



Ice Damming: Preventing roof damage where heat and snow react

What is Ice Damming?

If you live in a climate where snow accumulates on your roof more than a few inches at a time, you need to be concerned about ice damming.

An ice dam forms when the snow melts at the warmer areas of your roof, usually near the top where excessive heat in your attic collects. It then refreezes at the colder areas of your roof, near the eaves and gutters where attic heat dissipates. The ice forms a dam that blocks water from draining properly off of the roof. The water can then pool behind the dam and backup into the building through the shingles causing damage to the structure and insulation, as well as health problems to you and your family. The weight of the ice dam may even cause damage to the roof and gutters.

You may be surprised to know that the excessive heat that forms in your attic isn't necessarily caused directly by the sun. Believe it or not, there may be excessive heat escaping into the attic from below; from improperly installed heat and lighting fixtures, and possibly due to the architecture of your building. As a matter of fact, if snow melting on your roof is the result of the sun, it would melt fairly evenly without any white spikes of snow present.

So how can you tell if you have an ice damming problem?

It's easy to tell if you have an ice damming problem—even before any leak damage can occur. Icicles hanging over the edge of the roof are a clear indication an ice dam may be forming. You may also be able to see at the edge of the roof, just above the eaves and soffits, a layer of ice forming below the snow. The ice dam may have also entered your gutters causing them not to work as effectively, and even not at all!

If water has already begun to backup into the building, you may be able to see water stains in your attic towards the edge of the house. If the leak has become more extensive, you may find water stains along the edges of the ceiling along the exterior walls. This is a clear sign that water has entered your attic, saturating the insulation and allowing it to reach the drywall. If water damage is present, it's recommended that you have the ice dam removed as soon as possible (See How to Have it Removed Below).

What causes excess heat in the attic?

There are many issues that can cause excessive heat to build up in your attic. Some you can control and some you can't. Some more easily solved than others. In many cases the roofing contractor is incorrectly blamed for this. Here you will see the many obstacles your attic must contend with that cause heat build-up. Later on in this report we'll provide you with solutions and remedies that can be employed to reduce the heat that enters your attic.

- Poor or Inadequate Insulation
- Poor Venting
- Central Air (HVAC) Ducting and Light Fixtures
- Building Architecture

As a rule of thumb, the attic temperature should never be more than 15 degrees warmer than the outside air. By keeping a thermometer near your attic door, you can periodically compare the temperature with the outside. If you have checked your attic for the various issues listed, the temperature test will tell you that there may still be a problem to solve.

Poor or Inadequate Insulation

Proper insulation covering the floor of the attic space will help to keep a uniform temperature under the entire roof. Sometimes not enough insulation is installed and more is required to meet recommended R-Values ("R"esistance to thermal exchange), or it is simply out of position.

Insulation may also be improperly installed which may cause venting issues. For example, insulation has been installed over the soffits blocking airflow, or installed directly against the roofing boards without the correct venting materials.

Poor Venting

The attic (and the roof) needs the ability to breathe. Proper ventilation allows air exchange to take place between the attic and the outside. This helps to regulate the temperature. Various vent options are used for intake and outlet at different levels of the attic.

Soffits along the outside edge of your roof act as the intake vents. In addition to insulation that can be causing soffit venting issues, as above, inadequate soffits along the eaves of the roof will restrict the airflow to the attic.

Outlet venting includes roof vents, gable end vents and ridge vents. Excessive heat leaves the attic through a combination of these vents you have installed in your attic. Again, if you don't have an adequate number of venting solutions, your attic won't breathe well and heat will build up.

HVAC Ducting and Light Fixtures

Some other overlooked intrusions into your attic space which add heat to the equation are recessed lighting fixtures and ducting from central heating and cooling (HVAC) systems.

A “standard” recessed lighting fixture doesn’t have the right insulation for installation directly into a ceiling leading to the attic if you want to avoid adding heat to your attic space. This is especially true if the lighting fixture is installed in close proximity to the roof ceiling or an exterior wall. The fixture needs to be double-walled and insulated so additional attic insulation can be safely installed over it to help reduce unwanted heat from entering the attic.

If you’ve had an HVAC system installed after the house was built, more than likely there wasn’t any space put aside for the ductwork involved. Either it’s running through your basement or your attic. If it’s located in your attic, not only is it difficult to maintain on a yearly basis, but it also leaks heat.

Other heat-adding problems include improperly installed bathroom exhaust vent ducting and open space above a fireplace that leads into the attic without the proper insulation.

Building Architecture

Home designs can vary widely with architects creating aesthetically pleasing new homes for homeowners to enjoy. Some designs are better for different climates and others simply don’t take the attic space into account when it comes to allowing the home to breathe correctly.

Complex roof designs will create obstacles to proper drainage of melting snow and ice. Intersecting roof lines, excessive dormers, and inadequate space for venting due to the architectural layout will allow for excessive heat build-up.

As you can see, there are numerous offenders when it comes to proper venting and heat build-up of your attic. By addressing these issues you can reduce the heat and the amount of ice damming that occurs, reducing your chances of experiencing leak damage and health hazards to you and your family.

What are the Hazards?

The damage from ice damming revolves around water leakage—water that enters your home through the backup from pools that form behind the ice dam. Damage can be extensive depending on how long the leak exists, and how much water enters your building.

Further damage can be caused by the weight of the ice pressing down on the eaves and gutters. This can be hundreds or even thousands of pounds of weight that can tear your roof apart. Also you need to be concerned about the shifting ice that has formed on your roof. As the ice slides down the roof it can destroy the roof shingles. When it finally falls off the building it can land on top of someone or something (car).

Finally, moisture build up in your attic from leaks and poor venting can create the perfect environment for the growth of mold, specifically black mold, which has been in the news over the last few years as a major cause of respiratory ailments and severe allergic reactions.

How do you remove an ice dam?

OK, you recognize you have an ice dam problem and you may even have a dam right now. In the short term, you can have it removed. Properly removing an ice dam is very dangerous and we don't recommend you do so without the proper tools or experience. If you plan on removing it yourself keep in mind you risk severe injury to yourself and damage to your roof.

Here are some tips on removing it yourself (Not Recommended):

- Never walk on a snow covered roof
- If you use a ladder, follow all OSHA safety precautions
- Remove excess snow with a roof rake or push broom – pull down along the slope of the roof
- Chip away a channel through the center of the ice dam allowing excess water to flow out—make sure to not hit the roofing!

If you call a roofing contractor to remove an ice dam, ask them if they have experience removing them, make sure they have the proper tools, and check to see if they have general liability insurance that covers every employee that they intend to work on your property, including the owner.

Roof Services' Repair & Maintenance Division are experts at removing ice dams and have been doing so for close to 25 years.

The Benefits of Working with Roof Services

Roof Services has been installing and repairing roofs for close to 25 years from Montauk Point to New York City and the surrounding area. We're committed to providing you with the highest quality installation, service and support so you can experience the greatest life expectancy from your roof. We're fully insured and bonded to protect your home or business.

If you've had ice damming in the past and you want to prevent it from happening again, we will inspect your roof and provide you with the best possible solutions.

If repairs need to be done to bring your roof back to full integrity, we'll provide you with various options to choose from.

Visit www.RoofServices.com