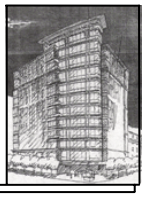
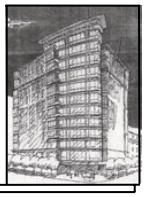


APPENDIX C

Wind Loads



Wind

Exposure B case 2

$k_{zt} = 1.0$ (no hills)

$k_d = .85$

$V = 90$ mph

$I = 1.0$

$q_z = 0.00256\, k_z k_{zt} k_d V^2 I$

Period of Building

$C_t = 0.016$

$h = 147.3'$

$x = .9$

$T = 0.016(147.3')^{.9}$

$= 1.48$

$f = \frac{1}{T}$

$= .67 < 1.0 \therefore$ flexible building

Windward pressure: $P_w = q_z G C_p$

$C_p = .8$

leeward

$C_p = -0.3$ N-S

$= -0.5$ E-W

Leeward Pressure: $P_L = q_h G C_p$

$z_g = 1200$ ft

$\alpha = 7.0$

$k_h = 2.01\left(\frac{147.5}{1200}\right)^{2/7.0} = 1.104$

$q_z = 0.00256(1.104)(1.0)(.85)(90_{mph})^2(1.0) = 19.46$

$G = .839$ N-S

$= .843$ E-W

$P_L = (19.46)(.839)(-.3) = -4.89$ N-S

$= (19.46)(.843)(-.5) = -8.20$ E-W

z (ft)	k_z	q_z	N-S			E-W		
			P_L (psf)	P_w (psf)	P_L+P_w (psf)	P_L (psf)	P_w (psf)	P_L+P_w (psf)
147.5	1.104	19.464	-4.97	12.96	17.93	-8.39	13.13	21.52
138.5	1.085	19.117	-4.97	12.72	17.69	-8.39	12.89	21.28
124.1	1.051	18.527	-4.97	12.33	17.30	-8.39	12.49	20.88
113.25	1.024	18.049	-4.97	12.01	16.98	-8.39	12.17	20.56
102.4	0.995	17.537	-4.97	11.67	16.64	-8.39	11.83	20.22
91.6	0.964	16.987	-4.97	11.31	16.28	-8.39	11.46	19.85
80.75	0.930	16.386	-4.97	10.91	15.88	-8.39	11.05	19.44
69.9	0.892	15.724	-4.97	10.47	15.44	-8.39	10.60	18.99
59.1	0.850	14.988	-4.97	9.98	14.95	-8.39	10.11	18.50
48.25	0.802	14.144	-4.97	9.41	14.38	-8.39	9.54	17.93
37.4	0.746	13.151	-4.97	8.75	13.72	-8.39	8.87	17.26
26.6	0.677	11.931	-4.97	7.94	12.91	-8.39	8.05	16.44
15.75	0.583	10.272	-4.97	6.84	11.81	-8.39	6.93	15.32
5.15	0.423	7.464	-4.97	4.97	9.94	-8.39	5.03	13.42