

**CITY OF SACRAMENTO**  
1231 I Street, Sacramento, CA 95814

**Permit No: 0011800**  
**Insp Area: 2**

**Site Address: 27 NAUTILUS CT SAC**  
Parcel No: 030-0740-008 27 NAUTILUS CT

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

CONTRACTOR  
BRIGGS ROOFING AND REPAIR  
4425 SHANDWICK DR  
ANTELOPE CA 95843

OWNER  
DANIEL LEUNG  
26 NAUTILUS CT  
SACRAMENTO CA 95831

ARCHITECT

**Nature of Work: REROOF WITH LITE TILE .**

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

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

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

License Class 39 License Number 642413 Date 10-4-00 Contractor Signature [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):

\_\_\_\_ 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 \_\_\_\_\_

PAID  
OCT 04 2000  
CITY OF SACRAMENTO  
COMMUNITY DEVELOPMENT SERVICES

**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 10-4-00 Applicant/Agent Signature [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:

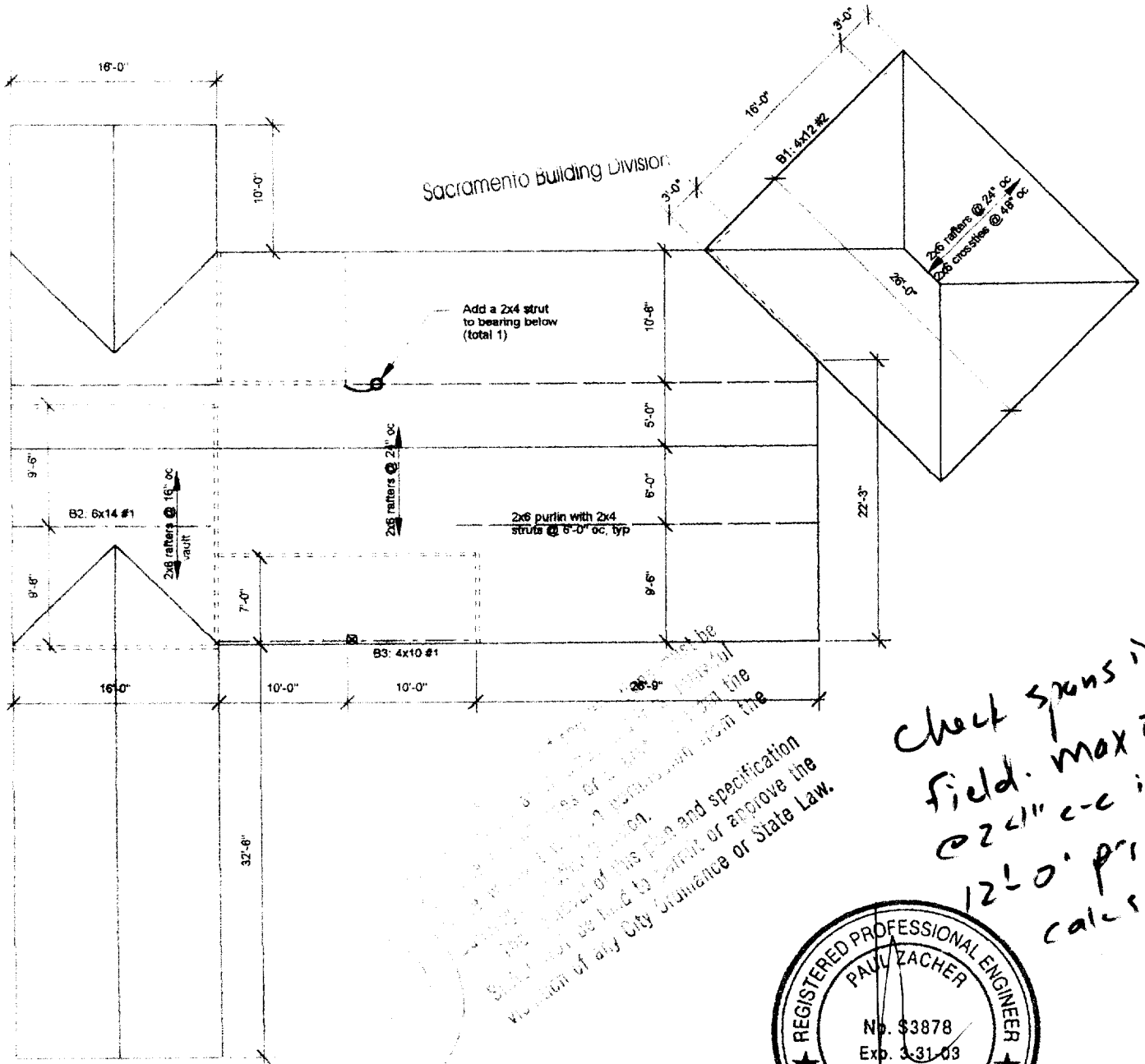
Carrier \_\_\_\_\_ Policy Number \_\_\_\_\_ Exp Date \_\_\_\_\_

(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 10-4-00 Applicant Signature [Signature]

**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.**



Sacramento Building Division

Add a 2x4 strut to bearing below (total 1)

B2: 6x14 #1

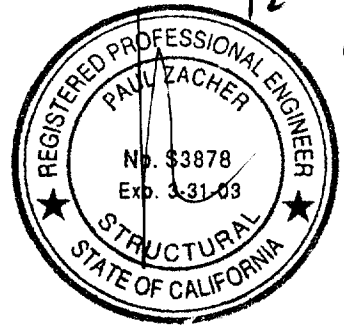
2x6 purlin with 2x4 struts @ 6'-0" oc, typ

2x6 rafters @ 24" oc

B3: 4x10 #1

I, the undersigned, a duly Licensed Professional Engineer, do hereby certify that the above is a true and correct copy of the original drawings as submitted to me for my review and approval. I am not responsible for any errors or omissions in the drawings or for any consequences that may result from the use of these drawings.

Check spans in field. Max 2x6 @ 24" c-c is 12'-0" per the calc's.



**ISSUED**

Reviewed by Molt p. 10/4/00

OCT 04 2000  
 Sacramento Building Division

**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 rafters are 2x6 DF#2 and hips and valleys are 2x8 DF#2 unless otherwise noted.
- 3 All existing rafter, hips, valleys, rafter ties, and purlins are braced per UBC Section 2320.12 "Roof and Ceiling Framing" unless otherwise shown.
- 4 All structural wood members that were observed appear to be in sound condition and without structural defect.



1

**ROOF PLAN - LEUNG**

Not to Scale

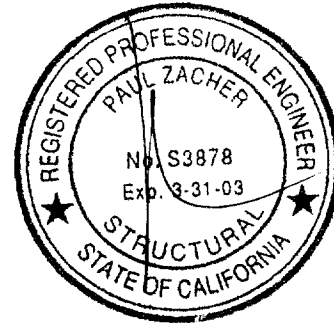
Leung

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

TEL: 916.961.3960  
FAX: 916.961.6552

October 4, 2000

Briggs Roofing  
4425 Shandwick Drive  
Antelope, CA 95843  
TEL: (916) 726-6012  
FAX: (916) 339-1003



Attn: Mr. Tim Briggs,

re: Job 2000\_345: LEUNG

Subject: Structural Investigation Report of the Roof for the Residence located at 27 Nautalis Court, Sacramento, CA 95831

As requested by Mr. Tim Briggs, this is a report to determine what needs should be addressed to correct any structural deficiencies of the roof. Paul Zacher visited the site October 4, 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 1980's vintage.  
Occupancy: Residential  
No. of Stories: One.  
Dimensions: Approximately 2500 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 with 2x6 purlins supported at no more than 7'-0" on center by 2x4 struts bearing on walls below except for the vaulted ceiling areas. The vaulted ceiling is constructed of 2x6 rafters spaced at 16" on center supported at the ridge by a 6x beam. The garage area is framed with 2x6 rafters spaced at 24" on center and 2x6 cross ties spaced at 4'-0" on center.

**CONCLUSIONS:**

Roof:

The living area lacks sufficient structural capacity for the applied live and dead loads. The garage has sufficient structural capacity for the applied live and dead loads.

1/10

Leung

Paul Zacher - Structural Engineers  
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.

Living Area.

1. Provide an additional 2x4 strut from the existing purlin to the bearing wall below. The maximum spacing between the new and existing struts shall not exceed 6'-0" on center. The unbraced length of the struts shall not exceed 8'-0" and the minimum slope of the struts shall not be less than 45 degrees from the horizontal. 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>	
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	<u>1.00</u>	psf	
	Load	10.9	psf
Roof Pitch Adjustment	<u>0.59</u>	psf	
Total Load	11.5	psf	

**LOCATION: VAULT**

<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	
2x6 rafters @ 16" oc	1.51	psf	
Batt/blown insul	0.50	psf	
1/2" Gypboard	<u>2.50</u>	psf	
	Load	14.4	psf
Roof Pitch Adjustment	<u>0.78</u>	psf	
Total Load	15.2	psf	

P. K. Zacher, S. E.

Job #                     

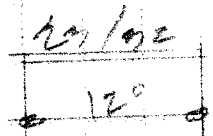
Date: 6/4/02

LAND NO.

SECTION

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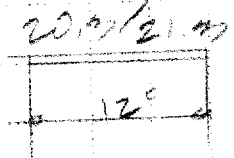
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VALUE

SE 1/4 20 12 2

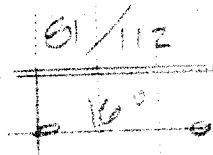
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SECTION

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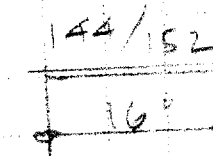
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SECTION

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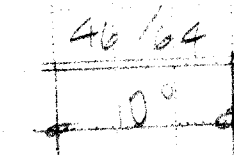
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SECTION

SE 1/4 20 12 2

12 12



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

Title :  
 Dsgnr:  
 Description :  
 Scope :

Job #  
 Date: 12:06PM, 4 OCT 00

Rev: 810304  
 User: KW-0602844, Ver: 8.1.3, 02 Jan 1999, Win32  
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**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

Timber Section	rafter	vault	B1	B2	B3
Beam Width	2x6	2x6	4x12	6x14	4x10
Beam Depth	in: 1.500	1.500	3.500	5.500	3.500
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	1,350.0	1,000.0
Fv - Basic Allow	psi: 95.0	95.0	95.0	85.0	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	Repetitive	Repetitive	No	No	No

**Center Span Data**

	ft	ft	ft	ft	ft
Span	12.00	12.00	16.00	16.00	10.00
Dead Load	#/ft: 23.00	20.30	81.00	144.00	46.00
Live Load	#/ft: 32.00	21.30	112.00	152.00	64.00

**Results**

Ratio =	0.9607	0.7266	0.8344	0.4085	0.2204
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Mmax @ Center	in-k: 11.88	8.99	74.11	113.66	16.50
@ X =	ft: 6.00	6.00	8.00	8.00	5.00
Fb Actual	psi: 1,570.9	1,188.2	1,003.8	680.4	330.6
Fb Allowable	psi: 1,635.2	1,635.2	1,203.1	1,665.6	1,500.0
	Bending OK	Bending OK	Bending OK	Bending OK	Bending OK
Fv Actual	psi: 55.7	42.1	52.2	41.3	21.6
Fv Allowable	psi: 118.8	118.8	118.8	106.3	118.8
	Shear OK	Shear OK	Shear OK	Shear OK	Shear OK

**Reactions**

@ Left End DL	lbs: 138.00	121.80	648.00	1,152.00	230.00
LL	lbs: 192.00	127.80	896.00	1,216.00	320.00
Max. DL+LL	lbs: 330.00	249.60	1,544.00	2,368.00	550.00
@ Right End DL	lbs: 138.00	121.80	648.00	1,152.00	230.00
LL	lbs: 192.00	127.80	896.00	1,216.00	320.00
Max. DL+LL	lbs: 330.00	249.60	1,544.00	2,368.00	550.00

**Deflections**

	Ratio OK	Deflection OK	Deflection OK	Deflection OK	Deflection OK
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Center DL Defl	in: -0.322	-0.285	-0.180	-0.118	-0.026
L/Defl Ratio	446.5	505.9	1,068.1	1,631.5	4,550.0
Center LL Defl	in: -0.449	-0.299	-0.249	-0.124	-0.037
L/Defl Ratio	320.9	482.2	772.5	1,545.6	3,270.3
Center Total Defl	in: -0.771	-0.583	-0.428	-0.242	-0.063
Location	ft: 6.000	6.000	8.000	8.000	5.000
L/Defl Ratio	186.7	246.9	448.3	793.7	1,902.7