

**Wind Loads - Open Buildings****Ultimate Wind Pressures**Type of roof = Pitched Free Roofs  
Wind Flow = ClearG = 0.85  
Roof Angle = 4.8 deg

NOTE: The code requires the MWFRS be designed for a minimum pressure of 16 psf.

**Main Wind Force Resisting System**

Kz = Kh = 0.851

Base pressure (qh) = 21.4 psf  
(Kd qh) = 18.2 psf**Roof pressures - Wind Normal to Ridge**

Wind Flow	Load Case	Wind Direction Y = 0 & 180 deg	
		Cnw	Cnl
		Cn =	
Clear Wind Flow	A	Cn = 1.20	0.30
		p = 18.5 psf	4.6 psf
	B	Cn = -1.10	-0.10
		p = -17.0 psf	-1.5 psf

NOTE: 1). Cnw and Cnl denote combined pressures from top and bottom roof surfaces.  
2). Cnw is pressure on windward half of roof. Cnl is pressure on leeward half of roof.  
3). Positive pressures act toward the roof. Negative pressures act away from the roof.

**Roof pressures - Wind Parallel to Ridge, Y = 90 deg**

Wind Flow	Load Case	Horizontal Distance from Windward Edge		
		$\leq h$	$>h \leq 2h$	$>2h$
		Cn =		
Clear Wind Flow	A	Cn = -0.80	-0.60	-0.30
		p = -12.3 psf	-9.3 psf	-4.6 psf
	B	Cn = 0.80	0.50	0.30
		p = 12.3 psf	7.7 psf	4.6 psf

h = 11.0 ft  
2h = 22.0 ft**Fascia Panels -Horizontal pressures**

qp = 18.2 psf

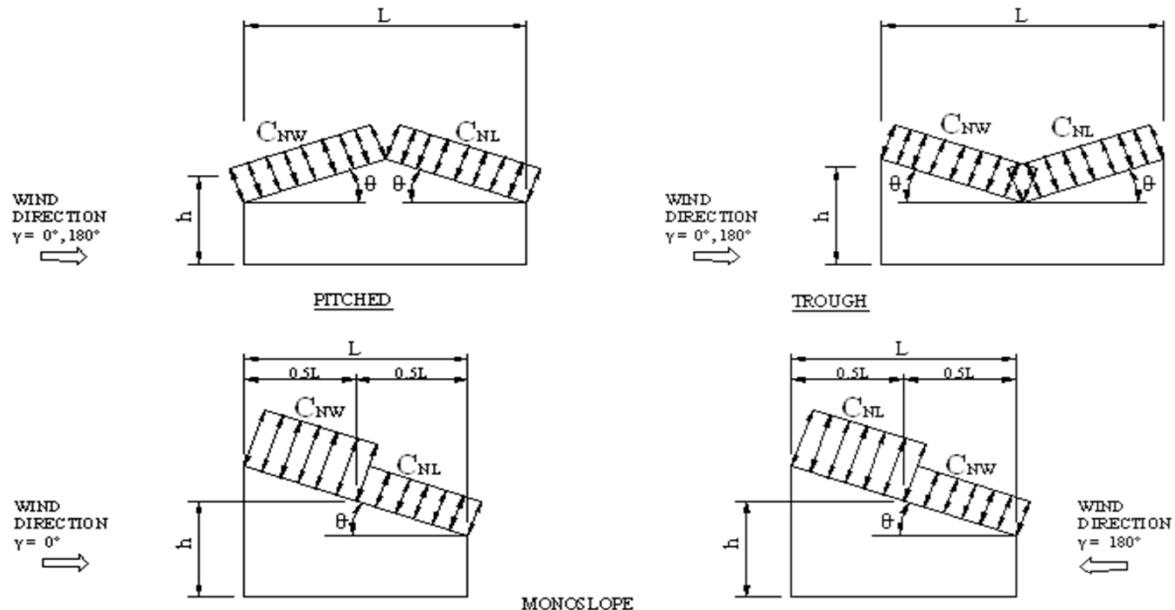
Windward fascia: 27.2 psf (GCpn = +1.5)  
Leeward fascia: -18.2 psf (GCpn = -1.0)**Components & Cladding - roof pressures**Kz = Kh = 0.85  
Base pressure (qh) = 18.2 psf  
G = 0.85

a = 4.3 ft

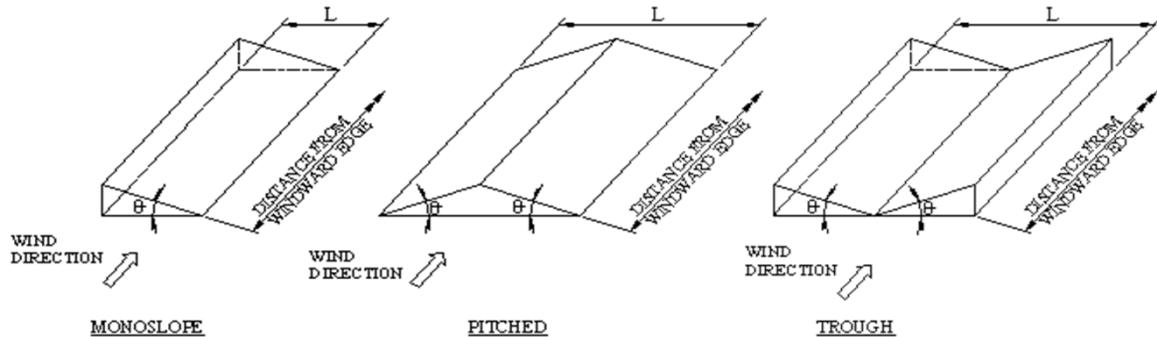
 $a^2 = 18.5 \text{ sf}$   
 $4a^2 = 74.0 \text{ sf}$ 

Wind pressure	Effective Wind Area	Clear Wind Flow					
		zone 3		zone 2		zone 1	
		positive	negative	positive	negative	positive	negative
C <sub>N</sub>	$\leq 18.5 \text{ sf}$	2.27	-3.49	1.74	-1.76	1.14	-1.16
	$>18.5, \leq 74 \text{ sf}$	1.74	-1.76	1.74	-1.76	1.14	-1.16
	$> 74 \text{ sf}$	1.14	-1.16	1.14	-1.16	1.14	-1.16
Wind pressure	$\leq 18.5 \text{ sf}$	35.1 psf	-53.9 psf	26.8 psf	-27.2 psf	17.5 psf	-18.0 psf
	$>18.5, \leq 74 \text{ sf}$	26.8 psf	-27.2 psf	26.8 psf	-27.2 psf	17.5 psf	-18.0 psf
	$> 74 \text{ sf}$	17.5 psf	-18.0 psf	17.5 psf	-18.0 psf	17.5 psf	-18.0 psf

### Location of Open Building Wind Pressure Zones

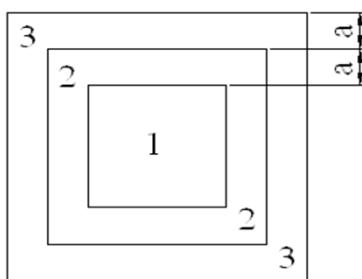


**WIND DIRECTION**  $\gamma = 0^\circ, 180^\circ$

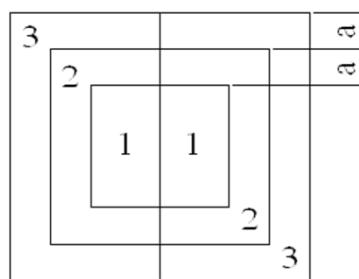


**WIND DIRECTION**  $\gamma = 90^\circ$

### MAIN WIND FORCE RESISTING SYSTEM

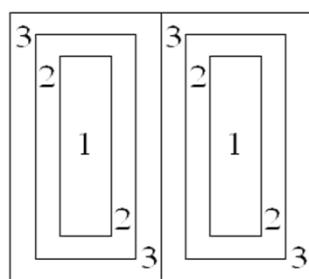


**MONOSLOPE**



$\theta < 10^\circ$

**PITCHED OR TROUGHED ROOF**



$\theta \geq 10^\circ$

### COMPONENTS AND CLADDING