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SEVERE ICING OF ASPHALT SHINGLE ROOFS

Occasionally, winter weather conditions may result in the formation of a thick layer of ice on asphalt shingle roofs. Although this ice layer will have little direct physical effect on the shingle themselves, there could be instances of roof leaks due to the ice.

The ice will usually melt from the underside first, due partly to the slight heat loss rising from most attics. Solar energy also contributes as the sun's rays pass through the ice, but collect on the shingle surface. The water formed by this melting action beneath the ice layer is sometimes diverted by small unmelted ice areas, causing the water to run laterally between shingles or around flashings. It should be noted that this can happen anywhere on the roof, not just at the eaves, which is where "ice dams" typically form. Water entry into the attic may result even though neither the asphalt shingles nor their installation are at fault. A shingle roof is not "waterproof"; it is designed to shed water. Interior damage caused by water entry in these cases is normally resolved through homeowner insurance coverage.

Once all the ice has melted and water is allowed to drain freely, the roof system typically regains its watershedding capabilities. Usually the only detrimental effect to the shingles may be that some of the mineral granules on the shingle surface have loosened. In the first mild season after the severe ice storm, one may notice a slight increase in the quantity of granules in the gutter/eavestrough. The shingles are usually still surfaced with adequate granules such that roof colour and longevity are not affected.

Although removal of the ice may appear to be a practical remedy to avoid ice dam leaks, this may damage the roof, resulting in long term problems. First, it is almost impossible to work on a sloped surface covered in ice; do not attempt to walk on an icy roof. If you do have some other access to your roof, there are no practical ways to remove the ice without damaging the shingles or other roof components.

1. **Salt.** Spreading road salt on the roof may help melt thinner layers of ice, however, there are drawbacks. Use of too much salt may leave a whitish calcium residue on the shingles, although this will eventually weather off. Metal flashings, eavestroughs and downspouts are typically galvanized to prevent corrosion, however, a salt-water roof runoff could corrode these metals or affect paint finishes. Runoff from use of salt or other de-icing products may also affect vegetation near downspout exits.
2. **Direct ice removal.** Although it may be possible to hammer, chisel, or shovel off the ice build-up, this is not recommended; such actions may damage the shingles, which may invalidate the manufacturers' limited material warranties. The roof could

continue to leak as a result of this damage long after the ice is gone.

3. **Heating the ice.** Artificially and rapidly heating the ice with steam, electric heaters, or a torch is also not recommended. Again, although this would achieve the goal of melting the ice, there is significant risk of damage to the shingles (softening/melting), to say nothing of the numerous safety hazards (electrical shock, fire, etc.)

Just as nature caused the ice to form there initially, it is best to allow nature to remove it. Damage to the shingles caused by any ice removal procedure is typically not covered under shingle manufacturers' limited warranties. If there are concerns about the weight load on the roof, consult a structural engineer or qualified professional building inspector.

Please note that not all cases of water entry into the attic are "leaks". If the house has a poor or ineffective vapour barrier, warm moist air drifts upwards from the dwelling space into the attic. If the attic ventilation is blocked or insufficient, condensation and/or frost may form on the cold underside of the roof deck. When milder weather returns, the frost melts, dripping into the attic insulation, and possibly the home's interior. If this occurs on your home, more/improved ventilation should be installed.

For additional information on related subjects, see CASMA [bulletin #8](#): "Cold Weather Recommendations For Application of Asphalt Roofing Shingles" and [#10](#): "Preventing Problems from Ice Dams".

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