

CITY OF SACRAMENTO
1231 I Street, Sacramento, CA 95814

Permit No: 9910567
Insp Area: 2

Site Address: 15 BLISS RIVER CT SAC
Parcel No 031-0318-010

Sub-Type: RES
Housing (Y/N): N

CONTRACTOR
ZIMMERMAN ROOFING
3860 RAMONA AV
SACRAMENTO CA 95826

OWNER
KIPP SAMUEL M III/MELINDA
15 BLISS RIVER CT
SACRAMENTO CA 95831

ARCHITECT

Nature of Work: TEAR OFF AND REROOF 38 SQ WITH TILE

CONSTRUCTION LENDING AGENCY : I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name _____ Lender's Address _____

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

License Class C39 License Number 557559 Date Sept 23 99 Contractor Signature [Signature]

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code; any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500.00).

I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professional Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.)

I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code). The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

I am exempt under Sec. _____ B & PC for this reason: _____

Date _____ Owner Signature _____

IN ISSUING THIS BUILDING PERMIT, the applicant represents, and the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and hereby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

Date Sept 23 99 Applicant/Agent Signature [Signature]

WORKER'S COMPENSATION DECLARATION: I hereby affirm under penalty of perjury one of the following declarations:

I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 3700 of the Labor Code, for the performance of work for which the permit is issued.

I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier STATE COMP INS FUND Policy Number 713-98-2021 Exp Date 10/01/1999

This section need not be completed if the permit is for \$100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date Sept 23 99 Applicant Signature [Signature]

WARNING - FAILURE TO SECURE WORKER'S COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS (\$100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEE.

THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK IS NOT COMMENCED WITHIN 180 DAYS.



DEPARTMENT OF
PLANNING AND DEVELOPMENT

CITY OF SACRAMENTO
CALIFORNIA

1231 I STREET
ROOM 200
SACRAMENTO, CA
95814-2998

Permit Services
916-264-7619
FAX 916-264-7096

TILE ROOF WORKSHEET

This worksheet must be filled out whenever any type of tile roof is applied for.

If the answer to question #5 is yes, a written engineering report from a registered engineer must be provided with each application.

1. BRAND AND MODEL OF TILE Pioneer Lite weight

2. TILE WEIGHT PER SQUARE 7.30 lbs

3. WEIGHT OF ROOF SYSTEM PER SQUARE 180 lbs

4. TOTAL WEIGHT OF ROOF SYSTEM 910 lbs

5. DOES TOTAL WEIGHT OF ROOF SYSTEM EXCEED 750# PER SQUARE? YES NO

6. ROOF SLOPE 4/12

PLEASE PROVIDE A SEPARATE WORKSHEET FOR EACH APPLICATION INVOLVING A TILE ROOF

All attached engin. report

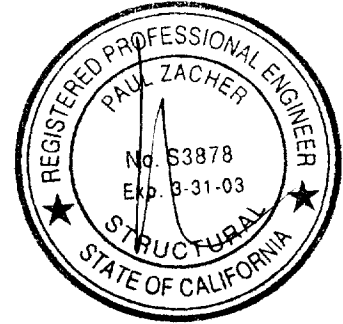
KIP

Paul Zacher – Structural Engineers
4701 Lakeside Way
Half Oaks CA 95628

TEL: 916.961.3960
FAX: 916.961.3960

September 16, 1999

Zimmerman Roofing
5560 Ramona Avenue
Sacramento, CA 95826
TEL 916 454 3667
FAX 916 455 3784
TEL (Jeff) 916.392.1971
FAX (Jeff) 916.392.6853
FAX (Framer) 916.383.5308



Attn: Mr. Jeff Tucker.

re Job 99232 KIPP

Subject: Structural Investigation Report of the Roof for the Residence located at 15 Bliss River Court, Sacramento CA 95831

As requested by Mr. Jeff Tucker, this is a report to determine what needs should be addressed to correct any structural deficiencies of the roof. Paul Zacher visited the site September 14, 1999. The investigation was made to determine the existing condition of the structure. All information, data and analysis contained within this report is based on the 1997 Uniform Building Code.

The following is based on visual observations with no subsurface investigation being made.

DESCRIPTION:

Type of Facility:	Residence.
Year Built:	Estimated 1970's vintage.
Occupancy:	Residential.
No. of Stories:	One.
Dimensions:	Approximately 2000 square feet with a first story plate height of 8 feet.

CONSTRUCTION:

Roof

The roof covering will consist of a Light Weight Concrete Tile over 1/2" solid sheathing. The living area is framed with pre-engineered trusses spaced at 24" on center bearing on walls below. The garage area is framed with 2x8 rafters spaced at 24" on center and 2x8 cross ties spaced at 24" on center.

CONCLUSIONS:

Roof

The living and garage areas have sufficient structural capacity for the applied live and dead loads.

1/10 Reviewed by Matt P. 9/17/99

SEP

Paul Zacher – Structural Engineers
4701 Lakeside Way
Fair Oaks, CA 95628

TEL: 916.961.3960
FAX: 916.961.3960

RECOMMENDATIONS:

None

It shall be noted that small hairline cracking may occur at exterior stucco and interior gypboard finished walls which are load bearing or distributing roof strut loads. These cracks are a natural occurrence as the existing structure re-distributes the new roof weight. They are cosmetic in nature and are not an indication of a structural hazard or failure

It shall be noted that some deflection of the rafters may be evident after installation of the tile. The existing roof framing has deflected but this may not be readily evident due to the uneven nature of the existing roofing material. Concrete tile is a very consistent and uniform product and when installed in an even plane even small deflections can become apparent. This is only a cosmetic issue and not a structural concern

The inspection consisted of visual observation only, made solely to determine the structural capacity of the existing roof. Analysis does not determine any effects on the overall structure under lateral forces or effects on the foundation unless specifically noted in the calculations and in this document. No warranties, expressed or implied, are made or intended in conjunction with this report. The inspection was made only to the portions that were accessible. The specific items noted were those that were observable and there may be defects which are not observable, or are hidden by architectural and structural materials.

If you have any questions on the above, do not hesitate to call.

Sincerely,



Paul Zacher, P.E., S.E.
Title

DESIGN LOADING:

Roof Pitch	4	in 12
Pitch Adjustment Factor	1.05	

LOCATION: TOP CHORD

<u>MATERIAL</u>	<u>WEIGHT</u>	
Light Weight Tile	7.00	psf
Roofing felt	0.30	psf
1/2" OSB/ plywood	1.50	psf
1x4 skip sht'g	1.09	psf
2x4 truss @ 24" oc	<u>1.28</u>	psf
Load	11.2	psf
Roof Pitch Adjustment	<u>0.60</u>	psf
Total Load	11.8	psf

LOCATION: BOTTOM CHORD

<u>MATERIAL</u>	<u>WEIGHT</u>	
Batt/blown insul	0.50	psf
2x4 truss @ 24" oc	0.64	psf
1/2" Gypboard	<u>2.50</u>	psf
Load	3.6	psf

LOCATION: ROOF

<u>MATERIAL</u>	<u>WEIGHT</u>	
Light Weight Tile	7.00	psf
Roofing felt	0.30	psf
1x4 skip sht'g	1.09	psf
1/2" OSB/ plywood	1.50	psf
2x6 rafters @ 24" oc	<u>1.00</u>	psf
Load	10.9	psf
Roof Pitch Adjustment	<u>0.59</u>	psf
Total Load	11.5	psf

SA-11006
 User: C:\M-ENCL244\Ver 9.1.17 Jun 1999\Wms37
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Timber Beam & Joist

c:\enercalc\test.ecw:Calculations

Description BEAMS and RAFTERS

Timber Member Information

Calculations are designed to 1997 NDS and 1997 UBC Requirements

	porch	garage	rafter	rafter
Timber Section	4x12	4x12	2x6	2x8
Beam Width	in: 3.500	3.500	1.500	1.500
Beam Depth	in: 11.250	11.250	5.500	7.250
Clear Unbraced Length	ft: 2.00	0.00	0.00	0.00
Timber Grade	Douglas Fir - Larch	Douglas Fir - Larch	Douglas Fir - Larch	Douglas Fir - Larch
F _b - Basic Allow	psi: 1,000.0	875.0	875.0	875.0
F _v - Basic Allow	psi: 95.0	95.0	95.0	95.0
Elastic Modulus	ksi: 1,700.0	1,600.0	1,600.0	1,600.0
Load Duration Factor	1.250	1.250	1.250	1.250
Member Type	Sawn	Sawn	Sawn	Sawn
Repetitive Status	No	No	Repetitive	No

Center Span Data

	porch	garage	rafter	rafter
Span	ft: 11.00	16.00	12.00	14.25
Dead Load	#/ft: 69.00	81.00	23.00	23.00
Live Load	#/ft: 96.00	112.00	32.00	32.00

Results

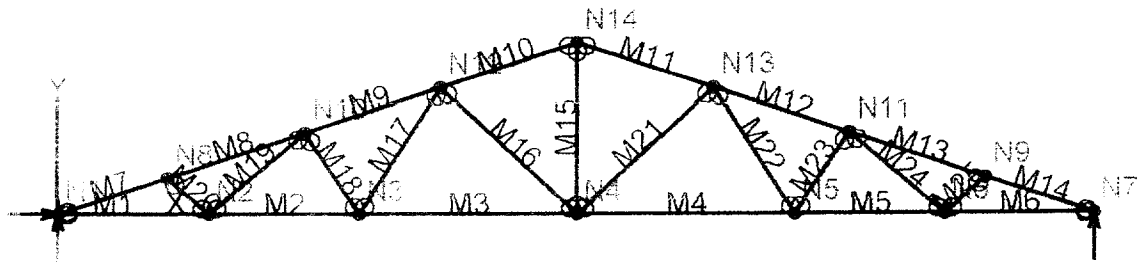
	Ratio =	porch	garage	rafter	rafter
M _{max} @ Center	in-k	29.95	74.11	11.88	16.75
@ L =	ft	5.50	8.00	6.00	7.12
F _b Actual	psi	405.6	1,003.8	1,570.9	1,274.9
F _b Allowable	psi	1,368.8	1,203.1	1,635.2	1,312.5
		Bending OK	Bending OK	Bending OK	Bending OK
F _v Actual	psi	28.8	52.2	55.7	49.7
F _v Allowable	psi	118.8	118.8	118.8	118.8
		Shear OK	Shear OK	Shear OK	Shear OK

Reactions

	DL	LL	Max DL+LL	porch	garage	rafter	rafter
@ Left End	lbs	379.50	648.00	138.00	163.87		
	lbs	528.00	896.00	192.00	228.00		
	lbs	907.50	1,544.00	330.00	391.87		
@ Right End	lbs	379.50	648.00	138.00	163.87		
	lbs	528.00	896.00	192.00	228.00		
	lbs	907.50	1,544.00	330.00	391.87		

Deflections

	porch	garage	rafter	rafter
Center DL Defl	in: -0.032	-0.180	-0.322	-0.280
U/Defl Ratio	4,099.9	1,068.1	446.5	610.8
Center LL Defl	in: -0.045	-0.249	-0.449	-0.390
U/Defl Ratio	2,946.8	772.5	320.9	439.0
Center Total Defl	in: -0.077	-0.428	-0.771	-0.669
Location	ft: 5.500	8.000	6.000	7.125
U/Defl Ratio	1,714.5	448.3	186.7	255.4



VisualAnalysis 3.50.c Report

04/05/2011 05:20

Project

File: Program Files\IES\VA35\Untitled.vap
 Company: PE Associates Engineers
 Engineer: Paul Gacher
 Default Units: Feet, Pounds, Degrees, °Fahrenheit, Seconds.

Nodes

Node	X ft	Y ft	Fix	DX	Fix	DY	Fix	RZ
N1	0.00	0.00	Yes		Yes		No	
N2	5.50	0.00	No		No			
N3	1.00	0.00	"		"		"	
N4	3.00	0.00	"		"		"	
N5	7.00	0.00	"		"		"	
N6	1.50	0.00	"		"		"	
N7	3.00	0.00	"		Yes		"	
N8	4.00	1.33	"		No		"	
N9	4.00	1.33	"		"		"	
N10	3.00	3.00	"		"		"	
N11	3.00	3.00	"		"		"	
N12	3.00	4.67	"		"		"	
N13	4.00	4.67	"		"		"	
N14	3.00	6.33	"		"		"	

Member Elements

Member	Section	Material	Length ft
M1	4S2x4	Wood	5.50
M2	"	"	5.50
M3	"	"	8.00
M4	"	"	8.00
M5	"	"	5.50
M6	"	"	5.50
M7	"	"	4.22
M8	"	"	5.27
M9	"	"	5.27
M10	"	"	5.27
M11	"	"	5.27
M12	"	"	5.27
M13	"	"	5.27
M14	"	"	4.22
M15	"	"	6.33
M16	"	"	6.84
M17	"	"	5.55
M18	"	"	3.61
M19	"	"	4.61
M20	"	"	2.00
M21	"	"	6.84
M22	"	"	5.55
M23	"	"	3.61
M24	"	"	4.61
M25	"	"	2.00

Section Properties

Category	Section	Ax in ²	Iz in ⁴	Sy+ in ³	Sy- in ³
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WIND SPEED 5.25 5.36 5.06 3.06

Material Properties

Material	Strength psi	Elasticity psi	Poisson 0.34	Density lb/ft ³
WIND	NA	1700000.00		40.47

Load Combination Summary

Equation Case: Equation Case 1
 Combination: +1D+1L+1Lr+1R+1W+1S+1E+1H+1F+1TS+1T+1TC+1I+1U+1LE
 Contributing Cases & Source
 Service Case 1 (Dead loads)
 Service Case 2 (Roof Live loads)

Member Uniform Loads

Load Case	Member	Direction	Offset ft	End Offset ft	Magnitude
Equation Case 1	M1	DY proj.	0.00	5.50	-7.60 lbs/ft
	M2	"	0.00	5.50	-7.60 lbs/ft
	M3	"	0.00	8.00	-7.60 lbs/ft
	M4	"	0.00	8.00	-7.60 lbs/ft
	M5	"	0.00	5.50	-7.60 lbs/ft
	M6	"	0.00	5.50	-7.60 lbs/ft
	M7	"	0.00	4.22	-23.60 lbs/ft
	M8	"	0.00	5.27	-23.60 lbs/ft
	M9	"	0.00	5.27	-23.60 lbs/ft
	M10	"	0.00	5.27	-23.60 lbs/ft
	M11	"	0.00	5.27	-23.60 lbs/ft
	M12	"	0.00	5.27	-23.60 lbs/ft
	M13	"	0.00	5.27	-23.60 lbs/ft
	M14	"	0.00	4.22	-23.60 lbs/ft
Service Case 1	M7	"	0.00	4.22	-32.00 lbs/ft
	M8	"	0.00	5.27	-32.00 lbs/ft
	M9	"	0.00	5.27	-32.00 lbs/ft
	M10	"	0.00	5.27	-32.00 lbs/ft
	M11	"	0.00	5.27	-32.00 lbs/ft
	M12	"	0.00	5.27	-32.00 lbs/ft
	M13	"	0.00	5.27	-32.00 lbs/ft
	M14	"	0.00	4.22	-32.00 lbs/ft

Nodal Reactions

Node	Load Case	FX lbs	FY lbs	MZ lb-ft
N1	Equation Case 1	-0.00	1200.80	-NA-
	Service Case 1	-NA-	NA-	-NA-
	Service Case 2	-NA-	-NA-	-NA-
N2	Equation Case 1	NA-	1200.80	-NA-
	Service Case 1	-NA-	NA-	-NA-
	Service Case 2	-NA-	NA-	-NA-

Member Extreme Results

Member	Axial (lc)	Vy (lc)	Mz (lc)	Dx (lc)	Dy (lc)
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	lbs	lbs	Lb-ft	in	in
N	3226.62(3)	-14.17(3)	0.00(3)	0.00(3)	-0.32(3)
	3226.62(3)	27.63(3)	50.20(3)	0.02(3)	-0.00(3)
N	277.24(3)	-32.41(3)	-42.73(3)	0.02(3)	-0.42(3)
	277.24(3)	9.39(3)	42.73(3)	0.04(3)	-0.32(3)
P	296.56(3)	-32.20(3)	-40.72(3)	0.04(3)	-0.46(3)
	296.56(3)	28.60(3)	27.39(3)	0.07(3)	-0.42(3)
P-	296.56(3)	-28.60(3)	-40.72(3)	0.07(3)	-0.46(3)
	296.56(3)	32.20(3)	27.39(3)	0.09(3)	-0.42(3)
Y	277.24(3)	-9.39(3)	-42.73(3)	0.09(3)	-0.42(3)
	277.24(3)	32.41(3)	42.73(3)	0.11(3)	-0.32(3)
M-	226.62(3)	-27.63(3)	-0.00(3)	0.11(3)	-0.32(3)
	226.62(3)	14.17(3)	50.20(3)	0.14(3)	-0.00(3)
M	2431.96(3)	-115.84(3)	-43.51(3)	-0.02(3)	-0.28(3)
	2431.96(3)	95.20(3)	90.51(3)	-0.00(3)	-0.00(3)
M-	223.18(3)	-143.96(3)	-107.41(3)	-0.04(3)	-0.40(3)
	223.18(3)	119.72(3)	99.75(3)	-0.02(3)	-0.28(3)
M-	223.45(3)	-136.62(3)	-132.61(3)	-0.06(3)	-0.45(3)
	245.38(3)	127.06(3)	53.74(3)	-0.04(3)	-0.40(3)
M	2957.80(3)	-106.75(3)	-132.61(3)	-0.07(3)	-0.50(3)
	270.21(3)	157.09(3)	113.76(3)	-0.06(3)	-0.44(3)
M	2957.80(3)	-157.09(3)	-132.61(3)	0.19(3)	-0.45(3)
	270.21(3)	106.75(3)	113.76(3)	0.21(3)	-0.40(3)
M	223.45(3)	-127.06(3)	-132.61(3)	0.17(3)	-0.40(3)
	245.38(3)	136.62(3)	53.74(3)	0.19(3)	-0.36(3)
M	223.18(3)	-119.72(3)	-107.41(3)	0.15(3)	-0.36(3)
	235.11(3)	143.96(3)	99.75(3)	0.17(3)	-0.24(3)
M-	3431.96(3)	-95.20(3)	-43.51(3)	0.13(3)	-0.24(3)
	2461.75(3)	115.84(3)	90.51(3)	0.15(3)	0.04(3)
M-	25.94(3)	0.00(3)	0.00(3)	0.44(3)	0.07(3)
	25.94(3)	0.00(3)	0.00(3)	0.45(3)	0.07(3)
Y	247.72(3)	0.00(3)	0.00(3)	-0.36(3)	0.27(3)
	247.72(3)	0.00(3)	0.00(3)	-0.36(3)	0.28(3)
M	274.26(3)	-0.00(3)	0.00(3)	0.33(3)	0.27(3)
	274.26(3)	-0.00(3)	0.00(3)	0.33(3)	0.31(3)
M	405.32(3)	0.00(3)	0.00(3)	-0.38(3)	0.15(3)
	405.32(3)	0.00(3)	0.00(3)	-0.38(3)	0.20(3)
M-	28.74(3)	0.00(3)	0.00(3)	0.19(3)	0.26(3)
	28.74(3)	0.00(3)	0.00(3)	0.19(3)	0.36(3)
M	277.15(3)	0.00(3)	0.00(3)	-0.23(3)	0.16(3)
	277.15(3)	0.00(3)	0.00(3)	-0.23(3)	0.23(3)
M	247.72(3)	-0.00(3)	0.00(3)	-0.26(3)	-0.38(3)
	247.72(3)	-0.00(3)	0.00(3)	-0.26(3)	-0.36(3)
M	274.36(3)	0.00(3)	0.00(3)	0.40(3)	-0.19(3)
	274.36(3)	0.00(3)	0.00(3)	0.41(3)	-0.15(3)
M	405.32(3)	-0.00(3)	0.00(3)	-0.30(3)	-0.31(3)
	405.32(3)	-0.00(3)	0.00(3)	-0.30(3)	-0.26(3)
M-	24.74(3)	-0.00(3)	0.00(3)	0.30(3)	-0.27(3)
	24.74(3)	-0.00(3)	0.00(3)	0.30(3)	-0.17(3)
M-	277.15(3)	-0.00(3)	0.00(3)	-0.13(3)	-0.32(3)
	277.15(3)	-0.00(3)	0.00(3)	-0.13(3)	-0.25(3)

BENDING & COMP: TRUSS 1; MEMBER 7

Design based on 1997 UBC 2321 Division V
and ANSI/TPI 1-1995

Grading:
2x or 4x Doug-fir larch No. 2

Assumptions:
Solid sheathing on top chord of truss. Therefore,
continuous lateral support is provided along compression face
Maximum center-center spacing = 24"

Width, b	1.5 inches
Depth, d	3.5 inches
Length	4.22 feet
Max Axial Comp. C	3431 lbs
Max Reaction, R	95 lbs
Max Moment, M	44 ft-lbs
Max LL Deflection	0.1 inches
Max TL Deflection	0.24 inches
LL Defl Criteria = $L/2$	240
TL Defl Criteria = $L/2$	180
Duration factor, Cd	1.25
Repetitive Factor, Cr	1.15
Size Factor, Cf bending	1.5
Size Factor, Cf comp	1.15
Buckling Factor, CT	1.12
f_c	654 psi
F_{ce}	2576 psi
F_c^*	1869 psi
F'_c	1474 psi
f_b	172 psi
$F'_b = F_b^*$	1887 psi
Shear D/C ratio	0.23 < 1.0, Member OK
Interaction equation	
$(f_c/F'_c)^2 +$	
$P_u / (F_b(1-f_c/F'_c)) =$	0.32 < 1.0, Member OK
Live Load defl ratio	0.47 < 1.0, Member OK
Total Load defl ratio	0.85 < 1.0, Member OK

BENDING & COMP: TRUSS 1; MEMBER 8

Design based on 1997 UBC 2321 Division V
and ANSI/TPI 1-1995

Grading:
2x or 4x Doug-fir larch No. 2

Assumptions:
Solid sheathing on top chord of truss. Therefore,
continuous lateral support is provided along compression face
Maximum center-center spacing = 24"

Width, b	1.5 inches
Depth, d	3.5 inches
Length	5.27 feet
Max Axial Comp. C	3223 lbs
Max Reaction, R	143 lbs
Max Moment, M	107 ft-lbs
Max LL Deflection	0.07 inches
Max TL Deflection	0.17 inches
LL Defl Criteria = $L/2$	240
TL Defl Criteria = $L/2$	180
Duration factor, Cd	1.25
Repetitive Factor, Cr	1.15
Size Factor, Cf bending	1.5
Size Factor, Cf comp	1.15
Buckling Factor, CT =	1.15
$f_c =$	614 psi
$F_{ce} =$	1697 psi
$F_c^* =$	1869 psi
$F'_c =$	1227 psi
$f_b =$	419 psi
$F'_b = F_b^* =$	1887 psi
Shear D/C ratio	0.34 < 1.0, Member OK
Interaction equation:	
$(f_c/F'_c)^2 +$	
$f_b / (F_b(1-f_c/F'_c)) =$	0.60 < 1.0, Member OK
Live Load defl ratio	0.27 < 1.0, Member OK
Total Load defl ratio	0.48 < 1.0, Member OK

