

CITY OF SACRAMENTO

Permit No: 0111987

1231 I Street, Sacramento, CA 95814

Insp Area: 2
Thos Bros: 336J2

Site Address: 50 RAMBLEOAK CR SAC

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

Parcel No: 031-0520-050

CONTRACTOR
ZIMMERMAN ROOFING, INC
3675 R STREET
SACRAMENTO, CA 95816

OWNER
PETROS ABRAHAM
2521 FERNANDEZ
SACRAMENTO 95822

ARCHITECT

Nature of Work: TEAR OFF SHAKE & REROOF 24 SQ'S W/PIONEER 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 C-39 License Number 557559 Date 9/19/01 Contractor Signature Kelly 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 9/19/01 Applicant/Agent Signature Kelly 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.

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 713-00-2021 Exp Date 10/01/2001

(This section need not be completed if the permit is for 300 sq. ft. 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 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 9/19/01 Applicant Signature Kelly 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.

Petros

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

TEL: 916.961.3960  
FAX: 916.961.6552

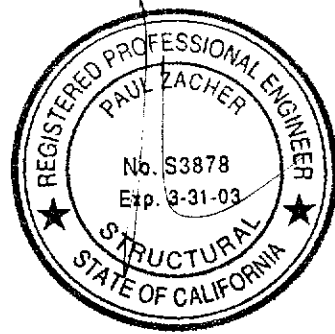
August 27, 2001

Zimmerman Roofing  
3675 R Street  
Sacramento, CA 95816  
TEL: (916) 454-3667  
FAX: (916) 392-6853

Attn.: Mr. Jeff Tucker,

re: Job 2001\_253: PETROS

Subject: Structural Investigation Report of the Roof for the Residence located at 50 Rambleoak Circle, 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 August 27, 2001. 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 1970's vintage.  
Occupancy: Residential.  
No. of Stories: Two.  
Dimensions: Approximately 2500 square feet with a first story plate height of 8 feet.

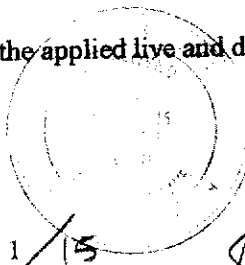
**CONSTRUCTION:**

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 except for the vaulted ceiling areas. The vaulted ceiling is constructed of 2x6 and 2x10 rafters spaced at 16" on center supported mid-span and at the ridge by a 4x beam.

**CONCLUSIONS:**

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

**NO STRUCTURAL REQUIREMENTS**



This set of plans and specifications shall be kept on the job at all times and no changes shall be made without written permission from the Building Inspection Division.

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

*Paul Zacher* 9/14/01

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Petros



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

TEL: 916.961.3960  
FAX: 916.961.6552

RECOMMENDATIONS:

None.

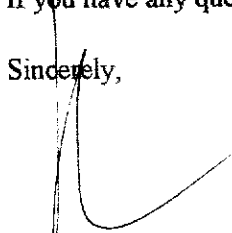
It shall be noted that small hairline cracking may occur at exterior stucco and interior gypboard finished walls that are load bearing or distributing roof strut loads. These cracks are a natural occurrence as the existing structure re-distributes the new roof weight. They are cosmetic in nature and 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

**DESIGN LOADING:**

Roof Pitch 4 in 12  
Pitch Adjustment Factor 1.05

**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

**LOCATION: VAULT**

<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
2x10 rafters @ 16" oc	2.54	psf
Batt/blown insul	0.50	psf
1/2" Gypboard	<u>2.50</u>	psf
Load	15.4	psf
Roof Pitch Adjustment	<u>0.83</u>	psf
Total Load	16.3	psf

**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>0.64</u>	psf
Load	10.5	psf
Roof Pitch Adjustment	<u>0.57</u>	psf
Total Load	11.1	psf

**LOCATION: BOTTOM CHORD**

<u>MATERIAL</u>	<u>WEIGHT</u>	
Batt/blown insul	0.50	psf
2x4 truss @ 24" oc	1.28	psf
1/2" Gypboard	<u>2.50</u>	psf
Load	4.3	psf

Job #: 01-257

Date: 8/27/01

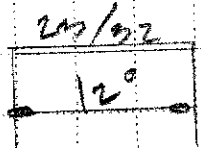
LOADING

RAFTER

Op: 11.5 pcf  $\times 2^{\circ} = 23$  pcf

2x6 #2

Lp: 16.0 " " " " " " " "

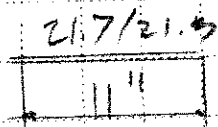


VAULT

Op: 16.3 pcf  $\times 4/12 = 21.7$  pcf

2x6 #2

Lp: 16.0 " " " " " " " "

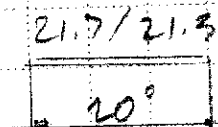


VAULT

Op: 16.3 pcf  $\times 4/12 = 21.7$  pcf

2x10 #2

Lp: 16.0 " " " " " " " "

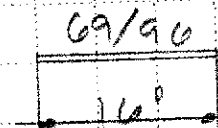


K1

Op: 11.5 pcf  $\times 6^{\circ} = 69$  pcf

4x12 #2

Lp: 16.0 " " " " " " " "

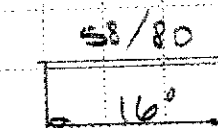


K2

Op: 11.5 pcf  $\times 5^{\circ} = 58$  pcf

4x12 #1

Lp: 16.0 " " " " " " " "



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

Title :  
 Dsgnr:  
 Description :

Job #  
 Date: 11:11AM, 27 AUG 01

Scope :

**Timber Beam & Joist**

c:\enercalc\test.ecw\Calculations

Rev. 510304  
 User: KW 0602844, Ver 5.1.3 22-Jun-1999, Win32  
 (c) 1993-99 ENERCALC

**Description RAFTERS AND BEAMS**

**Timber Member Information** Calculations are designed to 1997 NDS and 1997 UBC Requirements

		rafter	vault	vault	B1	B2
<b>Timber Section</b>		2x6	2x6	2x10	4x12	4x12
Beam Width	in	1.500	1.500	1.500	3.500	3.500
Beam Depth	in	5.500	5.500	9.250	11.250	11.250
Le: Unbraced Length	ft	0.00	2.00	0.00	0.00	0.00
Timber Grade		Douglas Fir - Larch,	Douglas Fir - Larch,	Douglas Fir - Larch,	Douglas Fir - Larch,	Douglas Fir - Larch,
Fb - Basic Allow	psi	875.0	875.0	875.0	875.0	1,000.0
Fv - Basic Allow	psi	95.0	95.0	95.0	95.0	95.0
Elastic Modulus	ksi	1,600.0	1,600.0	1,600.0	1,600.0	1,700.0
Load Duration Factor		1.250	1.250	1.250	1.250	1.250
Member Type		Sawn	Sawn	Sawn	Sawn	Sawn
Repetitive Status		Repetitive	Repetitive	Repetitive	No	No

**Center Span Data**

Span	ft	12.00	11.92	20.00	16.00	16.00
Dead Load	#/ft	23.00	21.70	21.70	69.00	58.00
Live Load	#/ft	32.00	21.30	21.30	96.00	80.00

**Results** Ratio = 0.9607 0.7553 0.8717 0.7133 0.5220

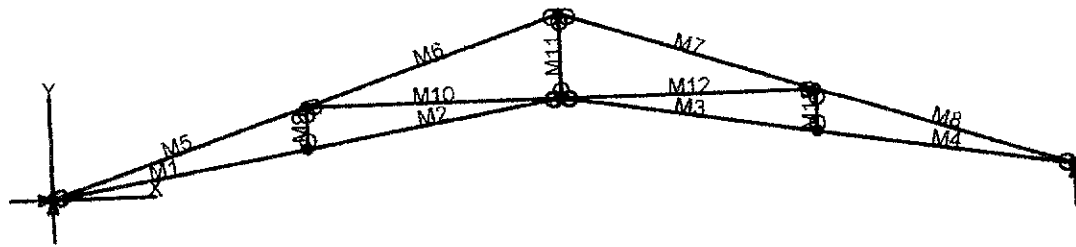
Mmax @ Center	in-k	11.88	9.16	25.80	63.36	52.99
@ X =	ft	6.00	5.96	10.00	8.00	8.00
fb : Actual	psi	1,570.9	1,211.8	1,206.1	858.2	717.8
Fb : Allowable	psi	1,635.2	1,604.5	1,383.6	1,203.1	1,375.0
		Bending OK	Bending OK	Bending OK	Bending OK	Bending OK
fv : Actual	psi	55.7	43.2	43.1	44.7	37.3
Fv : Allowable	psi	118.8	118.8	118.8	118.8	118.8
		Shear OK	Shear OK	Shear OK	Shear OK	Shear OK

**Reactions**

@ Left End	DL	lbs	138.00	129.33	217.00	552.00
	LL	lbs	192.00	126.95	213.00	768.00
	Max. DL+LL	lbs	330.00	256.28	430.00	1,320.00
@ Right End	DL	lbs	138.00	129.33	217.00	552.00
	LL	lbs	192.00	126.95	213.00	768.00
	Max. DL+LL	lbs	330.00	256.28	430.00	1,320.00

**Deflections** Ratio OK Deflection OK Deflection OK Deflection OK Deflection OK

Center DL Defl	in	-0.322	-0.296	-0.494	-0.153	-0.121
L/Defl Ratio		446.5	482.9	486.3	1,253.9	1,584.9
Center LL Defl	in	-0.449	-0.291	-0.484	-0.213	-0.167
L/Defl Ratio		320.9	491.9	495.4	901.2	1,149.1
Center Total Defl	in	-0.771	-0.587	-0.978	-0.366	-0.288
Location	ft	6.000	5.960	10.000	8.000	8.000
L/Defl Ratio		186.7	243.7	245.4	524.4	666.1



# VisualAnalysis 3.50.c Report

08/27/01 11:16:24

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	5.00	0.83	No		No		"	
N3	10.00	1.67	"		"		"	
N4	15.00	0.83	"		"		"	
N5	20.00	0.00	"		Yes		"	
N6	5.00	1.67	"		No		"	
N7	15.00	1.67	"		"		"	
N8	10.00	3.33	"		"		"	

## Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	5.07
M2	"	"	5.07
M3	"	"	5.07
M4	"	"	5.07
M5	"	"	5.27
M6	"	"	5.27
M7	"	"	5.27
M8	"	"	5.27
M9	"	"	0.84
M10	"	"	5.00
M11	"	"	1.66
M12	"	"	5.00
M13	"	"	0.84

## Section Properties

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

## Material Properties

Material	Strength psi	Elasticity psi	Poisson	Density lb/ft <sup>3</sup>
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	658.45	-NA-
N5	"	-NA-	658.45	-NA-

## Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	2916.75	41.4654	0.0000	-0.0000
"	2919.13	27.1321	57.8863	-0.1870
"	2921.51	12.7987	91.6173	-0.3438
"	2923.89	-1.5346	101.19	-0.4522
M2	2924.33	1.5411	101.19	-0.4523
"	2926.73	-12.79	91.6251	-0.5063
"	2929.14	-27.13	57.8941	-0.5119
"	<b>2931.55</b>	-41.46	0.0000	-0.4872
M3	2924.33	-1.5411	101.19	-0.4128
"	2926.73	12.7922	91.6251	-0.4668
"	2929.14	27.1256	57.8941	-0.4724
"	2931.55	41.4589	0.0000	-0.4477
M4	2916.75	-41.47	-0.0000	0.0390
"	2919.13	-27.13	57.8863	-0.1480
"	2921.51	-12.80	91.6173	-0.3048
"	2923.89	1.5346	101.19	-0.4132
M5	<b>-3082.57</b>	125.09	0.0000	-0.0000
"	-3052.40	34.7534	<b>140.04</b>	-0.2240
"	-3022.22	-55.58	121.74	-0.3737
"	-2992.05	-145.91	<b>-54.89</b>	-0.4597
M6	-2137.93	<b>145.92</b>	-54.89	-0.4598
"	-2107.94	55.5861	121.64	-0.5353
"	-2077.95	-34.75	139.94	<b>-0.5473</b>
"	-2047.96	-125.08	0.0000	-0.4852
M7	-2137.93	<b>-145.92</b>	-54.89	-0.3847
"	-2107.94	-55.59	121.64	-0.4602
"	-2077.95	34.7472	139.94	-0.4722
"	-2047.96	125.08	0.0000	-0.4101
M8	-3082.57	-125.09	0.0000	0.0755
"	-3052.40	-34.75	140.04	-0.1485
"	-3022.22	55.5799	121.74	-0.2982
"	-2992.05	145.91	-54.89	-0.3842
M9	-2.6500	-0.0000	-0.0000	0.0937
"	-2.6500	-0.0000	-0.0000	0.1042
"	-2.6500	-0.0000	-0.0000	0.1147
"	-2.6500	-0.0000	0.0000	0.1252
M10	-901.11	0.0000	0.0000	-0.4740
"	-901.11	0.0000	0.0000	-0.4636
"	-901.11	0.0000	0.0000	-0.4533
"	-901.11	0.0000	0.0000	-0.4429
M11	1053.16	-0.0000	-0.0000	-0.1192
"	1053.16	-0.0000	-0.0000	-0.1192
"	1053.16	-0.0000	0.0000	-0.1192
"	1053.16	-0.0000	-0.0000	-0.1192

M12	-901.11	0.0000	0.0000	-0.4740
"	-901.11	0.0000	0.0000	-0.4636
"	-901.11	0.0000	0.0000	-0.4533
"	-901.11	0.0000	0.0000	-0.4429
M13	-2.6500	0.0000	0.0000	0.1131
"	-2.6500	0.0000	0.0000	0.1236
"	-2.6500	0.0000	0.0000	0.1341
"	-2.6500	0.0000	0.0000	<b>0.1446</b>

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### **BENDING & COMP: TRUSS 1 - MEMBER 5**

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

#### Grading:

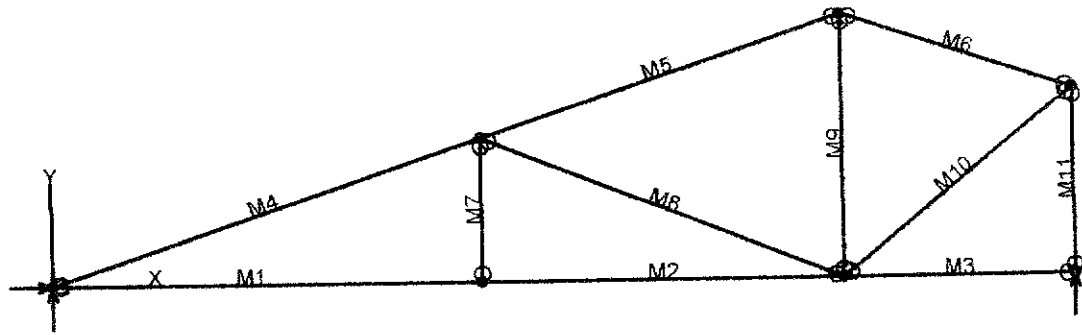
2x or 4x

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	1.5 inches
Depth, d	3.5 inches
Length	5.27 feet
Max Axial Comp, C	2992 feet
Max Reaction, R	145 feet
Max Moment, M	54 feet
Max LL Deflection	0.11 feet
Max TL Deflection	0.22 feet
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 =	1.15
fc =	570 psi
Fce=	1789 psi
Fc*=	2084 psi
F'c=	1326 psi
fb=	212 psi
F*b=Fb*=	2156 psi
Shear D/C ratio	0.35 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb/ (F*b(1-fc/Fce)) =	0.33 < 1.0, Member OK
Live Load defl ratio	0.42 < 1.0, Member OK
Total Load defl ratio	0.63 < 1.0, Member OK



# VisualAnalysis 3.50.c Report

08/27/01 11:19:14

Project: Truss 2

File: Untitled.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 Fix
N1	0.00	0.00	Yes	Yes	No	
N2	6.50	0.00	No	No	"	
N3	12.00	0.00	"	"	"	
N4	15.50	0.00	"	Yes	"	
N5	6.50	2.17	"	No	"	
N6	12.00	4.00	"	"	"	
N7	15.50	2.83	"	"	"	

## Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	6.50
M2	"	"	5.50
M3	"	"	3.50
M4	"	"	6.85
M5	"	"	5.80
M6	"	"	3.69
M7	"	"	2.17
M8	"	"	5.91
M9	"	"	4.00
M10	"	"	4.50
M11	"	"	2.83

## Section Properties

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

## Material Properties

Material	Strength psi	Elasticity psi	Poisson	Density lb/ft <sup>3</sup>
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	509.45	-NA-
N4	"	-NA-	509.45	-NA-

## Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	1005.69	-30.35	-15.57	-0.0583
"	1005.69	-11.71	29.8924	-0.0641
"	1005.69	6.9215	35.0818	-0.0462
"	<b>1005.69</b>	25.5549	0.0000	-0.0000
M2	1005.69	-24.13	-18.18	-0.0252
"	1005.69	-8.3587	11.5219	-0.0423
"	1005.69	7.4080	12.3934	-0.0535
"	1005.69	23.1746	-15.57	-0.0583
M3	-0.0000	-9.8549	0.0000	-0.0000
"	-0.0000	0.1784	5.6154	-0.0091
"	-0.0000	10.2118	-0.4456	-0.0170
"	-0.0000	20.2451	-18.18	-0.0252
M4	<b>-1107.17</b>	140.53	0.0000	-0.0000
"	-1067.96	23.0922	<b>186.20</b>	<b>-0.1549</b>
"	-1028.76	-94.34	104.82	-0.1477
"	-989.55	<b>-211.77</b>	<b>-244.12</b>	-0.0581
M5	-432.09	<b>191.17</b>	-244.12	-0.0581
"	-399.03	91.7991	28.7634	-0.0747
"	-365.97	-7.5676	110.14	-0.0818
"	-332.90	-106.93	-0.0000	-0.0222
M6	-400.36	-94.85	-0.0000	-0.0015
"	-379.23	-31.62	77.5905	-0.0299
"	-358.09	31.6167	77.5905	-0.0378
"	-336.95	94.8500	0.0000	-0.0253
M7	53.5198	0.0000	0.0000	0.0088
"	53.5198	0.0000	0.0000	0.0089
"	53.5198	0.0000	0.0000	0.0091
"	53.5198	0.0000	0.0000	0.0092
M8	-705.27	0.0000	0.0000	-0.0507
"	-705.27	0.0000	0.0000	-0.0396
"	-705.27	0.0000	0.0000	-0.0286
"	-705.27	0.0000	0.0000	-0.0175
M9	20.5056	0.0000	0.0000	-0.0162
"	20.5056	0.0000	0.0000	-0.0092
"	20.5056	0.0000	0.0000	-0.0021
"	20.5056	0.0000	0.0000	0.0049
M10	449.63	0.0000	0.0000	-0.0298
"	449.63	0.0000	0.0000	-0.0205
"	449.63	0.0000	0.0000	-0.0113
"	449.63	0.0000	0.0000	-0.0020
M11	-499.60	0.0000	0.0000	0.0009
"	-499.60	0.0000	0.0000	0.0060
"	-499.60	0.0000	0.0000	0.0111
"	-499.60	0.0000	0.0000	<b>0.0162</b>

### BENDING & COMP: TRUSS 2 - MEMBER 4

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

#### Grading:

2x or 4x

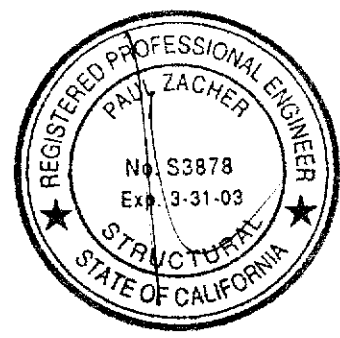
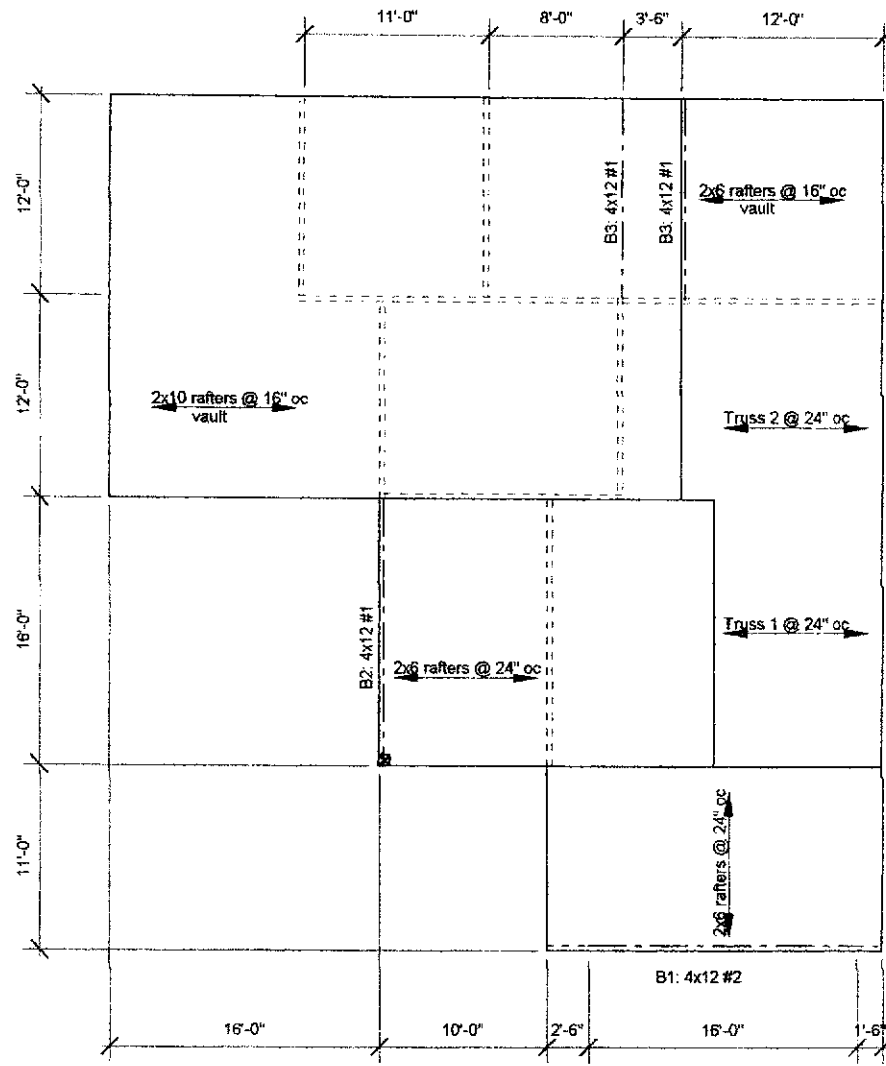
Doug-fir larch: No. 2

#### 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	6.85 feet
Max Axial Comp, C	989 feet
Max Reaction, R	211 feet
Max Moment, M	244 feet
Max LL Deflection	0.02 feet
Max TL Deflection	0.05 feet
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 =	1.19
fc =	188 psi
Fce=	1099 psi
Fc*=	2084 psi
F'c=	943 psi
fb=	956 psi
F*b=Fb*=	2156 psi
Shear D/C ratio	0.51 < 1.0, Member OK
Interaction equation: (fc/F'c)^2 +	
fb/ (F*b(1-fc/Fce)) =	0.58 < 1.0, Member OK
Live Load defl ratio	0.06 < 1.0, Member OK
Total Load defl ratio	0.11 < 1.0, Member OK



**Notes:**

- A. 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.
- B. All rafters are 2x6 DF#2 and hips and valleys are 2x8 DF#2 unless otherwise noted.
- C. All existing rafter, hips, valleys, rafter ties, and purlins are braced per UBC Section 2320.1 "Roof and Ceiling Framing" unless otherwise shown.
- D. All structural wood members that were observed appear to be in sound condition and without structural defect.

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**ROOF PLAN - PETROS**

Not to Scale

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