

Pressure on the building

LATERAL EXAM

WIND SPEED

WIND W

WEIGHT  $V = ZICW$

W = D.L.

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FASTEST WIND MILE

RICHTER SCALE: MAGNITUDE

HEIGHT

LOGARITHMIC

GUST

MODIFIED MERCALLI SCALE: INTENSITY AND DAMAGE OBSERVED

$C_e$

$V =$  base shear (KIPS)

EXPOSURE (LOCATION)

$W =$  DEAD WGT (KIPS)

WATERFRONT (MORE)  
SUBURBANS  
URBANS (LEAST)

DEAD WEIGHT IS AN ADVANTAGE.

$C_g$  = FACTORS CONFIGURATION

$Z =$  SEISMIC ZONE: 0, 1, 2, 3, 4  
SEISMIC HISTORY (LAST 200 YRS)

WINDWARD ⊕

$I_s$  = IMPORTANCE FACTOR (OCCUPANCY TYPE)  
 $I_s > I_w$

LEEWARD ⊖

$C =$  RATIO OF SOIL PERIOD TO BUILDING PERIOD

ROOF

FLAT - LONG PERIOD  
ROCK - SHORT PERIOD

FLAT vs. PITCHED (gills-windward) ⊕

COMPONENTS (things that can fly in wind)

Shading devices, parapets, chimneys  
Signs on roof...

90 MPH → 10 PSF  
150 MPH → 52 PSF

$I_w$  = Importance Factor

Occupancy type

$R_w$  = DUCTILITY OF LATERAL RESISTING SYSTEM

$MF = A^+$      $CPF = B$   
 $EPF = A^-$      $SNC = F/C$

HIGHER  $R_w$  - better at resisting shear  
Lower  $R_w$  - higher base shear

$P$  = WIND PRESSURE (PSF UNITS)