

**CITY OF SACRAMENTO**

1231 I Street, Sacramento, CA 95814

Permit No: 0203914

Insp Area: 2  
Thos Bros: 336 H2

Site Address: 629 CUTTING WY SAC  
Parcel No: 031-1160-018

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

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

OWNER  
KADOKAWA CINDY A  
629 CUTTING WY  
SACRAMENTO CA 95831

ARCHITECT

Nature of Work: T/O REROOF WITH LITE 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-31 License Number 557559 Date 4/5/02 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, non profit 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 information provided by 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 4/5/02 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 FUND Policy Number 713-2021-01 Exp Date 10/01/2002

(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 4/5/02 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.**

0203914

Kadakowa



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

TEL: 916.961.3960  
FAX: 916.961.6552

March 19, 2002

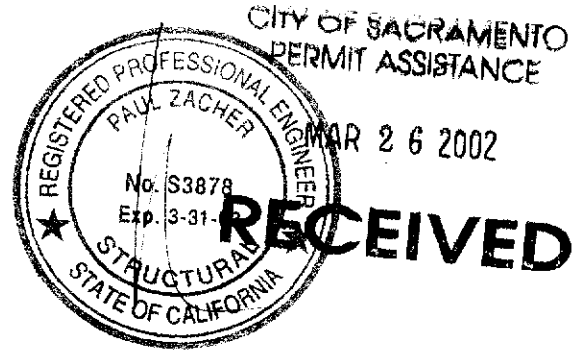
Zimmerman Roofing  
3675 R Street  
Sacramento, CA 95816  
TEL: (916) 454-3667  
FAX: (916) 691-1943

Attn.: Mr. Jeff Tucker,

re: Job 2002084: KADAKOWA

Subject: Structural Investigation Report of the Roof for the Residence located at 629 Cutting Way,  
Sacramento, CA 95831.

ISSUED  
APR 01 2002  
Sacramento Building Division



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 March 19, 2002. 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 2000 square feet.



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.

**CONSTRUCTION:**

Roof: *All work subject to field inspection JR 3/30/02*  
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 has sufficient structural capacity for the applied live and dead loads.

**RECOMMENDATIONS:**

None.

PREPARED BY: JAZ

1/29

Kadakowa



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	

The dead and live load on truss top chord is placed along the length of the top chord. Therefore, the live load is as follows:

Live Load on top chord	15.2
------------------------	------

**LOCATION: TOP CHORD**

<u>MATERIAL</u>	<u>WEIGHT</u>	
Light Weight Tile	7.30	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
Total Load	10.8	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

4

P.K. Zacher, S.E.

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

Job #: 02-084

Date: 3/19/02

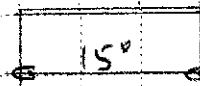
LOADING

91/96

B1

Op: 15.1 puf @ 6° = 91 puf

4.12" x 2



Lp: 16.0 " " " " = 96 "

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

Title :  
 Dsgnr:  
 Description :

Job #  
 Date: 12:14PM, 19 MAR 02

Scope :

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

### Timber Beam & Joist

c:\enercalc\test ecw\Calculations

Description BEAM

#### Timber Member Information

Calculations are designed to 1997 NDS and 1997 UBC Requirements

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

#### Center Span Data

Span	ft	15.00
Dead Load	#/ft	91.00
Live Load	#/ft	96.00

#### Results

Ratio = 0.7105

Mmax @ Center	in-k	63.11
@ X =	ft	7.50
fb : Actual	psi	854.9
Fb : Allowable	psi	1,203.1
		<b>Bending OK</b>
fv : Actual	psi	47.0
Fv : Allowable	psi	118.8
		<b>Shear OK</b>

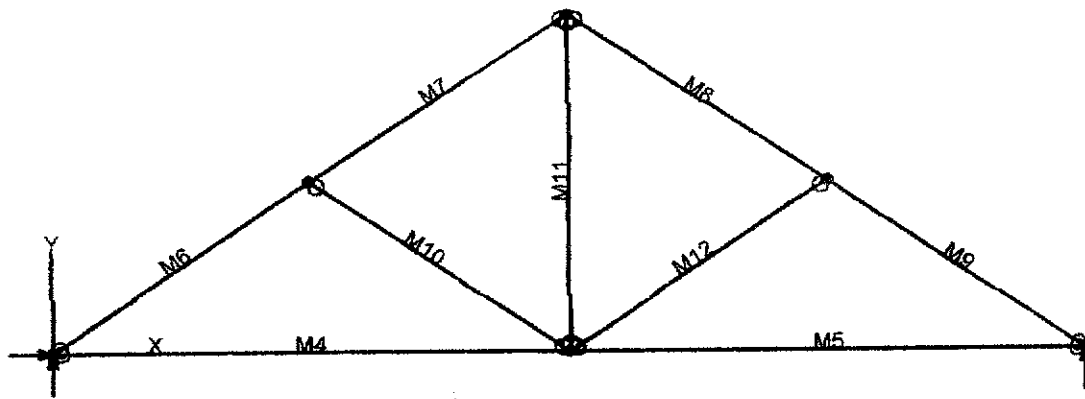
#### Reactions

@ Left End	DL	lbs	682.50
	LL	lbs	720.00
	Max. DL+LL	lbs	1,402.50
@ Right End	DL	lbs	682.50
	LL	lbs	720.00
	Max. DL+LL	lbs	1,402.50

#### Deflections

Ratio OK

Center DL Defl	in	-0.156
L/Defl Ratio		1,153.9
Center LL Defl	in	-0.165
L/Defl Ratio		1,093.8
Center Total Defl	in	-0.321
Location	ft	7.500
L/Defl Ratio		561.5



# VisualAnalysis 3.50.c Report

03/12/02 18:06:39

Project: Truss 1

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	19.00	0.00	No		"		"	
N3	9.50	6.33	"		No		"	
N4	9.50	0.00	"		"		"	
N5	4.75	3.17	"		"		"	
N6	14.25	3.17	"		"		"	

## Member Elements

Member	Section	Material	Length ft
M4	SS2x4	Wood	9.50
M5	"	"	9.50
M6	"	"	5.71
M7	"	"	5.71
M8	"	"	5.71
M9	"	"	5.71
M10	"	"	5.71
M11	"	"	6.33
M12	"	"	5.71

## 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	675.32	-NA-
N2	"	-NA-	675.32	-NA-

## Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M4	796.07	-50.30	-89.81	-0.0411
"	796.07	-23.07	26.1508	-0.0828
"	796.07	4.1631	56.0871	-0.0879
"	<b>796.07</b>	31.3965	0.0000	-0.0000
M5	796.07	-31.40	-0.0000	-0.0000
"	796.07	-4.1631	56.0871	-0.0879
"	796.07	23.0702	26.1508	-0.0828
"	796.07	50.3035	-89.81	-0.0411
M6	<b>-1019.53</b>	94.4413	0.0000	-0.0000
"	-964.67	12.1080	<b>100.97</b>	-0.0610
"	-909.81	-70.23	45.6822	-0.0617
"	-854.95	<b>-152.56</b>	<b>-165.86</b>	-0.0396
M7	-727.65	<b>152.56</b>	-165.86	-0.0396
"	-672.79	70.2254	45.6822	-0.0739
"	-617.93	-12.11	100.97	-0.0854
"	-563.07	-94.44	-0.0000	-0.0366
M8	-727.65	-152.56	-165.86	-0.0284
"	-672.79	-70.23	45.6822	-0.0626
"	-617.93	12.1080	100.97	-0.0741
"	-563.07	94.4413	0.0000	-0.0253
M9	<b>-1019.53</b>	-94.44	-0.0000	<b>0.0113</b>
"	-964.67	-12.11	100.97	-0.0498
"	-909.81	70.2254	45.6822	-0.0504
"	-854.95	152.56	-165.86	-0.0284
M10	-330.61	-0.0000	-0.0000	-0.0286
"	-330.61	-0.0000	-0.0000	-0.0264
"	-330.61	-0.0000	-0.0000	-0.0241
"	-330.61	-0.0000	0.0000	-0.0219
M11	467.25	-0.0000	-0.0000	-0.0102
"	467.25	-0.0000	-0.0000	-0.0102
"	467.25	-0.0000	0.0000	-0.0102
"	467.25	-0.0000	-0.0000	-0.0102
M12	-330.61	0.0000	0.0000	-0.0399
"	-330.61	0.0000	0.0000	-0.0376
"	-330.61	0.0000	0.0000	-0.0354
"	-330.61	0.0000	0.0000	-0.0332

### BENDING & COMP: TRUSS 1 - MEMBER 6

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

#### Grading:

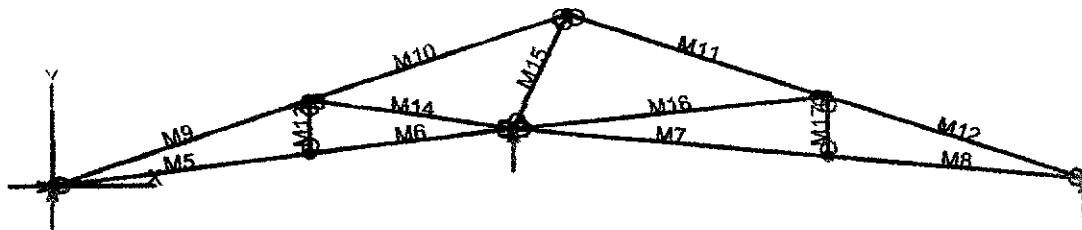
2x or 4x

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	5.71 feet
Max Axial Comp, C	854 feet
Max Reaction, R	152 feet
Max Moment, M	165 feet
Max LL Deflection	0.01 feet
Max TL Deflection	0.03 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 =	1.16
fc =	163 psi
Fce =	1540 psi
Fc* =	2084 psi
F'c =	1207 psi
fb =	647 psi
F*b = Fb* =	2156 psi
Shear D/C ratio	0.37 < 1.0, Member OK
Interaction equation:	
(fc/F'c) <sup>2</sup> +	
fb / (F*b(1-fc/Fce)) =	0.35 < 1.0, Member OK
Live Load defl ratio	0.04 < 1.0, Member OK
Total Load defl ratio	0.08 < 1.0, Member OK



# VisualAnalysis 3.50.c Report

03/12/02 19:09:38

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	12.50	1.50	No		"		"	
N3	28.00	0.00	"		"		"	
N4	14.00	4.67	"		No		"	
N5	7.00	0.84	"		"		"	
N6	21.00	0.67	"		"		"	
N7	7.00	2.34	"		"		"	
N8	21.00	2.34	"		"		"	

## Member Elements

Member	Section	Material	Length ft
M5	SS2x4	Wood	7.05
M6	"	"	5.54
M7	"	"	8.54
M8	"	"	7.03
M9	"	"	7.38
M10	"	"	7.38
M11	"	"	7.38
M12	"	"	7.38
M13	"	"	1.49
M14	"	"	5.56
M15	"	"	3.51
M16	"	"	8.54
M17	"	"	1.66

## 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	194.98	-NA-
N2	"	-NA-	1253.01	-NA-
N3	"	-NA-	329.08	-NA-

## Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M5	114.42	25.2439	0.0000	-0.0000
"	116.83	5.1773	35.6282	-0.0374
"	119.24	-14.89	24.2161	-0.0417
"	121.64	-34.96	-34.24	-0.0245
M6	113.87	29.8304	-34.24	-0.0245
"	115.76	14.0638	6.2160	-0.0214
"	117.65	-1.7029	17.6281	-0.0157
"	119.55	-17.47	-0.0000	-0.0002
M7	663.39	-41.78	-44.69	-0.0826
"	665.77	-17.42	39.3981	-0.1145
"	668.15	6.9501	54.2960	-0.0944
"	670.53	31.3168	0.0000	0.0002
M8	665.08	-23.74	-0.0000	0.0015
"	667.00	-3.6776	32.0207	-0.0507
"	668.92	16.3891	17.1229	-0.0736
"	670.84	36.4558	-44.69	-0.0826
M9	-168.70	137.22	0.0000	-0.0000
"	-128.23	15.8832	187.55	-0.1532
"	-87.75	-105.45	77.3907	-0.1198
"	-47.28	<b>-226.78</b>	-330.46	-0.0250
M10	981.55	<b>226.78</b>	<b>-330.46</b>	-0.0250
"	1022.02	105.45	77.3907	-0.1243
"	1062.50	-15.88	187.55	-0.1624
"	<b>1102.97</b>	-137.22	0.0000	-0.0137
M11	568.38	-224.35	-312.51	-0.0802
"	608.85	-103.02	89.3574	-0.1698
"	649.33	18.3158	<b>193.53</b>	<b>-0.1843</b>
"	689.80	139.65	0.0000	-0.0054
M12	-746.88	-139.65	0.0000	0.0050
"	-706.41	-18.32	193.53	-0.1774
"	-665.93	103.02	89.3574	-0.1663
"	-625.46	224.35	-312.51	-0.0802
M13	65.2513	0.0000	0.0000	0.0040
"	65.2513	0.0000	0.0000	0.0050
"	65.2513	0.0000	0.0000	0.0060
"	65.2513	0.0000	0.0000	<b>0.0069</b>
M14	-1132.31	0.0000	0.0000	-0.0228
"	-1132.31	0.0000	0.0000	-0.0151
"	-1132.31	0.0000	0.0000	-0.0074
"	-1132.31	0.0000	0.0000	0.0003
M15	-918.15	-0.0000	-0.0000	-0.0162
"	-918.15	-0.0000	-0.0000	-0.0114

"	-918.15	-0.0000	-0.0000	-0.0066
"	-918.15	-0.0000	0.0000	-0.0018
M16	-1280.61	-0.0000	-0.0000	-0.0821
"	-1280.61	-0.0000	-0.0000	-0.0548
"	-1280.61	-0.0000	-0.0000	-0.0275
"	<del>-1280.61</del>	-0.0000	0.0000	-0.0002
M17	77.3203	0.0000	0.0000	-0.0046
"	77.3203	0.0000	0.0000	-0.0026
"	77.3203	0.0000	0.0000	-0.0005
"	77.3203	0.0000	0.0000	0.0016

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**BENDING & COMP: TRUSS 2 - MEMBER 9**

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

Grading:

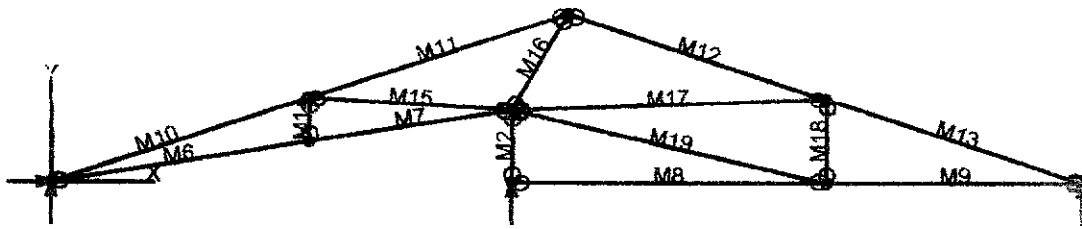
2x or 4x

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	7.38 feet
Max Axial Comp, C	981 feet
Max Reaction, R	226 feet
Max Moment, M	330 feet
Max LL Deflection	0.01 feet
Max TL Deflection	0.02 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 =	1.20
fc =	187 psi
Fce=	958 psi
Fc*=	2084 psi
F'c=	844 psi
fb=	1293 psi
F'b=Fb*=	2156 psi
Shear D/C ratio	0.54 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb/ (F'b(1-fc/Fce)) =	0.79 < 1.0, Member OK
Live Load defl ratio	0.03 < 1.0, Member OK
Total Load defl ratio	0.04 < 1.0, Member OK





# VisualAnalysis 3.50.c Report

03/12/02 19:14:42

Project: Truss 3

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	12.50	2.00	No		No		"	
N3	12.50	0.00	"		Yes		"	
N4	28.00	0.00	"		"		"	
N5	14.00	4.67	"		No		"	
N6	7.00	1.12	"		"		"	
N7	21.00	0.00	"		"		"	
N8	7.00	2.33	"		"		"	
N9	21.00	2.34	"		"		"	

## Member Elements

Member	Section	Material	Length ft
M2	SS2x4	Wood	2.00
M6	"	"	7.09
M7	"	"	5.57
M8	"	"	8.50
M9	"	"	7.00
M10	"	"	7.38
M11	"	"	7.38
M12	"	"	7.38
M13	"	"	7.38
M14	"	"	1.21
M15	"	"	5.51
M16	"	"	3.06
M17	"	"	8.51
M18	"	"	2.34
M19	"	"	8.73

## 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: +ID+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	247.76	-NA-
N3	"	-NA-	1158.15	-NA-
N4	"	-NA-	371.13	-NA-

## Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M2	-1127.70	-0.0000	-0.0000	0.0034
"	-1127.70	-0.0000	-0.0000	0.0049
"	-1127.70	-0.0000	-0.0000	0.0064
"	-1127.70	-0.0000	0.0000	0.0080
M6	430.30	27.0809	0.0000	-0.0000
"	433.51	7.0143	40.1651	-0.0558
"	436.72	-13.05	33.0310	-0.0732
"	439.93	-33.12	-21.40	-0.0597
M7	430.24	27.4925	-21.40	-0.0597
"	432.76	11.7258	14.9318	-0.0510
"	435.28	-4.0409	22.0659	-0.0340
"	437.80	-19.81	0.0000	-0.0043
M8	0.0000	-42.65	-51.87	-0.0546
"	0.0000	-18.29	34.2850	-0.0888
"	0.0000	6.0808	51.5757	-0.0793
"	0.0000	30.4474	0.0000	-0.0000
M9	606.72	-22.69	0.0000	-0.0000
"	606.72	-2.6231	29.4145	-0.0386
"	606.72	17.4436	12.1239	-0.0509
"	606.72	37.5103	-51.87	-0.0546
M10	-498.48	138.67	0.0000	-0.0000
"	-458.10	17.3323	191.07	-0.1702
"	-417.71	-104.00	84.5013	-0.1498
"	-377.32	-225.33	-319.70	-0.0599
M11	908.35	225.32	-319.70	-0.0599
"	948.91	103.98	84.6290	-0.1530
"	989.47	-17.35	191.20	-0.1767
"	1030.03	-138.68	-0.0000	-0.0093
M12	451.72	-225.45	-320.62	-0.0528
"	492.19	-104.12	83.9537	-0.1460
"	532.66	17.2173	190.83	-0.1704
"	573.14	138.55	0.0000	-0.0043
M13	-685.80	-138.55	0.0000	0.0029
"	-645.32	-17.22	190.83	-0.1656
"	-604.85	104.12	83.9537	-0.1436
"	-564.38	225.45	-320.62	-0.0528
M14	61.3825	-0.0000	-0.0000	0.0135
"	61.3825	-0.0000	-0.0000	0.0140

"	61.3825	-0.0000	-0.0000	0.0144
"	61.3825	-0.0000	0.0000	0.0148
M15	<b>-1364.55</b>	0.0000	0.0000	-0.0572
"	-1364.55	0.0000	0.0000	-0.0390
"	-1364.55	0.0000	0.0000	-0.0208
"	-1364.55	0.0000	0.0000	-0.0025
M16	-884.20	0.0000	0.0000	-0.0104
"	-884.20	0.0000	0.0000	-0.0097
"	-884.20	0.0000	0.0000	-0.0091
"	-884.20	0.0000	0.0000	-0.0084
M17	-1107.42	-0.0000	-0.0000	-0.0546
"	-1107.42	-0.0000	-0.0000	-0.0375
"	-1107.42	-0.0000	-0.0000	-0.0204
"	-1107.42	-0.0000	0.0000	-0.0033
M18	-62.59	0.0000	0.0000	-0.0027
"	-62.59	0.0000	0.0000	-0.0007
"	-62.59	0.0000	0.0000	0.0014
"	-62.59	0.0000	0.0000	0.0034
M19	623.29	0.0000	0.0000	0.0011
"	623.29	0.0000	0.0000	0.0182
"	623.29	0.0000	0.0000	0.0353
"	623.29	0.0000	0.0000	<b>0.0524</b>

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**BENDING & COMP: TRUSS 3 - MEMBER 10**

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

Grading:

2x or 4x

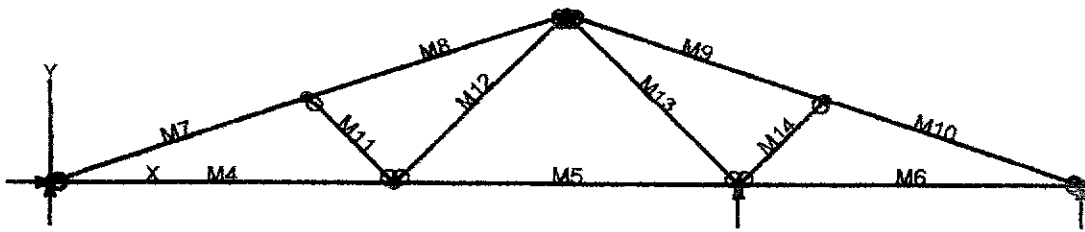
Doug-fir larch: No. 2

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	7.38 feet
Max Axial Comp, C	908 feet
Max Reaction, R	225 feet
Max Moment, M	309 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 =	1.20
$f_c =$	173 psi
$F_{ce} =$	958 psi
$F_c^* =$	2084 psi
$F'_c =$	844 psi
$f_b =$	1211 psi
$F'_b = F_b^* =$	2156 psi
Shear D/C ratio	0.54 < 1.0, Member OK
Interaction equation:	
$(f_c/F'_c)^2 +$	
$f_b/(F'_b(1-f_c/F_{ce})) =$	0.73 < 1.0, Member OK
Live Load defl ratio	0.05 < 1.0, Member OK
Total Load defl ratio	0.10 < 1.0, Member OK



# VisualAnalysis 3.50.c Report

03/12/02 19:18:39

Project: Truss 4

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	
N3	14.00	4.67	No	No	"	
N4	28.00	0.00	"	Yes	"	
N5	9.33	0.00	"	No	"	
N6	18.67	0.00	"	Yes	"	
N7	7.00	2.34	"	No	"	
N8	21.00	2.34	"	"	"	

## Member Elements

Member	Section	Material	Length ft
M4	SS2x4	Wood	9.33
M5	"	"	9.33
M6	"	"	9.33
M7	"	"	7.38
M8	"	"	7.38
M9	"	"	7.38
M10	"	"	7.38
M11	"	"	3.30
M12	"	"	6.60
M13	"	"	6.60
M14	"	"	3.30

## 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	503.45	-NA-
N4	"	-NA-	119.02	-NA-
N6	"	-NA-	1153.20	-NA-

## Member Results

Member	Axial lbs	Vy lbs	Mz lb-ft	Dy in
M4	971.31	-46.77	-61.93	-0.0596
"	971.31	-20.01	41.7454	-0.1165
"	971.31	6.7425	62.3884	-0.1091
"	<b>971.31</b>	33.4981	0.0000	-0.0000
M5	173.99	-42.45	-83.57	-0.0000
"	173.99	-15.70	6.6783	-0.0242
"	173.99	11.0592	13.8933	-0.0484
"	173.99	37.8157	-61.93	-0.0596
M6	-165.70	-31.18	-0.0000	-0.0000
"	-165.70	-4.4226	55.1675	-0.0716
"	-165.70	22.3320	27.3095	-0.0547
"	-165.70	49.0866	-83.57	-0.0000
M7	<b>-1070.10</b>	138.45	0.0000	-0.0000
"	-1029.63	17.1165	<b>190.58</b>	-0.1709
"	-989.16	-104.22	83.4576	-0.1517
"	-948.68	-225.55	-321.36	-0.0643
M8	-723.46	225.55	-321.36	-0.0643
"	-682.98	104.22	83.4576	-0.1615
"	-642.51	-17.12	190.58	<b>-0.1906</b>
"	-602.04	-138.45	0.0000	-0.0295
M9	478.68	<b>-228.24</b>	-341.20	0.0039
"	519.15	-106.91	70.2323	-0.1048
"	559.63	14.4281	183.97	-0.1604
"	600.10	135.76	0.0000	-0.0335
M10	129.39	-135.76	0.0000	0.0039
"	169.86	-14.43	183.97	-0.1355
"	210.33	106.91	70.2323	-0.0923
"	250.81	<b>228.24</b>	<b>-341.20</b>	0.0039
M11	-504.20	-0.0000	0.0000	-0.0377
"	-504.20	-0.0000	-0.0000	-0.0363
"	-504.20	-0.0000	-0.0000	-0.0349
"	-504.20	-0.0000	-0.0000	-0.0335
M12	623.78	-0.0000	0.0000	-0.0508
"	623.78	-0.0000	-0.0000	-0.0402
"	623.78	-0.0000	-0.0000	-0.0295
"	623.78	-0.0000	-0.0000	-0.0189
M13	-990.68	-0.0000	0.0000	-0.0280
"	-990.68	-0.0000	-0.0000	-0.0153
"	-990.68	-0.0000	-0.0000	-0.0026
"	-990.68	-0.0000	-0.0000	<b>0.0102</b>
M14	-510.19	0.0000	0.0000	-0.0102
"	-510.19	0.0000	0.0000	-0.0091
"	-510.19	0.0000	0.0000	-0.0080
"	-510.19	0.0000	0.0000	-0.0070

**BENDING & COMP: TRUSS 4 - MEMBER 7**

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

Grading:

2x or 4x

Doug-fir larch: No. 2

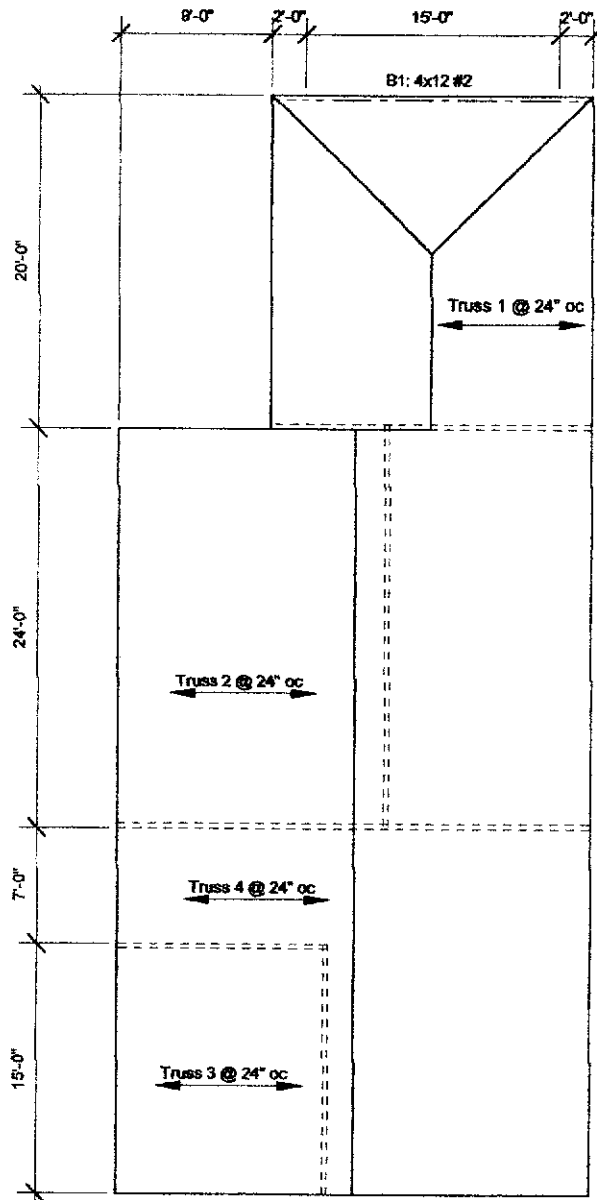
Assumptions:

Solid sheathing on top chord of truss. Therefore,  
continuous lateral support is provided along compression face  
Maximum center-center spacing = 24"

Width, b	1.5 inches
Depth, d	3.5 inches
Length	7.38 feet
Max Axial Comp, C	948 feet
Max Reaction, R	225 feet
Max Moment, M	321 feet
Max LL Deflection	0.03 feet
Max TL Deflection	0.06 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 =	1.20
fc =	181 psi
Fce =	958 psi
Fc* =	2084 psi
F'c =	844 psi
fb =	1258 psi
F'b = Fb* =	2156 psi
Shear D/C ratio	0.54 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb / (F'b(1-fc/Fce)) =	0.76 < 1.0, Member OK
Live Load defl ratio	0.08 < 1.0, Member OK
Total Load defl ratio	0.12 < 1.0, Member OK

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**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 7.3 psf.
- B. All structural wood members that were observed appear to be in sound condition and without structural defect.

1

**ROOF PLAN - KADAKOWA**

Not to Scale

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