Wind Load Report

1. Site & Building Data

Roof Type:	Gable
Wind Speed (ult):	130 mph
Exposure Category:	B
Enclosure Class:	Partially Enclosed
Building Width (W):	60 ft.
Building Length (L):	112 ft.
Eave Height (h_e):	18 ft.
Foundation Height (h_f):	0 ft.
Roof Pitch:	4 /12
Eave Overhang (OH_e):	1 ft.
Gable Overhang (OH_g):	1 ft.

2. Parameters & Coefficients

Topographic Factor (K_{zt}):	1.0
Directionality Factor (K_d):	.85
Roof Angle (θ):	18.43 deg.
Mean Roof Height (h):	23.00 ft.
Ridge Height (h_r):	28.00 ft.
Pos. Internal Pressure (+GCpi):	+0.55
Neg. Internal Pressure (-GCpi):	-0.55
Velocity Pressure Exp. Coeff. (K_h):	0.70 @ z=h
Velocity Pressure (q_h):	25.76 psf
End Zone Width (a):	3.00 ft.
Zone 2/2E Dist.:	30.00 ft.

3. Design Assumptions and Notes

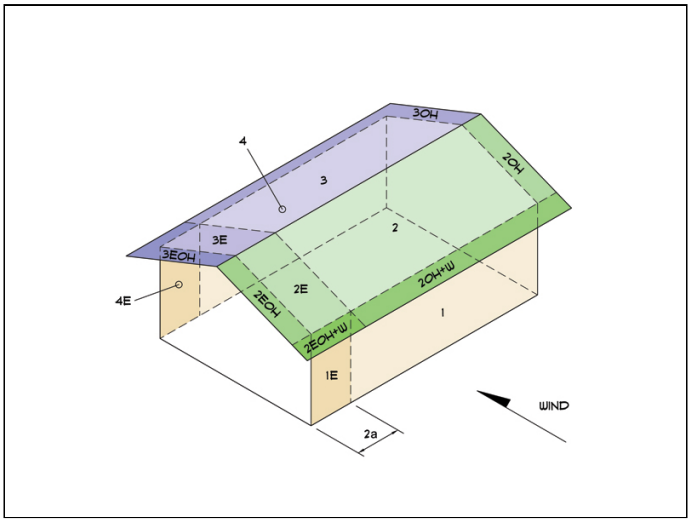
Code Standard:	ASCE 7-10
Geometry:	Regular-Shaped Bldg.
Height Class:	Low-Rise Building
Notes:	

4. Design Loads

Top Chord Dead Load:	7 psf
Bottom Chord Dead Load:	10 psf
Truss/Rafter Spacing:	96 in. o/c

4. Design Wind Pressures: MWFRS Envelope Procedure

Load Case A: Transverse Direction			
Surface	GCpf	Design Pressure (psf)	
		(w/ +GCpi)	(w/ -GCpi)
1	0.52	-0.86	27.48
2	-0.69	-31.95	-3.61
3	-0.47	-26.24	2.10
4	-0.42	-24.87	3.47
1E	0.78	5.93	34.27
2E	-1.07	-41.74	-13.40
3E	-0.67	-31.52	-3.18
4E	-0.62	-30.09	-1.75
2OH	-0.69	-17.78	
2EOH	-1.07	-27.57	
3OH	-0.47	-12.07	
3EOH	-0.67	-17.35	
2OH+W	-0.69/-0.7	-35.81	
2EOH+W	-1.07/-0.7	-45.60	

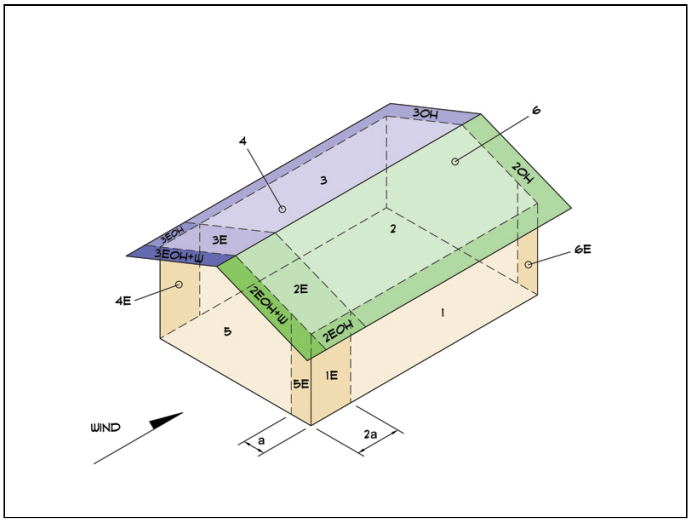


a) (+) and (-) signs signify wind pressures acting toward & away from surfaces.
b) External Pressure Coefficients linearly interpolated from Fig. 28.4-1 ASCE 7-10.
c) Design building for all wind directions, 4 load patterns per load case.
d) Total horizontal shear shall not be less than that by neglecting roof wind forces.
e) Min. wind load for enclosed or partially enclosed bldg.: 16 psf wall, 8 psf roof.
f) Design pressures are for strength design, multiply by 0.6 for ASD.

Subject: Wind Loads	Customer:	Location:	Job No.: 2025D108
Engr.: Engineer Name	ENGINEERING COMPANY INC. Street Address City, CA 99999 ph. (800) 000-0000 www.website.com		Rev.: -
Date: 4/27/2025			Page: 1

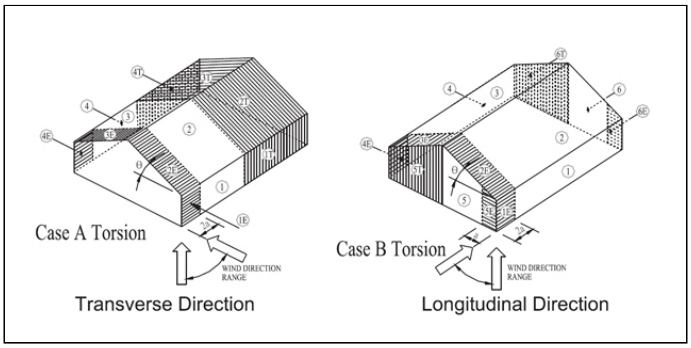
Load Case B: Longitudinal Direction			
Surface	GCpf	Design Pressure (psf)	
		(w/ +GCpi)	(w/ -GCpi)
1	-0.45	-25.76	2.58
2	-0.69	-31.95	-3.61
3	-0.37	-23.70	4.64
4	-0.45	-25.76	2.58
5	0.40	-3.86	24.48
6	-0.29	-21.64	6.70
1E	-0.48	-26.54	1.80
2E	-1.07	-41.74	-13.40
3E	-0.53	-27.82	0.52
4E	-0.48	-26.54	1.80
5E	0.61	1.55	29.89
6E	-0.43	-25.25	3.09
2OH	-0.69	-17.78	
2EOH	-1.07	-27.57	
3OH	-0.37	-9.53	
3EOH	-0.53	-13.65	
2EOH+W	-1.07/-0.7	-45.60	
3EOH+W	-0.53/-0.7	-31.69	

a) (+) and (-) signs signify wind pressures acting toward & away from surfaces.
b) External Pressure Coefficients linearly interpolated from Fig. 28.4-1 ASCE 7-10.
c) Design building for all wind directions, 4 load patterns per load case.
d) Total horizontal shear shall not be less than that by neglecting roof wind forces.
e) Min. wind load for enclosed or partially enclosed bldg.: 16 psf wall, 8 psf roof.
f) Design pressures are for strength design, multiply by 0.6 for ASD.



Torsional Load Cases				
Surface	Load Case	GCpf	Design Pressure (psf)	
			(w/ +GCpi)	(w/ -GCpi)
1T	A	-	-0.22	6.87
2T	A	-	-7.99	-0.90
3T	A	-	-6.56	0.52
4T	A	-	-6.22	0.87
5T	B	-	-0.97	6.12
6T	B	-	-5.41	1.67

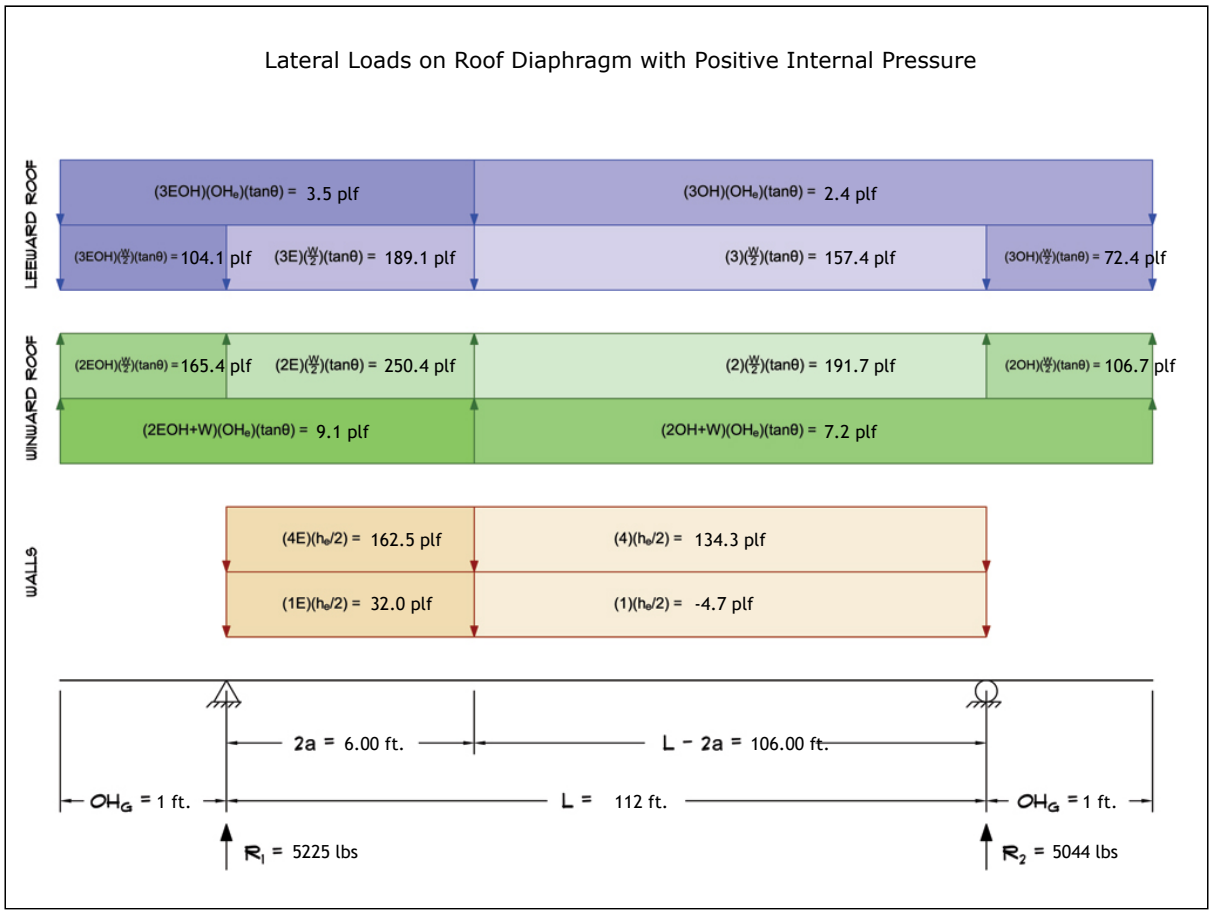
a) (+) and (-) signs signify wind pressures acting toward & away from surfaces.
b) Pressures designated with a "T" are 25% of full design wind pressures.
c) Torsional loading shall apply to all 8 load patterns using the figures shown.
d) Design pressures are for strength design, multiply by 0.6 for ASD.
e) Torsional Design Exceptions: One story bldg. with h ≤ 30 ft,
Two stories or less framed with light frame construction,
Two stories or less with flexible diaphragms.



Subject	Customer	Location	Job No.
Wind Loads			2025D108
Engr.	ENGINEERING COMPANY INC.		Rev.
Engineer Name	Street Address City, CA 99999		-
Date	ph. (800) 000-0000 www.website.com		Page
4/27/2025			2

5. Wind Load Calculations

1.) Lateral Loads - Transverse Direction:

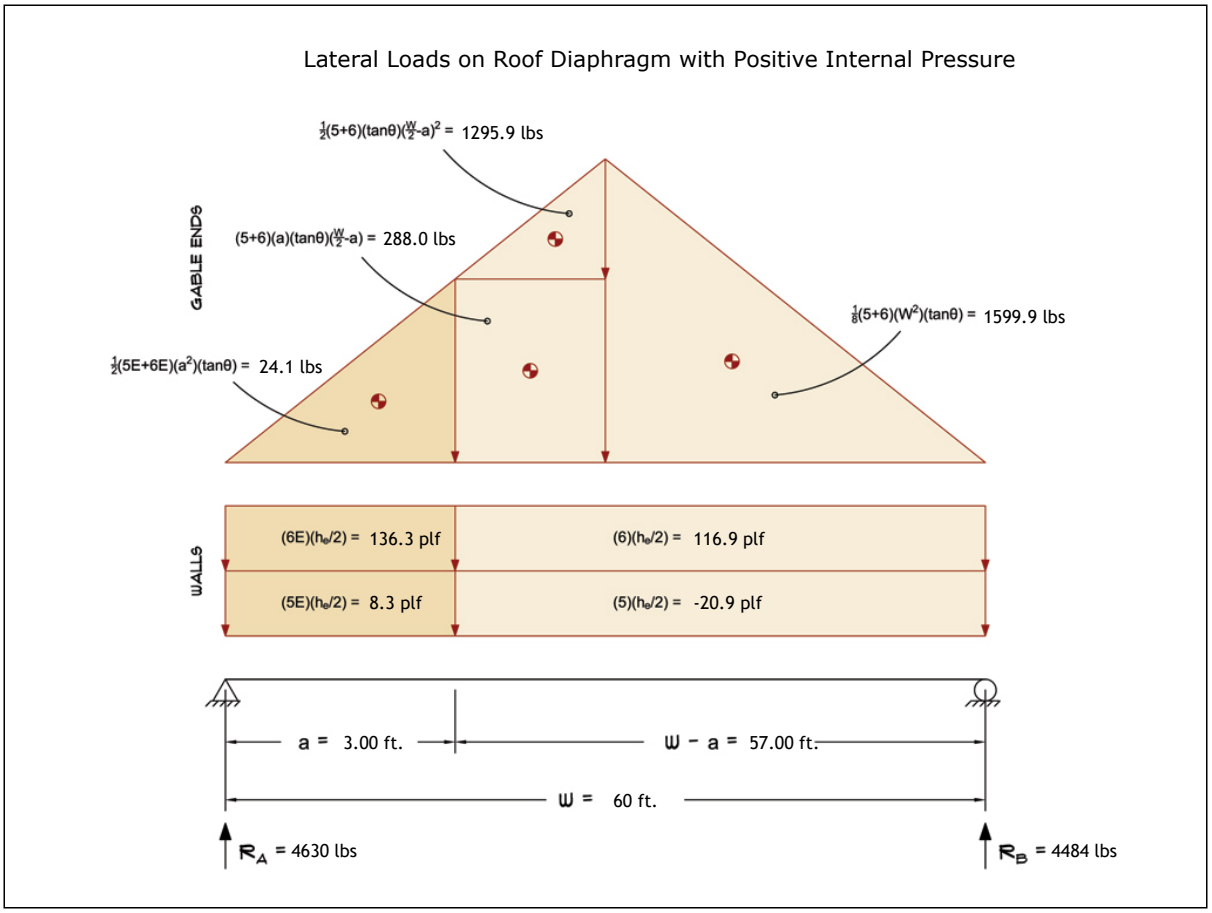


a) (-) signs signify wind lateral forces acting opposite to the direction of the arrows shown.
b) Strength design values multiplied by 0.6 to obtain ASD values.

Wind Base Shear (ASD)						
Load Case A: Transverse Direction						
Load Case	Walls (lbs)	Roof (lbs)	Roof Overhangs (lbs)	Total Lateral Load (lbs)	R_1 (lbs)	R_2 (lbs)
Positive Internal Pressure	14909	-3997	-643	10269	5225	5044
Negative Internal Pressure	14909	-3997	-643	10269	5225	5044
Roof Pressure = 0	14909	0	0	14909	7639	7270
Min. Pressures (8 psf, 16 psf)	9677	5376	278	15331	7666	7666

a) Bottom half of wall neglected in tributary area calculations.
b) Strength design values multiplied by 0.6 to obtain ASD values.

2.) Lateral Loads - Longitudinal Direction:

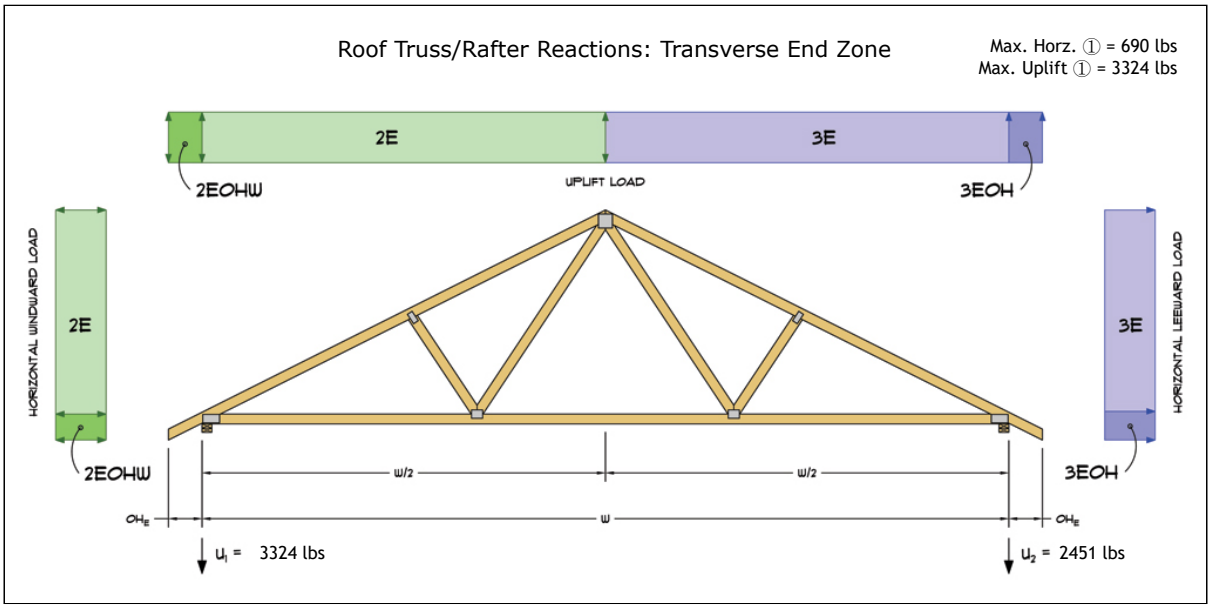


a) (-) signs signify wind lateral forces acting opposite to the direction of the arrows shown.
b) Strength design values multiplied by 0.6 to obtain ASD values.
c) Where the length of building (L) exceeds 4X the mean roof height (h), wind drag forces should additionally be considered.

Wind Base Shear (ASD)						
Load Case B: Longitudinal Direction						
Load Case	Walls (lbs)	Gable Ends (lbs)	Roof (lbs)	Total Lateral Load (lbs)	R_A (lbs)	R_B (lbs)
Positive Internal Pressure	5906	3208	0	9114	4630	4484
Negative Internal Pressure	5906	3208	0	9114	4630	4484
Roof Pressure = 0	5906	3208	0	9114	4630	4484
Min. Pressures (8 psf, 16 psf)	5184	2880	0	8064	4032	4032

a) Bottom half of wall neglected in tributary area calculations.
b) Strength design values multiplied by 0.6 to obtain ASD values.

3.) Roof Truss Reactions:



a) Strength design values multiplied by 0.6 to obtain ASD values.
b) Windward loads may be positive or negative depending on pitch of roof.

Roof Truss/Rafter Reactions (ASD)					
w/ Positive Internal Pressure					
Load Case	Horizontal Load (lbs)	Gross Uplift (lbs)	Net Uplift (lbs)	U_1 (lbs)	U_2 (lbs)
Transverse Int. Zone	312	8609	3533	2030	1503
Transverse End Zone	536	10851	5775	3324	2451
Longitudinal Int. Zone	409	8145	3069	1851	1217
Longitudinal End Zone	690	10215	5139	3104	2035

a) Gross Uplift calculations do not include any counteracting roof dead loads.
b) Net Uplift calculations include counteracting roof dead loads multiplied by 0.6 per load case (7) ASCE 7-10.
c) Strength design values multiplied by 0.6 to obtain ASD values for wind loads.
d) Loads based on truss spacing calculated at 96" o/c.
e) Negative values for horizontal load indicate load acting in windward direction (tranverse load cases).
f) Negative values for uplift indicate net downward force (zero uplift).