

Florida Building Code, 5th Edition

SHINGLE ROOFING

Date Issued/Updated: July 6, 2015

This bulletin addresses the current Building Code roofing and re-roofing requirements for shingle roofing systems. The information found in this bulletin is a summary of the roofing and re-roofing requirements found in the Florida Building Code – Existing Building edition Chapter 7, Section 708 and the Florida Building Code – Building edition Chapter 15, Section 1507.2. For navigation of the specific provision please see the attached appendix.

Shingle Underlayment Requirements

For Roof Slopes 2:12 up to 4:12

- Option 1.1)** 2-layers of 15# roofing paper, or
- Option 1.2)** 2-layers of 30# roofing paper, or
- Option 1.3)** 1-layer of synthetic underlayment

For Roof Slopes greater than 4:12

- Option 2.1)** 1-layer of 15# roofing paper, or
- Option 2.2)** 1-layer of 30# roofing paper, or
- Option 2.3)** 1-layer of synthetic underlayment, or
- Option 2.4)** 1-layer of self-adhering polymer modified bitumen sheet

Secondary Water Barrier Requirements

NOTE: Structures that already comply are exempt from this requirement, (i.e. permitted under the 2007 code or newer).

HVHZ and Non-HVHZ Regions:

- Option 1.a)** all joints in the roof decking are to be covered with 4-inch wide strips of self-adhering polymer modified bitumen tape applied directly to the decking. *(The deck and tape can then be covered with one of the approved underlayment systems), or*

Option 1.b) the roof decking is to be covered with 30# roofing paper (*No additional underlayment shall be required over the top of this*), or

Option 1.b) the roof decking is to be covered with an approved synthetic underlayment (*No additional underlayment shall be required over the top of this*)

Non-HVHZ Regions:

Option 2.a) the roof decking is to be completely covered with an approved self-adhering polymer modified bitumen sheet (*No additional underlayment shall be required over the top of this*), or

Option 2.a) the roof decking is to be covered with an approved self-adhering synthetic underlayment (*No additional underlayment shall be required on top of this sheet for new installations*), or

Option 2b) any one of the approved underlayment systems with modifications enhancing the method of attachment

Deck Re-nailing Requirements

Wood Plank Decking:

Refasten so that each wood plank is nailed into each roof framing member it crosses with a minimum of 2 8d nails.

Wood structural panels (Plywood or OSB)

Refasten so that each panel is nailed into each roof framing member it crosses with 8d nails at a maximum spacing of 6 inches on center. NOTE: tighter spacing may be required based on wind speed requirements.

Valley Flashing Requirements

For Open Valleys:

Option 1) Corrosion-resistant materials such as: 26 gauge G90 galvanized steel, 26 gauge AZ50 Aluminum Zinc Coated Steel and 0.027 inch thick Zinc Alloy, or

Option 2) 2-Layers of approved mineral-surfaced roll roofing

For Closed Valleys:

- Option 3)** 1-Layer of approved smooth roll roofing, or
- Option 3)** Corrosion-resistant materials such as: 26 gauge G90 galvanized steel, 26 gauge AZ50 Aluminum Zinc Coated Steel and 0.027 inch thick Zinc Alloy, or
- Option 3)** 2-Layers of approved mineral-surfaced roll roofing, or
- Option 3)** 1-Layer of approved self-adhering polymer modified bitumen underlayment

25% Replacement Rule

Florida Building Code – Existing Building Chapter 6 Section 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.*

If more than 25% of the roofing is damaged AND

- The roof was not permitted subsequent to October 1, 2005, properly inspected or the permit was not “closed out” then the entire roofing section must be reroofed
- The roof was permitted subsequent to October 1, 2005, properly inspected and the permit was “closed out” then this rule does not apply.

The definition of a ROOF SECTION is found in the Florida Building Code – Existing Building edition’s Chapter 2 Section 202 DEFINITIONS:

ROOF SECTION. A separating 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.”

This means that both sides of a sloped roof are one section but changes in roofing material or changes in elevation are different roof sections.

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Applicability

The Florida Building Code – Existing Building edition establishes the criteria for re-roofing in Chapter 7, Section 708. Section 708.1 states that when new roofing materials are installed, they are to be installed in accordance the new construction requirements. This does not mean that the entire roof must meet new construction requirements, only those portions being replaced.

708.1 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.

The installation requirements for new asphalt shingle roofing systems is found within the Florida Building Code – Building edition Chapter 15, Section 1507.2 and its subsequent sections.

1507.2 Asphalt shingles. The installation of asphalt shingles shall comply with the provisions of this section.

Roofing Materials: Shingle Underlayment

This summary is based on the code requirements found in the Florida Building Code – Existing Building edition Chapter 7, Section 708 and the Florida Building Code – Building edition Chapter 15, Section

Number of Layers Required:

FBC – Building Section 1507.2.2 states that roof slopes from 2:12 up to 4:12 require 2-layers of underlayment and roof slopes greater than 4:12 only require 1 layer of underlayment.

1507.2.2 Slope. Asphalt shingles shall only be used on roof slopes of two units vertical in 12 units horizontal or greater. For roof slopes from two units vertical in

12 units horizontal up to four units vertical in 12 units horizontal, double underlayment application is required in accordance with Section 1507.2.8

Types Approved:

FBC – Building Section 1507.2.3 and 1507.2.4 state that the types of underpayments approved include: 15lb roofing paper (ASTM D 226 Type I), 30# roofing paper (ASTM D 226 Type II), synthetic underlayment or a self-adhering polymer modified bitumen sheet (ASTM D 1970).

1507.2.3 Underlayment. Unless otherwise noted, required underlayment shall conform to ASTM D 226, Type I or Type II, ASTM D 4869, Type II or Type IV, or ASTM D 6757.

1507.2.4 Self-adhering polymer modified bitumen sheet. Self-adhering polymer modified bitumen sheet shall comply with ASTM D 1970.

Application Requirements:

FBC – Building Section 1507.2.8 establishes the number of layers and the types of underlayment to be used.

1507.2.8 Underlayment application. Underlayment shall be installed using one of the following methods:

1. For 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). Underlayment shall comply with ASTM D 226, Type I or Type II or ASTM D 4869, Type II or Type IV or ASTM D 6757 and shall be two layers applied in the following manner. 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), and fastened with 1- inch (25 mm) round plastic cap, metal cap nails or nails and tintabs attached to a nailable deck with one row in the field of the sheet with a maximum fastener spacing of 12 inches on center (305 mm), and one row at the overlaps fastened 6 inches (152 mm) on center. Synthetic underlayment shall be fastened in accordance with this section and the manufacturer's recommendations.

2. For roof slopes of four units vertical in 12 units horizontal (33-percent slope) or greater. Underlayment shall comply with ASTM D 226, Type II or ASTM D 4869, Type IV or ASTM D 6757 and shall be one layer applied in the following manner. Underlayment shall be applied shingle fashion, parallel to and starting from the

eave and lapped 2 inches (51 mm), fastened with 1-inch (25 mm) round plastic cap, metal cap nails or nails and tin-tabs 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) on center, and one row at the overlaps fastened 6 inches (152 mm) on center. Synthetic underlayment shall be fastened in accordance with this section and the manufacturer's recommendations. End laps shall be offset by 6 feet (1829 mm). 3. As an alternative, 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.

Summary:

For Roof Slopes 2:12 up to 4:12

- Option 1.1)** 2-layers of 15# roofing paper, or
- Option 1.2)** 2-layers of 30# roofing paper, or
- Option 1.3)** 1-layer of synthetic underlayment

For Roof Slopes greater than 4:12

- Option 2.1)** 1-layer of 15# roofing paper, or
- Option 2.2)** 1-layer of 30# roofing paper, or
- Option 2.3)** 1-layer of synthetic underlayment, or
- Option 2.4)** 1-layer of self-adhering polymer modified bitumen sheet

Roofing Materials: Secondary Water Barrier

FBC – Existing Building Section 708.7 establishes the requirement that a secondary water barrier system be installed. NOTE: Structures that already comply are exempt from this requirement, (i.e. permitted under the 2007 code or newer).

708.7 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 708.7.1.

(b) A secondary water barrier shall be provided as required by Section 708.7.2.

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

FBC – Existing Building Section 708.7.2 establishes the various methods of installing a system that complies with the secondary water barrier system requirement.

708.7.2 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 1518.2, 1518.3, or 1518.4 of the Florida Building Code, Building. (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 HVHZ:

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, ASTM D 4869, Type II or Type IV underlayment or approved synthetic underlayment shall be installed. The felt is to be fastened with 1-inch (25 mm) round plastic cap, metal cap nails or nails and tin-tabs 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 overlaps fastened 6-inches (152 mm) o.c. Synthetic underlayment shall be fastened in accordance with this section and 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, ASTM D 4869, Type II or Type IV underlayment shall be installed in a shingle-fashion and lapped 19 inches (483 mm) and fastened with 1-inch (25 mm) round plastic cap, metal cap nails or nails and tin-tabs, attached to a nailable deck with one row in the field of the sheet with a maximum fastener spacing of 12-inches (305 mm), o.c. and one row at the overlaps fastened 6-inches (152 mm) o.c. An approved synthetic underlayment shall be installed in accordance with this section and the manufacturer's installation instruction. (No additional underlayment shall be required over the top of this sheet.)

Summary:

HVHZ and Non-HVHZ Regions:

Option 1.a) all joints in the roof decking are to be covered with 4-inch wide strips of self-adhering polymer modified bitumen tape applied directly to the decking. *(The deck and tape can then be covered with one of the approved underlayment systems), or*

Option 1.b) the roof decking is to be covered with 30# roofing paper *(No additional underlayment shall be required over the top of this), or*

Option 1.b) the roof decking is to be covered with an approved synthetic underlayment *(No additional underlayment shall be required over the top of this)*

Non-HVHZ Regions:

Option 2.a) the roof decking is to be covered with an approved self-adhering polymer modified bitumen sheet *(No additional underlayment shall be required over the top of this), or*

Option 2.a) the roof decking is to be covered with an approved self-adhering synthetic underlayment *(No additional underlayment shall be required on top of this sheet for new installations), or*

Option 2b) any one of the approved underlayments with modifications enhancing the method of attachment

Roofing Materials: Deck Re-nailing

FBC – Existing Building Section 708.7 establishes the requirement that the rood decking is to be re-nailed. NOTE: Structures that already comply are exempt from this requirement, (i.e. permitted under the 2004 code or newer).

708.7 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 708.7.1.

(b) A secondary water barrier shall be provided as required by Section 708.7.2.

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

FBC – Existing Building Section 708.7.1 establishes the various re-nailing requirements.

708.7.1 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 708.7.1.1 or 708.7.1.2 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.

708.7.1.1 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.

708.7.1.2 For roof decking consisting of wood structural panels, fasteners and spacing required in columns 3 and 4 of Table 708.7.1.2 are deemed to comply with the requirements of Section 706.3, 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 706.3, 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 (152.4 mm) edge and 12-inch (305 mm) field spacing demonstrate an uplift resistance of a minimum of 200 psf.

Supplemental fasteners as required by Table 708.7.1.2 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 0.010 inch (0.254 mm) over shank diameter.
3. 16 to 20 rings per inch.
4. A minimum 0.280-inch (0.7 mm) full round head diameter.
5. Ring shank to extend a minimum of 1 1/2 inches (38 mm) from the tip of the nail.
6. Minimum 23/8-inch (60 mm) nail length.

TABLE 708.7.1.2 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.

Summary:

Wood Plank Decking:

Refasten so that each wood plank is nailed into each roof framing member it crosses with a minimum of 2 8d nails.

Wood structural panels (Plywood or OSB)

Refasten so that each panel is nailed into each roof framing member it crosses with 8d nails at a maximum spacing of 6 inches on center. NOTE: tighter spacing may be required based on wind speed requirements.

Roofing Materials: Valley Flashing

FBC – Existing Building Section 708.6 and FBC – Building Section 1507.2.9 requires that flashings be reconstructed and installed respectively, in accordance with the manufacturer’s instructions and those listed in the code.

Regarding Valleys:

FBC – Building Section 1507.2.9.2 establishes the requirements for valley flashing.

1507.2.9.2 Valleys. Valley linings shall be installed in accordance with the manufacturer’s instructions before applying shingles. Valley linings of the following types shall be permitted:

- 1. For open valleys (valley lining exposed) lined with metal, the valley lining shall be at least 16 inches (406 mm) wide and of any corrosion-resistant materials in Table 1503.2.*
- 2. For open valleys, valley lining of two plies of mineral-surfaced roll roofing comply with ASTM D 3909 or ASTM D 6380 Class M shall be permitted. The bottom layer shall be 18 inches (457 mm) and the top layer a minimum of 36 inches (914 mm) wide.*
- 3. for closed valleys (valleys covered with shingles), valley lining of one ply of smooth roll roofing complying with ASTM D 6380 Class S, and at least 36 inches (914 mm) wide or types as described in item 1 or 2 above shall be permitted. Self-adhering polymer modified bitumen underlayment complying with ASTM D 1970 shall be permitted in lieu of the lining material.*

Summary:

For Open Valleys:

Option 1) Corrosion-resistant materials such as: 26 gauge G90 galvanized steel, 26 gauge AZ50 Aluminum Zinc Coated Steel and 0.027 inch thick Zinc Alloy, or



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Option 2) 2-Layers of approved mineral-surfaced roll roofing

For Closed Valleys:

Option 3) 1-Layer of approved smooth roll roofing, or

Option 3) Corrosion-resistant materials such as: 26 gauge G90 galvanized steel, 26 gauge AZ50 Aluminum Zinc Coated Steel and 0.027 inch thick Zinc Alloy, or

Option 3) 2-Layers of approved mineral-surfaced roll roofing, or

Option 3) 1-Layer of approved self-adhering polymer modified bitumen underlayment