



Snow Load Report

1. Roof and Building Data

Ground Snow Load (Pg): 80.0 psf
Roof Pitch: 7 /12
Risk Category: II
Eave-to-Ridge (W): 20 ft.
Terrain Category: C
Exposure: Partially Exposed
Thermal Factor (Ct): 1.20
Roof Surface: Metal
Roof System: Common Truss
Spacing: 108 in. o/c
Overhang: 42 in.

2. Design Loads

Top Chord Dead Load: 7 psf
Bottom Chord Dead Load: 10 psf
SF (Slope Factor) = $1/\text{Cosine}(\Phi) = 1.16$ (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): 8.1 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. C, Exp. Partially Exposed)
 $C_t = 1.20$ = Thermal Factor, as determined by ASCE 7-10 Table 7-3
 $I_s = 1.00$ = Importance Factor, as determined by ASCE 7-10 Table 1.5-2 (Risk Cat. II)
 $p_g = 80.0$ psf = Ground Snow Load in psf

$$p_f = 0.7C_eC_tI_s p_g = 0.7(1.00)(1.20)(1.00)(80.0) = 67.2 \text{ psf}$$

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$$p_{\text{windward}} = 0.3p_s = (0.3)(48.6) = 14.6 \text{ psf}$$

$$p_{\text{leeward}} = p_s = 48.6 \text{ psf}$$

$$\gamma = 0.13(80.0) + 14 = 24.40 \text{ pcf}$$

$$h_d = .43 \sqrt[3]{20} \sqrt[4]{80.0 + 10} - 1.5 = 2.10 \text{ ft. } [l_u = 20 \text{ ft.}]$$

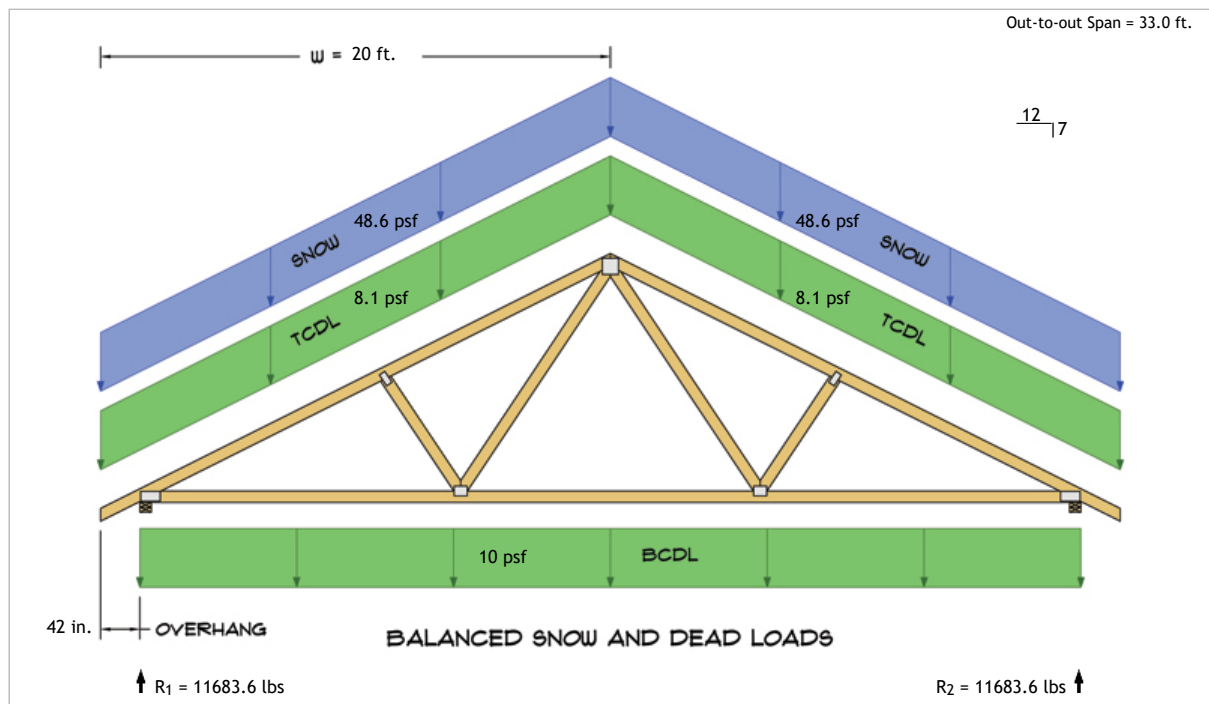
$$l_d = \frac{8}{3} \times 2.10 \times \sqrt{12/7} = 7.31 \text{ ft.}$$

$$p_d = \frac{2.10 \times 24.40}{\sqrt{12/7}} = 39.0 \text{ psf}$$

On warm roofs apply a distributed 2pf 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.

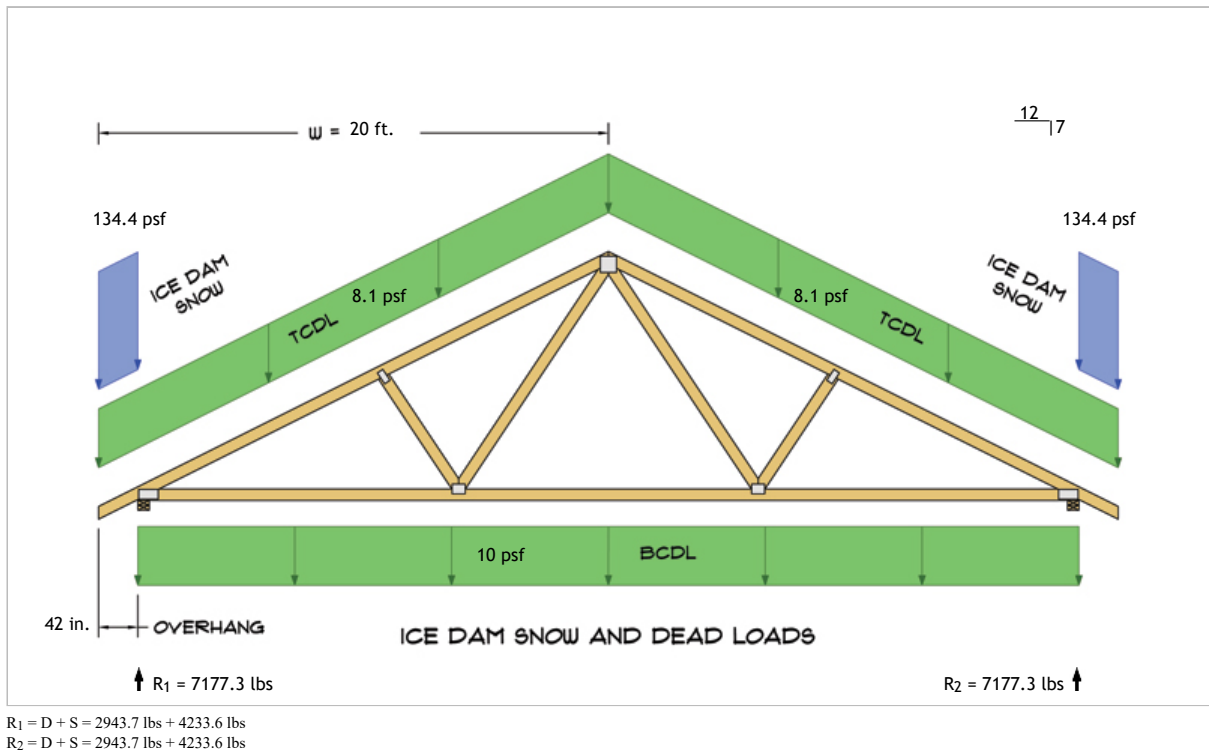
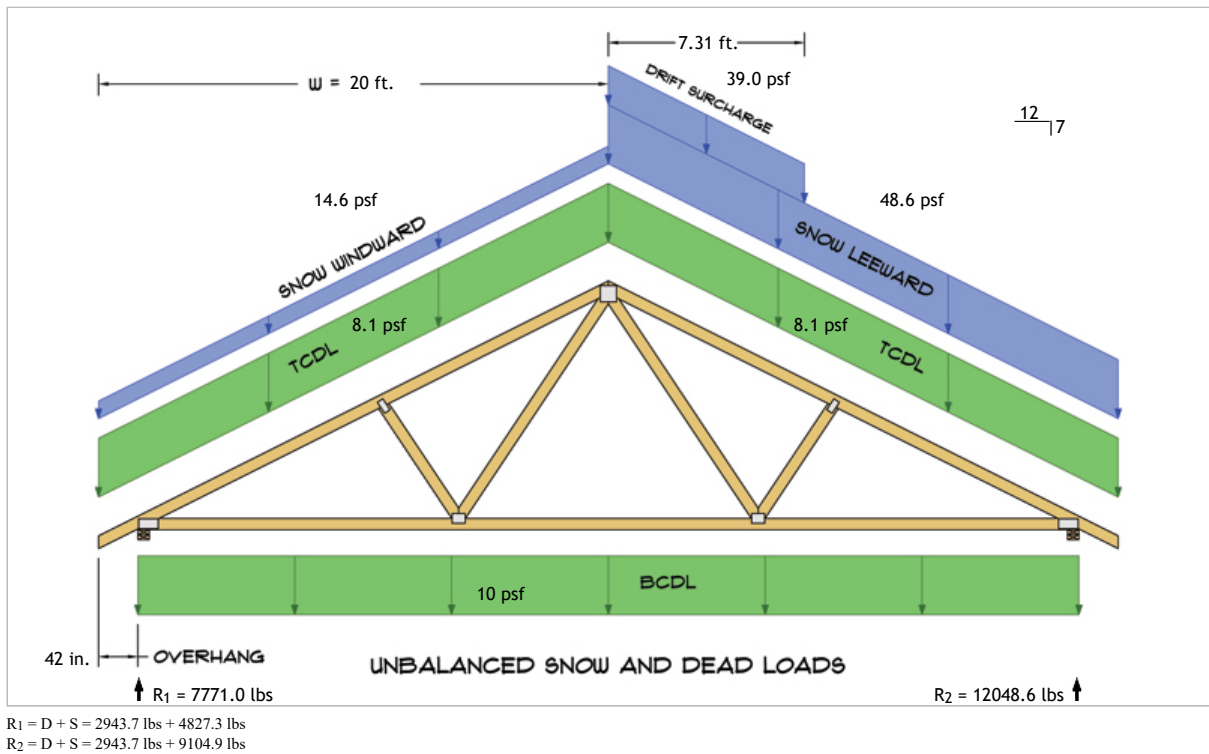
$$2p_f = (2)(67.2) = 134.4 \text{ psf}$$



$$R_1 = D + S = 2943.7 \text{ lbs} + 8739.9 \text{ lbs}$$

$$R_2 = D + S = 2943.7 \text{ lbs} + 8739.9 \text{ lbs}$$

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