

CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0314633

Insp Area: 2

Thos Bros: 336 G2

Site Address: 30 AXIOS RIVER CT SAC

Parcel No: 031-1010-012

Sub-Type: REP

Housing (Y/N): N

CONTRACTOR

CAL STATE ROOFING
4329 JAN DR
CARMICHAEL CA. 95608

OWNER

LAMB KEITH J/CONNIE F
30 AXIOS RIVER CT
SACRAMENTO CA 95831

ARCHITECT

Nature of Work: REMOVE EXIST. ROOFING, INSTALL NEW SHEATHNG, NEW CONCR. TILE ROOFING, 44 SQ

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-2B

License Number 746762

Date 9/24/03

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);

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 ordinances and state laws relating to building construction and hereby authorize representative(s) of this city to enter upon the above property for inspection purposes.

Date 9/24/03

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 STATE FUND COMP INS

Policy Number 1585191

Exp Date 04/01/2004

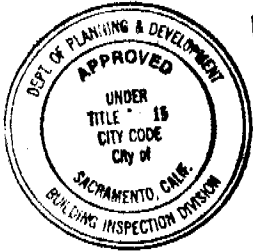
(This section need not be completed if the permit is for \$100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become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

Date 9/24/03

Applicant 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.



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.

**SCHOEN ENGINEERING**  
0524 REEDY WAY  
SACRAMENTO, CA 95827  
(916) 369 6866  
Approved by the California State Board of Engineers and Land Surveyors  
LIC.# C042913



*ful*  
9/24/03

August 22, 2003

**ISSUED**

SEP 2 4 2003

Sacramento Building Division

Keith & Connie Lamb  
30 Axios River Court  
Sacramento, CA 95831

**SUBJECT:** Reroof at 30 Axios River Court, Sacramento, CA 95831

Keith & Connie:

On August 4<sup>th</sup>, 2003 I inspected the roof structure of your residence at the above mentioned address. The roof was made up of 2x6 D.F. No.2 rafters @ 24" o.c. with a max. span of 11'-6" in the house and a max. span of 10'-8" in the garage. There was a full dimension 6x14 D.F. No. 2 ridge beam in the family room spanning 18' that also supported roof loads. The vault ridge beam in turn was supported at one end by a full dimension 6x14 D.F. No. 2 carry beam spanning 20'. Roof slope was 6:12.

The following modifications will be necessary prior to reroofing:

\* Some of the existing 2x braces for the purlins, ridges, hips and valleys are too long to resist buckling. Any of these braces over 5' long should be doubled to prevent buckling. Also, some of the braces are framed so as to run by the supported member and then rely on a block nailed to the brace to support the member. These should be redone to provide direct bearing for the supported member(see brace detail sheet for details and plan for general location).

\* In the garage the ridge boards, the hip rafters as well as one of the valley rafters are not properly supported. To provide support, a beam consisting of 2(two)-1-3/4"x14" Microlams should be installed between the wall panel between the two garage doors and the back wall of the garage. Then a second beam consisting of 2(two)-1-3/4"x11-7/8" Microlams should be installed between the first beam and the side wall of the garage closest to the front entry. . The ridges, hip rafters and valley rafter can then be braced off of this second beam. The doubled Microlams should be nailed together with 2-rows of 16d nails @ 12" o.c. staggered(see sketch for details and plan for location).

It is my finding that with the above mentioned modifications this structure is adequate for the following :  
7/16" OSB or 1/2" plwood installed on top of the existing skip sheathing; Tared felt or similar underlayment installed on top of the new sheathing; 1x2 battens; Concrete tile weighing 7.4 lbs./sq.ft. or less.

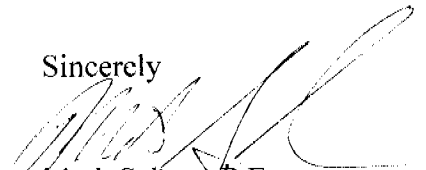
**NOTE:** It is possible when reroofing that the increased loads to structural elements also supporting wall ceiling and floor finishes could cause some minor cosmetic cracking of these finishes. This is typical of wood framed structures and does not of itself indicate structural inadequacy of these members.

This report deals with the structural adequacy of roof supporting members that were readily observable. It does not address any structure that was covered by wall finishes, buried in the ground or was otherwise not observable. Any such structures were assumed to conform to standard construction specifications in the Uniform Building Code at the time of construction or that they were designed in conformance to engineering criteria in that code. Also, it does not address any existing deflection or warping of roof surfaces or other finish surfaces. There is also no guarantee that any structural modifications listed in this report will remove such deflections or warping. The repair of such deflections or warping is at the option of the building owner and the roofing contractor.

This report has be prepared for the sole benefit of the individual to whom it is addressed. The use of or reliance on this report by any other individuals or entities without the expressed written consent of the above addressee and Schoen Engineering is forbidden. If this report has been prepared for the owner of the building this does not preclude a licenced contractor hired by the owner from using this report to obtain a building permit for the reroofing work, including any repairs or modifications specified in this report.

I would like to thank you for allowing me to be of service in this matter. Please let me know if I can be of further assistance.

Sincerely



Mark Schoen P.E.

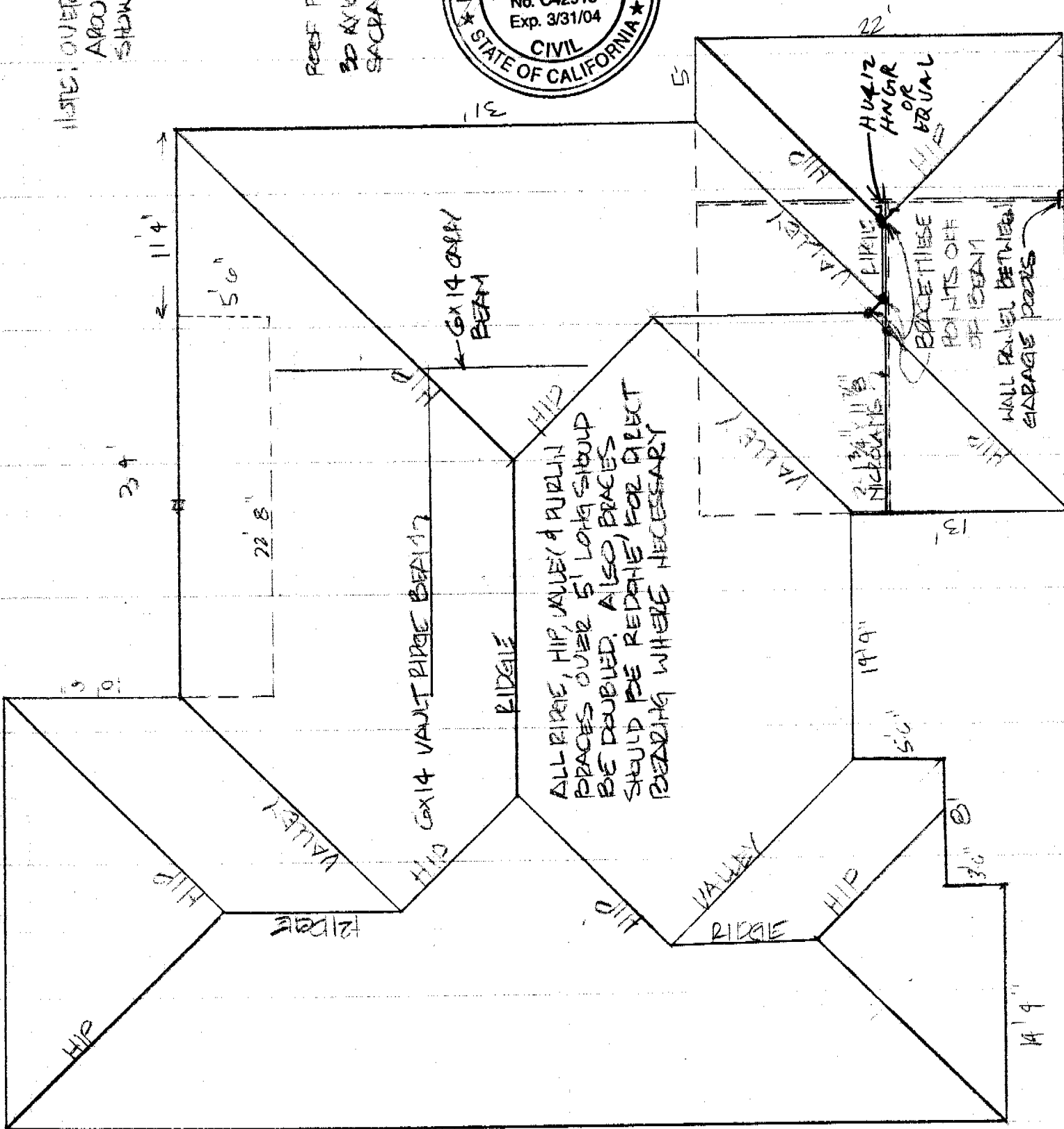
MSS:mss  
S-eng2003/K&CL001

NOTE: OVERHANGS ALL  
AROUND NOT  
SHOWN

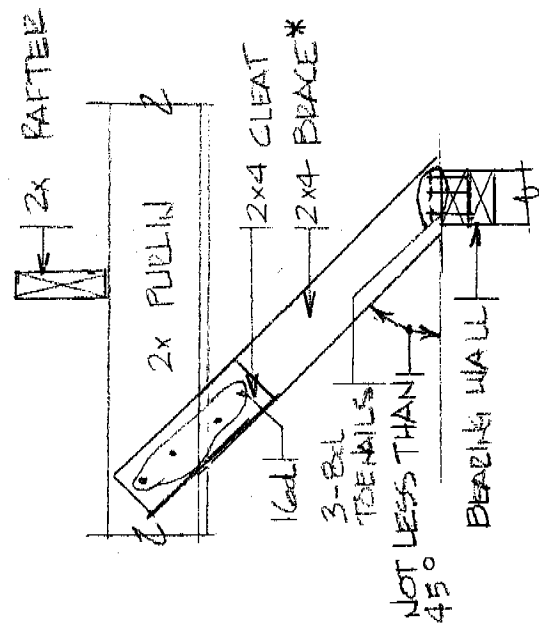
ROOF PLAN FOR:  
30 X 105 INVERT  
SACRAMENTO, CA 95834



O.K. *[Signature]*  
9/29/03

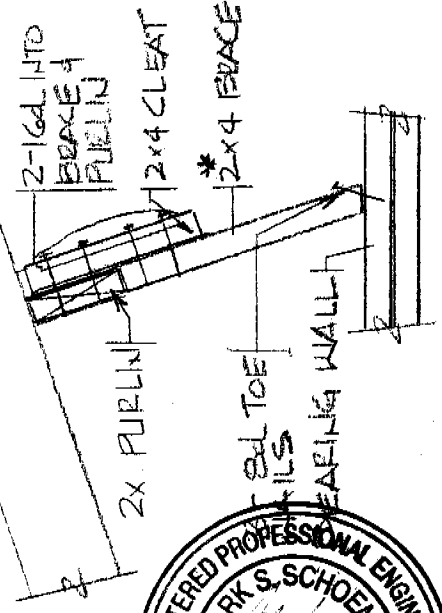


\* BRACES SHOULD BE DOUBLED IF OVER 5' IN LENGTH

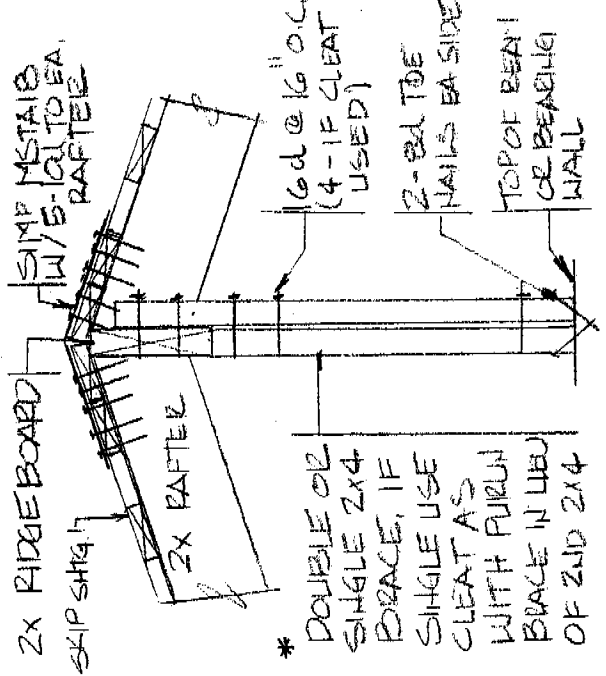


CLEATED PURLIN BRACE (SIDE VIEW)

NOTE: IF ROUBED BRACE IS REQUIRED CLEAT SHOULD EXTEND TO LOAD BEARING WALL

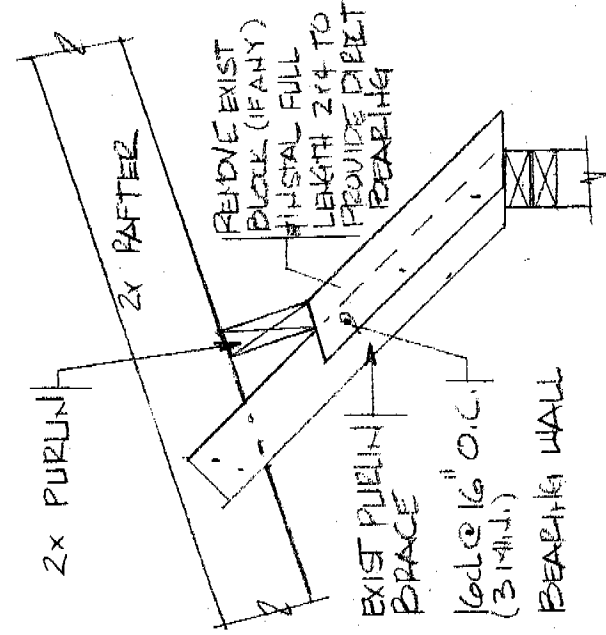
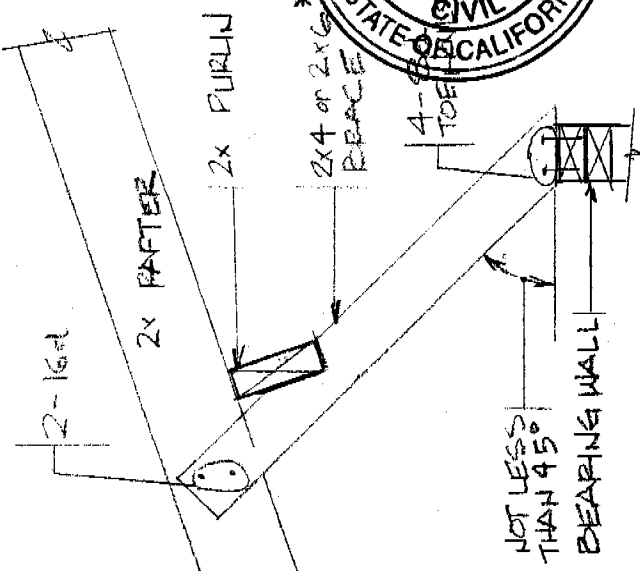


CLEATED PURLIN BRACE (END VIEW)



NOTE: BRACE MAY LEAN IN LINE W/ EDGE BUT @ ANGLE NOT FLATTER THAN 45°

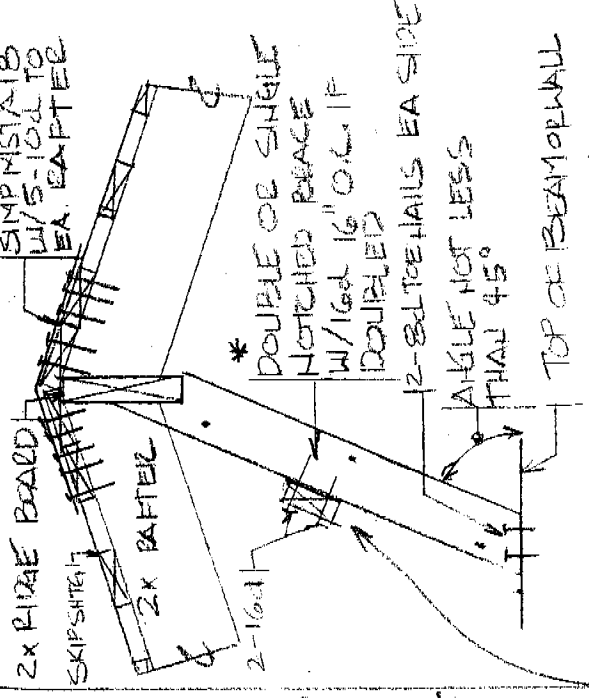
NOTCHED PURLIN BRACE



EXISTING BRACE MODIFIED FOR DIRECT BEARING

RIDGE BRACE W/ BEARING WALL DIRECTLY UNDER RIDGE

CLEATED PURLIN BRACE (SIDE VIEW)



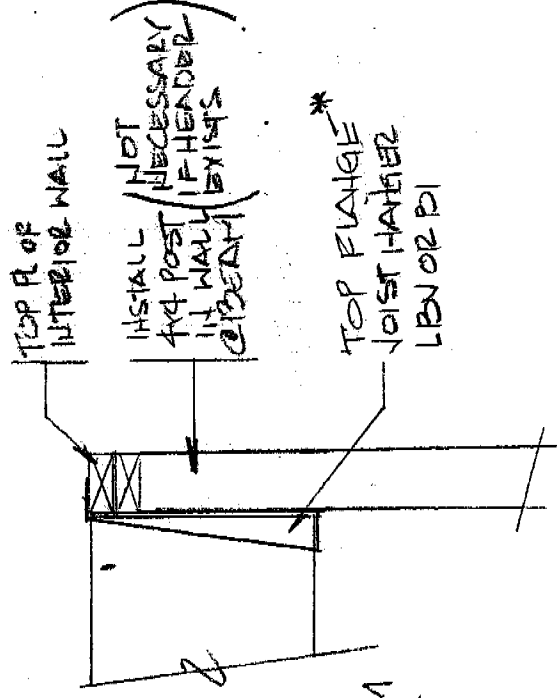
2x4 RIBBON BRACE ALONG LINE OF BRACES WHERE REQUIRED BY BRACE LENGTH TIE OFF TO WALL OR ROOF FRAMING

NOTCHED RIDGE BRACE W/ BEARING WALL DISPLACED TO SIDE OF RIDGE

2x TIE (4' o.c.) IF BEAM IS PARALLEL TO TIES.  
 INSTALL BLOCKS BETWEEN TIES @ 4' o.c.

2x TIE (4' o.c.) IF BEAM IS PARALLEL TO TIES.  
 INSTALL BLOCKS BETWEEN TIES @ 4' o.c.

2-1 1/4" x 1 1/8" MICROLAM'S  
 W/ 2-ROWS 16d @  
 12" o.c. STAGGERED



TOP FLANGE  
 JOIST HANGER  
 LBN OR BI

INSTALL (NOT  
 NECESSARY  
 IF HEADER  
 IN WALL  
 EXISTS)

TOP FLANGE  
 JOIST HANGER  
 LBN OR BI

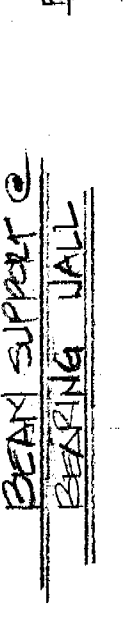
BEAM SUPPORT @  
 BEARING WALL CENTER

DOUBLE 2x4  
 BRACE W/  
 16d @ 16" o.c.  
 3-16d TIE  
 BEAM

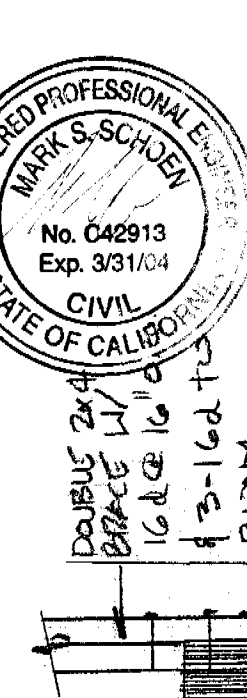


BEAM SUPPORT @  
 BEARING WALL CENTER

DOUBLE 2x4  
 BRACE W/  
 16d @ 16" o.c.  
 3-16d TIE  
 BEAM

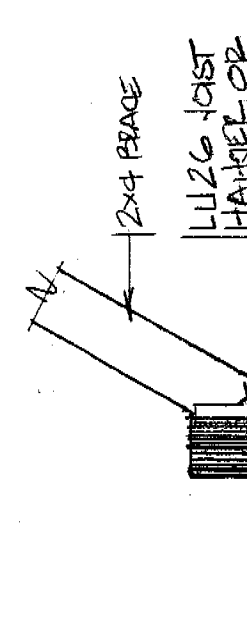


BEAM SUPPORT @  
 BEARING WALL CENTER

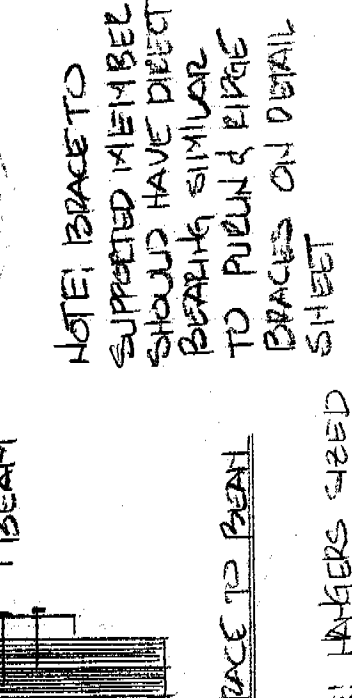


BEAM SUPPORT @  
 BEARING WALL CENTER

DOUBLE 2x4  
 BRACE W/  
 16d @ 16" o.c.  
 3-16d TIE  
 BEAM

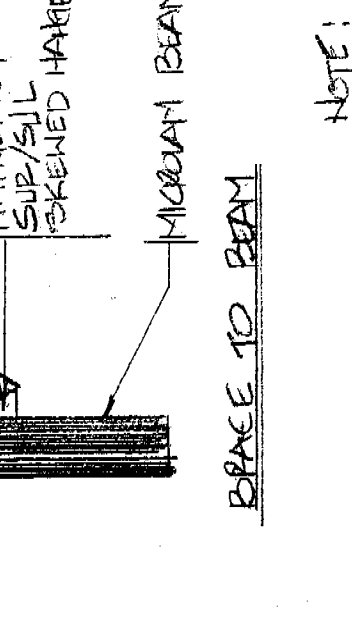


BEAM SUPPORT @  
 BEARING WALL CENTER

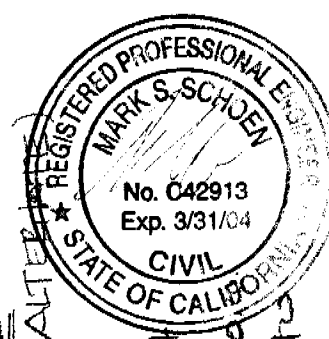


BEAM SUPPORT @  
 BEARING WALL CENTER

DOUBLE 2x4  
 BRACE W/  
 16d @ 16" o.c.  
 3-16d TIE  
 BEAM



BEAM SUPPORT @  
 BEARING WALL CENTER



NOTE: BRACE TO  
 SUPPORTED MEMBER  
 SHOULD HAVE DIRECT  
 BEARING SIMILAR  
 TO PURLIN & RIGGE  
 BRACES ON DETAIL  
 SHEET

\*NOTE: HAGERS SIZE  
 FOR BEAM SIZE

NOTE: ALL BRACES OVER  
 6' IN LENGTH SHOULD  
 BE DOUBLED

NOTE: ALL BRACES OVER  
 6' IN LENGTH SHOULD  
 BE DOUBLED



MICROLAM GARAGE ROOF SUPPORT BEAM:

rdl := 12                      rll := 14                      rta := 22.5                      l := 19  
 fdl := 8                      fil := 40                      fta := 0                      rta-l = 209

Wdl := 12 ·  $\frac{3.5}{144}$  · 35                      Wdl = 10.208                      E := 1900000                      Fb := 2600 · 1.25

wt := rta · (rdl + rll) + fta · (fdl + fil) + Wdl

S min. required =  $(wt) \cdot l^2 \cdot \frac{1.5}{Fb} = 49.353$

l min. required =  $5 \cdot (wt) \cdot \frac{(l \cdot 12)^4}{12 \cdot 384 \cdot E \cdot l \cdot \frac{12}{240}} = 481.19$

Use 2(two)-1-3/4"x11-7/8" MicroLams :

w := 3.5                      d := 11.875                      Cf :=  $\frac{12}{d}^{\frac{1}{9}}$   
 $S := Cf \cdot w \cdot \frac{d^2}{6}$                        $l := w \cdot \frac{d^3}{12}$

S = 82.355 > 50                      l = 488.413 > 481                      therefore 2-(two)1-3/4"x11-7/8" MLB are O.K.

Calculation for the required area, section modulus and moment of inertia for simple span wood beams. Dead load(dl) and Live load(ll) are in pounds per square ft., Spans(l) and Tributary load length or spacing(sp) are in ft., Areas are in sq.in., Section moduli are in inches cubed and Moments of inertia are in inches to the 4th power. Allowable stresses (Fy),(Fb),(Fv) are in lbs./sq.in. per 1991 U.B.C. Based on the quality of lumber at time of construction)

6x14 FULL DIMENSION DOUGLAS FIR NO. 2 VAULT RIDGE BEAM

Loads:

Frame(2x6 rafters):                      fr := 1.0 skip sht:                      pur := 1                      Plywood:                      ply := 2

Roofing:                      rf := 7.4                      misc := .5                      Ceiling:                      clg := 3.5

Total roof dead load:                      rdl := fr + pur + ply + rf + misc + clg                      rdl = 15.4

Beam weight:                      Wdl := 13.25 ·  $\frac{5.5}{144}$  · 35                      Wdl = 17.713                      Beam length:                      l := 18

Roof trib area per ft.:                      rta := 9

Total area for live load determination:                      rta-l = 162                      Roof live load:                      rll := 20

fdl := 10                      fil := 40                      fta := 0

wt := (rta · (rdl + rll) + fta · (fdl + fil)) + Wdl                      Cd := 1.25

Fb := 1250                      Fbp := Fb · Cd                      Fbp = 1562.5                      Ew := 1700000                      Fv := 95 · Cd



MICROLAM GARAGE ROOF SUPPORT BEAM:

rdl := 12                      rll := 14                      rta := 22.5                      l := 19  
 fdl := 8                      fll := 40                      fta := 0                      rta-l = 209

Wdl :=  $12 \cdot \frac{3.5}{144} \cdot 35$                       Wdl = 10.208                      E := 1900000                      Fb := 2600 · 1.25

wt := rta · (rdl + rll) + fta · (fdl + fll) + Wdl

S min. required =  $(wt) \cdot l^2 \cdot \frac{1.5}{Fb} = 49.353$

I min. required =  $5 \cdot (wt) \cdot \frac{(l \cdot 12)^4}{12 \cdot 384 \cdot E \cdot l \cdot \frac{12}{240}} = 481.19$

Use 2(two)-1-3/4"x11-7/8" MicroLams :

w := 3.5                      d := 11.875                      Cf :=  $\frac{12}{d} \cdot \frac{1}{9}$   
 $S := Cf \cdot w \cdot \frac{d^2}{6}$                        $I := w \cdot \frac{d^3}{12}$

S = 82.355 > 50                      I = 488.413 > 481                      therefore 2-(two)1-3/4"x11-7/8" MLB are O.K.

Calculation for the required area, section modulus and moment of inertia for simple span wood beams. Dead load(dl) and Live load(ll) are in pounds per square ft., Spans(l) and Tributary load length or spacing(sp) are in ft., Areas are in sq.in., Section moduli are in inches cubed and Moments of inertia are in inches to the 4th power. Allowable stresses (Fy),(Fb),(Fv) are in lbs./sq.in. per 1991 U.B.C. Based on the quality of lumber at time of construction)

6x14 FULL DIMENSION DOUGLAS FIR NO. 2 VAULT RIDGE BEAM

Loads:

Frame(2x6 rafters):                      fr := 1.0 skip sht:                      pur := 1                      Plywood:                      ply := 2

Roofing:                      rf := 7.4                      misc := .5                      Ceiling:                      clg := 3.5

Total roof dead load:                      rdl := fr + pur + ply + rf + misc + clg                      rdl = 15.4

Beam weight:                      Wdl :=  $13.25 \cdot \frac{5.5}{144} \cdot 35$                       Wdl = 17.713                      Beam length:                      l := 18

Roof trib area per ft.:                      rta := 9

Total area for live load determination:                      rta-l = 162                      Roof live load:                      rll := 20

fdl := 10                      fll := 40                      fta := 0

wt := (rta · (rdl + rll) + fta · (fdl + fll)) + Wdl                      Cd := 1.25

Fb := 1250                      Fbp := Fb · Cd                      Fbp = 1562.5                      Ew := 1700000                      Fv := 95 · Cd





A min. required =

$$\frac{l \cdot wt}{Fv} \cdot \frac{3}{2} = 38.233$$

S min. required =

$$wt \cdot l^2 \cdot \frac{1.5}{Fbp} = 104.607$$

I min. required =

$$5 \cdot wt \cdot \frac{(l \cdot 12)^4}{12 \cdot 384 \cdot Ew \cdot l \cdot \frac{12}{240}} = 519.188$$

Check Beam properties:

$$CF := \frac{12}{d}^{\frac{1}{9}} \quad A := w \cdot d \quad S := w \cdot CF \cdot \frac{d^2}{6} \quad I := w \cdot \frac{d^3}{12} \quad Stiffw := I \cdot Ew$$

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- A = 84 > 38    S = 192.672 > 104    I = 1372 > 519    therefore O.K.

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6x14 FULL DIMENSION D.F. No. 2 CARRY BEAM

Length:  $l := 20 \cdot 12$  Point load:  $pl := wt \cdot \frac{20}{2}$  Application of point load  $a := \frac{l}{2}$   $b := l - a$

$Fy := 1250 \cdot 1.25$      $E := 1700000$      $Fv := 95 \cdot 1.25$

End reactions:  $R1 := pl \cdot \frac{b}{l}$      $R1 = 1681.563$      $R2 := pl \cdot \frac{a}{l}$      $R2 = 1681.563$

A min. required =  $R1 \cdot \frac{3}{2} \cdot \frac{l}{Fv} = 21.241$      $R2 \cdot \frac{3}{2} \cdot \frac{l}{Fv} = 21.241$

S min. required =  $pl \cdot a \cdot \frac{b}{l \cdot Fy} = 129.144$

I min. required =  $pl \cdot a \cdot b \cdot (a + 2 \cdot b) \cdot \frac{(3 \cdot a \cdot (a + 2 \cdot b))^5}{27 \cdot E \cdot \frac{l}{240} \cdot l} = 569.753$

Beam section properties:  $w := 6$      $d := 14$

$A := w \cdot d$      $S := w \cdot \frac{d^2}{6}$      $I := w \cdot \frac{d^3}{12}$

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- A = 84 > 21    S = 196 > 129    I = 1372 > 570    therefore O.K.

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