

CITY OF SACRAMENTO
1231 I Street, Sacramento, CA 95814

Permit No: 0009071
Insp Area: 2

Site Address: 389 CAMELIA RIVER WY SAC
Parcel No: 031-0390-054

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

CONTRACTOR
ZIMMERMAN ROOFING
3675 R ST
SACRAMENTO CA 95816

OWNER
MC CREEDY STEVE
389 CAMELIA RIVER WAY
SACRAMENTO, CA 95831

ARCHITECT

Nature of Work: TEAROFF REROOF WITH PIONEER TILE, 5/12 PITCH.

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 8/7/00 Contractor Signature [Signature]

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

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

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

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

Date _____ Owner Signature _____

PAID
AUG 07 2000
NEIGHBORHOODS, PLANNING
& DEVELOPMENT SERVICES

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 8/7/00 Applicant Agent Signature [Signature]

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

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

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

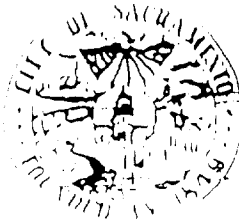
Carrier STATE COMP INS FUND Policy Number 713-99-2021 Exp Date 10/01/2000

_____, (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 8/7/00 Applicant Signature [Signature]

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

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



DEPARTMENT OF
PLANNING AND DEVELOPMENT

CITY OF SACRAMENTO
CALIFORNIA

1231 I STREET
ROOM 300
SACRAMENTO, CA
95814-2991

Permit Services
916-264-7817
FAX 916-264-7046

Steve McCreedy
389 Camelia River way
Sacto, CA, 95831

TILE ROOF WORKSHEET

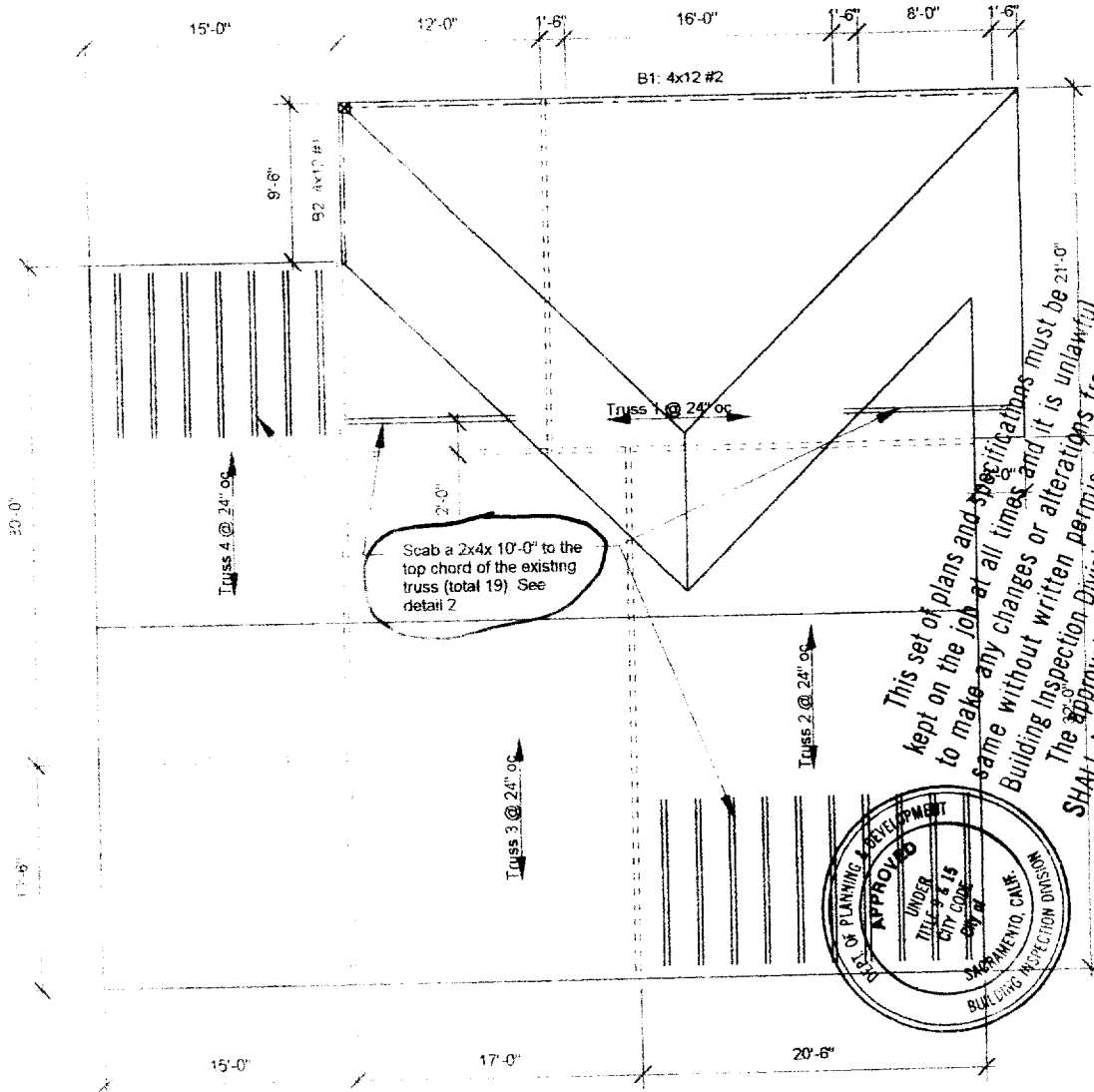
This worksheet must be filled out whenever any type of tile roof is applied for.

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	<u>Pioneer Lite weight</u>
NET WEIGHT PER SQUARE	<u>730 lbs</u>
HEIGHT OF ROOF SYSTEM PER SQUARE	<u>180 lbs</u>
TOTAL WEIGHT OF ROOF SYSTEM	<u>910 lbs</u>
IS TOTAL WEIGHT OF ROOF SYSTEM EXCEED 750# PER SQUARE?	<u>YES</u> <input checked="" type="checkbox"/> NO <input type="checkbox"/>
SCOPE	<u>9/12</u>

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

See attached engin. report



→ See work regard, circled, & detail, next sheet

→ This is supposed to be a truss roof
T.I.T.

Reviewed by Matt P. 8/6/0



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 - DAUER

Not to Scale

26



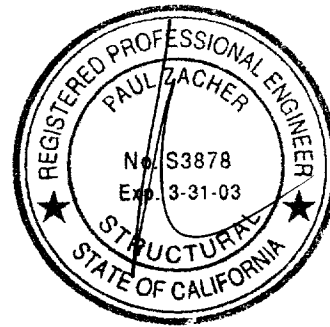
Dauer

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

TEL: 916.961.3960
FAX: 916.961.6552

July 26, 2000

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



Attn: Mr. Jeff Tucker,

re Job 2000_214: DAUER

Subject: Structural Investigation Report of the Roof for the Residence located at 389 Camelia River Way, 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 25, 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 and garage areas are framed with per-engineered wood trusses spaced at 2'-0" on center.

CONCLUSIONS:

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

Dauer

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 top chord of the existing truss. See details 1 and 2.

Garage:

- 2 Scab a 2x4 DF#2 x 10'-0" long rafter to the top chord of the existing truss. See details 1 and 2.

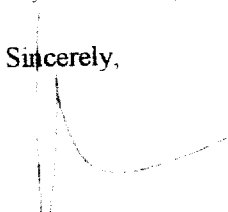
It shall be noted that small hairline cracking may occur at exterior stucco and interior gypboard finished walls that are load bearing or distributing roof strut loads. These cracks are a natural occurrence as the existing structure re-distributes the new roof weight. They are cosmetic in nature and 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	6	in 12
Pitch Adjustment Factor	1.12	

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>1.32</u>	psf
Total Load	12.5	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 #: CO. 214

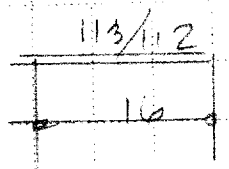
Date: 7/26/00

Lossing

B1

DE 16' 10" 7° = 11 1/2' PV
LE 16' 10" 7° = 11 1/2'

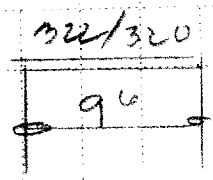
A x 12 # 2



B2

DE 16' 10" 20° = 13 2/3' PV
LE 16' 10" 20° = 13 2/3'

A x 12 # 1



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

Title :
 Dsgnr :
 Description :

Job #
 Date: 6:39AM, 26 JUL 00

Scope :

Timber Beam & Joist

c:\enercalc\test\ecw\Calculations

Rev: 610304
 User: RW-0602344, Ver: 5.1.3.22 Jun-1999 Win32
 © 1983-99 ENERCALC

Description BEAMS

Timber Member Information

Calculations are designed to 1997 NDS and 1997 UBC Requirements

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

Center Span Data

		B1	B2
Span	ft	16.00	9.50
Dead Load	#/ft	113.00	322.00
Live Load	#/ft	112.00	320.00

Results

Ratio = 0.9727 0.8561

Mmax @ Center	in-k	86.40	86.91
@ X =	ft	8.00	4.75
f _b Actual	psi	1,170.3	1,177.2
F _b Allowable	psi	1,203.1	1,375.0
		Bending OK	Bending OK
f _v Actual	psi	60.9	93.9
F _v Allowable	psi	118.8	118.8
		Shear OK	Shear OK

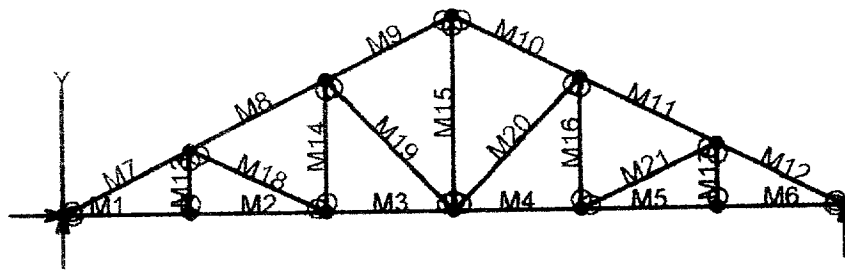
Reactions

@ Left End	DL	lbs	904.00	1,529.50
	LL	lbs	896.00	1,520.00
	Max. DL+LL	lbs	1,800.00	3,049.50
@ Right End	DL	lbs	904.00	1,529.50
	LL	lbs	896.00	1,520.00
	Max. DL+LL	lbs	1,800.00	3,049.50

Deflections

Ratio OK Deflection OK

Center DL Defl	in	-0.251	-0.084
L/Defl Ratio		765.7	1,363.9
Center LL Defl	in	-0.249	-0.083
L/Defl Ratio		772.5	1,372.4
Center Total Defl	in	-0.499	-0.167
Location	ft	8.000	4.750
L/Defl Ratio		384.5	684.1



VisualAnalysis 3.50.c Report

07/25/00 17:39:25

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	6.50	0.00	No	No	"
N3	13.50	0.00	"	"	"
N4	20.00	0.00	"	"	"
N5	26.50	0.00	"	"	"
N6	33.50	0.00	"	"	"
N7	40.00	0.00	"	Yes	"
N8	6.50	3.25	"	No	"
N9	33.50	3.25	"	"	"
N10	13.50	6.75	"	"	"
N11	26.50	6.75	"	"	"
N12	20.00	10.00	"	"	"

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	6.50
M2	"	"	7.00
M3	"	"	6.50
M4	"	"	6.50
M5	"	"	7.00
M6	"	"	6.50
M7	"	"	7.27
M8	"	"	7.83
M9	"	"	7.27
M10	"	"	7.27
M11	"	"	7.83
M12	"	"	7.27
M13	"	"	3.25
M14	"	"	6.75
M15	"	"	10.00
M16	"	"	6.75
M17	"	"	3.25
M18	"	"	7.72
M19	"	"	9.37
M20	"	"	9.37
M21	"	"	7.72

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	1284.00	-NA-
N7	"	-NA-	1284.00	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	2225.75	-24.65	-8.1108	-0.1977
"	2225.75	-9.0478	28.3083	-0.1553
"	2225.75	6.5522	31.0119	-0.0902
"	2225.75	22.1522	0.0000	-0.0000
M2	2225.75	-27.62	-25.06	-0.2519
"	2225.75	-10.82	19.6912	-0.2528
"	2225.75	5.9786	25.3412	-0.2366
"	2225.75	22.7786	-8.1108	-0.1977
M3	1742.99	-23.21	-23.84	-0.2563
"	1742.99	-7.6126	9.4670	-0.2607
"	1742.99	7.9874	9.0609	-0.2591
"	1742.99	23.5874	-25.06	-0.2519
M4	1742.99	-23.59	-25.06	-0.2519
"	1742.99	-7.9874	9.0609	-0.2591
"	1742.99	7.6126	9.4670	-0.2607
"	1742.99	23.2126	-23.84	-0.2563
M5	2225.75	-22.78	-8.1108	-0.1977
"	2225.75	-5.9786	25.3412	-0.2367
"	2225.75	10.8214	19.6912	-0.2528
"	2225.75	27.6214	-25.06	-0.2519
M6	2225.75	-22.15	-0.0000	-0.0000
"	2225.75	-6.5522	31.0119	-0.0902
"	2225.75	9.0478	28.3083	-0.1553
"	2225.75	24.6478	-8.1108	-0.1977
M7	-2555.09	133.25	0.0000	-0.0000
"	-2499.86	22.7839	188.31	-0.2254
"	-2444.62	-87.68	109.71	-0.2651
"	-2389.39	-198.14	-235.80	-0.2087
M8	-2036.63	175.81	-235.80	-0.2087
"	-1977.15	56.8506	66.9001	-0.2755
"	-1917.67	-62.11	60.0423	-0.2885
"	-1858.19	-181.07	-256.37	-0.2565

M9	-1538.71	200.97	-256.37	-0.2565
"	-1483.48	90.5089	95.9990	-0.3659
"	-1428.24	-19.95	181.46	-0.3927
"	-1373.01	-130.41	-0.0000	-0.2421
M10	-1538.71	-200.97	-256.37	-0.2067
"	-1483.48	90.51	95.9990	-0.3162
"	-1428.24	19.9529	181.46	-0.3429
"	-1373.01	130.41	0.0000	-0.1924
M11	-2036.63	-175.81	-235.80	-0.1590
"	-1977.15	-56.85	66.9001	-0.2258
"	-1917.67	62.1082	60.0423	-0.2387
"	-1858.19	181.07	-256.37	-0.2067
M12	-2555.09	-133.25	-0.0000	0.0498
"	-2499.86	-22.78	188.31	-0.1757
"	-2444.62	87.6779	109.71	-0.2163
"	-2389.39	198.14	-235.80	-0.1590
M13	47.4264	0.0000	0.0000	0.0195
"	47.4264	0.0000	0.0000	0.0369
"	47.4264	0.0000	0.0000	0.0543
"	47.4264	0.0000	0.0000	0.0717
M14	275.35	0.0000	0.0000	0.0404
"	275.35	0.0000	0.0000	0.0519
"	275.35	0.0000	0.0000	0.0633
"	275.35	0.0000	0.0000	0.0748
M15	994.77	0.0000	0.0000	0.0556
"	994.77	0.0000	0.0000	0.0556
"	994.77	0.0000	0.0000	0.0556
"	994.77	0.0000	0.0000	0.0556
M16	275.35	-0.0000	0.0000	0.0365
"	275.35	-0.0000	-0.0000	0.0480
"	275.35	-0.0000	-0.0000	0.0594
"	275.35	-0.0000	-0.0000	0.0709
M17	47.4264	-0.0000	0.0000	0.0395
"	47.4264	-0.0000	-0.0000	0.0570
"	47.4264	-0.0000	-0.0000	0.0744
"	47.4264	-0.0000	-0.0000	0.0918
M18	-532.25	0.0000	0.0000	-0.2114
"	-532.25	0.0000	0.0000	-0.1906
"	-532.25	0.0000	0.0000	-0.1698
"	-532.25	0.0000	0.0000	-0.1489
M19	-658.28	0.0000	0.0000	-0.1377
"	-658.28	0.0000	0.0000	-0.1315
"	-658.28	0.0000	0.0000	-0.1253
"	-658.28	0.0000	0.0000	-0.1191
M20	-658.28	-0.0000	0.0000	0.1993
"	-658.28	-0.0000	-0.0000	0.2055
"	-658.28	-0.0000	-0.0000	0.2117
"	-658.28	-0.0000	-0.0000	0.2178
M21	-532.25	-0.0000	0.0000	0.1958
"	-532.25	-0.0000	-0.0000	0.2166
"	-532.25	-0.0000	-0.0000	0.2375
"	-532.25	-0.0000	-0.0000	0.2583

BENDING & COMP: TRUSS 1 - MEMBER 7

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

Grading:

2x or 4x

Doug-fir larch: No. 2

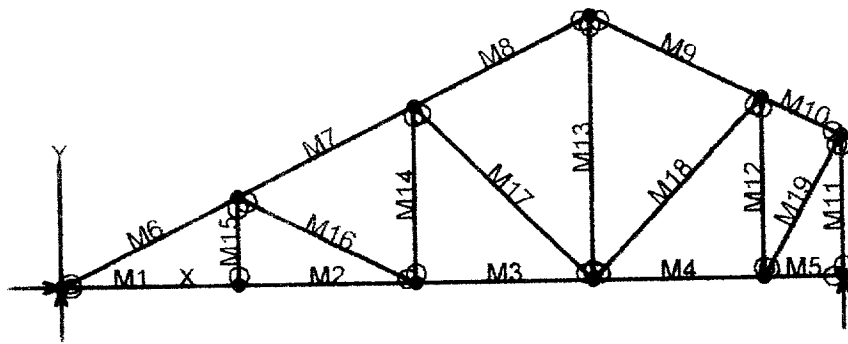
Assumptions:

Solid sheathing on top chord of truss. Therefore,

continuous lateral support is provided along compression face

Maximum center-center spacing = 24"

Width, b	3 inches
Depth, d	3.5 inches
Length	7.27 feet
Max Axial Comp, C	2389 lbs
Max Reaction, R	198 lbs
Max Moment, M	235 ft-lbs
Max LL Deflection	0.08 inches
Max TL Deflection	0.21 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 =	1.21
fc =	228 psi
Fce =	937 psi
Fc* =	1869 psi
F'c =	812 psi
fb =	460 psi
F'b = Fb* =	1887 psi
Shear D/C ratio	0.24 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb / (F'b(1-fc/Fce)) =	0.40 < 1.0, Member OK
Live Load defl ratio	0.22 < 1.0, Member OK
Total Load defl ratio	0.43 < 1.0, Member OK



VisualAnalysis 3.50.c Report

07/25/00 18:38:16

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	7.25	0.00	No	No	"
N3	14.50	0.00	"	"	"
N4	21.75	0.00	"	"	"
N5	28.75	0.00	"	"	"
N6	32.00	0.00	"	Yes	"
N7	7.25	3.63	"	No	"
N8	14.50	7.25	"	"	"
N9	21.75	10.88	"	"	"
N10	28.75	7.38	"	"	"
N11	32.00	5.75	"	"	"

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	7.25
M2	"	"	7.25
M3	"	"	7.25
M4	"	"	7.00
M5	"	"	3.25
M6	"	"	8.11
M7	"	"	8.11
M8	"	"	8.11
M9	"	"	7.83
M10	"	"	3.63
M11	"	"	5.75
M12	"	"	7.38
M13	"	"	10.88
M14	"	"	7.25
M15	"	"	3.63
M16	"	"	8.11
M17	"	"	10.25
M18	"	"	10.17
M19	"	"	6.60

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
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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	1027.20	-NA-
N6	"	-NA-	1027.20	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	1672.96	-29.07	-21.53	-0.1246
"	1672.96	-11.67	27.5947	-0.1124
"	1672.96	5.7310	34.7698	-0.0735
"	1672.96	23.1310	0.0000	-0.0000
M2	1672.96	-27.01	-28.10	-0.1245
"	1672.96	-9.6073	16.0346	-0.1393
"	1672.96	7.7927	18.2271	-0.1401
"	1672.96	25.1927	-21.53	-0.1246
M3	1168.62	-26.64	-32.05	-0.0859
"	1168.62	-9.2442	11.2117	-0.1079
"	1168.62	8.1558	12.5268	-0.1212
"	1168.62	25.5558	-28.10	-0.1245
M4	443.69	-23.10	-17.35	-0.0342
"	443.69	-6.2999	16.8540	-0.0638
"	443.69	10.5001	11.9538	-0.0794
"	443.69	27.3001	-32.05	-0.0859
M5	0.0000	-6.3622	-0.0000	-0.0000
"	0.0000	1.4378	2.6463	-0.0114
"	0.0000	9.2378	-3.1363	-0.0224
"	0.0000	17.0378	-17.35	-0.0342
M6	-1945.37	149.90	0.0000	-0.0000
"	-1883.77	26.6894	237.73	-0.2905
"	-1822.17	-96.52	143.39	-0.2904
"	-1760.56	-219.73	-283.01	-0.1289
M7	-1397.98	182.83	-283.01	-0.1289
"	-1336.37	59.6270	43.7168	-0.1462
"	-1274.77	-63.58	38.3759	-0.1404
"	-1213.16	-186.79	-299.03	-0.1187
M8	-849.87	221.70	-299.03	-0.1187
"	-788.26	98.4946	132.71	-0.2943
"	-726.66	-24.71	232.39	-0.3235
"	-665.06	-147.92	0.0000	-0.0692
M9	-844.56	-211.08	-255.49	-0.0356
"	-785.08	-92.12	139.23	-0.2326
"	-725.60	26.8345	224.40	-0.2822

	-666.12	145.79	0.0000	0.0757
M10	-502.32	-12.53	-0.0000	0.0010
"	-474.71	42.6966	-18.43	0.0033
"	-447.09	97.9275	-103.60	-0.0010
"	-419.48	153.16	-255.49	-0.0356
M11	-1020.84	0.0000	0.0000	0.0179
"	-1020.84	0.0000	0.0000	0.0280
"	-1020.84	0.0000	0.0000	0.0381
"	-1020.84	0.0000	0.0000	0.0482
M12	-744.84	0.0000	0.0000	0.0036
"	-744.84	0.0000	0.0000	0.0185
"	-744.84	0.0000	0.0000	0.0333
"	-744.84	0.0000	0.0000	0.0482
M13	332.62	-0.0000	0.0000	-0.0072
"	332.62	-0.0000	-0.0000	0.0099
"	332.62	-0.0000	-0.0000	0.0269
"	332.62	-0.0000	-0.0000	0.0440
M14	304.73	0.0000	0.0000	0.0223
"	304.73	0.0000	0.0000	0.0257
"	304.73	0.0000	0.0000	0.0292
"	304.73	0.0000	0.0000	0.0326
M15	54.2617	0.0000	0.0000	0.0163
"	54.2617	0.0000	0.0000	0.0241
"	54.2617	0.0000	0.0000	0.0318
"	54.2617	0.0000	0.0000	0.0396
M16	-563.87	0.0000	0.0000	-0.0968
"	-563.87	0.0000	0.0000	-0.0957
"	-563.87	0.0000	0.0000	-0.0946
"	-563.87	0.0000	0.0000	-0.0935
M17	-717.89	0.0000	0.0000	-0.0702
"	-717.89	0.0000	0.0000	-0.0567
"	-717.89	0.0000	0.0000	-0.0431
"	-717.89	0.0000	0.0000	-0.0296
M18	315.66	0.0000	0.0000	-0.0910
"	315.66	0.0000	0.0000	-0.0711
"	315.66	0.0000	0.0000	-0.0512
"	315.66	0.0000	0.0000	-0.0312
M19	901.69	0.0000	0.0000	0.0195
"	901.69	0.0000	0.0000	0.0326
"	901.69	0.0000	0.0000	0.0457
"	901.69	0.0000	0.0000	0.0588

BENDING & COMP: TRUSS 2 - MEMBER 6

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

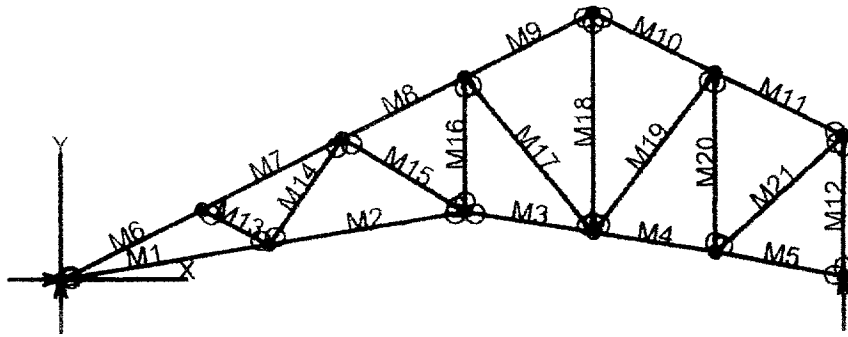
Grading:

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	8.11 feet
Max Axial Comp. C	1760 lbs
Max Reaction, R	219 lbs
Max Moment, M	283 ft-lbs
Max LL Deflection	0.05 inches
Max TL Deflection	0.13 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 =	1.24
fc =	168 psi
Fce =	768 psi
Fc* =	1869 psi
F'c =	688 psi
fb =	554 psi
F'b = Fb* =	1887 psi
Shear D/C ratio	0.26 < 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	0.12 < 1.0, Member OK
Total Load defl ratio	0.24 < 1.0, Member OK



VisualAnalysis 3.50.c Report

07/25/00 18:49:15

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	8.50	1.42	No		No			
N3	16.50	2.75	"		"			
N4	21.75	1.88	"		"			
N5	26.75	1.04	"		"			
N6	32.00	0.00	"		Yes			
N7	5.75	2.88	"		No			
N8	11.50	5.75	"		"			
N9	16.50	8.25	"		"			
N10	21.75	10.88	"		"			
N11	26.75	8.38	"		"			
N12	32.00	5.75	"		"			

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	8.62
M2	"	"	8.11
M3	"	"	5.32
M4	"	"	5.07
M5	"	"	5.35
M6	"	"	6.43
M7	"	"	6.43
M8	"	"	5.59
M9	"	"	5.87
M10	"	"	5.59
M11	"	"	5.87
M12	"	"	5.75
M13	"	"	3.11
M14	"	"	5.27
M15	"	"	5.83
M16	"	"	9.50
M17	"	"	8.26
M18	"	"	9.00
M19	"	"	8.20
M20	"	"	7.33
M21	"	"	7.05

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	1033.60	-NA-
N6	"	-NA-	1033.60	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	2642.06	28.1992	0.0000	-0.0000
"	2645.61	6.9602	50.3469	-0.1591
"	2649.16	-14.28	39.8352	-0.2474
"	2652.71	-35.52	-31.54	-0.2811
M2	2030.08	33.8769	-31.54	-0.2811
"	2033.40	13.8846	32.8859	-0.3184
"	2036.72	-6.1076	43.3976	-0.3162
"	2040.05	-26.10	0.0000	-0.2600
M3	1546.16	-23.43	-19.97	-0.1488
"	1548.34	-10.31	9.9058	-0.1816
"	1550.53	2.8081	16.5613	-0.2096
"	1552.72	15.9272	0.0000	-0.2288
M4	651.30	-18.14	-16.92	-0.0695
"	653.38	-5.6452	3.1251	-0.0965
"	655.47	6.8485	2.1085	-0.1227
"	657.55	19.3421	-19.97	-0.1487
M5	-3.2505	-16.41	-0.0000	0.0301
"	-0.6661	-3.3625	17.5779	-0.0099
"	1.9184	9.6840	11.9391	-0.0404
"	4.5028	22.7305	-16.92	-0.0649
M6	-2979.48	121.50	0.0000	-0.0000
"	-2930.62	23.7791	155.13	-0.1910
"	-2881.76	-73.94	101.39	-0.2621
"	-2832.91	-171.65	-161.23	-0.2597
M7	-2600.48	153.57	-161.23	-0.2597
"	-2551.63	55.8502	62.6306	-0.3114
"	-2502.77	-41.87	77.6140	-0.3235
"	-2453.91	-139.58	-116.27	-0.2828
M8	-1770.28	121.67	-116.27	-0.2828
"	-1727.79	36.6994	30.8811	-0.2779
"	-1685.31	-48.27	20.0997	-0.2611
"	-1642.82	-133.24	-148.62	-0.2396

M5	976.59	159.15	-148.62	0.2396
"	-931.98	69.9294	75.0466	0.2657
"	-887.37	-19.29	124.59	-0.2476
"	-842.76	-108.51	-0.0000	-0.1496
M10	-976.92	-159.81	-180.86	-0.0751
"	-934.44	74.84	37.3610	-0.1272
"	-891.95	10.1312	97.6492	-0.1631
"	-849.47	95.1018	0.0000	-0.1433
M11	-773.07	-103.02	-0.0000	0.0247
"	-728.46	-13.80	113.84	-0.0662
"	-683.85	75.4230	53.5496	-0.0849
"	-639.24	164.64	-180.86	-0.0751
M12	-1016.87	0.0000	0.0000	0.0710
"	-1016.87	0.0000	0.0000	0.0990
"	-1016.87	0.0000	0.0000	0.1270
"	-1016.87	0.0000	0.0000	0.1550
M13	-399.74	0.0000	0.0000	-0.2048
"	-399.74	0.0000	0.0000	-0.1937
"	-399.74	0.0000	0.0000	-0.1826
"	-399.74	0.0000	0.0000	-0.1714
M14	437.43	0.0000	0.0000	-0.2254
"	437.43	0.0000	0.0000	-0.2229
"	437.43	0.0000	0.0000	-0.2205
"	437.43	0.0000	0.0000	-0.2180
M15	-558.81	0.0000	0.0000	-0.1914
"	-558.81	0.0000	0.0000	-0.1822
"	-558.81	0.0000	0.0000	-0.1729
"	-558.81	0.0000	0.0000	-0.1636
M16	918.79	0.0000	0.0000	-0.0950
"	918.79	0.0000	0.0000	-0.0812
"	918.79	0.0000	0.0000	-0.0674
"	918.79	0.0000	0.0000	-0.0537
M17	-1143.07	-0.0000	0.0000	-0.1118
"	-1143.07	-0.0000	-0.0000	-0.0800
"	-1143.07	-0.0000	-0.0000	-0.0483
"	-1143.07	-0.0000	-0.0000	-0.0166
M18	574.67	0.0000	0.0000	-0.1191
"	574.67	0.0000	0.0000	-0.0817
"	574.67	0.0000	0.0000	-0.0444
"	574.67	0.0000	0.0000	-0.0070
M19	257.38	0.0000	0.0000	-0.1985
"	257.38	0.0000	0.0000	-0.1608
"	257.38	0.0000	0.0000	-0.1232
"	257.38	0.0000	0.0000	-0.0856
M20	-645.22	-0.0000	0.0000	0.0314
"	-645.22	-0.0000	-0.0000	0.0664
"	-645.22	-0.0000	-0.0000	0.1015
"	-645.22	-0.0000	-0.0000	0.1366
M21	867.05	0.0000	0.0000	-0.1606
"	867.05	0.0000	0.0000	-0.1248
"	867.05	0.0000	0.0000	-0.0890
"	867.05	0.0000	0.0000	-0.0533

BENDING & COMP: TRUSS 3 - MEMBER 6

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

Grading:

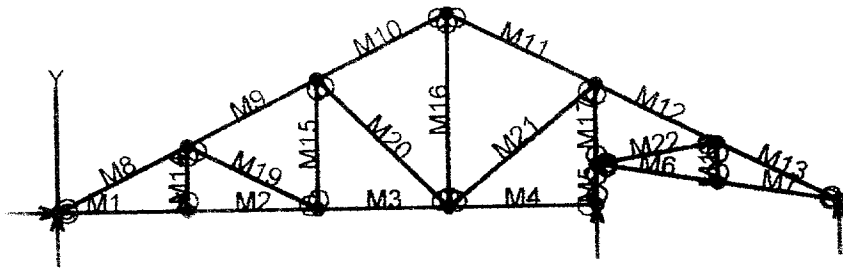
2x or 4x

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	6.43 feet
Max Axial Comp. C	2832 lbs
Max Reaction, R	171 lbs
Max Moment, M	161 ft-lbs
Max LL Deflection	0.1 inches
Max TL Deflection	0.26 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 =	1.19
fc =	539 psi
Fce =	1173 psi
Fc* =	1869 psi
F'c =	966 psi
fb =	631 psi
F'b = Fb* =	1887 psi
Shear D/C ratio	0.41 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb / (F'b(1-fc/Fce)) =	0.93 < 1.0, Member OK
Live Load defl ratio	0.31 < 1.0, Member OK
Total Load defl ratio	0.61 < 1.0, Member OK



	-1724.25	16.5510	237.35	-0.2849
	-1662.64	-96.66	142.58	-0.2796
	-1601.04	-219.86	-284.13	-0.1140
M9	-1233.28	182.91	-284.13	-0.1140
	-1171.68	59.6995	42.7908	-0.1236
	-1110.07	-63.51	37.6458	-0.1214
	-1048.47	186.72	-299.55	-0.1993
M10	-683.97	221.77	-299.55	-0.0993
	-622.36	98.5605	132.36	-0.2753
	-560.76	-24.65	232.21	-0.3053
	-499.16	-147.85	0.0000	-0.0521
M11	-698.48	-250.79	-373.45	-0.0068
	-628.38	-110.59	181.02	-0.3607
	-558.28	29.6129	305.50	-0.4526
	-488.18	169.81	0.0000	-0.0612
M12	-75.86	-151.72	-219.89	-0.0432
	-18.50	-37.01	16.7633	-0.0027
	38.8515	77.7031	-34.42	0.0298
	96.2057	192.41	-373.45	-0.0068
M13	-835.26	-142.93	-0.0000	0.0022
	-777.91	-28.22	214.54	-0.2125
	-720.55	86.4924	141.25	-0.1985
	-663.20	201.20	-219.89	-0.0432
M14	58.7474	0.0000	0.0000	0.0149
	58.7474	0.0000	0.0000	0.0214
	58.7474	0.0000	0.0000	0.0280
	58.7474	0.0000	0.0000	0.0345
M15	306.35	0.0000	0.0000	0.0168
	306.35	0.0000	0.0000	0.0211
	306.35	0.0000	0.0000	0.0255
	306.35	0.0000	0.0000	0.0298
M16	157.42	-0.0000	0.0000	-0.0101
	157.42	-0.0000	-0.0000	0.0065
	157.42	-0.0000	-0.0000	0.0232
	157.42	-0.0000	-0.0000	0.0398
M17	-1171.19	0.0000	0.0000	-0.0087
	-1171.19	0.0000	0.0000	-0.0033
	-1171.19	0.0000	0.0000	0.0022
	-1171.19	0.0000	0.0000	0.0077
M18	60.8654	-0.0000	-0.0000	-0.0089
	60.8654	-0.0000	-0.0000	-0.0088
	60.8654	-0.0000	-0.0000	-0.0087
	60.8654	-0.0000	0.0000	-0.0086
M19	-569.14	-0.0000	0.0000	-0.0832
	-569.14	-0.0000	-0.0000	-0.0825
	-569.14	-0.0000	-0.0000	-0.0818
	-569.14	-0.0000	-0.0000	-0.0811
M20	-719.41	0.0000	0.0000	-0.0607
	-719.41	0.0000	0.0000	-0.0466
	-719.41	0.0000	0.0000	-0.0324
	-719.41	0.0000	0.0000	-0.0183
M21	662.29	0.0000	0.0000	-0.0760
	662.29	0.0000	0.0000	-0.0552
	662.29	0.0000	0.0000	-0.0344
	662.29	0.0000	0.0000	-0.0137
M22	-692.59	-0.0000	-0.0000	-0.0421
	-692.59	-0.0000	-0.0000	-0.0290
	-692.59	-0.0000	-0.0000	-0.0159
	-692.59	-0.0000	0.0000	-0.0028

Material Properties

	Material	Strength psi	Elasticity psi	Poisson psi	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
M1	Equation Case 1	0.00	956.55	-NA-
B5	"	-NA-	1445.16	-NA-
B6	"	-NA-	408.39	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	1530.34	-31.15	-26.12	-0.1105
"	1530.34	-12.79	26.8593	-0.1026
"	1530.34	5.5801	35.5672	-0.0690
"	1530.34	23.9467	0.0000	-0.0000
B2	1530.34	-27.51	-25.30	-0.1056
"	1530.34	-9.1392	18.3647	-0.1236
"	1530.34	9.2275	18.2581	-0.1251
"	1530.34	27.5941	-26.12	-0.1105
M2	1021.28	-30.78	-49.25	-0.0656
"	1021.28	-12.42	2.8401	-0.0810
"	1021.28	5.9493	10.6557	-0.0972
"	1021.28	24.3159	-25.80	-0.1056
B4	0.0000	-25.38	0.0000	-0.0000
"	0.0000	-4.4802	40.9144	-0.0659
"	0.0000	16.4198	24.4975	-0.0800
"	0.0000	37.3198	-49.25	-0.0656
M5	-1419.78	0.0000	0.0000	-0.0398
"	-1419.78	0.0000	0.0000	-0.0236
"	-1419.78	0.0000	0.0000	-0.0074
"	-1419.78	0.0000	0.0000	0.0087
M6	687.61	-29.52	-28.87	-0.0451
"	690.40	-12.65	19.1339	-0.0509
"	693.20	4.2157	28.7564	-0.0409
"	696.00	21.0851	0.0000	-0.0057
M7	689.14	-21.08	0.0000	0.0008
"	691.96	-4.2147	28.7564	-0.0366
"	694.79	12.6506	19.1339	-0.0487
"	697.61	29.5159	-28.87	-0.0451
M8	-1785.85	149.76	0.0000	-0.0000

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VisualAnalysis 3.50.c Report

07/25/00 18:58:57

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	7.25	0.00	No		No		"	
N3	14.50	0.00	"		"		"	
N4	21.75	0.00	"		"		"	
N5	30.00	0.00	"		Yes		"	
N6	30.00	2.25	"		No		"	
N7	36.75	1.13	"		"		"	
N8	43.50	0.00	"		Yes		"	
N9	7.25	3.63	"		No		"	
N10	14.50	7.25	"		"		"	
N11	21.75	10.88	"		"		"	
N12	30.00	6.75	"		"		"	
N13	36.75	3.38	"		"		"	

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	7.25
M2	"	"	7.25
M3	"	"	7.25
M4	"	"	8.25
M5	"	"	2.25
M6	"	"	6.84
M7	"	"	6.84
M8	"	"	8.11
M9	"	"	8.11
M10	"	"	8.11
M11	"	"	9.22
M12	"	"	7.55
M13	"	"	7.55
M14	"	"	3.63
M15	"	"	7.25
M16	"	"	10.88
M17	"	"	4.50
M18	"	"	2.25
M19	"	"	8.11
M20	"	"	10.25
M21	"	"	10.66
M22	"	"	6.84

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

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BENDING & COMP: TRUSS 4 - 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	8.11 feet
Max Axial Comp. C	1601 lbs
Max Reaction, R	219 lbs
Max Moment, M	284 ft-lbs
Max LL Deflection	0.04 inches
Max TL Deflection	0.11 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 =	1.24
fc =	305 psi
Fcc =	768 psi
Fc* =	1869 psi
F'c =	688 psi
fb =	1113 psi
F'b = Fb* =	1887 psi
Shear D/C ratio	0.53 < 1.0, Member OK
Interaction equation (fc/F'c)^2 +	
fb/ (F'b(1-fc/Fcc)) =	1.17 > 1.0, Member No Good.
Live Load defl ratio	0.10 < 1.0, Member OK
Total Load defl ratio	0.20 < 1.0, Member OK