

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.

1507.3.1 Deck requirements. Concrete and clay tile shall be installed only over solid sheathing except where the roof covering is specifically designed and tested in accordance with Section 1609.5.2 to be applied over structural spaced sheathing boards

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*, Sixth Edition where the V_{asd} is determined in accordance with Section 1609.3.1 or the recommendations of RAS 118, 119 or 120.

1507.3.3 Underlayment. Unless otherwise noted, underlayment shall be applied according to the underlayment manufacturer's installation instructions or the recommendations of the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, Sixth Edition where the basic wind speed, V_{asd} is determined in accordance with Section 1609.3.1 or the recommendations of RAS 118, 119 or 120.

1507.3.3.1 Slope and underlayment requirements. Refer to FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, Sixth Edition where the basic wind speed V_{asd} is determined in accordance with Section 1609.3.1 for underlayment and slope requirements for specific roof tile systems or the recommendations of RAS 111, 118, 119 or 120.

1507.3.3.2 High-slope roofs. Reserved.

1507.3.3.3 High wind attachment. Reserved.

1507.3.4 Clay tile. Clay roof tile shall comply with ASTM C1167.

1507.3.5 Concrete tile. Concrete roof tile shall comply with ASTM C1492.

1507.3.6 Fasteners. Tile fasteners shall be corrosion resistant and not less than 11-gage, $\frac{5}{16}$ -inch (8.0 mm) head, and of sufficient length to penetrate the deck a minimum of $\frac{3}{4}$ inch (19.1 mm) or through the thickness of the deck, whichever is less. Attaching wire for clay or concrete tile shall not be smaller than 0.083 inch (2.1 mm). Perimeter fastening areas include three tile courses but not less than 36 inches (914 mm) from either side of hips or ridges and edges of eaves and gable rakes.

1507.3.7 Attachment. Clay and concrete roof tiles shall be fastened in accordance with Section 1609 or in accordance with FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, Sixth Edition where the basic wind speed, V_{asd} is determined in accordance with Section 1609.3.1.

Table 1507.3.7 Clay and Concrete Tile Attachment. Reserved.

1507.3.8 Application. Tile shall be applied according to the manufacturer's installation instructions or recommendations of the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, Sixth Edition where the basic wind speed, V_{asd} is determined in accordance with Section 1609.3.1 or the recommendation of RAS 118, 119 or 120.

1507.3.9 Flashing. At the juncture of the roof vertical surfaces, flashing and counterflashing shall be provided in accordance with the manufacturer's installation instructions or the recommendations of the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, Sixth Edition where the basic wind speed, V_{asd} is determined in accordance with Section 1609.3.1 or the recommendation of RAS 118, 119 or 120.

1507.4 Metal roof panels. The installation of metal roof panels shall comply with the provisions of this section. Metal roofing panels shall be factory or field manufactured in accordance with the manufacturers' product approval specifications and limitations of use. Metal roofing panels shall be factory or field manufactured under a quality assurance program that is audited by a third-party quality assurance entity approved by the Florida Building Commission for that purpose.

1507.4.1 Deck requirements. Metal roof panel roof coverings shall be applied to a solid or closely fitted deck, except where the roof covering is specifically designed to be applied to spaced supports.

1507.4.2 Deck slope. Minimum slopes for metal roof panels shall comply with the following:

1. The minimum slope for lapped, nonsoldered seam metal roof panels without applied lap sealant shall be three units vertical in 12 units horizontal (25-percent slope).
2. The minimum slope for lapped, nonsoldered seam metal roof panels with applied lap sealant shall be one-half unit vertical in 12 units horizontal (4-percent slope). Lap sealants shall be applied in accordance with the approved manufacturer's installation instructions.
3. The minimum slope for standing-seam metal roof panel systems shall be one-quarter unit vertical in 12 units horizontal (2-percent slope).

1507.4.3 Material standards. Metal-sheet roof covering systems that incorporate supporting structural members shall be designed in accordance with Chapter 22. Metal-sheet roof coverings installed over structural decking shall comply with Table 1507.4.3(1). The materials used for metal-sheet roof coverings shall be naturally corrosion

Roof Construction Manual or RAS 130. The product approval shall state the allowable uplift resistance for the attachment system. The installation of wood shakes shall be limited to roofs where the allowable uplift resistance is equal to or greater than the design uplift pressure for the roof listed in Table R301.2(2).

R905.8.1 Deck requirements. Reserved.

R905.8.1.1 Solid sheathing required. Reserved.

R905.8.2 Deck slope. Reserved.

R905.8.3 Underlayment. Underlayment shall comply and be installed in accordance with Section R905.1.1.

R905.8.3.1 Ice barrier. Reserved.

R905.8.4 Interlayment. Reserved.

R905.8.5 Material standards. Wood shakes shall comply with the requirements of Table R905.8.5.

**TABLE R905.8.5
WOOD SHAKE MATERIAL REQUIREMENTS**

MATERIAL	MINIMUM GRADES	APPLICABLE GRADING RULES
Wood shakes of naturally durable wood	1	Cedar Shake and Shingle Bureau
Tapersawn shakes of naturally durable wood	1 or 2	Cedar Shake and Shingle Bureau
Preservative-treated shakes and shingles of naturally durable wood	1	Cedar Shake and Shingle Bureau
Fire-retardant-treated shakes and shingles of naturally durable wood	1	Cedar Shake and Shingle Bureau
Preservative-treated tapersawn shakes of Southern pine treated in accordance with AWP Standard U1 (Commodity Specification A, Use Category 3B and Section 5.6)	1 or 2	Forest Products Laboratory of the Texas Forest Services

R905.8.6 Application. Reserved.

Table R905.8.6 Wood Shake Weather Exposure and Roof Slope. Reserved.

R905.8.7 Shake placement. Reserved.

R905.8.7.1 Fasteners.

R905.8.7.1.1 Nails. Fasteners to attach wood shakes shall be Type 304 (Type 316 for coastal areas) stainless steel ring-shank nails with a minimum penetration of 0.75 inch into the sheathing. Each shake shall be attached with a minimum of two fasteners.

R905.8.8 Valley flashing. Reserved.

R905.8.9 Label required. Each bundle of shakes shall be identified by a label of an approved grading or inspection bureau or agency.

R905.9 Built-up roofs. The installation of built-up roofs shall comply with the provisions of this section.

R905.9.1 Slope. Built-up roofs shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) for drainage, except for coal-tar built-up roofs, which shall have a design slope of a minimum one-eighth unit vertical in 12 units horizontal (1-percent slope).

R905.9.2 Material standards. Built-up roof covering materials shall comply with the standards in Table R905.9.2 or UL 55A.

R905.9.2.1 Rosin paper shall be used when the membrane is applied directly to a wood deck or cementitious fiber decks.

R905.9.3 Application. Reserved.

R905.10 Metal roof panels. The installation of metal roof panels shall comply with the provisions of this section. Metal roofing panels shall be factory or field manufactured in accordance with the manufacturers' product approval specifications and limitations of use. Metal roofing panels shall be factory or field manufactured under a quality assurance program that is audited by a third-party quality assurance entity approved by the Florida Building Commission for that purpose.

R905.10.1 Deck requirements. Metal roof panel roof coverings shall be applied to solid or spaced sheathing, except where the roof covering is specifically designed to be applied to spaced supports.

R905.10.2 Slope. Minimum slopes for metal roof panels shall comply with the following:

- The minimum slope for lapped, nonsoldered-seam metal roofs without applied lap sealant shall be three units vertical in 12 units horizontal (25-percent slope).
- The minimum slope for lapped, nonsoldered-seam metal roofs with applied lap sealant shall be one-half unit vertical in 12 units horizontal (4-percent slope). Lap sealants shall be applied in accordance with the approved manufacturer's installation instructions.
- The minimum slope for standing-seam roof systems shall be one-quarter unit vertical in 12 units horizontal (2-percent slope).

R905.10.3 Material standards. Metal-sheet roof covering systems that incorporate supporting structural members shall be designed in accordance with the Florida Building Code, Building. Metal-sheet roof coverings installed over structural decking shall comply with Table R905.4.4. The materials used for metal-sheet roof coverings shall be naturally corrosion resistant or provided with corrosion resistance in accordance with the standards and minimum thicknesses shown in Table R905.4.4.

Table R905.10.3(1) Metal Roof Covering Standards. Reserved.

Table R905.10.3(2) Minimum Corrosion Resistance. Reserved.

R905.10.4 Attachment. Metal roof panels shall be secured to the supports in accordance with this chapter and the manufacturer's installation instructions. In the absence of manufacturer's installation instructions, the following fasteners shall be used:

- Galvanized fasteners shall be used for steel roofs.
- Copper, brass, bronze, copper alloy and 300-series stainless steel fasteners shall be used for copper roofs.

the roof. Where required for 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.

R903.4.1 Overflow drains and scuppers. When other means of drainage of overflow water is not provided, overflow scuppers shall be placed in walls or parapets not less than 2 inches (51 mm) nor more than 4 inches (102 mm) above the finished roof covering and shall be located as close as practical to required vertical leaders or downspouts or wall and parapet scuppers. An overflow scupper shall be sized in accordance with the *Florida Building Code, Plumbing*. Overflow drains shall discharge to an *approved* location and shall not be connected to roof drain lines.

R903.4.2 One and two family dwellings, and private garages. When gutters and leaders are placed on the outside of buildings, the gutters and leaders shall be constructed of metal or approved plastic for outdoor exposure with lapped, soldered or caulked joints and shall be securely fastened to the building with a corrosion resistant fastening device of similar or compatible material to the gutters and downspouts.

SECTION R904 MATERIALS

R904.1 Scope. The requirements set forth in this section shall apply to the application of roof covering materials specified herein. Roof assemblies shall be applied in accordance with this chapter and the manufacturer's installation instructions. Installation of roof assemblies shall comply with the applicable provisions of Section R905.

R904.2 Compatibility of materials. Roof assemblies shall be of materials that are compatible with each other and with the building or structure to which the materials are applied.

R904.3 Material specifications and physical characteristics. Roof covering materials shall conform to the applicable standards listed in this chapter. In the absence of applicable standards or where materials are of questionable suitability, testing by an *approved* testing agency shall be required by the *building official* to determine the character, quality and limitations of application of the materials.

R904.4 Product identification. Roof covering materials shall be delivered in packages bearing the manufacturer's identifying marks and *approved* testing agency labels required. Bulk shipments and/or site manufactured materials shall be accompanied by the same information or issued in the form of a certificate or on a bill of lading by the manufacturer.

R904.5 Fasteners.

R904.5.1 Nails. Nails shall be corrosion-resistant nails conforming to ASTM F1667 or an equal corrosion resistance by coating, electro galvanization, mechanical galvanization, hot dipped galvanization, stainless steel, nonferrous metal and alloys or other suitable corrosion-resistant material, or corrosion resistance shall be demonstrated in accordance with TAS114, *Appendix E*.

R904.5.2 Screws. Wood screws shall conform to ANSI/ASME B 18.6.1. Screws shall be corrosion resistant by coating, galvanization, stainless steel, nonferrous metal or other suitable corrosion-resistant material. The corrosion resistance shall be demonstrated through one of the following methods:

1. Corrosion resistance equivalent to ASTM A641, Class 1;
2. Corrosion resistance in accordance with TAS 114, Appendix E;
3. Corrosion-resistant coating exhibiting not more than 5-percent red rust after 1000 hours exposure in accordance with ASTM B117.

R904.5.3 Clips. Clips shall be corrosion-resistant clips. The corrosion resistance shall meet 0.90 ounce per square foot (0.458 kg/m²) measured according ASTM A90/A90M, TAS 114 Appendix E or an equal corrosion resistance coating, electro galvanization, mechanical galvanization, hot dipped galvanization, stainless steel, nonferrous metals and alloys or other suitable corrosion-resistant material. Stainless steel clips shall conform to ASTM A240/A240M, Type 304.

SECTION R905 REQUIREMENTS FOR ROOF COVERINGS

R905.1 Roof covering application. Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions. Unless otherwise specified in this section, roof coverings shall be installed to resist the component and cladding loads specified in Table R301.2(2), adjusted for height and exposure in accordance with Table R301.2(3).

R905.1.1 Underlayment. Unless otherwise noted 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 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 R905.1.1. Underlayment shall be applied and attached in accordance with Table R905.1.1.

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 in accordance with ASTM D1970 or ASTM D4533 of 20 pounds shall be permitted. This underlayment shall be installed and attached in accordance with the underlayment attachment methods of Table R905.1.1 for the applicable roof covering and slope, except metal cap nails shall be required where the ultimate design wind speed, V_{ult} , equals or exceeds 150 mph.

Table R905.1.1(1) Underlayment Types. Reserved.