

CITY OF SACRAMENTO
1231 I Street, Sacramento, CA 95814

Permit No: 0008670
Insp Area: 2

Site Address: 81 BLUE WATER CR SAC
Parcel No: 031-1050-041

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

CONTRACTOR
ZIMMERMAN ROOFING
3675 R ST
SACRAMENTO CA 95816

OWNER
GRASSMYER ROB C/MAUREEN
81 BLUE WATER CR
SACRAMENTO CA 95831

ARCHITECT

Nature of Work: TILE REROOF

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 C-39 License Number 557559 Date 7/28/00 Contractor Signature Billy Coy

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 7/28/00 Applicant/Agent Signature Billy Coy

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 713-99-2021 Exp Date 10/01/2000

____ (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 7/28/00 Applicant Signature Billy Coy

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.

Hoang

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

TEL: 916.454.3960
FAX: 916.454.3784

ISSUED

July 24, 2000

Zimmerman Roofing
3675 B Street
Sacramento, CA 95831
TEL: 916.454.3667
FAX: 916.455.3784

The approval of this specification SHALL NOT be held to permit or approve the violation of any City Ordinance or State Law.



Attn: Mr Jeff Tucker,

re Job 2000_009: HOANG

Subject: Structural Investigation Report of the Roof for the Residence located at 81 Blue Water, 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 July 24, 2000. The investigation was made to determine the existing condition of the structure. All information, data and analysis contained within this report are 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 1980's vintage.
- Occupancy: Residential.
- No. of Stories: One.
- Dimensions: Approximately 2500 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 wood trusses spaced at 24" on center. The garage area is framed with pre-engineered wood trusses spaced at 24" on center and 2x6 rafters spaced at 24" on center.

CONCLUSIONS:

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

*See work required, sheet 19, + details, sheet 20,
M.A. P. 7/28/00*

1/20

RECEIVED JUL 27 2000

Hoang

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

TEL: 916.961.3960
FAX: 916.961.6552

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 x 10'-0" long rafter to the existing 2x4 top chord of the pre-engineered truss. See details 1 and 2.
- 2 Scab a 2x6 rafter to the existing 2x6 rafters with 16d's @ 12" on center where the span is greater than 12'-0". See detail 1

It shall be noted that small hairline cracking may occur at exterior stucco and interior gypboard finished walls that 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 that 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

Job # 00-217

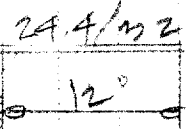
Date: 7/24/00

LOADING

RAFTER

OE = 13.2 PSF @ 2" PLF
LE = 10.0 PSF @ 4"

2x6#2

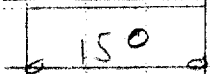


RAFTER

OE = 12.2 PSF @ 2" 2x4 PLF
LE = 10.0 PSF @ 4"

2x6#2

24.4/12.2



B1

OE = 12.2 PSF @ 7" 85 PLF
LE = 10.0 PSF @ 11.2"

4x12#2

85/11.2

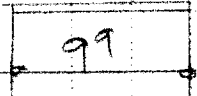


B2

OE = 10.1 PSF @ 76" 121 PLF
LE = 10.0 PSF @ 120"

4x12#2

121/120



Paul Zacher - Structural Engineers
 4701 Lakeside Way
 Fair Oaks
 TEL: (916) 961-3960
 FAX: (916) 961-6552

Title :
 Dsgnr:
 Description :
 Scope :

Job #
 Date: 12:50PM, 24 JUL 00

Rev: 610304
 User: RW-0602844, Ver: 9.1.3, 22-Jun-1999, Win32
 (c) 1983-99 ENERCALC

Timber Beam & Joist

c:\enercalc\test.ecw\Calculations

Description RAFTERS AND BEAMS

Timber Member Information

Calculations are designed to 1997 NDS and 1997 UBC Requirements

Timber Section		rafter 2x6	rafter 2-2x6	B1 4x12	B2 4x12
Beam Width	in	1.500	3.000	3.500	3.500
Beam Depth	in	5.500	5.500	11.250	11.250
Le: Unbraced Length	ft	0.00	0.00	0.00	0.00
Timber Grade		Douglas Fir - Larch	Douglas Fir - Larch	Douglas Fir - Larch	Douglas Fir - Larch
Fb - Basic Allow	psi	875.0	875.0	875.0	1,000.0
Fv - Basic Allow	psi	95.0	95.0	95.0	95.0
Elastic Modulus	ksi	1,600.0	1,600.0	1,600.0	1,700.0
Load Duration Factor		1.250	1.250	1.250	1.250
Member Type		Sawn	Sawn	Sawn	Sawn
Repetitive Status		Repetitive	Repetitive	No	No

Center Span Data

	ft	12.00	15.00	16.00	9.75
Span					
Dead Load	#/ft	24.40	24.40	85.00	121.00
Live Load	#/ft	32.00	32.00	112.00	120.00

Results

Ratio = 0.9852 0.7697 0.8517 0.3385

Mmax @ Center	in-k	12.18	19.03	75.65	34.37
@ X =	ft	6.00	7.50	8.00	4.87
Fb: Actual	psi	1,610.9	1,258.5	1,024.6	465.5
Fb: Allowable	psi	1,635.2	1,635.2	1,203.1	1,375.0
		Bending OK	Bending OK	Bending OK	Bending OK
Fv: Actual	psi	57.1	36.3	53.3	36.2
Fv: Allowable	psi	118.8	118.8	118.8	118.8
		Shear OK	Shear OK	Shear OK	Shear OK

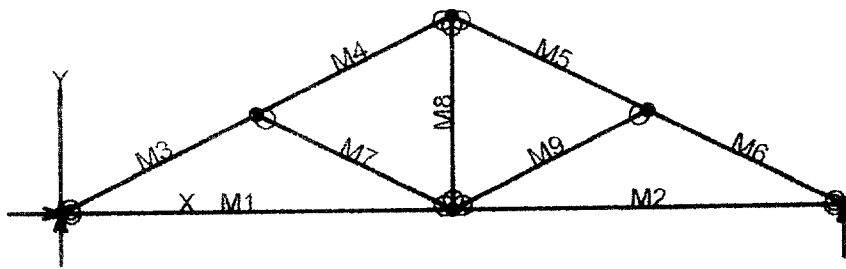
Reactions

@ Left End	DL	lbs	146.40	183.00	680.00	589.87
	LL	lbs	192.00	240.00	896.00	585.00
	Max. DL+LL	lbs	338.40	423.00	1,576.00	1,174.87
@ Right End	DL	lbs	146.40	183.00	680.00	589.87
	LL	lbs	192.00	240.00	896.00	585.00
	Max. DL+LL	lbs	338.40	423.00	1,576.00	1,174.87

Deflections

Ratio OK Deflection OK Deflection OK Deflection OK

Center DL Defl	in	-0.342	-0.418	-0.189	-0.035
L/Defl Ratio		420.9	431.0	1,017.9	3,357.4
Center LL Defl	in	-0.449	-0.548	-0.249	-0.036
L/Defl Ratio		320.9	328.7	772.5	3,385.4
Center Total Defl	in	-0.791	-0.965	-0.437	-0.069
Location	ft	6.000	7.500	8.000	4.875
L/Defl Ratio		182.1	186.5	439.2	1,685.7



VisualAnalysis 3.50.c Report

07/24/00 12:52:23

Project: Truss 1

File: C:\Program Files\IES\VA35\truss 1.vap

Company: PK Associates Engineers

Engineer: Paul Zacher

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	10.00	0.00	No		No		"	
N3	20.00	0.00	"		Yes		"	
N4	5.00	2.50	"		No		"	
N5	15.00	2.50	"		"		"	
N6	10.00	5.00	"		"		"	

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	10.00
M2	"	"	10.00
M3	"	"	5.59
M4	"	"	5.59
M5	"	"	5.59
M6	"	"	5.59
M7	"	"	5.59
M8	"	"	5.00
M9	"	"	5.59

Section Properties

Category	Section	Ax in ²	Iz in ⁴	Sy+ in ³	Sy- in ³
Wood	Sha SS2x4	5.25	5.36	3.06	3.06

Material Properties

Material	Strength psi	Elasticity psi	Poisson	Density lb/ft ³
Wood	-NA-	1700000.00	0.36	40.47

Load Combination Summary

Equation Case: Equation Case 1

Combination: +1D+1L+1Lr

Contributing Cases & Source

Service Case 1 (Dead loads)

Service Case 2 (Roof Live loads)

Member Uniform Loads

6

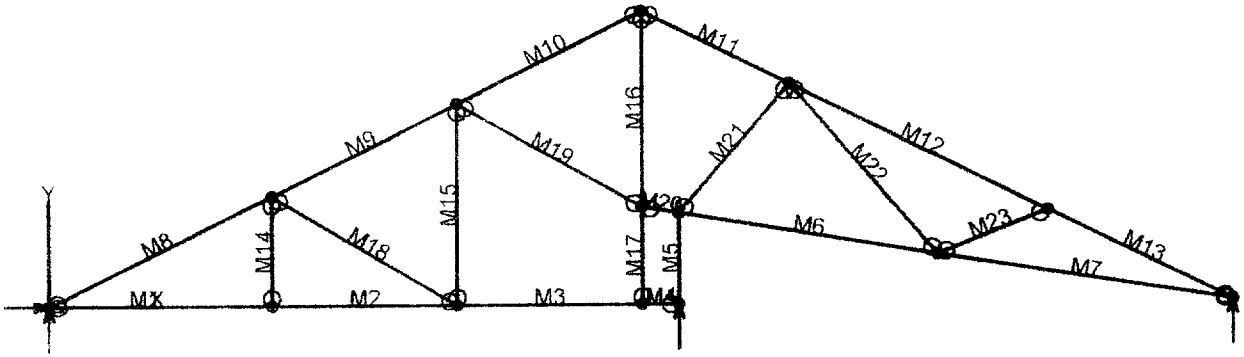
This item is empty. Check the selection state, or report properties.

Nodal Reactions

Node	Load Case	FX lbs	FY lbs	MZ lb-ft
N1	Equation Case 1	-0.00	646.00	-NA-
N3	"	-NA-	646.00	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	1013.14	-46.52	-85.24	-0.0617
"	1013.14	-21.19	27.4079	-0.1044
"	1013.14	4.1429	55.8206	-0.1036
"	1013.14	29.4762	0.0000	-0.0000
M2	1013.14	-29.48	0.0000	-0.0000
"	1013.14	-4.1429	55.8206	-0.1036
"	1013.14	21.1905	27.4079	-0.1044
"	1013.14	46.5238	-85.24	-0.0617
M3	-1181.90	98.3441	0.0000	-0.0000
"	-1139.42	13.3735	103.69	-0.0677
"	-1096.93	-71.60	49.4442	-0.0758
"	-1054.45	-156.57	-162.74	-0.0597
M4	-819.59	156.57	-162.74	-0.0597
"	-777.11	71.5971	49.4442	-0.0953
"	-734.62	-13.37	103.69	-0.1068
"	-692.14	-98.34	0.0000	-0.0586
M5	-819.59	-156.57	-162.74	-0.0475
"	-777.11	-71.60	49.4442	-0.0831
"	-734.62	13.3735	103.69	-0.0946
"	-692.14	98.3441	0.0000	-0.0464
M6	-1181.90	-98.34	0.0000	0.0122
"	-1139.42	-13.37	103.69	-0.0555
"	-1096.93	71.5971	49.4442	-0.0636
"	-1054.45	156.57	-162.74	-0.0475
M7	-391.42	-0.0000	-0.0000	-0.0491
"	-391.42	-0.0000	-0.0000	-0.0469
"	-391.42	-0.0000	-0.0000	-0.0447
"	-391.42	-0.0000	0.0000	-0.0426
M8	443.14	0.0000	0.0000	-0.0136
"	443.14	0.0000	0.0000	-0.0136
"	443.14	0.0000	0.0000	-0.0136
"	443.14	0.0000	0.0000	-0.0136
M9	-391.42	0.0000	0.0000	-0.0613
"	-391.42	0.0000	0.0000	-0.0591
"	-391.42	0.0000	0.0000	-0.0569
"	-391.42	0.0000	0.0000	-0.0547



VisualAnalysis 3.50.c Report

07/24/00 13:09:45

Project: Truss 2

File: C:\Program Files\IES\VA35\truss 2.vap

Company: PK Associates Engineers

Engineer: Paul Zacher

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	6.00	0.00	No	No	"
N3	11.00	0.00	"	"	"
N4	16.00	0.00	"	"	"
N5	17.00	0.00	"	Yes	"
N6	16.00	2.67	"	No	"
N7	17.00	2.50	"	"	"
N8	24.00	1.33	"	"	"
N9	32.00	0.00	"	Yes	"
N10	6.00	3.00	"	No	"
N11	11.00	5.50	"	"	"
N12	16.00	8.00	"	"	"
N13	20.00	6.00	"	"	"
N14	27.00	2.50	"	"	"

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	6.00
M2	"	"	5.00
M3	"	"	5.00
M4	"	"	1.00
M5	"	"	2.50
M6	"	"	7.10
M7	"	"	8.11
M8	"	"	6.71
M9	"	"	5.59
M10	"	"	5.59
M11	"	"	4.47
M12	"	"	7.83
M13	"	"	5.59
M14	"	"	3.00
M15	"	"	5.50
M16	"	"	5.33
M17	"	"	2.67
M18	"	"	5.83
M19	"	"	5.75
M20	"	"	1.01
M21	"	"	4.61
M22	"	"	6.15
M23	"	"	3.22

Section Properties

Category	Section	Ax in ²	Iz in ⁴	Sy+ in ³	Sy- in ³
Wood Sha	SS2x4	5.25	5.36	3.06	3.06

Material Properties

Material	Strength psi	Elasticity psi	Poisson	Density lb/ft ³
Wood	-NA-	1700000.00	0.36	40.47

Load Combination Summary

Equation Case: Equation Case 1
 Combination: +1D+1L+1Lr
 Contributing Cases & Source
 Service Case 1 (Dead loads)
 Service Case 2 (Roof Live loads)

Member Uniform Loads

This item is empty. Check the selection state, or report properties.

Nodal Reactions

Node	Load Case	FX lbs	FY lbs	MZ lb-ft
N1	Equation Case 1	0.00	430.86	-NA-
N5	"	-NA-	1285.85	-NA-
N9	"	-NA-	350.49	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	539.34	-24.33	-9.1950	-0.0766
"	539.34	-9.1325	24.1940	-0.0683
"	539.34	6.0675	27.2590	-0.0435
"	539.34	21.2675	0.0000	-0.0000
M2	539.34	-27.44	-51.40	-0.1107
"	539.34	-14.78	-16.28	-0.0924
"	539.34	-2.1085	-2.2064	-0.0835
"	539.34	10.5581	-9.1950	-0.0766
M3	181.69	31.3090	200.14	-0.0813
"	181.69	43.9756	137.35	-0.1476
"	181.69	56.6423	53.5023	-0.1428
"	181.69	69.3090	-51.40	-0.1107
M4	166.51	-203.94	0.0000	-0.0000
"	166.51	-201.41	67.5558	-0.0290
"	166.51	-198.87	134.27	-0.0565
"	166.51	-196.34	200.14	-0.0813
M5	-1081.91	166.51	0.0000	-0.0094
"	-1081.91	166.51	138.76	-0.0531
"	-1081.91	166.51	277.51	-0.0786
"	-1081.91	166.51	416.27	-0.0680
M6	-45.86	-7.6363	-12.00	-0.0212
"	-42.93	9.8544	-14.73	0.0231
"	-40.01	27.3451	-58.73	0.0482
"	-37.09	44.8358	-144.00	0.0076
M7	660.33	-28.51	0.0000	0.0124
"	663.66	-8.5167	49.9100	-0.0600
"	666.98	11.4756	45.9107	-0.0693

"	670.30	31.4678	-12.00	0.0213
M8	-665.57	125.15	0.0000	0.0000
"	614.59	23.1849	165.27	-0.1469
"	-563.61	-78.78	103.12	-0.1550
"	-512.63	-180.74	-186.47	-0.0829
M9	-273.10	139.92	-186.47	-0.0829
"	-230.62	54.9532	-5.3008	-0.0877
"	-188.13	-30.02	17.9317	-0.1044
"	-145.65	-114.99	-116.77	-0.1177
M10	358.01	148.34	-116.77	-0.1177
"	400.49	63.3743	80.0887	-0.1627
"	442.98	-21.60	119.01	-0.1634
"	485.48	-106.57	0.0000	-0.0944
M11	347.26	-152.84	-227.52	0.0206
"	381.24	-84.86	-50.60	0.0079
"	415.23	-16.89	25.2415	-0.0294
"	449.22	51.0907	0.0000	-0.0596
M12	-346.27	-174.84	-199.35	-0.0054
"	-286.79	-55.88	100.82	-0.0902
"	-227.31	63.0779	91.4294	-0.0775
"	-167.83	182.04	-227.52	0.0206
M13	-779.40	-91.79	0.0000	0.0338
"	-736.92	-6.8239	91.4865	-0.0164
"	-694.43	78.1467	25.0354	-0.0149
"	-651.95	163.12	-199.35	-0.0054
M14	34.8906	-0.0000	-0.0000	0.0044
"	34.8906	-0.0000	-0.0000	0.0137
"	34.8906	-0.0000	-0.0000	0.0230
"	34.8906	-0.0000	0.0000	0.0323
M15	311.34	-0.0000	-0.0000	0.0080
"	311.34	-0.0000	-0.0000	0.0208
"	311.34	-0.0000	-0.0000	0.0337
"	311.34	-0.0000	0.0000	0.0465
M16	-559.02	-7.6075	-40.55	0.0556
"	-559.02	-7.6075	-27.03	0.0633
"	-559.02	-7.6075	-13.52	0.0552
"	-559.02	-7.6075	0.0000	0.0389
M17	-227.65	15.1865	-40.55	0.0556
"	-227.65	15.1865	-27.03	0.0435
"	-227.65	15.1865	-13.52	0.0273
"	-227.65	15.1865	0.0000	0.0092
M18	-417.08	-0.0000	-0.0000	-0.0908
"	-417.08	-0.0000	-0.0000	-0.0769
"	-417.08	-0.0000	-0.0000	-0.0629
"	-417.08	-0.0000	0.0000	-0.0490
M19	-652.96	0.0000	0.0000	-0.0714
"	-652.96	0.0000	0.0000	-0.0623
"	-652.96	0.0000	0.0000	-0.0532
"	-652.96	0.0000	0.0000	-0.0440
M20	-647.18	-552.34	-560.27	0.0078
"	-647.18	-552.34	-373.51	-0.0120
"	-647.18	-552.34	-186.76	-0.0398
"	-647.18	-552.34	0.0000	-0.0716
M21	-514.72	0.0000	0.0000	-0.0684
"	-514.72	0.0000	0.0000	-0.0636
"	-514.72	0.0000	0.0000	-0.0588
"	-514.72	0.0000	0.0000	-0.0540
M22	423.49	-0.0000	-0.0000	0.0269
"	423.49	-0.0000	-0.0000	0.0341
"	423.49	-0.0000	-0.0000	0.0412
"	423.49	-0.0000	0.0000	0.0484
M23	-455.69	-0.0000	-0.0000	-0.0577
"	-455.69	-0.0000	-0.0000	-0.0560
"	-455.69	-0.0000	-0.0000	-0.0544
"	-455.69	-0.0000	0.0000	-0.0527

BENDING & COMP: TRUSS 2 - MEMBER 8

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

Grading:

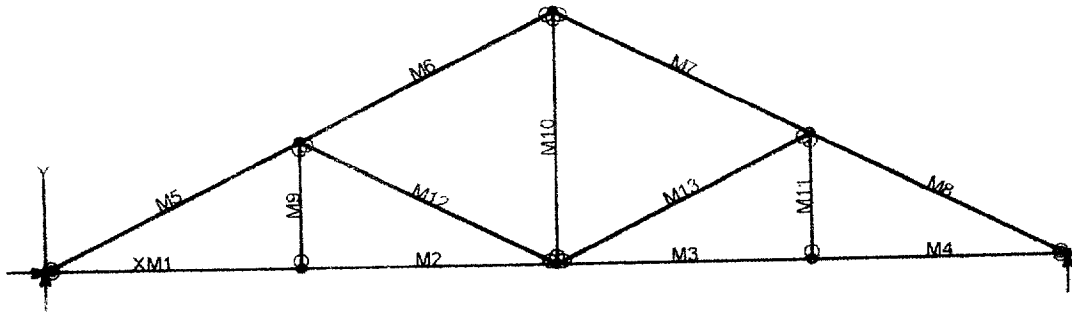
2x or 4x

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	6.71 feet
Max Axial Comp. C	512 lbs
Max Reaction, R	180 lbs
Max Moment, M	186 ft-lbs
Max LL Deflection	0.03 inches
Max TL Deflection	0.08 inches
LL Defl Criteria = L/	240
TL Defl Criteria = L/	180
Duration factor, Cd	1.25
Repetitive Factor, Cr	1.15
Size Factor, Cf bending	1.5 1.5 for 2x4, 1.3 for 2x6
Size Factor, Cf comp	1.15 1.15 for 2x4, 1.1 for 2x6
Buckling Factor, CT =	1.20
fc =	98 psi
Fce =	1085 psi
Fc* =	1869 psi
F'c =	911 psi
fb =	729 psi
F'b = Fb* =	1887 psi
Shear D/C ratio	0.43 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb / (F'b(1-fc/Fce)) =	0.44 < 1.0, Member OK
Live Load defl ratio	0.09 < 1.0, Member OK
Total Load defl ratio	0.18 < 1.0, Member OK



VisualAnalysis 3.50.c Report

07/24/00 13:15:22

Project: TRUSS 3

File: C:\Program Files\IES\VA35\truss 3.vap

Company: PK Associates Engineers

Engineer: Paul Zacher

Default Units: Feet, Pounds, Degrees, °Fahrenheit, Seconds.

Nodes

Node	X ft	Y ft	Fix	DK Fix	DY Fix	RZ Fix
N1	0.00	0.00	Yes	Yes	No	No
N2	8.00	0.00	No	No	"	"
N3	16.00	0.00	"	"	"	"
N4	24.00	0.00	"	"	"	"
N5	32.00	0.00	"	Yes	"	"
N6	8.00	4.00	"	No	"	"
N7	24.00	4.00	"	"	"	"
N8	16.00	8.00	"	"	"	"

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	8.00
M2	"	"	8.00
M3	"	"	8.00
M4	"	"	8.00
M5	"	"	8.94
M6	"	"	8.94
M7	"	"	8.94
M8	"	"	8.94
M9	"	"	4.00
M10	"	"	8.00
M11	"	"	4.00
M12	"	"	8.94
M13	"	"	8.94

Section Properties

Category	Section	Ax in ²	Iz in ⁴	Sy+ in ³	Sy- in ³
Wood	Sha SS2x4	5.25	5.36	3.06	3.06

Material Properties

Material	Strength psi	Elasticity psi	Poisson	Density lb/ft ³
Wood	-NA-	1700000.00	0.36	40.47

Load Combination Summary

Equation Case: Equation Case 1
Combination: +1D+1L+1Lr
Contributing Cases & Source

Service Case 2 (Roof Live loads)
 Service Case 3 (Dead loads)

Member Uniform Loads

This item is empty. Check the selection state, or report properties.

Nodal Reactions

Node	Load Case	FX lbs	FY lbs	MZ lb-ft
N1	Equation Case 1	-0.00	1033.60	-NA-
N5	"	-NA-	1033.60	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	1668.64	-34.51	-32.91	-0.1508
"	1668.64	-14.25	31.9693	-0.1426
"	1668.64	6.0196	42.9393	-0.0972
"	1668.64	26.2862	0.0000	-0.0000
M2	1668.64	-31.52	-41.91	-0.1606
"	1668.64	-11.26	15.0009	-0.1730
"	1668.64	9.0086	18.0001	-0.1711
"	1668.64	29.2753	-32.91	-0.1508
M3	1668.64	-29.28	-32.91	-0.1508
"	1668.64	-9.0086	18.0001	-0.1711
"	1668.64	11.2580	15.0009	-0.1730
"	1668.64	31.5247	-41.91	-0.1606
M4	1668.64	-26.29	-0.0000	-0.0000
"	1668.64	-6.0196	42.9393	-0.0972
"	1668.64	14.2471	31.9693	-0.1426
"	1668.64	34.5138	-32.91	-0.1508
M5	-1942.97	154.73	0.0000	-0.0000
"	-1874.99	18.7755	257.63	-0.3480
"	-1807.01	-117.18	110.94	-0.3187
"	-1739.04	-253.13	-440.07	-0.1571
M6	-1288.02	253.13	-440.07	-0.1571
"	-1220.05	117.18	110.94	-0.3696
"	-1152.07	-18.78	257.63	-0.4501
"	-1084.09	-154.73	0.0000	-0.4531
M7	-1288.02	-253.13	-440.07	-0.1250
"	-1220.05	-117.18	110.94	-0.3376
"	-1152.07	18.7755	257.63	-0.4179
"	-1084.09	154.73	0.0000	-0.1210
M8	-1942.97	-154.73	0.0000	0.0321
"	-1874.99	-18.78	257.63	-0.3160
"	-1807.01	117.18	110.94	-0.2865
"	-1739.04	253.13	-440.07	-0.1250
M9	63.7891	-0.0000	-0.0000	0.0179
"	63.7891	-0.0000	-0.0000	0.0288
"	63.7891	-0.0000	-0.0000	0.0396
"	63.7891	-0.0000	0.0000	0.0505
M10	692.86	0.0000	0.0000	0.0359
"	692.86	0.0000	0.0000	0.0359
"	692.86	0.0000	0.0000	0.0359
"	692.86	0.0000	0.0000	0.0359
M11	63.7891	0.0000	0.0000	0.0213
"	63.7891	0.0000	0.0000	0.0322
"	63.7891	0.0000	0.0000	0.0430
"	63.7891	0.0000	0.0000	0.0538

M12	704.14	0.0000	0.0000	0.1276
.	-704.14	0.0000	0.0000	-0.1224
.	-704.14	0.0000	0.0000	-0.1172
.	-704.14	0.0000	0.0000	-0.1120
M13	-704.14	-0.0000	0.0000	0.1597
.	-704.14	-0.0000	-0.0000	-0.1545
.	-704.14	-0.0000	-0.0000	-0.1493
.	-704.14	-0.0000	-0.0000	-0.1441

BENDING & COMP: TRUSS 3 - MEMBER 5

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

Grading

2x or 4x

Doug-fir larch: No. 2

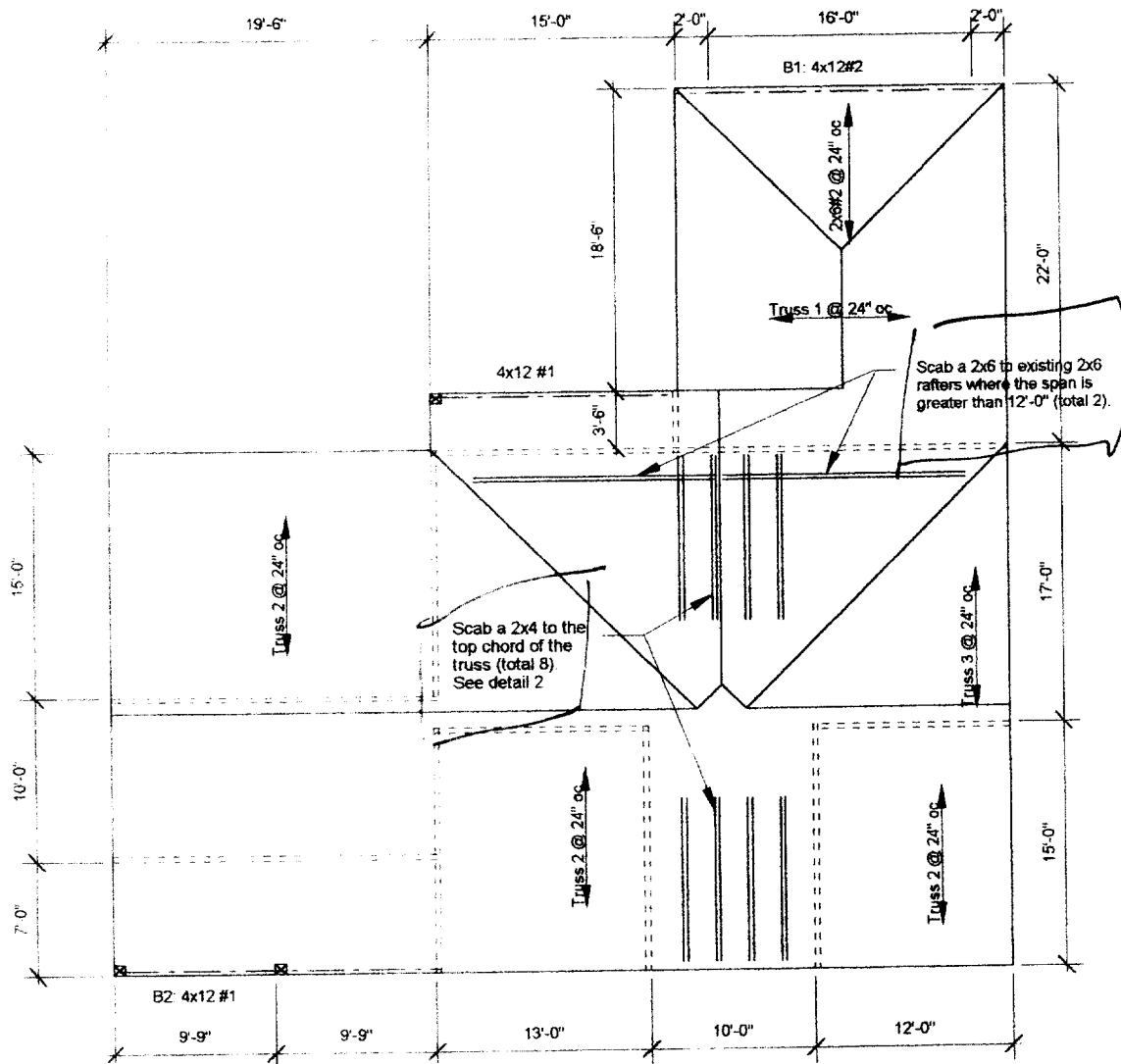
Assumptions:

Solid sheathing on top chord of truss. Therefore.

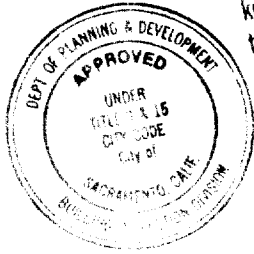
continuous lateral support is provided along compression face

Maximum center-center spacing = 24"

Width, b	3 inches
Depth, d	3.5 inches
Length	8.94 feet
Max Axial Comp. C	1739 lbs
Max Reaction, R	253 lbs
Max Moment, M	440 ft-lbs
Max LL Deflection	0.06 inches
Max TL Deflection	0.16 inches
LL Defl Criteria = L/	240
TL Defl Criteria = L/	180
Duration factor, Cd	1.25
Repetitive Factor, Cr	1.15
Size Factor, Cf bending	1.5 1.5 for 2x4, 1.3 for 2x6
Size Factor, Cf comp	1.15 1.15 for 2x4, 1.1 for 2x6
Buckling Factor, CT =	1.26
fc =	166 psi
Fce =	644 psi
Fc* =	1869 psi
F'c =	590 psi
fb =	862 psi
F'b = Fb* =	1887 psi
Shear D/C ratio	0.30 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb / (F'b(1-fc/Fce)) =	0.69 < 1.0, Member OK
Live Load defl ratio	0.13 < 1.0, Member OK
Total Load defl ratio	0.27 < 1.0, Member OK



This set of plans and specifications must be kept on the job at all times and it is unlawful to make any changes or alterations from the same without written permission from the Building Inspection Division. The approval of this plan and specification SHALL NOT be held to permit any violation of any City Ordinance.



Notes:

1. This is a reroof project. The new roofing material shall be a Light Weight Concrete Tile. The tile shall weigh less than or equal to 7.0 psf.
2. All structural wood members that were observed appear to be in sound condition and without structural defect.

1

ROOF PLAN - HOANG

Not to Scale

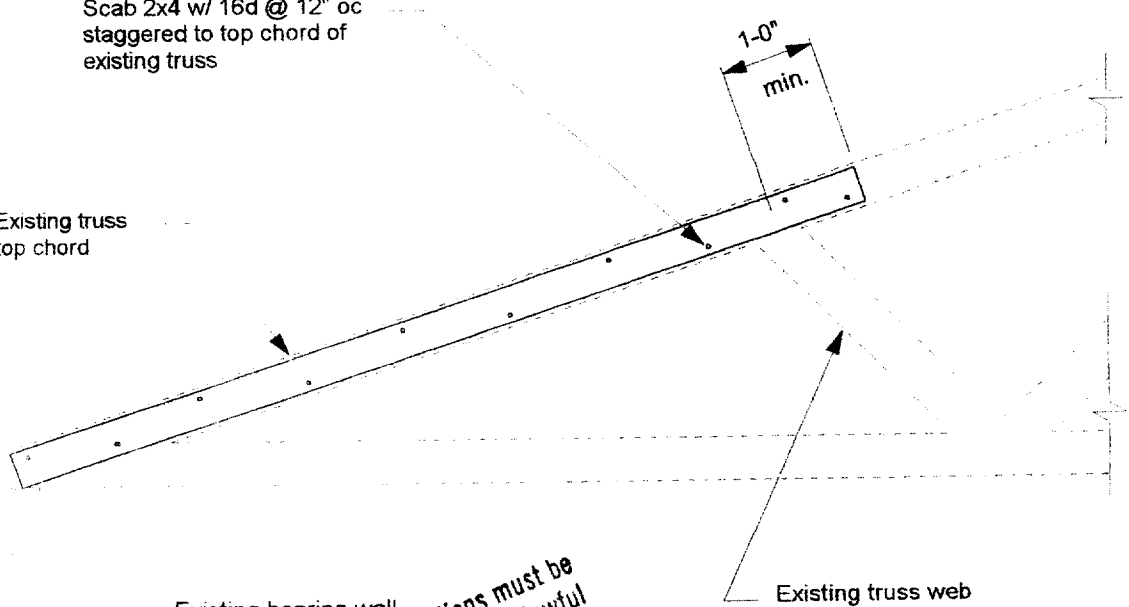
H



Scab 2x4 w/ 16d @ 12" oc
staggered to top chord of
existing truss

Existing truss
top chord

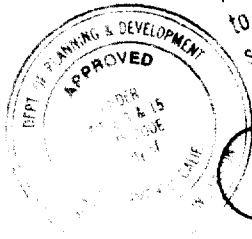
1'-0"
min.



Existing bearing wall

Existing truss web

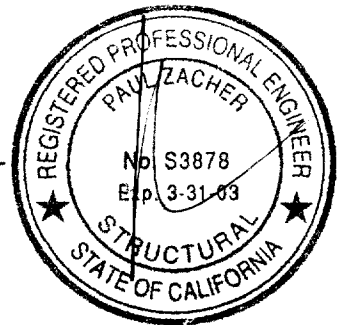
This set of plans and specifications must be kept on the job at all times and it is unlawful to make any changes or alterations from the same without written permission from the Building Inspection Division.
The approval of this plan and specification shall not be deemed to constitute an approval of the State Law.



2

TRUSS REINFORCEMENT DETAIL

scale: 1/2" = 1'-0"





DEPARTMENT OF
PLANNING AND DEVELOPMENT

CITY OF SACRAMENTO
CALIFORNIA

1231 I STREET
ROOM 200
SACRAMENTO, CA
95814-2974

Permit Service
916-264-7819
FAX 916-264-7096

Thang Hoang
81 Blue Water
Sacto., CA. 95831

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.

BRAND AND MODEL OF TILE Monier Lite weight

TILE WEIGHT PER SQUARE 7.30 lbs

WEIGHT OF ROOF SYSTEM PER SQUARE 180 lbs

TOTAL WEIGHT OF ROOF SYSTEM 910 lbs

DID TOTAL WEIGHT OF ROOF SYSTEM EXCEED 750# PER SQUARE? YES NO

DATE 4/17

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

See attached engin. report