

What is an ice dam, and how does it form?

When snow accumulates on a roof, a cycle of melting and refreezing occurs. In a perfect world, the snow would melt off the roof, enter the gutters, and flow harmlessly to the ground. Or the snow would evaporate from the action of the sun, and never really melt off unless the outside temperature rose above the freezing point. However, two key factors interact to cause problems... the outside temperature and the *temperature of the inside* of your attic. The warmer your attic is, the more melt off that occurs at the roof surface. This melted snow would normally flow off the edge of the roof. Under certain conditions, though, when air temperature is very low, the water refreezes at the edge of the roof, where the interior roof surface is not being warmed by the attic. This refreezing gradually forms what is fondly known as an "ice dam", a growing heap of ice that blocks path of the melted snow. Once this dam forms to a certain height, the melted snow that pools up behind it can suddenly leak back under the roof shingles and into your home! On a roof with a low slope, it only takes a small ice dam to cause water backup and leakage. Contrary to popular opinion, gutters do not cause ice dams. However, an ice dam can extend into a gutter if weather conditions permit. Can ice dams be prevented or minimized before they occur? The answer... insulation and ventilation! Since we have determined the main cause of ice dams to be an overly warm attic, a good start in inoculating your home against ice dams is to reduce the attic temperature. Installing additional insulation on the attic floor is as easy as laying additional batts across the existing ones. Install weather-stripping and/or insulation on attic stairways or hatchways. Be careful if there are any exposed recessed light fixtures or vent fans poking through the attic floor. Some of these are not designed to be covered with insulation. Get some information from the manufacturers on the suitability of covering them! Even with optimal insulation, there is still heat leakage into the attic. This is where the value of ventilation becomes apparent. Without adequate ventilation, heat will build up regardless of the amount of insulation. (As an added plus, ventilation removes water vapor also, which can condense in the attic and cause dry rot on wood and rust on metal items.) Don't make this attic insulation Boo Boo! In an effort to fully insulate the attic floor, people sometimes push the insulation deep into the corner where the roof

meets the attic floor. Not good! This causes the lowest part of the roof to be colder than the rest of the roof, setting up the possible formation of an ice dam. Inspect your insulation, and if you see this occurring, pull the insulation back away from the inside of the roof so air can reach it. If you have soffit



vents, the same holds true. Insulation should not block the flow of cool air up from the soffit to the attic vents. Roofing experts do not usually recommend any kind of heating devices on the roof or gutters such as heat tapes as these either do not work or make the problem worse. Roofing installation is one of the least

technical parts of building a house, but is labor intensive and potentially dangerous. It is also a place where contractors tend to skimp, because the effects of a poorly installed roof may not become apparent for years... long after the check clears!

If you have one specific problem area, though, and your roof is otherwise sound, you can have the following repair procedure done to fix the local problem.

Remove all roofing material from 3 to 6 feet back from the lower edge of the roof. Repair or replace damaged or rotten plywood underlayment as necessary.

Install a self-adhesive ice and water barrier over the plywood. Since the barrier is three feet wide, install two overlapping courses if you want extra waterproofing or if the slope of your roof is low. Reinstall new roofing shingles.

Trying to remove the snow from your roof is dangerous to your health and well being and you could also damage the roof shingles and or gutters.

I culled most of this information from articles sent to me by Joe DeFalco.

<http://www.bellboatbob.com/fairwaysmaintenance.htm>