Guidelines for ice-dam protection

by **Mark S. Graham**

Q: *When is ice-dam protection recommended for an asphalt shingle roof system?*

A: Ice-dam protection is a waterproof membrane used in conjunction with a primary, steep-slope roof covering to help prevent moisture associated with snow buildup and ice damming from migrating into the building's interior.



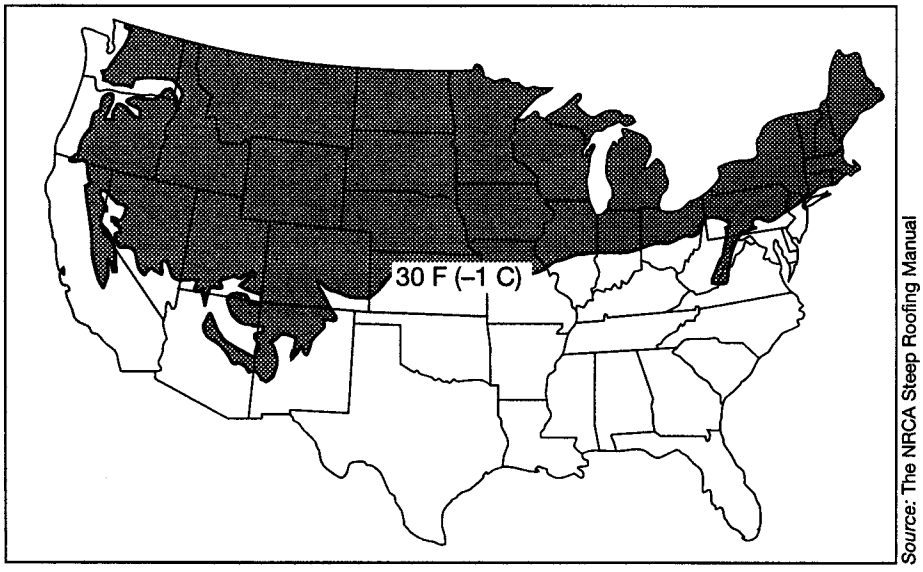
NRCA suggests that an ice-dam protection membrane be incorporated into steep-slope roof system designs in geographic locations where the January mean temperature is 30 F (-1 C) or less. (The approximate area of the United States that has such a temperature is shown in Figure 1.)

Effective ice-dam protection may include any water-impermeable membrane material, or a combination of materials, that is compatible with adjacent materials and will perform for the steep-slope roof covering's life.

According to *The NRCA Steep Roofing Manual, Fourth Edition,* an ice-dam protection membrane may consist of:

- Two plies of No. 15 (e.g., ASTM D 226, Type I or ASTM D 4869, Type I) asphalt-saturated, organic felt. One should be nailed to the deck, and the second set in hot steep or special steep asphalt (i.e., ASTM D 312, Type III or Type IV), or asphalt lap cement.
- A heavyweight, coated base sheet nailed to the deck, in addition to another felt ply or ply sheet set in hot steep asphalt or asphalt lap cement.
- A self-adhering, polymer modified bitumen membrane (i.e., ASTM D 1970).

The ice-dam protection membrane should be applied starting at the downslope perimeter (e.g., eaves) and extending upslope a minimum of 24 inches (610 mm) from the inside of the building's exterior wall line. On roof slopes of less than 4-in-12 (25 percent), NRCA recommends that an ice-dam protection membrane be extended a minimum of 36 inches (914 mm) upslope from the inside of the building's exterior wall line.



Source: The NRCA Steep Roofing Manual

Figure 1: *Approximate area of the United States that has an average January temperature below 30 F (-1 C).*

In addition to these parameters, an applicable building code may contain specific requirements governing the use of an ice-dam protection membrane—some of these requirements vary slightly from the aforementioned NRCA guidelines.

- *The Standard Building Code 1994* requires that an ice-dam protection membrane be included only in asphalt shingle roof systems where the January mean temperature is 30 F (-1 C) or less.
- *The BOCA* [Building Officials and Code Administrators International Inc.] *National Building Code/1996* requires an ice-dam protection membrane to be included in all steep-slope roof systems where the average daily temperature in January is 25 F (-4 C) or less, or "... where there is a possibility of ice forming along the eaves, causing a backup of water ..."
- *The CABO* [Council of American Building Officials] *One and Two Family Dwelling Code, 1995 Edition* requires that an ice-dam protection membrane be included only in asphalt shingle roof systems where the January mean temperature is 25 F (-4 C) or less, or "... where there is a possibility of ice forming along the eaves, causing a backup of water ..."
- *The 1994 Uniform Building Code* requires an ice-dam protection membrane for asphalt shingle, wood shingle or shake, and clay or concrete tile roof systems in severe climate areas. These areas are defined loosely in this code as "... areas subject to wind-driven snow and roof ice buildup."

Steep-slope roofing professionals are encouraged to know the specific requirements that apply in their areas. Experience has proved that ice-dam protection membranes are helpful in climates where snow and ice are common winter occurrences. PR

Each month in this column, NRCA technical services staff members will answer readers' technical questions. If you have a specific question that you would like answered in this column, send it to Professional Roofing, *10255 W. Higgins Road, Suite 600, Rosemont, Ill. 60018-5607; or fax (847) 299-1183.*