

CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0309566

Insp Area: 4

Thos Bros: 277 E5

Site Address: 3051 NORTHSTEAD DR SAC

Parcel No: 262-0300-001

Sub-Type: RES

Housing (Y/N): N

CONTRACTOR

OWNER

ARCHITECT

ULLOA JAIME & BLANCA E GUTIERREZ-ULLOA
3051 NORTHSTEAD DR
SACRAMETNO CA 95833

Nature of Work: REROOF T/O RESHT SNGL STRY 20 SQ INSTALL STANDARD WT TILE & NEW FASCIA GUTTERS

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 License Number Date Contractor 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 under 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 subject to the application 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 6.30.03 Owner Signature Blanca E. Gutierrez-Ulloa

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 6.30.03 Applicant/Agent Signature Blanca E. Gutierrez-Ulloa

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 Policy Number Exp Date

(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 6.30.03 Applicant Signature Blanca E. Gutierrez-Ulloa

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.

# ROOFING QUESTIONNAIRE

Applicant's name: ULLOA

Phone: 916.927.9381

Project Address: 3051 NORTHSTEAD DR

Please check the appropriate boxes. Only check a box if it accurately and completely describes your proposed work, otherwise leave boxes blank.

## 1. ROOFING TYPE

- a.  The existing roofing material is composition shingle, wood shake or shingle, tile or metal. The new roofing material shall be:

Existing    Proposed

- |                                     |                                     |  |
|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/>            | <input type="checkbox"/>            | 25 year laminated dimensional composition              |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | wood shake or shingle                                  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | tile   |
| <input type="checkbox"/>            | <input type="checkbox"/>            | metal that simulates one of the above listed materials |

- b.  The existing roofing material is built up, foam or membrane with a roof pitch of 2:12 or less. The new roofing material shall be:

Existing    Proposed

- |                          |                          |          |
|--------------------------|--------------------------|----------|
| <input type="checkbox"/> | <input type="checkbox"/> | Built up |
| <input type="checkbox"/> | <input type="checkbox"/> | Foam     |
| <input type="checkbox"/> | <input type="checkbox"/> | Membrane |

## 2. GUTTERS

- a.  The existing gutters are fascia gutters.  
 There is no change proposed to existing gutters.  
 New fascia gutters shall be provided.  
 Gutters shall be repaired and/or replaced to match existing.

- b.  The existing gutters are Ogee gutters.  
 There is no change proposed to existing gutters.  
 New Ogee gutters shall be provided.  
 Gutters shall be repaired and/or replaced to match existing.

- c.  There are no existing gutters.  
 No new gutters are proposed.  
 New Ogee gutters shall be provided.

## 3. RAFTER TAILS

- a.  There are no exposed rafter tails.
- b.  There are exposed rafter tails.  
 There is no change or cutting proposed to existing rafter tails.  
 Rafter tails shall be repaired and replaced to match existing.

By signing below, the applicant certifies that this form accurately describes the proposed work.

Applicant's signature: Blanca E. Gutierrez-Ulloa

Date: 0.30.03

For City Staff use only

Counter Staff

Jessie J. [Signature]

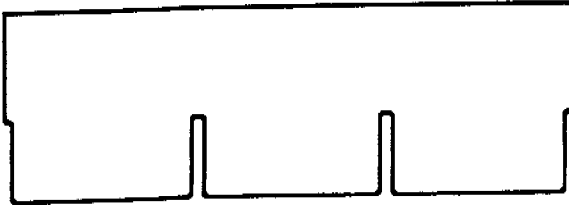
- In a DR District Meets DR criteria?  Yes     No (route to DR staff)  
 In a P area or listed (route to P staff)  
 Not in DR/P area

EXPANDED NORTH

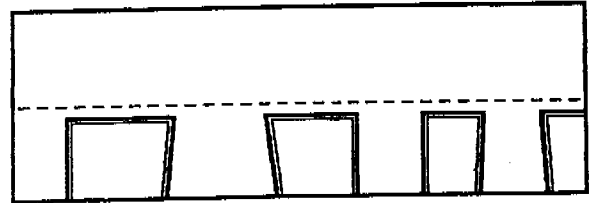


# CITY OF SACRAMENTO RE-ROOF PERMIT DESIGN REVIEW GUIDE

## COMPOSITION ROOFING MATERIALS

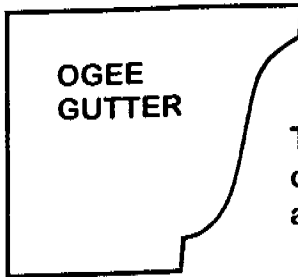


Three-tab NOT ALLOWED  
in Design Review Areas



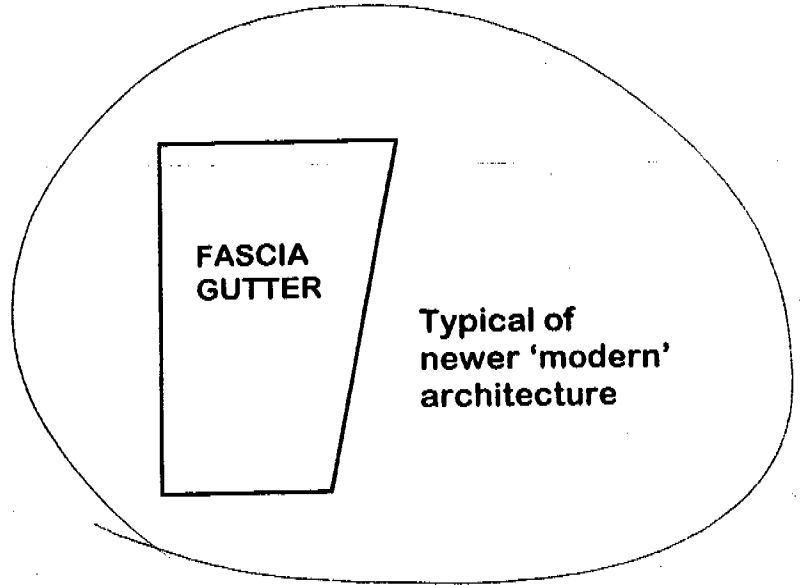
Laminated Dimensional  
minimum 30-year required

## GUTTER TYPES



OGEE  
GUTTER

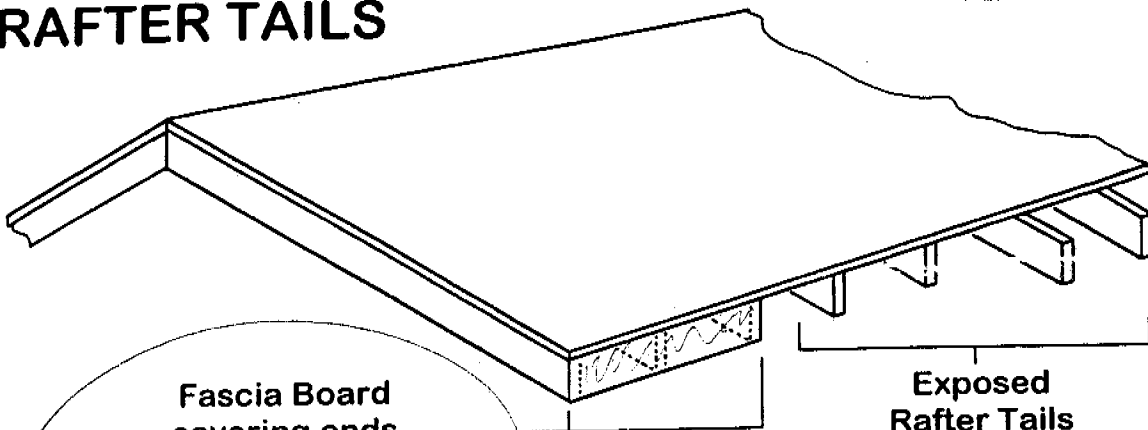
Typical of  
older style  
architecture



FASCIA  
GUTTER

Typical of  
newer 'modern'  
architecture

## RAFTER TAILS



Fascia Board  
covering ends  
of Rafters

Exposed  
Rafter Tails

GUTTERS

Ulloa

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

TEL: 916.961.3960  
FAX: 916.961.6552

June 25, 2003

Ulloa  
3051 Northstead Drive  
Sacramento, CA 95833  
TEL: (916) 454-3667  
FAX: (916) 691-1943

Attn.: Ms. Ulloa,

re: Job 2003233: ULLOA

Subject: Structural Investigation Report of the Roof for the Residence located at 3051 Northstead Drive, Sacramento, CA 95833.

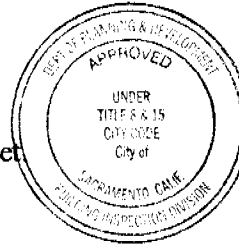


As requested by Ms. Ulloa, this is a report to determine what needs should be addressed to correct any structural deficiencies of the roof. Paul Zacher visited the site June 24, 2003. The investigation was made to determine the existing condition of the structure. All information, data and analysis contained within this report are based on the 1997 Uniform Building Code with 2001 CBC Title 24 Amendments.

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.

DH 6/30/03

**CONSTRUCTION:**

Roof:  
The roof covering will consist of a Standard Weight Concrete Tile over 7/16" solid sheathing. The roof structure is framed with pre-engineered wood trusses spaced at 24" on center except for the vaulted ceiling areas. The vaulted ceiling is constructed of 2x6 rafters spaced at 24" on center supported at the ridge by a 4x beam. One area had no access and was not inspected.

**CONCLUSIONS:**

Roof:  
The roof structure has sufficient structural capacity for the applied live and dead loads. No conclusion was drawn for the area that was inaccessible and was not inspected.

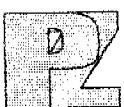
ISSUED  
City of Sacramento

JUN 24 2003

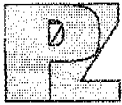
WATERLIP  
CENTER

1/14

RECEIVED - BUILDING INSPECTION DIVISION - SACRAMENTO, CA



Ulloa



Paul Zacher - Structural Engineers, Inc  
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. After the roofing material has been removed, the contractor shall supply the engineer with diagrams showing the member sizes and span lengths. The engineer shall then determine if the structure can adequately support the applied dead and live loads and a supplemental report shall be issued. See detail 1.

It shall be noted that small hairline cracking may occur at exterior stucco and interior gypboard finished walls that are load bearing or distributing roof strut loads. These cracks are a natural occurrence as the existing structure re-distributes the new roof weight. They are cosmetic in nature and are not an indication of a structural hazard or failure.

It shall be noted that some deflection of the rafters may be evident after installation of the tile. The existing roof framing has deflected but this may not be readily evident due to the uneven nature of the existing roofing material. Concrete tile is a very consistent and uniform product and when installed in an even plane, even small deflections can become apparent. This is only a cosmetic issue and not a structural concern.

The inspection consisted of visual observation only, made solely to determine the structural capacity of the existing roof. Analysis does not determine any effects on the overall structure under lateral forces or effects on the foundation unless specifically noted in the calculations and in this document. No warranties, expressed or implied, are made or intended in conjunction with this report. The inspection was made only to the portions that were accessible. The specific items noted were those that were observable and there may be defects that are not observable, or are hidden by architectural and structural materials.

If you have any questions on the above, do not hesitate to call.

Sincerely,

Paul Zacher, P.E., S.E.  
file

**DESIGN LOADING:**

Roof Pitch 4 in 12  
Pitch Adjustment Factor 1.05

**LOCATION: ROOF**

<u>MATERIAL</u>	<u>WEIGHT</u>	
Standard Weight Tile	10.30	psf
Roofing felt	0.30	psf
1x4 skip sht'g	1.09	psf
7/16" OSB/ plywood	1.30	psf
2x6 rafters @ 24" oc	<u>1.00</u>	psf
Load	14.0	psf
Roof Pitch Adjustment	<u>0.76</u>	psf
Total Load	14.8	psf

**LOCATION: VAULT**

<u>MATERIAL</u>	<u>WEIGHT</u>	
Standard Weight Tile	10.30	psf
Roofing felt	0.30	psf
1x4 skip sht'g	1.09	psf
7/16" OSB/ plywood	1.30	psf
2x6 rafters @ 24" oc	1.00	psf
Batt/blown insul	0.50	psf
1/2" Gypboard	<u>2.50</u>	psf
Load	17.0	psf
Roof Pitch Adjustment	<u>0.92</u>	psf
Total Load	17.9	psf

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>	
Standard Weight Tile	10.30	psf
Roofing felt	0.30	psf
7/16" OSB/ plywood	1.30	psf
1x4 skip sht'g	1.09	psf
2x4 truss @ 24" oc	<u>0.64</u>	psf
Total Load	13.6	psf

**LOCATION: BOTTOM CHORD**

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

Job #: 03-2377

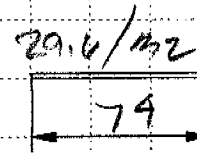
Date: 4/25/07

LOADING:

ROOF TOP

Dr = 14.8 puf  $\times 2^0 = 29.6$  puf  $2 \times 4^{\#} 2$

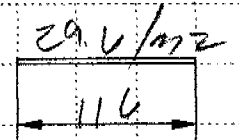
Lr = 16.0  $\times 2 = 32$



ROOF TOP

Dr = 14.8 puf  $\times 2^0 = 29.6$  puf  $2 \times 6^{\#} 2$

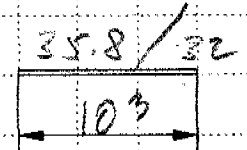
Lr = 16.0  $\times 2 = 32$



VAULT

Dr = 17.9 puf  $\times 2^0 = 35.8$  puf  $2 \times 6^{\#} 2$

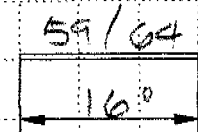
Lr = 16.0  $\times 2 = 32$



B1

Dr = 14.8 puf  $\times 4^0 = 59$  puf  $4 \times 12^{\#} 2$

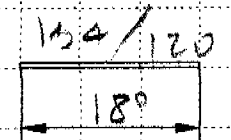
Lr = 16.0  $\times 4 = 64$



B2

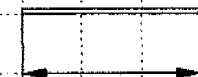
Dr = 17.9 puf  $\times 7^0 = 125.4$  puf  $4 \times 14^{\#} 1$

Lr = 16.0  $\times 8 = 128$



Dr =

Lr =



Dr =

Lr =



Paul Zacher - Structural Engr's  
 4701 Lakeside Way  
 Fair Oaks, CA 95628  
 TEL: (916) 961-3960  
 FAX: (916) 961-6552

Title :  
 Dsgnr:  
 Description :

Job #  
 Date: 2:34PM, 25 JUN 03

Scope :

Rev: 560100  
 User: KW-0602644, Ver 5.6.1, 25-Oct-2002  
 (c)1983-2002 ENERCALC Engineering Software

### Timber Beam & Joist

c:\paul\pk and assoc\test\ewr\Calculations

#### Description RAFTERS AND BEAMS

#### Timber Member Information

Calculations are designed to 1997 NDS and 1997 UBC Requirements

Timber Section		rafter	rafter	vault	B1	B2
		2x4	2x6	2x6	4x12	4x14
Beam Width	in	1.500	1.500	1.500	3.500	3.500
Beam Depth	in	3.500	5.500	5.500	11.250	13.250
Le: Unbraced Length	ft	0.00	0.00	0.00	0.00	0.00
Timber Grade		Douglas Fir - Larch, Douglas Fir - Larch, Douglas Fir - Larch, Douglas Fir - Larch, Douglas Fir - Larch				
Fb - Basic Allow	psi	875.0	875.0	875.0	875.0	1,000.0
Fv - Basic Allow	psi	95.0	95.0	95.0	95.0	95.0
Elastic Modulus	ksi	1,600.0	1,600.0	1,600.0	1,600.0	1,700.0
Load Duration Factor		1.250	1.250	1.250	1.250	1.250
Member Type		Sawn	Sawn	Sawn	Sawn	Sawn
Repetitive Status		No	Repetitive	Repetitive	No	No

#### Center Span Data

	ft					
Span	7.33	11.50	10.25	16.00	18.00	
Dead Load	#/ft	29.60	29.60	35.80	59.00	134.00
Live Load	#/ft	32.00	32.00	32.00	64.00	120.00

#### Results

Ratio = 0.9881 0.9882 0.8641 0.5317 0.9643

Mmax @ Center	in-k	4.96	12.22	10.68	47.23	123.44
@ X =	ft	3.66	5.75	5.12	8.00	9.00
Fb : Actual	psi	1,621.1	1,615.9	1,412.9	639.8	1,205.4
Fb : Allowable	psi	1,640.6	1,635.2	1,635.2	1,203.1	1,250.0
		Bending OK	Bending OK	Bending OK	Bending OK	Bending OK
Fv : Actual	psi	59.9	59.8	57.6	33.3	65.1
Fv : Allowable	psi	118.8	118.8	118.8	118.8	118.8
		Shear OK	Shear OK	Shear OK	Shear OK	Shear OK

#### Reactions

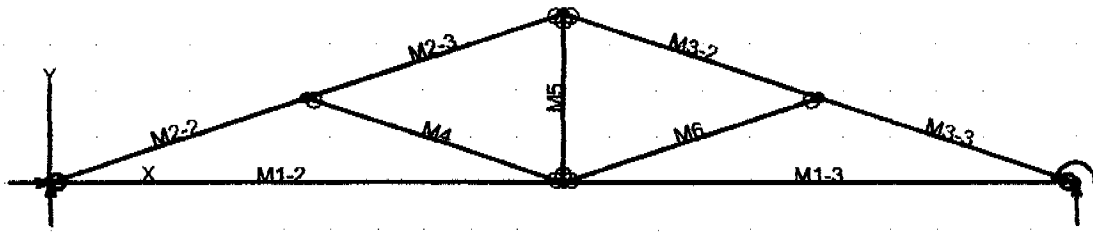
@ Left End	DL	lbs	108.48	170.20	183.47	472.00	1,206.00
	LL	lbs	117.28	184.00	164.00	512.00	1,080.00
	Max. DL+LL	lbs	225.76	354.20	347.47	984.00	2,286.00
@ Right End	DL	lbs	108.48	170.20	183.47	472.00	1,206.00
	LL	lbs	117.28	184.00	164.00	512.00	1,080.00
	Max. DL+LL	lbs	225.76	354.20	347.47	984.00	2,286.00

#### Deflections

Ratio OK Deflection OK Deflection OK Deflection OK Deflection OK

Center DL Defl	in	-0.224	-0.350	-0.267	-0.131	-0.274
L/Defl Ratio		392.3	394.2	460.3	1,466.4	787.2
Center LL Defl	in	-0.242	-0.378	-0.239	-0.142	-0.246
L/Defl Ratio		362.9	364.7	515.0	1,351.9	879.0
Center Total Defl	in	-0.467	-0.728	-0.506	-0.273	-0.520
Location	ft	3.665	5.750	5.125	8.000	9.000
L/Defl Ratio		188.5	189.4	243.1	703.4	415.3





**Truss 1**

VisualAnalysis 4.00 Report

Company: Paul Zacher - Structural Engineers Engineer: Paul Zacher

File: C:\Paul\PK and Assoc\ROOF PROJECTS\Truss 1.vap

**Nodes**

Node	X ft	Y ft	Fix DX	Fix DY	Fix RZ
N1	0.00	0.00	Yes	Yes	No
N2	22.00	0.00	No	"	Yes
N3	11.00	3.67	"	No	No
N4	11.00	0.00	"	"	"
N5	5.50	1.84	"	"	"
N6	16.50	1.84	"	"	"

**Member Elements**

Member	Section	Material	Length ft
M1-2	SS2x4	Wood	11.00
M1-3	"	"	11.00
M2-2	"	"	5.80
M2-3	"	"	5.80
M3-2	"	"	5.80
M3-3	"	"	5.80
M4	"	"	5.80
M5	"	"	3.67
M6	"	"	5.80

**Section Properties**

Category	Section	Ax in <sup>2</sup>	Iz in <sup>4</sup>	Sz (+y) in <sup>3</sup>	Sz (-y) 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: UBC97 12.8a

Combination: 1D+1Lr

Contributing Cases &amp; Source

Dead Load (Dead loads)

Roof Live Load (Roof Live loads)

**Nodal Reactions**

Node	Load Case	FX lb	FY lb	MZ lb-ft
------	-----------	----------	----------	-------------

N1	UBC97 12.8a	0.00	728.20	-NA-
N2	"	-NA-	728.20	0.00

## Member Results

Member	Fx lb	Vy lb	Mz lb-ft	Dx in	Dy in
M1-2	1696.60	-57.33	-110.36	0.03	-0.15
"	1696.60	-25.80	42.00	0.02	-0.21
"	1696.60	5.73	78.79	0.01	-0.20
"	<b>1696.60</b>	37.27	0.00	0.00	0.00
M1-3	1696.60	-37.27	0.00	0.05	0.00
"	1696.60	-5.73	78.79	0.04	-0.20
"	1696.60	25.80	42.00	0.03	-0.21
"	1696.60	57.33	-110.36	0.03	-0.15
M2-2	<b>-1828.0</b>	118.47	0.00	0.00	0.00
"	-1794.6	18.29	<b>132.08</b>	-0.00	-0.12
"	-1761.2	-81.88	70.63	-0.01	-0.15
"	-1727.8	<b>-182.05</b>	<b>-184.33</b>	-0.01	-0.15
M2-3	-1242.8	<b>182.05</b>	-184.33	-0.01	-0.15
"	-1209.4	81.88	70.63	-0.02	-0.20
"	-1176.0	-18.29	132.08	-0.02	<b>-0.22</b>
"	-1142.6	-118.47	0.00	-0.02	-0.15
M3-2	-1242.8	-182.05	-184.33	0.06	-0.13
"	-1209.4	-81.88	70.63	0.06	-0.18
"	-1176.0	18.29	132.08	0.07	-0.20
"	-1142.6	118.47	0.00	0.07	-0.13
M3-3	-1828.0	-118.47	0.00	0.05	<b>0.02</b>
"	-1794.6	-18.29	132.08	0.05	-0.10
"	-1761.2	81.88	70.63	0.06	-0.13
"	-1727.8	182.05	-184.33	0.06	-0.13
M4	-606.39	0.00	0.00	0.07	-0.14
"	-606.39	0.00	0.00	0.07	-0.13
"	-606.39	0.00	0.00	0.07	-0.13
"	-606.39	0.00	0.00	<b>0.08</b>	-0.12
M5	498.49	0.00	0.00	<b>-0.15</b>	-0.03
"	498.49	0.00	0.00	-0.15	-0.03
"	498.49	0.00	0.00	-0.15	-0.03
"	498.49	0.00	0.00	-0.15	-0.03
M6	-606.39	0.00	0.00	-0.03	-0.15
"	-606.39	0.00	0.00	-0.03	-0.14
"	-606.39	0.00	0.00	-0.03	-0.14
"	-606.39	0.00	0.00	-0.02	-0.15

**BENDING & COMP: TRUSS 1 - MEMBER 2-2**

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

**Grading:**

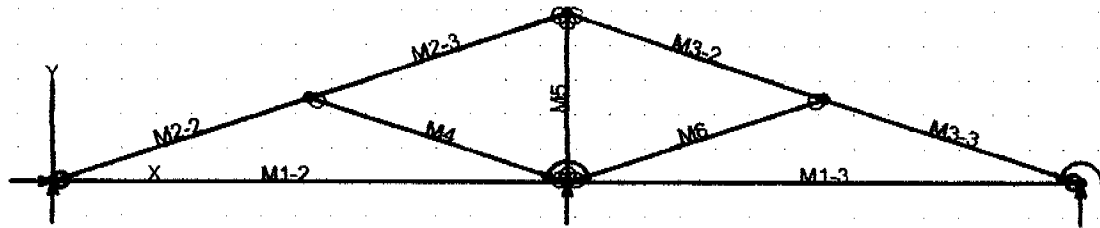
2x or 4x

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	1727 lbs
Max Reaction, R	182 lbs
Max Moment, M	184 ft-lbs
Max LL Deflection	0.07 inches
Max TL Deflection	0.15 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 =	1.16
fc =	329 psi
Fce=	1496 psi
Fc*=	2084 psi
F'c=	1184 psi
fb=	721 psi
F'b=Fb*=	2156 psi
Shear D/C ratio	0.44 < 1.0, Member OK
Interaction equation: (fc/F'c)^2 +	
fb/ (F'b(1-fc/Fce)) =	0.51 < 1.0, Member OK
Live Load defl ratio	0.24 < 1.0, Member OK
Total Load defl ratio	0.39 < 1.0, Member OK



## Truss 2

VisualAnalysis 4.00 Report

Company: Paul Zacher - Structural Engineers Engineer: Paul Zacher

File: C:\Paul\PK and Assoc\ROOF PROJECTS\Truss 2.vap

## Nodes

Node	X ft	Y ft	Fix	DX Fix	DY Fix	RZ Fix
N1	0.00	0.00	Yes	Yes	No	No
N2	29.50	0.00	No	"	Yes	Yes
N3	14.75	4.92	"	No	No	No
N4	14.75	0.00	"	Yes	Yes	Yes
N5	7.38	2.46	"	No	No	No
N6	22.13	2.46	"	"	"	"

## Member Elements

Member	Section	Material	Length ft
M1-2	SS2x4	Wood	14.75
M1-3	"	"	14.75
M2-2	"	"	7.77
M2-3	"	"	7.77
M3-2	"	"	7.77
M3-3	"	"	7.77
M4	"	"	7.77
M5	"	"	4.92
M6	"	"	7.77

## Section Properties

Category	Section	Ax in <sup>2</sup>	Iz in <sup>4</sup>	Sz (+y) in <sup>3</sup>	Sz (-y) 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: UBC97 12.8a

Combination: 1D+1Lr

Contributing Cases &amp; Source

Dead Load (Dead loads)

Roof Live Load (Roof Live loads)

## Nodal Reactions

Node	Load Case	FX lb	FY lb	MZ lb-ft

N1	UBC97 12.8a	<b>0.00</b>	<b>290.76</b>	-NA-
N2	"	-NA-	290.76	<b>0.00</b>
N4	"	-NA-	<b>1371.38</b>	0.00

## Member Results

Member	Fx lb	Vy lb	Mz lb-ft	Dx in	Dy in
M1-2	249.06	-79.28	-233.88	0.00	0.00
"	249.06	-37.00	51.89	0.00	-0.28
"	249.06	5.29	129.85	0.00	<b>-0.40</b>
"	249.06	47.57	0.00	<b>0.00</b>	<b>0.00</b>
M1-3	249.06	-47.57	0.00	0.01	0.00
"	249.06	-5.29	129.85	0.01	-0.40
"	249.06	37.00	51.89	<b>0.01</b>	-0.28
"	249.06	79.28	-233.88	0.00	0.00
M2-2	-313.22	151.88	0.00	0.00	0.00
"	-268.41	17.56	<b>219.42</b>	-0.00	-0.20
"	-223.61	-116.76	90.88	-0.00	-0.15
"	-178.80	<b>-251.09</b>	<b>-385.63</b>	-0.00	-0.03
M2-3	490.20	<b>251.09</b>	-385.63	-0.00	-0.03
"	535.01	116.76	90.88	-0.00	-0.15
"	579.81	-17.56	219.42	0.00	-0.20
"	<b>624.62</b>	-151.88	0.00	0.00	-0.01
M3-2	490.20	-251.09	-385.63	0.01	-0.02
"	535.01	-116.76	90.88	0.01	-0.15
"	579.81	17.56	219.42	0.01	-0.20
"	624.62	151.88	0.00	0.01	-0.00
M3-3	-313.22	-151.88	0.00	0.01	0.00
"	-268.41	-17.56	219.42	0.01	-0.19
"	-223.61	116.76	90.88	0.01	-0.15
"	-178.80	251.09	-385.63	0.01	-0.02
M4	-836.51	0.00	0.00	0.00	0.00
"	<b>-836.51</b>	0.00	0.00	0.01	-0.02
"	-836.51	0.00	0.00	0.01	-0.01
"	-836.51	0.00	0.00	0.01	-0.01
M5	-683.44	0.00	0.00	0.00	-0.00
"	-683.44	0.00	0.00	-0.00	-0.00
"	-683.44	0.00	0.00	-0.00	-0.00
"	-683.44	0.00	0.00	-0.00	-0.00
M6	-836.51	0.00	0.00	-0.00	-0.03
"	-836.51	0.00	0.00	-0.00	-0.02
"	-836.51	0.00	0.00	0.00	-0.01
"	-836.51	0.00	0.00	0.00	-0.00

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

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

**Grading:**

2x or 4x

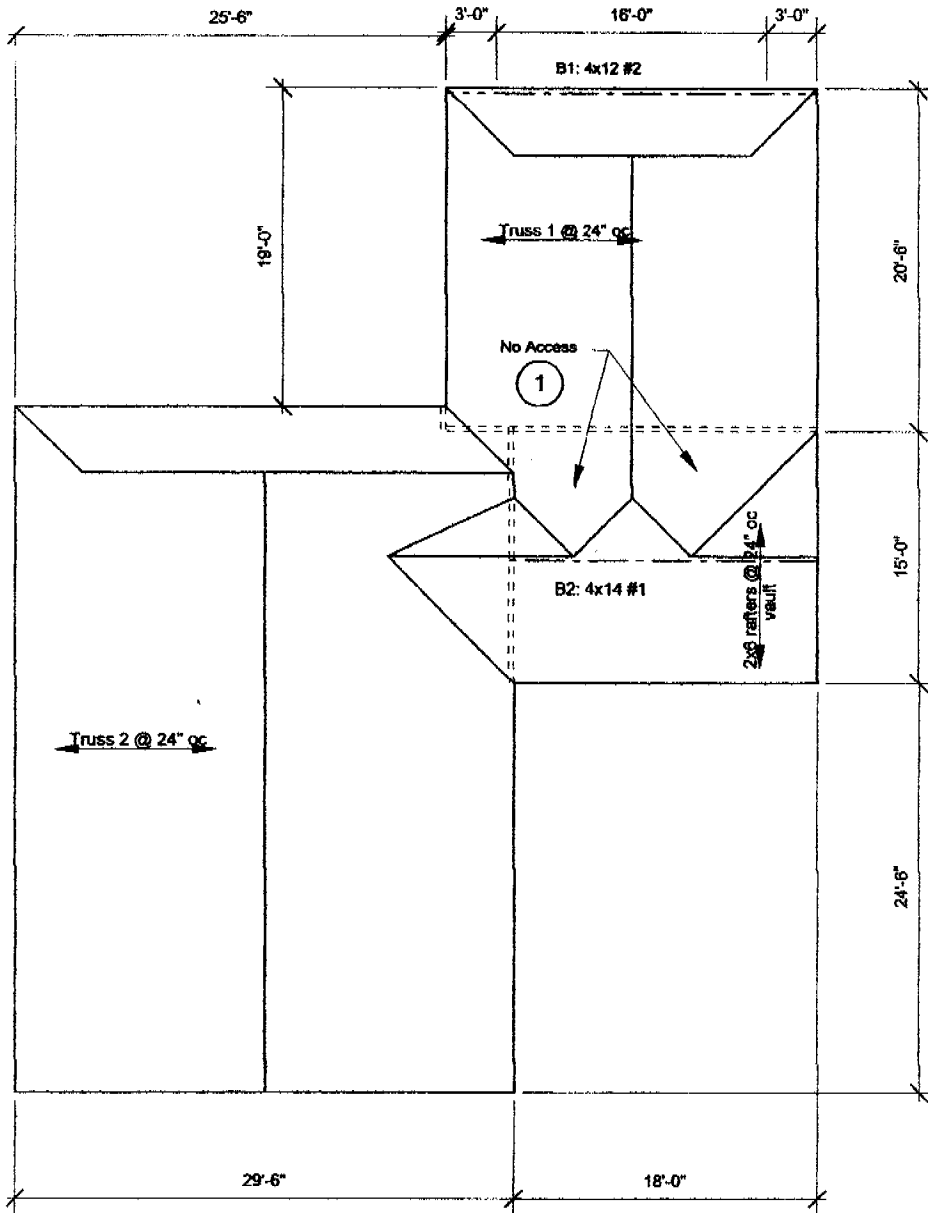
Doug-fir larch: No. 2

**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	7.77 feet
Max Axial Comp, C	490 lbs
Max Reaction, R	251 lbs
Max Moment, M	385 ft-lbs
Max LL Deflection	0.02 inches
Max TL Deflection	0.03 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 =	93 psi
Fce =	872 psi
Fc* =	2084 psi
F'c =	779 psi
fb =	1509 psi
F'b = Fb* =	2156 psi
Shear D/C ratio	0.60 < 1.0, Member OK
Interaction equation: (fc/F'c)^2 +	
fb / (F'b(1-fc/Fce)) =	0.80 < 1.0, Member OK
Live Load defl ratio	0.05 < 1.0, Member OK
Total Load defl ratio	0.06 < 1.0, Member OK





**FRAMING NOTES:**

1. No Access. See "Recommendations" for allowable rafter spans.

**Notes:**

- A. This is a reroof project. The new roofing material shall be a Standard Weight Concrete Tile. The tile shall weigh less than or equal to 10.3 psf.
- B. All structural wood members that were observed appear to be in sound condition and without structural defect.



**ROOF PLAN - ULLOA**

Not to Scale