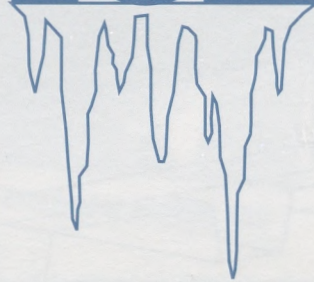


WATER DAMS

Up North it's

ICE



Down South it's

Pine Needles



By Ray Corbin

In the North, water damming is caused by snow and ice; in the South, by pine needles and leaves. Either way, the result is damming of water along the eaves and valleys, causing water backup under the shingles and, ultimately, leaks at the first joint or tear in the felt underlayment. The solution is the same for both conditions—the use of an “ice and water” membrane that acts as a “barrier” to water and provides the needed backup protection. Water damming is usually associated with asphalt shingles because of their greater share of market. Except for a few products such as metal and ceramic coated tiles that have slick surfaces, all types of steep roofing products can experience a water damming problem.

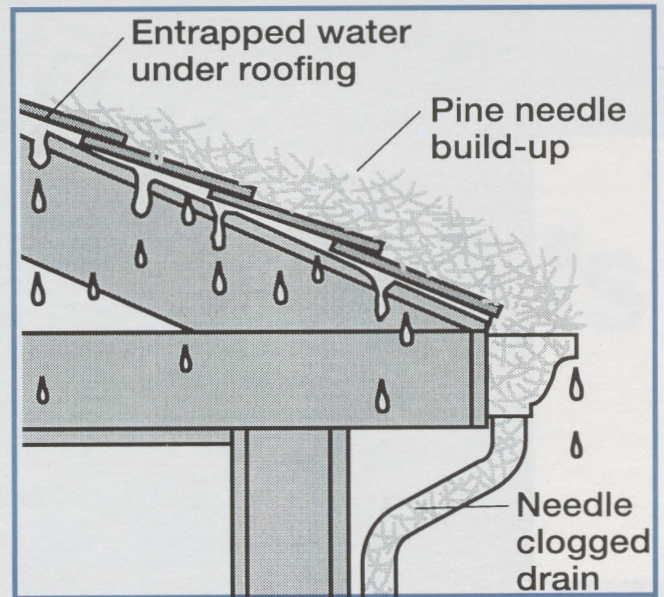
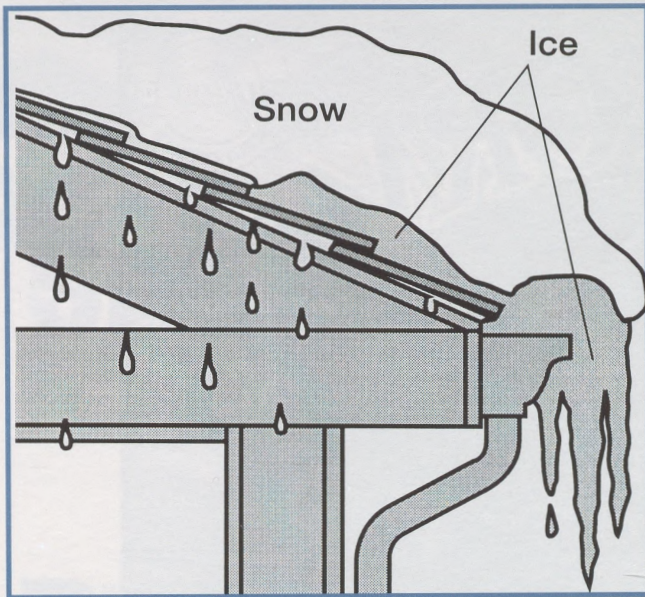
Steep roofing is a series of individual shingles applied over underlayment felt that, when the system is properly installed, forms a surface designed to shed water. However, leaks can still occur because of damming of the shingle surface by either ice and snow or, in warmer climates, by pine needles and leaves.

For new construction, the solution is quick and relatively inexpensive. Simply apply any of the “ice and water” membranes specifically designed to protect from

water backup along the eaves and valley areas. In the past, various products such as heavier felts, base felts and even cap sheets have been used. On lower slopes, 2-ply of underlayment felt cemented together have been used. None of these products has been as effective as “ice and water” membranes, which not only serve as a “barrier” to water in its liquid or vapor state, but, because of their modified asphalt construction, also seal around the shanks of the nails used to hold the shingles in place.

For standard slopes of 4" x 12" and higher, use one ply of the “barrier” continuously from the gutter to a point 12" inside the interior wall line or as local code dictates. On lower slopes, down to a minimum of 2" x 12", extend the “barrier” to a point at least 36" beyond the wall line. On steeper slopes, and where safety is a consideration, it is desirable to use a granule-surfaced “barrier” product for better foot traction.

Valleys are two intersecting planes of adjoining roof slopes that result in a lower slope than either roof. For standard slopes, run one width of the barrier down the center of the valley. On lower slopes and for best results, all valleys should be lined to a point approximately 36" to each side.



When joining rolls of the “barrier,” always overlap them a minimum of 4”, making certain that the lap is tightly adhered. Application of the “barrier” should be directly to the deck. Overlay the upper portion with underlayment felt a minimum of 4” for standard slopes, 12” for lower slopes (down to 2” x 12”). Because valleys create an angle, the “barrier” installed down the valley’s center should always be overlapped by the underlayment felt a minimum of 12”. (Refer to the August 1995 issue of *Interface*, “*The Need for Underlayment Felt With Asphalt Roofing Shingles.*”)

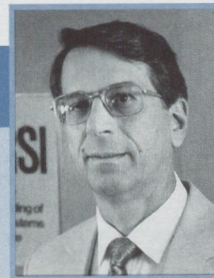
One note of caution regarding the extended use of “barrier” type products: do not cover more roof area than is recommended for structures having relatively high interior humidity located in cooler climates unless adequate attic ventilation is provided. Under certain conditions, water vapor could condense on the underside of the “barrier,” resulting in unexplained leaks within the building. When in doubt, run a dewpoint calculation and make certain that the structure is properly ventilated.

For an existing structure, a permanent solution could be slightly more complex and expensive. In cooler climates, heat tape has been used to prevent ice from forming into a dam. Heat tapes aren’t always effective and are energy-dependent. In warmer climates, periodic maintenance such as sweeping can clear the troublesome pine needles or leaves. Sweeping of roofs is not always practical and can lead to loss of protective granules and to other problems. The permanent solution is to carefully remove the existing covering of shingles for the affected area, apply the “barrier,” and reshingle. Use care when removing and replacing shingles so as not to create a patchwork appearance.

One other area of damming that isn’t always apparent can occur in cooler climates on slopes facing southward where winter sun can be blocked for some distance up

the lower portion of the roof, such as with “sawtooth” construction. This blocking can create a melting/refreezing situation at that point and lead to ice damming and water entry part way up the slope. It is at this point of blockage that the “barrier” should be installed.

As in many cases involving roofing problems and practices, the problem and the solution are not always apparent. A trained, professional roof consultant can be of great assistance in these situations.



About The Author

Ray Corbin is Director for the Better Understanding of Roofing Systems Institute (BURSI), a 24-

year-old national educational program on roofing systems designed for architects, engineers and building owners, which is sponsored by Schuller International, Inc., Roofing Systems Division. He is also a faculty member of RIEI, has served as chairman of the Code Committee for ARMA, and is a member of BOCA, SBCCI, ICBO, ASTM, CSI, and RCI. He holds four U.S. Patents for roofing shingle design and application and has published numerous technical articles.