

RE-2 and RE-3 of ANSI/SPRI ES-1, except basic design wind speed,  $V$ , shall be determined from Figures 1609.3(1) through 1609.3(8) as applicable.

**1504.6 Physical properties.** Roof coverings installed on low-slope roofs (roof slope  $< 2:12$ ) in accordance with Section 1507 shall demonstrate physical integrity over the working life of the roof based on 2,000 hours of exposure to accelerated weathering tests conducted in accordance with ASTM G152, ASTM G154 or ASTM G155. Those roof coverings that are subject to cyclical flexural response due to wind loads shall not demonstrate any significant loss of tensile strength for unreinforced membranes or breaking strength for reinforced membranes when tested as herein required.

**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 or the "Resistance to Foot Traffic Test" in Section 5.5 of FM 4470.

**1504.8 Surfacing and ballast materials in hurricane-prone regions.** For a building located in a hurricane-prone region as defined in Section 202, or on any other building with a mean roof height exceeding that permitted by Table 1504.8 based on the exposure category and basic wind speed at the site, the following materials shall not be used on the roof:

1. Aggregate used as surfacing for roof coverings.
2. Aggregate, gravel or stone used as ballast.

**TABLE 1504.8**  
**MAXIMUM ALLOWABLE MEAN ROOF HEIGHT**  
**PERMITTED FOR BUILDINGS WITH AGGREGATE ON THE**  
**ROOF IN AREAS OUTSIDE A HURRICANE-PRONE REGION**

NOMINAL DESIGN WIND SPEED, $V_{asd}$ (mph) <sup>b, d</sup>	MAXIMUM MEAN ROOF HEIGHT (ft) <sup>a, c</sup>		
	Exposure category		
	B	C	D
85	170	60	30
90	110	35	15
95	75	20	NP
100	55	15	NP
105	40	NP	NP
110	30	NP	NP
115	20	NP	NP
120	15	NP	NP
Greater than 120	NP	NP	NP

For SI: 1 foot = 304.8 mm; 1 mile per hour = 0.447 m/s.

- a. Mean roof height as defined in ASCE 7.
- b. For intermediate values of  $V_{asd}$ , the height associated with the next higher value of  $V_{asd}$  shall be used, or direct interpolation is permitted.
- c. NP = gravel and stone not permitted for any roof height.
- d.  $V_{asd}$  shall be determined in accordance with Section 1609.3.1.

## SECTION 1505 FIRE CLASSIFICATION

**[BF] 1505.1 General.** Roof assemblies shall be divided into the classes defined in this section. Class A, B and C roof assemblies and roof coverings required to be listed by this section shall be tested in accordance with ASTM E108 or UL 790. In addition, *fire-retardant-treated wood* roof coverings shall be tested in accordance with ASTM D2898. The minimum roof coverings installed on buildings shall comply with Table 1505.1 based on the type of construction of the building.

**Exception:** Skylights and sloped glazing that comply with Chapter 24 or Section 2610.

**[BF] 1505.2 Class A roof assemblies.** Class A roof assemblies are those that are effective against severe fire test exposure. Class A roof assemblies and roof coverings shall be listed and identified as Class A by an *approved* testing agency. Class A roof assemblies shall be permitted for use in buildings or structures of all types of construction.

### Exceptions:

1. Class A roof assemblies include those with coverings of brick, masonry or an exposed concrete roof deck.
2. Class A roof assemblies also include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile or slate installed on non-combustible decks or ferrous, copper or metal sheets installed without a roof deck on noncombustible framing.
3. Class A roof assemblies include minimum 16 ounce per square foot (0.0416 kg/m<sup>2</sup>) copper sheets installed over combustible decks.
4. Class A roof assemblies include slate installed over ASTM D226, Type II underlayment over combustible decks.

**TABLE 1505.1<sup>a, b</sup>**  
**MINIMUM ROOF COVERING CLASSIFICATION**  
**FOR TYPES OF CONSTRUCTION**

IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
B	B	B	C <sup>c</sup>	B	C <sup>c</sup>	B	B	C <sup>c</sup>

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m<sup>2</sup>.

- a. Unless otherwise required in accordance with the *International Wildland-Urban Interface Code* or due to the location of the building within a fire district in accordance with Appendix D.
- b. Nonclassified roof coverings shall be permitted on buildings of Group R-3 and Group U occupancies, where there is a minimum fire-separation distance of 6 feet measured from the leading edge of the roof.
- c. Buildings that are not more than two stories above grade plane and having not more than 6,000 square feet of projected roof area and where there is a minimum 10-foot fire-separation distance from the leading edge of the roof to a lot line on all sides of the building, except for street fronts or public ways, shall be permitted to have roofs of No. 1 cedar or redwood shakes and No. 1 shingles constructed in accordance with Section 1505.7.