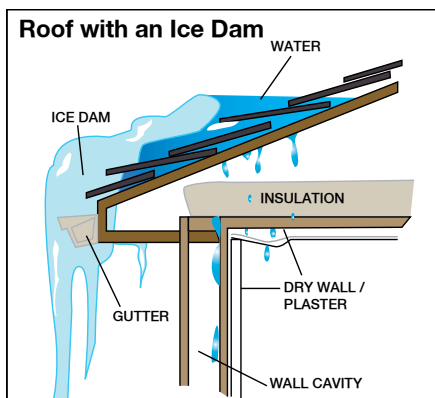


Technical bulletin

Prevention of Ice Dams

Diagnosis

For many older and larger buildings active management of the temperature profile within the loft or attic space immediately below the roof is important to prevent water ingress through the formation of ice dams. This problem is less prevalent in modern factories or commercial buildings where building construction standards are more resistant to water ingress and the drainage channels from roofs are more free flowing and less prone to ice blockage.



Ice dams are formed by continual thawing and refreezing of melting snow. Large masses of ice develop as snow on the upper part of the roof melt, warmed by the underlying un-insulated or under insulated roof. The water runs under the snow and refreezes as it meets the colder frozen edge of the roof. As additional snow melts, pools form against the dam gradually causing water to back up the roof often getting under the tiles and leaking into the building. The roof tiles are effective against water ingress as long as the water flow runs down towards the gutters but not

against gradient in the opposite direction as caused by the ice dam backing up the liquid water. Once backed up water can also run into various openings and building joints.

Ice dams will also form at the bottom of roof valleys where water unable to escape can accumulate and freeze forming the dam.

The presence of large icicles hanging from the eaves of your building is a sure sign that ice dams are being formed.



Solution

If ice dams are known to form on your building, please consider the following:

- The loft or attic space needs to be maintained at a temperature as close to the outside temperature as possible to prevent the formation of ice dams. This can be achieved by the installation of **adequate insulation** in the loft or attic space and by increasing the **cold** airflow through the attic. This prevents the accumulation of warm air in the attic or loft space.
- If there are water pipes and heating equipment in the attic or loft space this can cause a conflict. The piping and equipment will need to be warm to prevent freezing yet the temperature gradient from the outside conditions to the attic space should be minimised to keep it as cool as possible to prevent ice dams. In such cases, maintain a cold loft/attic space but individual pipes should be lagged and trace heated and large heating equipment such as boilers should be relocated.

- Infra red scanning of the loft space can help in identifying temperature profiles and warm or cold air leaks into the attic /loft space.

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