

CITY OF SACRAMENTO

Permit No: 9805275

1231 I Street, Sacramento, CA 95814

Insp Area: 2

Site Address: 6645 13TH ST SAC

Sub-Type: RES

Parcel No: 0290153008

Housing (Y/N): N

CONTRACTOR

ZIMMERMAN ROOFING
3560 RAMONA AV
SACRAMENTO, CA

95826

OWNER

CHEN ANDREW/MOK CHAN
6645 13TH ST
SACRAMENTO CA

95831

ARCHITECT

Nature of Work: T/O AND REROOF 42 SQS WITH 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 C39 License Number 557559 Date 6-17-98 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 _____

IN ISSUING THIS BUILDING PERMIT, the applicant represents, and the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and herby authorize representative(s) of this city to enter upon the above-mentioned property for inspection purposes.

Date 6-17-98 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 State Fund Policy Number 713 970002024

____ (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 6-17-98 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



DEPARTMENT OF
PLANNING AND DEVELOPMENT

CITY OF SACRAMENTO
CALIFORNIA

1231 I STREET
ROOM 200
SACRAMENTO, CA
95814-2998

Permit Services
916-264-7619
FAX 916-264-7066

Chans at
6645 13th St
TILE ROOF WORKSHEET

ok
ST
6/16/98
see attached
eng. report
ST

This worksheet must be filled out whenever any type of tile roof is applied for.

If the answer to question #5 is yes, a written engineering report from a registered engineer must be provided with each application.

1. BRAND AND MODEL OF TILE Pioneer Hacienda
2. TILE WEIGHT PER SQUARE 690
3. WEIGHT OF ROOF SYSTEM PER SQUARE 180
4. TOTAL WEIGHT OF ROOF SYSTEM 870
5. DOES TOTAL WEIGHT OF ROOF SYSTEM EXCEED 750# PER SQUARE YES NO
6. ROOF SLOPE 4/12

PLEASE PROVIDE A SEPARATE WORKSHEET FOR EACH APPLICATION INVOLVING A TILE ROOF.

see attached
engineering report

Paul Zacher-Structural Engineer
4701 Lakeside Way
Fair Oaks, CA 95628
TEL: 916.961.3960
FAX: 916.961.3960

OK
JZ
6/16/98

May 20, 1998

Zimmerman Roofing
3560 Ramona Avenue
Sacramento, CA 95826
TEL: 916.454.3667
FAX: 916.392.6853

Attn.: Mr. Jeff Tucker,

re: Job 98073: CHEN

Subject: Structural Investigation Report of the Roof for the Residence located at 6645 13th Street, Sacramento, CA 95831

As requested by Mr. Jeff Tucker, this is a report to determine what needs should be addressed to correct any structural deficiencies of the roof. Paul Zacher visited the site May 12, 1998. The investigation was made to determine the existing condition of the structure. All information, data and analysis contained within this report is based on the 1994 Uniform Building Code.

The following is based on visual observations with no subsurface investigation being made.

DESCRIPTION:

Type of Facility: Residence.
Year Built: Estimated 1970's vintage.
Occupancy: Residential.
No. of Stories: One.
Dimensions: Approximately 2000 square feet with a first story plate height of 8 feet.

CONSTRUCTION:

Roof:
The roof covering will consist of Pioneer Hacienda Light Weight Tile over 1/2" solid sheathing. The living area is conventionally framed with 2x4 rafters spaced at 24" on center with 2x4 purlins supported at no more than 4'-0" on center by 2x4 struts bearing on walls below. The garage area is framed with 2x4 rafters spaced at 24" on center and 2x6 cross ties spaced at 4'-0" on center.

CONCLUSIONS:

Roof:
The living and garage areas lack sufficient structural capacity for the applied live and dead loads.

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. Add a 1/2" OSB gusset plate adjacent to each existing strut and rafter connection and attach it with 8d's at 6" on center at the edges. See details 1 and 3.
2. Provide additional 2x4 struts from the existing purlins to the bearing walls below. The maximum spacing between the new and existing struts shall not exceed 4'-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.

Garage:

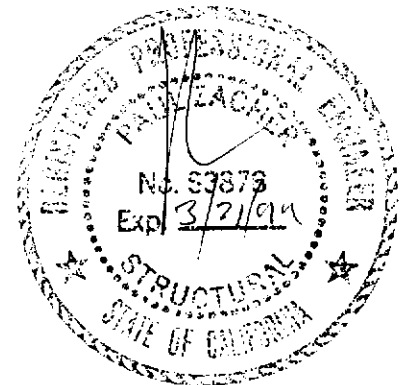
3. Scab a 1 3/4" x 11 7/8" microlam beam to the existing 2x6 crosstie and nail both together with 16d's @ 12" oc. The support at the wall shall be a 2x8 x 16" long nailer attached to the double top plate with 16d's @ 2" oc staggered. See details 1 and 2. The ends of the microlam may be clipped at the rafter/ top plate connection as required
4. Add 2x4 struts from the valley and ridge to the beam below. The minimum slope of the struts shall not be less than 45 degrees from the horizontal.
5. Scab a 2x6 rafter to the existing 2x4 rafters with 16d's @ 12" on center where the span is greater than 8'-0".

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 which 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



BEAM DESIGN FOR UNIFORM LOAD: 2x4

(Values for DF Larch #2)

Width, b	1.5 inches
Depth, d	3.5 inches
Length of beam	8 feet
Dead load roof	9.6 psf
Live load roof	16 psf
Contributory width of roof load	2 feet
Dead load floor	0 psf
Live load floor	0 psf
Contributory width of floor load	0 feet
Dead load wall	0 plf
Live load defl ratio	240
Toal load defl ratio	180
Total dead load	19.2 plf
Total live load	32 plf

Base design values:

Shear, Fv	95 psi
Bending, Fb	875 psi
Comp. perp. to grain, Fc	625 psi
Mod of Elasticity, E	1600000 psi
Load duration factor, Cd	1.25
Size Factor, Cf	1.50
Repetitive factor, Cr	1.15

Dead load reaction	77 lbs
Live load reaction	128 lbs
Total load reaction	205 lbs

Allowable shear, Fv'	119 psi
Actual shear, fv	54 psi
Allowable bending, Fb'	1887 psi
Actual bending, fb	1605 psi
Allowable live load defl	0.40 inches
Actual live load defl	0.34 inches
Allowable total load defl	0.53 inches
Actual total load defl	0.55 inches
Bearing length req'd	0.22 inches

Horizontal Shear OK

Bending OK

Live Load Deflection OK

Beam Fails under Total Load Deflection
OK, less that 1/32 inch over

BEAM DESIGN FOR UNIFORM LOAD: 2x6

(Values for DF Larch #2)

Width, b	1.5 inches
Depth, d	5.5 inches
Length of beam	12.42 feet
Dead load roof	9.6 psf
Live load roof	16 psf
Contributory width of roof load	2 feet
Dead load floor	0 psf
Live load floor	0 psf
Contributory width of floor load	0 feet
Dead load wall	0 plf
Live load defl ratio	240
Toal load defl ratio	180
Total dead load	19.2 plf
Total live load	32 plf

Base design values:

Shear, Fv	95 psi
Bending, Fb	875 psi
Comp. perp. to grain, Fc	625 psi
Mod of Elasticity, E	1600000 psi
Load duration factor, Cd	1.25
Size Factor, Cf	1.30
Repetitive factor, Cr	1.15

Dead load reaction	119 lbs
Live load reaction	199 lbs
Total load reaction	318 lbs

Allowable shear, Fv'	119 psi
Actual shear, fv	54 psi
Allowable bending, Fb'	1635 psi
Actual bending, fb	1567 psi
Allowable live load defl	0.62 inches
Actual live load defl	0.51 inches
Allowable total load defl	0.83 inches
Actual total load defl	0.82 inches

Bearing length req'd 0.34 inches

Horizontal Shear OK

Bending OK

Live Load Deflection OK

Total Load Deflection OK

BEAM DESIGN FOR UNIFORM LOAD:

(Values for DF Larch #1)

Width, b	3.5 inches
Depth, d	11.25 inches
Length of beam	16 feet
Dead load roof	14.6 psf
Live load roof	16 psf
Contributory width of roof load	6.5 feet
Dead load floor	0 psf
Live load floor	0 psf
Contributory width of floor load	0 feet
Dead load wall	0 plf
Live load defl ratio	360
Toal load defl ratio	240
Total dead load	94.9 plf
Total live load	104 plf

Base design values:

Shear, Fv	95 psi
Bending, Fb	1000 psi
Comp. perp. to grain, Fc	625 psi
Mod of Elasticity, E	1700000 psi
Load duration factor, Cd	1.25
Size Factor, Cf	1.10

Dead load reaction	759 lbs
Live load reaction	832 lbs
Total load reaction	1591 lbs

Allowable shear, Fv'	119 psi	Horizontal Shear	OK
Actual shear, fv	54 psi		
Allowable bending, Fb'	1375 psi	Bending	OK
Actual bending, fb	1035 psi		
Allowable live load defl	0.53 inches	Live Load Deflection	OK
Actual live load defl	0.22 inches		
Allowable total load defl	0.80 inches	Total Load Deflection	OK
Actual total load defl	0.42 inches		

Bearing length req'd 0.73 inches

BEAM DESIGN FOR POINT LOAD:

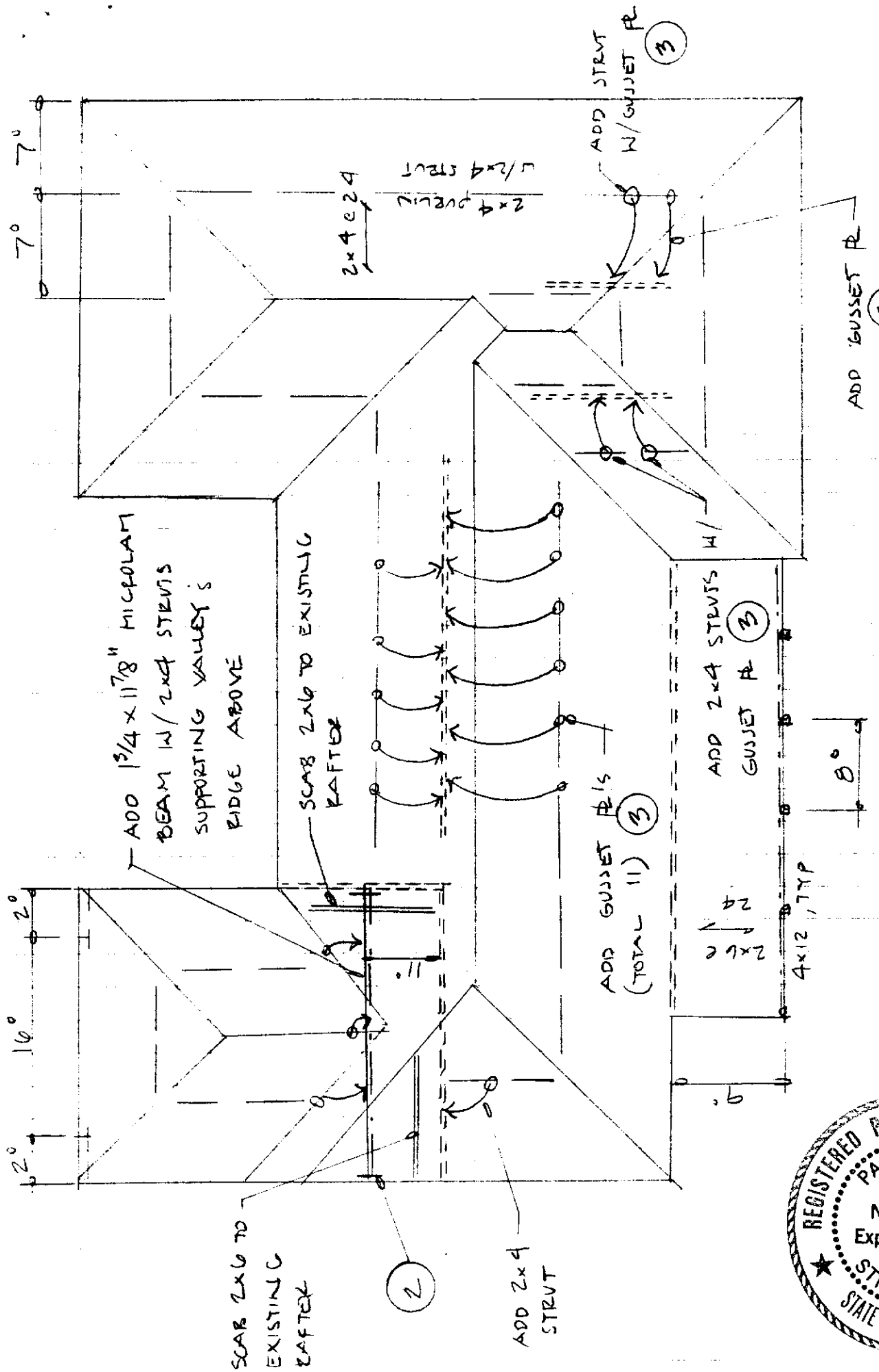
Width, b	1.75 inches
Depth, d	11.875 inches
Length of beam	20 feet
Dead load roof	9.6 psf
Live load roof	16 psf
Contributory width of roof load	13 feet
Contributory length of roof load	6 feet
Dead load floor	0 psf
Live load floor	0 psf
Contributory width of floor load	0 feet
Contributory length of roof load	0 feet
Dead load wall	0 plf
Live load defl ratio	240
Toal load defl ratio	180
Total dead load	748.8 lbs
Total live load	1248 lbs

Base design values:

Shear, Fv	285 psi
Bending, Fb	2600 psi
Comp. perp. to grain, Fc	750 psi
Mod of Elasticity, E	1800000 psi
Load duration factor, Cd	1.25
Size Factor, Cf	1.00

Dead load reaction	374 lbs
Live load reaction	624 lbs
Total load reaction	998 lbs

Allowable shear, Fv'	356 psi	Horizontal Shear	OK
Actual shear, fv	72 psi		
Allowable bending, Fb'	3250 psi	Bending	OK
Actual bending, fb	2913 psi		
Allowable live load defl	1.00 inches	Live Load Deflection	OK
Actual live load defl	0.82 inches		
Allowable total load defl	1.33 inches	Total Load Deflection	OK
Actual total load defl	1.31 inches		
Bearing length req'd	0.76 inches		



ADD 1 3/4 x 11 7/8" MICROLAM BEAM W/ 2x4 STRUTS SUPPORTING VALLEY'S RIDGE ABOVE

SCAB 2x6 TO EXISTING RAFTER

ADD GUSSET PL'S (TOTAL 11) 3

ADD 2x4 STRUTS GUSSET PL 3

ADD GUSSET PL 3

ROOF PLAN

N.T.S.



LEDGER DESIGN:

WOOD TO WOOD CONNECTION: Ledger to double top plate

Assumptions:

1. Point load from beam is equally distributed to each supporting stud.
2. Allowable foundation pressure is 1000 plf.

Ledger width, b	1.5 inches	
Ledger depth, d	7.25 inches	
Maximum reaction	998 lbs	
Base design values:		
Shear, Fv	95 psi	
Bending, Fb	875 psi	
Comp. perp. to grain, Fc	625 psi	
Mod of elasticity, E	1600000 psi	
Load duration factor, Cd	1.25	
Size factor, Cf	1.20	
Allowable shear, Fv'	119 psi	Horizontal Shear OK
Actual shear, fv	55 psi	
Allowable bending, Fb'	1313 psi	Bending OK
Actual bending, fb	152 psi	
Length of ledger required	0.998 feet	
Length of ledger used	1.33 feet	
Number of nails required	13 16d sinkers ledger to top plate	

1'-4" long blocking both sides with
4 - 16d commons to each existing stud

Beam

Existing top
plate

16d's @ 2" oc staggered-total 13,
ledger to existing dbl top plate

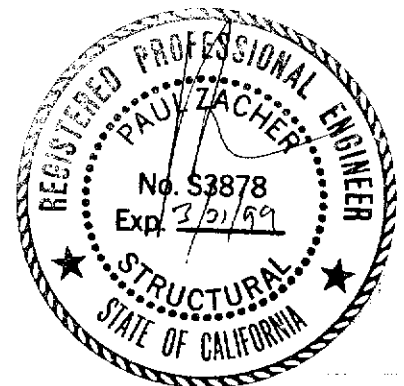
Existing stud wall

2x8 DF#2 ledger x 1'-4" long centered
under beam



DETAIL

N.T.S.



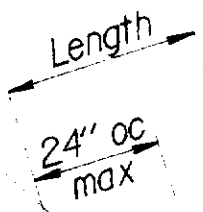
Add 2x4 shim as req'd w/ 16d @ 8" oc to existing member

Existing rafter

Existing ceiling joist

If "Length" of panel is greater than 24", add intermediate struts at 24" oc max

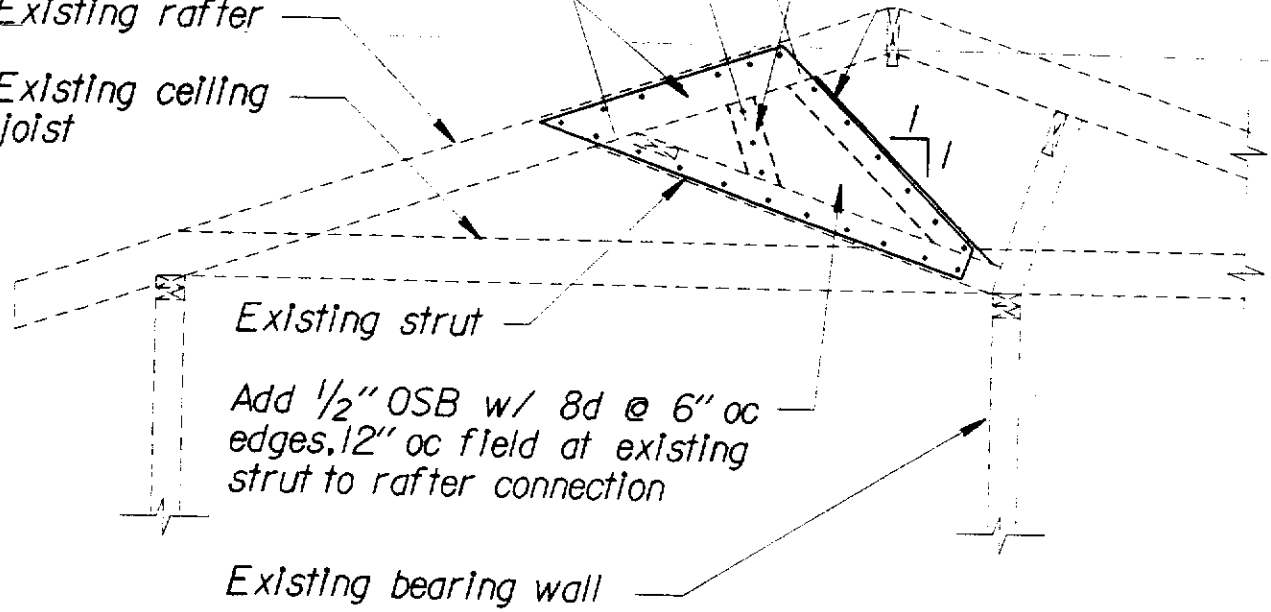
Add 2x4 to brace edge of OSB panel



Existing strut

Add 1/2" OSB w/ 8d @ 6" oc edges, 12" oc field at existing strut to rafter connection

Existing bearing wall



3

GUSSET PLATE DETAIL