

FIGURE 12 - 37

Pile Panel Sound Barrier Wall Design						
Exposure Category	Wall Height (ft)	Wind Pressure (psf)	"H" Bar Requirements	Soil Loads		
				P(D.L.+ I.L.) (kips)	V(W.L.) (kips)	M(W.L.) (k-ft)
A	0 < h <= 14	12	#4 @ 1'-0"	0.056 hs	0.012 hs	0.012 hs(h/2+d)
	14 < h <= 29	17		0.056 hs	0.168 s + 0.017 s(h-14)	0.168 s(d+7) + 0.017 s(h-14)(h/2+d+7)
B	0 < h <= 14	20	#4 @ 1'-0"	0.056 hs	0.020 hs	0.020 hs(h/2+d)
	14 < h <= 29	25		0.056 hs	0.280 s + 0.025 s(h-14)	0.280 s(d+7) + 0.025 s(h-14)(h/2+d+7)
C	0 < h <= 14	34	#4 @ 1'-0" (10' pile spacing)	0.056 hs	0.034 hs	0.034 hs(h/2+d)
	14 < h <= 29	42	#4 @ 9" (15' pile spacing)	0.056 hs	0.476 s + 0.042 s(h-14)	0.476 s(d+7) + 0.042 s(h-14)(h/2+d+7)
D	0 < h <= 14	62	#4 @ 1'-0" (10' pile spacing)	0.056 hs	0.062 hs	0.062 hs(h/2+d)
	14 < h <= 29	71	#4 @ 6" (15' pile spacing)	0.056 hs	0.868 s + 0.071 s(h-14)	0.868 s(d+7) + 0.071 s(h-14)(h/2+d+7)

*D. L.* = weight of 4" precast concrete panels

*h* = maximum wall height (ft)

*I. L.* = ice and snow loads for panels ( 3 psf)

*s* = pile spacing (ft)

*W. L.* = wind loads

*d* = distance from the top of the drilled pier concrete to the elevation required to support the bottom panel (ft)

FIGURE 12 - 37 M

Pile Panel Sound Barrier Wall Design						
Exposure Category	Wall Height (m)	Wind Pressure (kpa)	"H" Bar Requirements	Soil Loads		
				P(D.L. + I.L) (KN)	V(W.L.) (KN)	M(W.L.) (KN-m)
A	0 < h ≤ 4.270	0.575	#13 @ 300mm	2.681 hs	0.575 hs	0.575 hs(h/2+d)
	4.270 < h ≤ 8.840	0.814		2.681 hs	2.454 s + 0.814 s(h-4.267)	2.454 s(d+2.134) + 0.814 s(h-4.267)(h/2+d+2.134)
B	0 < h ≤ 4.270	0.958	#13 @ 300mm	2.681 hs	0.958 hs	0.958 hs(h/2+d)
	4.270 < h ≤ 8.840	1.197		2.681 hs	4.088 s + 1.197 s(h-4.267)	4.088 s(d+2.134) + 1.197 s(h-4.267)(h/2+d+2.134)
C	0 < h ≤ 4.270	1.628	#13 @ 300mm (3.1m pile spacing)	2.681 hs	1.628 hs	1.628 hs(h/2+d)
	4.270 < h ≤ 8.840	2.011	#13 @ 225mm (4.6m pile spacing)	2.681 hs	6.947 s + 2.011 s(h-4.267)	6.947 s(d+2.134) + 2.011 s(h-4.267)(h/2+d+2.134)
D	0 < h ≤ 4.270	2.969	#13 @ 300mm (3.1m pile spacing)	2.681 hs	2.969 hs	2.969 hs(h/2+d)
	4.270 < h ≤ 8.840	3.400	#13 @ 150mm (4.6m pile spacing)	2.681 hs	12.669 s + 3.400 s(h-4.267)	12.669 s(d+2.134) + 3.400 s(h-4.267)(h/2+d+2.134)

D. L. = weight of 102mm precast concrete panels

h = maximum wall height (m)

I. L. = ice and snow loads for panels ( 0.144 kpa)

s = pile spacing (m)

W. L. = wind loads

d = distance from the top of the drilled pier concrete to the elevation required to support the bottom panel (m)