



SUN AND ICE DAMS: CAUSE AND EFFECT

The Relationship Between Sunshine and Ice Dam Formation

Ice dams happen when there is section of roof that is above freezing (32°) where roof snow melts which then drains to an area that is below freezing, usually the eaves, where it refreezes. The source of this temperature differential is usually the result of interior heat loss, specifically via air leaks and insulation issues. In fact, according to our experience, 95% of our clients' ice dam problems can be mitigated or eliminated altogether through the modification of the thermal characteristics of the home. Still, we see ice dams on certain homes for reasons outside the scope of it's architectural deficiencies. Homes with what we might call nearly perfect air-sealing, insulation and ventilation still get ice dams. This Case Study describes such a situation.

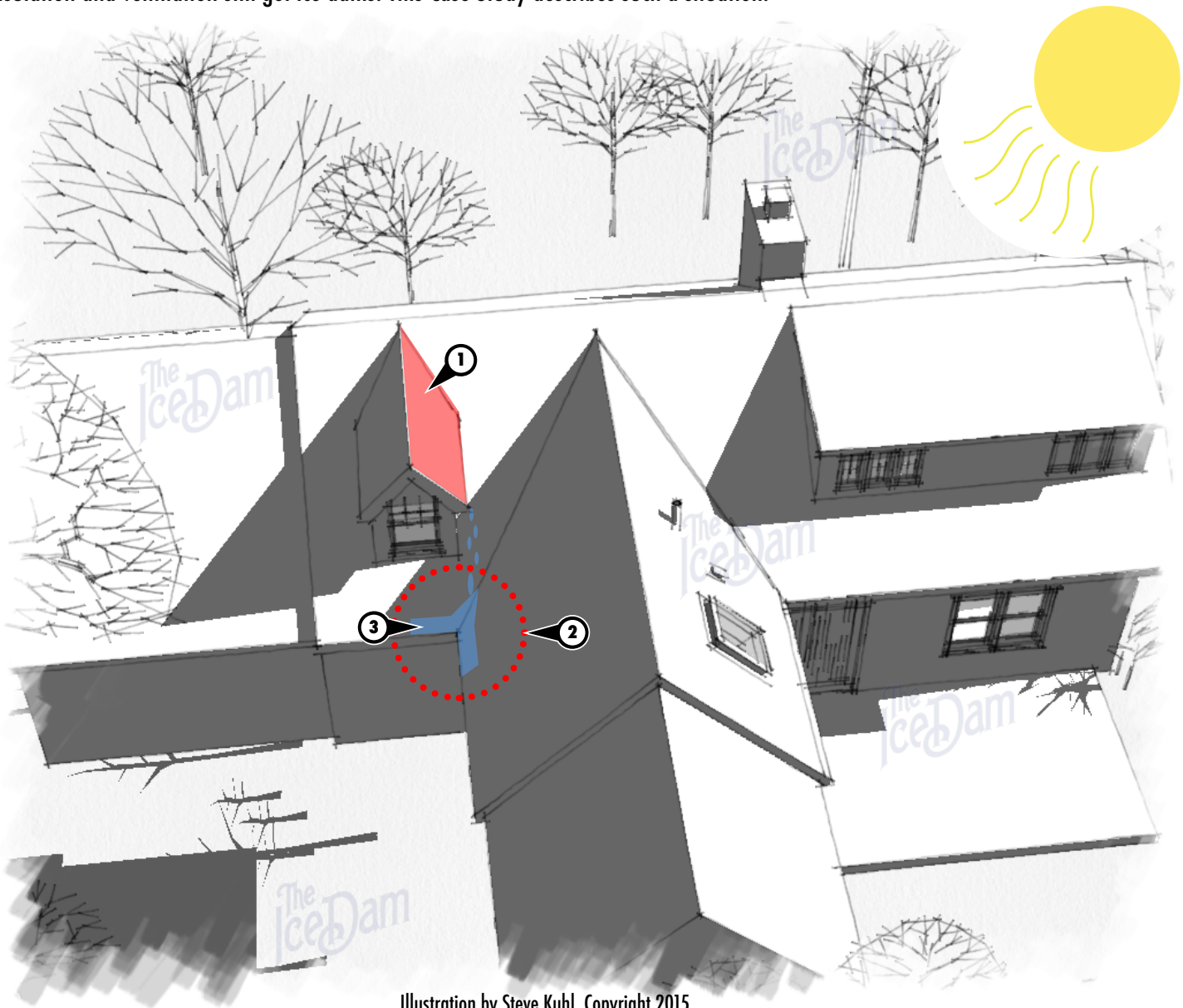


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The winter sun hits Minnesota homes (and all homes in this latitude) at a low angle during the winter. The result is that certain roof slopes never see direct sunlight while others get hit quite directly. The above illustration demonstrates an ice dam situation that relates to the heating effects of the sun. Solar radiation warms the roof slope on the dormer (1), the resulting melt water drains to an area of the home (2) that never sees direct sunshine where it refreezes to form an ice dam (3). These are particularly challenging ice dams to prevent. Often times heat cables are the only affordable option.