

# Snow Load Report

## 1. Roof and Building Data

Ground Snow Load (Pg): 87.0 psf  
Roof Pitch: 12 /12  
Risk Category: II  
Eave-to-Ridge (W): 13 ft.  
Terrain Category: B  
Exposure: Partially Exposed  
Thermal Factor (C<sub>t</sub>): 1.10  
Roof Surface: Metal  
Roof System: Rafter  
Spacing: 24 in. o/c  
Overhang: 12 in.

## 2. Design Loads

Top Chord Dead Load: 7 psf  
Bottom Chord Dead Load: 10 psf  
SF (Slope Factor) = 1/Cosine(Φ) = 1.41 (Dead loads specified on a projected horizontal basis take into account the effect of the pitch via a slope factor.)  
Adj. TCDL (TCDL x SF): 9.9 psf

## 3. Design Assumptions

Code Standard: ASCE 7-10  
Number of Plies: 1 PLY  
Bottom Chord Pitch: 0 /12

## 4. Snow Load Calculations

Calculate flat roof snow load p<sub>f</sub> using the following equation:

$$p_f = 0.7C_eC_tI_spg$$

where:

p<sub>f</sub> = Flat Roof Snow Load in psf

C<sub>e</sub> = 1.00 = Exposure Factor, as determined by ASCE 7-10 Table 7-2 (Terrain Cat. B, Exp. Partially Exposed)

C<sub>t</sub> = 1.10 = Thermal Factor, as determined by ASCE 7-10 Table 7-3

I<sub>s</sub> = 1.00 = Importance Factor, as determined by ASCE 7-10 Table 1.5-2 (Risk Cat. II)

p<sub>g</sub> = 87.0 psf = Ground Snow Load in psf

$$p_f = 0.7C_eC_tI_spg = 0.7(1.00)(1.10)(1.00)(87.0) = 67.0 \text{ psf}$$

Subject Snow Loads	Customer Laura Denis Collar Tie	Location	Job No. 2601
Engr. Engr. Name	<b>STRUCTURAL ENGINEERING INC.</b> Street Address City, ST 99999 ph. (800) 000-0000 www.website.com		This report may not be copied, reproduced or distributed without the written consent of Engineering Company Inc. Rev. - Page 1
Date 1/12/2026			Copyright © 2026

A minimum roof snow load,  $p_m$  shall apply to monoslope, hip and gable roofs with slopes less than 15 degrees using the following equations:

Where  $p_g$  is 20 psf or less:  $p_m = I_s p_g$

Where  $p_g$  exceeds 20 psf:  $p_m = I_s(20)$

Roof slope is greater than 15 degrees, the minimum roof snow load,  $p_m$ , does not apply.

For locations where  $p_g$  is 20 psf or less, but not zero, all roofs with slopes (in degrees) less than  $W/50$  with  $W$  in feet shall include a 5 psf rain-on-snow surcharge load. This additional load applies only to the sloped roof (balanced) load case and need not be used in combination with drift, sliding, unbalanced, minimum, or partial loads.

Roof slope in degrees ( $45.00^\circ$ ) is greater than  $W/50 = 0.3$ , the 5.0 psf rain-on-snow surcharge load does not apply.

Calculate sloped roof snow load  $p_s$  using the following equation:

$$p_s = C_s p_f$$

where:

$p_s$  = Sloped Roof Snow Load in psf

$C_s = 1 - [(45.00 - 10)/60] = 0.42$  = Roof Slope Factor, as determined by ASCE 7-10 Sec. 7.4.1-7.4.4 and Figure 7-2

$p_f$  = Flat Roof Snow Load in psf

Roof surface (Metal) is considered a "slippery" roof. For a  $C_t = 1.10$  the roof slope factor  $C_s$  is given by the dashed line of ASCE 7-10 Figure 7-2b.

$$p_s = C_s p_f = (0.42)(67.0) = 27.9 \text{ psf}$$

Calculate unbalanced snow load for hip and gable roofs as shown in ASCE 7-10 Figure 7-5.

Unbalanced snow loads are required for roof pitches between 1/2 on 12 to 7 on 12.

Using the following equations:

$$\gamma = 0.13 p_g + 14 \text{ (snow density)}$$

$$h_d = 0.43 \sqrt{l_u} \sqrt{p_g + 10} - 1.5 \text{ (drift height) [if } l_u < 20 \text{ ft., use } l_u = 20 \text{ ft.]}$$

$$l_d = \frac{8}{3} h_d \sqrt{S} \text{ (width of drift surcharge)}$$

$$p_d = h_d \gamma / \sqrt{S} \text{ (drift surcharge snow load)}$$

where:

$\gamma$  = Snow density in pcf, not to exceed 30 pcf.

$h_d$  = Drift height in feet, as determined by eqn. or ASCE 7-10 Fig. 7-9.

$l_u$  =  $W$  = Ridge to eave distance in feet, windward side of roof.

$S$  = 12/Roof Pitch

$l_d$  = Width of drift surcharge in feet.

$p_d$  = Drift Surcharge Snow Load in psf

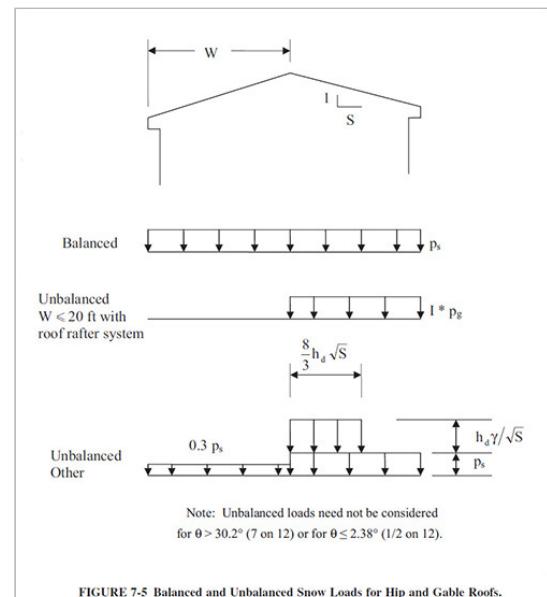


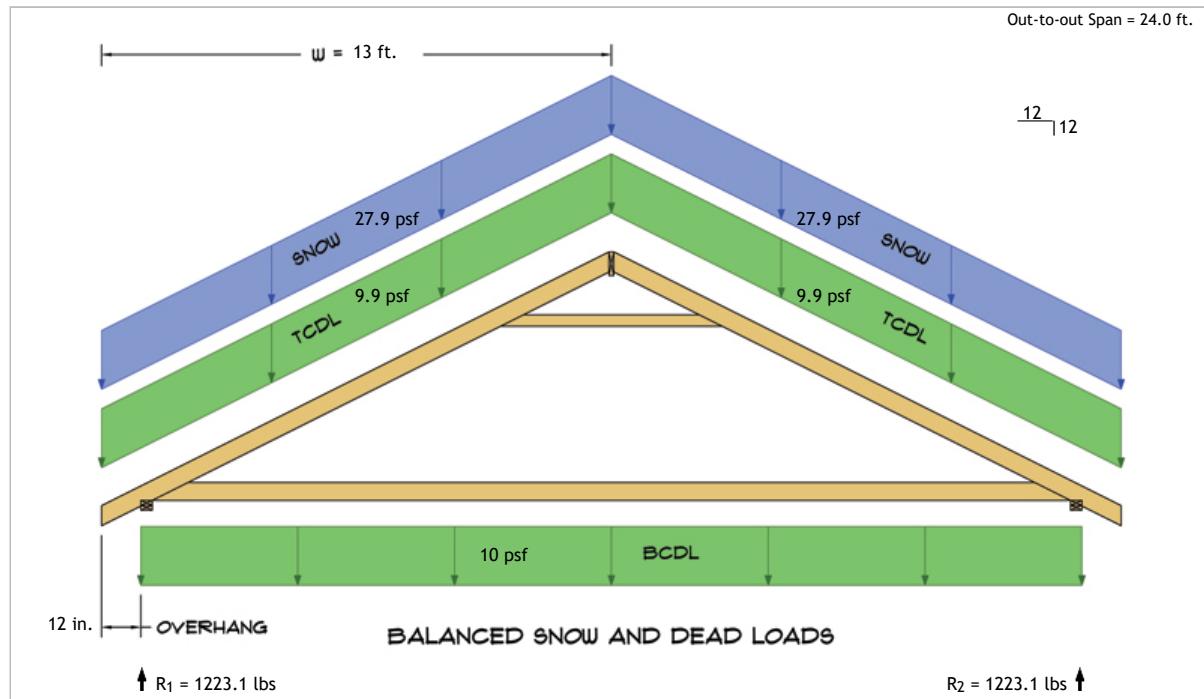
FIGURE 7-5 Balanced and Unbalanced Snow Loads for Hip and Gable Roofs.

Subject Snow Loads	Customer Laura Denis Collar Tie	Location	Job No. 2601
Engr. Engr. Name	<b>STRUCTURAL ENGINEERING INC.</b>		This report may not be copied, reproduced or distributed without the written consent of Engineering Company Inc. Rev. -
Date 1/12/2026	Street Address City, ST 99999 ph. (800) 000-0000 www.website.com	COMPANY LOGO	Page 2 Copyright © 2026

Roof slope is greater than 7 on 12 or less than 1/2 on 12, unbalanced snow loads are not required to be applied.

On warm roofs apply a distributed  $2p_f$  snow load on all overhanging portions as per ASCE 7-10 section 7.4.5. No other loads except dead loads shall be present on the roof when this uniformly distributed load is applied.

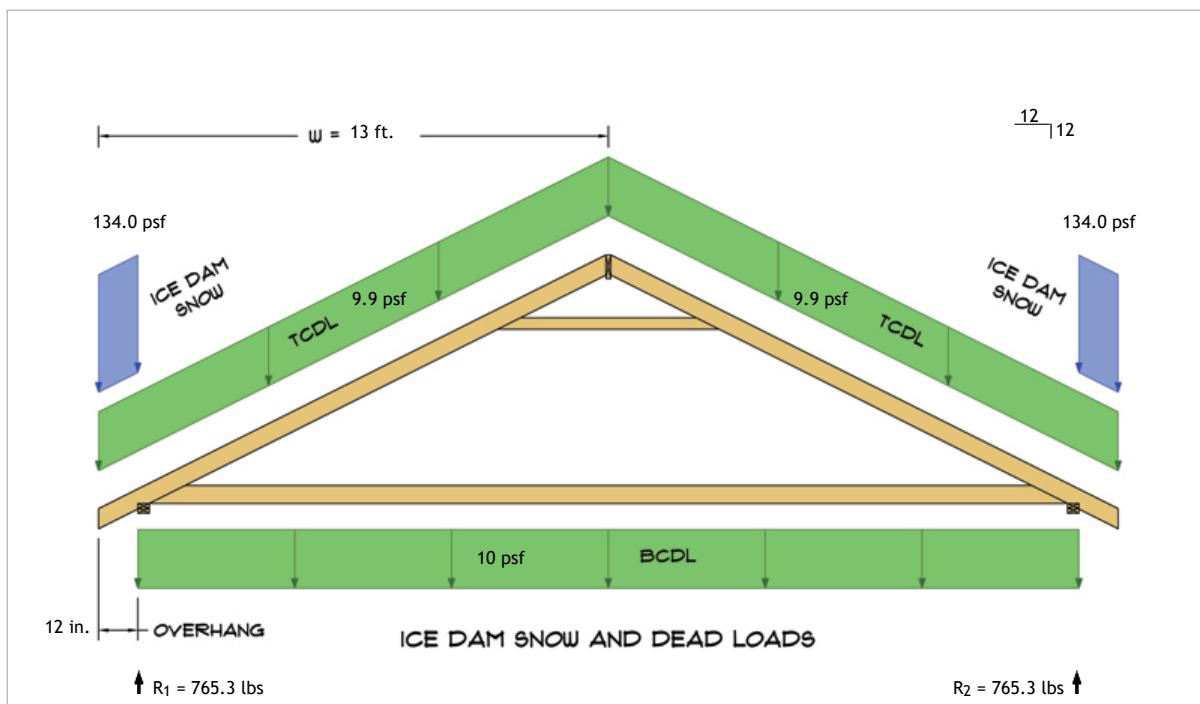
$$2p_f = (2)(67.0) = 134.0 \text{ psf}$$



$$R_1 = D + S = 497.4 \text{ lbs} + 725.7 \text{ lbs}$$

$$R_2 = D + S = 497.4 \text{ lbs} + 725.7 \text{ lbs}$$

Subject Snow Loads	Customer Laura Denis Collar Tie	Location	Job No. 2601
Engr. Engr. Name	<b>STRUCTURAL ENGINEERING INC.</b> Street Address City, ST 99999 ph. (800) 000-0000 www.website.com		This report may not be copied, reproduced or distributed without the written consent of the Engineering Company Inc. Rev. -
Date 1/12/2026	 Copyright © 2026		Page 3



\*Disclaimer: The calculations produced herein are for initial design and estimating purposes only. The calculations and drawings presented do not constitute a fully engineered design. All of the load cases required to fully design an actual structure are not provided by this calculator. For the design of an actual structure, a registered and licensed professional should be consulted as per IRC 2012 Sec. R802.10.2 and designed according to the minimum requirements of ASCE 7-10. The snow load calculations provided by this online tool are for educational and illustrative purposes only. Medeek Design assumes no liability or loss for any designs presented and does not guarantee fitness for use.

Subject Snow Loads	Customer Laura Denis Collar Tie	Location	Job No. 2601
Engr. Engr. Name	<b>STRUCTURAL ENGINEERING INC.</b> Street Address City, ST 99999 ph. (800) 000-0000 www.website.com		This report may not be copied, reproduced or distributed without the written consent of Engineering Company Inc. Rev. -
Date 1/12/2026	 Copyright © 2026		Page 4