



Dwight Mason Structural Design, Inc.

P.O. Box 683

Beavercreek, Oregon 97004

(503) 632-8863

October 6, 2012

Steve Pollard

Re: Van Vleet Residence Bath Remodel
7034 SE 34th Ave., Portland, OR
Job # 12-005

Dear Mr. Pollard:

Based on our site visit to observe the existing framing at the above referenced location, please find the attached revised upper level framing plan to allow for the revised location of the new glulam beam. Also additional framing of at the existing entry area is reinforced in order to provide adequate support in that area. Attached are calculations verifying the structural adequacy of the revised framing. The design is based on the 2010 Oregon Structural Specialty code.

If you have any questions, please let me know.

Cordially,

Dwight Mason Structural Design, Inc., by

Dwight Mason, P.E., S.E.
President



12-118/54-REV-01

[illegible]

☐ EXISTING WALLS TO REMAIN
☐ EXISTING WALLS TO BE REMOVED
☐ NEW WALLS

ALL DIMENSIONS ARE BASED ON APPROXIMATE FIELD MEASUREMENTS AND ARE TO BE VERIFIED PRIOR TO AND DURING

Dwight Mason Structural Design, Inc
PO Box 683
Beavercreek, OR 97004
503-632-8863

Title : Van Vleet Remodel
Engineer:
Project Desc.:

Job # 12-005

Printed: 6 OCT 2012, 12:15PM

Multiple Simple Beam

File: X:\X Drive Projects\12-005 Steve Pollard- Van Vleet Remodel\12-005.ec6

ENERCALC, INC. 1983-2011, Build:6.12.5.30, Ver:6.11.12.31

Licensee : Dwight Mason Structural Design, Inc.

Lic. #: KW-06009044

Description : Existing Beams

Wood Beam Design : Entry Joist- Typical

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

BEAM Size : 2-2x8, Sawn, Fully Braced

Using Allowable Stress Design with 2006 IBC & ASCE 7-05 Load Combinations, Major Axis Bending

Wood Species : Douglas Fir - Larch

Wood Grade : Select structural

Fb - Tension	1,500.0 psi	Fc - Prll	1,700.0 psi	Fv	180.0 psi	Ebend- xx	1,900.0 ksi	Density	32.210 pcf
Fb - Compr	1,500.0 psi	Fc - Perp	625.0 psi	Ft	1,000.0 psi	Eminbend - xx	690.0 ksi		

Applied Loads

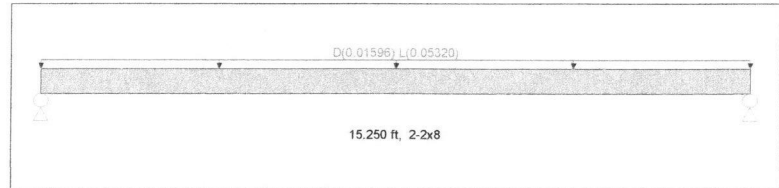
Unif Load: D = 0.0120, L = 0.040 k/ft, Trib= 1.330 ft

Design Summary

Max fb/Fb Ratio = 0.443 : 1
fb : Actual : 917.99 psi at 7.625 ft in Span # 1
Fb : Allowable : 2,070.00 psi
Load Comb : +D+L+H

Max fv/FvRatio = 0.187 : 1
fv : Actual : 33.70 psi at 14.691 ft in Span # 1
Fv : Allowable : 180.00 psi
Load Comb : +D+L+H

Max Reactions (k)	D	L	Lr	S	W	E	H
Left Support	0.12	0.41					
Right Support	0.12	0.41					



Max Deflections				
Downward L+Lr+S	0.360 in	Downward Total	0.467 in	
Upward L+Lr+S	0.000 in	Upward Total	0.000 in	
Live Load Defl Ratio	508 >360	Total Defl Ratio	391 >180	

Wood Beam Design : Entry Joist- With Wall above

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

BEAM Size : 3-2x8, Sawn, Fully Braced

Using Allowable Stress Design with 2006 IBC & ASCE 7-05 Load Combinations, Major Axis Bending

Wood Species : Douglas Fir - Larch

Wood Grade : Select structural

Fb - Tension	1,500.0 psi	Fc - Prll	1,700.0 psi	Fv	180.0 psi	Ebend- xx	1,900.0 ksi	Density	32.210 pcf
Fb - Compr	1,500.0 psi	Fc - Perp	625.0 psi	Ft	1,000.0 psi	Eminbend - xx	690.0 ksi		

Applied Loads

Unif Load: D = 0.0120, L = 0.040 k/ft, Trib= 1.330 ft

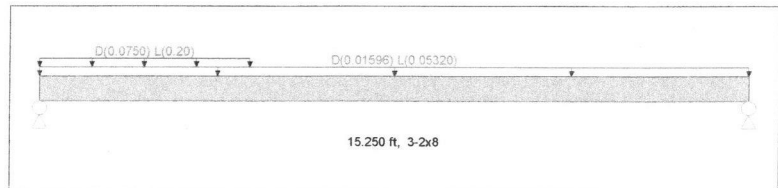
Unif Load: D = 0.0150, L = 0.040 k/ft, 0.0 to 4.50 ft, Trib= 5.0 ft

Design Summary

Max fb/Fb Ratio = 0.536 : 1
fb : Actual : 1,109.14 psi at 4.982 ft in Span # 1
Fb : Allowable : 2,070.00 psi
Load Comb : +D+L+H

Max fv/FvRatio = 0.355 : 1
fv : Actual : 63.90 psi at 0.000 ft in Span # 1
Fv : Allowable : 180.00 psi
Load Comb : +D+L+H

Max Reactions (k)	D	L	Lr	S	W	E	H
Left Support	0.41	1.17					
Right Support	0.17	0.54					



Max Deflections				
Downward L+Lr+S	0.419 in	Downward Total	0.558 in	
Upward L+Lr+S	0.000 in	Upward Total	0.000 in	
Live Load Defl Ratio	436 >360	Total Defl Ratio	328 >180	

Wood Beam Design : stair header

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

BEAM Size : 2x8, Sawn, Fully Braced

Using Allowable Stress Design with 2006 IBC & ASCE 7-05 Load Combinations, Major Axis Bending

Wood Species : Douglas Fir - Larch

Wood Grade : Select structural

Fb - Tension	1,500.0 psi	Fc - Prll	1,700.0 psi	Fv	180.0 psi	Ebend- xx	1,900.0 ksi	Density	32.210 pcf
Fb - Compr	1,500.0 psi	Fc - Perp	625.0 psi	Ft	1,000.0 psi	Eminbend - xx	690.0 ksi		

Applied Loads

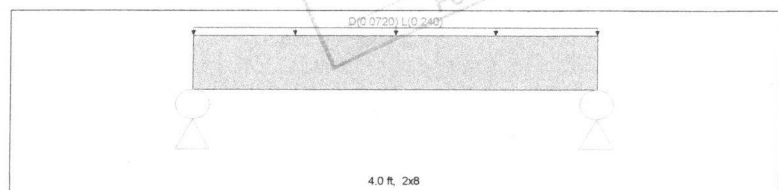
Unif Load: D = 0.0120, L = 0.040 k/ft, Trib= 6.0 ft

Design Summary

Max fb/Fb Ratio = 0.275 : 1
fb : Actual : 569.84 psi at 2.000 ft in Span # 1
Fb : Allowable : 2,070.00 psi
Load Comb : +D+L+H

Max fv/FvRatio = 0.335 : 1
fv : Actual : 60.25 psi at 0.000 ft in Span # 1
Fv : Allowable : 180.00 psi
Load Comb : +D+L+H

Max Reactions (k)	D	L	Lr	S	W	E	H
Left Support	0.14	0.48					
Right Support	0.14	0.48					



Max Deflections				
Downward L+Lr+S	0.015 in	Downward Total	0.020 in	
Upward L+Lr+S	0.000 in	Upward Total	0.000 in	
Live Load Defl Ratio	3125 >360	Total Defl Ratio	2404 >180	

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Job # 12-005

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Multiple Simple Beam

File: X:\X Drive Projects\12-005 Steve Pollard- Van Vleet Remodel\12-005.ec6
ENERCALC, INC. 1983-2011, Build:6.12.5.30, Ver:6.11.12.31

Lic. # : KW-06009044

Licensee : Dwight Mason Structural Design, Inc.

Wood Beam Design : Entry Joist typical

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

BEAM Size : 3.5x7.5, GLB, Fully Braced

Using Allowable Stress Design with 2006 IBC & ASCE 7-05 Load Combinations, Major Axis Bending

Wood Species : SP/SP

Fb - Tension 2400 psi
Fb - Compr 1450 psi

Fc - Prll 1000 psi
Fc - Perp 650 psi

Fv
Ft

Wood Grade : 24F - V4

Ebend- xx 210 psi
Eminbend - xx 875 psi

1700 ksi
880 ksi

Density 35.44 pcf

Applied Loads

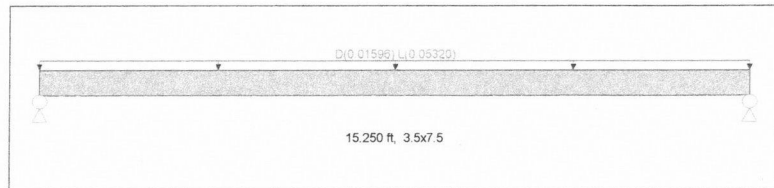
Unif Load: D = 0.0120, L = 0.040 k/ft, Trib= 1.330 ft

Design Summary

Max fb/Fb Ratio = 0.306 : 1
fb : Actual : 735.27 psi at 7.625 ft in Span # 1
Fb : Allowable : 2,400.00 psi
Load Comb : +D+L+H

Max fv/FvRatio = 0.132 : 1
fv : Actual : 27.72 psi at 14.640 ft in Span # 1
Fv : Allowable : 210.00 psi
Load Comb : +D+L+H

Max Reactions (k) D L Lr S W E H
Left Support 0.12 0.41
Right Support 0.12 0.41



Max Deflections
Downward L+Lr+S 0.311 in Downward Total 0.404 in
Upward L+Lr+S 0.000 in Upward Total 0.000 in
Live Load Defl Ratio 588 >360 Total Defl Ratio 452 >180



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Wood Beam

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ENERCALC, INC. 1983-2011, Build:6.12.5.30, Ver:6.11.12.31

Lic. #: KW-06009044

Licensee : Dwight Mason Structural Design, Inc.

Description : Floor beam- revised

Material Properties

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

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

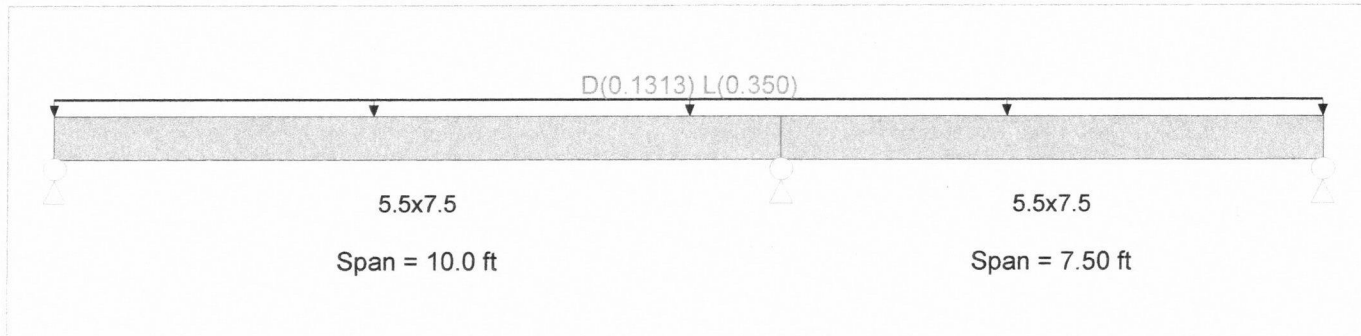
Wood Species : DF/DF
Wood Grade : 24F - V4

Fb - Tension 2,400.0 psi
Fb - Compr 1,850.0 psi
Fc - Prll 1,650.0 psi
Fc - Perp 650.0 psi
Fv 265.0 psi
Ft 1,100.0 psi

E : Modulus of Elasticity

Ebend- xx 1,800.0 ksi
Eminbend- xx 930.0 ksi
Ebend- yy 1,600.0 ksi
Eminbend- yy 830.0 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.

Loads on all spans...

Uniform Load on ALL spans : D = 0.0150, L = 0.040 ksf, Tributary Width = 8.750 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.615	1	Maximum Shear Stress Ratio	=	0.357	: 1
Section used for this span		5.5x7.5		Section used for this span		5.5x7.5	
fb : Actual	=	1,137.50	psi	fv : Actual	=	94.50	psi
FB : Allowable	=	1,850.00	psi	Fv : Allowable	=	265.00	psi
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	10.000	ft	Location of maximum on span	=	9.385	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward L+Lr+S Deflection		0.120	in	Ratio =		1002	
Max Upward L+Lr+S Deflection		-0.007	in	Ratio =		13729	
Max Downward Total Deflection		0.165	in	Ratio =		729	
Max Upward Total Deflection		-0.009	in	Ratio =		9985	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		C _d	C _{F/V}	C _r	C _m	C _t	C _L	Moment Values			Shear Values		
			M	V							M	fb	Fb	V	fv	Fv
+D													0.00	0.00	0.00	0.00
Length = 10.0 ft	1		0.186	0.108	0.900	1.000	1.000	1.000	1.000	1.000	1.33	310.23	1665.00	0.71	25.77	238.50
Length = 7.50 ft	2		0.186	0.108	0.900	1.000	1.000	1.000	1.000	1.000	1.33	310.23	1665.00	0.59	25.77	238.50
+D+L+H													0.00	0.00	0.00	0.00
Length = 10.0 ft	1		0.615	0.357	1.000	1.000	1.000	1.000	1.000	1.000	4.89	1,137.50	1850.00	2.60	94.50	265.00
Length = 7.50 ft	2		0.615	0.357	1.000	1.000	1.000	1.000	1.000	1.000	4.89	1,137.50	1850.00	2.18	94.50	265.00
+D+0.750Lr+0.750L+H													0.00	0.00	0.00	0.00
Length = 10.0 ft	1		0.402	0.233	1.250	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2312.50	2.13	77.32	331.25
Length = 7.50 ft	2		0.402	0.233	1.250	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2312.50	1.78	77.32	331.25
+D+0.750L+0.750S+H													0.00	0.00	0.00	0.00
Length = 10.0 ft	1		0.437	0.254	1.150	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2127.50	2.13	77.32	304.75
Length = 7.50 ft	2		0.437	0.254	1.150	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2127.50	1.78	77.32	304.75
+D+0.750Lr+0.750L+0.750W+H													0.00	0.00	0.00	0.00
Length = 10.0 ft	1		0.314	0.182	1.600	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2960.00	2.13	77.32	424.00
Length = 7.50 ft	2		0.314	0.182	1.600	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2960.00	1.78	77.32	424.00

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ENERCALC, INC. 1983-2011, Build:6.12.5.30, Ver:6.11.12.31

Wood Beam

Lic. # : KW-06009044

Licensee : Dwight Mason Structural Design, Inc.

Description : Floor beam- revised

Load Combination	Segment Length	Span #	Max Stress Ratios		C _d	C _{F/V}	C _r	C _m	C _t	C _L	M	Moment Values		Shear Values		
			M	V								ft	Fb	V	fv	Fv
+D+0.750L+0.750S+0.750W+H																
Length = 10.0 ft	1		0.314	0.182	1.600	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2960.00	2.13	77.32	424.00
Length = 7.50 ft	2		0.314	0.182	1.600	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2960.00	1.78	77.32	424.00
+D+0.750Lr+0.750L+0.5250E+H																
Length = 10.0 ft	1		0.314	0.182	1.600	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2960.00	2.13	77.32	424.00
Length = 7.50 ft	2		0.314	0.182	1.600	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2960.00	1.78	77.32	424.00
+D+0.750L+0.750S+0.5250E+H																
Length = 10.0 ft	1		0.314	0.182	1.600	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2960.00	2.13	77.32	424.00
Length = 7.50 ft	2		0.314	0.182	1.600	1.000	1.000	1.000	1.000	1.000	4.00	930.68	2960.00	1.78	77.32	424.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L	1	0.1645	4.462		0.0000	0.000
D+L	2	0.0176	5.019	D+L	-0.0090	1.038

Vertical Reactions - Unfactored

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	1.917	5.351	1.153
D Only	0.523	1.459	0.314
L Only	1.395	3.892	0.839
D+L	1.917	5.351	1.153

Support notation : Far left is #1

Values in KIPS

