

CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0113139

Insp Area: 4

Thos Bros: 277B5

Site Address: 30 CEDRO CR SAC

Parcel No: 225-0612-027

Sub-Type: RES

Housing (Y/N): N

CONTRACTOR

BRAZIL QUALITY ROOFING INC
POB7703
CITRUS HEIGHTS CA 95621

OWNER

JUNG MARVIN/SHERRY TAN
1370 PEBBLEWOOD DR
SACRAMENTO CA 95833

ARCHITECT

Nature of Work: TEAR OFF AND RESHEET 25 SQ'S W/PIONEER LIGHT WEIGHT 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 C39 License Number 747348 Date 10/12/01

Contractor Signature J. Cahra

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 10/12/01

Applicant/Agent Signature J. Cahra

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.

he 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 285-01UNIT 0001786

Exp Date 01/01/2002

(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.

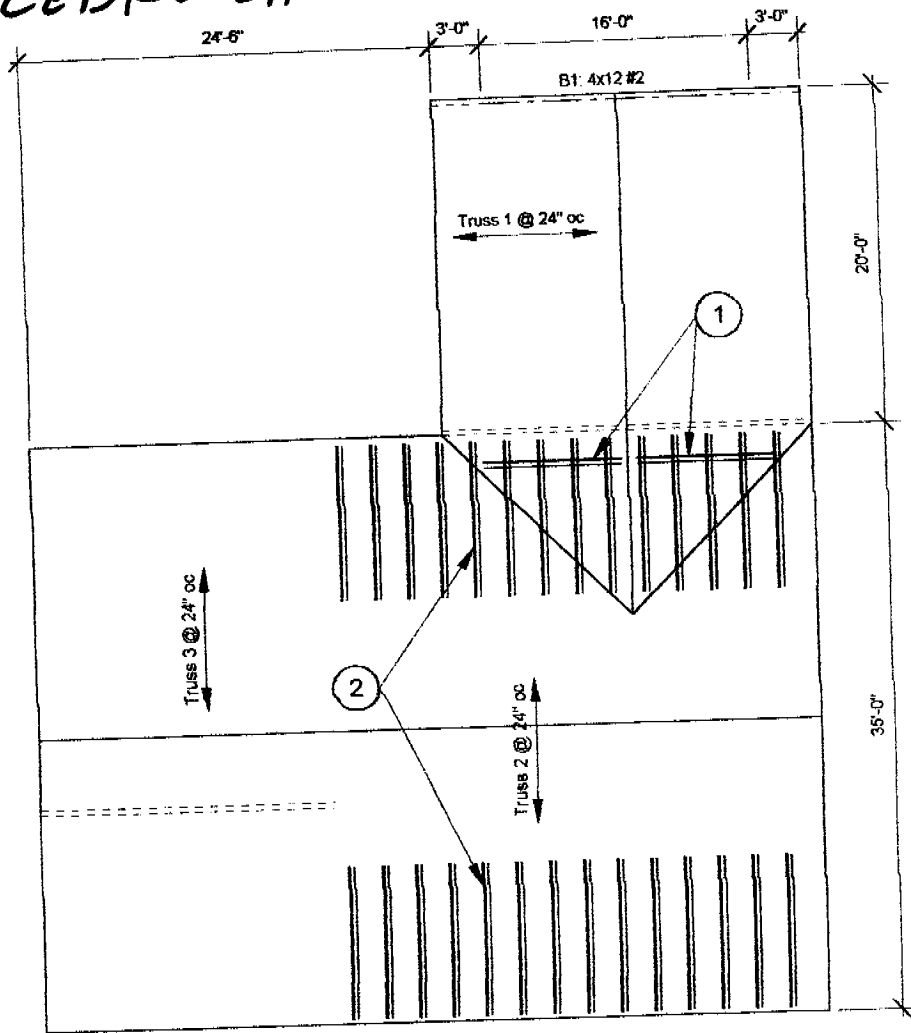
Date 10/12/01

Applicant Signature J. Cahra

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.

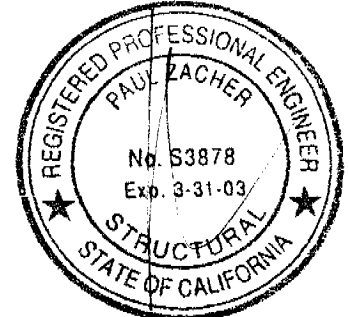
30 CED120 CIR.



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 or approve the violation of any City Ordinance or State Law.

Paul Zacher 10/10/01



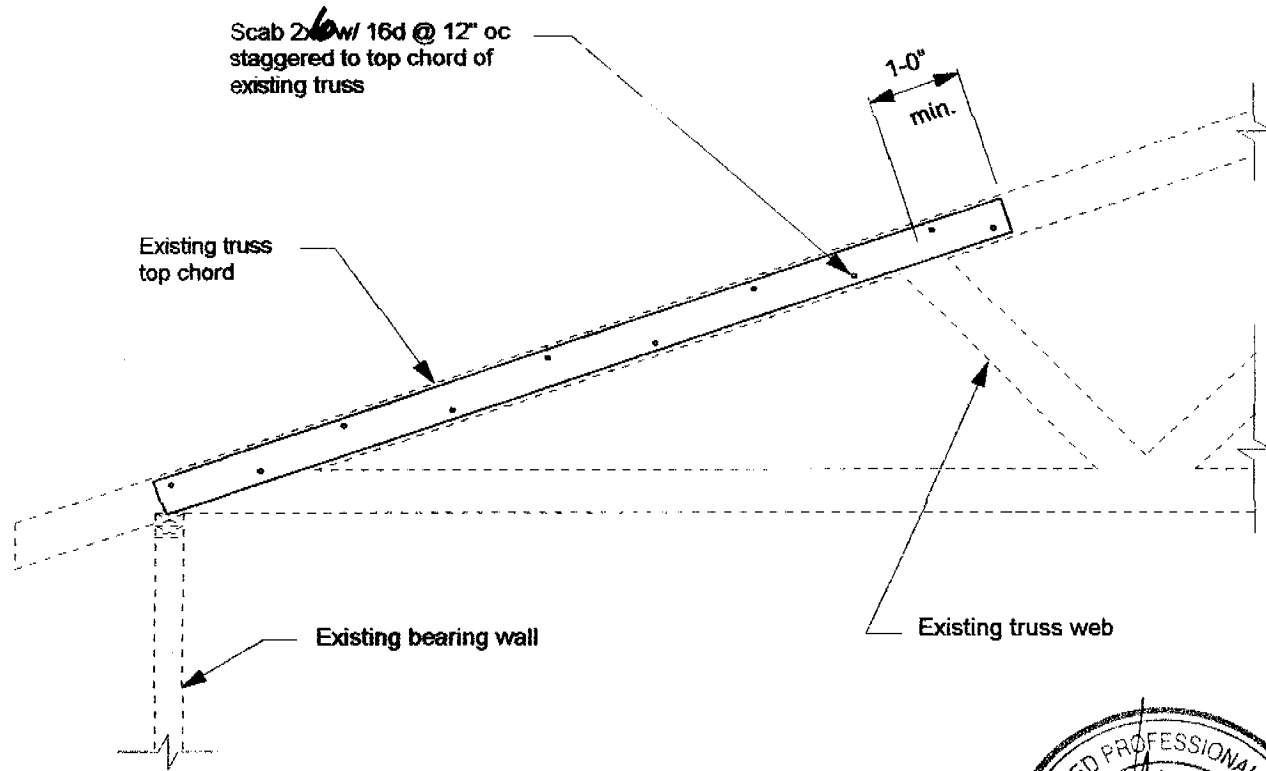
FRAMING NOTES:

1. Scab a 2x4 to existing 2x4 rafters where the span is greater than 7'-9" (total 2).
2. Scab a 2x6 DF#2 x 13'-0" long rafter to the top chord of the existing truss #1 (total 28). See detail 2.

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 structural wood members that were observed appear to be in sound condition and without structural defect.

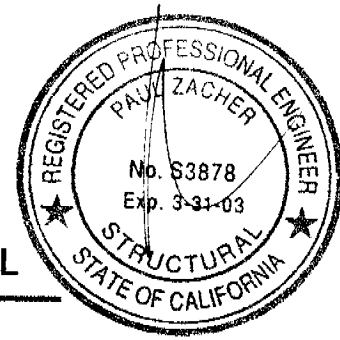
1 ROOF PLAN - JUNG
Not to Scale 20



2

TRUSS REINFORCEMENT DETAIL

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



Jung



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

TEL: 916.961.3960
FAX: 916.961.6552

P
A
U
L
Z
A
C
H
E
R
-
S
T
R
U
C
T
U
R
A
L
E
N
G
I
N
E
E
R
S
-
S
A
C
R
A
M
E
N
T
O
-
C
A
-
9
5
6
2
8

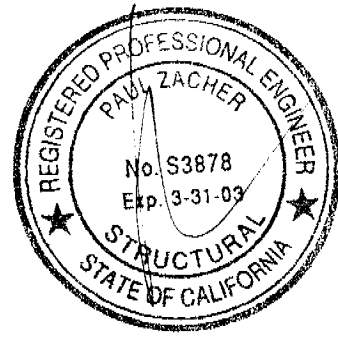
October 2, 2001

Brazil Roofing
11300 Coloma Road
Gold River, CA 95670
TEL: (916) 858-8050
FAX: (916) 858-8052

Attn.: Mr. Mike Brazil,

re: Job 2001_304: JUNG

Subject: Structural Investigation Report of the Roof for the Residence located at 30 Cedro Circle, Sacramento, CA 95833.



As requested by Mr. Mike Brazil, this is a report to determine what needs should be addressed to correct any structural deficiencies of the roof. Paul Zacher visited the site October 2, 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 1980's vintage.
Occupancy:	Residential.
No. of Stories:	One.
Dimensions:	Approximately 1500 square feet with a first story plate height of 8 feet.

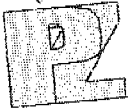
CONSTRUCTION:

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

CONCLUSIONS:

Roof:
The roof structure currently lacks sufficient structural capacity for the applied live and dead loads. See "Recommendations" for location and repair to bring the roof structure up to the required capacity.

Jung



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.

Roof Structure:

1. Scab a 2x4 rafter to the existing 2x4 rafters with 16d's @ 12" on center where the span is greater than 7'-9". See detail 1.
2. Scab a 2x6 DF#2 x 13'-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

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

Job #
 Date: 4:13PM, 2 OCT 01

Title :
 Dsgnr:
 Description :

Scope :

Timber Beam & Joist

c:\enercalc\test.ecw\Calculations

Rev: 510304
 User: KW-0602844, Ver 5.1.3, 22-Jun-1999, Win32
 (c) 1983-99 ENERCALC

Description **RAFTERS AND BEAMS**

Calculations are designed to 1997 NDS and 1997 UBC Requirements

Timber Member Information

		rafter 2x4	rafter 2-2x4	B1 4x12
Beam Width	in	1.500	3.000	3.500
Beam Depth	in	3.500	3.500	11.250
Le: Unbraced Length	ft	0.00	0.00	0.00
Timber Grade		Douglas Fir - Larch	Douglas Fir - Larch	Douglas Fir - Larch
Fb - Basic Allow	psi	875.0	875.0	1,000.0
Fv - Basic Allow	psi	95.0	95.0	95.0
Elastic Modulus	ksi	1,600.0	1,600.0	1,700.0
Load Duration Factor		1.250	1.250	1.250
Member Type		Sawn	Sawn	Sawn
Repetitive Status		Repetitive	Repetitive	No

Center Span Data

		7.75	9.75	16.00
Span	ft			
Dead Load	#/ft	22.20	22.20	62.00
Live Load	#/ft	32.00	32.00	64.00

Ratio =	0.8451	0.6688	0.4766
---------	--------	--------	--------

Results

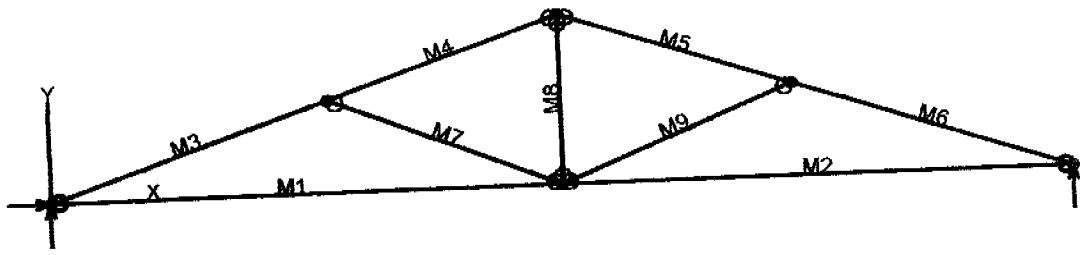
		4.88	7.73	48.38
Mmax @ Center	in-k			
@ X =	ft	3.87	4.87	8.00
Fb: Actual	psi	1,594.5	1,261.8	655.4
Fb: Allowable	psi	1,886.7	1,886.7	1,375.0
		Bending OK	Bending OK	Bending OK
Fv: Actual	psi	55.7	35.6	34.1
Fv: Allowable	psi	118.8	118.8	118.8
		Shear OK	Shear OK	Shear OK

Reactions

		86.02	108.22	496.00
@ Left End	DL	124.00	156.00	512.00
	LL	210.02	264.22	1,008.00
	Max. DL+LL			
@ Right End	DL	86.02	108.22	496.00
	LL	124.00	156.00	512.00
	Max. DL+LL	210.02	264.22	1,008.00

Deflections

		Ratio OK	Deflection OK	Deflection OK
Center DL Defl	in	-0.210	-0.263	-0.129
L/Defl Ratio		442.6	444.5	1,482.7
Center LL Defl	in	-0.303	-0.379	-0.134
L/Defl Ratio		307.0	308.4	1,436.4
Center Total Defl	in	-0.513	-0.643	-0.263
Location	ft	3.875	4.875	8.000
L/Defl Ratio		181.3	182.1	729.6



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	723.11	-NA-
N3	"	-NA-	723.11	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	1638.91	-57.36	-110.71	-0.1481
"	1638.91	-25.83	41.5251	-0.2120
"	1638.91	5.7019	78.4291	-0.1937
"	1638.91	37.2353	0.0000	-0.0000
M2	1638.91	-37.24	-0.0000	-0.0000
"	1638.91	-5.7019	78.4291	-0.1937
"	1638.91	25.8314	41.5251	-0.2119
"	1638.91	57.3647	-110.71	-0.1481
M3	-1771.70	132.41	0.0000	-0.0000
"	-1735.57	24.0059	164.30	-0.1526
"	-1699.43	-84.39	100.65	-0.1827
"	-1663.30	-192.79	-190.96	-0.1436
M4	-1231.73	171.73	-190.96	-0.1436
"	-1201.56	81.3924	31.0247	-0.1673
"	-1171.39	-8.9409	94.6796	-0.1804
"	-1141.22	-99.27	-0.0000	-0.1457
M5	-1231.73	-171.73	-190.96	-0.1282
"	-1201.56	-81.39	31.0247	-0.1520
"	-1171.39	8.9409	94.6796	-0.1650
"	-1141.22	99.2743	0.0000	-0.1303
M6	-1771.70	-132.41	0.0000	0.0153
"	-1735.57	-24.01	164.30	-0.1373
"	-1699.43	84.3941	100.65	-0.1674
"	-1663.30	192.79	-190.96	-0.1283
M7	-565.47	-0.0000	-0.0000	-0.1285
"	-565.47	-0.0000	-0.0000	-0.1254
"	-565.47	-0.0000	-0.0000	-0.1222
"	-565.47	-0.0000	0.0000	-0.1191
M8	534.75	-0.0000	-0.0000	-0.0242
"	534.75	-0.0000	0.0000	-0.0242
"	534.75	-0.0000	-0.0000	-0.0242
"	534.75	-0.0000	-0.0000	-0.0242
M9	-565.47	0.0000	0.0000	-0.1465
"	-565.47	0.0000	0.0000	-0.1434
"	-565.47	0.0000	0.0000	-0.1402
"	-565.47	0.0000	0.0000	-0.1371

BENDING & COMP: TRUSS 1 - MEMBER 3

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

Grading:

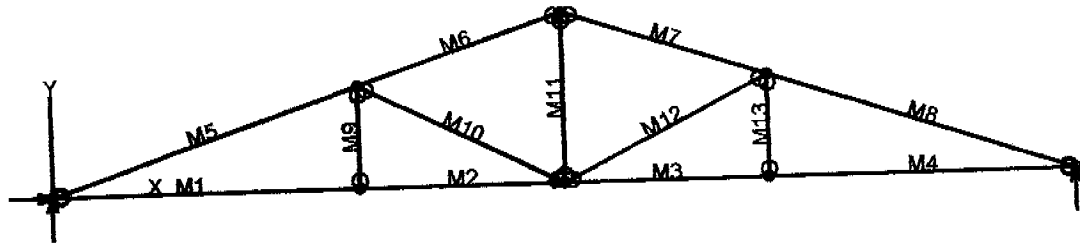
2x or 4x

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	6.32 feet
Max Axial Comp, C	166 feet
Max Reaction, R	192 feet
Max Moment, M	190 feet
Max LL Deflection	0.07 feet
Max TL Deflection	0.14 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 =	1.17
fc =	32 psi
Fce =	1275 psi
Fc* =	2084 psi
F'c =	1057 psi
fb =	744 psi
F'b = Fb* =	2156 psi
Shear D/C ratio	0.46 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb / (F'b(1-fc/Fce)) =	0.35 < 1.0, Member OK
Live Load defl ratio	0.22 < 1.0, Member OK
Total Load defl ratio	0.33 < 1.0, Member OK



VisualAnalysis 3.50.c Report

10/02/01 15:58:44

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
N1	0.00	0.00	Yes	Yes	No
N2	10.50	0.00	No	No	"
N3	17.50	0.00	"	"	"
N4	24.50	0.00	"	"	"
N5	35.00	0.00	"	Yes	"
N6	10.50	3.50	"	No	"
N7	24.50	3.50	"	"	"
N8	17.50	5.83	"	"	"

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	10.50
M2	"	"	7.00
M3	"	"	7.00
M4	"	"	10.50
M5	"	"	11.07
M6	"	"	7.38
M7	"	"	7.38
M8	"	"	11.07
M9	"	"	3.50
M10	"	"	7.83
M11	"	"	5.83
M12	"	"	7.83
M13	"	"	3.50

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	1150.25	-NA-
N5	"	-NA-	1150.25	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	2598.90	-50.71	-58.40	-0.3648
"	2598.90	-20.61	66.1518	-0.3918
"	2598.90	9.4879	85.6192	-0.2852
"	2598.90	39.5879	0.0000	-0.0000
M2	2598.90	-24.56	-19.61	-0.3767
"	2598.90	-4.4922	14.1614	-0.3790
"	2598.90	15.5744	1.2322	-0.3706
"	2598.90	35.6411	-58.40	-0.3648
M3	2598.90	-35.64	-58.40	-0.3648
"	2598.90	-15.57	1.2322	-0.3706
"	2598.90	4.4922	14.1614	-0.3790
"	2598.90	24.5589	-19.61	-0.3767
M4	2598.90	-39.59	-0.0000	-0.0000
"	2598.90	-9.4879	85.6192	-0.2852
"	2598.90	20.6121	66.1518	-0.3918
"	2598.90	50.7121	-58.40	-0.3648
M5	-2816.75	231.82	0.0000	-0.0000
"	-2753.52	42.1223	503.59	-1.1070
"	-2690.29	-147.58	309.06	-1.0646
"	-2627.05	-337.28	-583.59	-0.3706
M6	-1912.45	268.80	-583.59	-0.3706
"	-1870.35	142.34	-78.83	-0.3258
"	-1828.26	15.8695	115.70	-0.3994
"	-1786.16	-110.60	-0.0000	-0.3699
M7	-1912.45	-268.80	-583.59	-0.3320
"	-1870.35	-142.34	-78.83	-0.2872
"	-1828.26	-15.87	115.70	-0.3607
"	-1786.16	110.60	0.0000	-0.3313
M8	-2816.75	-231.82	0.0000	0.0387
"	-2753.52	-42.12	503.59	-1.0685
"	-2690.29	147.58	309.06	-1.0258
"	-2627.05	337.28	-583.59	-0.3319
M9	86.3532	0.0000	0.0000	0.0367
"	86.3532	0.0000	0.0000	0.0507
"	86.3532	0.0000	0.0000	0.0647
"	86.3532	0.0000	0.0000	0.0788
M10	-971.82	-0.0000	-0.0000	-0.3096
"	-971.82	-0.0000	-0.0000	-0.3033
"	-971.82	-0.0000	-0.0000	-0.2970
"	-971.82	-0.0000	0.0000	-0.2907
M11	918.34	0.0000	0.0000	-0.0612
"	918.34	0.0000	0.0000	-0.0612
"	918.34	0.0000	0.0000	-0.0612

"	918.34	0.0000	0.0000	-0.0612
M12	-971.82	0.0000	0.0000	-0.3643
"	-971.82	0.0000	0.0000	-0.3580
"	-971.82	0.0000	0.0000	-0.3517
"	-971.82	0.0000	0.0000	-0.3454
M13	86.3532	-0.0000	0.0000	0.0435
"	86.3532	-0.0000	-0.0000	0.0576
"	86.3532	-0.0000	-0.0000	0.0716
"	86.3532	-0.0000	-0.0000	0.0856

BENDING & COMP: TRUSS 2 - MEMBER 5

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

Grading:

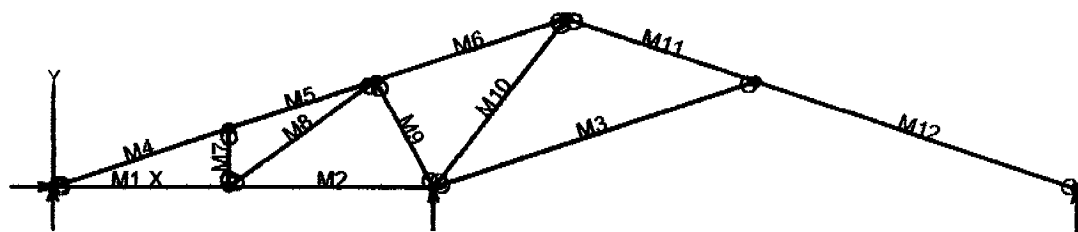
2x or 4x

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	5.5 inches
Length	11.07 feet
Max Axial Comp, C	2627 feet
Max Reaction, R	337 feet
Max Moment, M	583 feet
Max LL Deflection	0.18 feet
Max TL Deflection	0.37 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	1.3 1.5 for 2x4, 1.3 for 2x6
Size Factor, Cf comp	1.1 1.15 for 2x4, 1.1 for 2x6
Buckling Factor, CT =	1.30
fc =	318 psi
Fcc=	1141 psi
Fc*=	1994 psi
F'c=	961 psi
fb=	925 psi
F'b=Fb*=	1869 psi
Shear D/C ratio	0.52 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb/ (F'b(1-fc/Fcc)) =	0.80 < 1.0, Member OK
Live Load defl ratio	0.33 < 1.0, Member OK
Total Load defl ratio	0.50 < 1.0, Member OK



VisualAnalysis 3.50.c Report

10/02/01 16:04:15

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	6.00	0.00	No	No	"
N3	13.00	0.00	"	Yes	"
N4	24.00	3.67	"	No	"
N5	35.00	0.00	"	Yes	"
N6	6.00	2.00	"	No	"
N7	11.00	3.67	"	"	"
N8	17.50	5.83	"	"	"

Member Elements

Member	Section	Material	Length ft
M1	SS2x4	Wood	6.00
M2	"	"	7.00
M3	"	"	11.60
M4	"	"	6.32
M5	"	"	5.27
M6	"	"	6.85
M7	"	"	2.00
M8	"	"	6.20
M9	"	"	4.18
M10	"	"	7.36
M11	SS2x8	"	6.85
M12	"	"	11.60

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
"	SS2x8	10.88	47.63	13.14	13.14

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

16

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	-202.07	-NA-
N3	"	-NA-	2131.61	-NA-
N5	"	-NA-	281.49	-NA-

Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M1	-1076.00	-35.81	-60.04	0.0367
"	-1076.00	-18.61	-5.7153	0.0258
"	-1076.00	-1.4073	14.2994	0.0086
"	-1076.00	15.7927	0.0000	0.0000
M2	-1634.95	-21.52	-0.0000	-0.0000
"	-1634.95	-1.4556	26.6905	-0.0045
"	-1634.95	18.6110	6.6759	0.0146
"	-1634.95	38.6777	-60.04	0.0367
M3	-1025.65	47.3000	0.0000	0.0076
"	-1015.13	15.7667	121.58	-0.3823
"	-1004.61	-15.77	121.58	-0.4566
"	-994.09	-47.30	0.0000	-0.2149
M4	1089.68	133.58	0.0000	0.0000
"	1125.82	25.1776	166.77	-0.0960
"	1161.95	-83.22	105.59	-0.0675
"	1198.08	-191.62	-183.55	0.0345
M5	1091.82	127.58	-183.55	0.0345
"	1121.99	37.2514	-39.13	0.0599
"	1152.17	-53.08	-53.04	0.0550
"	1182.34	-143.42	-225.28	0.0116
M6	1944.07	209.04	-225.28	0.0116
"	1983.09	91.6065	117.26	-0.1472
"	2022.12	-25.83	192.36	-0.2116
"	2061.14	-143.26	-0.0000	-0.1078
M7	-335.78	-0.0000	-0.0000	-0.0087
"	-335.78	-0.0000	-0.0000	-0.0063
"	-335.78	-0.0000	-0.0000	-0.0040
"	-335.78	-0.0000	0.0000	-0.0017
M8	693.36	-0.0000	-0.0000	0.0056
"	693.36	-0.0000	-0.0000	0.0153
"	693.36	-0.0000	-0.0000	0.0250
"	693.36	-0.0000	0.0000	0.0347
M9	-576.45	0.0000	0.0000	-0.0211
"	-576.45	0.0000	0.0000	-0.0076
"	-576.45	0.0000	0.0000	0.0060
"	-576.45	0.0000	0.0000	0.0196
M10	-1559.41	-0.0000	-0.0000	-0.1096
"	-1559.41	-0.0000	-0.0000	-0.0667
"	-1559.41	-0.0000	-0.0000	-0.0238
"	-1559.41	-0.0000	0.0000	0.0191
M11	933.45	-228.77	-360.40	-0.1951
"	972.47	-111.33	27.1808	-0.1567

0
3
" "
" "
M12
"
"
"

1011.50	6.0992	147.32	-0.1176
1050.52	123.53	0.0000	-0.0647
-89.09	-267.02	-0.0000	0.0328
-22.78	-68.29	646.12	-0.2161
43.5217	130.45	525.99	-0.2793
109.83	329.18	-360.40	-0.1950

BENDING & COMP: TRUSS 3 - MEMBER 12

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	7.25 inches
Length	11.6 feet
Max Axial Comp, C	22 feet
Max Reaction, R	68 feet
Max Moment, M	646 feet
Max LL Deflection	0.1 feet
Max TL Deflection	0.21 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	1.3 1.5 for 2x4, 1.3 for 2x6
Size Factor, Cf comp	1.1 1.15 for 2x4, 1.1 for 2x6
Buckling Factor, CT =	1.32
fc =	2 psi
Fce =	1825 psi
Fc* =	1994 psi
F'c =	1315 psi
fb =	590 psi
F'b = Fb* =	1869 psi
Shear D/C ratio	0.08 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb / (F'b(1-fc/Fce)) =	0.32 < 1.0, Member OK
Live Load defl ratio	0.17 < 1.0, Member OK
Total Load defl ratio	0.27 < 1.0, Member OK