

PREFACE

History

The State of Florida first mandated statewide building codes during the 1970s at the beginning of the modern construction boom. The first law required all municipalities and counties to adopt and enforce one of the four state-recognized model codes known as the “state minimum building codes.” During the early 1990s a series of natural disasters, together with the increasing complexity of building construction regulation in vastly changed markets, led to a comprehensive review of the state building code system. The study revealed that building code adoption and enforcement was inconsistent throughout the state and those local codes thought to be the strongest proved inadequate when tested by major hurricane events. The consequences of the building codes system failure were devastation to lives and economies and a statewide property insurance crisis. The response was a reform of the state building construction regulatory system that placed emphasis on uniformity and accountability.

The 1998 Florida Legislature amended Chapter 553, *Florida Statutes* (FS), Building Construction Standards, to create a single state building code that is enforced by local governments. As of March 1, 2002, the *Florida Building Code*, which is developed and maintained by the Florida Building Commission, supersedes all local building codes. The Florida Building Code is updated every three years and may be amended annually to incorporate interpretations and clarifications.

Scope

The *Florida Building Code* is based on national model building codes and national consensus standards which are amended where necessary for Florida’s specific needs. The code incorporates all building construction-related regulations for public and private buildings in the State of Florida other than those specifically exempted by Section 553.73, Florida Statutes. It has been harmonized with the *Florida Fire Prevention Code*, which is developed and maintained by the Department of Financial Services, Office of the State Fire Marshal, to establish unified and consistent standards.

†† The base codes for the 2007 edition of the *Florida Building Code* include: the *International Building Code*®, 2006 edition; the *International Plumbing Code*®, 2006 edition; the *International Mechanical Code*®, 2006 edition; the *International Fuel Gas Code*®, 2006 edition; the *International Residential Code*®, 2006 edition; the *International Existing Building Code*®, 2006 edition; the *National Electrical Code*, 2008 edition; the U. S. Department of Housing and Urban Development, *Fair Housing Guidelines*, and; substantive criteria from the American Society of Heating, Refrigerating and Air-conditioning Engineers’ (ASHRAE) Standard 90.1-2004. State and local codes adopted and incorporated into the code include the *Florida Energy Efficiency Code for Building Construction*, the *Florida Accessibility Code for Building Construction* and special hurricane protection standards for the high-velocity hurricane zone.

†† The code is composed of seven main volumes: the *Florida Building Code, Building*, which also includes Chapter 13 (energy efficiency) and Chapter 11 (accessibility) as well as state regulations for licensed facilities; the *Florida Building Code, Plumbing*; the *Florida Building Code, Mechanical*; the *Florida Building Code, Fuel Gas*; the *Florida Existing Building Code*; the *Florida Building Code, Residential*; and the *Florida Building Code, Test Protocols for High-Velocity Hurricane Zones*. Chapter 27 of the *Florida Building Code, Building*, adopts the *National Electrical Code*, NFPA 70, by reference.

Under certain strictly defined conditions, local governments may amend requirements to be more stringent than the code. All local amendments to the *Florida Building Code* must be adopted by local ordinance and reported to the Florida Building Commission then posted on www.floridabuilding.org in Legislative format for a month before being enforced. Local amendments to the *Florida Building Code* and the *Florida Fire Prevention Code* may be obtained from the Florida Building Commission web site, or from the Florida Department of Community Affairs or the Florida Department of Financial Services, Office of the State Fire Marshal, respectively.

Adoption and Maintenance

The *Florida Building Code* is adopted and updated with new editions triennially by the Florida Building Commission. It is amended annually to incorporate interpretations, clarifications and to update standards. Minimum requirements for permitting, plans review and inspections are established by the code, and local jurisdictions may adopt additional administrative requirements that are more stringent. Local technical amendments are subject to strict criteria established by Section 553.73, F.S. They are subject to commission review and adoption into the code or repeal when the code is updated triennially and are subject to appeal to the Commission according to the procedures established by Section 553.73, F.S.

Ten Technical Advisory Committees (TACs), which are constituted consistent with American National Standards Institute (ANSI) Guidelines, review proposed code changes and clarifications of the code and make recommendations to the Commission. These TACs whose membership is constituted consistent with American National Standards Institute (ANSI) Guidelines include: Accessibility; Joint Building Fire (a joint committee of the Commission and the State Fire Marshal); Building Structural; Code Administration/ Enforcement; Electrical; Energy; Mechanical; Plumbing and Fuel Gas; Roofing; and Special Occupancy (state agency construction and facility licensing regulations).

The Commission may only issue official code clarifications using procedures of Chapter 120, Florida Statutes. To obtain such a clarification, a request for a Declaratory Statement (DEC) must be made to the Florida Building Commission in a manner that establishes a clear set of facts and circumstances and identifies the section of the code in question. Requests are analyzed by staff, reviewed by the appropriate Technical Advisory Committee, and sent to the Florida Building Commission for a first action. Draft Declaratory Statements are subject to public comment and are finalized by the Commission at its next meeting. These interpretations establish precedents for situations having similar facts and circumstances and are typically incorporated into the code in the next code amendment cycle. Non-binding opinions are available from the Building Officials Association of Florida's web site (www.BOAF.net) and a Binding Opinion process is available online at www.floridabuilding.org.

Letter Designations in Front of Section Numbers

In each code development cycle, proposed changes to the code are considered at the Code Development Hearings by the International Existing Building Code Development Committee, whose action constitutes a recommendation to the voting membership for final action on the proposed change. Proposed changes to a code section that has a number beginning with a letter in brackets are considered by a different code development committee. For example, proposed changes to code sections that have [B] in front of them (e.g. [B] 302.2) are considered by the ICC Building Code Development Committee at the code development hearings.

The content of sections in this code that begin with a letter designation are maintained by another code development committee in accordance with the following:

- [B] = International Building Code Development Committee.
- [E] = International Energy Conservation Code Development Committee;
- [EL] = ICC Electrical Code Development Committee;
- [F] = International Fire Code Development Committee;
- [FG] = International Fuel Gas Code Development Committee;
- [M] = International Mechanical Code Development Committee; and
- [P] = International Plumbing Code Development Committee.

Marginal Markings

Vertical lines in the margins within the body of the code indicate a change from the requirements of the base codes to the 2007 *Florida Building Code* effective March 1, 2009.

Sections deleted from the base code are designated "Reserved."

* An * inserted in the margin indicates a change from the 2007 *Florida Building Code* to the 2009 *Florida Building Code* revisions, effective March 1, 2009.

** An ** inserted in the margin indicates a change from the 2007 *Florida Building Code* to the 2009 *Florida Building Code* revisions, effective October 1, 2009.

Acknowledgments

The *Florida Building Code* is produced through the efforts and contributions of building designers, contractors, product manufacturers, regulators and other interested parties who participate in the Florida Building Commission's consensus processes, Commission staff and the participants in the national model code development processes.

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CHAPTER 2

DEFINITIONS

SECTION 201 GENERAL

201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

201.2 Interchangeability. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the other *Florida Building Code* or the *Florida Fire Prevention Code*. Such terms shall have the meanings ascribed to them in those codes.

201.4 Terms not defined. Where terms are not defined through the methods authorized by this chapter, such terms shall have the meanings as defined in *Webster's Third New International Dictionary of the English Language, Unabridged*.

SECTION 202 GENERAL DEFINITIONS

ADDITION. An extension or increase in floor area, number of stories, or height of a building or structure.

ALTERATION. Any construction or renovation to an existing structure other than a repair or addition. Alterations are classified as Level 1, Level 2, and Level 3.

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.

CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code.

CONVENTIONAL LIGHT-FRAME CONSTRUCTION

Limitations. Buildings are permitted to be constructed in accordance with the provisions of conventional light-frame construction, subject to the following limitations:

1. Buildings shall be limited to a maximum of three stories above grade.

Exception: Solid blocked cripple walls not exceeding 14 inches (356 mm) in height need not be considered a story.

2. Bearing wall floor-to-floor heights shall not exceed 10 feet (3048 mm).
3. Loads as determined in Chapter 16 of the *Florida Building Code, Building* shall not exceed the following:
 - 3.1. Average dead loads shall not exceed 15 psf (718 N/m²) for roofs and exterior walls, floors and partitions.

- 3.2. Live loads shall not exceed 40 psf (1916 N/m²) for floors.

4. Wind speeds shall not exceed 100 mph (45 m/s)(3-second gust).
5. Roof trusses and rafters shall not span more than 40 feet (12 192 mm) between points of vertical support.

DANGEROUS. Any building or structure or any individual member with any of the structural conditions or defects described below shall be deemed dangerous:

1. The stress in a member or portion thereof due to all factored dead and live loads is more than one and one third the nominal strength allowed in the *Florida Building Code, Building* for new buildings of similar structure, purpose, or location.
2. Any portion, member, or appurtenance thereof likely to fail, or to become detached or dislodged, or to collapse and thereby injure persons.
3. Any portion of a building, or any member, appurtenance or ornamentation on the exterior thereof is not of sufficient strength or stability, or is not anchored, attached or fastened in place so as to be capable of resisting a wind pressure of two thirds of that specified in the *Florida Building Code, Building* for new buildings of similar structure, purpose or location without exceeding the nominal strength permitted in the *Florida Building Code, Building* for such buildings.
4. The building, or any portion thereof, is likely to collapse partially or completely because of dilapidation, deterioration or decay; construction in violation of the *Florida Building Code, Building*; the removal, movement or instability of any portion of the ground necessary for the purpose of supporting such building; the deterioration, decay or inadequacy of its foundation; damage due to fire, wind or flood; or any other similar cause.
5. The exterior walls or other vertical structural members list, lean or buckle to such an extent that a plumb line passing through the center of gravity does not fall inside the middle one third of the base.

EQUIPMENT OR FIXTURE. Any plumbing, heating, electrical, ventilating, air conditioning, refrigerating and fire protection equipment, and elevators, dumb waiters, escalators, boilers, pressure vessels and other mechanical facilities or installations that are related to building services. Equipment or fixture shall not include manufacturing, production or process equipment, but shall include connections from building service to process equipment.

EXISTING BUILDING. A building or structure or portion of a building or structure which has been previously legally occupied or used for its intended purpose.

FLOOD HAZARD AREA. See Section 501.4.

HISTORIC BUILDING. See Section 1102.

INCIDENTAL USE AREA. In cases where use is incidental to some other occupancy, the section of this code governing the occupancy shall apply.

LOAD-BEARING ELEMENT. Any column, girder, beam, joist, truss, rafter, wall, floor or roof sheathing that supports any vertical load in addition to its own weight or any lateral load.

PRIMARY FUNCTION. A primary function is a major activity for which the facility is intended. Areas that contain a primary function include, but are not limited to, the customer services lobby of a bank, the dining area of a cafeteria, the meeting rooms in a conference center, as well as offices and other work areas in which the activities of the public accommodation or other private entity using the facility are carried out. Mechanical rooms, boiler rooms, supply storage rooms, employee lounges or locker rooms, janitorial closets, entrances, corridors and restrooms are not areas containing a primary function.

REHABILITATION. Any work, as described by the categories of work defined herein, undertaken in an existing building.

REHABILITATION, SEISMIC. Reserved.

REPAIR. The patching, restoration and/or minor replacement of materials, elements, components, equipment and/or fixtures for the purposes of maintaining such materials, elements, components, equipment and/or fixtures in good or sound condition.

RETROFIT. The voluntary process of strengthening or improving buildings or structures, or individual components of buildings or structures, for the purpose of making existing conditions better serve the purpose for which they were originally intended or the purpose that current building codes intend.

ROOF SECTION. A separation or division of a roof area by existing expansion joints, parapet walls, flashing (excluding valley), difference of elevation (excluding hips and ridges), roof type or legal description; not including the roof area required for a proper tie-off with an existing system.

SEISMIC LOADING. Reserved.

SITE BUILT SINGLE-FAMILY RESIDENTIAL STRUCTURES. This term shall mean site built single-family detached residential structures.

STRUCTURAL DETERMINATION. For purposes of this code, “structural” shall mean any part, material or assembly of a building or structure which affects the safety of such building or structure and/or which supports any dead or designed live load and the removal of which part, material or assembly could cause, or be expected to cause, all or any portion to collapse or fail.

SUBSTANTIAL DAMAGE. See Section 3110 of the *Florida Building Code, Building*.

SUBSTANTIAL IMPROVEMENT. See Section 3109.2 of the *Florida Building Code, Building*.

SUBSTANTIAL STRUCTURAL DAMAGE. A condition where:

1. In any story, the elements of the lateral-force-resisting system have suffered damage such that the lateral load-carrying capacity of the structure in any horizontal direction has been reduced by more than 20 percent from its predamaged condition, or
2. The capacity of any vertical load-carrying component, or any group of such components, that supports more than 30 percent of the total area of the structure’s floor(s) and roof(s) has been reduced more than 20 percent from its predamaged 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 the *Florida Building Code, Building* for new buildings of similar structure, purpose and location.

SUNROOM

1. A room with roof panels that includes sloped glazing that is a one-story structure added to an existing dwelling with an open or glazed area in excess of 40 percent of the gross area of the sunroom structure’s exterior walls and roof.
2. A one-story structure added to a dwelling with structural roof panels without sloped glazing. The sunroom walls may have any configuration, provided the open area of the longer wall and one additional wall is equal to at least 65 percent of the area below 6 feet 8 inches (2032 mm) of each wall, measured from the floor.

For the purposes of this code, the term “sunroom” as used herein shall include conservatories, sunspaces, solariums and porch or patio covers or enclosures.

TECHNICALLY INFEASIBLE. An alteration of a building or a facility that has little likelihood of being accomplished because the existing structural conditions require the removal or alteration of a load-bearing member that is an essential part of the structural frame or because other existing physical or site constraints prohibit modification or addition of elements, spaces, or features that are in full and strict compliance with the minimum requirements for new construction and that are necessary to provide accessibility.

UNSAFE BUILDINGS OR EQUIPMENT. Buildings or existing equipment that is insanitary or deficient because of inadequate means of egress facilities, inadequate light and ventilation, or that constitutes a fire hazard, or that is otherwise dangerous to human life or the public welfare or that involves illegal or improper occupancy or inadequate maintenance, shall be deemed an unsafe condition.

VALUE. The estimated current replacement cost of the building in kind.

WORK AREA. That portion or portions of a building consisting of all reconfigured elements, systems or spaces as indicated on the construction documents. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.

[FG] 305.7 Fuel gas. It shall be unlawful to make a change in the occupancy of a structure that will subject the structure to the special provisions of the *Florida Building Code, Fuel Gas* applicable to the new occupancy without approval. The code official shall certify that the structure meets the intent of the provisions of law governing building construction for the proposed new occupancy and that such change of occupancy does not result in any hazard to the public health, safety or welfare.

[M] 305.8 Mechanical. It shall be unlawful to make a change in the occupancy of a structure that will subject the structure to the special provisions of the *Florida Building Code, Mechanical* applicable to the new occupancy without approval. The code official shall certify that the structure meets the intent of the provisions of law governing building construction for the proposed new occupancy and that such change of occupancy does not result in any hazard to the public health, safety or welfare.

[P] 305.9 Plumbing. It shall be unlawful to make a change in the occupancy of a structure that will subject the structure to the special provisions of the *Florida Building Code, Plumbing* applicable to the new occupancy without approval. The code official shall certify that the structure meets the intent of the provisions of law governing building construction for the proposed new occupancy and that such change of occupancy does not result in any hazard to the public health, safety or welfare.

**[B] SECTION 306
HISTORIC BUILDINGS
SEE CHAPTER 11**

**[B] SECTION 307
MOVED STRUCTURES**

307.1 Conformance. See Chapter 12.

**[B] SECTION 308
ACCESSIBILITY FOR EXISTING BUILDINGS**

* See Chapter 11 of the *Florida Building Code, Building*.

**SECTION 309
ENERGY CONSERVATION**

See Chapter 13 of the *Florida Building Code, Building*.

**SECTION 310
REROOFING**

See Section 611, Reroofing of this code.

CHAPTER 4

CLASSIFICATION OF WORK

SECTION 401 GENERAL

401.1 Scope. The provisions of this chapter shall be used in conjunction with Chapters 5 through 12 and shall apply to the alteration, repair, addition and change of occupancy of existing structures, including historic and moved structures, as referenced in Section 101.5.2. The work performed on an existing building shall be classified in accordance with this chapter.

401.1.1 Compliance with other alternatives. Alterations, repairs, additions and changes of occupancy to existing structures shall comply with the provisions of Chapters 4 through 12 or with one of the alternatives provided in Section 101.5. For reroofing see Section 611 of this code.

401.2 Work area. The work area, as defined in Chapter 2, shall be identified on the construction documents.

401.3 Occupancy and use. When determining the appropriate application of the referenced sections of this code, the occupancy and use of a building shall be determined in accordance with Chapter 3 of the *Florida Building Code, Building*.

401.4 A design professional or an owner must elect one or a combination of levels of alteration pursuant to Sections 403, 404 and 405 of this code.

SECTION 402 REPAIRS

402.1 Scope. Repairs, as defined in Chapter 2, include the patching or restoration or replacement of damaged materials, elements, equipment or fixtures for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements.

402.2 Application. Repairs shall comply with the provisions of Chapter 5.

402.3 Related work. 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 provisions of Chapter 6, 7, 8, 9 or 10.

SECTION 403 ALTERATION—LEVEL 1

403.1 Scope. Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose. Level 1 alterations shall not include any removal, replacement or covering of existing materials, elements, equipment or fixtures undertaken for purpose of repair as defined in Chapter 2 and described in Section 402.

403.2 Application. Level 1 alterations shall comply with the provisions of Chapter 6.

SECTION 404 ALTERATION—LEVEL 2

404.1 Scope. Level 2 alterations include the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.

404.2 Application. Level 2 alterations shall comply with the provisions of Chapter 6 for Level 1 alterations as well as the provisions of Chapter 7.

SECTION 405 ALTERATION—LEVEL 3

405.1 Scope. Level 3 alterations apply where the work area exceeds 50 percent of the aggregate area of the building and made within any 12-month period.

Exception: Work areas in which the alteration work is exclusively plumbing, mechanical or electrical shall not be included in the computation of total area of all work areas.

405.2 Application. Level 3 alterations shall comply with the provisions of Chapters 6 and 7 for Level 1 and 2 alterations, respectively, as well as the provisions of Chapter 8.

SECTION 406 CHANGE OF OCCUPANCY

406.1 Scope. Change of occupancy provisions apply where the activity is classified as a change of occupancy as defined in Chapter 2.

406.2 Application. Changes of occupancy shall comply with the provisions of Chapter 9.

SECTION 407 ADDITIONS

407.1 Scope. Provisions for additions shall apply where work is classified as an addition as defined in Chapter 2.

407.2 Application. Additions to existing buildings shall comply with the provisions of Chapter 10.

SECTION 408 HISTORIC BUILDINGS

408.1 Scope. Historic buildings provisions shall apply to buildings classified as historic as defined in Chapter 11.

408.2 Application. Except as specifically provided for in Chapter 11, historic buildings shall comply with applicable provisions of this code for the type of work being performed.

**SECTION 409
RELOCATED BUILDINGS**

409.1 Scope. Relocated buildings provisions shall apply to relocated or moved buildings.

409.2 Application. Relocated buildings shall comply with the provisions of Chapter 12.

**SECTION 410
RETROFITTING**

410.1 Scope. Retrofitting of buildings, as defined in Chapter 2, includes work of a voluntary nature for the purposes of improving the ability of the building or building elements or building components to better serve the purpose for which they were originally intended or the purpose that current building codes intend. Retrofit work shall not include repair work as defined in Chapter 2 and described in Section 402.1.

410.2 Application. Retrofitting of existing buildings shall comply with the provisions of Chapter 16.

CHAPTER 5

REPAIRS

SECTION 501 GENERAL

501.1 Scope. Repairs as described in Section 402 shall comply with the requirements of this chapter. Repairs to historic buildings shall comply with this chapter, except as modified in Chapter 11.

501.2 Permitted materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted, provided no hazard to life, health or property is created.

Exception: Repairs to a historic building shall be permitted using original or like materials. Materials shall comply with Sections 502.1, 502.2 and 502.3.

501.3 Conformance. The work shall not make the building less conforming than it was before the repair was undertaken.

501.4 Flood hazard areas.

501.4.1 Structure seaward of a coastal construction line. Structures located seaward of the coastal construction line shall be designed to resist the predicted forces of a 100-year storm event in accordance with Section 3109 of the *Florida Building Code, Building*.

501.4.2 Floodplain construction. This code specifically defers to the authority granted to local government by Title 44 CFR, Sections 59 and 60. This code is not intended to supplant or supercede local ordinances adopted pursuant to that authority, nor are local floodplain management ordinances to be deemed amendments to the code.

501.5 Dangerous buildings. When an historic building is determined as dangerous, no work shall be required except as necessary to correct identified dangerous conditions.

SECTION 502 BUILDING ELEMENTS AND MATERIALS

502.1 Hazardous materials. Hazardous materials that are no longer permitted, such as asbestos and lead-based paint, shall not be used.

502.2 Glazing in hazardous locations. Replacement glazing in hazardous locations shall comply with the safety glazing requirements of the *Florida Building Code, Building* as applicable.

Exception: Glass block walls, louvered windows, and jalousies repaired with like materials.

502.3 Replacement. For repairs in an historic building, replacement or partial replacement of existing or missing features that match the original in configuration, height, size and original methods of construction shall be permitted.

Exception: Glazing in hazardous locations shall comply with Section 502.2.

SECTION 503 FIRE PROTECTION

503.1 General. Repairs shall be done in a manner that maintains the level of fire protection provided.

SECTION 504 MEANS OF EGRESS

504.1 General. Repairs shall be done in a manner that maintains the level of protection provided for the means of egress.

SECTION 505 ACCESSIBILITY

505.1 General. Repairs shall be done in accordance with Chapter 11 of the *Florida Building Code, Building*.

SECTION 506 STRUCTURAL

506.1 General. Repairs of structural elements shall comply with this section.

506.1.1 Nonstructural repairs exclusive of fixtures and furniture, the cost of which does not exceed 25 percent of the replacement value of the existing building or structure, with the approval of the building official, may be made of the same material of which the building or structure is constructed.

Exception: Historic buildings shall comply with Section 502.3.

506.1.1.1 Evaluation and design procedures. Reserved.

506.1.1.2 IBC level seismic forces. Reserved.

Table 506.1.1.2 FEMA 356 and ASCE 31 Performance Levels. Reserved.

506.1.1.3 Reduced IBC level seismic forces. Reserved.

506.1.2 Wind design. Wind design of existing buildings shall be in accordance with the building codes that were in effect when the building was permitted.

506.2 Repairs to damaged buildings. Repairs to damaged buildings shall comply with this section and Section 611, Reroofing.

506.2.1 Dangerous conditions. Regardless of the extent of structural damage, dangerous conditions shall be eliminated.

506.2.2 Substantial structural damage to elements of the lateral-force-resisting system. A building that has sustained substantial structural damage to the elements of its lateral-force-resisting system shall be evaluated and

repaired in accordance with the applicable provisions of Sections 506.2.2.1 through 506.2.2.3.

506.2.2.1 Evaluation. The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the code official. The evaluation shall establish whether the damaged building, if repaired to its predamaged state, would comply with the provisions of the codes that were in effect when the building was permitted. Wind forces for this evaluation shall be those prescribed in the codes that were in effect when the building was permitted.

506.2.2.2 Extent of repair for compliant buildings. If the evaluation establishes compliance of the predamaged building in accordance with Section 506.2.2.1, repairs shall be permitted that restore the building to its predamaged state using materials and strengths that existed prior to the damage.

506.2.2.3 Extent of repair for noncompliant buildings. If the evaluation does not establish compliance of the predamaged building in accordance with Section 506.2.2.1, the building shall be rehabilitated to comply with applicable provisions of the *Florida Building Code, Building* for load combinations, including wind. The wind design level 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 design level shall be as required by the code in effect at the time of original construction or as required by the *Florida Building Code, Building*, whichever is greater. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of the *Florida Building Code, Building* for new buildings of similar structure, purpose and location.

506.2.3 Substantial structural damage to vertical load-carrying components. Vertical load-carrying components that have sustained substantial structural damage shall be rehabilitated to comply with the applicable provisions for dead and live loads in the *Florida Building Code, Building*. Undamaged vertical load-carrying components that receive dead or live loads from rehabilitated components shall also be rehabilitated 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 the *Florida Building Code, Building* for new buildings of similar structure, purpose and location.

506.2.3.1 Lateral-force-resisting elements. Regardless of the level of damage to elements of the lateral-force-resisting system, if substantial structural damage to vertical load-carrying components was caused primarily by wind effects, then the building shall be evaluated in accordance with Section 506.2.2.1 and, if noncompliant, rehabilitated in accordance with Section 506.2.2.3.

506.2.4 Less than substantial structural damage. For damage less than substantial structural damage, repairs shall be allowed that restore the building to its predamaged state using materials and strengths that existed prior to the damage. New structural members and connections used for

this repair shall comply with the detailing provisions of the *Florida Building Code, Building* for new buildings of similar structure, purpose and location.

506.2.5 Flood hazard areas. See Section 501.4.

SECTION 507 ELECTRICAL

507.1 Material. Existing electrical wiring and equipment undergoing repair shall be allowed to be repaired or replaced with like material in accordance with Chapter 27 of the *Florida Building Code, Building*.

Exception: Existing electrical wiring and equipment undergoing repair shall be permitted to be repaired or replaced with like material.

507.1.1 Receptacles. Replacement of electrical receptacles shall comply with the applicable requirements of Chapter 27 of the *Florida Building Code, Building*.

507.1.2 Plug fuses. Plug fuses of the Edison-base type shall be used for replacements only where there is no evidence of over fusing or tampering per applicable requirements of Chapter 27 of the *Florida Building Code, Building*.

507.1.3 Nongrounding-type receptacles. For replacement of nongrounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system or to any accessible point on the grounding electrode conductor in accordance with Chapter 27 of the *Florida Building Code, Building*.

507.1.4 Group I-2 receptacles. Non-“hospital grade” receptacles in patient bed locations of Group I-2 shall be replaced with “hospital grade” receptacles, as required by NFPA 99 and Chapter 27 of the *Florida Building Code, Building*.

507.1.5 Grounding of appliances. Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers and outlet or junction boxes that are part of the existing branch circuit for these appliances shall be permitted to be grounded to the grounded circuit conductor in accordance with Chapter 27 of the *Florida Building Code, Building*.

SECTION 508 MECHANICAL

508.1 General. Existing mechanical systems undergoing repair shall comply with Section 301.11 of the *Florida Building Code, Mechanical* and shall not make the building less conforming than it was before the repair was undertaken.

**SECTION 509
PLUMBING**

509.1 Materials. Plumbing materials and supplies shall not be used for repairs that are prohibited in the *Florida Building Code, Plumbing*.

509.2 Plumbing fixture replacement. When any plumbing fixture is replaced, the replacement plumbing fixture shall comply with the *Florida Building Code, Plumbing*.

Exception: Blowout-design water closets [3.5 gallons (13 L) per flushing cycle].

CHAPTER 6

ALTERATIONS—LEVEL 1

SECTION 601 GENERAL

601.1 Scope. Level 1 alterations as described in Section 403 shall comply with the requirements of this chapter. Level 1 alterations to historic buildings shall comply with this chapter, except as modified in Chapter 11.

601.2 Conformance. An existing building or portion thereof shall not be altered such that the building becomes less safe or energy efficient than its existing condition. If in the alteration the current level of safety or sanitation is to be reduced, the portion altered shall conform to the requirements of the *Florida Building Code, Building*.

601.3 Flood hazard areas. See Section 501.4.

SECTION 602 BUILDING ELEMENTS AND MATERIALS

602.1 Interior finishes. All newly installed interior finishes shall comply with the flame spread requirements of the *Florida Building Code, Building*.

602.2 Carpeting. New carpeting used as an interior floor finish material shall comply with the radiant flux requirements of the *Florida Building Code, Building*.

602.3 Materials and methods. All new work shall comply with materials and methods requirements in Chapter 27 of the *Florida Building Code, Building*, *Florida Building Code, Building*, Chapter 13 of the *Florida Building Code, Building*, *Florida Building Code, Mechanical*, and *Florida Building Code, Plumbing*, as applicable, that specify material standards, detail of installation and connection, joints, penetrations and continuity of any element, component or system in the building.

[FG] 602.3.1 Florida Building Code, Fuel Gas. The following sections of the *Florida Building Code, Fuel Gas* shall constitute the fuel gas materials and methods requirements for Level 1 alterations.

1. All of Chapter 3, titled “General Regulations,” except Sections 303.7 and 306.
2. All of Chapter 4, titled “Gas Piping Installations,” except Sections 401.8 and 402.3.
 - 2.1. Sections 401.8 and 402.3 shall apply when the work being performed increases the load on the system such that the existing pipe does not meet the size required by code. Existing systems that are modified shall not require resizing as long as the load on the system is not increased and the system length is not increased even if the altered system does not meet code minimums.

3. All of Chapter 5, titled “Chimneys and Vents.”
4. All of Chapter 6, titled “Specific Appliances.”

SECTION 603 FIRE PROTECTION

603.1 General. Alterations shall be done in a manner that maintains the level of fire protection provided.

SECTION 604 MEANS OF EGRESS

604.1 General. Means of egress for buildings undergoing alteration shall comply with the requirements of Section 601.1 and the scoping provisions of Chapter 1 where applicable.

Exception: Door and window dimensions. In residential dwellings and dwelling units, a maximum of 5 percent reduction in the clear opening dimensions of replacement doors and windows shall be allowed.

SECTION 605 ACCESSIBILITY

605.1 Accessibility shall be in accordance with Chapter 11 of the *Florida Building Code, Building*.

605.1.1 Entrances. Reserved.

605.1.2 Elevators. Reserved.

605.1.3 Platform lifts. Reserved.

605.1.4 Ramps. Reserved.

605.1.5 Dining areas. Reserved.

605.1.6 Performance areas. Reserved.

605.1.7 Jury boxes and witness stands. Reserved.

605.1.8 Dwelling or sleeping units. Reserved.

605.1.9 Toilet rooms. Reserved.

605.1.10 Dressing, fitting and locker rooms. Reserved.

605.1.11 Thresholds. Reserved.

605.1.12 Extent of application. Reserved.

605.2 Alterations affecting an area containing a primary function. Reserved.

SECTION 606 STRUCTURAL

606.1 General. Where alteration work includes replacement of equipment that is supported by the building or where a

reroofing permit is required, the structural provisions of this section shall apply.

606.2 Design criteria. Existing structural components supporting alteration work shall comply with this section.

Exception: Nonstructural alterations exclusive of fixtures and furniture, the cost of which does not exceed 25 percent of the replacement value of the existing building or structure, with the approval of the building official may be made of the same material of which the building or structure is constructed.

606.2.1 Addition or replacement of roofing or replacement of equipment. Where addition or replacement of roofing or replacement of equipment results in additional dead loads, structural components supporting such reproofing or equipment shall comply with the vertical load requirements of the *Florida Building Code*.

Exceptions:

1. Structural elements where the additional dead load from the roofing or equipment is not increased by more than 5 percent.
2. Buildings constructed in accordance with the *Florida Building Code, Residential* or the conventional construction methods of the *Florida Building Code* and where the additional dead load from the roofing or equipment is not increased by more than 5 percent.
3. Addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing, single layer of roof covering shall be permitted.

606.2.2 Parapet bracing and wall anchors for reroof permits. Reserved.

606.3 Roof diaphragm. Where roofing materials are removed from more than 50 percent of the roof diaphragm of a building or section of a building where the roof diaphragm is a part of the main windforce-resisting system the integrity of the roof diaphragm shall be evaluated and if found deficient because of insufficient or deteriorated connections, such connections shall be provided or replaced.

606.4 Replacement of windows and doors. The replacement of garage doors, exterior doors, skylights, operative and inoperative windows shall be designed and constructed to comply with Chapter 16 of the *Florida Building Code, Building*.

Exceptions:

1. Opening protection exception: For one- and two-family dwellings constructed under codes other than the *Florida Building Code* and located in wind-borne debris regions, the replacement of garage doors and exterior doors with glazing, sliding glass doors, glass patio doors, skylights and operable and inoperable windows within any 12-month period shall not be required to have opening protection but shall be designed for wind pressures for enclosed buildings, provided the aggregate area of the glazing in the replaced components does not exceed 25 percent of the aggregate area of the glazed openings in the dwelling or dwelling unit.

2. Opening protection exception for High-Velocity Hurricane Zones: For one- and two-family dwellings constructed under codes prior to September 1, 1994, the replacement of exterior doors with glazing, sliding glass doors, glass patio doors, skylights and operable and inoperable windows within any 12-month period shall not be required to have opening protection, provided the aggregate area of the glazing in the replaced components does not exceed 25 percent of the aggregate area of the glazed openings in the dwelling or dwelling unit.

606.5 Openings in sunrooms, enclosed balconies and enclosed porches constructed under existing roofs or decks are not required to be protected, provided the space is separated from the building interior by a wall and all openings in the separating wall are protected in accordance with Section 1609.1.2 of the *Florida Building Code, Building*. Such spaces shall be permitted to be designed as enclosed or partially enclosed. (High-Velocity Hurricane Zones must comply with Chapter 16 of the *Florida Building Code, Building*.)

**SECTION 607
ENERGY CONSERVATION
RESERVED
(See Section 612)**

**SECTION 608
ELECTRICAL**

608.1 Residential R-3 occupancies.

608.1.1 Existing wiring and equipment. Existing electrical wiring and equipment undergoing repair shall be permitted to be repaired or replaced with like material.

608.1.2 Replacement of receptacles. For replacement of nongrounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system or to any accessible point on the grounding electrode conductor, in accordance with Article 250.130 (C) of Chapter 27 of the *Florida Building Code, Building*.

608.1.3 Appliances. Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers and outlet or junction boxes that are part of the existing branch circuit for these appliances shall be permitted to be grounded to the grounded circuit conductor in accordance with Article 250.140 of Chapter 27 of the *Florida Building Code, Building*.

**SECTION 609
MECHANICAL**

609.1 General. Existing mechanical systems undergoing alteration shall comply with Section 301.11 of the *Florida Building Code, Mechanical*.

SECTION 610 PLUMBING

610.1 Materials. The following plumbing materials and supplies shall not be used:

1. Sheet and tubular copper and brass trap and tailpiece fittings less than the minimum wall thickness of 0.027 inch (0.69 mm).
2. Solder having more than 0.2-percent lead in the repair of potable water systems.
3. Water closets having a concealed trap seal or an unventilated space or having walls that are not thoroughly washed at each discharge in accordance with ASME A112.19.2 M.
4. The following types of joints shall be prohibited:
 - 4.1. Mastic or hot-pour bituminous joints.
 - 4.2. Joints made with fittings not approved for the specific installation.
 - 4.3. Joints between different diameter pipes made with elastomeric rolling O-rings.
 - 4.4. Solvent-cement joints between different types of plastic pipe.
 - 4.5. Saddle-type fittings.
5. The following types of traps are prohibited:
 - 5.1. Traps that depend on moving parts to maintain the seal.
 - 5.2. Bell traps.
 - 5.3. Crown-vented traps.
 - 5.4. Traps not integral with a fixture and that depend on interior partitions for the seal, except those traps constructed of an approved material that is resistant to corrosion and degradation.

610.2 Water closet replacement. When any water closet is replaced, the replacement water closet shall comply with the *Florida Building Code, Plumbing*. The maximum water consumption flow rates and quantities for all replaced water closets shall be 1.6 gallons (6 L) per flushing cycle.

Exception: Blowout design water closets [3.5 gallons (13 L) per flushing cycle].

SECTION 611 REROOFING

611.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 of the *Florida Building Code, Building* or Chapter 9 of the *Florida Building Code, Residential*, as applicable. Roof repairs to existing roofs and roof coverings shall comply with the provisions of this code.

Exception: Reroofing shall not be required to meet the minimum design slope requirement of $\frac{1}{4}$:12 in Section 1507 of the *Florida Building Code, Building* for roofs that provide positive roof drainage (high-velocity hurricane zones shall

comply with Sections 1515.2.2.1 and 1515.2.2.2 of the *Florida Building Code, Building*).

611.1.1 Not more than 25 percent of the total roof area or roof section of any existing building or structure shall be repaired, replaced or recovered in any 12 month period unless the entire roofing system or roof section conforms to requirements of this code.

611.2 Structural and construction loads. The structural roof components shall be capable of supporting the roof covering system and the material and equipment loads that will be encountered during installation of the roof covering system.

611.3 Recovering versus replacement. New roof coverings shall not be installed without first removing existing roof coverings where any of the following conditions occur:

1. When the old roofing is water-soaked or deteriorated to the point that it is not suitable as a base for additional roofing.
2. When blisters exist in any roofing, unless blisters are cut or scraped open and nailed down before applying additional roofing.
3. When the existing roof surface is gravel or the like, the gravel shall be thoroughly removed or all loose gravel removed and approved base material installed before applying additional roofing.
4. When existing roof is slate or the like.
5. When sheathing or supports are deteriorated to the point that the roof structural system is not substantial enough to support recovering.
6. When the existing roof has two or more applications of any type roofing material. Conformance with this item shall make replacement mandatory.

Exceptions:

1. Building and structures located within the High-Velocity Hurricane Zone shall comply with the provisions of Sections 1512 through 1525 of the *Florida Building Code, Building*.
2. When the structural deck is concrete and the existing roof is firmly attached to the deck, the roof shall be removed down to a minimum of three plies of moisture-free felts.
3. When otherwise approved by the building official.
4. Wood shingles or shakes shall not be placed over more than one application of wood or asphalt shingles. Wood shingles or shakes may be placed over existing shakes when installed in accordance with Cedar Shake and Shingle Bureau recommendations.

611.4 Roof recovering. Where the application of a new roof covering over wood shingle or shake roofs creates a combustible concealed space, the entire existing surface shall be covered with gypsum board, mineral fiber, glass fiber or other approved materials securely fastened in place.

611.5 Reinstallation of materials. Existing slate, clay or cement tile shall be permitted for reinstallation, except that

damaged, cracked or broken slate or tile shall not be reinstalled. Existing vent flashing, metal edgings, drain outlets, collars and metal counter flashings shall not be reinstalled where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reinstalled (High-Velocity Hurricane Zones shall comply with Sections 1512 through 1525 of the *Florida Building Code, Building*).

611.6 Flashings. Flashings shall be reconstructed in accordance with roof covering manufacturer's installation instructions. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation (High-Velocity Hurricane Zones shall comply with Sections 1512 through 1525 of the *Florida Building Code, Building*).

611.7 When a roof covering on an existing site-built single-family residential structure is removed and replaced, the following procedures shall be permitted to be performed by the roofing contractor:

1. Roof-decking attachment shall be as required by Section 611.7.1.
2. A secondary water barrier shall be provided as required by Section 611.7.2.

Exception: Single-family residential structures permitted subject to the *Florida Building Code* are not required to comply with this section.

611.7.1 Roof decking attachment for site-built single-family residential structures. For site-built single-family residential structures the fastening shall be in accordance with Section 611.7.1.1 or 611.7.1.2 as appropriate for the existing construction. 8d nails shall be a minimum of 0.131 inch (3.3 mm) in diameter and shall be a minimum of 2¹/₄-inch (57 mm) long to qualify for the provisions of this section for existing nails regardless of head shape or head diameter.

611.7.1.1 Roof decking consisting of sawn lumber or wood planks up to 12 inches (305 mm) wide and secured with at least two nails (minimum size 8d) to each roof framing member it crosses shall be deemed to be sufficiently connected. Sawn lumber or wood plank decking secured with smaller fasteners than 8d nails or with fewer than two nails (minimum size 8d) to each framing member it crosses shall be deemed sufficiently connected if fasteners are added such that two clipped head, round head or ring shank nails (minimum size 8d) are in place on each framing member it crosses.

611.7.1.2 For roof decking consisting of wood structural panels, fasteners and spacing required in columns 3 and 4 of Table 611.7.1.2 are deemed to comply with the requirements of Section 606.3 of this code for the indicated design wind speed range. Wood structural panel connections retrofitted with a two-part urethane-based closed cell adhesive sprayed onto the joint between the sheathing and framing members are deemed to comply with the requirements of Section 606.3 of this code, provided testing using the manufacturer's recommended application on panels connected with 6d smooth shank nails at no more than a 6-inch edge (152 mm) and

12-inch (305 mm) field spacing demonstrate an uplift resistance of a minimum of 200 psf (9576 Pa).

Supplemental fasteners as required by Table 611.7.1.2 shall be 8d ring shank nails with round heads and the following minimum dimensions:

1. 0.113 inch (2.9 mm) nominal shank diameter.
2. Ring diameter a minimum of 0.012 inch (0.3 mm) greater than shank diameter.
3. 16 to 20 rings per inch.
4. A minimum 0.280 inch (7.1 mm) full round head diameter.
5. Ring shank to extend a minimum of 1¹/₂ inches (38 mm) from the tip of the nail.
6. Minimum 2¹/₄ inch (57 mm) nail length.

**TABLE 611.7.1.2
SUPPLEMENT FASTENERS AT PANEL EDGES AND
INTERMEDIATE FRAMING**

EXISTING FASTENERS	EXISTING SPACING	WIND SPEED 110 MPH OR LESS SUPPLEMENTAL FASTENER SPACING SHALL BE NO GREATER THAN	WIND SPEED GREATER THAN 110 MPH SUPPLEMENTAL FASTENER SPACING SHALL BE NO GREATER THAN
Staples or 6d	Any	6" o.c. ^b	6" o.c. ^b
8d clipped head, round head, smooth or ring shank	6" o.c. or less	None necessary	None necessary
8d clipped head, round head, smooth or ring shank	Greater than 6" o.c.	6" o.c. ^a	6" o.c. ^a

For SI: 1 inch = 25.4 mm.

a. Maximum spacing determined based on existing fasteners and supplemental fasteners.

b. Maximum spacing determined based on supplemental fasteners only.

611.7.2 Roof secondary water barrier for site-built single-family residential structures. A secondary water barrier shall be installed using one of the following methods when roof covering is removed and replaced:

1. In either HVHZ or non-HVHZ regions,
 - a) All joints in structural panel roof sheathing or decking shall be covered with a minimum 4-inch (102 mm) wide strip of self-adhering polymer modified bitumen tape applied directly to the sheathing or decking. The deck and self adhering polymer modified bitumen tape shall be covered with one of the underlayment systems approved for the particular roof covering to be applied to the roof.
 - b) The entire roof deck shall be covered with an approved asphalt impregnated 30# felt underlayment or approved synthetic underlayment installed with nails and tin-tabs in accordance with Section R4402.7.2, R4402.7.3 or

R4402.7.4 of the *Florida Building Code, Residential*. (No additional underlayment shall be required over the top of this sheet.) The synthetic underlayment shall be fastened in accordance with the manufacturer's recommendations.

2. Outside the High Velocity Hurricane Zone:

- a) The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen sheet meeting ASTM D 1970 or an approved self-adhering synthetic underlayment installed in accordance with the manufacturer's installation instructions. No additional underlayment shall be required on top of this sheet for new installations.
- b) An underlayment system approved for the particular roof covering shall be applied with the following modification:
 - (1) For roof slopes that require one layer of underlayment, a layer of approved asphalt impregnated ASTM D 226 Type I or Type II underlayment or approved synthetic underlayment shall be installed. The felt is to be fastened with 1-inch (25 mm) round plastic cap or metal cap nails, attached to a nailable deck in a grid pattern of 12 inches (305 mm) staggered between the overlaps, with 6-inch (152 mm) spacing at the overlaps. The synthetic underlayment shall be fastened in accordance with the manufacturer's recommendations.
 - (2) For roof slopes that require two layers of underlayment, an approved asphalt impregnated ASTM D 226 Type I or Type II underlayment shall be installed in a shingle-fashion and lapped 19 inches (483 mm) and fastened as described above. An approved synthetic underlayment shall be installed in accordance with the manufacturer's installation instruction. (No additional underlayment shall be required over the top of this sheet.)

Exceptions:

1. Roof slopes < 2:12 having a continuous roof system shall be deemed to comply with Section 611.7.2 requirements for a secondary water barrier.
2. Clay and concrete tile roof systems installed as required by the *Florida Building Code* are deemed to comply with the requirements of Section 611.7.2 for secondary water barriers.

611.8 When a roof covering on an existing site-built single-family residential structure is removed and replaced on a building that is located in the wind-borne debris region as defined in the *Florida Building Code, Building* and that has an insured value of \$300,000 or more or, if the building is uninsured or for which documentation of insured value is not presented, has a just valuation for the structure for purposes of ad valorem taxation of \$300,000 or more:

1. Roof to wall connections shall be improved as required by Section 611.8.1.
2. Mandated retrofits of the roof-to-wall connection shall not be required beyond a 15 percent increase in the cost of re-roofing.

Exception: Single-family residential structures permitted subject to the *Florida Building Code* are not required to comply with this section.

611.8.1 Roof-to-wall connections for site-built single family residential structures. Where required by Section 611.8, the intersection of roof framing with the wall below shall provide sufficient resistance to meet the uplift loads specified in Table 611.8.1 either because of existing conditions or through retrofit measures. As an alternative to an engineered design, the prescriptive retrofit solutions provided in Sections 611.8.1.1 through 611.8.1.7 shall be accepted as meeting the mandated roof-to-wall retrofit requirements.

Exceptions:

1. Where it can be demonstrated (by code adoption date documentation and permit issuance date) that roof-to-wall connections and/or roof-to-foundation continuous load path requirements were required at the time of original construction.
2. Roof-to-wall connections shall not be required unless evaluation and installation of connections at gable ends or all corners can be completed for 15 percent of the cost of roof replacement.

611.8.1.1 Access for retrofitting roof to wall connections. These provisions are not intended to limit the means for gaining access to the structural elements of the roof and wall for the purposes of retrofitting the connection. The retrofit of roof to wall connections can be made by access through the area under the eave, from above through the roof or from the interior of the house. Methods for above access include removal of roof panels or sections thereof or removal of portions of roof paneling at selected locations large enough for access, viewing and installing the retrofit connectors and fasteners.

Where panels or sections are removed, the removed portions shall not be reused. New paneling shall be used and fastened as in new construction.

Holes shall be deemed adequately repaired if a patch of paneling is installed with no gap greater than $\frac{1}{2}$ inch (12.7 mm) between the patch and the existing sheathing and if the patch is supported using one of the following methods.

1. Solid $1\frac{1}{2}$ inch (38 mm) lumber shall fully support the patch and shall be secured to the existing sheathing with #8 by $1\frac{1}{4}$ inch (32 mm) screws spaced a minimum of 3 inches (76 mm) around the perimeter with screws a minimum of $\frac{3}{4}$ inch (19 mm) from the near edge of the hole. The patch shall be secured to the lumber with #8 by $1\frac{1}{4}$ inch (32 mm) screws spaced on a grid no greater than 6

inches by 6 inches (152 mm by 152 mm) with no fewer than two screws.

2. Holes that extend horizontally from roof framing member to adjacent roofing framing member that are less than or equal to 7 inches (178 mm) wide along the slope of the roof shall be supported by minimum of 2 by 4 lumber whose face is attached to each roofing framing members using a minimum of two each 3-inch (76 mm) long fasteners (#8 screws or 10d common nails) connecting the two. The patch shall have attached to its bottom running horizontally a minimum 2 by 4 either flat wise or on edge secured with #8 × 1¼ inch (32 mm) screws a maximum of 4 inches (120 mm) on center and no more distant from the end of the added lumber than 3 inches (76 mm). The patch shall be secured with two #8 × 1¼ inch (32 mm) screws to each support member.

611.8.1.2 Partially inaccessible straps. Where part of a strap is inaccessible, if the portion of the strap that is observed is fastened in compliance with these requirements, the inaccessible portion of the strap shall be presumed to comply with these requirements.

611.8.1.3 Prescriptive method for gable roofs on a wood frame wall. The anchorage of each of the exposed rafters or truss within 6 feet (1829 mm) of the corner along the exterior wall on each side of each gable end shall be inspected. Wherever a strap is missing or an existing strap has fewer than four fasteners on each end, approved straps, ties or right angle brackets with a minimum uplift capacity of 500 pounds (227 kg) shall be

installed that connect each rafter or truss to the top plate below. Adding fasteners to existing straps shall be allowed in lieu of adding a new strap provided the strap is manufactured to accommodate at least four fasteners at each end. Wherever access makes it possible (without damage of the wall or soffit finishes), both top plate members shall be connected to the stud below using a stud to plate connector with a minimum uplift capacity of 500 pounds (227 kg). Use of straps that connect directly from the rafter or truss to the wall stud below shall be allowed as an alternate provided the two members align with no more than 1½ inch (38 mm) offset.

611.8.1.4 Prescriptive method for gable roofs on a masonry wall. The anchorage of each of the exposed rafters or truss within 6 feet (1829 mm) of the corner along the exterior wall on each side of each gable end shall be inspected. Wherever a strap is missing or an existing strap has fewer than four fasteners on each end, approved straps, ties or right angle gusset brackets with a minimum uplift capacity of 500 pounds (227 kg) shall be installed that connect each rafter or truss to the top plate below or directly to the masonry wall using approved masonry screws that will provide at least a 2½ inch (64 mm) embedment into the concrete or masonry. When the straps or right angle gusset brackets are attached to a wood sill plate, the sill plate shall be anchored to the concrete masonry wall below. This anchorage shall be accomplished by installing ¼-inch (6.4 mm) diameter masonry screws, each with supplementary ¼-inch (6.4 mm) washer, having sufficient length to develop a 2½ inch (64 mm) embedment into the concrete and masonry. These screws shall be installed within 4 inches (102 mm)

TABLE 611.8.1
REQUIRED UPLIFT CAPACITIES FOR ROOF-TO-WALL CONNECTIONS (POUNDS PER LINEAR FOOT)

	BASIC WIND SPEED	ROOF SPAN (feet)							OVERHANGS
		12	20	24	28	32	36	40	
Within 6 feet of building corner	85	-69.85	-116.42	-139.70	-162.99	-186.27	-209.55	-232.84	-27
	90	-82.67	-137.78	-165.34	-192.90	-220.45	-248.01	-275.57	-30.3
	100	-110.51	-184.18	-221.01	-257.85	-294.68	-331.52	-368.36	-37.4
	110	-141.27	-235.45	-282.55	-329.64	-376.73	-423.82	-470.91	-45.3
	120	-174.97	-291.62	-349.94	-408.26	-466.59	-524.91	-583.23	-53.9
	130	-211.60	-352.66	-423.19	-493.72	-564.26	-634.79	-705.32	-63.2
	140	-251.15	-418.59	-502.31	-586.02	-669.74	-753.46	-837.18	-73.3
	150	-293.64	-489.40	-587.28	-685.16	-783.04	-880.92	-978.80	-84.2
	170	-387.40	-645.67	-774.81	-903.94	-1033.08	-1162.21	-1291.35	-108
Greater than 6 feet from building corner	85	-39.10	-65.17	-78.20	-91.24	-104.27	-117.30	-130.34	-27
	90	-48.20	-80.33	-96.39	-112.46	-128.52	-144.59	-160.66	-30.3
	100	-67.95	-113.24	-135.89	-158.54	-181.19	-203.84	-226.49	-37.4
	110	-89.78	-149.63	-179.55	-209.48	-239.40	-269.33	-299.25	-45.3
	120	-113.68	-189.47	-227.37	-265.26	-303.16	-341.05	-378.94	-53.9
	130	-139.67	-232.78	-279.34	-325.90	-372.45	-419.01	-465.57	-63.2
	140	-167.74	-279.56	-335.47	-391.38	-447.29	-503.21	-559.12	-73.3
	150	-197.88	-329.80	-395.76	-461.72	-527.68	-593.64	-659.60	-84.2
	170	-264.41	-440.68	-528.81	-616.95	-705.08	-793.22	-881.35	-108

For SI: 1 foot = 304.8 mm; 1 pound per linear foot = 1.488 kg/m; 1 mile per hour = 0.305 m/s.

of the truss or rafter on both sides of each interior rafter or truss and on the accessible wall side of the gable end truss or rafter.

611.8.1.5 Prescriptive method for hip roofs on a wood frame wall. Unless it is possible to verify through non-destructive inspection or from plans prepared by a design professional that the roof structure is anchored at least as well as outlined below, access shall be provided at a minimum to the hip rafter (commonly known as a “king jack”), to the hip girder and at each corner of the hip roof. The hip rafter (commonly known as a “king jack”), the hip girder and the rafters/trusses adjacent to the hip girder that are not anchored with a strap having at least four fasteners on each end, shall be connected to the top plate below using a strap or a right angle gusset bracket having a minimum uplift capacity of 500 pounds (227 kg). Adding fasteners to existing straps shall be allowed in lieu of adding a new strap provided the strap is manufactured to accommodate at least four fasteners at each end. Wherever access makes it possible (without damage of the wall or soffit finishes), both top plate members shall be connected to the stud below using a stud to plate connector with a minimum uplift capacity of 500 pounds (227 kg). Use of straps that connect directly from the hip rafter, hip girder or adjacent rafters/trusses to the wall stud below shall be allowed as an alternate provided the two members align with no more than 1½ inch (38 mm) offset.

611.8.1.6 Prescriptive method for hip roofs on a masonry wall. Unless it is possible to verify through nondestructive inspection or from plans prepared by a design professional that the roof structure is anchored at least as well as outlined below, access shall be provided at a minimum to the hip rafter (commonly known as a “king jack”), to the hip girder and at each corner of the hip roof. The hip rafter (commonly known as a “king jack”), the hip girder and the rafters/trusses adjacent to the hip girder that are not anchored with a strap having at least four fasteners on each end, shall be connected to the concrete masonry wall below using approved straps or right angle gusset brackets with a minimum uplift capacity of 500 pounds (227 kg). Adding fasteners to existing straps shall be allowed in lieu of adding a new strap provided the strap is manufactured to accommodate at least four fasteners at each end. The straps or right angle gusset brackets shall be installed such that they connect each rafter or truss to the top plate below or directly to the masonry wall using approved masonry screws that will provide at least a 2½ inch (64 mm) embedment into the concrete or masonry. When the straps or right angle gusset brackets are attached to a wood sill plate, the sill plate shall be anchored to the concrete masonry wall below. This anchorage shall be accomplished by installing ¼-inch (6.4 mm) diameter masonry screws, each with supplementary ¼-inch (6.4 mm) washer, with sufficient length to develop a 2½ inch (64 mm) embedment into the concrete and masonry. These screws shall be installed within 4 inches (102 mm) of the truss or rafter on both

sides of each interior rafter or truss and on the accessible wall side of the gable end truss or rafter.

611.8.1.7 Priorities for mandated roof-to-wall retrofit expenditures. Priority shall be given to connecting the exterior corners of roofs to walls where the spans of the roofing members are greatest. For houses with both hip and gable roof ends, the priority shall be to retrofit the gable end roof-to-wall connections unless the width of the hip end is more than 1.5 times greater than the width of the gable end.

SECTION 612 ENERGY CONSERVATION

612.1 Minimum requirements. Alterations subject to this chapter shall comply with the requirements of Chapter 13 of the *Florida Building Code, Building*.

CHAPTER 7

ALTERATIONS—LEVEL 2

SECTION 701 GENERAL

701.1 Scope. Level 2 alterations as described in Section 404 shall comply with the requirements of this chapter.

Exception: Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section 605.2 shall be permitted to comply with Chapter 6.

701.2 Alteration Level 1 compliance. In addition to the requirements of this chapter, all work shall comply with the requirements of Chapter 6.

701.3 Compliance. All new construction elements, components, systems, and spaces shall comply with the requirements of the *Florida Building Code, Building*.

Exceptions:

1. Windows may be added without requiring compliance with the light and ventilation requirements of the *Florida Building Code, Building*.
2. Newly installed electrical equipment shall comply with the requirements of Section 708.
3. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 705.6.
4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 7 feet (2134 mm).

SECTION 702 SPECIAL USE AND OCCUPANCY RESERVED

SECTION 703 BUILDING ELEMENTS AND MATERIALS

703.1 Scope. The requirements of this section are limited to work areas in which Level 2 alterations are being performed, and shall apply beyond the work area where specified.

703.2 Vertical openings. Existing vertical openings shall comply with the provisions of Sections 703.2.1, 703.2.2, and 703.2.3.

703.2.1 Existing vertical openings. All existing interior vertical openings connecting two or more floors shall comply with the appropriate sections of the *Florida Fire Prevention Code*.

Exceptions:

1. One- and two-family dwellings.

2. Group S occupancies where vertical opening protection is not required for open parking garages and ramps.

703.2.2 Supplemental shaft and floor opening enclosure requirements. Where the work area on any floor exceeds 50 percent of that floor area, the enclosure requirements of Section 703.2 shall apply to vertical openings other than stairways throughout the floor.

Exception: Vertical openings located in tenant spaces that are entirely outside the work area.

703.2.3 Supplemental stairway enclosure requirements. Where the work area on any floor exceeds 50 percent of that floor area, stairways that are part of the means of egress serving the work area shall, at a minimum, be enclosed with smoke-tight construction on the highest work area floor and all floors below.

Exception: Where stairway enclosure is not required by the *Florida Building Code* or the *Florida Fire Prevention Code*.

703.3 Smoke barriers. Smoke barriers in Group I-2 occupancies shall be installed where required by Sections 703.3.1 and 703.3.2.

703.3.1 Compartmentation. See Section 407 of the *Florida Building Code, Building*.

703.3.2 Fire-resistance rating. The smoke barriers shall be constructed in accordance with the *Florida Building Code, Building* or the *Florida Fire Prevention Code*.

703.4 Interior finish. The interior finish of walls and ceilings in exits and corridors in any work area shall comply with the requirements of the *Florida Building Code, Building*.

Exception: Existing interior finish materials that do not comply with the interior finish requirements of the *Florida Building Code, Building* shall be permitted to be treated with an approved fire-retardant coating in accordance with the manufacturer's instructions to achieve the required rating.

703.4.1 Supplemental interior finish requirements. Where the work area on any floor exceeds 50 percent of the floor area, Section 703.4 shall also apply to the interior finish in exits and corridors serving the work area throughout the floor.

Exception: Interior finish within tenant spaces that are entirely outside the work area.

703.5 Guards. The requirements of Sections 703.5.1 and 703.5.2 shall apply in all work areas.

703.5.1 Minimum requirement. Every portion of a floor, such as a balcony or a loading dock, that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those in which the existing guards

are judged to be in danger of collapsing, shall be provided with guards.

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 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 1025.14 are permitted and provided.

703.5.2 Design. Where there are no guards or where existing guards must be replaced, the guards shall be designed and installed in accordance with the *Florida Building Code, Building*.

Exception: Where existing guards are replaced, the design may match the existing design.

SECTION 704 FIRE PROTECTION

704.1 Scope. The requirements of this section shall be limited to work areas in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.

704.2 Automatic sprinkler systems. Automatic sprinkler systems shall be provided in accordance with the requirements of Sections 704.2.1 through 704.2.5. Installation requirements shall be in accordance with the *Florida Building Code, Building*.

704.2.1 High-rise buildings. See Section 403 of the *Florida Building Code, Building*.

704.2.1.1 Supplemental automatic sprinkler system requirements. Reserved.

704.2.2 Groups A, E, F-1, H, I, M, R-1, R-2, R-4, S-1, and S-2. Reserved.

704.2.3 Windowless stories. Work located in a windowless story, as determined in accordance with the *Florida Building Code, Building*, shall be sprinklered where the work area is required to be sprinklered under the provisions of the *Florida Building Code, Building* as a newly constructed building.

704.2.4 Other required suppression systems. In buildings and areas listed in Table 903.2.13 of the *Florida Build-*

ing Code, Building or the *Florida Fire Prevention Code*, work areas that include exits or corridors shared by more than one tenant or serving an occupant load greater than 30 shall be provided with sprinkler protection under the following condition:

The work area is required to be provided with automatic sprinkler protection in accordance with the *Florida Building Code, Building*, applicable to new construction.

704.2.5 Supervision. Fire sprinkler systems required by this section shall be supervised by one of the following methods:

1. Approved central station system in accordance with NFPA 72;
2. Approved proprietary system in accordance with NFPA 72 or;
3. Approved remote station system of the jurisdiction in accordance with NFPA 72.

Exception: Supervision is not required for the following:

1. Underground gate valve with roadway boxes.
2. Halogenated extinguishing systems.
3. Carbon dioxide extinguishing systems.
4. Dry and wet chemical extinguishing systems.
5. Automatic sprinkler systems installed in accordance with NFPA 13R where a common supply main is used to supply both domestic and automatic sprinkler systems and a separate shutoff valve for the automatic sprinkler system is not provided.

704.3 Standpipes. Where the work area includes exits or corridors shared by more than one tenant and is located more than 50 feet (15 240 mm) above or below the lowest level of fire department access, a standpipe system shall be provided. Standpipes shall have an approved fire department connection with hose connections at each floor level above or below the lowest level of fire department access. Standpipe systems shall be installed in accordance with the *Florida Building Code, Building*.

Exceptions:

1. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gallons per minute (gpm) at 65 pounds per square inch (psi) (946 L/m at 448 kPa) to the topmost floor in buildings equipped throughout with an automatic sprinkler system or a minimum of 500 gpm at 65 psi (1892 L/m at 448 kPa) to the topmost floor in all other buildings. Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet (gpm/psi) (L/m/kPa) requirements of this exception for possible future extension of the standpipe.
2. The interconnection of multiple standpipe risers shall not be required

704.4 Fire alarm and detection. An approved fire alarm system shall comply with the appropriate sections of the *Florida Fire Protection Code* for existing buildings.

704.4.1 Occupancy requirements. Reserved.

704.4.2 Supplemental fire alarm system requirements. Reserved.

704.4.3 Smoke alarms. Individual sleeping units and individual dwelling units in any work area in Group R-1, R-2, R-3, R-4, and I-1 occupancies shall be provided with smoke alarms in accordance with the *Florida Fire Prevention Code*.

Exception: Interconnection of smoke alarms outside of the rehabilitation work area shall not be required.

SECTION 705 MEANS OF EGRESS

705.1 Scope. The requirements of this section shall be limited to work areas that include exits or corridors shared by more than one tenant within the work area in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.

705.2 General. The means of egress shall comply with the requirements of this section.

Exceptions:

1. Where the work area and the means of egress serving it complies with the *Florida Fire Prevention Code*.
2. Means of egress conforming to the requirements of the *Florida Building Code, Building* and the *Florida Fire Prevention Code* under which the building was constructed shall be considered compliant means of egress if, in the opinion of the code official, they do not constitute a distinct hazard to life.

705.3 Number of exits. The number of exits shall be in accordance with the appropriate sections of the *Florida Fire Prevention Code*.

Exception: Building of Group R-3 occupancies shall comply with the *Florida Building Code, Building*.

705.3.1 Minimum number. Reserved.

705.3.1.1 Single-exit buildings. Reserved.

705.3.1.2 Fire escapes required. Fire escapes shall comply with the appropriate sections of the *Florida Fire Prevention Code*.

705.3.1.2.1 Fire escape access and details. Reserved.

705.3.1.2.2 Construction. Reserved.

705.3.1.2.3 Dimensions. Reserved.

705.3.2 Mezzanines. Travel distance for mezzanines shall comply with Chapter 10 of the *Florida Building Code, Building*.

705.3.3 Main entrance—Group A. All buildings of Group A with an occupant load of 300 or more shall be provided

with a main entrance capable of serving as the main exit with an egress capacity of at least one half of the total occupant load. The remaining exits shall be capable of providing one half of the total required exit capacity.

Exception: 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 of egress is not less than 100 percent of the required width.

705.4 Egress doorways. Egress doorways in any work area shall comply with Sections 705.4.1 through 705.4.5.

705.4.1 Two egress doorways required. Work areas shall be provided with two egress doorways in accordance with the requirements of Sections 705.4.1.1 and 705.4.1.2.

705.4.1.1 Occupant load and travel distance. In any work area, all rooms and spaces having an occupant load greater than 50 or in which the travel distance to an exit exceeds 75 feet (22 860 mm) shall have a minimum of two egress doorways.

Exception: Storage rooms in Group S-1 and S-2 occupancies having a maximum occupant load of 10.

705.4.1.2 Group I-2. In buildings of Group I-2 occupancy, any patient sleeping room or suite of patient rooms greater than 1,000 square feet (93 m²) within the work area shall have a minimum of two egress doorways.

705.4.2 Door swing. In the work area and in the egress path from any work area to the exit discharge, all egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel.

705.4.2.1 Supplemental requirements for door swing. Where the work area exceeds 50 percent of the floor area, door swing shall comply with Section 705.4.2 throughout the floor.

Exception: Means of egress within or serving only a tenant space that is entirely outside the work area.

705.4.3 Door closing. In any work area, all doors opening onto an exit passageway at grade or an exit stair shall be self-closing or automatically closing by listed closing devices.

Exceptions:

1. Where exit enclosure is not required by the *Florida Building Code, Building*.
2. Means of egress within or serving only a tenant space that is entirely outside the work area

705.4.3.1 Supplemental requirements for door closing. Where the work area exceeds 50 percent of the floor area, doors shall comply with Section 705.4.3 throughout the exit stair from the work area to the level of exit discharge.

705.4.4 Panic hardware. In any work area, and in the egress path from any work area to the exit discharge, in buildings or portions thereof of Group A assembly occupancies with an occupant load greater than 100, all required

exit doors equipped with latching devices shall be equipped with approved panic hardware.

705.4.4.1 Supplemental requirements for panic hardware. Where the work area exceeds 50 percent of the floor area, panic hardware shall comply with Section 705.4.4 throughout the floor.

Exception: Means of egress within a tenant space that is entirely outside the work area.

705.4.5 Emergency power source in Group I-3. 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 1½ hours.

705.5 Openings in corridor walls. Openings in corridor walls in any work area shall comply with Sections 705.5.1.1 through 705.5.4.

Exception: Openings in corridors where such corridors are not required to be rated in accordance with the *Florida Building Code, Building*.

705.5.1 Corridor doors.

705.5.1.1 Corridor doors in the work area shall not be constructed of hollow core wood and shall not contain louvers.

705.5.1.2 All replacement doors shall be 1¾-inch (45 mm) solid bonded wood core or approved equivalent, unless the existing frame will accommodate only a 1⅜-inch (35 mm) door.

705.5.1.3 All dwelling unit, guestroom or rooming unit corridor doors in work areas in buildings of Groups R-1, R-2, and I-1 shall be at least 1⅜-inch (35 mm) solid core wood or approved equivalent and shall not have any glass panels other than approved wired glass or other approved glazing material in metal frames. All dwelling unit or sleeping unit corridor doors in work areas in buildings of Groups R-1, R-2, and I-1 shall be equipped with approved door closers.

Exceptions:

1. Corridor doors within a dwelling unit or guestroom.
2. Existing doors meeting the requirements of *HUD Guideline on Fire Ratings of Archaic Materials and Assemblies* (FEBC Appendix C) for a rating of 15 minutes or more shall be accepted as meeting the provisions of this requirement.
3. Existing doors in buildings protected throughout with an approved automatic sprinkler system shall be required only to resist smoke, be reasonably tight fitting and shall be equipped with approved door closers, and shall not contain louvers.
4. In group homes with a maximum of 15 occupants and that are protected with an approved

automatic detection system, closing devices may be omitted.

5. Door assemblies having a fire-resistance rating of at least 20 minutes.

705.5.2 Transoms. In all buildings of Group I-1, R-1, and R-2 occupancy, all transoms in corridor walls in work areas shall either be glazed with ¼-inch (6.4 mm) wired glass set in metal frames or other glazing assemblies having a fire-protection rating as required for the door and permanently secured in the closed position or sealed with materials consistent with the corridor construction.

705.5.3 Other corridor openings. In any work area, any other sash, grille, or opening in a corridor and any window in a corridor not opening to the outside air shall be sealed with materials consistent with the corridor construction.

705.5.3.1 Supplemental requirements for other corridor opening. Reserved.

705.5.4 Supplemental requirements for corridor openings. Where the work area on any floor exceeds 50 percent of the floor area the requirements of Sections 705.5.1 through 705.5.3 shall apply throughout the floor. This section shall be applicable to all corridor windows, grilles, sash and other openings on the floor.

705.6 Dead-end corridors. Dead-end corridors in any work area shall comply with the requirements of Section 1016.3 of the *Florida Building Code, Building*.

705.7 Means-of-egress lighting. Means-of-egress lighting shall be in accordance with this section, as applicable.

705.7.1 Artificial lighting required. Means of egress in all work areas shall be provided with artificial lighting in accordance with the requirements of the *Florida Building Code, Building*.

705.7.2 Supplemental requirements for means of egress lighting. Where the work area on any floor exceeds 50 percent of that floor area, means of egress lighting throughout the floor shall comply with Section 705.7.1.

Exception: Means of egress within or serving only a tenant space that is entirely outside the work area.

705.8 Exit signs. Exit signs shall be in accordance with this section, as applicable.

705.8.1 Work areas. Means of egress in all work areas shall be provided with exit signs in accordance with the requirements of the *Florida Building Code, Building*.

705.8.2 Supplemental requirements for exit signs. Where the work area on any floor exceeds 50 percent of that floor area, means of egress exiting signs throughout the floor shall comply with Section 705.8.1.

Exception: Means of egress within or serving only a tenant space that is entirely outside the work area.

705.9 Handrails. The requirements of Section 705.9.1 and 705.9.2 shall apply to handrails from the work area floor to the level of exit discharge.

705.9.1 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 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.

705.9.2 Design. Handrails required in accordance with Section 705.9.1 shall be designed and installed in accordance with the provisions of the *Florida Building Code, Building*.

Exception: Handrails being replaced in part may match the existing design.

705.10 Guards. The requirements of Sections 705.10.1 and 705.10.2 shall apply to guards from the work area floor to the level of exit discharge but shall be confined to the egress path of any work area.

705.10.1 Minimum requirement. Every open portion of a stair, 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.

705.10.2 Design. Guards required in accordance with Section 705.10.1 shall be designed and installed in accordance with the *Florida Building Code, Building*.

Exception: Guards being replaced in part may match the existing design.

SECTION 706 ACCESSIBILITY

706.1 General. A building, facility, or element that is altered shall comply with Chapter 11 of the *Florida Building Code, Building*.

706.2 Stairs and escalators in existing buildings. Reserved.

706.3 Dwelling units and sleeping units. Reserved.

SECTION 707 STRUCTURAL

707.1 General. Where alteration work includes installation of additional equipment that is structurally supported by the building or reconfiguration of space such that portions of the building become subjected to higher gravity loads as required by Tables 1607.1 and 1607.6 (High-Velocity Hurricane Zones shall comply with Table 1615 and Section 1615.2) of the *Florida Building Code, Building*, the provisions of this section shall apply.

707.2 Reduction of strength. Alterations shall not reduce the structural strength or stability of the building, structure, or any individual member thereof.

Exception: Such reduction shall be allowed as long as the strength and the stability of the building are not reduced to below the *Florida Building Code, Building* levels.

707.3 New structural members. New structural members in alterations, including connections and anchorage, shall comply with the *Florida Building Code, Building*.

707.4 Existing structural members. Existing structural components supporting additional equipment or subjected to additional loads based on *Florida Building Code, Building*, Tables 1607.1 and 1607.6 (High-Velocity Hurricane Zones shall comply with Table 1615 and Section 1615.2) as a result of a reconfiguration of spaces shall comply with Sections 707.4.1 through 707.4.3.

707.4.1 Gravity loads. Existing structural elements supporting any additional gravity loads as a result of additional equipment or space reconfiguration shall comply with the *Florida Building Code, Building*.

Exceptions:

1. Structural elements whose stress is not increased by more than 5 percent.
2. Buildings of Group R occupancy with not more than five dwelling units or sleeping units used solely for residential purposes where the existing building and its alteration comply with the conventional light-frame construction methods as defined in Chapter 2.

707.4.2 Lateral loads. Reserved.

707.4.3 Snow drift loads. Reserved.

SECTION 708 ELECTRICAL

708.1 New installations. All newly installed electrical equipment and wiring relating to work done in any work area shall comply with the materials and methods requirements of Chapter 27 of the *Florida Building Code, Building*.

708.2 Existing installations. Existing wiring in all work areas in Group A-1, A-2, A-5, H, and I occupancies shall be upgraded to meet the requirements of Chapter 27 of the *Florida Building Code, Building*.

708.3 Residential occupancies. In Group R-2, R-3, and R-4 occupancies and buildings regulated by the *Florida Building Code, Residential*, the requirements of Sections 708.3.1 through 708.3.7 shall be applicable only to work areas located within a dwelling unit.

708.3.1 Enclosed areas. All enclosed areas, other than closets, kitchens, basements, garages, hallways, laundry areas, utility areas, storage areas, and bathrooms shall have a minimum of two duplex receptacle outlets or one duplex receptacle outlet and one ceiling or wall-type lighting outlet.

708.3.2 Kitchens. Kitchen areas shall have a minimum of two duplex receptacle outlets.

708.3.3 Laundry areas. Laundry areas shall have a minimum of one duplex receptacle outlet located near the laundry equipment.

708.3.4 Ground fault circuit interruption. Reserved.

708.3.5 Minimum lighting outlets. At least one lighting outlet shall be provided in every bathroom, hallway, stairway, attached garage, and detached garage with electric power, and to illuminate outdoor entrances and exits.

708.3.6 Utility rooms and basements. At least one lighting outlet shall be provided in utility rooms and basements where such spaces are used for storage or contain equipment requiring service.

708.3.7 Residential R-3 occupancies.

708.3.7.1 Existing electrical wiring. Existing electrical wiring and equipment undergoing repair or replacement shall be permitted to be repaired or replaced with like material.

708.3.7.2 Replacement receptacles. For replacement of nongrounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system, or to any accessible point on the grounding electrode conductor, in accordance with Article 250.130(c) of Chapter 27 of the *Florida Building Code, Building*.

708.3.7.3 Appliances. Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers and outlet or junction boxes that are part of the existing branch circuit for these appliances shall be permitted to be grounded to the grounded circuit conductor in accordance with Article 250.140 of Chapter 27 of the *Florida Building Code, Building*.

**SECTION 709
MECHANICAL**

709.1 Reconfigured or converted spaces. All reconfigured spaces intended for occupancy and all spaces converted to habitable or occupiable space in any work area shall be provided with natural or mechanical ventilation or exhaust in accordance with the *Florida Building Code, Mechanical*.

709.2 Existing mechanical systems. Existing mechanical systems undergoing repair shall comply with Section 301.11 of the *Florida Building Code, Mechanical*.

709.3 Local exhaust. Reserved.

**SECTION 710
PLUMBING**

710.1 Minimum fixtures. Where the occupant load of the story is increased by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the *Florida Building Code, Plumbing* based on the increased occupant load.

710.2 Materials. The following plumbing materials and supplies shall not be used:

1. Sheet and tubular copper and brass trap and tailpiece fittings less than the minimum wall thickness of 0.027 inch (0.69 mm).
2. Solder having more than 0.2-percent lead in the repair of potable water systems.
3. Water closets having a concealed trap seal or an unventilated space or having walls that are not thoroughly washed at each discharge in accordance with ASME A112.19.2M.
4. The following types of joints shall be prohibited:
 - 4.1. Mastic or hot-pour bituminous joints.
 - 4.2. Joints made with fittings not approved for the specific installation.
 - 4.3. Joints between different diameter pipes made with elastomeric rolling O-rings.
 - 4.4. Solvent-cement joints between different types of plastic pipe.
 - 4.5. Saddle-type fittings.
5. The following types of trap are prohibited:
 - 5.1. Traps that depend on moving parts to maintain the seal.
 - 5.2. Bell traps.
 - 5.3. Crown-vented traps.
 - 5.4. Traps not integral with a fixture and that depend on interior partitions for the seal, except those traps constructed of an approved material that is resistant to corrosion and degradation.

710.3 Replacement fixtures. Replacement fixtures shall be installed in accordance with the *Florida Building Code, Plumbing*.

**SECTION 711
ENERGY CONSERVATION**

711.1 Minimum requirements. Alterations subject to this chapter shall comply with the requirements of Chapter 13 of the *Florida Building Code, Building*.

CHAPTER 8

ALTERATIONS—LEVEL 3

SECTION 801 GENERAL

801.1 Scope. Alterations classified as Level 3 alterations as described in Section 405 shall comply with the requirements of this chapter.

801.2 Compliance. In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 6 and 7. The requirements of Sections 703, 704, and 705 shall apply within all work areas whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

Exception: Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 605 shall not be required to comply with this chapter.

SECTION 802 SPECIAL USE AND OCCUPANCY

802.1 High-rise buildings. Any building having occupied floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall comply with the requirements of Sections 802.1.1 and 802.1.2.

802.1.1 Recirculating air or exhaust systems. When a floor is served by a recirculating air or exhaust system with a capacity greater than 15,000 cubic feet per minute (701 m³/s), that system shall be equipped with approved smoke and heat detection devices installed in accordance with the *Florida Building Code, Mechanical*.

802.1.2 Elevators. Where there is an elevator or elevators for public use, at least one elevator serving the work area shall comply with the *Florida Fire Prevention Code*.

Exception: An approved engineering system in accordance with ASME 17.1 or Section 104.11 of the *Florida Building Code, Building* shall be acceptable as an alternative compliance with the section.

802.2 Boiler and furnace equipment rooms. Boiler and furnace equipment rooms adjacent to or within the following facilities shall be enclosed by 1-hour fire-resistance-rated construction: day nurseries, children's shelter facilities, residential childcare facilities, and similar facilities with children below the age of 2½ years or that are classified as Group I-2 occupancies, shelter facilities, residences for the developmentally disabled, group homes, teaching family homes, transitional living homes, rooming and boarding houses, hotels, and multiple dwellings.

Exceptions:

1. Furnace and boiler equipment of low-pressure type, operating at pressures of 15 pounds per square inch gauge (psig) (103.4 KPa) or less for steam equipment

or 170 psig (1171 KPa) or less for hot water equipment, when installed in accordance with manufacturer recommendations.

2. Furnace and boiler equipment of residential R-3 type with 200,000 British thermal units (Btu) (2.11 × 10⁸ J) per hour input rating or less is not required to be enclosed.
3. Furnace rooms protected with automatic sprinkler protection.

802.2.1 Emergency controls. Emergency controls for boilers and furnace equipment shall be provided in accordance with the *Florida Building Code, Mechanical* in all buildings classified as day nurseries, children's shelter facilities, residential childcare facilities, and similar facilities with children below the age of 2½ 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 leading to the basement; and
2. Emergency shutoff switches for furnaces and boilers in other enclosed rooms shall be located outside of such room.

SECTION 803 BUILDING ELEMENTS AND MATERIALS

803.1 Existing shafts and vertical openings. Existing stairways that are part of the means of egress shall comply with the appropriate sections of the *Florida Fire Prevention Code*.

803.2 Fire partitions in Group R-3. Fire separation in Group R-3 occupancies shall be in accordance with Section 803.2.1.

803.2.1 Separation required. Walls separating the units that are not continuous from the foundation to the underside of the roof sheathing shall be constructed to provide a continuous fire separation using construction materials consistent with the existing wall or complying with the requirements for new structures. All work shall be performed on the side of the wall that is part of the work area.

Exception: Where alterations or repairs do not result in the removal of wall or ceiling finishes exposing the structure, walls are not required to be continuous through concealed floor spaces.

803.3 Interior finish. Interior finish in exits serving the work area shall comply with Section 703.4 between the highest floor on which there is a work area to the floor of exit discharge.

SECTION 804 FIRE PROTECTION

804.1 Automatic sprinkler systems. Automatic sprinkler systems shall be provided in all work areas in accordance with the *Florida Building Code, Building*.

804.1.1 High-rise buildings. In high-rise buildings, work areas shall be provided with automatic sprinkler protection where the building has a sufficient municipal water supply system to the site. Where the work area exceeds 50 percent of floor area, sprinklers shall be provided for the entire floor.

804.1.2 Rubbish and linen chutes. Rubbish and linen chutes located in the work area shall be provided with sprinklered protection where protection of the rubbish and linen chute would be required under the provisions of the *Florida Building Code, Building* for new construction.

804.2 Fire alarm and detection systems. Fire alarm and detection systems shall comply with the appropriate sections of the *Florida Fire Prevention Code*.

804.2.1 Manual fire alarm systems. Reserved.

804.2.2 Automatic fire detection. Where required by the *Florida Building Code, Building* for new buildings, automatic fire detection systems shall be provided throughout the work area.

SECTION 805 MEANS OF EGRESS

805.1 General. The means of egress shall comply with the requirements of Section 705 except as modified in Sections 805.2 and 805.3.

805.2 Means of egress lighting. Means of egress from the highest work area floor to the floor of exit discharge shall be provided with artificial lighting within the exit enclosure in accordance with the requirements of the *Florida Building Code, Building*.

805.3 Exit signs. Means of egress from the highest work area floor to the floor of exit discharge shall be provided with exit signs in accordance with the requirements of the *Florida Building Code, Building*.

SECTION 806 ACCESSIBILITY

806.1 General. A building, facility, or element that is altered shall comply with Chapter 11 of the *Florida Building Code, Building*.

SECTION 807 STRUCTURAL

807.1 General. Where buildings are undergoing Level 3 alterations including structural alterations, the provisions of this section shall apply.

807.2 Reduction of strength. Alterations shall not reduce the structural strength or stability of the building, structure, or any individual member thereof.

Exception: Such reduction shall be allowed provided that the structural strength and the stability of the building are not reduced to below the *Florida Building Code, Building* levels.

807.3 New structural members. New structural members in alterations, including connections and anchorage, shall comply with the *Florida Building Code, Building*.

807.4 Minimum design loads. The minimum design loads on existing elements of a structure that do not support additional loads as a result of an alteration shall be the loads applicable at the time the building was constructed.

807.5 Structural alterations. Buildings and structures undergoing Level 3 structural alterations shall comply with this section.

Exceptions:

1. Buildings of Group R occupancy with no more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *Florida Building Code, Building* or in compliance with the provisions of the *Florida Building Code, Residential*.
2. Where such alterations involve only the lowest story of a building and the change of occupancy provisions of Chapter 9 do not apply, only the lateral-force-resisting components in and below that story need comply with this section.

807.5.1 Evaluation and analysis. An engineering evaluation and analysis that establishes the structural adequacy of the altered structure shall be prepared by a registered architect or engineer and submitted to the building code official.

807.5.2 Substantial structural alteration. Where more than 30 percent of the total sum of floor and roof areas of the building or structure has been or is proposed to be involved in structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the *Florida Building Code, Building* for wind loading.

807.5.3 Limited structural alteration. Where not more than 30 percent of the total floor and roof areas of the building are involved in structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads applicable at the time of the original construction or of the most recent substantial structural alteration as defined by Section 807.5.2.

807.6 Additional loads. Where gravity loading is increased on the roof or floor of a building or structure, all structural members affected by such increase shall meet the gravity load requirements of the *Florida Building Code, Building*.

Exceptions:

1. Structural elements whose stress is not increased by more than 5 percent.

2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods as defined in Chapter 2.

807.7 Voluntary lateral-force-resisting system alterations.

Alterations of existing structural elements and additions of new structural elements that are initiated for the purpose of increasing the lateral-force-resisting strength or stiffness of an existing structure and that are not required by other sections of this code shall not be required to be designed for forces conforming to the *Florida Building Code*, provided that an engineering analysis is submitted to show that:

1. The capacity of existing structural elements required to resist forces is not reduced;
2. Either the lateral loading to existing structural elements is not increased beyond their capacity or the lateral loading to existing structural elements is not increased by more than 10 percent;
3. New structural elements are detailed and connected to the existing structural elements as required by the *Florida Building Code*;
4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *Florida Building Code*; and
5. A dangerous condition as defined in this code is not created.

SECTION 808 ENERGY CONSERVATION

808.1 Minimum requirements. Alterations subject to this chapter shall comply with the requirements of Chapter 13 of the *Florida Building Code, Building*.

912.7.2 Stairways. When a change of occupancy classification is made to a higher hazard category as shown in Table 912.4, interior stairways shall be enclosed as required by the *Florida Building Code, Building*.

Exceptions:

1. In other than Group I occupancies, an enclosure shall not be required for openings serving only one adjacent floor and that are not connected with corridors or stairways serving other floors.
2. Unenclosed existing stairways need not be enclosed in a continuous vertical shaft if each story is separated from other stories by 1-hour fire-resistance-rated construction or approved wired glass set in steel frames and all exit corridors are sprinklered. An opening between the corridor and the occupant space shall have at least one sprinkler head above the openings on the tenant side. The sprinkler system shall be permitted to be supplied from the domestic water-supply systems, provided the system is of adequate pressure, capacity and sizing for the combined domestic and sprinkler requirements.
3. Existing penetrations of stairway enclosures shall be accepted if they are protected in accordance with the *Florida Building Code, Building*.

912.7.3 Other vertical shafts. Interior vertical shafts other than stairways, including but not limited to elevator hoistways and service and utility shafts, shall be enclosed as required by the *Florida Building Code, Building* when there is a change of use to a higher hazard category as specified in Table 912.4.

Exceptions:

1. Existing 1-hour interior shaft enclosures shall be accepted where a higher rating is required.
2. Vertical openings, other than stairways, in buildings of other than Group I occupancy shall comply with the appropriate sections of the *Florida Fire Prevention Code*.

912.7.4 Openings. All openings into existing vertical shaft enclosures shall be protected by fire assemblies having a fire-protection rating of not less than 1 hour and shall be maintained self-closing or shall be automatic closing by actuation of a smoke detector. All other openings shall be fire protected in an approved manner. Existing fusible link-type automatic door-closing devices shall be permitted in all shafts except stairways if the fusible link rating does not exceed 135°F (57°C).

912.8 Accessibility. Existing buildings or portions thereof that undergo a change of group or occupancy classification shall comply with Chapter 11 of the *Florida Building Code, Building*.

**SECTION 913
ENERGY CONSERVATION**

See Chapter 13 of the *Florida Building Code, Building*.

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CHAPTER 15

REFERENCED STANDARDS

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 102.4.

ASCE		American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191-4400
Standard reference number	Title	Referenced in code section number
7—05	Minimum Design Loads for Buildings and Other Structures with Supplement No. 1	506.1.1.2
31—03	Seismic Evaluation of Existing Buildings	506.1.1.1, Table 506.1.1.2, 506.1.1.3

ASHRAE		American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle, NE Atlanta, GA 30329
Standard reference number	Title	Referenced in code section number
62—04	Ventilation for Acceptable Indoor Air Quality	709.2

ASME		American Society of Mechanical Engineers 3 Park Avenue New York, NY 10016
Standard reference number	Title	Referenced in code section number
A17.1—2004	Safety Code for Elevators and Escalators with A17.1a—2005 addenda and A17.1S Supplement 2005	308.8.2, 605.1.2, 802.1.2
A17.1S—2005	Safety Code for Elevators and Escalators, Supplement to A17.1—2004	
A17.3—1996	Safety Code for Existing Elevators and Escalators	802.1.2
A18.1—2003	Safety Standard for Platform Lifts and Stairway Chair Lifts—with A18.1a—2001 Addenda	308.8.3, 605.1.3

CSSB		Cedar Shake and Shingle Bureau PO Box 1178 Shumas, WA 98295-1178
Standard reference number	Title	Referenced in code section number
	Recommendations	511.3

FEMA		Federal Emergency Management Agency Federal Center Plaza 500 C Street SW Washington, DC 20472
Standard reference number	Title	Referenced in code section number
PUB 356	Pre-standard and Commentary for the Seismic Rehabilitation of Buildings	506.1.1.1, 506.1.1.2, Table 506.1.1.2 and 506.1.1.3