

2020 7th Edition Florida Building Code Changes

Mike Silvers, CPRC, Owner of Silvers Systems Inc. and FRSA Technical Director

The 2020 7th Edition Florida Building Code (FBC) went into effect on December 31, 2020. This article will cover some of the roofing-specific changes made to the code with regards to the *Florida Building Code, Building Chapter 15 (FBCB), Residential Chapter 9 (FBCR) and Existing Building Chapter 7 (FBCEB)* and the requirements for roof coverings, noting changes from the 2017 6th Edition Florida Building Code.

In the current code, Florida uses the 2017 Florida Building Code as the base code and includes some of the changes in the 2019 International Building Code (IBC) and adds in Florida-specific modifications to create the FBC. In **black text** you'll see the current code language (no changes), in **blue text (underlined)** you'll see the new 2020 FBC language and in **red text (strikethrough)** is the 2017 FBC language that has been removed.

FBCB Chapter 2 Definitions

Vegetative Roof. An assembly of interacting components designed to [waterproof and normally insulate](#) a building's top surface that includes, by design, vegetation and related landscape elements.

Wind-Borne Debris Region. Areas within hurricane-prone regions located:

1. Within 1 mile (1.61 km) of the coastal mean high-water line where the ultimate design wind speed, *Vult*, is 130 mph (58 m/s) or greater; or
2. In areas where the ultimate design wind speed, *Vult*, is 140 mph (63.6 m/s) or greater.

For Risk Category II buildings and [other](#) structures and Risk Category III buildings and [other](#) structures, except health care facilities, the wind-borne debris region shall be based on Figure 1609.3(1). For ~~Risk Category IV buildings and structures and~~ Risk Category III health care facilities, the windborne debris region shall be based on Figure 1609.3(2). [For Risk Category IV buildings and other structures, and Risk Category III health care facilities, the wind-borne debris region shall be based on Figure 1609.3\(3\).](#)

FBCR Chapter 2 Definitions

Building-Integrated Photovoltaic Roof Panel. [A photovoltaic panel that functions as a component of the building envelope.](#)

FBCEB Chapter 2 Definitions

Existing Structures (for flood hazard areas). See [Section 1612.2 of the Florida Building Code, Building.](#) [A structure erected prior to the date of adoption of](#)

[the appropriate code, or one for which a legal building permit has been issued.](#)

Positive Roof Drainage. [The drainage condition in which consideration has been made for all loading deflections of the roof deck, and additional slope has been provided to ensure drainage of the roof within 48 hours of precipitation.](#) (Editor's note: This definition has been included in the Building and Residential volumes).

FBCEB Chapter 7 Alterations - Level 1

Section 706 Existing Roofing

706.5 Reinstallation/Reuse of materials. Existing or [salvaged](#) slate, clay or [cement concrete](#) tile shall be permitted for reinstallation [or reuse, to repair an existing slate or tile roof](#), except that [salvaged slate or tile shall be of like kind in both material and profile.](#) ~~¶~~ Damaged, cracked or broken slate or tile shall not be reinstalled. [The building official may permit salvaged slate, clay and concrete tile to be installed on additions and new construction, when the tile is tested in compliance with the provisions of Section 1507 or 1523 \(HVHZ shall comply with Section 1523\) and installed in accordance with Section 1507 or 1518 \(HVHZ shall comply with Section 1518\).](#) 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*).

706.7 Mitigation. When a roof covering on an existing ~~site-built single-family residential~~ structure [with a sawn lumber, wood plank, or wood structural panel roof deck](#) 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 706.7.1.
- (b) A secondary water barrier shall be provided as required by Section 706.7.2.

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

706.7.1 Roof decking attachment for existing site-built single-family residential structures with wood roof decks. ~~For site-built single-family residential structures the f~~ Fastening [for sawn lumber, wood plank, or wood structural panel roof decks](#) shall be

in accordance with Section 706.7.1.1 or 706.7.1.2 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 inches (57 mm) long to qualify for the provisions of this section for existing nails regardless of head shape or head diameter.

Remaining section unchanged.

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

1. In High-Velocity Hurricane Zone regions:
 - a) All joints in structural panel roof sheathing or decking shall be covered with a **minimum** 4 inch (102 mm) **to 6 inch (153 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.

706.8 When a roof covering on an existing **site-built single-family residential** structure **with a sawn lumber, wood plank, or wood structural panel roof deck** 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 706.8.1.
- (b) Mandated retrofits of the roof-to-wall connection shall not be required beyond a 15 percent increase in the cost of reroofing.

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

706.8.1 Roof-to-wall connections for **site-built single-family residential** structures **with wood roof decks.**

Remaining section unchanged.

FBCB Chapter 7 Alterations - Level 1

Section 707 Structural

707.3.2 Roof diaphragms resisting wind loads in high-wind regions. Where **roofing materials are the structural roof deck** is removed from more than **50 30** percent of the **roof structural** diaphragm **of a building** or section of a building located where the ultimate design wind speed, *V_{ult}*, is greater than 115 mph, as defined in Section 1609 (the HVHZ shall comply with Section 1620) of the *Florida Building Code, Building*, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in the *Florida Building Code, Building*, including wind uplift.

If the diaphragms and connections in their current condition are not capable of resisting at least 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the *Florida Building Code, Building*.

Exceptions:

This section does not apply to buildings permitted subject to the Florida Building Code.

~~2. This section does not apply to buildings permitted subject to the 1991 Standard Building Code, or later edition, or designed to the wind loading requirements of the ASCE 7-88 or later editions, where an evaluation is performed by a registered design professional to confirm the roof diaphragm, connections of the roof diaphragm to roof framing members, and roof-to-wall connections are in compliance with the wind loading requirements of either of these standards or later editions.~~

~~3. Buildings with steel or concrete moment resisting frames shall only be required to have the roof diaphragm panels and diaphragm connections to framing members evaluated for wind uplift.~~

~~4. This section does not apply to site-built single-family dwellings. Site-built single-family dwellings shall comply with Sections 706.7 and 706.8.~~

~~5. This section does not apply to buildings permitted within the HVHZ after January 1, 1994 subject to the 1994 South Florida Building Code, or later editions, or where the building's wind design is based on the wind loading requirements of ASCE 7-88 or later editions.~~

FBCR Chapter 9

Section 902.4 Fire Classification

R902.4 Rooftop-mounted photovoltaic panels and modules panel systems. **Rooftop-mounted photovoltaic panel systems installed on or above the roof covering shall be tested, listed and identified with a fire classification in accordance with UL 1703 and UL 2703. Class A, B or C photovoltaic panel systems and modules shall be installed in jurisdictions designated by law as requiring their use or where the edge of the roof is less than 3 feet (914 mm) from a lot line.**

FBCB Section 1501 General

1501.1 Scope. The provisions of this chapter shall govern the design, materials, construction and quality of roof assemblies, and rooftop structures.

Exception: Buildings and structures located within the High-Velocity Hurricane Zone shall comply with the provisions of Section 1503.7, **Section 1507.18.1** and Sections 1512 through 1525.

Section 1503 Weather Protection

1503.1 General. Roof decks shall be covered with approved roof coverings secured to the building or structure in accordance with the provisions of this chapter. Roof coverings shall be **designed in accordance with this code and** installed in accordance with this code and the **approved** manufacturer's

[approved](#) instructions such that the roof covering shall serve to protect the building or structure.

Section 1504 Performance Requirements

1504.3.3 Metal roof shingles. [Metal roof shingles applied to a solid or closely fitted deck shall be tested in accordance with FM 4474, UL 580, UL 1897, ASTM D3161, or TAS 107. Metal roof shingles tested in accordance with ASTM D3161 shall meet the classification requirements of Table 1504.3.3 for the appropriate maximum basic wind speed and the metal shingle packaging shall bear a label to indicate compliance with ASTM D3161 and the required classification in Table 1504.3.3.](#)

**Table 1504.3.3
Classification of Metal Roof Shingles Tested in
Accordance with ASTM D3161**

Maximum Basic Wind Speed from Figure 1609A, B, C or ASCE 7 1609.3(1), (2), (3), (4) or ASCE 7	Vasd	ASTM D3161
110	85	D or F
116	90	D or F
129	100	D or F
142	110	E
155	120	E
168	130	E
181	140	E
194	150	E

1504.5 Edge securement for low-slope roofs. Low-slope built-up, modified bitumen and single-ply roof system metal edge securement, except gutters, shall be designed and installed for wind loads in accordance with Chapter 16 and tested for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 of ANSI/SPRI ES-1, or RAS 111 except *Vult* wind speed shall be determined from Figure 1609.3(1), 1609.3(2), or 1609.3(3), [or 1609.3\(4\)](#) as applicable.

1504.7 Impact resistance. Roof coverings installed on low slope roofs (roof slope < 2:12) in accordance with Section 1507 shall resist impact damage based on the results of tests conducted in accordance with ASTM D3746, ASTM D4272, [CGSB 37-GP-52M](#) or the “Resistance to Foot Traffic Test” in Section [5-5](#) 4.6 of FM 4470. All structural metal roofing systems having a thickness equal to or greater than 22 gage and all nonstructural metal roof systems having a thickness equal to or greater than 26 gage shall be exempt from the tests listed above.

Section 1505 Fire Classification

1505.8 Building-integrated photovoltaic products. [Building-integrated photovoltaic products installed as the roof covering shall be tested, listed and labeled for fire classification in accordance with Section 1505.1.](#)

1505.9 Photovoltaic panels and modules: Rooftop mounted photovoltaic panel systems. [Rooftop mounted photovoltaic panel systems shall be tested, listed and identified with a fire classification in accordance with UL 1703 or UL 2073. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.](#)

Section 1507 (FBCR R905) Requirements for Roof Coverings

1507.1.1 (R905.1.1) Underlayment. ~~Unless otherwise noted to~~ [Underlayment for asphalt shingles, metal roof shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes and metal roof panels for roof slopes 2:12 and greater shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D226, D1970, D4869 and D6757 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table 1507.1.1. Underlayment for roof slopes 2:12 and greater shall be applied and attached in accordance with Section 1507.1.1.1, 1507.1.1.2, or 1507.1.1.3 as applicable. Table 1507.1.1.](#)

Exceptions:

(Chapter 15 only) 1. [For areas of a roof that cover exterior walkways and roofs of agricultural buildings, underlayment shall comply with the manufacturer’s installation instructions.](#)

(Chapter 15 only 2. & Chapter 9) [Compliance with Section 1507.1.1.1 \(R905.1.1.1\) is not required for structural panels that do not require a substrate or underlayment.](#)

1507.1.1.1 (R905.1.1) Underlayment for asphalt, metal, mineral surfaced, slate and slate-type roof coverings. [Underlayment for asphalt shingles, metal roof shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes and metal roof panels shall comply with one of the following methods:](#)

1. [The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen underlayment complying with ASTM D1970 installed in accordance with both the underlayment manufacturer’s and roof covering manufacturer’s installation instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed.](#)

Exception: [An existing self-adhering modified bitumen underlayment which has been previously installed over the roof decking and where it is required, re-nailing off the roof sheathing in accordance with 706.7.1 of](#)

the Florida Building Code, Existing Building can be confirmed or verified. An approved underlayment in accordance with **Table 1507.1.1.1** for the applicable roof covering shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment.

2. A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.

Exception: A reinforced synthetic underlayment that is approved as an alternate to underlayment complying with ASTM D226 Type II and having a minimum tear strength of 15 lbf in accordance with ~~ASTM D1970 or~~ ASTM D4533 of 20 pounds and a minimum tensile strength of 20 lbf/inch in accordance with ASTM D5035 shall be permitted to be applied over the entire roof over the 4-inch wide (102 mm) membrane strips. This underlayment shall be installed and attached in accordance with the underlayment attachment methods of Table 1507.1.1.1 for the applicable roof covering and slope and the underlayment manufacturer's installation instructions. ~~except metal cap nails shall be required where the ultimate design wind speed, Vult equals or exceeds 150 mph.~~

3. A minimum 3-3/4-inch-wide (96 mm) strip of self-adhering flexible flashing tape complying with AAMA 711-13, Level 3 (for exposure up to 176° F (80° C)), installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) flashing strips.

Exception: A reinforced synthetic underlayment that is approved as an alternate to underlayment complying with ASTM D226 Type II and having a minimum tear strength of 15 lbf in accordance with ASTM D4533 and a minimum tensile strength of 20 lbf/inch in accordance with ASTM D5035 shall be permitted to be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips. This underlayment shall be installed and attached in accordance with the underlayment attachment methods of Table 1507.1.1.1 for the applicable roof covering and slope and the underlayment manufacturer's installation instructions.

4. Two layers of ASTM D226 Type II or ASTM D4869 Type III or Type IV underlayment shall be installed as follows: Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inch-wide (914 mm) sheets of underlayment,

overlapping successive sheets 19 inches (483 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with one row centered in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using annular ring or deformed shank nails with metal or plastic caps with a nominal cap diameter of not less than 1 inch. Metal caps are required where the ultimate design wind speed, Vult, equals or exceeds 170 mph. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.

5. Two layers of a reinforced synthetic underlayment that has a Product Approval as an alternate to underlayment complying with ASTM D226 Type II shall be permitted to be used. Synthetic underlayment shall have a minimum tear strength of 15 lbf in accordance with ASTM D4533, a minimum tensile strength of 20 lbf/inch in accordance with ASTM D5035, and shall meet the liquid water transmission test of Section 8.6 of ASTM D4869. Synthetic underlayment shall be installed as follows: Apply a strip of synthetic underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full sheets of reinforced synthetic underlayment, overlapping successive sheets half the width of a full sheet plus the width of the manufacturer's single ply overlap. End laps shall be 6 inches and shall be offset by 6 feet. Synthetic underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with a maximum fastener spacing measured horizontally and vertically of 12 inches (305 mm) o.c. between side laps, and one row at the end and side laps fastened 6 inches (152 mm) o.c. Synthetic underlayment shall be attached using annular ring or deformed shank nails with metal or plastic caps with a nominal cap diameter of not less than 1 inch. Metal caps are required where the ultimate design wind speed, Vult, equals or exceeds 170 mph. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.

**Table 1507.1.1 (R905.1.1.1)
Underlayment with Self-Adhering Strips Over Roof Decking Joints**

Roof Covering	Underlayment Type	Underlayment Attachment	
		2:12 = Roof Slope < 4:12	Roof Slope > 4:12
Asphalt Shingles, Metal Roof Panels, Photovoltaic Shingles	ASTM D226 Type II, ASTM D4869 Type III or IV, ASTM D6757	Apply in accordance with Section R905.1.1.1 Item 4 or Section R905.1.1.3 Item 3 as applicable to the type of roof covering	Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 4 inches (51 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using annular ring or deformed shank nails with metal or plastic caps with a nominal cap diameter of not less than 1 inch. Metal caps are required where the ultimate design wind speed, <i>Vult</i> , equals or exceeds 170 mph. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails. Cap nail shank shall have a length sufficient or not less than 3/4 inch into the roof sheathing.
Metal Roof Shingles, Mineral-Surface Roll Roofing, Slate and Slate-type Shingles, Wood Shingles, Wood Shakes	ASTM D226 Type II, ASTM D4869 Type III or IV		

**** Tables from 2017 FBC have been removed. ****

Underlayment Attachment

1. Roof slopes from two units vertical in 12 units horizontal (17-percent slope), and less than four units vertical in 12 units horizontal (33-percent slope). Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inchwide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with one row centered in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using metal or plastic cap nails with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing:

2. Roof slopes of four units vertical in 12 units horizontal (33-percent slope) or greater. Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 4 inches (51 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using metal or plastic cap nails with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing:

3. Roof slopes from two units vertical in 12 units horizontal (17-percent slope) and greater. The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen underlayment complying with ASTM D1970(2015a) installed

in accordance with both the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed.

Exception: A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970(2015a), installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table 1507.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.

1507.1.1.2 (R905.1.1.2) Underlayment for concrete and clay tile. Underlayment for concrete and clay tile shall comply with **1507.3.3 (R905.3.3)**.

1507.1.1.3 (R905.1.1.3) Underlayment for wood shakes and shingles. Underlayment for wood shakes and shingles shall comply with one of the following methods:

1. A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.

2. A minimum 3-3/4-inch-wide (96 mm) strip of self-adhering flexible flashing tape complying with AAMA 711-13, Level 3 (for exposure up to 176° F (80° C)), installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An underlayment complying with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) flashing strips.

3. Two layers of ASTM D226 Type II or ASTM D4869 Type III or Type IV underlayment shall be installed as follows: Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inch-wide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with one row centered in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using annular ring or deformed shank nails with metal or plastic caps with a nominal cap diameter of not less than 1 inch. Metal caps are required where the ultimate design wind speed, V_{ult} , equals or

exceeds 170 mph. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch.

Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.

1507.2.7.1 Wind resistance of asphalt shingles. (R905.2.6.1 Classification of asphalt shingles)

Asphalt shingles shall be classified in accordance with ASTM D3161, ASTM D7158 or TAS 107. Shingles classified as ASTM D3161 Class D or ASTM D7158 Class G are acceptable for use where V_{asd} is equal to or less than 100 mph. Shingles classified as ASTM D3161 Class F, ASTM D7158 Class H or TAS 107 are acceptable for use for all wind speeds. Asphalt shingle wrappers shall be labeled to indicate compliance with one of the required classifications, as shown in Table 1507.2.7.1. (R905.2.6.1)

1507.2.9.3 (R905.2.8.5) Drip edge. Provide drip edge at eaves and gables of shingle roofs. Overlap to be a minimum of 3 inches (76 mm). Eave drip edges shall extend 1/2 inch (13 mm) below sheathing and extend back on the roof a minimum of 2 inches (51 mm). Drip edge at gables shall be installed over the underlayment. Drip edge at eaves shall be permitted to be installed either over or under the underlayment. If installed over the underlayment, there shall be a minimum 4 inches (51 mm) width of roof cement installed over the drip edge flange. Drip edge shall be mechanically fastened a maximum of 12 inches (305 mm) on center. Where the V_{asd} , as determined in accordance with Section 1609.3.1, is 110 mph (177 km/h) or greater or the mean roof height exceeds 33 feet (10 058 mm), drip edges shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

1507.3 Clay and concrete tile. The installation of clay and concrete tile shall comply with the provisions of this section.

1507.3.2 Deck slope. Clay and concrete roof tile shall be installed in accordance with the recommendations of FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, Fifth** Sixth Edition where the V_{asd} is determined in accordance with Section 1609.3.1 or the recommendations of RAS 118, 119 or 120.

** All other mentions in the FBC referring to the FRSA-TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, reference the **Sixth Edition**. **

FBCR (R905) Requirements for Roof Coverings

905.4.4.1 Wind Resistance of Metal roof shingles.

Metal roof shingles applied to a solid or closely fitted deck shall be tested in accordance with ASTM D3161, FM 4474, UL 580, UL 1897 or TAS 107. Metal roof

shingles tested in accordance with ASTM D3161 shall meet the classification requirements of Table R905.2.4.1 for the appropriate maximum basic wind speed and the metal shingle packaging shall bear a label to indicate compliance with ASTM D3161 and the required classification in Table R905.4.4.1.

**Table 905.4.4.1
Classification of Metal Roof Shingles Tested in
Accordance with ASTM D3161**

Maximum Basic Wind Speed from Figure 1609A, B, C or ASCE 7 R301.2(4) or ASCE 7	V_{asd}	ASTM D3161
110	85	D or F
116	90	D or F
129	100	D or F
142	110	F
155	120	F
168	130	F
181	140	F
194	150	F

FBCB Section 1507 (R905) Requirements for Roof Coverings

**Table 1507.9.6 (905.8.5)
Wood Shake Material Requirements**

Material	Minimum Grades	Applicable Grading Rules
Wood shakes of naturally durable wood	1	CSSB
Taper sawn shakes of naturally durable wood	1 or 2	CSSB
Preservative-treated shakes and shingles of naturally durable wood	1	CSSB
Fire-retardant-treated shakes and shingles of naturally durable wood	1	CSSB

Preservative-treated taper sawn shakes of Southern pine treated in accordance with AWPA U1 (Commodity Specification A, Special Requirement 4.6 . Use Category 3B and Section 5.6)	1 or 2	TFS
--	--------	-----

CSSB = Cedar Shake and Shingle Bureau
TFS = Forest Products Laboratory of the Texas Forest Services

FBCB SECTION 1507 (R905) Requirements for Roof Coverings

1507.11.2 (R905.11.2) Material standards.

Modified bitumen roof coverings shall comply with [CGSB 37-GP-56M](#), ASTM D6162, ASTM D6163, ASTM D6164, ASTM D6222, ASTM D6223, ASTM D6298 or ASTM D6509.

1507.12.2 (R905.12.2) Material standards.

Thermoset single-ply roof coverings shall comply with ASTM D4637, [or](#) ASTM D5019. [or](#) [CGSB 37-GP-52M](#)

1507.13.2 (R905.13.2) Material standards.

Thermoplastic single-ply roof coverings shall comply with ASTM D4434, ASTM D6754, [or](#) ASTM D6878. [or](#) [CGSB CAN/CGSB 37-54](#).

(R905.15.3) Application. Liquid-applied roofing shall be installed in accordance with this chapter and the manufacturer's [approved installation](#) instructions. The approved allowable uplift resistance for the liquid-applied coatings shall be equal to or greater than the uplift resistance for the roof based on Table R301.2(2).

(R905.17.1) Wind resistance. Rooftop mounted photovoltaic systems shall be designed for wind loads [in accordance with ASCE 7](#). [for component and cladding in accordance with Chapter 16 of the Florida Building Code, Building using an effective wind area based on the dimensions of a single unit frame.](#))

FBCR SECTION (R907) Requirements for Roof Covers

R907.1 Rooftop-mounted photovoltaic systems.

[Rooftop-mounted photovoltaic panel systems shall be designed and installed in accordance with Section R324, NFPA 70 and the Florida Fire Prevention Code.](#)

[Reserved:](#)

[R907.2 Wind resistance:](#)

[Reserved:](#)

[R907.3 Fire classification:](#)

[Reserved:](#)

[R907.4 Installation:](#)

[Reserved:](#)

[R907.5 Photovoltaic panels and modules:](#)

[Reserved:](#)

**SECTION R909-
ROOFTOP-MOUNTED PHOTOVOLTAIC PANEL
SYSTEMS**

R909.1 General:

Reserved:

R909.2 Structural requirements:

Reserved:

R909.3 Installation:

Reserved:

FBCB SECTION 1510 Rooftop Structures

1510.2.5 Type of construction. Penthouses shall be constructed with walls, floors and roofs as required for the type of construction of the building on which such penthouses are built.

Exceptions:

1. On buildings of Type I construction, the exterior walls and roofs of penthouses with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating. The exterior walls and roofs of penthouses with a fire separation distance of 20 feet (6096 mm) or greater shall not be required to have a fire-resistance rating.
2. On buildings of Type I construction two stories or less in height above grade plane or of Type II construction, the exterior walls and roofs of penthouses with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating or a lesser fire-resistance rating as required by Table 602 and be constructed of fire-retardant-treated wood. The exterior walls and roofs of penthouses with a *fire separation distance* of 20 feet (6096 mm) or greater shall be permitted to be constructed of fire-retardant-treated wood and shall not be required to have a fire-resistance rating. Interior framing and walls shall be permitted to be constructed of fire-retardant-treated wood.
3. On buildings of Type III, IV or V construction, the exterior walls of penthouses with a fire separation distance greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating or a lesser fire-resistance rating as required by Table 602. On buildings of Type III, IV or VA construction, the exterior walls of penthouses with a fire separation distance of 20 feet (6096 mm) or greater shall be permitted to be of **Type IV heavy timber construction complying with Sections 602.4 and 2304.11** or noncombustible construction or fire-retardant-treated wood and shall not be required to have a fire-resistance rating.

1510.7.1 Wind resistance. Rooftop-mounted photovoltaic systems shall be designed for wind loads in accordance with ASCE 7, for component and cladding in accordance with Chapter 16 using an effective wind area based on the dimensions of a single unit frame.

1510.11 Cable- and Raceway-Type Wiring Methods.

Cable- and raceway-type wiring methods installed on rooftops, when not encased in a structural concrete environment, shall be supported above the roof system and covering. Cable- and raceway-type wiring methods installed in locations under metal-corrugated sheet roof decking shall be supported so there is not less than 38 mm (1-1/2 in.) measured from the lowest surface of the roof decking to the top of the cable or raceway. A cable or raceway shall not be installed in concealed locations in metal-corrugated sheet decking-type roof.

FBCB SECTION 1511 Existing Roofing

1511.5 (EB 706.5) Reinstallation/Reuse of materials.

Existing or salvaged slate, clay or ~~cement~~ concrete tile shall be permitted for reinstallation or reuse, to repair an existing slate or tile roof, except that salvaged slate or tile shall be of like kind in both material and profile. ~~¶~~ Damaged, cracked or broken slate or tile shall not be reinstalled. The building official may permit salvaged slate, clay and concrete tile to be installed on additions and new construction, when the tile is tested in compliance with the provisions of Section 1507 and installed in accordance with Section 1507. 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.

**FBCB HIGH-VELOCITY HURRICANE ZONES
Weather Protection**

1514.4 Roof drainage. Unless roofs are sloped to drain over roof edges, roof drains shall be installed at each low point of the roof. If required, roof drains shall comply with the Florida Building Code, Plumbing. Where required for primary roof drainage, scuppers shall be placed level with the roof surface in a wall or parapet. The scupper shall be located as determined by the roof slope and contributing roof area. Scuppers shall be sized in accordance with the provisions contained in ASCE 7, **Section Chapter 8** with commentary and shall comply with Section 1611 herein.

1514.4.2.1 When overflow scuppers and roof drains are installed, they shall be lined with approved metal or other approved materials set forth herein, in the roofing system assembly product approval.

1514.4.2.2 When recovering, reroofing or repairing an existing roof, the existing number or size of required scuppers and/or roof drains shall not be reduced, unless a new drainage system is designed by a registered design professional an architect or engineer, in compliance with the provisions of this code.

1514.4.3 Sizing and discharge. Roof drains, gutters, conductors and leaders shall be sized and discharge in accordance with the *Florida Building Code, Plumbing and ASCE 7, Chapter 8 with commentary.*

FBCB HIGH-VELOCITY HURRICANE ZONES Performance Requirements

Table 1515.2 Minimum Slope

System Type	Slope
Fibrous Cement Shingles	4:12
Metal Panels	
Architectural	2:12 ¹
Metal Shingles	4:12
Mortar or Adhesive Tile	2:12
Mechanically Fastened Tile	4:12
Asphalt Shingles	
Laminated	2:12
3-Tab	2:12
Quarry Slate	3-1/2:12
Wood	
Shakes	4:12
Shingles	3-1/2:12

1. 1523.6.5.2.4.1 Standing seam metal roof panel systems that pass the requirements of the Static Water Leakage Test criteria of FM 4471 Appendix G, or ASTM E2140 shall be permitted to be installed to a minimum slope of 1:12.

FBCB HIGH-VELOCITY HURRICANE ZONES Reroofing

1521.13 Prior to starting the work the contractor has the responsibility of notifying the owner ~~by means of the roofing permit and required owner's notification for roofing considerations herein~~ of any possibility of ponding water and recommend a structural review if ponding water is a possibility.

FBCB HIGH-VELOCITY HURRICANE ZONES Testing

1523.6.4 The building official may request that a quality control field uplift test be carried out on a continuous roofing system in compliance with test procedure TAS 124. Single-ply systems are not required to meet the deflection requirements established in the test protocol. ~~if mechanically attached~~. The roofing system shall resist the design pressures as calculated in compliance with Chapter 16 (High-Velocity Hurricane Zones), and as established in TAS 124, [Section 4](#).

1523.6.5.2.4.1 All metal roofing shall be tested in compliance with requirements set forth in TAS 110 and TAS 125 and shall be tested for wind-driven rain infiltration resistance in compliance with TAS 100.

[1523.6.5.2.4.1.1 Standing seam metal roof panel systems that pass the requirements of the Static Water Leakage Test criteria of FM 4471 Appendix G, can be](#)

[installed to a minimum slope of 1:12.](#)

1523.6.5.2.8 Roof board insulation. All roof board insulation shall be tested for physical properties as set forth in Section [7.8](#) of TAS 110.

SECTION 1525 FBCB HIGH-VELOCITY HURRICANE ZONES Uniform Permit Application

Florida Building Code [6.7](#)th Edition (201720) High-Velocity Hurricane Zone Uniform Permit Application Form

Section C (Low Slope Application)

Design Wind Pressures, From RAS 128 or Calculations:

P1 Zone 1: _____ P2 Zone 1: _____ P3 Zone 2: _____
Zone 3: _____

Fastener Spacing for Anchor/Base Sheet Attachment:

Field Zone 1: _____" oc @ Lap, # Rows _____ @ _____" oc
Zone 1: _____" oc @ Lap, # Rows _____ @ _____" oc
Perimeter Zone 2: _____" oc @ Lap, # Rows _____ @ _____" oc
Corner Zone 3: _____" oc @ Lap, # Rows _____ @ _____" oc

(continued on next page)

Section E (Tile Calculations)

For Moment based tile systems, choose either Method 1 or 2. Compare the values for M_r with the values from M_f . If the M_f values are greater than or equal to the M_r values, for each area of the roof, then the tile attachment method is acceptable.

Method 1 “Moment Based Tile Calculations Per RAS 127”

$$\begin{aligned}
 & (P_1 \text{ Zone 1: } \quad \times ? \quad = \quad) - Mg: \quad = M_{r1} \quad \text{Product Approval } M_f \quad \\
 & (P_2 \text{ Zone 2e: } \quad \times ? \quad = \quad) - Mg: \quad = M_{r2} \quad \text{Product Approval } M_f \quad \\
 & (P_3 \text{ Zone 2n: } \quad \times ? \quad = \quad) - Mg: \quad = M_{r3} \quad \text{Product Approval } M_f \quad \\
 & \text{(Zone 2r: } \quad \times l \quad = \quad) - Mg \quad = M_{r1} \quad \text{NOA } M_f \quad \\
 & \text{(Zone 3e: } \quad \times l \quad = \quad) - Mg: \quad = M_{r2} \quad \text{NOA } M_f \quad \\
 & \text{(Zone 3r: } \quad \times l \quad = \quad) - Mg: \quad = M_{r3} \quad \text{NOA } M_f \quad
 \end{aligned}$$

For Uplift based tile systems, use Method 3. Compared the values for F' with the values for F_r . If the F' values are greater than or equal to the F_r values, for each area of the roof, then the tile attachment method is acceptable.

Method 3 “Uplift Based Tile Calculations Per RAS 127”

$$\begin{aligned}
 & (P_1 \text{ Zone 1: } \quad \times L \quad = \quad \times w: = \quad) - W: \quad \times \cos? \quad = F_{r1} \quad \text{Product Approval } F' \quad \\
 & (P_2 \text{ Zone 2e: } \quad \times L \quad = \quad \times w: = \quad) - W: \quad \times \cos? \quad = F_{r2} \quad \text{Product Approval } F' \quad \\
 & (P_3 \text{ Zone 2n: } \quad \times L \quad = \quad \times w: = \quad) - W: \quad \times \cos? \quad = F_{r3} \quad \text{Product Approval } F' \quad \\
 & \text{(Zone 2r: } \quad \times L \quad = \quad \times w: = \quad) - W: \quad \times \cos? \quad = F_{r1} \quad \text{Product Approval } F' \quad \\
 & \text{(Zone 3e: } \quad \times L \quad = \quad \times w: = \quad) - W: \quad \times \cos? \quad = F_{r2} \quad \text{Product Approval } F' \quad \\
 & \text{(Zone 3r: } \quad \times L \quad = \quad \times w: = \quad) - W: \quad \times \cos? \quad = F_{r3} \quad \text{Product Approval } F' \quad
 \end{aligned}$$

Where to Obtain Information

Description	Symbol	Where to Find
Design Pressure	P1 or P2 or P3 Zones 1, 2e, 2n, 2r, 3e, 3r	From applicable Table in RAS 127 Table 1 or by an engineering analysis prepared by PE based on ASCE 7

For more information on the code, to purchase code books and to view the code online, please visit the ICC website, <https://codes.iccsafe.org/codes/florida>.

FRSA offers roofing-specific continuing education seminars on code changes during the year, at our annual Convention and online. For more information, please visit www.floridarroof.com.

FRM

As mentioned earlier, these are some of the changes to the FBC 2020. In addition, contractors should be familiar with the Roofing Application Standard (RAS) and the Testing Application Standard (TAS) mentioned throughout the code.

Mike Silvers, CPRC is owner of Silvers Systems Inc. and is consulting with FRSA as Director of Technical Services. Mike is an FRSA Past President, Life Member, and Campanella Award recipient and brings over 40 years of industry knowledge and experience to FRSA's team.