

MWFRS Wind Load Calculations
ASCE 7-10 Chapter 28 Wind Loads on Buildings; Envelope Procedure
Simple Diaphragm

Project: Residence, 810 Helios Ave, Metairie, LA 70005

Table 28.5-1 Enclosed Simple Diaphragm Low-Rise Buildings

1. Risk Category Table 1.5-1 & IBC 2012 Table 1604.5 Cat II
2. Wind Speeds
 - a. V_{ult} Wind Speed, by website atcouncil.org 142 mph
 - b. V_{asd} Nominal Wind Speed, by IBC 1609.3.1 110.0 mph
3. Wind load parameters
 - a. Surface Roughness, Section 26.7.2: Roughness C
 - b. Exposure Category, Section 26.7.3: Exposure C
 - c. Topographic Factor, Section 26.8.2: $K_{zt} = 1$
4. Wind Pressures Fig 28.6-1 Load Case 1 for roof slope 15°

Interpolating Wind Speeds												
Basic Wind Speed	Roof Angle	Load Case	Horizontal Pressures, P_{s30} (psf)				Vertical Pressures, P_{s30} (psf)				Overhangs	
			A	B	C	D	E	F	G	H	Eoh	Goh
110 mph	15°	1	24.1	-10.0	12.7	-5.9	-23.1	-13.1	-16.0	-10.1	-32.2	-25.3

5. Building mean height (h) = <15 ft λ for Exposure C = 1.21 (Fig 28.6-1)
6. Adjusted wind pressure P_s = Equation 28.6-1 $P_s = \lambda K_{zt} P_{s30} = 1.21 * 1 * P_{s30}$

Adjusted Wind Pressure P_s												
Basic Wind Speed	Roof Angle	Load Case	Horizontal Pressures, P_s (psf)				Vertical Pressures, P_s (psf)				Overhangs	
			A	B	C	D	E	F	G	H	Eoh	Goh
110 mph	15°	1	29.2	-12.1	15.4	-7.1	-28.0	-15.9	-19.4	-12.2	-39.0	-30.6

7. Building Exempt from Torsion; Appendix D1.5.6 Case F; Class 1 building with $2.0 < L/B < 5.0$

Prepared by: David Dammon
 Date: 10/1/2019