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Town of Woodstock
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No. Woodstock, NH 03262

Subject: Snow Loads for Woodstock, New Hampshire

Snow loads are a very important consideration when designing buildings and other structures in New Hampshire. An investigation recently completed by the Structural Engineers of New Hampshire (SENH) and the Cold Regions Research and Engineering Laboratory (CRREL) in Hanover, determined ground snow loads for all cities, towns and un-incorporated places in the state. This letter presents that information for Woodstock.

The national design load standard (ASCE Standard 7, "Minimum Design Loads for Buildings and other Structures") is the reference document for the BOCA Code and the International Building Code (IBC). About half of New Hampshire falls within a zone on the snow load map in ASCE Standard 7 where loads cannot be determined except by site-specific case studies. The remainder of the state is mapped but there are elevation limits on the values presented.

Since the SENH-CRREL investigation was done according to the requirements of ASCE Standard 7, these answers represent the best guidance currently available on ground snow loads for New Hampshire (i.e., they supersede values presented on the ASCE 7 map and they are the appropriate values to use in places where no values are presented on the map). The results of the investigation are presented in the commentary portion of the 2002 edition of ASCE Standard 7 to illustrate the value of such statewide investigations.

The SENH-CRREL findings are contained in the report, "Ground Snow Loads for New Hampshire." The report is available on the Internet from SENH at http://www.senh.org and from CRREL at http://www.crrel.usace.army.mil/techpub/CRREL_Reports/html_files/Cat_A.html.

For Woodstock, New Hampshire at an elevation of 1200 ft, the ground snow load is 85 pounds per square foot (lb/ft^2 or psf).

At lower elevations in Woodstock this value is decreased by 2.1 lb/ft² for every 100 ft of elevation difference. For example, at an elevation of 600 ft, the ground snow load is 85-(2.1/100)(1200 – 600) = 85 – 13 = 72 lb/ft². When rounded to the nearest 5 lb/ft², as is customary, this becomes 70 lb/ft².

At elevations above 1200 ft., the ground snow load is increased by 2.1 lb/ft² for every 100 ft of elevation difference. For example, at 2500 ft, the ground snow load is 85 + (2. 1/100)(2500 – 1200) = 85 + 27 = 112 lb/ft². When rounded to the nearest 5 lb/ft², this becomes 110 lb/ft².

The above examples were done at the lowest elevation in Woodstock and at 2500 ft to illustrate the range of ground snow loads possible. At elevations above 2500 ft, this procedure does not apply and site-specific case studies, performed in accordance with the requirements of ASCE Standard 7, are needed. SENH or CRREL can provide assistance in such situations.

The above values represent minimums acceptable to the design profession.

Design snow loads on roofs are determined by multiplying the ground snow load by a series of modification factors specified in ASCE Standard 7 and various building codes. These factors account for the type of occupancy and the thermal, aerodynamic, and geometric characteristics of the structure in its particular setting. Except where drifts form, snow loads of roofs are usually less than the ground snow load.

For more information check out the website given earlier.

This letter was signed by Dennis LaBombard, P.E., President of Structural Engineers of NH in April 2002.