

## 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.

**R905.2 Asphalt shingles.** The installation of asphalt shingles shall comply with the provisions of this section.

**R905.2.1 Sheathing requirements.** Asphalt shingles shall be fastened to solidly sheathed decks.

**R905.2.2 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 Section R905.2.7.

**R905.2.3 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.

**R905.2.4 Asphalt shingles.** Asphalt shingles shall have self-seal strips or be interlocking, and comply with ASTM D 225 or D 3462.

**R905.2.5 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  $\frac{3}{8}$ -inch (9.5 mm) diameter head, ASTM F 1667, of a length to penetrate through the roofing materials and a minimum of  $\frac{3}{4}$  inch (19.1 mm) into the roof sheathing. Where the roof sheathing is less than  $\frac{3}{4}$  inch (19.1 mm) thick, the fasteners shall penetrate through the sheathing. Fasteners shall comply with ASTM F 1667.

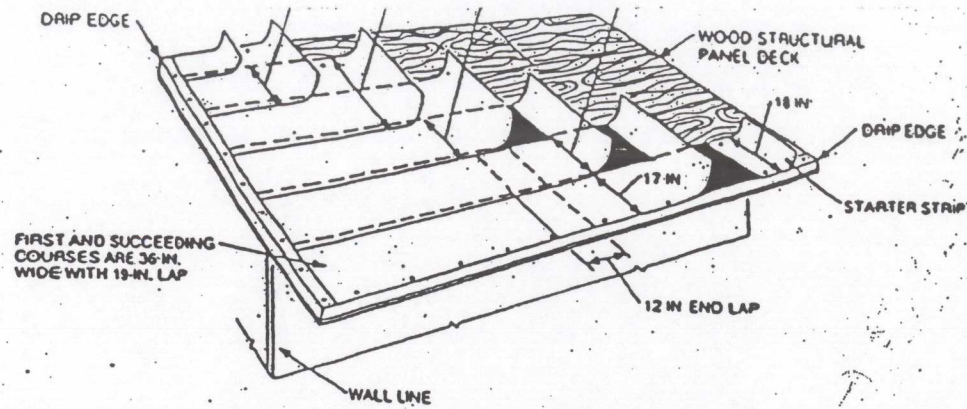
**R905.2.6 Attachment.** Asphalt shingles shall have the minimum number of fasteners required by the manufacturer. For normal application, asphalt shingles shall be secured to the roof with not less than four fasteners per strip shingle or two fasteners per individual shingle. Where the roof slope exceeds 20 units vertical in 12 units horizontal (20:12), special methods of fastening are required.

**R905.2.7 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).

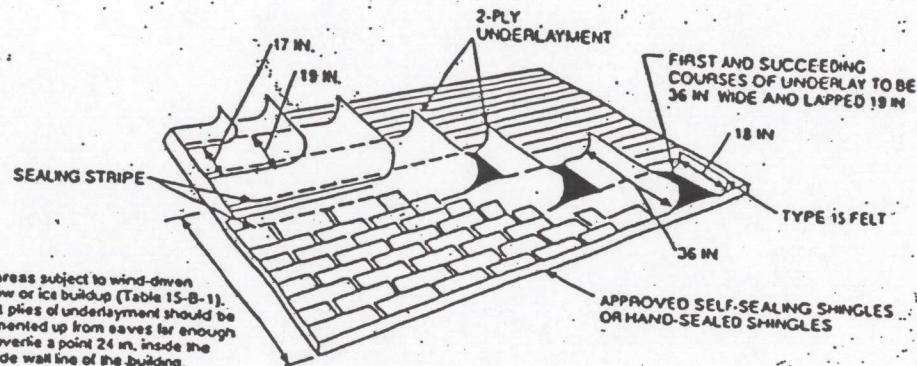
**R905.2.7.1 Ice protection.** In areas where the average daily temperature in January is 25°F (-4°C) or less or when Table R301.2(1) criteria so designates, an ice barrier that consists of a least two layers of underlayment cemented together or of a self-adhering polymer modified bitumen sheet, shall 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.

**R907.3 Recovering versus replacement.** New roof coverings shall not be installed without first removing existing roof coverings where any of the following conditions occur:

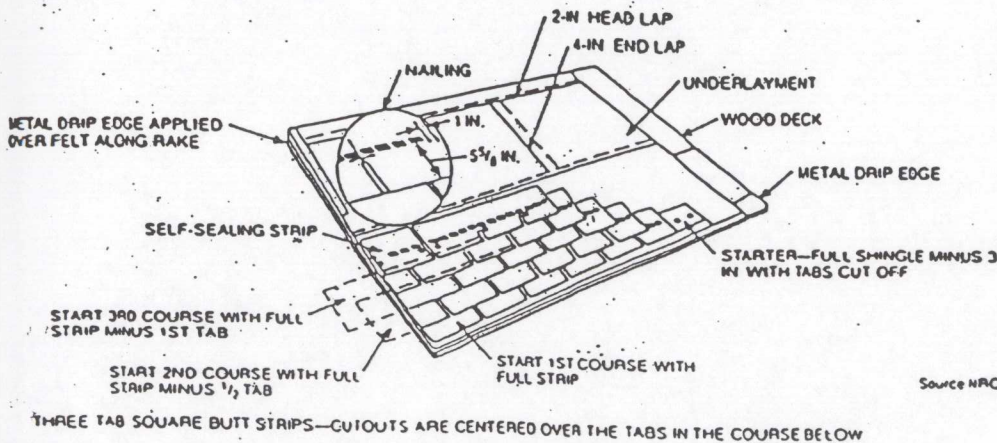
1. Where the existing roof or roof covering is water-soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.



LOW SLOPE (LESS THAN 4:12) UNDERLAYMENT APPLICATION



APPLICATION OF ASPHALT SHINGLE SLOPES BETWEEN 2:12 AND 4:12



ASPHALT ROOFING SHINGLES APPLICATION HIGH SLOPE (4:12 MINIMUM)