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You're in the thick of the winter season and snowfall is aplenty. You begin to notice some of your neighbors shoveling the snow off of their roofs. How do they know when they need to shovel their roofs? Being a resident of Northwestern Colorado comes with many rituals and rites of passage, and one of the most bothersome of them is how to know when to shovel the snow off of your roof, and when to start looking for ice dams. Some homeowners go all in and shovel every square inch of their roofs, removing all the snow entirely. Others opt for a less cumbersome approach and choose to only shovel the edge of their roofs has to discourage ice dam formation. When deciding what is best for your roof, the answer is a tad more complicated than looking around your neighborhood and seeing what everyone else is doing.



# What are the benefits of leaving snow on your roof?

Some roof snow can actually be good for your home! A light layer of snow can offer some insulation to your home, which in turn, can lower your heating bill a bit. Allowing some snow to remain on your roof protects your home from the subzero temperatures we often see. If the snow on your roof is sticking around longer than your neighbors, then your insulation is likely also in good shape.

### Things to consider before you remove snow from your roof:

- The amount of snow that is constantly on your roof.
- The Roofing material used on your roof. Metal roofs tend to shed snow and ice better, whereas shingled roofs tend to hold the snow more.
- The Pitch of your Roof Flatter roofs (less than 3/12 pitch) tend to hold more snow moisture as snowmelt is unable to fall from the roof, and ice dams are created faster.
- Fluctuations in temperature can cause a higher concentration of snow without any of that snow melting off. Homeowners need to be extra cautious of rain accumulation on a roof covered in snow. If the rain doesn't fall from the roof, then it is added to the weight of the snow, which in turn, creates more weight on your roof.
- The Age of your home. Homes that are older tend to have had different requirements for what was the standard for snow load when they were built. They also tend to have a higher potential for rot and thermal issues.

## Amount and density of snow matters for your roof!

The amount of snow on your roof is called *snow load*. Just measuring the depth of the snow on your roof will not give you an accurate weight of the snow on your roof. The density of the snow and ice on your roof will also be needed to determine your roof's snow load. For a quick analysis, the basic calculation for snow load is as follows:

(S x 1.25lbs)+(I x 5.2lbs) = P

S = inches of snow on the roof (depth)

1.25lbs= Approx weight of snow for each 1-inch of depth per sq ft

I = Inches of Ice Buildup on the roof (depth)

5.2lbs= Approx weight of ice for 1-inch of depth per sq foot

P =pounds per square foot (lbs/sq ft)

Example: If the snow on my roof is 20-inches deep with .5 inches of ice, what would that equate to? (20-inch roof snow depth x 1.25 lbs/sq ft ) + (.5-inch roof ice depth x 5.1lbs/sqft)= 27.1 lbs per sq ft of roof snow load.

In the Mountains of Colorado, anything in excess 60lbs can be considered dangerous, and most roofs should be cleared at 40lbs per square foot of roof snow load. Please note here that your home and state will likely have different building codes with lower thresholds than those of

Northwestern Colorado. In some areas, 40lbs/sq ft may be the maximum load a roof is built to handle, and roofs should be cleared at 25lbs/sq ft.



### Ice dams, hanging icicles, and roof ice buildup

Hanging icicles and ice buildup on your roof is something that should be taken very seriously. Not only does the ice weigh 5 times as much as snow on the roof per sq inch, but it can also be a sign of bigger issues inside the roof. Snow only melts on its own for two reasons: the warmth of the sun or heat escaping from the home. In both cases the water will fall to the lowest point on the roof and, in most cases, during the winter it will freeze as icicles and create ice dams. The refreezing of water has a damming effect creating an even bigger ice dam behind it. Continuous feeding of the ice dam by melting and refreezing snowmelt can cause significant damage to the roof and well damage to the interior of your home.

When the snow melts, water often trickles through cracks in your roof. Water damage can cause ceilings, infrastructure, and roofs to warp or rot. The ugly brown stains throughout your home are a tell-tale sign of water damage and an immediate signal that you must remove snow from your roof.

#### Check your roof's snow load by hand

To check the snow load on your home, cut a 1-foot by 1-foot square the full depth of the snow from your roof into a plastic bag and weigh the bag. If there is any ice in your square foot, be sure to include it. The weight of the bag with the snow in it will tell you the weight of snow load per square foot on your roof. For homes in Northwestern Colorado, anything in excess of 60lbs should be considered dangerous. Newer homes tend to be engineered to handle snow loads up to 75lbs/sq ft. The maximum load of your home may differ and over time most home's maximum snow load is less. In Steamboat, you should consider removing snow and ice when your sq ft snow load reaches 40lbs/sq ft. For other areas of the country, that do not experience snow at the levels of our Colorado ski town, 25 lbs/sq ft is a good target for when to remove snow from your roof. In all cases, we recommend checking with Berlet Roofing and your local municipality to determine snow loads for your area.

Check out this snow load calculator from Jonathan Ochshorn, formerly of Cornell University, for more about possible snow loads in your area.

# Signs of too much snow load on your home

In addition to seeing water spots on your ceiling, it's important to watch for cracks in your drywall. Drywall tends to crack from the changes in the structure it's attached to. If your roof is pushing down on your home's structure, it can cause your walls to warp. Warping manifests as cracks in your walls.

Another easy indicator that professionals and homeowners alike can use, is to keep an eye on center-of-the-house doors, like the door to the bedroom upstairs for example. If the door doesn't stick or jam at all before snow but does so after snow accumulates, there is a problem.



### Removing rooftop snow

We totally understand the desire to remove snow from your roof yourself, however, we advise extreme caution in any attempt to do so and suggest that you call Berlet Roofing to remove the snow from your home. Not only are you ensuring the safety of your home and roofing materials by bringing in a contractor, but you are ensuring the safety of yourself and others. Berlet Roofing has over 20 years' experience in removing snow and ice dams and we will also inspect your roof for damage caused by melting and refreezing snow. Berlet Roofing has tools that will help remove snow and ice from your roof down to the membrane or shingles, without causing damage to your roof, and we have the ability to inspect your roof for damage at the same time. We will not only complete the snow removal quickly but we also work directly with your insurance company should any unforeseen damages arise.

### Other Snow Removal Resources and Calculators:

- Buildings Guide Snow Load Calculator
- Hunker Snow Load Calculator
- Complete Snow Load Guides:
  - Snow Load BG Structural Engineering
  - Popular Mechanics How much snow is too much for your roof?