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Property Care White Papers

Roofing: Ice Dam Prevention

Ice Dam Prevention Philosophy

Ice dams can cause damage to houses in many different ways. On the exterior of a building the build up of ice can not only damage shingles but the sheer weight of an ice dam or the subsequent icicles can pull gutters and exterior trim off of a building. The water that gets backed up the roof as a result of the ice dam can infiltrate the interior and cause water damage to the interior finishes as water may come streaming down the inside of the building.

Ice Dam Prevention Guidelines

- Ice dams are caused by uneven heating of a snow covered roof surface with the higher elevations heating quicker than lower elevations.
- The typical cause for uneven heating is heat loss under the roof surface (typically due to insufficient or non-existent insulation) or excessive heat generation in the attic space (possibly due to inadequately insulated or leaky duct work).
- Examination of the roof after a snow fall and the monitoring of uneven melting should provide clues as to the source of heat loss below the roof.
- Removing snow from the roof as soon as possible will help avoid ice dams.
    - Low roofs can often be safely accessed using a long handled snow rake or broom.
    - Care should be taken to avoid damaging the roof's surface.
    - Climbing on the roof or ladders during snowy periods is extremely risky and should be avoided.
- Create a "cold roof"
    - Make the ceiling space into the attic air tight so that warm air does not escape into the space.
    - Consider increasing the insulation between the warm conditioned space of the house and the cold attic.
- Consider the use of heat tape.
    - Heat tape, or electric heat tracing, uses an electric heating element to warm targeted areas along the run of the problem area.
    - The heat tape must be in contact with the ice in order to melt the ice.
    - Heating the lower edges of the roof and associated gutters and downspouts will help water to run clear along these areas.
    - Refer to Historic New England's white paper on heat tape installation for additional considerations related to this technique.