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ROOFING COURSE WITH UPDATED MATERIALS

COURSE MATERIALS

The most important requirement of this chapter deals with the fire classification of roof covering materials for their effectiveness against fire test exposure in accordance with ASTM E 108. This referenced standard provides test methods for measuring the fire Performance characteristics of roof coverings from exposure fires, Fire test on roofing

Scope

The provisions in Chapter 15 for roof construction and covering are intended to provide a weather-protective barrier at the roof and, in most circumstances, a fire-retardant barrier to prevent flaming combustible materials, such as flying brands from nearby fires, from penetrating the roof construction. This chapter is essentially prescriptive in nature and is based on decades of experience with various traditional roofing materials. These prescriptive rules are very important for satisfactory performance of the roof covering even though the reason for a particular requirement may be lost. The provisions are based on an attempt to prevent past unsatisfactory performance of the various roofing materials and components.

Requirements are provided to regulate the materials, design and construction of roofs and rooftop structures, such as penthouses, water tanks and other structures. See the definition of "Roof assembly" for the purposes of this chapter. Other roof assemblies addressed elsewhere in the code include membrane structures (see Section 3102) and light-transmitting plastics (see Section 2606).

Important Definitions

Reroofing

The process of recovering or replacing an existing roof covering. See "Roof recover" and "Roof replacement."

Roof Assembly

A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof deck, vapor retarder, substrate or thermal barrier, insulation, vapor retarder and roof covering.

Roof Covering

The covering applied to the roof deck for weather resistance, fire classification or appearance.

Roof Covering System

See "Roof assembly."

Roof Deck

The flat or sloped surface not including its supporting members or vertical supports.

Roof Recover

The process of installing an additional roof covering over a prepared existing roof covering without removing the existing roof covering.

Roof Repair

Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

Roof Replacement

The process of removing the existing roof covering, repairing any damaged substrate and installing a new roof covering.

Highlights

The provisions of Chapter 15 consist of prescriptive and performance regulations. In order to provide a better idea of what Chapter 15 is about and the concepts that it contains, the key code concepts of Chapter 15 have been provided here.

Performance Methods:

Weather Protection

Roof decks must be covered with approved roof coverings secured to the building or structure in accordance with the provisions of this chapter. Roof coverings must be designed, installed and maintained in accordance with this code and the approved manufacturer's instructions such that the roof covering serves to protect the building or structure. Flashing must be installed at wall and roof intersections and metal flashing must be corrosion resistant. Roof drainage as per the Plumbing Volume.

Wind Resistance of Roofs

Roof decks and roof coverings must be designed for wind loads according to the following:

Chapter 16

Section 1504.1

Section 1504.2

Section 1504.3

Section 1504.4

Roof system with building modified bitumen, fully adhered or mechanically attached, single-ply through fastened metal panel roof systems, etc. must be tested to FM4450, FM4470, UL 580 or UL 1897.

Materials

Roof coverings must be applied in accordance with this chapter and the manufacturer's installation instructions. Roof covering materials delivered in a package must be labeled. Installation of roof coverings must comply with the applicable provisions of Section 1507. Metal panel roof system must be tested to UL 580 or ASTM E 1592.

Prescriptive Methods

Asphalt Shingles

The installation of asphalt shingles shall comply with the provisions of this section and Table 1507.2 and must meet the following requirements:

Slope 2:12 or greater.

Slope 2:12 up to 4:12 double underlayment required.

Metal Roof Panels

Metal roof panels must adhere to the following requirements.

Roof covering systems with supporting structural members are to be installed as per Chapter 22.

Attachments as per manufacturer's recommendations.

Underlayment is to be installed as per manufacturer's recommendations. Underlayments: ASTM D 226, Type 1 or Type 11, ASTM D 4869 Type 1 or Type 11.

Self-seal strips are to be interlocking as per ASTM D 225 or ASTM D 3462.

- Fasteners such as galvanized, stainless steel, aluminum or copper roofing nails, 12 gage shank with a minimum .375 in diameter heel are to be tested to ASTM E 1667.
- Apply to solid or closely fitted deck except as designed.
- Slope 8:12 minimum for lapped, nonsoldered seams without sealant.
- Slope 1/2:12 minimum for lapped, nonsoldered seams with sealant.
- Slope 1/4:12 minimum for standing seams.

Metal roof panels must also comply with the following standards.

- Roof covering systems with supporting structural members as per Chapter 22.
- Attachments as per manufacturer's recommendations.
- Underlayment as per manufacturer's recommendations. Underlayments: ASTM D 226, Type I or Type II, ASTM D 4869 Type I or Type II.
- Self-seal strips or be interlocking as per ASTM D 225 or ASTM D 3462.
- Fasteners: galvanized, stainless steel, aluminum or copper roofing nails, 12 gage shank with a minimum .375 in diameter heel tested to ASTM E 1667.

High Wind Attachment

Underlayment applied in areas subject to high winds (greater than 110 mph in accordance with Figure 1609) must be applied with corrosion-resistant fasteners in accordance with the manufacturer's instructions. Fasteners are to be applied along the overlap at a maximum spacing of 36 inches (914 mm) on center. Fastening method must be tested as per ASTM D 3161 modified to meet wind speeds of 110 mph, or TAS 107. The following requirements must also be met:

- Clay and concrete tile.
 - Deck slope as per FRSA/RTI 07320.
Underlayment: ASTM D 226 Type II; ASTM D 2626; ASTM D 1970 or ASTM D 6380.
- Low-slope roofs. Underlayment shall be a minimum of two layers.
- High-slope roofs: Underlayment shall be a minimum of one layer.
- Fasteners: corrosion resistant and not less than 11 gage, or 5/16 in head. Attachment as per FRSA/RTI installation manual.

Reroofing

Reroofing is required under the conditions stated in Section 1510. Installation must be performed as required by this section.

- Section 1507.2.8: high wind attachment.
 - > 110 mph underlayment must be applied with corrosion resistant fasteners as per manufacturer.

- Fasteners must be applied along the overlap at a maximum spacing of 36 inches on center.
- Section 1507.2.9.2.
 - Open valley.
 - Closed valley.
- Section 1507.2.9.3.
 - Drip edge.
 - Overlap minimum 2 inches.

Reroofing must also comply with the following requirements:

- Structural components must be able to support the new materials as required by the manufacturer.
- Do not use 4 fasteners per strip shingle or two fasteners per individual shingle.
- Must also comply with the FEBC.

Florida Amendments

In an effort to create a building code that fully reflected the specific needs of Florida, some provisions have been amended.

- Changes were made to remove snow and seismic provisions.
- Changes made to allow new fastening and construction techniques and materials.
- Some requirements for underlayment have changed.
- Provisions have been added governing structures located in the HVHZ.
- Other specific changes include:
 - Changes were made to remove snow and seismic provisions.
 - Revised s. 1503.2.1 Location of flashing. to provide exception for hip and ridge junction and around roof openings.
 - Renumbered Table 1507.2.9.2 as Table 1503.2 and renamed the table "Metal Flashing Material" for consistency with the 2001 FBC.
 - Section 1503.4.2, added provisions for scuppers similar to those of the 2001 FBC.
 - Added Section 1503.6, Protection against decay and termites. Similar to 2001 FBC.
 - Section 1504.6 Physical properties, was amended to add ASTM G 153.
 - Section 1507.2.3 Underlayment. Asphalt shingle was amended to allow ASTM D Type II and ASTM D 4869 Type II.

- Section 1507.2.6.1 was added to require nail components of plastic cap nails to meet the corrosion resistance requirement of s. 1507.2.6.
- Section 1507.2.7 Attachment, was revised to allow special fastening methods for asphalt shingle as per TAS 107.
- Section 1507.2.9.1 was amended to provide specific installation requirements for Base and Counter Flashing.
- Section 1507.2.9.3 Drip edge, was revised to allow drip edge at eaves to be installed either over or under the underlayment with the condition that if installed over the underlayment there shall be a minimum of 2 in. width of roof cement installed over the drip edge flange.
- Section 1507.3.1 Deck requirements, clay and concrete tile, to be installed over structurally spaced sheathing boards as specifically designed and tested as per s. 1609.7.2.
- Section Section 1507.3.2 Deck slope, clay and concrete tile, was amended to require installation as per FRSA/RTI 07320.
- 1507.3.3 Underlayment, clay and concrete tile, was revised to require compliance with ASTM D 1970 or ASTM D 6380
- Section 1507.3 Underlayment, clay and concrete tile, was revised to require compliance with ASTM C 1492.
- Section 1507.3.7 Attachments 1507.3.8 application, clay and concrete tile, was revised to require compliance with FRSA/RTI 07320.
- Section 1507.4.4 Attachment, metal panels, was revised to allow aluminum-zinc coated fasteners are acceptable for aluminum-zinc coated roofs.
- Section 1507.4.5 Underpayment, was added to require installation as per manufacturer's guidelines.
- Sections 1507.5.3 and 1507.6.3 Underlayment, metal roof shingles and mineral surfaced roll roofing, were revised to allow compliance with ASTM D 226 Type 11 and ASTM D 1970.