

# Roof Ice Damming and Attic Condensation Problems<sup>1</sup>

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If you have noticed lots of icicles hanging from the edge of your roof this winter, chances are your house is leaking significant (and expensive) amounts of air and heat into the attic. This escaping air and heat can lead to both ice damming and attic condensation problems (see Figure 1 on page 7 for more information about how ice dams form). Moisture caused by attic condensation reduces the effectiveness of insulation and over time can cause damage to structural elements such as rafters or trusses. Roof ice damming often results in snow-melt water entering the home.

Fixing ice damming and attic moisture problems requires addressing four primary factors.

- 1) Prevent warm air in living spaces from infiltrating into the attic with a good air barrier between the heated portion of the house and the attic.
- 2) Prevent conductive heat loss between living areas of the home and the un-heated attic by making certain that attic insulation levels are adequate and that insulation is correctly installed.
- 3) Provide ventilation of non-heated attic spaces
- 4) Manage moisture levels within the living area of your home.

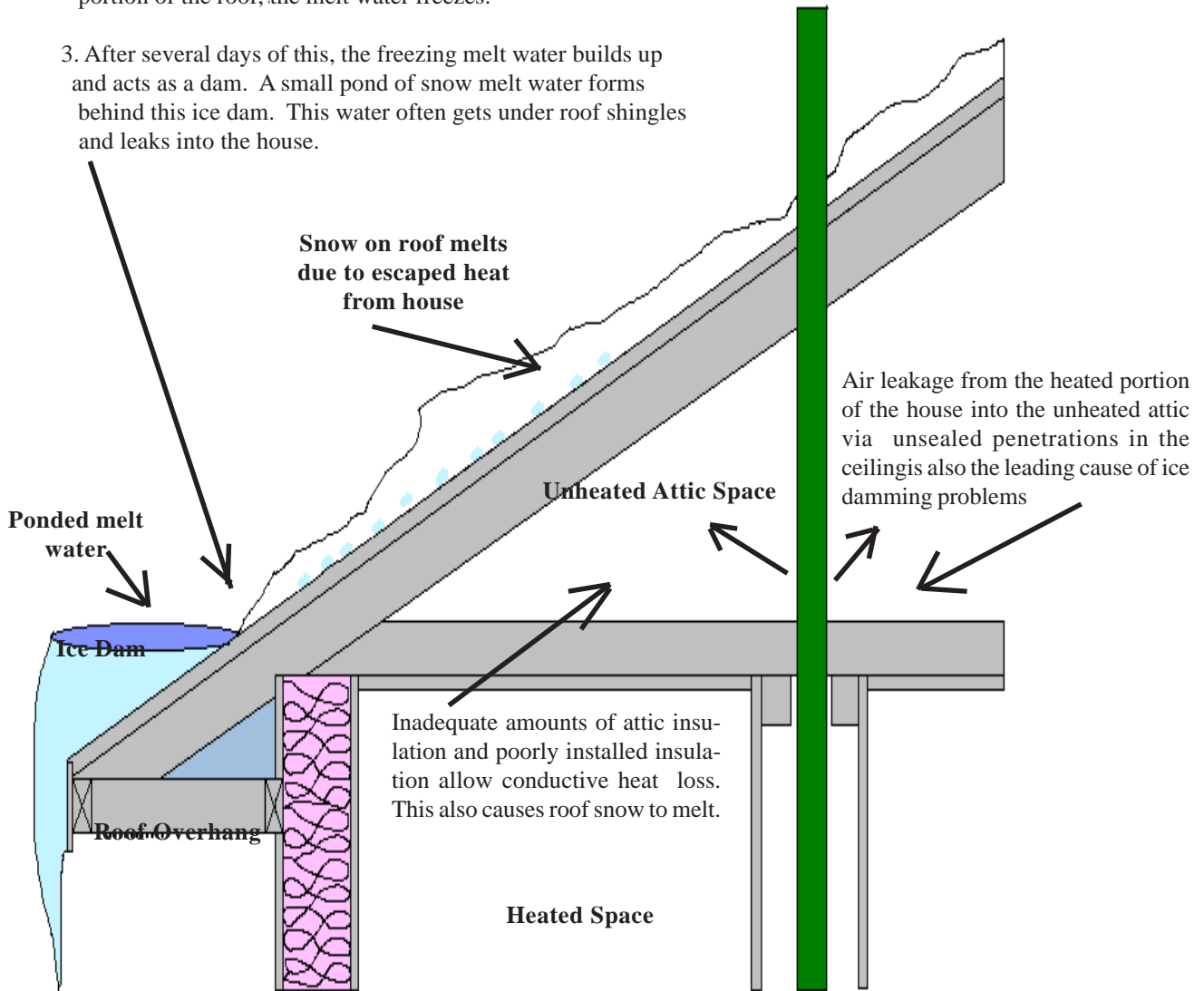
**See Figure 1 on Page 2 for more information**

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<sup>1</sup>This article originally appeared in the Winter 2005 issue *Housing and home Environment News*

## Figure 1: How and Why a Roof Ice Dam Occurs

1. Snow on roof is slowly melted by warm air and heat that has escaped to the attic from the heated portion of the house.
2. Melt water runs down the roof until it hits the roof overhang at the roof edge. Since there is no escaping heat under this portion of the roof, the melt water freezes.
3. After several days of this, the freezing melt water builds up and acts as a dam. A small pond of snow melt water forms behind this ice dam. This water often gets under roof shingles and leaks into the house.



If you would like more detailed information about roof ice damming and attic condensation problems and how to correct them you can download the Housing Fact Sheet, *Causes and Cures of Attic Condensation and Roof Ice Damming Problems* at <http://www.human.cornell.edu/dea/outreach/upload/attic-condensation-2.pdf>