

CITY OF SACRAMENTO
1231 I Street, Sacramento, CA 95814

Permit No: 0109521
Insp Area: 2

Site Address: 1618 WENTWORTH AV SAC
Parcel No: 017-0161-009

4

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

CONTRACTOR
ZIMMERMAN ROOFING INC
1675 R STREET
SACRAMENTO CA 95834

OWNER
WENTWORTH HOA

ARCHITECT

Nature of Work: 22 SQ T/O SHAKE REROOF W LTWT 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-29 License Number 557559 Date 1-27-01 Contractor Signature Irish Maritz

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 & P 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 1-27-01 Applicant Agent Signature Irish Maritz

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: 713-00-2021 Exp Date: 10/01/2001

(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 1-27-01 Applicant Signature Irish Maritz

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.

Noda

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

TEL: 916.961.3960
FAX: 916.961.6552

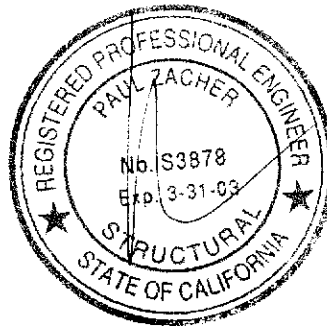
June 8, 2001

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

Attn.: Mr. Dan Peoples,

re: Job 2001_149: NODA

Subject: Structural Investigation Report of the Roof for the Residence located at 1618 Wentworth Ave., #4,
Sacramento, CA 95822.



As requested by Mr. Dan Peoples, 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 8, 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 living and garage areas are 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.

RECOMMENDATIONS:

None.

1/18
[Signature]
7/25/01

RECEIVED FOR THE ENGINEER

Noda



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 | |

LOCATION: TOP CHORD

| <u>MATERIAL</u> | <u>WEIGHT</u> | |
|-----------------------|---------------|-----|
| Light Weight Tile | 7.00 | psf |
| Roofing felt | 0.30 | psf |
| 1/2" OSB/ plywood | 1.50 | psf |
| 1x4 skip sht'g | 1.09 | psf |
| 2x4 truss @ 24" oc | 0.64 | psf |
| Load | 10.5 | psf |
| Roof Pitch Adjustment | 0.57 | psf |
| Total Load | 11.1 | 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 | 2.50 | psf |
| Load | 4.3 | psf |

P.K. Zacher, S.E.

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

Job #: 01-199

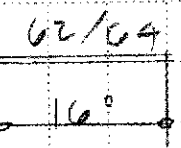
Date: 6/8/01

LOADING

B1

OP: 15.4 psf = 4° = 62 psf

4 x 12' x 2'



LP: 16.0 : : = 64 .

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

Title :
 Dsgnr:
 Description :

Job #
 Date: 4:03PM, 8 JUN 01

Scope :

Timber Beam & Joist

c:\enercalc\test.ecw\Calculations

Rev: 510304
 User: RW-0602044, Ver 5.1.3, 22-Jun-1999, Win32
 (c) 1983-99 ENERCALC

Description BEAMS

Calculations are designed to 1997 NDS and 1997 UBC Requirements

Timber Member Information

| | | |
|----------------------|-----|---------------------|
| Timber Section | | B1 |
| Beam Width | in | 4x12 3.500 |
| Beam Depth | in | 11.250 |
| Le: Unbraced Length | ft | 2.00 |
| 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 | 16.00 |
| Dead Load | #/ft | 62.00 |
| Live Load | #/ft | 64.00 |

Results Ratio = 0.5470

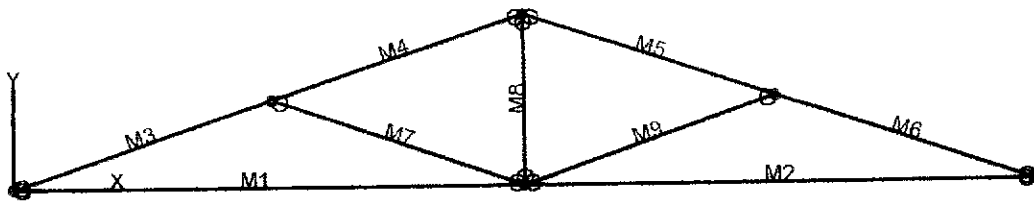
| | | |
|----------------|------|------------|
| Mmax @ Center | in-k | 48.38 |
| @ X = | ft | 8.00 |
| fb : Actual | psi | 655.4 |
| Fb : Allowable | psi | 1,198.1 |
| | | Bending OK |
| fv : Actual | psi | 34.1 |
| Fv : Allowable | psi | 118.8 |
| | | Shear OK |

Reactions

| | | | |
|-------------|------------|-----|----------|
| @ Left End | DL | lbs | 496.00 |
| | LL | lbs | 512.00 |
| | Max. DL+LL | lbs | 1,008.00 |
| @ Right End | DL | lbs | 496.00 |
| | LL | lbs | 512.00 |
| | Max. DL+LL | lbs | 1,008.00 |

Deflections

| | | | |
|-------------------|----|---------|----------|
| | | | Ratio OK |
| Center DL Defl | in | -0.138 | |
| L/Defl Ratio | | 1,395.5 | |
| Center LL Defl | in | -0.142 | |
| L/Defl Ratio | | 1,351.9 | |
| Center Total Defl | in | -0.280 | |
| Location | ft | 8.000 | |
| L/Defl Ratio | | 636.7 | |



VisualAnalysis 3.50.c Report

06/08/01 15:47:24

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 | 9.88 | 0.00 | No | | No | | " | |
| N3 | 19.75 | 0.00 | " | | Yes | | " | |
| N4 | 5.00 | 1.67 | " | | No | | " | |
| N5 | 14.75 | 1.67 | " | | " | | " | |
| N6 | 9.88 | 3.29 | " | | " | | " | |

Member Elements

| Member | Section | Material | Length ft |
|--------|---------|----------|--------------|
| M1 | SS2x4 | Wood | 9.88 |
| M2 | " | " | 9.88 |
| M3 | " | " | 5.27 |
| M4 | " | " | 5.14 |
| M5 | " | " | 5.14 |
| M6 | " | " | 5.27 |
| M7 | " | " | 5.15 |
| M8 | " | " | 3.29 |
| M9 | " | " | 5.15 |

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 | 649.11 | -NA- |
| N3 | " | -NA- | 649.11 | -NA- |

Member Results

| Member | Axial lbs | Vy lbs | Mz lb-ft | Dy in |
|--------|-----------------|----------------|----------------|----------------|
| M1 | 1499.26 | -51.11 | -85.38 | -0.1199 |
| " | 1499.26 | -22.80 | 36.0281 | -0.1578 |
| " | 1499.26 | 5.5080 | 64.4884 | -0.1372 |
| " | 1499.26 | 33.8163 | 0.0000 | -0.0000 |
| M2 | 1499.26 | -33.82 | 0.0000 | -0.0000 |
| " | 1499.26 | -5.5080 | 64.4884 | -0.1372 |
| " | 1499.26 | 22.8003 | 36.0281 | -0.1578 |
| " | 1499.26 | 51.1087 | -85.38 | -0.1199 |
| M3 | -1616.96 | 108.64 | 0.0000 | -0.0000 |
| " | -1586.79 | 18.3041 | 111.13 | -0.0867 |
| " | -1556.62 | -72.03 | 63.9300 | -0.1162 |
| " | -1526.45 | -162.36 | -141.61 | -0.1156 |
| M4 | -1106.41 | 159.67 | -141.61 | -0.1157 |
| " | -1077.11 | 71.5995 | 56.0543 | -0.1496 |
| " | -1047.80 | -16.48 | 103.26 | -0.1591 |
| " | -1018.50 | -104.55 | 0.0000 | -0.1182 |
| M5 | -1106.41 | -159.67 | -141.61 | -0.1031 |
| " | -1077.11 | -71.60 | 56.0543 | -0.1370 |
| " | -1047.80 | 16.4755 | 103.26 | -0.1465 |
| " | -1018.50 | 104.55 | 0.0000 | -0.1056 |
| M6 | -1616.96 | -108.64 | 0.0000 | 0.0126 |
| " | -1586.79 | -18.30 | 111.13 | -0.0741 |
| " | -1556.62 | 72.0293 | 63.9300 | -0.1035 |
| " | -1526.45 | 162.36 | -141.61 | -0.1030 |
| M7 | -528.36 | -0.0000 | -0.0000 | -0.1070 |
| " | -528.36 | -0.0000 | -0.0000 | -0.1042 |
| " | -528.36 | -0.0000 | -0.0000 | -0.1014 |
| " | -528.36 | -0.0000 | 0.0000 | -0.0987 |
| M8 | 444.68 | 0.0000 | 0.0000 | -0.0199 |
| " | 444.68 | 0.0000 | 0.0000 | -0.0199 |
| " | 444.68 | 0.0000 | 0.0000 | -0.0199 |
| " | 444.68 | 0.0000 | 0.0000 | -0.0199 |
| M9 | -528.36 | 0.0000 | 0.0000 | -0.1199 |
| " | -528.36 | 0.0000 | 0.0000 | -0.1171 |
| " | -528.36 | 0.0000 | 0.0000 | -0.1143 |
| " | -528.36 | 0.0000 | 0.0000 | -0.1116 |

BENDING & COMP: TRUSS 1 - MEMBER 3

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

Grading:

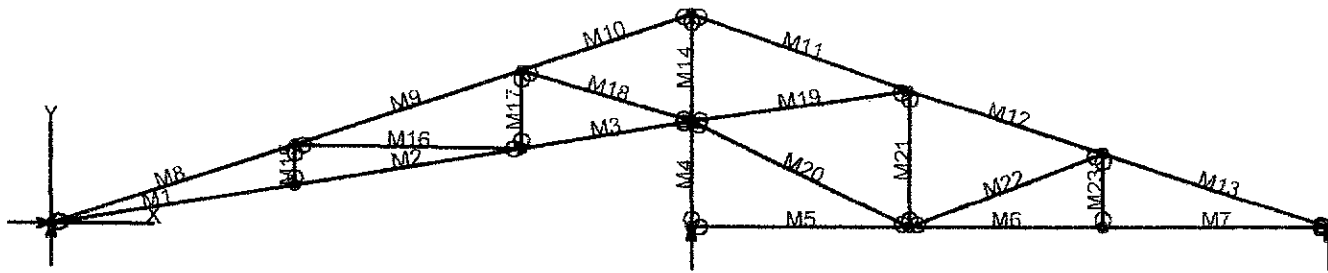
2x or 4x

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 | 5.27 feet |
| Max Axial Comp, C | 1526 lbs |
| Max Reaction, R | 162 lbs |
| Max Moment, M | 141 ft-lbs |
| Max LL Deflection | 0.05 inches |
| Max TL Deflection | 0.11 inches |
| LL Defl Criteria = L/ | 240 |
| TL Defl Criteria = L/ | 180 |
| Duration factor, Cd | 1.25 |
| Repetitive Factor, Cr | 1.15 |
| Size Factor, Cf bending | 1.5 1.5 for 2x4, 1.3 for 2x6 |
| Size Factor, Cf comp | 1.15 1.15 for 2x4, 1.1 for 2x6 |
| Buckling Factor, CT = | 1.15 |
| fc = | 291 psi |
| Fce= | 1789 psi |
| Fc*= | 2084 psi |
| F'c= | 1326 psi |
| fb= | 552 psi |
| F'b=Fb*= | 2156 psi |
| Shear D/C ratio | 0.39 < 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 | 0.19 < 1.0, Member OK |
| Total Load defl ratio | 0.31 < 1.0, Member OK |



VisualAnalysis 3.50.c Report

06/08/01 15:53:50

Project: Truss 2

File: C:\Program Files\IES\VA35\truss 2.vap

Company: PK Associates Engineers

Engineer: Paul Zacher

Default Units: Feet, Pounds, Degrees, °Fahrenheit, Seconds.

Nodes

| Node | X ft | Y ft | Fix | DX | Fix | DY | Fix | RZ |
|------|---------|---------|-----|----|-----|----|-----|----|
| N1 | 0.00 | 0.00 | Yes | | Yes | | No | |
| N2 | 7.50 | 1.25 | No | | No | | " | |
| N3 | 14.50 | 2.42 | " | | " | | " | |
| N4 | 19.75 | 3.29 | " | | " | | " | |
| N5 | 19.75 | 0.00 | " | | Yes | | " | |
| N6 | 26.50 | 0.00 | " | | No | | " | |
| N7 | 32.50 | 0.00 | " | | " | | " | |
| N8 | 39.50 | 0.00 | " | | Yes | | " | |
| N9 | 7.50 | 2.50 | " | | No | | " | |
| N10 | 14.50 | 4.83 | " | | " | | " | |
| N11 | 19.75 | 6.58 | " | | " | | " | |
| N12 | 26.50 | 4.25 | " | | " | | " | |
| N13 | 32.50 | 2.33 | " | | " | | " | |

Member Elements

| Member | Section | Material | Length ft |
|--------|---------|----------|--------------|
| M1 | SS2x4 | Wood | 7.60 |
| M2 | " | " | 7.10 |
| M3 | " | " | 5.32 |
| M4 | " | " | 3.29 |
| M5 | " | " | 6.75 |
| M6 | " | " | 6.00 |
| M7 | " | " | 7.00 |
| M8 | " | " | 7.91 |
| M9 | " | " | 7.38 |
| M10 | " | " | 5.53 |
| M11 | " | " | 7.14 |
| M12 | " | " | 6.30 |
| M13 | " | " | 7.38 |
| M14 | " | " | 3.29 |
| M15 | " | " | 1.25 |
| M16 | " | " | 7.00 |
| M17 | " | " | 2.41 |
| M18 | " | " | 5.47 |
| M19 | " | " | 6.82 |
| M20 | " | " | 7.51 |
| M21 | " | " | 4.25 |
| M22 | " | " | 6.44 |
| M23 | " | " | 2.33 |

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 psi | Density lb/ft ³ |
|------|--------------------------|-------------------|----------------|-------------------------------|
| Wood | -NA- | 1700000.00 | 0.36 | 40.47 |

Load Combination Summary

Equation Case: Equation Case 1
 Combination: +1D+1L+1Lr
 Contributing Cases & Source
 Service Case 1 (Dead loads)
 Service Case 2 (Roof Live loads)

Member Uniform Loads

This item is empty. Check the selection state, or report properties.

Nodal Reactions

| Node | Load Case | FX lbs | FY lbs | MZ lb-ft |
|------|-----------------|-----------|-----------|-------------|
| N1 | Equation Case 1 | -0.00 | 406.41 | -NA- |
| N5 | " | -NA- | 1787.48 | -NA- |
| N8 | " | -NA- | 404.79 | -NA- |

Member Results

| Member | Axial lbs | Vy lbs | Mz lb-ft | Dy in |
|--------|--------------|-----------|-------------|----------|
| M1 | 1195.22 | 32.1136 | 0.0000 | -0.0000 |
| " | 1198.81 | 10.6136 | 54.0096 | -0.1245 |
| " | 1202.39 | -10.89 | 53.6640 | -0.1887 |
| " | 1205.97 | -32.39 | -1.0367 | -0.1931 |
| M2 | 1196.75 | 23.4750 | -1.0367 | -0.1931 |
| " | 1200.10 | 3.4083 | 30.6435 | -0.1774 |
| " | 1203.45 | -16.66 | 14.9706 | -0.1333 |
| " | 1206.81 | -36.73 | -48.06 | -0.0775 |
| M3 | -329.26 | 31.6053 | -48.06 | -0.0774 |
| " | -326.76 | 16.5553 | -5.4070 | -0.0541 |
| " | -324.27 | 1.5053 | 10.6115 | -0.0353 |
| " | -321.78 | -13.54 | 0.0000 | -0.0115 |
| M4 | -1763.55 | 7.0624 | -23.24 | 0.0230 |
| " | -1763.55 | 7.0624 | -15.49 | 0.0209 |
| " | -1763.55 | 7.0624 | -7.7451 | 0.0154 |
| " | -1763.55 | 7.0624 | -0.0000 | 0.0081 |
| M5 | -7.0624 | -34.12 | -34.42 | -0.0387 |
| " | -7.0624 | -14.77 | 20.4794 | -0.0457 |
| " | -7.0624 | 4.5752 | 31.9540 | -0.0364 |
| " | -7.0624 | 23.9252 | 0.0000 | -0.0000 |
| M6 | 638.86 | -24.30 | -25.42 | -0.0550 |
| " | 638.86 | -7.1000 | 5.8902 | -0.0511 |
| " | 638.86 | 10.1000 | 2.8901 | -0.0449 |
| " | 638.86 | 27.3000 | -34.42 | -0.0387 |
| M7 | 638.86 | -26.47 | 0.0000 | -0.0000 |
| " | 638.86 | -6.4014 | 38.2306 | -0.0509 |
| " | 638.86 | 13.6653 | 29.7560 | -0.0663 |
| " | 638.86 | 33.7320 | -25.42 | -0.0550 |

| | | | | |
|-----|----------------|----------------|----------------|----------------|
| M8 | -1304.11 | 167.42 | 0.0000 | -0.0000 |
| " | -1258.94 | 31.9246 | 261.77 | -0.3292 |
| " | -1213.77 | -103.58 | 167.36 | -0.3529 |
| " | -1168.61 | -239.08 | -283.22 | -0.1942 |
| M9 | 270.50 | 199.50 | -283.22 | -0.1942 |
| " | 312.59 | 73.0302 | 51.0966 | -0.1923 |
| " | 354.69 | -53.44 | 75.1891 | -0.1608 |
| " | 396.79 | -179.90 | -210.95 | -0.0720 |
| M10 | 1482.82 | 180.39 | -210.95 | -0.0720 |
| " | 1514.43 | 85.5436 | 33.8971 | -0.0807 |
| " | 1546.05 | -9.3064 | 104.21 | -0.0766 |
| " | 1577.67 | -104.16 | 0.0000 | -0.0146 |
| M11 | 1466.42 | -216.19 | -237.56 | -0.0305 |
| " | 1508.52 | -94.24 | 131.17 | -0.1677 |
| " | 1550.61 | 27.7067 | 210.36 | -0.1892 |
| " | 1592.71 | 149.66 | 0.0000 | -0.0106 |
| M12 | -48.32 | -162.96 | -239.82 | -0.0498 |
| " | -13.63 | -54.56 | -12.01 | -0.0184 |
| " | 21.0581 | 53.8422 | -11.25 | -0.0123 |
| " | 55.7461 | 162.24 | -237.56 | -0.0310 |
| M13 | -725.64 | -157.19 | 0.0000 | 0.0061 |
| " | -683.55 | -30.73 | 230.29 | -0.2166 |
| " | -641.45 | 95.7395 | 150.35 | -0.2048 |
| " | -599.36 | 222.21 | -239.82 | -0.0495 |
| M14 | -1258.87 | -7.0624 | -23.24 | 0.0230 |
| " | -1258.87 | -7.0624 | -15.49 | 0.0203 |
| " | -1258.87 | -7.0624 | -7.7451 | 0.0141 |
| " | -1258.87 | -7.0624 | 0.0000 | 0.0061 |
| M15 | 56.0698 | 0.0000 | 0.0000 | 0.0439 |
| " | 56.0698 | 0.0000 | 0.0000 | 0.0455 |
| " | 56.0698 | 0.0000 | 0.0000 | 0.0472 |
| " | 56.0698 | 0.0000 | 0.0000 | 0.0489 |
| M16 | -1504.00 | -0.0000 | 0.0000 | -0.1878 |
| " | -1504.00 | -0.0000 | -0.0000 | -0.1492 |
| " | -1504.00 | -0.0000 | -0.0000 | -0.1107 |
| " | -1504.00 | -0.0000 | -0.0000 | -0.0721 |
| M17 | 337.37 | 0.0000 | 0.0000 | -0.0361 |
| " | 337.37 | 0.0000 | 0.0000 | -0.0286 |
| " | 337.37 | 0.0000 | 0.0000 | -0.0210 |
| " | 337.37 | 0.0000 | 0.0000 | -0.0135 |
| M18 | -1192.31 | 0.0000 | 0.0000 | -0.0647 |
| " | -1192.31 | 0.0000 | 0.0000 | -0.0435 |
| " | -1192.31 | 0.0000 | 0.0000 | -0.0222 |
| " | -1192.31 | 0.0000 | 0.0000 | -0.0010 |
| M19 | -1467.68 | -0.0000 | -0.0000 | -0.0384 |
| " | -1467.68 | -0.0000 | -0.0000 | -0.0293 |
| " | -1467.68 | -0.0000 | -0.0000 | -0.0201 |
| " | -1467.68 | -0.0000 | 0.0000 | -0.0110 |
| M20 | 3.8000 | -0.0000 | -0.0000 | -0.0312 |
| " | 3.8000 | -0.0000 | -0.0000 | -0.0198 |
| " | 3.8000 | -0.0000 | -0.0000 | -0.0084 |
| " | 3.8000 | -0.0000 | 0.0000 | 0.0031 |
| M21 | 309.27 | 0.0000 | 0.0000 | 0.0080 |
| " | 309.27 | 0.0000 | 0.0000 | 0.0099 |
| " | 309.27 | 0.0000 | 0.0000 | 0.0117 |
| " | 309.27 | 0.0000 | 0.0000 | 0.0136 |
| M22 | -689.25 | 0.0000 | 0.0000 | -0.0539 |
| " | -689.25 | 0.0000 | 0.0000 | -0.0489 |
| " | -689.25 | 0.0000 | 0.0000 | -0.0439 |
| " | -689.25 | 0.0000 | 0.0000 | -0.0389 |
| M23 | 58.0319 | -0.0000 | 0.0000 | 0.0079 |
| " | 58.0319 | -0.0000 | -0.0000 | 0.0096 |
| " | 58.0319 | -0.0000 | -0.0000 | 0.0114 |
| " | 58.0319 | -0.0000 | -0.0000 | 0.0132 |

BENDING & COMP: TRUSS 2 - MEMBER 8

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

Grading:

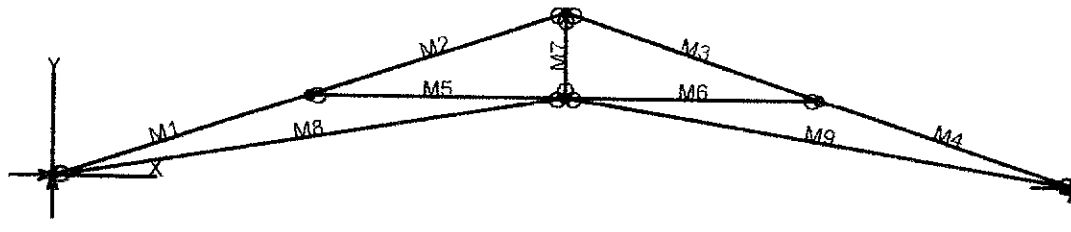
2x or 4x

Doug-fir larch: No. 2

Assumptions:

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

| | |
|-------------------------|--------------------------------|
| Width, b | 1.5 inches |
| Depth, d | 3.5 inches |
| Length | 7.91 feet |
| Max Axial Comp, C | 1168 feet |
| Max Reaction, R | 239 feet |
| Max Moment, M | 283 feet |
| Max LL Deflection | 0.1 feet |
| Max TL Deflection | 0.19 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 = | 1.22 |
| fc = | 222 psi |
| Fce= | 844 psi |
| Fc*= | 2084 psi |
| F'c= | 758 psi |
| fb= | 1109 psi |
| F'b=Fb*= | 2156 psi |
| Shear D/C ratio | 0.58 < 1.0, Member OK |
| Interaction equation: | |
| (fc/F'c)^2 + | |
| fb/ (F'b(1-fc/Fce)) = | 0.78 < 1.0, Member OK |
| Live Load defl ratio | 0.25 < 1.0, Member OK |
| Total Load defl ratio | 0.36 < 1.0, Member OK |



VisualAnalysis 3.50.c Report

06/08/01 16:01:51

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 | 7.63 | 1.27 | No | No | " |
| N3 | 15.25 | 0.00 | " | Yes | " |
| N4 | 3.81 | 1.27 | " | No | " |
| N5 | 11.44 | 1.27 | " | " | " |
| N6 | 7.63 | 2.54 | " | " | " |

Member Elements

| Member | Section | Material | Length ft |
|--------|---------|----------|--------------|
| M1 | SS2x4 | Wood | 4.02 |
| M2 | " | " | 4.02 |
| M3 | " | " | 4.02 |
| M4 | " | " | 4.02 |
| M5 | " | " | 3.81 |
| M6 | " | " | 3.81 |
| M7 | " | " | 1.27 |
| M8 | " | " | 7.73 |
| M9 | " | " | 7.73 |

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 | 502.11 | -NA- |
| N3 | " | -NA- | 502.11 | -NA- |

Member Results

| Member | Axial lbs | Vy lbs | Mz lb-ft | Dy in |
|--------|--------------|-----------|-------------|----------|
| M1 | -2283.72 | 107.41 | 0.0000 | -0.0000 |
| " | -2260.77 | 38.5711 | 97.4786 | -0.1181 |
| " | -2237.83 | -30.26 | 103.04 | -0.2057 |
| " | -2214.89 | -99.10 | 16.6833 | -0.2609 |
| M2 | -1603.09 | 99.2380 | 16.6833 | -0.2609 |
| " | -1580.11 | 30.3136 | 103.28 | -0.2978 |
| " | -1557.13 | -38.61 | 97.7224 | -0.3022 |
| " | -1534.15 | -107.54 | 0.0000 | -0.2759 |
| M3 | -1603.09 | -99.24 | 16.6833 | -0.2181 |
| " | -1580.11 | -30.31 | 103.28 | -0.2550 |
| " | -1557.13 | 38.6107 | 97.7224 | -0.2594 |
| " | -1534.15 | 107.54 | 0.0000 | -0.2331 |
| M4 | -2283.72 | -107.41 | 0.0000 | 0.0428 |
| " | -2260.77 | -38.57 | 97.4786 | -0.0753 |
| " | -2237.83 | 30.2629 | 103.04 | -0.1629 |
| " | -2214.89 | 99.0969 | 16.6833 | -0.2181 |
| M5 | -643.17 | 5.1932 | 0.0000 | -0.2513 |
| " | -643.17 | 5.1932 | 6.6040 | -0.2601 |
| " | -643.17 | 5.1932 | 13.2080 | -0.2668 |
| " | -643.17 | 5.1932 | 19.8120 | -0.2696 |
| M6 | -643.17 | -5.1932 | 0.0000 | -0.2513 |
| " | -643.17 | -5.1932 | 6.6040 | -0.2601 |
| " | -643.17 | -5.1932 | 13.2080 | -0.2668 |
| " | -643.17 | -5.1932 | 19.8120 | -0.2696 |
| M7 | 766.48 | -0.0000 | -0.0000 | 0.0677 |
| " | 766.48 | -0.0000 | -0.0000 | 0.0677 |
| " | 766.48 | -0.0000 | 0.0000 | 0.0677 |
| " | 766.48 | -0.0000 | -0.0000 | 0.0677 |
| M8 | 2156.48 | 32.7875 | 0.0000 | -0.0000 |
| " | 2160.12 | 10.9292 | 56.1811 | -0.1572 |
| " | 2163.76 | -10.93 | 56.1811 | -0.2495 |
| " | 2167.40 | -32.79 | -0.0000 | -0.2770 |
| M9 | 2156.48 | -32.79 | -0.0000 | 0.0222 |
| " | 2160.12 | -10.93 | 56.1811 | -0.1350 |
| " | 2163.76 | 10.9292 | 56.1811 | -0.2273 |
| " | 2167.40 | 32.7875 | 0.0000 | -0.2548 |

BENDING & COMP: TRUSS 1 - MEMBER 3

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

Grading:

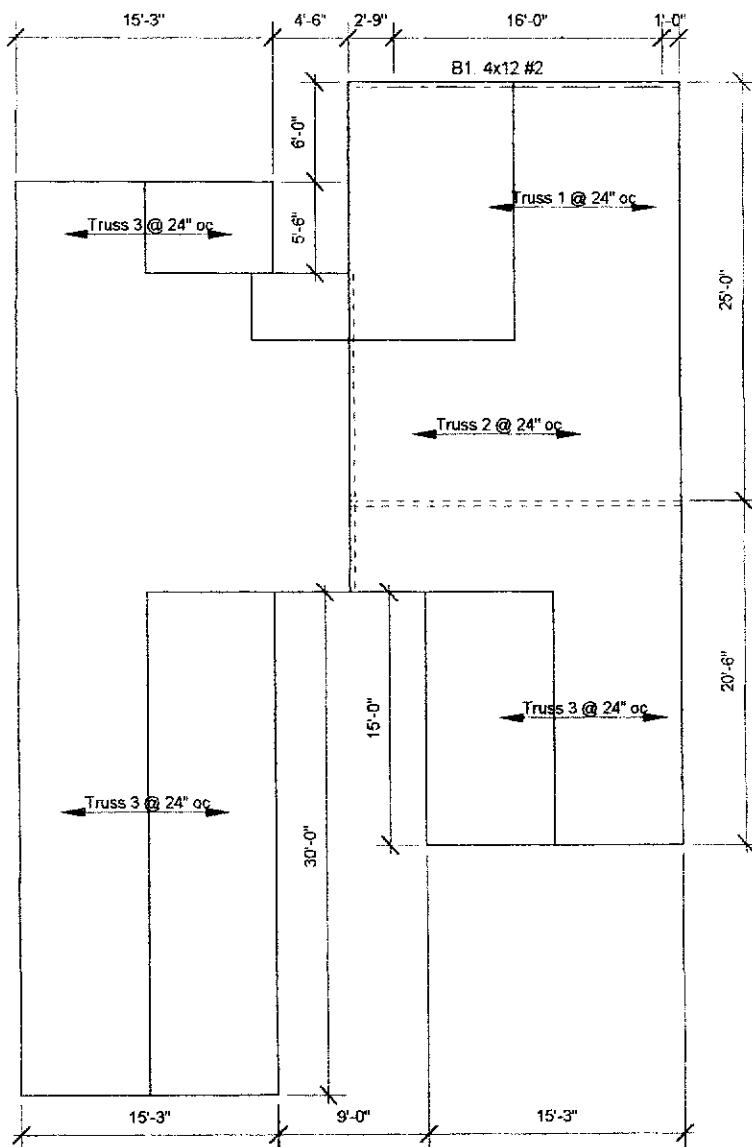
2x or 4x

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 | 4.02 feet |
| Max Axial Comp, C | 2214 feet |
| Max Reaction, R | 99 feet |
| Max Moment, M | 16 feet |
| Max LL Deflection | 0.13 feet |
| Max TL Deflection | 0.26 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 = | 1.11 |
| fc = | 422 psi |
| Fce = | 2982 psi |
| Fc* = | 2084 psi |
| F'c = | 1664 psi |
| fb = | 63 psi |
| F'b = Fb* = | 2156 psi |
| Shear D/C ratio | 0.24 < 1.0, Member OK |
| Interaction equation: | |
| (fc/F'c) ² + | |
| fb / (F'b(1-fc/Fce)) = | 0.10 < 1.0, Member OK |
| Live Load defl ratio | 0.65 < 1.0, Member OK |
| Total Load defl ratio | 0.97 < 1.0, Member OK |



Notes:

1. This is a reroof project. The new roofing material shall be a Light Weight Concrete Tile. The tile shall weigh less than or equal to 7.0 psf.
2. All structural wood members that were observed appear to be in sound condition and without structural defect.



1

ROOF PLAN - NODA

Not to Scale

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