

# HAZARD GUIDE

## ICE DAMS

What is an Ice Dam?

Causes

Ice Dam Removal

Loss Prevention Tips

### What is an Ice Dam?

Ice dams are an accumulation or ridge of ice that forms at the edge of a roof, typically at the gutter. This ridge prevents melted snow from draining off the roof.



Heat on the upper portion of snow covered peaked roofs causes snow to melt and run down to the edge. Since the lower section and edge are colder, the water refreezes and forms a ridge or barrier. As more water freezes, the accumulation prevents water from draining off the roof. This water then backs up under the shingles and infiltrates the structure. Ice dams can also form on flat or low slope roofs when melting snow refreezes around roof drains. Frozen drains allow water to build up on the roof.

Ice dams can lead to significant property damage. Water that is forced under the roof cover will migrate into the building damaging the insulation, sheetrock and wall surfaces. The wet insulation and sheetrock can become heavy, which could lead to the ceiling collapsing into the living space resulting in further damage to appliances and furnishings. In addition, water intrusion can create a fire hazard if it comes into contact with electrical fixtures or wiring. As with all water intrusion events, mold formation is likely.

If the ice dam breaks free, it can pull shingles and gutters off with it and will damage anything it falls on, including shrubs, windowsills, cars, pets and people. If the roof sheathing stays wet, it can form mildew and start to rot.

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#### Attic Heat

Heat infiltration into attic spaces is a common cause for ice dams. As the heat rises in the attic, it heats the upper portions of the roof surface. Since the overhanging eaves are not affected by the rising heat, the roof surface over the eaves remains below freezing.

#### Lighting Fixtures

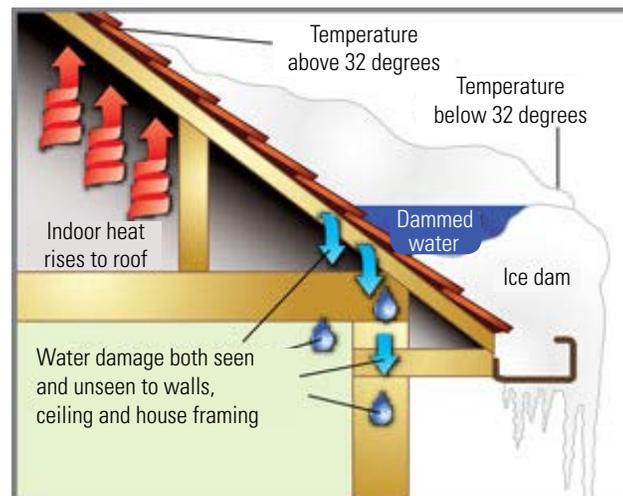
Heat from recessed lighting fixtures below attic areas will cause the temperature of the roof surface to rise above freezing allowing for snow melt.

#### Building Orientation

A building's orientation to the sun can also increase the potential of ice dams. If the upper section of the roof receives full sun but the lower section remains in full shade, snow melting from the top will quickly refreeze at the lower edge.

#### Flat Roofs

Flat roofs are especially susceptible to ice damming when the drains and scuppers are blocked. Snow can melt from the heat of the sun during the day and will refreeze overnight if the drains are blocked.



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Removing ice dams can be dangerous and cause further damage to the roof if not completed properly. Hire a roofing professional to remove ice dams and secure the building to prevent further water intrusion. Below are some steps that can be completed without the help of a professional.

- ▶ Remove snow with a roof rake. If the roof is too high, contact a trained professional.
- ▶ Heating cables can be used to slowly melt frozen drains.
- ▶ Melt troughs through the ice dam with calcium chloride ice melter. Rock salt is not recommended as it will damage paint, metals and plants beneath the eave and where the salty water drains.
- ▶ Create a trough-maker by filling a tube of cloth with calcium chloride, tying off the top and laying it vertically across the ice dam. It will slowly melt the ice dam, clearing a path for the underlying water to flow free.
- ▶ After the ice dam has melted, have a roofing contractor inspect the roof for damage, mold, mildew or rot.



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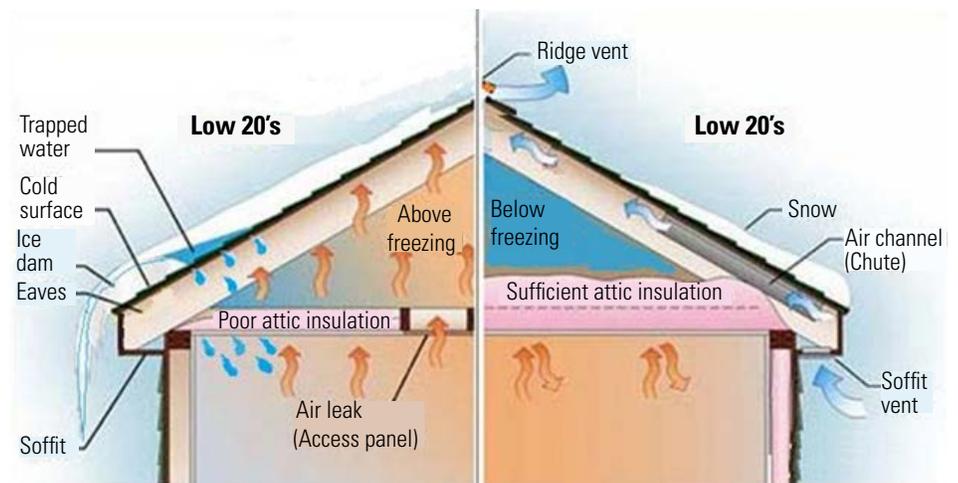
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### Loss Prevention Tips

- ▶ Insulate the attic floor to prevent heat intrusion from the living space.
- ▶ Maintain good ventilation throughout the attic space. The colder the attic, the less thawing and refreezing of the roof.
- ▶ Consider installing thermostatically controlled power vents in attic spaces.
- ▶ Minimize the use of recessed lighting fixtures on the ceiling below the attic space. When this is not possible, use insulation tented over the fixture to minimize heat infiltration into the attic.
- ▶ Create a roof maintenance/inspection program to insure that all drains, scuppers, gutters and downspouts are kept free of blockages, debris and vegetation.
- ▶ Install thermostatically controlled heating cables on gutters, downspouts, lower sections of shaded roof and around roof drains.
- ▶ Prune trees that overhang the roof to minimize shading and eliminate leaves and debris from blocking drains.
- ▶ When re-roofing, install a metal drip edge and a water resistant membrane on the lower 36" of the roof surface under the shingles.



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