



# Alaska REAL ESTATE

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## DOES SNOW INSULATE YOUR HOME?

It's cold out there, and your gas bill is particularly high. Does snow help you keep the heat in?

Let's think about this. Snow definitely has insulation benefits. In fact, it is estimated that each one inch of snow has an R1 value. 12 inches of snow is equivalent to the insulation created by packing a 2x4 wall with fiberglass.

Each state has different insulation codes because their climates vary. Current code in the Municipality of Anchorage requires R19 in walls and R38 in the roof or ceiling. Is your gas bill lower with heavy snow around it? Probably yes, because the frost factor that would attack the foundation and walls is mitigated by snow layers.

Even though AWWU water lines are typically 10 feet below ground, burst water lines are a big problem in winters when there is little snowfall and cold temperatures. The snow prevents the frost line in the soil from deepening or, more precisely, slows the descent rate.

While it may be argued that snow

on the roof also insulates, it depends on the roof design. Most Alaskan homes have a ventilated roof with vents along the ridgeline, soffits and gables. That is, cold air is free to traverse the space between the ceiling and the roof itself.

The reason for this is that a so called "hot roof", non-vented, where your roof is also the inside ceiling, is much more prone to complications of heat loss. So a cold roof should keep the snow from turning to water. Provided your ceiling is well insulated to R38 and does not leak heat, with a ventilated roof, this provides a good situation.

If there are visible and growing icicles along your roof line it generally means that heat is leaking from the house and melting snow on the roof. For 30 years now it has been a Muni code to add 3 feet of 'Ice and Water Shield' along roof edges from the wall in. Add approximately 2 feet for the eaves and that means 5 feet of material from the eaves in. In practice, building contractors roll out 2 rows of 3 foot self-adhering shield material which well exceeds the

code requirement and this waterproofing protects from possible snow melt. For roofs less steep a full ice barrier may be required over the entire roof (Local code specified in Chapter 23.85.R905).

If a home has icicles it is a red flag, although sometimes it is the result, especially if on the south side, of those warmer sunny days melting snow from above. An engineer or other professional should advise you if you are considering buying a home with icicles visible.

Snow does insulate and protect from the ravages of frost below, around and above the surface of the ground but the amount cut from your Enstar bill is marginal. Even the tightest, energy efficient home is fighting the battle with outside temperatures and this winter your monthly cost will definitely exceed last year.



## AND HOW HEAVY IS SNOW?

We've had a "snowier" winter than last year, and I think most Alaskans are thrilled, particularly those who enjoy the winter sports. From dog-mushers to skiers, we are all celebrating.

Roads can be tricky at times, but the MOA Street Maintenance crew do a terrific job.

On the downside, some folks start to panic when they see the depth of snow on their roof. Does it need to be shoveled? Probably not, but the following may assist you.

There is no simple 'rule of thumb' on when snow (and ice) removal is necessary for your roof system, due to the fact that roofs vary in construction, design and age, but here are some thoughts:-

First, the questions to be answered are:- How much weight can your roof trusses support, what weight is it already carrying in roofing materials, and how heavy is the snow/ice accumulation on various parts of your roof?

Anchorage Municipal Code requires that roofs be constructed to accommodate a minimum sustained load of 40 pounds per square foot. However, older homes may be weaker or, in some cases, stronger than this. Also, keep in mind that many architects design to at least 150% of code, which means that your newer home may be built to an even higher standard. One prominent Anchorage builder works on 55

pounds per square foot. You could have a structural engineer calculate your particular roof's strength or, at least, inspect the attic for signs of rafter deflection, the pre-cursor of collapse. You should also take into account that the buildup of snow or ice is not necessarily consistent across the entire roof. Valleys may have greater accumulation, and eaves may have ice build-up.

However, putting all the exceptions aside, you can measure the weight of a particular area in the following manner. Take an old 6 pound coffee can (6 inches in diameter) and thrust it repeatedly into a vertical core in the snow until you have a full 6 inch diameter core all the way to the shingle surface. Empty the snow into a bucket and melt it. Pour the water back into the can and measure its depth in inches. Multiply the result by 5.2 and the answer equals the weight per square foot in pounds.

For example, if the entire core of snow measures out at 4 inches of water in the can, the pressure on the roof is  $4 \times 5.2$ , or 20.8 pounds per square foot. With ice, simply measure its depth, without trying to remove it, and multiply by the same 5.2 factor.

Nobody on a local newscast can tell you what your snow load totals based on snow fall year-to-date. The variables are too many. Snow varies in kind and amount across the Anchorage bowl. Light, fluffy snow that falls when temperatures are low is not 'heavy' snow. Snow also 'sublimes' over a period of time (i.e. evaporates). Your particular home may experience

more snow blown off the roof than a neighboring suburb. However, the snow load on an average, pitched roof home in Anchorage, built to current codes, is probably between 10 and 15 pounds per square foot as we enter February 2017.

Of more concern than cleaning the entire roof at this time is to ensure that vents extending through the roof are not blocked by snow. Generally, stacks associated with the heating system keep themselves clear because of heat, but drain vents, bathrooms exhaust vents and attic ridge vents may become buried.

Also of particular concern would be homes with large, overhanging eaves where there is less support, and roofs of enclosed decks, sheds, carports and other lightweight structures possibly not built to any code at all.

Decks can worry some people as well but, like roofs, are also subject to a Building Permit Code at 40 p.s.f. minimum. All decks that are more than 30 inches above ground must be 'Permitted' and may also have a 'Drifting Snow' factor if below a roof where wind can add an additional burden.

Should you need authoritative guidance on roof or deck loads you can always call M.O.A. Building Safety at 907-343-8301.

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