

BLD19-8080.PC2



Reviewed for Code Compliance
County of Sonoma
PRMD

THESE ATTACHMENTS ARE PART OF THE
APPROVED PLANS
DO NOT REMOVE THEM

FEB 05 2020

PRMD

RESILIENCY PERMIT CENTER

FEB 05 2020

Project Name:

Mansueto Residence PERMIT #

Date:

1/27/2020

Project Location:

Santa Rosa, CA

IDS Project #:

00931 BDC

Code:

2016 California Building Code

Client:

Emerge Rebuild
#250 D Street, Suite 239
Santa Rosa, CA 95404

Owner:

Emerge Rebuild
#250 D Street, Suite 239
Santa Rosa, CA 95404

Architect:

The Drawing Board
2208 W. Sunnyside Ave., Suite B
Visalia, CA 93277
(559) 739-7390

Soils:

Bauer Associates, Inc.
2353 Mendocino Ave , Suite A2-348
Santa Rosa, CA 95396

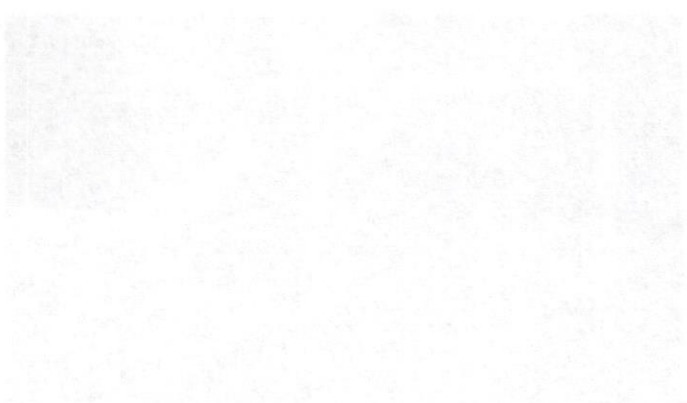


Resiliency Permit Center

Report #: 3476.61
Date: 01/18/18

OFFICE

BLD 11-8000-1000



THESE ATTACHMENTS ARE PART OF THE APPROVED PLAN
DO NOT REMOVE THEM

11-1-2000

11-1-2000

RESILIENCY PERMIT CENTER



Reviewed for Code Compliance
City of Sonoma
PRMD

11-1-2000

Resiliency Permit Center

OFFICE

Lateral Analysis

de Compliance
noma

Loading Schedule

Roof		PSF
Concrete Tile		10
Roof Trusses		1.9
15/32 in. OSB Sheathing		1.7
R-30 Insulation		0.5
5/8 in. Thick Gypsum Board		2.8
MEP Allowance		0.5
Misc. Load		1
		0
		0
		0
Slope Adjustment	Slope 6:12	1.118
Total		
Dead Load		20.6
Live Load		18

Floor		PSF
Ceramic Tile		4.7
Floor Trusses		1.9
23/32 in. OSB Sheathing		2.5
5/8 in. Thick Gypsum Board		2.8
MEP Allowance		1.1
Misc. Load		1
		0
		0
		0
		0
		0
Total		
Dead Load		14
Live Load		40

Exterior Wall		PSF
3 Coat Stucco		10
3/8 in. Thick OSB Sheathing		1.3
2x4 Studs at 16 in. O.C.		1.4
R19 Insulation		0.3
1/2 in. Thick Gypsum Board		2
Misc. Load		1
		0
		0
		0
		0
Total Dead Load		16

Interior Wall		PSF
2x4 Studs at 16 in. O.C.		1.4
3/8 in. Thick OSB Sheathing		1.3
1/2 in. Thick Gypsum Board		2.2
1/2 in. Thick Gypsum Board		2.1
Misc. Load		1
		0
		0
		0
		0
		0
Total Dead Load		8

	Company Name _____	DESIGNED _____	JOB NO. _____	
	PROJECT _____	CHECKED _____	SHT _____	OF _____
	SUBJECT _____	DATE _____		

Building Information

No. of stories 1
 Building height for lateral calculations (ft) 10.40
 Building weight (lbs) 85061
 Redundancy Factor:
 N-S: 1.3
 E-W: 1.3

Floor Information

Floor_ID 1st
 Floor net area (sf) 3150
 Floor opening area (sf) 0
 Average height (ft) 10.00

Diaphragms

Floor diaphragms for 1st									
Diaphragm name	Area (sf)	Effective seismic weight (psf)						Type	Remarks
		DL	Walls	Snow	Storage	Partitions	Total		
D1	3150	20.00	7.00	0.00	0.00	0.00	27.00	Roof	Ignore opening in weight calculation

Company Name	DESIGNED	JOB NO.
PROJECT	CHECKED	SHT OF
SUBJECT	DATE	

Seismic Loads

Design code 2015 IBC (ASCE 7-10)
 Lateral force calculation method Equivalent Lateral Force Procedure

Seismic data:

Risk category	II. Standard	Table 1-1
Importance factor I	1.00	Table 11.5-1
Soil site class	D. Stiff soil profile	Table 20-3-1
Response Spectral Acc. (0.2 sec) (S_S)	2.47	Fig 22-1 through 22-14
Design Response Spectral Acc. (0.2 sec) (S_S)	2.47	Fig 22-1 through 22-14
Response Spectral Acc. (1.0 sec) (S_1)	1.02	Fig 22-1 through 22-14
T_L (sec)	8.00	Fig 22-15 through 22-20
F_a	1.00	Table 11.4-1
F_v	1.50	Table 11.4-2
Max. Considered earthquake acc. S_{MS}	2.47	(11.4-1)
Max. Considered earthquake acc. S_{M1}	1.53	(11.4-2)
Design spectral acc. at short period S_{DS}	1.65	(11.4-3)
Design spectral acc. at 1 s period S_{D1}	1.02	(11.4-4)
Seismic design category based on short period	D	Table 11.6-1
Seismic design category based on 1 S period	D	Table 11.6-2
Is $S_1 > 0.75$	True	Sec 11.6
Project seismic design category	E	
Seismic force resisting system	13. Light-framed walls sheathed with wood structural panels rated for shear resistance or steel sheets	Table 12.2-1
Response modification coefficient R	6.50	Table 12.2-1
System overstrength coefficient Ω_0	3.00	
Approximate fundamental period parameters	$C_t = 0.02$ $x = 0.75$	Table 12.8-2
Building height (ft)	10.40	
Building period $T = T_a$ (sec)	0.12	(12.8-7)
Regular structure and 5 stories or less?	True	
Maximum $S_{ss} = 1.50$	False	Sec 12.8.1.3
Base Shear Adjustment Factor	1	
Minimum C_s	0.08	12.8.6
Seismic response coefficient C_s	0.25	(12.8-2)
Adjusted C_s	0.25	

Seismic load: $V = C_s W = 0.25 W$
 For allowable stress design $0.7 E = 0.7 * 0.25 = 0.1773 W$
 Total effective weight (lbs) = 85061
 Total seismic force (ASD) (lbs) = 15084

Company Name	DESIGNED _____	JOB NO. _____
PROJECT _____	CHECKED _____	SHT _____ OF _____
SUBJECT _____	DATE _____	

Vertical seismic load distribution:

$$F_x = C_{vx} V$$

$$C_{vx} = \frac{w_x h_x^k}{\sum_{i=1}^n w_i h_i^k} \quad (12.8-11)$$

$$T = 0.12$$

$$K = 1.00$$

Sec 12.8.3

Floor	Wx (lbs)	hx (ft)	Wx * hx lb.ft	$\frac{Wx * hx}{\text{sum}(Wi*Hi)}$	Fx (lbs)
1st	85061	10.40	884285	1.0000	15084

$$\text{Sum}(W) = 85061$$

$$\text{Sum}(W*h) = 884285$$

Diaphragm design force:

$$F_{px} = \frac{\sum_{i=1}^n F_i}{\sum_{i=1}^n w_i} w_{px} \quad 12.10.1$$

$$\text{Minimum value} = 0.2 S_{DS} W_{px}$$

Sec 12.10.1

$$\text{Needn't to exceed} = 0.4 S_{DS} W_{px}$$

Diaphragm seismic forces:

Floor	Sum(Fi) (lbs)	Sum(Wi) (lbs)	Wpx (lbs)	$\frac{\text{Sum}(Fi)}{\text{Sum}(Wi)} W_{px}$	Min. Value	Max. Value	Fpx (lbs)
1st	15084	85061	85061	15084	28014	56027	28014

Seismic force verification:

Direction	Base Seismic Forces (lbs)						Sum Wall Forces (lbs)	% Difference	
	Masses			Forces		Point Seismic			Total Base Shear
	Sum of diaphragm masses	Sum point mass	Total mass	Seismic factor	Seismic force from mass				
N-S	85061	0	85061	0.1773	15084	0	15084	15085	0.002
E-W	85061	0	85061	0.1773	15084	0	15084	15084	0.000

Company Name _____	DESIGNED _____	JOB NO. _____
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SUBJECT _____	DATE _____	

Wind Loads

Design Code: International Building Code 2015

Wind Standard: ASCE7-10 (Envelope Procedure)

Wind Data

Exposure C

Enclosure Enclosed Building

Category II

Wind Speed 110 MPH

Mean Roof Height 14.40 ft

Importance Factor I_w 1

Hill Shape: No Topographic Obstructions

Velocity Coefficient q_z $0.00256 K_z K_{zt} K_d V^2$ (6-15)

Velocity Coefficient q_h $0.00256 K_h K_{zt} K_d V^2$ (6-15)

Directionality Factor K_d 0.85 Table 6-4

Gust Effect Factor G 0.85 6.5.8.1

Pressures for MWFRS p qGC_p (6-17)

K_h 0.85

North/South C_p :

Windward Wall C_p 0.80

Leeward Wall C_p -0.49

(L/B) 1.06

East/West C_p :

Windward Wall C_p 0.80

Leeward Wall C_p -0.50

(L/B) 0.94

Wind Load Distribution (North/South)

Elev. Z (ft)	K_z	K_{zt}	q_z (psf)	p (Wall-Windward) (psf)
0-15	0.85	1.00	26.35	18.08

p (Wall-Leeward) (psf) -10.53

p (Roof Windward) (psf) 4.96

p (Roof Leeward) (psf) -14.04

Company Name _____	DESIGNED _____	JOB NO. _____
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Wind Load Distribution (East/West)

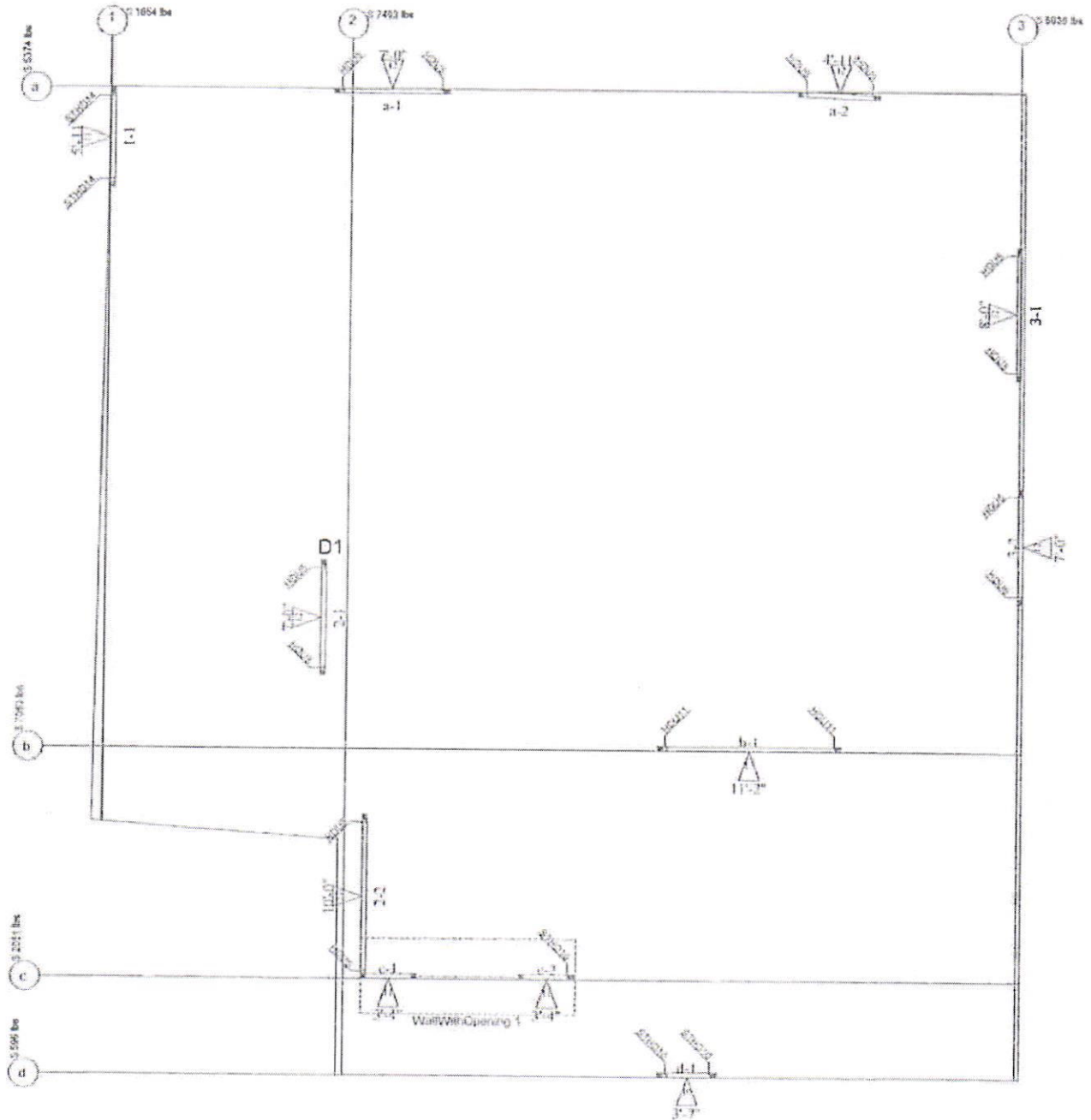
Elev. Z (ft)	K_z	K_{zt}	q_z (psf)	p (Wall-Windward) (psf)
0-15	0.85	1.00	26.35	18.08

p (Wall-Leeward) (psf) -10.67

p (Roof Windward) (psf) 2.49

p (Roof Leeward) (psf) -16.51

SHEAR WALL LAYOUT OF (1ST)



V.C.
FL
P.

PROJECT NAME:

Company Name _____	DESIGNED _____	JOB NO. _____
PROJECT _____	CHECKED _____	SHT _____ OF _____
SUBJECT _____	DATE _____	

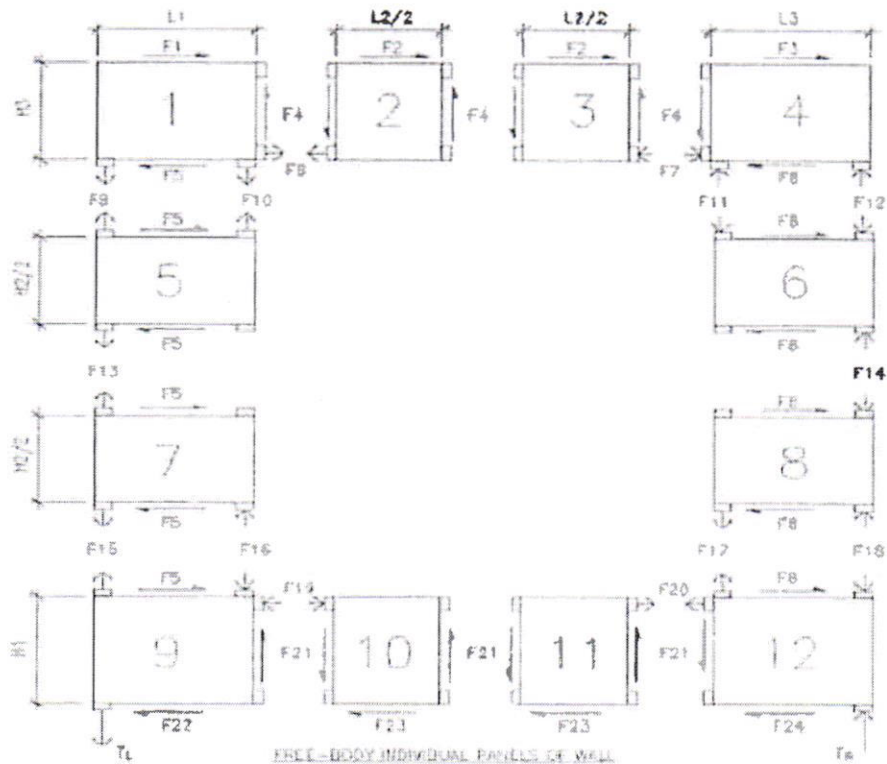
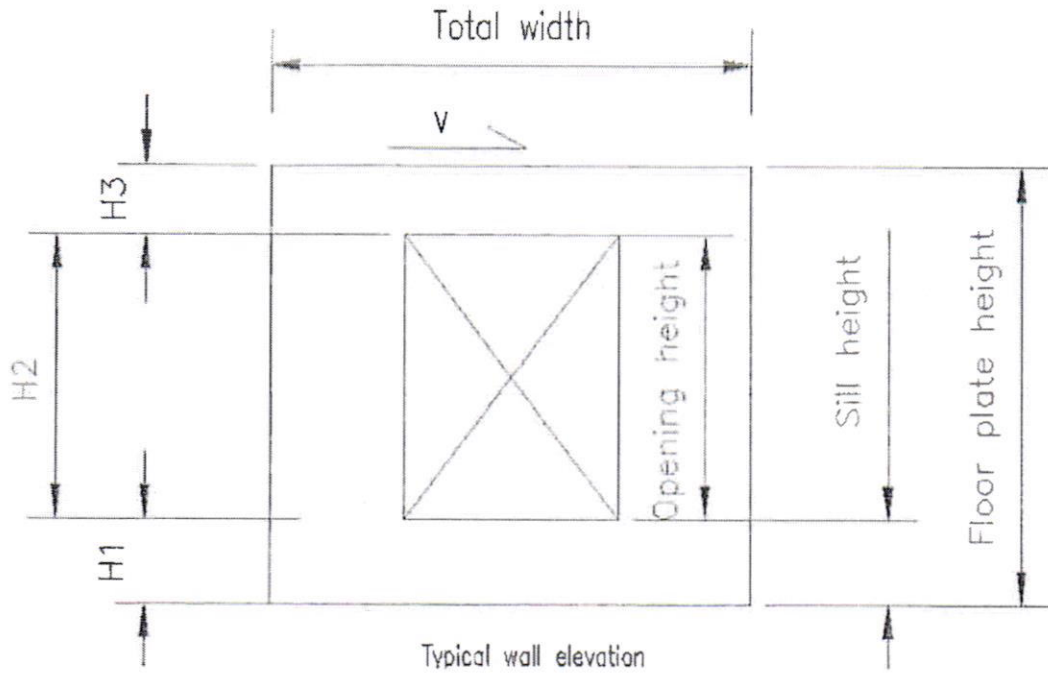
Shear Wall Design

1st walls

Wall ID	Length (ft)	Net Height (ft)	H / W	Shear (plf)		Wall type	Allowable shear (plf)	Adjusted allowable shear (plf)		Wall Drift (in)	Hold-Down		Remarks
				Wind	Seismic			Wind	Seismic		End I	End J	
1-1	5'-11"	10'-0"	1.69	203	363	11	490	686	490	2.66	STHD14	STHD14	
2-1	7'-0"	10'-0"	1.43	245	573	12	640	896	640	2.43	HDU8	HDU8	
2-2	9'-8"	10'-0"	1.00	253	593	12	640	896	640	1.94	HDU5	HDU5	
3-1	8'-0"	10'-0"	1.25	206	515	12	640	896	640	2.13	HDU5	HDU5	
3-2	7'-0"	10'-0"	1.43	206	515	12	640	896	640	2.36	HDU5	HDU5	
a-1	7'-0"	10'-0"	1.43	251	582	12	640	896	640	2.45	HDU5	HDU5	
a-2	4'-11"	10'-0"	2.00	255	592	12	640	896	640	3.20	HDU5	HDU5	
b-1	11'-2"	10'-0"	0.90	363	822	13	870	1218	870	1.62	HDU11	HDU11	
c-1													1
c-2													1
d-1	3'-7"	10'-0"	2.76	126	216	10	350	490	254	3.79	STHD10	STHD10	

1 See shear wall with opening report

Company Name _____	DESIGNED _____	JOB NO. _____
PROJECT _____	CHECKED _____	SHT _____ OF _____
SUBJECT _____	DATE _____	



	Company Name	DESIGNED	JOB NO.
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Floor ID: 1st

Design of shear wall with opening WallWithOpening 1 PASSED

Seismic Force (plf) = 208
 Wind Force (plf) = 117
 Total wall width = 13.00 ft
 Plate height = 10.00 ft
 Overall wall h/w (<2) = 0.77
 Selected wall type = 11
 Allowable shear (h/w < 2) = 490 plf

Panel forces:

ID	Wind Force (lbs)	Seismic Force (lbs)	ID	Wind Force (lbs)	Force Seismic (lbs)
F1	175	312	F13	624	1109
F2	585	1040	F14	624	1109
F3	175	312	F15	1074	1910
F4	624	1109	F16	451	801
F5	760	1352	F17	451	801
F6	585	1040	F18	1074	1910
F7	585	1040	F19	640	1137
F8	760	1352	F20	640	1137
F9	173	307	F21	546	971
F10	451	801	F22	121	215
F11	451	801	F23	640	1137
F12	173	307	F24	121	215

Panels shear check:

Panel ID	w (ft)	h (ft)	h/w	Maximum seismic shear (plf)	Adjusted seismic allowable shear (plf)	Maximum wind shear (plf)	Allowable wind shear (plf)
1	3.38	3.33	0.99	92	490	52	686
2	3.12	3.33	0.53	333	490	187	686
3	3.12	3.33	0.53	333	490	187	686
4	3.38	3.33	0.99	92	490	52	686
5	3.38	2.00	1.19	401	490	225	686
6	3.38	2.00	1.19	401	490	225	686
7	3.38	2.00	1.19	401	490	225	686
8	3.38	2.00	1.19	401	490	225	686
9	3.38	2.67	0.79	64	490	36	686
10	3.12	2.67	0.43	364	490	205	686
11	3.12	2.67	0.43	364	490	205	686
12	3.38	2.67	0.79	64	490	36	686

Strap design

Maximum strap force (F6/F7/F19/F20) = 1137 lbs
 Selected strap = CS18
 Allowable strap force = 1370 lbs

	Company Name _____	DESIGNED _____	JOB NO. _____
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Shear line reactions and shear wall forces

Floor ID: 1st

Shear line ID	Reaction (lbs)		Shear wall ID	Shear wall forces (lbs)		R*	Wall type
	Seismic	Wind		Seismic	Wind		
1	1654	1201	1-1	1654	1201	6.50	Segmented
2	7493	4165	2-2	4407	2450	6.50	Segmented
			2-1	3085	1715	6.50	Segmented
3	5938	3096	3-1	3167	1651	6.50	Segmented
			3-2	2771	1445	6.50	Segmented
a	5374	3005	a-1	3136	1754	6.50	Segmented
			a-2	2238	1252	6.50	Segmented
b	7063	4059	b-1	7063	4059	6.50	Segmented
c	2051	1505	c-1	1026	753	6.50	Shear wall with opening
			c-2	1026	753	6.50	Shear wall with opening
d	596	451	d-1	596	451	6.50	Segmented

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	SUBJECT _____	DATE _____	

Uplift Calculations

Load Cases:

0.6D + W

$(0.6 - 0.14S_{Ds})D + 0.7pQ_E$

1st Walls

Post ID	Shear Wall	Reactions (lbs)			Wall Height (ft)	Net Uplift (lbs)	Hold Down
		DL	W	0.7E			
UP2	a-1	1715	-2604	-6054	10.4	-5420	HDU5
UP1	a-1	1715	-2604	-6054	10.4	-5420	HDU5
UP4	a-2	1225	-2604	-6054	10.4	-5601	HDU5
UP3	a-2	1225	-2604	-6054	10.4	-5601	HDU5
UP6	3-1	760	-2146	-5350	10.4	-5069	HDU5
UP5	3-1	760	-2146	-5350	10.4	-5069	HDU5
UP8	3-2	665	-2146	-5350	10.4	-5104	HDU5
UP7	3-2	665	-2146	-5350	10.4	-5104	HDU5
UP10	d-1	344	-1295	-2222	10.4	-2095	STHD10
UP9	d-1	344	-1295	-2222	10.4	-2095	STHD10
UP12	c-1	921	-1204	-2132	10.4	-1792	HDU5
	2-2	922	-2547	-5956	10.4	-5616	HDU5
UP11	c-2	921	-1204	-2132	10.4	-1792	STHD10
UP17	2-2	922	-2547	-5956	10.4	-5616	HDU5
UP19	2-1	665	-2547	-5956	10.4	-5711	HDU8
UP18	2-1	665	-2547	-5956	10.4	-5711	HDU8
UP21	1-1	563	-2108	-3772	10.4	-3564	STHD14
UP20	1-1	563	-2108	-3772	10.4	-3564	STHD14
UP23	b-1	2736	-3779	-8548	10.4	-7538	HDU11
UP22	b-1	2736	-3779	-8548	10.4	-7538	HDU11

- NR indicates that no hold-down is required because there is no net uplift.
- No Selection indicates that uplift value is larger than available hold-down capacities defined in database.
- PP indicates hold-down attached to a pre-manufactured shear wall panel.

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Vertical Analysis

F
0
L
2L
L

Wood Beam

F:\0 - C:\Users\STEV\EF-1\DC\Des\Map\09031.ec6
 ENERCALC, INC. 1983-2015, Build 6.15.12.9, Ver:6.18.2.28
 Licensee: IDS ENGINEERING INC.

File #: KW-06008983

Description: Beam 1: Garage

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set : ASCE 7-10

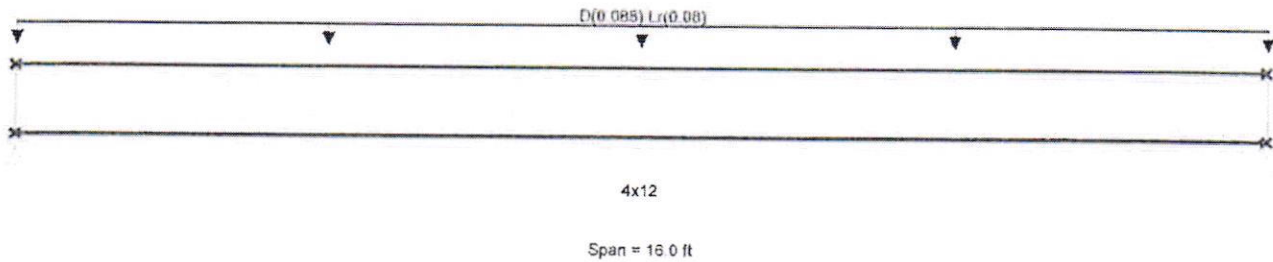
Material Properties

Analysis Method : Allowable Stress Design
 Load Combination ASCE 7-10

Fb - Tension	1,000.0 psi	E : Modulus of Elasticity	
Fb - Compr	1,000.0 psi	Ebend- xx	1,300.0ksi
Fc - Prll	1,000.0 psi	Eminbend - xx	1,300.0ksi
Fc - Perp	1,000.0 psi		
Fv	65.0 psi		
Ft	65.0 psi	Density	34.0pcf

Wood Species :
 Wood Grade :

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



Applied Loads

Uniform Load : D = 0.0220, Lr = 0.020 ksf, Tributary Width = 4.0 ft, (Roof)

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

DESIGN SUMMARY

Maximum Bending Stress Ratio	=	0.699	1	Maximum Shear Stress Ratio	=	0.557	1
Section used for this span		4x12		Section used for this span		4x12	
fb : Actual	=	873.81	psi	fv : Actual	=	45.22	psi
FB : Allowable	=	1,250.00	psi	Fv : Allowable	=	81.25	psi
Load Combination		+D+Lr+H		Load Combination		+D+Lr+H	
Location of maximum on span	=	8.000	ft	Location of maximum on span	=	15.066	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.220	in	Ratio =		873	
Max Upward Transient Deflection		0.000	in	Ratio =		0 < 360	
Max Downward Total Deflection		0.462	in	Ratio =		415	
Max Upward Total Deflection		0.000	in	Ratio =		0 < 360	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values						
			M	V	C _d	C _{FN}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v			
+D+H	Length = 16.0 ft	1	0.509	0.405	0.90	1.000	1.00	1.00	1.00	1.00	1.00	2.82	457.71	900.00	0.00	0.00	0.00	0.62	23.69	58.50
+D+L+H	Length = 16.0 ft	1	0.458	0.364	1.00	1.000	1.00	1.00	1.00	1.00	1.00	2.82	457.71	1000.00	0.00	0.00	0.00	0.62	23.69	65.00
+D+Lr+H	Length = 16.0 ft	1	0.699	0.557	1.25	1.000	1.00	1.00	1.00	1.00	1.00	5.38	873.81	1250.00	0.00	0.00	0.00	1.19	45.22	81.25
+D+S+H	Length = 16.0 ft	1	0.398	0.317	1.15	1.000	1.00	1.00	1.00	1.00	1.00	2.82	457.71	1150.00	0.00	0.00	0.00	0.62	23.69	74.75
+D+0.750Lr+0.750L+H	Length = 16.0 ft	1	0.616	0.490	1.25	1.000	1.00	1.00	1.00	1.00	1.00	4.74	769.79	1250.00	0.00	0.00	0.00	1.05	39.84	81.25
+D+0.750L+0.750S+H	Length = 16.0 ft	1	0.398	0.317	1.15	1.000	1.00	1.00	1.00	1.00	1.00	2.82	457.71	1150.00	0.00	0.00	0.00	0.62	23.69	74.75

Wood Beam

File = C:\Users\STEVEF-1\OneDrive\00031.ecb
 ENERCALC, INC. 1993-2015. Build: 6.15.12.9. Ver: 6.19.2.28

Job #: KW-05005983

Licensee: IDS ENGINEERING INC.

Description: Beam 1: Garage

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values					
			M	V	C _d	C _{FFV}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	Fv		
+D+0.60W+H	Length = 16.0 ft	1	0.286	0.228	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	2.82	457.71	1600.00	0.00	0.00	0.00	0.00
+D+0.70E+H	Length = 16.0 ft	1	0.286	0.228	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	2.82	457.71	1600.00	0.00	0.00	0.00	0.00
+D+0.750Lr+0.750L+0.450W+H	Length = 16.0 ft	1	0.481	0.383	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	4.74	769.79	1600.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.450W+H	Length = 16.0 ft	1	0.286	0.228	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	2.82	457.71	1600.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.5250E+H	Length = 16.0 ft	1	0.286	0.228	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	2.82	457.71	1600.00	0.00	0.00	0.00	0.00
+0.60D+0.60W+0.60H	Length = 16.0 ft	1	0.172	0.137	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.69	274.63	1600.00	0.00	0.00	0.00	0.00
+0.60D+0.70E+0.60H	Length = 16.0 ft	1	0.172	0.137	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.69	274.63	1600.00	0.00	0.00	0.00	0.00

Overall Maximum Deflections

Load Combination	Span	Max. "+ Defl	Location in Span	Load Combination	Max. "- Defl	Location in Span
+D+Lr+H	1	0.4615	8.058		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.344	1.344
Overall MINimum	0.422	0.422
+D+H	0.704	0.704
+D+L+H	0.704	0.704
+D+Lr+H	1.344	1.344
+D+S+H	0.704	0.704
+D+0.750Lr+0.750L+H	1.184	1.184
+D+0.750L+0.750S+H	0.704	0.704
+D+0.60W+H	0.704	0.704
+D+0.70E+H	0.704	0.704
+D+0.750Lr+0.750L+0.450W+H	1.184	1.184
+D+0.750L+0.750S+0.450W+H	0.704	0.704
+D+0.750L+0.750S+0.5250E+H	0.704	0.704
+0.60D+0.60W+0.60H	0.422	0.422
+0.60D+0.70E+0.60H	0.422	0.422
D Only	0.704	0.704
Lr Only	0.640	0.640
L Only		
S Only		
W Only		
E Only		
H Only		

Wood Beam

File = C:\Users\1611\Verif-1\NDS\Desktop\00931.exb
 ENERCALC, INC. 1983-2015, Build:6.15.12.9, Ver:6.18.2.78

Proj. #: KW-06008983

License: NDS ENGINEERING INC.

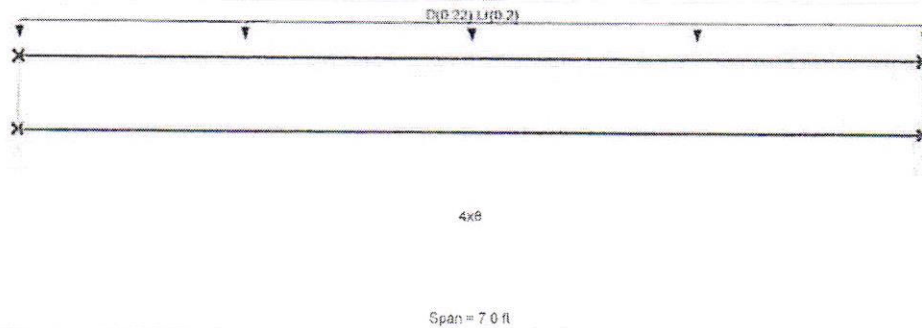
Description : Beam 2: Porch

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set : ASCE 7-10

Material Properties

Analysis Method : Allowable Stress Design	Fb - Tension	1,000.0 psi	E : Modulus of Elasticity
Load Combination ASCE 7-10	Fb - Compr	1,000.0 psi	Ebend - xx
	Fc - Prll	1,000.0 psi	Eminbend - xx
Wood Species :	Fc - Perp	1,000.0 psi	
Wood Grade :	Fv	65.0 psi	
Beam Bracing : Beam is Fully Braced against lateral-torsion buckling	Ft	65.0 psi	Density
			34.0pcf



Applied Loads

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

Uniform Load : D = 0.0220, Lr = 0.020 ksf, Tributary Width = 10.0 ft, (Roof)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.805	1	Maximum Shear Stress Ratio	=	0.890	: 1
Section used for this span		4x8		Section used for this span		4x8	
fb : Actual	=	1,006.80psi		fv : Actual	=	72.31 psi	
FB : Allowable	=	1,250.00psi		Fv : Allowable	=	81.25 psi	
Load Combination		+D+Lr+H		Load Combination		+D+Lr+H	
Location of maximum on span	=	3.500ft		Location of maximum on span	=	6.412 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.075 in	Ratio =	1116			
Max Upward Transient Deflection		0.000 in	Ratio =	0 <360			
Max Downward Total Deflection		0.158 in	Ratio =	531			
Max Upward Total Deflection		0.000 in	Ratio =	0 <360			

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values						
			M	V	C _d	C _{FN}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v			
+D+H	Length = 7.0 ft	1	0.586	0.647	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.35	527.37	900.00	0.00	0.00	0.00	0.64	37.88	58.50
+D+L+H	Length = 7.0 ft	1	0.527	0.583	1.00	1.000	1.00	1.00	1.00	1.00	1.00	1.35	527.37	1000.00	0.00	0.00	0.00	0.64	37.88	65.00
+D+Lr+H	Length = 7.0 ft	1	0.805	0.890	1.25	1.000	1.00	1.00	1.00	1.00	1.00	2.57	1,006.80	1250.00	0.00	0.00	0.00	1.22	72.31	81.25
+D+S+H	Length = 7.0 ft	1	0.459	0.507	1.15	1.000	1.00	1.00	1.00	1.00	1.00	1.35	527.37	1150.00	0.00	0.00	0.00	0.64	37.88	74.75
+D+0.750Lr+0.750L+H	Length = 7.0 ft	1	0.710	0.784	1.25	1.000	1.00	1.00	1.00	1.00	1.00	2.27	886.94	1250.00	0.00	0.00	0.00	1.08	63.70	81.25
+D+0.750L+0.750S+H	Length = 7.0 ft	1	0.459	0.507	1.15	1.000	1.00	1.00	1.00	1.00	1.00	1.35	527.37	1150.00	0.00	0.00	0.00	0.64	37.88	74.75

Wood Beam

File = C:\Users\STEVEF-1\Documents\00931.ec6
 ENERCALC, INC. 1983-2015, Build 6.15.12.9, Ver 6.16.2.28

Job #: KW-06008983

License: EDS ENGINEERING INC.

Description: Beam 2: Porch

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values							
			M	V	C _d	C _{FN}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	Fv				
+D+0.60W+H	Length = 7.0 ft	1	0.330	0.364	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.35	527.37	1600.00	0.00	0.00	0.00	0.64	37.88	104.00
+D+0.70E+H	Length = 7.0 ft	1	0.330	0.364	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.35	527.37	1600.00	0.00	0.00	0.00	0.64	37.88	104.00
+D+0.750Lr+0.750L+0.450W+H	Length = 7.0 ft	1	0.554	0.612	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	2.27	886.94	1600.00	0.00	0.00	0.00	1.08	63.70	104.00
+D+0.750L+0.750S+0.450W+H	Length = 7.0 ft	1	0.330	0.364	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.35	527.37	1600.00	0.00	0.00	0.00	0.64	37.88	104.00
+D+0.750L+0.750S+0.5250E+H	Length = 7.0 ft	1	0.330	0.364	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.35	527.37	1600.00	0.00	0.00	0.00	0.64	37.88	104.00
+0.60D+0.60W+0.60H	Length = 7.0 ft	1	0.198	0.219	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.81	316.42	1600.00	0.00	0.00	0.00	0.38	22.73	104.00
+0.60D+0.70E+0.60H	Length = 7.0 ft	1	0.198	0.219	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.81	316.42	1600.00	0.00	0.00	0.00	0.38	22.73	104.00

Overall Maximum Deflections

Load Combination	Span	Max. "+" Defl	Location in Span	Load Combination	Max. "-" Defl	Location in Span
+D+Lr+H	1	0.1579	3.526		0.0000	0.000

Vertical Reactions

Load Combination	Support 1	Support 2
Overall MAXimum	1.470	1.470
Overall MINimum	0.462	0.462
+D+H	0.770	0.770
+D+L+H	0.770	0.770
+D+Lr+H	1.470	1.470
+D+S+H	0.770	0.770
+D+0.750Lr+0.750L+H	1.295	1.295
+D+0.750L+0.750S+H	0.770	0.770
+D+0.60W+H	0.770	0.770
+D+0.70E+H	0.770	0.770
+D+0.750Lr+0.750L+0.450W+H	1.295	1.295
+D+0.750L+0.750S+0.450W+H	0.770	0.770
+D+0.750L+0.750S+0.5250E+H	0.770	0.770
+0.60D+0.60W+0.60H	0.462	0.462
+0.60D+0.70E+0.60H	0.462	0.462
D Only	0.770	0.770
Lr Only	0.700	0.700
L Only		
S Only		
W Only		
E Only		
H Only		

Support notation : Far left is #1

Values in KIPS

Wood Beam

File = C:\Users\STEVEI~1\OS\Desktop\09831.ccd
 ENERCALC, INC. 1983-2015, Build: 6.15.12.9, Ver: 6.18.2.22
 Licensee: JDS ENGINEERING, INC.

Proj. #: KW-06008983

Description: Beam 3: Office

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10

Load Combination Set: ASCE 7-10

Material Properties

Analysis Method: Allowable Stress Design
 Load Combination: ASCE 7-10

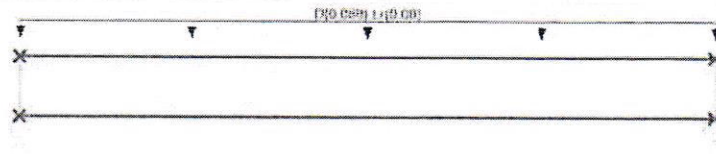
Fb - Tension 1,000.0 psi
 Fb - Compr 1,000.0 psi
 Fc - P-III 1,000.0 psi
 Fc - Perp 1,000.0 psi
 Fv 65.0 psi
 Ft 65.0 psi

E: Modulus of Elasticity
 Ebend-xx 1,300.0 ksi
 Eminbend-xx 1,300.0 ksi

Wood Species:
 Wood Grade:

Density 34.0 pcf

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



Span = 5.0 ft

Applied Loads

Uniform Load: D = 0.0220, Lr = 0.020 ksf, Tributary Width = 4.0 ft, (Roof)

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

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.182	Maximum Shear Stress Ratio =	0.210
Section used for this span =	6x6	Section used for this span =	6x6
fb: Actual =	227.20 psi	fv: Actual =	17.03 psi
FB: Allowable =	1,250.00 psi	Fv: Allowable =	81.25 psi
Load Combination =	+D+Lr+H	Load Combination =	+D+Lr+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 Transient Deflection	0.011 in	Ratio =	5256
Max Upward Transient Deflection	0.000 in	Ratio =	0 < 360
Max Downward Total Deflection	0.024 in	Ratio =	2503
Max Upward Total Deflection	0.000 in	Ratio =	0 < 360

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values					
			M	V	C _d	C _{FN}	C _i	C _r	C _m	C _t	C _L	M	fb	Fb	V	fv	Fv			
+D+H	Length = 5.0 ft	1	0.132	0.152	0.90	1.000	1.00	1.00	1.00	1.00	1.00	0.28	119.01	900.00	0.00	0.00	0.00	0.00	0.00	58.50
+D+L+H	Length = 5.0 ft	1	0.119	0.137	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.28	119.01	1000.00	0.00	0.00	0.00	0.00	0.00	0.00
+D+Lr+H	Length = 5.0 ft	1	0.182	0.210	1.25	1.000	1.00	1.00	1.00	1.00	1.00	0.53	227.20	1250.00	0.00	0.00	0.00	0.00	0.00	0.00
+D+S+H	Length = 5.0 ft	1	0.103	0.119	1.15	1.000	1.00	1.00	1.00	1.00	1.00	0.28	119.01	1150.00	0.00	0.00	0.00	0.00	0.00	0.00
+D+0.750Lr+0.750L+H	Length = 5.0 ft	1	0.160	0.185	1.25	1.000	1.00	1.00	1.00	1.00	1.00	0.46	200.15	1250.00	0.00	0.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+H	Length = 5.0 ft	1	0.103	0.119	1.15	1.000	1.00	1.00	1.00	1.00	1.00	0.28	119.01	1150.00	0.00	0.00	0.00	0.00	0.00	0.00

Wood Beam

File = C:\Users\STEVE\F-1\IDS\Des\top\00931.ec5
 ENERCALC, INC. 1983-2015, Build: 6.15.12.9, Ver: 6.18.2.28

Job #: KW-08008983

License: IDS ENGINEERING INC.

Description: Beam 3: Office

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values						
			M	V	C _d	C _{FN}	C _i	C _r	C _m	C _t	C _L	M	t _b	F _b	V	t _v	F _v			
+D+0.60W+H	Length = 5.0 ft	1	0.074	0.086	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.28	119.01	1600.00	0.00	0.00	0.00	0.00
+D+0.70E+H	Length = 5.0 ft	1	0.074	0.086	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.28	119.01	1600.00	0.00	0.00	0.00	0.00	0.00
+D+0.750Lr+0.750L+0.450W+H	Length = 5.0 ft	1	0.125	0.144	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.46	200.15	1600.00	0.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.450W+H	Length = 5.0 ft	1	0.074	0.086	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.28	119.01	1600.00	0.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.5250E+H	Length = 5.0 ft	1	0.074	0.086	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.28	119.01	1600.00	0.00	0.00	0.00	0.00	0.00
+0.60D+0.60W+0.60H	Length = 5.0 ft	1	0.045	0.051	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.17	71.40	1600.00	0.00	0.00	0.00	0.00	0.00
+0.60D+0.70E+0.60H	Length = 5.0 ft	1	0.045	0.051	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.17	71.40	1600.00	0.00	0.00	0.00	0.00	0.00

Overall Maximum Deflections

Load Combination	Span	Max. '-' Defl	Location in Span	Load Combination	Max. '+' Defl	Location in Span
+D+Lr+H	1	0.0240	2.518		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Overall MAXimum	0.420	0.420
Overall MINimum	0.132	0.132
+D+H	0.220	0.220
+D+L+H	0.220	0.220
+D+Lr+H	0.420	0.420
+D+S+H	0.220	0.220
+D+0.750Lr+0.750L+H	0.370	0.370
+D+0.750L+0.750S+H	0.220	0.220
+D+0.60W+H	0.220	0.220
+D+0.70E+H	0.220	0.220
+D+0.750Lr+0.750L+0.450W+H	0.370	0.370
+D+0.750L+0.750S+0.450W+H	0.220	0.220
+D+0.750L+0.750S+0.5250E+H	0.220	0.220
+0.60D+0.60W+0.60H	0.132	0.132
+0.60D+0.70E+0.60H	0.132	0.132
D Only	0.220	0.220
Lr Only	0.200	0.200
L Only		
S Only		
W Only		
E Only		
H Only		

Values in KIPS

Wood Beam

File = C:\Users\STEVEF-1\Documents\06008983.ecg
 ENERCALC, INC. 1983-2015, Build:6.15.12.9, Ver:6.18.2.28

Proj. # : KW-06008983

Licensee : IDS ENGINEERING INC.

Description : Beam 4: Bed 3

CODE REFERENCES

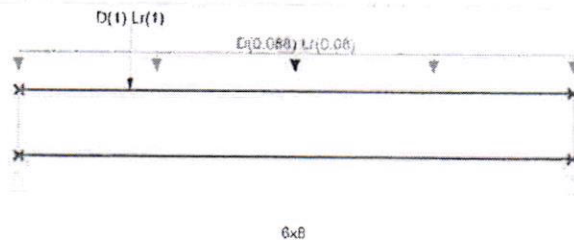
Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set : ASCE 7-10

Material Properties

Analysis Method : Allowable Stress Design
 Load Combination ASCE 7-10

Fb - Tension	1,000.0 psi	E : Modulus of Elasticity	
Fb - Compr	1,000.0 psi	Ebend- xx	1,300.0 ksi
Fc - Prll	1,000.0 psi	Eminbend - xx	1,300.0 ksi
Fc - Perp	1,000.0 psi		
Fv	65.0 psi	Density	34.0 pcf
Ft	65.0 psi		

Wood Species :
 Wood Grade :
 Beam Bracing : Beam is Fully Braced against lateral-torsion buckling



Span = 5.0 ft

Applied Loads

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

Uniform Load : D = 0.0220, Lr = 0.020 ksf, Tributary Width = 4.0 ft, (Roof)
 Point Load : D = 1.0, Lr = 1.0 k @ 1.0 ft, (GT)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.360	1	Maximum Shear Stress Ratio	=	0.857	1
Section used for this span		6x8		Section used for this span		6x8	
fb : Actual	=	450.43	psi	fv : Actual	=	69.66	psi
FB : Allowable	=	1,250.00	psi	Fv : Allowable	=	81.25	psi
Load Combination		+D+Lr+H		Load Combination		+D+Lr+H	
Location of maximum on span	=	1.004 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 Transient Deflection		0.015	in	Ratio =		4031	
Max Upward Transient Deflection		0.000	in	Ratio =		0 < 360	
Max Downward Total Deflection		0.030	in	Ratio =		1985	
Max Upward Total Deflection		0.000	in	Ratio =		0 < 360	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values									
			M	V	C _d	C _{FN}	C _i	C _r	C _m	C _t	C _L	M	Ib	F'b	V	Iv	F'v						
+D+H	Length = 5.0 ft	1	0.252	0.600	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	227.08	900.00	0.00	0.00	0.00	0.00	58.50	
+D+L+H	Length = 5.0 ft	1	0.227	0.540	1.00	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	227.08	1000.00	0.00	0.00	0.00	0.00	0.00	65.00
+D+Lr+H	Length = 5.0 ft	1	0.360	0.857	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.94	450.43	1250.00	0.00	0.00	0.00	0.00	0.00	0.00	81.25
+D+S+H	Length = 5.0 ft	1	0.197	0.470	1.15	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	227.08	1150.00	0.00	0.00	0.00	0.00	0.00	0.00	74.75
+D+0.750Lr+0.750L+H	Length = 5.0 ft	1	0.316	0.751	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.70	394.60	1250.00	0.00	0.00	0.00	0.00	0.00	0.00	81.25
+D+0.750L+0.750S+H						1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Wood Beam

File = C:\Users\STEVEF-1\Documents\02931.ecb
 ENERCALC, INC. 1963-2015. Build: 6.15.12.9. Ver: 5.10.2.28

Lic # : KW-06008983

Licensee: IDS ENGINEERING INC.

Description : Beam 4: Bed 3

Load Combination	Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values		
			M	V	C _d	C _{FN}	C _i	C _r	C _m	C _t	C _L	M	t _b	F _b	V	t _v	F _v
+D+0.60W+H	Length = 5.0 ft	1	0.197	0.470	1.15	1.000	1.00	1.00	1.00	1.00	1.00	0.98	227.08	1150.00	0.97	35.11	74.75
+D+0.70E+H	Length = 5.0 ft	1	0.142	0.338	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.98	227.08	1600.00	0.97	35.11	104.00
+D+0.750Lr+0.750L+0.450W+H	Length = 5.0 ft	1	0.142	0.338	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.98	227.08	1600.00	0.97	35.11	104.00
+D+0.750L+0.750S+0.450W+H	Length = 5.0 ft	1	0.247	0.587	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.70	394.60	1600.00	1.68	61.02	104.00
+D+0.750L+0.750S+0.5250E+H	Length = 5.0 ft	1	0.142	0.338	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.98	227.08	1600.00	0.97	35.11	104.00
+0.60D+0.60W+0.60H	Length = 5.0 ft	1	0.085	0.203	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.59	136.25	1600.00	0.58	21.06	104.00
+0.60D+0.70E+0.60H	Length = 5.0 ft	1	0.085	0.203	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.59	136.25	1600.00	0.58	21.06	104.00

Overall Maximum Deflections

Load Combination	Span	Max. "±" Defl	Location in Span	Load Combination	Max. "±" Defl	Location in Span
+D+Lr+H	1	0.0302	2.281		0.0000	0.000

Vertical Reactions

Load Combination	Support notation : Far left is #1		Values in KIPS
	Support 1	Support 2	
Overall MAXimum	2.020	0.820	
Overall MINimum	0.612	0.252	
+D+H	1.020	0.420	
+D+L+H	1.020	0.420	
+D+Lr+H	2.020	0.820	
+D+S+H	1.020	0.420	
+D+0.750Lr+0.750L+H	1.770	0.720	
+D+0.750L+0.750S+H	1.020	0.420	
+D+0.60W+H	1.020	0.420	
+D+0.70E+H	1.020	0.420	
+D+0.750Lr+0.750L+0.450W+H	1.770	0.720	
+D+0.750L+0.750S+0.450W+H	1.020	0.420	
+D+0.750L+0.750S+0.5250E+H	1.020	0.420	
+0.60D+0.60W+0.60H	0.612	0.252	
+0.60D+0.70E+0.60H	0.612	0.252	
D Only	1.020	0.420	
Lr Only	1.000	0.400	
L Only			
S Only			
W Only			
E Only			
H Only			

Wood Beam

File = P:\Projects\00931_4547 Brighton Drive_Emerge Rebuild\Calculations_Working\Vertical\00931.ec6
 ENERCALC, INC. 1993-2015, Build:6.15.12.9, Ver:6.18.2.28

Lic. #: KW-06008983

Licensee: IDS ENGINEERING INC.

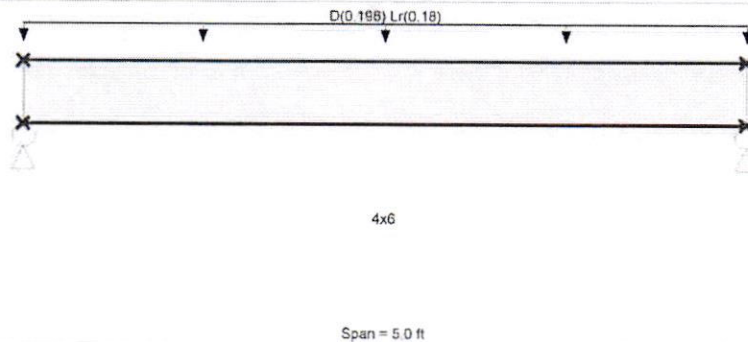
Description: Beam 5: Bed 2

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set: ASCE 7-10

Material Properties

Analysis Method: Allowable Stress Design	Fb - Tension	1,000.0 psi	E: Modulus of Elasticity	
Load Combination: ASCE 7-10	Fb - Compr	1,000.0 psi	Ebend-xx	1,300.0 ksi
Wood Species:	Fc - Prll	1,000.0 psi	Eminbend-xx	1,300.0 ksi
Wood Grade:	Fc - Perp	1,000.0 psi	Fv	65.0 psi
Beam Bracing: Beam is Fully Braced against lateral-torsion buckling	Ft	65.0 psi	Density	34.0 pcf



Applied Loads

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

Uniform Load: D = 0.0220, Lr = 0.020 ksf, Tributary Width = 9.0 ft, (Roof)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.643	1	Maximum Shear Stress Ratio	=	0.741	: 1
Section used for this span		4x6		Section used for this span		4x6	
fb: Actual	=	803.31	psi	fv: Actual	=	60.20	psi
FB: Allowable	=	1,250.00	psi	Fv: Allowable	=	81.25	psi
Load Combination		+D+Lr+H		Load Combination		+D+Lr+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 Transient Deflection		0.040	in	Ratio =		1486	
Max Upward Transient Deflection		0.000	in	Ratio =		0 <360	
Max Downward Total Deflection		0.085	in	Ratio =		707	
Max Upward Total Deflection		0.000	in	Ratio =		0 <360	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values					
			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+H	Length = 5.0 ft	1	0.468	0.539	0.90	1.000	1.00	1.00	1.00	1.00	1.00	0.62	420.78	900.00	0.00	0.00	0.00	0.00	0.00
+D+L+H	Length = 5.0 ft	1	0.421	0.485	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.62	420.78	1000.00	0.00	0.00	0.00	0.00	0.00
+D+Lr+H	Length = 5.0 ft	1	0.643	0.741	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.18	803.31	1250.00	0.00	0.00	0.00	0.00	0.00
+D+S+H	Length = 5.0 ft	1	0.366	0.422	1.15	1.000	1.00	1.00	1.00	1.00	1.00	0.62	420.78	1150.00	0.00	0.00	0.00	0.00	0.00
+D+0.750Lr+0.750L+H	Length = 5.0 ft	1	0.566	0.653	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.04	707.67	1250.00	0.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+H	Length = 5.0 ft	1	0.366	0.422	1.15	1.000	1.00	1.00	1.00	1.00	1.00	0.62	420.78	1150.00	0.00	0.00	0.00	0.00	0.00

Wood Beam

File = P:\Projects\00931_4547 Brighton Drive_Emerge Rebuild\Calculations_Working\Vertical\00931.ec6
 ENERCALC, INC. 1983-2015, Build:6.15.12.9, Ver:6.18.2.28

Lic. #: KW-06008983

Licensee: IDS ENGINEERING INC.

Description: Beam 5: Bed 2

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values						
			M	V	C _d	C _{FV}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	f _v	F _v			
+D+0.60W+H	Length = 5.0 ft	1	0.263	0.303	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.62	420.78	1600.00	0.00	0.00	0.00	0.00	0.00
+D+0.70E+H	Length = 5.0 ft	1	0.263	0.303	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.62	420.78	1600.00	0.00	0.00	0.00	0.00	0.00
+D+0.750Lr+0.750L+0.450W+H	Length = 5.0 ft	1	0.442	0.510	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.04	707.67	1600.00	0.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.450W+H	Length = 5.0 ft	1	0.263	0.303	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.62	420.78	1600.00	0.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.5250E+H	Length = 5.0 ft	1	0.263	0.303	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.62	420.78	1600.00	0.00	0.00	0.00	0.00	0.00
+0.60D+0.60W+0.60H	Length = 5.0 ft	1	0.158	0.182	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.37	252.47	1600.00	0.00	0.00	0.00	0.00	0.00
+0.60D+0.70E+0.60H	Length = 5.0 ft	1	0.158	0.182	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.37	252.47	1600.00	0.00	0.00	0.00	0.00	0.00

Overall Maximum Deflections

Load Combination	Span	Max. "+" Defl	Location in Span	Load Combination	Max. "-" Defl	Location in Span
+D+Lr+H	1	0.0848	2.518		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.945	0.945
Overall MINimum	0.297	0.297
+D+H	0.495	0.495
+D+L+H	0.495	0.495
+D+Lr+H	0.945	0.945
+D+S+H	0.495	0.495
+D+0.750Lr+0.750L+H	0.833	0.833
+D+0.750L+0.750S+H	0.495	0.495
+D+0.60W+H	0.495	0.495
+D+0.70E+H	0.495	0.495
+D+0.750Lr+0.750L+0.450W+H	0.833	0.833
+D+0.750L+0.750S+0.450W+H	0.495	0.495
+D+0.750L+0.750S+0.5250E+H	0.495	0.495
+0.60D+0.60W+0.60H	0.297	0.297
+0.60D+0.70E+0.60H	0.297	0.297
D Only	0.495	0.495
Lr Only	0.450	0.450
L Only		
S Only		
W Only		
E Only		
H Only		

Wood Beam

File = C:\Users\STEVFF~1\Documents\00931.ec6
 ENERCALC, INC. 1983-2015, Build 6.15.12.9, Ver:6.18.2.28

License #: KW-08008983

Licensee: IDS ENGINEERING INC.

Description: Beam 6: Porch

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set : ASCE 7-10

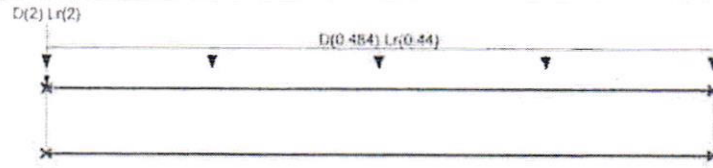
Material Properties

Analysis Method : Allowable Stress Design
 Load Combination ASCE 7-10

Fb - Tension	1,000.0 psi	E : Modulus of Elasticity	
Fb - Compr	1,000.0 psi	Ebend-xx	1,300.0ksi
Fc - Prll	1,000.0 psi	Eminbend - xx	1,300.0ksi
Fc - Perp	1,000.0 psi		
Fv	65.0 psi		
Ft	65.0 psi	Density	34.0pcf

Wood Species :
 Wood Grade :

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



6x8

Span = 6.0 ft

Applied Loads

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

Uniform Load : D = 0.0220, Lr = 0.020 ksf, Tributary Width = 22.0 ft, (Roof)
 Point Load : D = 2.0, Lr = 2.0 k @ 0.0 ft, (GT)

DESIGN SUMMARY

Maximum Bending Stress Ratio	=	0.774	1	Maximum Shear Stress Ratio	=	0.987	1
Section used for this span		6x8		Section used for this span		6x8	
fb : Actual	=	967.68psi		fv : Actual	=	80.20 psi	
FB : Allowable	=	1,250.00psi		Fv : Allowable	=	81.25 psi	
Load Combination	=	+D+Lr+H		Load Combination	=	+D+Lr+H	
Location of maximum on span	=	3.000ft		Location of maximum on span	=	0.000 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.051 in	Ratio = 1402				
Max Upward Transient Deflection		0.000 in	Ratio = 0 <360				
Max Downward Total Deflection		0.108 in	Ratio = 667				
Max Upward Total Deflection		0.000 in	Ratio = 0 <360				

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values				Shear Values			
			M	V	C _d	C _{FA}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v	
+D+H	Length = 6.0 ft	1	0.563	0.718	0.90	1.000	1.00	1.00	1.00	1.00	1.00	2.18	506.88	900.00	0.00	0.00	0.00	0.00
+D+L+H	Length = 6.0 ft	1	0.507	0.646	1.00	1.000	1.00	1.00	1.00	1.00	1.00	2.18	506.88	1000.00	0.00	0.00	0.00	0.00
+D+Lr+H	Length = 6.0 ft	1	0.774	0.987	1.25	1.000	1.00	1.00	1.00	1.00	1.00	4.16	967.68	1250.00	0.00	0.00	0.00	0.00
+D+S+H	Length = 6.0 ft	1	0.441	0.562	1.15	1.000	1.00	1.00	1.00	1.00	1.00	2.18	506.88	1150.00	0.00	0.00	0.00	0.00
+D+0.750Lr+0.750L+H	Length = 6.0 ft	1	0.682	0.870	1.25	1.000	1.00	1.00	1.00	1.00	1.00	3.65	852.48	1250.00	0.00	0.00	0.00	0.00
+D+0.750L+(0.750S+H)						1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	0.00

Wood Beam

File = C:\Users\STEVEF-1\Documents\00931.ec6
 ENERCALC, INC. 1983-2015, Build 6.16.12.9, Ver: 6.18.2.28
 Licensed IDS ENGINEERING INC.

Project: KW08008983

Description: Beam 6: Porch

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values			
			M	V	C _d	C _{FW}	C _i	C _r	C _m	C _t	C _L	M	f _b	F _b	V	f _v	F _v
Length = 6.0 ft	1	0.441	0.562	1.15	1.000	1.00	1.00	1.00	1.00	1.00	1.00	2.18	506.88	1150.00	1.16	42.01	74.75
+D+0.60W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.317	0.404	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.18	506.88	1600.00	1.16	42.01	104.00	
+D+0.70E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 6.0 ft	1	0.317	0.404	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.18	506.88	1600.00	1.16	42.01	104.00	
+D+0.750Lr+0.750L+0.450W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 6.0 ft	1	0.533	0.679	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.66	852.48	1600.00	1.94	70.65	104.00	
+D+0.750L+0.750S+0.450W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 6.0 ft	1	0.317	0.404	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.18	506.88	1600.00	1.16	42.01	104.00	
+D+0.750L+0.750S+0.5250E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 6.0 ft	1	0.317	0.404	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.18	506.88	1600.00	1.16	42.01	104.00	
+D+0.60D+0.60W+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 6.0 ft	1	0.190	0.242	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.31	304.13	1600.00	0.69	25.21	104.00	
+D+0.60D+0.70E+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 6.0 ft	1	0.190	0.242	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.31	304.13	1600.00	0.69	25.21	104.00	

Overall Maximum Deflections

Load Combination	Span	Max. "+" Defl	Location in Span	Load Combination	Max. "-" Defl	Location in Span
+D+Lr+H	1	0.1078	3.022		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1
Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	6.772	2.772
Overall MINimum	2.071	0.871
+D+H	3.452	1.452
+D+L+H	3.452	1.452
+D+Lr+H	6.772	2.772
+D+S+H	3.452	1.452
+D+0.750Lr+0.750L+H	5.942	2.442
+D+0.750L+0.750S+H	3.452	1.452
+D+0.60W+H	3.452	1.452
+D+0.70E+H	3.452	1.452
+D+0.750Lr+0.750L+0.450W+H	5.942	2.442
+D+0.750L+0.750S+0.450W+H	3.452	1.452
+D+0.750L+0.750S+0.5250E+H	3.452	1.452
+0.60D+0.60W+0.60H	2.071	0.871
+0.60D+0.70E+0.60H	2.071	0.871
D Only	3.452	1.452
Lr Only	3.320	1.320
L Only		
S Only		
W Only		
E Only		
H Only		

Code Compliance
 of Sonoma
 Center

Wood Beam

File = C:\Users\STEVEP-1\Documents\00931.ecb
 ENERCALC, INC. 1983-2015 Build 6.15.12.9, Ver.6.16.2.28
 Licensee: JDS ENGINEERING, INC.

Lic. #: KW-06008983

Description: Beam 7: Porch

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set : ASCE 7-10

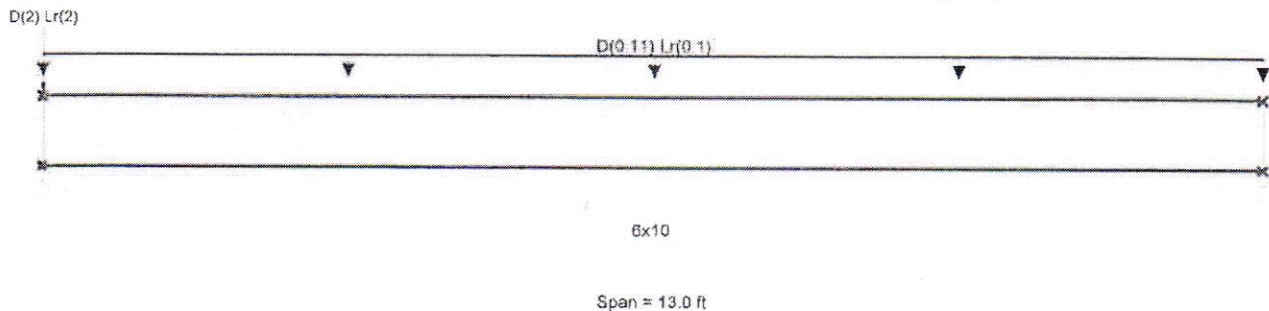
Material Properties

Analysis Method : Allowable Stress Design
 Load Combination ASCE 7-10

Wood Species :
 Wood Grade :

Fb - Tension	1,000.0 psi	E : Modulus of Elasticity	
Fb - Compr	1,000.0 psi	Ebend-xx	1,300.0ksi
Fc - Pril	1,000.0 psi	Eminbend-xx	1,300.0ksi
Fc - Perp	1,000.0 psi		
Fv	65.0 psi		
Ft	65.0 psi	Density	34.0pcf

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 = 0.0220, Lr = 0.020 ksf, Tributary Width = 5.0 ft, (Roof)
 Point Load : D = 2.0, Lr = 2.0 k @ 0.0 ft, (GT)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.515 : 1	Maximum Shear Stress Ratio	=	0.426 : 1
Section used for this span		6x10	Section used for this span		6x10
fb : Actual	=	643.49psi	fv : Actual	=	34.61 psi
FB : Allowable	=	1,250.00psi	Fv : Allowable	=	81.25 psi
Load Combination		+D+Lr+H	Load Combination		+D+Lr+H
Location of maximum on span	=	6.500ft	Location of maximum on span	=	12.2+...
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection		0.127 in Ratio = 1232			
Max Upward Transient Deflection		0.000 in Ratio = 0 <360			
Max Downward Total Deflection		0.266 in Ratio = 587			
Max Upward Total Deflection		0.000 in Ratio = 0 <360			

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values				
			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+H	Length = 13.0 ft	1	0.375	0.310	0.90	1.000	1.00	1.00	1.00	1.00	1.00	2.32	337.06	900.00	0.00	0.63	18.13	58.50
+D+L+H	Length = 13.0 ft	1	0.337	0.279	1.00	1.000	1.00	1.00	1.00	1.00	1.00	2.32	337.06	1000.00	0.00	0.63	18.13	65.00
+D+Lr+H	Length = 13.0 ft	1	0.515	0.426	1.25	1.000	1.00	1.00	1.00	1.00	1.00	4.44	643.49	1250.00	0.00	1.21	34.61	81.25
+D+S+H	Length = 13.0 ft	1	0.293	0.243	1.15	1.000	1.00	1.00	1.00	1.00	1.00	2.32	337.06	1150.00	0.00	0.63	18.13	74.75
+D+0.750Lr+0.750L+H	Length = 13.0 ft	1	0.454	0.375	1.25	1.000	1.00	1.00	1.00	1.00	1.00	3.91	566.88	1250.00	0.00	1.06	30.49	81.25
+D+0.750L+0.750S+H						1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	0.00

Wood Beam

File = C:\Users\STEVEF-1\Documents\00931.ccb
 ENERCALC, INC. 1983-2015, Build: 6.15.12.9, Ver: 6.18.2.25

Proj. #: KWY-08008983

License: IDS ENGINEERING, INC.

Description: Beam 7: Porch

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values		
			M	V	C _d	C _{FN}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv
Length = 13.0 ft	1	0.293	0.243	1.15	1.000	1.00	1.00	1.00	1.00	1.00	2.32	337.06	1150.00	0.63	18.13	74.75
+D+0.60W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.211	0.174	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.32	337.06	1600.00	0.63	18.13	104.00
+D+0.70E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.211	0.174	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.32	337.06	1600.00	0.63	18.13	104.00
+D+0.750Lr+0.750L+0.450W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.354	0.293	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.91	566.88	1600.00	1.06	30.49	104.00
+D+0.750L+0.750S+0.450W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.211	0.174	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.32	337.06	1500.00	0.63	18.13	104.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.211	0.174	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.32	337.06	1600.00	0.63	18.13	104.00
+D+0.60D+0.60W+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.126	0.105	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.39	202.24	1600.00	0.38	10.88	104.00
+D+0.60D+0.70E+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.126	0.105	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.39	202.24	1600.00	0.38	10.88	104.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr+H	1	0.2657	6.547		0.0000	0.000

Vertical Reactions

Load Combination	Support 1	Support 2
Overall MAXimum	5.365	1.365
Overall MINimum	1.629	0.429
+D+H	2.715	0.715
+D+L+H	2.715	0.715
+D+Lr+H	5.365	1.365
+D+S+H	2.715	0.715
+D+0.750Lr+0.750L+H	4.703	1.203
+D+0.750L+0.750S+H	2.715	0.715
+D+0.60W+H	2.715	0.715
+D+0.70E+H	2.715	0.715
+D+0.750Lr+0.750L+0.450W+H	4.703	1.203
+D+0.750L+0.750S+0.450W+H	2.715	0.715
+D+0.750L+0.750S+0.5250E+H	2.715	0.715
+0.60D+0.60W+0.60H	1.629	0.429
+0.60D+0.70E+0.60H	1.629	0.429
D Only	2.715	0.715
Lr Only	2.650	0.650
L Only		
S Only		
W Only		
E Only		
H Only		

Support notation: Far left is #1

Values in KIPS

Wood Beam

File = C:\Users\STEVEF-1\IDSDesktop\00931.ec6
 ENERCALC, INC, 1983-2015, Build:6.15.12.9, Ver:6.18.2.28
 Licensee: IDS ENGINEERING, INC.

Lic. # : KW-06008983

Description : Beam 8: Porch

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set : ASCE 7-10

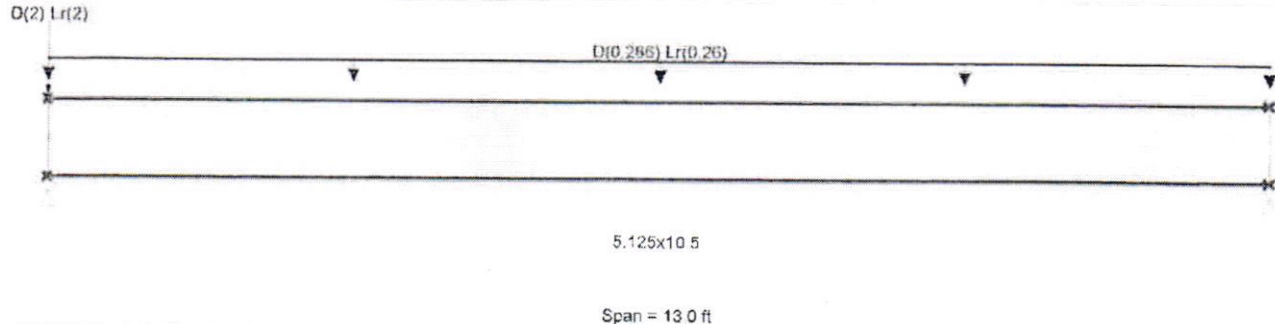
Material Properties

Analysis Method : Allowable Stress Design
 Load Combination ASCE 7-10

Wood Species : DF/DF
 Wood Grade : 24F - V8

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

Fb - Tension	2400 psi	E : Modulus of Elasticity	
Fb - Compr	2400 psi	Ebend-xx	1800 ksi
Fc - Prll	1650 psi	Eminbend-xx	950 ksi
Fc - Perp	650 psi	Ebend-yy	1600 ksi
Fv	265 psi	Eminbend-yy	850 ksi
Ft	1100 psi	Density	31.2 pcf



Applied Loads

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

Uniform Load : D = 0.0220, Lr = 0.020 ksf, Tributary Width = 13.0 ft, (Roof)
 Point Load : D = 2.0, Lr = 2.0 k @ 0.0 ft, (GT)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.490	1	Maximum Shear Stress Ratio	=	0.259	: 1
Section used for this span		5.125x10.5		Section used for this span		5.125x10.5	
fb : Actual	=	1,469.77 psi		fv : Actual	=	85.93 psi	
FB : Allowable	=	3,000.00 psi		Fv : Allowable	=	331.25 psi	
Load Combination	=	+D+Lr+H		Load Combination	=	+D+Lr+H	
Location of maximum on span	=	6.500 ft		Location of maximum on span	=	12.146 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.189 in	Ratio =	826			
Max Upward Transient Deflection		0.000 in	Ratio =	0 <360			
Max Downward Total Deflection		0.397 in	Ratio =	393			
Max Upward Total Deflection		0.000 in	Ratio =	0 <360			

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios										Moment Values			Shear Values				
			M	V	C _d	C _{FN}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v			
+D+H	Length = 13.0 ft	1	0.355	0.189	0.90	1.000	1.00	1.00	1.00	1.00	1.00	6.04	769.88	2160.00	0.00	0.00	0.00	1.61	45.01	238.50
+D+L+H	Length = 13.0 ft	1	0.321	0.170	1.00	1.000	1.00	1.00	1.00	1.00	1.00	6.04	769.88	2400.00	0.00	0.00	0.00	1.61	45.01	265.00
+D+Lr+H	Length = 13.0 ft	1	0.490	0.259	1.25	1.000	1.00	1.00	1.00	1.00	1.00	11.53	1,469.77	3000.00	0.00	0.00	0.00	3.08	85.93	331.25
+D+S+H	Length = 13.0 ft	1	0.279	0.148	1.15	1.000	1.00	1.00	1.00	1.00	1.00	6.04	769.88	2760.00	0.00	0.00	0.00	1.61	45.01	304.75
+D+0.750Lr+0.750L+H	Length = 13.0 ft	1	0.432	0.229	1.25	1.000	1.00	1.00	1.00	1.00	1.00	10.16	1,294.80	3000.00	0.00	0.00	0.00	2.72	75.70	331.25
+D+0.750L+0.750S+H						1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	0.00	0.00	

Wood Beam

File = C:\Users\STEVEF-1\Documents\00131.rvt
 ENERCALC, INC. 1983-2015, Build 6.15.12.9, Ver 6.18.2.28
 Licensee: IDS ENGINEERING INC.

Job #: KW-08008883
 Description: Beam 8: Porch

Load Combination	Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values		
			M	V	C _d	C _{FF}	C _i	C _r	C _m	C _t	C _L	M	f _b	F _b	V	f _v	F _v
Length = 13.0 ft	1	0.279	0.148	1.15	1.000	1.00	1.00	1.00	1.00	1.00	1.00	6.04	769.88	2760.00	1.61	45.01	304.75
+D+0.60W+H					1.000	1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.200	0.106	1.60	1.000	1.00	1.00	1.00	1.00	1.00	6.04	769.88	3840.00	1.61	45.01	424.00	
+D+0.70E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 13.0 ft	1	0.200	0.106	1.60	1.000	1.00	1.00	1.00	1.00	1.00	6.04	769.88	3840.00	1.61	45.01	424.00	
+D+0.750Lr+0.750L+0.450W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 13.0 ft	1	0.337	0.179	1.60	1.000	1.00	1.00	1.00	1.00	1.00	10.16	1,294.80	3840.00	2.72	75.70	424.00	
+D+0.750L+0.750S+0.450W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 13.0 ft	1	0.200	0.106	1.60	1.000	1.00	1.00	1.00	1.00	1.00	6.04	769.88	3840.00	1.61	45.01	424.00	
+D+0.750L+0.750S+0.5250E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 13.0 ft	1	0.200	0.106	1.60	1.000	1.00	1.00	1.00	1.00	1.00	6.04	769.88	3840.00	1.61	45.01	424.00	
+0.60D+0.60W+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 13.0 ft	1	0.120	0.064	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.63	461.93	3840.00	0.97	27.01	424.00	
+0.60D+0.70E+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 13.0 ft	1	0.120	0.064	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.63	461.93	3840.00	0.97	27.01	424.00	

Overall Maximum Deflections

Load Combination	Span	Max. "±" Defl	Location in Span	Load Combination	Max. "±" Defl	Location in Span
+D+Lr+H	1	0.3965	6.547		0.0000	0.000

Vertical Reactions

Load Combination	Support 1	Support 2
Overall MAXimum	7.549	3.549
Overall MINimum	2.315	1.115
+D+H	3.859	1.859
+D+L+H	3.859	1.859
+D+Lr+H	7.549	3.549
+D+S+H	3.859	1.859
+D+0.750Lr+0.750L+H	6.627	3.127
+D+0.750L+0.750S+H	3.859	1.859
+D+0.60W+H	3.859	1.859
+D+0.70E+H	3.859	1.859
+D+0.750Lr+0.750L+0.450W+H	6.627	3.127
+D+0.750L+0.750S+0.450W+H	3.859	1.859
+D+0.750L+0.750S+0.5250E+H	3.859	1.859
+0.60D+0.60W+0.60H	2.315	1.115
+0.60D+0.70E+0.60H	2.315	1.115
D Only	3.859	1.859
Lr Only	3.690	1.690
L Only		
S Only		
W Only		
E Only		
H Only		

Support notation : Far left is #1

Values in KIPS

Wood Column

File = P:\Projects\00931_4547 Brighton Drive_Emerge Rebuild\Calculations_Working\Vertical\00931.ec6
 ENERCALC, INC. 1983-2015, Build:6.15.12.9, Ver:6.18.2.28

Lic. #: KW-06008983

Licensee: IDS ENGINEERING INC.

Description: King Studs

Code References

Calculations per 2012 NDS, IBC 2012, CBC 2013, ASCE 7-10
 Load Combinations Used: ASCE 7-10

General Information

Analysis Method:	Allowable Stress Design	Wood Section Name	4x4
End Fixities	Top Fixed, Bottom Fixed	Wood Grading/Manuf.	Graded Lumber
Overall Column Height	10.0 ft	Wood Member Type	Sawn
<i>(Used for non-slender calculations)</i>		Exact Width	3.50 in
Wood Species		Exact Depth	3.50 in
Wood Grade		Area	12.250 in ²
Fb - Tension	1,500.0 psi	Fv	150.0 psi
Fb - Compr	1,500.0 psi	Ft	1,000.0 psi
Fc - Prll	1,000.0 psi	Density	33.0 pcf
Fc - Perp	1,000.0 psi	lx	12.505 in ⁴
E: Modulus of Elasticity		ly	12.505 in ⁴
Basic	1,400.0	Allow Stress Modification Factors	
Minimum	1,400.0	Cf or Cv for Bending	1.0
x-x Bending	1,400.0	Cf or Cv for Compression	1.0
y-y Bending	1,400.0	Cf or Cv for Tension	1.0
Axial	1,400.0 ksi	Cm: Wet Use Factor	1.0
		Ct: Temperature Factor	1.0
		Cfu: Flat Use Factor	1.0
		Kf: Built-up columns	1.0 NDS 15.3.2
		Use Cr: Repetitive?	No (non-glb only)

Brace condition for deflection (buckling) along columns:
 X-X (width) axis: Fully braced against buckling along X-X Axis
 Y-Y (depth) axis: Fully braced against buckling along Y-Y Axis

Applied Loads

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

Column self weight included: 28.073 lbs * Dead Load Factor

AXIAL LOADS...

Axial Load at 10.0 ft, D = 0.20, Lr = 0.20 k

BENDING LOADS...

Lat. Uniform Load creating Mx-x, W = 0.070 k/ft

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.3922 : 1**

Load Combination	+D+0.60W+H
Governing NDS Formula	Comp + Mxx, NDS Eq. 3.9-3
Location of max. above base	0.0 ft
At maximum location values are...	
Applied Axial	0.2281 k
Applied Mx	-0.350 k-ft
Applied My	0.0 k-ft
Fc: Allowable	1,000.0 psi

Maximum SERVICE Lateral Load Reactions...

Top along Y-Y	0.350 k	Bottom along Y-Y	0.350 k
Top along X-X	0.0 k	Bottom along X-X	0.0 k

Maximum SERVICE Load Lateral Deflections...

Along Y-Y	0.1799 in	at	5.034 ft	above base
for load combination: W Only				
Along X-X	0.0 in	at	0.0 ft	above base
for load combination: n/a				

Other Factors used to calculate allowable stresses...

	Bending	Compression	Tension
--	---------	-------------	---------

PASS Maximum Shear Stress Ratio = **0.1143 : 1**

Load Combination	+D+0.60W+H
Location of max. above base	10.0 ft
Applied Design Shear	25.714 psi
Allowable Shear	150.0 psi

Load Combination Results

Load Combination	C _D	C _P	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
			Stress Ratio	Status	Location	Stress Ratio	Status	Location
+D+H	1.000	1.000	0.01862	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+L+H	1.000	1.000	0.01862	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+Lr+H	1.000	1.000	0.03495	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+S+H	1.000	1.000	0.01862	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+0.750Lr+0.750L+H	1.000	1.000	0.03086	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+0.750L+0.750S+H	1.000	1.000	0.01862	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+0.60W+H	1.000	1.000	0.3922	PASS	0.0 ft	0.1143	PASS	10.0 ft
+D+0.70E+H	1.000	1.000	0.01862	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+0.750Lr+0.750L+0.450W+H	1.000	1.000	0.2948	PASS	0.0 ft	0.08571	PASS	10.0 ft

Wood Column

File = P:\Projects\00931_4547 Brighton Drive_Emerge Rebuild\Calculations_Working\Vertical\00931.ec6
 ENERCALC, INC. 1983-2015, Build:6.15.12.9, Ver:6.18.2.28

Lic. #: KW-06008983

Licensee: IDS ENGINEERING INC.

Description: King Studs

Load Combination Results

Load Combination	C _D	C _P	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
			Stress Ratio	Status	Location	Stress Ratio	Status	Location
+D+0.750L+0.750S+0.450W+H	1.000	1.000	0.2942	PASS	0.0 ft	0.08571	PASS	10.0 ft
+D+0.750L+0.750S+0.5250E+H	1.000	1.000	0.01862	PASS	0.0 ft	0.0	PASS	10.0 ft
+0.60D+0.60W+0.60H	1.000	1.000	0.3920	PASS	0.0 ft	0.1143	PASS	10.0 ft
+0.60D+0.70E+0.60H	1.000	1.000	0.01117	PASS	0.0 ft	0.0	PASS	10.0 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction		Y-Y Axis Reaction		Axial Reaction
	@ Base	@ Top	@ Base	@ Top	@ Base
+D+H		k		k	0.228 k
+D+L+H		k		k	0.228 k
+D+Lr+H		k		k	0.428 k
+D+S+H		k		k	0.228 k
+D+0.750Lr+0.750L+H		k		k	0.378 k
+D+0.750L+0.750S+H		k		k	0.228 k
+D+0.60W+H		k	0.210	0.210 k	0.228 k
+D+0.70E+H		k		k	0.228 k
+D+0.750Lr+0.750L+0.450W+H		k	0.158	0.158 k	0.378 k
+D+0.750L+0.750S+0.450W+H		k	0.158	0.158 k	0.228 k
+D+0.750L+0.750S+0.5250E+H		k		k	0.228 k
+0.60D+0.60W+0.60H		k	0.210	0.210 k	0.137 k
+0.60D+0.70E+0.60H		k		k	0.137 k
D Only		k		k	0.228 k
Lr Only		k		k	0.200 k
L Only		k		k	k
S Only		k		k	k
W Only		k	0.350	0.350 k	k
E Only		k		k	k
H Only		k		k	k

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
+D+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+L+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+Lr+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+S+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750Lr+0.750L+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750L+0.750S+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.60W+H	0.0000 in	0.000 ft	0.108 in	5.034 ft
+D+0.70E+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750Lr+0.750L+0.450W+H	0.0000 in	0.000 ft	0.081 in	5.034 ft
+D+0.750L+0.750S+0.450W+H	0.0000 in	0.000 ft	0.081 in	5.034 ft
+D+0.750L+0.750S+0.5250E+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+0.60D+0.60W+0.60H	0.0000 in	0.000 ft	0.108 in	5.034 ft
+0.60D+0.70E+0.60H	0.0000 in	0.000 ft	0.000 in	0.000 ft
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
Lr Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
L Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
S Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
W Only	0.0000 in	0.000 ft	0.180 in	5.034 ft
E Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
H Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

Wood Column

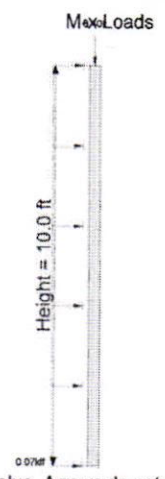
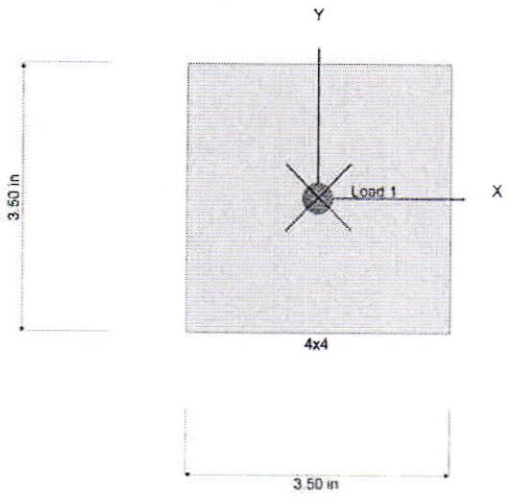
File = P:\Projects\00931_4547 Brighton Drive_Emerge Rebuild\Calculations_Working\Vertical\00931.ec6
ENERCALC, INC. 1983-2015, Build:6.15.12.9, Ver:6.18.2.28

Lic. #: KW-06008983

Licensee: IDS ENGINEERING INC.

Description: King Studs

Sketches



Loads are total entered value. Arrows do not reflect absolute direction.

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Team,

Below will be our agenda for our conference call to kick off our discussions. Please feel free to come prepared with any other additional comments or questions that I may have missed.

We must submit our package for building permit no later than say 2/25 or 2/26.

Civil:

- Status of approve plans / plan check comments
- Verify slab thickness and FF grades/elevations – Pad elevations
- Verify/discuss thickened edge condition along the bio-detention basins
- Did we resolve the footprint of the building creeping into the fire access turn around?
- Anything I missed?

Soils:

- Discuss/verify pad preparation requirements for grading and foundations
- Discuss/verify PT slab design criteria (4" capillary break) need new letter removing it.
- Anything I missed?

Architect:

Status of plan corrections/updates from our last meeting

- Background plans to Structural, MEP, anyone else?
- Cal Green – Does city require compliance, tier 1 or Tier 2?
- Do we need to submit plumbing specs for water conservation? Or is a Green Building Consultant required for verification?
- Title 24
- Solar: verify solar zone on roofs
- Note on plans the deferred submittals for (Truss Calcs, Fire Sprinklers, and Solar)
- Anything I missed?

Structural:

- Remove the 4" capillary break. Reflect a sand leveling coarse as needed under the moisture barrier.
- PT design
- Status of structural plans and backgrounds
- FYI - front house the top 2 Bedrooms will not have a vaulted roof now
- Anything I missed?

MEP/Title 24:

- What do you need from anyone else to perform your work?
- Status/timeline for T24 summary – 2x4 walls – Do you need the window manufacture/model?
- Gas plans for city submittal
- HVAC calcs for city submittal
- Anything I missed?

Post Tension Foundation

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PTISlab 3.5

Geostructural Tool Kit, Inc.

Registered To : IDS Engineering

Serial Number : 100-350-245

Project Title : Mansueto

Project Engineer : SF

Project Number : 00931

Project Date : October 17, 2019

Geotechnical Report : Bauer

Report Date : 51-19-2019

Report Number : 3476

UNIFORM THICKNESS FOUNDATION - DESIGN SUMMARY

Slab Dimensions : 42.00 FT x 60.00 FT x 12.00 Inches
 Uniform Thickness Slab : 12.00 (11.97) Inches
 (rounded to the nearest 0.25 inch)

Material Properties

Concrete Strength, f'_c : 3,000 PSI
 Tendon Strength, F_{pu} : 270 KSI
 Tendon Diameter : 1 / 2 Inch

Material Quantities

Concrete Volume : 93.3 Cubic Yards
 Prestressing Tendon : 2,172.0 Linear Feet
 Number of End Anchorages : 84

In the LONG direction ...

Number of Slab Tendons : 18
 Slab Tendon Spacing : 2.35 Feet O.C.
 Slab Tendon Centroid : 6.00 Inches from top of slab

In the SHORT direction ...

Number of Slab Tendons : 24
 Slab Tendon Spacing : 2.52 Feet O.C.
 Slab Tendon Centroid : 6.00 Inches from top of slab

Selected Variables

	Short Direction	Long Direction
Cross Sectional Area (Inch ²) :	8,640	6,048
Moment of Inertia (Inch ⁴) :	103,680	72,576
Section Modulus, Top and Bottom (Inch ³) :	17,280	12,096
Beta Distance (Feet) :	9.31	8.51
Jacking Force :	33.05 KIPS	

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UNIFORM THICKNESS FOUNDATION - DESIGN COMPLIANCE SUMMARY

The **BOLD** values exceed allowable or are less than minimum limits by the percentage indicated:

RIBBED FOUNDATION COMPLIANCE :

RIBBED FOUNDATION IN COMPLIANCE.

CENTER LIFT MODE :

ALL VALUES WITHIN ALLOWABLE LIMITS.

EDGE LIFT MODE :

ALL VALUES WITHIN ALLOWABLE LIMITS.

PTISlab 3.5

Geostructural Tool Kit, Inc.

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UNIFORM THICKNESS FOUNDATION - RESULTS OF ANALYSIS

Uniform Thickness Slab **12.00 (11.97) Inches**
(rounded to nearest 0.25 inch)

Prestress Summary

Subgrade Friction calculated by method prescribed in PTI Manual

	Short Direction	Long Direction
Number of Tendons	24	18
Spacing of Tendons (FT)	2.52	2.35
Center of Gravity of Concrete (from top of slab) (Inch)	6.00	6.00
Center of Gravity of Tendons (from top of slab) (Inch)	6.00	6.00
Eccentricity of Prestressing (Inch)	0.00	0.00
Minimum Effective Prestress Force (K)	501.9	342.2
Beta Distance Effective Prestress Force (K)	578.2	440.3
Minimum Effective Prestress (PSI)	58	57
Beta Distance Effective Prestress (PSI)	67	73

Moment Analysis - Center Lift Mode

Maximum Moment, Short Direction 4.16 FT-K/FT
Maximum Moment, Long Direction 4.06 FT-K/FT

	Tension in Top Fiber (KSI)			Compression in Bottom Fiber (KSI)	
	Short Direction	Long Direction		Short Direction	Long Direction
Allowable Stress	-0.329	-0.329	Allowable Stress	1.350	1.350
Actual Stress	-0.106	-0.096	Actual Stress	0.240	0.242

Stiffness Analysis - Center Lift Mode

Based on a Stiffness Coefficient of 340

	Short Direction	Long Direction
Available Moment of Inertia (Inch ⁴)	103,680	72,576
Required Moment of Inertia (Inch ⁴)	28,517	23,682
Required Moment of Inertia controlled by	Width	6*Beta

Shear Analysis - Center Lift Mode

Maximum Shear, Short Direction 1.03 K/FT
Maximum Shear, Long Direction 0.72 K/FT

	Short Direction	Long Direction
Allowable Shear Stress (PSI)	145	146
Actual Shear Stress (PSI)	7	5

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UNIFORM THICKNESS FOUNDATION - RESULTS OF ANALYSIS continued

Cracked Section Analysis - Center Lift Mode

	Short Direction	Long Direction
Cracked Section Capacity (FT-K)	310.2	232.2
0.5 Moment (FT-K)	124.8	85.2

Moment Analysis - Edge Lift Mode

Maximum Moment, Short Direction	6.34 FT-K/FT
Maximum Moment, Long Direction	5.95 FT-K/FT

	Tension in Bottom Fiber (KSI)			Compression in Top Fiber (KSI)	
	Short Direction	Long Direction		Short Direction	Long Direction
Allowable Stress	-0.329	-0.329	Allowable Stress	1.350	1.350
Actual Stress	-0.197	-0.175	Actual Stress	0.331	0.321

Stiffness Analysis - Edge Lift Mode

Based on a Stiffness Coefficient of 700

	Short Direction	Long Direction
Available Moment of Inertia (Inch ⁴)	103,680	72,576
Required Moment of Inertia (Inch ⁴)	89,423	71,494
Required Moment of Inertia controlled by	Width	6*Beta

Shear Stress Analysis - Edge Lift Mode

Maximum Shear, Short Direction	2.98 K/FT
Maximum Shear, Long Direction	3.06 K/FT

	Short Direction	Long Direction
Allowable Shear Stress (PSI)	145	146
Actual Shear Stress (PSI)	21	21

Cracked Section Analysis - Edge Lift Mode

	Short Direction	Long Direction
Cracked Section Capacity (FT-K)	310.2	232.2
0.5 Moment (FT-K)	190.1	125.0

PTISlab 3.5

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Geotechnical Report : Bauer

SUMMARY OF INPUT DATA

Material Properties

Concrete Strength, f_c :	3,000.0 PSI
Concrete Creep Modulus, E_c :	1,500,000.0 PSI
Concrete Unit Weight :	145.0 PCF
Tendon Strength, F_{pu} :	270.0 KSI
Tendon Diameter :	1 / 2 Inch

Slab Properties

Rectangle Label :	Slab 2	
Rectangle Geometry :	42.00 FT x 60.00 FT x 4.00 Inches	
Minimum Permissible Prestress :	<u>Short Direction</u>	<u>Long Direction</u>
	50.00 PSI	50.00 PSI

Beam Properties

	Short Direction		Long Direction		
	Type I	Type II	Type I	Type II	
Quantity :	15	0	12	0	
Depth :	14.7	0.0	14.8	0.0	Inches
Width :	13.8	0.0	13.8	0.0	Inches
Tendons :	1	0	1	0	
Cover :	3.00	0.00	3.00	0.00	Inches

Average beam spacing used in analysis

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SUMMARY OF INPUT DATA - Continued

Soil Properties

Allowable Bearing Pressure :		1,000.0 PSF
	<u>Center Lift</u>	<u>Edge Lift</u>
Edge Moisture Variation Distance, e_m :	3.50 Feet	5.00 Feet
Differential Soil Movement, y_m :	1.500 Inches	2.000 Inches

Load, Deflection and Subgrade Properties

Slab Loading

Uniform Superimposed Total Load :	80.00 PSF
Total Perimeter Load :	1,500.00 PLF
Smallest Load Intensity :	188.00 PLF

Stiffness Coefficients

Center Lift :	340
Edge Lift :	700

Prestress Calculation

Subgrade Friction calculated by method prescribed in PTI Manual

Prestress Loss :	15.0 KSI
Subgrade Friction Coefficient :	0.75

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PTI EXCEPTION SUMMARY

**The following elements of the design are not in strict compliance with the
Design of Post-Tensioned Slabs-On-Ground 3rd Edition manual
published by the Post-Tensioning Institute.**

NO PTI EXCEPTIONS EXIST

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JAN 28 2020

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