



Snow Load Report

1. Roof and Building Data

Ground Snow Load (Pg): 104.0 psf
Roof Pitch: 4 /12
Risk Category: I
Eave-to-Ridge (W): 18 ft.
Terrain Category: B
Exposure: Partially Exposed
Thermal Factor (C_t): 1.20
Roof Surface: Metal
Roof System: Rafter
Spacing: 12 in. o/c
Overhang: 24 in.

2. Design Loads

Top Chord Dead Load: 7 psf
Bottom Chord Dead Load: 10 psf
SF (Slope Factor) = $1/\text{Cosine}(\Phi) = 1.05$ (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): 7.4 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_f using the following equation:

$$p_f = 0.7C_eC_tI_s p_g$$

where:

p_f = Flat Roof Snow Load in psf
C_e = 1.00 = Exposure Factor, as determined by ASCE 7-10 Table 7-2 (Terrain Cat. B, Exp. Partially Exposed)
C_t = 1.20 = Thermal Factor, as determined by ASCE 7-10 Table 7-3
I_s = 0.80 = Importance Factor, as determined by ASCE 7-10 Table 1.5-2 (Risk Cat. I)
p_g = 104.0 psf = Ground Snow Load in psf

$$p_f = 0.7C_eC_tI_s p_g = 0.7(1.00)(1.20)(0.80)(104.0) = 69.9 \text{ psf}$$

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For a roof rafter system with $W \leq 20$ ft., the simplified unbalanced snow load is given by the third diagram of ASCE Figure 7-5.

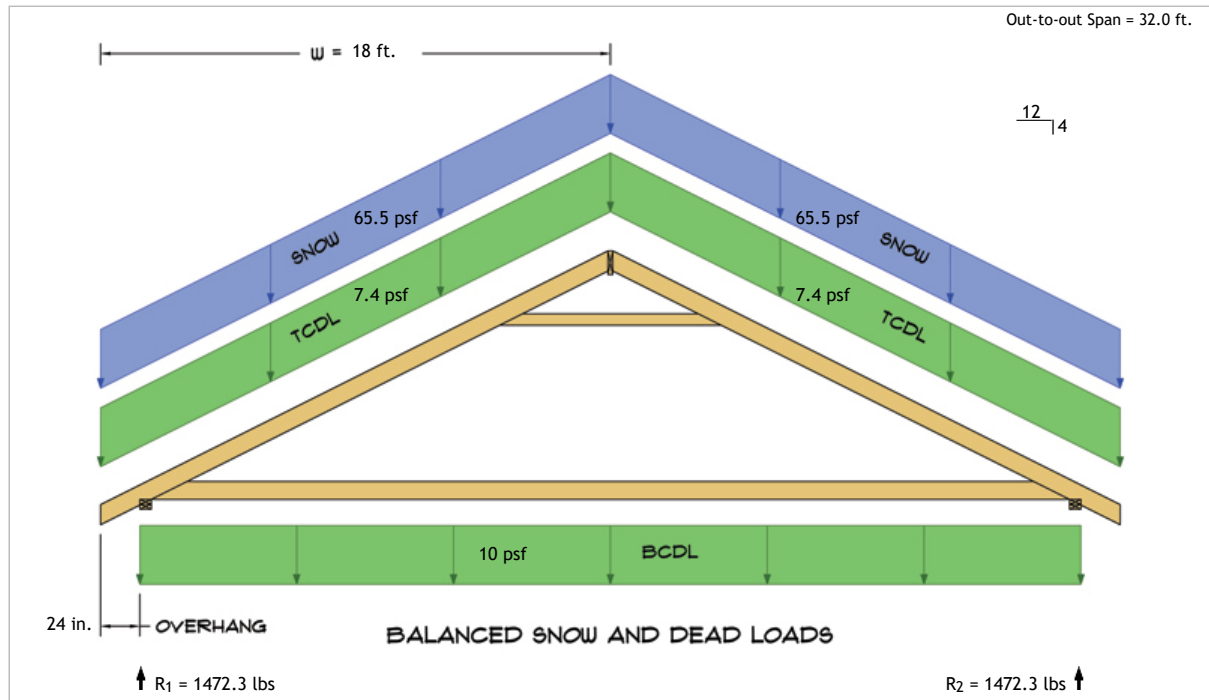
$$p_{\text{windward}} = 0.0 \text{ psf}$$

$$p_{\text{leeward}} = I_s p_g = (0.80)(104.0) = 83.2 \text{ psf}$$

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.

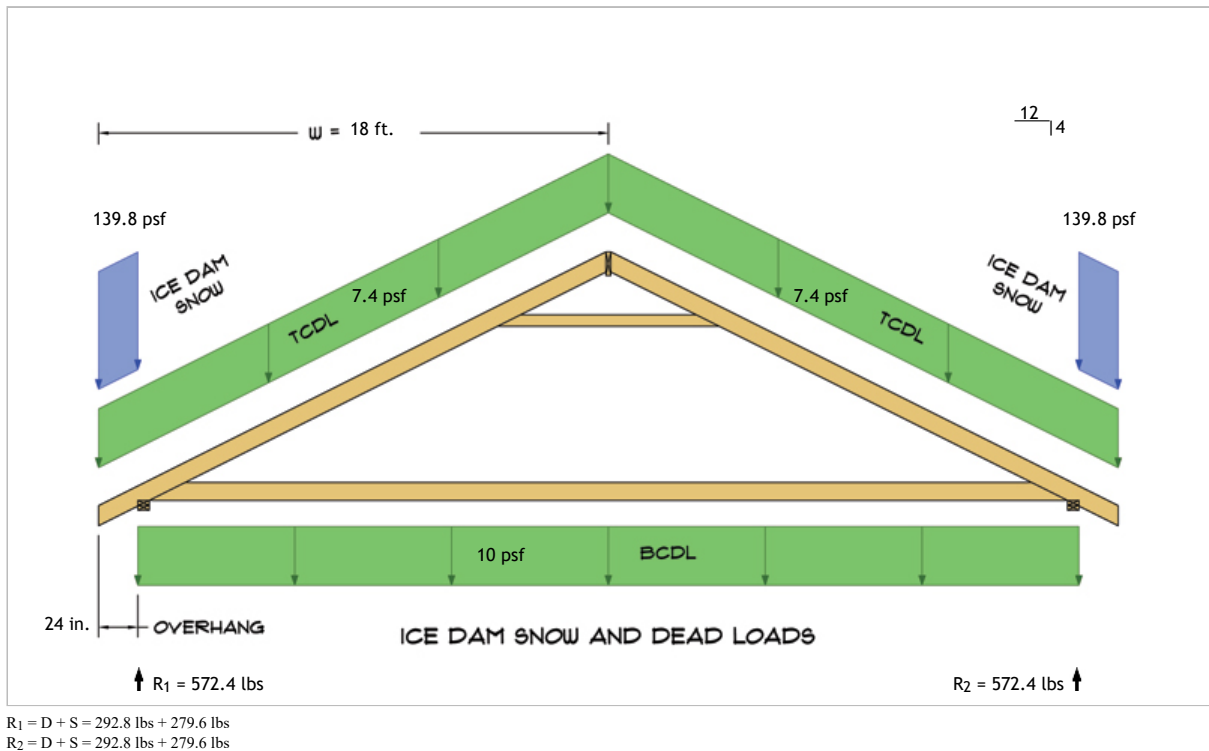
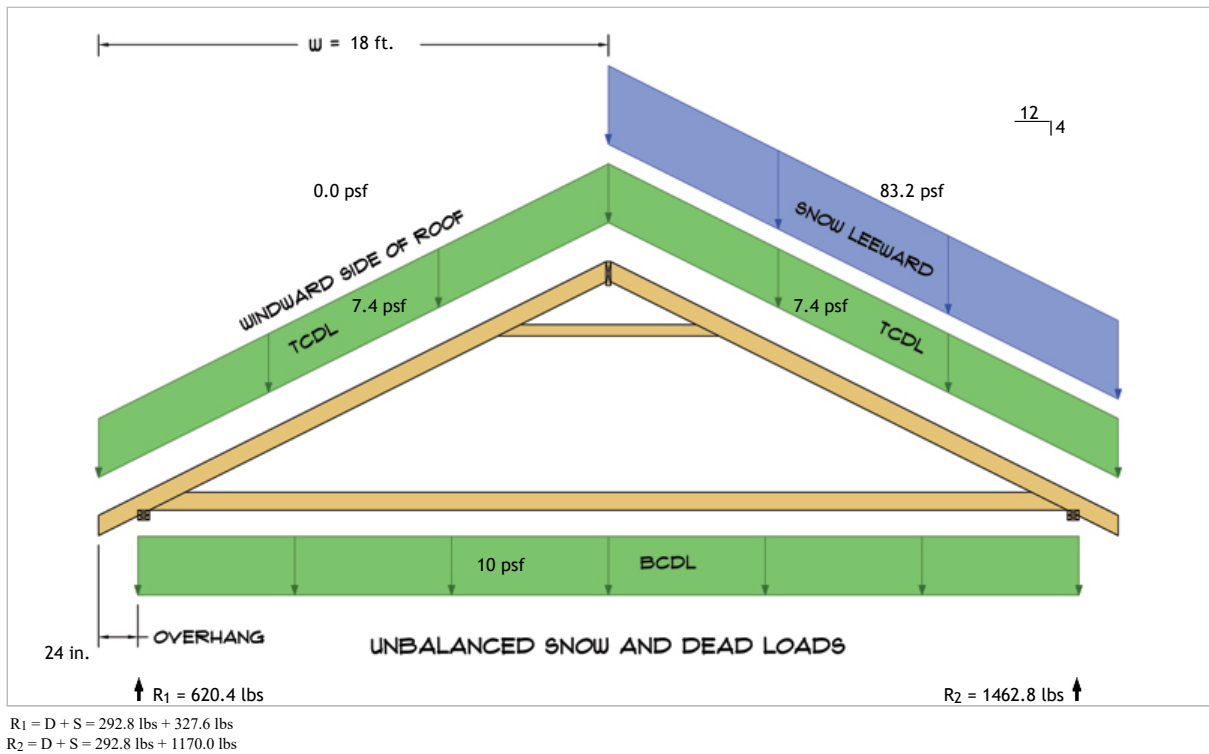
$$2p_f = (2)(69.9) = 139.8 \text{ psf}$$



$$R_1 = D + S = 292.8 \text{ lbs} + 1179.5 \text{ lbs}$$

$$R_2 = D + S = 292.8 \text{ lbs} + 1179.5 \text{ lbs}$$

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