



## Flash Points

### Building Collapse Resulting from the Weight of Ice and Snow

If snow is allowed to accumulate during winter storms, roof structures can collapse. The excessive snow load can cause a roof or an entire structure to fail. This is due to the weight of ice and snow accumulation putting a downward force on the building's roof.

Taking time to remove the snow and ice from your building roofs will benefit you. In addition to the damage to your property covered by your insurance policy, you may have substantial uninsured loss.

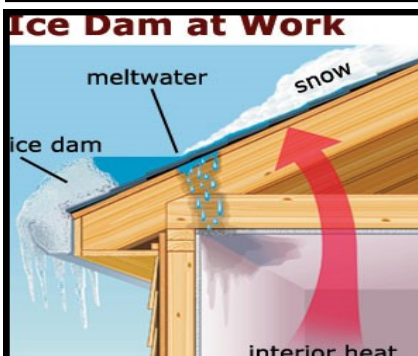
***This may include:***

- Residential displacement or downtime to your operation.
- The additional cost of debris removal.
- The loss of items that cannot be replaced.
- The value of your policy deductible.



**Limiting accumulation of snow can reduce the chance of roof collapse. Several factors may contribute to snow buildup, including:**

- **Roof Pitch** - A steeper, angled roof sheds snow faster than a flatter roof. A 14-degree roof pitch is the best for snowy areas.
- **Snowdrifts** - Windblown snow from surrounding buildings and trees can create snowdrifts that unevenly distribute snow loads.
- **Lower Buildings** - If two buildings are next to each other, the roof of the lower building will typically receive the sliding snow or ice from the higher roof.
- **Shingled Roof Decks** - Metal roofs are better for allowing snow to slide off a building, whereas shingled roof decks trap snow and can become damaged during the snow removal process.
- **Roof Valleys** - Valleys can cause snow to build up and remain present longer than on the rest of the roof.



### ICE DAMS

An 'ice dam' occurs when snow on your roof melts and refreezes. Ice dams create pools of water that can seep into your dwelling or building, damaging various areas of the interior surfaces. Removing snow and ice immediately after a storm or filling a stocking/sock with ice melt and laying it perpendicular to the edge of your roof are a couple of suggestions in preventing ice dam build-up.

**The following are preventive measures that can help ensure that a building roof is safe from collapse:**

- **Build a structure to withstand snow loads** - A properly designed structure should meet or exceed the expected pounds per square foot (psf) of snow loads from winter storms. Agricultural buildings are typically built to handle snow loads that are 20 psf, which equals about 4 feet of dry snow or 2 feet of wet, heavy snow.
- **Plant snow fences or tree shelterbelts** - Snow fences and tree shelterbelts can help keep away excessive snow by protecting a building or farmstead from snowdrifts.
- **Keep the roofline simple** - Straight, single-ridge gable roofs don't accumulate as much snow as roofs with valleys, dormers, and other obstructions.
- **Remove snow and ice frequently and properly** - Removing accumulated snow and ice can help prevent roof collapse. Taking the weight off a roof can prevent structural damage, limit water pools, and stop ice damming. Hire a qualified professional with proper equipment, safety training, and experience for this service.

**If an owner suspects a snow load is in excess of the design loading or if the roof is showing signs of impending collapse such as buckled or broken members, plans to remove the snow should be implemented.**

**Below are tips and suggestions to remove the snow safely minimizing damage.**

- Heating air in an uninsulated building can help to melt snow or ice in contact with the roof surface allowing the snow or ice to slide from a sloped roof.
- Snow sliding from the building roof can cause crushing, suffocating injuries or death. Keep people and animals away from the fall zone when snow or ice slides from the roof.
- Once snow is removed from the roof, make sure it does not cover or damage any appliance meters, regulators, or exhaust/fresh air vents that service interior appliances.
- Roof snow can also be removed by shoveling. This is a dangerous process as falling from ladders and the roof is a real possibility. Consider hiring experts who own boom trucks or other specialized equipment.
- Use a snow roof rake if at all possible. This allows you to stand on the ground in a safe place. Removing snow from the edge of the roof could allow snow above the edge to avalanche. Make sure you are out of the fall zone when scraping snow from a smooth roof surface.
- Use fall protection equipment when workers are on the roof. Tie workers off so they don't fall from the roof.
- If ladders are used, locate and secure them so they do not fall while workers are standing on them. Also, locate ladders so they don't fall if snow slides off the roof knocking workers off the ladder or leaving them stranded on the roof.
- Generally, remove snow from the most heavily loaded areas first.
- Remove snow in narrow strips instead of large areas to help keep loading somewhat uniform.
- Don't pile removed snow onto snow-covered areas increasing the load in those areas.
- Use plastic shovels or wooden roof rakes to avoid damaging roofing material. Don't feel as if all snow must be removed. A layer of snow next to the roof surface can protect the surface from damage during the snow removal process.
- Do not pick or chip at ice near the roof surface to avoid damaging roofing material.
- Do not use snow blowers as they can damage the roof.



## **FLOOD**

If proper measures are not taken once snow is removed from the roof, it can result in water damage in the spring. It is important to move the snow more than three feet away from the structure's foundation.

Checking to ensure your sump pump is in working order is also beneficial to prevent a possible disaster in your basement.