

CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 9806372

Insp Area: 3

Site Address: 2230 PORTOLA WY SAC

Parcel No: 0130074004

REAR

Sub-Type: ASFR

Housing (Y/N): N

CONTRACTOR

OWNER

ROSEN ANDREA G
2226 PORTOLA WY
SACRAMENTO CA

95818

ARCHITECT

VRILAKAS RON
1109 22ND ST
SACRAMENTO CA

Nature of Work: (N)2ND DWELLING UNIT ABOVE A (N)DETACHED GARAGE

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);

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 _____

5/28/98

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 hereby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

Date _____

5/28/98

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 _____

(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 _____

5/28/98

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.

26 Portola Way
30 Portola Way

office

15
17

DETAILED LATERAL CALCULATIONS

Check lateral condition of wall at garage door

Tributary areas:
First 4 feet is resited by soil

Portion of wall between 4 feet and 15 feet:
Area between 4 foot line and 15 foot line:
 $(15-4)(22.66) = 249.26 \text{ S.F.}$

Portion of wall between 15 feet and 20 feet:
Area of wall between 15 feet and plate
 $(8+.83+8) - 15 = 1.83 \text{ feet high}$
 $(1.83)(22.66) = 41.47 \text{ S.F.}$
Area of wall between plate and 20 feet

Height:
 $20 - (8+.83+8) = 3.17 \text{ feet high}$
Width:
(7/12 pitch) at 3.17 foot height, horizontal displacement = 5.434'
resulting width of wall = $22'-8" - 2(5.434) = 11.79'$
area of trapezoid = $(22.66 + 11.79)/2 (3.17) = 54.6 \text{ S.F.}$
Area between 15 and 20 feet = $41.47 + 54.6 = 96.07 \text{ S.F.}$

Portion of wall between 20 feet and ridge
Height:
(7/12 pitch) a horizontal displacement of $(22.66/2) \text{ or } 11.33' = 6.61'$
 $6.61 - 3.17 = 3.44 \text{ feet high}$
Width:
(7/12 pitch) at 3.17 foot height, horizontal displacement = 5.434'
resulting width = $22'-8" - 2(5.434) = 11.79'$
Area between 20' and 25': $(3.44)(11.79) / 2 = 20.27 \text{ S.F.}$

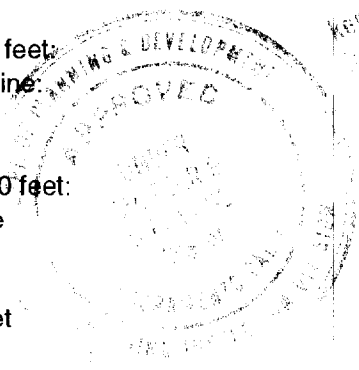
Force acting on walls:

$$V = (13.22)(249.26) + (14.3)(96.07) + (15.35)(20.27) = 5,127.14$$
$$= 3295 + 1373 + 311 = 4,979 \text{ pounds}$$

Horizontal reaction at shear wall:

$4,979/2 = 2490 \text{ pounds each side}$
Design resisting shear wall, 4'-10" minimum length:
Force per lineal foot:

$$v_b = (2490) / 4.83' = 515 \text{ PLF}$$



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No person shall alter this plan and specification without the written consent or approval of the Building Division or State Law.

ISSUED
SEP 21 1998
Sacramento Building Division

16
9/21/98

Use 3/8" Oriented Strand Board (OSB) on exterior side, with 8d at 2" o.c. onto 3x studs at 16" o.c. Stagger Nailed
(capacity = 640 PLF) (UBC Table 23I-K-2 with footnotes #3 & #4)

Determine shear resisting anchor bolts:

Allowable increase for short term loading: 33% (Section 2304.3.4, UBC)

Value of anchor bolt (using 5/8" dia.) = 600 lbs (Table 23-I-F, UBC)

$$(1.33)(600) = 798 \text{ lbs}$$

Use four 5/8" anchor bolts

$$4(798) = 3192 \text{ lbs} > 2,490 \text{ lbs}$$

Check diaphragm ratio:

$$(8'-0")/3.5 = 2.28' \text{ (minimum)} < 4.83' \text{ (actual) O.K. (Table 23-I-I, UBC)}$$

Overturning Moment:

$$2,490(8'-0") = 19,920 \text{ Ft-lbs}$$

Resisting Moment:

$$\text{Distance between anchor bolts} = 3'-10"$$

$$\text{Tension} = 19,920/3.83 = 5,196 \text{ lbs}$$

Use four 5/8" Anchor bolts with 15" embedment in 2000 psi concrete for shear.

Use two hold downs with 5/8" Anchor bolts with 15" embedment in 2000 psi concrete for uplift.

Simpson HTT22 with 32 16d sinkers (5250 lbs)

ISSUED

SEP 21 1998

Sacramento Building Division

Size Footing for Resisting Moment:

$$\text{O.T.M.} = 19,920 \text{ ft-lbs}$$

$$\text{Uplift at bolt} = 19,920/3.83 = 5,196 \text{ lbs}$$

Required concrete to counter act:

$$5196/150 = 34.6 \text{ Cu. Ft.}$$

$$2.5' \times 3' \times 4.83' = 36.22 \text{ Cu. Ft.}$$

Use continuous 2'-6" wide by 3'-0" deep by 4'-10" long concrete grade beam.

Check Bearing:

$$\text{Pressure} = 19,920/4 = 4980 \text{ lbs}$$

Using allowable soil pressure of 1,000 plus 40% increase for two additional feet (Table 18-I-A, UBC)

$$(1,000)(1.4) = 1,400 \text{ PSF}$$

$$\text{Required area for bearing: } 4,980 / 1,400 = 3.55 \text{ SF}$$

$$(2.5)(4.83) = 12 > 3.55 \text{ SF OK}$$

Check lap splice

$$2490 \text{ lbs}/105*(4/3) = 17.78, \text{ say } 18 \text{ nails per splice}$$

LTT/MTT/HTT TENSION TIES



Tension Ties are ideal for retrofit or new construction and provide post-tension concrete-to-wood connections. The HTT16 provides intermediate uplift loads when HTT22 loads are not required.

The HTT22 is a single-piece formed tension tie—no rivets, and a 4-ply formed seat which won't unfold during loading. No washers required. The LTT19 Light Tension Tie is designed for 2x joists or purlins and the LTT20B is for nail- or bolt-on applications. The 3" nail spacing makes the LTT20B suitable for wood joists if 10dx1½" nails are substituted for the specified 16d's. Use the MTT28B Medium Tension Tie for heavier connections.

The LTT131 is designed for wood chord open web truss attachments to concrete or masonry walls.

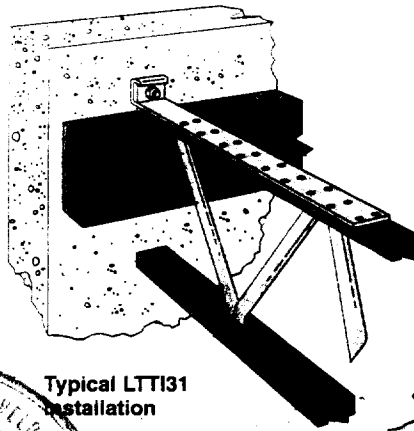
MATERIAL: See table

FINISH: Galvanized. MTT28B may be ordered HDG; check factory.

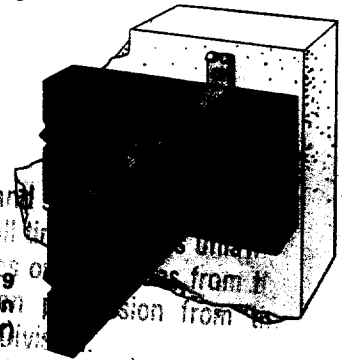
INSTALLATION: • Use all specified fasteners. See General Notes.

- Use the specified number and type of nails to attach the strap portion to the bottom or side of purlin or beam (minimum 4x width (2-2x4 or 4x4), except LTT19). Bolt the base to the wall or foundation with a suitable anchor; see table for the required bolt diameter.
- The HTT22 can have a maximum offset of 2" from the stud face to the centerline of the anchor bolt.
- Do not install LTT, MTT tension ties raised off the mudsill.
- See Epoxy-Tie Adhesive System, page 14 for tested, load-rated epoxies for anchor bolt options.

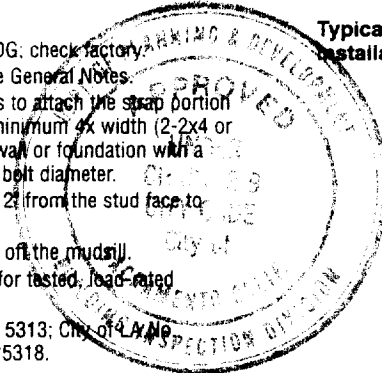
CODES: BOCA, ICBO, SBCCI No. NER-393; ICBO 5313; City of LA, RR 24818 (LTT series and MTT28B); RR 25318.



Typical LTT131 Installation



Typical LTT19 Installation

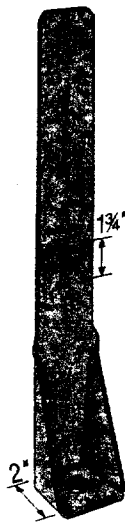


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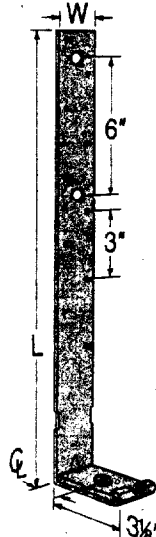
HTT16

U.S. Patent 5,467,570

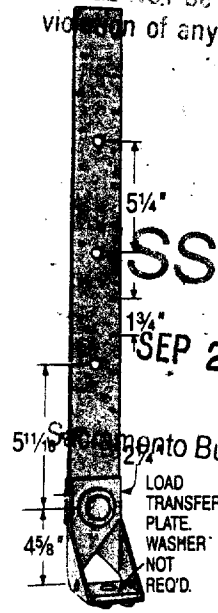


HTT22

U.S. Patent 5,467,570

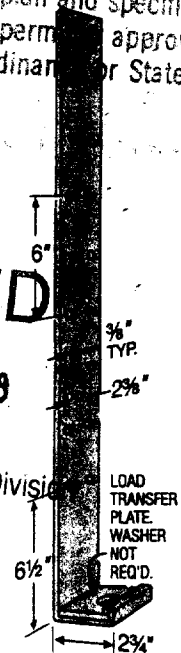


LTT20B



MTT28B

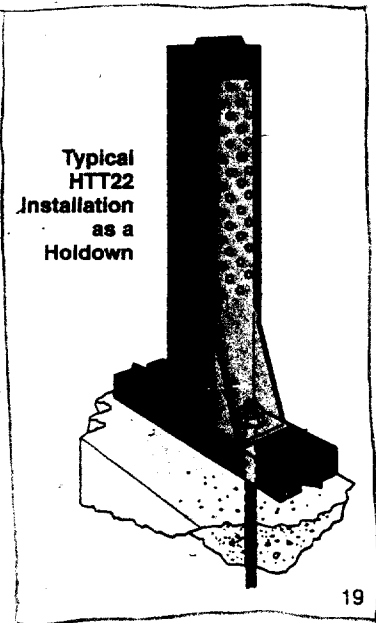
U.S. Patent 4,744,192



LTT131

Model No.	Material (Ga)		Dimensions			Fasteners			Avg UK Tension	Allowable Tension Loads				Deflection at Highest Allowable Design Load
	Strap	Plate	W	L	Cl	Anchor Bolts	Nails	Bolts Qty		(133)		(160)		
										Nails	Bolts	Nails	Bolts	
LTT19	16	3	1 3/4	19 1/2	1 3/8	3/4	8-16d Sinkers	—	4250	1205	—	1350	—	0.107
LTT20B	12	3	2	19 1/4	1 3/8	1/2, 3/8 or 5/8	10-16d	2	8733	1750	1220	1750	1460	0.164
LTT131	18	3	3 3/4	31	1 3/8	3/4	18-10dx1 1/2	—	7807	1805	—	1805	—	0.125
HTT16	11	—	2 1/2	16	1 3/8	3/4	18-16d	—	13150	3480	—	4175	—	0.037
HTT22	11	—	2 1/2	22	1 3/8	3/4	32-16d Sinkers	—	13150	5250	—	5260	—	0.087
MTT28B	12	7	2 3/8	27	1 1/2	3/4 or 5/8	24-16d	4	—	4455	2150	4455	2725	0.125

- Allowable loads for HTT are based on the lower of the 1991 NDS fastener values or the ultimate load on a steel test jig divided by 2.5.
- 16d sinkers (9 ga x 3 3/4") or 10d commons may be substituted for the specified 16d commons at 0.85 of the table loads.
- The designer must specify anchor bolt type, length and embedment.
- Allowable loads have been increased 33% and 50% for earthquake or wind loading with no further increase allowed.
- Bolt values are based on a minimum lumber thickness of 1 1/2".
- See HDA for deflection at highest allowable design load definition.
- If a 1/2" or 3/4" anchor bolt is used for the LTT20B, add a standard cut washer to the seat. No additional washer is required for a 3/4" anchor bolt. See table for appropriate anchor bolt sizes.
- HTT Holdowns installed off the mudsill have a reduced load (5190 lbs for HTT22, 4175 lbs for HTT16) and may have larger deflection values.



Typical HTT22 Installation as a Holdown

Comment # 4

All exterior walls shall have oriented strand board or plywood sheathing not less than 3/8" thick fastened to 2 x studs at 16" on center.

Comment # 5

- a) Additional anchor bolts shall be provided. See new detail.
- b) 3x nominal minimum framing members and staggered nailing specified.
- c) Hold downs will be provided.
- d) The floor sheathing will be used as a drag member. This will be accomplished by nailing 16d at 8" on center for the entire length of the affected floor joists.
- e) In lieu of standard nailing the lap for each top plate shall be nailed with 18 nails.
- f) details incorporated into plans
- g) New diagonal bracing is included for this beam.

ISSUED

SEP 21 1998

Comment # 6

Joist designation included on the plans: 9 1/2" ^{Sacramento Building Division} TJI/Pro-150 @ 16" O.C.



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SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

CERTIFICATION OF COMPLIANCE

SCHOOL DISTRICT DEVELOPMENT FEES

PROPERTY OWNER'S NAME		ANDREA ROSEN	
OWNER'S ADDRESS		2226 Portola Way	
PROJECT ADDRESS		2230 Portola Way	
PARCEL NUMBER		LOT NUMBER	
SUBDIVISION NAME			
NUMBER OF UNITS			
APPLICANT'S SIGNATURE		<i>Andrea Rosen</i>	
TITLE OF APPLICANT			
DATE		8/28/98	
TELEPHONE NUMBER		457-6721	
PLAN IDENTIFICATION NUMBER			
BUILDING TYPE (CHECK ONE)		98-06372	
<input checked="" type="checkbox"/> RESIDENTIAL	APT	<input type="checkbox"/> APARTMENT/CONDOMINIUM	<input type="checkbox"/> COMMERCIAL/INDUSTRIAL
SQUARE FEET OF CHARGEABLE BUILDING AREA		618 #	
SIGNATURE		BRYAN NAKASHIMA	
TITLE		BRYAN NAKASHIMA / Sr Engineer	
DATE		8/28/98 per telephone verification	
DISTRICT CERTIFICATION NUMBER			
6455			
EXEMPT	COMMENTS		
RESIDENTIAL / APARTMENT / ETC.	<u>618</u>	SQ. FT. X \$ <u>1.72</u>	= \$ <u>1062.96</u>
COMMERCIAL / INDUSTRIAL	_____	SQ. FT. X \$ _____	= \$ _____
OTHER FEE _____	TYPE _____	SQ. FT. X \$ _____	= \$ _____
TOTAL FEES COLLECTED.....			\$ <u>1062.96</u>
<p><i>This certification covers only the amount of square footage indicated above. Any additions or corrections to the square footage for this project will require an amendment to the Certificate of Compliance.</i></p> <p><i>As the authorized school district official, I hereby certify that the requirements of Government Code Section 65995 and any other authorized requirements have been complied with by the above signed applicant.</i></p>			
SIGNATURE			
<i>[Signature]</i>			
TITLE		CIVIC CENTER / PERMITS / I	
DATE		8/28/98	

Residential Form

The following information is needed for determining permit fees:

Address: 2230 Portola Way

Plan Review No: 9806372

Construction Areas	Square Feet
Dwelling	<u>618^{0'}</u>
Garage	<u>498^{0'}</u>
Patios and/or Porches	<u>90.5^{0'}</u>
Others	_____
Number of Rooms for Utilities	_____
Expedite Plan Check Hours	_____

Plan Check by : Nakashina



**City of Sacramento Development Services Division
Planning and Zoning Information Request**

Project Address: 2226 Portola Way

Assessor's Parcel Number: 013-0079-004

Current Land Use: residential - single family

Description of Request/Proposed Use:

Proposed
2nd residential unit over garage.

Zoning Designation: ~~R-1~~ R-1

Prior Applications for Project Site(P#,Z#,DRPB#): P 98-052

Comments: Approved by CPC on June 25,
1998. See File for Conditions.

Are There Any Planning Issues?: (Circle One) YES NO

Site Plan Check Required? (Circle One) YES NO

Design Review/ Preservation Required?: (Circle One) YES NO

Planning Review by/Date: W. Weitzman 7-9-98

A list of items that must be reviewed by Planning is provided on the reverse side of this form.

OWNER-BUILDER VERIFICATION

ATTENTION PROPERTY OWNER

An owner-builder building permit has been applied for in your name and bearing your signature.

Please complete and return this information in the envelope provided at your earliest opportunity to avoid unnecessary delay in processing and issuing your building permit. No building permit will be issued until this verification is received.

1. I personally plan to provide the major labor and materials for construction of the proposed improvement (yes or no) yes

2. I (have/have not) _____ signed an application for a building permit for the proposed work.

3. I have contracted with the following person (firm) to provide the proposed construction:

Name A Address _____

City _____ Telephone _____

Contractors License No. _____

4. I plan to provide portions of the work, but I have hired the following person to coordinate, supervise, and provide the major work.

Name _____ Address _____

City _____ Telephone _____

Contractors License No. _____

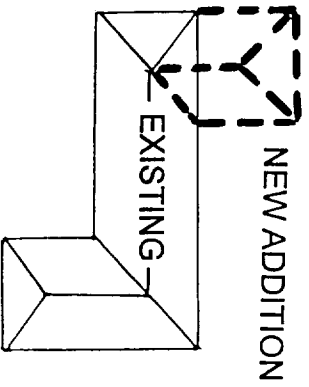
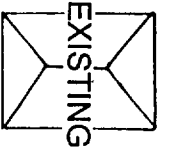
5. I will provide some of the work but I have contracted (hired) the following to provide the work indicated:

Name	Address	Phone	Type of Work
<u>Harold Soper</u>		<u>677-3005</u>	<u>Carpentry</u>

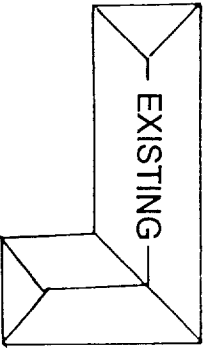
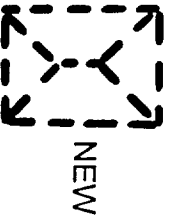
Signed [Signature]

Job Address 2236 Pinella Way Date 2/28/98

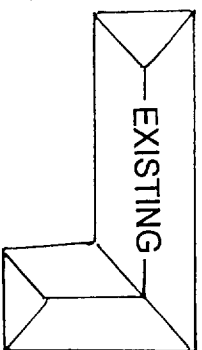
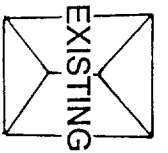
Permit No.: 9806377



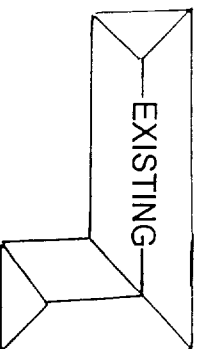
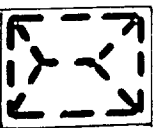
- COMMON WALL ADDITIONS**
- AR BUILDING RESTRICTIONS DO NOT APPLY



- GARAGES AND SHEDS (NEW)**
- MUST ELEVATE OR FLOODPROOF PER AR REGULATIONS



- DETACHED HABITABLE STRUCTURES (NEW)**
- MUST ELEVATE PER AR REGULATIONS

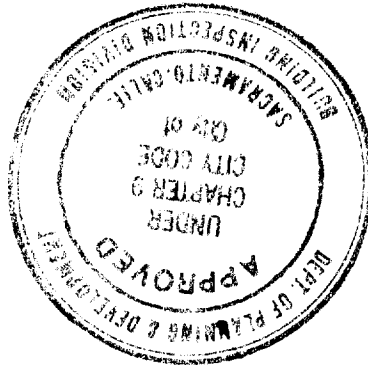


- RECONSTRUCTION**
- IF "REMODEL" OR "ADDITION" BUILDING PERMIT IS ISSUED, AR REGULATIONS DO NOT APPLY.
 - IF "NEW" BUILDING PERMIT IS ISSUED, STRUCTURE MUST ELEVATE OR FLOODPROOF PER AR REGULATIONS

Building Inspection Division

RECEIVED
JUL 22 1998

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CITY OF SACRAMENTO
DEVELOPMENT SERVICES DIV

AUG 28 1998

ISSUED

7/8/98

Structural Calculations

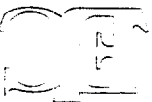
Rosen Carriage House
2226 Portola Way
Sacramento, California



(916) 442-7407

Edward J. Cox
2118 E Street
Sacramento
California
95816

ARCHITECT



Truss Support Beam - Roof

Roof Dead Load:
 Composition Shingle Roof
 OSB decking
 Roof framing - trusses
 Insulation
 Gypsum board
 Total ceiling/roof
 Contributing area of roof:
 Roof slope, rise; run
 Angle, degrees; $1/\cos \theta$ multiplier
 Increased roof weight due to slope
 shown rounded to:
Roof Live Load:
 UBC--Greater than 4:12 slope:

Roof Live Load:	Roof Live Load:	Roof Live Load:	Roof Live Load:
16 psf	14 psf	14 psf	16 psf
7.00	12.00	30.26	1.16
1.16 x			
11.33 feet	10.50 feet		
Span			
Max. width			
Weight per s.f.			
Load, w=(Max. width)(Weight)			
$R_1 = wL/2$			
$R_2 = wL/2$			
Total			

Reactions
 $R_1 = wL/2$
 $R_2 = wL/2$
 Total

Reactions	Reactions	Reactions	Reactions
808.98 pounds	808.98 pounds	1617.97 pounds	1904.00 pounds
808.98 pounds	952.00 pounds	1617.97 pounds	1904.00 pounds
808.98 pounds	952.00 pounds	1617.97 pounds	1904.00 pounds
808.98 pounds	952.00 pounds	1617.97 pounds	1904.00 pounds

Check Shear
 Total load
 Reactions/Maximum Vertical Shear
 Horizontal shear=3/2V
 Using DF #1, Fv =
 Minimum Area = $3/2(V_{max}/F_v) =$

Check Shear	Check Shear	Check Shear	Check Shear
3521.97 pounds	3521.97 pounds	3521.97 pounds	3521.97 pounds
1760.98 pounds	1760.98 pounds	1760.98 pounds	1760.98 pounds
2641.48 pounds	2641.48 pounds	2641.48 pounds	2641.48 pounds
95.00 psi	95.00 psi	95.00 psi	95.00 psi
27.81 in ²	27.81 in ²	27.81 in ²	27.81 in ²

Check Bending Strength
 Maximum moment = $wL^2/8$
 Max. moment converted to in-lb
 Using DF #1 Fb
 Minimum Section Modulus, M/Fb =

Check Bending Strength	Check Bending Strength	Check Bending Strength	Check Bending Strength
4622.59 ft-pounds	4622.59 ft-pounds	4622.59 ft-pounds	4622.59 ft-pounds
55471.03 in.-pounds	55471.03 in.-pounds	55471.03 in.-pounds	55471.03 in.-pounds
1200.00 psi	1200.00 psi	1200.00 psi	1200.00 psi
46.23 in ³	46.23 in ³	46.23 in ³	46.23 in ³

Check Deflection
 Modulus of Elasticity
 Maximum live load deflection, I/360
 Actual I Required, (5wL⁴/384EΔ)

Check Deflection	Check Deflection	Check Deflection	Check Deflection
1.70E+06 psi	1.70E+06 psi	1.70E+06 psi	1.70E+06 psi
0.35 inches	0.35 inches	0.35 inches	0.35 inches
83.35 in ⁴	83.35 in ⁴	83.35 in ⁴	83.35 in ⁴

Use single 4 x 10 D.F. #1

A = 32.38

S = 49.91

I = 230.84

Cantelever Support Beam - Floor

Roof Dead Load:	Roof Live Load:	Wall Dead Load:	Floor, Dead Load:	Floor, Live load:	Floor, Dead Load:	Floor Live load:
Composition Shingle Roof	UBC--Greater than 4:12 slope:	Exterior siding	Sheet vinyl	Sheet vinyl	Sheet vinyl	Sheet vinyl
OSB decking	Angle, degrees: $1/\cos \theta$ multiplier	3/8" plywood	3/4" plywood	3/4" plywood	3/4" plywood	3/4" plywood
Root framing - 2 x 4	Roof slope, rise; run	Studs including plates	Insulation	Insulation	Insulation	Insulation
Insulation	Contributing area of roof:	Insulation	Plywood underside	Plywood underside	TJI Joists	TJI Joists
Ceiling framing - 2 x 4	Total ceiling/roof	Gypsum board	Total floor ₁	Total floor ₂	Gypsum board	Gypsum board
Gypsum board	Increased roof weight due to slope	Total wall	shown rounded to:	shown rounded to:	Gypsum board	Total floor ₂
1/2	7.00	Wall height	40 psf	40 psf	40 psf	40 psf
3 1/2	30.26	9 feet	4 psf	4 psf	4 psf	4 psf
24	12.00	61 pft	0.50 psf	0.50 psf	0.50 psf	0.50 psf
24	1.16	16	2.19 psf	2.19 psf	2.19 psf	2.19 psf
0.64 psf	1.16 x	3 1/2	0.52 psf	0.52 psf	0.52 psf	0.52 psf
2.70 psf	10.21	1.09 psf	2.19 psf	2.19 psf	2.19 psf	2.19 psf
0.64 psf	11.82	1.75 psf	0.50 psf	0.50 psf	0.50 psf	0.50 psf
2.25 psf		6.76 psf	4.30 psf	4.30 psf	4.30 psf	4.30 psf
10.21 psf		60.86 pft				

Deflection ok by inspection - shear governs

Use single 4 x 8 D.F. #1

A = 25.38

S = 30.66

I = 111.15

Floor beam at Kitchen

(typical for two conditions, worst case analyzed)

Floor Dead Load:

- Sheet vinyl
- 3/4" plywood
- Insulation
- TJI Joists
- Gypsum board
- Total floor

shown rounded to:

7 psf

- 0.50 psf
- 2.19 psf
- 0.52 psf
- 1.43 psf
- 2.25 psf
- 6.89 psf

Floor Live load:

40 psf

Tributary area widths:

Type 1

1.33 feet

Type 2

2.52 feet

Concentrated Loads:-

-14.05 dl pounds

Loading Characteristics:

Uniform Load 1

Tributary area width 1:

1.33 feet

Length:

3.58 feet

-Uniform Load 2

Tributary area width 2:

2.52 feet

Length:

6.75 feet

Span

10.33 feet

Loading

From Uniform Load 1

9 pif

From concentrated load

-14 pounds

From Uniform Load 2

17.36 pif

Reactions

$$R1 = (((3.58)(63)(1.79)) + ((262)(3.58)) + ((6.75)(118.2)(6.96)))/10.33$$

$$R2 = ((6.75)(118.2)(3.375)) + ((262)(6.75)) + ((3.58)(63)(8.54))/10.33$$

R1 =

79.75 pounds

R2 =

56.30 pounds

Total

136.05 pounds

1120.03 pounds

542.47 pounds

577.56 pounds

1256.08 pounds

598.77 pounds

657.31 pounds

Total Load
63 pif
234 pounds
118.20 pif

Live Load
53 pif
248 pounds
100.83 pif

Dead Load
9 pif
-14 pounds
17.36 pif

Charting Shear and Moment

Increment = 1.00 foot

Station Point Shear, lbs Mom, ft-lbs

0.00	598.77	0.00
1.00	536.25	567.51
2.00	473.73	1,072.50
3.00	411.22	1,514.98
3.58	374.75	1,744.22
4.00	91.26	1,792.50
4.77	0.00	1,827.73
5.00	-26.94	1,824.66
6.00	-145.13	1,738.63
7.00	-263.33	1,534.40
8.00	-381.52	1,211.97
9.00	-499.72	771.35
10.00	-617.91	212.54
10.33	-657.31	(0.00)

Check Shear

Reactions/Maximum Vertical Shear

Horizontal shear = $3/2 V$

Using DF #1, $F_v =$

Minimum Area = $3/2 (V_{max}/F_v) =$

Check Bending Strength

Maximum moment

Max. moment converted to in-lb

Using DF #1 Fb

Minimum Section Modulus, $M/F_b =$

Check Deflection

Moment of Inertia, I_x for 2 x 10

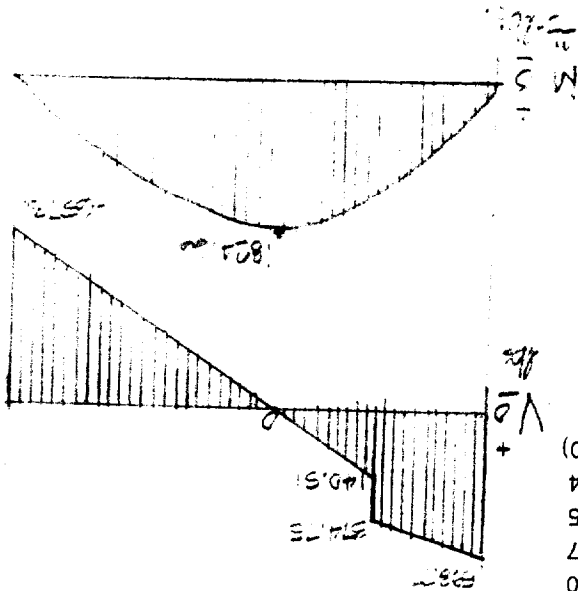
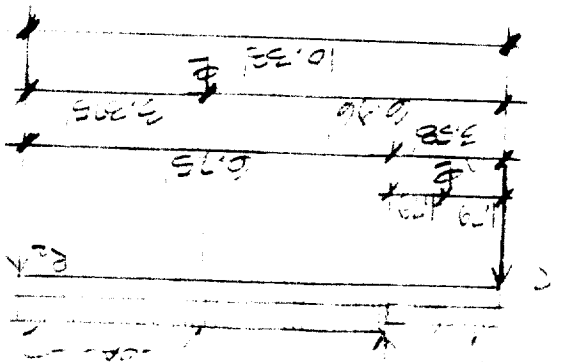
Modulus of Elasticity

Maximum live load deflection, $V/360$

0.34 inches

197.86 in⁴

1.60E+06 psi



Station Point	Shear, lbs	Mom, ft-lbs	Slope ft-lbs	Adj. Slope	Defl. ft-lbs	Actual Deflection, in.
0.00	542.47	0.00	0.00	-4729.78	0.00	0.00
1.00	489.13	515.80	257.90	-4471.88	-4600.83	-0.03
2.00	435.80	978.27	1004.93	-3724.84	-8699.19	-0.05
3.00	382.47	1387.40	2187.77	-2542.01	-11832.61	-0.06
3.58	351.36	1601.43	3059.51	-1670.27	-13061.19	-0.07
4.00	61.05	1601.43	3059.51	-1670.27	-13061.19	-0.07
4.61	0.00	1654.10	4729.78	0.00	-13918.12	-0.08
5.00	-39.78	1646.25	5380.85	651.08	-13789.68	-0.08
6.00	-140.62	1556.05	6982.00	2252.23	-12338.03	-0.07
7.00	-241.45	1365.02	8442.54	3712.77	-9355.53	-0.05
8.00	-342.28	1073.15	9661.63	4931.85	-5033.22	-0.03
9.00	-443.12	680.45	10538.43	5808.65	337.03	0.00
10.00	-543.95	186.92	10972.12	6242.34	6362.52	0.03
10.33	-577.56	0.00	11003.27	6273.49	8448.50	0.05

Porch Cantelever Beam - Roof

Roof Dead Load:

Composition Shingle Roof

OSB decking

Roof framing - 2 x 4

Ceiling framing - 2 x 4

Ceiling finish material

Total ceiling/roof

Contributing area of roof:

Roof slope, rise: run

Angle, degrees: $1/\cos \theta$ multiplier

Increased roof weight due to slope

shown rounded to:

Roof Live Load:

UBC--Greater than 4:12 slope:

Loading Characteristics:

Max. width

Length of roof load

Span of cantilever

Length of beam inside house

Loading

Weight per s.f.

Load, $w = (\text{Max. width})(\text{Weight})$

Total weight = $(w)(\text{Roof length})$

Equivalent load on beam W/span

Reactions

$$R_1 = -(3.42/2)(1138.01)/7$$

$$R_2 = (((7)+(3.42/2))(1138.01))/7$$

Total

Check Shear

Maximum Vertical Shear

1415.74 pounds

Horizontal shear = $3/2V$

Using DF #1, $F_v =$

$$\text{Minimum Area} = 3/2(V_{max}/F_v) =$$

Check Bending Strength

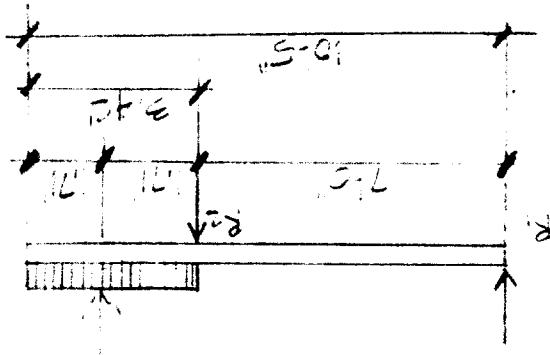
Maximum moment = $wl^2/8$

Max. moment converted to in-lb

Using DF #1 F_b

Minimum Section Modulus, $M/F_b =$

Use double 2x10 D.F. #1 $A = 27.75$ $S = 42.78$ $I = 197.86$



-105.00 pounds
535.23 pounds
430.24 pounds

Dead Load
10 psf
79.43 pif
430.24 pounds
125.92 pif

Live Load
16 psf
130.67 pif
707.78 pounds
207.15 pif

Total Load
26 psf
210.09 pif
1138.01 pounds
333.08 pif

-172.73 pounds
880.51 pounds
707.78 pounds
-277.73 pounds
1415.74 pounds
1138.01 pounds

486.03 ft-pounds
5832.32 in.-pounds
1200.00 psi
4.86 in²

Check Deflection

Modulus of Elasticity 1.60E+06 psi
 Maximum live load deflection, l/360 0.11 inches
 Actual l Required, (w^l/185EA) 1.45 in'

Use single 4 x 8 D.F. #1

A = 25.38

S = 30.66

I = 111.15

Floor Beam at porch

Floor Dead Loads:

Interior loading:
 Carpet 0.50 psf
 3/4" plywood 2.19 psf
 Insulation 0.52 psf
 TJI Joists 1.43 psf
 Gypsum board 2.25 psf
 Total floor 6.89 psf

shown rounded to:

7 psf

Loading at Porch:

2" D.F. # 2 decking 4.38 psf
 Water proof membrane 0.30 psf
 3/4" plywood 2.19 psf
 Floor joists, 2 x 6 @ 16" O.C. 16
 5 1/2
 3/4
 Gypsum board 2.25 psf
 Total floor 10.62 psf

shown rounded to:

11 psf

Floor Live load:

40 psf

- Loading Characteristics:

Tributary area widths:

Interior Loading: 2.50 feet

Porch Loading: 2.50 feet

Span

Loading

Weight₁ per s.f. 7 psf

Dead Load 7 psf

Live Load 40 psf

Total Load 46.89 psf

Weight₂ per s.f.

11 psf

40 psf

50.62 psf

Load, w = (TA width)(Weight)

17.22 plf

100.00 plf

117.22 plf

Load, w = (TA width)(Weight)

26.54 plf

100.00 plf

126.54 plf

Total loading

43.76 plf

200.00 plf

243.76 plf

Reactions

R₁ = w/2

262.56 pounds

1200.00 pounds

1462.56 pounds

R₂ = w/2

262.56 pounds

1200.00 pounds

1462.56 pounds

Total

525.12 pounds

2400.00 pounds

2925.12 pounds

Support Beam for above floor beam

Check Shear		Use single 4 x 10 D.F. #1	
Total load	2925.12 pounds		
Reactions/Maximum Vertical Shear	1462.56 pounds		
Horizontal shear=3/2V	2193.84 pounds		
Using DF #1, Fv =	95.00 psi		
Minimum Area = 3/2(V ^{max} /Fv) =	23.09 in ²		
Check Bending Strength			
Maximum moment = w ² /8	4387.68 ft-pounds		
Max. moment converted to in-lb	52652.11 in-pounds		
Using DF #1 Fb	1200.00 psi		
Minimum Section Modulus, M/Fb =	43.88 in ³		
Check Deflection			
Modulus of Elasticity	1.60E+06 psi		
Maximum live load deflection, V/360	0.40 inches		
Actual I Required,(5w ⁴ /384EΔ)	145.80 in ⁴		
Use double 2x10 D.F. #1			
	A = 27.75		
	S = 42.78		
	I = 197.86		
Check Shear		Use single 4 x 10 D.F. #1	
Total load	1462.56 pounds		
Reactions/Maximum Vertical Shear	731.28 pounds		
Horizontal shear=3/2V	1096.92 pounds		
Using DF #1, Fv =	95.00 psi		
Minimum Area = 3/2(V ^{max} /Fv) =	11.55 in ²		
Check Bending Strength			
Maximum moment = pl/4	3778.28 ft-pounds		
Max. moment converted to in-lb	45339.32 in-pounds		
Using DF #1 Fb	1200.00 psi		
Minimum Section Modulus, M/Fb =	37.78 in ³		
Check Deflection			
Modulus of Elasticity	1.60E+06 psi		
Maximum live load deflection, V/360	0.34 inches		
Actual I Required,(5w ⁴ /384EΔ)	86.49 in ⁴		
Support Beam for above floor beam			
Span =	10.33 feet		
Concentrated load at center of span: Dead	R _d =		
	262.56 pounds		
Live	1200.00 pounds		
Total	1462.56 pounds		
Check Shear		Use single 4 x 10 D.F. #1	
Total load	2925.12 pounds		
Reactions/Maximum Vertical Shear	1462.56 pounds		
Horizontal shear=3/2V	2193.84 pounds		
Using DF #1, Fv =	95.00 psi		
Minimum Area = 3/2(V ^{max} /Fv) =	23.09 in ²		
Check Bending Strength			
Maximum moment = w ² /8	4387.68 ft-pounds		
Max. moment converted to in-lb	52652.11 in-pounds		
Using DF #1 Fb	1200.00 psi		
Minimum Section Modulus, M/Fb =	43.88 in ³		
Check Deflection			
Modulus of Elasticity	1.60E+06 psi		
Maximum live load deflection, V/360	0.40 inches		
Actual I Required,(5w ⁴ /384EΔ)	145.80 in ⁴		
Use single 4 x 10 D.F. #1			
	A = 32.38		
	S = 49.91		
	I = 230.84		

Floor beam at jog in porch

Floor Dead Loads:

- 2" D.F. # 2 decking
- Water proof membrane
- 3/4" plywood
- Floor Joists, 2 x 6 @ 16" O.C.
- Gypsum board
- Total floor

shown rounded to:

1 1/2	3/4	5 1/2	16
-------	-----	-------	----

Floor Live load:

11 psf
40 psf

Loading Characteristics:

Tributary area widths:
4.00 feet
7.33 feet

Loading

Weight per s.f.
Load, $w = (TA \text{ width})(\text{Weight})$

Reactions

$R_1 = wL/2$
 $R_2 = wL/2$

155.71 pounds	155.71 pounds	311.41 pounds	Total
742.37 pounds	586.67 pounds	1173.33 pounds	$R_2 = wL/2$
1484.75 pounds	586.67 pounds	1484.75 pounds	$R_1 = wL/2$
742.37 pounds	742.37 pounds	1484.75 pounds	Total

Check Shear

Total load

Reactions/Maximum Vertical Shear

Horizontal shear = $3/2V$

Using DF #1, $F_v =$

Minimum Area = $3/2(V_{max}/F_v) =$

1484.75 pounds
742.37 pounds
1113.56 pounds
85.00 psi
13.10 in²

Check Bending Strength

Maximum moment = $wL^2/8$

Max. moment converted to in-lb

Using DF #1 Fb

Minimum Section Modulus, $M/F_b =$

1361.02 ft-pounds
16332.23 in.-pounds
1200.00 psi
13.61 in²

Check Deflection

Modulus of Elasticity

Maximum live load deflection, $L/360$

Actual I Required, $(5wL^4/384EA)$

1.60E+06 psi
0.24 inches
26.62 in⁴

Use single 4 x 6 D.F. #1

A = 19.25

S = 17.65

I = 48.53

Rafter Sizing

Root Dead Loads:

Composition Shingle Roof

OSB decking

Root framing

Total ceiling/roof

Contributing area of roof:

Root slope, rise; run

Angle, degrees; $1/\cos \theta$ multiplier

Increased roof weight due to slope

shown rounded to:

Root Live Load:

UBC--Greater than 4:12 slope:

16 psf

Loading Characteristics:

Max. width

Span

2.00 feet

6.17 feet

Loading

Weight per s.f.

Load, $w = (\text{Max. width})(\text{Weight})$

Reactions

$R_1 = wL/2$

$R_2 = wL/2$

Total

37.57 pounds

37.57 pounds

75.15 pounds

Check Shear

Total load

Reactions/Maximum Vertical Shear

Horizontal shear = $3/2V$

Using DF #1, $F_v =$

Minimum Area = $3/2(V_{max}/F_v) =$

Check Bending Strength

Maximum moment = $wL^2/8$

Max. moment converted to in-lb

Using DF #1 F_b

Minimum Section Modulus, $M/F_b =$

Check Deflection

Modulus of Elasticity

Maximum live load deflection, $L/360$

Actual I Required, $(5wL^4/384EA)$

Use single 2 x 4 D.F. #2

Item	Value	Value	Value	Value
Root Dead Loads	3.00 psf	1.63 psf	0.64 psf	5.26 psf
OSB decking	1/2			
Root framing	3 1/2	24		
Total ceiling/roof				
Contributing area of roof:				
Root slope, rise; run	7.00	12.00		
Angle, degrees; $1/\cos \theta$ multiplier	30.26	1.16		
Increased roof weight due to slope	1.16 x			
Root Live Load:	6 psf		5.26	6.09
UBC--Greater than 4:12 slope:	16 psf			
Max. width	2.00 feet			
Span	6.17 feet			
Loading	Dead Load	6 psf	12.19 pif	
	Live Load	16 psf	32.00 pif	
	Total Load	22 psf	44.19 pif	
Reactions	$R_1 = wL/2$	37.57 pounds	37.57 pounds	75.15 pounds
	$R_2 = wL/2$	37.57 pounds	37.57 pounds	75.15 pounds
Total		136.24 pounds	136.24 pounds	272.48 pounds
Check Shear	Total load	272.48 pounds		
	Reactions/Maximum Vertical Shear	136.24 pounds		
	Horizontal shear = $3/2V$	204.36 pounds		
	Using DF #1, $F_v =$	95.00 psi		
	Minimum Area = $3/2(V_{max}/F_v) =$	2.15 in ²		
Check Bending Strength	Maximum moment = $wL^2/8$	210.04 ft-pounds		
	Max. moment converted to in-lb	2520.45 in-pounds		
	Using DF #1 F_b	1510.00 psi		
	Minimum Section Modulus, $M/F_b =$	1.67 in ³		
Check Deflection	Modulus of Elasticity	1.60E+06 psi		
	Maximum live load deflection, $L/360$	0.21 inches		
	Actual I Required, $(5wL^4/384EA)$	3.17 in ⁴		

$I = 5.36$

$S = 3.06$

$A = 5.25$

Porch Joists

2" D.F. # 2 decking
 Water proof membrane
 3/4" plywood
 Floor Joists, 2 x 6 @ 16" O.C.
 Gypsum board
 Total floor
 shown rounded to:

1 1/2
 3/4
 5 1/2
 16

4.38 psf
 0.30 psf
 2.19 psf
 1.50 psf
 2.25 psf
 10.62 psf

Floor Live load:

40 psf

Loading Characteristics:

Max. width
 Span

2.00 feet
 5.00 feet

Loading

Weight per s.f.
 Load, w=(Max. width)(Weight)

11 psf
 21.23 plf
 Dead Load

40 psf
 80.00 plf
 Live Load

51 psf
 101.23 plf
 Total Load

Reactions

$R_1 = wL/2$
 $R_2 = wL/2$
 Total

53.08 pounds
 53.08 pounds
 106.16 pounds

200.00 pounds
 200.00 pounds
 400.00 pounds

253.08 pounds
 253.08 pounds
 506.16 pounds

Check Shear

Total load
 Reactions/Maximum Vertical Shear
 Horizontal shear=3/2V
 Using DF #1, $F_v =$
 Minimum Area = $3/2(V_{max}/F_v) =$

506.16 pounds
 253.08 pounds
 379.62 pounds
 95.00 psi
 4.00 in²

Check Bending Strength

Maximum moment = $wL^2/8$
 Max. moment converted to in-lb
 Using DF #1 Fb
 Minimum Section Modulus, $M/F_b =$

316.35 ft-pounds
 3796.23 in.-pounds
 1510.00 psi
 2.51 in³

Check Deflection

Modulus of Elasticity
 Maximum live load deflection, $V/360$
 Actual I Required, $(5wL^4/384EA)$

1.60E+06 psi
 0.17 inches
 4.22 in⁴

Use min. single 2 x 4 D.F. #2

A= 5.25

S= 3.06

I= 5.36

OVERALL LATERAL CALCULATIONS

Seismic Loading Formula: $V = (Z)(I)(C) / (R_w)W_d$ (Section 1628.2.1, UBC)

(Section 1628.2.1, UBC)

Where:

- V = Total design lateral force at base (PSF)
- Z = Seismic zone factor (Table 16-I, UBC)
- I = Importance factor (Table 16-K, UBC)
- C = Numerical coefficient (Section 1628.2.1, UBC)
- R_w = Numerical coefficient (Table 16-N, UBC)
- W_d = Seismic dead load

For this Analysis:

- Z = 0.3 (for Zone 3)
- I = 1.0 (for standard occupancy)
- C = 2.75 (Section 1628.2.1, UBC)
- R_w = 8.0 (Item 1a-light framed plywood walls 3 stories or less)

Calculation of W_d:

Roof Dead Load:

Composition shingle or wood shake = 3.0 PSF

1/2" plywood or skip sheathing

Truss framing at 24" o.c. = 2.0 PSF

HVAC equipment = 1.5 PSF

Insulation = 2.7 PSF

1/2" gypsum board = 2.2 PSF

TOTAL

Floor Dead Load:

Flooring

3/4" plywood = 1.0 PSF

Floor framing at 16" o.c.

Floor framing at 16" o.c. = 2.7 PSF

Insulation/misc. mechanical

1/2" gypsum board ceiling = 2.2 PSF

TOTAL

9.2, Use 10.0 PSF

Contributing area of roof:

(7/12 roof slope, $q = 30.26\infty$, $1/\cos q = 1.16$)

Roof area:

(28)(27) = 756 SF

(24.5)(12) = 294 SF

(14)(2) = 28 SF

Total roof area = 1,078 SF

Increased roof area due to slope (1,078)(1.16) = 1,251 SF

Floor area:

(21.33)(22.66) = 484 SF

(9.66)(20.33) = 197 SF

(3.5)(8) = 28 SF

(1.5)(10.33) = 15.5 SF

Tributary areas:

Check lateral condition of wall at garage door

DETAILED LATERAL CALCULATIONS

11340 lbs (wind) > 2,683 lbs (seismic), therefore, Wind Loads Govern.

$$p_{tot} = (13.22)(510) + (14.3)(85+68) + (15.35)(157) = 11,340 \text{ lbs}$$

Roof area exposed under 20' : 2'-0" high x 34'-0" long = 68 SF
Roof area exposed under 25' : 4.61' high x 34'-0" long = 157 SF

$$(11.33)(0.5833) = 6.61'$$

$$1/2 \text{ gable width} = 11'-4"$$

$$7/12 \text{ roof slope, } q = 30.25 \infty, \tan q = .5833$$

Roof area exposed:

Wall area exposed under 15' : 15'-0" high x 34'-0" long = 510 SF
Wall area exposed under 20' : 2'-6" high x 34'-0" long = 85 SF

$$p_{roof25} = (0.72)(1.3)(16.4)(1) = 15.35 \text{ PSF}$$

$$p_{wall/roof20} = (0.67)(1.3)(16.4)(1) = 14.3 \text{ PSF}$$

$$p_{wall15} = (0.62)(1.3)(16.4)(1) = 13.22 \text{ PSF}$$

- Ce =
- Cq =
- qs =
- I =

- 0.62 (up to 15'-0", Exposure "B")
- 0.67 (for 15'-0" to 20'-0", Exposure "B")
- 0.72 (for 20'-0" to 25'-0", Exposure "B")
- 1.3 (using Method 2, horizontal any direction)
- 16.4 PSF (for 80 mph wind)
- 1.0 (for standard occupancy)

For this Analysis:

- p = Design wind pressure(psf)
- Ce = Combined height, exposure and gust factor (Table 16-G, I)
- Cq = Pressure coefficient for structure or its portions (Table 16-I)
- qs = Wind stagnation pressure at 30 feet (Table 16-F, UBC)
- I = Importance factor (Table 16-K, UBC)

Where:

$$p = (Ce)(Cq)(qs)(I) \text{ (Section 1618, UBC)}$$

Wind Loading Formula:

$$V = ((0.3)(1.0)(2.75) / 8.0)(23,508) = 2,424 \text{ lbs Seismic}$$

$$Wd = (13)(1,251) + (10)(724.5) = 16,263 + 7,245 = 23,508 \text{ lbs}$$

$$\text{Total floor area} = 724.5 \text{ SF}$$

First 4 feet is resisted by soil

Portion of wall between 4 feet and 15 feet:
 Area between 4 foot line and 15 foot line:
 $(15-4)(22.66) = 249.26 \text{ S.F.}$

Portion of wall between 15 feet and 20 feet:

Area of wall between 15 feet and plate
 $(8+.83+8) - 15 = 1.83 \text{ feet high}$

Area of wall between plate and 20 feet
 $(1.83)(22.66) = 41.47 \text{ S.F.}$

Height:
 $20 - (8+.83+8) = 3.17 \text{ feet high}$

Width:

(7/12 pitch) at 3.17 foot height, horizontal displacement = 5.434'

resulting width of wall = $22'-8" - 2(5.434) = 11.79'$

area of trapezoid = $(22.66 + 11.79)/2 (3.17) = 54.6 \text{ S.F.}$

Area between 15 and 20 feet = $41.47 + 54.6 = 96.07 \text{ S.F.}$

Portion of wall between 20 feet and ridge

Height:

(7/12 pitch) a horizontal displacement of $(22.66/2) \text{ or } 11.33' = 6.61'$

6.61-3.17 = 3.44 feet high

Width:

(7/12 pitch) at 3.17 foot height, horizontal displacement = 5.434'

resulting width = $22'-8" - 2(5.434) = 11.79'$

Area between 20' and 25': $(3.44)(11.79) / 2 = 20.27 \text{ S.F.}$

Force acting on walls:

$$V = (13.22)(249.26) + (14.3)(96.07) + (15.35)(20.27) = 5,127.14$$

$$= 3295 + 1373 + 311 = 4,979 \text{ pounds}$$

Horizontal reaction at shear wall:

$4,979/2 = 2490$ pounds each side

Design resisting shear wall, 4'-10" minimum length:

Force per lineal foot:

$$v_b = (2490) / 4.83' = 515 \text{ PLF}$$

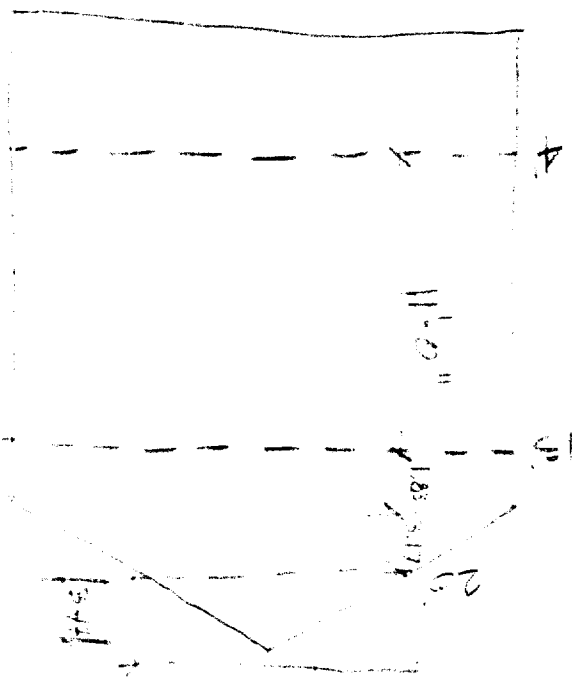
Use 3/8" Oriented Strand Board (OSB) on exterior side, with 8d at 2" o.c. onto 2x studs at 16" o.c. (capacity = 640 PLF) (UBC Table 231-K-1 with footnote #4)

Determine shear resisting anchor bolts:

Allowable increase for short term loading: 33% (Section 2304.3.4, UBC)
 Value of anchor bolt (using 5/8" dia.) = 600 lbs (Table 23-1-F, UBC)

$$(1.33)(600) = 798 \text{ lbs}$$

Use two 5/8" anchor bolts and 1-1" inactive uplift bolt



$$2(798) + 970 = 2,566 \text{ lbs} > 2,490 \text{ lbs}$$

Check diaphragm ratio:

$$(8'-0")/3.5 = 2.28' \text{ (minimum)} > 4.83' \text{ (actual)} \text{ O.K. (Table 23-1-I, UBC)}$$

Overturing Moment:

$$2,490(8'-0") = 19,920 \text{ Ft-lbs}$$

Resisting Moment:

$$\text{Distance between anchor bolts} = 4'-0" \\ \text{Tension} = 19,920/4 = 4980 \text{ lbs}$$

Use two 5/8" Anchor bolts with 12" embedment in 2000 psi concrete for shear.
Use two 1" Anchor bolts with 15" embedment in 2000 psi concrete for uplift.
(capacity = 6,080 lbs each)

Size Footing for Resisting Moment:
O.T.M. = 19,920 ft-lbs

$$\text{Uplift at bolt} = 19,920/4 = 4980 \text{ lbs}$$

Required concrete to counter act:

$$4980/150 = 33.2 \text{ Cu. Ft.}$$

$$2.5' \times 3' \times 4.83' = 36.22 \text{ Cu. Ft.}$$

Use continuous 2'-6" wide by 3'-0" deep by 4'-10" long concrete grade beam.

Check Bearing:

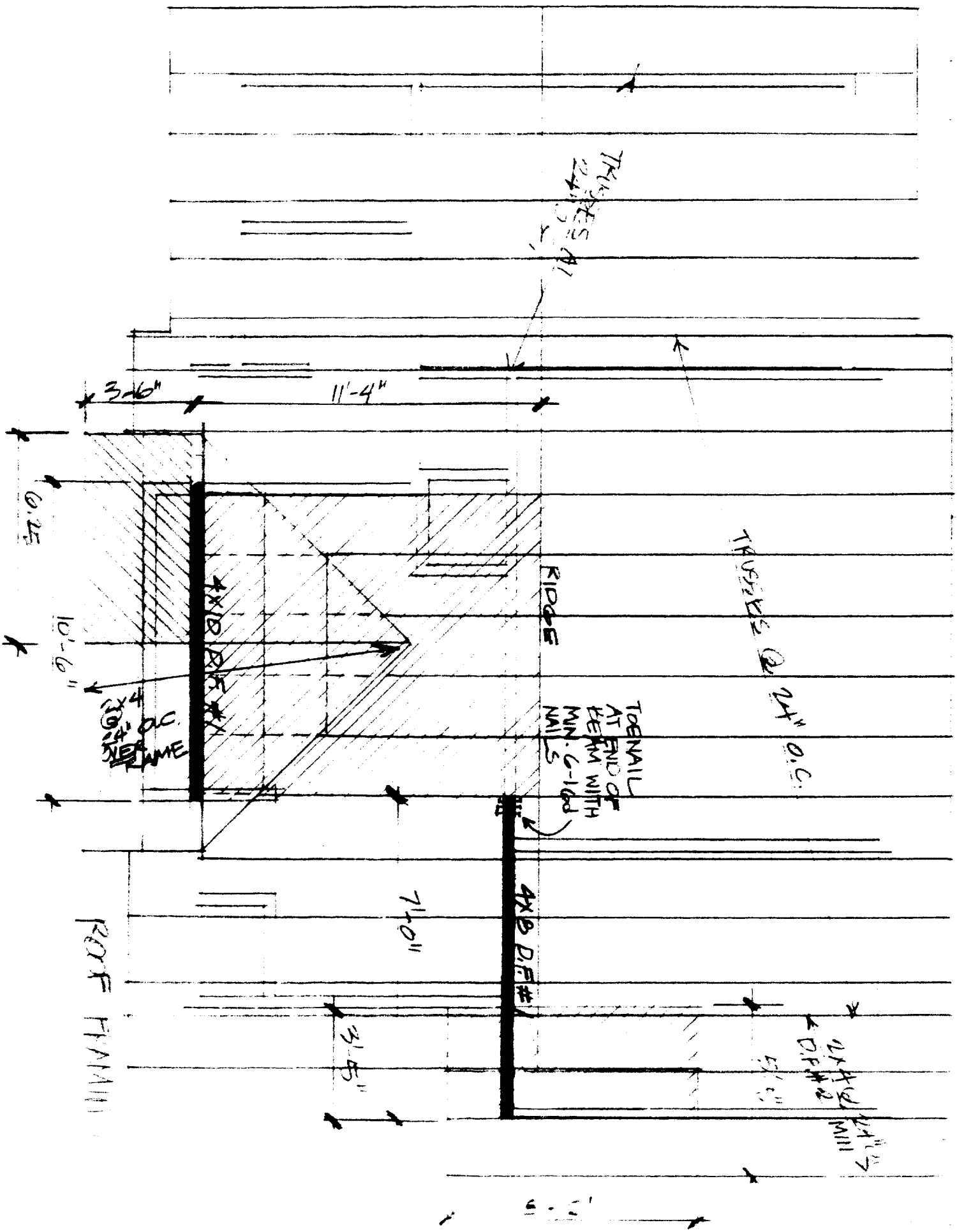
$$\text{Pressure} = 19,920/4 = 4980 \text{ lbs}$$

Using allowable soil pressure of 1,000 plus 40% increase for two additional feet (Table 18-1-A, UBC)

$$(1,000)(1.4) = 1,400 \text{ PSF}$$

$$\text{Required area for bearing: } 4,980 / 1,400 = 3.55 \text{ SF}$$

$$(2.5)(4.83) = 12 > 3.55 \text{ SF OK}$$



Title 24 Report for:

Rosen Carriage House
2226 Portala Way
Sacramento, CA 95818

Project Designer:

Ron Vrilakas Architect Builder
1109 22nd Street
Sacramento, CA 95818
(916) 441-4685

Report Prepared By:

Todd Feris
ACCURATE ENERGY
9339 MATADOR WAY
SACRAMENTO, CA 95826
(916) 368-8666

Job Number:

98288

Date:

7/7/98

RECEIVED
JUL 22 1998

Engineering Inspection Division

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 1995 Building Energy Efficiency Standards.

This program developed by Gabel Dodd/EnergySoft, llc (415) 883-5900.

TABLE OF CONTENTS FOR TITLE 24 REPORT

Cover Page	1
Table of Contents	2
Form CF-1R Certificate of Compliance	3
Form MF-1R Mandatory Measures Checklist	5
Form C-2R Computer Method Summary	6
Form ENV-3 Construction Assemblies	9
HVAC System Loads Summary	14

Certificate of Compliance: Residential

(Part 1 of 2) **CF-1R**

Rosen Carriage House

7/7/98

Project Title

Date

2226 Portala Way Sacramento

Project Address

Building Permit #

ACCURATE ENERGY

(916) 368-8666

Plan Check / Date

Documentation Author

Telephone

Field Check / Date

Computer Performance

12

Enforcement Agency Use Only

Compliance Method (Package, Point System or Computer)

Climate Zone

GENERAL INFORMATION

Total Conditioned Floor Area: 618 ft²

Building Type:

(check one or more)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Single Family Detached (SFD) | <input type="checkbox"/> Addition Alone |
| <input type="checkbox"/> Single Family Attached (SFA) | <input type="checkbox"/> Existing Building |
| <input type="checkbox"/> Multi-Family | <input type="checkbox"/> Existing Plus Addition |

Front Orientation: (West) 270 deg

Number of Dwelling Units: 1.00 Floor Construction Type: Raised Floor

BUILDING SHELL INSULATION

Component Type	Const. Assembly U-Value	Location/Comments (attic, to garage, typical, etc.)
R-13 Wall (W.13.2x4.16)	0.077	Exterior Wall
Solid Wood Door	0.387	Exterior Door
R-13 Attic Wall	0.091	Exterior Wall
R-30 Roof (Vaulted)	0.033	Exterior Roof
R-30 Roof (Attic)	0.032	Exterior Roof
R-19 Floor (F.19.2x8.16)	0.049	Exterior Floor / Over Open Space

FENESTRATION

Shading Devices

Fenestration Orientation	Area (SF)	Fenes. U-Value	# Panes	Interior (roller blind, etc.)	Exterior (shadescreen, etc.)	Overhang Yes / No	Side Fins Yes / No	Framing Type
Front (West)	20.0	0.60	2	Standard Drapery	Standard Bug Screen	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	Wood
Front (West)	10.0	0.60	2	Standard Drapery	Standard Bug Screen	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	Wood
Left (North)	28.0	0.60	2	Standard Drapery	Standard Bug Screen	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	Wood
Left (North)	2.3	0.60	2	Standard Drapery	None	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	Wood
Rear (East)	8.8	0.60	2	Standard Drapery	None	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	Wood
Right (South)	57.5	0.60	2	Standard Drapery	Standard Bug Screen	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	Wood
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	

THERMAL MASS

Type/Covering (slab/tile, etc.)	Exposed Yes / No	Area (SF)	Thickness (inches)	Location / Description (kitchen, bath, etc.)
	<input type="checkbox"/> <input type="checkbox"/>			
	<input type="checkbox"/> <input type="checkbox"/>			
	<input type="checkbox"/> <input type="checkbox"/>			
	<input type="checkbox"/> <input type="checkbox"/>			

Certificate of Compliance: Residential

(Part 2 of 2) **CF-1R**

Rosen Carriage House
Project Title

7/7/98

Date

HVAC SYSTEMS Note: Input Hydronic data under Water Heating Systems.

Heating Equipment Type (furnace, heat pump, etc.)	Minimum Efficiency (AFUE/HSPF)	Distribution Type and Location (ducts/attic, etc.)	Duct or Piping R-Value	Thermostat Type	Location / Comments
Furnace	0.780	Ducts in Attic	4.2	Setback	Res HVAC

Cooling Equipment Type (air conditioner, heat pump, evap. cooling)	Minimum Efficiency (SEER)	Duct Location (attic, etc.)	Duct R-Value	Thermostat Type	Location / Comments
Split Air Conditioner	10.000	Ducts in Attic	4.2	Setback	Res HVAC

WATER HEATING SYSTEMS

Water Heater System Name	Water Heater Type	Distribution Type	# in Syst.	Rated ¹ Input (Btu/hr)	Tank Cap. (gal)	Energy Fact. ¹ or Recovery Efficiency	Standby ¹ Loss (%) or Pilot	Tank Insul. R-Value Int. Ext.
50 Gallon or less Min EF=0.58	Small Gas	Standard	1	40,000	50	0.58	n/a	n/a 0.0

¹ For small gas storage (rated input <= 75000 Btu/hr), electric resistance and heat pump water heaters, list energy factor. For large gas storage water heaters (rated input > 75000 Btu/hr), list Rated Input, Recovery Efficiency and Standby Loss. For instantaneous gas water heaters, list Rated Input, Pilot and Recovery Efficiency.

SPECIAL FEATURES / REMARKS (Add extra sheets if necessary)

COMPLIANCE STATEMENT

This certificate of compliance lists the building features and performance specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations, and the administrative regulations to implement them. This certificate has been signed by the individual with overall design responsibility. When this certificate of compliance is submitted for a single building plan to be built in multiple orientations, any shading feature that is varied is indicated in the Special Features/Remarks section.

Designer or Owner (per Business & Professions Code)

Name: _____
 Title/Firm: Ron Vrillakas Architect Builder
 Address: 1109 22nd Street
Sacramento, CA 95818
 Telephone: (916) 441-4685
 Lic. #: 0 23220

Documentation Author

Name: Todd Feris
 Title/Firm: ACCURATE ENERGY
 Address: 9339 MATADOR WAY
SACRAMENTO, CA 95826
 Telephone: (916) 368-8666

Ron Vrillakas 7/6/98
 (signature) (date)

Todd Feris 7/7/98
 (signature) (date)

Enforcement Agency

Name: _____
 Title/Firm: _____
 Address: _____
 Telephone: _____

 (signature) (date)

Mandatory Measures Checklist: Residential

MF-1R

NOTE: Lowrise residential buildings subject to the Standards must contain these measures regardless of the compliance approach used. Items marked with an asterisk (*) may be superseded by more stringent compliance requirements listed on the Certificate of Compliance. When this checklist is incorporated into the permit documents, the features noted shall be considered by all parties as binding minimum component performance specifications for the mandatory measures whether they are shown elsewhere in the documents or on this checklist only.

DESCRIPTION	DESIGNER	ENFORCEMENT
Building Envelope Measures		
<input checked="" type="checkbox"/> *§150(a): Minimum R-19 ceiling insulation.		
<input type="checkbox"/> §150(b): Loose fill insulation manufacturer's labeled R-value.		
<input checked="" type="checkbox"/> *§150(c): Minimum R-13 wall insulation in framed walls (does not apply to exterior mass walls).		
<input checked="" type="checkbox"/> *§150(d): Minimum R-13 raised floor insulation in framed floors; minimum R-8 in concrete raised floors.		
<input type="checkbox"/> §150(l): Slab edge insulation - water absorption rate no greater than 0.3%, water vapor transmission rate no greater than 2.0 perm/inch.		
<input checked="" type="checkbox"/> §118: Insulation specified or installed meets California Energy Commission quality standards. Indicate type and form.		
<input checked="" type="checkbox"/> §116-17: Fenestration Products, Exterior Doors and Infiltration/Exfiltration Controls		
a. Doors and windows between conditioned and unconditioned spaces designed to limit air leakage.		
b. Manufactured fenestration products have label with certified U-value, and infiltration certification.		
c. Exterior doors and windows weatherstripped; all joints and penetrations caulked and sealed.		
<input type="checkbox"/> §150(g): Vapor barriers mandatory in Climate Zones 14 and 16 only.		
<input type="checkbox"/> §150(f): Special infiltration barrier installed to comply with section 151 meets Commission quality standards.		
<input type="checkbox"/> §150(e): Installation of Fireplaces, Decorative Gas Appliances and Gas Logs.		
1. Masonry and factory-built fireplaces have:		
1. Closeable metal or glass door		
2. Outside air intake with damper and control		
3. Flue damper and control		
2. No continuous burning gas pilots allowed.		
Space Conditioning, Water Heating and Plumbing System Measures		
<input checked="" type="checkbox"/> §110-13: HVAC equipment, water heaters, showerheads and faucets certified by the Commission.		
<input checked="" type="checkbox"/> §150(h)1.: Heating Systems must meet the minimum heating capacity required by UBC Section 310.11.		
<input checked="" type="checkbox"/> §150(i): Setback thermostat on all applicable heating and/or cooling systems.		
<input checked="" type="checkbox"/> §150(j): Pipe and Tank Insulation		
1. Indirect hot water tanks (e.g., unfired storage tanks or backup solar hot water tanks) have insulation blanket (R-12 or greater) or combined interior/exterior insulation (R-16 or greater).		
2. First five feet of pipes closest to water heater tank, non-recirculating systems, insulated (R-4 or greater).		
3. All buried or exposed piping insulated in recirculating sections of hot water system.		
4. Cooling system piping below 55 degrees F insulated.		
5. Piping insulated between heating source and indirect hot water tank.		
<input checked="" type="checkbox"/> *§150(m): Ducts and Fans		
1. Ducts constructed, installed and sealed to comply with current UMC requirements; ducts insulated to a minimum installed value of R-4.2 or ducts enclosed entirely within conditioned space.		
2. Exhaust fan systems have back draft or automatic dampers.		
3. Gravity ventilating systems serving conditioned space have either automatic or readily accessible, manually operated dampers.		
<input type="checkbox"/> §114: Pool and Spa Heating Systems and Equipment		
1. System is certified with 78% thermal efficiency, on-off switch, weatherproof operating instructions, no electric resistance heating and no pilot light.		
2. System is installed with:		
a. At least 36" of pipe between filter and heater for future solar heating.		
b. Cover for outdoor pools or outdoor spas.		
3. Pool system has directional inlets and a circulation pump time switch.		
<input checked="" type="checkbox"/> §115: Gas-fired central furnaces, pool heaters, spa heater or household cooking appliances have no continuously burning pilot light. (Exception: Non-electrical cooking appliance with pilot < 150 Btu/hr.)		
Lighting Measures		
<input checked="" type="checkbox"/> §150(k): 40 lumens/watt or greater for general lighting in kitchens and rooms with water closets; and recessed ceiling fixtures are IC (insulation cover) approved.		

COMPUTER METHOD SUMMARY

(Part 3 of 3)

C-2R

Rosen Carriage House
Project Title

7/7/98

Date

THERMAL MASS

Type	Area (sf)	Thick. (in.)	Heat Cap.	Cond.	Form 3 Reference	Inside R-Val.	Location Comments

PERIMETER LOSSES

Type	Length	F2 Factor	Insulation R-Val.	Depth	Location / Comments

HVAC SYSTEMS

Heating Equipment Type (furnace, heat pump, etc.)	Minimum Efficiency (AFUE/HSPF)	Distribution Type and Location (ducts/attic, etc.)	Duct R-Value	Thermostat Type	Location / Comments
Furnace	0.780	Ducts in Attic	4.2	Setback	Res HVAC

Hydronic Piping System Name	Pipe Length	Pipe Diameter	Insul. Thick.

Cooling Equipment Type (air conditioner, heat pump, evap. cooling)	Minimum Efficiency (SEER)	Duct Location (attic, etc.)	Duct R-Value	Thermostat Type	Location / Comments
Split Air Conditioner	10.000	Ducts in Attic	4.2	Setback	Res HVAC

WATER HEATING SYSTEMS

Water Heater System Name	Water Heater Type	Distribution Type	# in Syst.	Rated ¹ Input (Btu/hr)	Tank Cap. (gal)	Energy Fact. ¹ or Recovery Efficiency	Standby ¹ Loss (%) or Pilot	Tank Insul. R-Value Int. Ext.
50 Gallon or less Min. EF=0.58	Small Gas	Standard	1	40,000	50	0.58	n/a	n/a 0.0

¹ For small gas storage (rated input <= 75000 Btu/hr), electric resistance and heat pump water heaters, list energy factor.
 For large gas storage water heaters (rated input > 75000 Btu/hr), list Rated Input, Recovery Efficiency and Standby Loss.
 For instantaneous gas water heaters, list Rated Input, Pilot and Recovery Efficiency.

SPECIAL FEATURES / REMARKS (Add extra sheets if necessary)

PROPOSED CONSTRUCTION ASSEMBLY

ENV-3

PROJECT NAME Rosen Carriage House	DATE 7/7/98
---	-----------------------

COMPONENT DESCRIPTION																	
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <div style="display: flex; justify-content: space-between; width: 100%;"> OUTSIDE INSIDE </div> <div style="border: 1px solid black; height: 100px; margin: 10px auto;"></div> <p>SKETCH OF ASSEMBLY</p> </div>	<table style="width:100%"> <tr> <td>ASSEMBLY NAME</td> <td colspan="2">R-13 Wall (W.13.2x4.16)</td> </tr> <tr> <td>ASSEMBLY TYPE (check one)</td> <td> <input type="checkbox"/> Floor <input checked="" type="checkbox"/> Wall <input type="checkbox"/> Ceiling / Roof </td> <td></td> </tr> <tr> <td>FRAMING MATERIAL</td> <td colspan="2">Wood</td> </tr> <tr> <td>FRAMING %</td> <td>15%</td> <td>Fr %</td> </tr> </table> <div style="margin-top: 10px;"> <table style="width:100%"> <tr> <td>15% (16" o.c. Wall)</td> </tr> <tr> <td>12% (24" o.c. Wall)</td> </tr> <tr> <td>10% (16" o.c. Floor/Ceil.)</td> </tr> <tr> <td>7% (24" o.c. Floor/Ceil.)</td> </tr> </table> </div>	ASSEMBLY NAME	R-13 Wall (W.13.2x4.16)		ASSEMBLY TYPE (check one)	<input type="checkbox"/> Floor <input checked="" type="checkbox"/> Wall <input type="checkbox"/> Ceiling / Roof		FRAMING MATERIAL	Wood		FRAMING %	15%	Fr %	15% (16" o.c. Wall)	12% (24" o.c. Wall)	10% (16" o.c. Floor/Ceil.)	7% (24" o.c. Floor/Ceil.)
ASSEMBLY NAME	R-13 Wall (W.13.2x4.16)																
ASSEMBLY TYPE (check one)	<input type="checkbox"/> Floor <input checked="" type="checkbox"/> Wall <input type="checkbox"/> Ceiling / Roof																
FRAMING MATERIAL	Wood																
FRAMING %	15%	Fr %															
15% (16" o.c. Wall)																	
12% (24" o.c. Wall)																	
10% (16" o.c. Floor/Ceil.)																	
7% (24" o.c. Floor/Ceil.)																	

CONSTRUCTION COMPONENTS

DESCRIPTION	FRAMING	THICK-NESS (in.)	R-VALUE		*HEAT CAPACITY (Optional)		
			CAVITY R-VALUE (Rc)	WOOD FRAME R-VALUE	WALL WEIGHT (lbs/sf)	SPECIFIC HEAT (Btu/F-lb)	HC (A X B) (Btu/F-sf)
OUTSIDE SURFACE AIR FILM		—	0.170	0.170	—	—	—
1 Siding, Wood Bevel 3/4" x 10" Lapped	<input type="checkbox"/>	0.750	1.050	1.050	2.00	0.28	0.56
2 Plywood	<input type="checkbox"/>	0.375	0.465	0.465	1.06	0.29	0.31
3 Membrane, Vapor-Permeable Felt	<input type="checkbox"/>	0.010	0.060	0.060	0.06	0.35	0.02
4 Insulation, Mineral Fiber, R-13	<input checked="" type="checkbox"/>	3.500	12.999	3.465	1.68	0.37	0.62
5 Gypsum or Plaster Board	<input type="checkbox"/>	0.500	0.450	0.450	2.08	0.26	0.54
6	<input type="checkbox"/>						
7	<input type="checkbox"/>						
8	<input type="checkbox"/>						
9	<input type="checkbox"/>						
INSIDE SURFACE AIR FILM		—	0.680	0.680	—	—	—
SUBTOTAL			15.87 Rc	6.34 Rf	6.9	TOTAL HC	2.1

*NOTE: Weight and Specific Heat values for materials penetrated by wood framing include the effects of the framing members.

0.0630	x	0.85	+	0.1577	x	0.15	=	0.077
1 / Rc		1 - (Fr% / 100)		1 / Rf		Fr% / 100		ASSEMBLY U-VALUE

COMMENTS

PROPOSED CONSTRUCTION ASSEMBLY

ENV-3

PROJECT NAME Rosen Carriage House	DATE 7/7/98
---	-----------------------

COMPONENT DESCRIPTION

<div style="display: flex; justify-content: space-between; padding: 10px;"> OUTSIDE <div style="border: 1px solid black; width: 80%; height: 100%;"></div> INSIDE </div> <p style="text-align: center;">SKETCH OF ASSEMBLY</p>	ASSEMBLY NAME <input style="width:90%" type="text" value="R-13 Attic Wall"/>
	ASSEMBLY TYPE (check one) <div style="display: flex; flex-direction: column; gap: 5px;"> <input type="checkbox"/> Floor <input checked="" type="checkbox"/> Wall <input type="checkbox"/> Ceiling / Roof </div>
	FRAMING MATERIAL <input style="width:50%" type="text" value="Wood"/>
	FRAMING % <input style="width:50%" type="text" value="15"/> % <div style="float: right; margin-top: 10px;"> Fr % 15% (16" o.c. Wall) 12% (24" o.c. Wall) 10% (16" o.c. Floor/Ceiling) 7% (24" o.c. Floor/Ceiling) </div>

CONSTRUCTION COMPONENTS

DESCRIPTION	FRAMING	THICKNESS (in.)	R-VALUE		*HEAT CAPACITY (Optional)		
			CAVITY R-VALUE (Rc)	WOOD FRAME R-VALUE	WALL WEIGHT (lbs/sf)	SPECIFIC HEAT (Btu/F-lb)	HC (A X B) (Btu/F-sf)
OUTSIDE SURFACE AIR FILM		—	0.170	0.170	—	—	—
1 Insulation, Mineral Fiber, R-13	<input checked="" type="checkbox"/>	3.500	12.999	3.465	1.68	0.37	0.62
2 Gypsum or Plaster Board	<input type="checkbox"/>	0.500	0.450	0.450	2.08	0.26	0.54
3	<input type="checkbox"/>						
4	<input type="checkbox"/>						
5	<input type="checkbox"/>						
6	<input type="checkbox"/>						
7	<input type="checkbox"/>						
8	<input type="checkbox"/>						
9	<input type="checkbox"/>						
INSIDE SURFACE AIR FILM		—	0.680	0.680	—	—	—
SUBTOTAL			14.30	4.76	3.8	TOTAL HC 1.2	
			Rc	Rf			

*NOTE: Weight and Specific Heat values for materials penetrated by wood framing include the effects of the framing members.

$$\left[\frac{0.0699}{1/Rc} \times \frac{0.85}{1 - (Fr\% / 100)} \right] + \left[\frac{0.2099}{1/Rf} \times \frac{0.15}{Fr\% / 100} \right] = \text{ASSEMBLY U-VALUE } 0.091$$

COMMENTS

PROPOSED CONSTRUCTION ASSEMBLY

ENV-3

PROJECT NAME Rosen Carriage House	DATE 7/7/98
---	-----------------------

COMPONENT DESCRIPTION

<div style="border:1px solid black; width:100%; height:100%; position:relative;"> OUTSIDE INSIDE </div> <p style="text-align:center">SKETCH OF ASSEMBLY</p>	ASSEMBLY NAME <input type="text" value="R-30 Roof (Vaulted)"/> ASSEMBLY TYPE (check one) <input type="checkbox"/> Floor <input type="checkbox"/> Wall <input checked="" type="checkbox"/> Ceiling / Roof FRAMING MATERIAL <input type="text" value="Wood"/> FRAMING % <input type="text" value="7"/> %
	Fr % 15% (16" o.c. Wall) 12% (24" o.c. Wall) 10% (16" o.c. Floor/Ceil.) 7% (24" o.c. Floor/Ceil.)

CONSTRUCTION COMPONENTS

DESCRIPTION	FRAMING	THICK-NESS (in.)	R-VALUE		*HEAT CAPACITY (Optional)		
			CAVITY R-VALUE (Rc)	WOOD FRAME R-VALUE	WALL WEIGHT (lbs/sf)	SPECIFIC HEAT (Btu/F-lb)	HC (A X B) (Btu/F-sf)
OUTSIDE SURFACE AIR FILM		—	0.170	0.170	—	—	—
1 Roofing, Asphalt Shingles	<input type="checkbox"/>	0.250	0.440	0.440	1.46	0.30	0.44
2 Membrane, Vapor-Permeable Felt	<input type="checkbox"/>	0.010	0.060	0.060	0.06	0.35	0.02
3 Plywood	<input type="checkbox"/>	0.500	0.620	0.620	1.42	0.29	0.41
4 Air Space	<input checked="" type="checkbox"/>	1.750	0.800	1.733	0.36	0.39	0.14
5 Insulation, Mineral Fiber, R-30	<input checked="" type="checkbox"/>	9.250	30.000	9.158	2.31	0.35	0.81
6 Gypsum or Plaster Board	<input type="checkbox"/>	0.500	0.450	0.450	2.08	0.26	0.54
7	<input type="checkbox"/>						
8	<input type="checkbox"/>						
9	<input type="checkbox"/>						
INSIDE SURFACE AIR FILM		—	0.620	0.620	—	—	—
SUBTOTAL			33.16 Rc	13.25 Rf	7.7	TOTAL HC	2.4

*NOTE: Weight and Specific Heat values for materials penetrated by wood framing include the effects of the framing members.

0.0302	x	0.93	+	0.0755	x	0.07	=	0.033
<small>1 / Rc</small>		<small>1 - (Fr% / 100)</small>		<small>1 / Rf</small>		<small>Fr% / 100</small>		<small>ASSEMBLY U-VALUE</small>

COMMENTS

PROPOSED CONSTRUCTION ASSEMBLY

ENV-3

PROJECT NAME
Rosen Carriage House

DATE
7/7/98

COMPONENT DESCRIPTION

OUTSIDE

INSIDE

SKETCH OF ASSEMBLY

ASSEMBLY NAME

ASSEMBLY TYPE (check one)

Floor

Wall

Ceiling / Roof

FRAMING MATERIAL

FRAMING % %

Fr %

15% (16" o.c. Wall)

12% (24" o.c. Wall)

10% (16" o.c. Floor/Ceil.)

7% (24" o.c. Floor/Ceil.)

CONSTRUCTION COMPONENTS

DESCRIPTION	FRAMING	THICK-NESS (in.)	R-VALUE		*HEAT CAPACITY (Optional)		
			CAVITY R-VALUE (Rc)	WOOD FRAME R-VALUE	WALL WEIGHT (lbs/sf)	SPECIFIC HEAT (Btu/F-lb)	HC (A X B) (Btu/F-sf)
OUTSIDE SURFACE AIR FILM		—	0.170	0.170	—	—	—
1 Roofing, Asphalt Shingles	<input type="checkbox"/>	0.250	0.440	0.440	1.46	0.30	0.44
2 Membrane, Vapor-Permeable Felt	<input type="checkbox"/>	0.010	0.060	0.060	0.06	0.35	0.02
3 Plywood	<input type="checkbox"/>	0.500	0.620	0.620	1.42	0.29	0.41
4 Air Space	<input checked="" type="checkbox"/>	3.500	0.820	3.465	0.71	0.39	0.28
5 Air Space	<input type="checkbox"/>	3.500	0.820	0.820	0.00	0.00	0.00
6 Insulation, Mineral Fiber, R-30	<input checked="" type="checkbox"/>	9.250	30.000	9.158	2.31	0.35	0.81
7 Gypsum or Plaster Board	<input type="checkbox"/>	0.500	0.450	0.450	2.08	0.26	0.54
8	<input type="checkbox"/>						
9	<input type="checkbox"/>						
INSIDE SURFACE AIR FILM		—	0.620	0.620	—	—	—
SUBTOTAL			34.00 Rc	15.80 Rf	8.0	TOTAL HC	2.5

*NOTE: Weight and Specific Heat values for materials penetrated by wood framing include the effects of the framing members.

$$\left[\frac{0.0294}{1/Rc} \right] \times \left[\frac{0.93}{1 - (Fr\% / 100)} \right] + \left[\frac{0.0633}{1/Rf} \right] \times \left[\frac{0.07}{Fr\% / 100} \right] = \text{ASSEMBLY U-VALUE } 0.032$$

COMMENTS

PROPOSED CONSTRUCTION ASSEMBLY

ENV-3

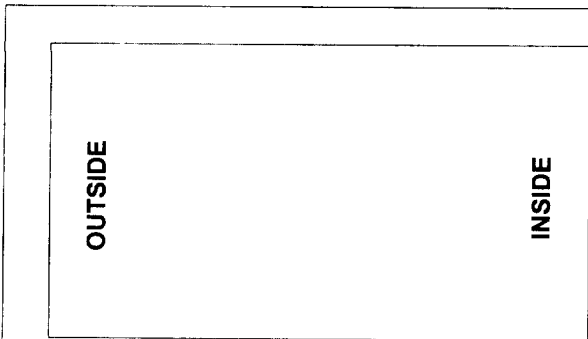
PROJECT NAME

Rosen Carriage House

DATE

7/7/98

COMPONENT DESCRIPTION



SKETCH OF ASSEMBLY

ASSEMBLY NAME

R-19 Floor (F.19.2x8.16)

ASSEMBLY TYPE
(check one)

- Floor
- Wall
- Ceiling / Roof

FRAMING MATERIAL

Wood

FRAMING %

10%

Fr %

15% (16" o.c. Wall)

12% (24" o.c. Wall)

10% (16" o.c. Floor/Ceil.)

7% (24" o.c. Floor/Ceil.)

CONSTRUCTION COMPONENTS

DESCRIPTION	FRAMING	THICK-NESS (in.)	R-VALUE		*HEAT CAPACITY (Optional)		
			CAVITY R-VALUE (Rc)	WOOD FRAME R-VALUE	WALL WEIGHT (lbs/sf)	SPECIFIC HEAT (Btu/F-lb)	HC (A X B) (Btu/F-sf)
OUTSIDE SURFACE AIR FILM		—	0.170	0.170	—	—	—
1 Insulation, Mineral Fiber, R-19	<input checked="" type="checkbox"/>	6.000	19.002	5.940	2.02	0.36	0.73
2 Plywood	<input type="checkbox"/>	0.750	0.930	0.930	2.12	0.29	0.62
3 Flooring, Carpet and Fibrous Pad	<input type="checkbox"/>	0.250	2.080	2.080	0.08	0.34	0.03
4	<input type="checkbox"/>						
5	<input type="checkbox"/>						
6	<input type="checkbox"/>						
7	<input type="checkbox"/>						
8	<input type="checkbox"/>						
9	<input type="checkbox"/>						
INSIDE SURFACE AIR FILM		—	0.920	0.920	—	—	—
SUBTOTAL			23.10 Rc	10.04 Rf	4.2	TOTAL HC	1.4

*NOTE: Weight and Specific Heat values for materials penetrated by wood framing include the effects of the framing members.

$$\left[\frac{0.0433}{1/Rc} \times \frac{0.90}{1 - (Fr\% / 100)} \right] + \left[\frac{0.0996}{1/Rf} \times \frac{0.10}{Fr\% / 100} \right] = 0.049 \text{ ASSEMBLY U-VALUE}$$

COMMENTS

HVAC SYSTEM HEATING AND COOLING LOAD SUMMARY

PROJECT NAME Rosen Carriage House	DATE 7/7/98
SYSTEM NAME Res HVAC	FLOOR AREA 618

ENGINEERING CHECKS

Number of Systems	1
Heating System	
Output per System	35,000
Total Output (Btuh)	35,000
Output (Btuh/sqft)	56.6
Cooling System	
Output per System	18,000
Total Output (Btuh)	18,000
Total Output (Tons)	1.5
Total Output (Btuh/sqft)	29.1
Total Output (sqft/Ton)	412.0
Air System	
CFM per System	930
Airflow (cfm)	930
Airflow (cfm/sqft)	1.50
Airflow (cfm/Ton)	620.0
Outside Air (%)	0.0
Outside Air (cfm/sqft)	0.00

Note: values above given at ARI conditions

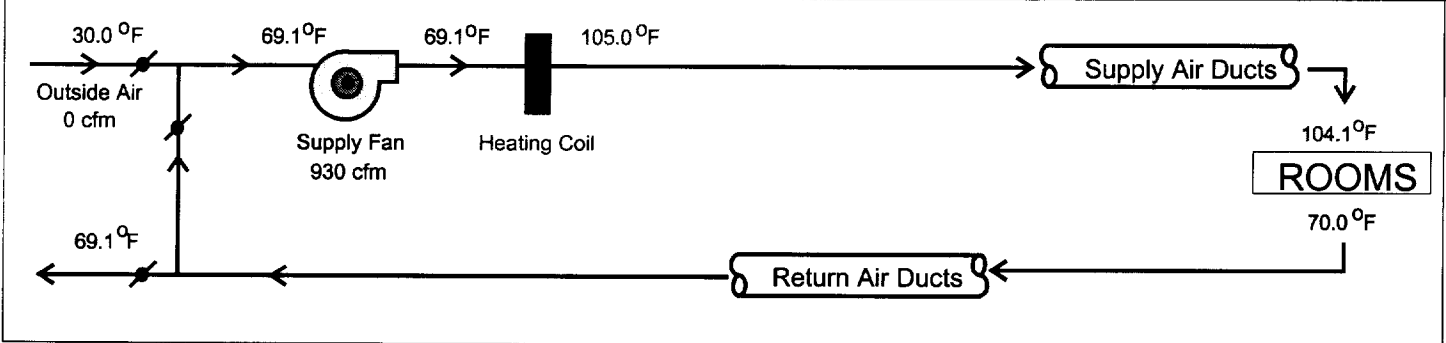
SYSTEM LOAD

	COIL COOLING PEAK			COIL HTG. PEAK	
	CFM	Sensible	Latent	CFM	Sensible
Total Room Loads	392	9,707	-309	304	11,439
Return Vented Lighting		0			
Return Air Ducts		728			858
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		0			0
Supply Air Ducts		728			858
TOTAL SYSTEM LOAD		11,163	-309		13,155

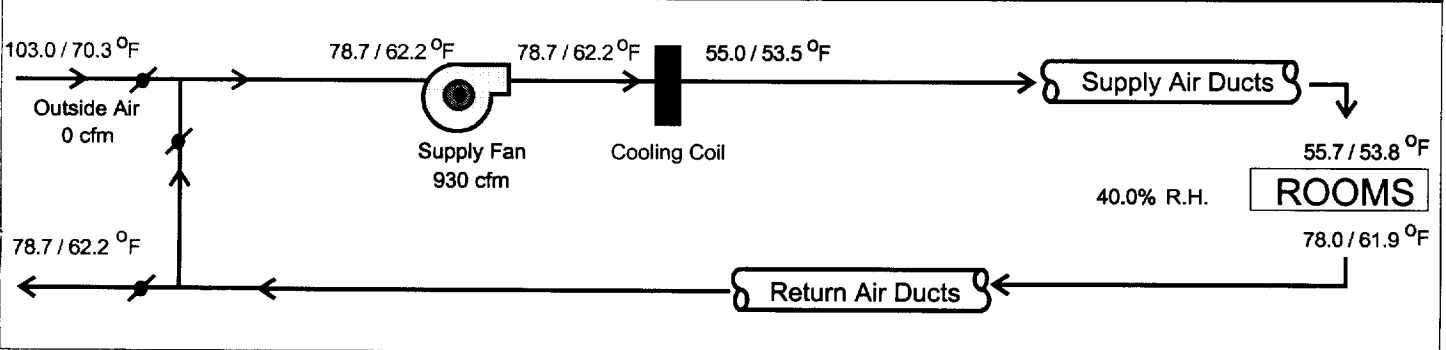
HVAC EQUIPMENT SELECTION

Minimum 78 AFUE, 10 SEER	14,010	1,990	35,000
Total Adjusted System Output (Adjusted for Peak Design Conditions)	14,010	1,990	35,000
TIME OF SYSTEM PEAK	Aug 2 pm	Jan 12 am	

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)



SITE PLAN

PORTOLA WAY
40'

EXISTING DRIVEWAY

EXISTING HOUSE

EXISTING DECK

22' BETWEEN BUILDINGS

AC AC

3' SETBACK

NEW CARRIAGE HOUSE

6' SETBACK

LINE OF EXISTING GARAGE TO BE REMOVED

EXISTING TREE TO BE REMOVED

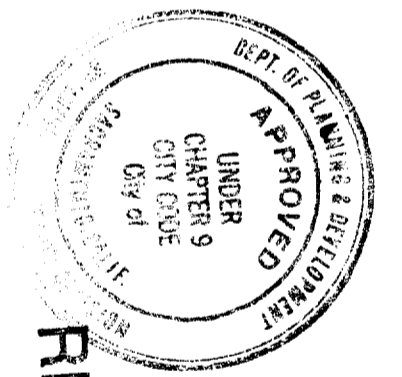
3' SETBACK

B. V. KASHA

NORTH

1/8" = 1'-0"

108'



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AUG 27 1998

Building Inspection Division

AUG 28 1998

CITY OF SACRAMENTO
DEVELOPMENT SERVICES DIV

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 construction of any structure or work in violation of State Law.

ISSUED

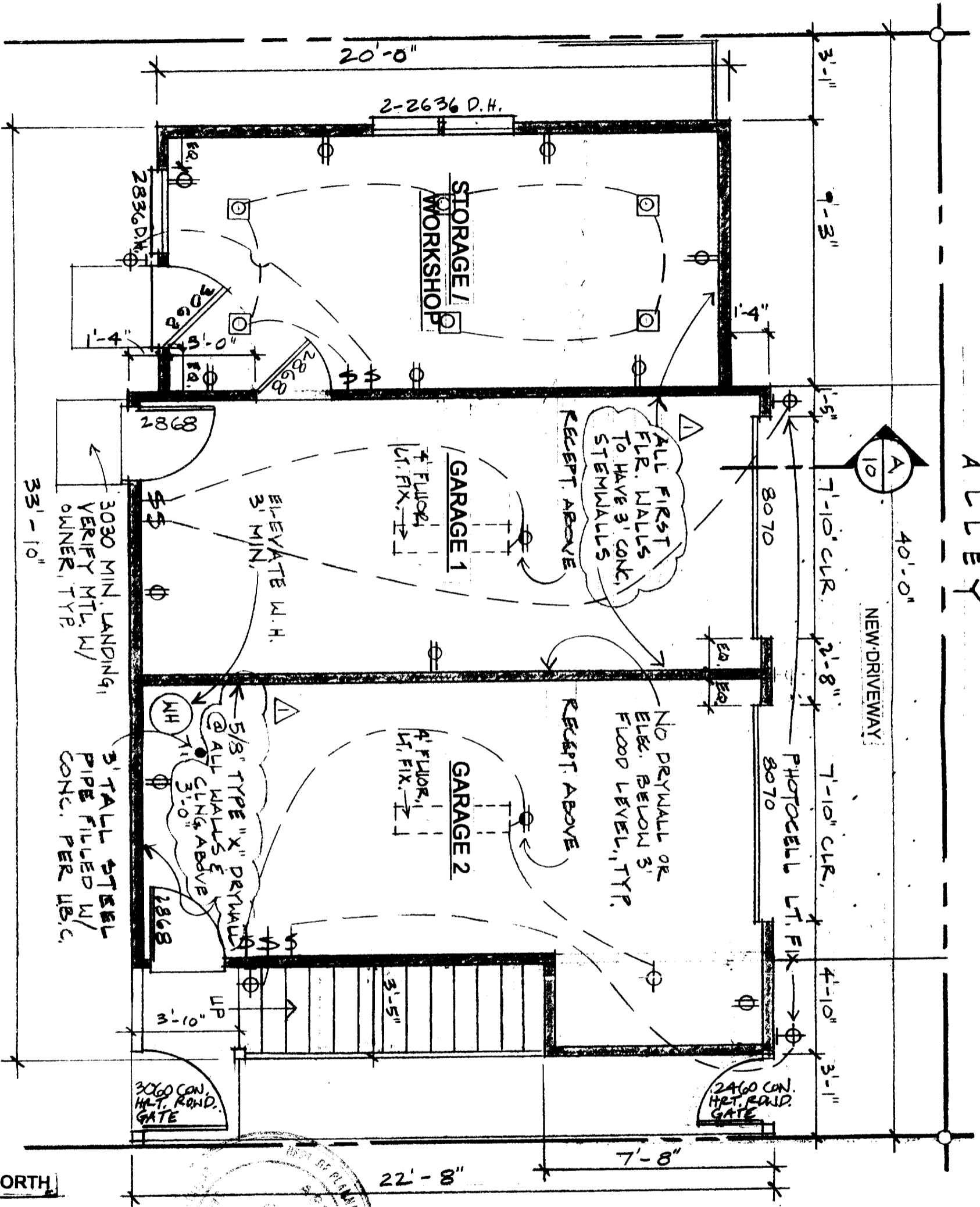
Ron Vrilakas
architect
builder

ROSEN CARRIAGE HOUSE
2226 PORTOLA WAY
SACRAMENTO, CA 95818



1 JULY, 1998

ALLEY



LOWER FLOOR PLAN

NOTE: ALL LOWER LEVEL DOORS TO BE FIBERGLASS OR METAL

USE METAL DIAG. BRACING AT EXTERIOR WALLS UNLESS OTHERWISE NOTED, PER UBC

GARAGE: 472 SQUARE FEET
STORAGE: 190 SQUARE FEET

ALL FIRST FLR. WALLS & CLNG. TO BE 1HR. FIREWALL PER UBC.



NORTH

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Ron Vrilakas
architect
builder

916 441 4685

1 JULY, 1998
31 JULY, 1998



2/11

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Ron Vrilakas
architect
builder

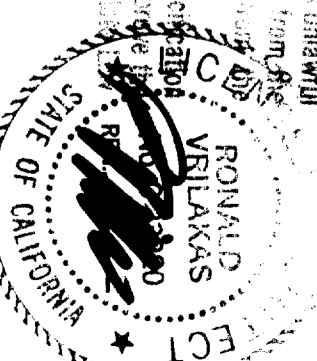
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2226 PORTOLA WAY
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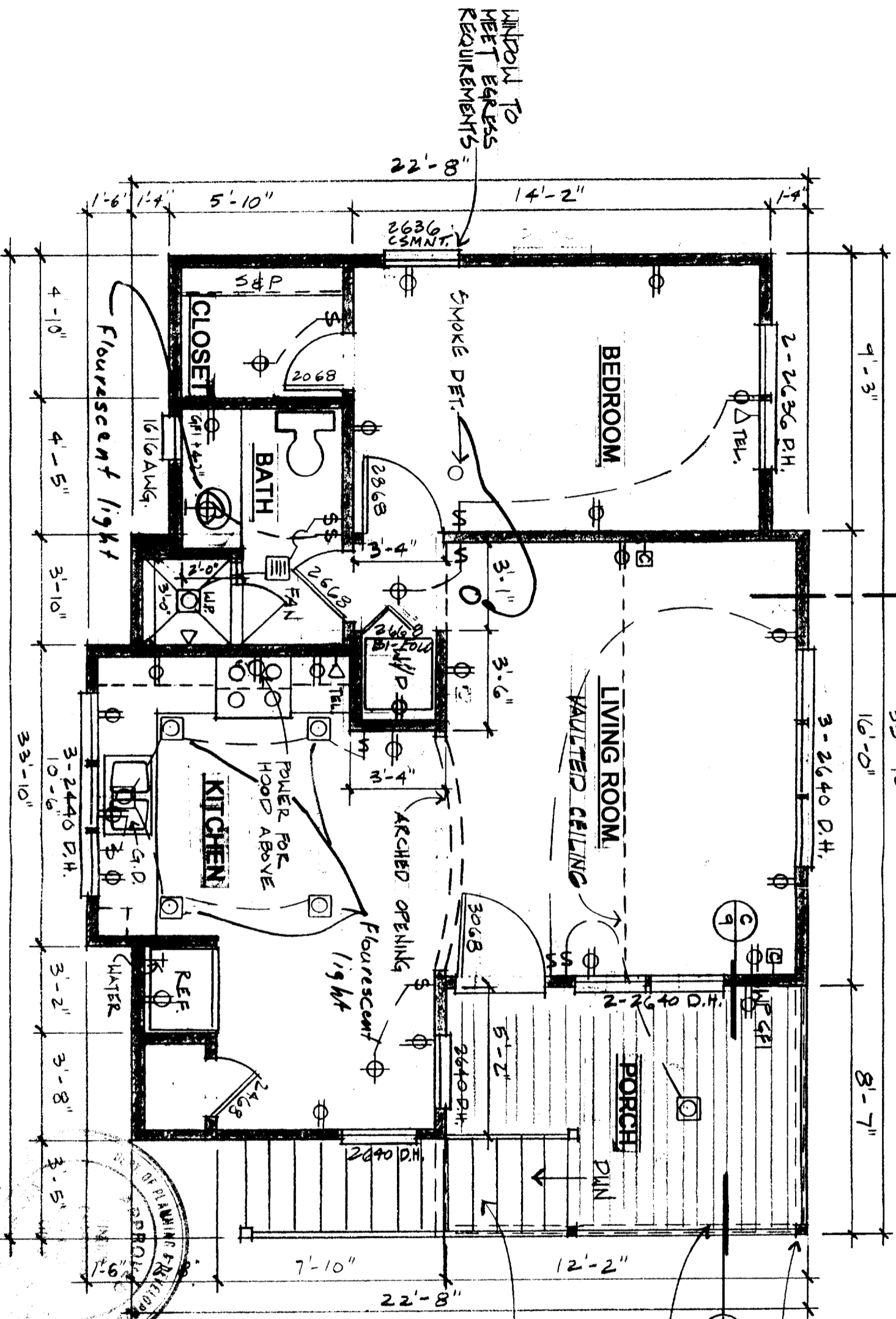
AUG 27 1998

Building Inspector Division

This set of plans and specifications must be 1 JULY, 1998



3/11



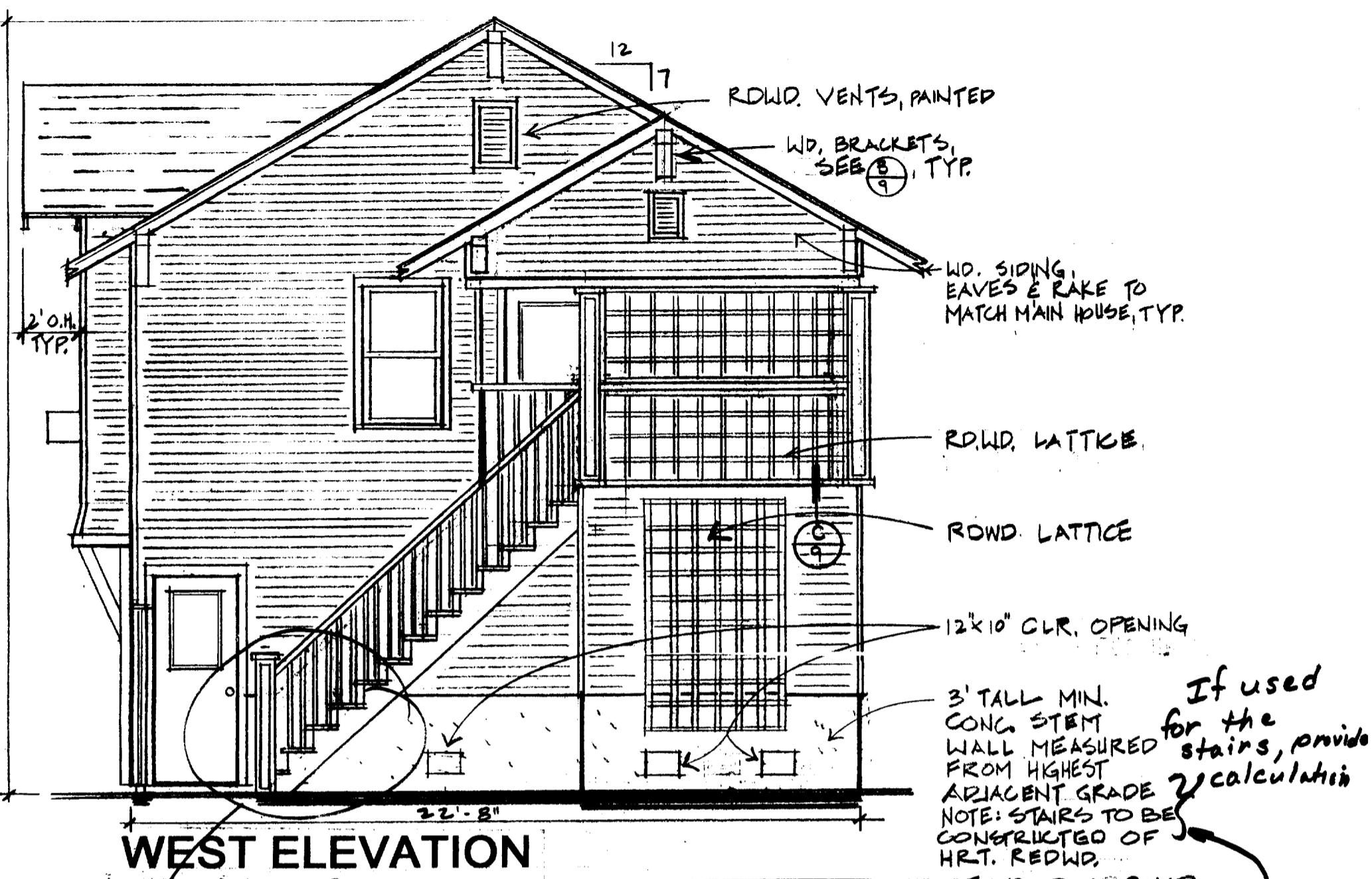
UPPER FLOOR PLAN

618 SQUARE FEET

NOTE: VERIFY ELECTRICAL LAYOUT W/ OWNER
ALL RECEPT. ABOVE KITCH. CABS. TO BE
+42" & GFI PROTECTED

1/4" = 1'-0"

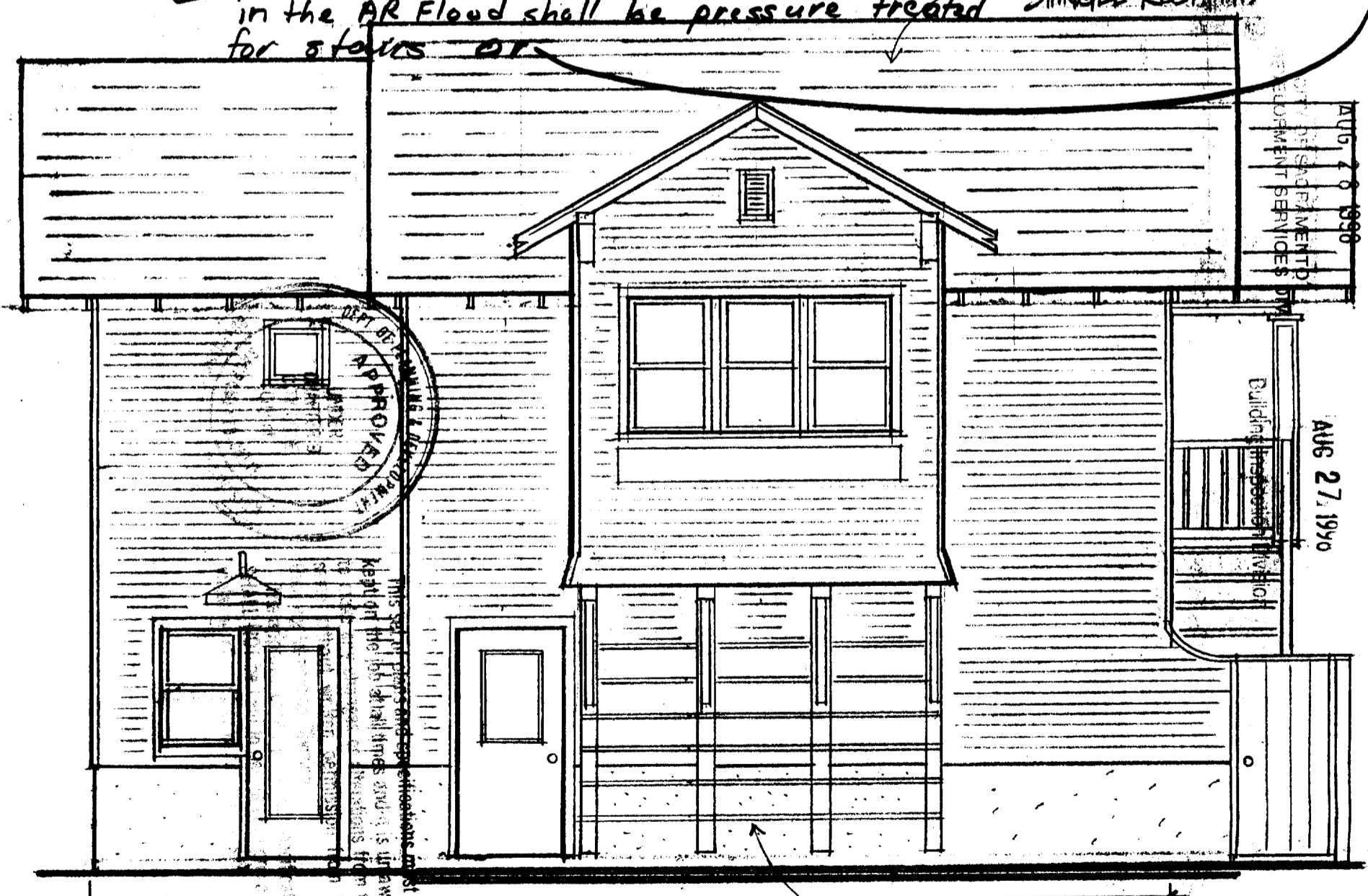
NORTH



WEST ELEVATION

All wood ~~work~~ that is in the AR Flood shall be pressure treated for stairs etc.

If used for the stairs, provide calculation



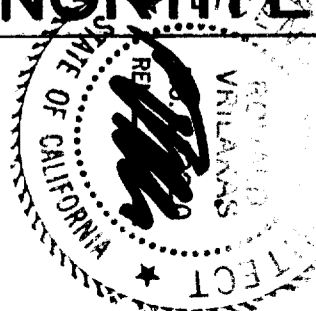
NORTH ELEVATION

AUG 6 4 0 590
 DEPARTMENT OF
 PLANNING &
 BUILDING SERVICES

ISSUED

AUG 27 1990
 Building Inspection Division

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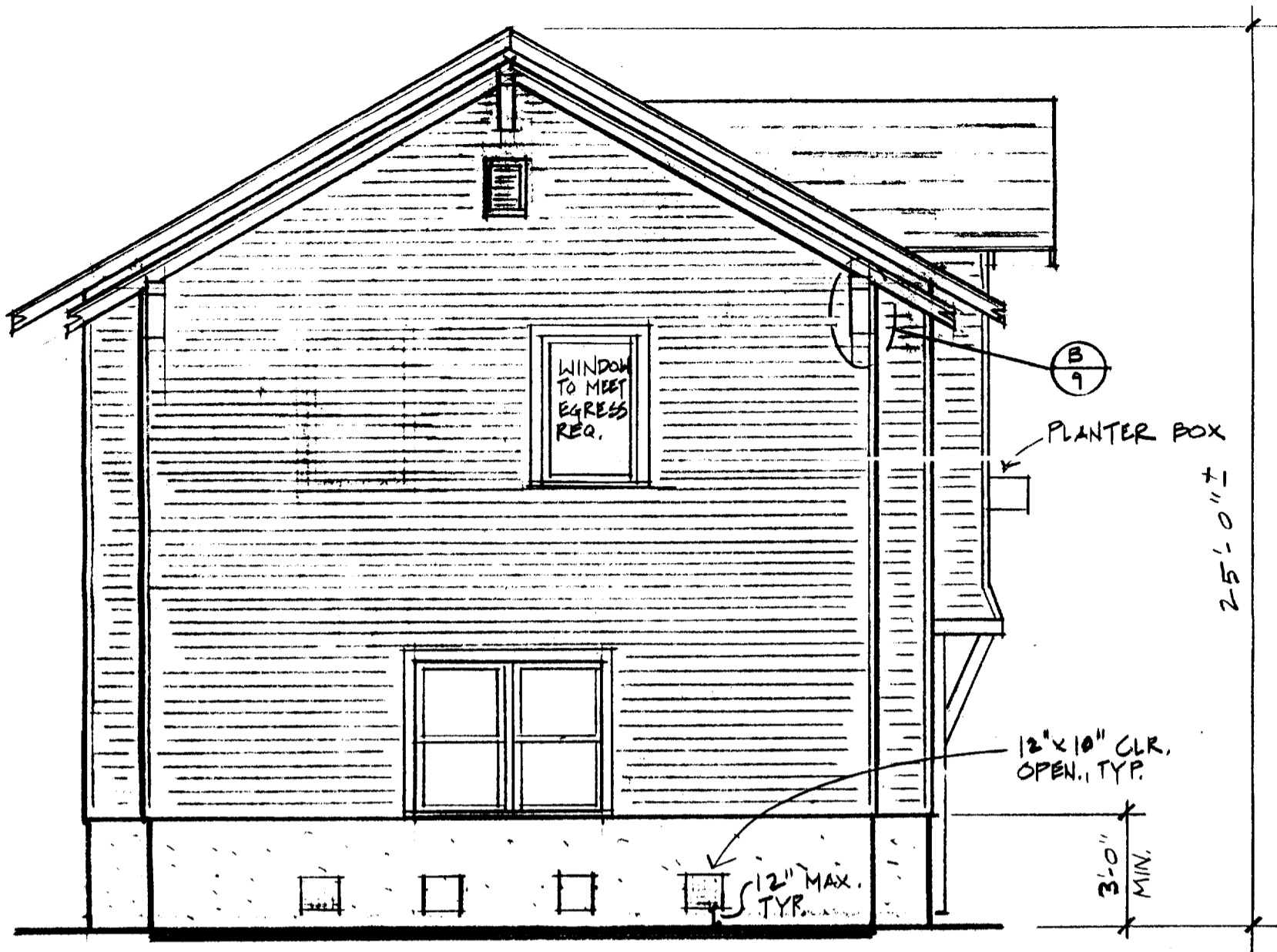


1 JULY, 1990

ROSEN CARRIAGE HOUSE
 2226 PORTOLA WAY
 SACRAMENTO CA 95818

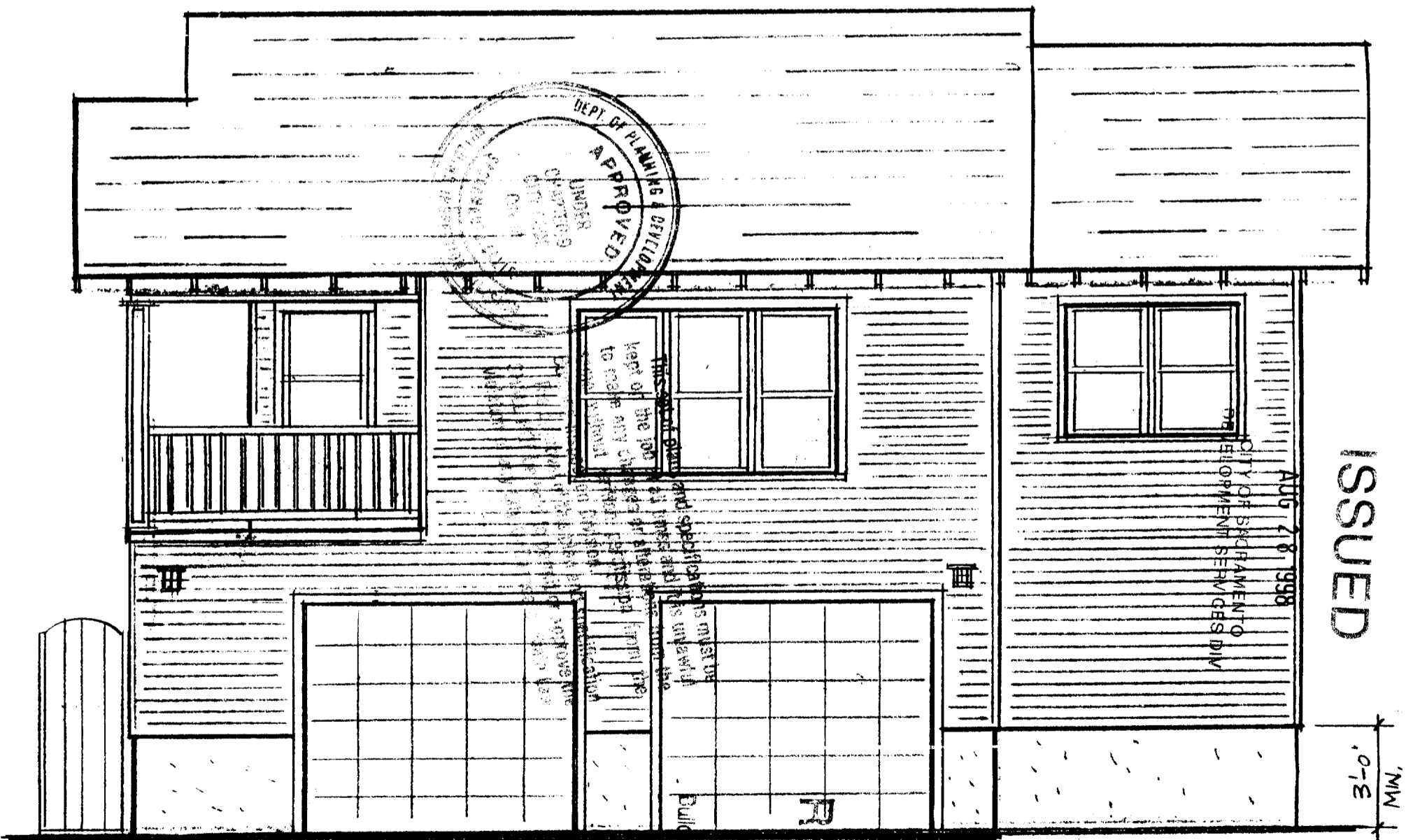
Ron Vriliakas
 architect
 builder
 916 441 4685

4/11



EAST ELEVATION

1/4" = 1'-0"



SOUTH ELEVATION

1/4" = 1'-0"

ROSEN CARRIAGE HOUSE

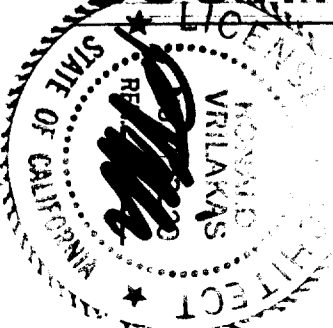
2226 PORTOLA WAY
SACRAMENTO, CA 95818

1 JULY, 1998

AUG 27 1998

916 441 4685

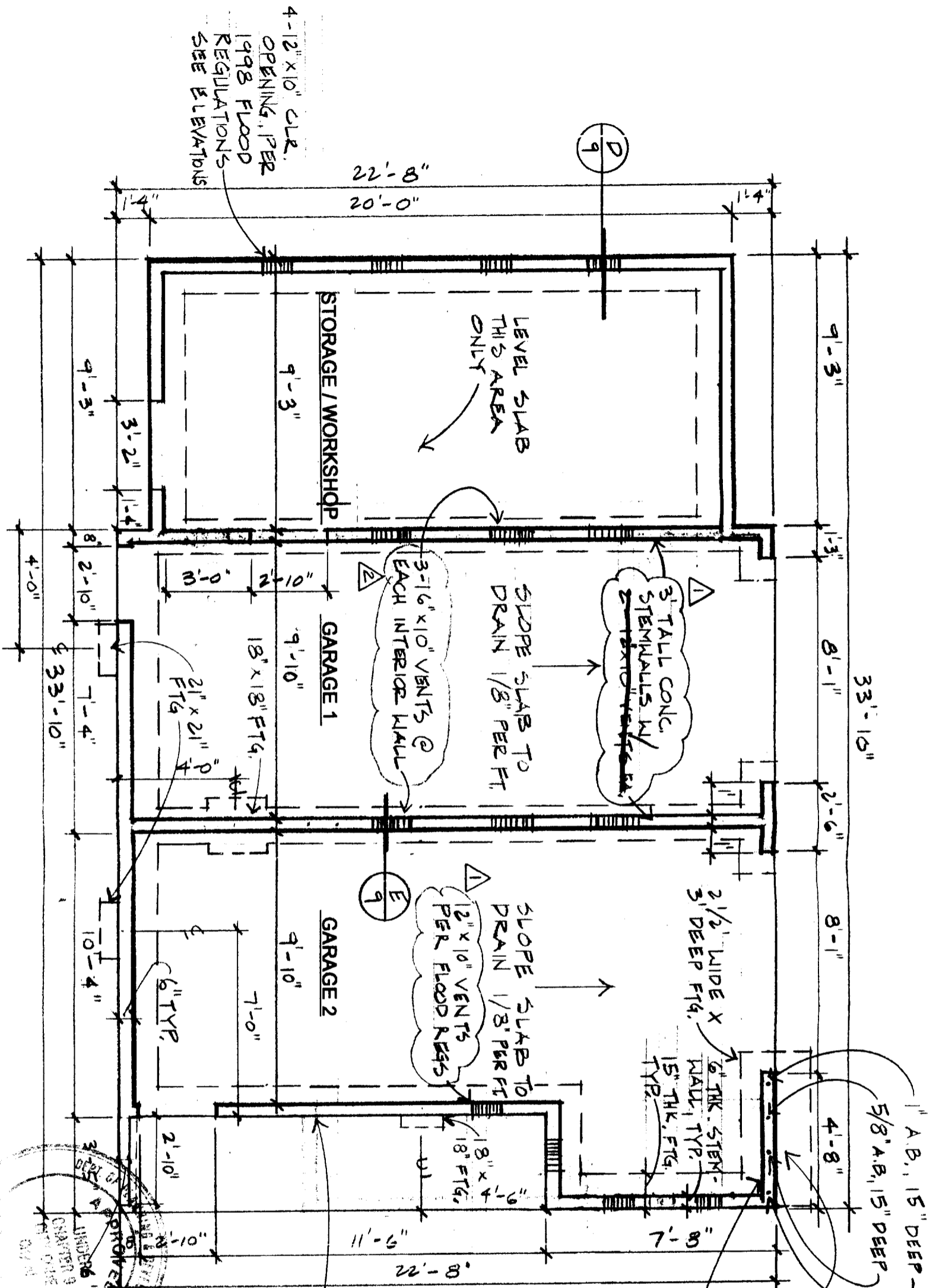
Ron Vrllakas
architect
builder



5/11

FOUNDATION PLAN

1/4" = 1'-0"



THIS WALL TO HAVE 3/8" O.S.B SHEATHING W/ 8d NAILS @ 2" O.C. EDGE NAILING, 12" FIELD, OUTSIDE ONLY.

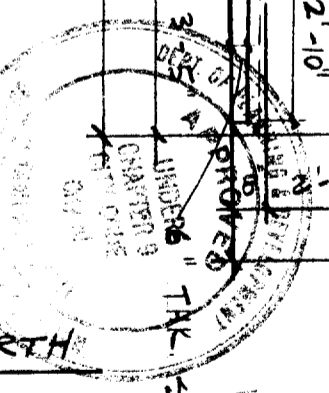
#4 VERTICAL REBAR @ 16" O.C. @ SHEAR WALL! #4 HORIZONTAL REBAR EVERY 12" @ SHEAR WALL, ATTACH REBAR TO A.B. W/ FOUNDATION WIRE

PERIMETER STEM WALL TO BE 3' TALL MIN.

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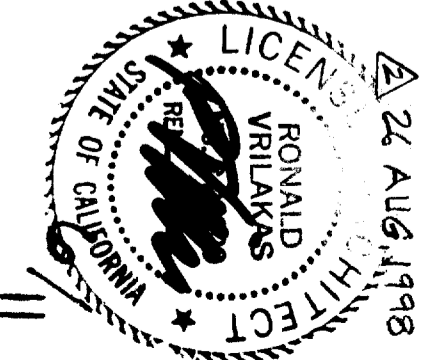
AUG 27 1998

ROSEN CARRIAGE HOUSE
2226 PORTOLA WAY
Sacramento, CA 95818



This set of plans and specifications must be read in conjunction with all codes and it is unlawful to build in violation of the provisions from the local building department or to construct from the plans without the proper permits from the local building department. The engineer shall be responsible for the design and approval of the specifications and shall be responsible for the construction of the structure in accordance with the State Law.

1 JULY, 1998
AUG 26 AUG, 1998
31 JULY, 1998



Ron Vrilikas
architect
builder

916 441 4685

PROVIDE 16d NAILS AT 8" O.C. TO FASTEN PLYWD FLOOR DECK TO STRUCTURAL I'S TO CREATE DRAG MEMBER

SEE DETAIL (A) FOR TOP PLATE LAP SPACE ALONG THIS WALL

HT122 HOLD DOWN W/ 5/8" Ø X 15" BOLT

5/8" Ø X 15" ANCHOR BOLTS, TOT. 4

BM, BELOW T.I.S.

3x8" OSB SHEARWALL W/ 3d @ 2' O.C. STAGGER NAILING

HT122 HOLD DOWN W/ 5/8" Ø X 15" BOLT

WALL FRAMING SHALL CONSIST OF 3x4 @ 16" O.C.

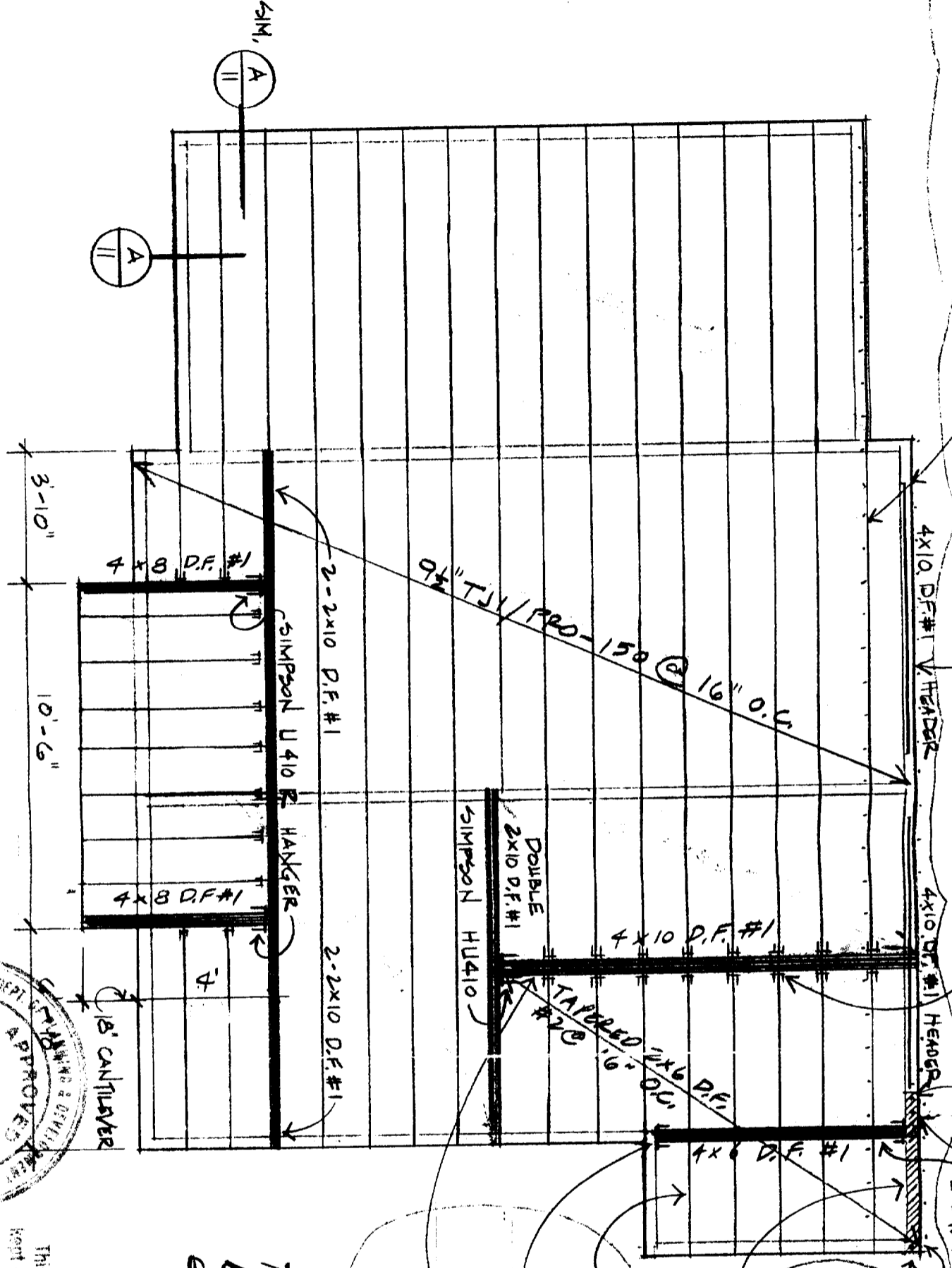
TAPERED END NOT LESS THAN 3 1/8" TALL

SIMPSON W46 TOP FLANGE MOUNT

TOP OF BM. FLUSH W/ FLOOR FRAMING

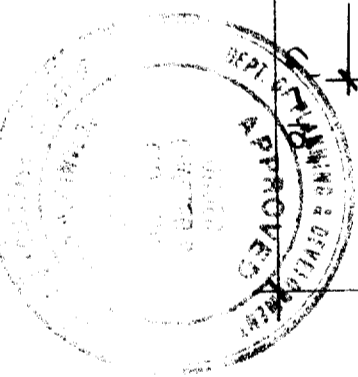
The 2 - 2x10's should not be used with the TJI ~~due~~ due to differential shrinkage RECEIVED

AUG 27 1998



2nd FLOOR FRAMING PLAN

NOTE: USE 2x10 D.F.#1 @ 16" O.C., PER TABLE 23-I-V-J-1 OF 14' U.B.C. (Fb = 1,265 P.S.I.)



This set of plans and specifications shall be kept on the job at all times and shall be returned to the architect upon completion of the project.

JUL 28 1998

1 JULY, 1998
31 JULY, 1998
26 AUG, 1998

ROSEN CARRIAGE HOUSE
2226 PORTOLA WAY
Sacramento, CA 95818

Ron Vrialakas
architect
builder
916 441 4685



7/11

NOTE: 2X TRUSS PER MANUFACTURER'S SPECS, CALC'S TO BE PROVIDED UPON DELIVERY OF TRUSSES.

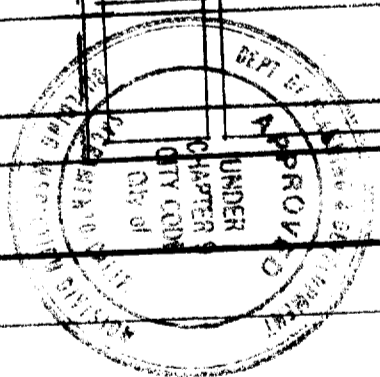
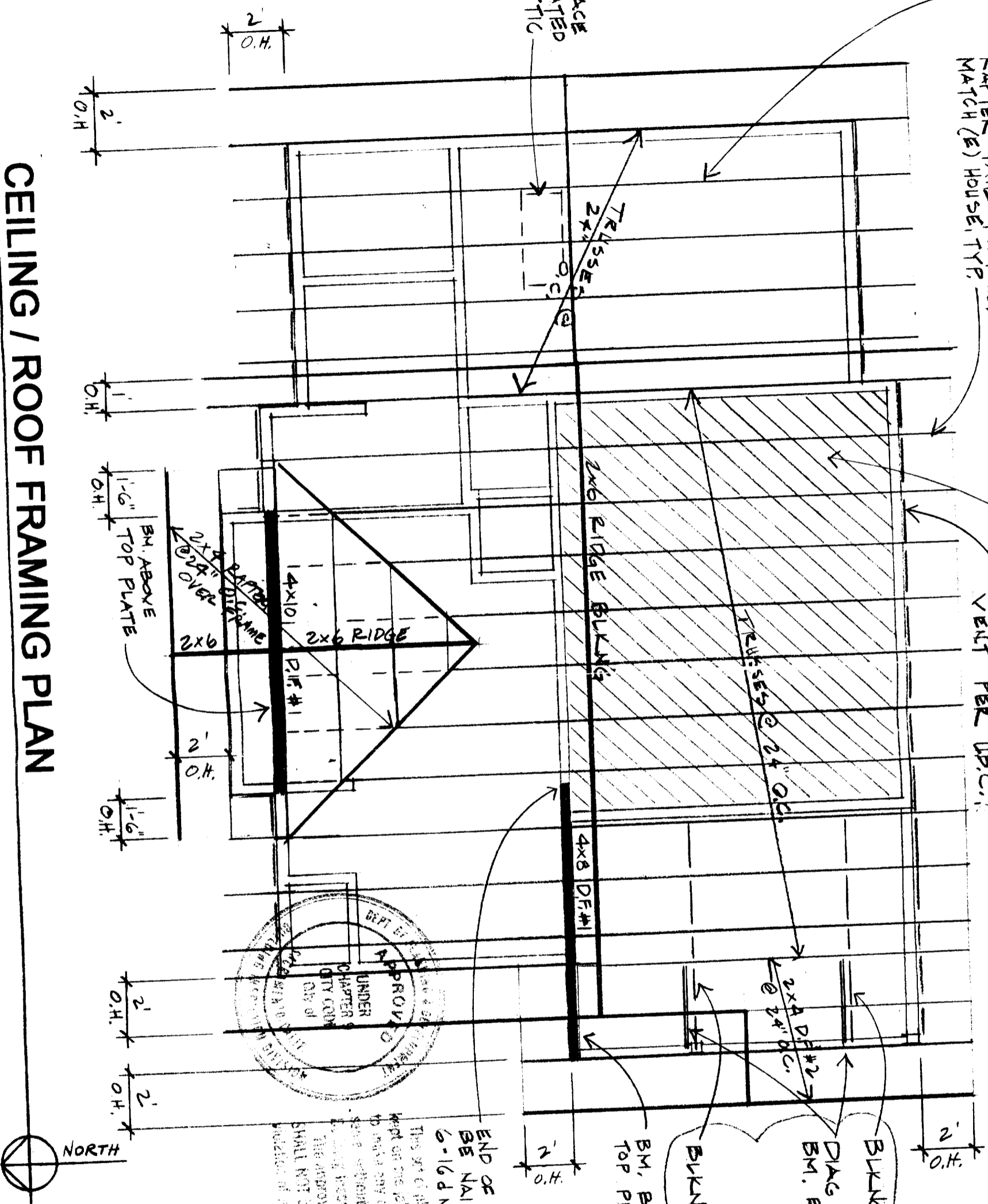
TRUSS @ 2' O.C. TYP.

VAULTED CING. OVER LIVING ROOM, SHOWN SHADED 2X BAVE BLKNG. (T.M.E) VENT PER U.B.C.

BLKNG. DIAG SUPPORT TO BM. BELOW, SEE (D)

BLKNG. BM, BELOW TOP PLATE

FURNACE LOCATED IN ATTIC



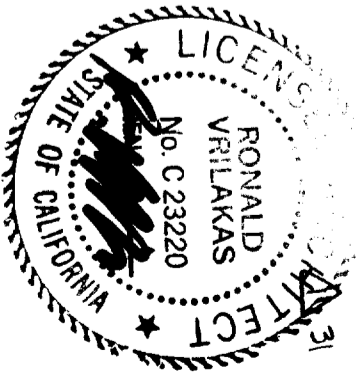
RECEIVED
 This set of plans and specifications must be kept on the job at all times and it is unlawful to make any changes or alterations from the same without receiving the approval of the architect. The approval of this plan and specification shall NOT be held to be an approval of the building or State Law.

END OF BM. TO BE NAILED W/ 5-16 D NAILS, MIN.

ROSEN-CARRIAGE HOUSE
 2226 PORTOLA WAY
 Sacramento, CA 95818

1 JULY, 1998

31 JULY, 1998



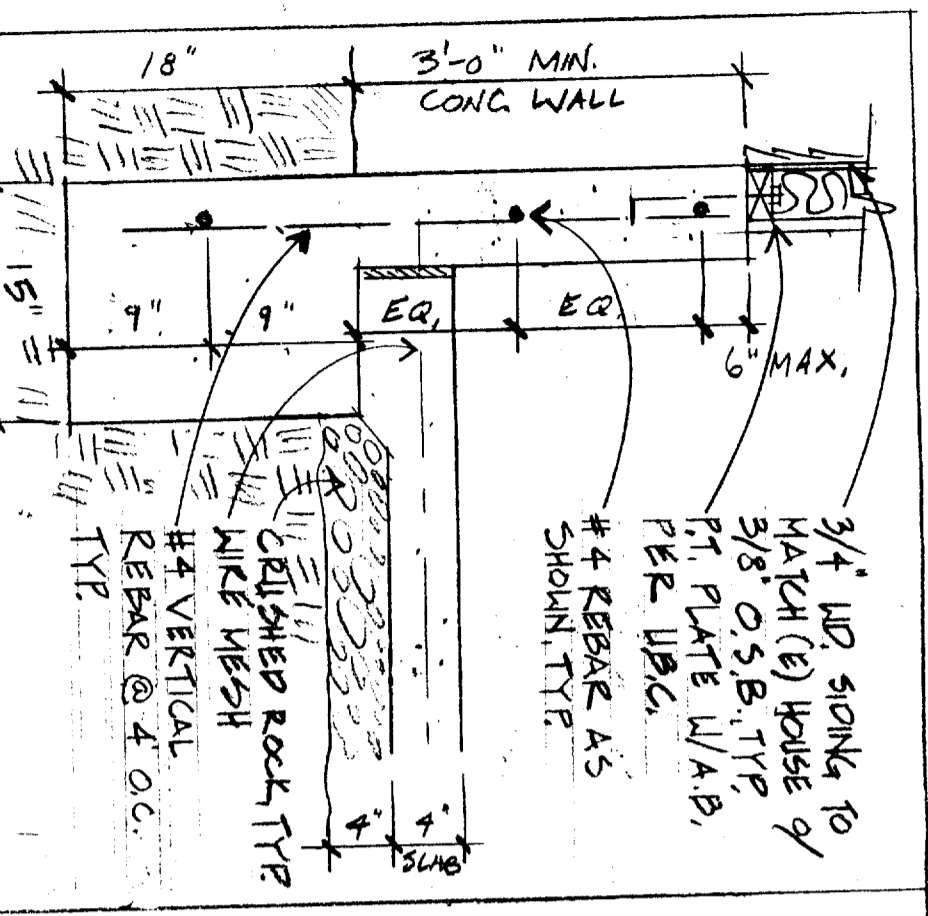
8/11

RON VRILAKAS
 architect
 builder
 916 441 4685

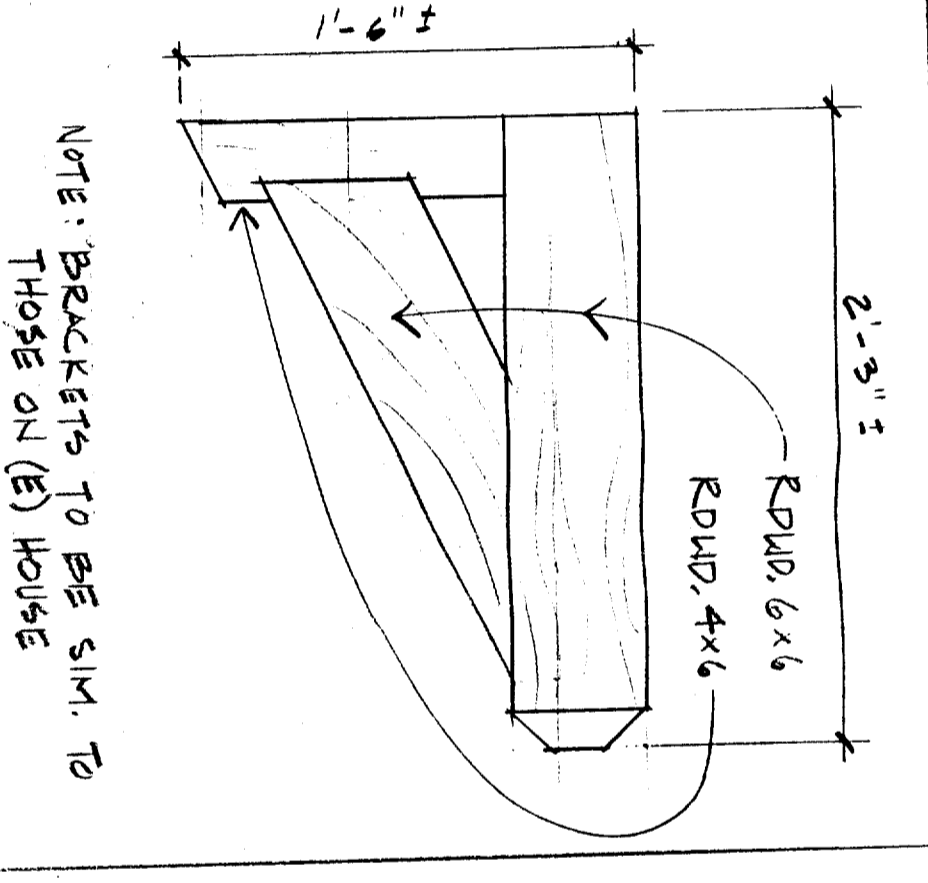
Ron Vriakas
 architect
 builder
 916 441 4685

ROSEN CARRIAGE HOUSE
 2226 PORTOLA WAY
 Sacramento, CA 95818

1 JULY, 1998
 31 JULY, 1998

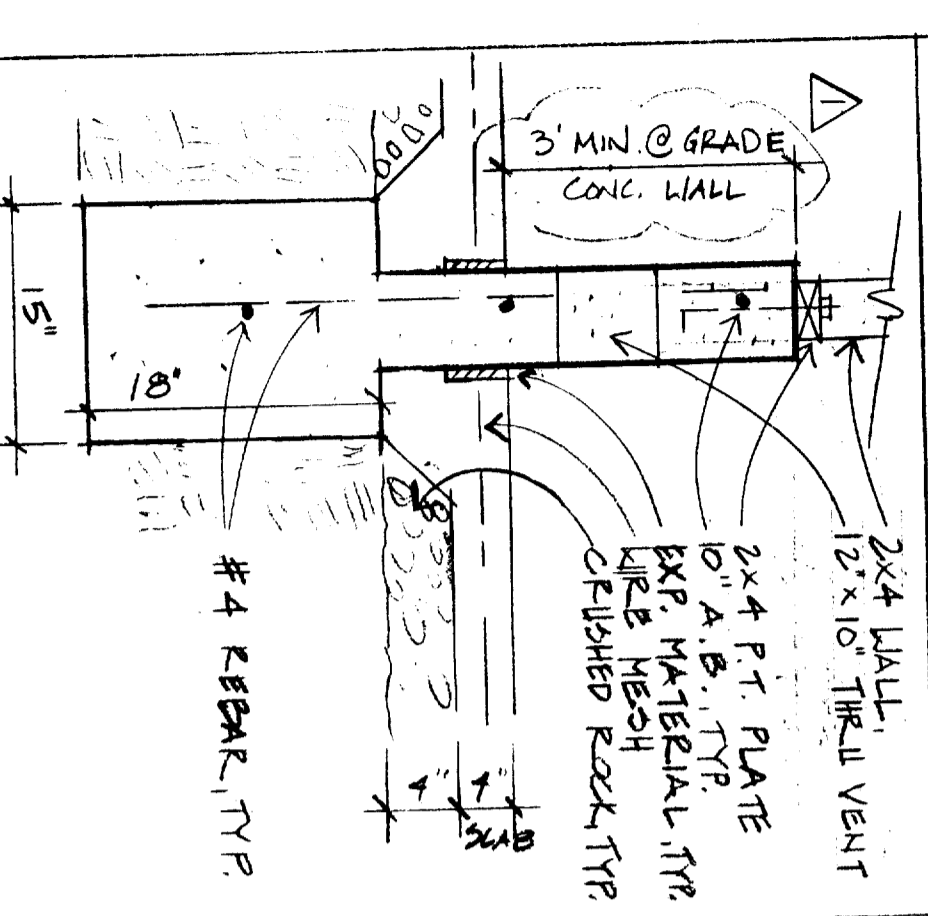


D PERIMETER FOUNDATION 1" = 1'-0"

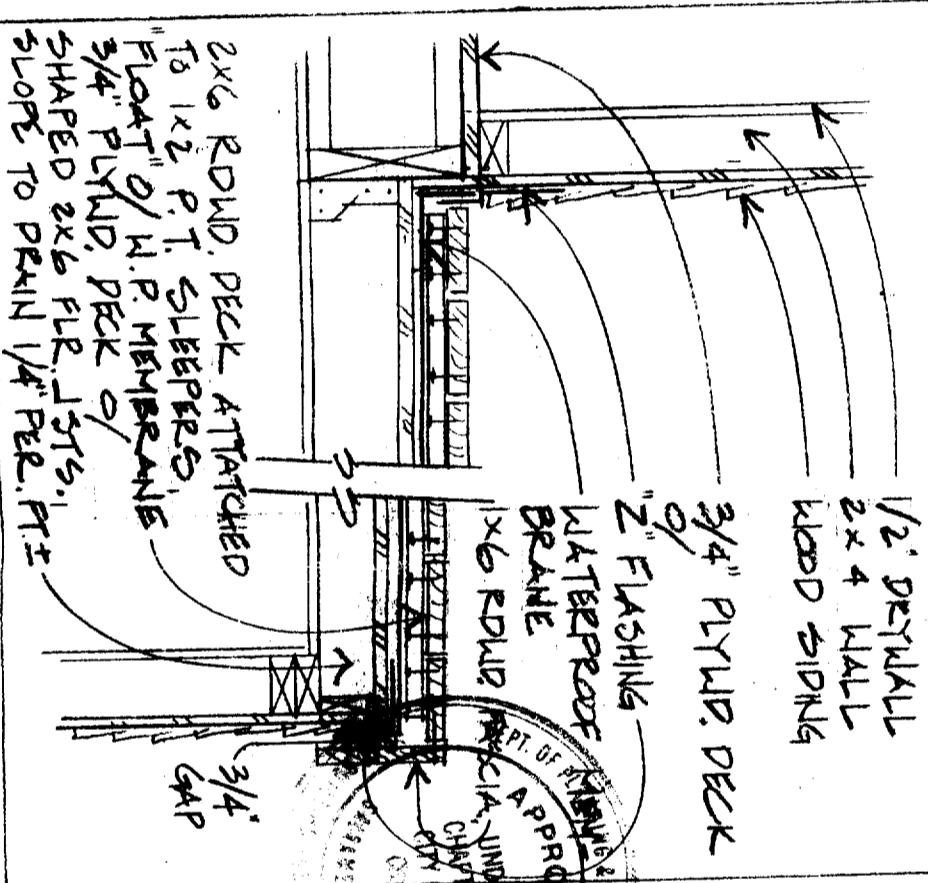


B BRACKET 1 1/2" = 1'-0"

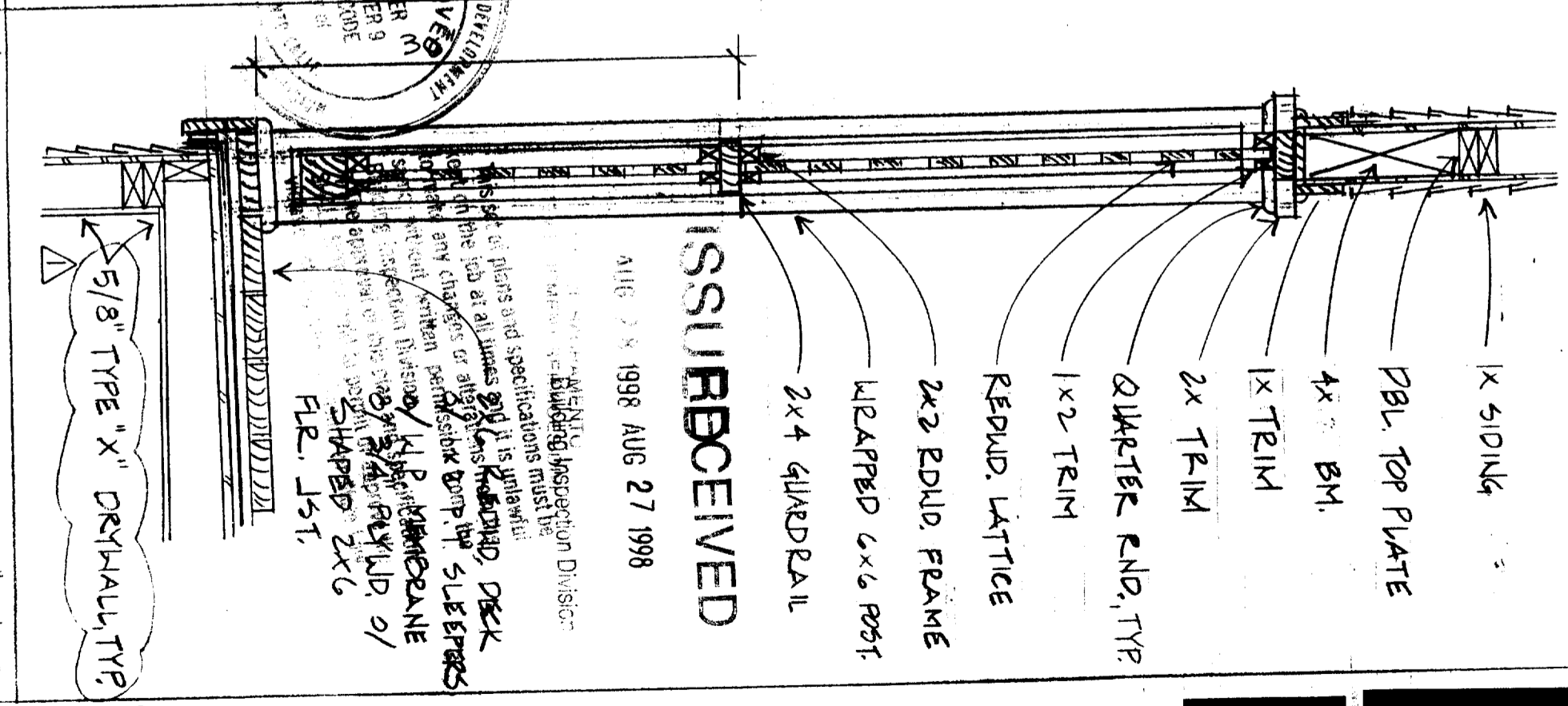
NOTE: BRACKETS TO BE SIM. TO THOSE ON (E) HOUSE



E INTERIOR FOUNDATION 1" = 1'-0"



C "FLOATING" DECK 1" = 1'-0"



A COLUMN 1" = 1'-0"

ISSUED RECEIVED

AUG 28 1998 AUG 27 1998

Set of plans and specifications must be checked at all times and if it is found that any changes or alterations have been made without the approval of the State Building Inspection Division, the contractor must obtain the necessary permits before proceeding with the work.

1 JULY, 1998

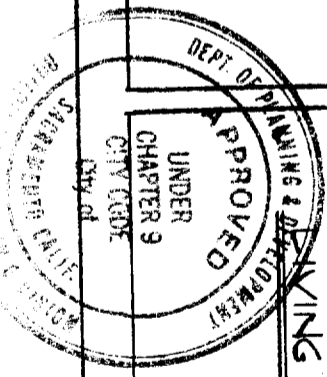
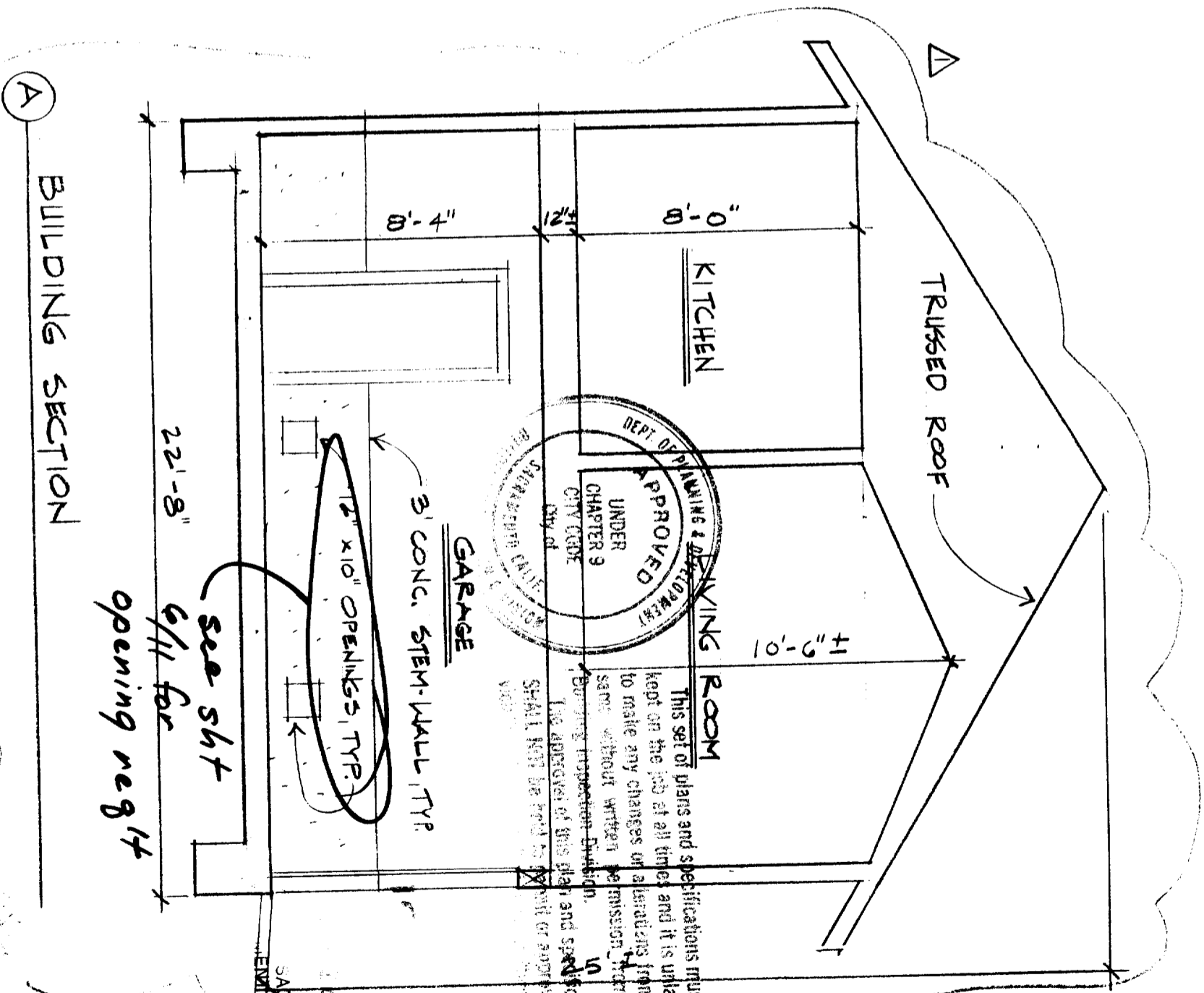
Ron Vrilakas
architect
builder

916 441 4685

ROSEN CARRIAGE HOUSE

31 JULY, 1998

10/11



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 Inspector's Division. The approval of this plan and specification shall not be held to permit or authorize any work not shown on the plan and specification.

JUL 28 1998

RECEIVED
AUG 27 1998
BUILDING DEPARTMENT

BUILDING SECTION

A

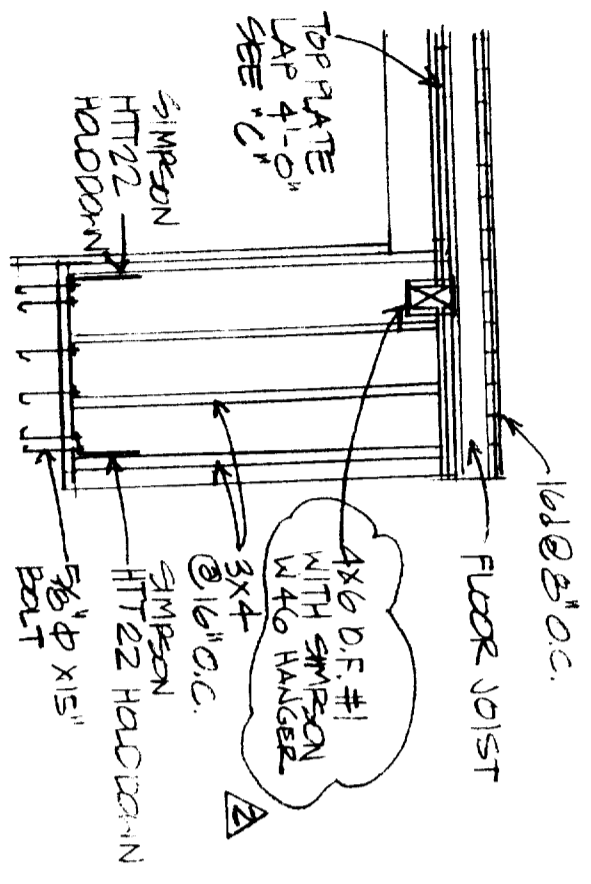
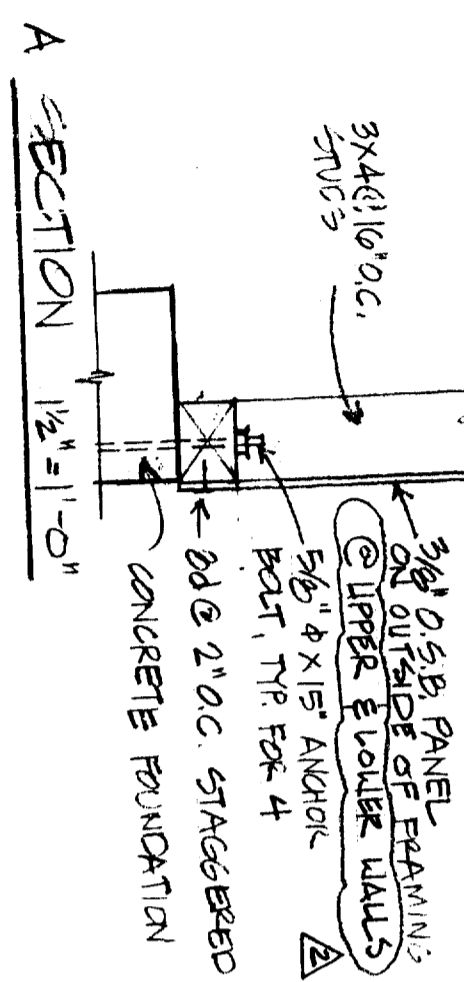
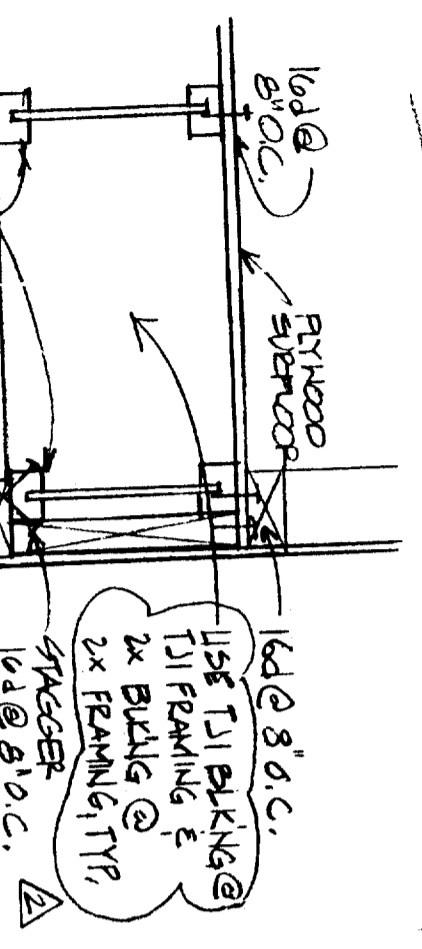
see sht
6/11 for
opening next

GARAGE
3' CONC. STEM-WALL TYP.
12" X 10" OPENINGS, TYP.

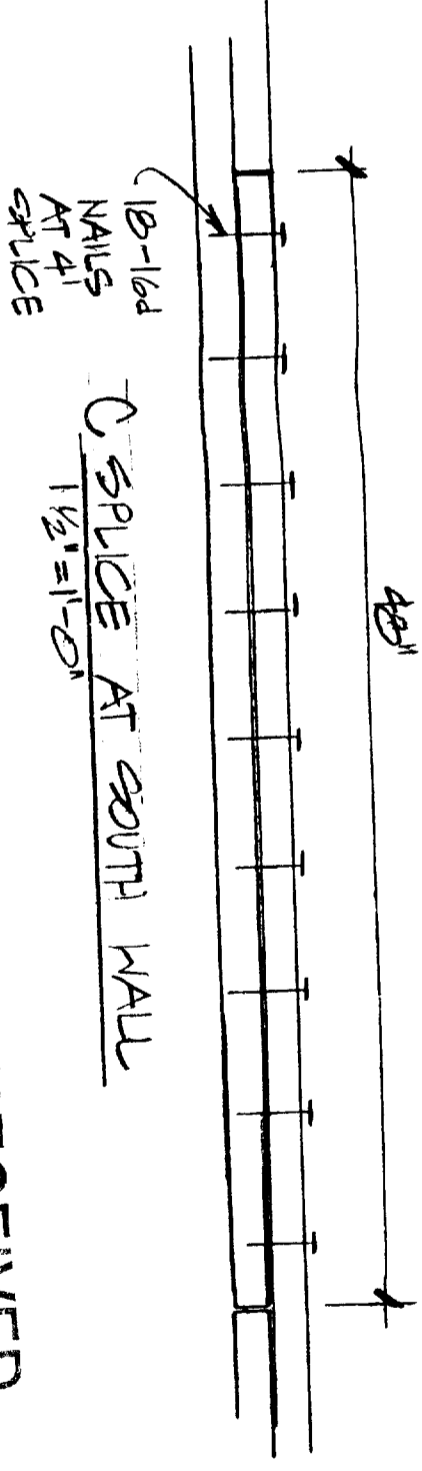
KITCHEN

TRUSSED ROOF

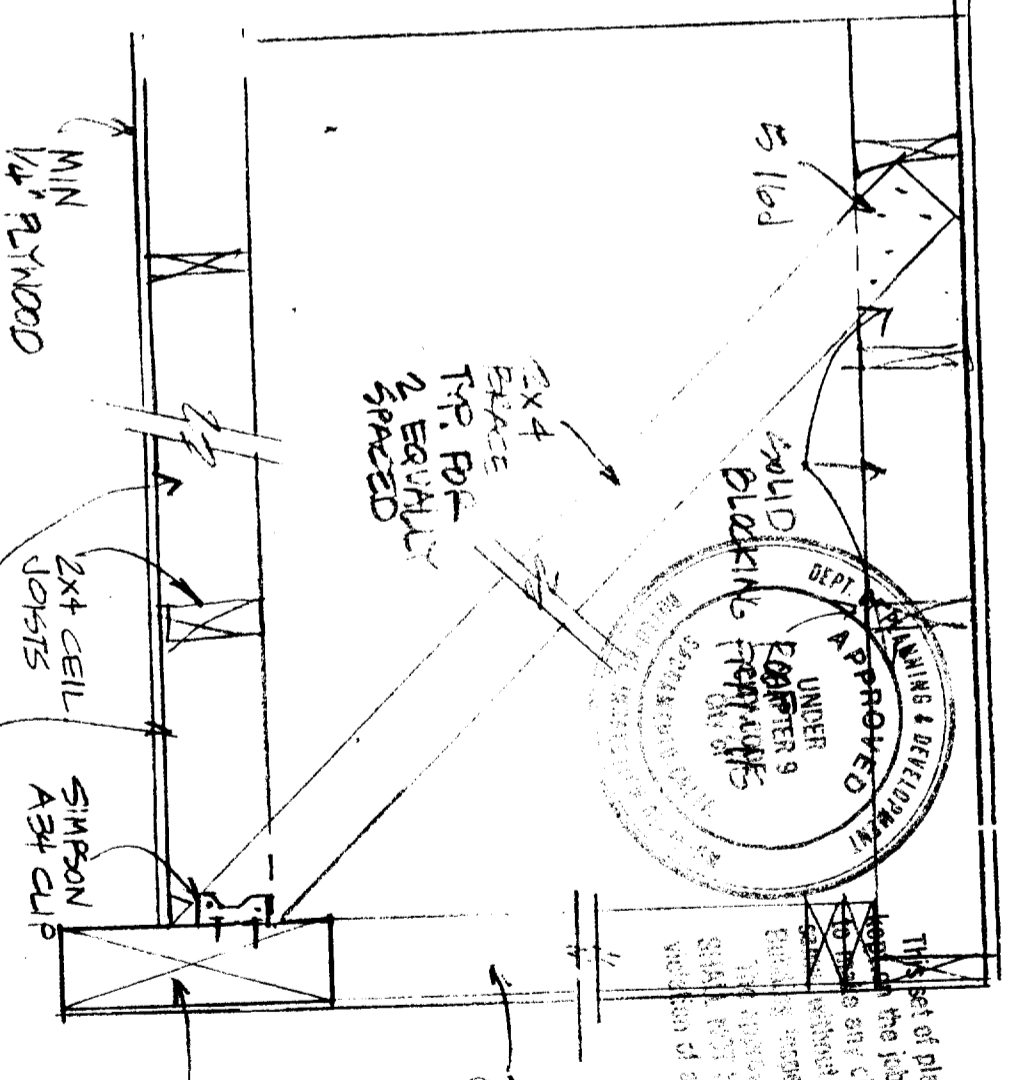
DINING ROOM



B ELEVATION
1/4" = 1'-0"



C SPLICE AT SOUTH WALL
1 1/2" = 1'-0"



D PORCH ROOF DETAIL
1 1/2" = 1'-0"



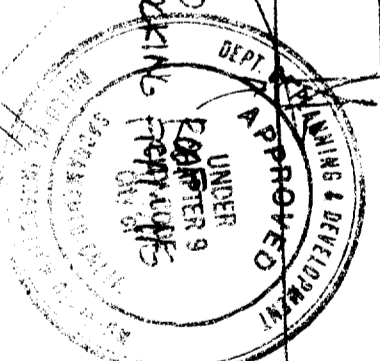
31 JULY, 1998
26 AUG. 1998

ROSEN CARRIAGE HOUSE

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AUG 27 1998

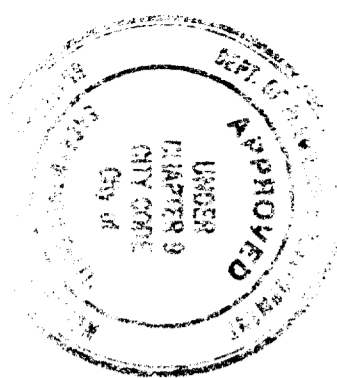
Building Inspection Division



THIS set of plans and specifications must be read in their entirety and it is unlawful to make any changes or alterations from the original set of plans and specifications without written permission from the Building Inspection Division. Any violation of any City Ordinance or State Law shall be held to permit or approve the same shall be held to be a violation of any City Ordinance or State Law.

Ron Vrilakas
architect
builder
916 441 4635

Revision to 9806372



This set of plans and specifications must be kept on the job at all times and it is important 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 in contempt or approve the same without written permission of State Law.

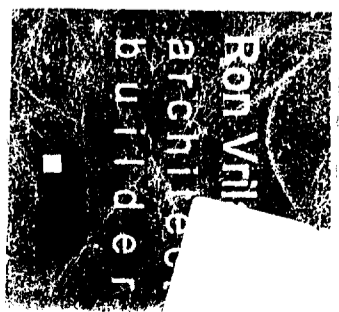
ISSUED

JAN 29 1999

CITY OF SACRAMENTO
DEVELOPMENT SERVICES DIV

HAZARD

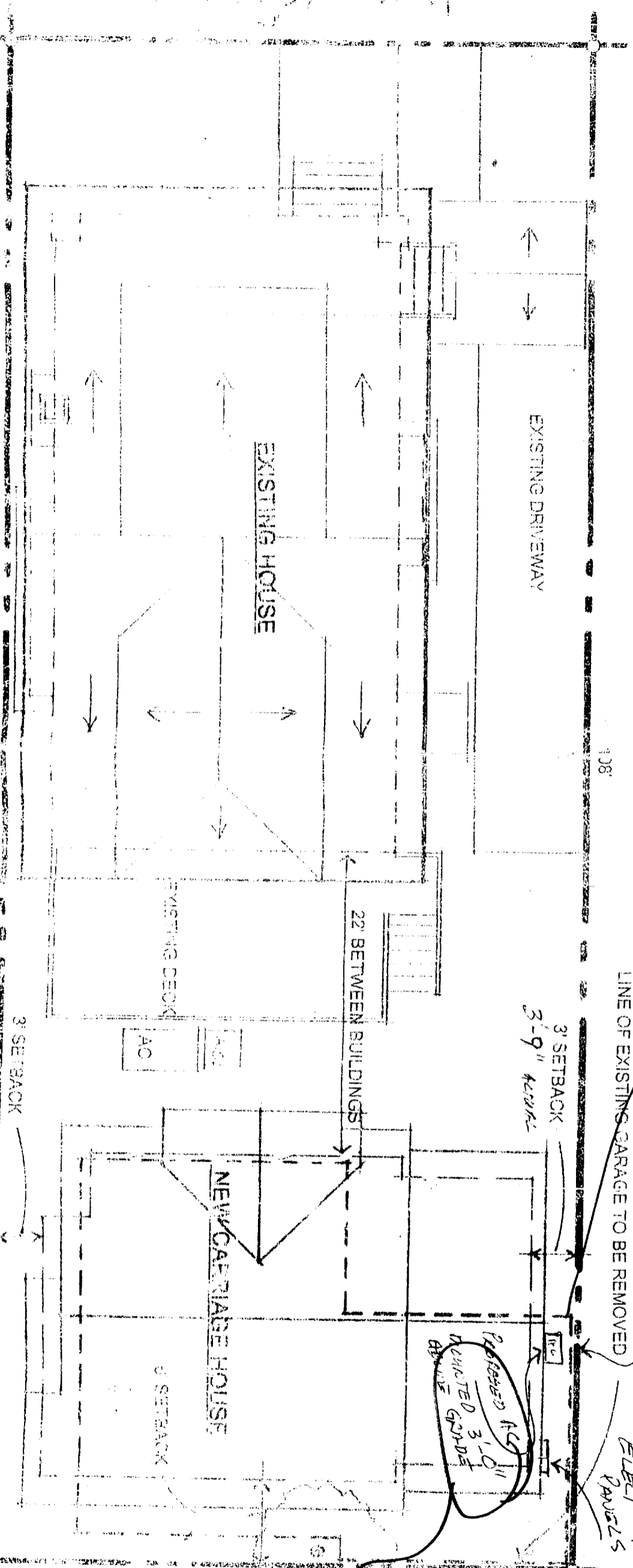
~~both reg'd by Planning~~
so HVAC unit is not
visible from street
per Planning



ROSEN CARRIAGE HOUSE
2226 PORTOLA WAY
SACRAMENTO, CA 95818

ALLEY

AR Flood
Regulation
reg's HVAC
unit to be
3' above
grade
1 JULY, 1991



SITE PLAN

NORTH