

CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0607954

Insp Area: 2

Thos Bros: 297C7

Site Address: 2781 LAND PARK DR SAC

Parcel No: 012-0073-016

Sub-Type: RES

Housing (Y/N): N

CONTRACTOR

FERGUSON GARY DBA: ACE HOME IMPROVEMENT
6729 WALNUT AVE
ORANGEVILLE CA 95662

OWNER

2781 LAND PARK DR
SACRAMENTO, CA 95818

ARCHITECT

RAWSON RICHARD A

Nature of Work: TEAR OFF (E) SHAKE, RE-ROOF W/LIGHTWEIGHT TILE-2 STORY SFD, 25 SQS-SEE APPROVED ENGINEERING AND EVAL REPORT ATTACHED TO BLUE PERMIT DOC

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 B License Number 602864 Date 5/31/06 Contractor Signature Melanie Ferguson

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 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 a owner of the property, or my employees with wages as their sole compensation, will not be constructing, altering, improving, or repairing 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 improvements 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 5/31/06 Applicant/Agent Signature Melanie Ferguson

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.

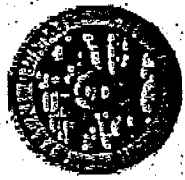
I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier STATE FUND Policy Number 1497387 Exp Date 07/30/2006

(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 5/31/06 Applicant Signature Melanie Ferguson

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 A ATTORNEY'S FEE.



CITY OF SACRAMENTO
 PLANNING & BUILDING DEPARTMENT
 BUILDING DIVISION
 WWW.CITYOFSACRAMENTO.ORG
 Help Line: 1-916-908-5658 OR 1-888-EZ-PERMIT
 Inspection: 1-916-908-7822



Fax # 916-808-1901
 Downtown Permitt Center, New City Hall
 915 I Street, 3rd Floor, Sacramento, CA 95814

North Permitt Center
 2101 Arena Blvd., Suite 200, Sacramento, CA 95834

Fax # 916-908-9370

Activity # _____

FAXED PERMIT APPLICATION
 (certain restrictions apply)

Date: 5/31/06

*Permit request must be received in this office by 3:00 P.M. to be processed the following workdays.
 Note: Contractors must have a current certificate of Worker's Compensation Insurance.*

Note: Work started before a Building Permit is issued will be subject to a fine fee.

IN ORDER TO PROCESS THIS REQUEST, ALL THE FOLLOWING INFORMATION MUST BE PROVIDED:

RESIDENTIAL APARTMENTS (4+ units per building) COMMERCIAL (limited)

Job Address: 2781 Land Park Drive

Contact Person: Barry Ferguson

Property Owner: Richard Lawson

Address: 2781 Land Park Dr

City/State/Zip: Sacramento, CA 95818

Phone: 916-446-6144

Nature of Work: (Provide detailed description of work & indicate type of work in selections below)
NO EXISTING STAIRS, RE-ROOF LATH & TILE

Unit # _____ Contract Price \$ 19,000

Contact Phone: 916-988-4139

Contractor: ACE HOME IMPROVEMENT License # 6028864

Address: 6729 Walnut Ave

City/State/Zip: DORAVILLE, GA 30662

Phone: 916-988-4139 Fax: 916-987-1078

ISSUED
 City of Sacramento
 MAY 31 2006
 NORTH PERMIT
 CENTER

| | | | | |
|--|---|---|--|--|
| <input checked="" type="checkbox"/> Reroof (excluding tile) <input checked="" type="checkbox"/> Tear-Off <input type="checkbox"/> Reshield <input type="checkbox"/> House <input type="checkbox"/> Garage # Stories: <u>2</u> # Squares: <u>85</u> Material: <u>LATH & TILE</u> <input type="checkbox"/> Siding <input type="checkbox"/> Wood <input type="checkbox"/> T-111 <input type="checkbox"/> Horiz <input type="checkbox"/> Vinyl <input type="checkbox"/> Stucco | <input type="checkbox"/> HVAC Installations (Residential Only) <input type="checkbox"/> Change-out <input type="checkbox"/> New <input type="checkbox"/> Heat Pump <input type="checkbox"/> Package <input type="checkbox"/> Split system <input type="checkbox"/> Roof mount <input type="checkbox"/> Cut-in <input type="checkbox"/> Heat pump or elect. unit to gas <input type="checkbox"/> Wall furnace <input type="checkbox"/> Other (describe below) Value of duct work: _____ Equipment \$: _____ Cut-in: \$ _____ | <input type="checkbox"/> Water Heater (Residential Only) <input type="checkbox"/> Gas <input type="checkbox"/> Electric <input type="checkbox"/> Change-out <input type="checkbox"/> Electric to Gas <input type="checkbox"/> Relocate <input type="checkbox"/> New <input type="checkbox"/> Dry Rot or Termitic Damage Repair (Describe Locations Below) | <input type="checkbox"/> Minor Electric and/or Minor Plumbing (Residential Only) <input type="checkbox"/> Electric Service Change # amps <input type="checkbox"/> New electric circuits <input type="checkbox"/> Re-wire <input type="checkbox"/> Water Service Replacement <input type="checkbox"/> Sewer Service Replacement <input type="checkbox"/> Gas Line Replacement <input type="checkbox"/> Re-plumb <input type="checkbox"/> Water <input type="checkbox"/> Waste | <input type="checkbox"/> Public Utilities Safety Inspection (Residential and single apartment units Only) <input type="checkbox"/> SMUD <input type="checkbox"/> PG&E <p>◆ NOTE: Correction Notice items will require an additional building permit.</p> |
|--|---|---|--|--|

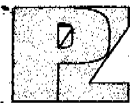
*Design Review approval may be required.

*Design Review approval may be required.

*Design Review approval may be required.

2781 Land Park Dr 0607954

Rawson



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

CITY COPY
TEL: 916.988.5560
FAX: 916.987.5552

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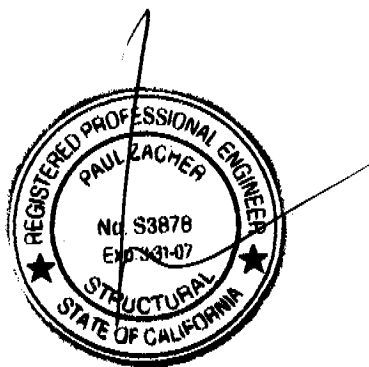
August 8, 2005

Ventilated Roofing Systems
6729 Walnut Avenue
Orangevale, CA 95662
TEL: (916) 988-4139; M: (916) 628-5534
FAX: (916) 987-1078

Attn.: Mr. Gary Ferguson,

re: Job 2005365: RAWSON

Subject: Structural Investigation Report of the Roof for the Residence located at 2781 Land Park Drive, Sacramento, CA 95818.

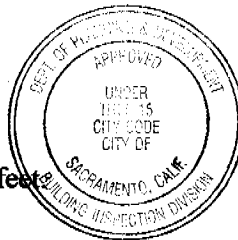


As requested by Mr. Gary Ferguson, this is a report to determine what needs should be addressed to correct any structural deficiencies of the roof. Paul Zacher visited the site July 28, 2005. The investigation was made to determine the existing condition of the structure. All information, data and analysis contained within this report are based on the 1997 Uniform Building Code with 2001 CBC Title 24 Amendments. *FIELD VERIFY RECOMMENDATIONS ON PAGE 6, 7, 8 MAX 7.3 PSF*

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: Two.
Dimensions: Approximately 2500 square feet



This report and its contents shall be kept on file for at least one year after completion of the project. It is not to be used 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.

5-31-06

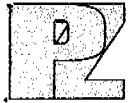
CONSTRUCTION:

Roof:
The roof covering will consist of a Light Weight Concrete Tile over a batten system. The roof structure is conventionally framed with 2x4 rafters spaced at 24" on center.

ISSUED
City of Sacramento

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. There is an existing sag in the roof of approximately 3 inches due to the original construction.



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. Shim the areas as required where the existing sags occur to provide an even contour at the roof level. See detail 1.
2. Scab a 1 3/4" x 11 7/8" LVL to the to the cripple studs above the triple top plate header. The ends of the LVL may be clipped as required to meet the slope of the rafters. See details 1 and 3.
3. Remove and replace the existing 2x4 header and 1-1/2" steel posts with a 4x6 beam and 4x4 posts. Install Simpson ACE44 post caps and ABE44 post bases with 1/2" diameter expansion anchors with 4" minimum embedment. See detail 1.
4. Scab a 2x4 rafter to the existing 2x4 rafters with 16d's @ 12" on center where the span is greater than 8'-0". The rafter to be scabbed to the existing rafter may be held short of the intersecting bearing wall, hip, valley, ridge or purlin by no more than 4". See detail 1.
5. Scab a 2x6 rafter to the existing 2x4 rafters with 16d's @ 12" on center where the span is greater than 10'-0". The rafter to be scabbed to the existing rafter may be held short of the intersecting bearing wall, hip, valley, ridge or purlin by no more than 4". 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.

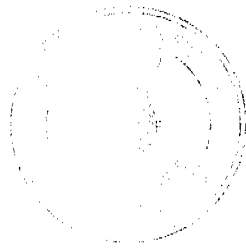


DESIGN LOADING:

Roof Pitch 6 in 12
Pitch Adjustment Factor 1.12

LOCATION: ROOF BATTEN SYTEM

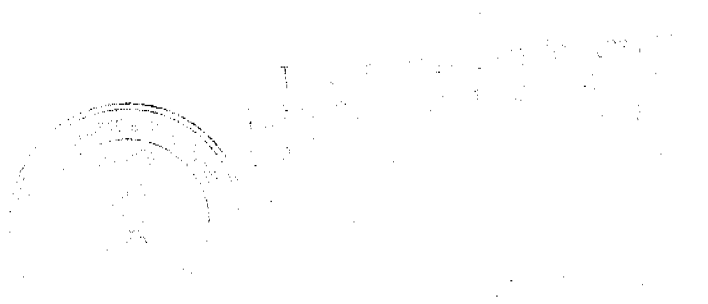
| <u>MATERIAL</u> | <u>WEIGHT</u> | |
|----------------------|-----------------------|-----------------|
| Light Weight Tile | 7.30 | psf |
| Roofing felt | 0.30 | psf |
| 1x4 skip sht'g | 1.09 | psf |
| Batten system | 0.50 | psf |
| 2x4 rafters @ 24" oc | 0.64 | psf |
| | Load | 9.8 psf |
| | Roof Pitch Adjustment | <u>1.16</u> psf |
| | Total Load | 11.0 psf |



Job #: 05_365
 Date: 08/07/2005

LOADING:

| | | |
|----------------------------------|--------------------|-------------|
| <u>Rafter:</u> | | 22.0 / 32.0 |
| Dr = 11.0 psf x 2'-0" = 22.0 plf | 2x4 #2 | |
| Lr = 16.0 psf x 2'-0" = 32.0 plf | | |
| <u>Rafter:</u> | | 22.0 / 32.0 |
| Dr = 11.0 psf x 2'-0" = 22.0 plf | 2-2x4 #2 | |
| Lr = 16.0 psf x 2'-0" = 32.0 plf | | |
| <u>Rafter:</u> | | 22.0 / 32.0 |
| Dr = 11.0 psf x 2'-0" = 22.0 plf | 2x6 #2 + 2x4 #2 | |
| Lr = 16.0 psf x 2'-0" = 32.0 plf | | |
| <u>B1:</u> | | 44 / 64 |
| Dr = 11.0 psf x 4'-0" = 44 plf | 4x6 #2 | |
| Lr = 16.0 psf x 4'-0" = 64 plf | | |
| <u>LVL:</u> | | 44 / 64 |
| Dr = 11.0 psf x 4'-0" = 44 plf | 1-3/4"x11-7/8" LVL | |
| Lr = 16.0 psf x 4'-0" = 64 plf | | |



Scope :

Rev: 580006
User: KW-0602844, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Timber Beam & Joist

Rawson.ecw.Calculations

Description RAFTERS AND BEAMS

Timber Member Information Code Ref: 1997/2001 NDS, 2000/2003 IBC, 2003 NFPA 5000. Base allowables are user defined

| | rafter | rafter | rafter | B1 | LVL |
|-----------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------|
| Timber Section | 2x4 | 2-2x4 | 2x4+2x6 | 4x6 MicroLam: 1.75x11. | |
| Beam Width | in 1.500 | 3.000 | 2.118 | 3.500 | 1.750 |
| Beam Depth | in 3.500 | 3.500 | 5.500 | 5.500 | 11.875 |
| Le: Unbraced Length | ft 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Timber Grade | Douglas Fir - Larch, No.2 | Douglas Fir - Larch, No.2 | Douglas Fir - Larch, No.2 | Douglas Fir - Larch, No.2 | Truss Joist - MacMillan, |
| Fb - Basic Allow | psi 875.0 | 875.0 | 875.0 | 875.0 | 2,600.0 |
| Fv - Basic Allow | psi 95.0 | 95.0 | 95.0 | 95.0 | 285.0 |
| Elastic Modulus | ksi 1,600.0 | 1,600.0 | 1,600.0 | 1,600.0 | 1,900.0 |
| Load Duration Factor | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 |
| Member Type | Sawn | Sawn | Sawn | Sawn | Manuf/Pine |
| Repetitive Status | Repetitive | Repetitive | Repetitive | No | No |

Center Span Data

| | | rafter | rafter | rafter | B1 | LVL |
|-----------|------|--------|--------|--------|-------|-------|
| Span | ft | 7.75 | 9.75 | 13.50 | 6.50 | 15.00 |
| Dead Load | #/ft | 22.00 | 22.00 | 22.00 | 44.00 | 44.00 |
| Live Load | #/ft | 32.00 | 32.00 | 32.00 | 64.00 | 64.00 |

Results Ratio =

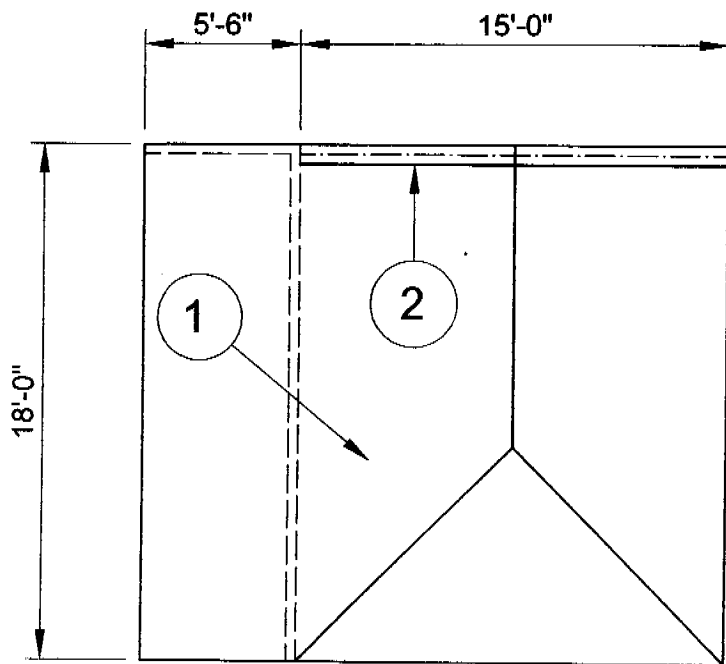
| | | rafter | rafter | rafter | B1 | LVL |
|---------------------|---------|--------------|--------------|---------------|--------------|---------------|
| Mmax @ Center @ X = | in-k ft | 4.87 3.87 | 7.70 4.87 | 14.76 6.75 | 6.84 3.25 | 36.45 7.50 |
| fb : Actual | psi | 1,588.6 | 1,257.2 | 1,382.5 | 387.9 | 886.2 |
| Fb : Allowable | psi | 1,886.7 | 1,886.7 | 1,635.2 | 1,421.9 | 3,250.0 |
| | | Bending OK | Bending OK | Bending OK | Bending OK | Bending OK |
| fv : Actual | psi | 55.5 | 35.5 | 43.9 | 23.6 | 51.0 |
| Fv : Allowable | psi | 118.8 | 118.8 | 118.8 | 118.8 | 356.3 |
| | | Shear OK | Shear OK | Shear OK | Shear OK | Shear OK |

Reactions

| | | rafter | rafter | rafter | B1 | LVL |
|----------------|-----|--------|--------|--------|--------|--------|
| @ Left End DL | lbs | 85.25 | 107.25 | 148.50 | 143.00 | 330.00 |
| LL | lbs | 124.00 | 156.00 | 216.00 | 208.00 | 480.00 |
| Max. DL+LL | lbs | 209.25 | 263.25 | 364.50 | 351.00 | 810.00 |
| @ Right End DL | lbs | 85.25 | 107.25 | 148.50 | 143.00 | 330.00 |
| LL | lbs | 124.00 | 156.00 | 216.00 | 208.00 | 480.00 |
| Max. DL+LL | lbs | 209.25 | 263.25 | 364.50 | 351.00 | 810.00 |

Deflections Ratio OK Deflection OK Deflection OK Deflection OK Deflection OK

| | | rafter | rafter | rafter | B1 | LVL |
|-------------------|----|--------|--------|--------|---------|---------|
| Center DL Defl | in | -0.208 | -0.261 | -0.350 | -0.023 | -0.108 |
| L/Defl Ratio | | 446.6 | 448.6 | 463.0 | 3,427.0 | 1,666.5 |
| Center LL Defl | in | -0.303 | -0.379 | -0.509 | -0.033 | -0.157 |
| L/Defl Ratio | | 307.0 | 308.4 | 318.3 | 2,356.1 | 1,145.7 |
| Center Total Defl | in | -0.511 | -0.640 | -0.859 | -0.056 | -0.265 |
| Location | ft | 3.875 | 4.875 | 6.750 | 3.250 | 7.500 |
| L/Defl Ratio | | 181.9 | 182.8 | 188.6 | 1,396.2 | 678.9 |



FRAMING NOTES:

1. Shim the areas as required where the existing sags occur to provide an even contour at the roof level.
2. Scab a 1 3/4" x 11 7/8" LVL to the existing cripple stud above the triple top plate. See detail 3.

NOTES:

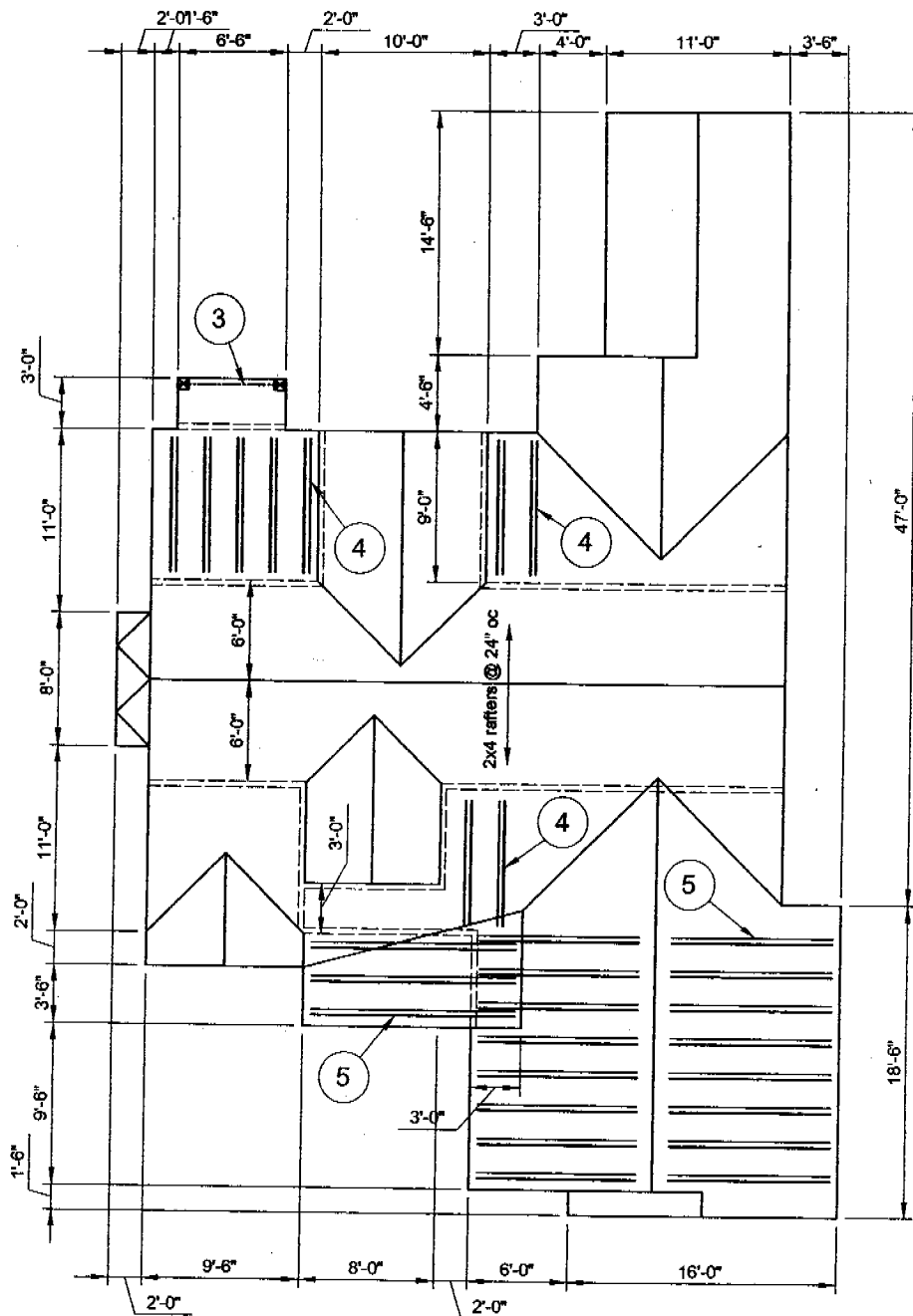
- A. This is a reroof project. The new roofing material shall be a Light Weight Concrete Tile. The tile shall weigh less than or equal to 7.3 psf.
- B. All framing members including rafters, purlins, joists and beams are existing unless otherwise noted in the framing notes above.
- C. All rafters are 2x4 DF#2 and hips and valleys are 2x6 DF#2 unless otherwise noted.
- D. All existing rafter, hips, valleys, rafter ties, and purlins are braced per UBC Section 2320.1 "Roof and Ceiling Framing" unless otherwise shown.
- E. All structural wood members that were observed appear to be in sound condition and without structural defect.



1 ROOF PLAN - RAWSON GARAGE

Not to Scale

6



FRAMING NOTES:

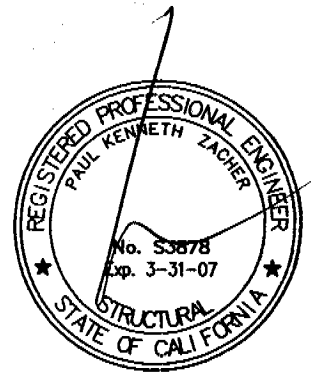
3. Remove and replace the existing 2x4 header and 1-1/2" steel posts with a 4x6 beam and 4x4 posts. Install Simpson ACE44 post caps and ABE44 post bases with 1/2" diameter expansion anchors with 4" minimum embedment.
4. Scab a 2x4 to existing 2x4 rafters where the span is greater than 8'-0" (total 9).
5. Scab a 2x6 to existing 2x4 rafters where the span is greater than 10'-0" (total 19).

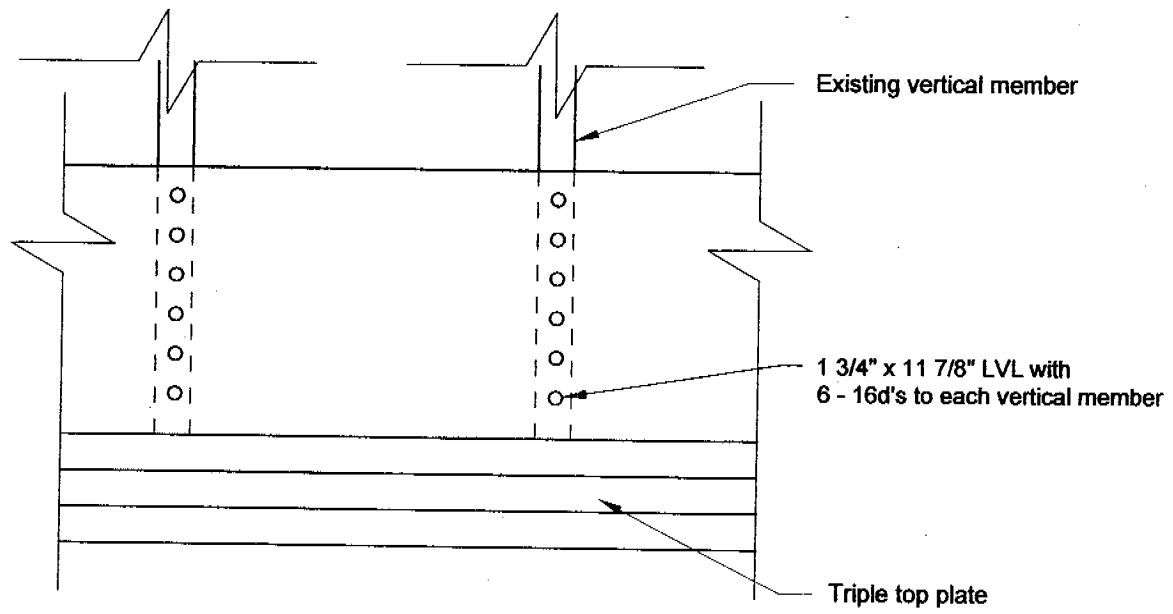
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- D. All existing rafter, hips, valleys, rafter ties, and purlins are braced per UBC Section 2320.1 "Roof and Ceiling Framing" unless otherwise shown.
- E. All structural wood members that were observed appear to be in sound condition and without structural defect.

2 ROOF PLAN - RAWSON
Not to Scale

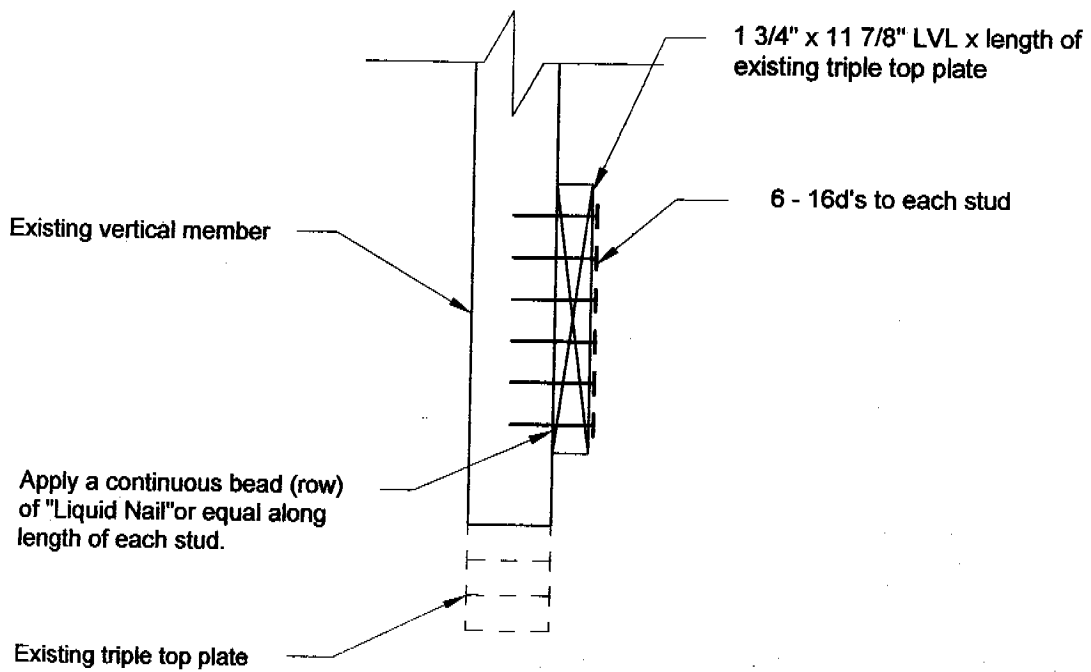
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ELEVATION

scale: 1-1/2" = 1'-0"



3

DETAIL

scale: 1 1/2" = 1'-0"

8



ICC Evaluation Service, Inc.
www.icc-es.org

Business/Regional Office: 5360 Walkman Mill Road, Whittier, California 90601 ■ (562) 899-0543
Regional Office: 900 Edmondson Road, Suite A, Birmingham, Alabama 35213 ■ (205) 599-9800
Regional Office: 401 West Flussmoor Road, Country Club Hills, Illinois 60478 ■ (708) 799-2305

Legacy report on the 1997 *Uniform Building Code*™

DIVISION: 07—THERMAL AND MOISTURE PROTECTION
Section: 07320—Roof Tiles

BARTILE EXTRUDED CONCRETE ROOF TILES

BARTILE ROOFS, INC.
725 NORTH 1000 WEST
CENTERVILLE, UTAH 84014

1.0 SUBJECT

Bartile Extruded Concrete Roof Tiles.

2.0 DESCRIPTION

2.1 General:

Bartile Extruded Concrete Roof Tiles are available in European, Mission "S" and Flat styles. Flat tiles are available in shake and slate designs. The tiles are 15 1/4 inches long by 10 1/2 inches wide and have 1 1/8 inch to 1 1/4 inch interlocking double tongue-and-groove side laps. The tiles also have anchor lugs at the bottom intended for installation over wood furring strips. The lugs are typically 1/2 inch deep, 1 1/2 inches wide and 5/8 inch thick. The tile thickness varies from 1/2 inch to 1 inch at the ribs. Accessory tiles in each style are available for rakes, ridges and hips.

The tiles are available in both standard weight and lightweight varieties for each style. They vary only in weight due to the lightweight tiles using crushed lightweight shale in place of sand.

The basic concrete mix for the tiles is three parts of white sand (crushed lightweight shale for lightweight tiles) to one part of portland cement with appropriate amounts of water, air-entraining agents and accelerators. Mineral oxide coloring is added to the mix design as desired. When installed with a standard 3-inch head lap, the following are the approximate installed weights:

| DESCRIPTION | INSTALLED WEIGHT* (pounds per square foot) | |
|----------------------|---|-------------------|
| | Standard-weight Tiles | Lightweight Tiles |
| European | 9.0 | 7.0 |
| Mission "S" | 9.0 | 7.0 |
| Flat (Shake & Slate) | 9.5 | 7.25 |

*Includes underlayment and battens.

See Figure 1 for details.

2.2 Installation:

On roof slopes less than 3:12, tiles are only considered as decorative and must be applied over an approved roof covering, subject to the local building official's approval.

2.2.1 Standard-weight Tiles: On roof slopes 3:12 to 24:12, the tiles are installed over a minimum 1/2-inch thick solid sheathing with one layer of Type 30 asphalt-saturated organic roofing felt placed with a minimum 3-inch head lap and 6-inch end lap. 1-inch by 2-inch nominal cedar or fir wood strips or metal hat channel perpendicular to the eaves may be optionally used between 4:12 and 6:12 slope. One-inch-by-2-inch nominal wood battens, plastic battens recognized in evaluation report ER-6106, or metal hat channels are laid parallel to the eaves and spaced maximum 12 1/2-inches on center. Battens are attached with 8 penny common corrosion-resistant nails spaced 24 inches on center. Nails must be of sufficient length to penetrate 1 inch into or through the sheathing thickness, whichever is less. A minimum 1/2-inch space is provided between the ends of battens every 4 feet to allow for water drainage. Tiles are nailed to battens with No. 11 gage corrosion-resistant roofing nails in accordance with Tables 15-D-1 and 15-D-2 of the 1997 *Uniform Building Code*™ (UBC). Nails must be of sufficient length to penetrate 1/4 inch into or through the thickness of the supporting member, whichever is less.

Ridge, hip and rake tiles are attached with minimum 8d common corrosion-resistant nails. All tiles must have a minimum 3-inch head lap, and vertical edges must be interlocked and staggered from adjacent courses.

On slopes 3:12 to 24:12, 1-inch by 6-inch spaced sheathing, grade marked in accordance with Chapter 23 of the code and installed at a maximum 12 inches on center, may be used.

When installed on spaced sheathing, an underlayment recognized specifically for this type of use in a current ICC-ES evaluation report must be installed with 6-inch side and head laps. Rake and coping tiles are fastened with two nails. See Tables 15-D-1 and 15-D-2 of the UBC for field and perimeter tile nailing schedule. Valley flashing consists of minimum No. 28 gauge corrosion-resistant metal extending at least 12 inches from the centerline each way. See Figure 2 for installation details.

2.2.2 Lightweight Tiles: Lightweight tiles are installed in the same manner as standard-weight tiles except that each tile is attached with roofing nails as specified in Table 15-D-2 of Chapter 15 of the UBC.

ICC-ES legacy reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, Inc., express or implied, as to any finding or other matter in this report, or as to any product covered by the report.



2.3 Identification:

The shipping pallets have labels bearing the name "Bartile," the style, color of the tile, date of manufacture, installed weight and the evaluation report number (ICBO ES ER-3909). The lightweight tile labels bear the words LT, WT, Bartile.

3.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Clay and Concrete Roof Tiles (AC180), dated January 2002.

4.0 FINDINGS

That the Bartile Extruded Concrete Roof Tiles described in this report and applied over new construction are noncombustible roof coverings complying with the 1997

Uniform Building Code™, subject to the following conditions:

4.1 The tiles are manufactured, identified and installed in accordance with this report and the manufacturer's instructions.

4.2 Underlayment must be used in all installations, and the maximum roof slope must not exceed 24 inches in 12 inches.

4.3 The tiles are manufactured at the Bartile Roofs, Inc., facility at Centerville, Utah.

This report is subject to re-examination in two years.

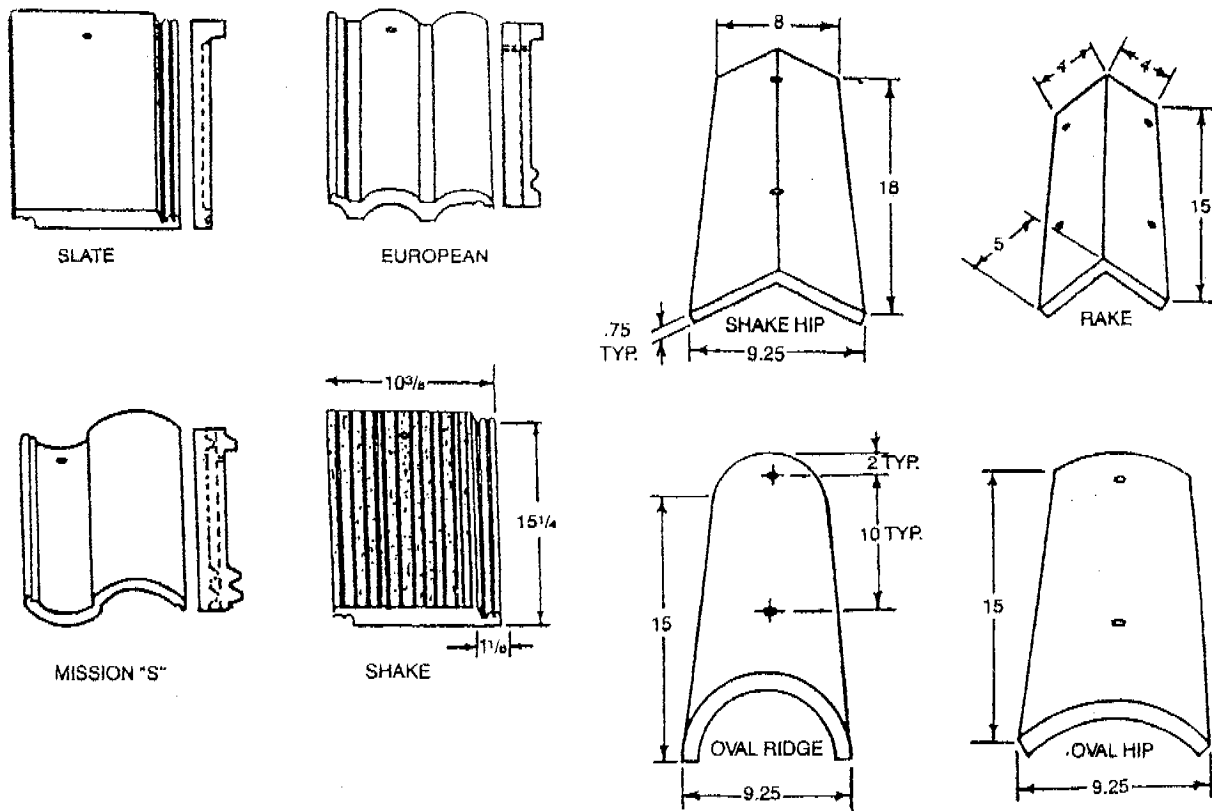


FIGURE 1

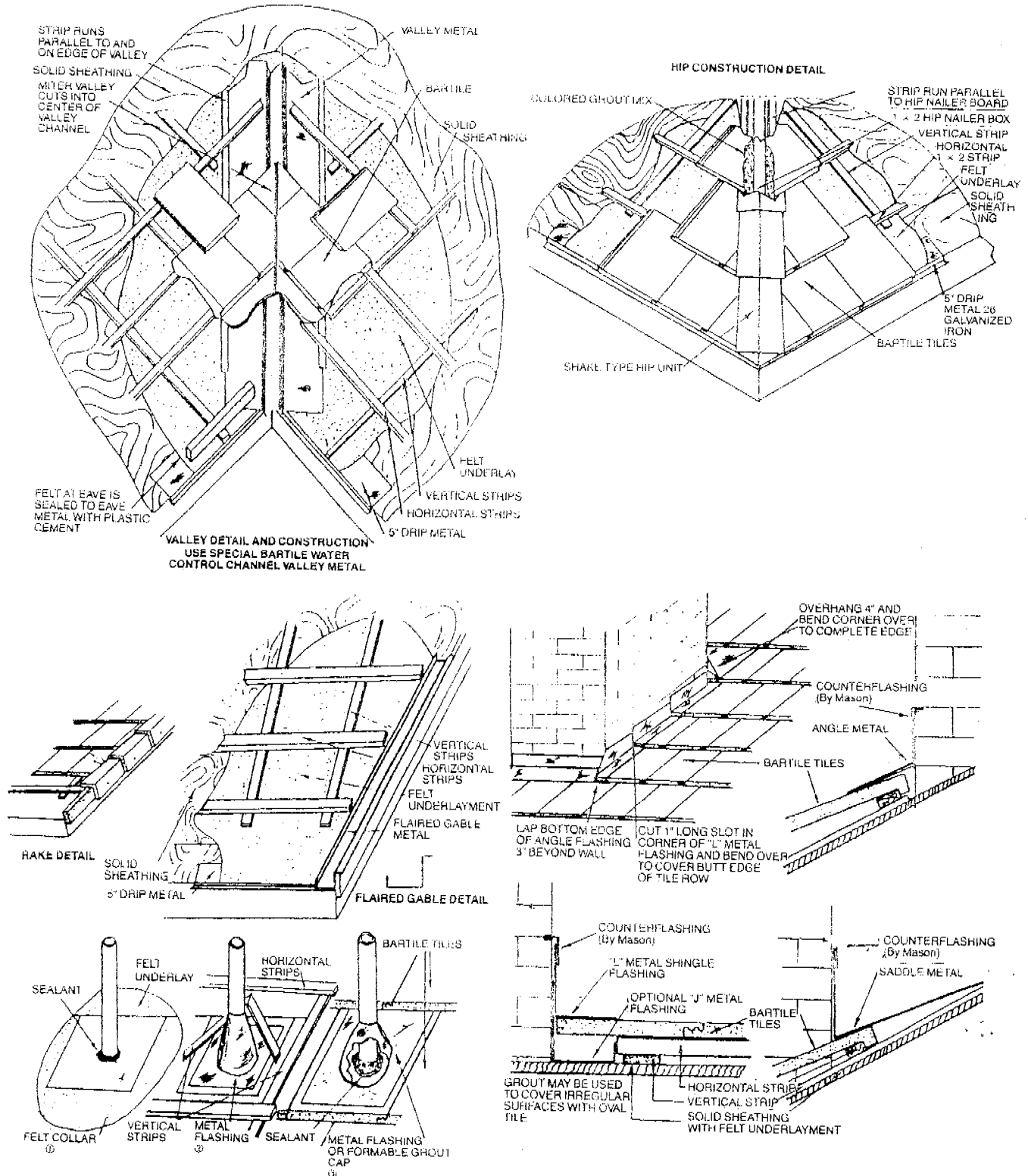


FIGURE 2

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Bartile

June 9, 2004

San Joaquin County Building Department

Attention: Jerry Herrmann

RE: Bartile draped counter batten recommendations:

Steps:

1. Existing roof is removed exposing existing skip sheathing.
 2. All nails or staples are hammered down flush or removed.
 3. All sheathing with dry rot shall be removed and replaced.
 4. A starter membrane, 9" wide (ASTM 30 lb. felt or equivalent) shall be installed at the eave edge.
 5. A 7/8" 22 gauge galvanized hat channel furring batten shall be installed, vertically, directly over existing skip sheathing and roof rafter starting at eave up to ridge
 - a. Nailed at 24" on center or less using a #16 d nail through the top of the hat channel through the existing skip sheathing and into the rafter below.
 - b. The vertical batten spacing is usually 16" or 24" on center depending on rafter layout. Maximum spacing is 24" on center.
 - c. Note: The vertical hat channel is installed below the underlayment, and not subject to moisture.
 6. Thermo-ply or Thermosheathing ICBO approved concrete and clay tile underlayment over ship sheathing.
 - a. Underlayment shall be draped between the vertical battens.
 - b. Minimum head lap of 3" and side lap of 2". Center of side lap must be at vertical batten. Vertical side lap cannot be in trough.
 7. The Horizontal battens hold the thermo-sheathing in place when installed in next step. Draping of the thermo-sheet creates a significant water and airway channel, thus eliminating the possibility of water being trapped behind the horizontal battens.
-

Valleys

- a. Begin with a thermo-sheet panel centered in the valley from eave to ridge with minimum 6" head lap.
 - b. Horizontal thermo-sheeting panels are woven through and past the valleys
8. Horizontal battens are installed starting at the eave (called the kicker) and continuing to the ridge* at maximum 12" O.C. and yielding a minimum 3" head lap.
- a. Battens are attached with a #10 x 5/16" hex head with a 3/4" shank self-tapping corrosion resistant screw at vertical battens.
 - b. Fastening of horizontal battens alternate at top flange of horizontal batten to bottom flange of horizontal batten, alternating at each vertical batten.

*The second horizontal batten is a 1/2" cold roll galvanized channel attached thru the top of the channel with a #10 x 5/16" hex head with a 3/4" minimum shank, self-tapping corrosion resistant screw at every vertical hat channel. Only the second course horizontal batten is installed with a cold rolled channel. This is to allow the first and second course of tile to lie on approximately the same plane.

9. The tile is to be installed using a 1 5/8" minimum** self-tapping corrosion resistant screw.
- a. Lightweight tiles are installed in the same manner as standard-weight tiles with the exception that each tile is attached as specified in Table 15-D-2 Chapter 15 of the code with a minimum **1.5/8" corrosion resistant screw. *European 2 1/2" and Sierra Mission 3 1/2" Fasteners required.
 - b. Field tile shall have a minimum of a 3" head lap.
10. Hip and Ridge Trim shall be fastened with **1 5/8" minimum self-taping corrosion resistant screw fastened to high profile metal hat channel. Hip and ridge to be fastened with 2 fasteners penetrating 3/4" or one fastener and mastic at leading edge with surface compatible mastic meeting or exceeding the holding strength of a fastener.
- a. Rake Tiles shall be fastened to the fascia with minimum 2 3/8" corrosion resistant nail.
11. Ridge vent to be a minimum of 26 gauge galvanized or greater louvered vent fastened at a maximum of 32" OC with a 5/16" self tapping corrosion resistant screw.
12. Roof jacks to be double flashed and a diverter installed under the Thermoply channeling water away from the penetration/ jack.

Please contact Rob George at 916-761-0356 if you have any questions, or I can be reached at 800-933-5038 ext # 104

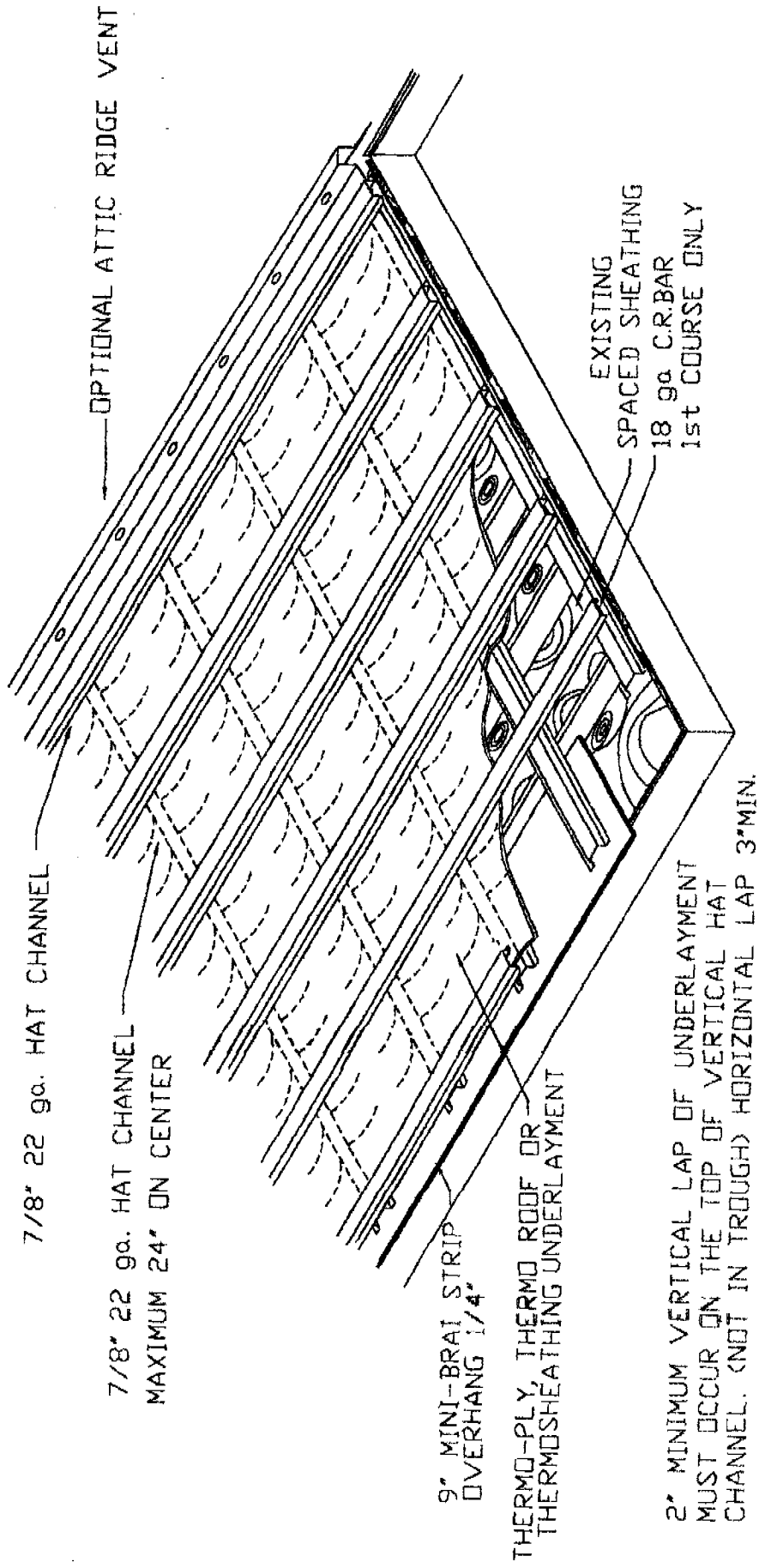
Lewis Evans, President

LME/jd

CC Rob George
Gary Ferguson
File

BARTILE ROOFS INC.

BARTILE (ENHANCED) COLD ROOF SYSTEM
USED FOR REROOF APPLICATIONS



FASTEN VERTICAL HAT CHANNEL W/16d GALV. NAILS THRU CENTER
FASTEN HORIZ. HAT CHANNEL W/#8 MIN 3/4" SELF TAPPING SCREWS CORROSION RESISTANT

SPACE HORIZ BATTENS ACCORDING TO TILE LAYOUT REQUIREMENTS
FOLLOW UNDERLAYMENT MANUFACTURERS INSTRUCTIONS FOR LAPPING MEMBRANE

FASTEN TILE TO HAT CHANNEL WITH 1 5/8" #6 SELF TAPPING C.R. SCREWS
(OR LONGER, AS NEEDED FOR EUROPEAN OR SIERRA MISSION PROFILES)