# CITY OF SACRAMENTO

**1231 I Street, Sacramento, CA 95814**

**Permit No: 0011222**

**Insp Area: 3**

**Site Address: 6810 RANCHO ADOBE DR SAC**

Parcel No: 040-0200-012

Sub-Type: RES

Housing (Y/N): N

***CONTRACTOR***
MG ROOFING
7596 MACFINLEY WY
SAC CA 95828

***OWNER***
HUYNH LESLIE THUAN/SUA VAN
6810 RANCHO ADOBE DR
SACRAMENTO CA 95828

***ARCHITECT***

**Nature of Work:** T/O, RESHEET, APPLY LIGHT WGHT 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'sAddress_____

**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_____ Date 9/20/00 Contractor Signature Eduardo Gonzalez

**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 herby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

Date 9/20/00 Applicant/Agent Signature Eduardo Gonzalez

**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, forthe performance of work for which the permit is issued.

E.G. 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

EG This section need not be completed if the permit is for $100 or less). I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 9/20/00 Applicant Signature Eduardo Gonzalez

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.**

Nuynh

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

TEL: 916.961.3960
FAX: 916.961.6552

September 13, 2000

MG Roofing
7596 MacFinley Way
Sacramento, CA 95828
TEL: (916) 689-3175
FAX: (916) 689-3175

NO STRUCTURAL REQUIREMENTS


Attn. Mr. Ed Gonzales,

re: Job 2000_293: NUYNH

Subject: Structural Investigation Report of the Roof for the Residence located at 6810 Rancho Adobe Drive, Sacramento, CA 95828.

As requested by Mr. Ed Gonzales, this is a report to determine what needs should be addressed to correct any structural deficiencies of the roof. Paul Zacher visited the site September 13, 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 1970's vintage. |
| Occupancy: | Residential. |
| No. of Stories: | Two. |
| Dimensions: | Approximately 3000 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 area is conventionally framed with 2x6 rafters spaced at 24" on center and with pre-engineered wood trusses spaced at 24" on center except for the vaulted ceiling area. The vaulted ceiling is constructed of 4x6 beams spaced at 48" on center. The garage area is framed with pre-engineered wood trusses spaced at 24" on center

CONCLUSIONS:

Roof:

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


**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.

REVIEWED BY:
9/20/00

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

TEL: 916.961.3960
FAX: 916.961.6552

RECOMMENDATIONS:
None.

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

| MATERIAL | WEIGHT | |
|---|---|---|
| Light Weight Tile | 7.00 | psf |
| Roofing felt | 0.30 | psf |
| 1x4 skip sht'g | 1.09 | psf |
| 1/2" OSB/ plywood | 1.50 | psf |
| 2x6 rafters @ 24" oc | 1.00 | psf |
| Load | 10.9 | psf |
| Roof Pitch Adjustment | 0.59 | psf |
| Total Load | 11.5 | psf |

LOCATION: TOP CHORD

| MATERIAL | WEIGHT | |
|---|---|---|
| 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 | 0.64 | psf |
| Load | 10.5 | psf |
| Roof Pitch Adjustment | 0.57 | psf |
| Total Load | 11.1 | psf |

LOCATION: BOTTOM CHORD

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

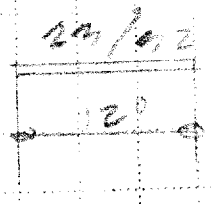
**DESIGN LOADING:**

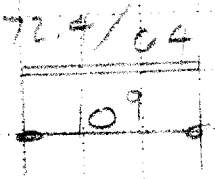
| | | |
|---|---|---|
| Roof Pitch | 10 | in 12 |
| Pitch Adjustment Factor | 1.30 | |

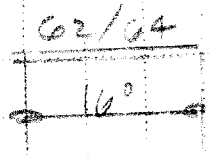
LOCATION: VAULT

| MATERIAL | WEIGHT | |
|---|---|---|
| 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 |
| 4x6 rafters @ 48" oc | 1.00 | psf |
| Batt/blown insul | 0.50 | psf |
| 1/2" Gypboard | 2.50 | psf |
| Load | 13.9 | psf |
| Roof Pitch Adjustment | 4.19 | psf |
| Total Load | 18.1 | psf |

P.K. Zacher S.E.
Job #
Date
4701 Lakeside Way
Fair Oaks, CA 95628
TEL: (916) 961-3960
FAX: (916) 961-6552







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

Title :
Dsgnr:
Description :

Job #
Date: 4:16PM, 13 SEP 00

Scope :



# Timber Beam & Joist

c:\enercalc\test.ecw:Calculations

**Description** RAFTERS AND BEAMS

## Timber Member Information

**Calculations are designed to 1997 NDS and 1997 UBC Requirements**

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

## Center Span Data

| | | | | |
|---|---|---|---|---|
| Span | ft | 12.00 | 10.75 | 16.00 |
| Dead Load | #/ft | 23.00 | 72.40 | 62.00 |
| Live Load | #/ft | 32.00 | 64.00 | 64.00 |

## Results

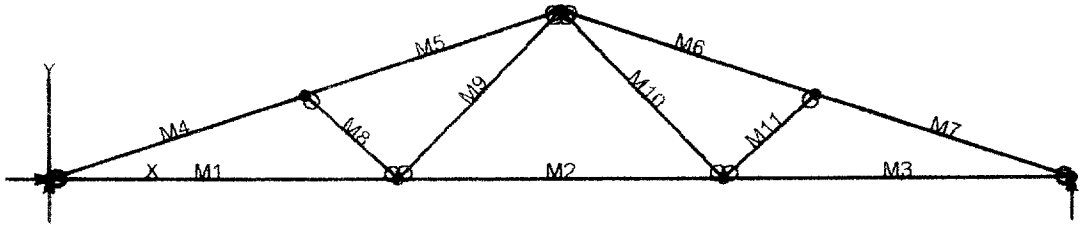
| | | | | |
|---|---|---|---|---|
| Ratio = | | 0.9607 | 0.8246 | 0.5447 |
| Mmax @ Center | in-k | 11.88 | 23.64 | 48.38 |
| @ X = | ft | 6.00 | 5.37 | 8.00 |
| fb : Actual | psi | 1,570.9 | 1,339.9 | 655.4 |
| Fb : Allowable | psi | 1,635.2 | 1,625.0 | 1,203.1 |
| | | Bending OK | Bending OK | Bending OK |
| fv : Actual | psi | 55.7 | 52.6 | 34.1 |
| Fv : Allowable | psi | 118.8 | 118.8 | 118.8 |
| | | Shear OK | Shear OK | Shear OK |

## Reactions

| | | | | | |
|---|---|---|---|---|---|
| @ Left End | DL | lbs | 138.00 | 389.15 | 496.00 |
| | LL | lbs | 192.00 | 344.00 | 512.00 |
| | Max. DL+LL | lbs | 330.00 | 733.15 | 1,008.00 |
| @ Right End | DL | lbs | 138.00 | 389.15 | 496.00 |
| | LL | lbs | 192.00 | 344.00 | 512.00 |
| | Max. DL+LL | lbs | 330.00 | 733.15 | 1,008.00 |

## Deflections

| | | | Ratio OK | Deflection OK | Deflection OK |
|---|---|---|---|---|---|
| Center DL Defl | | in | -0.322 | -0.264 | -0.138 |
| L/Defl Ratio | | | 446.5 | 489.2 | 1,395.5 |
| Center LL Defl | | in | -0.449 | -0.233 | -0.142 |
| L/Defl Ratio | | | 320.9 | 553.4 | 1,351.9 |
| Center Total Defl | | in | -0.771 | -0.497 | -0.280 |
| Location | | ft | 6.000 | 5.375 | 8.000 |
| L/Defl Ratio | | | 186.7 | 259.7 | 686.7 |


Y
X
M1
M2
M3
M4
M5
M6
M7
M8
M9
M10
M11

# VisualAnalysis 3.50.c Report

09/13/00 16:21:26
**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 | 7.50 | 0.00 | No | No | " |
| N3 | 14.50 | 0.00 | " | " | " |
| N4 | 22.00 | 0.00 | " | Yes | " |
| N5 | 5.50 | 1.83 | " | No | " |
| N6 | 16.50 | 1.83 | " | " | " |
| N7 | 11.00 | 3.67 | " | " | " |

## Member Elements

| Member | Section | Material | Length ft |
|---|---|---|---|
| M1 | SS2x4 | Wood | 7.50 |
| M2 | " | " | 7.00 |
| M3 | " | " | 7.50 |
| M4 | " | " | 5.80 |
| M5 | " | " | 5.80 |
| M6 | " | " | 5.80 |
| M7 | " | " | 5.80 |
| M8 | " | " | 2.71 |
| M9 | " | " | 5.07 |
| M10 | " | " | 5.07 |
| M11 | " | " | 2.71 |

## 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** | **723.11** | -NA- |
| N4 | " | -NA- | 723.11 | -NA- |

# Member Results

| Member | Axial *lbs* | Vy *lbs* | Mz *lb-ft* | Dy *in* |
|---|---|---|---|---|
| M1 | 1716.98 | -36.02 | -28.31 | -0.1483 |
| " | 1716.98 | -14.52 | 34.7444 | -0.1385 |
| " | 1716.98 | 6.9758 | 44.1800 | -0.0928 |
| " | **1716.98** | 28.4758 | 0.0000 | -0.0000 |
| M2 | 1077.16 | -30.10 | -28.31 | -0.1483 |
| " | 1077.16 | -10.03 | 18.3984 | -0.1633 |
| " | 1077.16 | 10.0333 | 18.3984 | -0.1633 |
| " | 1077.16 | 30.1000 | -28.31 | -0.1483 |
| M3 | 1716.98 | -28.48 | 0.0000 | -0.0000 |
| " | 1716.98 | -6.9758 | 44.1800 | -0.0928 |
| " | 1716.98 | 14.5242 | 34.7444 | -0.1385 |
| " | 1716.98 | 36.0242 | -28.31 | -0.1483 |
| M4 | **-1848.47** | 117.04 | 0.0000 | -0.0000 |
| " | -1815.41 | 17.6694 | 129.66 | -0.1123 |
| " | -1782.35 | -81.70 | 67.7999 | -0.1440 |
| " | -1749.29 | **-181.06** | **-185.57** | -0.1388 |
| M5 | -1546.31 | 181.05 | -185.57 | -0.1388 |
| " | -1513.07 | 81.6798 | 67.9045 | -0.1935 |
| " | -1479.83 | -17.69 | **129.76** | **-0.2111** |
| " | -1446.58 | -117.05 | 0.0000 | -0.1480 |
| M6 | -1546.31 | -181.05 | -185.57 | -0.1246 |
| " | -1513.07 | -81.68 | 67.9045 | -0.1793 |
| " | -1479.83 | 17.6869 | 129.76 | -0.1969 |
| " | -1446.58 | 117.05 | 0.0000 | -0.1338 |
| M7 | -1848.47 | -117.04 | -0.0000 | **0.0141** |
| " | -1815.41 | -17.67 | 129.66 | -0.0981 |
| " | -1782.35 | 81.6973 | 67.7999 | -0.1299 |
| " | -1749.29 | **181.06** | -185.57 | -0.1247 |
| M8 | -417.47 | 0.0000 | 0.0000 | -0.0977 |
| " | -417.47 | 0.0000 | 0.0000 | -0.0918 |
| " | -417.47 | 0.0000 | 0.0000 | -0.0858 |
| " | -417.47 | 0.0000 | 0.0000 | -0.0798 |
| M9 | 480.80 | 0.0000 | 0.0000 | -0.1187 |
| " | 480.80 | 0.0000 | 0.0000 | -0.1175 |
| " | 480.80 | 0.0000 | 0.0000 | -0.1162 |
| " | 480.80 | 0.0000 | 0.0000 | -0.1149 |
| M10 | 480.80 | -0.0000 | 0.0000 | -0.0864 |
| " | 480.80 | -0.0000 | -0.0000 | -0.0851 |
| " | 480.80 | -0.0000 | -0.0000 | -0.0838 |
| " | 480.80 | -0.0000 | -0.0000 | -0.0825 |
| M11 | -417.47 | -0.0000 | 0.0000 | -0.1279 |
| " | -417.47 | -0.0000 | -0.0000 | -0.1220 |
| " | -417.47 | -0.0000 | -0.0000 | -0.1160 |
| " | -417.47 | -0.0000 | -0.0000 | -0.1100 |

**BENDING & COMP: TRUSS 1 - MEMBER 4**

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

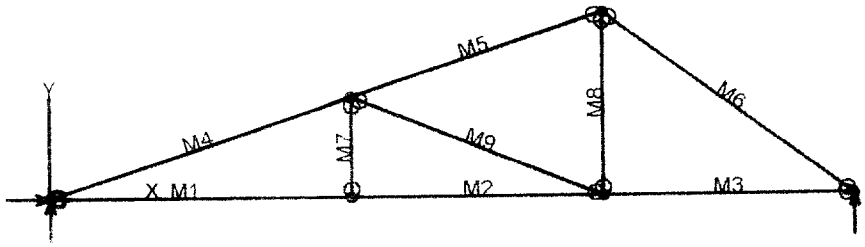
Grading:

2x or 4x Doug-fir larch: No. 2

Assumptions:

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

| | |
|---|---|
| Width, b | 1.5 inches |
| Depth, d | 3.5 inches |
| Length | 5.8 feet |
| Max Axial Comp, C | 1749 lbs |
| Max Reaction, R | 181 lbs |
| Max Moment, M | 185 ft-lbs |
| Max LL Deflection | 0.06 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 = | 1.16 |
| fc = | 333 psi |
| Fce= | 1496 psi |
| Fc*= | 2084 psi |
| F'c= | 1184 psi |
| fb= | 725 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 | 0.21 < 1.0, Member OK |
| Total Load defl ratio | 0.34 < 1.0, Member OK |


Y
X
M1
M2
M3
M4
M5
M6
M7
M8
M9

# VisualAnalysis 3.50.c Report

09/13/00 16:24:53
**Project:** Truss 2
File: C:\Program Files\IES\VA35\truss 2.vap
Company: PK Associates Engineers
Engineer: Paul Zacher
Default Units: Feet, Pounds, Degrees, °Fahrenheit, Seconds.

## Nodes

| Node | X ft | Y ft | Fix DX | Fix DY | Fix RZ |
|---|---|---|---|---|---|
| N1 | 0.00 | 0.00 | Yes | Yes | No |
| N2 | 6.00 | 0.00 | No | No | " |
| N3 | 11.00 | 0.00 | " | " | " |
| N4 | 16.00 | 0.00 | " | Yes | " |
| N5 | 6.00 | 2.00 | " | No | " |
| N6 | 11.00 | 3.67 | " | " | " |

## Member Elements

| Member | Section | Material | Length ft |
|---|---|---|---|
| M1 | SS2x4 | Wood | 6.00 |
| M2 | " | " | 5.00 |
| M3 | " | " | 5.00 |
| M4 | " | " | 6.32 |
| M5 | " | " | 5.27 |
| M6 | " | " | 6.20 |
| M7 | " | " | 2.00 |
| M8 | " | " | 3.67 |
| M9 | " | " | 5.39 |

## 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** | **533.77** | -NA- |
| N4 | " | -NA- | **568.50** | -NA- |

# Member Results

| Member | Axial *lbs* | Vy *lbs* | Mz *lb-ft* | Dy *in* |
|---|---|---|---|---|
| M1 | 1112.40 | -26.74 | -5.6571 | -0.0654 |
| " | 1112.40 | -9.5428 | 30.5426 | -0.0651 |
| " | 1112.40 | 7.6572 | 32.4283 | -0.0438 |
| " | **1112.40** | 24.8572 | 0.0000 | -0.0000 |
| M2 | 1112.40 | -24.52 | -20.78 | -0.0401 |
| " | 1112.40 | -10.19 | 8.0933 | -0.0527 |
| " | 1112.40 | 4.1431 | 13.1327 | -0.0620 |
| " | 1112.40 | 18.4764 | -5.6571 | -0.0654 |
| M3 | 521.90 | -17.34 | -0.0000 | -0.0000 |
| " | 521.90 | -3.0116 | 16.9041 | -0.0200 |
| " | 521.90 | 11.3217 | 9.9790 | -0.0322 |
| " | 521.90 | 25.6550 | -20.78 | -0.0401 |
| M4 | **-1216.25** | 131.03 | 0.0000 | -0.0000 |
| " | -1180.11 | 22.6290 | 161.40 | -0.1233 |
| " | -1143.98 | -85.77 | 94.8411 | -0.1266 |
| " | -1107.85 | **-194.17** | **-199.67** | -0.0655 |
| M5 | -608.15 | **173.38** | -199.67 | -0.0655 |
| " | -577.97 | 83.0442 | 25.2196 | -0.0759 |
| " | -547.80 | -7.2891 | 91.7770 | -0.0791 |
| " | -517.63 | -97.62 | 0.0000 | -0.0361 |
| M6 | -746.85 | -135.50 | 0.0000 | 0.0118 |
| " | -680.55 | -45.17 | 186.29 | -0.1413 |
| " | -614.24 | 45.1667 | **186.29** | **-0.1560** |
| " | -547.94 | 135.50 | 0.0000 | -0.0322 |
| M7 | 45.2192 | -0.0000 | -0.0000 | 0.0090 |
| " | 45.2192 | -0.0000 | -0.0000 | 0.0098 |
| " | 45.2192 | -0.0000 | -0.0000 | 0.0106 |
| " | 45.2192 | -0.0000 | 0.0000 | 0.0113 |
| M8 | 286.38 | 0.0000 | 0.0000 | -0.0017 |
| " | 286.38 | 0.0000 | 0.0000 | 0.0043 |
| " | 286.38 | 0.0000 | 0.0000 | 0.0104 |
| " | 286.38 | 0.0000 | 0.0000 | **0.0165** |
| M9 | -635.99 | 0.0000 | 0.0000 | -0.0564 |
| " | -635.99 | 0.0000 | 0.0000 | -0.0480 |
| " | -635.99 | 0.0000 | 0.0000 | -0.0396 |
| " | -635.99 | 0.0000 | 0.0000 | -0.0311 |

**BENDING & COMP: TRUSS 2 - MEMBER 4**

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

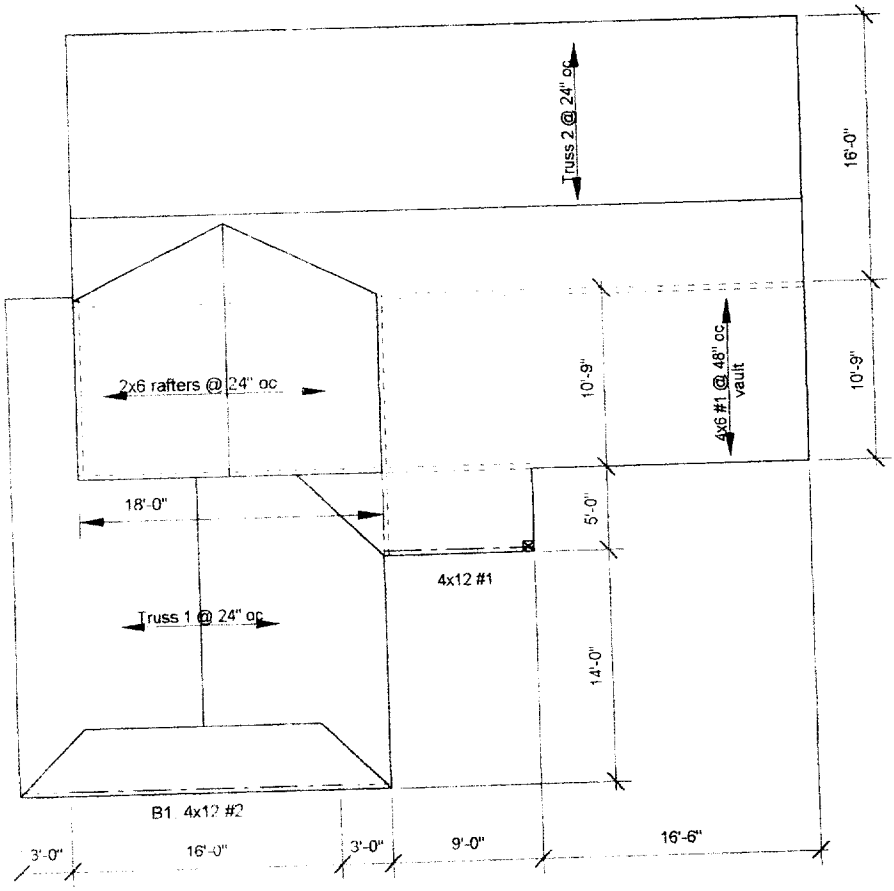
Grading:

2x or 4x Doug-fir larch: No. 2

Assumptions:

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

| | |
|---|---|
| Width, b | 1.5 inches |
| Depth, d | 3.5 inches |
| Length | 6.32 feet |
| Max Axial Comp, C | 1107 lbs |
| Max Reaction, R | 194 lbs |
| Max Moment, M | 199 ft-lbs |
| Max LL Deflection | 0.03 inches |
| Max TL Deflection | 0.06 inches |
| LL Defl Criteria = L/ | 240 |
| TL Defl Criteria = L/ | 180 |
| Duration factor, Cd | 1.25 |
| Repetitive Factor, Cr | 1.15 |
| Size Factor, Cf bending | 1.5 1.5 for 2x4, 1.3 for 2x6 |
| Size Factor, Cf comp | 1.15 1.15 for 2x4, 1.1 for 2x6 |
| Buckling Factor, CT = | 1.17 |
| fc = | 211 psi |
| Fce= | 1275 psi |
| Fc*= | 2084 psi |
| F'c= | 1057 psi |
| fb= | 780 psi |
| F'b=Fb*= | 2156 psi |
| Shear D/C ratio | 0.47 < 1.0, Member OK |
| Interaction equation: | |
| (fc/F'c)^2 + | |
| fb/ (F'b(1-fc/Fce)) = | 0.47 < 1.0, Member OK |
| Live Load defl ratio | 0.09 < 1.0, Member OK |
| Total Load defl ratio | 0.14 < 1.0, Member OK |




REGISTERED PROFESSIONAL ENGINEER
PAUL ZACHER
No. S3878
Exp. 3-31-03
STRUCTURAL
STATE OF CALIFORNIA

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.

N

1 ROOF PLAN - NUYNH

Not to Scale