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. In flood hazard areas, alterations that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *Florida Building Code, Building.*

SECTION 602
BUILDING ELEMENTS AND MATERIALS

602.1 Interior finishes. All newly installed interior wall and ceiling finishes shall comply with Chapter 8 of the *Florida Building Code, Building.*

602.2 Interior floor finish. New interior floor finish, including new carpeting used as an interior floor finish material, shall comply with Section 804 of the *Florida Building Code, Building.*

602.3 Interior trim. All newly installed interior trim materials shall comply with Section 806 of the *Florida Building Code, Building.*

602.4 Materials and methods. All new work shall comply with materials and methods requirements in the *Florida Building Code, Building; Florida Building Code; Energy Conservation; 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] 602.4.1 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, entitled "General Regulations," except Sections 303.7 and 306.
2. All of Chapter 4, entitled "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, entitled "Chimneys and Vents."
4. All of Chapter 6, entitled "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 General. Accessibility shall be in accordance with the provisions of the *Florida Building Code, Accessibility.*

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 Accessible dwelling or sleeping units. Reserved.

605.1.9 Type A dwelling or sleeping units. Reserved.

605.1.10 Toilet rooms. Reserved.

605.1.11 Dressing, fitting and locker rooms. Reserved.

605.1.12 Fuel dispensers. Reserved.

605.1.13 Thresholds. Reserved.

605.1.14 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 provisions of this section shall apply.

606.1.1 Nonstructural alteration. 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 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 gravity load requirements of the *Florida Building Code, Building*.

Exceptions:

1. Structural elements where the additional dead load from the roofing or equipment does not increase the force in the element by more than 5 percent.
2. Buildings constructed in accordance with the *Florida Building Code, Residential* or the conventional light-frame construction methods of the *Florida Building Code, Building* and where the 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/m^2) or less over an existing, single layer of roof covering.

606.2.1 Wall anchors for concrete and masonry buildings. Reserved.

606.3 Additional requirements for reroof permits. The requirements of this section shall apply to *alteration* work requiring reroof permits.

606.3.1 Bracing for unreinforced masonry bearing wall parapets. Reserved.

606.3.2 Roof diaphragms resisting wind loads in high-wind regions. Where roofing materials are removed from more than 50 percent of the roof diaphragm of a building or section of a building located where the basic wind speed is greater than 115 mph or in a special wind region, as defined in Section 1609 of the *Florida Building Code, Building*, roof diaphragms and connections that are part of the main wind-force resisting system shall be evaluated for the wind loads specified in the *Florida Building Code, Building*, including wind uplift. If the diaphragms and connections in their current condition do not comply with those wind provisions, they shall be replaced or strengthened in accordance with the loads specified in the *Florida Building Code, Building.*

606.4 Replacement of windows and doors. The replacement of garage doors, exterior doors, skylight, 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 windborne 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*.)

Exceptions:

1. Exterior balconies or porches under existing roofs or decks enclosed with screen or removable vinyl and acrylic panels complying with the *Florida Building Code, Building,* Section 2002.3.3 shall not be required to be protected and openings in the wall separating the unit from the balcony or porch shall not be required to be protected unless required by other provisions of this code.
2. 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 inches (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.* 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 $^1/_4$: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 all existing layers of roof coverings where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.

4. When blisters exist in any roofing, unless blisters are cut or scraped open and remaining materials secured down before applying additional roofing.
5. Where the existing roof is to be used for attachment for a new roof system and compliance with the securement provisions of Section 1504.1 can not be met.

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. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
3. Reserved.
4. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.
5. **Roof Coating.** Application of elastomeric and or maintenance coating systems over existing asphalt shingles shall be in accordance with the shingle manufacturer's approved installation instructions.

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:

(a) Roof-decking attachment shall be as required by Section 611.7.1.

(b) 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 0.113 inch (2.9 mm) in diameter and shall be a minimum of $2^1/_4$ 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" 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, *Florida Building Code, Existing Building* 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, *Florida Building Code, Existing Building,* provided testing using the manufacturer's recommended application on panels connected with 6d smooth shank nails at no more than a 6-inch edge and 12-inch field spacing demonstrate an uplift resistance of a minimum of 200 psf.

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 nominal shank diameter.
2. Ring diameter a minimum of 0.012-inch greater than shank diameter.
3. 16 to 20 rings per inch.
4. A minimum 0.280-inch full round head diameter.
5. Ring shank to extend a minimum of $1^1/_2$ inches from the tip of the nail.

6. Minimum 2-1/4 inch nail length.

TABLE 611.7.1.2
SUPPLEMENT FASTENERS AT PANEL EDGES AND INTERMEDIATE FRAMING

EXISTING FASTENERS	EXISTING SPACING	V_{asd} 110 MPH OR LESS SUPPLEMENTAL FASTENER SPACING SHALL BE NO GREATER THAN	V_{asd} 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.

c. V_{asd} shall be determined in accordance with Section 1609.3.1 of the *Florida Building Code, Building* or Section R301.2.1.3 of the *Florida Building Code, Residential.*

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 Sections 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 inch (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:

(a) Roof to wall connections shall be improved as required by Section 611.8.1

(b) 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 $^1/_2$ inch (13 mm) between the patch and the existing sheathing and if the patch is supported using one of the following methods.

a) Solid $1^1/_2$ inch lumber shall fully support the patch and shall be secured to the existing sheathing with #8 by $1^1/_4$ inch screws spaced a minimum of 3 inches (76 mm) around the perimeter with screws a minimum of $^3/_4$ inch from the near edge of the hole. The patch shall be secured to the lumber with #8 × $1\text{-}^1/_4$ inch screws spaced on a grid no greater than 6 inches by 6 inches (152 mm × 152 mm) with no fewer than 2 screws.

b) 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

TABLE 611.8.1
REQUIRED UPLIFT CAPACITIES FOR ROOF-TO-WALL CONNECTIONS[a, b] (POUNDS PER LINEAR FOOT)

	ULTIMATE DESIGN WIND SPEED, V_{ult}	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.

a. The uplift loads are pounds per lineal foot of building length. For roof uplift connections multiply by 1.33 for framing spaced 16 inches on center and multiply by 2 for framing spaced 24 inches on center.

b. The uplift loads do not account for the effects of overhangs. The magnitude of the above loads shall be increased by adding the overhang loads found in the table. The overhang loads are also based on framing spaced 12 inches on center. The overhang loads given shall be multiplied by the overhang projection and added to the roof uplift value in the table.

c. For Ultimate design wind speeds, V_{ult}, greater than 170 mph, wind uplift forces shall be determined in accordance with *Florida Building Code, Residential,* Section R802.3 or ASCE 7.

d. Ultimate Design Wind Speeds determined from Figure 1609A in the *Florida Building Code,Building* or Figure R301.2(4) in the *Florida Building Code, Residential.*

along the slope of the roof shall be supported by minimum of 2 × 4 lumber whose face is attached to each roofing framing members using a minimum of 2 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 × 4 either flat wise or on edge secured with #8 × $1^1/_4$ inch screws a maximum of 4 inches (102 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 × 1-$1^1/_4$ inch 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 lbs (740 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 4 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 lbs (740 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 $1^1/_2$ inches (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 lbs (740 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 of a length and diameter recommended by the manufacturer. In the absence of manufacturer's recommendations, screws shall provide at least a $2^1/_2$ 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 $^1/_4$-inch diameter masonry screws, each with supplementary $^1/_4$-inch washer, having sufficient length to develop a $2^1/_2$ 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.

611.8.1.5 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 lbs (740 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 4 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 lbs (740 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 $1^1/_2$ inch (38 mm) offset.

611.8.1.6 Prescriptive method for hip roofs on a masonry 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 concrete masonry wall below using approved straps or right angle gusset brackets with a minimum uplift capacity of 500 lbs (740 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 4 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 of a length and diameter recommended by the manufacturer. In the absence of manufacturer's recommendations, screws shall provide at least $2^1/_2$ inches (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 $^1/_4$-inch (6 mm) diameter masonry screws, each with supplementary $^1/_4$-inch (6 mm) washer, with sufficient

length to develop a $2^1/_2$ 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. When considering priorities for houses with both hip and gable roof ends, and the fifteen percent of the cost of roof replacement is sufficient to complete all of the prioritized elements pursuant to this section, but is not sufficient to complete all of the non-prioritized elements, then no portion of complete retrofit of the non-prioritized element is required.

SECTION 612
ENERGY CONSERVATION

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

SECTION 613
RESIDENTIAL SWIMMING POOLS AND SPAS

613.1 Existing Pool and Spa Components and Systems. A pool or spa component or system undergoing alteration shall comply with Section R4101 of the *Florida Building Code, Residential.*

Exceptions: A level one alteration, as described in section 403, shall not require compliance with section R4101.17 of the *Florida Building Code, Residential.* The following alterations shall not require compliance with Section R4101 of the *Florida Building Code, Residential:*

1. Installation of pavers or coatings to an existing pool or spa deck.
2. Retiling a pool or spa.
3. Re-plastering or re-lining a pool or spa, except the drain cover must comply with the 2007 ASME A112.19.8 Standard.
4. Installation of a water filtration or sanitization component or system.
5. Installation of an automation or a time switch component or system.
6. Installation of a heating component or system.

613.2 Pool or Spa Suction Fittings. Pool or spa circulation systems or components undergoing alteration shall comply with Section 6, Existing Pools and Spas, of the ANSI/APSP-7 Standard referenced in Section R4101.6.1 of the *Florida Building Code, Residential.*