

CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0409679

Insp Area: 4  
Thos Bros: 277H1

Site Address: 4596 SEAWIND DR SAC  
Parcel No: 237-0490-064

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

CONTRACTOR

OWNER  
GARCIA ARMONDO  
4596 SEAWIND DR  
SACRAMENTO CA 95838

ARCHITECT

Nature of Work: T/O, RESHEET, REINFORCE TRUSSES, REROOF W/ 20 SQ STD.  
WEIGHT TILE

CONSTRUCTION LENDING AGENCY : I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name \_\_\_\_\_ Lender's Address \_\_\_\_\_

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

License Class \_\_\_\_\_ 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 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);

\* A.G. 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 work that results in a contractor(s) licensed pursuant to the Contractors License Law).

I am exempt under Sec. \_\_\_\_\_ B & PC for this reason: \_\_\_\_\_

\* Date 6/17/04 Owner Signature *A. Garcia M.*

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 \_\_\_\_\_ Applicant/Agent Signature \_\_\_\_\_

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 \_\_\_\_\_

\* A.G. (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 6/17/04 Applicant Signature *A. Garcia M.*

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.

Garcia

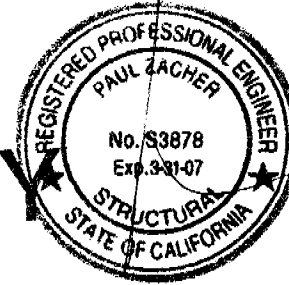
Paul Zacher - Structural Engineers, Inc  
4701 Lakeside Way  
Fair Oaks, CA 95628

TEL: 916.961.3960  
FAX: 916.961.6552

June 13, 2004

Garcia  
4596 Seawind Drive  
Sacramento, CA 95828  
TEL: (916) 564-1537  
FAX:

CITY COPY



Attn.: Mr. Garcia,

re: Job 2004314: GARCIA

Subject: Structural Investigation Report of the Roof for the Residence located at 4596 Seawind Drive, Sacramento, CA 95828.

As requested by Mr. Garcia, 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 11, 2004. 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 3000 square feet.

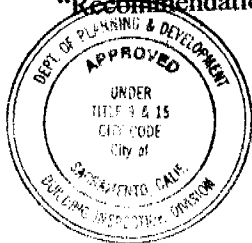
ISSUED  
City of Sacramento  
JUN 17 2004  
COURT PERMIT  
CENTER

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.

CONCLUSIONS:

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



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.

ok per DMH 6/17/04  
*[Signature]*

RECEIVED BY THE CITY OF SACRAMENTO

Garcia



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. Scab a 2x4 DF#2 x 12'-0" long rafter to the top chord of the existing truss. See details 1 and 2.

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

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

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

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

Sincerely,

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

## 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>	
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

PAUL ZACHER- STRUCTURAL ENGINEERS, INC.

4701 Lakeside Way  
Fair Oaks, Ca 95628  
TEL: (916) 961-3960  
FAX: (916) 961-3938

Job #: 04\_314

Date: 06/13/2004

LOADING:

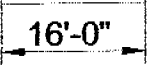
B1:

Dr = 17.9 psf x 4'-0" = 72 plf

Lr = 16.0 psf x 4'-0" = 64 plf

4x12 #2

72 / 64



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: 7:25AM, 13 JUN 04

Scope :

Rev: 560100  
 User: KW-0602844, Ver 5.6.1, 25-Oct-2002  
 (c)1983-2002 ENERCALC Engineering Software

### Timber Beam & Joist

c:\documents and settings\paul zacher\desktop

Description RAFTERS AND BEAMS

#### 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	16.00
Dead Load	#/ft	72.00
Live Load	#/ft	64.00

Results Ratio = 0.5879

Mmax @ Center	in-k	52.22
@ X =	ft	8.00
fb : Actual	psi	707.4
Fb : Allowable	psi	1,203.1
		Bending OK
fv : Actual	psi	36.8
Fv : Allowable	psi	118.8
		Shear OK

#### Reactions

@ Left End	DL	lbs	576.00
	LL	lbs	512.00
	Max. DL+LL	lbs	1,088.00
@ Right End	DL	lbs	576.00
	LL	lbs	512.00
	Max. DL+LL	lbs	1,088.00

#### Deflections

Ratio OK

Center DL Defl	in	-0.160
L/Defl Ratio		1,201.7
Center LL Defl	in	-0.142
L/Defl Ratio		1,351.9
Center Total Defl	in	-0.302
Location	ft	8.000
L/Defl Ratio		636.2

**Truss 1**

VisualAnalysis 4.00 Report

Company: Paul Zacher - Structural Engineers Engineer: Paul Zacher

File: C:\Documents and Settings\Paul Zacher\Desktop\Garcia04\_314\Truss 1.vap

**Nodes**

Node	X ft	Y ft	Fix	DX	Fix	DY	Fix	RZ
N1	0.00	0.00	Yes		Yes			No
N2	20.00	0.00	No		"			Yes
N3	10.00	3.33	"		No			No
N4	10.00	0.00	"		"			"
N5	5.00	1.67	"		"			"
N6	15.00	1.67	"		"			"

**Member Elements**

Member	Section	Material	Length ft
M1-2	SS2x4	Wood	10.00
M1-3	"	"	10.00
M2-2	"	"	5.27
M2-3	"	"	5.27
M3-2	"	"	5.27
M3-3	"	"	5.27
M4	"	"	5.27
M5	"	"	3.33
M6	"	"	5.27

**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**

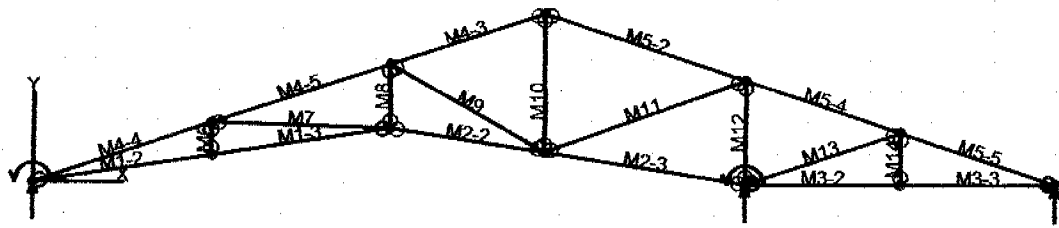
Node	Load Case	FX lb	FY lb	MZ lb-ft

Node	Load Case	<b>Fx</b> <i>lb</i>	<b>Fy</b> <i>lb</i>	<b>Mz</b> <i>lb-ft</i>
N1	UBC97 12.8a	<b>0.00</b>	<b>662.00</b>	-NA-
N2	"	-NA-	662.00	<b>0.00</b>

## Member Results

Member	<b>Fx</b> <i>lb</i>	<b>Vy</b> <i>lb</i>	<b>Mz</b> <i>lb-ft</i>	<b>Dx</b> <i>in</i>	<b>Dy</b> <i>in</i>
M1-2	1540.78	-51.78	-87.77	0.02	-0.12
"	1540.78	-23.11	37.01	0.01	-0.16
"	1540.78	5.56	66.26	0.01	-0.14
"	<b>1540.78</b>	34.22	0.00	0.00	0.00
M1-3	1540.78	-34.22	0.00	0.04	0.00
"	1540.78	-5.56	66.26	0.03	-0.14
"	1540.78	23.11	37.01	0.03	-0.16
"	1540.78	51.78	-87.77	0.02	-0.12
M2-2	<b>-1660.2</b>	108.82	0.00	0.00	0.00
"	-1629.8	17.74	<b>111.10</b>	-0.00	-0.09
"	-1599.5	-73.34	62.26	-0.01	-0.12
"	-1569.2	<b>-164.43</b>	<b>-146.52</b>	-0.01	-0.12
M2-3	-1130.1	<b>164.43</b>	-146.52	-0.01	-0.12
"	-1099.8	73.34	62.26	-0.01	-0.16
"	-1069.5	-17.74	111.10	-0.02	<b>-0.17</b>
"	-1039.2	-108.82	0.00	-0.02	-0.12
M3-2	-1130.1	-164.43	-146.52	0.05	-0.11
"	-1099.8	-73.34	62.26	0.05	-0.15
"	-1069.5	17.74	111.10	0.06	-0.16
"	-1039.2	108.82	0.00	<b>0.06</b>	-0.11
M3-3	-1660.2	-108.82	0.00	0.04	<b>0.01</b>
"	-1629.8	-17.74	111.10	0.04	-0.07
"	-1599.5	73.34	62.26	0.05	-0.11
"	-1569.2	164.43	-146.52	0.05	-0.11
M4	-548.53	0.00	0.00	0.06	-0.11
"	-548.53	0.00	0.00	0.06	-0.11
"	-548.53	0.00	0.00	0.06	-0.11
"	-548.53	0.00	0.00	0.06	-0.10
M5	450.16	0.00	0.00	<b>-0.12</b>	-0.02
"	450.16	0.00	0.00	-0.12	-0.02
"	450.16	0.00	0.00	-0.12	-0.02
"	450.16	0.00	0.00	-0.12	-0.02
M6	-548.53	0.00	0.00	-0.02	-0.12
"	-548.53	0.00	0.00	-0.02	-0.12
"	-548.53	0.00	0.00	-0.02	-0.12
"	-548.53	0.00	0.00	-0.02	-0.12





**Truss 2**

VisualAnalysis 4.00 Report

Company: Paul Zacher - Structural Engineers Engineer: Paul Zacher

File: C:\Documents and Settings\Paul Zacher\Desktop\Garcia04\_314\Truss 2.vap

**Nodes**

Node	X ft	Y ft	Fix	DX	Fix	DY	Fix	RZ
N1	0.00	0.00	No		Yes		Yes	
N2	11.50	1.75	"		No		No	
N3	23.00	0.00	"		Yes		Yes	
N4	33.00	0.00	Yes		"		No	
N5	16.50	5.50	No		No		"	
N6	11.50	3.83	"		"		"	
N7	23.00	3.33	"		"		"	
N8	16.50	1.00	"		"		"	
N9	5.75	0.88	"		"		"	
N10	28.00	0.00	"		"		"	
N11	5.75	1.92	"		"		"	
N12	28.00	1.67	"		"		"	

**Member Elements**

Member	Section	Material	Length ft
M1-2	SS2x4	Wood	5.82
M1-3	"	"	5.82
M2-2	"	"	5.06
M2-3	"	"	6.58
M3-2	"	"	5.00
M3-3	"	"	5.00
M4-3	"	"	5.27
M4-4	"	"	6.06
M4-5	"	"	6.06
M5-2	"	"	6.85
M5-4	"	"	5.27
M5-5	"	"	5.27
M6	"	"	1.04
M7	"	"	5.75
M8	"	"	2.08
M9	"	"	5.75
M10	"	"	4.50
M11	"	"	6.90
M12	"	"	3.33
M13	"	"	5.27
M14	"	"	1.67

**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 Elasticity Poisson Density

	psi	psi	lb/ft^3
Wood	-NA-	1700000.00	0.36 40.47

## Load Combination Summary

Equation Case: UBC97 12.8a

Combination: 1D+1Lr

Contributing Cases & 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	-NA-	537.10	0.00
N3	"	-NA-	1832.16	0.00
N4	"	0.00	-184.66	-NA-

## Member Results

Member	Fx lb	Vy lb	Mz lb-ft	Dx in	Dy in
M1-2	2015.34	31.40	0.00	-0.08	0.01
"	2017.82	15.11	45.07	-0.07	-0.11
"	2020.30	-1.19	58.56	-0.07	-0.21
"	2022.78	-17.49	40.46	-0.06	-0.26
M1-3	2017.46	17.49	40.46	-0.06	-0.26
"	2019.93	1.19	58.56	-0.06	-0.28
"	2022.41	-15.11	45.07	-0.05	-0.26
"	2024.89	-31.40	0.00	-0.05	-0.21
M2-2	951.92	-28.37	-35.95	0.03	-0.12
"	954.05	-14.20	-0.09	0.02	-0.16
"	956.17	-0.02	11.90	0.02	-0.19
"	958.30	14.15	0.00	0.02	-0.22
M2-3	-1498.4	-22.16	0.00	0.01	0.00
"	-1495.6	-3.74	28.37	0.02	-0.06
"	-1492.8	14.67	16.39	0.02	-0.10
"	-1489.9	33.09	-35.95	0.03	-0.12
M3-2	-943.65	-29.89	-41.97	0.01	0.02
"	-943.65	-15.56	-4.10	0.01	0.02
"	-943.65	-1.23	9.89	0.01	0.01
"	-943.65	13.11	0.00	0.01	0.00
M3-3	-943.65	-13.11	0.00	0.00	0.00
"	-943.65	1.23	9.89	0.00	0.01
"	-943.65	15.56	-4.10	0.00	0.02
"	-943.65	29.89	-41.97	0.01	0.02
M4-3	-29.68	168.39	-167.68	-0.10	-0.19
"	0.74	77.34	48.15	-0.10	-0.19
"	31.15	-13.72	104.04	-0.10	-0.17
"	61.56	-104.77	0.00	-0.10	-0.10
M4-4	-2150.5	136.73	0.00	-0.07	0.02
"	-2115.6	31.99	170.34	-0.08	-0.18
"	-2080.7	-72.75	129.17	-0.09	-0.26
"	-2045.8	-177.50	-123.52	-0.09	-0.25
M4-5	-1046.5	149.83	-123.52	-0.09	-0.25
"	-1011.6	45.09	73.27	-0.09	-0.27
"	-976.79	-59.66	58.55	-0.10	-0.25
"	-941.91	-164.40	-167.68	-0.10	-0.19

12

Member	Fx lb	Vy lb	Mz lb-ft	Dx in	Dy in
M5-2	-44.21	-212.00	-235.95	-0.02	-0.01
"	-4.69	-93.62	112.99	-0.02	-0.17
"	34.83	24.76	191.64	-0.02	-0.24
"	74.35	143.13	0.00	-0.02	-0.14
M5-4	1518.17	-117.97	-137.66	-0.01	0.02
"	1548.50	-26.89	-10.49	-0.01	0.03
"	1578.83	64.19	-43.25	-0.01	0.03
"	1609.16	155.28	-235.95	-0.02	-0.01
M5-5	957.80	-110.50	0.00	0.00	0.00
"	988.13	-19.42	114.05	-0.00	-0.04
"	1018.46	71.66	68.16	-0.00	-0.03
"	1048.79	162.75	-137.66	-0.01	0.02
M6	35.38	0.00	0.00	0.27	-0.02
"	35.38	0.00	0.00	0.27	-0.02
"	35.38	0.00	0.00	0.27	-0.01
"	35.38	0.00	0.00	0.27	-0.01
M7	-1051.9	0.00	0.00	-0.01	-0.22
"	-1051.9	0.00	0.00	0.00	-0.27
"	-1051.9	0.00	0.00	-0.00	-0.25
"	-1051.9	0.00	0.00	-0.00	-0.23
M8	522.00	0.00	0.00	-0.22	0.01
"	522.00	0.00	0.00	-0.22	0.02
"	522.00	0.00	0.00	-0.21	0.03
"	522.00	0.00	0.00	-0.21	0.03
M9	-1115.5	0.00	0.00	0.07	-0.17
"	-1115.5	0.00	0.00	0.07	-0.14
"	-1115.5	0.00	0.00	0.07	-0.11
"	-1115.5	0.00	0.00	0.08	-0.20
M10	-278.19	0.00	0.00	-0.13	-0.01
"	-278.19	0.00	0.00	-0.13	0.02
"	-278.19	0.00	0.00	-0.13	0.04
"	-278.19	0.00	0.00	-0.13	0.06
M11	1542.98	0.00	0.00	-0.04	-0.12
"	1542.98	0.00	0.00	-0.03	-0.08
"	1542.98	0.00	0.00	-0.03	-0.04
"	1542.98	0.00	0.00	-0.02	0.00
M12	-1391.4	0.00	0.00	0.00	-0.01
"	-1391.4	0.00	0.00	0.00	0.00
"	-1391.4	0.00	0.00	0.00	0.01
"	-1391.4	0.00	0.00	0.01	-0.02
M13	-562.85	0.00	0.00	0.01	0.00
"	-562.85	0.00	0.00	0.01	-0.00
"	-562.85	0.00	0.00	0.01	0.01
"	-562.85	0.00	0.00	0.01	0.02
M14	59.79	0.00	0.00	-0.02	0.00
"	59.79	0.00	0.00	-0.02	0.00
"	59.79	0.00	0.00	-0.02	0.00
"	59.79	0.00	0.00	-0.02	0.01

1/27

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

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

Grading:

2x or 4x

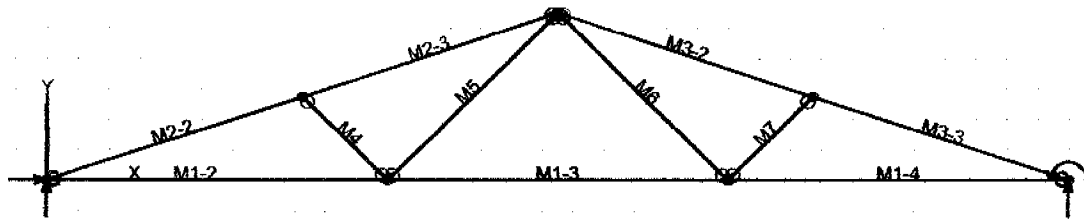
Doug-fir larch: No. 2

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	6.06 feet
Max Axial Comp, C	2045 lbs
Max Reaction, R	177 lbs
Max Moment, M	123 ft-lbs
Max LL Deflection	0.13 inches
Max TL Deflection	0.25 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 =	390 psi
Fce=	1378 psi
Fc*=	2084 psi
F'c=	1119 psi
fb=	482 psi
F'b=Fb*=	2156 psi
Shear D/C ratio	0.43 < 1.0, Member OK
Interaction equation:	
(fc/F'c)^2 +	
fb/ (F'b(1-fc/Fce)) =	0.43 < 1.0, Member OK
Live Load defl ratio	0.43 < 1.0, Member OK
Total Load defl ratio	0.62 < 1.0, Member OK



**Truss 3**

VisualAnalysis 4.00 Report

Company: Paul Zacher - Structural Engineers Engineer: Paul Zacher

File: C:\Documents and Settings\Paul Zacher\Desktop\Garcia04\_314\Truss 3.vap

**Nodes**

Node	X ft	Y ft	Fix	DX	Fix	DY	Fix	RZ
N1	33.00	0.00	No		Yes		Yes	
N2	0.00	0.00	Yes		"		No	
N3	16.50	5.50	No		No		"	
N4	11.00	0.00	"		"		"	
N5	22.00	0.00	"		"		"	
N6	8.25	2.75	"		"		"	
N7	24.75	2.75	"		"		"	

**Member Elements**

Member	Section	Material	Length ft
M1-2	SS2x4	Wood	11.00
M1-3	"	"	11.00
M1-4	"	"	11.00
M2-2	"	"	8.70
M2-3	"	"	8.70
M3-2	"	"	8.70
M3-3	"	"	8.70
M4	"	"	3.89
M5	"	"	7.78
M6	"	"	7.78
M7	"	"	3.89

**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	-NA-	1092.30	0.00
N2	"	0.00	1092.30	-NA-

## Member Results

Member	Fx lb	Vy lb	Mz lb-ft	Dx in	Dy in
M1-2	2612.65	-55.15	-86.39	0.04	-0.34
"	2612.65	-23.62	57.98	0.03	-0.37
"	2612.65	7.91	86.78	0.01	-0.28
"	<b>2612.65</b>	39.45	0.00	0.00	0.00
M1-3	1630.51	-47.30	-86.39	0.06	-0.34
"	1630.51	-15.77	29.18	0.05	-0.39
"	1630.51	15.77	29.18	0.05	-0.39
"	1630.51	47.30	-86.39	0.04	-0.34
M1-4	2612.65	-39.45	0.00	0.10	0.00
"	2612.65	-7.91	86.78	0.09	-0.28
"	2612.65	23.62	57.98	0.08	-0.37
"	2612.65	55.15	-86.39	0.06	-0.34
M2-2	<b>-2811.5</b>	172.63	0.00	0.00	0.00
"	-2761.4	22.36	<b>282.44</b>	-0.01	-0.42
"	-2711.3	-127.91	129.46	-0.02	-0.44
"	-2661.2	<b>-278.18</b>	<b>-458.95</b>	-0.03	-0.32
M2-3	-2383.0	<b>278.18</b>	-458.95	-0.03	-0.32
"	-2332.9	127.91	129.46	-0.04	-0.55
"	-2282.8	-22.36	282.44	-0.05	<b>-0.64</b>
"	-2232.8	-172.63	0.00	-0.06	-0.34
M3-2	-2383.0	-278.18	-458.95	0.13	-0.29
"	-2332.9	-127.91	129.46	0.14	-0.52
"	-2282.8	22.36	282.44	0.15	-0.61
"	-2232.8	172.63	0.00	0.16	-0.31
M3-3	-2811.5	-172.63	0.00	0.10	<b>0.03</b>
"	-2761.4	-22.36	282.44	0.11	-0.38
"	-2711.3	127.91	129.46	0.12	-0.41
"	-2661.2	278.18	-458.95	0.13	-0.29
M4	-622.04	0.00	0.00	0.27	-0.21
"	-622.04	0.00	0.00	0.27	-0.20
"	-622.04	0.00	0.00	0.27	-0.18
"	-622.04	0.00	0.00	0.27	-0.17
M5	766.93	0.00	0.00	<b>-0.21</b>	-0.27
"	766.93	0.00	0.00	-0.21	-0.27
"	766.93	0.00	0.00	-0.21	-0.27
"	766.93	0.00	0.00	-0.20	-0.28
M6	766.93	0.00	0.00	0.28	-0.20
"	766.93	0.00	0.00	0.28	-0.20
"	766.93	0.00	0.00	<b>0.28</b>	-0.20
"	766.93	0.00	0.00	0.28	-0.19
M7	-622.04	0.00	0.00	-0.20	-0.27
"	-622.04	0.00	0.00	-0.20	-0.26
"	-622.04	0.00	0.00	-0.20	-0.24
"	-622.04	0.00	0.00	-0.19	-0.28



**BENDING & COMP: TRUSS 3 - MEMBER 2-2**

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

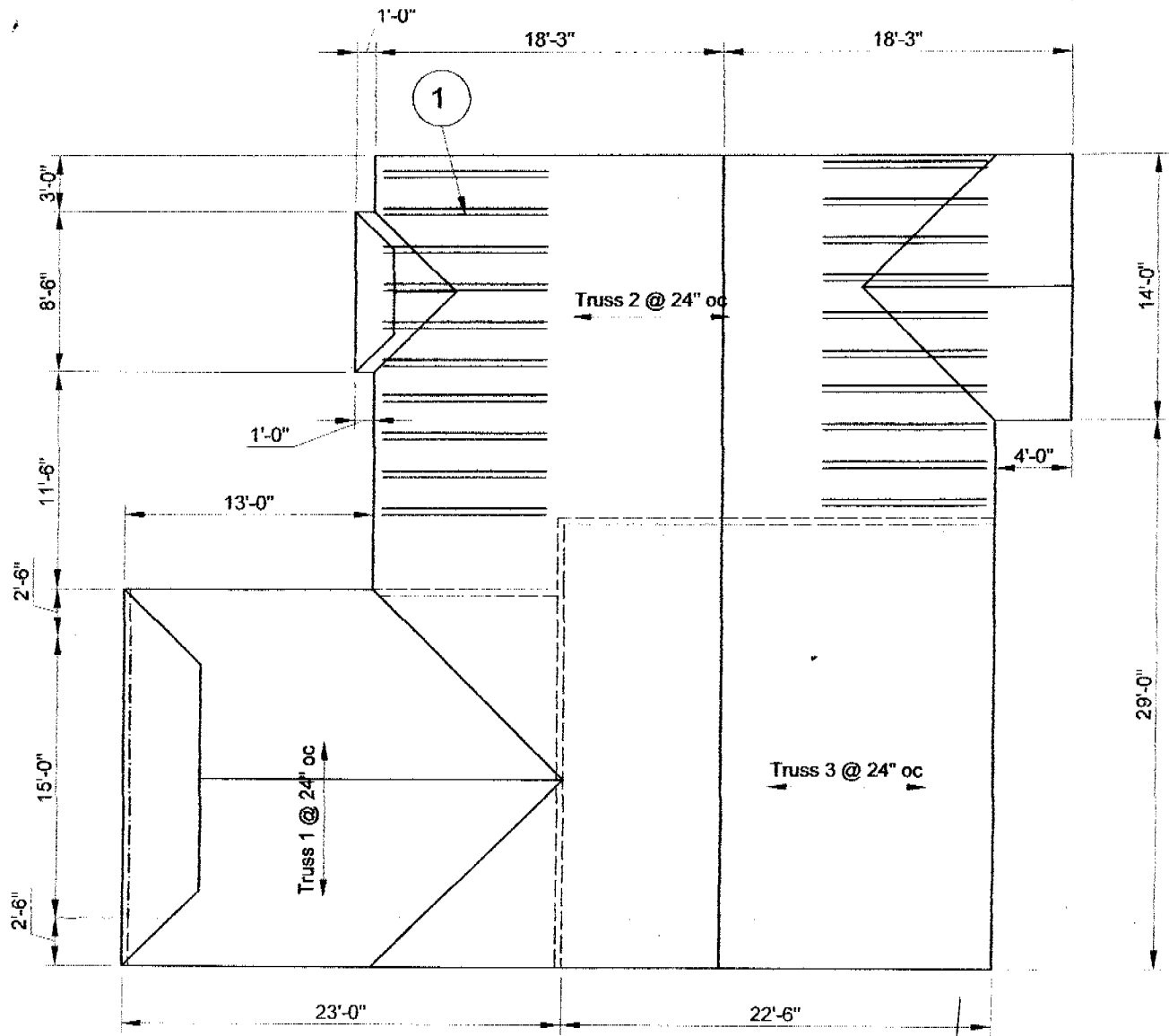
Grading:

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	3 inches
Depth, d	3.5 inches
Length	8.7 feet
Max Axial Comp, C	2661 lbs
Max Reaction, R	278 lbs
Max Moment, M	458 ft-lbs
Max LL Deflection	0.16 inches
Max TL Deflection	0.32 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 =	1.24
fc =	253 psi
Fce =	710 psi
Fc* =	2084 psi
F'c =	651 psi
fb =	897 psi
F'b = Fb* =	2156 psi
Shear D/C ratio	0.33 < 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	0.37 < 1.0, Member OK
Total Load defl ratio	0.55 < 1.0, Member OK



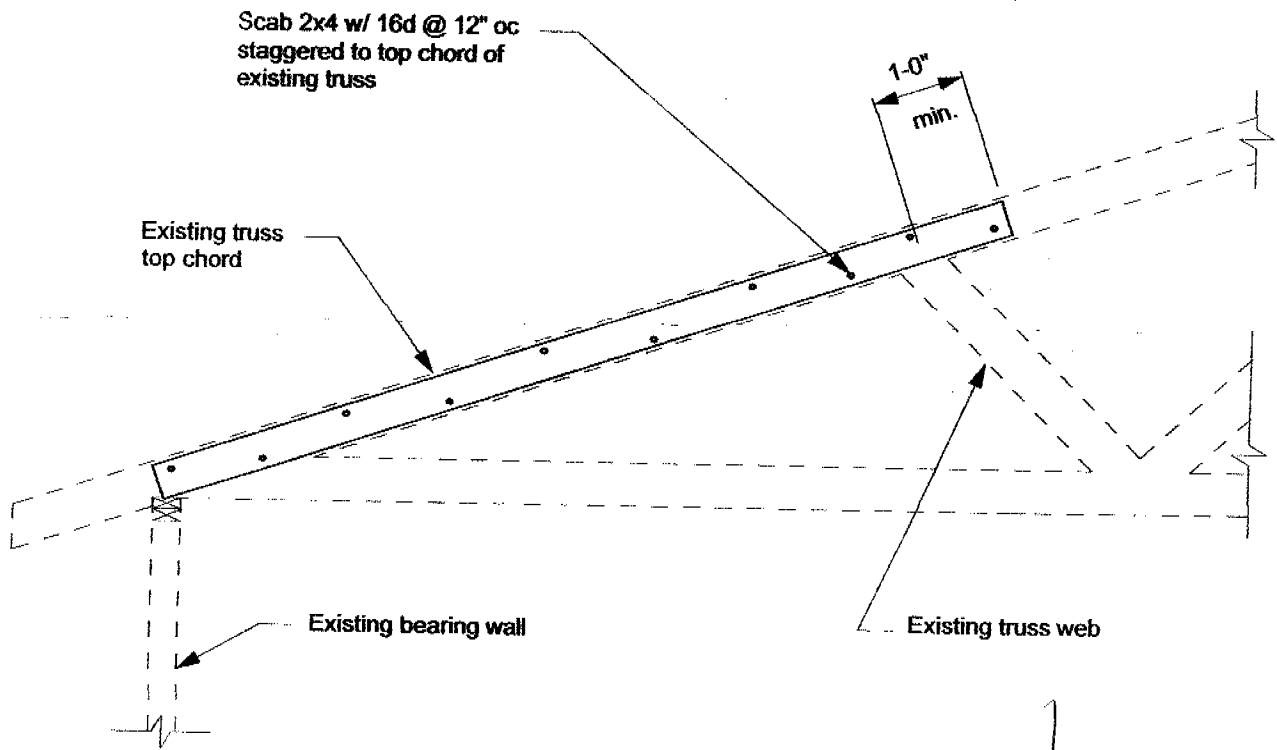
1. Scab a 2x4 DF#2 x 12-0" long rafter to the top chord of the existing truss #2 (total 20). See detail 2.

**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.

**1 ROOF PLAN - GARCIA**  
Not to Scale

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2 TRUSS REINFORCEMENT DETAIL  
 scale: 1/2" = 1'-0"