Using underlayment as a temporary roof

by Mark S. Graham

During the past several months, NRCA has received several reports of considerable building leaks when underlayment on a steep-slope roof system was left exposed as a temporary roof covering before installation of a finished steep-slope roof covering material, such as asphalt shingles or metal panels.

In light of these events, it seems a review of roofing industry guidelines for underlayment use as temporary weather protection is appropriate.

Industry guidelines

For steep-slope roof systems, underlayment serves several functions, including being a secondary weatherproofing barrier should moisture infiltrate the primary roof covering; meeting building code requirements and fire-rating classifications for roof assemblies; and complying with manufacturers' warranties. In some instances, underlayment also serves as temporary weather protection until a primary roof covering is installed. But for underlayment to perform adequately as temporary weather protection, it should shed water without allowing water to penetrate it.

ASTM D4869, "Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing," includes a water-transmission test that is intended to measure an underlayment's resistance to water penetration. In this test, an underlayment specimen is placed over a 15- by 30-inch plywood specimen support that is positioned at a 3-in-12 (14-degree) incline and subjected to a water spray of 40 to 42 gallons per hour for four hours. Upon test completion, the specimen is disassembled and visually inspected for moisture. An underlayment is said to have successfully passed the test when two specimens show no sign of wetness on their undersides or tops of plywood supports or visible deterioration.

A review of underlayment use as temporary weather protection is appropriate

This test is a relatively rigorous evaluation of an underlayment's temporary weather-protection ability, particularly when considering the 40- to 42-gallon-per-hour flow rate. However, the test is performed in near-ideal laboratory conditions and does not take into consideration actual field conditions, including laps or wrinkles in the underlayment, attachment of the underlayment to the substrate, and period of exposure and any resulting loss of the underlayment's water-resistance capabilities.

A similar test procedure is included in ASTM D6757, "Standard Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing."

Many steep-slope underlayment products on the market are not subjected to this water-transmission test.

Additional considerations

In addition to industry guidelines for underlayment, additional considerations should be taken into account when the use of underlayment for temporary weather protection is necessary.

Roof slope obviously plays an important role. Roofs with steeper slopes will shed water more quickly than roofs with shallower slopes and, therefore, will likely shed water without water penetration.

Wrinkling of underlayment is another concern, particularly when wrinkling prevents water from properly shedding off a roof. An Asphalt Roofing Manufacturers Association (ARMA) and NRCA joint study, *ARMA/NRCA Research Report on the Performance of Asphalt-Saturated Underlayment Felts*, indicates all asphalt underlayment products evaluated in the study wrinkle to some extent.

Also, the presence of roof penetrations and the sealing of underlayment at penetrations can affect an underlayment's effectiveness as temporary weather protection.

Closing thoughts

Although underlayment use is recognized by roofing professionals as short-term, temporary weather protection for structures with steep-slope roof systems, caution needs to be exercised to prevent or minimize leaks during precipitation.

When steep-slope underlayment will likely be used as temporary weather protection and particularly in reroofing situations, specifiers are urged to select underlayment products that have been tested for resistance to water transmission.

In some situations, covering roof areas with waterproof tarpaulins instead of relying on underlayment for temporary weather protection may be advisable.

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