TURNER
ENGINEERING & DESIGN

STRUCTURAL CALCULATIONS FOR

2515 NE HIGHLAND

PORTLAND, OREGON

by

RICHARD J. TURNER, P.E.

DATE: 07/08/13

JOB NUMBER: R13218

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OREGON
JULY 15, 2003
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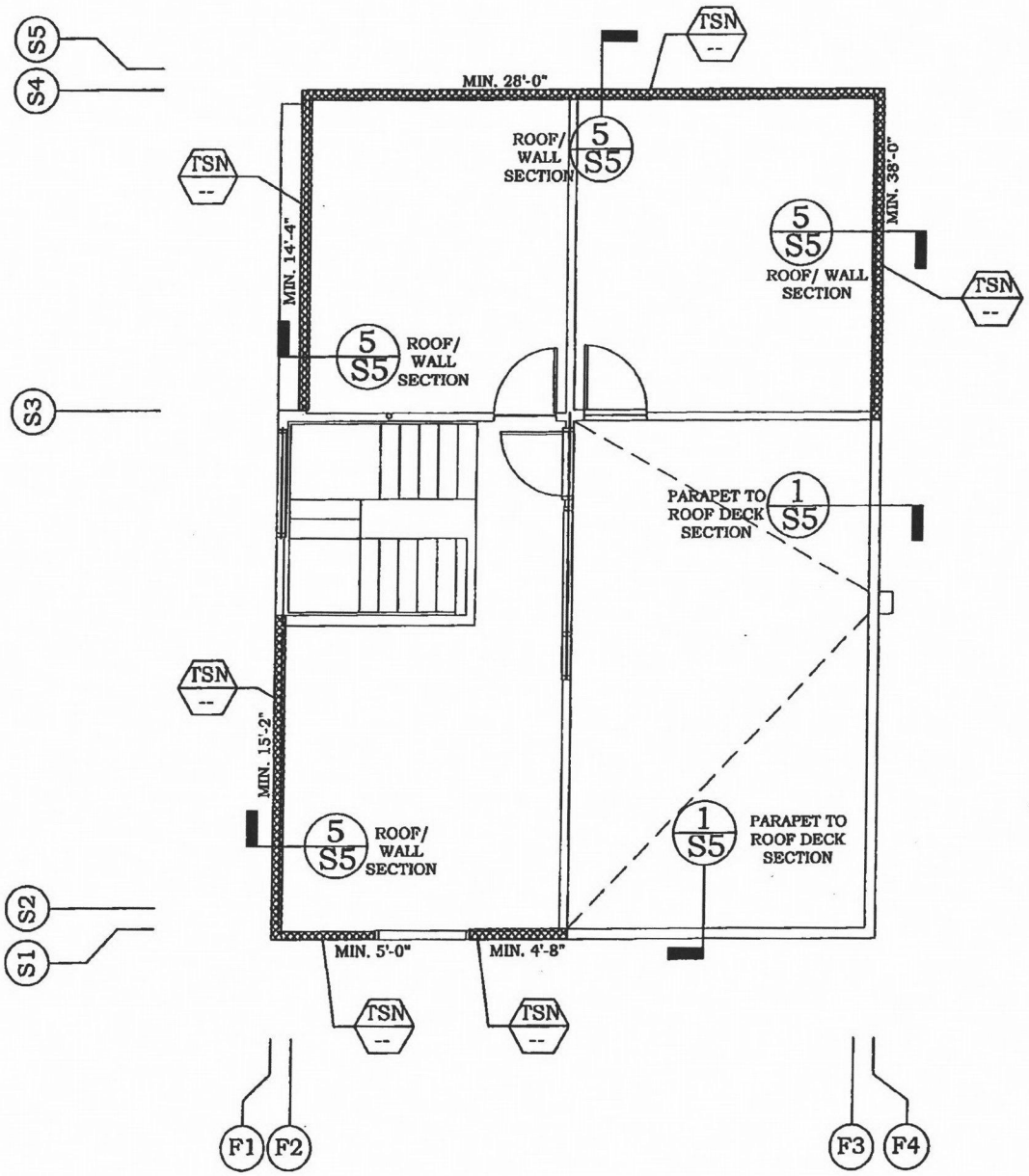
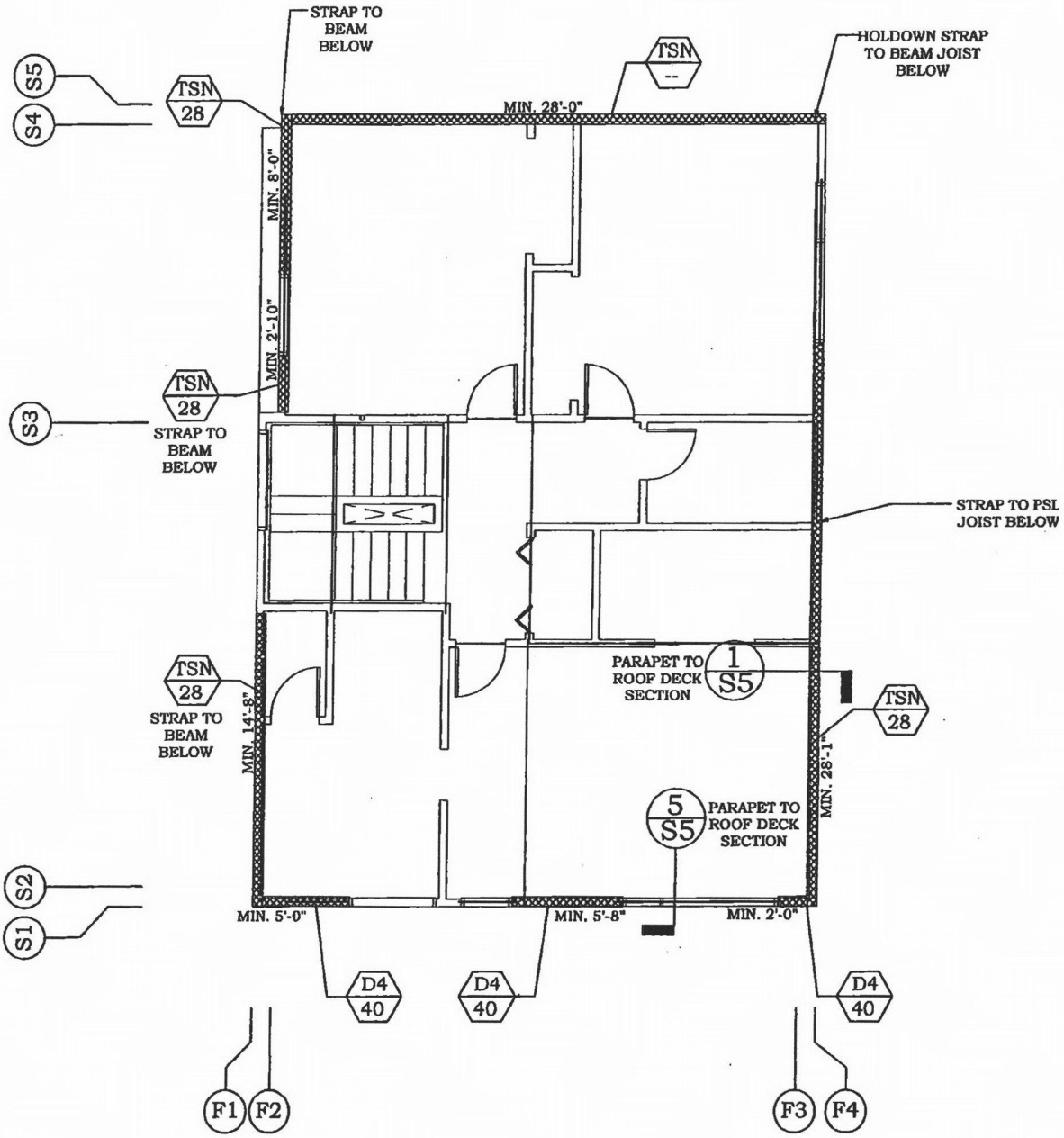


ROOF DECK SHEARWALL PLAN

NOTE:

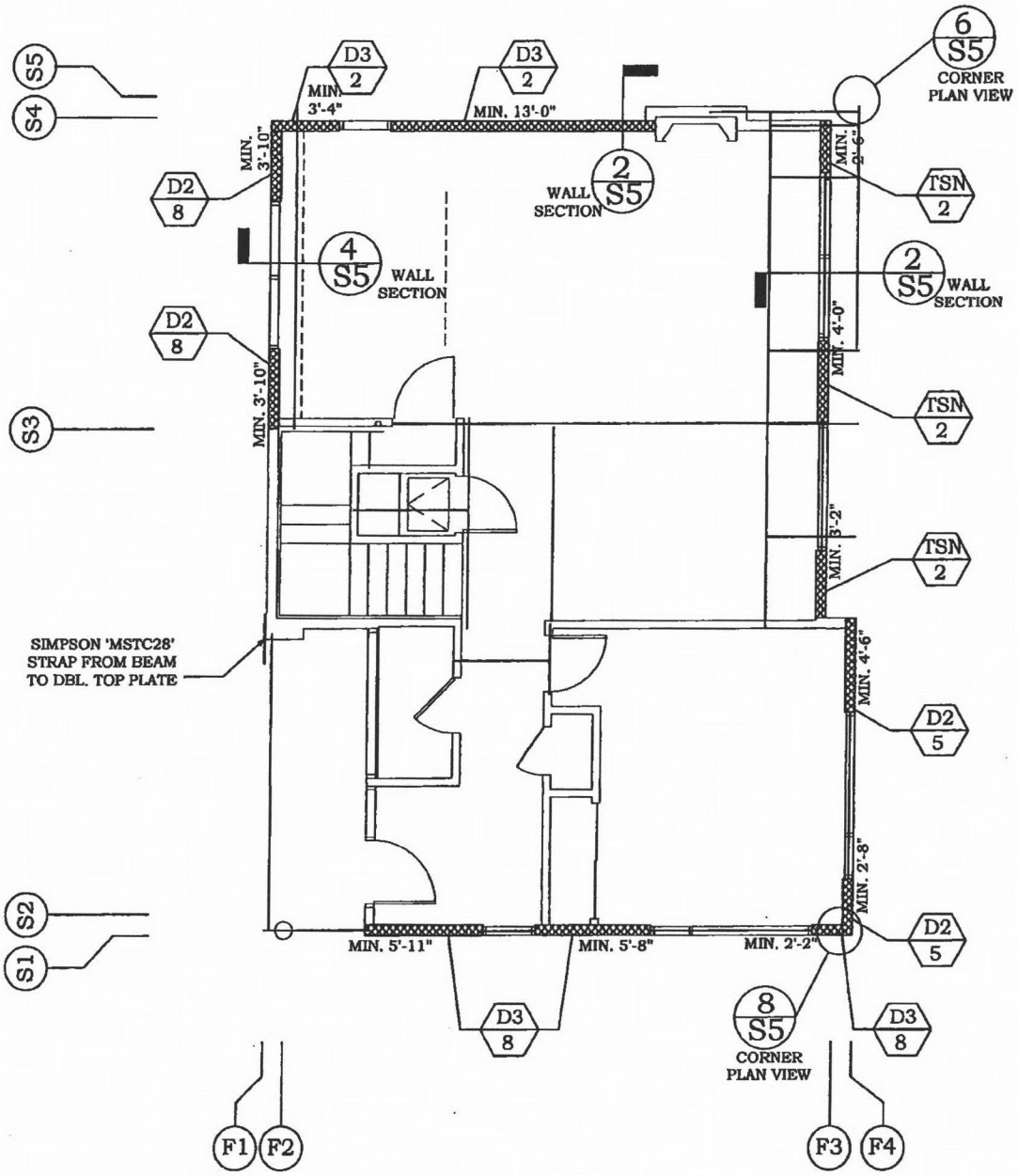
1. REFER TO FRAMING REQUIREMENTS FOR TYPICAL EXTERIOR SHEATHING AND NAILING (TSN), ROOF SHEATHING AND NAILING AND FLOOR SHEATHING AND NAILING REQUIREMENTS.



UPPER FLOOR SHEARWALL PLAN

NOTE:

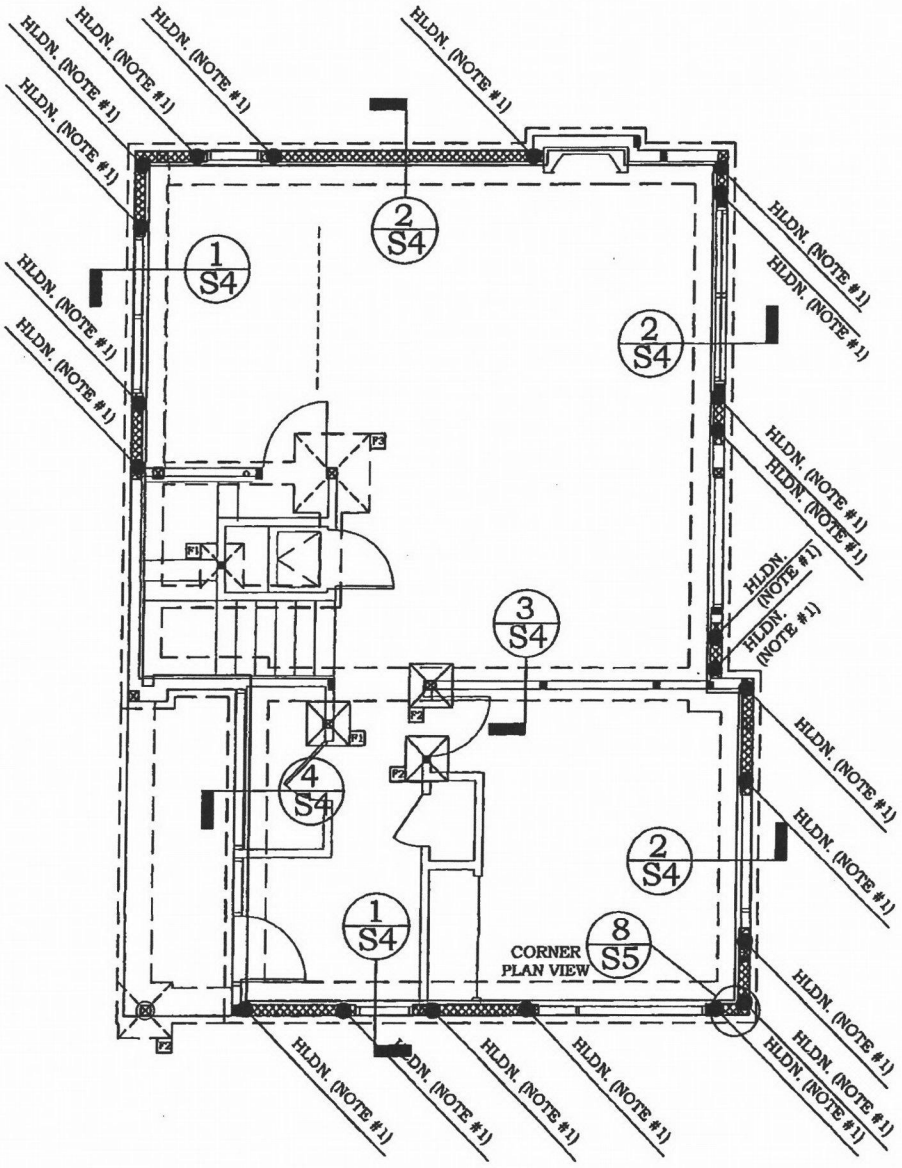
1. REFER TO FRAMING REQUIREMENTS FOR TYPICAL EXTERIOR SHEATHING AND NAILING (TSN), ROOF SHEATHING AND NAILING AND FLOOR SHEATHING AND NAILING REQUIREMENTS.



MAIN FLOOR SHEARWALL PLAN

NOTE:

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



PARTIAL FOUNDATION PLAN

FOUNDATION NOTES

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.

MATERIALS:

FOOTING SCHEDULE:

(1) FOOTING	SCHEDULE	REINFORCING BARS
F1	2'-0"x2'-0"x8"	(2) #4 BARS EACH WAY
F2	2'-6"x2'-6"x8"	(3) #4 BARS EACH WAY
F3	3'-6"x3'-6"x10"	(4) #4 BARS EACH WAY

(1) 3" CLEAR FROM BOTTOM OF FOOTING

4

SEISMIC LOADS (2010 OSSC, ASCE 7-07 - EQUIVALENT LATERAL FORCE)

DIRECTION: FRONT - TO - REAR

OCCUPANCY:	II	TABLE 1-1
SITE CLASSIFICATION:	D	TABLE 20.3-1
hn:	29.500	FT
Ss:	1.010	MAPS
S1:	0.319	MAPS
I:	1.000	TABLE 11.5-1
Fa:	1.090	TABLE 11.4-1
Fv:	1.760	TABLE 11.4-2
Sms:	1.101	EQ. 11.4-1
Sm1:	0.561	EQ. 11.4-2
Sds:	0.734	EQ. 11.4-3
Sd1:	0.374	EQ. 11.4-4
To:	0.102	
Ts:	0.510	
Ct:	0.020	TABLE 12.8-2
x:	0.750	TABLE 12.8-2
Ta:	0.253	EQ. 12.8-7

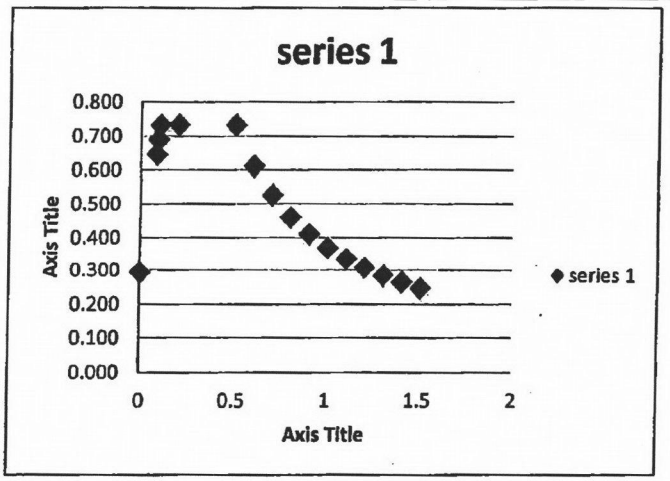
SEISMIC DESIGN CATEGORY (.1 SEC):	D	TABLE 11.6-1
SEISMIC DESIGN CATEGORY (1 SEC):	D	TABLE 11.6-2
R:	6.5	TABLE 12.2-1
Ω:	3.0	TABLE 12.2-1

SIMPLIFIED FORCE (V): 0.1355 W

Cs:	0.113 W (EQ. 12.8-2)
Cs (MAX):	0.162 W (EQ. 12.8-3/4)
CS (MIN):	0.010 W (EQ. 12.8-5)
CS (MIN, E F):	0.025 W (EQ. 12.8-6)
Cs (ACTUAL):	0.113 W

EQ. LATERAL FORCE (V): 0.113 W

		T	Sa
EQ 9.4.1.2.6-1		0	0.294
		0.0820	0.648
		0.0920	0.691
Sa = SDs	T0:	0.1020	0.734
		0.2	0.734
	Ts:	0.5100	0.734
EQ 9.4.1.2.6-2		0.6100	0.614
		0.7100	0.527
		0.8100	0.462
		0.9100	0.411
		1.0100	0.371
		1.1100	0.337
		1.2100	0.309
		1.3100	0.286
		1.4100	0.265
		1.5100	0.248



SEISMIC LOADS (2010 OSSC, ASCE 7-07 - EQUIVALENT LATERAL FORCE)

BASE SHEAR AND FLOOR DISTRIBUTION

SEISMIC LOAD: FRONT TO REAR DIRECTION

BUILDING WEIGHTS:

ROOF DIAPH.	12	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	272	136	1241	0	0.000	1.00	1
UPPER	952	476	1160	0	0.326	1.00	1
MAIN	1360	680	1160	0	0.211	1.00	1

BASE SHEAR

	HT	W	WiHi^k	TOTAL W	V	V*.7	SUM 'V'	
ROOF	29.0	18564	538356	18564	3246	2273	2273	12.8-11, 12.8-12
UPPER	21.0	24452	513492	43016	3096	2168	4440	12.8-11, 12.8-12
MAIN	10.5	29960	314580	72976	1897	1328	5768	12.8-11, 12.8-12
		72976	1366428		4993	**5768**		

	V (LBF):	**8240**	EQ. 12.8-1
E (SEISMIC BASE SHEAR)	V*.7 (LBF):	**5768**	2.4.1 ASD (L.C. 5,8)

SEISMIC LOAD: SIDE TO SIDE

BUILDING WEIGHTS:

ROOF DIAPH.	12	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	272	136	1241	0	0.213	1.00	1
UPPER	952	476	1160	0	0.397	1.00	1
MAIN	1360	680	1160	0	0.361	1.00	1

BASE SHEAR

	HT	W	WiHi^2	TOTAL W	V	V*.7	SUM 'V'	
ROOF	29.0	18564	538356	18564	3246	2273	2273	12.8-11, 12.8-12
UPPER	21.0	24452	513492	43016	3096	2168	4440	12.8-11, 12.8-12
MAIN	10.5	29960	314580	72976	1897	1328	5768	12.8-11, 12.8-12
		72976	1366428		4993	**5768**		

	V (LBF):	**8240**	EQ. 12.8-1
E (SEISMIC BASE SHEAR)	V*.7 (LBF):	**5768**	2.4.1 ASD (L.C. 5,8)

WIND LOADS MWFRS (2010 OSSC, ASCE 7-07)
LOW-RISE BUILDING METHOD 2 FIGURE 6-10

DIRECTION: FRONT - TO - REAR

WIND SPEED (MPH):	94.5		
EXPOSURE:	B		
BUILDING DIMENSIONS:			
LENGTH (HORIZONTAL, FT):	28.0		
WIDTH (TRANSVERSE, FT):	39.0		
ROOF MEAN HEIGHT (FT):	27.750		
TOTAL ROOF HEIGHT (FT):	29.500		
GABLE (Y/N):			
ROOF PITCH:	3		
THETA:	14.04	0.243	0.970
2a (FT):	8		

qh (MEAN ROOF HEIGHT):

I:	1	15-20
Kh:	0.7	0.7
Kzt:	1	
Kd:	0.85	
V:	94.5	
qh:	13.60	

		POSITIVE	NEGATIVE	
OPEN/ PARTIAL/ ENCLOSED	ENCLOSED	(GCpi) 0.18	-0.18	(FIGURE 6-5)

P (PSF)

	(GCpf) (FIGURE 6-10)	DESIGN PRESSURES (EQUATION 6-18) (+Gcpi)	(-Gcpi)	TOTAL	TOTAL	
1	0.47831411	4.06	8.95			
2	-0.69	-11.83	-6.94			
3	-0.4362658	-8.38	-3.49	-0.84	-0.84	-3.45
4	-0.3743383	-7.54	-2.64	**11.60**	11.60	
5	-0.45	-8.57	-3.67			
6	-0.45	-8.57	-3.67			
1E	0.72445908	7.41	12.30			
2E	-1.07	-17.00	-12.11			
3E	-0.6263866	-10.97	-6.07	-1.46	-1.46	-6.03
4E	-0.5565074	-10.02	-5.12	**17.42**	17.42	

BASE SHEAR

DIRECTION: FRONT - TO - REAR

DIAPHRAGM LEVEL	BUILDING HEIGHT	TRIBUTARY HEIGHT	PROJ AREA INTERIOR	qh: INTERIOR	PROJ AREA END	qh: END	V (LBS)	STORY SHEAR
ROOF	30-40	0.00	0.00	11.60	0.00	17.42	0	2100
ROOF	25-30	4.50	127.00	11.60	36.00	17.42	2100	
UPPER	20-25	5.00	100.00	11.60	40.00	17.42	1857	
UPPER	15-20	5.00	100.00	11.60	40.00	17.42	1857	3714
MAIN	0-15	10.00	200.00	11.60	80.00	17.42	3714	3714
			723.00		TOTAL BASE SHEAR R:		**9527**	

WIND LOADS MWFRS (2010 OSSC, ASCE 7-07)
LOW-RISE BUILDING METHOD 2 FIGURE 6-10 CONT..

DIRECTION: SIDE - TO -SIDE

WIND SPEED:	94.5		
EXPOSURE:	B		
BUILDING DIMENSIONS:			
LENGTH (HORIZONTAL, FT):	28.0		
WIDTH (TRANSVERSE, FT):	39.0		
ROOF MEAN HEIGHT:	27.8		
TOTAL ROOF HEIGHT (FT):	29.5		
GABLE (Y/N):			
ROOF PITCH:	3		
THETA:	14.04	0.243	0.970
2a:	8		

qh (MEAN ROOF HEIGHT):

I:	1	15-20
Kh:	0.7	0.7
Kzt:	1	
Kd:	0.85	
V:	94.5	
qh:	13.60	

		POSITIVE	NEGATIVE	
OPEN/ PARTIAL/ ENCLOSED	ENCLOSED			
	(GCpi)	0.18	-0.18	(FIGURE 6-5)

P (PSF)

	(GCpf) (FIGURE 6-10)		DESIGN PRESSURES (EQUATION 6-18) (+Gcpi)	(-Gcpi)	TOTAL	TOTAL	
1	0.47831411		4.06	8.95			
2	-0.69		-11.83	-6.94			
3	-0.4362658		-8.38	-3.49	-0.84	-0.84	-3.45
4	-0.3743383		-7.54	-2.64	11.60	11.60	
5	-0.45		-8.57	-3.67			
6	-0.45		-8.57	-3.67			
1E	0.72445908		7.41	12.30			
2E	-1.07		-17.00	-12.11			
3E	-0.6263866		-10.97	-6.07	-1.46	-1.46	-6.03
4E	-0.5565074		-10.02	-5.12	17.42	17.42	

BASE SHEAR

DIRECTION: SIDE TO SIDE

DIAPHRAGM LEVEL	BUILDING HEIGHT	TRIBUTARY HEIGHT	PROJ AREA INTERIOR	qh: INTERIOR	PROJ AREA END	qh: END	V (LBS)	STORY SHEAR
ROOF	30-40	0.00	0.00	11.60	0.00	17.42	0	3086
ROOF	25-30	4.50	212.00	11.60	36.00	17.42	3086	
UPPER	20-25	5.00	155.00	11.60	40.00	17.42	2495	
UPPER	15-20	5.00	155.00	11.60	40.00	17.42	2495	4989
MAIN	0-15	10.00	310.00	11.60	80.00	17.42	4989	4989
			1028.00		TOTAL BASE SHEAR R:		13065	

WALL DISTRIBUTION SHEET

DIRECTION: FRONT - TO - REAR WALL HEIGHT: 8
STORY: **ROOF DECK**

	WALL LINE	WALL LENGTH (L) (FT)	SEISMIC (S) LOAD (LB.)	S/L (LB./FT)	r(i) 0.3	WIND (W) LOAD (LB.)	W/FT (LB./FT)	MAX. WALL LOAD (LB./FT)	WALL TYPE	UPLIFT (LB.)	DEAD (D) LOAD (LB.)	T-D (LB.)	HOLDOWN TYPE
0.26	F1	15.17	584	39	0.2	540	36	39	TSN	308	430	-122	NO
0.24	F2	14.33	552	39	0.2	510	36	39	TSN	308	406	-98	NO
0.5	F3	15.33	1136	74	0.3	1050	68	74	TSN	593	434	158	MSTC28
0	F4	0.00	0	0	0	0	0	0	--	0	0	0	NO
			2273			2100							

DIRECTION: FRONT - TO - REAR WALL HEIGHT: 10
STORY: **UPPER**

	WALL LINE	WALL LENGTH (L) (FT)	SEISMIC (S) LOAD (LB.)	S/L (LB./FT)	r(i) 0.2	WIND (W) LOAD (LB.)	W/FT (LB./FT)	MAX. WALL LOAD (LB./FT)	WALL TYPE	UPLIFT (LB.)	DEAD (D) LOAD (LB.)	T-D (LB.)	HOLDOWN TYPE
0.29	F1	14.66	1207	82	0.2	1608	110	110	TSN	1097	208	767	MSTC28
0.21	F2	10.83	1013	93	0.2	1299	120	120	TSN	1200	153	948	MSTC28
0	F3	0.00	0	0	0	0	0	0	--	0	0	0	NO
0.5	F4	28.00	2220	79	0.2	2907	104	104	TSN	1038	397	642	MSTC28
1.00			4440			5814							

DIRECTION: FRONT - TO - REAR WALL HEIGHT: 10
STORY: **MAIN**

	WALL LINE	WALL LENGTH (L) (FT)	SEISMIC (S) LOAD (LB.)	S/L (LB./FT)	r(i) 0.5	WIND (W) LOAD (LB.)	W/FT (LB./FT)	MAX. WALL LOAD (LB./FT)	WALL TYPE	UPLIFT (LB.)	DEAD (D) LOAD (LB.)	T-D (LB.)	HOLDOWN TYPE
0.5	F1	7.66	2884	376	0.5	4764	622	622	D2	6219	217	6769	HDU8 4X
0	F2	0.00	0	0	0	0	0	0	--	0	0	0	NO
0.29	F3	9.67	381	39	0.1	1067	110	110	TSN	1103	274	830	HDU2 (2)2X
0.21	F4	7.16	2503	350	0.4	3697	516	516	D2	5163	203	5602	HDU5 (2)2X
1.00			5768			9527							

WALL DISTRIBUTION SHEET CONTINUED

DIRECTION: SIDE TO SIDE WALL HEIGHT: 8
STORY: **ROOF DECK**

	WALL LINE	WALL LENGTH (L) (FT)	SEISMIC (S) LOAD (LB.)	S/L (LB./FT)	r(i) 0.2	WIND (W) LOAD (LB.)	W/FT (LB./FT)	MAX. WALL LOAD (LB./FT)	WALL TYPE	UPLIFT (LB.)	DEAD (D) LOAD (LB.)	T-D (LB.)	HOLDOWN TYPE
0.21	S1	9.67	467	48	0.2	635	66	66	TSN	525	548	-22	NO
0.29	S2	13.83	669	48	0.2	908	66	66	TSN	525	784	-258	NO
0	S3	0.00	0	0	0	0	0	0	--	0	0	0	NO
0.5	S4	28.00	1136	41	0.2	1543	55	55	TSN	441	1587	-1146	NO
0	S5	0.00	0	0	0	0	0	0	--	0	0	0	NO
			2272.5			3086.1							

DIRECTION: SIDE TO SIDE WALL HEIGHT: 10
STORY: **UPPER**

	WALL LINE	WALL LENGTH (L) (FT)	SEISMIC (S) LOAD (LB.)	S/L (LB./FT)	r(i) 0.4	WIND (W) LOAD (LB.)	W/FT (LB./FT)	MAX. WALL LOAD (LB./FT)	WALL TYPE	UPLIFT (LB.)	DEAD (D) LOAD (LB.)	T-D (LB.)	HOLDOWN TYPE
0.5	S1	12.58	2220	176	0.4	4038	321	321	D4	3209	797	2390	MSTC40
0	S2	0.00	0	0	0	0	0	0	--	0	0	0	NO
0	S3	0.00	0	0	0	0	0	0	--	0	0	0	NO
0	S4	0.00	0	0	0	0	0	0	--	0	0	0	NO
0.5	S5	28.00	2220	79	0.2	4038	144	144	TSN	1442	1773	-331	NO
			4440.0			8076							

DIRECTION: SIDE TO SIDE WALL HEIGHT: 10
STORY: **MAIN**

	WALL LINE	WALL LENGTH (L) (FT)	SEISMIC (S) LOAD (LB.)	S/L (LB./FT)	r(i) 0.4	WIND (W) LOAD (LB.)	W/FT (LB./FT)	MAX. WALL LOAD (LB./FT)	WALL TYPE	UPLIFT (LB.)	DEAD (D) LOAD (LB.)	T-D (LB.)	HOLDOWN TYPE
0.5	S1	13.83	2884	208	0.4	6532	472	472	D3	4723	441	6672	HDU8 4X
0	S2	0.00	0	0	0	0	0	0	--	0	0	0	NO
0	S3	0.00	0	0	0	0	0	0	--	0	0	0	NO
0.5	S4	16.33	2884	177	0.3	6532	400	400	D3	4000	964.3333	3036	HDU2 (2)2X
0	S5	0.00	0	0	0	0	0	0	--	0	0	-331	NO
			5767.9			13065							

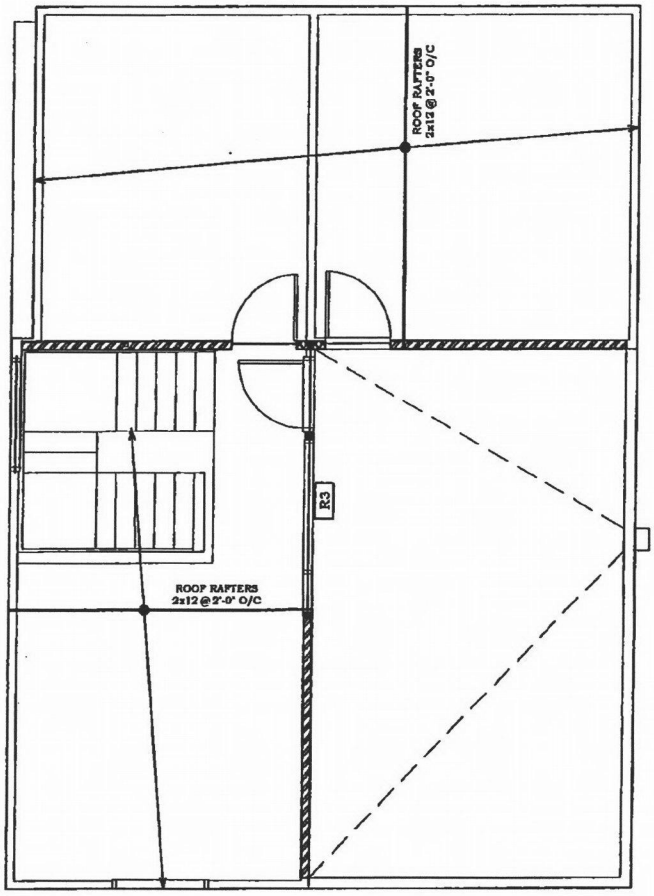
FOOTING DESIGN

:ONCRETE STRENGTH: 3 KSI WALL WIDTH: 8 IN
STREEL STRENGTH: 60 KSI SOIL BEARING PRESSURE: 1500 PSF
DIRECTION: FRONT - TO - REAR

WALL LINE (PG.)	UPLIFT (PG.)	FTG. DEPTH (IN.)	FTG. WIDTH (IN.)	WALL DEPTH (IN.)	WALL LENGTH (FT.)	MOMENT (K-LB)	DEAD LOAD FTG. PLF	a	STEEL REQUIRED (IN^2)	REINF. T&B	
F1	6769	8	16	18	3.83	34	283	1.00	0.45	2-#5 BARS	1\s4
F2	0	18	16	0	0.00	0	300	0.00	0.00	NONE	
F3	830	8	16	18	2.50	1	283	0.01	0.01	NONE	
F4	5602	8	16	18	5.25	24	283	0.68	0.31	1-#5 BAR	2\s4

:ONCRETE STRENGTH: 3 KSI WALL WIDTH: 8 IN
STREEL STRENGTH: 60 KSI SOIL BEARING PRESSURE: 1500 PSF
DIRECTION: FRONT - TO - REAR

WALL LINE (PG.)	UPLIFT (PG.)	FTG. DEPTH (IN.)	FTG. WIDTH (IN.)	WALL DEPTH (IN.)	WALL LENGTH (FT.)	MOMENT (FT.-LB.)	DEAD LOAD FTG. PLF	a	STEEL REQUIRED (IN^2)	REINF. T&B	
S1	6672	8	16	18	6.00	33	283	0.97	0.44	2-#5 BARS	1\s4
S2	0	18	16	0	0.00	0	300	0.00	0.00	NONE	
S3	0	18	16	0	0.00	0	300	0.00	0.00	NONE	
S4	3036	8	16	18	16.33	9	283	0.25	0.12	1-#4 BAR	2\s4
S5	-331	8	16	18	0.00	0	283	0.00	0.00	NONE	



ROOF FRAMING PLAN

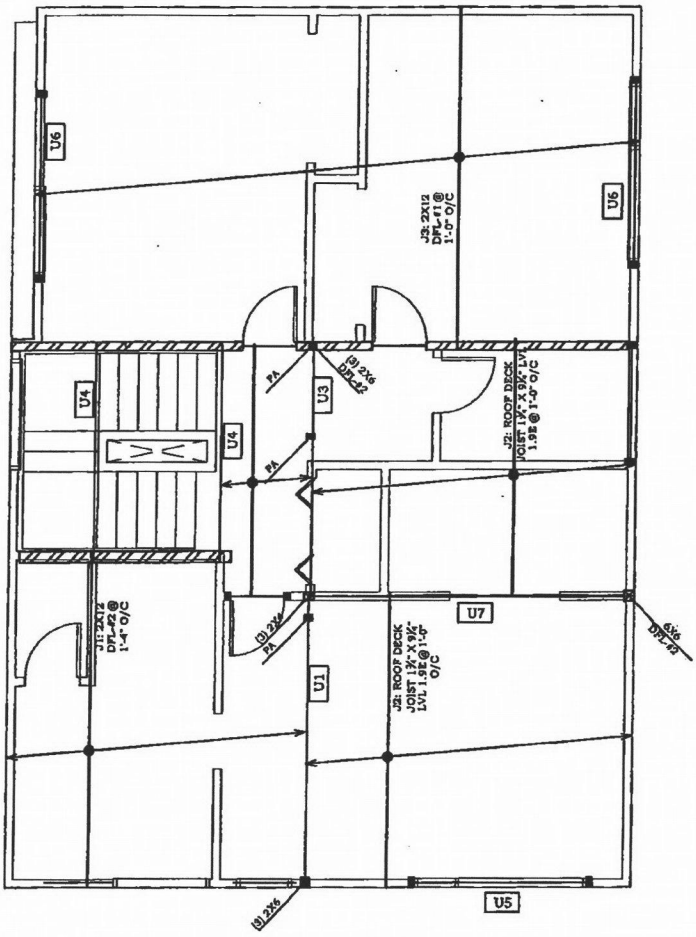
ROOF AND FLOOR FRAMING NOTES:

(1) HEADERS TO BE R2: 4X8 DFL-#2 (4'-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.

IBW - INTERIOR BEARING WALL
BW - EXTERIOR BEARING WALL

BEAM SCHEDULE:

BEAM SIZE	SIZE
R1	6X8 DFL-#2



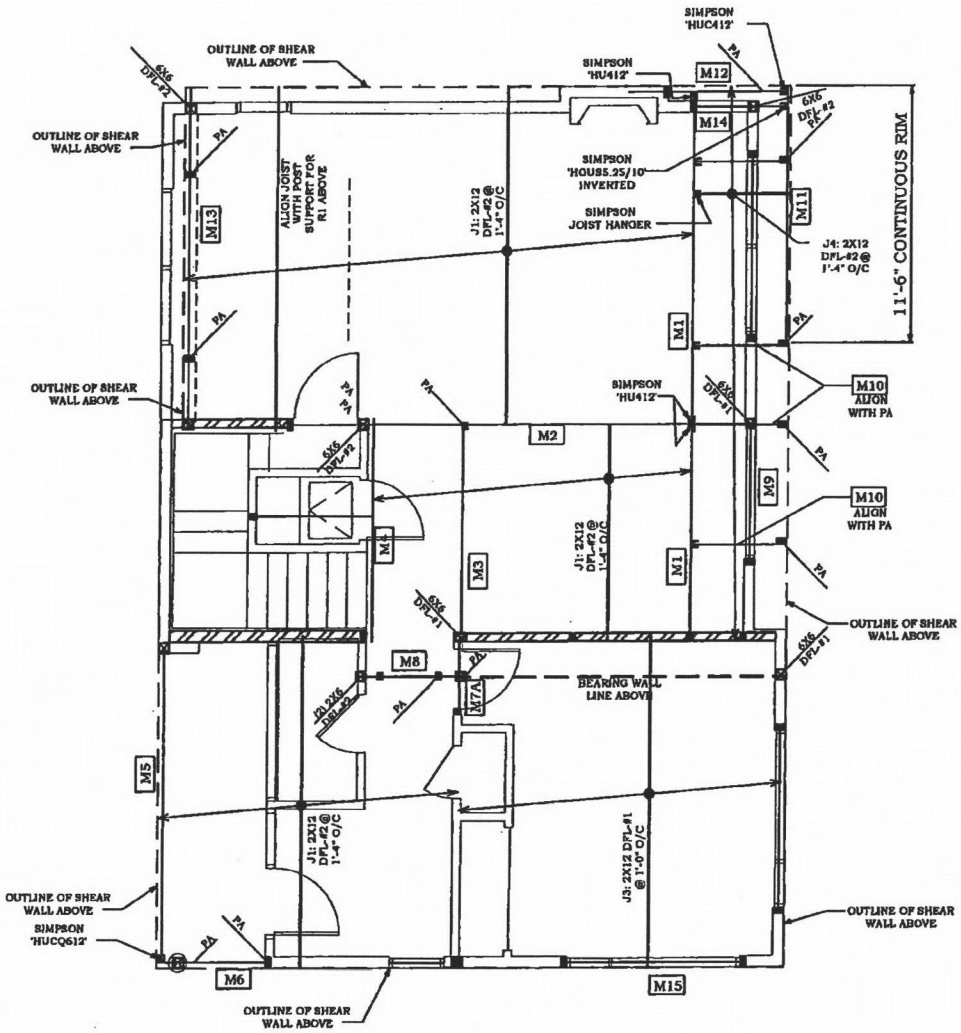
UPPER FLOOR/ ROOF DECK RAMING PLAN

ROOF AND FLOOR FRAMING NOTES:

(1) HEADERS TO BE 4X10 DFL-#2 (MAX. SPAN 4'-0"), 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.
(4) TYPICAL EXTERIOR WALL POST TO BE (2) 2X6 DFL-#2 (BUNDLED STUD), FASTEN EACH STUD TOGETHER WITH 16d NAILS @ 12" O/C, TYP. ENTIRE LENGTH OF STUD, U.N.O.
TYPICAL INTERIOR WALL POST TO BE (2) 2X4 DFL-#2 (BUNDLED STUD), FASTEN EACH STUD TOGETHER WITH 16d NAILS @ 12" O/C, TYP. ENTIRE LENGTH OF STUD, U.N.O.
IBW — IBW - INTERIOR BEARING WALL

BEAM SCHEDULE:

BEAM SIZE	SIZE
U1	3½" X 11¾" PSL 2.0E
U2	N/A
U3	4X12 DFL-#2
U4	4X12 DFL-#2
U2A	NONE
U5	6X12 DFL-#1
U6	4X8 DFL-#2
U7	6¾" X 16½" GLB 24F-V4



MAIN FLOOR FRAMING PLAN

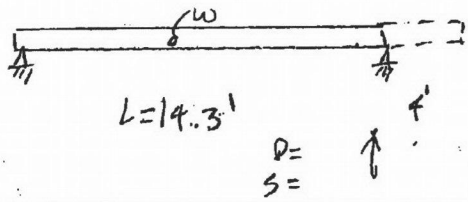
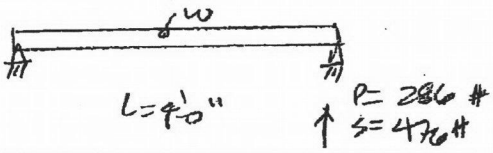
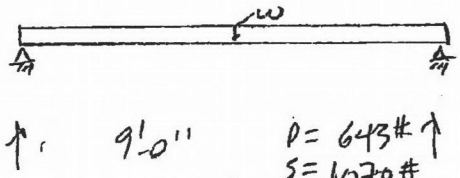
ROOF AND FLOOR FRAMING NOTES:
(1) HEADERS TO BE 6X8 DFL-#2, U.N.O.
(2) INTERIOR HEADERS TO BE 4X10 DFL-#2 (MAX. SPAN 4'-0"), U.N.O.
(3) REFER TO ARCHITECTURAL DRAWINGS FOR ROOF FINISHING SPECIFICATIONS AND VERIFICATION OF ALL DIMENSIONS.
(4) TYPICAL EXTERIOR WALL POST TO BE (2) 2X6 DFL-#2 (BUNDLED STUD), FASTEN EACH STUD TOGETHER WITH 16d NAILS @ 12" O/C, TYP. ENTIRE LENGTH OF STUD, U.N.O.
TYPICAL INTERIOR WALL POST TO BE (2) 2X4 DFL-#2 (BUNDLED STUD), FASTEN EACH STUD TOGETHER WITH 16d NAILS @ 12" O/C, TYP. ENTIRE LENGTH OF STUD, U.N.O.
(5) STRAP END OF BEAM TO POST BELOW WITH SIMPSON 'MSTC28'.
IBW - INTERIOR BEARING WALL

BEAM SCHEDULE:

BEAM SIZE	SIZE
M1	4X12 DFL-#2
M2	6¾" X 21" GLB 24F-V4
M5,M6,M13	5¼" X 11¾" PSL 2.0E
M7,M3	(3) 2X12 DFL-#2
M8	5⅛" X 9" GLB 24F-V4
M9	6X12 DFL-#2
M10	(2) 2X12 DFL-#2
M11	3½" X 11¾" PSL 2.0E
M12	3½" X 11¾" PSL 2.0E
M14	5¼" X 11¾" PSL 2.0E
M15	4X10 DFL-#2
M7A	5½" X 10½" GLB 24F-V4

TURNER ENGINEERING & DESIGN

BEAM LOAD SHEET, CONT...

BEAM #	ANALYSIS	SKETCH AND DESIGN
R1: ROOF BEAM @ CANT	w) $R_{DL} = 3'(14)$ ~~EP 45 PLF~~ $R_{SL} =$ NOT $\frac{1}{3}(25) = 75$ PLF	
R2: TYP. HOR. EXTERIOR 4'	w) $R_{DL} = 9.5'(15) = 143$ PLF $R_{SL} = 9.5'(25) = 238$ PLF	
R3: TYP. HOR. 9'-0"	w) $R_{DL} = 9.5'(15) = 143$ PLF $R_{SL} = 9.5'(25) = 238$ PLF	

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Title Block Line 6

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Dsgnr:
Project Desc.:
Project Notes :

Job #

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Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tiogal\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : R1

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

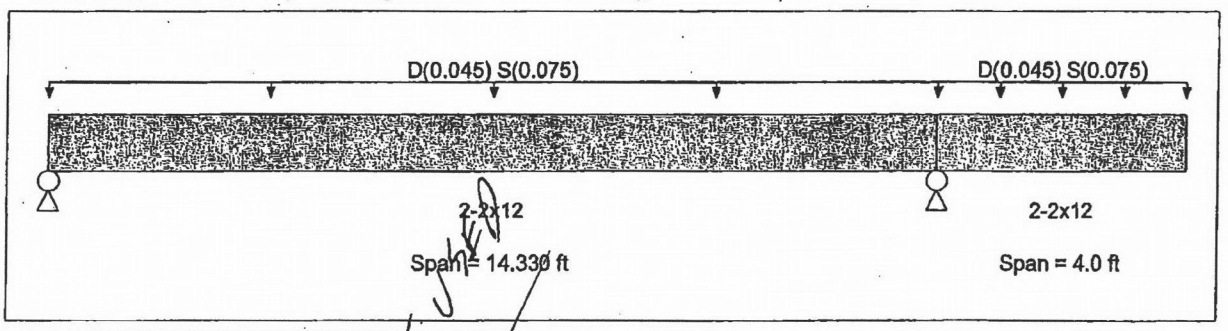
Wood Species : Douglas Fir - Larch
Wood Grade : No.2

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

Fb - Tension	875.0 psi
Fb - Compr	875.0 psi
Fc - Prll	600.0 psi
Fc - Perp	625.0 psi
Fv	170.0 psi
Ft	425.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	32.210 pcf



Applied Loads

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

Load for Span Number 1
Uniform Load : D = 0.0450, S = 0.0750 , Tributary Width = 1.0 ft
Load for Span Number 2
Uniform Load : D = 0.0450, S = 0.0750 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.494 : 1	Maximum Shear Stress Ratio	=	0.211 : 1
Section used for this span		2-2x12	Section used for this span		2-2x12
fb : Actual	=	496.63 psi	fv : Actual	=	41.19 psi
FB : Allowable	=	1,006.25 psi	Fv : Allowable	=	195.50 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	6.614 ft	Location of maximum on span	=	14.330 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.127 in	Ratio =	1356
Max Upward L+Lr+S Deflection	-0.086 in	Ratio =	1120
Max Downward Total Deflection	0.203 in	Ratio =	847
Max Upward Total Deflection	-0.137 in	Ratio =	700

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+S+H														
Length = 14.330 ft	1	0.494	0.211	1.150	1.000	1.000	1.000	1.000	2.62	496.63	1,006.25	0.93	41.19	195.50
Length = 4.0 ft	2	0.181	0.211	1.150	1.000	1.000	1.000	1.000	-0.96	182.04	1,006.25	0.37	41.19	195.50
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 14.330 ft	1	0.416	0.178	1.150	1.000	1.000	1.000	1.000	2.21	419.03	1,006.25	0.78	34.75	195.50
Length = 4.0 ft	2	0.153	0.178	1.150	1.000	1.000	1.000	1.000	-0.81	153.60	1,006.25	0.31	34.75	195.50

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+S	1	0.2028	7.055		0.0000	0.000
	2	0.0000	7.055	D+S	-0.1370	4.000

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Job #

Project Notes :

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Wood Beam

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : R1

Vertical Reactions - Unfactored

Support notation : Far left is #1. Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.793	1.407	
D Only	0.297	0.528	
S Only	0.496	0.879	
D+S	0.793	1.407	

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Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n fioga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.26.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : R2

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

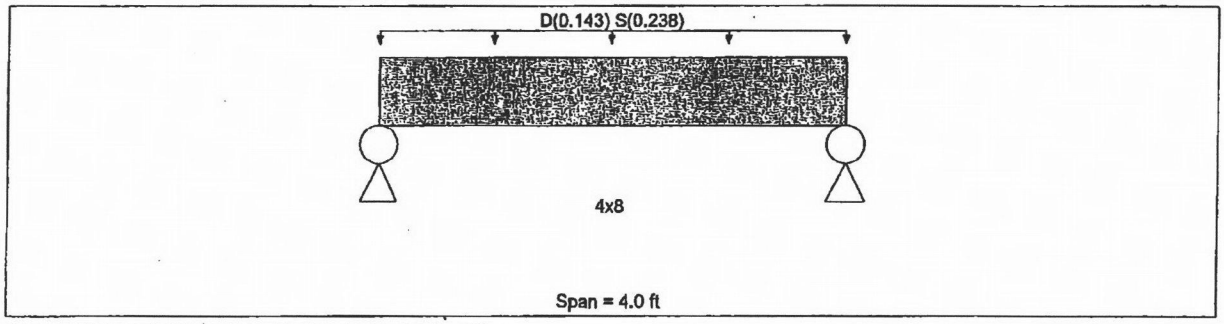
Wood Species : Douglas Fir - Larch
Wood Grade : No.2

Fb - Tension	875.0 psi
Fb - Compr	875.0 psi
Fc - Prll	600.0 psi
Fc - Perp	625.0 psi
Fv	170.0 psi
Ft	425.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0ksi
Eminbend - xx	470.0ksi
Density	32.210pcf

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 = 0.1430, S = 0.2380 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.228 : 1	Maximum Shear Stress Ratio	=	0.161 : 1
Section used for this span		4x8	Section used for this span		4x8
fb : Actual	=	298.22psi	fv : Actual	=	31.53 psi
FB : Allowable	=	1,308.13psi	Fv : Allowable	=	195.50 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	2.000ft	Location of maximum on span	=	0.000ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.010 in	Ratio =	5019
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <240
Max Downward Total Deflection	0.015 in	Ratio =	3135
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+S+H														
Length = 4.0 ft	1	0.228	0.161	1.150	1.300	1.000	1.000	1.000	0.76	298.22	1,308.13	0.53	31.53	195.50
+D+0.750L+0.750S+H					1.300	1.000	1.000	1.000						
Length = 4.0 ft	1	0.192	0.136	1.150	1.300	1.000	1.000	1.000	0.64	251.65	1,308.13	0.45	26.61	195.50

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+S	1	0.0153	2.020		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.762	0.762
D Only	0.286	0.286
S Only	0.476	0.476
D+S	0.762	0.762

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Project Desc.:
Project Notes :

Job #

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Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n fogs\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : R1

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

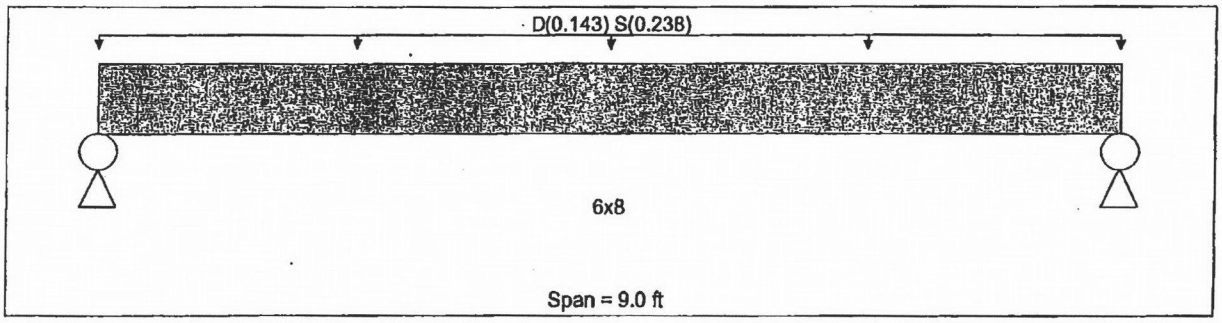
Analysis Method : Allowable Stress Design
Load Combination 2006 IBC & ASCE 7-05

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

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

Fb - Tension	875.0 psi
Fb - Compr	875.0 psi
Fc - Prll	600.0 psi
Fc - Perp	625.0 psi
Fv	170.0 psi
Ft	425.0 psi

E : Modulus of Elasticity	
Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	32.210 pcf



Applied Loads

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

Uniform Load : D = 0.1430, S = 0.2380 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.892 : 1	Maximum Shear Stress Ratio	=	0.277 : 1
Section used for this span		6x8	Section used for this span		6x8
fb : Actual	=	897.77 psi	fv : Actual	=	54.24 psi
FB : Allowable	=	1,006.25 psi	Fv : Allowable	=	195.50 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	4.500 ft	Location of maximum on span	=	8.415 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.141 in	Ratio =	766
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <240
Max Downward Total Deflection	0.226 in	Ratio =	478
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+S+H														
Length = 9.0 ft	1	0.892	0.277	1.150	1.000	1.000	1.000	1.000	3.86	897.77	1,006.25	1.49	54.24	195.50
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 9.0 ft	1	0.753	0.234	1.150	1.000	1.000	1.000	1.000	3.26	757.57	1,006.25	1.26	45.77	195.50

Overall Maximum Deflections - Unfactored Loads

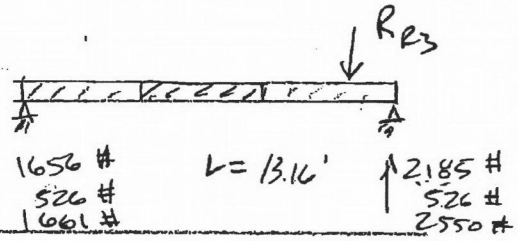
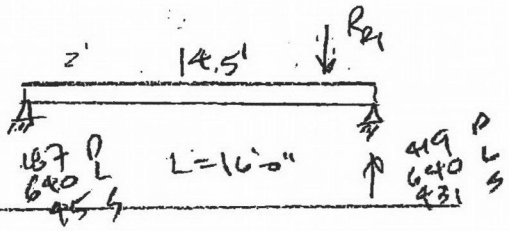
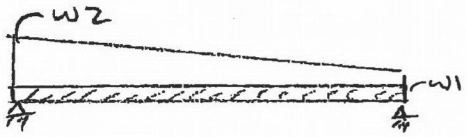
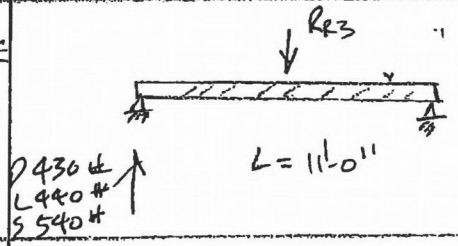
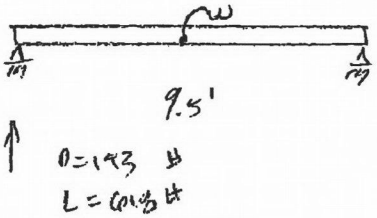
Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+S	1	0.2255	4.545		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.715	1.715
D Only	0.644	0.644
S Only	1.071	1.071
D+S	1.715	1.715

BEAM LOAD SHEET, CONT...

BEAM #	ANALYSIS	SKETCH AND DESIGN
U1: FLOOR BEAM	w) $R_{DL} = 143$ plf $R_{SL} = 238$ plf R_{R3}) D = 643# L = 1069# WALL$_D$ = 80 plf F_{L_D} = 20 plf F_{L_L} = 80 plf EDL = 243	
U2: FLOOR BEAM	w) F_{L_D} = 20 plf F_{L_L} = 80 plf OMITTED	
J2: FLOOR JOIST 12" O/C	w1) F_{L_D} = 10 plf F_{L_L} = 40 plf w2) SNOW DRIFT = 60 psf	
U3: 4x12 Pick up Post	R_{R3}) D = 643 # S = 1069 # ~~143(4.5)~~ = ~~238(4.5)~~ =	
U4: BEAM @ STAIRS	w) F_{L_D} = 3'(10) = 30 plf F_{L_L} = 3'(40) = 120 plf	

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Project Title:
Engineer:
Project Descr:

Project ID:

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Wood Beam

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ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U1

CODE REFERENCES

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05
Load Combination Set : 2006 IBC & ASCE 7-05

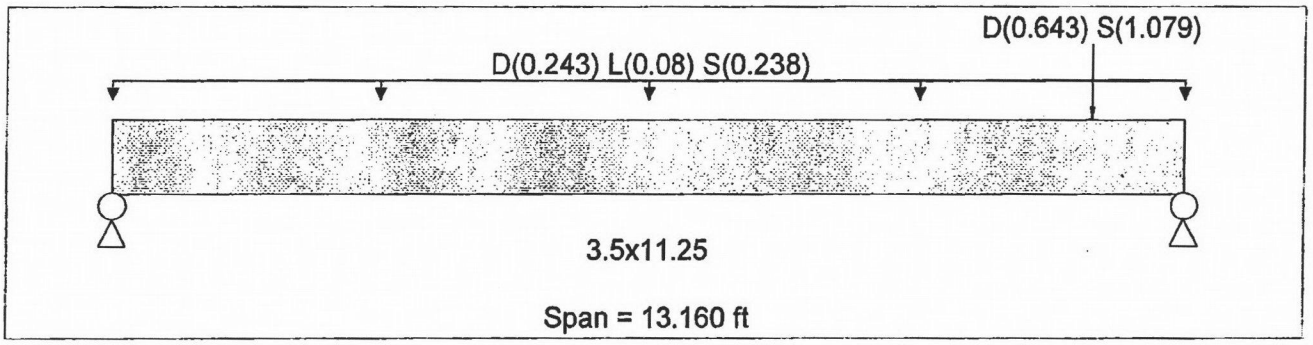
Material Properties

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

Wood Species : iLevel Truss Joist
Wood Grade : Parallam PSL 2.0E

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

Fb - Tension	2,900.0 psi	*E : Modulus of Elasticity*	
Fb - Compr	2,900.0 psi	Ebend- xx	2,000.0 ksi
Fc - Prll	2,900.0 psi	Eminbend - xx	1,016.54 ksi
Fc - Perp	750.0 psi		
Fv	290.0 psi		
Ft	2,025.0 psi	Density	32.210 pcf



Applied Loads

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

Uniform Load : D = 0.2430, L = 0.080, S = 0.2380 , Tributary Width = 1.0 ft
Point Load : D = 0.6430, S = 1.079 k @ 12.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.557: 1	Maximum Shear Stress Ratio	=	0.491 : 1
Section used for this span		3.5x11.25	Section used for this span		3.5x11.25
fb : Actual	=	1,858.70 psi	fv : Actual	=	163.67 psi
FB : Allowable	=	3,335.00 psi	Fv : Allowable	=	333.50 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	6.916 ft	Location of maximum on span	=	12.247 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.288 in	Ratio =	548
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.503 in	Ratio =	313
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios									Moment Values			Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_l	C_r	C_m	C_t	C_L	M	fb	F'b	V	fv	F'v
+D+L+H													0.00	0.00	0.00	0.00
Length = 13.160 ft	1	0.413	0.317	1.00	1.00	1.00	1.00	1.00	1.00	1.00	7.37	1,197.96	2900.00	2.42	92.07	290.00
+D+Lr+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.160 ft	1	0.316	0.258	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5.64	916.73	2900.00	1.96	74.80	290.00
+D+S+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.160 ft	1	0.557	0.491	1.15	1.00	1.00	1.00	1.00	1.00	1.00	11.44	1,858.70	3335.00	4.30	163.67	333.50
+D+0.750Lr+0.750L+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.160 ft	1	0.389	0.303	1.00	1.00	1.00	1.00	1.00	1.00	1.00	6.94	1,127.64	2900.00	2.30	87.75	290.00
+D+0.750L+0.750S+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.160 ft	1	0.550	0.463	1.15	1.00	1.00	1.00	1.00	1.00	1.00	11.28	1,833.90	3335.00	4.05	154.40	333.50

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Project Title:
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Project Descr:

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Wood Beam

File = C:\Users\Public\jobs\R13218-1\R11243-1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U1

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.5033	6.676		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	3.843	5.262
D Only	1.656	2.185
L Only	0.526	0.526
S Only	1.661	2.550
L+S	2.188	3.076
D+L	2.182	2.712
D+S	3.317	4.735
D+L+S	3.843	5.262

Title Block Line 1
You can changes this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 9:27AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tioga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0
Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U2

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

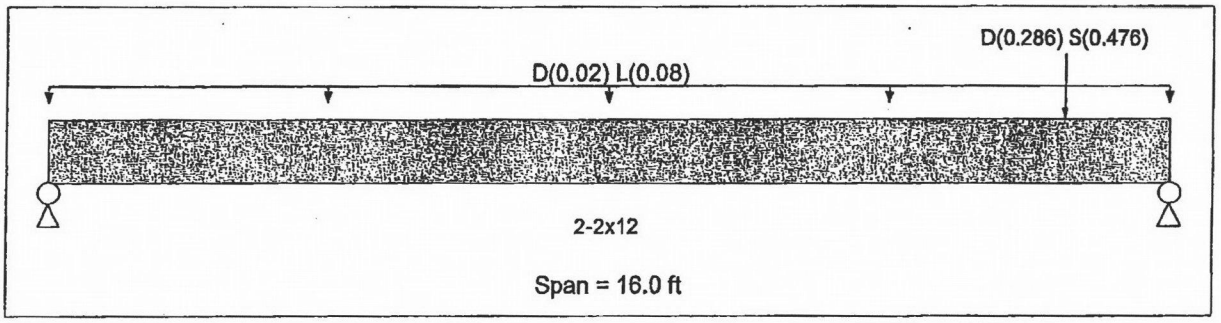
Wood Species : Douglas Fir - Larch
Wood Grade : No.2

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

Fb - Tension	900 psi
Fb - Compr	900 psi
Fc - Prll	1350 psi
Fc - Perp	625 psi
Fv	180 psi
Ft	575 psi

E : Modulus of Elasticity

Ebend- xx	1600ksi
Eminbend - xx	580ksi
Density	32.21pcf



Applied Loads

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

Uniform Load : D = 0.020, L = 0.080 , Tributary Width = 1.0 ft
Point Load : D = 0.2860, S = 0.4760 k @ 14.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.720: 1	Maximum Shear Stress Ratio	=	0.285 : 1
Section used for this span		2-2x12	Section used for this span		2-2x12
fb : Actual	=	648.16psi	fv : Actual	=	51.21 psi
FB : Allowable	=	900.00psi	Fv : Allowable	=	180.00 psi
Load Combination		+D+L+H	Load Combination		+D+0.750L+0.750S+H
Location of maximum on span	=	8.240ft	Location of maximum on span	=	15.120ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.243 in	Ratio =	788
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.316 in	Ratio =	606
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
+D+L+H														
Length = 16.0 ft	1	0.720	0.240	1.000	1.000	1.000	1.000	1.000	3.42	648.16	900.00	0.97	43.16	180.00
+D+S+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.282	0.206	1.000	1.000	1.000	1.000	1.000	1.34	253.93	900.00	0.83	37.02	180.00
+D+0.750Lr+0.750L+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.586	0.205	1.000	1.000	1.000	1.000	1.000	2.78	526.98	900.00	0.83	36.84	180.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.646	0.285	1.000	1.000	1.000	1.000	1.000	3.06	581.20	900.00	1.15	51.21	180.00
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.586	0.205	1.000	1.000	1.000	1.000	1.000	2.78	526.98	900.00	0.83	36.84	180.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.646	0.285	1.000	1.000	1.000	1.000	1.000	3.06	581.20	900.00	1.15	51.21	180.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.586	0.205	1.000	1.000	1.000	1.000	1.000	2.78	526.98	900.00	0.83	36.84	180.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						

Title Block Line 1
You can changes this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 9:27AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n fiogat\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U2

Load Combination Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
Length = 16.0 ft	1	0.646	0.285	1.000	1.000	1.000	1.000	1.000	3.06	581.20	900.00	1.15	51.21	180.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.3164	8.240		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.871	1.491
D Only	0.187	0.419
L Only	0.640	0.640
S Only	0.045	0.431
L+S	0.685	1.071
D+L	0.827	1.059
D+S	0.231	0.851
D+L+S	0.871	1.491

Title Block Line 1
You can changes this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 10:56AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n Soga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U2A

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

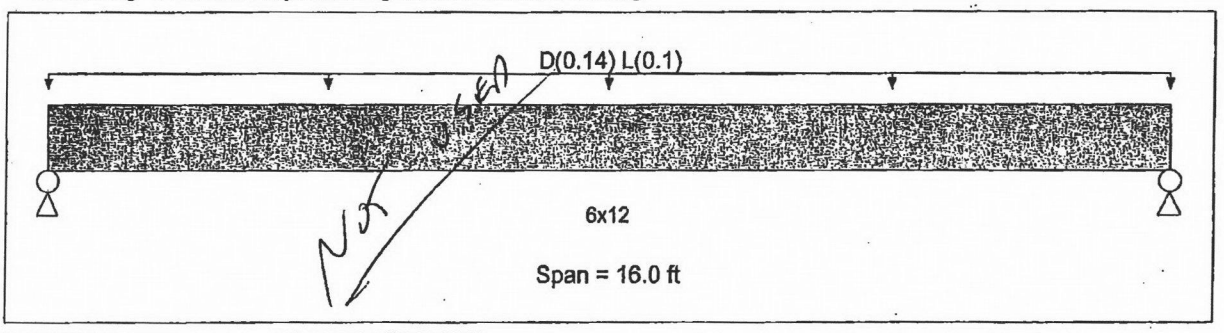
Analysis Method : Allowable Stress Design
Load Combination 2006 IBC & ASCE 7-05

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

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

Fb - Tension	900.0 psi
Fb - Compr	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity	
Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	32.210 pcf



Applied Loads

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

Uniform Load : D = 0.140, L = 0.10 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.845 : 1	Maximum Shear Stress Ratio	=	0.225 : 1
Section used for this span		6x12	Section used for this span		6x12
fb : Actual	=	760.21 psi	fv : Actual	=	40.52 psi
FB : Allowable	=	900.00 psi	Fv : Allowable	=	180.00 psi
Load Combination		+D+L+H	Load Combination		+D+L+H
Location of maximum on span	=	8.000 ft	Location of maximum on span	=	15.120 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.133 in	Ratio =	1440
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.320 in	Ratio =	600
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 16.0 ft	1	0.845	0.225	1.000	1.000	1.000	1.000	1.000	7.68	760.21	900.00	1.71	40.52	180.00
+D+0.750Lr+0.750L+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.757	0.202	1.000	1.000	1.000	1.000	1.000	6.88	681.02	900.00	1.53	36.30	180.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.757	0.202	1.000	1.000	1.000	1.000	1.000	6.88	681.02	900.00	1.53	36.30	180.00
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.757	0.202	1.000	1.000	1.000	1.000	1.000	6.88	681.02	900.00	1.53	36.30	180.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.757	0.202	1.000	1.000	1.000	1.000	1.000	6.88	681.02	900.00	1.53	36.30	180.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.757	0.202	1.000	1.000	1.000	1.000	1.000	6.88	681.02	900.00	1.53	36.30	180.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.757	0.202	1.000	1.000	1.000	1.000	1.000	6.88	681.02	900.00	1.53	36.30	180.00

Title Block Line 1
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Title Block Line 6

Title :
Dsgnr:
Project Desc.:

Job #

Project Notes :

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Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n llogat\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U2A

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L	1	0.3198	8.080		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.920	1.920
D Only	1.120	1.120
L Only	0.800	0.800
D+L	1.920	1.920

Title Block Line 1
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and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

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Wood Beam

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ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U3

CODE REFERENCES

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05
Load Combination Set : 2006 IBC & ASCE 7-05

Material Properties

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

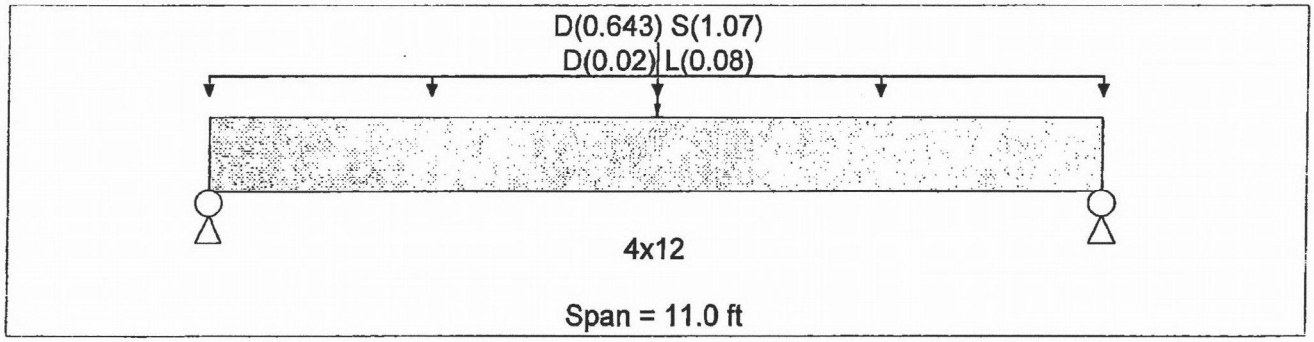
Wood Species : Douglas Fir - Larch
Wood Grade : No.2

Fb - Tension	900.0 psi
Fb - Compr	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	32.210 pcf

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 = 0.020, L = 0.080 , Tributary Width = 1.0 ft
Point Load : D = 0.6430, S = 1.070 k @ 5.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.851: 1	Maximum Shear Stress Ratio	=	0.230 : 1
Section used for this span		4x12	Section used for this span		4x12
fb : Actual	=	842.79 psi	fv : Actual	=	41.48 psi
FB : Allowable	=	990.00 psi	Fv : Allowable	=	180.00 psi
Load Combination		+D+0.750L+0.750S+H	Load Combination		+D+0.750L+0.750S+H
Location of maximum on span	=	5.500 ft	Location of maximum on span	=	10.077 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.117 in	Ratio =	1123
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.174 in	Ratio =	758
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios									Moment Values			Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_l	C_r	C_m	C_t	C_L	M	fb	F'b	V	fv	F'v
+D+L+H													0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.539	0.165	1.00	1.10	1.00	1.00	1.00	1.00	1.00	3.28	533.25	990.00	0.78	29.68	180.00
+D+Lr+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.340	0.087	1.00	1.10	1.00	1.00	1.00	1.00	1.00	2.07	336.58	990.00	0.41	15.73	180.00
+D+S+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.823	0.201	1.00	1.10	1.00	1.00	1.00	1.00	1.00	5.01	814.85	990.00	0.95	36.12	180.00
+D+0.750Lr+0.750L+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.489	0.146	1.00	1.10	1.00	1.00	1.00	1.00	1.00	2.98	484.08	990.00	0.69	26.20	180.00
+D+0.750L+0.750S+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.851	0.230	1.00	1.10	1.00	1.00	1.00	1.00	1.00	5.19	842.79	990.00	1.09	41.48	180.00
+D+W+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00

Title Block Line 1
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Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

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Wood Beam

File = C:\Users\Public\jobs\R13218~1\R11243~1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U3

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
Length = 11.0 ft	1	0.340	0.087	1.00	1.10	1.00	1.00	1.00	1.00	1.00	2.07	336.58	990.00	0.41	15.73	180.00
+D+0.70E+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.340	0.087	1.00	1.10	1.00	1.00	1.00	1.00	1.00	2.07	336.58	990.00	0.41	15.73	180.00
+D+0.750Lr+0.750L+0.750W+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.489	0.146	1.00	1.10	1.00	1.00	1.00	1.00	1.00	2.98	484.08	990.00	0.69	26.20	180.00
+D+0.750L+0.750S+0.750W+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.851	0.230	1.00	1.10	1.00	1.00	1.00	1.00	1.00	5.19	842.79	990.00	1.09	41.48	180.00
+D+0.750Lr+0.750L+0.5250E+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.489	0.146	1.00	1.10	1.00	1.00	1.00	1.00	1.00	2.98	484.08	990.00	0.69	26.20	180.00
+D+0.750L+0.750S+0.5250E+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.851	0.230	1.00	1.10	1.00	1.00	1.00	1.00	1.00	5.19	842.79	990.00	1.09	41.48	180.00
+0.60D+W+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.204	0.052	1.00	1.10	1.00	1.00	1.00	1.00	1.00	1.24	201.95	990.00	0.25	9.44	180.00
+0.60D+0.70E+H					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.204	0.052	1.00	1.10	1.00	1.00	1.00	1.00	1.00	1.24	201.95	990.00	0.25	9.44	180.00
+0.60D-1.0W					1.10	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.0 ft	1	0.204	0.052	1.00	1.10	1.00	1.00	1.00	1.00	1.00	1.24	201.95	990.00	0.25	9.44	180.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.1741	5.540		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.407	1.407
D Only	0.432	0.432
L Only	0.440	0.440
S Only	0.535	0.535
L+S	0.975	0.975
D+L	0.872	0.872
D+S	0.967	0.967
D+L+S	1.407	1.407

Title Block Line 1
You can changes this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 9:33AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n Ilogs\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0
Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : J1

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

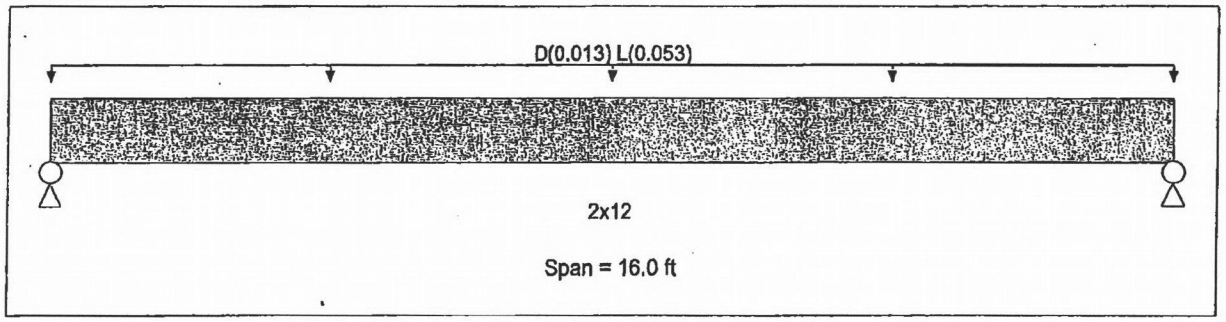
Wood Species : Douglas Fir - Larch
Wood Grade : No.2

Fb - Tension	900 psi
Fb - Compr	900 psi
Fc - Prll	1350 psi
Fc - Perp	625 psi
Fv	180 psi
Ft	575 psi

E : Modulus of Elasticity

Ebend- xx	1600 ksi
Eminbend - xx	580 ksi
Density	32.21 pcf

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 = 0.0130, L = 0.0530 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.890 : 1	Maximum Shear Stress Ratio	=	0.232 : 1
Section used for this span		2x12	Section used for this span		2x12
fb : Actual	=	801.00 psi	fv : Actual	=	41.77 psi
FB : Allowable	=	900.00 psi	Fv : Allowable	=	180.00 psi
Load Combination		+D+L+H	Load Combination		+D+L+H
Location of maximum on span	=	8.000 ft	Location of maximum on span	=	15.120 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.277 in	Ratio =	694
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.344 in	Ratio =	557
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 16.0 ft	1	0.890	0.232	1.000	1.000	1.000	1.000	1.000	2.11	801.00	900.00	0.47	41.77	180.00
+D+0.750Lr+0.750L+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.711	0.185	1.000	1.000	1.000	1.000	1.000	1.69	640.19	900.00	0.38	33.38	180.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.711	0.185	1.000	1.000	1.000	1.000	1.000	1.69	640.19	900.00	0.38	33.38	180.00
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.711	0.185	1.000	1.000	1.000	1.000	1.000	1.69	640.19	900.00	0.38	33.38	180.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.711	0.185	1.000	1.000	1.000	1.000	1.000	1.69	640.19	900.00	0.38	33.38	180.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.711	0.185	1.000	1.000	1.000	1.000	1.000	1.69	640.19	900.00	0.38	33.38	180.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 16.0 ft	1	0.711	0.185	1.000	1.000	1.000	1.000	1.000	1.69	640.19	900.00	0.38	33.38	180.00

Title Block Line 1
You can changes this area
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Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:

Job #

Project Notes :

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Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tioga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : J1

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L	1	0.3445	8.080		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.528	0.528
D Only	0.104	0.104
L Only	0.424	0.424
D+L	0.528	0.528

Title Block Line 1
You can changes this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 9:32AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tloga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : J2

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

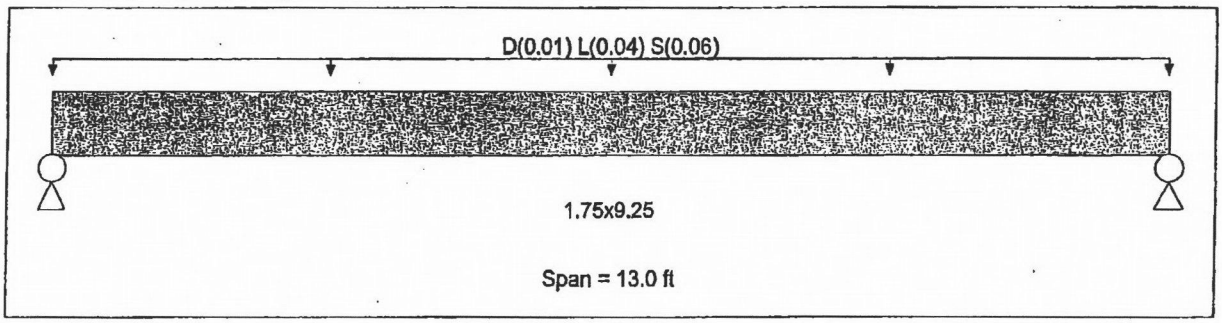
Wood Species : iLevel Truss Joist
Wood Grade : MicroLam LVL 1.9 E

Fb - Tension	2600 psi
Fb - Compr	2600 psi
Fc - Prll	2510 psi
Fc - Perp	750 psi
Fv	285 psi
Ft	1555 psi

E : Modulus of Elasticity

Ebend- xx	1900 ksi
Eminbend - xx	965.71 ksi
Density	32.21 pcf

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 = 0.010, L = 0.040, S = 0.060 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.332 : 1	Maximum Shear Stress Ratio	=	0.160 : 1
Section used for this span		1.75x9.25	Section used for this span		1.75x9.25
fb : Actual	=	863.43psi	fv : Actual	=	45.57 psi
FB : Allowable	=	2,600.00psi	Fv : Allowable	=	285.00 psi
Load Combination		+D+0.750L+0.750S+H	Load Combination		+D+0.750L+0.750S+H
Location of maximum on span	=	6.500ft	Location of maximum on span	=	12.285 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.295 in	Ratio =	528
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.325 in	Ratio =	480
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 13.0 ft	1	0.195	0.094	1.000	1.000	1.000	1.000	1.000	1.06	507.90	2,600.00	0.29	26.80	285.00
+D+S+H					1.000	1.000	1.000	1.000						
Length = 13.0 ft	1	0.273	0.132	1.000	1.000	1.000	1.000	1.000	1.48	711.06	2,600.00	0.40	37.52	285.00
+D+0.750Lr+0.750L+H					1.000	1.000	1.000	1.000						
Length = 13.0 ft	1	0.156	0.075	1.000	1.000	1.000	1.000	1.000	0.85	406.32	2,600.00	0.23	21.44	285.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 13.0 ft	1	0.332	0.160	1.000	1.000	1.000	1.000	1.000	1.80	863.43	2,600.00	0.49	45.57	285.00
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 13.0 ft	1	0.156	0.075	1.000	1.000	1.000	1.000	1.000	0.85	406.32	2,600.00	0.23	21.44	285.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 13.0 ft	1	0.332	0.160	1.000	1.000	1.000	1.000	1.000	1.80	863.43	2,600.00	0.49	45.57	285.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 13.0 ft	1	0.156	0.075	1.000	1.000	1.000	1.000	1.000	0.85	406.32	2,600.00	0.23	21.44	285.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 13.0 ft	1	0.332	0.160	1.000	1.000	1.000	1.000	1.000	1.80	863.43	2,600.00	0.49	45.57	285.00

Title Block Line 1
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Title Block Line 6

Title :
Dsgnr:
Project Desc.:

Job #

Project Notes :

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Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n liogal\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : J2

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.3249	6.565		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.715	0.715
D Only	0.065	0.065
L Only	0.260	0.260
S Only	0.390	0.390
L+S	0.650	0.650
D+L	0.325	0.325
D+S	0.455	0.455
D+L+S	0.715	0.715

Title Block Line 1
You can changes this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 5:13PM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n liogal\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : J3

Material Properties

Calculations per NDS-2005, IBC 2006, CBC 2007, ASCE 7-05

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

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

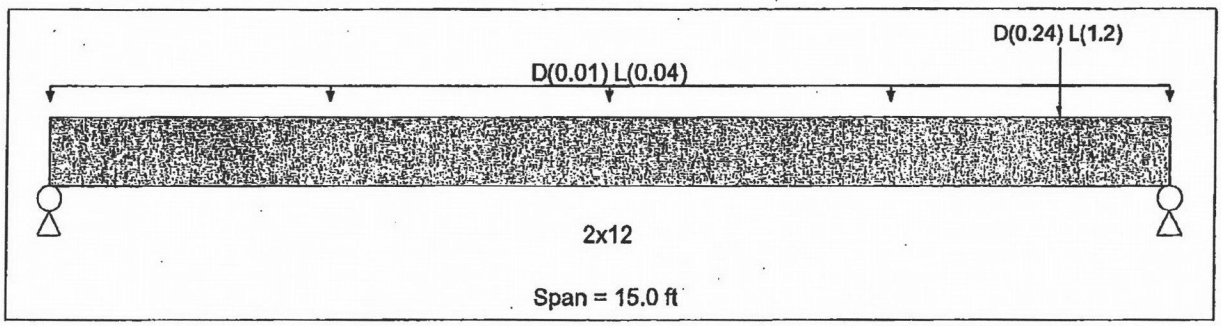
Beam Bracing : Beam is Fully Braced against lateral-torsion buckling

Fb - Tension	900.0 psi
Fb - Compr	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	32.210 pcf

Repetitive Member Stress Increase



Applied Loads

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

Uniform Load : D = 0.010, L = 0.040 , Tributary Width = 1.0 ft
Point Load : D = 0.240, L = 1.20 k @ 13.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.987: 1	Maximum Shear Stress Ratio	=	0.803 : 1
Section used for this span		2x12	Section used for this span		2x12
fb : Actual	=	1,021.57 psi	fv : Actual	=	144.53 psi
FB : Allowable	=	1,035.00 psi	Fv : Allowable	=	180.00 psi
Load Combination		+D+L+H	Load Combination		+D+L+H
Location of maximum on span	=	10.350 ft	Location of maximum on span	=	14.100 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.316 in	Ratio =	570
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.387 in	Ratio =	465
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 15.0 ft	1	0.987	0.803	1.000	1.000	1.150	1.000	1.000	2.69	1,021.57	1,035.00	1.63	144.53	180.00
+D+0.750Lr+0.750L+H					1.000	1.150	1.000	1.000						
Length = 15.0 ft	1	0.785	0.637	1.000	1.000	1.150	1.000	1.000	2.14	812.54	1,035.00	1.29	114.67	180.00
+D+0.750L+0.750S+H					1.000	1.150	1.000	1.000						
Length = 15.0 ft	1	0.785	0.637	1.000	1.000	1.150	1.000	1.000	2.14	812.54	1,035.00	1.29	114.67	180.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L	1	0.3867	8.025		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.519	1.671
D Only	0.099	0.291

Title Block Line 1
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Title Block Line 6

Title :
Dsgnr:
Project Desc.:

Job #

Project Notes :

Printed: 18 JAN 2012, 5:13PM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n llogalbeams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.26.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : J3

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
L Only	0.420	1.380
D+L	0.519	1.671

Title Block Line 1
You can changes this area
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Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 9:35AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tiogalbeams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U4

Material Properties

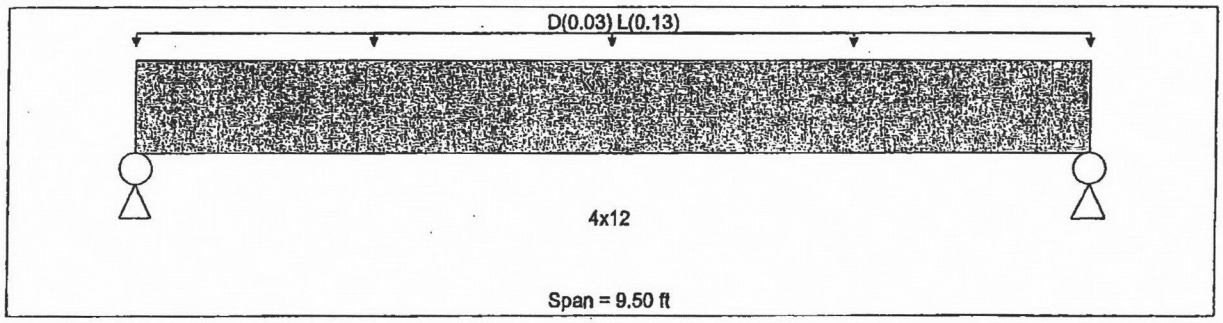
Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

Fb - Tension	900 psi	*E : Modulus of Elasticity*	
Fb - Compr	900 psi	Ebend- xx	1600 ksi
Fc - Prll	1350 psi	Eminbend - xx	580 ksi
Fc - Perp	625 psi		
Fv	180 psi		
Ft	575 psi	Density	32.21 pcf

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 = 0.030, L = 0.130 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.296 : 1	Maximum Shear Stress Ratio	=	0.130 : 1
Section used for this span		4x12	Section used for this span		4x12
fb : Actual	=	293.38 psi	fv : Actual	=	23.45 psi
FB : Allowable	=	990.00 psi	Fv : Allowable	=	180.00 psi
Load Combination		+D+L+H	Load Combination		+D+L+H
Location of maximum on span	=	4.750 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.036 in	Ratio =	3154
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.044 in	Ratio =	2562
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 9.50 ft	1	0.296	0.130	1.000	1.100	1.000	1.000	1.000	1.81	293.38	990.00	0.62	23.45	180.00
+D+0.750Lr+0.750L+H					1.100	1.000	1.000	1.000						
Length = 9.50 ft	1	0.236	0.104	1.000	1.100	1.000	1.000	1.000	1.44	233.79	990.00	0.49	18.69	180.00
+D+0.750L+0.750S+H					1.100	1.000	1.000	1.000						
Length = 9.50 ft	1	0.236	0.104	1.000	1.100	1.000	1.000	1.000	1.44	233.79	990.00	0.49	18.69	180.00
+D+0.750Lr+0.750L+0.750W+H					1.100	1.000	1.000	1.000						
Length = 9.50 ft	1	0.236	0.104	1.000	1.100	1.000	1.000	1.000	1.44	233.79	990.00	0.49	18.69	180.00
+D+0.750L+0.750S+0.750W+H					1.100	1.000	1.000	1.000						
Length = 9.50 ft	1	0.236	0.104	1.000	1.100	1.000	1.000	1.000	1.44	233.79	990.00	0.49	18.69	180.00
+D+0.750Lr+0.750L+0.5250E+H					1.100	1.000	1.000	1.000						
Length = 9.50 ft	1	0.236	0.104	1.000	1.100	1.000	1.000	1.000	1.44	233.79	990.00	0.49	18.69	180.00
+D+0.750L+0.750S+0.5250E+H					1.100	1.000	1.000	1.000						
Length = 9.50 ft	1	0.236	0.104	1.000	1.100	1.000	1.000	1.000	1.44	233.79	990.00	0.49	18.69	180.00

Title Block Line 1
You can changes this area
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Title Block Line 6

Title :
Dsgnr:
Project Desc.:

Job #

Project Notes :

Printed: 18 JAN 2012, 9:35AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tioga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U4

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L	1	0.0445	4.798		0.0000	0.000

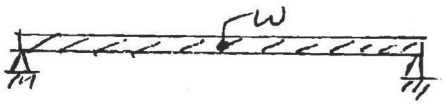
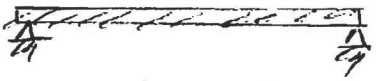
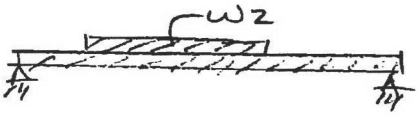
Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.760	0.760
D Only	0.143	0.143
L Only	0.618	0.618
D+L	0.760	0.760

TURNER ENGINEERING & DESIGN

BEAM LOAD SHEET, CONT...

BEAM #	ANALYSIS	SKETCH AND DESIGN
U5: HDR @ M.B.	w) R_{DL} = 65PLF + 560PLF. R_{LL} = 260 ΣDL = 699PLF R_{SL} = 390PLF WALL$_D$ = 64PLF	 L = 8'-0"
U6: HDR	w) WALL$_D$ = 140PLF Roof$_{SL}$ = 50PLF	 L = 8.75'
U7:	w1) Roof deck DL = 12'(20) = 240PLF w2) Hot Tub = 1250PLF LL = 12'(40) = 480 PLF SL = 12'(60) = 720PLF	 ↑ P = 1770# L = 3540# S = 5310#

Title Block Line 1
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Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 9 JUL 2013, 7.06PM

Wood Beam

File = C:\Users\Public\jobs\R13218~1\R11243~1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U5

CODE REFERENCES

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05
Load Combination Set : 2006 IBC & ASCE 7-05

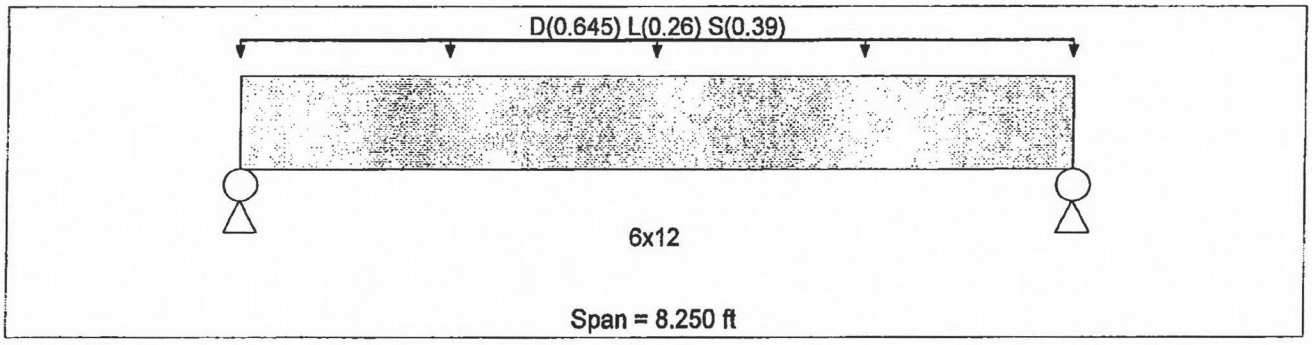
Material Properties

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

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

Fb - Tension	1,350.0 psi	*E : Modulus of Elasticity*	
Fb - Compr	1,350.0 psi	Ebend- xx	1,600.0 ksi
Fc - Prll	925.0 psi	Eminbend - xx	580.0 ksi
Fc - Perp	625.0 psi		
Fv	170.0 psi		
Ft	675.0 psi	Density	32.210 pcf

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 = 0.6450, L = 0.260, S = 0.390 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.565 : 1	Maximum Shear Stress Ratio	=	0.403 : 1
Section used for this span		6x12	Section used for this span		6x12
fb : Actual	=	762.15 psi	fv : Actual	=	68.50 psi
FB : Allowable	=	1,350.00 psi	Fv : Allowable	=	170.00 psi
Load Combination		+D+L+H	Load Combination		+D+L+H
Location of maximum on span	=	4.125 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.061 in	Ratio =	1620
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.122 in	Ratio =	813
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios									Moment Values			Shear Values		
Segment Length	Span #	M	V	C_d	C_{FV}	C_i	C_r	C_m	C_t	C_L	M	fb	F'b	V	fv	F'v
+D+L+H													0.00	0.00	0.00	0.00
Length = 8.250 ft	1	0.565	0.403	1.00	1.00	1.00	1.00	1.00	1.00	1.00	7.70	762.15	1350.00	2.89	68.50	170.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.1217	4.155		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	5.342	5.342
D Only	2.661	2.661
L Only	1.073	1.073

36.2

Title Block Line 1
You can change this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 9 JUL 2013, 7:06PM

Wood Beam

File = C:\Users\Public\Jobs\R13218~1\R11243~1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U5

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
S Only	1.609	1.609
L+S	2.681	2.681
D+L	3.733	3.733
D+S	4.269	4.269
D+L+S	5.342	5.342

36.3

Title Block Line 1
You can change this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 9 JUL 2013, 7:07PM

Wood Beam

File = C:\Users\Public\jobs\R13218~1\R11243~1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

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Description : U6

CODE REFERENCES

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05
Load Combination Set : 2006 IBC & ASCE 7-05

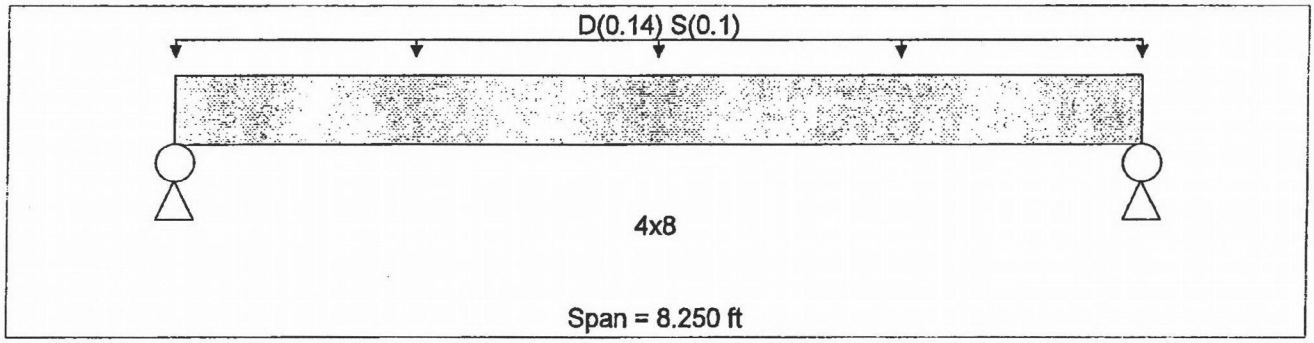
Material Properties

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

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

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

Fb - Tension	875.0 psi	*E : Modulus of Elasticity*	
Fb - Compr	875.0 psi	Ebend- xx	1,300.0 ksi
Fc - Prll	600.0 psi	Eminbend - xx	470.0 ksi
Fc - Perp	625.0 psi		
Fv	170.0 psi		
Ft	425.0 psi	Density	32.210 pcf



Applied Loads

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

Uniform Load : D = 0.140, S = 0.10 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.611: 1	Maximum Shear Stress Ratio	=	0.256 : 1
Section used for this span		4x8	Section used for this span		4x8
fb : Actual	=	799.13 psi	fv : Actual	=	49.98 psi
FB : Allowable	=	1,308.13 psi	Fv : Allowable	=	195.50 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	4.125 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.073 in	Ratio =	1364
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.174 in	Ratio =	568
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios									Moment Values			Shear Values		
Segment Length	Span #	M	V	C_d	C_{FN}	C_l	C_r	C_m	C_t	C_L	M	fb	F'b	V	fv	F'v
+D+S+H													0.00	0.00	0.00	0.00
Length = 8.250 ft	1	0.611	0.256	1.15	1.30	1.00	1.00	1.00	1.00	1.00	2.04	799.13	1308.13	0.85	49.98	195.50

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+S	1	0.1741	4.155		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.990	0.990
D Only	0.578	0.578
S Only	0.413	0.413

36.4

Title Block Line 1
You can change this area
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and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 9 JUL 2013, 7:07PM

Wood Beam

File = C:\Users\Public\jobs\R13218~1\R11243~1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U6

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values In KIPS

Load Combination	Support 1	Support 2
D+S	0.990	0.990

36.5

Title Block Line 1
You can change this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 9 JUL 2013, 7:44PM

Wood Beam

File = C:\Users\Public\jobs\R13218-1\R11243-1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U7

CODE REFERENCES

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05
Load Combination Set : ASCE 7-05

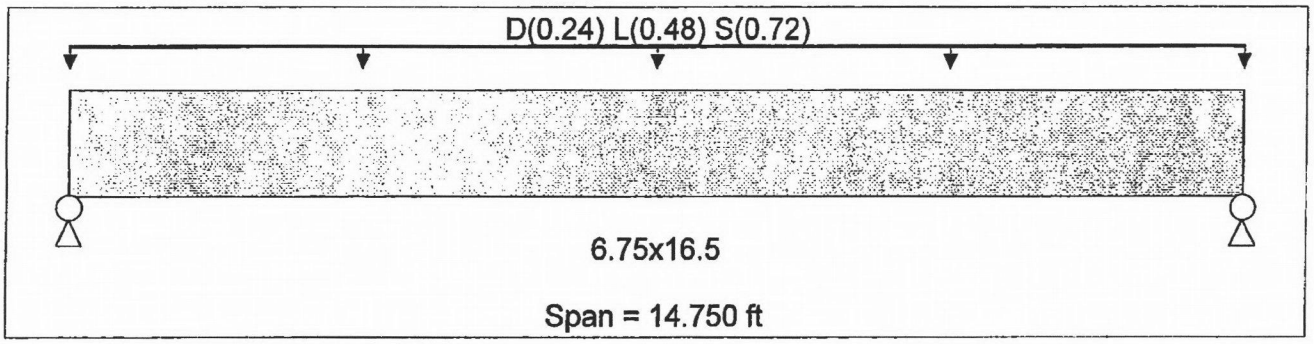
Material Properties

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

Wood Species : DF/DF
Wood Grade : 24F - V4

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

Fb - Tension	2400 psi	*E : Modulus of Elasticity*	
Fb - Compr	1850 psi	Ebend- xx	1800 ksi
Fc - Prll	1650 psi	Eminbend - xx	930 ksi
Fc - Perp	650 psi	Ebend- yy	1600 ksi
Fv	265 psi	Eminbend - yy	830 ksi
Ft	1100 psi	Density	32.21 pcf



Applied Loads

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

Uniform Load : D = 0.240, L = 0.480, S = 0.720 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.451: 1	Maximum Shear Stress Ratio	=	0.304 : 1
Section used for this span		6.75x16.5	Section used for this span		6.75x16.5
fb : Actual	=	1,214.67 psi	fv : Actual	=	92.57 psi
FB : Allowable	=	2,694.39 psi	Fv : Allowable	=	304.75 psi
Load Combination		+D+0.750L+0.750S+H	Load Combination		+D+0.750L+0.750S+H
Location of maximum on span	=	7.375 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.283 in	Ratio =	626
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.339 in	Ratio =	521
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios									Moment Values			Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_l	C_r	C_m	C_t	C_L	M	fb	F'b	V	fv	F'v
+D+L+H													0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.285	0.192	1.15	0.98	1.00	1.00	1.00	1.00	1.00	19.58	767.16	2694.39	4.34	58.46	304.75
+D+S+H					0.98	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.380	0.256	1.15	0.98	1.00	1.00	1.00	1.00	1.00	26.11	1,022.88	2694.39	5.79	77.95	304.75
+D+0.750L+0.750S+H					0.98	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.451	0.304	1.15	0.98	1.00	1.00	1.00	1.00	1.00	31.00	1,214.67	2694.39	6.87	92.57	304.75

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.3392	7.429		0.0000	0.000

36.6

Title Block Line 1
You can change this area
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Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 9 JUL 2013, 7.44PM

Wood Beam

File = C:\Users\Public\jobs\R13218~1\R11243~1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : U7

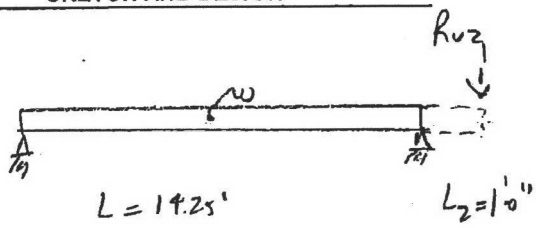
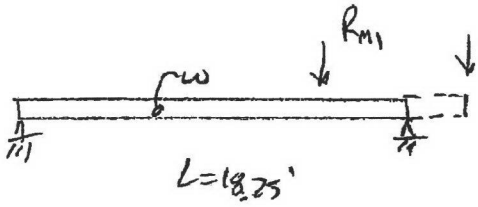
Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

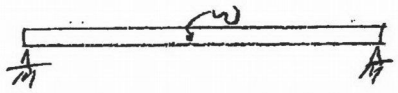
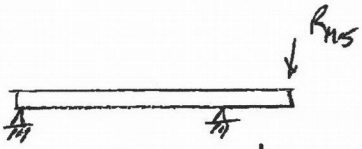
Load Combination	Support 1	Support 2
Overall MAXimum	10.620	10.620
D Only	1.770	1.770
L Only	3.540	3.540
S Only	5.310	5.310
L+S	8.850	8.850
D+L	5.310	5.310
D+S	7.080	7.080
D+L+S	10.620	10.620

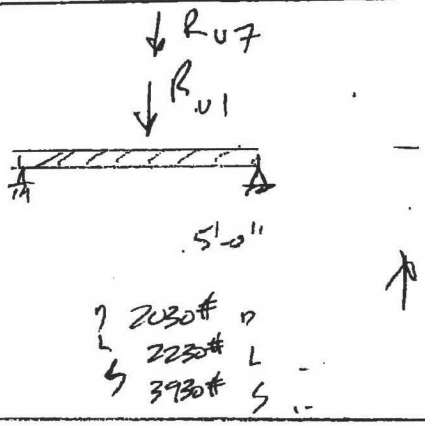
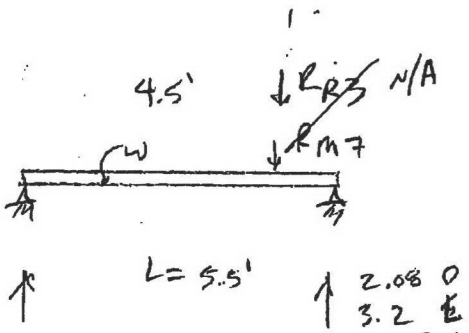
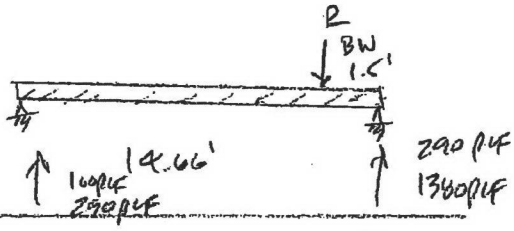
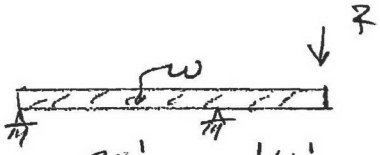
36.7

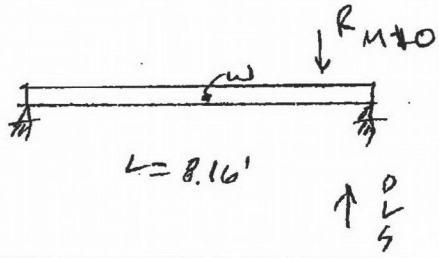
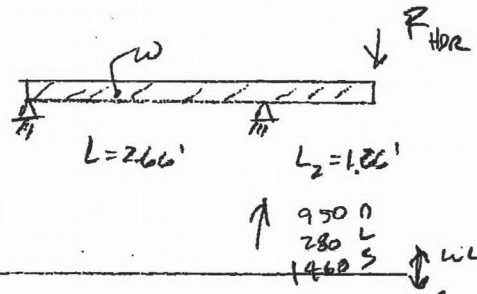
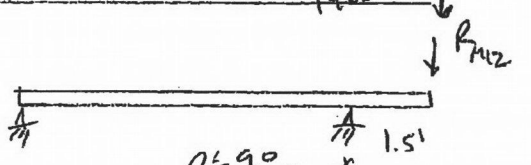
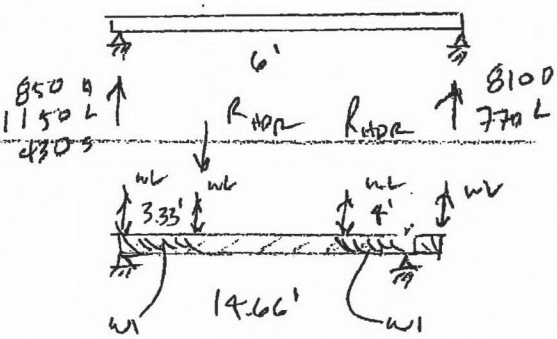
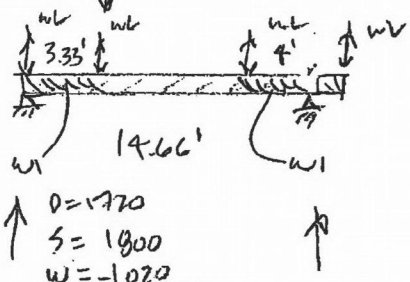
BEAM LOAD SHEET, CONT...

BEAM #	ANALYSIS	SKETCH AND DESIGN
M1: FLOOR JOIST SUPPORT CANT. JOIST	w) $FL_D = 2.5'(10) = 25$ PLF $FL_L = 2.5'(40) = 100$ PLF R_{V2}) D = 419 S = 431 L = 640	 150 D = 650 660 L = 1500 ∅ S = 460
M2: FLOOR BEAM	UPPER FL. w) $FL_D = 17'(10) = 170$ PLF $FL_L = 17'(40) = 680$ PLF ROOF DECK $FL_D = 13.5'(20) = 270$ PLF $FL_L = 13.5'(40) = 540$ PLF ROOF) DL = 11'(15) = 165 PLF SL = 11'(25) = 275 PLF SDL = 605 PLF SLL = 1220 PLF SSL = 275 PLF	 5669 D 5823 D 11606 L 12289 L 2544 S 2544 S F3
12'/2 (20) = 120 PLF 12'/2 (40) = 240 PLF 12'/2 (60) = 360 PLF		
M3: PBL JOIST UNDER ROOF TRIB LOAD ONLY	~~R_{M1}) D = 150 L = 660~~ NOT USED	

BEAM LOAD SHEET, CONT...

BEAM #	ANALYSIS	SKETCH AND DESIGN
M4: STAIR BEAM	REFER TO U4	 L=9.5'
M5: BEAM UNDER F1	w) UR_D = 165 PLF UR_S = 275 PLF $WALL_D$ = 120 PLF	L=14.83' ↑ 1223 D, 2039 L, 890 S
M6: CANT BEAM SUPPORT M5	R_{M5}) D=1223 L=2039 S=890 w) UR_D = 9'(15) = 135 PLF UR_S = 9'(25) = 225 PLF $WALL_D$ = 160 PLF R_D) FL_D = 7'(10) = 70 PLF FL_L = 7'(40) = 280 PLF v) FL_D = 7'(10) = 70 PLF FL_L = 7'(40) = 280 PLF ΣDL = 435 PLF ΣSL = 225 PLF ΣLL = 560 PLF	 4' 1' ↑ 2890 D, 4300 L, 1820 S F2

BEAM #	ANALYSIS	SKETCH AND DESIGN
M7A: BEAM UNDER V1	w) $FL_D = 20$ $FL_L = 80$ PLF R_{V1}) D = 2185#, L = 526#, S = 2550# R_{V7}) D = 1770#, L = 3540#, S = 5310#	
M8: HDR UNDER M7	w) R_D D = 12'(10) = 120 PLF L = 12'(40) = 480 PLF $WALL_D$ = 80 PLF V_R) D = 12'(10) = 120 PLF L = 12'(40) = 480 PLF ~~R_{M7} D 1240, L 880, S 1240~~ ~~R_{R3} D = 643#, S = 1070#~~	
J3:	w) FL_D = 10' FL_L = 40 PLF R_{BW}) $Deck_D$ = 20PSF(12') = 240 PLF $Deck_L$ = 100 PSF(12') = 1200 PLF	
J4 CANT JOIST F3/F4	R) UR_D = 8'(15) = 120 PLF UR_S = 8'(25) = 200 PLF $WALL_D$ = 160 PLF w) FL_D = 20 PLF FL_L = 80 PLF	 R_{J4} D = 490 #/2' L = 280 #/2' S = 320 #/2'

BEAM #	ANALYSIS	SKETCH AND DESIGN
M9: HDR UNDER CANT J4	w) R_{J4}) D = 490/2' = 245 PLF L = 280/2 = 140 PLF S = 320/2' = 160 PLF R_{M2}) D = ~~5710~~ # 950 # L = ~~1780~~ # 280 # S = ~~7590~~ # 1460 #	
M10 CANT JOIST UNDER HDR JAMB	R_{HDR}) UR_D = 9'(15)(4') = 540 # UR_S = 9'(25)(4') = 900 # w) FL_D = 20 FL_L = 40	
M11: CONT RIM JOIST (NO LOAD)	R_{M12}) D = 810 L = 770 # wL) wL = 1492 + E_m = 2220/.7 (3.0)/(28') 10' = 3597 #	
M12: LOAD TRANSFER BEAMS	w) R_{J4}) D = 235 PLF L = 140 PLF S = 160 PLF R_{U2}) D = 419 L = 640 S = 431 R_{U2A}) D = 1120 L = 800	
M13: HDR.	w1) UR_D = 9'(15) = 135 PLF UR_S = 9'(25) = 225 PLF $WALL_D$ = 160 PLF R_{HDR}) D = 540 # S = 900 # wL) wL = 314 + 1553 = 1867 # E_m = 314 (3.0/.7) (8')/14.33 + 923 (3.0/.7) (10')/7.33' = 6363 #	

Title Block Line 1
You can changes this area
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and then using the "Printing &
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Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 9:41AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tiogalbeams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.26.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M1

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

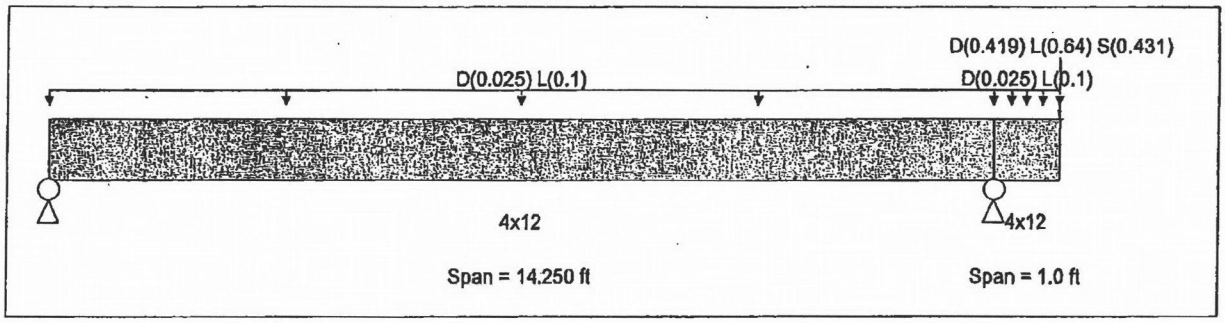
Analysis Method : Allowable Stress Design
Load Combination 2006 IBC & ASCE 7-05

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

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

Fb - Tension	875 psi
Fb - Compr	875 psi
Fc - Prll	600 psi
Fc - Perp	625 psi
Fv	170 psi
Ft	425 psi

E : Modulus of Elasticity	
Ebend- xx	1300 ksi
Eminbend - xx	470 ksi
Density	32.21 pcf



Applied Loads

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

Load for Span Number 1
Uniform Load : D = 0.0250, L = 0.10 , Tributary Width = 1.0 ft
Load for Span Number 2
Uniform Load : D = 0.0250, L = 0.10 , Tributary Width = 1.0 ft
Point Load : D = 0.4190, L = 0.640, S = 0.4310 k @ 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.445 : 1	Maximum Shear Stress Ratio	=	0.275 : 1
Section used for this span		4x12	Section used for this span		4x12
fb : Actual	=	428.59 psi	fv : Actual	=	46.83 psi
FB : Allowable	=	962.50 psi	Fv : Allowable	=	170.00 psi
Load Combination		+D+L+H	Load Combination		+D+0.750L+0.750S+H
Location of maximum on span	=	6.467 ft	Location of maximum on span	=	14.250 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.146 in	Ratio =	1172
Max Upward L+Lr+S Deflection	-0.027 in	Ratio =	876
Max Downward Total Deflection	0.172 in	Ratio =	995
Max Upward Total Deflection	-0.030 in	Ratio =	798

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 14.250 ft	1	0.445	0.239	1.000	1.100	1.000	1.000	1.000	2.64	428.59	962.50	1.07	40.67	170.00
Length = 1.0 ft	2	0.189	0.239	1.000	1.100	1.000	1.000	1.000	-1.12	182.29	962.50	1.07	40.67	170.00
+D+S+H					1.100	1.000	1.000	1.000						
Length = 14.250 ft	1	0.146	0.191	1.000	1.100	1.000	1.000	1.000	-0.86	140.19	962.50	0.85	32.45	170.00
Length = 1.0 ft	2	0.146	0.191	1.000	1.100	1.000	1.000	1.000	-0.86	140.19	962.50	0.85	32.45	170.00
+D+0.750Lr+0.750L+H					1.100	1.000	1.000	1.000						
Length = 14.250 ft	1	0.352	0.203	1.000	1.100	1.000	1.000	1.000	2.09	339.05	962.50	0.91	34.51	170.00
Length = 1.0 ft	2	0.160	0.203	1.000	1.100	1.000	1.000	1.000	-0.95	154.25	962.50	0.91	34.51	170.00
+D+0.750L+0.750S+H					1.100	1.000	1.000	1.000						
Length = 14.250 ft	1	0.328	0.275	1.000	1.100	1.000	1.000	1.000	1.94	315.65	962.50	1.23	46.83	170.00

Title Block Line 1
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Title :
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Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n fogalbeams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M1

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
Length = 1.0 ft	2	0.215	0.275	1.000	1.100	1.000	1.000	1.000	-1.27	206.79	962.50	1.23	46.83	170.00
+D+0.750Lr+0.750L+0.750W+H					1.100	1.000	1.000	1.000						
Length = 14.250 ft	1	0.352	0.203	1.000	1.100	1.000	1.000	1.000	2.09	339.05	962.50	0.91	34.51	170.00
Length = 1.0 ft	2	0.160	0.203	1.000	1.100	1.000	1.000	1.000	-0.95	154.25	962.50	0.91	34.51	170.00
+D+0.750L+0.750S+0.750W+H					1.100	1.000	1.000	1.000						
Length = 14.250 ft	1	0.328	0.275	1.000	1.100	1.000	1.000	1.000	1.94	315.65	962.50	1.23	46.83	170.00
Length = 1.0 ft	2	0.215	0.275	1.000	1.100	1.000	1.000	1.000	-1.27	206.79	962.50	1.23	46.83	170.00
+D+0.750Lr+0.750L+0.5250E+H					1.100	1.000	1.000	1.000						
Length = 14.250 ft	1	0.352	0.203	1.000	1.100	1.000	1.000	1.000	2.09	339.05	962.50	0.91	34.51	170.00
Length = 1.0 ft	2	0.160	0.203	1.000	1.100	1.000	1.000	1.000	-0.95	154.25	962.50	0.91	34.51	170.00
+D+0.750L+0.750S+0.5250E+H					1.100	1.000	1.000	1.000						
Length = 14.250 ft	1	0.328	0.275	1.000	1.100	1.000	1.000	1.000	1.94	315.65	962.50	1.23	46.83	170.00
Length = 1.0 ft	2	0.215	0.275	1.000	1.100	1.000	1.000	1.000	-1.27	206.79	962.50	1.23	46.83	170.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L	1	0.1717	6.906		0.0000	0.000
	2	0.0000	6.906	D+L	-0.0300	1.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.812	2.615	
D Only	0.148	0.652	
L Only	0.664	1.501	
S Only	-0.030	0.461	
L+S	0.634	1.962	
D+L	0.812	2.153	
D+S	0.118	1.114	
D+L+S	0.782	2.615	

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Job #

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Wood Beam

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0
Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M2

Material Properties

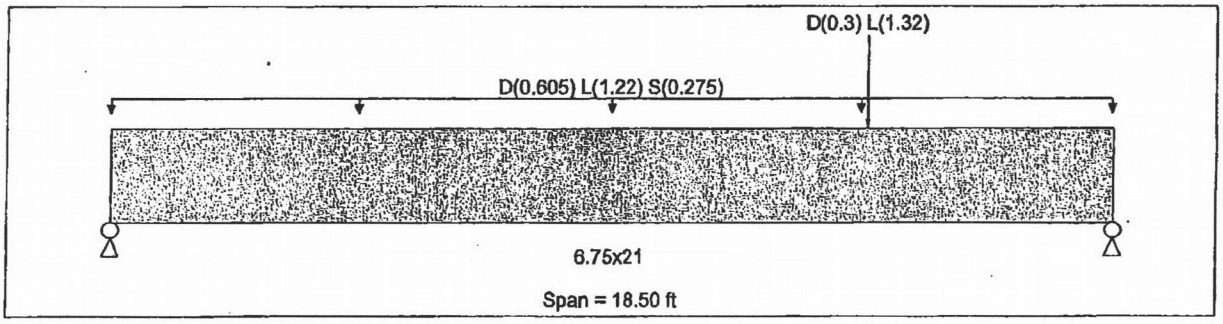
Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

Wood Species : DF/DF
Wood Grade : 24F - V4

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

Fb - Tension	2,400.0 psi	*E : Modulus of Elasticity*	
Fb - Compr	1,850.0 psi	Ebend- xx	1,800.0 ksi
Fc - Prll	1,650.0 psi	Eminbend - xx	930.0 ksi
Fc - Perp	650.0 psi	Ebend- yy	1,600.0 ksi
Fv	265.0 psi	Eminbend - yy	830.0 ksi
Ft	1,100.0 psi	Density	32.210 pcf



Applied Loads

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

Uniform Load : D = 0.6050, L = 1.220, S = 0.2750 , Tributary Width = 1.0 ft
Point Load : D = 0.30, L = 1.320 k @ 14.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.884 : 1	Maximum Shear Stress Ratio	=	0.602 : 1
Section used for this span		6.75x21	Section used for this span		6.75x21
fb : Actual	=	1,977.63 psi	fv : Actual	=	159.46 psi
FB : Allowable	=	2,235.89 psi	Fv : Allowable	=	265.00 psi
Load Combination		+D+L+H	Load Combination		+D+L+H
Location of maximum on span	=	9.435 ft	Location of maximum on span	=	16.835 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.445 in	Ratio =	498
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.622 in	Ratio =	357
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
+D+L+H														
Length = 18.50 ft	1	0.884	0.602	1.000	0.932	1.000	1.000	1.000	81.76	1,977.63	2,235.89	15.07	159.46	265.00
+D+S+H					0.932	1.000	1.000	1.000						
Length = 18.50 ft	1	0.415	0.276	1.000	0.932	1.000	1.000	1.000	38.33	927.00	2,235.89	6.90	73.04	265.00
+D+0.750Lr+0.750L+H					0.932	1.000	1.000	1.000						
Length = 18.50 ft	1	0.735	0.499	1.000	0.932	1.000	1.000	1.000	67.96	1,643.83	2,235.89	12.51	132.33	265.00
+D+0.750L+0.750S+H					0.932	1.000	1.000	1.000						
Length = 18.50 ft	1	0.831	0.562	1.000	0.932	1.000	1.000	1.000	76.78	1,857.16	2,235.89	14.07	148.89	265.00
+D+0.750Lr+0.750L+0.750W+H					0.932	1.000	1.000	1.000						
Length = 18.50 ft	1	0.735	0.499	1.000	0.932	1.000	1.000	1.000	67.96	1,643.83	2,235.89	12.51	132.33	265.00
+D+0.750L+0.750S+0.750W+H					0.932	1.000	1.000	1.000						
Length = 18.50 ft	1	0.831	0.562	1.000	0.932	1.000	1.000	1.000	76.78	1,857.16	2,235.89	14.07	148.89	265.00
+D+0.750Lr+0.750L+0.5250E+H					0.932	1.000	1.000	1.000						
Length = 18.50 ft	1	0.735	0.499	1.000	0.932	1.000	1.000	1.000	67.96	1,643.83	2,235.89	12.51	132.33	265.00
+D+0.750L+0.750S+0.5250E+H					0.932	1.000	1.000	1.000						

Title Block Line 1
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Wood Beam

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Description : M2

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
Length = 18.50 ft	1	0.831	0.562	1.000	0.932	1.000	1.000	1.000	76.78	1,857.16	2,235.89	14.07	148.89	265.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.6217	9.343		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	19.819	20.651
D Only	5.669	5.823
L Only	11.606	12.284
S Only	2.544	2.544
L+S	14.150	14.828
D+L	17.275	18.107
D+S	8.213	8.367
D+L+S	19.819	20.651

Title Block Line 1
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Project Desc.:
Project Notes :

Job #

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Wood Beam

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0
Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M5

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

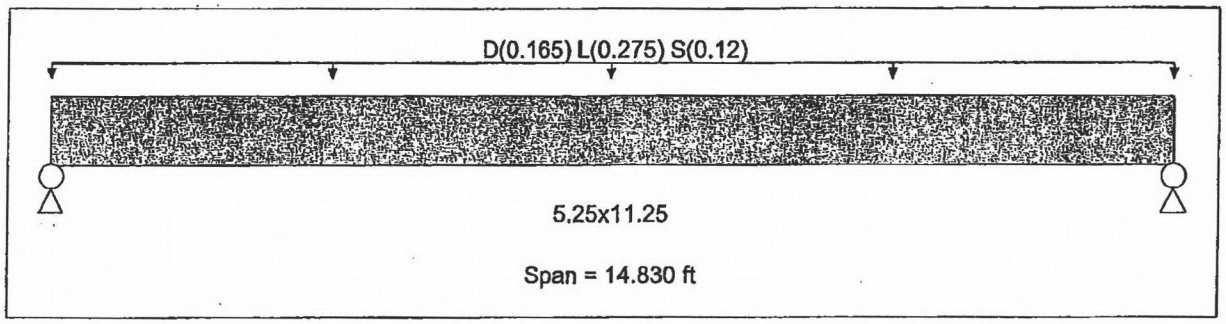
Wood Species : iLevel Truss Joist
Wood Grade : Parallam PSL 2.0E

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

Fb - Tension	2900 psi
Fb - Compr	2900 psi
Fc - Prll	2900 psi
Fc - Perp	750 psi
Fv	290 psi
Ft	2025 psi

E : Modulus of Elasticity

Ebend- xx	2000 ksi
Eminbend - xx	1016.535 ksi
Density	32.21 pcf



Applied Loads

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

Uniform Load : D = 0.1650, L = 0.2750, S = 0.120 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.474 : 1	Maximum Shear Stress Ratio	=	0.264 : 1
Section used for this span		5.25x11.25	Section used for this span		5.25x11.25
fb : Actual	=	1,374.03psi	fv : Actual	=	76.44 psi
FB : Allowable	=	2,900.00psi	Fv : Allowable	=	290.00 psi
Load Combination		+D+0.750L+0.750S+H	Load Combination		+D+0.750L+0.750S+H
Location of maximum on span	=	7.415ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.348 in	Ratio =	511
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.493 in	Ratio =	360
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 14.830 ft	1	0.452	0.251	1.000	1.000	1.000	1.000	1.000	12.10	1,310.73	2,900.00	2.87	72.92	290.00
+D+S+H					1.000	1.000	1.000	1.000						
Length = 14.830 ft	1	0.293	0.163	1.000	1.000	1.000	1.000	1.000	7.83	849.00	2,900.00	1.86	47.23	290.00
+D+0.750Lr+0.750L+H					1.000	1.000	1.000	1.000						
Length = 14.830 ft	1	0.381	0.212	1.000	1.000	1.000	1.000	1.000	10.21	1,105.93	2,900.00	2.42	61.52	290.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 14.830 ft	1	0.474	0.264	1.000	1.000	1.000	1.000	1.000	12.68	1,374.03	2,900.00	3.01	76.44	290.00
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 14.830 ft	1	0.381	0.212	1.000	1.000	1.000	1.000	1.000	10.21	1,105.93	2,900.00	2.42	61.52	290.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 14.830 ft	1	0.474	0.264	1.000	1.000	1.000	1.000	1.000	12.68	1,374.03	2,900.00	3.01	76.44	290.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 14.830 ft	1	0.381	0.212	1.000	1.000	1.000	1.000	1.000	10.21	1,105.93	2,900.00	2.42	61.52	290.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 14.830 ft	1	0.474	0.264	1.000	1.000	1.000	1.000	1.000	12.68	1,374.03	2,900.00	3.01	76.44	290.00

Title Block Line 1
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Wood Beam

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M5

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.4931	7.489		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	4.152	4.152
D Only	1.223	1.223
L Only	2.039	2.039
S Only	0.890	0.890
L+S	2.929	2.929
D+L	3.263	3.263
D+S	2.113	2.113
D+L+S	4.152	4.152

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Title Block Line 6

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Wood Beam

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M6

Material Properties

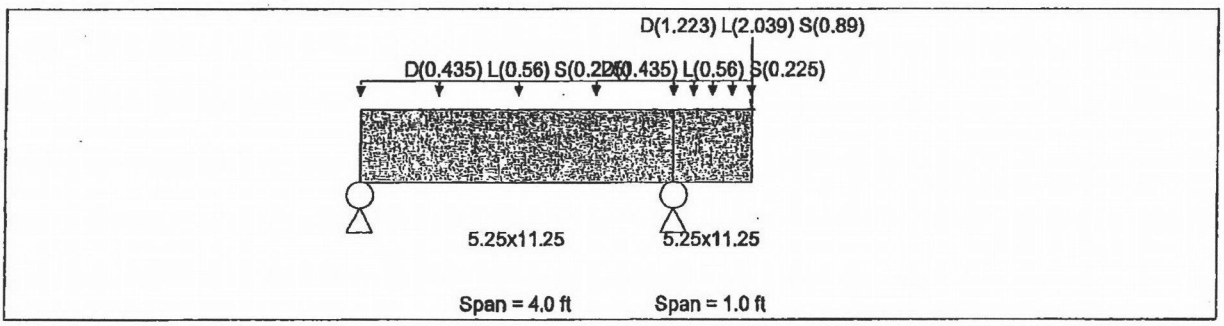
Calculations per NDS 2005, IBC 2006, CBC 2007, ASE 7-05

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

Wood Species : iLevel Truss Joist
Wood Grade : Parallam PSL 2.0E

Fb - Tension	2900 psi	*E : Modulus of Elasticity*	
Fb - Compr	2900 psi	Ebend- xx	2000 ksi
Fc - Prll	2900 psi	Eminbend - xx	1016.535 ksi
Fc - Perp	750 psi		
Fv	290 psi		
Ft	2025 psi	Density	32.21 pcf

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 = 0.4350, L = 0.560, S = 0.2250 , Tributary Width = 1.0 ft
Load for Span Number 2
Uniform Load : D = 0.4350, L = 0.560, S = 0.2250 , Tributary Width = 1.0 ft
Point Load : D = 1.223, L = 2.039, S = 0.890 k @ 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.147: 1	Maximum Shear Stress Ratio	=	0.306 : 1
Section used for this span		5.25x11.25	Section used for this span		5.25x11.25
fb : Actual	=	426.03 psi	fv : Actual	=	88.65 psi
FB : Allowable	=	2,900.00 psi	Fv : Allowable	=	290.00 psi
Load Combination		+D+0.750L+0.750S+H	Load Combination		+D+0.750L+0.750S+H
Location of maximum on span	=	4.000 ft	Location of maximum on span	=	4.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.005 in	Ratio =	5082
Max Upward L+Lr+S Deflection	-0.001 in	Ratio =	33076
Max Downward Total Deflection	0.006 in	Ratio =	3742
Max Upward Total Deflection	-0.002 in	Ratio =	27281

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 4.0 ft	1	0.140	0.292	1.000	1.000	1.000	1.000	1.000	-3.76	407.38	2,900.00	3.33	84.59	290.00
Length = 1.0 ft	2	0.140	0.292	1.000	1.000	1.000	1.000	1.000	-3.76	407.38	2,900.00	3.33	84.59	290.00
+D+S+H					1.000	1.000	1.000	1.000						
Length = 4.0 ft	1	0.091	0.189	1.000	1.000	1.000	1.000	1.000	-2.44	264.72	2,900.00	2.16	54.82	290.00
Length = 1.0 ft	2	0.091	0.189	1.000	1.000	1.000	1.000	1.000	-2.44	264.72	2,900.00	2.16	54.82	290.00
+D+0.750Lr+0.750L+H					1.000	1.000	1.000	1.000						
Length = 4.0 ft	1	0.119	0.246	1.000	1.000	1.000	1.000	1.000	-3.18	344.56	2,900.00	2.81	71.40	290.00
Length = 1.0 ft	2	0.119	0.246	1.000	1.000	1.000	1.000	1.000	-3.18	344.56	2,900.00	2.81	71.40	290.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 4.0 ft	1	0.147	0.306	1.000	1.000	1.000	1.000	1.000	-3.93	426.03	2,900.00	3.49	88.65	290.00

Title Block Line 1
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Job #

Project Notes :

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Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tioga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M6

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
Length = 1.0 ft	2	0.147	0.306	1.000	1.000	1.000	1.000	1.000	-3.93	426.03	2,900.00	3.49	88.65	290.00
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 4.0 ft	1	0.119	0.246	1.000	1.000	1.000	1.000	1.000	-3.18	344.56	2,900.00	2.81	71.40	290.00
Length = 1.0 ft	2	0.119	0.246	1.000	1.000	1.000	1.000	1.000	-3.18	344.56	2,900.00	2.81	71.40	290.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 4.0 ft	1	0.147	0.306	1.000	1.000	1.000	1.000	1.000	-3.93	426.03	2,900.00	3.49	88.65	290.00
Length = 1.0 ft	2	0.147	0.306	1.000	1.000	1.000	1.000	1.000	-3.93	426.03	2,900.00	3.49	88.65	290.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 4.0 ft	1	0.119	0.246	1.000	1.000	1.000	1.000	1.000	-3.18	344.56	2,900.00	2.81	71.40	290.00
Length = 1.0 ft	2	0.119	0.246	1.000	1.000	1.000	1.000	1.000	-3.18	344.56	2,900.00	2.81	71.40	290.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 4.0 ft	1	0.147	0.306	1.000	1.000	1.000	1.000	1.000	-3.93	426.03	2,900.00	3.49	88.65	290.00
Length = 1.0 ft	2	0.147	0.306	1.000	1.000	1.000	1.000	1.000	-3.93	426.03	2,900.00	3.49	88.65	290.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D Only	1	0.0002	0.677	D+L+S	-0.0018	3.046
D+L+S	2	0.0064	1.000		0.0000	3.046

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	1.250	9.003	
D Only	0.510	2.888	
L Only	0.540	4.299	
S Only	0.199	1.816	
L+S	0.740	6.114	
D+L	1.050	7.187	
D+S	0.709	4.704	
D+L+S	1.250	9.003	

Title Block Line 1
You can change this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 9 JUL 2013, 8:07PM

Wood Beam

File = C:\Users\Public\Jobs\R13218-1\R11243-1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 | Licensee : RICHARD TURNER

Description : M7A

CODE REFERENCES

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05
Load Combination Set : 2006 IBC & ASCE 7-05

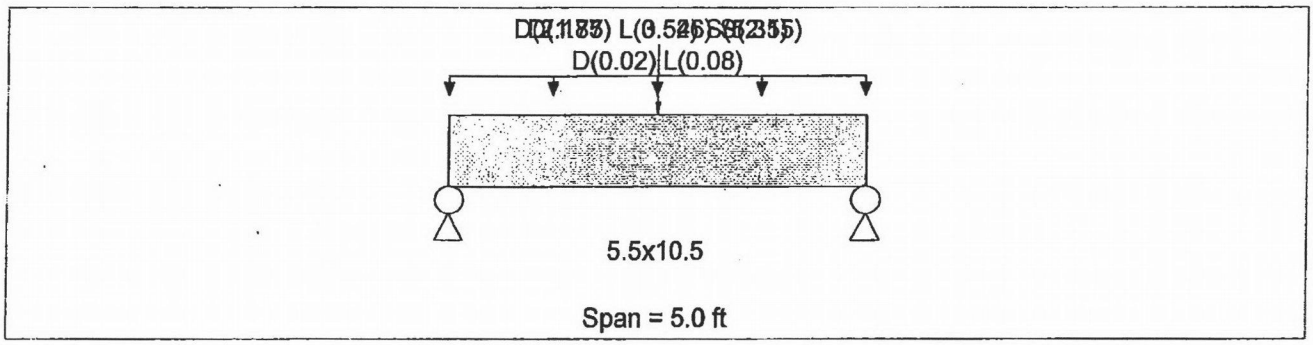
Material Properties

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

Wood Species : DF/DF
Wood Grade : 24F - V4

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

Fb - Tension	2400 psi	*E : Modulus of Elasticity*	
Fb - Compr	1850 psi	Ebend- xx	1800 ksi
Fc - Prll	1650 psi	Eminbend - xx	930 ksi
Fc - Perp	650 psi	Ebend- yy	1600 ksi
Fv	265 psi	Eminbend - yy	830 ksi
Ft	1100 psi	Density	32.21 pcf



Applied Loads

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

Uniform Load : D = 0.020, L = 0.080 , Tributary Width = 1.0 ft
Point Load : D = 2.185, L = 0.5260, S = 2.550 k @ 2.50 ft
Point Load : D = 1.770, L = 3.540, S = 5.310 k @ 2.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.810 : 1	Maximum Shear Stress Ratio	=	0.645 : 1
Section used for this span		5.5x10.5	Section used for this span		5.5x10.5
fb : Actual	=	1,944.27 psi	fv : Actual	=	170.94 psi
FB : Allowable	=	2,400.00 psi	Fv : Allowable	=	265.00 psi
Load Combination		+D+0.750L+0.750S+H	Load Combination		+D+0.750L+0.750S+H
Location of maximum on span	=	2.500 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.058 in	Ratio =	1040
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.077 in	Ratio =	782
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios									Moment Values			Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	M	fb	F'b	V	fv	F'v
+D+L+H													0.00	0.00	0.00	0.00
Length = 5.0 ft	1	0.512	0.409	1.00	1.00	1.00	1.00	1.00	1.00	1.00	10.34	1,227.61	2400.00	4.17	108.43	265.00
+D+Lr+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1	0.248	0.197	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5.01	594.43	2400.00	2.01	52.22	265.00
+D+S+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1	0.734	0.582	1.00	1.00	1.00	1.00	1.00	1.00	1.00	14.83	1,761.04	2400.00	5.94	154.29	265.00
+D+0.750Lr+0.750L+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1	0.446	0.356	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.01	1,069.31	2400.00	3.63	94.38	265.00
+D+0.750L+0.750S+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1	0.810	0.645	1.00	1.00	1.00	1.00	1.00	1.00	1.00	16.37	1,944.27	2400.00	6.58	170.94	265.00

Title Block Line 1
You can change this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 9 JUL 2013, 8:07PM

Wood Beam

File = C:\Users\Public\jobs\R13218~1\R11243~1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M7A

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.0767	2.518		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	8.191	8.191
D Only	2.028	2.028
L Only	2.233	2.233
S Only	3.930	3.930
L+S	6.163	6.163
D+L	4.261	4.261
D+S	5.958	5.958
D+L+S	8.191	8.191

Title Block Line 1
You can changes this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 9:58AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n fioga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M8

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

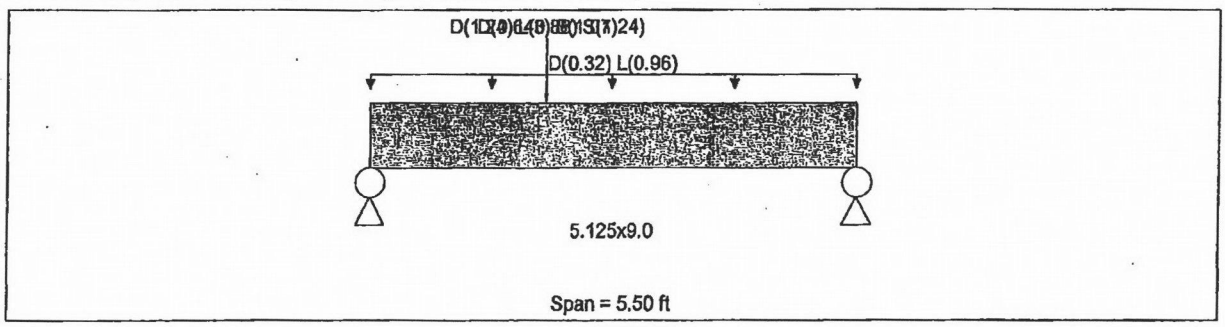
Analysis Method : Allowable Stress Design
Load Combination 2006 IBC & ASCE 7-05

Wood Species : DF/DF
Wood Grade : 24F - V4

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

Fb - Tension	2400 psi
Fb - Compr	1850 psi
Fc - Prll	1650 psi
Fc - Perp	650 psi
Fv	265 psi
Ft	1100 psi

E : Modulus of Elasticity	
Ebend- xx	1800 ksi
Eminbend - xx	930 ksi
Ebend- yy	1600 ksi
Eminbend - yy	830 ksi
Density	32.21 pcf



Applied Loads

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

Uniform Load : D = 0.320, L = 0.960 , Tributary Width = 1.0 ft
Point Load : D = 1.240, L = 0.880, S = 1.240 k @ 2.0 ft
Point Load : D = 0.6430, S = 1.070 k @ 2.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.656 : 1	Maximum Shear Stress Ratio	=	0.590 : 1
Section used for this span		5.125x9.0	Section used for this span		5.125x9.0
fb : Actual	=	1,574.11 psi	fv : Actual	=	156.38 psi
FB : Allowable	=	2,400.00 psi	Fv : Allowable	=	265.00 psi
Load Combination		+D+0.750L+0.750S+H	Load Combination		+D+0.750L+0.750S+H
Location of maximum on span	=	2.008 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.067 in	Ratio =	991
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.097 in	Ratio =	682
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 5.50 ft	1	0.578	0.531	1.000	1.000	1.000	1.000	1.000	8.00	1,386.87	2,400.00	4.33	140.74	265.00
+D+S+H					1.000	1.000	1.000	1.000						
Length = 5.50 ft	1	0.466	0.406	1.000	1.000	1.000	1.000	1.000	6.45	1,118.16	2,400.00	3.31	107.66	265.00
+D+0.750Lr+0.750L+H					1.000	1.000	1.000	1.000						
Length = 5.50 ft	1	0.497	0.455	1.000	1.000	1.000	1.000	1.000	6.88	1,192.49	2,400.00	3.71	120.52	265.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 5.50 ft	1	0.656	0.590	1.000	1.000	1.000	1.000	1.000	9.08	1,574.11	2,400.00	4.81	156.38	265.00
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 5.50 ft	1	0.497	0.455	1.000	1.000	1.000	1.000	1.000	6.88	1,192.49	2,400.00	3.71	120.52	265.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 5.50 ft	1	0.656	0.590	1.000	1.000	1.000	1.000	1.000	9.08	1,574.11	2,400.00	4.81	156.38	265.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 5.50 ft	1	0.497	0.455	1.000	1.000	1.000	1.000	1.000	6.88	1,192.49	2,400.00	3.71	120.52	265.00

51

Title Block Line 1
You can changes this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 9:58AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tioga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610
Licensee : RICHARD TURNER

Description : M8

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 5.50 ft	1	0.656	0.590	1.000	1.000	1.000	1.000	1.000	9.08	1,574.11	2,400.00	4.81	156.38	265.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.0967	2.668		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	6.748	5.365
D Only	2.078	1.565
L Only	3.200	2.960
S Only	1.470	0.840
L+S	4.670	3.800
D+L	5.278	4.525
D+S	3.548	2.405
D+L+S	6.748	5.365

Title Block Line 1
You can changes this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 10:21AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n Boga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : J4

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

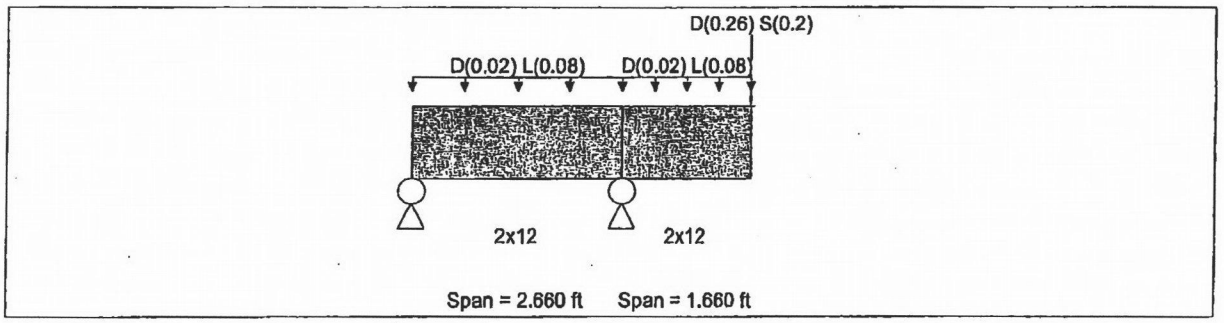
Beam Bracing : Beam is Fully Braced against lateral-torsion buckling

Fb - Tension	900.0 psi
Fb - Compr	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	32.210 pcf

Repetitive Member Stress Increase



Applied Loads

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

Load for Span Number 1
Uniform Load : D = 0.020, L = 0.080 , Tributary Width = 1.0 ft
Load for Span Number 2
Uniform Load : D = 0.020, L = 0.080 , Tributary Width = 1.0 ft
Point Load : D = 0.260, S = 0.20 k @ 1.660 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.290 : 1	Maximum Shear Stress Ratio	=	0.234 : 1
Section used for this span		2x12	Section used for this span		2x12
fb : Actual	=	300.05 psi	fv : Actual	=	42.18 psi
FB : Allowable	=	1,035.00 psi	Fv : Allowable	=	180.00 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	2.660 ft	Location of maximum on span	=	2.660 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.006 in	Ratio =	7094
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.012 in	Ratio =	3302
Max Upward Total Deflection	-0.002 in	Ratio =	15034

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 2.660 ft	1	0.209	0.171	1.000	1.000	1.150	1.000	1.000	-0.57	215.94	1,035.00	0.35	30.85	180.00
Length = 1.660 ft	2	0.209	0.171	1.000	1.000	1.150	1.000	1.000	-0.57	215.94	1,035.00	0.33	30.85	180.00
+D+S+H					1.000	1.150	1.000	1.000						
Length = 2.660 ft	1	0.290	0.234	1.000	1.000	1.150	1.000	1.000	-0.79	300.05	1,035.00	0.47	42.18	180.00
Length = 1.660 ft	2	0.290	0.234	1.000	1.000	1.150	1.000	1.000	-0.79	300.05	1,035.00	0.47	42.18	180.00
+D+0.750Lr+0.750L+H					1.000	1.150	1.000	1.000						
Length = 2.660 ft	1	0.199	0.157	1.000	1.000	1.150	1.000	1.000	-0.54	205.49	1,035.00	0.32	28.29	180.00
Length = 1.660 ft	2	0.199	0.157	1.000	1.000	1.150	1.000	1.000	-0.54	205.49	1,035.00	0.32	28.29	180.00
+D+0.750L+0.750S+H					1.000	1.150	1.000	1.000						
Length = 2.660 ft	1	0.290	0.231	1.000	1.000	1.150	1.000	1.000	-0.79	299.93	1,035.00	0.47	41.62	180.00

Title Block Line 1
You can changes this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:

Job #

Project Notes :

Printed: 18 JAN 2012, 10:21AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tloga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : J4

Load Combination Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
Length = 1.660 ft	2	0.290	0.231	1.000	1.000	1.150	1.000	1.000	-0.79	299.93	1,035.00	0.47	41.62	180.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
	1	0.0000	0.000	D+S	-0.0021	1.555
D+L+S	2	0.0121	1.660		0.0000	1.555

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	-0.271	1.098	
D Only	-0.146	0.492	
L Only	0.065	0.281	
S Only	-0.125	0.325	
L+S	-0.060	0.605	
D+L	-0.081	0.773	
D+S	-0.271	0.817	
D+L+S	-0.206	1.098	

Title Block Line 1
You can change this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 9 JUL 2013, 8:12PM

Wood Beam

File = C:\Users\Public\jobs\R13218~1\R11243~1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M9

CODE REFERENCES

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05
Load Combination Set : 2006 IBC & ASCE 7-05

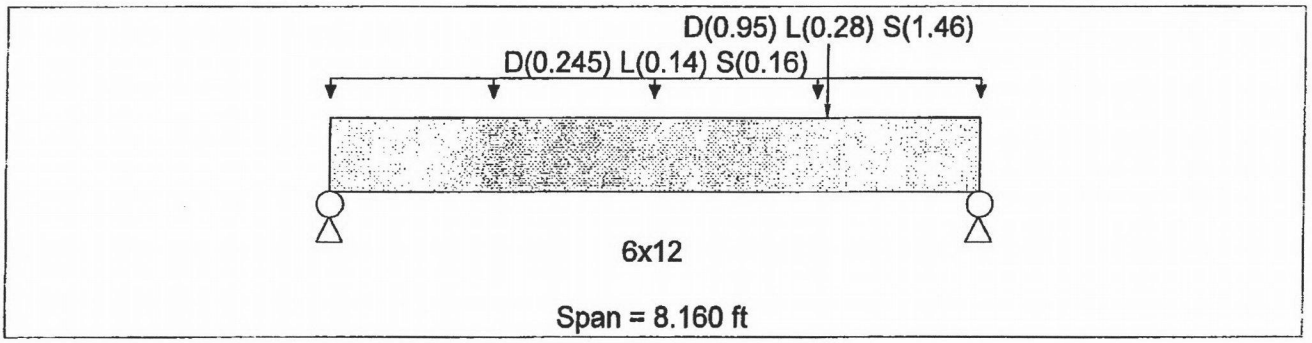
Material Properties

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

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

Fb - Tension	875 psi	*E : Modulus of Elasticity*	
Fb - Compr	875 psi	Ebend- xx	1300 ksi
Fc - Prll	600 psi	Eminbend - xx	470 ksi
Fc - Perp	625 psi		
Fv	170 psi		
Ft	425 psi	Density	32.21 pcf

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 = 0.2450, L = 0.140, S = 0.160 , Tribulary Width = 1.0 ft
Point Load : D = 0.950, L = 0.280, S = 1.460 k @ 6.250 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.626 : 1	Maximum Shear Stress Ratio	=	0.388 : 1
Section used for this span		6x12	Section used for this span		6x12
fb : Actual	=	629.73 psi	fv : Actual	=	75.82 psi
FB : Allowable	=	1,006.25 psi	Fv : Allowable	=	195.50 psi
Load Combination		+D+0.750L+0.750S+H	Load Combination		+D+0.750L+0.750S+H
Location of maximum on span	=	5.212 ft	Location of maximum on span	=	7.207 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.058 in	Ratio =	1689
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.099 in	Ratio =	993
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios									Moment Values			Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	M	fb	F'b	V	fv	F'v
+D+L+H													0.00	0.00	0.00	0.00
Length = 8.160 ft	1	0.508	0.299	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.49	444.12	875.00	2.15	50.89	170.00
+D+Lr+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.160 ft	1	0.345	0.208	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.05	301.64	875.00	1.49	35.42	170.00
+D+S+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.160 ft	1	0.597	0.378	1.15	1.00	1.00	1.00	1.00	1.00	1.00	6.07	600.38	1006.25	3.11	73.81	195.50
+D+0.750Lr+0.750L+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.160 ft	1	0.467	0.277	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.13	408.44	875.00	1.98	47.03	170.00
+D+0.750L+0.750S+H					1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.160 ft	1	0.626	0.388	1.15	1.00	1.00	1.00	1.00	1.00	1.00	6.36	629.73	1006.25	3.20	75.82	195.50

Title Block Line 1
You can change this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

Printed: 9 JUL 2013, 8:12PM

Wood Beam

File = C:\Users\Public\jobs\R13218~1\R11243~1\beams.ec6
ENERCALC, INC. 1983-2013, Build:6.13.6.21, Ver:6.13.6.21

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M9

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.0986	4.288		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	2.853	4.284
D Only	1.222	1.727
L Only	0.637	0.786
S Only	0.995	1.771
L+S	1.631	2.557
D+L	1.859	2.513
D+S	2.217	3.498
D+L+S	2.853	4.284

Title Block Line 1
You can changes this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes:

Job #

Printed: 18 JAN 2012, 10:51AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tioga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M10

Material Properties

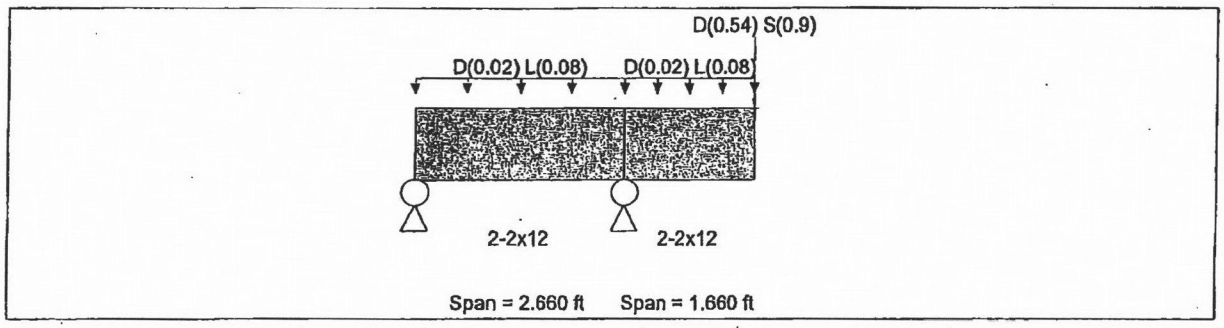
Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

Fb - Tension	900 psi	*E : Modulus of Elasticity*	
Fb - Compr	900 psi	Ebend- xx	1600 ksi
Fc - Prll	1350 psi	Eminbend - xx	580 ksi
Fc - Perp	625 psi		
Fv	180 psi		
Ft	575 psi	Density	32.21 pcf

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 = 0.020, L = 0.080 , Tributary Width = 1.0 ft
Load for Span Number 2
Uniform Load : D = 0.020, L = 0.080 , Tributary Width = 1.0 ft
Point Load : D = 0.540, S = 0.90 k @ 1.660 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.509 : 1	Maximum Shear Stress Ratio	=	0.359 : 1
Section used for this span		2-2x12	Section used for this span		2-2x12
fb : Actual	=	458.52 psi	fv : Actual	=	64.65 psi
FB : Allowable	=	900.00 psi	Fv : Allowable	=	180.00 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	2.660 ft	Location of maximum on span	=	2.660 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.011 in	Ratio =	3550
Max Upward L+Lr+S Deflection	-0.002 in	Ratio =	15361
Max Downward Total Deflection	0.018 in	Ratio =	2236
Max Upward Total Deflection	-0.003 in	Ratio =	9602

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 2.660 ft	1	0.218	0.151	1.000	1.000	1.000	1.000	1.000	-1.03	196.11	900.00	0.61	27.23	180.00
Length = 1.660 ft	2	0.218	0.151	1.000	1.000	1.000	1.000	1.000	-1.03	196.11	900.00	0.61	27.23	180.00
+D+S+H					1.000	1.000	1.000	1.000						
Length = 2.660 ft	1	0.509	0.359	1.000	1.000	1.000	1.000	1.000	-2.42	458.52	900.00	1.45	64.65	180.00
Length = 1.660 ft	2	0.509	0.359	1.000	1.000	1.000	1.000	1.000	-2.42	458.52	900.00	1.45	64.65	180.00
+D+0.750Lr+0.750L+H					1.000	1.000	1.000	1.000						
Length = 2.660 ft	1	0.212	0.148	1.000	1.000	1.000	1.000	1.000	-1.01	190.89	900.00	0.60	26.59	180.00
Length = 1.660 ft	2	0.212	0.148	1.000	1.000	1.000	1.000	1.000	-1.01	190.89	900.00	0.60	26.59	180.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 2.660 ft	1	0.448	0.314	1.000	1.000	1.000	1.000	1.000	-2.13	403.37	900.00	1.27	56.59	180.00

Title Block Line 1
You can changes this area
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Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 10:51AM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tiogal\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M10

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
Length = 1.660 ft	2	0.448	0.314	1.000	1.000	1.000	1.000	1.000	-2.13	403.37	900.00	1.27	56.59	180.00
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 2.660 ft	1	0.212	0.148	1.000	1.000	1.000	1.000	1.000	-1.01	190.89	900.00	0.60	26.59	180.00
Length = 1.660 ft	2	0.212	0.148	1.000	1.000	1.000	1.000	1.000	-1.01	190.89	900.00	0.60	26.59	180.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 2.660 ft	1	0.448	0.314	1.000	1.000	1.000	1.000	1.000	-2.13	403.37	900.00	1.27	56.59	180.00
Length = 1.660 ft	2	0.448	0.314	1.000	1.000	1.000	1.000	1.000	-2.13	403.37	900.00	1.27	56.59	180.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 2.660 ft	1	0.212	0.148	1.000	1.000	1.000	1.000	1.000	-1.01	190.89	900.00	0.60	26.59	180.00
Length = 1.660 ft	2	0.212	0.148	1.000	1.000	1.000	1.000	1.000	-1.01	190.89	900.00	0.60	26.59	180.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 2.660 ft	1	0.448	0.314	1.000	1.000	1.000	1.000	1.000	-2.13	403.37	900.00	1.27	56.59	180.00
Length = 1.660 ft	2	0.448	0.314	1.000	1.000	1.000	1.000	1.000	-2.13	403.37	900.00	1.27	56.59	180.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
	1	0.0000	0.000	D+S	-0.0033	1.555
D+L+S	2	0.0178	1.660		0.0000	1.555

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	-0.882	2.689	
D Only	-0.321	0.947	
L Only	0.065	0.281	
S Only	-0.562	1.462	
L+S	-0.497	1.742	
D+L	-0.256	1.228	
D+S	-0.882	2.409	
D+L+S	-0.817	2.689	

Title Block Line 1
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Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 4:44PM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n Boga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M11

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

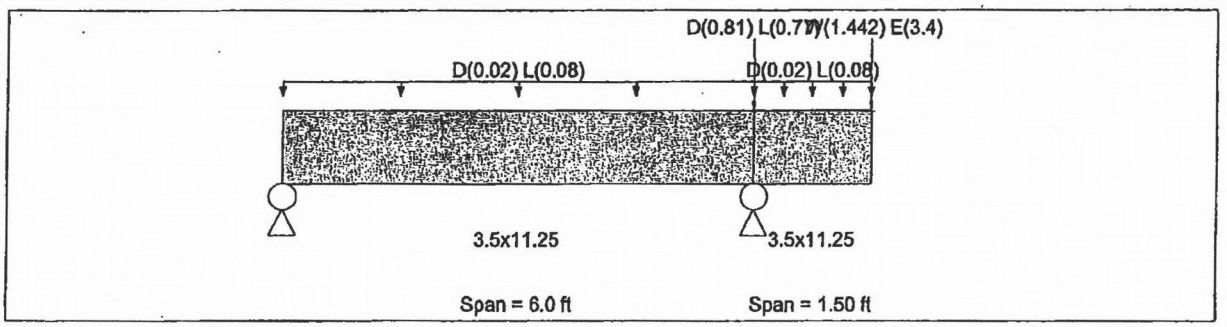
Wood Species : iLevel Truss Joist
Wood Grade : Parallam PSL 2.0E

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

Fb - Tension	2,900.0 psi
Fb - Compr	2,900.0 psi
Fc - Prll	2,900.0 psi
Fc - Perp	750.0 psi
Fv	290.0 psi
Ft	2,025.0 psi

E : Modulus of Elasticity

Ebend- xx	2,000.0 ksi
Eminbend - xx	1,016.54 ksi
Density	32.210 pcf



Applied Loads

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

Load for Span Number 1
Uniform Load : D = 0.020, L = 0.080 , Tributary Width = 1.0 ft
Load for Span Number 2
Uniform Load : D = 0.020, L = 0.080 , Tributary Width = 1.0 ft
Point Load : D = 0.810, L = 0.770 k @ 0.0 ft
Point Load : W = 1.442, E = 3.40 k @ 1.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.201 : 1	Maximum Shear Stress Ratio	=	0.314 : 1
Section used for this span		3.5x11.25	Section used for this span		3.5x11.25
fb : Actual	=	583.92 psi	fv : Actual	=	91.10 psi
FB : Allowable	=	2,900.00 psi	Fv : Allowable	=	290.00 psi
Load Combination		+D+0.70E+H	Load Combination		+D+0.70E+H
Location of maximum on span	=	6.000 ft	Location of maximum on span	=	6.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.002 in	Ratio =	29758
Max Upward L+Lr+S Deflection	-0.002 in	Ratio =	22778
Max Downward Total Deflection	0.040 in	Ratio =	904
Max Upward Total Deflection	-0.025 in	Ratio =	2909

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	C_{FN}	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 6.0 ft	1	0.022	0.042	1.000	1.000	1.000	1.000	1.000	0.40	64.29	2,900.00	0.32	12.14	290.00
Length = 1.50 ft	2	0.006	0.042	1.000	1.000	1.000	1.000	1.000	-0.11	18.29	2,900.00	0.06	12.14	290.00
+D+0.750Lr+0.750L+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.018	0.033	1.000	1.000	1.000	1.000	1.000	0.32	51.43	2,900.00	0.25	9.71	290.00
Length = 1.50 ft	2	0.005	0.033	1.000	1.000	1.000	1.000	1.000	-0.09	14.63	2,900.00	0.05	9.71	290.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.018	0.033	1.000	1.000	1.000	1.000	1.000	0.32	51.43	2,900.00	0.25	9.71	290.00
Length = 1.50 ft	2	0.005	0.033	1.000	1.000	1.000	1.000	1.000	-0.09	14.63	2,900.00	0.05	9.71	290.00
+D+W+H					1.000	1.000	1.000	1.000						

Title Block Line 1
You can changes this area
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Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 4:44PM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n tioga\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M11

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_r	C_m	C_t	Summary of Moment Values: Mactual	fb-design	Fb-allow	Summary of Shear Values: Vactual	fv-design	Fv-allow
Length = 6.0 ft	1	0.122	0.191	1.000	1.000	1.000	1.000	1.000	-2.19	355.23	2,900.00	1.45	55.36	290.00
Length = 1.50 ft	2	0.122	0.191	1.000	1.000	1.000	1.000	1.000	-2.19	355.23	2,900.00	1.45	55.36	290.00
+D+0.70E+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.201	0.314	1.000	1.000	1.000	1.000	1.000	-3.59	583.92	2,900.00	2.39	91.10	290.00
Length = 1.50 ft	2	0.201	0.314	1.000	1.000	1.000	1.000	1.000	-3.59	583.92	2,900.00	2.39	91.10	290.00
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.096	0.148	1.000	1.000	1.000	1.000	1.000	-1.71	278.31	2,900.00	1.13	42.92	290.00
Length = 1.50 ft	2	0.096	0.148	1.000	1.000	1.000	1.000	1.000	-1.71	278.31	2,900.00	1.13	42.92	290.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.096	0.148	1.000	1.000	1.000	1.000	1.000	-1.71	278.31	2,900.00	1.13	42.92	290.00
Length = 1.50 ft	2	0.096	0.148	1.000	1.000	1.000	1.000	1.000	-1.71	278.31	2,900.00	1.13	42.92	290.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.155	0.240	1.000	1.000	1.000	1.000	1.000	-2.77	449.83	2,900.00	1.83	69.72	290.00
Length = 1.50 ft	2	0.155	0.240	1.000	1.000	1.000	1.000	1.000	-2.77	449.83	2,900.00	1.83	69.72	290.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.155	0.240	1.000	1.000	1.000	1.000	1.000	-2.77	449.83	2,900.00	1.83	69.72	290.00
Length = 1.50 ft	2	0.155	0.240	1.000	1.000	1.000	1.000	1.000	-2.77	449.83	2,900.00	1.83	69.72	290.00
+0.60D+W+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.122	0.190	1.000	1.000	1.000	1.000	1.000	-2.18	353.77	2,900.00	1.45	55.19	290.00
Length = 1.50 ft	2	0.122	0.190	1.000	1.000	1.000	1.000	1.000	-2.18	353.77	2,900.00	1.45	55.19	290.00
+0.60D+0.70E+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.201	0.314	1.000	1.000	1.000	1.000	1.000	-3.58	582.46	2,900.00	2.39	90.93	290.00
Length = 1.50 ft	2	0.201	0.314	1.000	1.000	1.000	1.000	1.000	-3.58	582.46	2,900.00	2.39	90.93	290.00
+0.60D-1.0W					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.120	0.187	1.000	1.000	1.000	1.000	1.000	2.15	349.38	2,900.00	1.42	54.25	290.00
Length = 1.50 ft	2	0.120	0.189	1.000	1.000	1.000	1.000	1.000	2.15	349.38	2,900.00	1.44	54.93	290.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
	1	0.0000	0.000	E Only	-0.0247	3.508
E Only	2	0.0397	1.500		0.0000	3.508

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	-0.850	6.299	
D Only	0.056	0.904	
L Only	0.225	1.145	
W Only	-0.360	1.803	
E Only	-0.850	4.250	
D+L	0.281	2.049	
D+W	-0.304	2.706	
D+L+W	-0.079	3.851	
D+E	-0.794	5.154	
D+L+E	-0.569	6.299	

Title Block Line 1
You can changes this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 18 JAN 2012, 4:36PM

Wood Beam

File: C:\Users\Public\2011 JOBS\R11243 n liogal\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M12

Material Properties

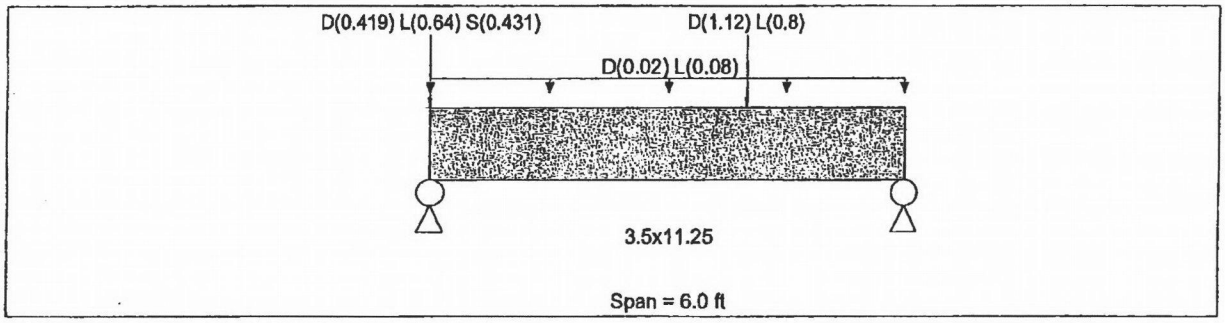
Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

Fb - Tension	875 psi	*E : Modulus of Elasticity*	
Fb - Compr	875 psi	Ebend- xx	1300 ksi
Fc - Prll	600 psi	Eminbend - xx	470 ksi
Fc - Perp	625 psi		
Fv	170 psi		
Ft	425 psi	Density	32.21 pcf

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 = 0.020, L = 0.080 , Tributary Width = 1.0 ft
Point Load : D = 0.4190, L = 0.640, S = 0.4310 k @ 0.0 ft
Point Load : D = 1.120, L = 0.80 k @ 4.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.549 : 1	Maximum Shear Stress Ratio	=	0.333 : 1
Section used for this span		3.5x11.25	Section used for this span		3.5x11.25
fb : Actual	=	480.24 psi	fv : Actual	=	56.65 psi
FB : Allowable	=	875.00 psi	Fv : Allowable	=	170.00 psi
Load Combination		+D+L+H	Load Combination		+D+L+H
Location of maximum on span	=	3.990 ft	Location of maximum on span	=	5.070 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.014 in	Ratio =	5032
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.029 in	Ratio =	2452
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D+L+H														
Length = 6.0 ft	1	0.549	0.333	1.000	1.000	1.000	1.000	1.000	2.95	480.24	875.00	1.49	56.65	170.00
+D+S+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.292	0.177	1.000	1.000	1.000	1.000	1.000	1.57	255.15	875.00	0.79	30.02	170.00
+D+0.750Lr+0.750L+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.485	0.294	1.000	1.000	1.000	1.000	1.000	2.61	423.97	875.00	1.31	49.99	170.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.485	0.294	1.000	1.000	1.000	1.000	1.000	2.61	423.97	875.00	1.31	49.99	170.00
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.485	0.294	1.000	1.000	1.000	1.000	1.000	2.61	423.97	875.00	1.31	49.99	170.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.485	0.294	1.000	1.000	1.000	1.000	1.000	2.61	423.97	875.00	1.31	49.99	170.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.485	0.294	1.000	1.000	1.000	1.000	1.000	2.61	423.97	875.00	1.31	49.99	170.00

Title Block Line 1
You can changes this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

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Wood Beam

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0
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Description : M12

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	C_{FV}	C_r	C_m	C_t	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 6.0 ft	1	0.485	0.294	1.000	1.000	1.000	1.000	1.000	2.61	423.97	875.00	1.31	49.99	170.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L	1	0.0294	3.240		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	2.430	1.580
D Only	0.852	0.807
L Only	1.147	0.773
S Only	0.431	
L+S	1.578	0.773
D+L	1.999	1.580
D+S	1.283	0.807
D+L+S	2.430	1.580

Title Block Line 1
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Project Notes :

Job #

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Wood Beam

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : M13

Material Properties

Calculations per NDS 2005, IBC 2006, CBC 2007, ASCE 7-05

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

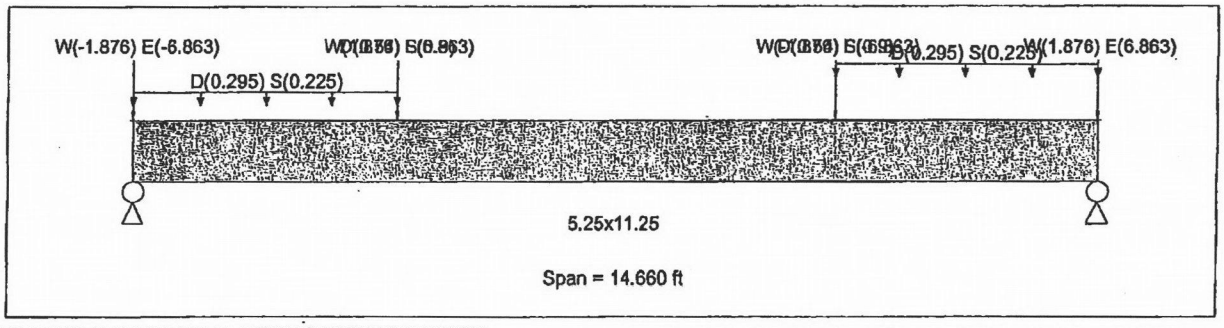
Wood Species : iLevel Truss Joist
Wood Grade : Parallam PSL 2.0E

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

Fb - Tension	2900 psi
Fb - Compr	2900 psi
Fc - Prll	2900 psi
Fc - Perp	750 psi
Fv	290 psi
Ft	2025 psi

E : Modulus of Elasticity

Ebend- xx	2000 ksi
Eminbend - xx	1016.535 ksi
Density	32.21 pcf



Applied Loads

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

Load for Span Number 1
Uniform Load : D = 0.2950, S = 0.2250 k/ft, Extent = 0.0 -->> 4.0 ft, Tributary Width = 1.0 ft
Uniform Load : D = 0.2950, S = 0.2250 k/ft, Extent = 10.660 -->> 14.660 ft, Tributary Width = 1.0 ft
Point Load : D = 0.540, S = 0.90 k @ 4.0 ft
Point Load : D = 0.540, S = 0.90 k @ 10.660 ft
Point Load : W = 1.876, E = 6.863 k @ 4.0 ft
Point Load : W = -1.876, E = -6.863 k @ 0.0 ft
Point Load : W = 1.876, E = 6.863 k @ 14.660 ft
Point Load : W = -1.876, E = -6.863 k @ 10.660 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.563 : 1	Maximum Shear Stress Ratio	=	0.376 : 1
Section used for this span		5.25x11.25	Section used for this span		5.25x11.25
fb : Actual	=	1,631.41 psi	fv : Actual	=	109.18 psi
FB : Allowable	=	2,900.00 psi	Fv : Allowable	=	290.00 psi
Load Combination		+D+0.750L+0.750S+0.5250E+H	Load Combination		+D+0.750L+0.750S+0.5250E+H
Location of maximum on span	=	4.032 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.186 in	Ratio =	945
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.343 in	Ratio =	512
Max Upward Total Deflection	-0.076 in	Ratio =	2312

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_r	C_m	C_t	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
+D+S+H														
Length = 14.660 ft	1	0.371	0.268	1.000	1.000	1.000	1.000	1.000	9.92	1,074.93	2,900.00	3.06	77.78	290.00
+D+0.750L+0.750S+H					1.000	1.000	1.000	1.000						
Length = 14.660 ft	1	0.320	0.233	1.000	1.000	1.000	1.000	1.000	8.57	928.64	2,900.00	2.66	67.61	290.00
+D+W+H					1.000	1.000	1.000	1.000						
Length = 14.660 ft	1	0.295	0.203	1.000	1.000	1.000	1.000	1.000	7.90	855.70	2,900.00	2.31	58.74	290.00
+D+0.70E+H					1.000	1.000	1.000	1.000						
Length = 14.660 ft	1	0.492	0.319	1.000	1.000	1.000	1.000	1.000	13.17	1,426.81	2,900.00	3.64	92.52	290.00

Title Block Line 1
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Project Desc.:

Job #

Project Notes :

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Wood Beam

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

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Description : M13

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_r	C_m	C_l	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
+D+0.750Lr+0.750L+0.750W+H					1.000	1.000	1.000	1.000						
Length = 14.660 ft	1	0.264	0.184	1.000	1.000	1.000	1.000	1.000	7.05	764.22	2,900.00	2.10	53.33	290.00
+D+0.750L+0.750S+0.750W+H					1.000	1.000	1.000	1.000						
Length = 14.660 ft	1	0.415	0.289	1.000	1.000	1.000	1.000	1.000	11.10	1,203.08	2,900.00	3.30	83.84	290.00
+D+0.750Lr+0.750L+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 14.660 ft	1	0.411	0.271	1.000	1.000	1.000	1.000	1.000	11.01	1,192.56	2,900.00	3.10	78.66	290.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.000	1.000	1.000						
Length = 14.660 ft	1	0.563	0.376	1.000	1.000	1.000	1.000	1.000	15.06	1,631.41	2,900.00	4.30	109.18	290.00
+0.60D+W+H					1.000	1.000	1.000	1.000						
Length = 14.660 ft	1	0.228	0.151	1.000	1.000	1.000	1.000	1.000	6.09	659.78	2,900.00	1.73	43.90	290.00
+0.60D+0.70E+H					1.000	1.000	1.000	1.000						
Length = 14.660 ft	1	0.424	0.268	1.000	1.000	1.000	1.000	1.000	11.36	1,230.90	2,900.00	3.06	77.68	290.00
+0.60D-1.0W					1.000	1.000	1.000	1.000						
Length = 14.660 ft	1	0.228	0.150	1.000	1.000	1.000	1.000	1.000	6.09	659.78	2,900.00	1.72	43.57	290.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+S	1	0.3435	7.403		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	-3.745	5.465
D Only	1.720	1.720
S Only	1.800	1.800
W Only	-1.024	1.024
E Only	-3.745	3.745
D+S	3.520	3.520
D+W	0.696	2.744
D+E	-2.025	5.465

Title Block Line 1
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Project Desc.:
Project Notes :

Job #

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General Footing

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : F2

General Information

Calculations per ACI 318-05, IBC 2006, CBC 2007, ASCE 7-05

Material Properties

f'c : Concrete 28 day strength	=	2.50 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.850

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	:	No
Use ftg wt for stability, moments & shears	:	No
Include Pedestal Weight as DL	:	No

Soil Design Values

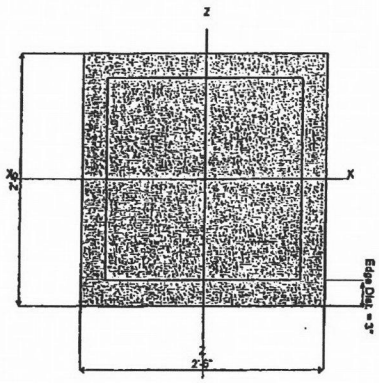
Allowable Soil Bearing	=	1.50 ksf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth
Footing base depth below soil surface = ft
Allowable pressure increase per foot of depth = ksf
when footing base is below = ft

Increases based on footing plan dimension
Allowable pressure increase per foot of depth = ksf
when maximum length or width is greater = ft

Dimensions

Width parallel to X-X Axis	=	2.50 ft
Length parallel to Z-Z Axis	=	2.50 ft
Footing Thicknes	=	8.0 in

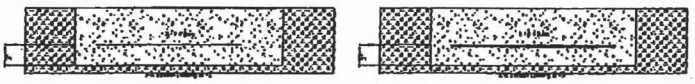


Pedestal dimensions...
px : parallel to X-X Axis = in
pz : parallel to Z-Z Axis = in
Height in
Rebar Centerline to Edge of Concrete..
at Bottom of footing = 3.0 in

Reinforcing

Bars parallel to X-X Axis
Number of Bars = 3.0
Reinforcing Bar Size = # 4

Bars parallel to Z-Z Axis
Number of Bars = 3.0
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	Lr	L	S	W	E	H	
P : Column Load	=	3.0		4.30	2.0				k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

Title Block Line 1
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Title :
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General Footing

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

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Description : F2

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.8240	Soil Bearing	1.236 ksf	1.50 ksf	+D+0.750L+0.750S+0.5250E+H
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
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	0.2816	Z Flexure (+X)	1.435 k-ft	5.095 k-ft	+1.20D+1.60L+0.50S+1.60H
PASS	0.2816	Z Flexure (-X)	1.435 k-ft	5.095 k-ft	+1.20D+1.60L+0.50S+1.60H
PASS	0.2816	X Flexure (+Z)	1.435 k-ft	5.095 k-ft	+1.20D+1.60L+0.50S+1.60H
PASS	0.2816	X Flexure (-Z)	1.435 k-ft	5.095 k-ft	+1.20D+1.60L+0.50S+1.60H
PASS	0.3001	1-way Shear (+X)	25.511 psi	85.0 psi	+1.20D+1.60L+0.50S+1.60H
PASS	0.3001	1-way Shear (-X)	25.511 psi	85.0 psi	+1.20D+1.60L+0.50S+1.60H
PASS	0.3001	1-way Shear (+Z)	25.511 psi	85.0 psi	+1.20D+1.60L+0.50S+1.60H
PASS	0.3001	1-way Shear (-Z)	25.511 psi	85.0 psi	+1.20D+1.60L+0.50S+1.60H
PASS	0.6550	2-way Punching	111.35 psi	170.0 psi	+1.20D+1.60L+0.50S+1.60H

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc	Actual Soil Bearing Stress +Z	+Z	-X	-X	Actual / Allowable Ratio
X-X, +D+L+H	1.50	n/a	0.0	1.168	1.168	n/a	n/a	0.779
X-X, +D+S+H	1.50	n/a	0.0	0.80	0.80	n/a	n/a	0.533
X-X, +D+0.750Lr+0.750L+H	1.50	n/a	0.0	0.9960	0.9960	n/a	n/a	0.664
X-X, +D+0.750L+0.750S+H	1.50	n/a	0.0	1.236	1.236	n/a	n/a	0.824
X-X, +D+0.750Lr+0.750L+0.750W+H	1.50	n/a	0.0	0.9960	0.9960	n/a	n/a	0.664
X-X, +D+0.750L+0.750S+0.750W+H	1.50	n/a	0.0	1.236	1.236	n/a	n/a	0.824
X-X, +D+0.750Lr+0.750L+0.5250E+H	1.50	n/a	0.0	0.9960	0.9960	n/a	n/a	0.664
X-X, +D+0.750L+0.750S+0.5250E+H	1.50	n/a	0.0	1.236	1.236	n/a	n/a	0.824
Z-Z, +D+L+H	1.50	0.0	n/a	n/a	n/a	1.168	1.168	0.779
Z-Z, +D+S+H	1.50	0.0	n/a	n/a	n/a	0.80	0.80	0.533
Z-Z, +D+0.750Lr+0.750L+H	1.50	0.0	n/a	n/a	n/a	0.9960	0.9960	0.664
Z-Z, +D+0.750L+0.750S+H	1.50	0.0	n/a	n/a	n/a	1.236	1.236	0.824
Z-Z, +D+0.750Lr+0.750L+0.750W+H	1.50	0.0	n/a	n/a	n/a	0.9960	0.9960	0.664
Z-Z, +D+0.750L+0.750S+0.750W+H	1.50	0.0	n/a	n/a	n/a	1.236	1.236	0.824
Z-Z, +D+0.750Lr+0.750L+0.5250E+H	1.50	0.0	n/a	n/a	n/a	0.9960	0.9960	0.664
Z-Z, +D+0.750L+0.750S+0.5250E+H	1.50	0.0	n/a	n/a	n/a	1.236	1.236	0.824

Title Block Line 1
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Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

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General Footing

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ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensee : RICHARD TURNER

Description : F3

General Information

Calculations per ACI 318-05, IBC-2006, CBC 2007, ASCE 7-05

Material Properties

f'c : Concrete 28 day strength	=	2.50 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.850

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	:	No
Use ftg wt for stability, moments & shears	:	No
Include Pedestal Weight as DL	:	No

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

Increases based on footing Depth

Footing base depth below soil surface	=	0.0 ft
Allowable pressure increase per foot of depth	=	0.0 ksf
when footing base is below	=	0.0 ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=	0.0 ksf
when maximum length or width is greater	=	0.0 ft

Dimensions

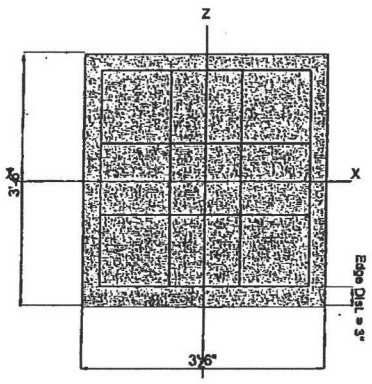
Width parallel to X-X Axis	=	3.50 ft
Length parallel to Z-Z Axis	=	3.50 ft
Footing Thicknes	=	10.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	0.0 in
pz : parallel to Z-Z Axis	=	0.0 in
Height	=	0.0 in

Rebar Centerline to Edge of Concrete..

at Bottom of footing	=	3.0 in



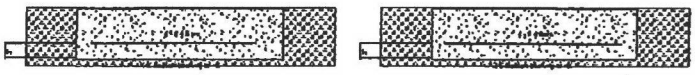
Reinforcing

Bars parallel to X-X Axis

Number of Bars	=	4.0
Reinforcing Bar Size	=	# 4

Bars parallel to Z-Z Axis

Number of Bars	=	4.0
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	Lr	L	S	W	E	H
P : Column Load	=	5.710	0.0	11.780	2.540	0.0	0.0	0.0 k
OB : Overburden	=	0.0	0.0	0.0	0.0	0.0	0.0	0.0 ksf
M-xx	=	0.0	0.0	0.0	0.0	0.0	0.0	0.0 k-ft
M-zz	=	0.0	0.0	0.0	0.0	0.0	0.0	0.0 k-ft
V-x	=	0.0	0.0	0.0	0.0	0.0	0.0	0.0 k
V-z	=	0.0	0.0	0.0	0.0	0.0	0.0	0.0 k

Title Block Line 1
You can changes this area using the "Settings" menu item and then using the "Printing & Title Block" selection.
Title Block Line 6

Title :
Dsgnr:
Project Desc.:
Project Notes :

Job #

Printed: 20 JAN 2012, 11:43AM

General Footing

File: C:\Users\Public\2011 JOBS\R11243 n llogs\beams.ec6
ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.0.25.0

Lic. # : KW-06005610 Licensed : RICHARD TURNER

Description : F3

DESIGN SUMMARY

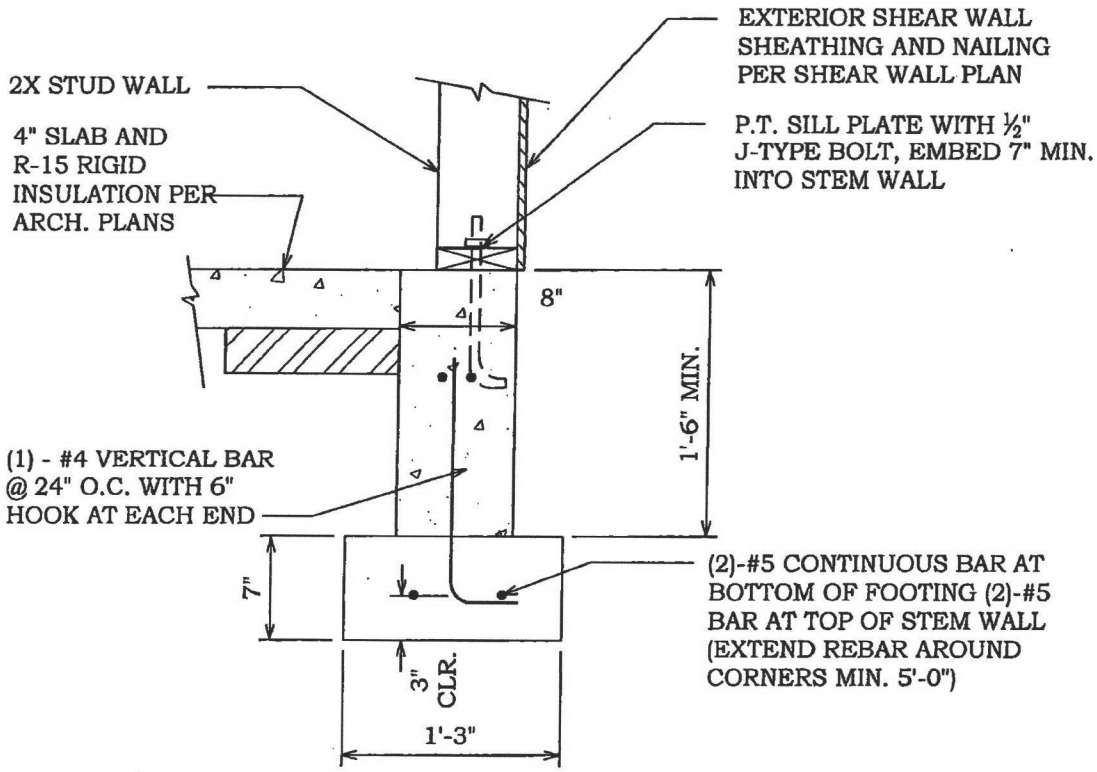
Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9520	Soil Bearing	1.428 ksf	1.50 ksf	+D+L+H
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
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	0.4868	Z Flexure (+X)	3.371 k-ft	6.923 k-ft	+1.20D+1.60L+0.50S+1.60H
PASS	0.4868	Z Flexure (-X)	3.371 k-ft	6.923 k-ft	+1.20D+1.60L+0.50S+1.60H
PASS	0.4868	X Flexure (+Z)	3.371 k-ft	6.923 k-ft	+1.20D+1.60L+0.50S+1.60H
PASS	0.4868	X Flexure (-Z)	3.371 k-ft	6.923 k-ft	+1.20D+1.60L+0.50S+1.60H
PASS	0.3597	1-way Shear (+X)	30.578 psi	85.0 psi	+1.20D+1.60L+0.50S+1.60H
PASS	0.3597	1-way Shear (-X)	30.578 psi	85.0 psi	+1.20D+1.60L+0.50S+1.60H
PASS	0.3597	1-way Shear (+Z)	30.578 psi	85.0 psi	+1.20D+1.60L+0.50S+1.60H
PASS	0.3597	1-way Shear (-Z)	30.578 psi	85.0 psi	+1.20D+1.60L+0.50S+1.60H
PASS	0.7851	2-way Punching	133.47 psi	170.0 psi	+1.20D+1.60L+0.50S+1.60H

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc	Actual Soil Bearing Stress +Z	+Z	-X	-X	Actual / Allowable Ratio
X-X, +D+L+H	1.50	n/a	0.0	1.428	1.428	n/a	n/a	0.952
X-X, +D+S+H	1.50	n/a	0.0	0.6735	0.6735	n/a	n/a	0.449
X-X, +D+0.750Lr+0.750L+H	1.50	n/a	0.0	1.187	1.187	n/a	n/a	0.791
X-X, +D+0.750L+0.750S+H	1.50	n/a	0.0	1.343	1.343	n/a	n/a	0.895
X-X, +D+0.750Lr+0.750L+0.750W+H	1.50	n/a	0.0	1.187	1.187	n/a	n/a	0.791
X-X, +D+0.750L+0.750S+0.750W+H	1.50	n/a	0.0	1.343	1.343	n/a	n/a	0.895
X-X, +D+0.750Lr+0.750L+0.5250E+H	1.50	n/a	0.0	1.187	1.187	n/a	n/a	0.791
X-X, +D+0.750L+0.750S+0.5250E+H	1.50	n/a	0.0	1.343	1.343	n/a	n/a	0.895
Z-Z, +D+L+H	1.50	0.0	n/a	n/a	n/a	1.428	1.428	0.952
Z-Z, +D+S+H	1.50	0.0	n/a	n/a	n/a	0.6735	0.6735	0.449
Z-Z, +D+0.750Lr+0.750L+H	1.50	0.0	n/a	n/a	n/a	1.187	1.187	0.791
Z-Z, +D+0.750L+0.750S+H	1.50	0.0	n/a	n/a	n/a	1.343	1.343	0.895
Z-Z, +D+0.750Lr+0.750L+0.750W+H	1.50	0.0	n/a	n/a	n/a	1.187	1.187	0.791
Z-Z, +D+0.750L+0.750S+0.750W+H	1.50	0.0	n/a	n/a	n/a	1.343	1.343	0.895
Z-Z, +D+0.750Lr+0.750L+0.5250E+H	1.50	0.0	n/a	n/a	n/a	1.187	1.187	0.791
Z-Z, +D+0.750L+0.750S+0.5250E+H	1.50	0.0	n/a	n/a	n/a	1.343	1.343	0.895

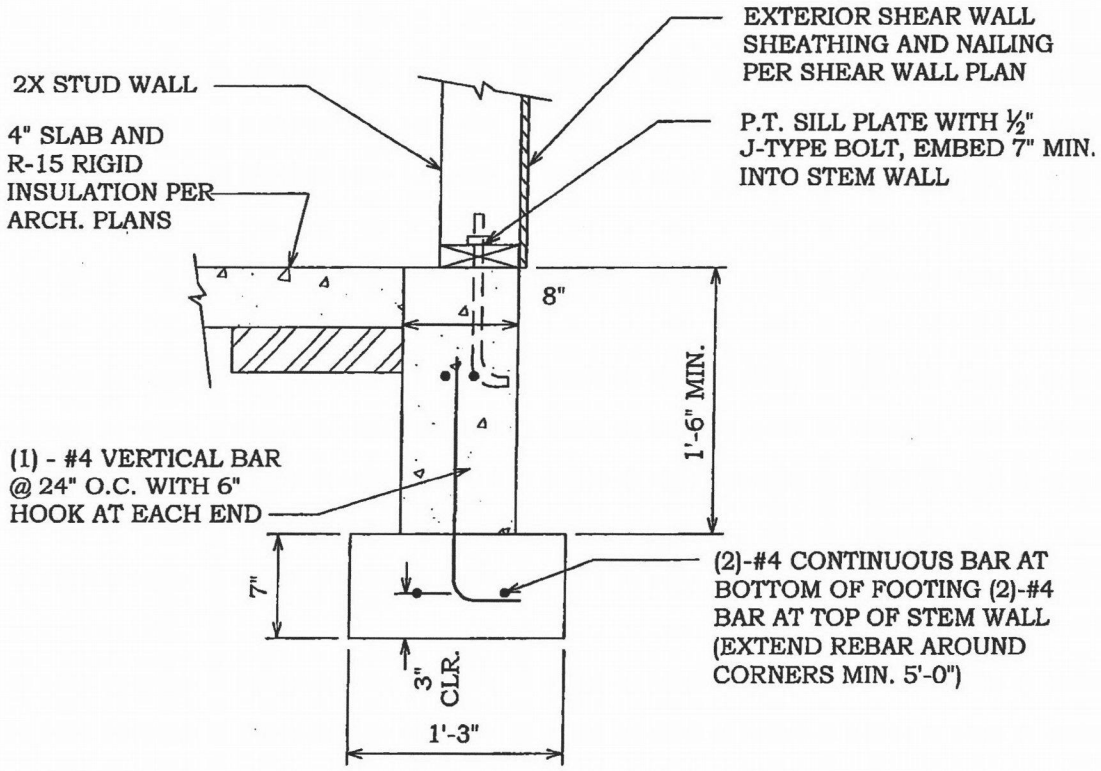


NOTE:
1. FOOTING TO BE PLACED ON UNDISTURBED NATIVE SOIL.
2. REFER TO SHEAR WALL SCHEDULE SILL BOLT SPACING AT SHEAR WALL LOCATIONS.

1/S4 FOOTING SECTION

SCALE: 1" = 1'-0"

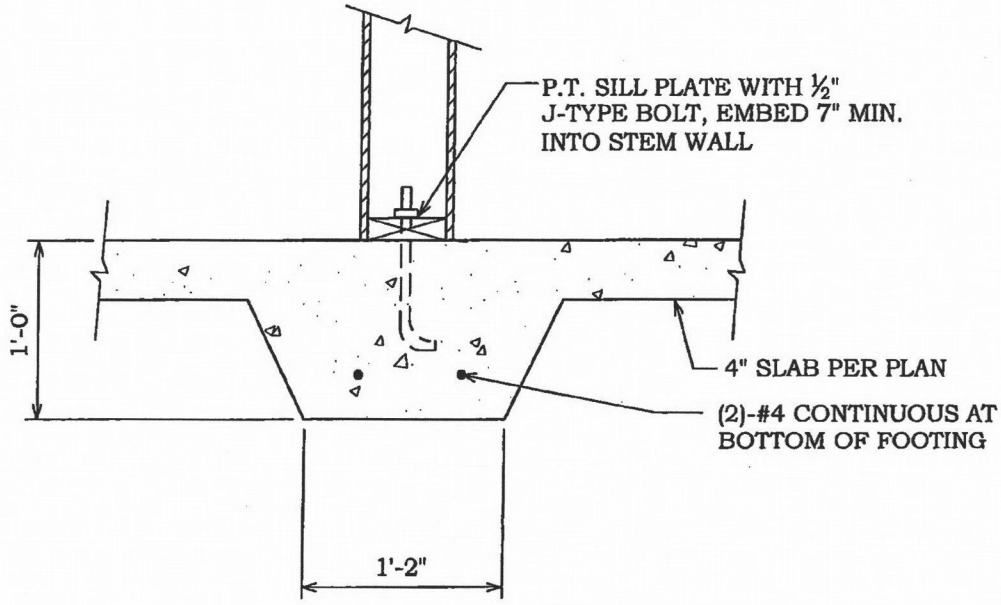
A1



NOTE:
1. FOOTING TO BE PLACED ON UNDISTURBED NATIVE SOIL.
2. REFER TO SHEAR WALL SCHEDULE SILL BOLT SPACING AT SHEAR WALL LOCATIONS.

2/S4 FOOTING SECTION
SCALE: 1" = 1'-0"

A2

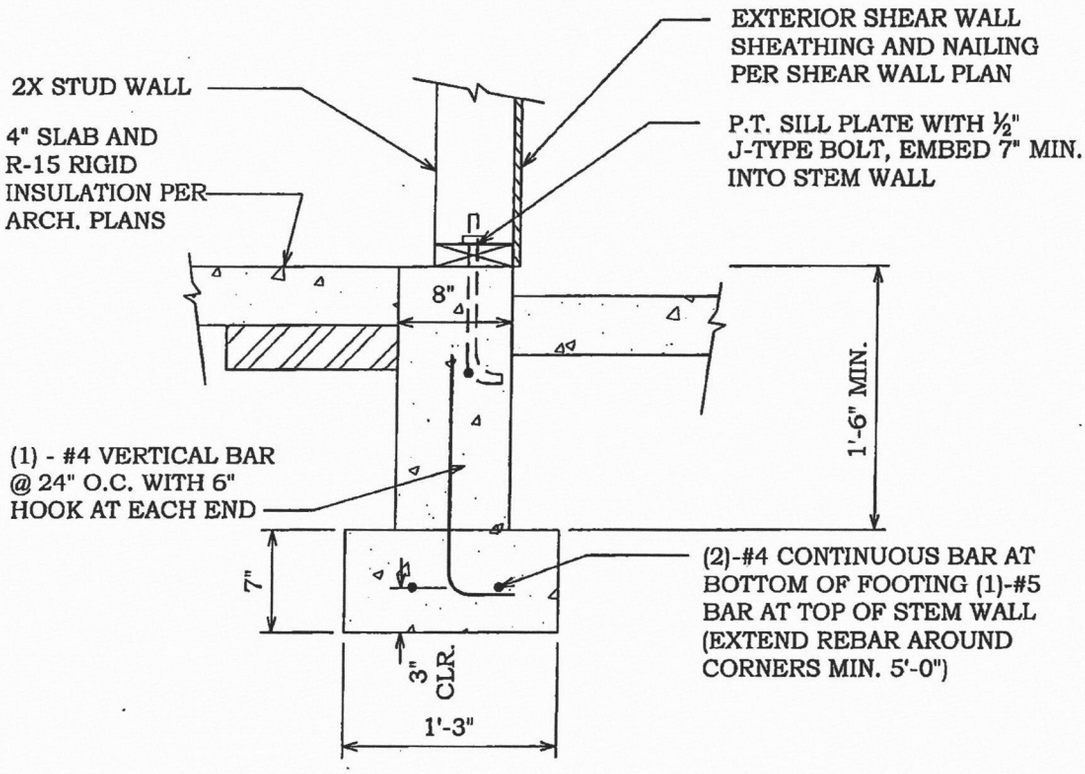


NOTE:
1. FOOTING TO BE PLACED ON UNDISTURBED NATIVE SOIL.
2. REFER TO SHEAR WALL SCHEDULE SILL BOLT SPACING AT SHEAR WALL LOCATIONS.
3. CRACK CONTROL PREVENTION BY OTHERS.

3/S4 THICKENED SLAB SECTION

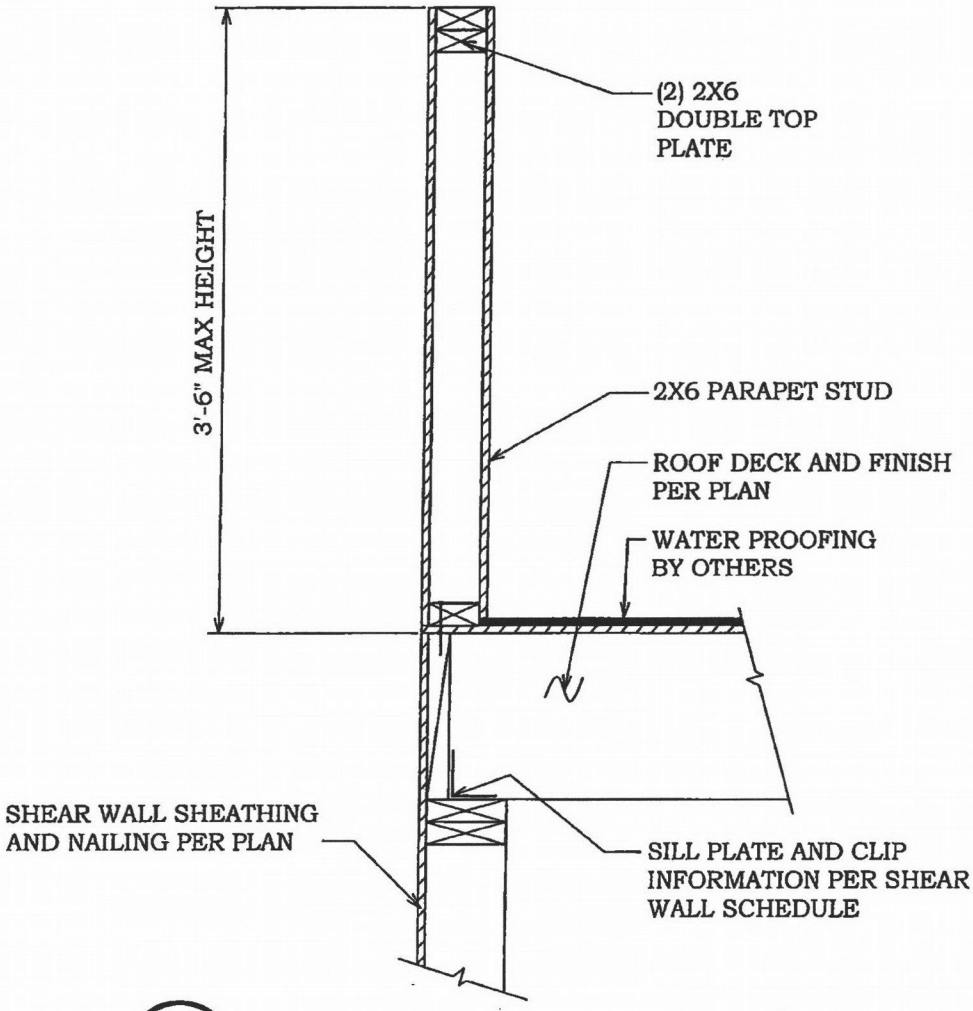
SCALE: 1" = 1'-0"

A3



NOTE:
1. FOOTING TO BE PLACED ON UNDISTURBED NATIVE SOIL.
2. REFER TO SHEAR WALL SCHEDULE SILL BOLT SPACING AT SHEAR WALL LOCATIONS.

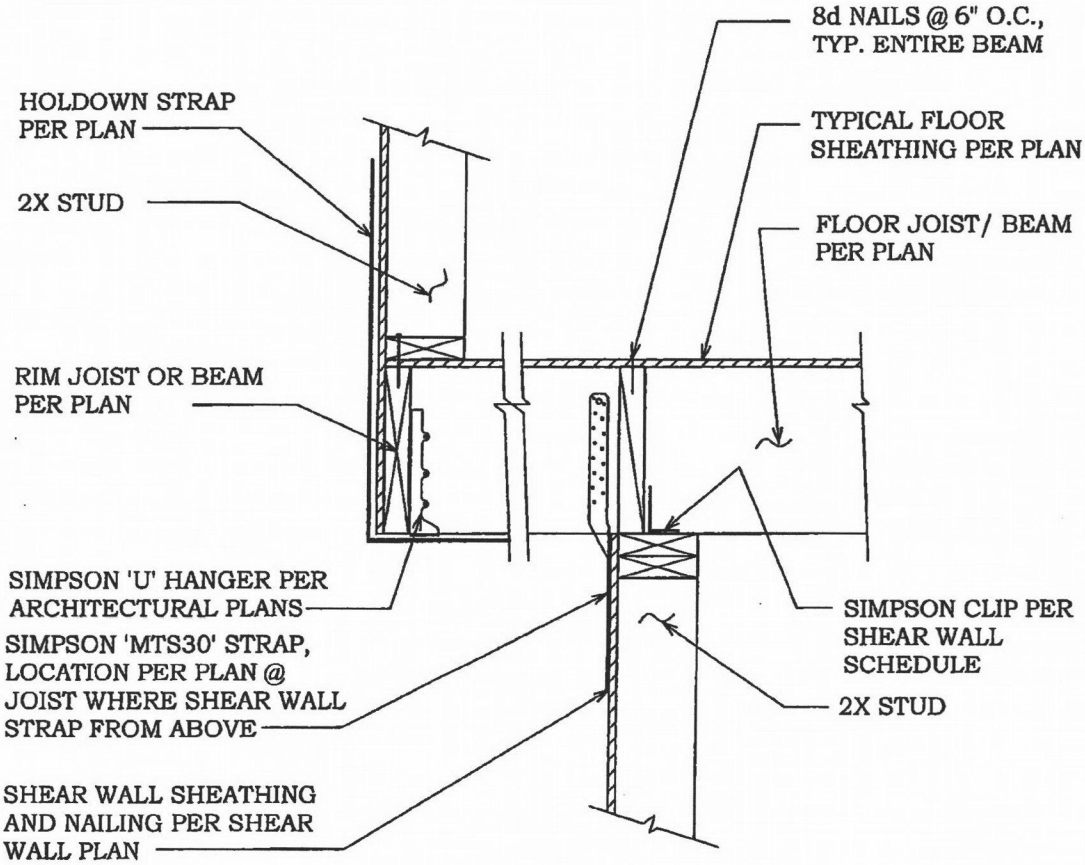
4 / S4 FOOTING SECTION
SCALE: 1" = 1'-0"



1 / S5 WALL SECTION

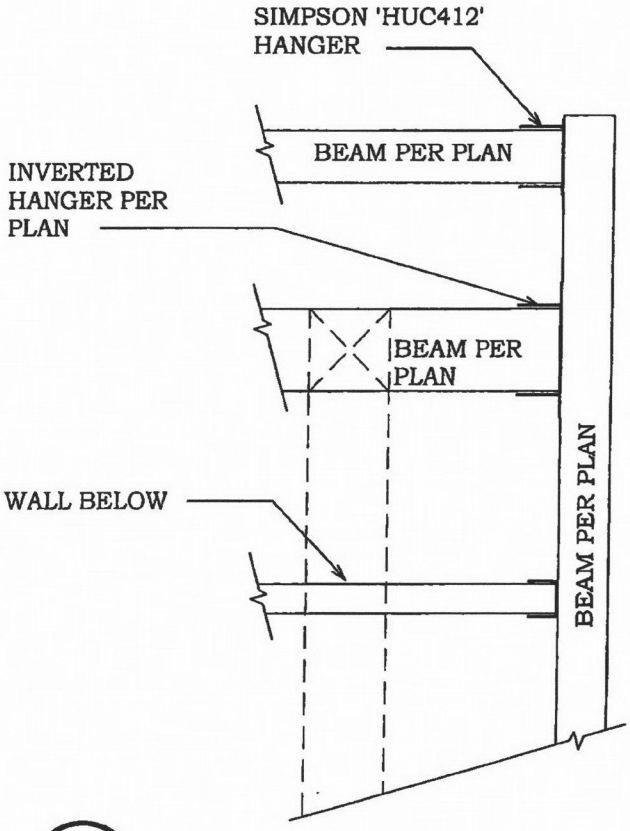
SCALE: 1" = 1'-0"

A5



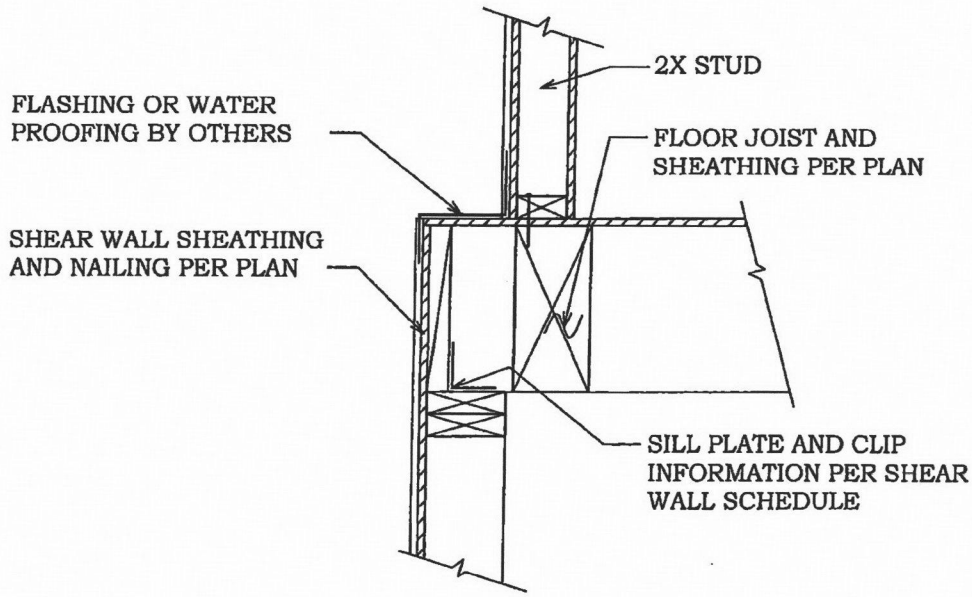
2 / S5 WALL SECTION

SCALE: 1" = 1'-0"



3 / S5 CORNER PLAN VIEW
SCALE: 1" = 1'-0"

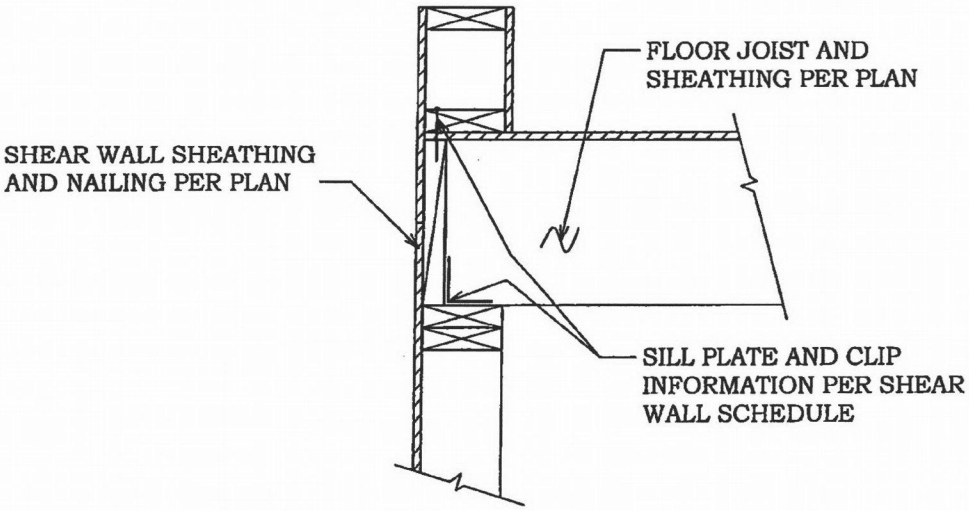
A7



4 / S5 WALL SECTION

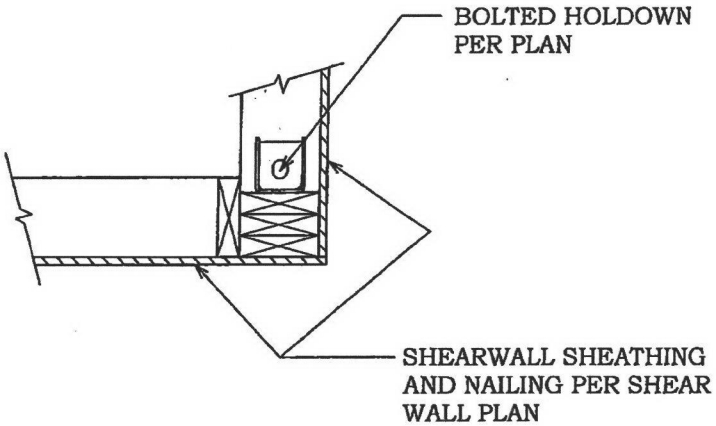
SCALE: 1" = 1'-0"

A6



5 / S5 WALL SECTION

SCALE: 1" = 1'-0"



6 / S5 CORNER PLAN VIEW

SCALE: 1" = 1'-0"