

§RR905
REQUIREMENTS FOR ROOF COVERINGS

§RR905.1 Roof covering application. Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions.

§RR905.2 Asphalt shingles. The installation of asphalt shingles shall comply with the provisions of this section.

§RR905.2.1 Sheathing requirements. Asphalt shingles shall be fastened to solidly sheathed decks.

§RR905.2.2 Slope. Asphalt shingles shall only be used on roof slopes of two units vertical in 12 units horizontal (2:12) or greater. For roof slopes from two units vertical in 12 units horizontal (2:12) up to four units vertical in 12 units horizontal (4:12), double underlayment application is required in accordance with §RR905.2.7.

§RR905.2.3 Underlayment. Unless otherwise noted, required underlayment shall conform with ASTM D 226, Type I, or ASTM D 4869, Type I.

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

§RR905.2.4 Asphalt shingles. Asphalt shingles shall have self-seal strips or be interlocking, and comply with ASTM D 225 or D 3462.

§RR905.2.5 Fasteners. Fasteners for asphalt shingles shall be galvanized steel, stainless steel, aluminum or copper roofing nails, minimum 12 gage [0.105 inch (2.67 mm)] shank with a minimum 3/8-inch (9.5 mm) diameter head, ASTM F 1667, of a length to penetrate through the roofing materials and a minimum of 3/4 inch (19.1 mm) into the roof sheathing. Where the roof sheathing is less than 3/4 inch (19.1 mm) thick, the fasteners shall penetrate through the sheathing. Fasteners shall comply with ASTM F 1667.

§RR905.2.6 Attachment. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer. For normal application, asphalt shingles shall be secured to the roof with not less than four fasteners per strip shingle or two fasteners per individual shingle. Where the roof slope exceeds 20 units vertical in 12 units horizontal (20:12), special methods of fastening are required. For roofs located where the basic wind speed per Figure RR301.2(4) is 110 mph (177 km/h) or greater, special methods of fastening are required. Special fastening methods shall be tested in accordance with ASTM D 3161, modified to use a wind speed of 110 mph (177 km/h).

Shingles classified using ASTM D 3161 are acceptable for use in wind zones less than 110 mph. Shingles classified using ASTM D 3161 modified to use a wind speed of 110 mph are acceptable for use in all cases where special fastening is required.

§RR905.2.7 Underlayment application. For roof slopes from two units vertical in 12 units horizontal (17-percent slope), up to four units vertical in 12 units horizontal (33-percent slope), underlayment shall be two layers applied in the following manner. Apply a 19-inch (483 mm) strip of underlayment felt parallel with 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 sufficiently to hold in place. For roof slopes of four units vertical in 12 units horizontal (33-percent slope) or greater, underlayment 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 sufficiently to hold in place. End laps shall be offset by 6 feet (1829 mm).

§RR905.2.7.1 Ice protection. In areas where the average daily temperature in January is 25°F (-4°C) or less or when Table RR301.2(1) criteria so designates, an ice barrier that consists of a least two layers of underlayment cemented together or of a self-adhering polymer modified bitumen sheet, shall be used in lieu of normal underlayment and extend from the eave's edge to a point at least 24 inches (610 mm) inside the exterior wall line of the building.

Exception: Detached accessory structures that contain no conditioned floor area.

§RR905.2.7.2 Underlayment and high wind. Underlayment applied in areas subject to high winds [greater than 110 mph (177km/h) per Figure RR301.2(4)] shall be applied with corrosion-resistant fasteners in accordance with manufacturer's installation instructions. Fasteners are to be applied along the overlap not farther apart than 36 inches (914 mm) on center.

§RR905.2.8 Flashing. Flashing for asphalt shingles shall comply with this section.

§RR905.2.8.1 Base and cap flashing. Base and cap flashing shall be installed in accordance with manufacturer's installation instructions. Base flashing shall be of either corrosion-resistant metal of minimum nominal 0.019-inch (0.483 mm) thickness or

mineral surface roll roofing weighing a minimum of 77 pounds per 100 square feet (3.76 kg/m²). Cap flashing shall be corrosion-resistant metal of minimum nominal 0.019-inch (0.483 mm) thickness.

§RR905.2.8.2 Valleys. Valley linings shall be installed in accordance with manufacturer's installation instructions before applying shingles. Valley linings of the following types shall be permitted:

1. For open valley (valley lining exposed) lined with metal, the valley lining shall be at least 24 inches (610 mm) wide and of any of the corrosion-resistant metals in Table RR905.2.8.2.
2. For open valleys, valley lining of two plies of mineral surface roll roofing, complying with ASTM D 249, 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 (valley covered with shingles), valley lining of one ply of smooth roll roofing complying with ASTM D 224 Type II or Type III and at least 36 inches (914 mm) wide or valley lining as described in Items 1 and 2 above shall be permitted. Specialty underlayment complying with ASTM D 1970 may be used in lieu of the lining material.

**TABLE RR905.2.8.2
VALLEY LINING MATERIAL**

MATERIAL	MINIMUM THICKNESS		WEIGHT	
	(inches)		GAGE	(pounds)
Cold-rolled copper	0.0216 nominal	--	ASTM B370,	16 oz. per square foot
Lead-coated copper	0.0216 nominal	--	ASTM B101,	16 oz. per square foot
High-yield copper	0.0162 nominal	--	ASTM B370,	12 oz. per square foot
Lead-coated high-yield copper	0.0162 nominal	--	ASTM B101,	12 oz. per square foot
Aluminum	0.024	--	--	--
Stainless steel	--	28	--	--
Galvanized steel	0.0179	26 (zinc coated G90)	--	--
Zinc alloy	0.027	--	--	--
Lead	--	--	2-1/2	--
Painted terne	--	--	20	--

For SI: 1 inch = 25.4 mm, 1 pound = 0.454 kg.

§RR905.2.8.3 Crickets and saddles. A cricket or saddle shall be installed on the ridge side of any chimney greater than 30 inches (762 mm) wide. Cricket or saddle coverings shall be sheet metal or of the same material as the roof covering.

§RR905.2.8.4 Sidewall flashing. Flashing against a vertical sidewall shall be by the step-flashing method.

§RR905.2.8.5 Other flashing. Flashing against a vertical front wall, as well as soil stack, vent pipe and chimney flashing, shall be applied according to asphalt shingle manufacturer's printed instructions.