COMMUNITY DEVELOPMENT
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Building Department
Engineering Department
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Code Enforcement

Memorandum

Date: January 5, 2023

To: Press Partners

From: Tom Dallaire, P.E., CFM.

RE: Snow Loads on Structures within Douglas County.

Can you think of anything on this planet that is lighter that a snow flake? Yet an accumulation of these light snowflakes do not retain that feather-weight quality when tens of thousands of them are massed together, and they start to accumulate and store water. The accumulations of snow is counted for in the design of the structure roof in Douglas County, and is called snow load.

Snow loads can vary, depending upon the type of roof you have, the roof slope, and melting and re-freezing of snow, rain on snow, and ice buildup, among other factors. Snow loads in Douglas County vary depending on your specific geographic location and elevation of where the structure is located within the County. While the eastern slopes of the Pinenut mountain range have significantly less snow load then the western slopes of the Sierra's, the accumulation of snow on a roof of a structure could become heavier then the structure was designed for. In Douglas County, roof design snow loads in recent years ranges from 30 to 31 pound per square foot (psf) on the valley floors and start at 160-pound snow load at 6,000 feet in the Sierras and all elevations of Pinenut mountains to roughly 300-pounds in the upper elevations of the Sierra's.

You need to be aware of your elevation of the structure and the county code requirements in order to know what the structures roof was designed for. If your structure was built prior to the mid 90's, it is possible the structure roof was designed for a smaller snow load, anywhere from 20 pounds per square foot at the valley floor to 120 pounds at Lake Tahoe, with a larger snow load as you increase in elevation about the lake level.

It is imperative the property owner can recognize the signs of heavy loads and snow accumulation. The pitch of the structure roof will also matter in the determining the snow load on the roof. Flat roofs will hold water as the roof melts especially if drains are blocked with ice and water does not drain off the roof. It is very important that in between storms that the drains on flat roofs are inspected and functioning. Sloped roofs will drain the water off the roof.

You, as a home owner, need to be aware of the signs that your structures roof may need attention and removal of snow. A visual inspection of sagging roof is how you can tell the roof is overloaded.

Remove icicles from the eave and overhangs from the structure to reduce the weight prior to the next round of storms. You can use heat tape to keep ice from building up in your gutters and to keep gutter draining in the cold weather. There are snow rakes available for removing snow safely from a roof. A rake with a long handle can be used from the ground if possible or call a professional to help. Please be safe removing snow from your roof.

To calculate the snow load on your roof, you remove a 12-inch by 12-inch (one square foot) area full depth of snow from your roof and place it into a 5-gallon bucket or two or three. A Home Depot bucket weighs in at around 1.8 pounds, measure your bucket first just to check. Weigh your bucket with the snow and subtract the empty bucket weight (1.8 lbs) to get the square foot weight of the snow currently on the roof where the sample was taken. Remember snow depth and moisture content varies over the entire structure, depending on drainage patterns of the roof.
A 5-gallon bucket is 0.68 cubic feet. A half of cubic foot in the bucket is approximately 10.5 inches inside depth of a Home Depot 5-gallon bucket.

One last cautionary thought, when contemplating if you should get the snow removed from your roof and when there is snow on the roof prior to the next storm, and then it is rains, the rain will be held in the snow that was already on the roof. There is a higher potential to increase the snow load on a roof as more snow accumulates with frequent storms. Having the snow removed in between storms will give you peace of mind and will put less stress on you, your family and your roof moving forward this winter.

Resources for the press release. Not to be sent with the press release if you do not think it is necessary.
https://www.bestbuy.com/site/snow-joe-rj208m-pro-28-foot-max-reach-snow-removal-roof-rake-with-20-foot-debris-slide-blue-gray/6441666.p?skuId=6441666&ref=212&loc=1&gclid=EAIaIQobChMIlbjN1Mix_AIVTA2tBh0teQBdEAYYBiABEgJ1avD_BwE&gclsrc=aw.ds

https://www.amazon.com/EarthMark-Avalanche-Removal-System-SnowRake/dp/B00RY8II4Q/ref=asc_df_B00RY8II4Q/?tag=hyprod-20&linkCode=df0&hvadid=241934148375&hvpos=&hvnetw=g&hvrand=6115356083038402598&hvpone=&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9030863&hvtargid=pla-491851689769&psc=1

https://www.mutualbenefitgroup.com/insurance-101/storm-center/prevent-roof-collapse-on-your-home/

https://www.hunker.com/13425282/how-to-calculate-roof-snow-loads

COMMUNITY DEVELOPMENT (civiclive.com)

TABLE 1608.2.1 Ground Snow Loads P_g, for Northern Nevada Locations

Elevation In Feet	West of U.S. Hwy 395 Sierra Slope, Douglas, County, Pg (Pounds Per Square Foot)	East of U.S. Hwy 395 Douglas, County, Pg (Pounds Per Square Foot)
4500	40	40
5000	40	40
5100	40	40
5200	40	40
5300	40	40
5400	40	40
5500	40	40
6000	40	40
6500	190	190
7000	190	190
7500	190	190
8000	229	190
8500	243	190
9000	271	190
9500	300	190
10000	357	190

Home Depot

Manufacturer: HOME DEPOT **Model:** #05GLHD2

Category	Imperial	Metric
Height	14.5 in	36.8 cm
Diameter(top)	11.8 in	29.8 cm
Diameter(bottom)	–	–
Circumference(top)	36.9 in	93.8 cm
Circumference(bottom)	–	–
Volume	5 gal	20 litr
Wall Thickness	–	–
Weight (empty)	1.8 lb	816 g

- Orange 5 gallon bucket (1.8 lb)
- Leaktite unbranded 5 gallon buckets (1.73 lb)

(see also: home depot buckets)

Volume of the full bucket is 5.36 gallons. 7.48 gallons = 1 cubic foot.
Get a half a cubic foot is 3.74 gallons or 10.5 inches of snow in home depot bucket is roughly a half of cubic foot of snow.