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Wind Load Calculation

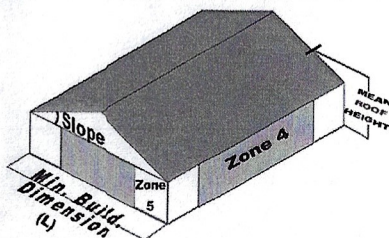
ASCE 7-16 Ch 30 Wind Loads - Components & Cladding
7th Edition (2020) Florida Building Code

Site Information

Owner: **ROBERT D SCHMERHEIM**

Wind Speed (V_{ULT}): 170 MPH
Exposure Category: B
Velocity Pressure Coef. (K_h): 0.70
Directionality Factor (K_d): 0.85
Topographical Factor (K_{zt}): 1.0

Structure Information



Risk Category: II
Building Classification: Enclosed
Int. Pressure Coef. (GC_{pi}): 0.18
Mean Roof Height (h): 15 ft.
Roof Slope (θ): Sloped
Roof Slope Coefficient (θ_c): 1.0
Min. Building Dim. (L): 56 ft.
End Zone Distance (a): 5.6 ft.

Design Wind Pressure (P_{MAX+} , P_{MAX-}):

	$h \leq 60$ ft.	$h > 60$ ft.
Max Positive Pressure (P_{MAX+})	$P_{MAX+} = q_h(\theta_c GC_{ppos} + GC_{pi})$	$P_{MAX+} = q_h(\theta_c GC_{ppos} + GC_{pi})$
Max Negative Pressure (P_{MAX-})	$P_{MAX-} = q_h(\theta_c GC_{pneg} - GC_{pi})$	$P_{MAX-} = q_h(\theta_c GC_{pneg} - GC_{pi})$

Device Calculations: ASCE 7-16, Chapter 30, All Subsections

#	Size (W x H)	Zone	Elevation (ft)	Area (ft ²)	Area (ft ²)	K_z	q_z	GC_{p+}	GC_{p-}	P_{max+} (lb/ft ²)	P_{max-} (lb/ft ²)
1	48 x 66	Int	7	22.00	10.08	0.70	44.02	0.9	-1.0	29.6	-32.2
3	45 x 110	Int	7	34.38	28.01	0.70	44.02	0.9	-1.0	28.7	-31.3
8	83 x 74	Int	7	42.65	15.95	0.70	44.02	0.9	-1.0	28.2	-30.9

Prepared in accordance with: ASCE 7-16,
Ch 30. Wind Loads - Components & Cladding
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Design Pressure ASD (allowable stress design)
Wind Velocity is V_{ULT} (ultimate)
 $V_{ASD} = \sqrt{0.6 * V_{ULT}}$

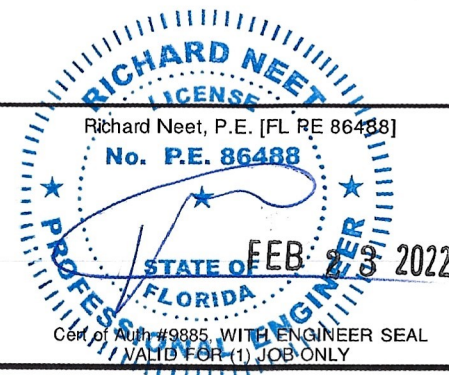
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Page 1 of 1

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