



technical bulletin

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Installation of Self-Adhering Membranes in Steep Slope Roofing

Self-adhering bituminous membranes have commonly been used in sloped (greater than 2:12) roofing for many years. When applied as an underlayment, they are primarily used to help prevent water entry from ice dams at the eave areas of shingled roofs in cold climates. In this application, they are typically installed from the eaves edge to a point at least 24 inches inside the exterior wall line of the building (most often the lower three to six feet of the eaves areas), beneath the finished shingle layers. Always check local building codes to confirm eave protection requirements. The adhesive asphalt component effectively seals the membrane to itself, and around the shanks of nails used in the overlying shingles, so that any water that is forced underneath the shingle layers by winds or ice dams does not reach the deck or attic space below. These self-adhesive underlayment membranes have also been used successfully in other "critical" roof situations such as part of a flashing system in valleys or around roof penetrations (skylights, vent stacks, etc.), and are commonly applied beneath roofing materials on lower-sloped (2:12 to 4:12) roofs.

In certain applications, such as lower sloped roofs, homeowners and roofing contractors may apply the underlayment membrane over the entire roof area, not just the first few feet at the eave. This ensures good roof protection should water get underneath the shingle layer. There are also self-adhering membranes designed to be applied as exposed roof coverings. These are usually surfaced with colored granules, similar to asphalt shingles. When installed, these membranes also form a strong vapor seal over the attic. In either case, should moist air enter the attic from the heated living space below, it could be trapped beneath the membrane-covered roof deck, and condense. Such condensation may lead to serious problems in the attic or in the roof, including wood rot, mold development and water staining on interior ceilings. In order to avoid potential condensation problems, the intrusion of warm moist air into the attic should be minimized, and any moist air that enters should be vented to the exterior. Installing sufficient insulation covering the entire attic floor will help reduce heat migration into the attic. Consider installing a continuous vapor retarder on the floor of the attic, beneath the insulation. Check with a building design professional for advice if the home is in warm, humid climate, as a different approach may be necessary. Again, **adequate through-ventilation should be installed to ensure sufficient air flow through the attic cavity.** This will help ensure the removal of moisture-laden air that does enter the attic before moisture condenses on the underside of the roof deck. For more details on ventilation, see ARMA's Technical Bulletin "Ventilation and Moisture Control for Residential Roofing."

Following the three recommendations described above (a continuous vapor retarder, good insulation and adequate through-ventilation) is sound practice for all roof systems. If your roof application calls for applying a self-adhering underlayment or membrane over the entire roof area, these good practices will alleviate condensation and the subsequent problems that can occur.

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