

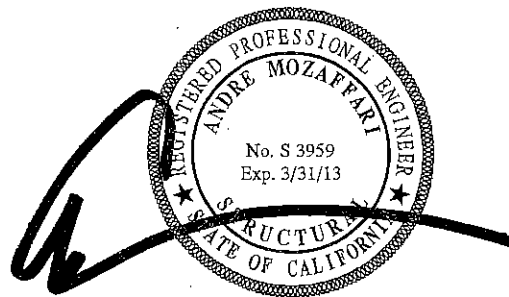
**STRUCTURAL
CALCULATIONS
C.B.C. 2010**



MOZAFFARI ENGINEERING
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Wednesday, July 06, 2011

REYNOLDS ADDITION
2008 HACKETT AVE., CERES, CA.



5843-11

Prepared For:
KAREN CROYLE

These calculations are not valid without a wet signature.



MOZAFFARI ENGINEERING
STRUCTURAL CALCULATIONS
C.B.C. 2010

JOB NO.:	5843-11
DATE:	7/6/2011

PROJECT TITLE: REYNOLDS ADDITION

SUMMARY OF DESIGN LOADS:

(THIS STRUCTURE IS DESIGNED BASED ON THE FOLLOWING CBC 2010 LOAD CRITERIA, U.O.N.)

A. OCCUPANCY CATEGORY (TABLE 1604.5).....	TYPE II
B. ROOF LOADS:	
1. DEAD LOADS (PER DESIGN CONDITIONS. SEE ROOF LOAD SHEET TO FOLLOW.).....	13 PSF
2. LIVE LOADS (PER SECT. 1607.11 & REDUCIBLE PER SECT. 1607.11.2).....	20 PSF
C. FLOOR LOADS:	
1. DEAD LOADS (PER DESIGN CONDITIONS. SEE FLOOR LOAD SHEET TO FOLLOW.).....	12 PSF
2. LIVE LOADS (PER SECT. 1607 & REDUCIBLE PER SECT. 1607.9).....	40 PSF
D. WALL LOADS:	
1. EXTERIOR WALL DEAD LOADS (PER DESIGN CONDITIONS. SEE WALL LOAD SHEET.).....	16 PSF
2. INTERIOR WALL DEAD LOADS (PER DESIGN CONDITIONS. SEE WALL LOAD SHEET.).....	6.5 PSF
E. SNOW LOADS:	
1. GROUND SNOW LOADS, p_g (PER FIG. 1608.2 OR LOCAL JURISDICTION).....	0 PSF
2. FLAT ROOF SNOW LOADS, p_f (PER ASCE 7, EQ. 7-1).....	0 PSF
3. SLOPED ROOF SNOW LOADS, p_s (PER ASCE 7, EQ. 7-2).....	0 PSF
F. SEISMIC LOADING CRITERIA:	
1. SEISMIC IMPORTANCE FACTOR, I (PER ASCE 7, FIG. 11.5-1).....	1.00
2. SITE CLASS (PER TABLE 1613.5.2 OR SOILS REPORT).....	D
3. MAPPED SPECTRAL ACCELERATIONS, MCE:	
a) S_s (PER ASCE 7, FIGS. 22-1 TO 22-14 OR USGS SEISMIC VALUES).....	0.861
b) S_1 (PER ASCE 7, FIGS. 22-1 TO 22-14 OR USGS SEISMIC VALUES).....	0.306
4. SPECTRAL RESPONSE COEFFICIENTS:	
a) F_a (PER TABLE 1613.5.3(1)).....	1.16
b) F_v (PER TABLE 1613.5.3(2)).....	1.79
5. MAXIMUM CONSIDERED EARTHQUAKE RESPONSE ACCELERATIONS:	
a) S_{MS} (PER EQ. 16-36).....	0.99
b) S_{M1} (PER EQ. 16-37).....	0.55
6. DESIGN SPECTRAL RESPONSE ACCELERATIONS:	
a) S_{DS} (PER EQ. 16-38).....	0.66
b) S_{D1} (PER EQ. 16-39).....	0.36
7. SEISMIC DESIGN CATEGORY (PER TABLES 1613.5.6(1-2)).....	D
8. RESPONSE MODIFICATION COEFFICIENT, R (PER ASCE 7, TABLE 12.2-1).....	6.5
9. SEISMIC RESPONSE COEFFICIENT/BASE SHEAR (PER ASCE 7, 12.8.1 EQUATIONS).....	0.102 *W
G. WIND LOADING CRITERIA:	
1. BASIC WIND SPEED, V_{35} (PER FIG. 1609 OR LOCAL JURISDICTION).....	85 MPH
2. SURFACE ROUGHNESS CATEGORY (PER SECT. 1609.4.2).....	C
3. EXPOSURE CATEGORY (PER SECT. 1609.4.3).....	B
	$z=15$ ft. $z=25$ ft.
4. DESIGN WIND LOAD, P (PER ASCE 7, SECTS. 6.5.12 TO 6.5.15).....	12.2 12.2 PSF



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I. ROOF LOADING

A. ROOF DEAD LOAD CALCULATIONS:

SUMMARY OF ROOF CONSTRUCTION MATERIALS AND WEIGHTS	
BUILT UP ROOFING MATERIAL:	3.0 PSF
3-PLY FELT	1.5 PSF
1/2" ROOF SHEATHING:	1.5 PSF
FRAMING	2.5 PSF
GYP BD.	2.8 PSF
MECHANICAL & ELECTRICAL:	0.5 PSF
LOOSE INSULATION:	1.0 PSF
MISC.:	0.2 PSF
OTHER:	0.0 PSF
OTHER:	0.0 PSF
TOTAL:	13.0 PSF

B. ROOF LIVE LOAD CALCULATIONS:

1. MIN. UNIFORMLY DISTRIBUTED LIVE LOAD, L_0 , FROM CBC 2010, TABLE 1607.1 = 20 PSF

2. REDUCTION FOR ROOF LIVE LOADS, L_r , FROM CBC 2010, SECT. 1607.11.2 ARE AS FOLLOWS;

• $L_r = L_0 R_1 R_2$ (EQUATION 16-25)

WHERE: • $(12 \leq L_r \leq 20)$

• A_t = TRIBUTARY ROOF AREA IN SQUARE FEET BEING SUPPORTED (VARIES PER PLAN)

• $R_1 = 1.0$ ($A_t \leq 200$) (EQ. 16-26)

• R_1 = VARIES BETWEEN 1.0 & 0.6 ($200 \leq A_t \leq 600$)

• $R_1 = 0.6$ ($600 \leq A_t$) (EQ. 16-27)

} [R_1 ASSUMED TO BE 1.0 IN THIS GENERAL CALC., BUT VARIES IN SPECIFIC CALC.S.]

• F =SLOPE OF ROOF, NUMBER OF INCHES OF RISE PER FOOT = 1.00

• $R_2 = 1.0$ FOR ($F \leq 4$) (EQ. 16-29)

• $R_2 = 1.2 - 0.05 * F$ FOR ($4 \leq F \leq 12$) (EQ. 16-30)

• $R_2 = 0.6$ FOR ($12 \leq F$) (EQ. 16-31)

} [BASED ON THE TYP. ROOF SLOPE FOR THIS PROJECT] $R_2 = 1.00$

THUS: • $L_r = (20 \text{ PSF}) * (1.0 \text{ PSF}) * (1.00 \text{ PSF}) = \underline{\underline{20.0 \text{ PSF}}}$



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II. FLOOR LOADING

A. FLOOR DEAD LOAD CALCULATIONS:

SUMMARY OF FLOOR CONSTRUCTION MATERIALS AND WEIGHTS	
FLOORING MATERIAL:	2.0 PSF
1-1/8" T&G FLOOR SHEATHING:	3.4 PSF
MANUFACTURED WOOD FLOOR TRUSSES:	2.5 PSF
5/8" GYP. BOARD:	3.1 PSF
MECHANICAL & ELECTRICAL:	0.5 PSF
MISC.:	0.5 PSF
OTHER:	0.0 PSF
OTHER:	0.0 PSF
OTHER:	0.0 PSF
TOTAL:	12.0 PSF

B. FLOOR LIVE LOAD CALCULATIONS:

1. MIN. UNIFORMLY DISTRIBUTED LIVE LOADS, L_0 , FROM CBC 2010, TABLE 1607.1, AS FOLLOWS;

SUMMARY OF LIVE LOADS (L_0)	
RESIDENTIAL FLOOR OR DECK:	40 PSF
RESIDENTIAL BALCONY:	60 PSF
OTHER:	0 PSF
OTHER:	0 PSF

2. REDUCTION FOR LIVE LOADS, L , FROM CBC 2010, SECT. 1607.9 ARE AS FOLLOWS:

- MOZAFFARI ENGINEERING CHOOSES TO LEAVE ALL FLOOR LIVE LOADING UNREDUCED TO BE CONSERVATIVE. IF REDUCTIONS ARE NECESSARY FOR A MORE ECONOMICAL DESIGN, THOSE CALCULATIONS WILL BE PERFORMED ON A CASE BY CASE BASIS.



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III. WALL LOADING

A. EXTERIOR WALL DEAD LOAD CALCULATIONS:

SUMMARY OF WALL CONSTRUCTION MATERIALS AND WEIGHTS	
7/8" STUCCO FINISH:	10.0 PSF
3/8" PLYWOOD SHEATHING:	1.2 PSF
2x4 STUDS @ 16"O.C.:	1.0 PSF
1/2" GYP. BOARD:	2.5 PSF
INSULATION:	0.5 PSF
MISC.	0.8 PSF
OTHER:	0.0 PSF
OTHER:	0.0 PSF
OTHER:	0.0 PSF
TOTAL:	16.0 PSF

B. INTERIOR WALL DEAD LOAD CALCULATIONS:

SUMMARY OF WALL CONSTRUCTION MATERIALS AND WEIGHTS	
2x4 STUDS @ 16"O.C.:	1.0 PSF
TWO LAYERS OF 1/2" GYP. BOARD:	5.0 PSF
MISC.	0.5 PSF
OTHER:	0.0 PSF
OTHER:	0.0 PSF
OTHER:	0.0 PSF
TOTAL:	6.5 PSF

C. LIVE LOAD CALCULATIONS ON WALLS WILL BE PERFORMED BY MOZAFFARI ENG. AS REQUIRED.



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V. SEISMIC LOADING

A. SEISMIC IMPORTANCE FACTOR, I (PER ASCE 7, FIG 11.5-1)

• $I = 1.00$ (OCCUPANCY CATEGORY - TYPE II)

B. SITE CLASS (PER CBC 2010 TABLE 1613.5.2 OR SOILS REPORT)

• SITE CLASS DESIGNATION = D (STIFF SOIL PROFILE)

C. MAPPED SPECTRAL ACCELERATIONS, MCE (PER ASCE 7, FIGS. 22-1 TO 22-14 OR USGS SEISMIC VALUES)

• $S_s = 0.861$ (SEE ATTACHED PRINTOUT FROM USGS SEISMIC WEBSITE)

• $S_1 = 0.306$ (SEE ATTACHED PRINTOUT FROM USGS SEISMIC WEBSITE)

D. SPECTRAL RESPONSE COEFFICIENTS

• $F_a = 1.16$ (PER CBC 2010 TABLE 1613.5.3(1) OR ATTACHED USGS WEBSITE PRINTOUTS)

• $F_v = 1.79$ (PER CBC 2010 TABLE 1613.5.3(2) OR ATTACHED USGS WEBSITE PRINTOUTS)

E. MAXIMUM CONSIDERED EARTHQUAKE RESPONSE ACCELERATIONS:

• $S_{MS} = F_a * S_s = (1.16) * (0.861) = 0.99$ (PER CBC 2010, EQ. 16-36)

• $S_{M1} = F_v * S_1 = (1.79) * (0.306) = 0.55$ (PER CBC 2010, EQ. 16-37)

F. DESIGN SPECTRAL RESPONSE ACCELERATIONS:

• $S_{DS} = (2/3) * S_{MS} = (2/3) * (0.99) = 0.66$ (PER CBC 2010, EQ. 16-38)

• $S_{D1} = (2/3) * S_{M1} = (2/3) * (0.55) = 0.36$ (PER CBC 2010, EQ. 16-39)

G. SEISMIC DESIGN CATEGORY (PER CBC 2010 TABLES 1613.5.6(1-2))

• D (BASED ON S_{DS} VALUES & TYPE I, II, OR III OCCUPANCY; IF TYPE IV OCCUPANCY THEN D)

• D (BASED ON S_{D1} VALUES & TYPE I, II, OR III OCCUPANCY; IF TYPE IV OCCUPANCY THEN D)

H. RESPONSE MODIFICATION COEFFICIENT, R

• $R = 6.5$ (PER ASCE 7, TABLE 12.2-1)

I. SEISMIC RESPONSE COEFFICIENT, C_s (PER ASCE 7, SECT. 12.8.1)

• $C_s = S_{DS} / (R/I) = (0.66) / ((6.5) / (1.00)) = 0.10$ [BUT NOT LESS THEN 0.01]

NOTE: AN UPPER BOUND C_s CALCULATION WILL BE MANUALLY PERFORMED ON STRUCTURES THAT WARRANT THAT CHECK. IT WILL BE BASED ON EQUATION 12.8-3 & 12.8-4 OF ASCE 7

J. SEISMIC BASE SHEAR, V (PER ASCE 7, EQ. 12.8-1)

• $V = C_s * W = \underline{\underline{0.102 * W}}$



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VI. WIND LOADING (CBC 2010, SECTION 1609 - ASCE 7, SECTION 6.5, METHOD 2)

- A. BASIC WIND SPEED, V_{3S} (PER CBC 2010 FIG. 1609 OR LOCAL JURISDICTION)..... 85 MPH
- B. DIRECTIONALITY FACTOR, K_d (PER ASCE 7, TABLE 6-4)..... 0.85
- C. IMPORTANCE FACTOR, I (PER ASCE 7, TABLE 6-1)..... 1.00
OCCUPANCY CATEGORY - TYPE II
- D. SURFACE ROUGHNESS CATEGORY (PER CBC 2010, SECT. 1609.4.2)..... C
- E. EXPOSURE CATEGORY (PER CBC 2010, SECT. 1609.4.3)..... B
- F. VELOCITY PRESSURE EXPOSURE COEFFICIENT, K_z (PER ASCE 7, TABLE 6-3)..... $\begin{matrix} z=15 \text{ ft.} \\ 0.70 \end{matrix}$ $\begin{matrix} z=25 \text{ ft.} \\ 0.70 \end{matrix}$
- G. TOPOGRAPHIC FACTOR, K_{zt} (PER ASCE 7, SECT. 6.5.7)..... 1.00
[NOTE: 1.0 WILL BE USED, UNLESS THE STRUCTURE IS NEAR A KNOWN RIDGE OR ESCARPMENT. THEN ADDITIONAL CALCULATIONS WILL BE PROVIDED DETERMINING THE EXACT K_{zt} FACTOR]
- H. GUST EFFECT FACTOR, G (PER ASCE 7, SECT. 6.5.8)..... 0.85
- I. ENCLOSURE CLASSIFICATION (PER ASCE 7, SECT. 6.2)..... ENCLOSED
- J. INTERNAL PRESSURE COEFFICIENT, GC_{pi} (PER ASCE 7, FIG. 6-5)..... +/- 0.18
- K. EXT. PRESSURE COEFFICIENT WINDWARD SIDE, C_p (PER ASCE 7, FIGS. 6-6, 6-7, 6-8)..... 0.80
[NOTE: TO BE CONSERVATIVE AND TO SIMPLIFY CALCULATIONS, MOZAFFARI ENGINEERING WILL TAKE THE WORST CASE END ZONE ROOF OR WALL ELEMENT COEFFICIENT AND APPLY IT ACROSS THE ENTIRE STRUCTURE.]
- L. EXT. PRESSURE COEFFICIENT LEEWARD SIDE, C_p (PER ASCE 7, FIGS. 6-6, 6-7, 6-8)..... 0.50
[NOTE: TO BE CONSERVATIVE AND TO SIMPLIFY CALCULATIONS, MOZAFFARI ENGINEERING WILL TAKE THE WORST CASE END ZONE ROOF OR WALL ELEMENT COEFFICIENT AND APPLY IT ACROSS THE ENTIRE STRUCTURE.]

M. VELOCITY PRESSURE, q (PER ASCE 7, 6.5.10)
 $\bullet q = 0.00256 * K_z * K_{zt} * K_d * V^2 * I = (0.00256) * (0.70) * (1.00) * (0.85) * (85)^2 * (1.00) =$
 $\bullet q (15 \text{ ft.}) = 11.0 \text{ PSF} \quad \bullet q (25 \text{ ft.}) = 11.0 \text{ PSF}$

N. DESIGN WIND LOAD, P (PER ASCE 7, SECTS. 6.5.12 TO 6.5.15)
 $\bullet P = q * G * C_p - q * (GC_{pi}) = q * G * (C_{p(WINDWARD)} + C_{p(LEEWARD)}) + 2 * q * (GC_{pi})$

[NOTE: TO BE CONSERVATIVE AND TO SIMPLIFY CALCULATIONS, MOZAFFARI ENGINEERING WILL COMBINE THE WORST CASE END ZONE PRESSURE COEFFICIENTS FROM THE WINDWARD AND LEEWARD SIDES OF THE STRUCTURE AND APPLY THEM ACROSS THE ENTIRE STRUCTURE. THE STRUCTURE IS ROUGHLY REGULAR IN SHAPE, THEREFORE THE INTERNAL PRESSURES COUNTERACT EACH OTHER IN THE MAIN WIND FORCE-RESISTING CALCULATIONS, I.E. ARE 0.]

$\bullet P = (11.0) * (0.85) * (0.80 + 0.50) + 2 * (11.0) * (0.00) =$
 $\bullet P (15 \text{ ft.}) = \underline{\underline{12.2 \text{ PSF}}} \quad \bullet P (25 \text{ ft.}) = \underline{\underline{12.2 \text{ PSF}}}$



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VII. FOUNDATION DESIGN

A. ALLOWABLE SOIL PRESSURE PER CBC 2010, TABLE 1806.2 (OR GEOTECHNICAL REPORT BY OTHERS)

- $P_{ALLOWABLE} = 1,500$ PSF (CODE MIN.)
- GEO. REPORT INFO = (NO SOIL'S REPORT)
- ARE TYP. CONT. FOOTINGS ALLOWABLE? = YES (SEE CALCULATIONS BELOW.)

B. ALLOWABLE DISTRIBUTED LOADING ON TYPICAL CONTINUOUS FOOTING

1. GIVEN INFORMATION:
- WIDTH OF FOOTING = 12 INCHES
 - DEPTH OF FOOTING = 12 INCHES
 - FOUNDATION THICKNESS OVER FOOTING = 0 INCHES

2. $W_{ALLOWABLE} = (\text{WIDTH OF FOOTING}) * (P_{ALLOWABLE}) = (12 \text{ IN}) * (1,500 \text{ PSF}) = \underline{\underline{1,500 \text{ PLF}}}$

C. CHECK WORST CASE CONTINUOUS FOOTING SITUATION TO VERIFY FOOTING DESIGN

1. LOADING ON CONTINUOUS FOOTING (WALL LINE ???)

	<u>TRIBUTARY AREA</u>	<u>DEAD LOAD+LIVE LOAD</u>	<u>TOTAL LOAD</u>
• ROOF LOAD =	(15 FT / 2)	*(13 PSF + 20 PSF)	= 248 PLF
• WALL LOAD =	(8 FT HIGH)	*(16 PSF + 0 PSF)	= 128 PLF
• FLOOR LOAD =	(7.5 FT / 2)	*(12 PSF + 40 PSF)	= 195 PLF
• MISC LOAD =			<u>0 PLF</u>
			TOTAL LOAD (PLF) = <u><u>571</u></u> < 1,500

THUS, CONTINUOUS FOOTING DESIGN IS SUFFICIENT.

D. ALLOWABLE CONCENTRATED LOADING ON TYPICAL CONTINUOUS FOOTING

1. GIVEN INFORMATION:
- WIDTH OF FOOTING = 12 INCHES
 - DEPTH OF FOOTING = 12 INCHES
 - FOUNDATION THICKNESS OVER FOOTING = 0 INCHES

2. $C_{ALLOWABLE} = (\text{WIDTH OF FT'G}) * (\text{DEPTH OF FT'G} + \text{FOUND. THICK. OV. FT'G}) * 2 * (P_{ALLOWABLE}) =$
 $C_{ALLOWABLE} = (12 \text{ IN}) * (12 \text{ IN} + 0 \text{ IN}) * 2 * (1,500) = \underline{\underline{3,000 \text{ LBS}}}$

NOTE: CONCENTRATED LOADING CHECKS WILL BE PERFORMED ON A CASE BY CASE BASIS DURING THE DESIGN PROCESS. WHERE CONCENTRATED LOADS EXCEED THE CALCULATED $C_{ALLOWABLE}$ VALUE, ADDITIONAL CALCULATIONS WILL BE PROVIDED FOR A SPREAD FOOTING.

USGS

Conterminous 48 States
2005 ASCE 7 Standard
Latitude = 37.587
Longitude = -120.96000000000001
Spectral Response Accelerations Ss and S1
Ss and S1 = Mapped Spectral Acceleration Values
Site Class B - Fa = 1.0 ,Fv = 1.0
Data are based on a 0.01 deg grid spacing

Period (sec)	Sa (g)	
0.2	0.861	(Ss, site Class B)
1.0	0.306	(S1, Site Class B)

Conterminous 48 States
2005 ASCE 7 Standard
Latitude = 37.587
Longitude = -120.96000000000001
Spectral Response Accelerations SMS and SM1
SMS = Fa x Ss and SM1 = Fv x S1
Site Class D - Fa = 1.155 ,Fv = 1.787

Period (sec)	Sa (g)	
0.2	0.995	(SMS, Site Class D)
1.0	0.547	(SM1, Site Class D)

Conterminous 48 States
2005 ASCE 7 Standard
Latitude = 37.587
Longitude = -120.96000000000001
Design Spectral Response Accelerations SDs and SD1
SDs = 2/3 x SMS and SD1 = 2/3 x SM1
Site Class D - Fa = 1.155 ,Fv = 1.787

Period (sec)	Sa (g)	
0.2	0.663	(SDs, Site Class D)
1.0	0.365	(SD1, Site Class D)



MOZAFFARI ENGINEERING
1500 F STREET
MODESTO, CA. 95354

Title :
Dsgnr:
Project Desc.:

Project Notes :

Job #

Printed: 6 JUL 2011, 8:29AM

Project Information

ENERCALC, INC. 1983-2011, Build:6.11.6.23, Ver:6.11.4.1

Fig # : KW06004350

Licensee : mozaffari engineering

Project Title : REYNOLDS ADDITION

Description : REMOVE AND REPLACE AREA

I.D. : 5843-11

Address : 2008 HACKETT AVE., CERES, CA

Project Leader : ANDRE MOZAFFARI

Phone :

Fax :

eMail :

Project Notes



MOZAFFARI ENGINEERING
1500 F STREET
MODESTO, CA. 95354

Title : REYNOLDS ADDITION
Dsgnr: ANDRE MOZAFFARI
Project Desc.: REMOVE AND REPLACE AREA

Job # 5843-11

Project Notes :

Printed: 6 JUL 2011, 8:59AM

Wood Beam

ENERCALC, INC: 1983-2011, Build:6.11.6.23, Ver:6.11.4.1

License #: KW-06001356

Licensee: mozafradengrincalco

Description : ROOF JOISTS

Material Properties

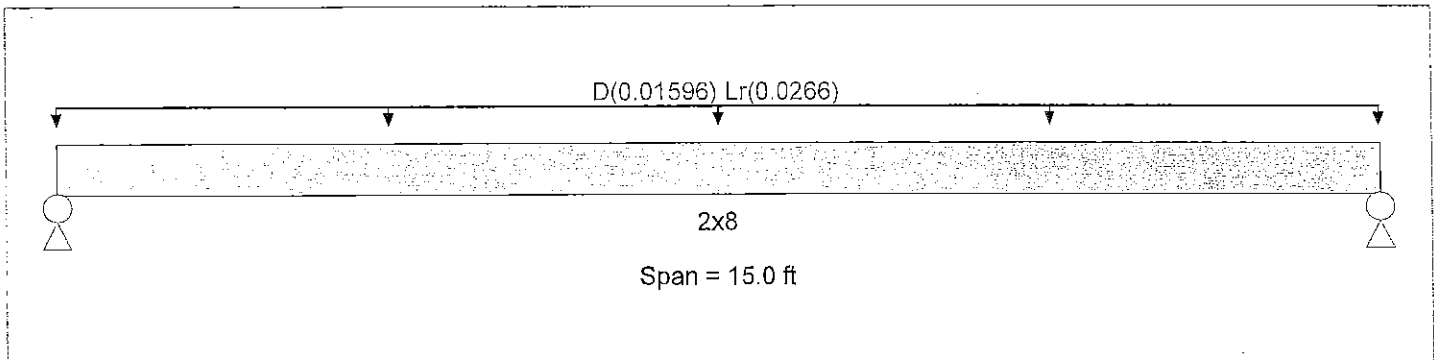
Calculations per NDS 2005, IBC 2009, CBC 2010, ASCE 7-05

Analysis Method : Allowable Stress Design
Load Combination 2006 IBC & ASCE 7-05

Fb - Tension 1,000.0 psi E : Modulus of Elasticity
Fb - Compr 1,000.0 psi Ebend-xx 1,700.0ksi
Fc - Prll 1,500.0 psi Eminbend -xx 620.0ksi
Fc - Perp 625.0 psi
Fv 180.0 psi
Ft 675.0 psi
Density 32.210pcf
Repetitive Member Stress Increase

Wood Species : Douglas Fir - Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsion buckling



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.0120, Lr = 0.020 ksf, Tributary Width = 1.330 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.792	1	Maximum Shear Stress Ratio	=	0.225	1
Section used for this span		2x8		Section used for this span		2x8	
fb : Actual	=	1,093.10	psi	f _v : Actual	=	40.51	psi
FB : Allowable	=	1,380.00	psi	F _v : Allowable	=	180.00	psi
Load Combination	=	+D+Lr+H		Load Combination	=	+D+Lr+H	
Location of maximum on span	=	7.500ft		Location of maximum on span	=	14.400ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward L+Lr+S Deflection		0.377	in	Ratio =		477	
Max Upward L+Lr+S Deflection		0.000	in	Ratio =		0 < 360	
Max Downward Total Deflection		0.603	in	Ratio =		298	
Max Upward Total Deflection		0.000	in	Ratio =		0 < 180	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
			M	V	C _d	C _{F/V}	C _r	C _m	C _t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D	Length = 15.0 ft	1	0.297	0.084	1.000	1.200	1.150	1.000	1.000	0.45	409.91	1,380.00	0.11	15.19	180.00
+D+Lr+H	Length = 15.0 ft	1	0.792	0.225	1.000	1.200	1.150	1.000	1.000	1.20	1,093.10	1,380.00	0.29	40.51	180.00
+D+0.750Lr+0.750L+H	Length = 15.0 ft	1	0.668	0.190	1.000	1.200	1.150	1.000	1.000	1.01	922.30	1,380.00	0.25	34.18	180.00
+D+0.750Lr+0.750L+0.750W+H	Length = 15.0 ft	1	0.668	0.190	1.000	1.200	1.150	1.000	1.000	1.01	922.30	1,380.00	0.25	34.18	180.00
+D+0.750Lr+0.750L+0.5250E+H	Length = 15.0 ft	1	0.668	0.190	1.000	1.200	1.150	1.000	1.000	1.01	922.30	1,380.00	0.25	34.18	180.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+Lr	1	0.6034	7.575		0.0000	0.000



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ENERCALC, INC. 1983-2011, Build:6.11.6.23, Ver:6.11.4.1

File #: KW06001350

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Description: ROOF JOISTS

Maximum Deflections for Load Combinations - Unfactored Loads

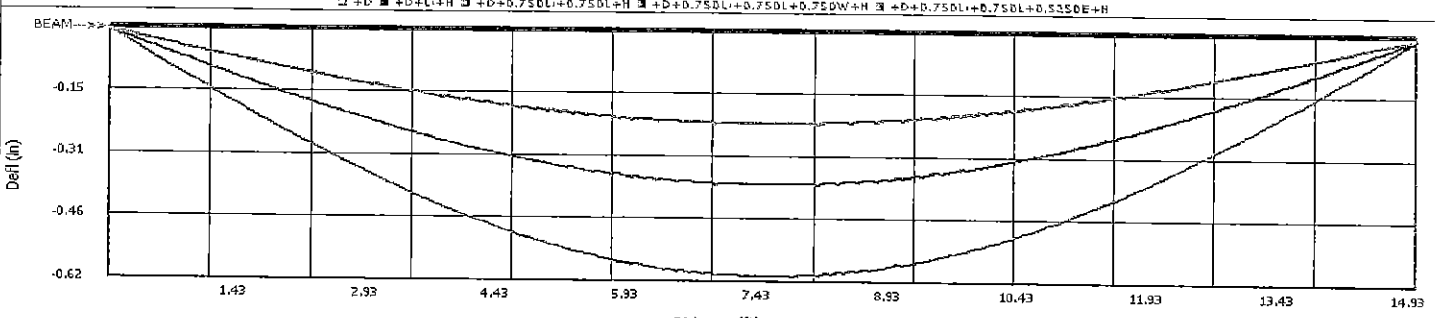
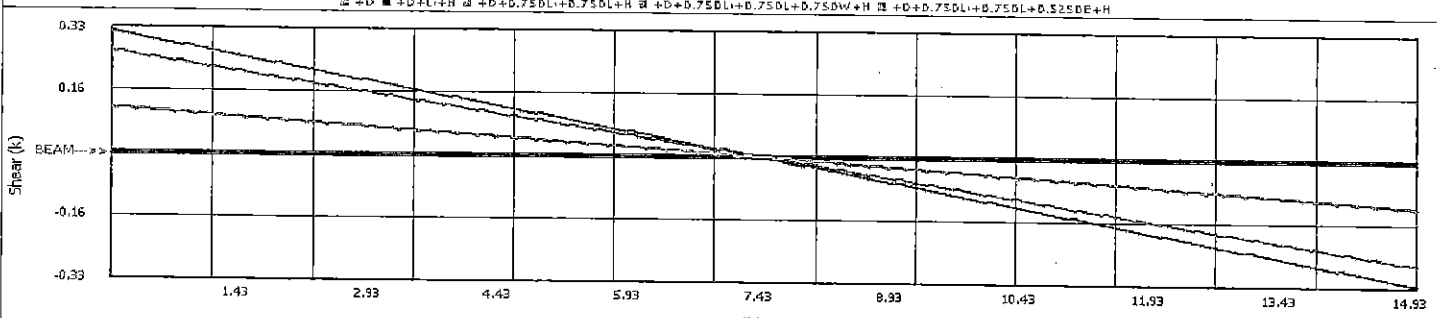
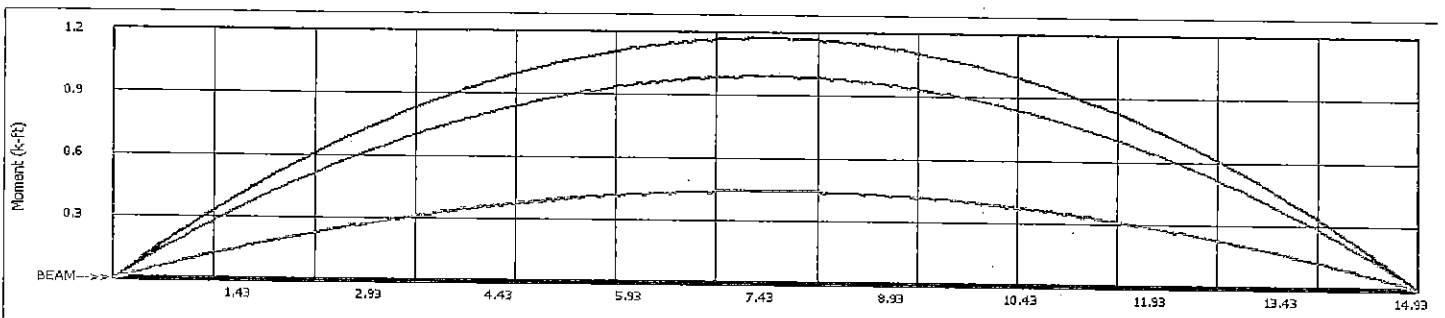
Load Combination	Span	Max. Downward Defl	Location in Span	Max. Upward Defl	Location in Span
D Only	1	0.2263	7.575	0.0000	0.000
Lr Only	1	0.3772	7.575	0.0000	0.000
D+Lr	1	0.6034	7.575	0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.319	0.319
D Only	0.120	0.120
Lr Only	0.200	0.200
D+Lr	0.319	0.319



Legend: □ D Only ■ Lr Only ▣ D+Lr



MOZAFFARI ENGINEERING
1500 F STREET
MODESTO, CA. 95354

Title : REYNOLDS ADDITION
Dsgnr: ANDRE MOZAFFARI
Project Desc.: REMOVE AND REPLACE AREA

Job # 5843-11

Project Notes :

Printed: 6 JUL 2011, 8:59AM

Wood Beam

ENERCALC, INC. 1983-2011, Build:6.11.6.23, Ver:6.11.4.1

File # : KW-06001350

License: mozaffari@mozaengineering.com

Description : FLOOR JOISTS

Material Properties

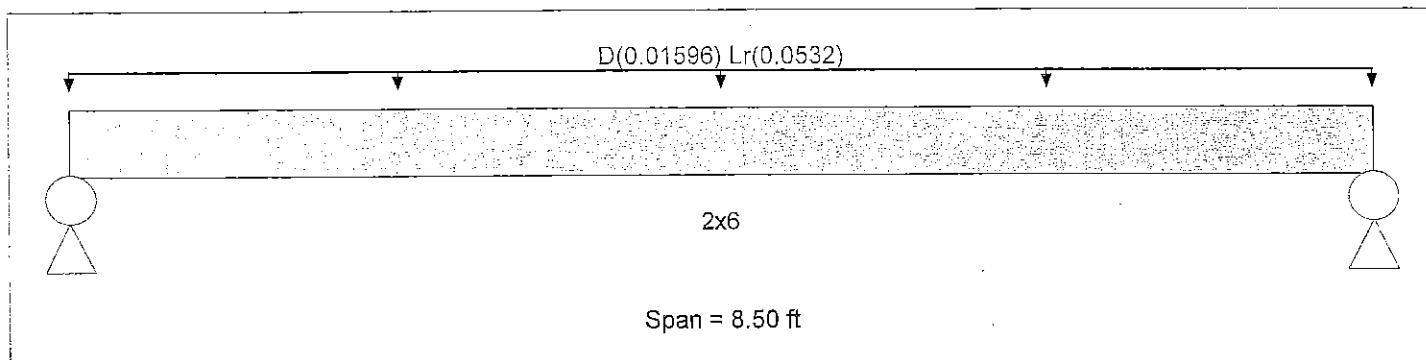
Calculations per NDS 2005, IBC 2009, CBC 2010, ASCE 7-05

Analysis Method : Allowable Stress Design
Load Combination 2006 IBC & ASCE 7-05

Fb - Tension 1,000.0 psi E : Modulus of Elasticity
Fb - Compr 1,000.0 psi Ebend-xx 1,700.0ksi
Fc - Prll 1,500.0 psi Eminbend - xx 620.0ksi
Fc - Perp 625.0 psi
Fv 180.0 psi
Ft 675.0 psi
Density 32.210pcf
Repetitive Member Stress Increase

Wood Species : Douglas Fir - Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsion buckling



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.0120, Lr = 0.040 ksf, Tributary Width = 1.330 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.663	1	Maximum Shear Stress Ratio	=	0.267	1
Section used for this span		2x6		Section used for this span		2x6	
fb : Actual	=	991.10psi		f _v : Actual	=	48.10 psi	
FB : Allowable	=	1,495.00psi		Fv : Allowable	=	180.00 psi	
Load Combination		+D+Lr+H		Load Combination		+D+Lr+H	
Location of maximum on span	=	4.250ft		Location of maximum on span	=	8.075ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward L+Lr+S Deflection		0.178 in	Ratio =	572			
Max Upward L+Lr+S Deflection		0.000 in	Ratio =	0 < 360			
Max Downward Total Deflection		0.232 in	Ratio =	440			
Max Upward Total Deflection		0.000 in	Ratio =	0 < 180			

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
			M	V	C _d	C _{FV}	C _r	C _m	C _t	Mactual	fb-design	Fb-allow	Vactual	f _v -design	Fv-allow
+D	Length = 8.50 ft	1	0.153	0.062	1.000	1.300	1.150	1.000	1.000	0.14	228.72	1,495.00	0.06	11.10	180.00
+D+Lr+H	Length = 8.50 ft	1	0.663	0.267	1.000	1.300	1.150	1.000	1.000	0.62	991.10	1,495.00	0.26	48.10	180.00
+D+0.750Lr+0.750L+H	Length = 8.50 ft	1	0.535	0.216	1.000	1.300	1.150	1.000	1.000	0.50	800.51	1,495.00	0.21	38.85	180.00
+D+0.750Lr+0.750L+0.750W+H	Length = 8.50 ft	1	0.535	0.216	1.000	1.300	1.150	1.000	1.000	0.50	800.51	1,495.00	0.21	38.85	180.00
+D+0.750Lr+0.750L+0.5250E+H	Length = 8.50 ft	1	0.535	0.216	1.000	1.300	1.150	1.000	1.000	0.50	800.51	1,495.00	0.21	38.85	180.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. " Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+Lr	1	0.2316	4.293		0.0000	0.000



Wood Beam

ENERCALC, INC. 1983-2011, Build:6.11.6.23, Ver:6.11.4.1

License #: KW-06007350

Licensee: mozaafari engineering

Description : FLOOR JOISTS

Maximum Deflections for Load Combinations - Unfactored Loads

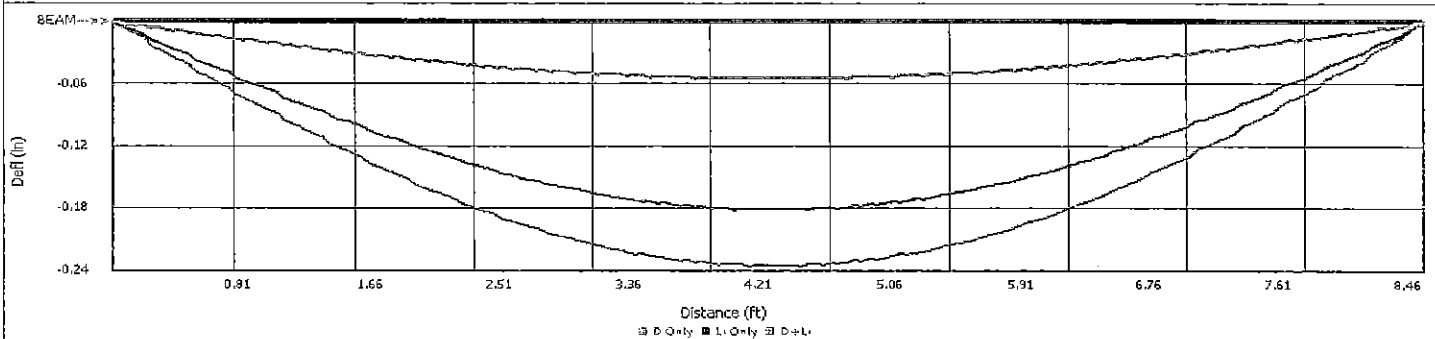
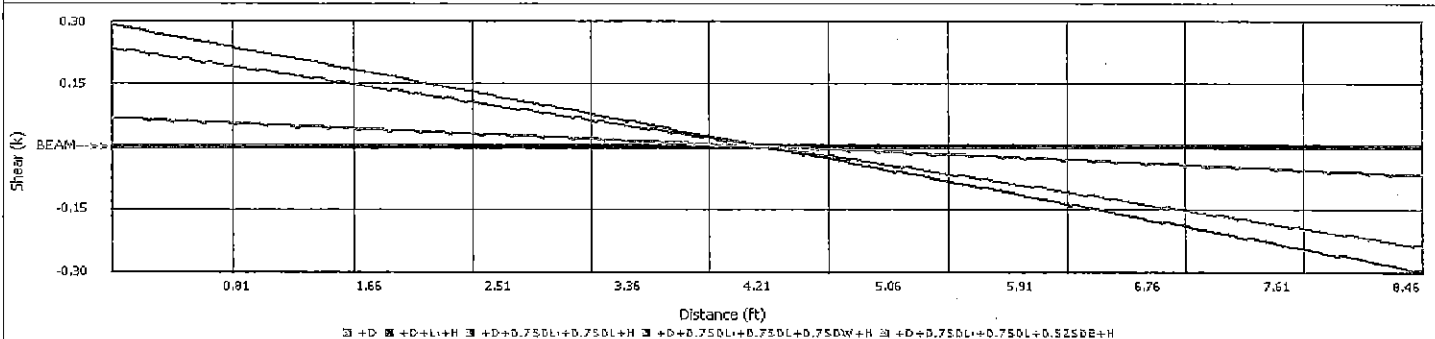
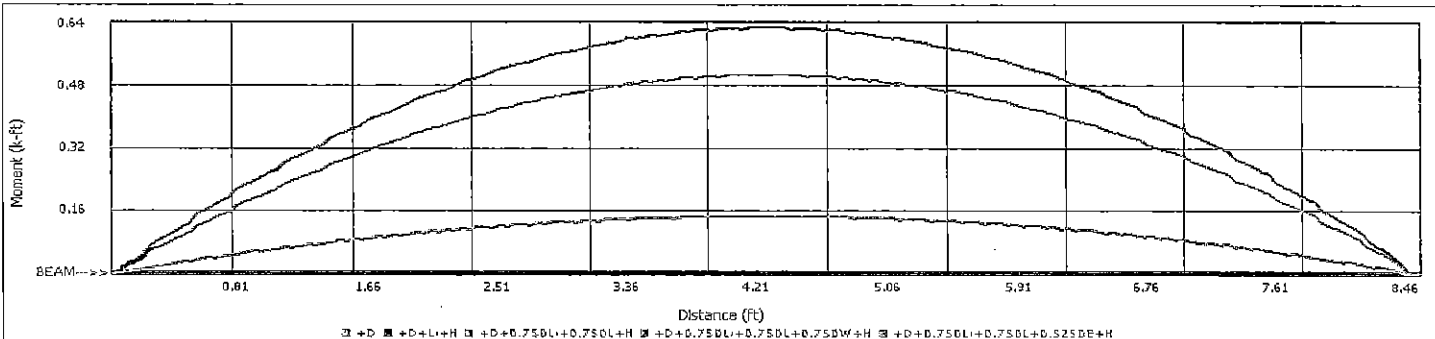
Load Combination	Span	Max. Downward Defl	Location In Span	Max. Upward Defl	Location In Span
D Only	1	0.0534	4.293	0.0000	0.000
Lr Only	1	0.1781	4.293	0.0000	0.000
D+Lr	1	0.2316	4.293	0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.294	0.294
D Only	0.068	0.068
Lr Only	0.226	0.226
D+Lr	0.294	0.294





Wood Beam

ENERCALC, INC. 1983-2011, Build:6.11.6.23, Ver:6.11.4.1

File #: KW/06001350

Licensee: mozaffari engineering

Description : FLOOR GIRDER

Material Properties

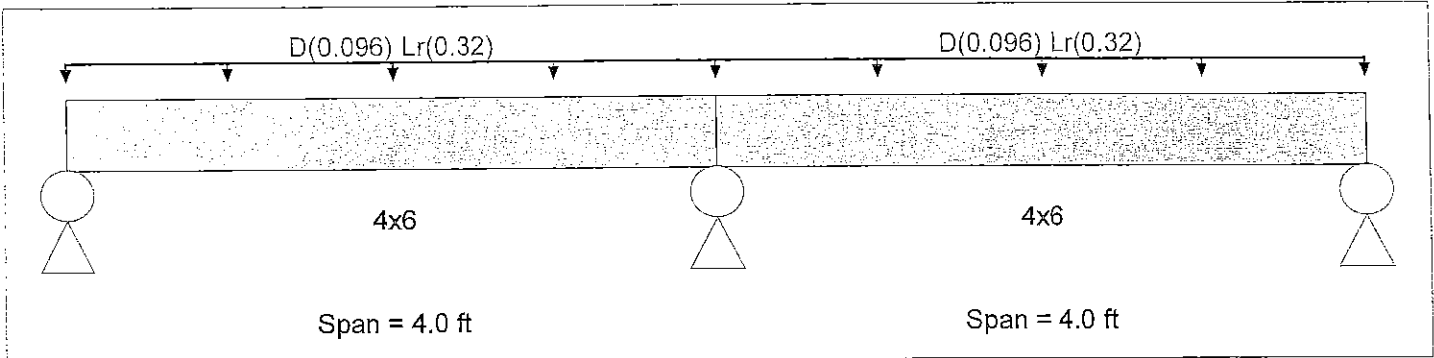
Calculations per NDS 2005, IBC 2009, CBC 2010, ASCE 7-05

Analysis Method : Allowable Stress Design
Load Combination 2006 IBC & ASCE 7-05

Fb - Tension	1,000.0 psi	E : Modulus of Elasticity	
Fb - Compr	1,000.0 psi	Ebend-xx	1,700.0ksi
Fc - Prll	1,500.0 psi	Eminbend-xx	620.0ksi
Fc - Perp	625.0 psi		
Fv	180.0 psi		
Ft	675.0 psi	Density	32.210pcf

Wood Species : Douglas Fir - Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsion buckling



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Load for Span Number 1

Uniform Load : D = 0.0120, Lr = 0.040 ksf, Tributary Width = 8.0 ft

Load for Span Number 2

Uniform Load : D = 0.0120, Lr = 0.040 ksf, Tributary Width = 8.0 ft

DESIGN SUMMARY

Maximum Bending Stress Ratio	=	0.435	1	Maximum Shear Stress Ratio	=	0.373	1
Section used for this span		4x6		Section used for this span		4x6	
fb : Actual	=	565.80psi		f _v : Actual	=	67.08 psi	
FB : Allowable	=	1,300.00psi		F _v : Allowable	=	180.00 psi	
Load Combination		+D+Lr+H		Load Combination		+D+Lr+H	
Location of maximum on span	=	4.000ft		Location of maximum on span	=	4.000ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward L+Lr+S Deflection		0.009 in	Ratio =	5088			
Max Upward L+Lr+S Deflection		0.000 in	Ratio =	0 <360			
Max Downward Total Deflection		0.012 in	Ratio =	3914			
Max Upward Total Deflection		0.000 in	Ratio =	0 <180			

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios							Summary of Moment Values			Summary of Shear Values			
			M	V	C _d	C _{F/V}	C _r	C _m	C _t	Mactual	fb-design	Fb-allow	Vactual	f _v -design	F _v -allow	
+D																
	Length = 4.0 ft	1	0.100	0.086	1.000	1.300	1.000	1.000	1.000	-0.19	130.57	1,300.00	0.20	15.48	180.00	
	Length = 4.0 ft	2	0.100	0.086	1.000	1.300	1.000	1.000	1.000	-0.19	130.57	1,300.00	0.20	15.48	180.00	
+D+Lr+H																
	Length = 4.0 ft	1	0.435	0.373	1.000	1.300	1.000	1.000	1.000	-0.83	565.80	1,300.00	0.86	67.08	180.00	
	Length = 4.0 ft	2	0.435	0.373	1.000	1.300	1.000	1.000	1.000	-0.83	565.80	1,300.00	0.86	67.08	180.00	
+D+0.750Lr+0.750L+H																
	Length = 4.0 ft	1	0.352	0.301	1.000	1.300	1.000	1.000	1.000	-0.67	456.99	1,300.00	0.70	54.18	180.00	
	Length = 4.0 ft	2	0.352	0.301	1.000	1.300	1.000	1.000	1.000	-0.67	456.99	1,300.00	0.70	54.18	180.00	
+D+0.750Lr+0.750L+0.750W+H																
	Length = 4.0 ft	1	0.352	0.301	1.000	1.300	1.000	1.000	1.000	-0.67	456.99	1,300.00	0.70	54.18	180.00	
	Length = 4.0 ft	2	0.352	0.301	1.000	1.300	1.000	1.000	1.000	-0.67	456.99	1,300.00	0.70	54.18	180.00	



Wood Beam

ENERCALC, INC. 1983-2011, Build:6.11.6.23, Ver:6.11.4.1

File #: KW-06001350

Licensee: mozaffari engineering

Description : FLOOR GIRDER

Load Combination	Segment Length	Span #	Max Stress Ratios		C _d	C _{FV}	C _r	C _m	C _t	Summary of Moment Values			Summary of Shear Values		
			M	V						Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
-D+0.750Lr+0.750L+0.5250E+H															
	Length = 4.0 ft	1	0.352	0.301	1.000	1.300	1.000	1.000	1.000	-0.67	456.99	1,300.00	0.70	54.18	180.00
	Length = 4.0 ft	2	0.352	0.301	1.000	1.300	1.000	1.000	1.000	-0.67	456.99	1,300.00	0.70	54.18	180.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "+" Defl	Location in Span	Load Combination	Max. "-" Defl	Location in Span
D+Lr	1	0.0123	1.692	D+Lr	0.0000	0.000
D+Lr	2	0.0121	2.338		0.0000	0.000

Maximum Deflections for Load Combinations - Unfactored Loads

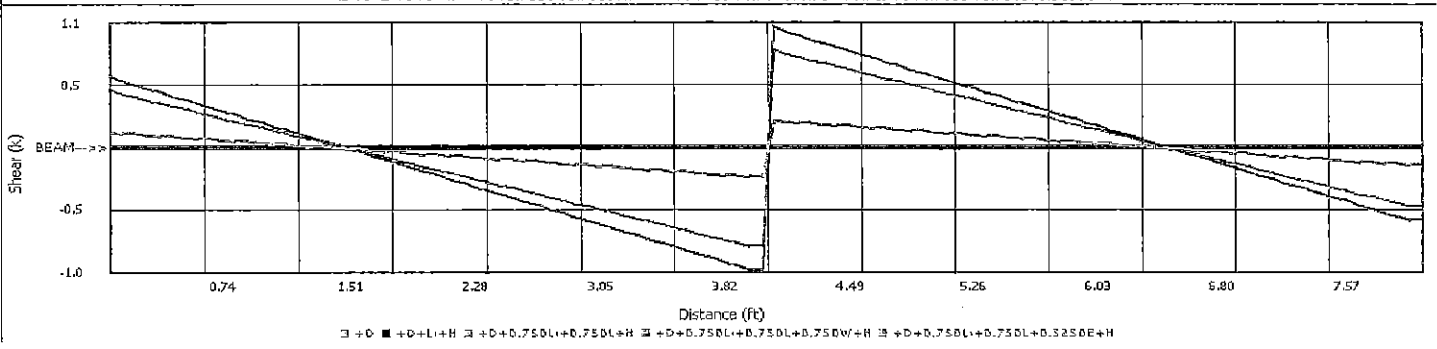
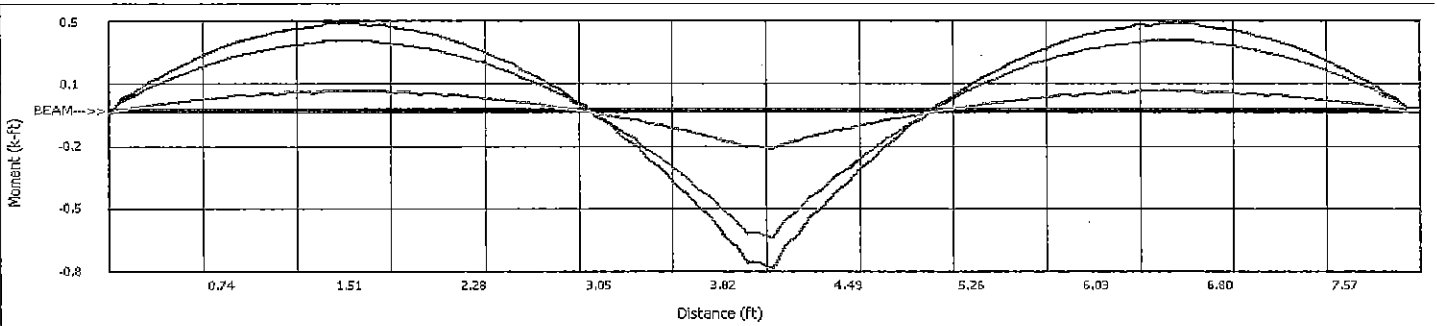
Load Combination	Span	Max. Downward Defl	Location in Span	Max. Upward Defl	Location in Span
D Only	1	0.0028	1.692	0.0000	0.000
D Only	2	0.0028	2.338	0.0000	0.000
Lr Only	1	0.0094	1.692	0.0000	0.000
Lr Only	2	0.0093	2.338	0.0000	0.000
D+Lr	1	0.0123	1.692	0.0000	0.000
D+Lr	2	0.0121	2.338	0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.624	2.080	0.624
D Only	0.144	0.480	0.144
Lr Only	0.480	1.600	0.480
D+Lr	0.624	2.080	0.624





MOZAFFARI ENGINEERING
1500 F STREET
MODESTO, CA. 95354

Title : REYNOLDS ADDITION
Dsgnr: ANDRE MOZAFFARI
Project Desc.: REMOVE AND REPLACE AREA

Job # 5843-11

Project Notes :

Printed: 6 JUL 2011, 9:01AM

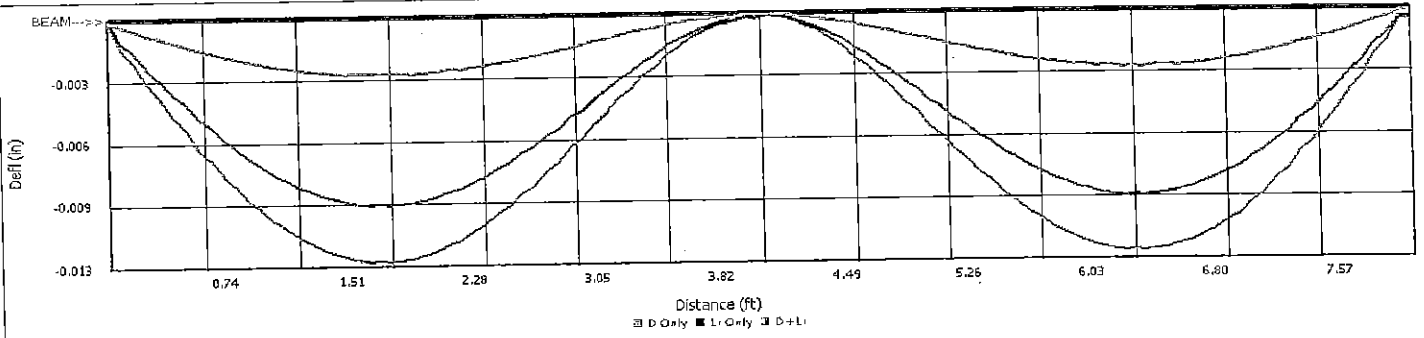
Wood Beam

ENERCALC, INC. 1983-2011, Build:8.11.6.23, Ver:6.11.4.1

Project: KW-06001350

Licensee: mozaffariengineering

Description : FLOOR GIRDER





General Footing

ENERCALC, INC. 1983-2011, Build:6.11.6.23, Ver:6.11.4.1

File #: KW-06001350

Licensee: mozaffari engineering

Description : --FLOOR GIRDER

General Information

Calculations per ACI 318-08, IBC 2009, CBC 2010, ASCE 7-05

Material Properties

f_c : Concrete 28 day strength	=	2.50	ksi
f_y : Rebar Yield	=	60.0	ksi
E_c : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
ϕ Values Flexure	=	0.90	
Shear	=	0.750	

Soil Design Values

Allowable Soil Bearing	=	1.50	ksf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	250.0	pcf
Soil/Concrete Friction Coeff.	=	0.30	

Analysis Settings

Min Steel % Bending Reinf.	=	0.00140	
Min Allow % Temp Reinf.	=	0.00180	
Min. Overturning Safety Factor	=	1.50 : 1	
Min. Sliding Safety Factor	=	1.50 : 1	
Add Ftg Wt for Soil Pressure	:	Yes	
Use ftg wt for stability, moments & shears :	:	Yes	
Include Pedestal Weight as DL	:	No	

Increases based on footing Depth

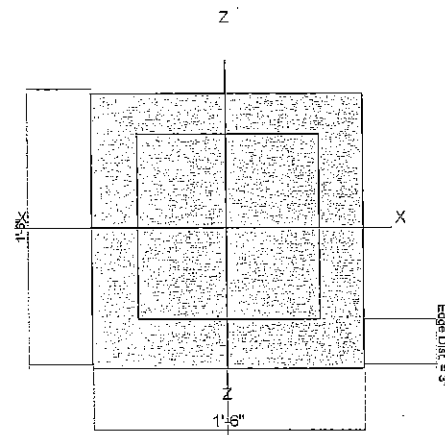
Footing base depth below soil surface	=		ft
Allowable pressure increase per foot of dept	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of dept	=		ksf
when maximum length or width is greater	=		ft

Dimensions

Width parallel to X-X Axis	=	1.50	ft
Length parallel to Z-Z Axis	=	1.50	ft
Footing Thicknes	=	12.0	in

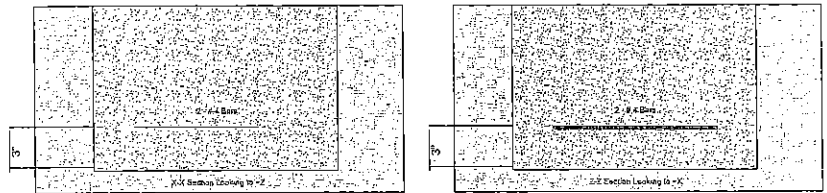


Pedestal dimensions...

p_x : parallel to X-X Axis	=		in
p_z : parallel to Z-Z Axis	=		in
Height	=		in
Rebar Centerline to Edge of Concrete.. at Bottom of footing	=	3.0	in

Reinforcing

Bars parallel to X-X Axis	=		
Number of Bars	=	2.0	
Reinforcing Bar Size	=	# 4	
Bars parallel to Z-Z Axis	=		
Number of Bars	=	2.0	
Reinforcing Bar Size	=	# 4	



Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	=	n/a	
# Bars required within zone	=	n/a	
# Bars required on each side of zone	=	n/a	

Applied Loads

	D	L _r	L	S	W	E	H
P : Column Load	=	0.50	1.60				k
OB : Overburden	=						ksf
M-xx	=						k-ft
M-zz	=						k-ft
V-x	=						k
V-z	=						k



MOZAFFARI ENGINEERING
1500 F STREET
MODESTO, CA. 95354

Title: REYNOLDS ADDITION
Dsgnr: ANDRE MOZAFFARI
Project Desc.: REMOVE AND REPLACE AREA

Job # 5843-11

Project Notes :

Printed: 6 JUL 2011, 9:03AM

General Footing

ENERCALC, INC. 1983-2011, Build:6.11.6.23, Ver:6.11.4.1

File: KW:06901350

Licensee: mozaffari engineering

Description : -FLOOR GIRDER



DESIGN SUMMARY

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.7187	Soil Bearing	1.078 ksf	1.50 ksf	+D+L+H
PASS	n/a	Overturing - X-X	0.0 k-ft	0.0 k-ft	No Overturing
PASS	n/a	Overturing - Z-Z	0.0 k-ft	0.0 k-ft	No Overturing
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.03789	Z Flexure (+X)	0.3949 k-ft	10.424 k-ft	+1.20D+0.50Lr+1.60L+1.60H
PASS	0.03789	Z Flexure (-X)	0.3949 k-ft	10.424 k-ft	+1.20D+0.50Lr+1.60L+1.60H
PASS	0.03789	X Flexure (+Z)	0.3949 k-ft	10.424 k-ft	+1.20D+0.50Lr+1.60L+1.60H
PASS	0.03789	X Flexure (-Z)	0.3949 k-ft	10.424 k-ft	+1.20D+0.50Lr+1.60L+1.60H
PASS	n/a	1-way Shear (+X)	0.0 psi	75.0 psi	n/a
PASS	0.0	1-way Shear (-X)	0.0 psi	0.0 psi	n/a
PASS	n/a	1-way Shear (+Z)	0.0 psi	75.0 psi	n/a
PASS	n/a	1-way Shear (-Z)	0.0 psi	75.0 psi	n/a
PASS	n/a	2-way Punching	7.379 psi	75.0 psi	+1.20D+0.50Lr+1.60L+1.60H

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc	+Z	Actual Soil Bearing Stress			Actual / Allowable Ratio
					+Z	-X	-X	

Overturing Stability

Rotation Axis & Load Combination...	Overturing Moment	Resisting Moment	Stability Ratio	Status
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Footing Has NO Overturing

Sliding Stability

All units k

Force Application Axis Load Combination...

Sliding Force

Resisting Force

Sliding SafetyRatio

Status

Footing Has NO Sliding
Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Which Side ?	Tension @ Bot. or Top ?	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
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One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
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Punching Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
---------------------	----	--------	-------------	--------



MOZAFFARI ENGINEERING
STRUCTURAL CALCULATIONS
C.B.C. 2010

JOB NO.:	5843-11
DATE:	7/6/2011

PROJECT TITLE: REYNOLDS

C.B.C. LATERAL ANALYSIS:

GIVEN VALUES:

SEISMIC COEFFICIENT	=	0.102	(FROM SUMMARY OF DESIGN LOADS SHEET.)
RHO (ρ):	=	1.30	(PER ASCE 7, SECTION 12.3.4)
$0.7 * \rho * \text{SEISMIC COEFFICIENT}$	=	0.093	(PER ASCE 7, 12.4.2.3 & CBC 2010 SECT. 1605.3.1)
ROOF DEAD LOAD	=	12 PSF	(FROM SUMMARY OF DESIGN LOADS SHEET.)
WALL DEAD LOAD	=	16 PSF	(FROM SUMMARY OF DESIGN LOADS SHEET.)
SNOW LOAD=(0 PSF) *(0%)=	=	0 PSF	(FROM SUMMARY OF DESIGN LOADS SHEET.)
WIND FORCE (BELOW 15')	=	12.2 PSF	(FROM SUMMARY OF DESIGN LOADS SHEET.)
WIND FORCE (ABOVE 15')	=	12.2 PSF	(FROM SUMMARY OF DESIGN LOADS SHEET.)
S_{DS} (PER CBC 2010, EQ. 16-38)	=	0.66	(FROM SUMMARY OF DESIGN LOADS SHEET.)
$(0.6 - 0.14 * S_{DS})$	=	0.51	(FROM ASCE 7, SECTION 12.4.2.3 - EQ. 8)

GENERAL EQUATIONS: [UNITS: LENGTH - FEET, WEIGHT & FORCE - LBS OR PSF]

$$V_{EQ} = \text{TRIBUTARY WIDTH} * 0.7 * \rho * \text{SEISMIC COEF.} * \text{WEIGHT}$$

$$V_W = \text{TRIBUTARY WIDTH} * \text{WIND FORCE} * \text{TRIBUTARY HEIGHT}$$

$$v (EQ) = \text{WORST CASE OF: } (V_{EQ} * \text{RELATIVE SHEARWALL STIFFNESS} / \text{WALL LENGTH}) / \text{H:W ADJ.}$$

$$v (W) = \text{WORST CASE OF: } V_W * \text{RELATIVE SHEARWALL STIFFNESS} / \text{WALL LENGTH}$$

RELATIVE WALL STIFFNESS IS CALCULATED PER NDS SDPWS SECTION 4.3.2 AS REQUIRED BY SECTION 4.3.3.4

$$\text{H:W ADJ.} = 2 * \text{SHEAR WALL LENGTH} / \text{SHEAR WALL HEIGHT} \text{ FOR } 2:1 < \text{HEIGHT} / \text{LENGTH} \leq 3.5:1$$

PER NDS SDPWS TABLE 4.3.4

$$\text{UPLIFT} = \text{MAXIMUM OF UPLIFT}_{EQ} \text{ AND UPLIFT}_E$$

$$\text{UPLIFT}_{EQ} = v (EQ) * \text{WALL HEIGHT} - (0.6 - 0.14S_{DS}) * 1/2 * \text{DEAD LOAD [PLF]} * \text{WALL LENGTH}$$

$$\text{UPLIFT}_W = v (W) * \text{WALL HEIGHT} - 0.6 * 1/2 * \text{DEAD LOAD [PLF]} * \text{WALL LENGTH}$$

PERF = PERFORATED SHEAR WALL PER NDS SDPWS SECTION 4.3.3.5

F-T = FORCE-TRANSFER SHEAR WALL PER NDS SDPWS SECTION 4.3.5.2



MOZAFFARI ENGINEERING
STRUCTURAL CALCULATIONS
C.B.C. 2010


JOB NO.:	5843-11
DATE:	07/06/11

C.B.C. LATERAL ANALYSIS CONTINUED:

[**GRIDLINE 1**]

VEQ1 =	1/2 * 24.0 ft* 0.093 * [15.0 ft* 12 psf+ 2 * 4.0 ft* 16 psf]	=	343 #
VEQ2 =	1/2 * 0.0 ft* 0.093 * [0.0 ft* 12 psf+ 0 * 0.0 ft* 16 psf]	=	0 #
VEQ3 =	1/2 * 0.0 ft* 0.093 * [0.0 ft* 12 psf+ 0 * 0.0 ft* 16 psf]	=	0 #
VEQ = VEQ1 + VEQ2 + VEQ3 =	343 #+ 0 #+ 0 #+ 0	=	343 # (misc.)
Seismic Comments:			


VW1 =	1/2 * 24.0 ft* 12.2 psf*[10.0 ft - 4.0 ft]	=	878 #
VW2 =	1/2 * 0.0 ft* 12.2 psf*[0.0 ft - 0.0 ft]	=	0 #
VW = VW1 + VW2 =	878 #+ 0 #+ 0 #	=	878 # (misc.)
Winds Comments:			

S.W. Length (ft) =	5.00	0.00	0.00	0.00	0.00	Total S.W. Length =	5.00	ft
S.W. Height (ft) =	8.00							
v (W) (plf) =	176					Max v (W) =	176	plf
v (EQ) (plf) =	69					Max v (EQ) =	69	plf
Dead Load (plf) =	150							
Uplift (lbs) =	1,180					H:W ADI =	1.00	
Add'l Uplift (lbs) =	0							
Total Uplift (lbs) =	1,180					Use S.W. Type		
Holdown	HDU2							
Perf / F-T	-							

[**GRIDLINE 2**]

VEQ1 =	1/2 * 24.0 ft* 0.093 * [15.0 ft* 12 psf+ 2 * 4.0 ft* 16 psf]	=	343 #
VEQ2 =	1/2 * 0.0 ft* 0.093 * [0.0 ft* 12 psf+ 0 * 0.0 ft* 16 psf]	=	0 #
VEQ3 =	1/2 * 0.0 ft* 0.093 * [0.0 ft* 12 psf+ 0 * 0.0 ft* 16 psf]	=	0 #
VEQ = VEQ1 + VEQ2 + VEQ3 =	343 #+ 0 #+ 0 #+ 0	=	343 # (misc.)
Seismic Comments:			

VW1 =	1/2 * 24.0 ft* 12.2 psf*[10.0 ft - 4.0 ft]	=	878 #
VW2 =	1/2 * 0.0 ft* 12.2 psf*[0.0 ft - 0.0 ft]	=	0 #
VW = VW1 + VW2 =	878 #+ 0 #+ 0 #	=	878 # (misc.)
Winds Comments:			

S.W. Length (ft) =	4.00	0.00	0.00	0.00	0.00	Total S.W. Length =	4.00	ft
S.W. Height (ft) =	8.00							
v (W) (plf) =	220					Max v (W) =	220	plf
v (EQ) (plf) =	86					Max v (EQ) =	86	plf
Dead Load (plf) =	150							
Uplift (lbs) =	1,577					H:W ADI =	1.00	
Add'l Uplift (lbs) =	0							
Total Uplift (lbs) =	1,577					Use S.W. Type		
Holdown	HDU2							
Perf / F-T	-							



MOZAFFARI ENGINEERING
STRUCTURAL CALCULATIONS
C.B.C. 2010

JOB NO.:	5843-11
DATE:	07/06/11

C.B.C. LATERAL ANALYSIS CONTINUED:


[**GRIDLINE A**]

$$\begin{aligned} VEQ1 &= 1/2 * 15.0 \text{ ft} * 0.093 * [24.0 \text{ ft} * 12 \text{ psf} + 2 * 4.0 \text{ ft} * 16 \text{ psf}] = 290 \# \\ VEQ2 &= 1/2 * 0.0 \text{ ft} * 0.093 * [0.0 \text{ ft} * 12 \text{ psf} + 0 * 0.0 \text{ ft} * 16 \text{ psf}] = 0 \# \\ VEQ3 &= 1/2 * 0.0 \text{ ft} * 0.093 * [0.0 \text{ ft} * 12 \text{ psf} + 0 * 0.0 \text{ ft} * 16 \text{ psf}] = 0 \# \\ VEQ &= VEQ1 + VEQ2 + VEQ3 = 290 \# + 0 \# + 0 \# = 290 \# \\ &\hspace{15em} \text{(misc.)} \end{aligned}$$

Seismic Comments:

$$\begin{aligned} VW1 &= 1/2 * 15.0 \text{ ft} * 12.2 \text{ psf} * [10.0 \text{ ft} - 4.0 \text{ ft}] = 549 \# \\ VW2 &= 1/2 * 0.0 \text{ ft} * 12.2 \text{ psf} * [0.0 \text{ ft} - 0.0 \text{ ft}] = 0 \# \\ VW &= VW1 + VW2 = 549 \# + 0 \# = 549 \# \\ &\hspace{15em} \text{(misc.)} \end{aligned}$$

Winds Comments:

S.W. Length (ft) =	8.00	0.00	0.00	0.00	0.00	Total S.W. Length =	8.00	ft
S.W. Height (ft) =	8.00							
v (W) (plf) =	69					Max v (W) =	69	plf
v (EQ) (plf) =	36					Max v (EQ) =	36	plf
Dead Load (plf) =	220							
Uplift (lbs) =	21					H:W ADI =	1.00	
Add'l Uplift (lbs) =	0							
Total Uplift (lbs) =	21					Use S.W. Type		
Holddown Perf / F-T	NONE							


[**GRIDLINE B**]

$$\begin{aligned} VEQ1 &= 1/2 * 15.0 \text{ ft} * 0.093 * [24.0 \text{ ft} * 12 \text{ psf} + 2 * 4.0 \text{ ft} * 16 \text{ psf}] = 290 \# \\ VEQ2 &= 1/2 * 0.0 \text{ ft} * 0.093 * [0.0 \text{ ft} * 12 \text{ psf} + 0 * 0.0 \text{ ft} * 16 \text{ psf}] = 0 \# \\ VEQ3 &= 1/2 * 0.0 \text{ ft} * 0.093 * [0.0 \text{ ft} * 12 \text{ psf} + 0 * 0.0 \text{ ft} * 16 \text{ psf}] = 0 \# \\ VEQ &= VEQ1 + VEQ2 + VEQ3 = 290 \# + 0 \# + 0 \# = 290 \# \\ &\hspace{15em} \text{(misc.)} \end{aligned}$$

Seismic Comments:

$$\begin{aligned} VW1 &= 1/2 * 15.0 \text{ ft} * 12.2 \text{ psf} * [10.0 \text{ ft} - 4.0 \text{ ft}] = 549 \# \\ VW2 &= 1/2 * 0.0 \text{ ft} * 12.2 \text{ psf} * [0.0 \text{ ft} - 0.0 \text{ ft}] = 0 \# \\ VW &= VW1 + VW2 = 549 \# + 0 \# = 549 \# \\ &\hspace{15em} \text{(misc.)} \end{aligned}$$

Winds Comments:

S.W. Length (ft) =	10.00	0.00	0.00	0.00	0.00	Total S.W. Length =	10.00	ft
S.W. Height (ft) =	9.00							
v (W) (plf) =	55					Max v (W) =	55	plf
v (EQ) (plf) =	29					Max v (EQ) =	29	plf
Dead Load (plf) =	220							
Uplift (lbs) =	-166					H:W ADI =	1.00	
Add'l Uplift (lbs) =	0							
Total Uplift (lbs) =	-166					Use S.W. Type		
Holddown Perf / F-T	NONE							



MOZAFFARI ENGINEERING
STRUCTURAL CALCULATIONS
C.B.C. 2010

JOB NO.:	5843-11
DATE:	7/6/2011

PROJECT TITLE: REYNOLDS

SHEAR WALL SCHEDULE							
SYMBOL	TYPE	NAILING		ANCHOR BOLTS	COMMENT	CAPACITY (P.L.F)	
		SHEAR WALL ⁽²⁾	SILL ATTACHMENT ⁽³⁾			WIND	SEISMIC
G	7/8" CEMENT PLASTER	NO. 11 ga. X 1 1/2" LONG WITH 7/16" HEAD @ 6" O.C. ALL FRAMING MEMBERS	20d @ 9" O.C.	60" O.C.	---	180	180
H	3/8" CDX PLYWOOD OR O.S.B.	8d @ 6:6:12	20d @ 9" O.C.	48" O.C.	(5)	350	260
I	3/8" CDX PLYWOOD OR O.S.B.	8d @ 4:4:12	SDS 1/4X6" SCREWS @ 18" O.C.	48" O.C.	(5)	350	350
J	3/8" CDX PLYWOOD OR O.S.B.	8d @ 3:3:12	SDS 1/4X6" SCREWS @ 8" O.C.	30" O.C.	(4) (5)	680	490
K	3/8" CDX PLYWOOD OR O.S.B.	8d @ 2:2:12	SDS 1/4X6" SCREWS @ 6" O.C.	24" O.C.	(4) (5)	890	640
L	3/8" CDX PLYWOOD OR O.S.B.	8d @ 4:4:12	SDS 1/4X6" SCREWS @ 6" O.C.	20" O.C.	BOTH SIDES (4) (5) (6)	1060	760
M	3/8" CDX PLYWOOD OR O.S.B.	8d @ 3:3:12	SDS 1/4X6" SCREWS @ 4" O.C.	16" O.C.	BOTH SIDES (4) (5) (6)	1370	980
N	15/32" CDX PLYWOOD OR O.S.B.	10d @ 6:6:12	20d @ 9" O.C.	48" O.C.	(5)	350	310
O	15/32" CDX PLYWOOD OR O.S.B.	10d @ 4:4:12	SDS 1/4X6" SCREWS @ 10" O.C.	32" O.C.	(4) (5)	640	460
P	15/32" CDX PLYWOOD OR O.S.B.	10d @ 3:3:12	SDS 1/4X6" SCREWS @ 6" O.C.	24" O.C.	(4) (5)	840	600
Q	15/32" CDX PLYWOOD OR O.S.B.	10d @ 2:2:12	SDS 1/4X6" SCREWS @ 6" O.C.	20" O.C.	(4) (5)	1070	770
R	15/32" CDX PLYWOOD OR O.S.B.	10d @ 4:4:12	SDS 1/4X6" SCREWS @ 4" O.C.	16" O.C.	BOTH SIDES (4) (5) (6)	1280	920
S	15/32" CDX PLYWOOD OR O.S.B.	10d @ 3:3:12	SDS 1/4X6" SCREWS @ 3" O.C.	12" O.C.	BOTH SIDES (4) (5) (6)	1680	1200
T	15/32" STRUCT. I PLYWOOD	10d @ 3:3:12	SDS 1/4X6" SCREWS @ 6" O.C.	24" O.C.	(4) (5)	930	665
U	15/32" STRUCT. I PLYWOOD	10d @ 2:2:12	SDS 1/4X6" SCREWS @ 4" O.C.	18" O.C.	(4) (5)	1210	870
V	15/32" STRUCT. I PLYWOOD	10d @ 3:3:12	SDS 1/4X6" SCREWS @ 3" O.C.	12" O.C.	BOTH SIDES (4) (5) (6)	1790	1330
W	15/32" STRUCT. I PLYWOOD	10d @ 2:2:12	SDS 1/4X6" SCREWS @ 2" O.C.	9" O.C.	BOTH SIDES (4) (5) (6)	2430	1740

FOOTNOTES:

- (1) 5/8" DIAMETER X 12" LONG ANCHOR BOLTS, OR 5/8" x 6 1/2" TITEN HD BOLTS. USE 3" x 3" x 1/4" PLATE WASHER W/ 13/16" WIDE x 1 3/4" LONG DIAGONALLY SLOTTED HOLE (OR SIMPSON BP AT EACH ANCHOR BOLT).
- (2) COMMON NAILS, HAND SET, DO NOT CRUSH FACEPLY.
(E.E. 6:6:12 = 6" O.C. BOUNDARY, 6" O.C. EDGES, 12" O.C. INTERMEDIATE FRAMING).
- (3) REFER TO THE SILL PLATE ATTACHMENT TO FRAMING BELOW (OR RAISED WOOD FLOOR) CONDITION.
- (4) USE 3x MEMBERS AT PLYWOOD JOINTS. USE 3x SILL PLATES.
- (5) BLOCK ALL EDGES.
- (6) STAGGER NAILS ON EACH SIDE.



MOZAFFARI ENGINEERING
STRUCTURAL CALCULATIONS
C.B.C. 2010

JOB NO.:	5843-11
DATE:	7/6/2011

PROJECT TITLE: REYNOLDS

HOLD-DOWN SCHEDULE

MARK	MODEL ⁴ NUMBER	POST ³ SIZE	FASTENERS		ANCHOR DIAMETER	ANCHOR TYPE ^{4,5}		PAB DIMENSIONS ¹²	
			SCREWS	BOLTS		SLAB EDGE ⁸	STEMWALL ¹¹	MIN. "l _e "	MIN. "d _e "
A	HDU2	4x	(6) SDS 1/4" x 2 1/2"	--	5/8"	SSTB16	SSTB24	--	--
B	HDU4	4x	(10) SDS 1/4" x 2 1/2"	--	5/8"	SSTB20	SB5/8x24	--	--
C	HDU5	4x	(14) SDS 1/4" x 2 1/2"	--	5/8"	SSTB24	SB5/8x24	--	--
D	HDU8	6x	(20) SDS 1/4" x 2 1/2"	--	7/8"	SSTB28	SB7/8x24 ¹⁰	--	--
E	HDQ8	6x	(20) SDS 1/4" x 3"	--	7/8"	SSTB28	PAB7	9"	14 1/2"
F	HDU11	8x	(30) SDS 1/4" x 2 1/2"	--	1"	SB1x30	PAB8	12"	18"
G	HDU14	8x	(36) SDS 1/4" x 2 1/2"	--	1"	PAB8	PAB8	12"	18"
H	HD19	8x	--	(5) 1"Ø	1 1/4"	PAB9	PAB9	15"	24"

NOTES:

- SEE ESR 2330 AND SIMPSON CATALOG FOR INSTALLATION INSTRUCTIONS AND STUD BOLTS/NAILS/SCREWS.
- PROVIDE A MINIMUM OF 1 3/4" EDGE DISTANCE TO THE STEMWALL/FOOTING.
- POST SIZE INDICATES MINIMUM SIZE OF DOUGLAS FIR POST IN THE DIRECTION OF HOLD-DOWN. WIDTH OF POST TO MATCH WALL THICKNESS.
- ALL HARDWARE TO BE BY SIMPSON STRONG-TIE.
- USE SSTBL MODELS AT 3x SILL PLATE CONDITIONS.
- DEEPEN BOTTOM OF FOOTING FOR A LENGTH OF 12" (UNLESS OTHERWISE NOTED) AS REQUIRED TO ACCOMMODATE 3" FROM BOLT TO BOTTOM OF FOOTING.
- AT RAISED WOOD FLOOR APPLICATIONS, PROVIDE SOLID BLOCKING UNDER POST WITH SAME SIZE POST. SEE DETAIL "B".
- 4" MIN. END DISTANCE AT CORNER LOCATIONS. 8" MAX. CURB HEIGHT.
- WIDEN AND DEEPEN FOOTING AS REQUIRED FOR ANCHOR BOLTS.
- MIN. 8" STEMWALL WIDTH. FOR 6" STEMWALL WIDTH, USE PAB7 PER HDQ8 HOLD-DOWN.
- 5" MIN. END DISTANCE AT CORNER LOCATIONS.
- SEE DETAIL "C".

