



## Advisory Bulletin Ice on Roofs

In the wake of the recent ice storm that ravaged Eastern Canada, a great deal of concern has been raised regarding the condition of low slope roofs. The following guidelines have been prepared by the National Technical Committee of the Canadian Roofing Contractors' Association for building owners and managers.

1. In the cases the quantity of accumulated ice and snow has approached the design load limits for the particular structure. In these instances, the risk of roof collapse is of primary concern. Whether your roof is at risk should only be determined by a professional structural engineer or certified design professional.
2. In the event that it is determined that corrective measures must be undertaken, and that the ice and snow must be removed, this work should only be carried out by a qualified contractor who possesses the proper tools, equipment and skills necessary. All work should be carried out under the direct supervision and monitoring of the design professional.
3. Safety of the worker is paramount. Unqualified personnel who lack the proper training should stay off of the roof.
4. The contractor, under the direction of the design professional should identify the roofing system type. The type of roof cover and its configuration will have significant impact on the methods employed to remove the ice and snow.
5. A detailed plan and schedule of how the ice and snow will be removed should be developed and carefully followed. Stockpiling of ice and snow may lead to permanent deflection, damage, or even collapse.
6. Ensure that the roofs' drainage system is in effective working order.

Even is the structural capacity of the roof is not of concern, significant damage can ensue should a rapid thaw occur. This may be the result of the overwhelming of flashings and penetration of the ice turns to water.

To reduce the potential of leakage, the most important step is to ensure that all drains are open and in good working order without any blockage and obstructions.

Remove the ice immediately around the drain openings. This can be accomplished by using steam, or carefully chipping it from the roof. In addition, channels through the ice may have to be provided to assist the flow of water to the drains. If your roof is a protected membrane roof assembly, removing the ballast and a few boards of insulation around the drain should provide sufficient warming to keep the drains free of ice and snow provided that the interior is heated.

Avoid using road salt (sodium chloride) or calcium chloride to melt the ice. Although many roofing covers, including built-up asphalt roofs, are relatively unaffected by salt, these

compounds are known to promote corrosion of ferrous metals. This can lead to the rapid rusting of metal flashings, pipes and other items often located on the roof.

Some organic compounds (acetates) may provide an alternative to salt. However, caution must be exercised. Contact the membrane manufacturer to ensure that there will be no adverse chemical effects. Also check with your local environment authorities regarding any potential environmental restrictions on their use.

In some instances, depending on the thermal resistance value of the roof assembly and exterior conditions, melting of the ice can be accelerated by raising the temperature of the interior. This may have only limited effect, however, and will require the removal of ceiling tiles at strategic locations, and closing off of all vents. The purpose is to elevate the temperature below the deck. Heat loss through the roof may warm the roofs surface sufficiently to raise it to a temperature above freezing. However, this method must be carefully controlled and monitored to avoid damage.

Should it be determined that the weight of the ice and snow is not a problem; that there are no active leaks; and that the roof drainage system is fully functional, stay off of the roof! Let nature take its course. Milder temperatures, solar radiation, and heat loss from the building will all act to dissipate the ice from the roof eventually. A well built roof should be able to remain watertight even if it has a thick cover of ice and snow.

Attempting to remove the ice and snow on your own can result in damage to your property, serious injury to personnel and even loss of life. The risks of removing ice and snow, unless it is absolutely necessary, far outweigh any benefits it may provide. In any event, only qualified, insured roofing contractors with trained personnel should be allowed to carry out this work.

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