Safety Alert

We're Serious About Safety

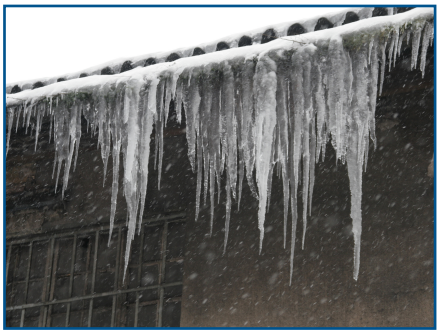
Safe Work Practices on Snow-Covered Roofs

Working on a snow-covered roof poses significant dangers, including serious falls and exposure to extreme cold. These guidelines will help ensure that your company has proper controls in place to help minimize the risks of working on snow-covered roofs.

Planning and Preparation

As you develop a plan for roof work under these special conditions, consider the following questions:

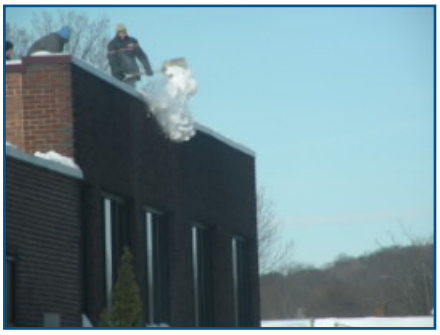
- What special tools, equipment, protective devices, clothing and footwear will be needed? - Make sure all the necessary gear is on hand and ready for use.
- Do you have a means of safely elevating mechanized snow removal equipment to the roof? - Remember that employees will be working under adverse conditions during severe weather.
- What type of fall protection will you need? Guardrails, nets or a personal fall-arrest system for each worker may be needed, depending on roof configuration and existing fall protection already installed.
- Are there special hazards on the roof that will be hidden from view by the snow? - Before the snow falls, mark skylights, roof drains, vents, and other hazards or obstructions so that workers will be able to see and avoid them.



- How will workers get on the roof? - Develop a plan for keeping all roof access points clear of snow.
- Do you know the maximum load limits of the roof? – Never work on a roof without knowing how much weight it can support.

Roof Access

- If access is from the interior, such as through a penthouse door or hatch, snow build-up may make the route impassable or lead to injuries when workers attempt to force the door open. Plan alternative methods of roof access.
- If access is from a fixed ladder on the building exterior, snow and ice may build up on ladder rungs and create a serious fall hazard. The first person up the ladder should observe the rung conditions, clear off snow, and use a hammer to knock any ice off the rungs.



- If access is from portable ladders, set them on stable footing at the proper angle to the building. The horizontal distance between the base of the ladder and the building should equal one-quarter of the working length of the ladder, or 1H:4V. Secure ladders at the top and base to prevent movement, and be sure they extend at least three feet above the roof.
- Regardless of the ladder type, instruct workers to use the "Three-Point System," keeping two hands and one foot or two feet and one hand in contact with the ladder at all times.
- Use a hand line or rope to hoist tools or shovels to the roof. Never allow workers to carry large tools or shovels up a ladder.

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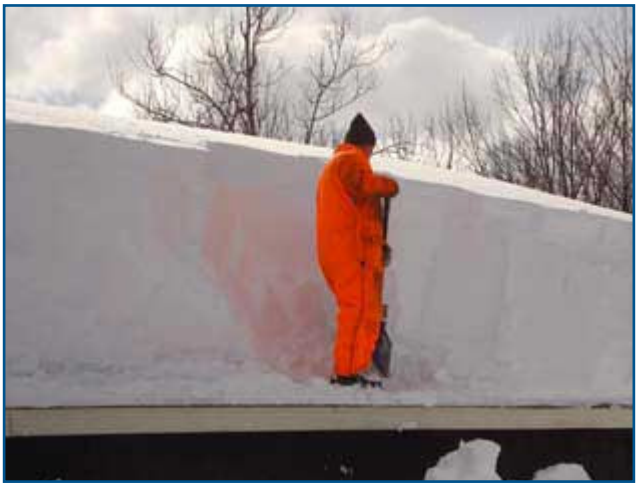
Flat Roof Snow Removal



Know the Square Footage

Building codes in snow-prone areas usually require roof construction capable of handling a considerable snow load. Building owners or managers should know the pounds per square foot the roof is capable of carrying safely.

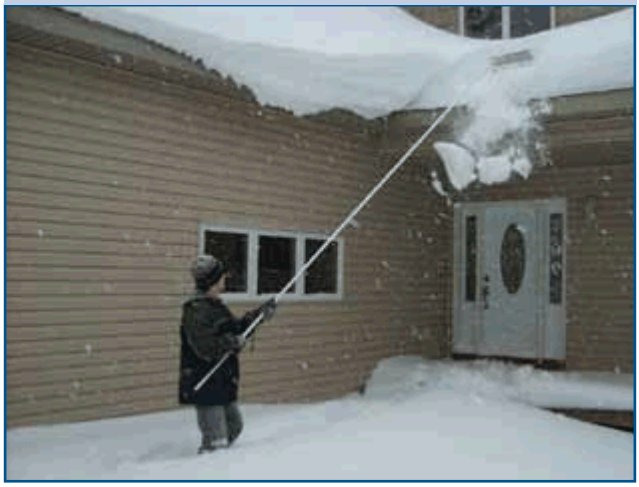
The weight of snow varies with the water content. In some areas snow is relatively dry and light. Other areas receive snow that is wet and heavy when it falls. The snow will also vary as winter progresses. Early fall and late spring snowstorms often contain more moisture and heavier snow.

Gather 1 cubic foot of snow, melt it and weigh the water. If the water in 1 cubic foot of snow weighs 3 pounds, for example, and there is an average snow depth on the roof of 2 feet, the average load on the roof is 6 pounds per square foot.

On some roofs deeper snow accumulations occur in obstructed areas such as around plumbing vents or heating or air-conditioning units. If the average weight of a cubic foot of snow is 3 pounds and the snow is 6 feet deep in one area of the roof, the load on that area is 18 pounds per square foot. If the roof has a safe load capacity of 15 pounds per square foot, for example, the snow would need to be removed from that area.

Few mechanized options exist for removing snow from a roof. Even if tractors or other snow-moving equipment could be placed on the roof it would likely exceed the safe loadcarrying capacity of the roof. Shovels and walk-behind snow blowers can usually be used safely. However, if the roof is at or near capacity from the snow load, workers should be cautioned to spread out to avoid concentrating additional weight in one spot of the roof.

Clear snow from roofs from ground level using roof rakes, as shown below, whenever possible.



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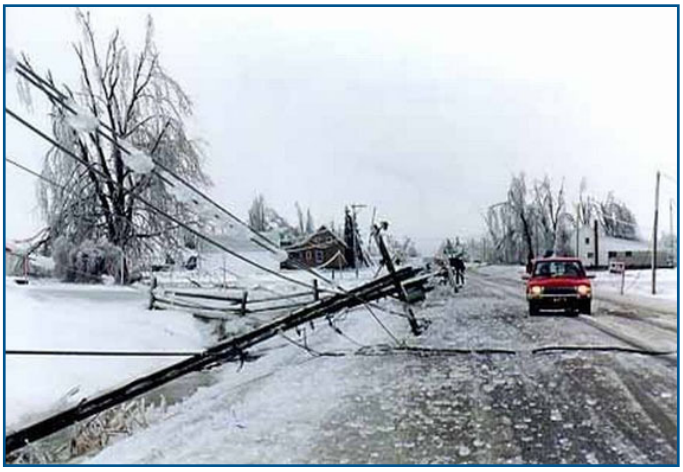
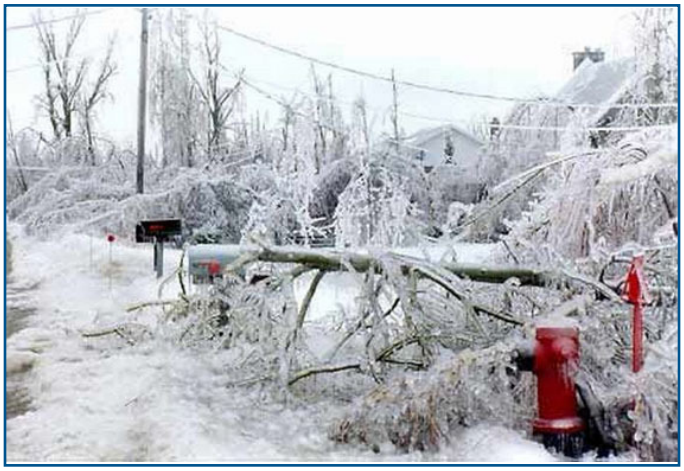
According to OSHA, common snow removal hazards can include:

- Electric shock from contact with downed power lines or the use of ungrounded electrical equipment.
- Falls from snow removal on roofs or while working in aerial lifts or on ladders.
- Being struck or crushed by trees, branches or structures that collapse under the weight of accumulated snow.



- Carbon monoxide poisoning from gasoline-powered generators in inadequately ventilated areas or idling vehicles.
- Lacerations or amputations from unguarded or improperly operated chain saws and power tools, and improperly attempting to clear jams in snow blowers.
- Slips or falls on icy or snow-covered walking surfaces.
- Being struck by motor vehicles while working in roadways.
- Hypothermia or frostbite from exposure to cold temperatures.



Exposure to Cold

- Teach workers the warning signs of overexposure and hypothermia.
- Make regular temperature and wind chill checks to prevent workers from being exposed to the cold for too long.
- Rotate workers to reduce their individual exposures to cold and to back injuries from shoveling snow.

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