

CITY OF SACRAMENTO
1231 I Street, Sacramento, CA 95814

Permit No: 0010346
Insp Area: 2

Site Address: 10 RAPID RIVER CT SAC
Parcel No: 031-0640-058

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

CONTRACTOR
ZIMMERMAN ROOFING
3675 R ST
SACRAMENTO CA 95816

OWNER
THE HEART OF CALIF CORP
AUBURN CA
95603

ARCHITECT

Nature of Work: REROOF / 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 9/5/00 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 9/5/00 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 9/5/00 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.



DEPARTMENT OF
PLANNING AND DEVELOPMENT

CITY OF SACRAMENTO
CALIFORNIA

1231 I STREET
ROOM 200
SACRAMENTO, CA
95814-1978

Phone Services
TEL: 264-7019
FAX: 264-7040

Bruce Lehony
10 Rapid River Ct
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 Pioneer Lite weight

TILE WEIGHT PER SQUARE: 730 lbs

WEIGHT OF ROOF SYSTEM PER SQUARE: 180 lbs

TOTAL WEIGHT OF ROOF SYSTEM: 910 lbs

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

ROOF SLOPE: 11/2

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

All attached engin. report

DeLong

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

TEL: 916.961.3960
FAX: 916.961.6552

August 28, 2000

Zimmerman Roofing
3675 R Street
Sacramento, CA 95816
TEL: 916.454.3667
FAX: 916.455.3784

Attn: Mr. Jeff Tucker,

re Job 2000_245: DELONG

Subject: Structural Investigation Report of the Roof for the Residence located at 10 Rapid River,
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 28, 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.

ISSUED

DESCRIPTION:

Type of Facility: Residence.
Year Built: Estimated 1980's vintage.
Occupancy: Residential.
No. of Stories: One.
Dimensions: Approximately 2000 square feet with a first story plate height of 8 feet.

SEP 05 2000

Sacramento Building Division

CONSTRUCTION:

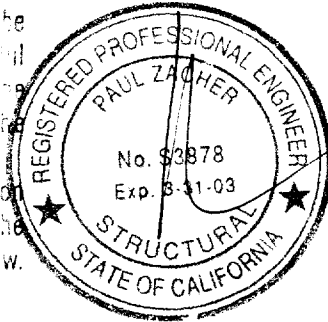
Roof:
The roof covering will consist of a Light Weight Concrete Tile over 1/2" solid sheathing. The living and garage areas are framed with pre-engineered wood trusses spaced at 24" on center.

CONCLUSIONS:

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

RECOMMENDATIONS:

None.



DeLong

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

TEL: 916.961.3960
FAX: 916.961.6552

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: 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

P K Zacher, S E

4701 Lakeside Way
Fair Oaks, CA 95628
TEL: (916) 961-3960
FAX: (916) 961-6552

Job # 07 245

Date: 3/23/00

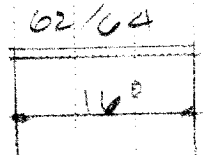
02/04

02

15' 4" DIF - 4' 02" DIF

4x12#2

16' 0" DIF - 4' 04" DIF

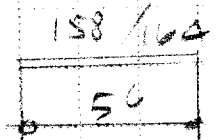


02

15' 4" DIF - 10' 58" DIF

4x12#1

16' 0" DIF - 10' 04" DIF

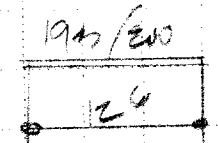


02

15' 4" DIF - 12' 19" DIF

4x12#1

16' 0" DIF - 12' 00" DIF



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

Title :
 Dsgnr:
 Description :

Job #
 Date: 1:32PM, 28 AUG 00

Scope :

Timber Beam & Joist

c:\enercalc\test ecw:Calculations

Rev: 310304
 User: KW 0602844, ver 5.1 3.02 Jun 1999, Win32
 ©: 1983-99 ENERCALC

Description BEAMS

Timber Member Information

Calculations are designed to 1997 NDS and 1997 UBC Requirements

	B1	B2	B3
Timber Section	4x12	4x12	4x12
Beam Width	3.500	3.500	3.500
Beam Depth	11.250	11.250	11.250
Le. Unbraced Length	0.00	0.00	0.00
Timber Grade	Douglas Fir - Larch	Douglas Fir - Larch	Douglas Fir - Larch
Fb - Basic Allow	875.0	1,000.0	1,000.0
Fv - Basic Allow	95.0	95.0	95.0
Elastic Modulus	1,600.0	1,700.0	1,700.0
Load Duration Factor	1.250	1.250	1.250
Member Type	Sawn	Sawn	Sawn
Repetitive Status	No	No	No

Center Span Data

	B1	B2	B3
Span	16.00	5.50	12.50
Dead Load	62.00	158.00	193.00
Live Load	64.00	164.00	200.00

Results

Ratio = 0.5447 0.1886 0.9074

Mmax @ Center	in-k	48.38	14.61	92.11
@ X =	ft	8.00	2.75	6.25
fb Actual	psi	655.4	197.9	1,247.6
Fb Allowable	psi	1,203.1	1,375.0	1,375.0
		Bending OK	Bending OK	Bending OK
fv Actual	psi	34.1	22.4	80.1
Fv Allowable	psi	118.8	118.8	118.8
		Shear OK	Shear OK	Shear OK

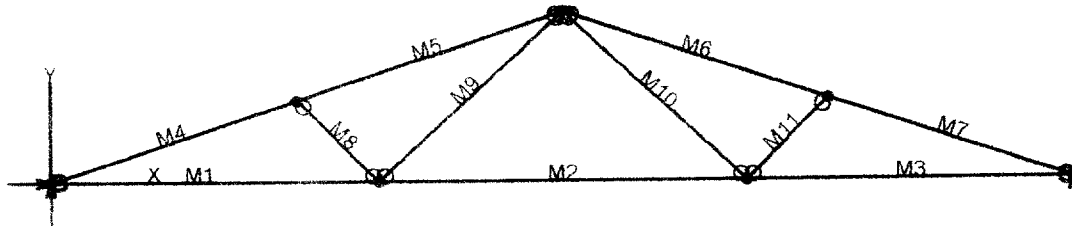
Reactions

@ Left End	DL	lbs	496.00	434.50	1,206.25
	LL	lbs	512.00	451.00	1,250.00
	Max. DL+LL	lbs	1,008.00	885.50	2,456.25
@ Right End	DL	lbs	496.00	434.50	1,206.25
	LL	lbs	512.00	451.00	1,250.00
	Max. DL+LL	lbs	1,008.00	885.50	2,456.25

Deflections

Ratio OK Deflection OK Deflection OK

Center DL Defl	in	-0.138	-0.005	-0.150
L/Defl Ratio		1,395.5	14,323.8	998.9
Center LL Defl	in	-0.142	-0.005	-0.156
L/Defl Ratio		1,351.9	13,799.8	963.9
Center Total Defl	in	-0.280	-0.009	-0.306
Location	ft	8.000	2.750	6.250
L/Defl Ratio		686.7	7,028.4	490.5



VisualAnalysis 3.50.c Report

08/23/00 12:11:37

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	8.00	0.00	No		No		"	
N3	17.00	0.00	"		"		"	
N4	25.00	0.00	"		Yes		"	
N5	6.00	2.00	"		No		"	
N6	19.00	2.00	"		"		"	
N7	12.50	4.17	"		"		"	

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	8.00
M2	"	"	9.00
M3	"	"	8.00
M4	"	"	6.32
M5	"	"	6.85
M6	"	"	6.85
M7	"	"	6.32
M8	"	"	2.83
M9	"	"	6.14
M10	"	"	6.14
M11	"	"	2.83

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 (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	785.00	-NA-
N4	"	-NA-	785.00	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	1902.42	-33.17	-35.00	-0.1844
"	1902.42	-13.97	27.7417	-0.1599
"	1902.42	5.2256	39.4068	-0.1036
"	1902.42	24.4256	0.0000	-0.0000
M2	1167.47	-32.40	-35.00	-0.1844
"	1167.47	-10.80	29.6425	-0.2259
"	1167.47	10.8000	29.6425	-0.2259
"	1167.47	32.4000	-35.00	-0.1844
M3	1902.42	-24.43	0.0000	-0.0000
"	1902.42	-5.2256	39.4068	-0.1037
"	1902.42	13.9744	27.7417	-0.1599
"	1902.42	33.1744	-35.00	-0.1844
M4	-2045.30	119.95	0.0000	-0.0000
"	-2010.14	14.4540	141.12	-0.1383
"	-1974.98	-91.04	60.3873	-0.1732
"	-1939.81	-196.53	-242.19	-0.1723
M5	-1737.87	206.74	-242.19	-0.1723
"	-1699.72	92.4753	98.9019	-0.2797
"	-1661.57	-21.79	179.63	-0.3102
"	-1623.43	-136.06	0.0000	-0.1843
M6	-1737.87	-206.74	-242.19	-0.1549
"	-1699.72	-92.48	98.9019	-0.2623
"	-1661.57	21.7918	179.63	-0.2927
"	-1623.43	136.06	0.0000	-0.1669
M7	-2045.30	-119.95	0.0000	0.0174
"	-2010.14	-14.45	141.12	-0.1209
"	-1974.98	91.0396	60.3873	-0.1558
"	-1939.81	196.53	-242.19	-0.1549
M8	-451.77	0.0000	0.0000	-0.1159
"	-451.77	0.0000	0.0000	-0.1080
"	-451.77	0.0000	0.0000	-0.1001
"	-451.77	0.0000	0.0000	-0.0922
M9	566.46	0.0000	0.0000	-0.1545
"	566.46	0.0000	0.0000	-0.1527
"	566.46	0.0000	0.0000	-0.1509
"	566.46	0.0000	0.0000	-0.1491
M10	566.46	0.0000	0.0000	-0.1171
"	566.46	0.0000	0.0000	-0.1153
"	566.46	0.0000	0.0000	-0.1135
"	566.46	0.0000	0.0000	-0.1117
M11	-451.77	-0.0000	0.0000	-0.1548
"	-451.77	-0.0000	-0.0000	-0.1469
"	-451.77	-0.0000	-0.0000	-0.1390
"	-451.77	-0.0000	-0.0000	-0.1311

BENDING & COMP: TRUSS 1 - MEMBER 4

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

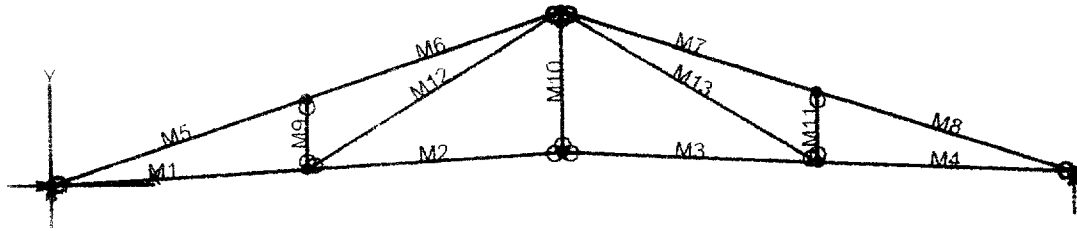
Grading:

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	6.32 feet
Max Axial Comp. C	1939 lbs
Max Reaction, R	196 lbs
Max Moment, M	242 ft-lbs
Max LL Deflection	0.16 inches
Max TL Deflection	0.17 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 =	1.18
fc =	369 psi
Fce =	1211 psi
Fc* =	1869 psi
F'c =	989 psi
fb =	948 psi
F'b = Fb* =	1887 psi
Shear D/C ratio	0.47 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb / (F'b(1-fc/Fce)) =	0.86 < 1.0, Member OK
Live Load defl ratio	0.51 < 1.0, Member OK
Total Load defl ratio	0.40 < 1.0, Member OK



VisualAnalysis 3.50.c Report

08/18/00 13:16:03

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	6.25	0.33	No	No	"
N3	18.75	0.33	"	"	"
N4	12.50	0.67	"	"	"
N5	25.00	0.00	"	Yes	"
N6	6.25	2.08	"	No	"
N7	18.75	2.08	"	"	"
N8	12.50	4.17	"	"	"

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	6.25
M2	"	"	6.25
M3	"	"	6.25
M4	"	"	6.25
M5	"	"	6.59
M6	"	"	6.59
M7	"	"	6.59
M8	"	"	6.59
M9	"	"	1.75
M10	"	"	3.50
M11	"	"	1.75
M12	"	"	7.34
M13	"	"	7.34

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.

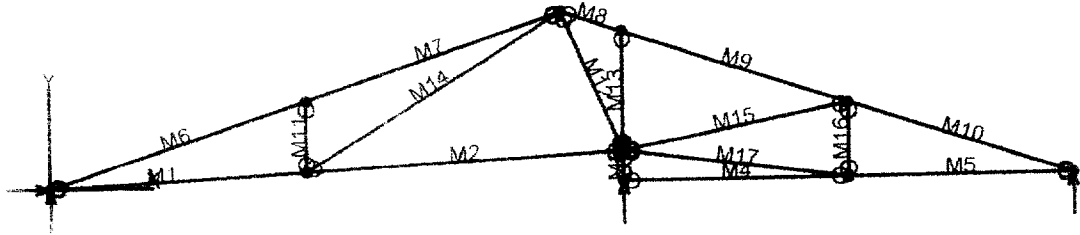
Nodal Reactions

Node	Load Case	FX lbs	FY lbs	MZ lb-ft
N1	Equation Case 1	-0.00	785.00	-NA-
N2	"	-NA-	785.00	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	2220.37	25.3109	0.0000	-0.0000
"	2221.16	10.3318	37.1015	-0.1185
"	2221.95	-4.6473	43.0310	-0.2086
"	2222.74	-19.63	17.7887	-0.2653
M2	1402.79	19.6248	17.7887	-0.2653
"	1403.61	4.6469	43.0310	-0.2980
"	1404.42	-10.33	37.1015	-0.2974
"	1405.24	-25.31	0.0000	-0.2683
M3	1402.79	-19.62	17.7887	-0.2605
"	1403.61	-4.6469	43.0310	-0.2932
"	1404.42	10.3309	37.1015	-0.2926
"	1405.24	25.3088	0.0000	-0.2635
M4	2220.37	-25.31	0.0000	0.0047
"	2221.16	-10.33	37.1015	-0.1138
"	2221.95	4.6473	43.0310	-0.2039
"	2222.74	19.6265	17.7887	-0.2606
M5	-2381.96	131.36	0.0000	-0.0000
"	-2345.39	21.4525	167.16	-0.2030
"	-2308.81	-88.45	93.6022	-0.2716
"	-2272.23	-198.36	-220.67	-0.2723
M6	-2405.67	198.27	-220.67	-0.2723
"	-2368.94	88.4117	93.6022	-0.3602
"	-2332.20	-21.44	167.16	-0.3803
"	-2295.47	-131.30	0.0000	-0.2658
M7	-2405.67	-198.27	-220.67	-0.2440
"	-2368.94	-88.41	93.6022	-0.3319
"	-2332.20	21.4422	167.16	-0.3520
"	-2295.47	131.30	0.0000	-0.2375
M8	-2381.96	-131.36	0.0000	0.0282
"	-2345.39	-21.45	167.16	-0.1748
"	-2308.81	88.4542	93.6022	-0.2434
"	-2272.23	198.36	-220.67	-0.2442
M9	-421.66	-0.0000	-0.0000	0.0327
"	-421.66	-0.0000	-0.0000	0.0439
"	-421.66	-0.0000	-0.0000	0.0552
"	-421.66	-0.0000	0.0000	0.0664
M10	203.21	-0.0000	0.0000	0.0446
"	203.21	-0.0000	-0.0000	0.0446
"	203.21	-0.0000	-0.0000	0.0446
"	203.21	-0.0000	-0.0000	0.0446
M11	-421.66	0.0000	0.0000	0.0228
"	-421.66	0.0000	0.0000	0.0341
"	-421.66	0.0000	0.0000	0.0453
"	-421.66	0.0000	0.0000	0.0566

M17	958.68	-0.0000	-0.0000	0.2420
	958.68	-0.0000	-0.0000	0.2444
	958.68	-0.0000	-0.0000	0.2469
	958.68	-0.0000	0.0000	0.2494
M18	958.68	0.0000	0.0000	-0.2027
	958.68	0.0000	0.0000	-0.2002
	958.68	0.0000	0.0000	-0.1977
	958.68	0.0000	0.0000	-0.1952



VisualAnalysis 3.50.c Report

08/28/00 13:23:19

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 DX	Fix DY	Fix RZ
N1	0.00	0.00	Yes	Yes	No
N2	6.25	0.33	No	No	"
N3	14.00	0.74	"	"	"
N4	14.00	0.00	"	Yes	"
N5	19.50	0.00	"	No	"
N6	25.00	0.00	"	Yes	"
N7	6.25	2.08	"	No	"
N8	12.50	4.17	"	"	"
N9	14.00	3.67	"	"	"
N10	19.50	1.83	"	"	"

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	6.25
M2	"	"	7.75
M3	"	"	0.74
M4	"	"	5.50
M5	"	"	5.50
M6	"	"	6.59
M7	"	"	6.59
M8	"	"	1.58
M9	"	"	5.80
M10	"	"	5.80
M11	"	"	1.75
M12	"	"	3.74
M13	"	"	2.93
M14	"	"	7.34
M15	"	"	5.61
M16	"	"	1.83
M17	"	"	5.55

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.

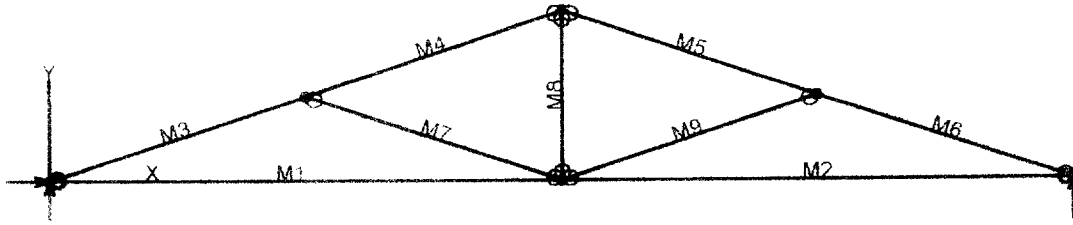
Nodal Reactions

Node	Load Case	FX lbs	FY lbs	MZ lb-ft
N1	Equation Case 1	-0.00	302.38	-NA-
N4	"	-NA-	1096.86	-NA-
N6	"	-NA-	170.76	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	539.48	17.9089	0.0000	-0.0000
"	540.27	2.9297	21.6590	-0.0308
"	541.06	-12.05	12.1461	-0.0458
"	541.85	-27.03	-28.54	-0.0530
M2	-331.17	31.5383	-28.54	-0.0530
"	-330.19	12.9643	28.9041	-0.0714
"	-329.21	-5.6098	38.4170	-0.0581
"	-328.23	24.18	0.0000	-0.0011
M3	-1080.82	0.0000	0.0000	0.0004
"	-1080.82	0.0000	0.0000	0.0006
"	-1080.82	0.0000	0.0000	0.0009
"	-1080.82	0.0000	0.0000	0.0012
M4	0.0000	-23.55	-20.65	-0.0126
"	0.0000	-10.35	10.3718	-0.0152
"	0.0000	2.8452	17.2557	-0.0125
"	0.0000	16.0452	0.0000	-0.0000
M5	102.05	-16.05	0.0000	-0.0000
"	102.05	-2.8452	17.2557	-0.0125
"	102.05	10.3548	10.3718	-0.0152
"	102.05	23.5548	-20.65	-0.0126
M6	-610.88	126.52	0.0000	-0.0000
"	-574.30	16.6095	156.53	-0.1176
"	-537.72	-93.30	72.3348	-0.1105
"	-501.14	-203.20	-252.57	-0.0549
M7	-636.96	203.11	-252.57	-0.0549
"	-600.23	93.2524	72.3348	-0.1125
"	-563.49	-16.60	156.53	-0.1217
"	-526.76	-126.46	-0.0000	-0.0060
M8	613.55	-110.94	-112.86	-0.0033
"	622.34	-84.56	-61.37	-0.0032
"	631.13	-58.19	-23.75	-0.0064
"	639.92	-31.82	0.0000	-0.0109
M9	598.54	-156.03	-176.80	-0.0125
"	630.90	-59.36	30.9268	-0.0257
"	663.24	27.3091	52.2395	-0.0276
"	695.58	133.98	-112.86	-0.0033
M10	-145.68	-114.58	-0.0000	0.0004

	-113.50	-17.86	127.47	-0.0594
	-81.31	58.8608	68.5460	-0.0599
	-49.13	175.58	176.80	-0.0125
M11	-429.19	0.0000	-0.0000	0.0073
	-429.19	-0.0000	-0.0000	0.0091
	-429.19	-0.0000	-0.0000	0.0109
	-429.19	-0.0000	0.0000	0.0127
M12	-719.03	0.0000	0.0000	-0.0107
	-719.03	0.0000	0.0000	-0.0069
	-719.03	0.0000	0.0000	-0.0031
	-719.02	0.0000	0.0000	0.0006
M13	-258.96	0.0000	0.0000	-0.0012
	-258.96	0.0000	0.0000	0.0006
	-258.96	0.0000	0.0000	0.0023
	-258.96	0.0000	0.0000	0.0041
M14	1019.58	0.0000	0.0000	0.0035
	1019.58	0.0000	0.0000	0.0186
	1019.58	0.0000	0.0000	0.0336
	1019.58	0.0000	0.0000	0.0487
M15	-733.18	0.0000	-0.0000	-0.0118
	-733.18	-0.0000	-0.0000	-0.0083
	-733.18	-0.0000	-0.0000	-0.0049
	-733.18	-0.0000	0.0000	-0.0013
M16	33.3789	0.0000	0.0000	-0.0022
	33.3789	0.0000	0.0000	-0.0013
	33.3789	0.0000	0.0000	-0.0005
	33.3789	0.0000	0.0000	0.0004
M17	102.97	0.0000	0.0000	-0.0124
	102.97	0.0000	0.0000	-0.0086
	102.97	0.0000	0.0000	-0.0047
	102.97	0.0000	0.0000	-0.0009



VisualAnalysis 3.50.c Report

08/28/00 13:27:01

Project: Truss 4

File: C:\Program Files\IES\VA35\truss 4.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	11.00	0.00	No		No			
N3	22.00	0.00			Yes			
N4	5.50	1.83			No			
N5	16.50	1.83						
N6	11.00	3.67						

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	11.00
M2	"	"	11.00
M3	"	"	5.80
M4	"	"	5.80
M5	"	"	5.80
M6	"	"	5.80
M7	"	"	5.80
M8	"	"	3.67
M9	"	"	5.80

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	0.34	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	690.80	-NA-
N3	"	-NA-	690.80	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	1619.59	-47.79	-90.07	-0.1440
"	1619.59	-21.39	36.5089	-0.1945
"	1619.59	5.0115	66.5334	-0.1718
"	1619.59	31.4115	0.0000	-0.0000
M2	1619.59	-31.41	-0.0000	-0.0000
"	1619.59	-5.0115	66.5334	-0.1718
"	1619.59	21.3885	36.5089	-0.1945
"	1619.59	47.7885	-90.07	-0.1440
M3	-1744.93	114.34	0.0000	-0.0000
"	-1712.75	17.6246	127.03	-0.1114
"	-1680.57	-79.10	67.6396	-0.1439
"	-1648.39	-175.82	-178.16	-0.1392
M4	-1176.32	175.72	-178.16	-0.1392
"	-1143.98	79.0523	67.6396	-0.1913
"	-1111.64	-17.61	127.03	-0.2061
"	-1079.30	-114.28	0.0000	-0.1420
M5	-1176.32	-175.72	-178.16	-0.1240
"	-1143.98	-79.05	67.6396	-0.1761
"	-1111.64	17.6150	127.03	-0.1909
"	-1079.30	114.28	0.0000	-0.1268
M6	-1744.93	-114.34	-0.0000	0.0151
"	-1712.75	-17.62	127.03	-0.0963
"	-1680.57	79.0954	67.6396	-0.1288
"	-1648.39	175.82	-178.16	-0.1241
M7	-589.96	0.0000	0.0000	-0.1291
"	-589.96	0.0000	0.0000	-0.1258
"	-589.96	0.0000	0.0000	-0.1226
"	-589.96	0.0000	0.0000	-0.1194
M8	468.09	0.0000	0.0000	-0.0240
"	468.09	0.0000	0.0000	-0.0240
"	468.09	0.0000	0.0000	-0.0240
"	468.09	0.0000	0.0000	-0.0240
M9	-589.96	-0.0000	0.0000	-0.1442
"	-589.96	-0.0000	-0.0000	-0.1410
"	-589.96	-0.0000	-0.0000	-0.1377
"	-589.96	-0.0000	-0.0000	-0.1345

BENDING & COMP: TRUSS 4 - MEMBER 3

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

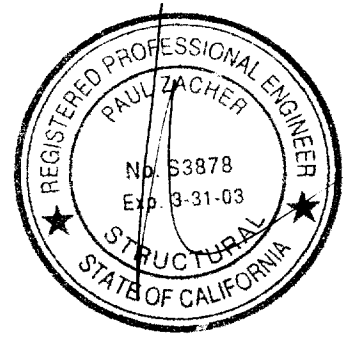
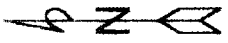
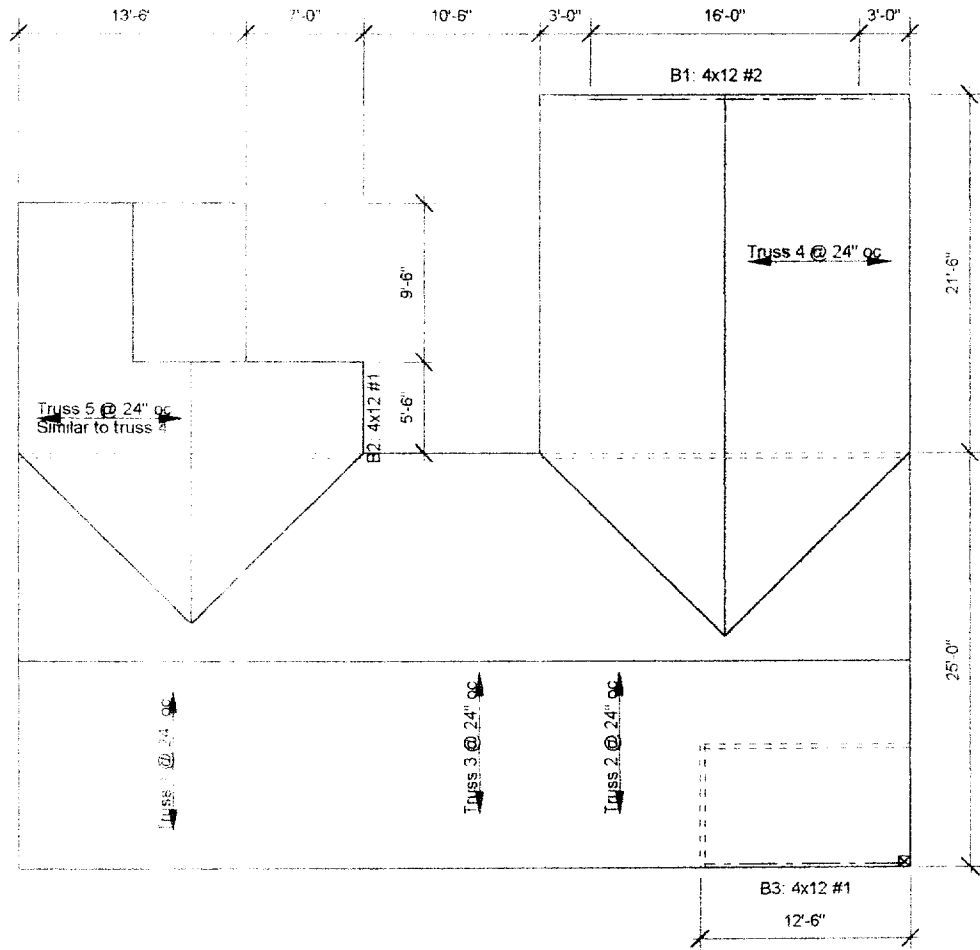
Grading

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	5.8 feet
Max Axial Comp. C	1648 lbs
Max Reaction, R	175 lbs
Max Moment, M	178 ft-lbs
Max LL Deflection	0.06 inches
Max TL Deflection	0.14 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 =	1.17
fc =	314 psi
Fcc =	1420 psi
Fc* =	1869 psi
F'c =	1102 psi
fb =	697 psi
F'b = Fb* =	1887 psi
Shear D/C ratio	0.42 < 1.0, Member OK
Interaction equation: (fc/F'c)^2 +	
fb / (F'b(1-fc/Fcc)) =	0.56 < 1.0, Member OK
Live Load defl ratio	0.21 < 1.0, Member OK
Total Load defl ratio	0.36 < 1.0, Member OK



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 - DELONG

Not to Scale