CITY OF SACRAMENTO

Permit No: 9805277

1231 I Street, Sacramento, CA 95814

Insp Area: 2

Site Address: 10 DOWNRIVER CT SAC

Sub-Type: RES

Parcel No: 0310380048

Housing (Y/N): N

CONTRACTOR		***OWNER***		***ARCHITECT***
ZIMMERMAN ROOFING		GARCIA ROBERT L		
3560 RAMONA AV		10 DOWNRIVER CT		
SACRAMENTO, CA	95826	SACRAMENTO CA	95831	

Nature of Work: T/O AND REROOF 29 SQS 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'sAddress_____

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 C 39 License Number 557559 Date 4-17-98 Contractor Signature Billy Cory

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 herby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

Date 4-17-98 Applicant/Agent Signature Billy Cory

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.

X 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 Fund Policy Number 7139700072021

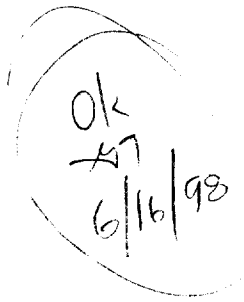
_____ (This section need not be completed if the permit is for $100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become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

Date 4-17-98 Applicant Signature Billy Cory

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.

-Structural Engineer
ide Way
CA 95628
)61.3960
961.3960



May 30, 1998

Zimmerman Roofing
3560 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 98097: GARCIA

Subject: Structural Investigation Report of the Roof for the Residence located at 10 Down 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 May 29, 1998. 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 1994 Uniform Building Code.

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

DESCRIPTION:

Type of Facility:	Residence.
Year Built:	Estimated 1980's vintage.
Occupancy:	Residential.
No. of Stories:	One.
Dimensions:	Approximately 2300 square feet with a first story plate height of 8 feet.

CONSTRUCTION:

Roof:
The roof covering will consist of Pioneer Everwest Light Weight Tile over 1/2" solid sheathing. The living area is framed with pre-engineered wood trusses spaced at 24" on center. The garage area is framed with 2x6 rafters spaced at 24" on center and 2x4 cross ties spaced at 4'-0" on center.

CONCLUSIONS:
Roof:
The living area lacks sufficient structural capacity for the applied live and dead loads.
The garage area has sufficient structural capacity for the applied live and dead loads.

RECOMMENDATIONS:
If any of the following recommendations do not correspond to actual field conditions, the engineer of record shall be notified for further investigation and evaluation before continuing work.
Living Area:

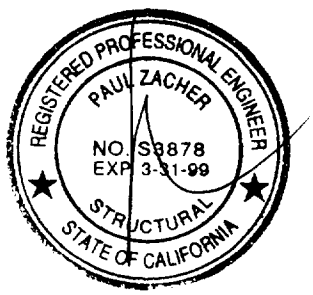
1. Scab a 2x4 DF#2 to the existing truss 2x4 web that is cracked with 16d's @ 3" on center. The truss with the cracked web is located adjacent to the attic access . See detail 1.
2. Scab a 2x6 rafter to the existing 2x4 top chord with 16d's @ 12" on center. See detail 1.

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.
file



DESIGN LOADING:

Roof Pitch	4	in 12
Pitch Adjustment Factor	1.05	

LOCATION: ROOF

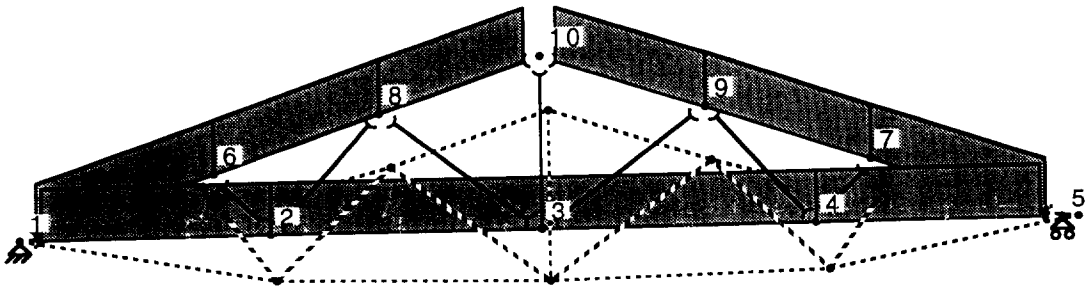
LOCATION: TOP CHORD

MATERIAL	WEIGHT	
Pioneer Everwest Light Wt	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	1.28	psf
Load	11.2	psf
Roof Pitch Adjustment	0.60	psf
Total Load	11.8	psf

LOCATION: BOTTOM CHORD

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

FRAME MAC file: truss1; Last modified at 1:42:00 AM on Sat, May 30, 1998



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FRAME MAC file: truss1.
Last modified at 1:42:00 AM on Sat, May 30, 1998.
All coord. and distances are in ft.
There are 10 nodes and 17 elements.
There are 27 degrees of freedom; the half-bandwidth is 23.

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Node information:

Node No.	Location ft (X)	Location ft (X) (Y)	Restraint (FX)	Restraint (FY)	Restraint (MZ)	Hinge
1	0.00	0.00	Yes	Yes	No	No
2	9.00	0.00	No	No	No	No
3	19.00	0.00	No	No	No	No
4	29.00	0.00	No	No	No	No
5	38.00	0.00	No	Yes	No	No
6	7.00	2.33	No	No	No	No
7	31.00	2.33	No	No	No	No
8	13.00	4.33	No	No	No	No
9	25.00	4.33	No	No	No	No
10	19.00	6.33	No	No	No	No

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Element characteristics:

From, To Nodes	Length ft	Section name	E psi	Include self wt.	Top is on top or left	Hinged at node(s)
1,6	7.38	J2X4	1700000.00	No	Yes	1
1,2	9.00	J2X4	1700000.00	No	Yes	1
2,3	10.00	J2X4	1700000.00	No	Yes	---
2,6	3.07	J2X4	1700000.00	No	Yes	2,6
2,8	5.89	J2X4	1700000.00	No	Yes	2,8
3,4	10.00	J2X4	1700000.00	No	Yes	---
3,8	7.40	J2X4	1700000.00	No	Yes	3,8
3,10	6.33	J2X4	1700000.00	No	Yes	3,10
3,9	7.40	J2X4	1700000.00	No	Yes	3,9
4,5	9.00	J2X4	1700000.00	No	Yes	5
4,9	5.89	J2X4	1700000.00	No	Yes	4,9
4,7	3.07	J2X4	1700000.00	No	Yes	4,7
5,7	7.38	J2X4	1700000.00	No	Yes	5
6,8	6.32	J2X4	1700000.00	No	Yes	---
7,9	6.32	J2X4	1700000.00	No	Yes	---
8,10	6.32	J2X4	1700000.00	No	Yes	10
9,10	6.32	J2X4	1700000.00	No	Yes	10

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Element characteristics (continued):

From, To Nodes	Area in**2	Depth in	Thickness in	Weight lb/ft	Weight lb
1,6	5.25	3.50	1.50	1.32	9.74
1,2	5.25	3.50	1.50	1.32	11.88
2,3	5.25	3.50	1.50	1.32	13.20
2,6	5.25	3.50	1.50	1.32	4.05
2,8	5.25	3.50	1.50	1.32	7.78
3,4	5.25	3.50	1.50	1.32	13.20
3,8	5.25	3.50	1.50	1.32	9.77
3,10	5.25	3.50	1.50	1.32	8.36
3,9	5.25	3.50	1.50	1.32	9.77
4,5	5.25	3.50	1.50	1.32	11.88
4,9	5.25	3.50	1.50	1.32	7.78
4,7	5.25	3.50	1.50	1.32	4.05
5,7	5.25	3.50	1.50	1.32	9.74
6,8	5.25	3.50	1.50	1.32	8.35

7,9	5.25	3.50	1.50	1.32	8.35
8,10	5.25	3.50	1.50	1.32	8.35
9,10	5.25	3.50	1.50	1.32	8.35

Element characteristics (continued):

From, To Nodes	Iz in**4	Sec. mod. in**3	Rad. gyr. in	N.A.-edge in	S,T,L
1,6	5.36	3.06	1.01	1.75	S
1,2	5.36	3.06	1.01	1.75	S
2,3	5.36	3.06	1.01	1.75	S
2,6	5.36	3.06	1.01	1.75	S
2,8	5.36	3.06	1.01	1.75	S
3,4	5.36	3.06	1.01	1.75	S
3,8	5.36	3.06	1.01	1.75	S
3,10	5.36	3.06	1.01	1.75	S
3,9	5.36	3.06	1.01	1.75	S
4,5	5.36	3.06	1.01	1.75	S
4,9	5.36	3.06	1.01	1.75	S
4,7	5.36	3.06	1.01	1.75	S
5,7	5.36	3.06	1.01	1.75	S
6,8	5.36	3.06	1.01	1.75	S
7,9	5.36	3.06	1.01	1.75	S
8,10	5.36	3.06	1.01	1.75	S
9,10	5.36	3.06	1.01	1.75	S

Total frame weight: 154.59 lb.

Element loads (only those that are in applied groups are listed):

From, To Nodes	Group	From 1st ft	Dist.Len/ lb-ft	MagX,L lb (FX)	MagY,L lb (FY)	MagX,R lb (FX)	MagY,R lb (FY)
1,6	Dead 1	0.00	7.38	0.00	23.60	0.00	23.60
1,6	Live 1	0.00	7.38	0.00	32.00	0.00	32.00
1,2	Dead 1	0.00	9.00	0.00	7.60	0.00	7.60
2,3	Dead 1	0.00	10.00	0.00	7.60	0.00	7.60
3,4	Dead 1	0.00	10.00	0.00	7.60	0.00	7.60
4,5	Dead 1	0.00	9.00	0.00	7.60	0.00	7.60
5,7	Dead 1	0.00	7.38	0.00	23.60	0.00	23.60
5,7	Live 1	0.00	7.38	0.00	32.00	0.00	32.00
6,8	Dead 1	0.00	6.32	0.00	23.60	0.00	23.60
6,8	Live 1	0.00	6.32	0.00	32.00	0.00	32.00
7,9	Dead 1	0.00	6.32	0.00	23.60	0.00	23.60
7,9	Live 1	0.00	6.32	0.00	32.00	0.00	32.00
8,10	Dead 1	0.00	6.32	0.00	23.60	0.00	23.60
8,10	Live 1	0.00	6.32	0.00	32.00	0.00	32.00
9,10	Dead 1	0.00	6.32	0.00	23.60	0.00	23.60
9,10	Live 1	0.00	6.32	0.00	32.00	0.00	32.00

General load factor: 1.000

Load factors (suffix denotes whether the group is currently applied):

Group	Dead	Live	Wind	Snow	Misc.
1	1.000Y	1.000Y	1.000Y	1.000Y	1.000Y
2	1.000Y	1.000Y	1.000Y	1.000Y	1.000Y
3	1.000Y	1.000Y	1.000Y	1.000Y	1.000Y
4	1.000Y	1.000Y	1.000Y	1.000Y	1.000Y
5	1.000Y	1.000Y	1.000Y	1.000Y	1.000Y

Output Data

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Last modified at 1:42:00 AM on Sat, May 30, 1998.
All coord. and distances are in ft from the left (bot.) end of the element.

Support reactions: (pos. force is to right or up; pos. moment is ccw.)

Node No.	Reaction lb (FX)	Reaction lb (FY)	Reaction lb-ft (MZ)
1	0.00	1257.88	---
5	---	1257.88	---

Node deformations: (positive is to right, up, or counterclockwise.)

Node No.	Deflection inch (FX)	Deflection inch (FY)	Rotation radians (MZ)
1	0.00	0.00	---
2	0.04	-0.41	-0.00
3	0.07	-0.47	0.00
4	0.11	-0.41	0.00
5	0.14	0.00	---
6	0.09	-0.37	0.00
7	0.06	-0.37	-0.00
8	0.09	-0.46	-0.00
9	0.06	-0.46	0.00
10	0.07	-0.46	---

Maximum tension and tensile stress values (compression is negative):

From, To Node ---	Maximum tension lb	Minimum tension lb	Max. abs. tension lb	Maximum ten. str. psi	Minimum ten. str. psi	Max. abs. stress psi
1,6	0.00	-3393.81	-3393.81	0.00	-646.44	-646.44
1,2	3168.31	0.00	3168.31	603.49	0.00	603.49
2,3	2518.93	0.00	2518.93	479.80	0.00	479.80
2,6	0.00	-430.71	-430.71	0.00	-82.04	-82.04
2,8	543.57	0.00	543.57	103.54	0.00	103.54
3,4	2518.93	0.00	2518.93	479.80	0.00	479.80
3,8	0.00	-764.64	-764.64	0.00	-145.65	-145.65
3,10	978.03	0.00	978.03	186.29	0.00	186.29
3,9	0.00	-764.64	-764.64	0.00	-145.65	-145.65
4,5	3168.31	0.00	3168.31	603.49	0.00	603.49
4,9	543.57	0.00	543.57	103.54	0.00	103.54
4,7	0.00	-430.71	-430.71	0.00	-82.04	-82.04
5,7	0.00	-3393.81	-3393.81	0.00	-646.44	-646.44
6,8	0.00	-3101.38	-3101.38	0.00	-590.74	-590.74
7,9	0.00	-3101.38	-3101.38	0.00	-590.74	-590.74
8,10	0.00	-2067.28	-2067.28	0.00	-393.77	-393.77
9,10	0.00	-2067.28	-2067.28	0.00	-393.77	-393.77

Maximum shear and shear stress values:

From, To Node ---	Maximum shear lb	Minimum shear lb	Max. abs. shear lb	Maximum shr. str. psi	Minimum shr. str. psi	Max. abs. stress psi
1,6	164.04	-225.16	-225.16	31.25	-42.89	-42.89
1,2	30.40	-38.00	-38.00	5.79	-7.24	-7.24
2,3	34.45	-41.55	-41.55	6.56	-7.91	-7.91
2,6	0.00	0.00	0.00	0.00	0.00	0.00
2,8	0.00	0.00	0.00	0.00	0.00	0.00
3,4	41.55	-34.45	41.55	7.91	-6.56	7.91
3,8	0.00	0.00	0.00	0.00	0.00	0.00

3,10	0.00	0.00	0.00	0.00	0.00	0.00
3,9	0.00	0.00	0.00	0.00	0.00	0.00
4,5	38.00	-30.40	38.00	7.24	-5.79	7.24
4,9	0.00	0.00	0.00	0.00	0.00	0.00
4,7	0.00	0.00	0.00	0.00	0.00	0.00
5,7	225.16	-164.04	225.16	42.89	-31.25	42.89
6,8	172.21	-161.39	172.21	32.80	-30.74	32.80
7,9	161.39	-172.21	-172.21	30.74	-32.80	-32.80
8,10	197.04	-136.56	197.04	37.53	-26.01	37.53
9,10	136.56	-197.04	-197.04	26.01	-37.53	-37.53

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Maximum moment and bending stress values:

From, To Node	Maximum moment lb-ft	Minimum moment lb-ft	Max. abs. moment lb-ft	Maximum ben. str. psi	Minimum ben. str. psi	Max. abs. stress psi
1,6	255.04	-225.45	255.04	1000.18	-884.13	1000.18
1,2	60.81	-34.18	60.81	238.46	-134.05	238.46
2,3	43.91	-69.66	-69.66	172.18	-273.18	-273.18
2,6	0.00	0.00	0.00	0.00	0.00	0.00
2,8	0.00	0.00	0.00	0.00	0.00	0.00
3,4	43.91	-69.66	-69.66	172.18	-273.18	-273.18
3,8	0.00	0.00	0.00	0.00	0.00	0.00
3,10	0.00	0.00	0.00	0.00	0.00	0.00
3,9	0.00	0.00	0.00	0.00	0.00	0.00
4,5	60.81	-34.18	60.81	238.46	-134.05	238.46
4,9	0.00	0.00	0.00	0.00	0.00	0.00
4,7	0.00	0.00	0.00	0.00	0.00	0.00
5,7	255.04	-225.45	255.04	1000.18	-884.13	1000.18
6,8	55.66	-225.45	-225.45	218.26	-884.13	-884.13
7,9	55.66	-225.45	-225.45	218.26	-884.13	-884.13
8,10	176.77	-191.26	-191.26	693.23	-750.02	-750.02
9,10	176.77	-191.26	-191.26	693.23	-750.02	-750.02

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Maximum deflection values:

From, To Node	Maximum defl. up (left) inch	Maximum defl. down (rt.) inch	Maximum defl. absolute inch
1,6	0.00	-0.45	-0.45
1,2	0.00	-0.41	-0.41
2,3	0.00	-0.50	-0.50
2,6	0.00	-0.24	-0.24
2,8	0.00	-0.37	-0.37
3,4	0.00	-0.50	-0.50
3,8	0.00	-0.34	-0.34
3,10	0.00	-0.07	-0.07
3,9	0.00	-0.42	-0.42
4,5	0.00	-0.41	-0.41
4,9	0.00	-0.27	-0.27
4,7	0.00	-0.35	-0.35
5,7	0.05	-0.40	-0.40
6,8	0.00	-0.46	-0.46
7,9	0.00	-0.41	-0.41
8,10	0.00	-0.58	-0.58
9,10	0.00	-0.53	-0.53

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BENDING & COMP: TRUSS 1; MEMBER 1-6

Grading:

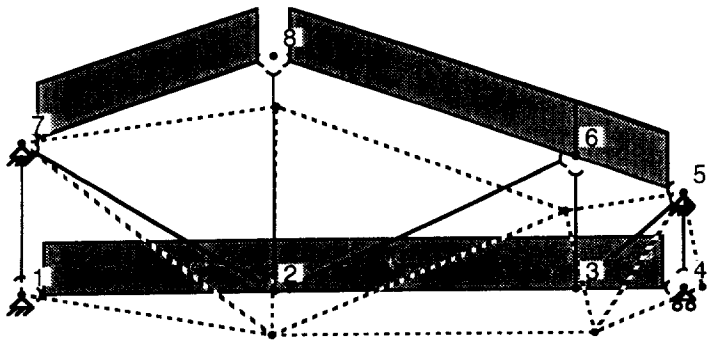
2x or 4x Doug-fir larch: No. 2

Assumptions:

Lateral support at points of bearing
SPS or gypboard attached to compression face
Maximum center-center spacing = 24"

Width, b	1.5	inches
Depth, d	3.5	inches
Length	7.38	feet
Max Axial Comp, C	3394	lbs
Max Reaction, R	225	lbs
Max Moment, M	255	ft-lbs
Max LL Deflection	0.22	inches
Max TL Deflection	0.45	inches
LL Defl Criteria = L/	240	
TL Defl Criteria = L/	180	
Duration factor, Cd	1.25	
Repetitive Factor, Cr	1.15	
fc =	646	psi
Fce=	1171	psi
Fc*=	1094	psi
F'c=	781	psi
fb=	83	psi
F'b=	1258	psi

Shear D/C ratio	0.54 < 1.0, Member	OK
Interaction equation:		
(fc/F'c)^2 +		
fb/ (F'b(1-fc/Fce)) =	0.83 < 1.0, Member	OK
Live Load defl ratio	0.60 < 1.0, Member	OK
Total Load defl ratio	0.91 < 1.0, Member	OK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Input Data

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FRAME MAC file: truss2.
Last modified at 2:02:08 AM on Sat, May 30, 1998.
All coord. and distances are in ft.
There are 8 nodes and 13 elements.
There are 17 degrees of freedom; the half-bandwidth is 16.

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Node information:

Node No.	Location ft (X)	Location (X) (Y)	Restraint (FX)	Restraint (FY)	Restraint (MZ)	Hinge
1	0.00	0.00	Yes	Yes	No	No
2	9.00	0.00	No	No	No	No
3	20.00	0.00	No	No	No	No
4	24.00	0.00	No	Yes	No	No
5	24.00	3.50	Yes	Yes	No	No
6	20.00	4.83	No	No	No	No
7	0.00	5.50	Yes	Yes	No	No
8	9.00	8.50	No	No	No	No

****

Element characteristics:

From, To Nodes	Length ft	Section name	E psi	Include self wt.	Top is on top or left	Hinged at node(s)
1,7	5.50	J2X4	1700000.00	No	Yes	1,7
1,2	9.00	J2X4	1700000.00	No	Yes	1
2,3	11.00	J2X4	1700000.00	No	Yes	---
2,8	8.50	J2X4	1700000.00	No	Yes	2,8
2,7	10.55	J2X4	1700000.00	No	Yes	2,7
2,6	12.01	J2X4	1700000.00	No	Yes	2,6
3,4	4.00	J2X4	1700000.00	No	Yes	4
3,6	4.83	J2X4	1700000.00	No	Yes	3,6
3,5	5.32	J2X4	1700000.00	No	Yes	3,5
4,5	3.50	J2X4	1700000.00	No	Yes	4,5
5,6	4.22	J2X8	1700000.00	No	Yes	5
6,8	11.60	J2X8	1700000.00	No	Yes	8
7,8	9.49	J2X6	1700000.00	No	Yes	7,8

****

Element characteristics (continued):

From, To Nodes	Area in**2	Depth in	Thickness in	Weight lb/ft	Weight lb
1,7	5.25	3.50	1.50	1.32	7.26
1,2	5.25	3.50	1.50	1.32	11.88
2,3	5.25	3.50	1.50	1.32	14.52
2,8	5.25	3.50	1.50	1.32	11.22
2,7	5.25	3.50	1.50	1.32	13.92
2,6	5.25	3.50	1.50	1.32	15.86
3,4	5.25	3.50	1.50	1.32	5.28
3,6	5.25	3.50	1.50	1.32	6.38
3,5	5.25	3.50	1.50	1.32	7.02
4,5	5.25	3.50	1.50	1.32	4.62
5,6	10.88	7.25	1.50	2.74	11.55
6,8	10.88	7.25	1.50	2.74	31.77
7,8	8.25	5.50	1.50	2.08	19.73

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Element characteristics (continued):

From, To Nodes	Iz in**4	Sec. mod. in**3	Rad. gyr. in	N.A.-edge in	S,T,L
1,7	5.36	3.06	1.01	1.75	S
1,2	5.36	3.06	1.01	1.75	S

2,3	5.36	3.06	1.01	1.75	S
2,8	5.36	3.06	1.01	1.75	S
2,7	5.36	3.06	1.01	1.75	S
2,6	5.36	3.06	1.01	1.75	S
3,4	5.36	3.06	1.01	1.75	S
3,6	5.36	3.06	1.01	1.75	S
3,5	5.36	3.06	1.01	1.75	S
4,5	5.36	3.06	1.01	1.75	S
5,6	47.63	13.14	2.09	3.63	S
6,8	47.63	13.14	2.09	3.63	S
7,8	20.80	7.56	1.59	2.75	S

Total frame weight: 161.01 lb.

Element loads (only those that are in applied groups are listed):

From, To Nodes	Group	From 1st Dist. ft	Len/ lb-ft	MagX,L lb (FX)	MagY,L lb (FY)	MagX,R lb (FX)	MagY,R lb (FY)
1,2	Dead 1	0.00	9.00	0.00	7.60	0.00	7.60
2,3	Dead 1	0.00	11.00	0.00	7.60	0.00	7.60
3,4	Dead 1	0.00	4.00	0.00	7.60	0.00	7.60
5,6	Dead 1	0.00	4.22	0.00	23.60	0.00	23.60
5,6	Live 1	0.00	4.22	0.00	32.00	0.00	32.00
6,8	Dead 1	0.00	11.60	0.00	23.60	0.00	23.60
6,8	Live 1	0.00	11.60	0.00	32.00	0.00	32.00
7,8	Dead 1	0.00	9.49	0.00	23.60	0.00	23.60
7,8	Live 1	0.00	9.49	0.00	32.00	0.00	32.00

General load factor: 1.000

Load factors (suffix denotes whether the group is currently applied):

Group	Dead	Live	Wind	Snow	Misc.
1	1.000Y	1.000Y	1.000Y	1.000Y	1.000Y
2	1.000Y	1.000Y	1.000Y	1.000Y	1.000Y
3	1.000Y	1.000Y	1.000Y	1.000Y	1.000Y
4	1.000Y	1.000Y	1.000Y	1.000Y	1.000Y
5	1.000Y	1.000Y	1.000Y	1.000Y	1.000Y

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Output Data

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FRAME MAC file: truss2.
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All coord. and distances are in ft from the left (bot.) end of the element.

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Support reactions: (pos. force is to right or up; pos. moment is ccw.)

Node No.	Reaction lb (FX)	Reaction lb (FY)	Reaction lb-ft (MZ)
1	112.80	25.15	---
4	---	1.75	---
5	-216.42	784.91	---
7	103.63	777.17	---

****

Node deformations: (positive is to right, up, or counterclockwise.)

Node No.	Deflection inch (FX)	Deflection inch (FY)	Rotation radians (MZ)
1	0.00	0.00	---
2	-0.00	-0.02	-0.00
3	0.01	-0.02	0.00
4	0.01	0.00	---
5	0.00	0.00	---
6	-0.00	-0.02	0.00
7	0.00	0.00	---
8	0.00	-0.02	---

****

Maximum tension and tensile stress values (compression is negative):

From, To Node ---	Maximum tension lb	Minimum tension lb	Max. abs. tension lb	Maximum ten. str. psi	Minimum ten. str. psi	Max. abs. stress psi
1,7	0.00	0.00	0.00	0.00	0.00	0.00
1,2	0.00	-112.80	-112.80	0.00	-21.48	-21.48
2,3	624.59	0.00	624.59	118.97	0.00	118.97
2,8	0.00	-121.18	-121.18	0.00	-23.08	-23.08
2,7	594.25	0.00	594.25	113.19	0.00	113.19
2,6	0.00	-251.55	-251.55	0.00	-47.91	-47.91
3,4	0.00	0.00	0.00	0.00	0.00	0.00
3,6	0.00	-478.58	-478.58	0.00	-91.16	-91.16
3,5	829.94	0.00	829.94	158.08	0.00	158.08
4,5	0.00	0.00	0.00	0.00	0.00	0.00
5,6	0.00	-873.27	-873.27	0.00	-80.26	-80.26
6,8	0.00	-764.04	-764.04	0.00	-70.22	-70.22
7,8	0.00	-727.12	-727.12	0.00	-88.14	-88.14

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Maximum shear and shear stress values:

From To Node ---	Maximum shear lb	Minimum shear lb	Max. abs. shear lb	Maximum shr. str. psi	Minimum shr. str. psi	Max. abs. stress psi
1,7	0.00	0.00	0.00	0.00	0.00	0.00
1,2	25.15	-43.25	-43.25	4.79	-8.24	-8.24
2,3	44.31	-39.29	44.31	8.44	-7.48	8.44
2,8	0.00	0.00	0.00	0.00	0.00	0.00
2,7	0.00	0.00	0.00	0.00	0.00	0.00
2,6	0.00	0.00	0.00	0.00	0.00	0.00
3,4	28.65	-1.75	28.65	5.46	-0.33	5.46
3,6	0.00	0.00	0.00	0.00	0.00	0.00
3,5	0.00	0.00	0.00	0.00	0.00	0.00
4,5	0.00	0.00	0.00	0.00	0.00	0.00
5,6	261.54	0.00	261.54	24.05	0.00	24.05

6 8	251.15	-360.45	-360.45	23.09	-33.14	-33.14
7 8	250.20	-250.20	250.20	30.33	-30.33	30.33

Maximum moment and bending stress values:

From, To Node	Maximum moment lb-ft	Minimum moment lb-ft	Max. abs. moment lb-ft	Maximum ben. str. psi	Minimum ben. str. psi	Max. abs. stress psi
1,7	0.00	0.00	0.00	0.00	0.00	0.00
1,2	41.63	-81.41	-81.41	163.24	-319.27	-319.27
2,3	47.76	-81.41	-81.41	187.31	-319.27	-319.27
2,8	0.00	0.00	0.00	0.00	0.00	0.00
2,7	0.00	0.00	0.00	0.00	0.00	0.00
2,6	0.00	0.00	0.00	0.00	0.00	0.00
3,4	0.20	-53.79	-53.79	0.79	-210.94	-210.94
3,6	0.00	0.00	0.00	0.00	0.00	0.00
3,5	0.00	0.00	0.00	0.00	0.00	0.00
4,5	0.00	0.00	0.00	0.00	0.00	0.00
5,6	0.00	-633.74	-633.74	0.00	-578.76	-578.76
6,8	597.96	-633.74	-633.74	546.09	-578.76	-578.76
7,8	593.40	0.00	593.40	941.91	0.00	941.91

Maximum deflection values:

From, To Node	Maximum defl. up (left) inch	Maximum defl. down (rt.) inch	Maximum defl. absolute inch
1,7	0.00	0.00	0.00
1,2	0.00	-0.05	-0.05
2,3	0.00	-0.10	-0.10
2,8	0.00	-0.00	0.00
2,7	0.00	-0.02	-0.02
2,6	0.00	-0.02	-0.02
3,4	0.00	-0.02	-0.02
3,6	0.00	-0.01	-0.01
3,5	0.00	-0.02	-0.02
4,5	0.00	-0.01	-0.01
5,6	0.00	-0.02	-0.02
6,8	0.00	-0.17	-0.17
7,8	0.00	-0.28	-0.28

BENDING & COMP: TRUSS 2; MEMBER 7-8

Grading:

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

Assumptions:

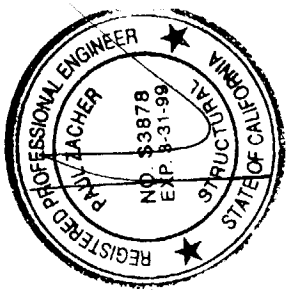
Lateral support at points of bearing
SPS or gypboard attached to compression face
Maximum center-center spacing = 24"

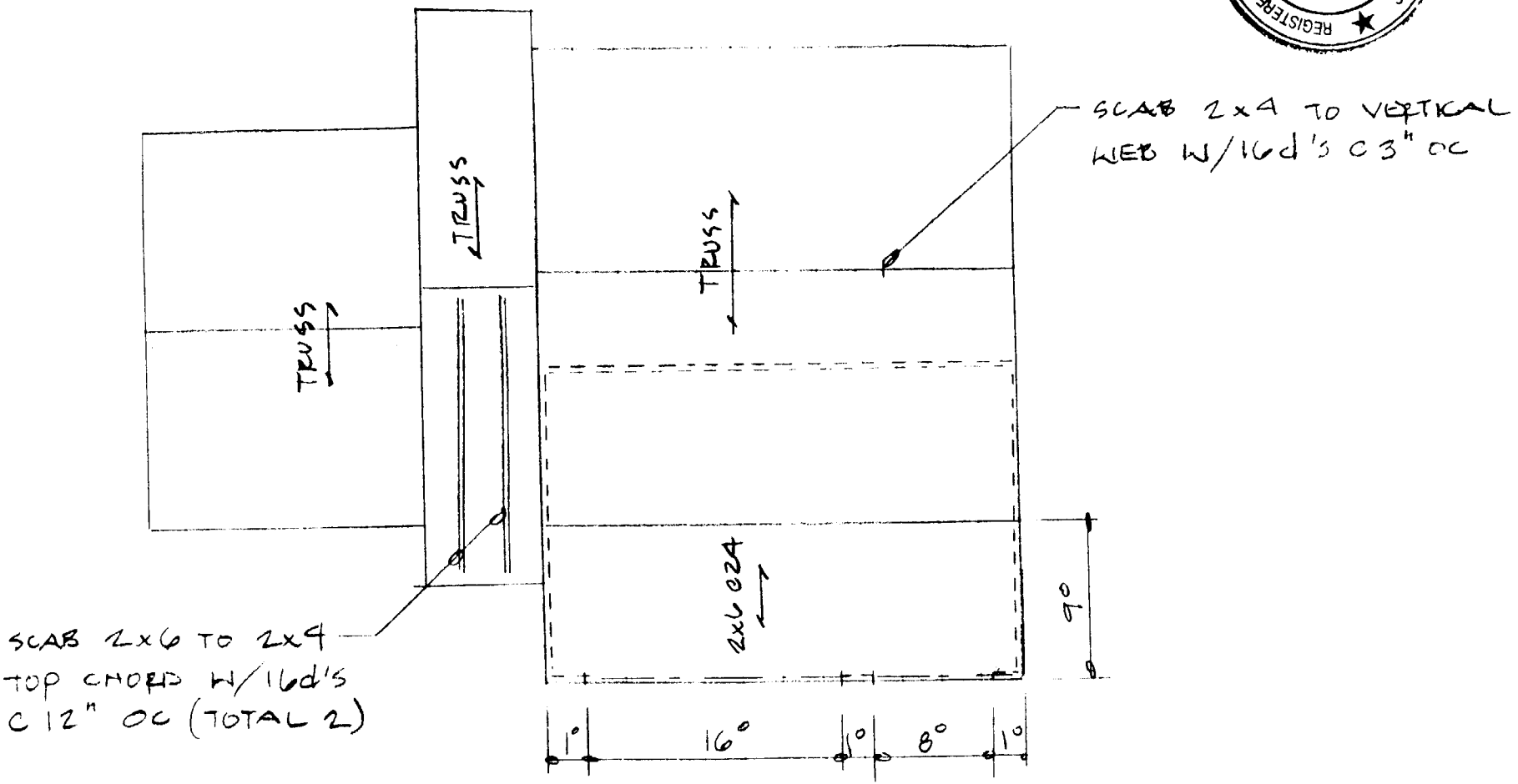
Width, b	1.5	inches
Depth, d	5.5	inches
Length	9.49	feet
Max Axial Comp, C	727	lbs
Max Reaction, R	250	lbs
Max Moment, M	593	ft-lbs
Max LL Deflection	0.13	inches
Max TL Deflection	0.28	inches
LL Defl Criteria = L/	240	
TL Defl Criteria = L/	180	
Duration factor, Cd	1.25	
Repetitive Factor, Cr	1.15	
fc =	88	psi
Fce=	1749	psi
Fc*=	1094	psi
F'c=	902	psi
fb=	78	psi
F'b=	1258	psi
Shear D/C ratio	0.38 < 1.0, Member	OK
Interaction equation: (fc/F'c)^2 + fb/ (F'b(1-fc/Fce)) =	0.08 < 1.0, Member	OK
Live Load defl ratio	0.27 < 1.0, Member	OK
Total Load defl ratio	0.44 < 1.0, Member	OK

BEAM DESIGN FOR UNIFORM LOAD: RAFTER

(Values for DF Larch #2)

Width, b	1.5	inches	
Depth, d	5.5	inches	
Length of beam	12	feet	
Dead load roof	11.8	psf	
Live load roof	16	psf	
Contributory width of roof load	2	feet	
Dead load floor	0	psf	
Live load floor	0	psf	
Contributory width of floor load	0	feet	
Dead load wall	0	plf	
Live load defl ratio	240		
Toal load defl ratio	180		
Total dead load	23.6	plf	
Total live load	32	plf	
Base design values:			
Shear, Fv	95	psi	
Bending, Fb	875	psi	
Comp perp to grain, Fc	625	psi	
Mod of Elasticity, E	1700000	psi	
Load duration factor, Cd	1.25		
Size Factor, Cf	1.30		
Repetitive factor Cr	1.15		
Dead load reaction	142	lbs	
Live load reaction	192	lbs	
Total load reaction	334	lbs	
Allowable shear, Fv'	119	psi	Horizontal Shear OK
Actual shear, fv	56	psi	
Allowable bending, Fb'	1635	psi	Bending OK
Actual bending, fb	1588	psi	
Allowable live load defl	0.60	inches	Live Load Deflection OK
Actual live load defl	0.42	inches	
Allowable total load defl	0.80	inches	Total Load Deflection OK
Actual total load defl	0.73	inches	
Bearing length req'd	0.36	inches	





1 ROOF PLAN

N.T.S.

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

Robert Garcia
10 Down River Ct

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 Shake tile
2. TILE WEIGHT PER SQUARE 730
3. WEIGHT OF ROOF SYSTEM PER SQUARE 180
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

See attached engeneering report