeration Unit Coolers - with Revisions through ~~January 2009~~ August 2012	IMC						
499-05	Electric Heating Appliances-with revisions through ~~January 2009~~ April 2012	IMC						
555–2006	Fire Dampers-with revisions through May ~~2010~~ 2012	IBC	IMC					
555S–1999	Smoke Dampers - with Revisions through May ~~2010~~ 2012	IBC	IMC					
641–~~1995~~ 2010	Type L Low-Temperature Venting Systems ~~- with Revisions through July 2009~~	IBC	IRC	IMC	IFGC			
651–~~05~~ 2011	Schedule 40 and Schedule 80 Rigid PVC Conduit and Fittings with revisions through March ~~2010~~ 2012	IFGC	IRC					
705-2004 Revision 5	Standard for Power Ventilators ~~with revisions through March 2012~~	IMC						
710B-~~2004~~ 2011	Recirculating Systems ~~with Revisions through December 2009~~	IBC	IFC	IMC				
723—08	Standard for Test for Surface Burning Characteristics of Building Materials with Revisions through September 2010	IBC	IFC	IWUIC	IRC			

726-1995	Oil-Fired Boiler Assemblies - with Revisions through April ~~2010~~ 2011	IRC	IMC	IECC				
729-03	Oil-Fired Floor Furnaces with revisions through ~~April 2010~~ August 2012	IRC	IMC					
730-03	Oil-Fired Wall Furnaces ~~with revisions through April 2010~~ August 2012	IRC	IMC					
731-1995	Oil-Fired Unit Heaters with Revisions through ~~April 2010~~ August 2012	IMC	IECC-C					
737-~~07~~ 2011	Fireplaces Stoves~~-with Revisions through January 2010~~	IRC	IMC					
793-08	Automatically Operated Roof Vents For Smoke and Heat with Revisions through September 2011	IBC	IFC					
795-~~2006~~ 2011	Commercial-Industrial Gas Heating Equipment with revisions through ~~April 2010~~ September 2012	IRC	IFGC					
842-07	Valves for Flammable Fluids, with Revisions through April 2011	IRC	IMC					
858-05	Household Electric Ranges - with Revisions through ~~May 2010~~ April 2012	IMC	IRC					
864-03	Standard for Control Units and Accessories for Fire Alarm Systems-with Revisions through ~~February 2010~~ August 2012	IBC	IFC					
867-~~00~~ 2011	Electrostatic Air Cleaners~~-with Revisions through February 2010~~	IMC						
873-2007	Temperature-Indicating and -Regulating Equipment, with revisions through July ~~25, 2011~~ 2012	ISPSC						
875-09	Electric Day Bath Heaters with revisions through ~~October 2009~~ November 2011	IMC	IRC					
896-1993	Oil-Burning Stoves - with Revisions	IRC	IMC					

	through May 2010 August 2012							
900-04	Air Filter Units- with revisions through ~~November 2009~~ February 2012	IFC	IMC					
907-~~94~~ 2010	Fireplace Accessories - with revisions through ~~July 2006~~ April 2010	IMC						
924-06	Emergency Lighting and Power Equipment with revisions through ~~January 2009~~ February 2011	IBC	IFC					
959-~~2001~~ 2010	Medium Heat Appliance Factory-Built Chimneys - ~~with Revisions through June 2010~~	IRC	IMC	IFGC				
1004-1-~~08~~ 2012	Standard for Rotating Electrical Machines General Requirements with revisions through June 23, 2011	ISPSC						
1026-~~07~~ 2012	Electric Household Cooking and Food Services Appliances	IRC						
1037-99	Antitheft Alarms and Devices with Revisions through December 2009	IFC						
1040-1996	Fire Test of Insulated Wall Construction - with Revisions through September 2007 October 2012	IBC	IRC					
1042-~~94~~ 2009	Electric Baseboard Heating Equipment- with revisions through ~~February 2008~~ June 2010	IRC						
1046-~~00~~ 2010	Grease Filters for Exhaust Ducts with revisions through January 2012	IMC						
1081-2008	Standard for Swimming Pool Pumps, Filters and Chlorinators, with revisions through ~~March 31, 2010~~ November 2011	ISPSC						
1240-2005	Electric Commercial Clothes-Drying Equipment - with Revisions through ~~October 2009~~ February 2011	IMC						
1261-2001	Electric Water Heaters for Pools and Tubs - with Revisions through	IRC	IMC	ISPSC				

	~~June 16, 2010~~ July 2012							
1275-2005	Flammable Liquid Storage Cabinets with Revisions through ~~May 2006~~ February 2010	IFC						
1315-~~95~~	Standard for Safety for Metal Waste Paper containers- with Revisions through ~~August 2007~~ September 2012	IFC						
1363-2007	Relocatable Power Taps - with revisions through ~~October 2009~~ September 2012	IFC						
1453-~~04~~	Electric Booster and Commercial Storage Tank Water Heaters - with Revisions through December 2009 July 2011	IRC	IMC					
1482-~~10~~ 2011	Solid-Fuel Type Room Heaters	IBC	IRC	IMC	IgCC			
1563-2009	Standard for Electric Hot Tubs, Spas and Association Equipment with revisions through ~~March 31, 2010~~ July 2012	ISPSC						
1673-~~96~~ 2010	Electric Space Heating Cables-with revision through ~~July 2003~~ October 2011	IRC						
1693-~~02~~ 2010	Electric Radiant Heating Panels and Heating Panel Sets, with Revisions through October 2011	IRC						
1703-02	Flat-plate Photovoltaic Modules and Panels - with revisions through ~~April 2008~~ May 2012	IBC						
1738-~~06~~ 2010	Venting Systems for Gas-Burning Appliances, Categories II, III and IV, with Revisions though May 2011	IRC	IFGC					
1741-~~99~~ 2010	Inverters, Converters, Controllers and Interconnection System Equipment with Distributed	IRC						

	Energy Resources~~-with revisions through November 2005~~							
1815-~~09~~ 2012	Standard for Nonducted Heat Recovery Ventilators	IMC						
1897-~~2004~~ 2012	Uplift Tests for Roof Covering Systems ~~with revisions through May 2008~~	IBC						
1978-~~05~~ 2010	Grease Ducts	IMC						
1994-04	Luminous Egress Path Marking Systems with Revisions through ~~April 2010~~ November 2010	IBC	IFC					
1995-~~2005~~ 2011	Heating and Cooling Equipment~~, with revisions through July 2009~~	IRC	IMC	ISPSC				
1996-~~04~~ 2009	Electric Duct Heaters-with revisions through ~~July 2009~~ November 2011	IRC	IMC					
2017-2008	Standards for General-Purpose Signaling Devices and Systems-with Revisions through ~~October 2009~~ May 2011	IBC	IRC					
2024-~~2008~~ 2011	Standard for Safety Optical-Fiber and Communications Cable Raceway ,with Revisions through April 2011	IMC						
2158-1997	For Electric Clothes Dryers - with Revisions through March 2009	IMC						
2158A-~~2006~~ 2010	Outline of Investigation for Clothes Dryer Transition Duct	IRC	IMC					
2200-~~08~~ 2012	Stationary Engine Generator Assemblies ~~with Revisions through December 2009~~	IBC	IFC	IMC	IFGC			

2208-~~2005~~ 2010	Solvent Distillation Units - with Revisions through ~~December 2009~~ March 2011	IFC						
2221-~~2001~~ 2010	Tests of Fire Resistive Grease Duct Enclosure Assemblies	IMC						
2335-~~01~~ 2010	Fire Tests of Storage Pallets-with Revisions through ~~March 2010~~ September 2012	IFC						
2518-~~02~~ 2005	Air Dispersion System Materials	IMC						
2523-09	Standard for Solid Fuel-Fired Hydronic Heating Appliances, Water Heaters, and Boilers, with Revisions through October 2011	IRC	IgCC	IMC				

ULC/CAN	**Underwriters Laboratories Canada**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
CAN/ULC S102.2-~~1988~~ 2010	Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies ~~- with 2000 Revisions~~	IBC	IRC					

Reason: *The CP 28 Code Development Policy, Section 4.5.1 requires the updating of referenced standards to be accomplished administratively, and be proces as a Code Change Proposal for consideration by the Administrative Code Change Committee. In September 2012, a letter was sent to each developer of standa that is referenced in the International Codes, asking them to provide ICC with a list of their standards in order to update to the current edition. Above is the list of referenced standards that are to be updated based upon responses from standards developer.*

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

Public Hearing Results

Committee Action: **Approved as Modified**

Errata to this proposal is contained in the Updates to the 2013 Proposed Changes posted on the ICC website. Please go to http://www.iccsafe.org/cs/codes/Documents/2012-2014Cycle/Proposed-B/00-CompleteGroupB-MonographUpdates.pdf for more information

The following is errata that was not posted to the ICC website.

ASTM D5019, while withdrawn by ASTM, is still referenced in the IBC and IRC, so it will remain in the list of referenced standards. This standard will be removed from this update proposal.

ASTM	**ASTM International**	
Standard Reference Number	**Title**	**Referenced in Code(s):**
D5019-07a	Specification for Reinforced CSM Polymeric Sheet Used in Roofing Membrane	IBC, IRC

FM 4470 was indicated in the posted errata as being updated to 2013, however, the correct reference is 2012.

FM	FM Global	
Standard Reference Number	**Title**	**Referenced in Code(s):**
FM 4470 ~~2009~~ 2012	Approval Standard for Single-Ply Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction.	IBC

The following revisions are modifications to the proposal.

The following standards were in the automatic update code change proposals. Revise the referenced edition as follows.

AISI	American Iron and Steel Institute	
Standard Reference Number	**Title**	**Referenced in Code(s):**
AISI S110-07/S1-09 (2012)	Standard for Seismic Design of Cold-Formed Steel Structural Systems-Special Moment Frames, 2007 with Supplement 1, dated 2009, (Reaffirmed 2012)	IBC
AISI S210-07 (2012)	North American Standard for Cold-formed Steel Framing-Floor and Roof System Design, 2007, (Reaffirmed 2012)	IBC
AISI S211-07/S1-12 (2012)	North American Standard for Cold-Formed Steel Framing-Wall Stud Design, 2007, including Supplement 1, dated 2012, (Reaffirmed 2012)	IBC
AISI S212-07 (2012)	North American Standard for Cold-Formed Steel Framing-Header Design, 2007, (Reaffirmed 2012)	IBC
AISI S213-07/S1-09 (2012)	North American Standard for Cold-Formed Steel Framing-Lateral Design, with Supplement 1, dated 2009, (Reaffirmed 2012)	IBC
AISI S230-07-07/S2-08 /S3-12 (2012)	Standard for Cold-formed Steel Framing-Prescriptive Method for One- and Two-family Dwellings, 2007, with Supplement 2 3, dated 2008 dated 2012, (Reaffirmed 2012)	IBC, IRC

The following standards will be removed from the automatic update code change proposal. The current edition will remain the referenced edition.

ACI	American Concrete Institute	
Standard Reference Number	**Title**	**Referenced in Code(s):**
318-11	Building Code Requirements for Structural Concrete	IBC, IRC, ISPSC

ICC	International Code Council	
Standard Reference Number	**Title**	**Referenced in Code(s):**
ICC A117.1-2009	Accessible and Useable Buildings and Facilities	IBC, IEBC, IFC, IRC, IZC

The following standard is not referenced and should be removed from the IMC Chapter 15.

NFPA	National Fire Protection Association	
Standard Reference Number	**Title**	**Referenced in Code(s):**
~~NFPA 274-09~~	~~Standard Test Method to Evaluate Fire~~	~~IMC~~

	~~Performance Characteristics of Pipe Insulation~~	

Committee Reason: The proponent indicated that AISI standard references were not revised and updated, but were instead reviewed and reaffirmed in 2012. The committee agreed that it is important to clarify this in the reference.

The committee agreed that the edition of ACI 318 should remain at 2011 instead of being updated to 2014. The specific references to sections in the ACI 318 in the International Codes are coordinated with the 2011 edition. The 2014 edition will be substantially reformatted and renumbered. The 2014 edition must be finalized before it is possible to verify that the references will still be complete and accurate. Some of the revisions to references may be considered technical revisions. This correlation may need to be done as part of the Group A codes changes next cycle. If possible to address this in the public comments for Group B, it should be done.

The committee agreed that the edition of ICC A117.1 should remain 2009 instead of being updated to 2014. The ICC A117.1 is undergoing significant changes in relation to the sizes required for accessibility. At the time of the hearings, the standard has not yet reached the stage of a public draft. Once the revisions are finalized, the scoping requirements in the IBC must be reviewed to understand the full impact on spaces and buildings. Since some of the coordination may include revisions to the codes, the reference of the new edition should be delayed to allow for this coordination effort in the Group A and Group B code change cycles.

The proponent pointed out that NFPA 274 is no longer referenced anywhere in the IMC, however, it is still included in the IMC Chapter 15. Rather than being included in the automatic update proposal, it should be removed from the IMC Chapter 15.

The committee approved the automatic updates for the remainder of the standards listed in the proposal. The proposed updates to the standard are consistent with the ICC policies for updates.

A question was raised during the testimony regarding the updating of NFPA 70, National Electrical Code. NFPA 70 will be automatically updated from the 2011 edition to the 2014 edition. The ICC Board of Directors have identified NFPA 70 as a member of the ICC family of codes, therefore, it will not be indicated in the automatic update proposal.

Assembly Action **None**

Public Comment(s)

Public Comment 1:

Matthew Senecal, P.E., representing the American Concrete Institute (ACI), requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

ACI

318 - ~~11~~ 14 Building Code Requirements for Structural Concrete

Commenter's Reason: At the Dallas Committee Action Hearings, a decision was made to retain the reference to ACI 318-11 instead of updating to the latest edition, ACI 318-14. This was based upon a concern expressed on the floor that, because ACI 318 is going through reorganization, specific ACI 318 section numbers cited within the 2015 IBC may become inconsistent with ACI 318-14, thereby causing confusion to the user..

On July 1, 2013, ACI assembled a task group consisting of the concerned parties to review this issue in detail. The group concluded that If the specific ACI 318 section numbers cited in the 2015 IBC can be editorially changed to the correct ACI 318-14 section numbers, then any potential problem to the user will be avoided.

Editorial changes of this kind are allowed according to Section 4.4 of CP#28. The 318-14 section references compatible with the 2015 IBC have been determined and will be forwarded to ICC Staff for inclusion in the 2015 IBC, and other ICC Codes as appropriate.

It is important to note that there are no technical changes in ACI 318-14 that affect the eight modifications in 2015 IBC Section 1905 or any other provision of the 2015 IBC. This means only the editorial changes discussed above are required to make ACI 318-14 compatible with the 2015 IBC.

ASTM

Public Comment 2:

Marcelo M. Hirschler, representing GBH International, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

E814-~~08b~~ 2013 Test Method of Fire Tests of Through-Penetration Firestops

E1537-~~12~~ 2013	Test Method for Fire Testing of Upholstered Furniture

Commenter's Reason: Standards date updates

Public Comment 3:

Marcelo M. Hirschler, representing GBH International, and Steve Mawn, representing ASTM International, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

D6662-~~09~~ 2013	Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards
E84-20~~12c~~ 2013A	Test Method for Surface Burning Characteristics of Building Materials
E1354-~~2011b~~ 2013	Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter
E1590-~~12~~ 2013	Test Method for Fire Testing of Mattresses
E2404—~~12~~ 2013E1	Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Vinyl Wall or Ceiling Coverings to Assess Surface Burning Characteristics

Commenter's Reason: Standards date updates

Public Comment 4:

Steve Mawn, representing ASTM International, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

A74-~~12~~ 13A	Specification for Cast Iron Soil Pipe and Fittings
A182-~~12A~~ 13	Standard Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings and Valves and Parts for High-Temperature Service
A240/A 240M-~~12~~ 13A	Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications
A283/A 283M-12A	Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
A307-~~10~~ 12	Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
A312/A 312M-~~12A~~ 13A	Specification for Seamless, and Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
A403-~~12~~ 13	Standard Specification for Wrought Austenitic Stainless Steel Pipe Fittings
A480/A480M-~~12~~ 13	Specification for General Requirements for Flat-Rolled Stainless and Heat-/Resisting Steel Plate, Sheet and Strip
A510-~~11~~ 13	Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, Alloy Steel
A572/A 572M-12A	Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
A588/A 588M-~~05~~ 10	Specification for High-Strength Low-Alloy Structural Steel with 50 ksi (345 Mpa) Minimum Yield Point, with Atmospheric Corrosion Resistance
A875/A 875M-~~10~~ 13	Standard Specification for Steel Sheet Zinc-5%, Aluminum Alloy-Coated by the Hot-Dip Process

A888-~~11~~ 13A	Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Application
A924/A 924M-~~2010a~~ 13	Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot Dip Process
A1003/A 1003M-~~12~~ 13A	Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-formed Framing Members
A1008/A1008M-12A	Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, Solution Hardened and Bake Hardenable
B152/B 152M-~~09~~ 13	Specification for Copper Sheet, Strip Plate and Rolled Bar
B241/B 241M-~~10~~ 12E1	Specification for Aluminum and Aluminum-Alloy, Seamless Pipe and Seamless Extruded Tube
B633-~~11~~ 13	Specification for Electodeposited Coatings of Zinc on Iron and Steel
C33/C33M-~~11a~~ 13	Specification for Concrete Aggregates
C34-~~10~~ 12	Specification for Structural Clay Load-Bearing Wall Tile
C42/C 42M-~~12~~ 13	Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
C56-~~2010~~ 12	Specification for Limestone Dimension Stone
C59/C 59M-00~~(2006)~~ (2011)	Specification for Gypsum Casting Plaster and Molding Plaster
C62-~~08~~ 13	Specification for Slate Dimension Stone
C67-~~12~~ 13	Test Methods of Sampling and Testing Brick and Structural Clay Tile
C76-~~12a~~ 13A	Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
C90-~~12~~ 13	Specification for Loadbearing Concrete Masonry Units
C94/C 94M-~~12~~ 13	Specification for Construction of Dry-stacked, Surface-Bonded Walls
C109/C 109M-~~2001b~~ 12	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
C126-~~12~~ 13	Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units
C140-~~2012a~~ 13	Test Method Sampling and Testing Concrete Masonry Units and Related Units
C143/C 143M-~~2010a~~ 12	Test Method for Slump of Hydraulic Cement Concrete
C207- ~~2011~~ 06(2011)	Specification for Hydrated Lime for Masonry Purposes
C216-~~12~~ 13	Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale)
C317/C 317M-00(2010)	Specification for Gypsum Concrete
C330-/C330M-2009	Specification for Lightweight Aggregates for Structural Concrete
C474-~~12~~-13	Test Methods for Joint Treatment Materials for Gypsum Board Construction
C578—12~~a~~b	Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
C587-04(2009)	Specification for Gypsum Veneer Plaster
C595/C95M-~~2012e1~~ 13	Specification for Blended Hydraulic Cements
C615/C615M-~~2011~~ 11	Specification for Granite Dimension Stone
C616/C616M-~~2010~~ 10	Specification for Quartz Dimension Stone

C629- ~~2010~~ 10	Specification for Slate Dimension Stone
C635/C635M-~~12~~ 13	Specification for the Manufacturer, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings
C645-~~11A~~ 13	Specification for Nonstructural Steel Framing Members
C652-~~12~~ 13	Specification for Hollow Brick (Hollow Masonry Units Made from Clay or Shale)
C700-~~11~~ 13	Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated
C728-05 ~~(2010)~~ (2013)	Standard Specification for Perlite Thermal Insulation Board
C926-~~12A~~ 13	Specification for Application of Portland Cement-Based Plaster
C932-06(2013)	Specification for Surface-Applied Bonding Compounds ~~Agents~~ for Exterior Plastering
C933-~~11~~ 13	Specification for Welded Wire Lath
C1019-~~11~~ 13	Test Method for Sampling and Testing Grout
C1029-~~10~~ 13	Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation
C1063-12~~C~~ D	Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
C1072-~~11~~ 13	Standard Text Method for Measurement of Masonry Flexural Bond Strength
C1088-~~09~~ 13	Specification for Thin Veneer Brick Units Made From Clay or Shale
C1107/C1107M -~~11~~ 13	Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
C1116/C1116M-10A	Standard Specification for Fiber - Reinforced Concrete and Shotcrete
C1157/C1157M-11	Standard Performance Specification for Hydraulic Cement
C1173-10E1	Specification for Flexible Transition Couplings for Underground Piping Systems
C1186-08(2012)	Specification for Flat Fiber Cement Sheets
C1277-~~11~~ 12	Specification for Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings
C1280-~~12A~~ 13	Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing
C1289 ~~12a~~ 13E1	Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
C1314-~~11A~~ 12	Test Method for Compressive Strength of Masonry Prisms
C1396/1396M-~~11~~ 2013	Specification for Gypsum Ceiling Board
C1513-~~12~~ 2013	Standard Specification for Concrete Roof Tile
C1563-~~08~~ 2013	Standard Test Method for Gaskets for Use in Connection with Hub and Spigot Cast Iron Soil Pipe and Fittings for Sanitary Drain, Waste, Vent and Storm Piping Applications
D86-~~2011b~~ 2012	Test Method for Distillation of Petroleum Products at Atmospheric Pressure
D92-2012b	Test Method for Flash and Fire Points by Cleveland Open Cup Tester
D93-~~11~~ 2012	Test Method for Flash Point by Pensky-Martens Closed Cup Tester
D1693-~~12~~ 2013	Test Method for Environmental Stress-Cracking of Ethylene Plastics
D1970/D1970M-~~11~~ 2013	Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roof Underlayment for Ice Dam Protection
D2239-2012A	Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter
D2513-~~12~~ 2013E1	Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings

D2683-2010E1	Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing
D2737-2012~~E1~~A	Specification for Polyethylene (PE) Plastic Tubing
D2974-~~07A~~ 2013	Standard Test Methods for Moisture, Ash and Organic Matter of Peat and other Organic Soils
D3035-2012E1	Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter
D3161/D3161M-~~12~~ 2013	Test Method for a Wind Resistance of Asphalt Shingles (Fan Induced Method)
D3201-~~08AE1~~ 2013	Test Method for Hygroscopic Properties of Fire-Retardant Wood and Wood-Based Products
D3350-~~08~~ 2012E1	Specification for Polyethylene Plastics Pipe and Fittings Materials
D3689-~~07~~ 2013E1	Test Methods for Deep Foundations Under Static Axial Tensile Load
D3737-~~09E1~~ 2012	Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam)
D4637/D4637M-~~12~~ 2013	Specification for EPDM Sheet Used in Single-Ply Roof Membrane
D5055-~~12~~ 2013	Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists
D5456-~~12~~ 2013	Standard Specification for Evaluation of Structural Composite Lumber Products
D6223/D6223M-02(~~2009~~)(2011)E1	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements
D6757-~~07~~ 2013	Standard Specification for Underlayment Felt Containing Inorganic Fibers used in Steep-Slope Roofing
E96/E96M-~~10~~ 2013	Test Method for Water Vapor Transmission of Materials
E1332-90(20~~03~~10A)	Standard Classification for the Determination of Outdoor-Indoor Transmission Class
E1529-~~10~~ 2013	Test Method for Determining Effects of Large Hydrocarbon Pool Fires on Structural Members and Assemblies
E1537-~~12~~ 2013	Test Method for Fire Testing of Upholstered Furniture
E1996-2012A	Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes
E2178-~~11~~ 2013	Standard Test Method for Air Permeance of Building Materials
E2307-~~12~~ 2010	Standard Test Method for Determining Fire Resistance of a Perimeter Joint System Between an Exterior Wall Assembly and a Floor Assembly Using the Intermediate-Scale, Multi-story Test Apparatus[1]
E2336-04(2013)	Standard Test Methods Fire Resistive Grease Duct Enclosure Systems
F441/F 441M-~~12~~ 2013	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80
F442/F 442M-~~12~~ 2013	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR)
F714-~~12E1~~ 2013	Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter
F876-~~10E1~~ 2013	Specification for Crosslinked Polyethylene (PEX) Tubing
F877-2011A	Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems
F1055-~~11~~ 2013	Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene Pipe and Tubing
F1496-~~12~~ 2013	Standard Test Method for Performance of Convection Ovens

F1807-~~12~~ 2013	Specifications for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing
F2080-~~09~~ 2012	Specification for Cold-Expansion Fittings with Metal Compression-Sleeves for Cross-linked Polyethylene (PEX) Pipe
F2200—~~11B~~ 2013	Standard Specification for Automated Vehicular Gate Construction
F2306/F 2306M-~~11~~ 2013	Specification for 12" to 60" 300 to 1500 mm annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications

Commenter's Reason: Further revisions to ASTM Standards.

ICC

Public Comment 5:

Jonathan Humble, representing ICC Reference Standards Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

ICC A117.1 – ~~2009~~ 2014	Accessible and Usable Buildings and Facilities

Commenter's Reason (Humble): The ICC Reference Standards Committee (ICC-REF), a committee organized to review standards and provide an opinion of standards compliance based on Council Policy 28, requests that ADM 62-13 be further modified with the incorporation of ICC A117.1-2014 edition.

The ICC-REF disagrees with the ADM code development committee reasons for reverting back to the 2009 edition of ICC A117.1. Contrary to the code development committee's reason concerning significant changes, Section 4.5.1 of the Council Policy does not stipulate any restrictions to modifications to a standards updating. Rather, the intent is that an updated standard should coordinate with the various I-codes in which the standard is referenced. Since this standard is referenced generically in each of the referenced I-codes, and not specifically by individual section number, it is believed that the update will not yield the coordination issues cited in the code development committee's recommendation.

We therefore recommend that ADM62-13 be further modified by the updating of ICC A117.1 to the 2014 edition.

Public Comment 6:

Kenneth Schoonover, KMS Associates, Inc. representing self, requests Approval as Modified by this Public Comment.

Approve the proposed update to ICC/ANSI A117.1-14 for the IBC and the IRC. Retain the reference to ICC/ANSI A117.1-2009 for the IZC, IFC and IEBC.

Commenter's Reason: ICC/ANSI A117.1 Standard is going through its normal revision cycle, which is expected to be complete before the end of this code development cycle. The new edition of A117.1 will be published and available for reference in the 2015 International Codes.

While it is true that there are significant changes, that is not a good reason to freeze the I-Codes reference at the 2009 Edition of the standard. ICC Council Policy #CP28-05 specifically allows an administrative update of a standard to be approved, based upon completion before Dec. 1 of 2014. We anticipate that this standard will be published and available well before December 1, 2014. In writing this rule for completion of a referenced standard a full year after the update is approved, ICC is specifically allowing for completion of technical work on a standard to be completed, with no qualifications regarding the progress of that work. The revisions underway for A117.1 will not impact the content of the 2015 I-Codes. Further, there are a number of reasons why the update to this standard should be approved:

1. If the revisions in question are included in the new standard, there is no good reason not to move forward with them. The changes will have been well vetted, the benefits of the changes have already been established, and the basis for the changes will have been well substantiated.
2. The potential impact on design and construction is no reason delay implementation. It will be several years before the new edition of the I-Codes are widely adopted and enforced. The changes are significant, but not so dramatic as to cause a major upheaval in the design and construction industry. This would not be the first time, or the last, that changes in codes and standards will have had such effect. Designers and builders can and will adapt, and there will be sufficient time to adapt for those who choose to be proactive and plan ahead.
3. There are many other changes and improvements in the standard that will be delayed if the standard is not updated. Among them are revisions that will correlate to a great extent the I-Codes with the new 2010 ADA Standards, which are now adopted and in force. The I-Codes have long sought to be as technically consistent as possible with the ADA Accessibility Guidelines. Designers,

builders and building owners benefit from having model codes that match the federal accessibility requirements. Failure to update the standard will be a lost opportunity to continue that benefit.

4. The A117 Committee has, to date, agreed to minimize the impact of the changes on housing. The proposals under consideration by the committee include exceptions to Chapter 10 of the Standard that will limit the spatial impact Accessible, Type A and Type B units.

Analysis: Availability of older editions of a standard are determined by the policies of the standard promulgator. The IFC references the A117.1 in Sections 907.5.2.3.4 (Visible alarms) Group R-2, 1007.9 (Accessible means of egress) Signage and 1010.1 Ramps. Chapters 9 and 10 are repeated in the IBC and IFC. The IZC references the A117.1 in Sections 801.2.4 and 801.3.1. The references are specific to requirements for passenger loading zones and accessible parking spaces. Accessible parking requirements and passenger loading zones are also addressed in the IBC, Section 1106.

Public Comment 7:

Steve Orlowski, representing National Association of Home Builders (NAHB), and Tim Ryan, representing the International Association of Building Officials (IABO), requests Approved as Modified by the Code Committee.

Commenter's Reason: During the code development hearing, the committee agreed that there was a need to modify the list of referenced standard, specifically the updating of the A117.1 standard. CP policy 28 allows for standards that are already referenced in the I-Codes to be updated, even if they are still under development, provide they are completed before December 1, 2014. There are several standards that have been changed or are currently being changed without any opportunity to determine whether the standard should still be referenced in the code or the ability to change the code to reflect changes that have occurred in the standard.

For example the A117 standard is currently discussing changes that may possibly change the required dimensions of clear floor space and dimensions along the accessible route significantly. Without the opportunity to fully understand how existing buildings that were built in accordance with the previous edition of the standard and how the proposed changes will interact with ADA and FHA requirements, NAHB encourages the final assembly to support the modification approved by the committee to not update the reference to the 2014 A117.1 standard.

Public Comment 8:

Robert Eugene, representing UL LLC, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

705-2004 ~~Revision 5~~ Standard for Power Ventilators <u>with revisions through March 2012</u>

Commenter's Reason: This modification provides no technical change. The re-formatting provides consistency with the formatting of the other UL referenced standards.

Public Comment 9:

Robert Eugene, representing UL LLC, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

1703-02 Flat-plate Photovoltaic Modules and Panels - with revisions through ~~May 2012~~ <u>November 2014</u>

Commenter's Reason: This modification will incorporate additional fire testing provisions. It will also include various clarifications and editorial revisions to the standard.

Public Comment 10:

Robert Eugene, representing UL LLC, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

14B-2008 Sliding Hardware for Standard Horizontally Mounted Tin Clad Fire Doors <u>with revisions through May 3, 2013</u>

14C-2006 Swinging Hardware for Standard Tin Clad Fire Doors Mounted Singly and in Pairs, with revisions through ~~December 2008~~ <u>May 2013</u>

181A-~~05~~ 2013	Closure Systems for Use with Rigid Air Ducts and Air Connectors~~—with Revisions through February 2008~~
181B-~~05~~-2013	Closure Systems for Use with Flexible Air Ducts and Air Connectors~~—with Revisions through February 2008~~
268—~~06~~2009	Smoke Detectors for Fire ~~Prevention Signaling~~ Alarm Systems ~~–with revisions through October 2003~~
325-2002	Door, Drapery, Gate, Louver and Window Operators and Systems - with Revisions through ~~January 2012~~ June 2013
343-2008	Pumps for Oil-Burning Appliances – with revisions through June 2013
441-2010	Gas Vents~~—with Revisions through August 2006~~
471-~~06~~ 2010	Commercial Refrigerators and Freezers—with Revisions through ~~October 2008~~ December 2012
499-05	Electric Heating Appliances-with revisions through ~~April 2012~~ February 2013
508-99	Industrial Control Equipment—with Revisions through ~~September 2008~~ March 2013
641–~~1995~~ 2010	Type L Low-Temperature Venting Systems with revisions through May 2013
710-~~95~~ 2012	Exhaust Hoods for Commercial Cooking Equipment~~—with Revisions through December 2009~~
834-04	Heating, Water Supply and Power Boilers Electric—with Revisions through ~~December 2009~~ January 2013
842-07	Valves for Flammable Fluids, with Revisions through ~~April 2011~~ October 2012
867-~~00~~ 2011	Electrostatic Air Cleaners-with Revisions through February 2013
923—~~2008~~ 2013	Microwave Cooking Appliances~~—with Revisions through June 2010~~
1042-~~94~~ 2009	Electric Baseboard Heating Equipment-with revisions through June ~~2010~~ 2013
1081-2008	Standard for Swimming Pool Pumps, Filters and Chlorinators, with revisions through ~~November 2011~~ May 2013
1240-2012	Electric Commercial Clothes-Drying Equipment - with Revisions through ~~February 2011~~ October 2012
1313-93	Standard for Nonmetallic Safety Cans for Petroleum Products—with Revisions through ~~August 2007~~ November 2012
1479-03	Fire Tests of Through-penetration Firestops—with Revisions through ~~*March 2010*~~ October 2012
1618-09	Wall Protectors, Floor Protectors and Hearth Extensions – with revisions through May 2013
1715-97	Fire Test of Interior Finish Material—with Revisions through ~~April 2008~~ January 2013
1812-~~2009~~ 2013	Standard for Ducted Heat Recovery Ventilators~~—with Revisions through June 2010~~
1820-04	Fire Test of Pneumatic Tubing for Flame and Smoke Characteristics—with Revisions through ~~February 2009~~ May 2013
1887-04	Fire Tests of Plastic Sprinkler Pipe for Visible Flame and Smoke Characteristics—with Revisions through ~~February 2009~~ May 2013
2075-~~04~~ 2013	Standard for Gas and Vapor Detectors and Sensors~~—with revisions through September 2007~~
2079-04	Tests for Fire Resistance of Building Joint Systems—with Revisions through ~~June 2008~~ December 2012
2085-97	Protected Above-ground Tanks for Flammable and Combustible Liquids—with Revisions through ~~December 1999~~ September 2010
2200-2012	Stationary Engine Generator Assemblies-- with Revisions through June 2013
2360-00	Test Methods for Determining the Combustibility Characteristics of Plastics Used in Semi-Conductor Tool Construction—with Revisions through ~~June, 2008~~ May 2013

2523-09	Standard for Solid Fuel-Fired Hydronic Heating Appliances, Water Heaters, and Boilers, with Revisions through ~~October 2011~~ February 2013

Commenter's Reason: This modification provides additional updates to referenced standards revision dates and titles as applicable.

Final Hearing Results

ADM62-13 **AMPC1,2,3,4,8,9,10**