



STRUCTURAL CALCULATIONS FOR

HUNT LOT 2 PROTLAND, OREGON

by

RICHARD J. TURNER, P.E.

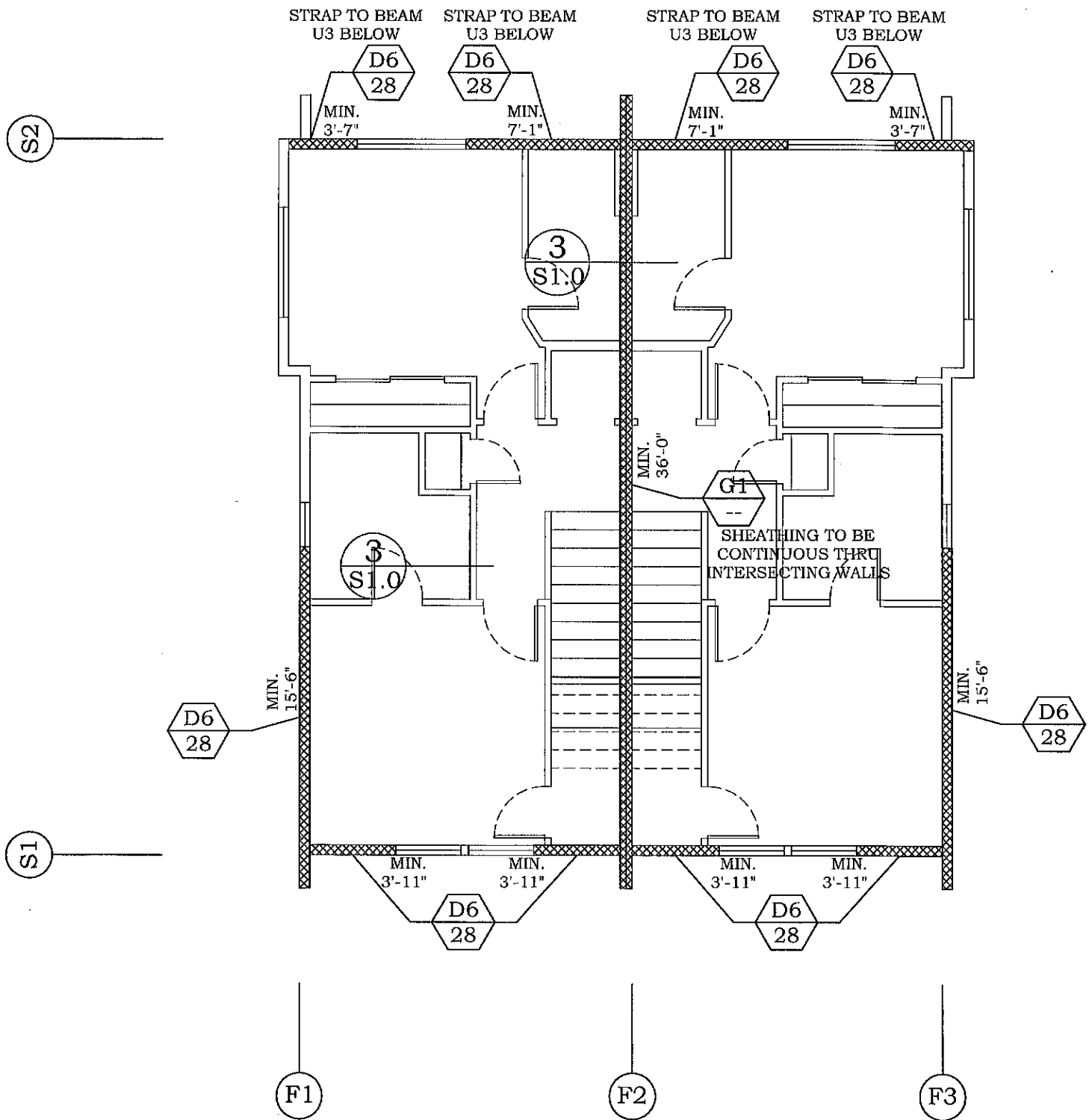
DATE: 4/15/2023

JOB NUMBER: R23250



EXP. DATE: 06-30-24

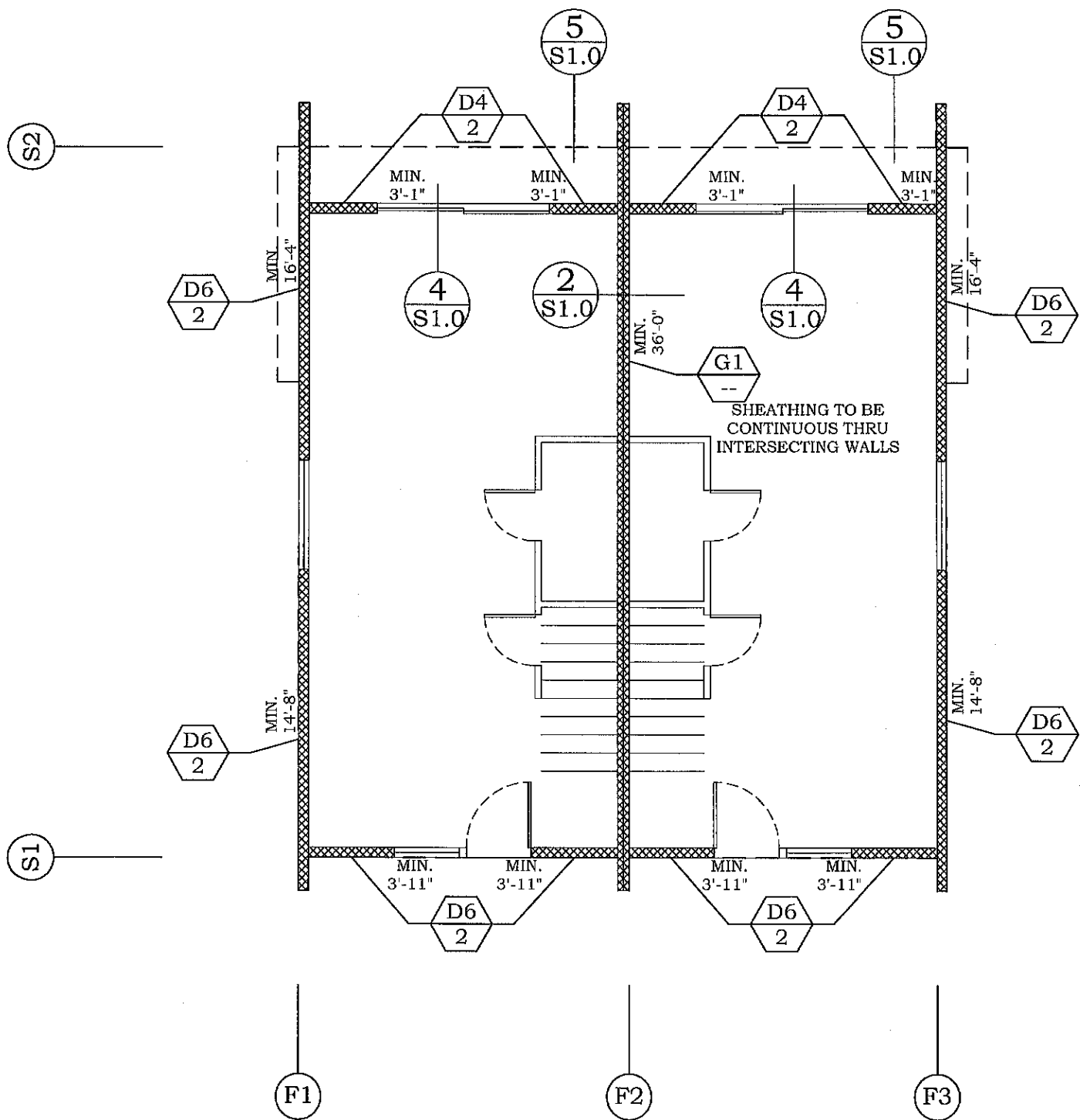
INDEX OF CALCULATIONS:	PAGES
4/15/2023	
SHEAR WALL PLANS:	1 TO 3
SEISMIC LOADS:	4 TO 5
WIND LOADS:	6 TO 7
WALL DISTRIBUTION:	8 TO 9
FOOTING DESIGN:	10
BEAM ANALYSIS AND DESIGN:	11 TO 17



UPPER FLOOR SHEARWALL PLAN

NOTE:

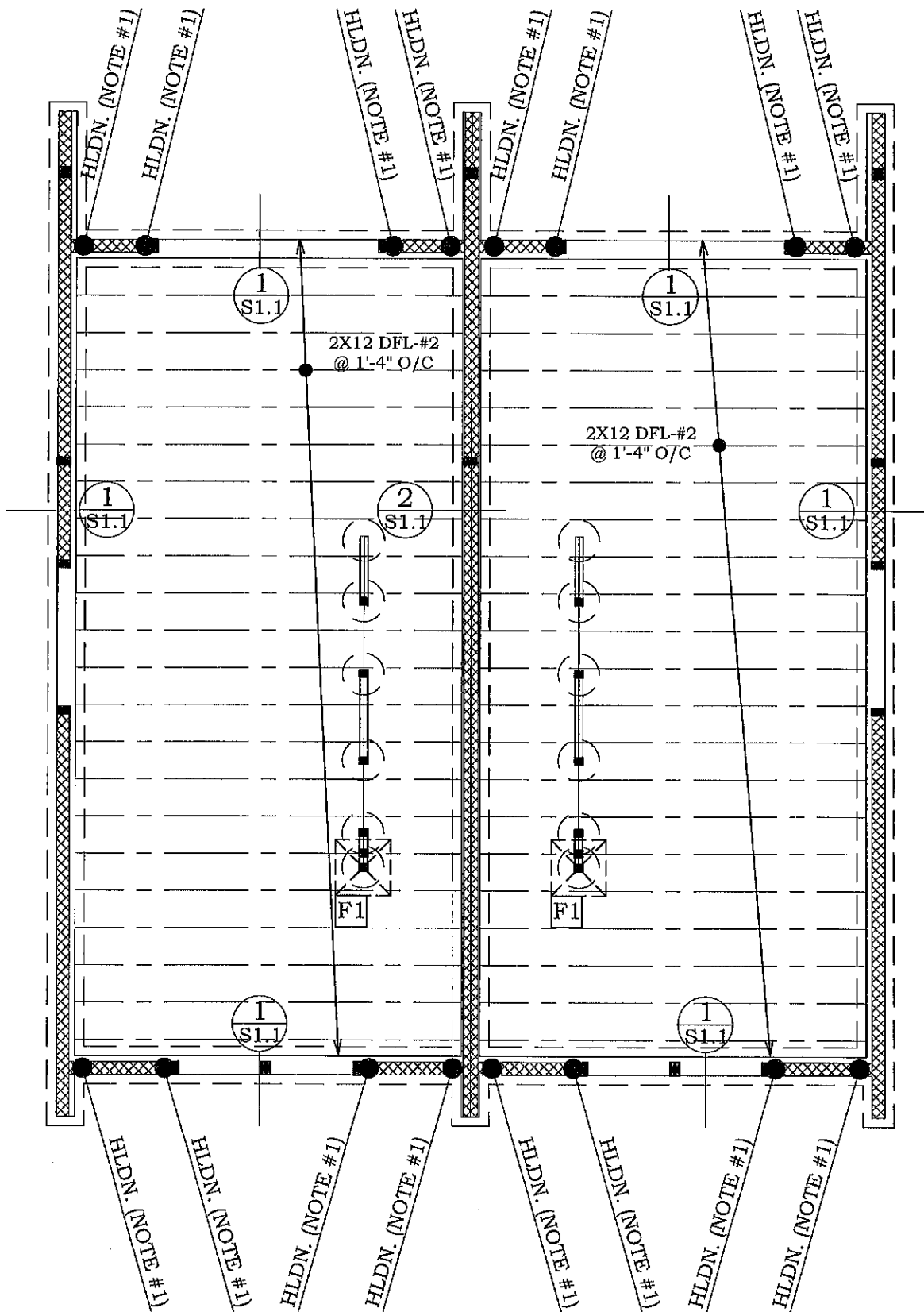
1. REFER TO FRAMING REQUIREMENTS FOR TYPICAL EXTERIOR SHEATHING AND NAILING, ROOF SHEATHING AND NAILING AND FLOOR SHEATHING AND NAILING REQUIREMENTS.



LOWER FLOOR SHEARWALL PLAN

NOTE:

1. REFER TO FRAMING REQUIREMENTS FOR TYPICAL EXTERIOR SHEATHING AND NAILING, ROOF SHEATHING AND NAILING AND FLOOR SHEATHING AND NAILING REQUIREMENTS.



PARTIAL FOUNDATION PLAN

FOUNDATION NOTES

3

1. REFER TO MAIN FLOOR SHEAR WALL PLAN FOR HOLDOWN SIZE.
2. THIS DRAWING IS FOR LATERAL INFORMATION ONLY, REFER TO ARCHITECTURAL PLANS FOR ALL OTHER INFORMATION.

**SEISMIC LOADS (2019 OSSC, ASCE 7-16
EQUIVALENT LATERAL FORCE PROCEDURE)**

DIRECTION: FRONT - TO - REAR

RISK CATEGORY: II TABLE 1.5-1
SITE CLASSIFICATION: D TABLE 20.3-1
 h_n : 30.00 FT
 S_s : 0.868 MAPS
 S_1 : 0.393 MAPS
 I_e : 1.000 TABLE 1.5-2
 F_A : 1.200 TABLE 11.4-1
 F_v : 1.760 TABLE 11.4-2
 S_{MS} : 1.042 EQ. 11.4-1
 S_{M1} : 0.692 EQ. 11.4-2
 S_{DS} : 0.694 EQ. 11.4-3
 S_{D1} : 0.461 EQ. 11.4-4
 T_o : 0.133 SECTION 11.6.6
 T_B : 0.664 SECTION 11.6.6
 C_t : 0.020 TABLE 12.8-2
 x : 0.750 TABLE 12.8-2
 T_n : 0.256 EQ. 12.8-7

 $S_a = S_{DS}$

T	S_a
0	0.278
0.1128	0.632
0.1228	0.663
0.1328	0.694
0.2	0.694
0.6641	0.694
0.7641	0.604
0.8641	0.534
0.9641	0.478
1.0641	0.433
1.1641	0.396
1.2641	0.365
1.3641	0.338
1.4641	0.315
1.5641	0.295
1.6641	0.277

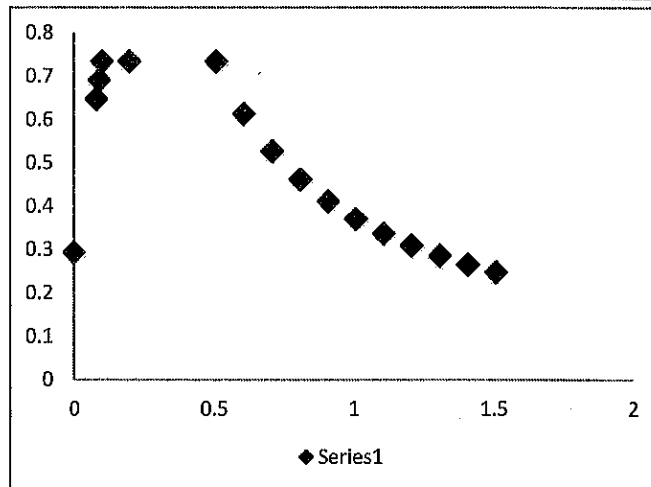
**SEISMIC DESIGN
CATEGORY (.1 SEC):** D TABLE 11.6-1

**SEISMIC DESIGN
CATEGORY (1 SEC):** D TABLE 11.6-2
R: 6.5 TABLE 12.2-1
 Ω_o : 3.0 TABLE 12.2-1

**SIMPLIFIED
FORCE (V):** **0.128 W**

C_s : 0.107 W (EQ. 12.8-2)
 C_s (MAX): 0.198 W (EQ. 12.8-3/4)
 C_s (MIN): 0.010 W (EQ. 12.8-5)
 C_s (MIN, E F): 0.030 W (EQ. 12.8-6)
 C_s (ACTUAL): 0.107 W

**EQ. LATERAL
FORCE (V):** **0.107 W**



**SEISMIC LOADS (2019 OSSC, ASCE 7-16
EQUIVALENT LATERAL FORCE PROCEDURE)**

BASE SHEAR AND FLOOR DISTRIBUTION

SEISMIC LOAD: FRONT TO REAR DIRECTION

BUILDING WEIGHTS:

ROOF DIAPH.	17	EXTERIOR WALL:	10	MISC.:	0
FLOOR DIAPH:	10	INTERIOR WALL:	7		

	EXT. WALL AREA	INTERIOR WALL AREA	DIAPH. AREA	MISC AREA	r(i)	rho	k
ROOF	612	306	1120	0	0.161	1.00	1
2ND	918	459	1120	0	0.161	1.00	1

BASE SHEAR

	HT	W	WIHI^k	TOTAL W	V	V*.7	SUM 'V'	
ROOF	20.0	27302	546040	27302	3797	2658	2658	12.8-11,12
2ND	10.0	23593	235930	50895	1640	1148	3806	12.8-11,12
		50895	781970		5437	3806		

V (LBF): **5437** EQ. 12.8-1
E (SEISMIC BASE SHEAR) V*.7 (LBF): **3806** 2.4.1 ASD (L.C. 5,8)

SEISMIC LOAD: SIDE TO SIDE

BUILDING WEIGHTS:

ROOF DIAPH.	17	EXTERIOR WALL:	10	MISC.:	0
FLOOR DIAPH:	10	INTERIOR WALL:	7		

	EXT. WALL AREA	INTERIOR WALL AREA	DIAPH. AREA	MISC AREA	r(i)	rho	k
ROOF	612	306	1120	0	0.320	1.00	1
2ND	918	459	1120	0	0.406	1.00	1

BASE SHEAR

	HT	W	WIHI^2	TOTAL W	V	V*.7	SUM 'V'	
ROOF	20.0	27302	546040	27302	3797	2658	2658	12.8-11,12
2ND	10.0	23593	235930	50895	1640	1148	3806	12.8-11,12
		50895	781970		5437	3806		

V (LBF): **5437** EQ. 12.8-1
E (SEISMIC BASE SHEAR) V*.7 (LBF): **3806** 2.4.1 ASD (L.C. 5,8)

WIND LOADS MWFRS (2019 OSSC, ASCE 7-16)
ENVELOPE PROCEDURE METHOD 1 (LOW-RISE BUILDING)

DIRECTION: FRONT - TO - REAR

WIND SPEED V Basic (MPH): 97 **ATC MAPS (OSSC TABLE 1609.3)**
 EXPOSURE: B SEC. 26.7

BUILDING DIMENSIONS:

LENGTH (HORIZONTAL, FT): 36.0
 WIDTH (TRANSVERSE, FT): 32.0
ROOF MEAN HEIGHT (FT): 25.00
TOTAL ROOF HEIGHT (FT): 30.00
 GABLE (Y/N):
 ROOF PITCH: 10
 THETA: 39.81
 2a (FT): 8

qh (MEAN ROOF HEIGHT):

I:	1	
Kz/Kh:	0.7	Table 26.10-1
Kzt:	1	26.8.2
Kd:	0.85	Table 26.6-1
V:	97	
qh (Load comb 16-12):	8.60	(1.0d + .6W)

qh (Load comb 16-12): **8.60** (1.0d + .6W)
 0.640 0.768

(O), (PO), (PE), (E) POSITIVE NEGATIVE
 (GCpi) 0.18 -0.18 (TABLE 26.13-1)

P
 (PSF)

	(GCpf) (FIGURE 6-10)	DESIGN PRESSURES (EQUATION 28.3.1)				
		(+Gcpi)	(-Gcpi)	TOTAL	TOTAL	
1	0.560	3.27	6.36			6.60
2	0.210	0.26	3.35			
3	-0.430	-5.25	-2.15	4.23	4.23	
4	-0.370	-4.73	-1.63	8.00	8.00	
5	0.000	-1.55	1.55			
6	0.000	-1.55	1.55			
1E	0.690	4.39	7.48			8.26
2E	0.270	0.77	3.87			
3E	-0.530	-6.11	-3.01	5.28	5.28	
4E	-0.480	-5.68	-2.58	10.06	10.06	

BASE SHEAR

DIRECTION: FRONT - TO - REAR								
DIAPHRAGM LEVEL	BUILDING HEIGHT	TRIBUTARY HEIGHT	PROJ AREA	qh: INTERIOR	PROJ AREA END	qh: END	V (LBS)	STORY SHEAR
ROOF	30-40	0.00	0	9.60	0	12.48	0	
ROOF	25-30	5.00	-36	9.60	40	12.48	154	
ROOF	20-25	5.00	61	9.60	40	12.48	1085	
ROOF	15-20	5.00	120	9.60	40	12.48	1651	2890
1ST	0-15	10.50	228	9.60	84	12.48	3237	3237
			577.00	TOTAL BASE SHEAR R:		6127		

WIND LOADS MWFRS (2019 OSSC, ASCE 7-16)
ENVELOPE PROCEDURE METHOD 1 (LOW-RISE BUILDING)

DIRECTION: SIDE - TO -SIDEWIND SPEED V Basic (MPH): 97 **ATC MAPS (OSSC TABLE 1609.3)**

EXPOSURE: B SEC. 26.7

BUILDING DIMENSIONS:

LENGTH (HORIZONTAL, FT): 36.0

WIDTH (TRANSVERSE, FT): 32.0

ROOF MEAN HEIGHT: 25.0

TOTAL ROOF HEIGHT (FT): 30.0

GABLE (Y/N):

ROOF PITCH: 10

THETA: 39.81

2a: 8

qh (MEAN ROOF HEIGHT):

I: 1

Kz/Kh: 0.7 Table 26.10-1

Kzt: 1 26.8.2

Kd: 0.85 Table 26.6-1

V: 97

qh (Load comb 16-12): **8.60** (1.0d + .6W)

0.640 0.768

(O), (PO), (PE), (E) POSITIVE NEGATIVE
 (GCpi) 0.18 -0.18 (TABLE 26.13-1)

P
(PSF)

	(GCpf) (FIGURE 6-10)	DESIGN PRESSURES (EQUATION 28.3.1)				TOTAL	TOTAL
		(+Gcpi)	(-Gcpi)	TOTAL	TOTAL		
1	0.560	3.27	6.36				
2	0.210	0.26	3.35				
3	-0.430	-5.25	-2.15	4.23	4.23	6.60	
4	-0.370	-4.73	-1.63	8.00	8.00		
5	0.000	-1.55	1.55				
6	0.000	-1.55	1.55				
1E	0.690	4.39	7.48				
2E	0.270	0.77	3.87				
3E	-0.530	-6.11	-3.01	5.28	5.28	8.26	
4E	-0.480	-5.68	-2.58	10.06	10.06		

BASE SHEAR

DIRECTION: SIDE TO SIDE								
DIAPHRAGM LEVEL	BUILDING HEIGHT	TRIBUTARY HEIGHT	PROJ AREA	qh: INTERIOR	PROJ AREA	qh: END	V (LBS)	STORY SHEAR
ROOF	30-40	0.00	0	9.60	0	12.48	0	
ROOF	25-30	5.00	-2	9.60	40	12.48	480	
ROOF	20-25	5.00	140	9.60	40	12.48	1843	
ROOF	15-20	5.00	140	9.60	40	12.48	1843	4166
1ST	0-15	10.50	276	9.60	84	12.48	3698	3698
			758.00	TOTAL BASE SHEAR R:		7864		

WALL DISTRIBUTION SHEET

DIRECTION: FRONT - TO - REAR WALL HEIGHT: 9
 STORY: **2ND**

	WALL LINE	WALL LENGTH (L) (FT)	SEISMIC LOAD (S) (LB.)	S/L (LB./FT)	r(i) 0.2	WIND (W) LOAD (LB.)	W/FT (LB./FT)	MAX. WALL LOAD (LB./FT)	WALL UPLIFT TYPE	DEAD (D) LOAD (LB.)	T-D (LB.)	HOLDOWN TYPE	
0.25	F1	15.50	2159	139	0.2	722	47	139	D6	1254	465	789	MSTC28
0.5	F2	36.00	4319	120	0.1	1445	40	120	G1	1080	2160	-1080	NO
0.25	F3	15.50	2159	139	0.2	722	47	139	D6	1254	465	789	MSTC28
1.00			8637			2890							

NOTE: R REVISED TO 2.0 FOR GYPSUM WALL BAORD
THIS WALL DIRECTION (SEISMIC BASE SHEAR ADJUSTED 6.5/2).

DIRECTION: FRONT - TO - REAR WALL HEIGHT: 9
 STORY: **1ST**

	WALL LINE	WALL LENGTH (L) (FT)	SEISMIC LOAD (S) (LB.)	S/L (LB./FT)	r(i) 0.1	WIND (W) LOAD (LB.)	W/FT (LB./FT)	MAX. WALL LOAD (LB./FT)	WALL UPLIFT TYPE	DEAD (D) LOAD (LB.)	T-D (LB.)	HOLDOWN TYPE	
0.25	F1	31.00	3092	100	0.1	1532	49	100	D6	898	1395	292	HDU2 (2)2X
0.5	F2	36.00	6185	172	0.1	3063	85	172	G2	1546	3240	-2774	NO
0.25	F3	31.00	3092	100	0.1	1532	49	100	D6	898	1395	292	HDU2 (2)2X
1.00			12370			6127							

NOTE: R REVISED TO 2.0 FOR GYPSUM WALL BAORD
THIS WALL DIRECTION (SEISMIC BASE SHEAR ADJUSTED 6.5/2).

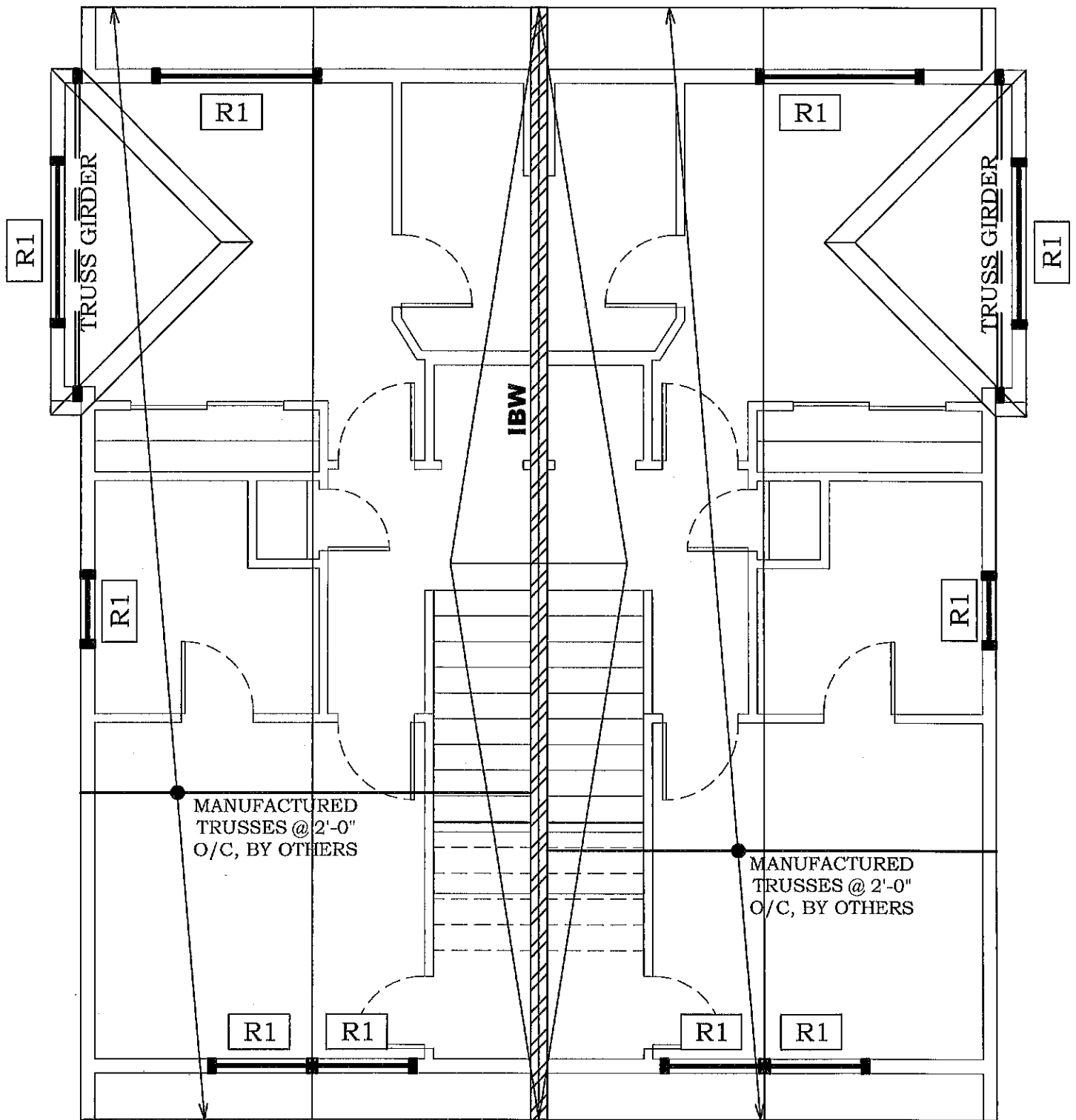
FOOTING DESIGN

CONCRETE STRENGTH: 2.5 KSI WALL WIDTH: 8 IN
 STEEL STRENGTH: 60 KSI SOIL BEARING PRESSURE: 1500 PSF
 DIRECTION: **FRONT - TO - REAR**

WALL LINE	UPLIFT	FTG. DEPTH	FTG. WIDTH	WALL DEPTH	WALL LENGTH	MOMENT	DEAD LOAD	FTG.	a	STEEL REQUIRED	REINF. T&B
(PG.)	(PG.)	(IN.)	(IN.)	(IN.)	(FT.)	(K-LB)	PLF			(IN^2)	
F1	292	7	15	18	31.0	17	259	0.63		0.24	NONE
F2	-2774	7	15	18	36.0	0	259	0.00		0.00	NONE
F3	292	7	15	18	31.0	17	259	0.63		0.24	NONE

CONCRETE STRENGTH: 2.5 KSI WALL WIDTH: 8 IN
 STEEL STRENGTH: 60 KSI SOIL BEARING PRESSURE: 1500 PSF
 DIRECTION: **SIDE - TO - SIDE**

WALL LINE	UPLIFT	FTG. DEPTH	FTG. WIDTH	WALL DEPTH	WALL LENGTH	DEAD LOAD	STEEL REQUIRED	REINF. T&B
(PG.)	(PG.)	(IN.)	(IN.)	(IN.)	(FT.)	(FT.-LB.)	PLF (IN^2)	
S1	2782	7	15	18	15.64	8	259	0.27
S2	2970	7	15	18	12.32	9	259	0.33



ROOF FRAMING PLAN

ROOF AND FLOOR FRAMING NOTES:

- (1) HEADERS TO BE R1: 4X8 DFL-#2 (6'-0" MAX SPAN), U.N.O.
- (2) INTERIOR HEADERS TO BE 4X8 DFL-#2 (MAX. SPAN 4'-0"), U.N.O.
- (3) REFER TO ARCHITECTURAL DRAWINGS FOR ROOF FINISHING SPECIFICATIONS AND VERIFICATION OF ALL DIMENSIONS.

BEAM SCHEDULE:

BEAM SIZE	SIZE
R1	4X8 DFL-#2

TRUSS TIES

TRUSS TYPE	SIMPSON TIEDOWN	UPLIFT
TRUSS	H10A	1140#
TRUSS	H2.5A	600#
2PLY GIRDERS	LGT2	2050#

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Multiple Simple Beam

Project File: R.ec6

LIC#: KW-08014854, Build:20.23.2.14

RICHARD TURNER

(c) ENERCALC INC 1983-2022

Description : ROOF

Wood Beam Design : R1

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

BEAM Size : **4x8, Sawn, Fully Unbraced**

Using Allowable Stress Design with IBC 2021 Load Combinations, Major Axis Bending

Wood Species : Douglas Fir-Larch

Wood Grade : No.2

Fb - Tension	900.0 psi	Fc - Prll	1,350.0 psi	Fv	180.0 psi	Ebend- xx	1,600.0 ksi	Density	31.210 pcf
Fb - Compr	900.0 psi	Fc - Perp	625.0 psi	Ft	575.0 psi	Eminbend - xx	580.0 ksi		

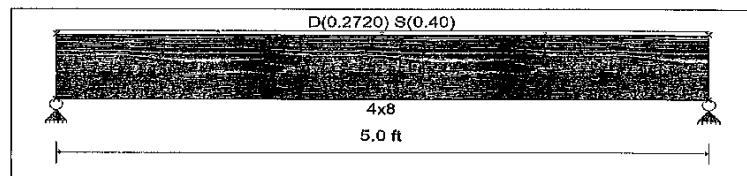
Applied Loads

Unif Load: D = 0.2720, S = 0.40 k/ft, Trib= 1.0 ft

Design Summary

Max fb/Fb Ratio = **0.616 : 1**
 fb : Actual : 821.88 psi at 2.500 ft in Span # 1
 Fb : Allowable : 1,335.02 psi
 Load Comb : +D+S
 Max fv/FvRatio = **0.365 : 1**
 fv : Actual : 75.48 psi at 4.400 ft in Span # 1
 Fv : Allowable : 207.00 psi
 Load Comb : +D+S

Max Reactions (k)	D	Lr	L	S	W	E	H
Left Support	0.68			1.00			
Right Support	0.68			1.00			



Max Deflections

Transient Downward	0.032 in	Total Downward	0.053 in
Ratio	1886	Ratio	1123
LC: S Only		LC: +D+S	
Transient Upward	0.000 in	Total Upward	0.000 in
Ratio	9999	Ratio	9999
LC:		LC:	

Project Title:
Engineer:
Project ID:
Project Descr:

Multiple Simple Beam

Project File: R.ec6

LIC#: KW-06014854, Build:20.23.2.14

RICHARD TURNER

(c) ENERCALC INC 1983-2022

Description : UP

Wood Beam Design : U1

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

BEAM Size : **4x8, Sawn, Fully Unbraced**

Using Allowable Stress Design with IBC 2021 Load Combinations, Major Axis Bending

Wood Species : Douglas Fir-Larch

Wood Grade : No.2

Fb - Tension	900.0 psi	Fc - Prll	1,350.0 psi	Fv	180.0 psi	Ebend- xx	1,600.0 ksi	Density	31.210 pcf
Fb - Compr	900.0 psi	Fc - Perp	625.0 psi	Ft	575.0 psi	Eminbend - xx	580.0 ksi		

Applied Loads

Unif Load: D = 0.0750, L = 0.30 k/ft, Trib= 1.0 ft

Unif Load: D = 0.2720, S = 0.40 k/ft, Trib= 1.0 ft

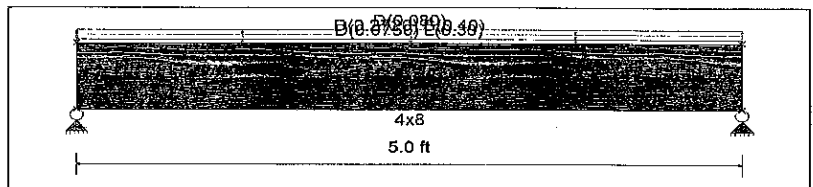
Unif Load: D = 0.080 k/ft, Trib= 1.0 ft

Design Summary

Max fb/Fb Ratio = **0.872 : 1**
fb : Actual : 1,164.33 psi at 2.500 ft in Span # 1
fb : Allowable : 1,335.02 psi
Load Comb : +D+0.750L+0.750S

Max fv/Fv Ratio = **0.517 : 1**
fv : Actual : 106.92 psi at 4.400 ft in Span # 1
Fv : Allowable : 207.00 psi
Load Comb : +D+0.750L+0.750S

Max Reactions (k)	D	Lr	L	S	W	E	H
Left Support	1.07		0.75	1.00			
Right Support	1.07		0.75	1.00			



Max Deflections

Transient Downward	0.032 in	Total Downward	0.076 in
Ratio	1886	Ratio	792
LC: S Only		LC: +D+0.750L+0.750S	
Transient Upward	0.000 in	Total Upward	0.000 in
Ratio	9999	Ratio	9999
LC:		LC:	

Wood Beam Design : U2

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

BEAM Size : **4x8, Sawn, Fully Unbraced**

Using Allowable Stress Design with IBC 2021 Load Combinations, Major Axis Bending

Wood Species : Douglas Fir-Larch

Wood Grade : No.2

Fb - Tension	900.0 psi	Fc - Prll	1,350.0 psi	Fv	180.0 psi	Ebend- xx	1,600.0 ksi	Density	31.210 pcf
Fb - Compr	900.0 psi	Fc - Perp	625.0 psi	Ft	575.0 psi	Eminbend - xx	580.0 ksi		

Applied Loads

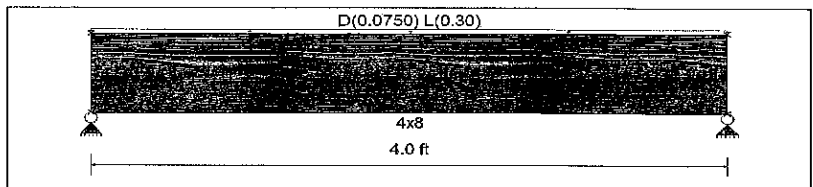
Unif Load: D = 0.0750, L = 0.30 k/ft, Trib= 1.0 ft

Design Summary

Max fb/Fb Ratio = **0.252 : 1**
fb : Actual : 293.53 psi at 2.000 ft in Span # 1
fb : Allowable : 1,163.69 psi
Load Comb : +D+L

Max fv/Fv Ratio = **0.172 : 1**
fv : Actual : 31.03 psi at 0.000 ft in Span # 1
Fv : Allowable : 180.00 psi
Load Comb : +D+L

Max Reactions (k)	D	Lr	L	S	W	E	H
Left Support	0.15		0.60				
Right Support	0.15		0.60				



Max Deflections

Transient Downward	0.010 in	Total Downward	0.012 in
Ratio	4913	Ratio	3930
LC: L Only		LC: +D+L	
Transient Upward	0.000 in	Total Upward	0.000 in
Ratio	9999	Ratio	9999
LC:		LC:	

Project Title:
Engineer:
Project ID:
Project Descr:

Multiple Simple Beam

Project File: R.ec6

LIC#: KW-06014854, Build:20.23.2.14

RICHARD TURNER

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Wood Beam Design : U3

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

BEAM Size : **4x12, Sawn, Fully Unbraced**

Using Allowable Stress Design with IBC 2021 Load Combinations, Major Axis Bending

Wood Species : Douglas Fir-Larch

Wood Grade : No.2

Fb - Tension	900.0 psi	Fc - Prll	1,350.0 psi	Fv	180.0 psi	Ebend- xx	1,600.0 ksi	Density	31.210 pcf
Fb - Compr	900.0 psi	Fc - Perp	625.0 psi	Ft	575.0 psi	Eminbend - xx	580.0 ksi		

Applied Loads

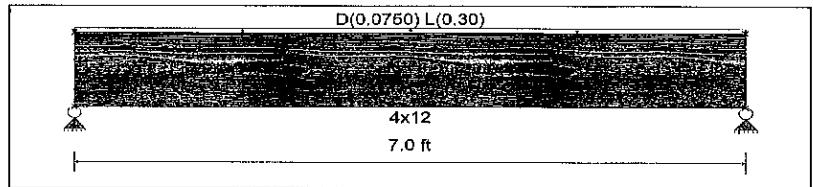
Unif Load: D = 0.0750, L = 0.30 k/ft, Trib= 1.0 ft

Design Summary

Max fb/Fb Ratio = **0.382** : 1
fb : Actual : 373.33 psi at 3.500 ft in Span # 1
Fb : Allowable : 976.29 psi
Load Comb : +D+L

Max fv/Fv Ratio = **0.204** : 1
fv : Actual : 36.67 psi at 6.067 ft in Span # 1
Fv : Allowable : 180.00 psi
Load Comb : +D+L

Max Reactions (k)	D	Lr	L	S	W	E	H
Left Support	0.26		1.05				
Right Support	0.26		1.05				



Max Deflections

Transient Downward	0.025 in	Total Downward	0.031 in
Ratio	3425	Ratio	2740
LC: L Only		LC: +D+L	
Transient Upward	0.000 in	Total Upward	0.000 in
Ratio	9999	Ratio	9999
LC:		LC:	

Wood Beam Design : U4

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

BEAM Size : **5.5x10.5, GLB, Fully Braced**

Using Allowable Stress Design with ASCE 7-16 Load Combinations, Major Axis Bending

Wood Species : DF/DF

Wood Grade : 24F-V4

Fb - Tension	2400 psi	Fc - Prll	1650 psi	Fv	265 psi	Ebend- xx	1800 ksi	Density	31.21 pcf
Fb - Compr	1850 psi	Fc - Perp	650 psi	Ft	1100 psi	Eminbend - xx	950 ksi		

Applied Loads

Unif Load: D = 0.020, L = 0.080 k/ft, Trib= 1.0 ft

Unif Load: D = 0.0340, S = 0.050 k/ft, Trib= 1.0 ft

1Point: W = 0.8790, E = 3.278 k @ 0.0 ft

2Point: W = -0.8790, E = -3.278 k @ 4.0 ft

3Point: W = 0.8790, E = 3.278 k @ 8.0 ft

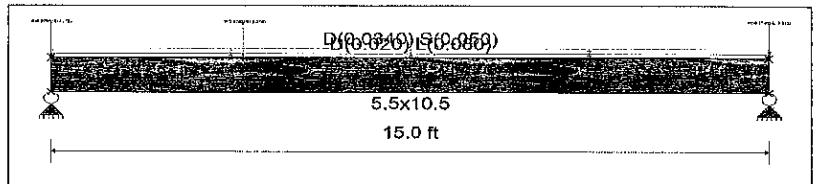
4Point: W = -0.8790, E = -3.278 k @ 15.0 ft

Design Summary

Max fb/Fb Ratio = **0.231** : 1
fb : Actual : 885.13 psi at 8.000 ft in Span # 1
Fb : Allowable : 3,840.00 psi
Load Comb : +D+0.750L+0.750S+0.5250E

Max fv/Fv Ratio = **0.115** : 1
fv : Actual : 48.62 psi at 4.000 ft in Span # 1
Fv : Allowable : 424.00 psi
Load Comb : +D+0.70E

Max Reactions (k)	D	Lr	L	S	W	E	H
Left Support	0.41		0.60	0.38	0.64	2.40	
Right Support	0.41		0.60	0.38	-0.64	-2.40	



Max Deflections

Transient Downward	0.122 in	Total Downward	0.243 in
Ratio	1475	Ratio	741
LC: E Only		+0.750L+0.750S+0.5250E	
Transient Upward	0.000 in	Total Upward	0.000 in
Ratio	9999	Ratio	9999
LC:		LC:	

FLOOR JOIST CALCULATION SHEET - 2X12 DFL-#2**PROJECT NUMBER:** R23250**FLOOR LIVE LOAD:** 40**DATE:** 4/15/2023**FLOOR DEAD LOAD:** 10

JOIST: J1

7

MEMBER PROPERTIES: **2X12 DFL-#2**

B 1.5

D 11.25

A 16.875

Sx 31.64

Ix 177.98

E 1600000

Fb: 900

Fv: 180

Cd: 1

Cm: 1

Cf: 1

Cr: 1.15

SPAN (MAX BAY LENGTH, FT): 16

JOIST SPACING (FT): **1.3333**

DISTRIBUTED LOAD (LB/FT): 66.67

MOMENT (LB-FT): 2133

SHEAR (LB): 533

DEFLECTION TL(IN): 0.34

DEFLECTION LL(IN): 0.28

fb (PSI): 809

fv (PSI): 32

Fb' (PSI): 1035

Fv' (PSI): 180

END REACTION WIND (LB): 533

DEFLECTION (TL/???): L/ 558

DEFLECTION (LL/???): L/ 697

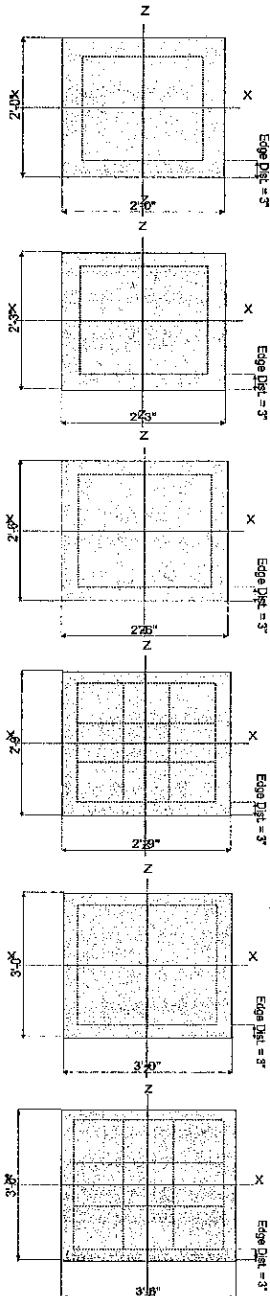
BENDING STRESS: **O.K.**

CONCRETE FOOTINGS SUMMARY PAGE



GENERAL INFORMATION

CONCRETE STRENGTH: 2500 PSI
 REBAR YIELD STRENGTH: 60 KSI
 CONCRETE DENSITY: 145 PCF
 ALLOWABLE SOIL BEARING: 1500 PSF
 SOIL PASSIVE RESISTANCE: 250 PCF
 SOIL/CONCRETE FRICTION COEFF: .30



	DIMENSIONS:	REINFORCING:	CAPACITY:
F1	2'-0" X 2'-0" X 8"	(2)-#4 BARS BOTH WAYS	5500#
	MAXIMUM MOMENT: .9750 k-ft		
	MAXIMUM 1-WAY SHEAR LOAD: 19.50 psi		
	GOVERNING RATIO: SOIL BEARING (.9813)		
	DIMENSIONS:	REINFORCING:	CAPACITY:
F2	2'-3" X 2'-3" X 8"	(2)-#4 BARS BOTH WAYS	7000#
	MAXIMUM MOMENT: 1.30 k-ft		
	MAXIMUM 1-WAY SHEAR LOAD: 24.395 psi		
	GOVERNING RATIO: SOIL BEARING (.9860)		
	DIMENSIONS:	REINFORCING:	CAPACITY:
F3	2'-6" X 2'-6" X 8"	(3)-#4 BARS BOTH WAYS	8600#
	MAXIMUM MOMENT: 1.57 k-ft		
	MAXIMUM 1-WAY SHEAR LOAD: 27.911 psi		
	GOVERNING RATIO: SOIL BEARING (.9820)		
	DIMENSIONS:	REINFORCING:	CAPACITY:
F4	2'-9" X 2'-9" X 10"	(3)-#4 BARS BOTH WAYS	10400#
	MAXIMUM MOMENT: 1.475 k-ft		
	MAXIMUM 1-WAY SHEAR LOAD: 15.434 psi		
	GOVERNING RATIO: SOIL BEARING (.9973)		
	DIMENSIONS:	REINFORCING:	CAPACITY:
F5	3'-0" X 3'-0" X 8"	(3)-#4 BARS BOTH WAYS	12500#
	MAXIMUM MOMENT: 1.797 k-ft		
	MAXIMUM 1-WAY SHEAR LOAD: 30.333 psi		
	GOVERNING RATIO: SOIL BEARING (.9907)		
	DIMENSIONS:	REINFORCING:	CAPACITY:
F6	3'-6" X 3'-6" X 10"	(4)-#4 BARS BOTH WAYS	16000#
	MAXIMUM MOMENT: 2.374 k-ft		
	MAXIMUM 1-WAY SHEAR LOAD: 22.358 psi		
	GOVERNING RATIO: SOIL BEARING (.9513)		

NOTE: ALL REBAR TO BE A MIN. 3" FROM EDGE OF CONCRETE AT BOTTOM OF FOOTING.

17