



Department of State
Building Standards & Codes

GROUND SNOW LOAD PROVISIONS UNDER THE 2025 CODES

T02-07-3419-061826-34-06-0 (1 HOUR OF CREDIT IN TOPIC #2)

JUNE 22, 2026



Today's Work

Learning Objectives

- Calculate the ground snow load Using the 2025 Building Code of New York State.
- Convert ground snow load to roof snow load.

Technical Bulletin: Forthcoming

BUILDING CODE SNOW LOADS

Understanding Snow Load



$$\text{Snow Load} = \text{Snow Weight} + \text{Ice} + \text{Wind Drift} + \text{Roof Slope}$$



Snow Weight



Ice



Wind Drift



Roof Slope

BUILDING CODE: TERMS, NOTATIONS, AND VARIABLES

1602.1 Notations.

The following notations are used in this chapter:

D = Dead load.

D_i = Weight of ice in accordance with Chapter 10 of ASCE 7.

$p_{g(asd)}$ = Allowable stress design ground snow load.

p_g = Ground snow load determined ~~from Figures 1608.2(1) through 1608.2(4) and Table 1608.2.~~

in accordance with Section 1608.2

R = Rain load.

S = Snow load. determined in accordance with Section 1608.1

Building Code: Terms, Notations, and Variables

1603.1.3 Roof snow load data.

The ground snow *load*, p_g , shall be indicated. In areas where the ground snow *load*, p_g , exceeds 15 pounds per square foot (psf) (0.72 kN/m^2), the following additional information shall also be provided, regardless of whether snow *loads* govern the design of the roof:

1. Flat-roof snow *load*, p_f .
2. Snow exposure factor, C_e .
3. *Risk category*. 
4. Thermal factor, C_t .
5. Slope factor(s), C_s .
6. Drift surcharge load(s), p_d , where the sum of p_d and p_f exceeds 30 psf (1.44 kN/m^2).
7. Width of snow drift(s), w .
8. Winter wind parameter for snow drift, W_2 .

RISK CATEGORY

Risk Category classification:

- Based on a building's use and the consequence of losing the building to environmental hazards



Category I



Category II



Category III



Category IV

- Buildings with multiple Risk Categories are designed to the highest category among the occupancies

Table 1604.5

TABLE 1604.5—RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES	
RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.
III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to: • Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300. • Buildings and other structures containing one or more public assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of these public assembly spaces of greater than 2,500. • Buildings and other structures containing Group E or Group I-4 occupancies or combination thereof, with an occupant load greater than 250. • Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500. • Group I-3, Condition 1 occupancies. • Any other occupancy with an occupant load greater than 5,000.^a • Power-generating stations with individual power units rated 75 MW_{AC} (megawatts, alternating current) or greater, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV. • Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that: • Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the <i>Fire Code of New York State</i>; and • Are sufficient to pose a threat to the public if released.^b

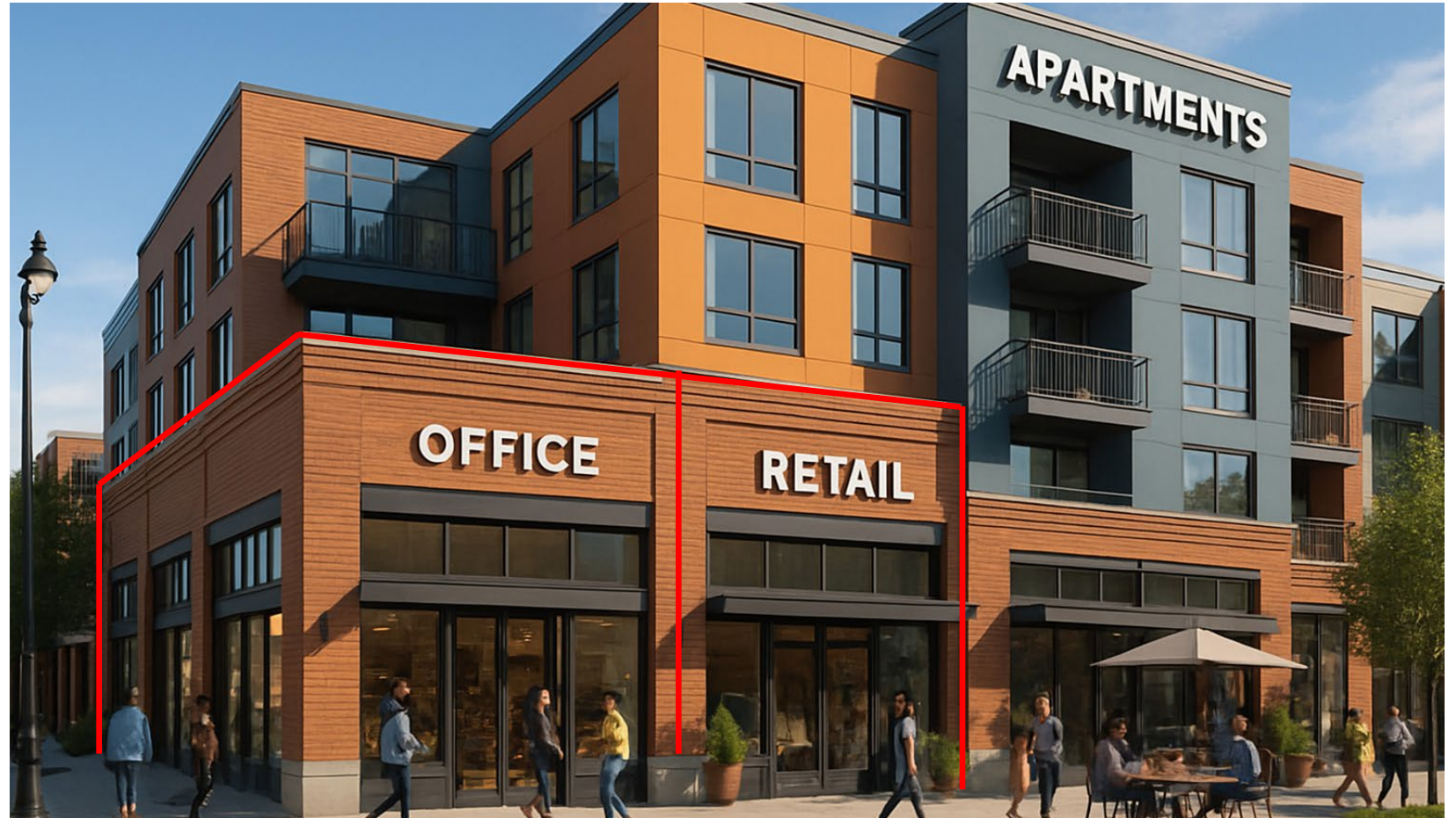
Table 1604.5

IV	Buildings and other structures designated as essential facilities and buildings where loss of function represents a substantial hazard to occupants or users, including but not limited to: • Group I-2 occupancies. • Ambulatory care facilities having emergency surgery or emergency treatment facilities. • Group I-3 occupancies other than Condition 1. • Fire, rescue, ambulance and police stations and emergency vehicle garages • Designated earthquake, hurricane or other emergency shelters. • Designated emergency preparedness, communications and operations centers and other facilities required for emergency response. • Public utility facilities providing power generation, potable water treatment, or wastewater treatment. • Power-generating stations and other public utility facilities required as emergency backup facilities for <i>Risk Category IV</i> structures. • Buildings and other structures containing quantities of highly toxic materials that: • Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the <i>Fire Code of New York State</i>; and • Are sufficient to pose a threat to the public if released.^b • Aviation control towers, air traffic control centers and emergency aircraft hangars. • Buildings and other structures having critical national defense functions. • Water storage facilities and pump structures required to maintain water pressure for fire suppression.
a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use <i>gross floor area</i> calculations shall be permitted to use <i>net floor areas</i> to determine the total occupant load. The floor area for vehicular drive aisles shall be permitted to be excluded in the determination of net floor area in parking garages. b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.	

RISK CATEGORY

Separate classifications

- If the portions are structurally separated.
- “*They don’t share any building system.*”



RISK CATEGORY

Single classification

- If they share egress and critical building systems with a higher risk portion.
- All portions assigned to the higher category.



Building Code Chapter 16, Section 1608.2

[NY] 1608.2 Ground snow loads.

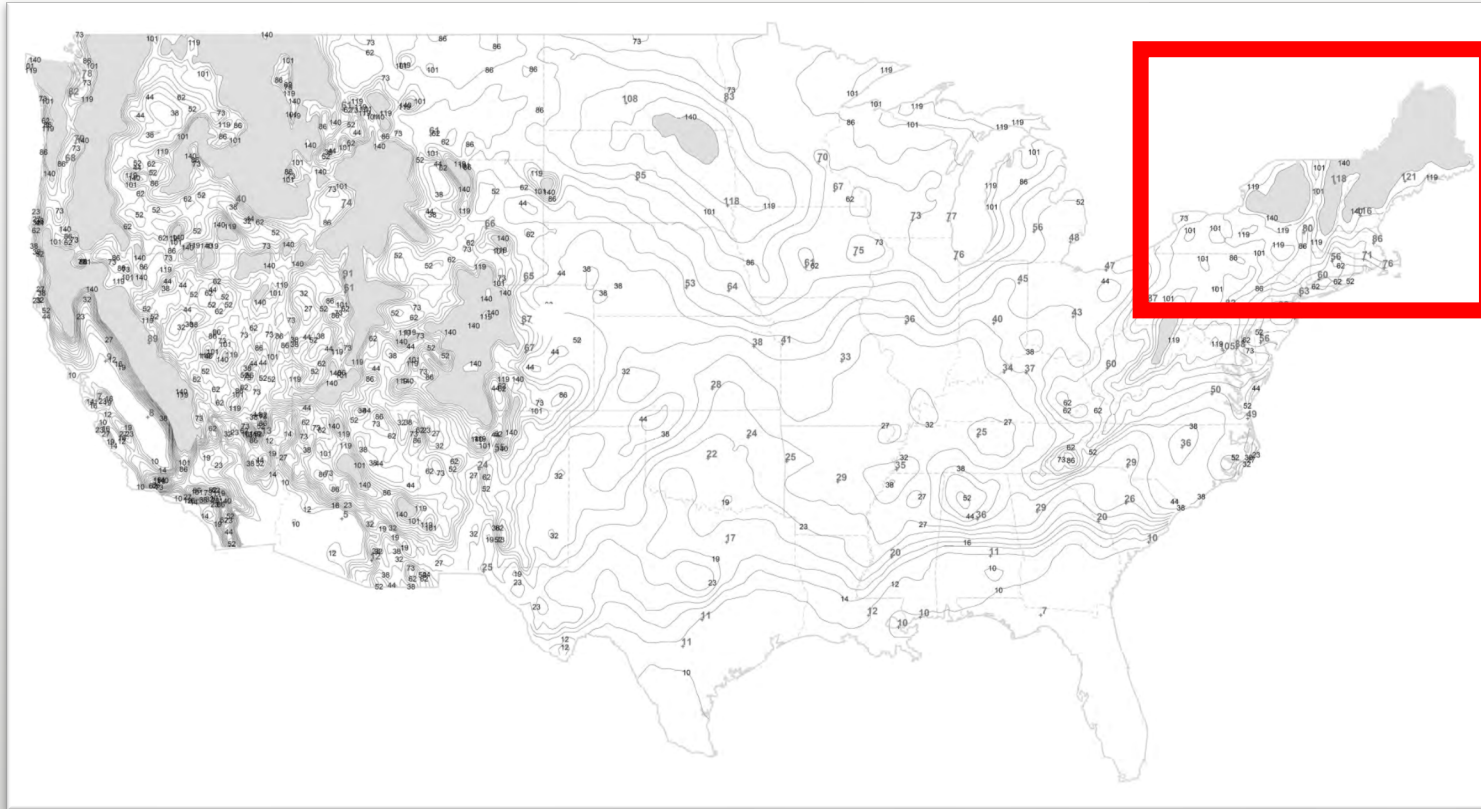
The ground snow *loads* to be used in determining the design snow *loads* for roofs shall be determined in accordance with the reliability-targeted (strength based) ground snow load values in Chapter 7 of [ASCE 7](#) or [Figures 1608.2\(1\)](#) through [1608.2\(4\)](#). Ground snow loads shall not be less than those determined in accordance with [Figure 1608.2\(5\)](#), multiplied by a factor of 1.6. Site-specific case studies shall be determined in accordance with Chapter 7 of [ASCE 7](#) and shall be *approved* by the *building official*.

Section 1608.2

[NY] 1608.2 Ground snow loads.

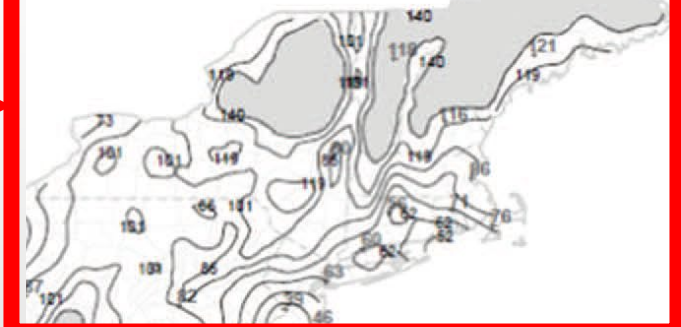
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ASCE 7-22 Mapped Ground Snow Loads

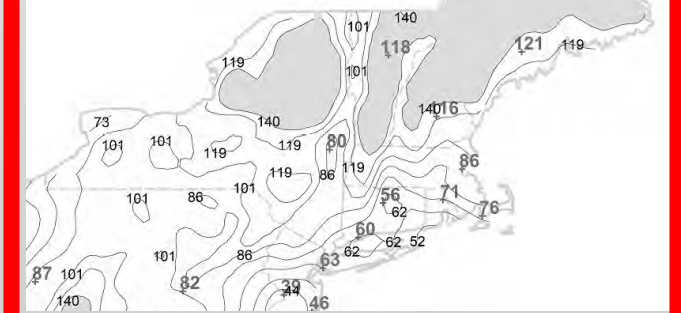


ASCE 7-22 Risk Category IV

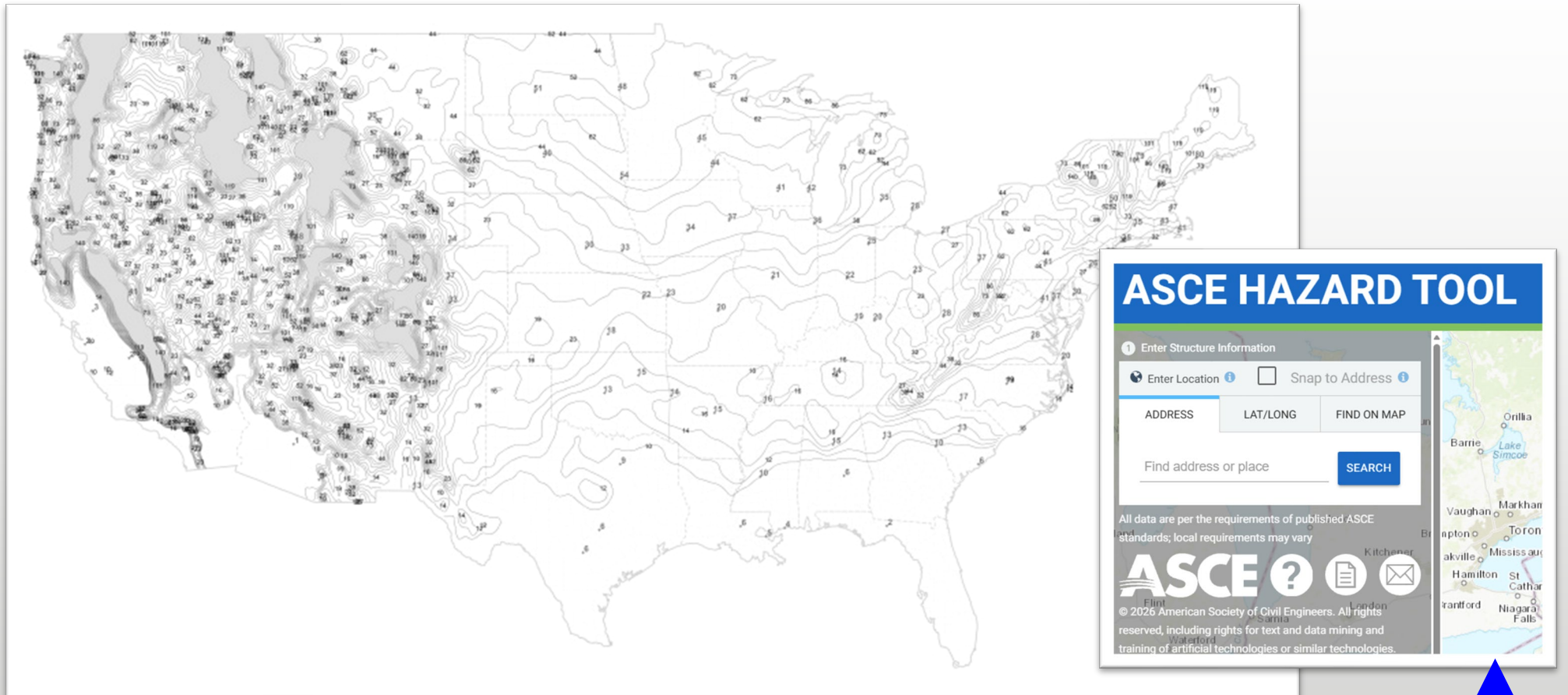
ASCE 7-22
Risk Category IV



BCNYS
Risk Category IV



ASCE 7-22 Mapped Ground Snow Loads



Footnotes:

1. Location-specific ground snow load values...just use the ASCE 7 Hazard Tool: <https://asce7hazardtool.online/>

ASCE 7-22 Mapped Ground Snow Loads

ADDRESS LAT/LONG FIND ON MAP

99 Washington Ave, Albany, NY SEARCH

2 Requested Data

Standard Version *NEW! ASCE/SEI 41 now available*
ASCE/SEI 7-22

Risk Category *Site Soil Class*
II Default

Measurements
☒ Customary ☐ SI

Load Types [Select all](#)
☐ Wind ☐ Seismic
☐ Ice ☒ Snow

Site Address

ASCE 7-22 (Default setting)

Risk Category (May require multiple runs if the building is assigned multiple Risk Categories)

Hazard being analyzed

ASCE 7-22 Mapped Ground Snow Loads

REPORT SUMMARY

Site Information

Address:	99 Washington Ave, Albany, New York, 12210
Elevation:	186 ft (NAVD 88)
Lat:	42.654822
Long:	-73.759296
Standard:	ASCE/SEI 7-22
Risk Category:	II
Soil Class:	Default

Snow

Ground Snow Load, p_g	62 lb/ft ²	
20-year MRI Value, p_g	29.1 lb/ft ²	
Winter Wind Parameter, W_2	0.45	
Mapped Elevation	128.3 ft	
Ground Snow Loads for IRC only, $p_{g(asd)}$	43.4 lb/ft ²	

ASCE 7-22 Mapped Ground Snow Loads

REPORT SUMMARY

Site Information

Address:	99 Washington Ave., York, 12210
Elevation:	186 ft (NAVD 88)
Lat:	42.654822
Long:	-73.759296
Standard:	ASCE/SEI 7-22
Risk Category:	II
Soil Class:	Default



Snow

Ground Snow Load, p_g	62 lb/ft ²
20-year MRI Value, p_g	29.1 lb/ft ²
Winter Wind Parameter, W_2	0.45
Mapped Elevation	128.3 ft
Ground Snow Loads for IRC only, $p_{g(asd)}$	43.4 lb/ft ²



Historic New York State Snow Map: Figure 1608.2(5)



Notes:

1. For sites at elevations above 1,000 feet (304.8 m), the ground snow load shall be increased from the mapped value by 2 psf (0.096 kN/m²) for every 100 feet (30.48 m) above 1,000 feet (304.8 m).
2. Ground snow loads shown in this figure are *allowable stress design* loads.

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Historic New York State Snow Map: Figure 1608.2(5)



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 2. Ground snow loads shown in this figure are allowable stress design loads.

1. For sites at elevations above 1,000 feet (304.8 m), the ground snow load shall be increased from the mapped value by 2 psf for every 100 feet above 1,000 feet.

REPORT SUMMARY

Site Information

Address:	99 Washington Ave, New York, NY 12210
Elevation:	186 ft (NAVD 88) ✓
Lat:	42.654822
Long:	-73.759296
Standard:	ASCE/SEI 7-22
Risk Category:	II

Historic New York State Snow Map: Figure 1608.2(5)

19 NYCRR 1221.2(e)(1)(ii): The figure notes for Figure 1608.2(5) are amended to add a third note which reads as follows:

3. For buildings and structures assigned to Risk Categories other than Risk Category II, the ground snow load shall be multiplied by an importance factor as shown in the table below:

Risk Category	Importance Factor
---------------	-------------------

I	0.8
---	-----

III	1.1
-----	-----

IV	1.2
----	-----

Amended Notice of Adoption – Rule Amending and Updating the Uniform Code

EFFECTIVE December 31, 2025

On December 5, 2025, the State Fire Prevention and Building Code Council (the “Code Council”) adopted a rule that further amends and updates the original rule that appeared in the October 1, 2025 State Register to amend and update the New York State Uniform Fire Prevention and Building Code (the “Uniform Code”).

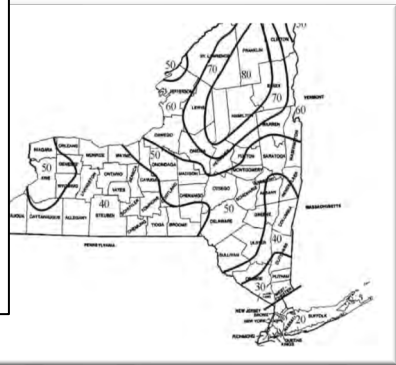
Historic New York State Snow Map: Figure 1608.2(5)



Risk Category	Importance Factor
I	0.8
II	1.0
III	1.1
IV	1.2

Historic New York State Snow Map: Figure 1608.2(5)

Risk Category	Importance Factor
I	0.8
II	1.0
III	1.1
IV	1.2



REPORT SUMMARY

Site Information

Address:	99 Washington Ave, Albany, New York, 12210
Elevation:	186 ft (NAVD 88)
Lat:	42.654822
Long:	
Standard:	
Risk Category:	



Historic New York State Snow Map: Figure 1608.2(5)

[NY] 1608.2 Ground snow loads.

The ground snow *loads* to be used in determining the design snow *loads* for roofs shall be determined in accordance with the reliability-targeted (strength based) ground snow load values in Chapter 7 of [ASCE 7](#) or [Figures 1608.2\(1\)](#) through [1608.2\(4\)](#). Ground snow loads shall not be less than those determined in accordance with [Figure 1608.2\(5\)](#), multiplied by a factor of 1.6. Site-specific case studies shall be determined in accordance with Chapter 7 of [ASCE 7](#) and shall be *approved* by the *building official*.

Putting it all together:

The ground snow load (p_g) that is used to determine the design snow loads for roofs (S) shall be the higher of:

1. The strength-based ground snow load (p_g) determined using the ASCE Hazard Tool, or
2. The strength-based ground snow load determined in accordance with the following equation: $p_g = 1.6 \times p_{g(\text{Figure 1608.2(5)})} \times I_s$, where:
 - a. $p_{g(\text{Figure 1608.2(5)})}$ = the allowable stress design (ASD) ground snow load determined in accordance with Figure 1608.2(5), adjusted for elevation pursuant to footnote 1.
 - b. I_s = the Importance Factor determined in accordance with 19 NYCRR 1221.2(e)(1)(ii)

Putting it all together:

The ground snow load (p_g) that is used to determine the design snow loads for roofs (S) shall be the higher of:

1. The strength-based ground snow load (p_g) determined using the ASCE Hazard Tool, or
2. The strength-based ground snow load determined in accordance with the following equation: $p_g = 1.6 \times p_{g(\text{Figure 1608.2(5)})} \times I_s$, where:
 - a. $p_{g(\text{Figure 1608.2(5)})}$ = the ASD ground snow load determined in accordance with Figure 1608.2(5), adjusted for elevation pursuant to footnote 1.
 - b. I_s = the Importance Factor determined in accordance with 19 NYCRR 1221.2(e)(1)(ii)

For the locations where a site-specific case study is required, it shall be:

3. determined in accordance with Chapter 7 of ASCE 7-22,
4. approved by the building official, and
5. not less than the ground snow load (p_g) determined in accordance with Section 1608.2, #2.

Example: Mohawk Library Ground Snow Load

Building Information

Use/Occupancy: Library/A-3

Occupant Load: 301 persons

ASCE Hazard Tool Inputs

Address: 381 Hicks Rd, Mohawk, NY

Risk Category: III (Table 1604.5)

ASCE Hazard Tool Outputs

Elevation, NAVD88 = 1,650 ft

Ground Snow Load, $p_{g(ASCE)} = 154 \text{ psf}$

REPORT SUMMARY

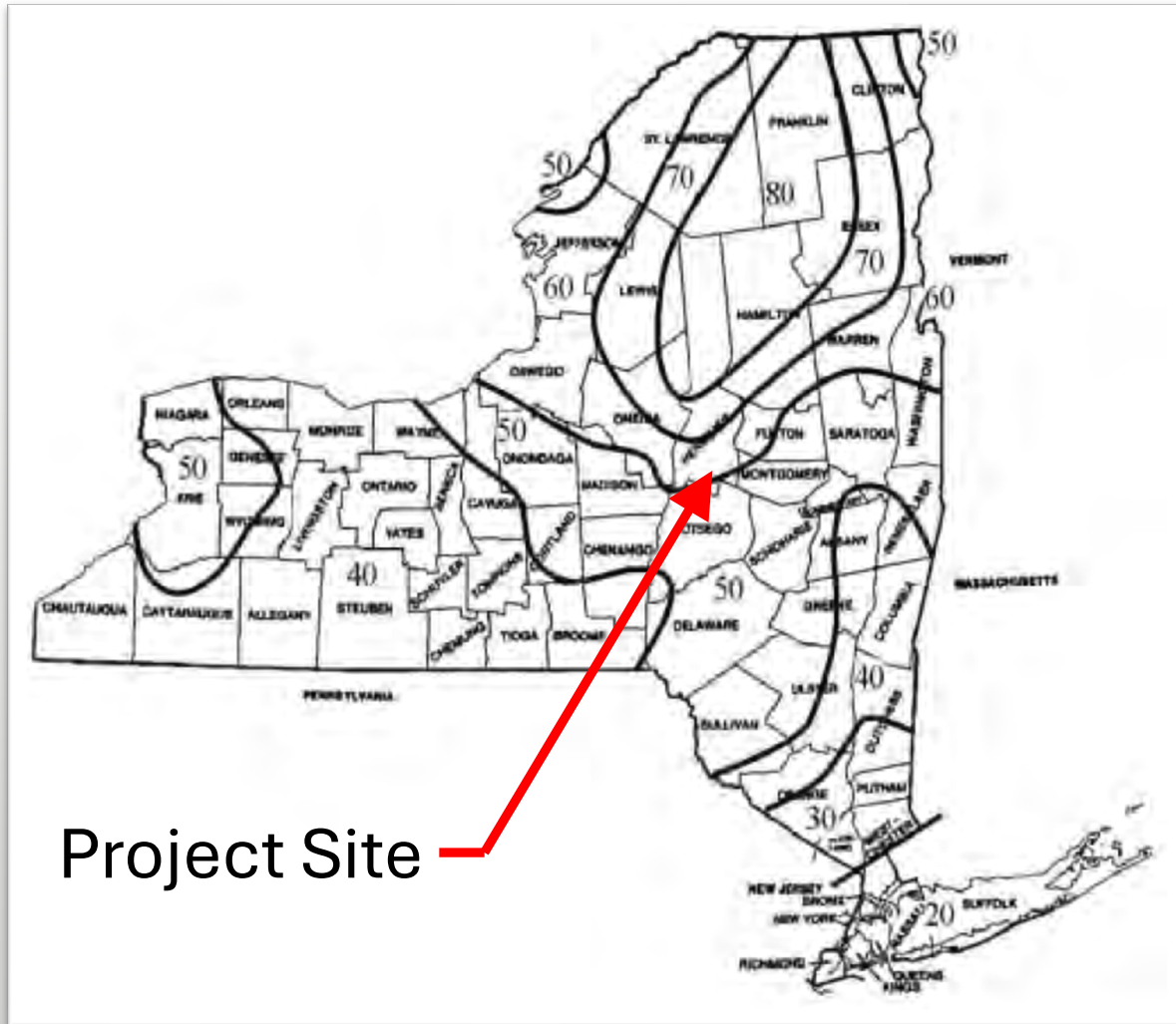
Site Information

Address:	381 Hicks Rd, Mohawk, New York, 13407
Elevation:	1650 ft (NAVD 88)
Lat:	42.924018
Long:	-74.914327
Standard:	ASCE/SEI 7-22
Risk Category:	III
Soil Class:	Default

Snow

Ground Snow Load, p_g	154 lb/ft ²
20-year MRI Value, p_a	69.97 lb/ft ²

Example: Mohawk Library Ground Snow Load



Mapped Snow Load = 60 psf

Elevation = 1,650 ft

Elevation correction =

$$(1,650 \text{ ft} - 1,000 \text{ ft}) \times (2 \text{ psf} / 100 \text{ ft}) = 13 \text{ psf}$$

“ASD” Snow Load

$$= 60 \text{ psf} + 13 \text{ psf}$$

$$= 73 \text{ psf}$$

Example: Mohawk Library Ground Snow Load

19 NYCRR 1221.2(e)(1)(ii):

Risk Category	Importance Factor
I	0.8
II	1.0
III	1.1
IV	1.2

BCNYS Section 1608.2

$$p_{g(\text{Figure 1608.2(5)})} = 1.6 \times 73 \text{ psf} \times 1.1 = 128.5 \text{ psf}$$

$$p_{g(\text{Figure 1608.2(5)})} = 128.5 \text{ psf} < p_{g(\text{ASCE})} = 154 \text{ psf}$$

$$p_g = \mathbf{154 \text{ psf}}$$

Example: Mohawk Library Ground Snow Load

Building Information

Structurally separated unoccupied storage building

Risk Category: I (Table 1604.5)

ASCE Hazard Tool Outputs

$$p_{g(ASCE)} = 112 \text{ psf}$$

Section 1608.2 Calculations

$$p_{g(\text{Figure 1608.2(5)})} = 1.6 \times 73 \text{ psf} \times 0.8 = 93.4 \text{ psf}$$

$$p_{g(\text{Figure 1608.2(5)})} = 93.4 \text{ psf} < p_{g(ASCE)} = 112 \text{ psf}$$

$$\mathbf{p_g = 112 \text{ psf}}$$

ASCE 7-22: Roof Snow Load Calculations

1608.1 General.

Design snow *loads* shall be determined in accordance with Chapter 7 of [ASCE 7](#), but the design roof *load* shall be not less than that determined by [Section 1607](#).

Exception: *Temporary structures* complying with [Section 3103.6.1.1](#).



ASCE 7-22: Roof Snow Load Calculations

ASCE 7-22

Flat roof snow load, Equation 7.3-1: $p_f = 0.7C_e C_t p_g$

Where: p_f = Flat roof snow load, psf

C_e = Exposure Factor (ASCE 7, Table 7.3-1)

C_t = Thermal Factor (ASCE 7, Table 7.3-2)

p_g = Ground snow load, psf

Documentation
required by BCNYS
Section 1603.1.3

ASCE 7-22: Roof Snow Load Calculations

Table 7.3-1. Exposure Factor, C_e .

Surface Roughness Category	Exposure of Roof ^a		
	Fully Exposed ^b	Partially Exposed	Sheltered
B (see Section 26.7)	0.9	1.0	1.2
C (see Section 26.7)	0.9	1.0	1.1
D (see Section 26.7)	0.8	0.9	1.0
Above the tree line in windswept mountainous areas	0.7	0.8	N/A

ASCE 7-22: Roof Snow Load Calculations

Surface Roughness Category	Description
B	Urban and suburban areas, wooded areas, or other terrain with numerous, closely spaced obstructions having the size of single-family dwellings or larger.
C	Open terrain with scattered obstructions having heights generally less than 30 ft; this category includes flat, open country, and grasslands.
D	Flat, unobstructed areas, and water surfaces; this category includes smooth mud flats, salt flats, and unbroken ice.

Example: Mohawk Library Ground and Roof Snow Load

Table 7.3-1. Exposure Factor, C_e .

Surface Roughness Category	Exposure of Roof ^a		
	Fully Exposed ^b	Partially Exposed	Sheltered
B (see Section 26.7)	0.9	1.0	1.2
C (see Section 26.7)	0.9	1.0	1.1
D (see Section 26.7)	0.8	0.9	1.0
Above the tree line in windswept mountainous areas	0.7	0.8	N/A

Example: Mohawk Library Ground and Roof Snow Load

Table 7.3-2 Thermal Factor, C_t

Thermal Condition	C_t
All structures except as indicated as follows	See Table 7.3-3
Unheated structures, open-air structures, structures kept just above freezing [40 to 50 °F (4 to 10 °C)], and other structures with cold, ventilated roofs meeting the minimum requirements of the applicable energy code	1.2
Freezer building	1.3
Continuously heated greenhouses ^b with a roof having a thermal resistance (R-value) less than 2.0 h·ft ² ·°F/Btu (0.4 m ² ·K/W) or a thermal transmittance (U-factor) greater than 0.5 Btu/h·ft ² ·°F (2.5 W/m ² ·K)	0.85

Example: Mohawk Library Ground and Roof Snow Load

Flat roof snow load, Equation 7.3-1: $p_f = 0.7C_eC_t p_g$

Where: p_f = Flat roof snow load, psf

$$C_e = 0.9$$

$$C_t = 1.2$$

$$p_g = 154 \text{ psf}$$

$$p_f = 0.7C_eC_t p_g$$

$$p_f = 0.7 \times 0.9 \times 1.2 \times 154 \text{ psf}$$

$$\mathbf{p_f = 116.4 \text{ psf}}$$

How does this apply to me after this class?

1. Cover Sheets Typically report the ground snow load.
2. You can request calculations beyond the ground snow load.
3. I'm unfamiliar with beam sizing design. How can I get started?
 - a. Convert the reported ground snow load to ASD, if needed.
 - b. If ASCE generated the ground snow load, then:

1608.2.1 Ground snow conversion. Where required, the ground snow loads, p_g , of Figures 1608.2(1) through 1608.2(4) and Table 1608.2 shall be converted to *allowable stress design* ground snow loads, $p_{g(asd)}$, using Equation 16-17.

Equation 16-17 $p_{g(asd)} = 0.7p_g$

where:

$p_{g(asd)}$ = Allowable stress design ground snow load.

p_g = Ground snow load determined from Figures 1608.2(1) through 1608.2(4) and Table 1608.2.

- c. If the “NY Map generated the ground snow load, then use the mapped value (corrected for elevation and importance only). [or divide out the 1.6 factor]
4. Use the prescriptive tables in the RC or Chapter 23 (2308) of the BC..They are in ASD!



Department of State

Building Standards & Codes