
R905.16

Photovoltaic Shingles

CHANGE TYPE: Modification

CHANGE SUMMARY: Additional requirements and limits for photovoltaic shingles have been added to Section R905.16.

2015 CODE: R905.16 Photovoltaic Modules/Shingles. The installation of photovoltaic modules/shingles shall comply with the provisions of this section, Section R324 and NFPA 70.

R905.16.1 Deck Requirements. Photovoltaic shingles shall be applied to a solid or closely fitted deck, except where the roof covering is specifically designed to be applied over spaced sheathing.

R905.16.2 Deck Slope. Photovoltaic shingles shall be used only on roof slopes of two units vertical in 12 units horizontal (2:12) or greater.

R905.16.3 Underlayment. Unless otherwise noted, required underlayment shall conform to ASTM D4869 or ASTM D6757.

R905.16.4 Underlayment Application. Underlayment shall be applied shingle fashion, parallel to and starting from the eave, lapped 2 inches (51 mm) and fastened sufficiently to hold in place.

R905.16.4.1 Ice Barrier. In areas where there has been a history of ice forming along the eaves causing a backup of water as designated in Table R301.2(1), an ice barrier that consists of not less than two layers of underlayment cemented together or of a self-adhering polymer-modified



Photo Courtesy of Beldon Roofing Company

Photovoltaic shingle

bitumen sheet, shall be used in lieu of normal underlayment and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the building.

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

R905.16.4.2 Underlayment and High Winds. Underlayment applied in areas subject to high winds [above 140 mph (63 m/s) in accordance with Figure R301.2(4)A] shall be applied with corrosion-resistant fasteners in accordance with the manufacturer's installation instructions. Fasteners are to be applied along the overlap not farther apart than 36 inches (914 mm) on center.

Underlayment installed where the ultimate design wind speed equals or exceeds 150 mph (67 m/s) shall comply with ASTM D4869 Type IV, or ASTM D6757. The underlayment shall be attached in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps. Underlayment shall be applied as required for asphalt shingles in accordance with Table R905.1.1(2). Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 1 inch (25.4 mm) with a thickness of not less than 32-gage sheet metal. The cap-nail shank shall be not less than 12-gage (0.105 inches) with a length to penetrate through the roof sheathing or not less than 3/4 inch (19 mm) into the roof sheathing.

Exception: As an alternative, adhered underlayment complying with ASTM D1970 shall be permitted.

CHANGE SIGNIFICANCE: Section R905.16, Photovoltaic Shingles, is expanded. The section now contains requirements for roof decks, minimum roof deck slope, underlayment, underlayment application, ice barrier, and underlayment for high-wind areas. The new requirements are consistent with similar attributes for other non-flat, shingle-type roof coverings. Reference to NFPA 70 and Section R324 for photovoltaic solar energy systems is added.

The word “modules” is deleted from the section title because it is not defined in the code for photovoltaic applications. “Photovoltaic shingles” is now the descriptor for this application. Additionally, the section mirrors the information and format found in the 2015 *International Building Code* for photovoltaic shingles.