LATERAL LOAD ANALYSIS FOR THE COVE LOT 141

Grid line A

LONGITUDINAL OR TRANSVERSE?	L
END ZONE OR INTERIOR?	E

End Zone Wind Load (WL/Vs)=	171	plf
Interior Zone Wind Load (WL/Vs)=	109	plf
Seismic Load (WL/Vs)=	159	plf
Shear Load Span (sls)=	47.00	ft
Roof Dead Load (DL)=	25	psf
Wall Weight (wwt)=	15	psf
Length of Shear Wall (Sw)=	37.75	ft

Formula		Results	Units
P=WL/Vs*sls/2	Wind Shear Load (P)=	3151	lbs
Us=P/Sw	Unit Shear (Us)=	83	plf
P=WL/Vs*sls/2	Seismic Shear Load (P)=	3741	lbs
Us=P/Sw	Unit Shear (Us)=	99	plf
	Wind end zone width =	9.40	ft
	Wind interior zone width =	14.10	ft

INTERIOR SHEAR WALLS SW-1
EXTERIOR SHEAR WALLS SW-1

Wall Overturning

w1 Seismic controls overturning, 0.6D+0.7E

		Wind		Seismic	
Short wall segment (sws)= 6.83 ft	Mot=Us*sws*h	Mot= 6841	ft-lbs	8122	ft-lbs
Wall height (h)= 12.00 ft	Whd=wwt*h+DL*hlw	Whd= 805	plf	744	plf
Holdown Load Width (hlw)= 25.00 ft	Mres=(swred *Whd*sws^2)/2	Mres= 11266	ft-lbs	10411	ft-lbs
Dead load Reduct Fact. (swred)= 0.60	Hd-uplift=(Mot-Mres)/sws	Hd-uplift= -648	lbs	-335	lbs
Allowable story drift = .02*h = 2.88	$\Delta_s = 8vh^3/(EAb) + vh/(Gt) + 0.75*h*e_n + h/b*d_a$ =	0.50	OK		

h/w ratio OK for wind forces
Below = Concrete
h/w ratio OK for seismic forces
NO HOLDOWNS REQUIRED

w2 Seismic controls overturning, 0.6D+0.7E

		Wind		Seismic	
Short wall segment (sws)= 13.75 ft	Mot=Us*sws*h	Mot= 13772	ft-lbs	16352	ft-lbs
Wall height (h)= 12.00 ft	Whd=wwt*h+DL*hlw	Whd= 805	plf	744	plf
Holdown Load Width (hlw)= 25.00 ft	Mres=(swred *Whd*sws^2)/2	Mres= 45659	ft-lbs	42193	ft-lbs
Dead load Reduct Fact. (swred)= 0.60	Hd-uplift=(Mot-Mres)/sws	Hd-uplift= -2319	lbs	-1879	lbs
Allowable story drift = .02*h = 2.88	$\Delta_s = 8vh^3/(EAb) + vh/(Gt) + 0.75*h*e_n + h/b*d_a$ =	0.32	OK		

h/w ratio OK for wind forces
Below = Concrete
h/w ratio OK for seismic forces
NO HOLDOWNS REQUIRED

w3 Seismic controls overturning, 0.6D+0.7E

		Wind		Seismic	
Short wall segment (sws)= 4.92 ft	Mot=Us*sws*h	Mot= 4107	ft-lbs	4876	ft-lbs
Wall height (h)= 10.00 ft	Whd=wwt*h+DL*hlw	Whd= 502	plf	464	plf
Holdown Load Width (hlw)= 14.08 ft	Mres=(swred *Whd*sws^2)/2	Mres= 3645	ft-lbs	3369	ft-lbs
Dead load Reduct Fact. (swred)= 0.60	Hd-uplift=(Mot-Mres)/sws	Hd-uplift= 94	lbs	306	lbs
Allowable story drift = .02*h = 2.40	$\Delta_s = 8vh^3/(EAb) + vh/(Gt) + 0.75*h*e_n + h/b*d_a$ =	0.51	OK		

h/w ratio OK for wind forces
Below = Concrete Hold down location = 2:1 < h/w ratio < 3.5:1, tabulated shear value muliplied by 2w/h, use SW-1
USE SIMPSON HOLDOWN: LSDTHD8 OR HTT4

w4 Seismic controls overturning, 0.6D+0.7E

		Wind		Seismic	
Short wall segment (sws)= 5.00 ft	Mot=Us*sws*h	Mot= 4173	ft-lbs	4955	ft-lbs
Wall height (h)= 10.00 ft	Whd=wwt*h+DL*hlw	Whd= 502	plf	464	plf
Holdown Load Width (hlw)= 14.08 ft	Mres=(swred *Whd*sws^2)/2	Mres= 3765	ft-lbs	3479	ft-lbs
Dead load Reduct Fact. (swred)= 0.60	Hd-uplift=(Mot-Mres)/sws	Hd-uplift= 82	lbs	295	lbs
Allowable story drift = .02*h = 2.40	$\Delta_s = 8vh^3/(EAb) + vh/(Gt) + 0.75*h*e_n + h/b*d_a$ =	0.51	OK		

h/w ratio OK for wind forces
Below = Concrete Hold down location =
h/w ratio OK for seismic forces
USE SIMPSON HOLDOWN: LSDTHD8 OR HTT4

w5 Seismic controls overturning, 0.6D+0.7E

		Wind		Seismic	
Short wall segment (sws)= 7.25 ft	Mot=Us*sws*h	Mot= 6051	ft-lbs	7185	ft-lbs
Wall height (h)= 10.00 ft	Whd=wwt*h+DL*hlw	Whd= 502	plf	464	plf
Holdown Load Width (hlw)= 14.08 ft	Mres=(swred *Whd*sws^2)/2	Mres= 7916	ft-lbs	7315	ft-lbs
Dead load Reduct Fact. (swred)= 0.60	Hd-uplift=(Mot-Mres)/sws	Hd-uplift= -257	lbs	-18	lbs
Allowable story drift = .02*h = 2.40	$\Delta_s = 8vh^3/(EAb) + vh/(Gt) + 0.75*h*e_n + h/b*d_a$ =	0.39	OK		

h/w ratio OK for wind forces
Below = Concrete
h/w ratio OK for seismic forces
NO HOLDOWNS REQUIRED

Perforated Wall (SDPWS 2008 Table 4.3.3.5)

Perforated Wall Length (sws)=	23.17	ft
% Full Height sheathing =	74%	
Max Opening Ht =	1.50	ft
Wall height (h)=	10.00	ft
Holdown Load Width (hlw)=	14.08	ft
Dead load Reduct Fact. (swred)=	0.60	
Allowable story drift = .02*h =	2.40	

C_o = 1.000
Sill plate uplift anchorage: SW-1

		Wind		Seismic	
Mot=Us*sws*h	Mot=	14331	ft-lbs	17016	ft-lbs
Whd=wwt*h+DL*hlw	Whd=	502	plf	464	plf
Mres=(swred *Whd*sws^2)/2	Mres=	80849	ft-lbs	74712	ft-lbs
T/C =V*h/(Co*ΣL)	T/C =	835	lbs	991	lbs
Hd-uplift=(Mot-Mres)/sws	Hd-uplift=	-2655	lbs	-2234	lbs
$\Delta_s = 8vh^3/(Eab*Co) + vh/(Gt) + 0.75*h*e_n + h/(b*Co)*d_a$ =		0.15	OK		

h/w ratio OK for wind forces
Below = Concrete
h/w ratio OK for seismic forces
NO HOLDOWNS REQUIRED

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Roof length, L_R = 77.83

Ω = 1.0 ASCE 7-10 Table 12.2-1

$\upsilon_{RW} = W/L_R$ = 40.48 (Wind)

$\upsilon_W = P/Sw - \upsilon_R$ = -42.98 (Wind)

$\upsilon_{RE} = E/L_R$ = 48.07 (Seismic)

$\upsilon_W = P/Sw - \upsilon_R$ = -51.03 (Seismic)

DRAG FORCE CALCULATIONS

WALL/OPENING	LENGTH	Σ LENGTH	Wind DRAG, LBS	Seismic DRAG, LBS	E_m LEVEL
	0	0	0	0	0
OPENING	13.58	13.58	550	653	653
W1	6.83	20.41	256	304	304
OPENING	8.00	28.41	580	689	689
W2	13.75	42.16	-11	-13	-13
OPENING	12.50	54.66	495	588	588
W3	4.92	59.58	284	337	337
OPENING	3.00	62.58	405	481	481
W4	5.00	67.58	190	226	226
OPENING	3.00	70.58	312	370	370
W5	7.25	77.83	0	0	0

Seismic loads control drag forcecalculations