



SAFETY BRIEF



HOW TO HELP PREVENT AN ICE DAM FROM FORMING:

Remove Snow From Your Roof After Every Storm.

To begin with, use a roof rake to clear snow from the edge of your roof upwards of three to four feet immediately after each storm. In addition to helping prevent an ice dam from forming, this will lessen the stress on your home's roof. The amount of snow and ice your roof can support will depend on a number of factors, including the roof type and the age and condition of the structure. But a good rule to keep in mind is if more than a foot of heavy, wet snow and ice has accumulated on your roof, you should have it removed.

Clear Downspouts.

To help snow and ice drain off your roof, make sure that the area around your downspouts is clear. This can help prevent standing water from collecting near the gutter downspout.

How Do you Know if you Have an Ice Dam?

Look carefully at the icicles around the exterior of your house. If they are confined to the gutters and there is no water trapped behind them, then an ice dam has likely not formed. Nonetheless, icicles can pose a danger to people when they fall off, so secure the area below and try to safely knock them down while standing on the ground, making sure not to stand directly beneath them. If you cannot safely reach them from the ground, consider hiring a contractor to help.

Water Stains or Moisture

Check in the attic or around the tops of exterior walls on the top floor of your house. Stains and moisture may indicate that an ice dam has formed and water has penetrated the roof membrane.

How to Remove an Ice Dam

Melt the ice dam. Fill the legs of nylon stocking with calcium chloride ice melt, and place them vertically across the ice dam every 5-6 feet so that it melts a drainage channel through the dam. Once drainage channels have been established, additional stockings may be placed on the dams horizontally to melt the dams. If you try this, make sure you can safely position the ice melt on your roof, and make sure to use calcium chloride, not rock salt. Rock salt will damage your roof. Also, be aware that shrubbery and plants near the gutters or downspouts may be damaged.

Get Professional Help.

If you cannot safely reach the roof, avoid using a ladder in snowy and icy conditions. Consider hiring a contractor to remove the ice dam.

HOW TO HELP PREVENT AN ICE DAM FROM FORMING (con't)

Long-term Tips for Preventing Ice Dams

- **Insulate Your Attic:**
Make sure your attic is well insulated to help prevent the melting-and-freezing cycle that causes ice dams to form. Check and seal places where warm air could leak from your house to the attic, including vent pipes, exhaust fans, chimneys, attic hatches and light fixtures.
- **Install A Water-repellent Membrane:**
When replacing a roof, make sure to install a water repellent membrane underneath the shingles. This acts as an extra barrier that helps prevent water from seeping inside the building.
- **Keep Roof Venting Clear:**
Roof venting allows the roof temperature over the heated areas of your home to remain consistent with eaves and overhangs. Poor venting traps heated air and causes melting which then freezes at the roof edge. You should have a clear air path from the interior of the eave to the roof ridge.

Snow Removal Tips

Clearing the snow off your roof from the gutters or eaves upwards of three to four feet after each winter storm can help prevent ice dams from forming. Remember to avoid using a ladder in snowy and icy conditions. This can be extremely dangerous and is best left to professionals.

Remember to clear snow in front of emergency exits, around fire hydrants and fire department connections, and around boiler and hot water heater vents to allow proper ventilation and prevent a possible buildup of Carbon Monoxide inside the building.

- **For Flat Roofs:**
If your flat roof is easily accessible from an interior stairway, you may want to shovel the roof, but be careful not to damage the roof covering. Remember to put safety first any time you are on a roof, especially one that is covered in snow and ice. If you have any doubt, leave it to professionals.
- **For Sloped Roofs:**
It may be possible to remove the snow and ice from your sloped roof using a roof rake – a long-handled tool designed specifically for this purpose. Stand on the ground and pull as much of the snow off the eaves as you can safely reach.

If you cannot safely reach the roof, contact a homebuilder, landscaping and roofing contractor, or property maintenance company to remove the snow and ice. Before hiring a contractor, check their references. Always be sure any contractor you hire is qualified, insured and bonded.

The amount of snow and ice your roof can support will depend on a number of factors, including the roof type as well as the age and condition of the structure. But a good rule to keep in mind is if more than a foot of heavy, wet snow and ice has accumulated on your roof, you should have it removed.

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Snow Loading and Roof Collapse

Planning and Preparation

- Ensure your Emergency Response Plan covers winter emergencies, including excessive snow loads.
- Determine maximum roof snow loads based on building plans, specifications or engineering analysis.
- Inspect roof drains and clean any debris to facilitate proper drainage.
- Develop a plan to elevate mechanical snow removal equipment to roofs.
- Assemble necessary equipment, tools and safety equipment to have ready for use.
- Identify and mark special hazards such as skylights, obstructions or other items.
- Train and equip employees with proper safety procedures, perimeter warnings and fall protection.
- Consult roofing contractor/manufacturer to ensure mechanical equipment will not damage membrane or other roof surface(s).

Warning Signs of Overloading

- Severe roof leaks.
- Cracked or broken windows
- Doors or windows that do not operate as designed
- Ripples or bends in steel roof supports.
- Sagging ceilings or rooflines. Note: a suspended ceiling may hide these sags
- Sprinkler heads that are pushed down below dropped ceilings.
- Cracks appearing in walls or ceiling. Again, a suspended ceiling may hide these cracks.
- Loud popping or cracking noises from the building structure



Snow Loading and Roof Collapse

Table 1: Equivalent Snow Load Table

Density Information				
	Light/Dry Snow	Heavy/Wet Snow	Ice	Water
Snow density (lb/cu ft)	3.12	20.81	57.25	62.43
% of water weight	5%	33%	92%	100%
Equivalent Inches				
Design Snow Load (lb/sq ft)	Light/Dry Snow	Heavy/Wet Snow	Ice	Water
5	19.2	2.9	1.0	1.0
10	38.4	5.8	2.1	1.9
15	57.7	8.6	3.1	2.9
20	76.9	11.5	4.2	3.8
25	96.1	14.4	5.2	4.8
30	115.3	16.2	6.3	5.9

If you have any questions, please contact a member of USI's Risk Control Team.
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