

ASCE/SEI 7-05 Wind Load Calculation

Client: Excel Homes
Job Number: EXLH042314-42
Description: 31217 Calcs.

Building Geometry:

Ridge Length, B = 46.0 ft
Total Width, L = 24.0 ft
Blocking Height, h_b = 18 in.
Sidewall/Eave Height, h_e = 244 in.
Roof Slope, a = 12.0 /12 pitch
Roof slope, a = 45.0 deg.
Sidewall Overhang, L_{OH} = 12 in.
Endwall Overhang, B_{OH} = 12 in.

Loading Conditions:

Basic Wind Speed, V_{3s} = 100 mph
Importance Factor, I_w = 1.00
Exposure Category: C
Topographic Factor, K_{zt} = 1.0
Height & Exposure, K_h = 0.97
Directionality, K_d = 0.85
Wind Pressure, q_h = 21.0 psf
Internal Pressure, G_{Cpi} = 0.18
-0.18

Height Above Grade:

Sidewall Eave, z = 21.8 ft
Roof Peak, z = 34.8 ft
Mean Roof Height, h = 28.3 ft

Component Dimensions:

Stud Height, h_s = 108 in
Truss Span, s_t = 144 in

Main Windforce-Resisting System Loads (MWFRS):

Normal to Surface

		1	2	3	4	5	6	1E	2E	3E	4E
Trans	+G _{Cpi}	10.5	-3.8	-14.5	-12.7	-16.3	-16.3	10.5	-27.0	-27.0	-12.7
	-G _{Cpi}	18.1	3.8	-6.9	-5.2	-8.7	-8.7	18.1	-19.5	-19.5	-5.2
	Max	18.1	3.8	-14.5	-12.7	-16.3	-16.3	18.1	-27.0	-27.0	-12.7
Long	+G _{Cpi}	10.5	-16.3	-16.3	-12.7	-16.3	-16.3	10.5	-27.0	-27.0	-12.7
	-G _{Cpi}	18.1	-8.7	-8.7	-5.2	-8.7	-8.7	18.1	-19.5	-19.5	-5.2
	Max	18.1	-16.3	-16.3	-12.7	-16.3	-16.3	18.1	-27.0	-27.0	-12.7

Summed and Projected

	HORIZONTAL LOADS				VERTICAL LOADS					MAXIMUM HORIZONTAL WALL LOADS				
	End Zone		Interior Zone		End Zone		Interior Zone		Windward Overhang		Zone			
	Wall	Roof	Wall	Roof	WW Roof	LW Roof	WW Roof	LW Roof	End	Interior	1E	4E	1	4
Trans	23.2	0.0	23.2	10.7	-27.0	-27.0	3.8	-14.5	-37.5	-14.3	18.1	-12.7	18.1	-12.7
Long	23.2	0.0	23.2	10.7	-27.0	-27.0	-16.3	-16.3	-37.5	-26.8	18.1	-12.7	18.1	-12.7

Components and Cladding Loads (C&C):

C&C End Zone Distance, a = 3.0 ft

Roof Components:	Area (ft ²)	Pressure (psf)		
		Pos	Neg	
Zone 1:	Maximum	10	22.7	-24.8
	Minimum	100	20.6	-20.6
	Truss / Rafter	48.0	21.3	-22.0
	Overhang	1.0	n/a	-42.1
Zone 2:	Maximum	10	22.7	-29.0
	Minimum	100	20.6	-24.8
	Truss / Rafter	48.0	21.3	-26.2
	Overhang	1.0	n/a	-42.1
Zone 3:	Maximum	10	22.7	-29.0
	Minimum	100	20.6	-24.8
	Truss / Rafter	48.0	21.3	-26.2
	Overhang	1.0	n/a	-42.1

Wall Components:	Area (ft ²)	Pressure (psf)		
		Pos	Neg	
Zone 4:	Maximum	10	24.8	-26.9
	Minimum	100	21.1	-23.2
	Door	17.8	23.9	-26.0
	Stud	27.0	23.2	-25.3
Zone 5:	Maximum	10	24.8	-33.2
	Minimum	100.0	21.1	-25.8
	Door	17.8	23.9	-31.4
	Stud	27.0	23.2	15.6

PFS Corporation
Northeast Region
APPROVED
R Wenner - 1
5/15/14
Approval limited to
Factory Built Portion

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