CASE STUDY
KUHL SOLUTIONS TO CLIENT PROBLEMS

DOUBLE TROUBLE

KUHL CASE #44

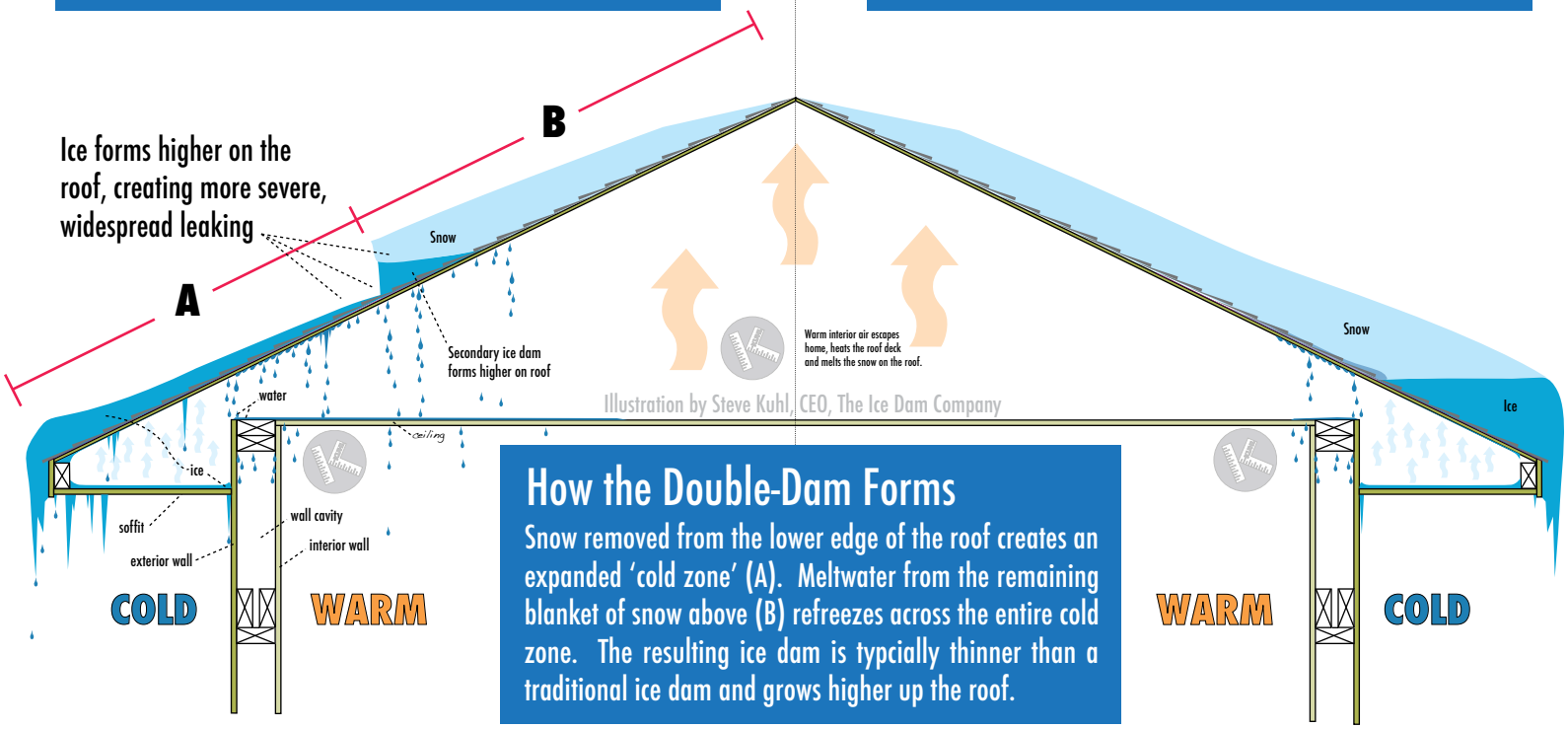
Roof Snow Removal In Minneapolis
How Using a Roof Rake Can Make Ice Dam Problems Much, Much Worse

The Problem

You learned your lesson in the winter of 2011 with the epic ice dam outbreak that hit Minnesota. You read up that removing snow from your roof will prevent ice dams. Ice dams get their fuel (i.e., water) from the snow on your roof after all. Remove the snow, remove the problem. So this winter you buy a roof rake, brave the cold and remove as much snow from your roof as you can leaving a small section of snow still in place higher on the roof that you couldn't reach. A few weeks pass and bam! You see water leaking through your ceiling and it is even worse than the winter of 2011. How can this be? The answer lies in a phenomenon we call the 'double dam', something we have seen over a hundred times in the past decade alone. Our graphic below helps explain the how and why.

This side was shoveled
A bad, 'Double Dam' forms

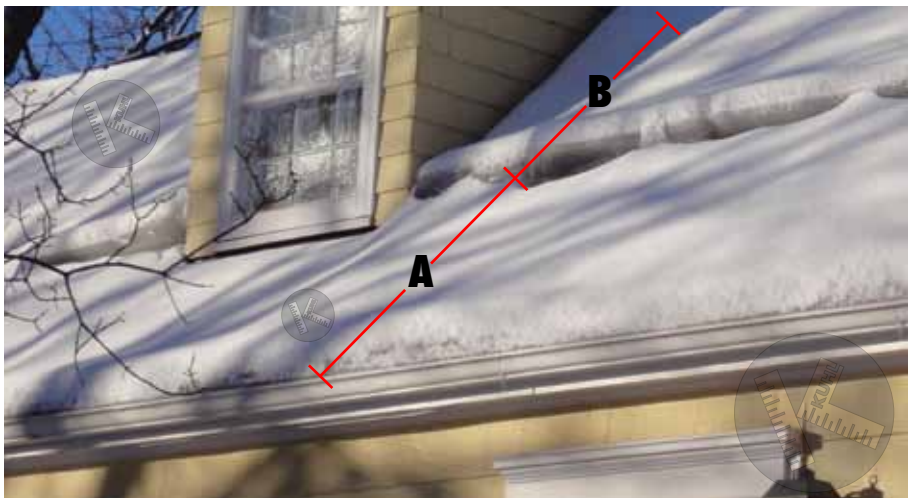
This side was not shoveled
A bad, albeit typical, ice dam forms



How the Double-Dam Forms

Snow removed from the lower edge of the roof creates an expanded 'cold zone' (A). Meltwater from the remaining blanket of snow above (B) refreezes across the entire cold zone. The resulting ice dam is typcially thinner than a traditional ice dam and grows higher up the roof.

Of the two ice dams illustrated above, the Double Dam presents a couple of challenges beyond those of the regular ice dam. First, because ice has grown further up the roof slope, the subsequent leaks inside will cover a wider area. The second problem with a Double Dam is the cost of removal. Although half the thicknessmay take two to three times longer to remove than a regular ice dam. More time equals more money.



Shown right is a very typical Double Dam. This home in Edina had leaking from both ice dams and the cost to remove them was tremendous. Area A is where the average ice dam likes to form. Area B only forms when someone does an incomplete snow removal job from the roof. So what is the take-away from this case study? Remove all the snow from roof slopes than may produce an ice dam or remove none at all. While the latter may result in an ice dam happening at the very least it won't be a Double Dam.