

DESIGN LOADS: 2009 INTERNATIONAL BUILDING CODE & ASCE 7-05

WIND LOAD:

$V := 90$	ASCE7 Basic Wind Speed Figure 6-1 pg. 33
$K_z := 0.98$	ASCE7 Table 6-3, pg 79 Velocity Pressure Exposure Coefficient Exp. C, z = 30 ft
$K_{zt} := 1.0$	ASCE7, Section 6.5.7.2 pg.26 Topographic Factor
$K_d := 0.85$	ASCE7, Table 6-4 pg.80 Wind Directionality Factor, Components and Cladding
$I_w := 1.00$	ASCE7 Table 6-1, pg 77 Occupancy Category II
$GC_{pi} := 0.18$	ASCE7 Figure 6-5 pg.47 Enclosed Building
$GC_p := 0.9 \cdot 1.0$	ASCE7 Figure 6-11 pg.55, Typical Positive Zone 4 and Zone 5
$GC_{p4} := 0.9 \times -1.1$	ASCE7 Figure 6-11 pg.55 Negative Zone 4
$GC_{p5} := 0.9 \times -1.4$	ASCE7 Figure 6-11 pg.55 Negative Zone 5
$q_h := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 \cdot I_w$	$q_h = 17.27$

$$w_{wl_pos} := q_h \cdot (GC_p + GC_{pi})$$

$$w_{wl_pos} = 18.7$$

Typical Positive Pressure

Note: Windloads as calculated are for a 10 square foot tributary area.

$$w_{wl_neg} := q_h \cdot (GC_{p4} - GC_{pi})$$

$$w_{wl_neg} = -20.2$$

Typical Negative Pressure

$$w_{wl_cz} := q_h \cdot (GC_{p5} - GC_{pi})$$

$$w_{wl_cz} = -24.9$$

Corner Zone Negative Pressure