

COUNTY OF SANTA CRUZ
PLANNING DEPARTMENT
701 Ocean Street, 4th Floor
Santa Cruz, CA 95060
(831) 454-2580

NOTICE OF PENDING ACTION

The Planning Department has received the following application. The identified planner may be contacted for specific information on this application.

APPLICATON NUMBER: 211145

APN: 063-071-21

SITUS ADDRESS: 395 Vía Venado, Bonny Doon, CA 95060

Proposal to construct a 336-square-foot first floor and 305-square-foot underfloor addition to an existing two-story single-family dwelling. Requires a Coastal Development Permit. The property is located at the end of Via Venado, about 1/2 mile from the intersection of Brisa del Mar and Bonny Doon Road.

OWNER: Lisa and Michael Shallop

APPLICANT: Clarke Shultes

SUPERVISORIAL DISTRICT: 3

PLANNER: Shila Bagley, (831) 454-3209

EMAIL: Shila.Bagley@santacruzcounty.us

**Public comments must be received by 5:00 p.m. October 14, 2021.
A decision will be made on or shortly after October 15, 2021.**

Appeals of the decision will be accepted until 5:00 p.m. two weeks after the decision date.

If you would like to request a public hearing be held for this item, please contact the project planner listed on this notice.

Information regarding the appeal process, including required fees, may be obtained by phoning (831) 454-2130.

For more information, contact the project planner identified above.

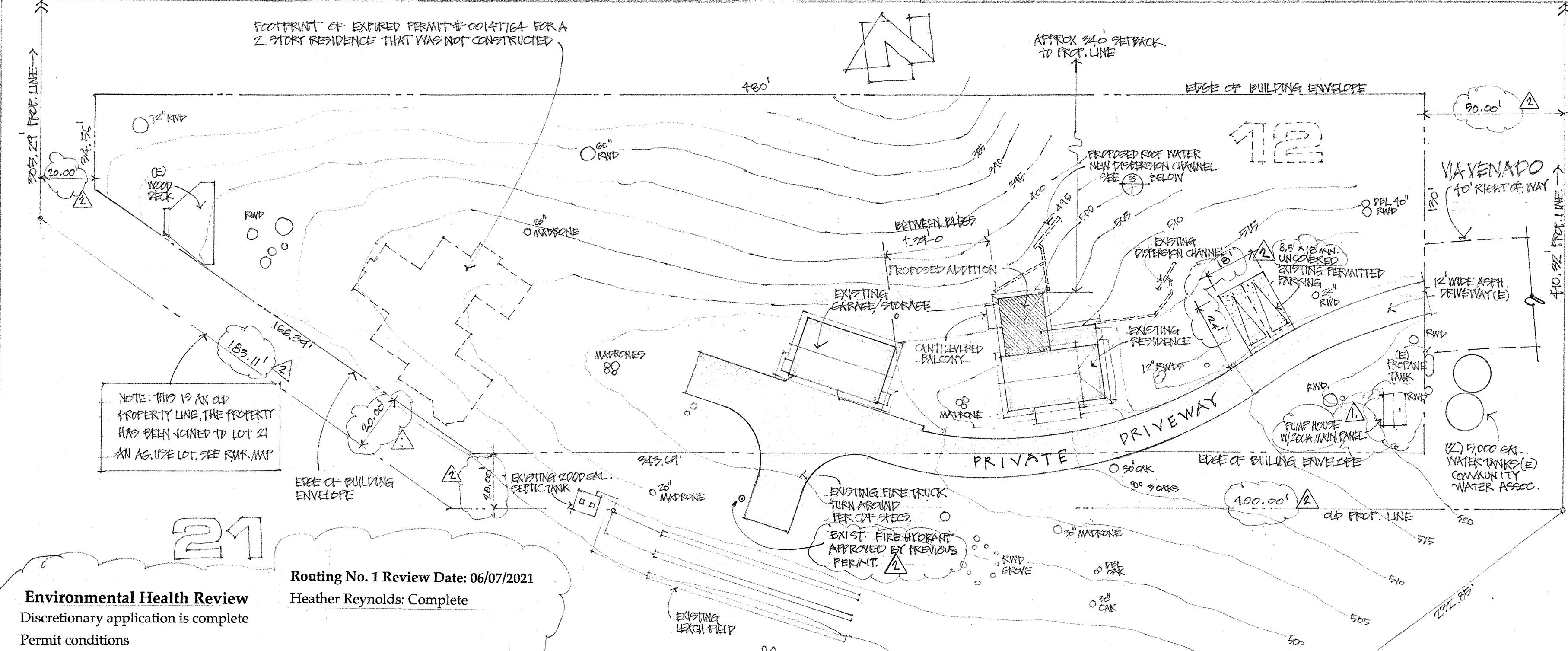
COASTAL PERMIT APPLICATION ADDITION TO SINGLE FAMILY RESIDENCE

FOR:
LISA AND MICHAEL SCHALLOP
AT:
400 VIA VENADO, BONNY DOON, CA. 95060
PROJECT INFORMATION:

OWNERS: LISA AND MICHAEL SCHALLOP
MAILING ADDRESS: 400 VIA VENADO, BONNY DOON, CA. 95060
PHONE NUMBER: HOME (925) 429 1869, CELL (650) 224-5240
EMAIL: schallop@comcast.com, mjschallop@gmail.com
ZONING: RA RESIDENTIAL AGRICULTURE
COASTAL ZONE: YES, EXCLUSION AREA, UNDER 500 SQ. FT. ADDITION
GENERAL PLAN: R-M
PROJECT SITE AFD: 063-071-21
PROJECT ZONING: RA
PARKING: (2) COVERED IN EXISTING GARAGE (2) UNCOVERED AT PARKING AREA
TYPE OF CONSTRUCTION: TYPE VB SPRINKLERED (FIRE SPRINKLER SYSTEM SHALL BE REVIEWED AND APPROVED UNDER A SEPARATE BUILDING PERMIT)
OCCUPANCY: RS
WATER DISTRICT: PRIVATE; EL AGUA DEL ORO, MUTUAL WATER CO, REDWOOD MEADOWS RANCH
SEWAGE: SEPTIC SYSTEM, APPROVED BY ENVIRONMENTAL HEALTH
ELECTRICAL: PACIFIC GAS AND ELECTRIC
PROPANE: CPF, CALIF. DEPT. OF FORESTRY
FIRE DISTRICT: GRA. HIGH. THIS PROJECT SHALL COMPLY WITH NFPA 197, CHAPTER 35 OF THE CALIFORNIA BUILDING CODE AS DETERMINED BY THE LOCAL FIRE DEPT. OFFICIAL AND ALL REQUIREMENTS OF THE WILDLAND URBAN INTERPHASE REGULATIONS.
FIRE PROTECTION: ALL WORK INDICATED ON PLANS SHALL COMPLY WITH 2019 CCR, CCR, CEC, CHC, CALIFORNIA ENERGY CODE, CAL GREEN 2016, AND ALL OTHER NATIONAL, STATE AND LOCAL CODES AND REGULATIONS OF AGENCIES WITH JURISDICTION.

CODE COMPLIANCE:
SITE PARCEL SIZE: 4.998 ACRES 217,729.87 SQ. FT.
SITE DIMENSIONS: 1200' X 1200' (SEE CALCULATIONS BELOW)
SCOPE OF PROJECT: TO CONSTRUCT AN ADDITION OF 336 SQ. FT. WITH A BEDROOM AND BATH AND A 305 SQ. FT. UNDERFLOOR AREA TO AN EXISTING 2-STORY 1200 SQ. FT. 1 BEDROOM 2 BATH SINGLE FAMILY RESIDENCE FOR A TOTAL OF 1536 SQ. FT. (SEE CALCULATIONS BELOW)
AREA CALCULATIONS:
PARCEL SIZE: 4.998 ACRES 217,729.87 SQ. FT.
EXISTING RESIDENCE: 1200 SQ. FT. 1ST FLOOR = 1200 SQ. FT. 2ND FLOOR = 480 SQ. FT. OF CONDITIONED FLOOR AREA.
ADDITION: 336 SQ. FT. CONDITIONED FLOOR AREA, 305 SQ. FT. UNDERFLOOR AREA.
TOTAL: 1536 SQ. FT. CONDITIONED FLOOR AREA.
SITE BUILDING COVERAGE: EXISTING COVERAGE 956 SQ. FT. HOUSE AND COVERED PORCHES, 111 SQ. FT. GARAGE INCLUDING PORCHES & GARAGE FAR = 2219.00 SQ. FT. 10% MAX. ALLOWED PROPOSED COVERAGE: 2003 SQ. FT. TOTAL CR. 9.2% NOT REQUIRED
BUILDING HEIGHT: EXISTING 26'-6", ADDITION 22'-6"
IMPERVIOUS AREA: EXISTING = 7,123 SQ. FT. PROPOSED = 336 SQ. FT. ADDITION, TOTAL = 7,459 SQ. FT. NO NEW IMPERVIOUS AREAS WILL BE CREATED, NEW WALKWAY TO BASEMENT = GRAVEL
GRADING: LESS THAN 100 CUBIC YARDS OF GRADING/CUT REQUIRED.
DRAINAGE: ALL NEW ROOF WATER RUNOFF SHALL MATCH & ATTACH TO EXIST. DRAINAGE SYSTEM. SEE SHIT. 4D
CAL FIRE NOTES: SHEET INDEX

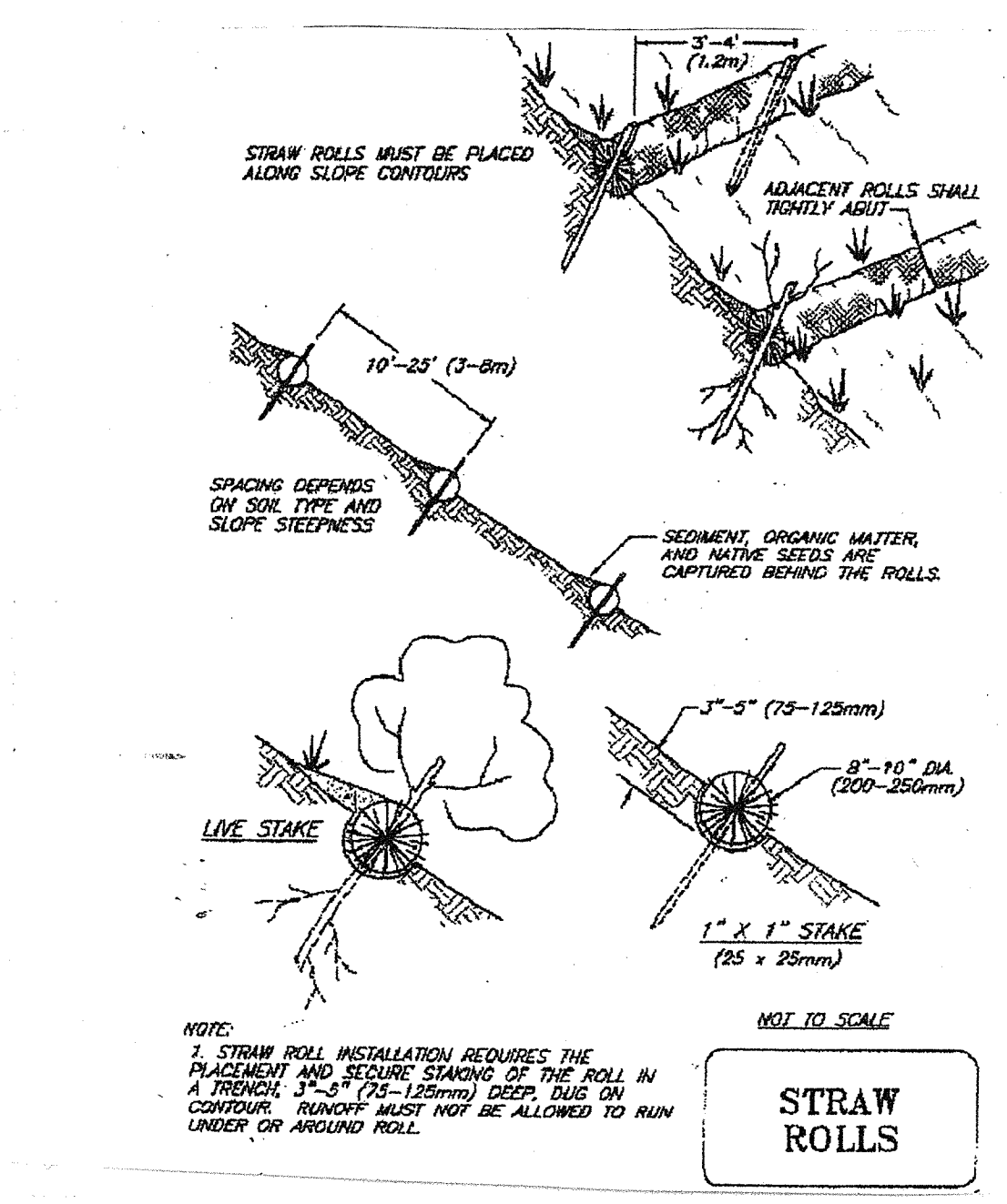
SECTION 4.008 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING
4.008.1 Construction waste management. Recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition waste in accordance with either Section 4.008.2, 4.008.3 or 4.008.4, or meet a more stringent local construction and demolition waste management ordinance.
Exceptions:
1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.
3. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.
4.008.2 Construction waste management plan. Submit a construction waste management plan in conformance with Items 1 through 5. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency.
1. Identify the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.
2. Specify if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream).
3. Identify diversion facilities where the construction and demolition waste material will be taken.
4. Identify construction methods employed to reduce the amount of construction and demolition waste generated.
5. Specify that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.
4.008.3 Waste management company. Utilize a waste management company, approved by the enforcing agency, which in provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with Section 4.008.1.
Note: The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste management company.



Environmental Health Review
Discretionary application is complete
Permit conditions
A recorded Declaration of Restriction of Septic Agreement from Environmental Health will be required to restrict conversion of the new basement area into habitable space. Declaration of Agreement will be notarized and recorded at property owner's expense. Conversion of basement area to habitable space will require an approved building permit and a sewage disposal system upgrade under permit with Environmental Health.

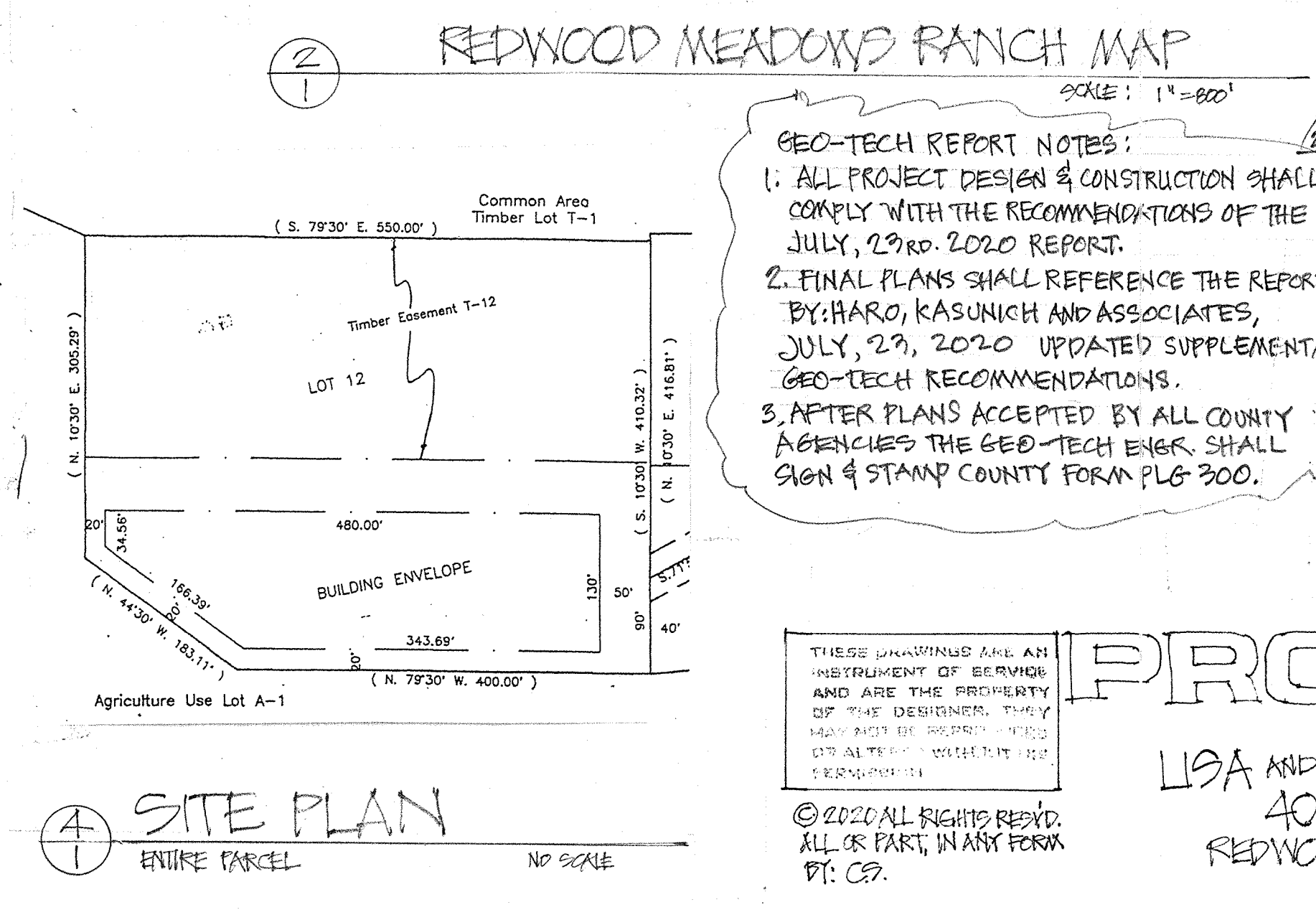
SITE PLAN DETAIL
PER CDS ENGINEERING SURVEY
SCALE: 1" = 30'
FAR CALCULATION
EXIST. GARAGE = 711 - 225 CREDIT = 486 SQ. FT.
EXIST. RESIDENCE = 1200 SQ. FT.
PROPOSED ADDITION (HEATED AREA) = 336 SQ. FT.
EXIST. COVERED DECK & BALCONY = 144 SQ. FT.
PROPOSED CANTILEVERED BALCONY = 90 SQ. FT.
TOTAL = FAR = 2219 SQ. FT.

EROSION CONTROL NOTES:
1. Between October 15, and April 15, exposed soil shall be protected from erosion at all times. Hay bales, filter berms, or other means shall be employed to prevent turbid runoff to adjoining property and/or
2. All areas on and off site, exposed during construction, if not permanently landscaped, shall be protected by mulching and/or planting of the following SCS approved erosion control mix, at a rate of 35 pounds per acre:
Blando Bromes 30%
Rose Clover (Pellet inoculated) 35%
Creeping Red Fescue 15%
Zorro Annual Fescue Trace
Wildflowers Trace



GRADING, DRAINAGE & EROSION CONTROL
THE SITE IS DEVELOPED AND WORKED. THE AREA OF THE ADDITION SLOPES DOWN TO THE NORTH, KEEPS REMAINING CONTOUR LINES AT SITE PLAN ABOVE. THE ONLY GRADING NECESSARY IS FOR NEW ADDED FOUNDATION EXCAVATION WHICH WILL NOT AFFECT EXISTING DRAINAGE PATTERNS. UNNECESSARY DISTURBING OF SOIL SHALL BE AVOIDED AND ANY EXCAVATED SOIL SHALL BE STOCKPILED IN A MANNER TO PREVENT TURBID RUNOFF. CONTRACTOR SHALL SLOPE GRADE AWAY FROM FOUNDATION 5% PER 10' MINIMUM. CONTRACTOR SHALL PROVIDE SURFACE REQUIREMENT @ GRADE TO ALLOW 8" CLEARANCE TO ALL VEHICLE SURFACES PER CODE. EXCAVATED SOIL SHALL BE DEPOSITED ON SITE IN APPROPRIATE LOCATIONS AND SPREAD ON THE SURFACE TO ALIGN SMALL EXISTING DEPRESSIONS WITH THE GENERAL CONTOUR. EXPOSED AREAS ARE TO BE SEED WITH AN EROSION CONTROL MIX FOLLOWING MIX TO BE ESTABLISHED PRIOR TO OCT. 1ST. LESS THAN 100 CU. YDS. GRADING.
FIRE PROTECTION NOTES:
THIS PROJECT LIES WITHIN AN URBAN WILDFIRE INTERPHASE ZONE AND WILL COMPLY WITH ALL REQUIREMENTS OF SANTA CRUZ COUNTY AND CAL FIRE REGS. AND STANDARDS AS SPECIFIED AT THE TIME OF CONSTRUCTION. SMOKE DETECTORS AND CARBON MONOXIDE ALARMS WITH BATTERY BACK UP SHALL BE LOCATED AND INSTALLED PER CODE. PROJECT IS FIRE SPRINKLERED THERE IS 10,000 GALLON WATER STORAGE ON SITE. (2) 5000 GALLON TANKS

CONSULTANTS:
GEOTECHNICAL: HARO KOUNCHAKIS, 110 EAST LAKE AVE., WATSONVILLE, CA 95076, 831-722-4175
STRUCTURAL: G. REYNOLDS & ASSOC., 111 YOUNGLOVE AVE., SANTA CRUZ, CALIF. 95061, 831-426-3697
ENERGY: BRIGHT GREEN STRATEGIES, 1717 SEABRIGHT AVE. SUITE 4, SANTA CRUZ, CALIF. 95061, 831-454-1156



GEO-TECH REPORT NOTES:
1. ALL PROJECT DESIGN & CONSTRUCTION SHALL COMPLY WITH THE RECOMMENDATIONS OF THE JULY, 29th, 2020 REPORT.
2. FINAL PLANS SHALL REFERENCE THE REPORT BY: HARO, KASUNICH AND ASSOCIATES, JULY, 29, 2020 UPDATED SUPPLEMENTAL GEO-TECH RECOMMENDATIONS.
3. AFTER PLANS ACCEPTED BY ALL COUNTY AGENCIES THE GEO-TECH ENGR. SHALL SIGN & STAMP COUNTY FORM PLG 300.

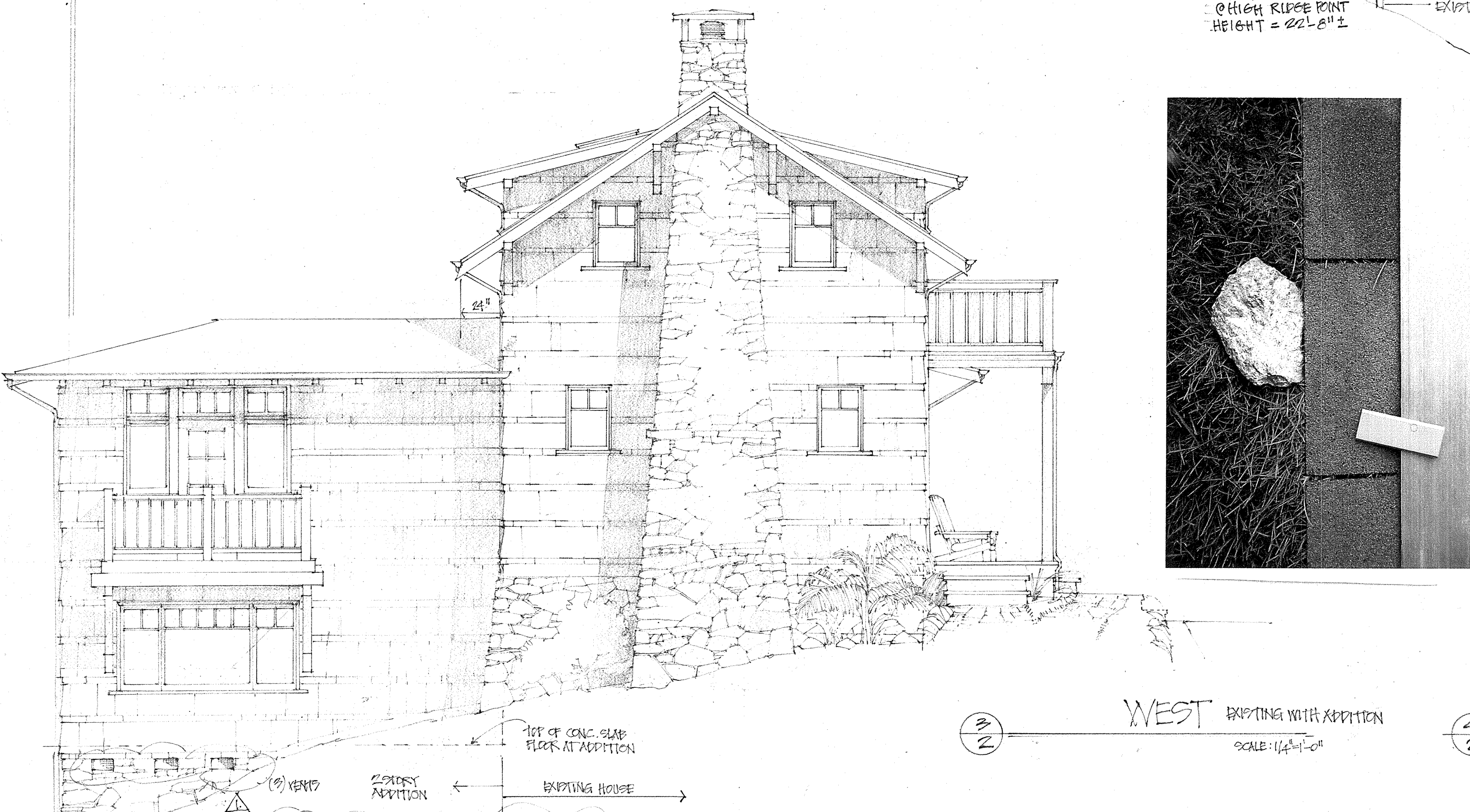
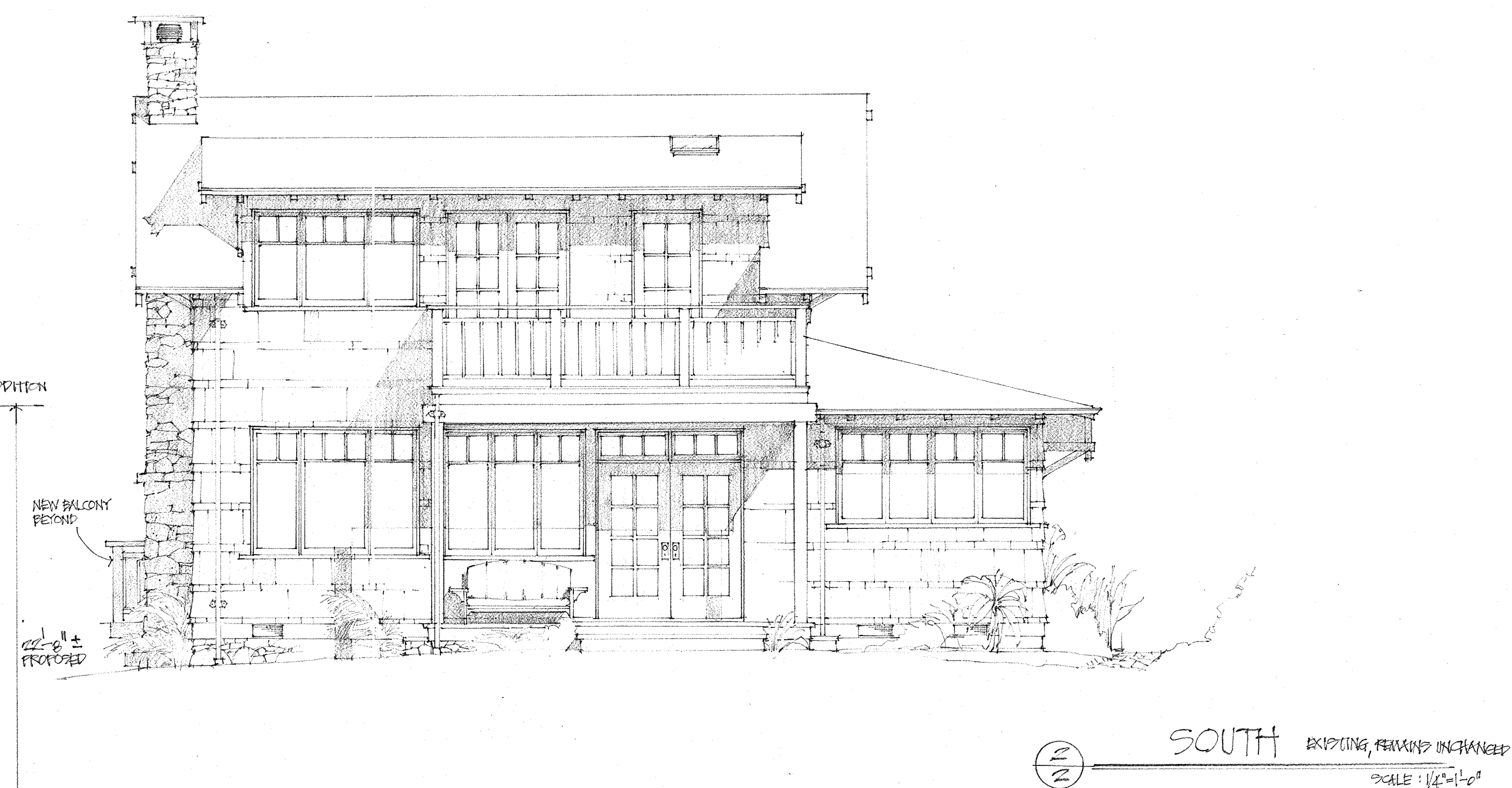
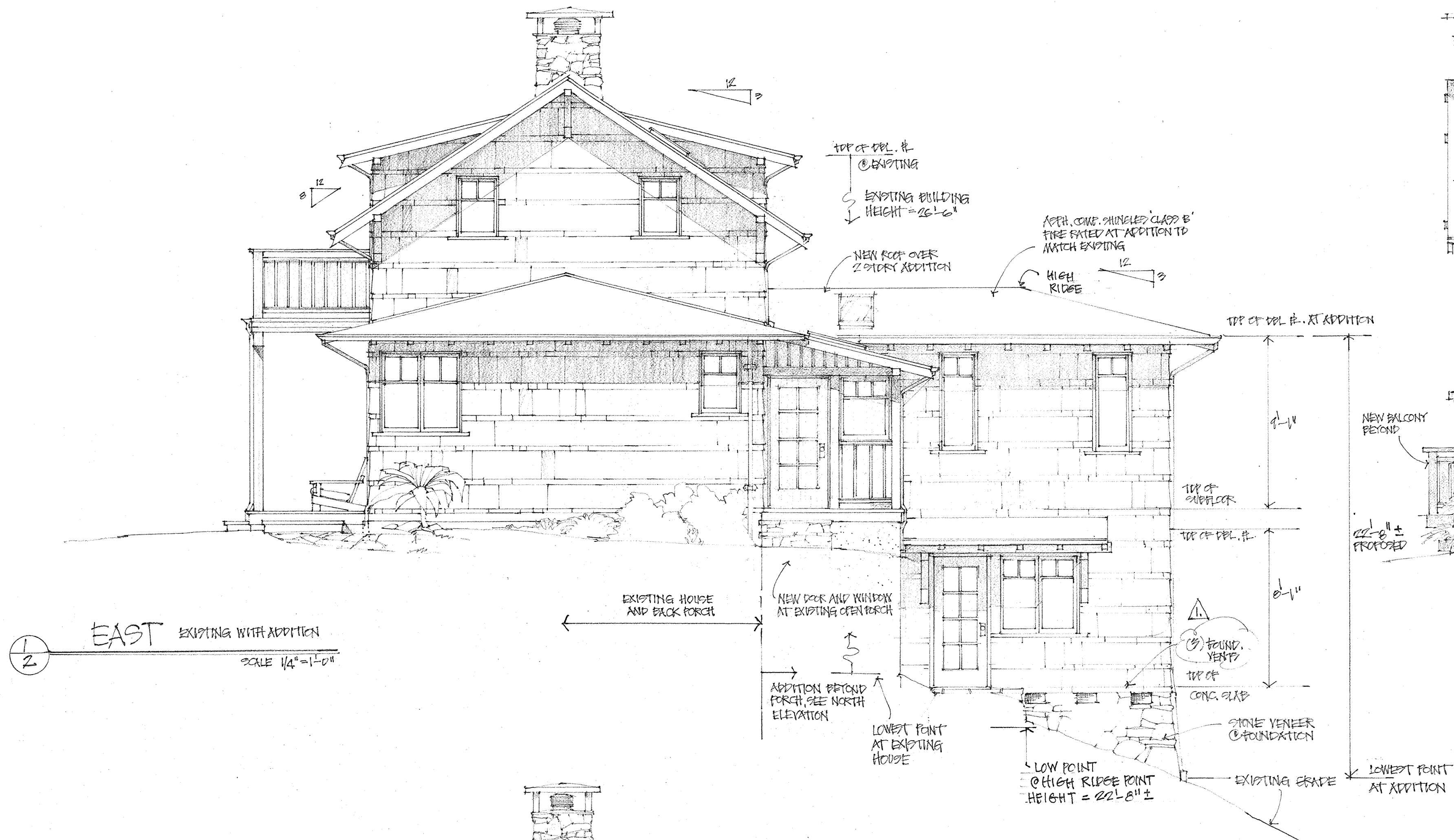
- COVER SHEET, SITE PLAN, PROJECT INFO.
- PROPOSED ELEVATIONS
- PROPOSED AND EXISTING FLOOR PLANS
- ELECTRICAL PLAN
- WINDOW AND DOOR SCHEDULES, INTERIOR ELEVATIONS & CAL FIRE NOTES
- SECTIONS, ARCH. DETAILS

PROPOSED ADDITION

TO THE RESIDENCE OF:
LISA AND MICHAEL SCHALLOP
400 VIA VENADO
REDWOOD MEADOWS RANCH
BONNY DOON, CA.

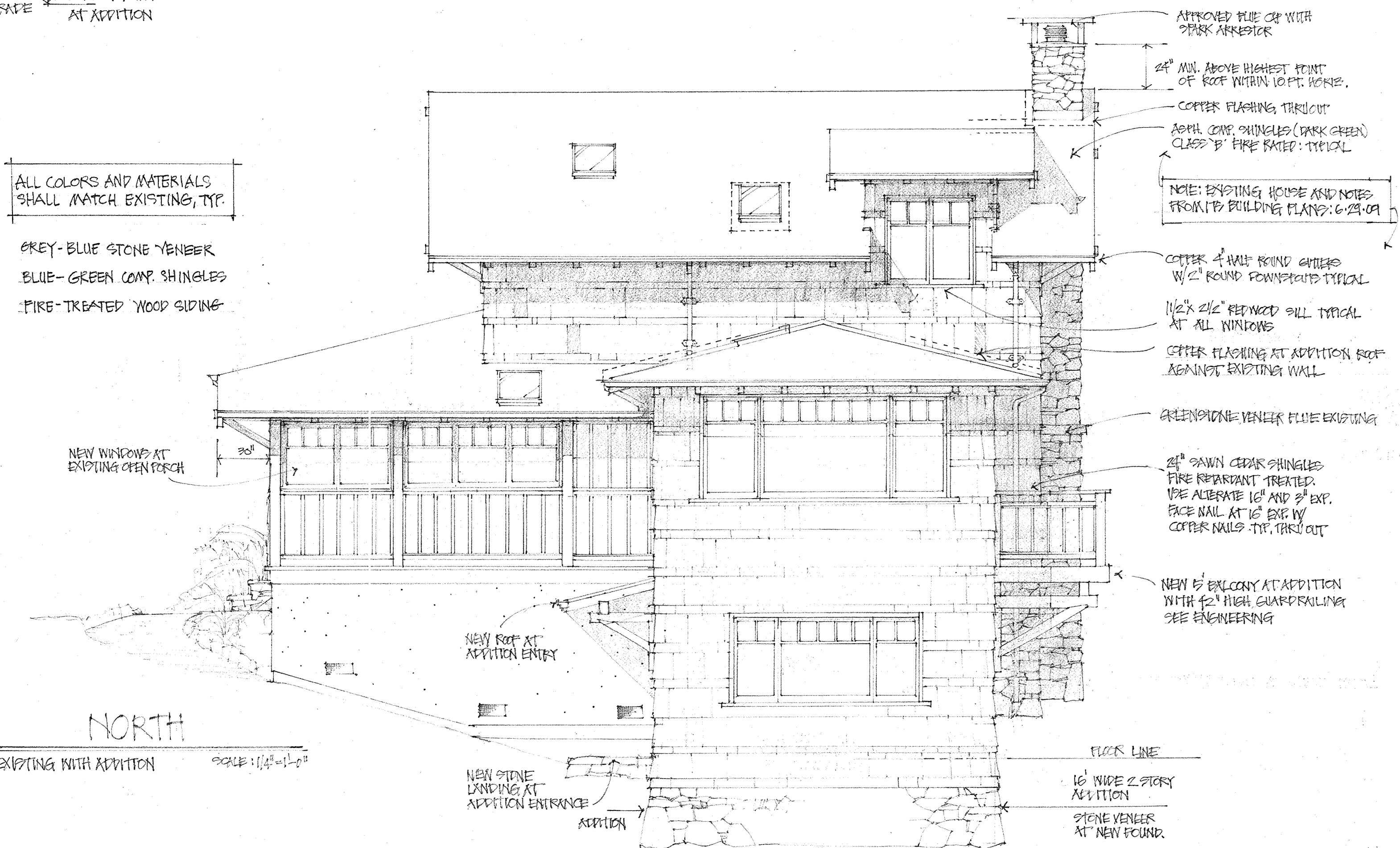
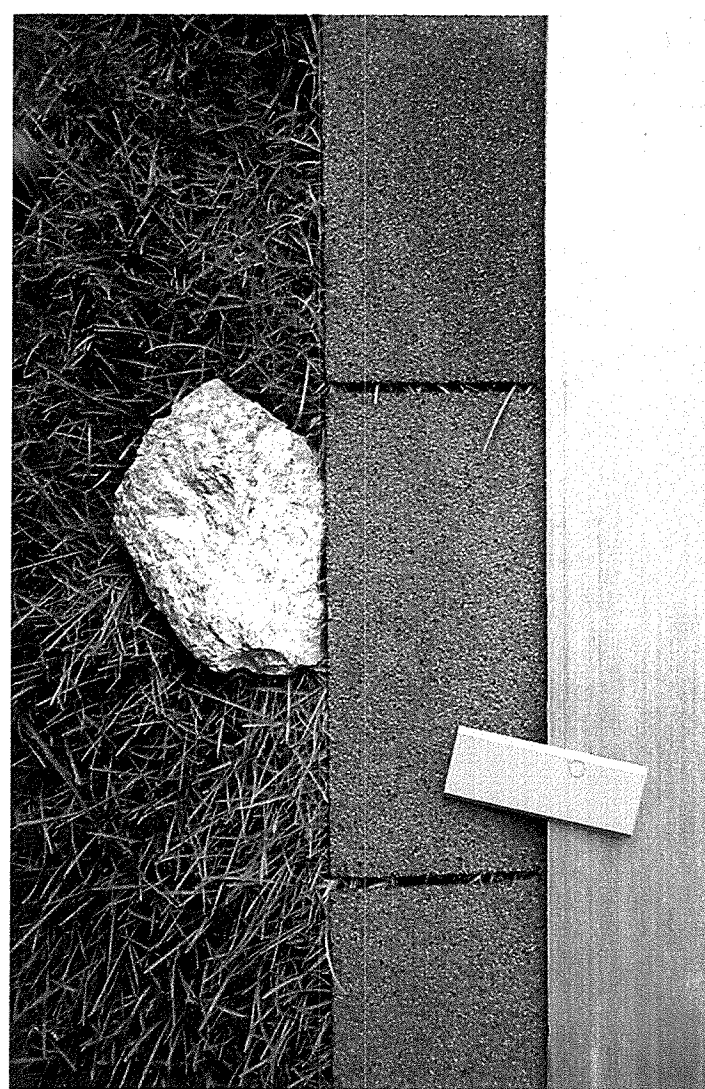
DESIGNED BY:
CLARKE L. SHULTES
301 NATIONAL STREET
SANTA CRUZ, CALIF. 95060
AFN: 063-071-21
IN THE COUNTY OF SANTA CRUZ
REVISED: 7.10.21
REVISED: 8.20.21

SHEET NO. 1
DRAWN BY: CS
DATE: 8.15.20



ALL COLORS AND MATERIALS SHALL MATCH EXISTING, TYP.

GREY-BLUE STONE VENEER
BLUE-GREEN COMP. SHINGLES
FIRE-TREATED WOOD SIDING



FOUNDATION VENTING NOTE:
100 SQ. FT. X 2.99 = 299.0 SQ. FT. (GIR AREA)
80" X 10" X 2 = 80.0 SQ. FT. (CLOSING AREA)
TOTAL UNDERFLOOR AREA = 452.0 SQ. FT.
452.0 / 150 = 3.01 SQ. FT. OF REQUIRED VENT
EACH VENT = 5.96 SQ. FT. = 6 VENTS REQUIRED
VENT SCREEN SHALL BE NOT MORE THAN 1/8" MESH
OR LESS THAN 1/16" NON-COMBUSTIBLE SCREEN

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PROPOSED ADDITION

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LISA AND MICHAEL SCHALLOP
400 VIA VENADO
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BONNY BOON, CA.

BY:
CLARKE L. SHULTES
301 NATIONAL STREET
SANTA CRUZ, CALIF.
95060
PH: 831.421-1000-shultesdesign.com/ast.net

APN: 063-071-21
IN THE COUNTY OF SANTA CRUZ

SHEET NO. 2

DRAWN BY: CS
DATE: 6/15/10

NOTES:

1. LAB MARKING REQ'D FOR RECESSED DOWN LIGHTING. GFI-24 SOCKETS WITH LED LIGHT, LIGHTS NOT LISTED ABOVE BUT CERTIFIED TO COMPLY W/ LAB PER COMMISSION. ALL LIGHTING & SWITCHES SHALL MEET 2016 CEC SECTION 150.0(K). ALL LIGHTING TO BE HIGH EFFICACY.

2. LAB-2016 OR LAB-2016-E LABELS REQ'D.

3. GFCI PROTECTION REQ'D FOR ALL RECEPTACLES WITHIN 6'-0" OF ALL SINKS, INCL. DISHWASHER AND CABBAGE DISF. REFR. ETC. GFI PROTECTION REQ'D FOR ALL RECEPTACLES IN LAUNDRY AREA. COUNTERTOP RECEPTACLES TO BE 24" MIN. FROM RECEPTACLES ALONG WALL LINE, GFCI/AFCI PROTECTED. ALL RECESSED LIGHTS SHALL NOT HAVE ANY SCREW BASES REGARDLESS OF LAMP TYPE PER SECTION 150.0(K)(1) C.

4. PROVIDE 100 CFM MINIMUM LOCAL EXHAUST FAN IN KITCHEN, MAY BE RANGE HOOD. ALL NEW APPLIANCES SHALL BE ENERGY STAR RATED.

5. FIXTURES RECESSED INTO CEILING SHALL BE LISTED FOR ZERO CLEARANCE INSTALL. CONTACT (IC) HAVE A LABEL THAT CERTIFIES THAT THE FIXTURE IS AIRTIGHT W/ AIR LEAKAGE LESS THAN 2.0 CFM AT 75 PASCHALS (AT), BE SEALED WITH A GASKET OR CAULK TO CEILING, HAVE ACCESSIBLE GASKETS/DRIVERS IF HAND WIRED, AND NOT CONTAIN SCREW BASE SOCKETS. CONTAIN LIGHT SOURCES THAT COMPLY WITH REFERENCES JOINT APPENDIX JAB, INCLUDING THE ELATED TEMPERATURE REQUIREMENTS, AND THAT ARE MARKED "LAB-2016-E" (CEC 150.0(K)(1) C).

6. INSULATION MEETING THE MANDATORY REQUIREMENTS IN CEC SHALL BE INSTALLED @ CEILING, WALLS, FLOORS & WATER PIPES WHEN EXPOSED DURING THE REMODEL PROCESS.

7. SHOWERS AND TUBS/SHOWERS SHALL HAVE INDIVIDUAL CONTROL VALVES OF PRESSURE, BALANCE, THERMOSTATIC OR COMBO MIXING VALVE TO PROVIDE SCOLD AND SHOCK PROTECTION, TYPICAL THROUGHOUT.

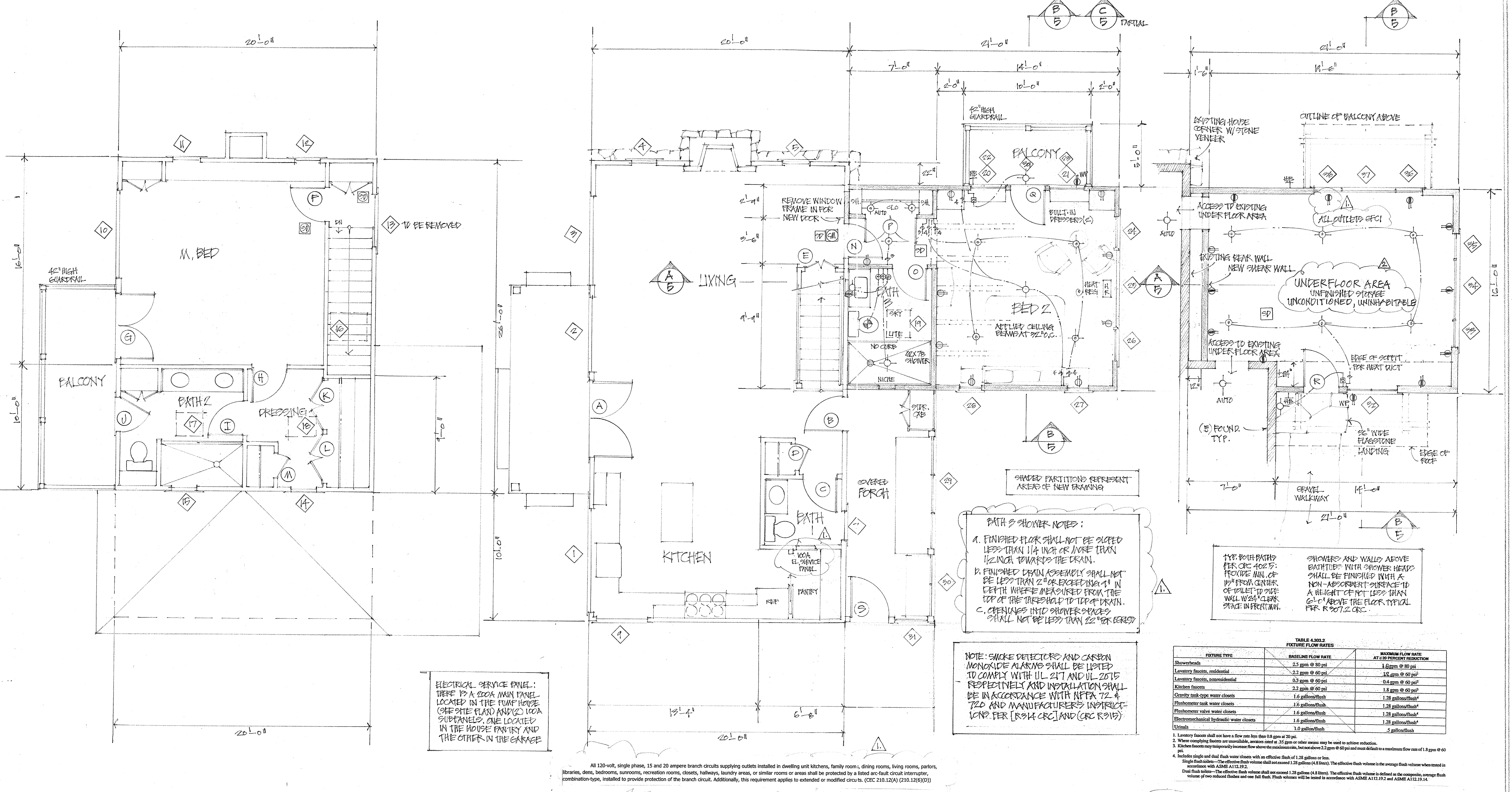
- KEY TO SYMBOLS**
- ⊕ 110V ELECTRIC LIGHT FLUOR OR LED
 - ⊖ RECESSED 110V EL. LIGHT FLUOR OR LED
 - ⊗ FLUORESCENT LIGHT OR LED TYPE
 - ⊕ DIMMER LIGHT SWITCH
 - ⊖ VACANCY CONTROLLED SWITCH
 - ⊕ SOLAR/PHOTO SWITCH
 - ⊕ 110V DUPLEX OUTLET, TAMPER PROOF * ABOVE TAMPER PROOF W/ GFCI & AFCI
 - ⊖ SMOKE DETECTOR 110V W/ BATTERY BACKUP
 - ⊕ CARBON MONOXIDE SENSOR 110V W/ BATTERY BACKUP
 - WF WATER PROOF
 - NG NATURAL GAS
 - HP HOSE PIPE
 - ⊕ 110V EXHAUST FAN VENT TO EXT. BATHROOM FAN SHALL BE ECM ENERGY STAR RATED W/ HUMIDISTAT
 - * ALL 120V/15 AND 20 AMP IN DWELLING UNIT SHALL BE TAMPER RESISTANT (N)
 - ⊕ CABLE TV, MEDIA SERVICE

Two small appliance branch circuits are required for the kitchen and are limited to supplying wall and counter space outlets for the kitchen, pantry, breakfast room, dining room, or similar areas. Note: These circuits cannot serve outside plugs, range hood, disposals, dishwashers or microwaves - only the required countertop/wall outlets including the refrigerator. CEC Articles 210.11(C)(1) & 210.52(B).

A dedicated 20-amp branch circuit shall be provided to supply the laundry receptacle outlet. CEC Articles 210.11(C)(2) and 210.52(F).

A dedicated 20-amp circuit is required to serve the required bathroom outlets. This circuit cannot supply any other receptacles, lights, fans, etc. (Exception-where the circuit supplies a single bathroom, outlets for other equipment within the same bathroom shall be permitted to be supplied). CEC Articles 210.11(C)(3) and 210.52.

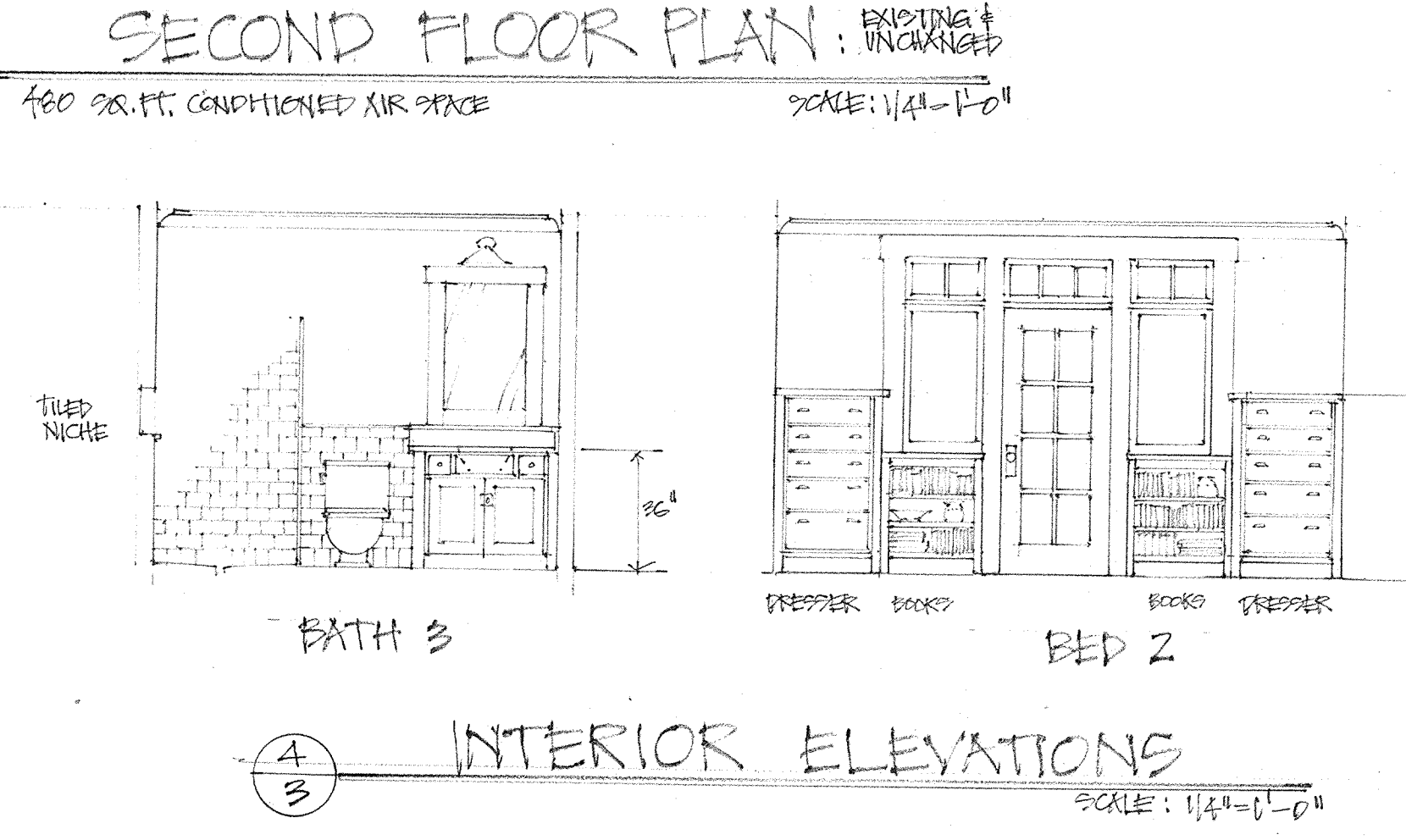
Specify all branch circuits that supply 125-volt, 15 and 20 ampere outlets for receptacles, lights and smoke alarms installed in dwelling unit bedrooms shall be protected by an arc-fault circuit interrupter (AFCI) listed to provide protection of the entire branch circuit per 2016 CEC 210.12(6).



**TABLE 4.301.2
FIXTURE FLOW RATES**

FIXTURE TYPE	BASELINE FLOW RATE	MAXIMUM FLOW RATE AT ± 20 PERCENT REDUCTION
Showerheads	2.5 gpm @ 80 psi	1.8 gpm @ 80 psi
Lavatory faucets, residential	2.2 gpm @ 60 psi	1.6 gpm @ 60 psi
Lavatory faucets, commercial	0.5 gpm @ 60 psi	0.4 gpm @ 60 psi
Kitchen faucets	2.2 gpm @ 60 psi	1.6 gpm @ 60 psi
Gravity tank-type water closets	1.6 gpm/flush	1.28 gpm/flush
Flushometer tank water closets	1.6 gpm/flush	1.28 gpm/flush
Flushometer valve water closets	1.6 gpm/flush	1.28 gpm/flush
Electromechanical hydraulic water closets	1.6 gpm/flush	1.28 gpm/flush
Urinals	1.0 gpm/flush	0.8 gpm/flush

1. Lavatory faucets shall not have a flow rate less than 0.8 gpm at 20 psi.
2. When complying fixtures are unavailable, scenarios cited in 35 gpm or other values may be used to achieve reduction.
3. Kitchen faucets may temporarily increase flow above the maximum, but not above 2.2 gpm at 60 psi and must default to a maximum flow rate of 1.8 gpm at 60 psi.
4. Includes single and dual flush water closets with an effective flush of 1.28 gallons or less.
Single flush valves - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.2.
Dual flush valves - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.



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BONNY BOON, CA.

BY:
CLARKE L. SHULTES
301 NATIONAL STREET
SANTA CRUZ, CALIF. 95060
PH: 657-424-1008 shultesdesign.com

AFN: 063-071-21
IN THE COUNTY OF SANTA CRUZ

REVISION: 7-10-21
REVISION: 9-20-21
SHEET NO. **3**

DRAWN BY: CS
DATE: 6-15-20

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BY: CS.

CAL FIRE NOTES

corner to property corner shall conform to the minimum width standard.

- NOTE** on the plans “the job copies of the building and fire systems plans and permits must be on-site during inspections.”

EXISTING
DOORS

NO. 11234. IN ADDITION

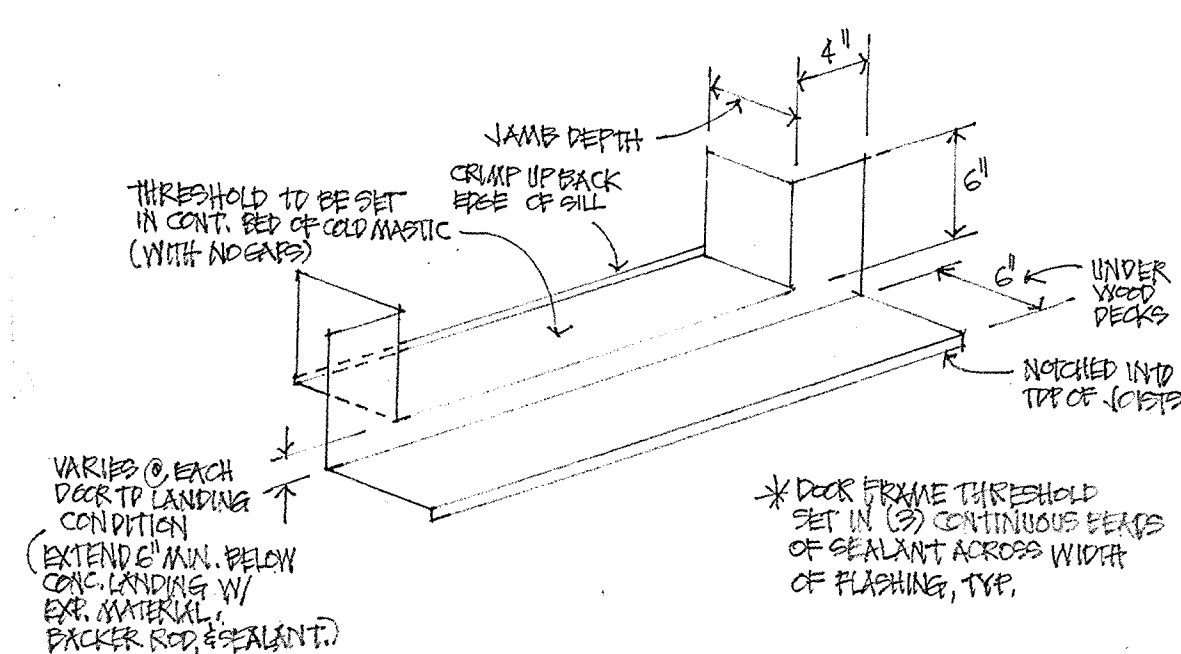
DOOR SCHEDULE

D, PIR 3 PANEL STAINER GRADE TO MATCH EXISTING
NO FINGER JOINTS AT JAMBS, ALL GLASS IS TEMPERED

NO	LOCATION	TYPE	SIZE	REMARKS
(A)	DINING	FRENCH 6 LITE	(2) 3060	
(B)	DINING	1/2 GLASS	3060	
(C)	BATH 1	SWING PASSAGE	2660	
(D)	CLOSET CLOSET	SWING	2060	
(E)	UNDER STAIR	SWING	(2) 1450	
(F)	M. BED	SWING PASSAGE	2660	
(G)	M. BED	FRENCH 6 LITE	(2) 2160	
(H)	DRESSING	SWING PASSAGE	2660	
(I)	BATH 2	SWING PASSAGE	2660	
(J)	BATH 2	6 LITE	2660	
(K)	DRESSING	SWING	(2) 2064	
(L)	DRESSING	SWING	(2) 2064	
(M)	DRESSING	SWING	2060	
(N)	BED 2	SWING PASSAGE	2060	
(O)	BATH 3	SWING PASSAGE	2060	
(P)	BED 2	HUNG PAIR	(2) 2060	
(Q)	BED 2	6 LITE	: 2810	W/ TRANSOM WINDOW ABOVE
(R)	UNDER FLOOR	6 LITE	2860	
(S)	PORCH	6 LITE CUSTOM	3060 ±	CUSTOM MADE DOOR TO FIT EXISTING OPENING

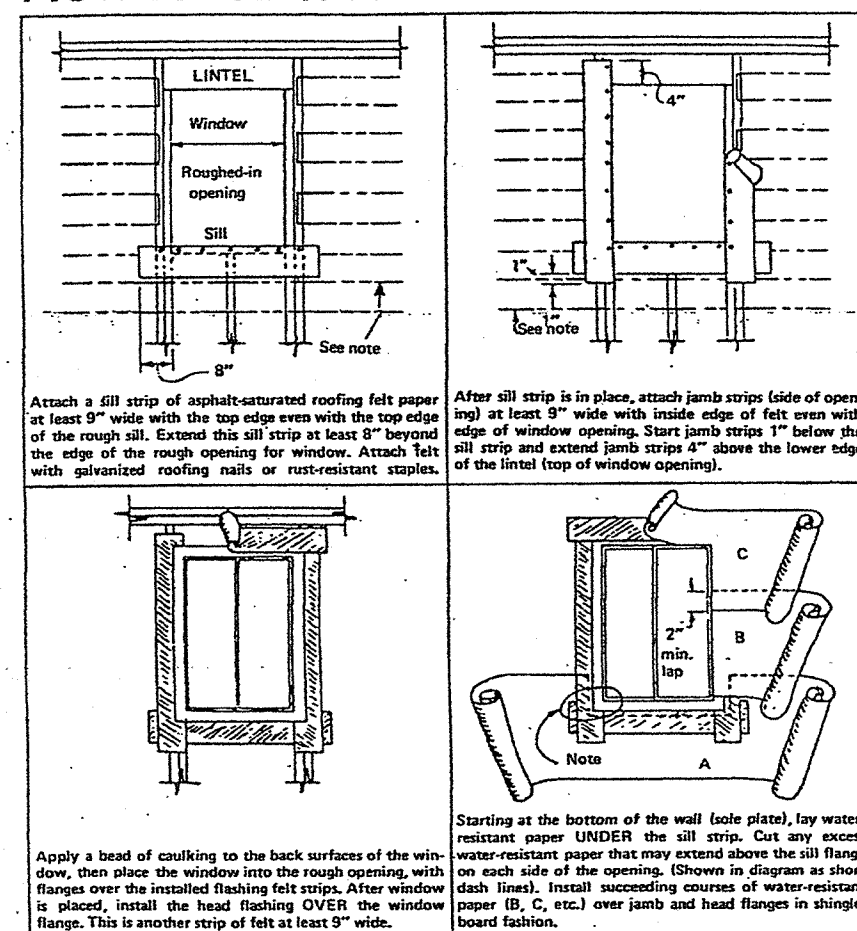
1. CONTRACTOR SHALL VERIFY ROUGH OPENINGS WITH PLANS, WINDOW MANUF., AND OWNER PRIOR TO ORDERING.
2. CONTRACTOR SHALL VERIFY COMPLIANCE WITH ENERGY FORMS PRIOR TO ORDERING.
3. CONTRACTOR SHALL VERIFY ALL MARKS, MODELS, ALL TRIM, JAMB DEPTHS, HARDWARE, OPERATION TYPE / DIRECTION, SCREENS, PRIMERS, COLOR, WEATHERSTRIPPING, ETC. WITH OWNER PRIOR TO ORDERING.
4. CONTRACTOR SHALL PROVIDE METAL HEAD FLASHING @ ALL EXTERIOR DOORS & WINDOWS TO BE IN CONJUNCTION WITH ALL OTHER FLASHINGS TO CREATE A WEATHERTIGHT PROJECT.
5. CONTRACTOR SHALL PROVIDE METAL PAN FLASHING @ THRESHOLDS OF EXTERIOR DOORS IN CONJUNCTION WITH ALL OTHER FLASHINGS TO CREATE A WEATHERTIGHT PROJECT.
6. CONTRACTOR SHALL VERIFY COMPLIANCE WITH ALL ENERGY AND TEMPERED GLASS CODES PRIOR TO ORDERING.
7. ALL WORK, TECHNIQUES AND MATERIALS SHALL BE TO INDUSTRY STANDARDS OR BETTER.

How to Flash Windows



THRESHOLD FLASHING

26 GA. COPPER FLASHING
SOLDER ALL SEAMS, TOP

$$1\frac{1}{2}'' = 1'' - 0''$$


NOTES: Section 1707(b), Uniform Building Code, calls for flashing at all exterior openings exposed to weather to make them weathertight. Since UBC does not outline procedures for window flashing, techniques shown here are recommended. Use 15 lb. asphalt-saturated felt whenever possible for flashing material. Caulk back of window frames before setting. Use windows that are watertight.

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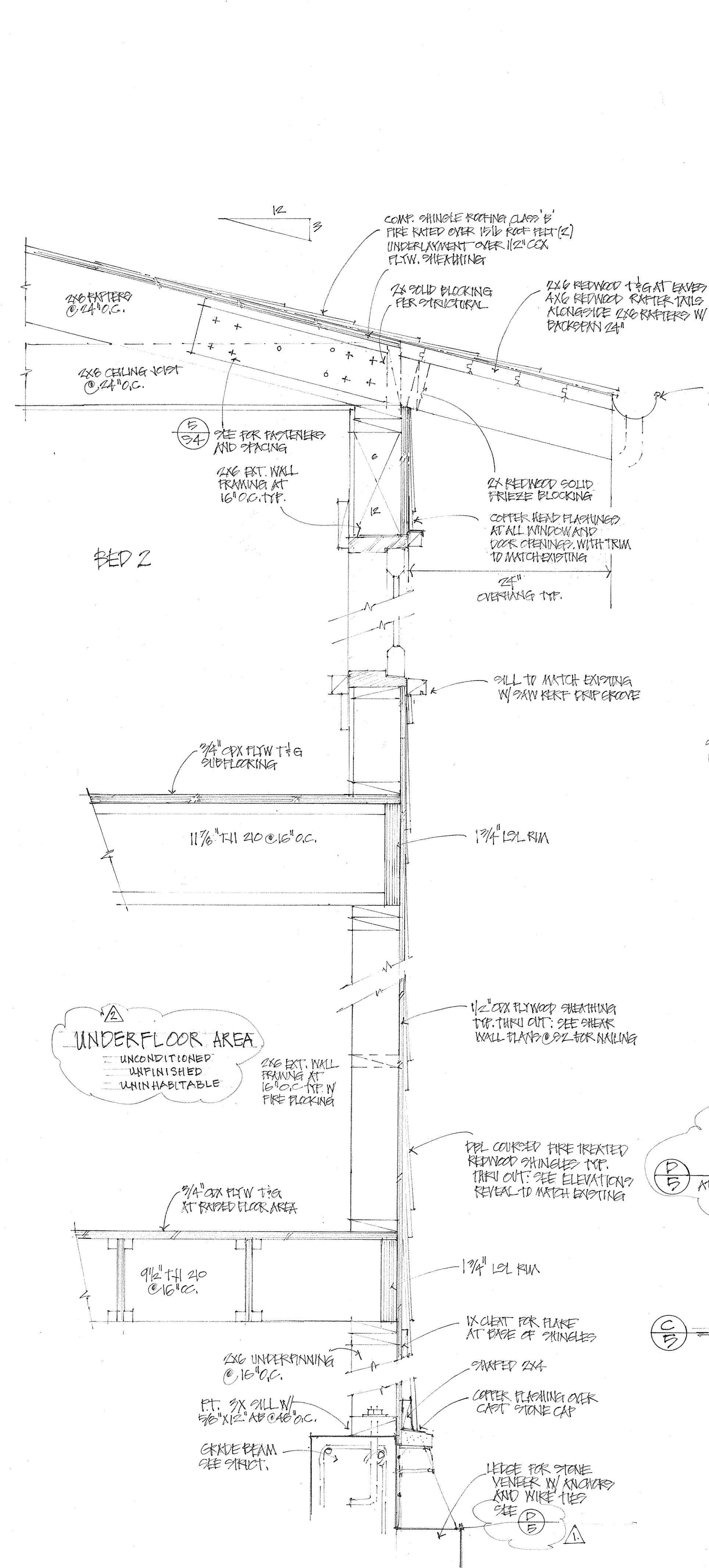
A DESIGN BY:
CLARKE L. SHULTES
301 NATIONAL STREET
SANTA CRUZ, CALIF.

SHEET NO.

4

RAWNBY: C9.

DATE: 6.15.20



CERTIFICATE OF COMPLIANCE
Project Name: Schallap Remodel
Calculation Date/Time: 2020-06-12T16:36:21-07:00
Calculation Description: Title 24 Analysis
Input File Name: Schallap Remodel.rbd19x

01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Altitude	Orientation	Gross Area (ft²)	Window and Door Area (ft²)	TIR (deg)	Wall Exceptions	Status	Verified Existing Condition
Raised Floor 2	1st Floor Addition	R-19 Floor Crawlspace	n/a	n/a	350	n/a	n/a		New	n/a
Interior Surface 2	Existing 2nd Floor	R-19 Floor No Crawlspace	n/a	n/a	525	n/a	n/a		Existing	No

01	02	03	04	05	06	07	08	09	10
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof	Status	Verified Existing Condition
Attic Existing 1st Floor	Attic Roof/Existing 1st Floor	Ventilated	3	0.1	0.85	No	No	Existing	No
Attic 1st Floor Addition	Attic Roof/1st Floor Addition	Ventilated	3	0.1	0.85	No	No	New	n/a
Attic Existing 2nd Floor	Attic Roof/Existing 2nd Floor	Ventilated	3	0.1	0.85	No	No	Existing	No

FENESTRATION / GLAZING															
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Surface	Orientation	Altitude	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
W9	Window	Front Wall	Front	180			1	9	0.58	Table 110.6-A	0.65	Table 110.6-B	Bug Screen	Existing	No
W8	Window	Front Wall	Front	180			1	9	0.58	Table 110.6-A	0.65	Table 110.6-B	Bug Screen	Existing	No
W4	Window	Back Wall	Back	0			1	6	0.58	Table 110.6-A	0.65	Table 110.6-B	Bug Screen	Existing	No
W5	Window	Back Wall	Back	0			1	6	0.58	Table 110.6-A	0.65	Table 110.6-B	Bug Screen	Existing	No
W1	Window	Left Wall	Left	270			1	9	0.58	Table 110.6-A	0.65	Table 110.6-B	Bug Screen	Existing	No
W2	Window	Left Wall	Left	270			1	11	0.58	Table 110.6-A	0.65	Table 110.6-B	Bug Screen	Existing	No

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01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-19 Floor No Crawlspace	Interior Floors	Wood Framed Floor	2x10 @ 16 in. O.C.	R-19	None / None	0.045	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-19 / 2x10 Ceiling Below Finish: Gypsum Board

01	02	03	04
Quality Insulation Installation (QII)	Quality Installation of Spray Foam Insulation	Building Envelope Air Leakage	CH50
Not Required	Not Required	Not Required	n/a

01	02	03	04	05	06	07	08	09	10
Name	System Type	Distribution Type	Water Heater Name (F)	Solar Heating System	Compact Distribution	HERS Verification	Status	Verified Existing Condition	Existing Water Heating System
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1 (1)	n/a	None	n/a	Existing	No	

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01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	System Type	Distribution Type	Water Heater Name (F)	Solar Heating System	Compact Distribution	HERS Verification	Status	Verified Existing Condition	Existing Water Heating System				
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1 (1)	n/a	None	n/a	Existing	No					

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	System Type	Distribution Type	Water Heater Name (F)	Solar Heating System	Compact Distribution	HERS Verification	Status	Verified Existing Condition	Existing Water Heating System				
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1 (1)	n/a	None	n/a	Existing	No					

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	System Type	Distribution Type	Water Heater Name (F)	Solar Heating System	Compact Distribution	HERS Verification	Status	Verified Existing Condition	Existing Water Heating System				
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1 (1)	n/a	None	n/a	Existing	No					

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	System Type	Distribution Type	Water Heater Name (F)	Solar Heating System	Compact Distribution	HERS Verification	Status	Verified Existing Condition	Existing Water Heating System				
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1 (1)	n/a	None	n/a	Existing	No					

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01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Altitude	Orientation	Gross Area (ft²)	Window and Door Area (ft²)	TIR (deg)	Wall Exceptions	Status	Verified Existing Condition
Front Wall	Existing 1st Floor	Existing R-13	180	Front	180	42	90	none	Existing	No
Back Wall	Existing 1st Floor	Existing R-13	0	Back	180	12	90	none	Existing	No
Left Wall	Existing 1st Floor	Existing R-13	270	Left	324	98.5	90	none	Altered	No
Right Wall	Existing 1st Floor	Existing R-13	90	Right	180	25	90	none	Existing	No
Front Exterior Wall	1st Floor Addition	R-19 Wall	180	Front	189	15	90	Extension	New	n/a
Back Exterior Wall	1st Floor Addition	R-19 Wall	0	Back	189	54	90	Extension	New	n/a
Right Exterior Wall	1st Floor Addition	R-19 Wall	90	Right	144	37.5	90	Extension	New	n/a
Front Wall 2	Existing 2nd Floor	Existing R-13	180	Front	180	12	90	none	Existing	No
Left Wall 2	Existing 2nd Floor	Existing R-13	270	Left	234	88	90	none	Existing	No
Back Wall 2	Existing 2nd Floor	Existing R-13	0	Back	180	12	90	none	Existing	No
Right Wall 2	Existing 2nd Floor	Existing R-13	180	Front	224	0	90	none	Existing	No
Roof	Existing 1st Floor	R-30 Roof Attic	n/a	n/a	195	n/a	n/a	Altered	No	
Roof 2	1st Floor Addition	R-30 Roof Attic	n/a	n/a	195	n/a	n/a	New	n/a	
Roof 3	Existing 2nd Floor	R-30 Roof Attic	n/a	n/a	525	n/a	n/a	Existing	No	
Raised Floor	Existing 1st Floor	R-19 Floor Crawlspace	n/a	n/a	720	n/a	n/a	Altered	No	

Left Wall	Existing 1st Floor	Existing R-13	270	Left	324	98.5	90	none	Altered	No
Right Wall	Existing 1st Floor	Existing R-13	90	Right	180	25	90	none	Existing	No
Front Exterior Wall	1st Floor Addition	R-19 Wall	180	Front	189	15	90	Extension	New	n/a
Back Exterior Wall	1st Floor Addition	R-19 Wall	0	Back	189	54	90	Extension	New	n/a

Wall	Addition	Existing R-13	180	Front	180	12	90	none	Existing	No
Front Wall 2	Existing 2nd Floor	Existing R-13	180	Front	180	12	90	none	Existing	No
Left Wall 2	Existing 2nd Floor	Existing R-13	270	Left	234	88	90	none	Existing	No
Back Wall 2	Existing 2nd Floor	Existing R-13	0	Back	180	12	90	none	Existing	No
Right Wall 2	Existing 2nd Floor	Existing R-13	180	Front	234	0	90	none	Existing	No
Roof	Existing 1st Floor	R-30 Roof Attic	n/a	n/a	195	n/a	n/a	Altered	No	
Roof 2	1st Floor Addition	R-30 Roof Attic	n/a	n/a	195	n/a	n/a	New	n/a	
Roof 3	Existing 2nd Floor	R-30 Roof Attic	n/a	n/a	525	n/a	n/a	Existing	No	
Raised Floor	Existing 1st Floor Crawlspace	R-19 Floor Crawlspace	n/a	n/a	720	n/a	n/a	Altered	No	

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01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-19 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R-19	None / None	0.07	Inside Finish: Gypsum Board Cavity / Frame: R-19 in 5.3/2 in. (R-18) / 2x6 Exterior Finish: Wood Siding/sheathing/decking
Existing R-13	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R-13	None / None	0.092	Inside Finish: Gypsum Board Cavity / Frame: R-13 / 2x4 Other Side Finish: Gypsum Board
Attic Roof/Existing 1st Floor	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O.C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingles) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
Attic Roof/1st Floor Addition	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O.C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingles) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
Attic Roof/Existing 2nd Floor	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O.C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingles) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
R-19 Floor Crawlspace	Floors Over Crawlspace	Wood Framed Floor	2x10 @ 16 in. O.C.	R-19	None / None	0.046	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-19 / 2x10
R-30 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O.C.	R-30	None / None	0.032	Over Ceiling Joists: R-20.9 Insul. Cavity / Frame: R-3 / 2x4 Inside Finish: Gypsum Board

Existing R-131	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-13	None / None	0.092	Cavity / Frame: R-13/ 24 Other Side Finish: Gypsum Board
Attic Roof Existing 1st Floor	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/Sheathing/Decking Gypsum Board

01	02	03	04	05	06	07	08	09	10
Name	System Type	Distribution Type	Water Heater Name (F)	Solar Heating System	Compact Distribution	HERS Verification	Status	Verified Existing Condition	Existing Water Heating System
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1 (1)	n/a	None	n/a	Existing	No	

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Jennifer Jackson	Documentation Author Signature: 
Company: Bright Green Strategies, Inc.	Signature Date: 6/12/2020
Address: 820 Delaware Street	CEA/HERS Certification Verification (if applicable): RI16-15-20096
City/State/Zip: Berkeley, CA 94710	Phone: 510-863-1109

I certify the following under penalty of perjury, under the laws of the State of California:	
1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for this Certificate of Compliance.	2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.	
Responsible Designer Name: Clarke L. Shultes	Responsible Designer Signature: 
Company: Shultes Design	Date Signed: 9/20/21
Address: 307 National Street	License:
City/State/Zip: Santa Cruz, CA 95060	Phone: 831-429-1088

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	System Type	Distribution Type	Water Heater Name (F)	Solar Heating System	Compact Distribution	HERS Verification	Status	Verified Existing Condition	Existing Water Heating System				
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1 (1)	n/a	None	n/a	Existing	No					

Registration Number:			Registration Date/Time:			HERS Provider:		
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01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Altitude	Orientation	Gross Area (ft²)	Window and Door Area (ft²)	TIR (deg)	Wall Exceptions	Status	Verified Existing Condition
Front Wall	Existing 1st Floor	Existing R-13	180	Front	180	42	90	none	Existing	No
Back Wall	Existing 1st Floor	Existing R-13	0	Back	180	12	90	none	Existing	No
Left Wall	Existing 1st Floor	Existing R-13	270	Left	324	98.5	90	none	Altered	No
Right Wall	Existing 1st Floor	Existing R-13	90	Right	180	25	90	none	Existing	No
Front Exterior Wall	1st Floor Addition	R-19 Wall	180	Front	189	15	90	Extension	New	n/a
Back Exterior Wall	1st Floor Addition	R-19 Wall	0	Back	189	54	90	Extension	New	n/a
Right Exterior Wall	1st Floor Addition	R-19 Wall	90	Right	144	37.5	90	Extension	New	n/a
Front Wall 2	Existing 2nd Floor	Existing R-13	180	Front	180	12	90	none	Existing	No
Left Wall 2	Existing 2nd Floor	Existing R-13	270	Left	234	88	90	none	Existing	No
Back Wall 2	Existing 2nd Floor	Existing R-13	0	Back	180	12	90	none	Existing	No
Right Wall 2	Existing 2nd Floor	Existing R-13	180	Front	224	0	90	none	Existing	No
Roof	Existing 1st Floor	R-30 Roof Attic	n/a	n/a	195	n/a	n/a	Altered	No	
Roof 2	1st Floor Addition	R-30 Roof Attic	n/a	n/a	195	n/a	n/a	New	n/a	
Roof 3	Existing 2nd Floor	R-30 Roof Attic	n/a	n/a	525	n/a	n/a	Existing	No	
Raised Floor	Existing 1st Floor	R-19 Floor Crawlspace	n/a	n/a	720	n/a	n/a	Altered	No	

● Roof	
● Cooling System Verifications:	
● -- None --	
● Heating System Verifications:	
● -- None --	
● HVAC Distribution System Verifications:	
● -- None --	
● Domestic Hot Water System Verifications:	
● -- None --	

01	02	03	04	05	06	07	08	09	10	11</
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2019 Low-Rise Residential Mandatory Measures Summary	
§ 150.0q(3)	Interior Switches and Controls. An energy management control system (EMCS) may be used to comply with control requirements if it provides functionality of the specified control according to § 110.9, meets the Installation Certificate requirements of § 130.4, meets the EMC requirements of § 130.0q, and meets all other requirements in § 150.0q(2).
§ 150.0q(4)	Interior Switches and Controls. A multipurpose programmable controller may be used to comply with dimmer requirements in § 150.0q(4) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0q(2).
§ 150.0q(5)	Interior Switches and Controls. In hallways, gangways, laundry rooms, and utility rooms, at least one luminaires in each of these spaces must be controlled by an occupant sensor or a vacancy sensor providing automatic off functionality. If an occupant sensor is installed, it must be initially configured to manual on operation until the manual control required under Section 150.0q(5).
§ 150.0q(2)	Interior Switches and Controls. Luminaires that are certain light sources that meet Reference Joint Appendix JAB requirements for dimming, and that are not controlled by occupancy or vacancy sensors, must have dimming controls.
§ 150.0q(4)	Interior Switches and Controls. Under cabinet lighting must be controlled separately from ceiling-installed lighting systems.
§ 150.0q(3A)	Residential Outdoor Lighting. For single-family residential buildings, add-on lighting permanently mounted to a residential building, or to other buildings on the same lot, must meet the requirements of item § 150.0q(3A) (ON and OFF switch) and the requirements in item § 150.0q(3B) (photocell and either a motion sensor or automatic time switch control) or § 150.0q(3C) (astronomical time clock), or an EMCS.
§ 150.0q(3B)	Residential Outdoor Lighting. For low-rise residential buildings with four or more dwelling units, outdoor lighting for private patios, entrances, balconies, and porches, and residential parking lots and garages with their right vehicles parked must comply with either § 150.0q(3A) or with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0q(3C)	Residential Outdoor Lighting. For low-rise residential buildings with four or more dwelling units, any outdoor lighting for residential parking lots or porches with a total of eight or more vehicles per site and any outdoor lighting not regulated by § 150.0q(3B) or § 150.0q(3C) must comply with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0q(4)	Internally Illuminated Address Signs. Internally illuminated address signs must comply with § 110.9 or must consume no more than 5 watts of power as determined according to § 130.0q.
§ 150.0q(5)	Residential Garages for Light or Motor Vehicles. Lighting for residential parking garages for light or motor vehicles must comply with the applicable requirements for residential garages in Sections 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.
§ 150.0q(5A)	Interior Common Areas of Low-Rise Multifamily Residential Buildings. In a low-rise multifamily residential building where the total interior common area is a single building equal to 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must comply with Table 1500-A and be controlled by an occupant sensor.
§ 150.0q(5B)	Interior Common Areas of Low-Rise Multifamily Residential Buildings. In a low-rise multifamily residential building where the total interior common area is a single building equal to more than 20 percent of the floor area, permanently installed lighting for the interior common areas in that building must:
§ 150.0q(5B)	1. Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.2, and
§ 150.0q(5B)	2. A lighting-related in corridors and stairwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off at all designated floors, entrances, and exits.
Solar Ready Buildings:	
§ 110.0q(1)	Single Family Residences. Single family residences located in subdivisions with 10 or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which does not have a photovoltaic system installed, must comply with the requirements of § 110.0q(1) through § 110.0q(4).
§ 110.0q(2)	Low-rise Multifamily Buildings. Low-rise multifamily buildings that do not have a photovoltaic system installed must comply with the requirements of § 110.0q(1) through § 110.0q(4).
§ 110.0q(1)	Minimum Solar Zone Area. The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Table 24, Part 4 or other parts of Title 24 or any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have a dimension less than 5 feet and are no less than 10 square feet each for buildings with roof areas less than 10,000 square feet or no less than 100 square feet each for buildings with roof areas greater than 10,000 square feet. For single-family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. For low-rise multifamily buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on a covered parking structure with the building project, and have a total area no less than 15 percent of the total roof area of the building including any daylight area. The solar zone requirement is applicable to the entire building, including those occupied.
§ 110.0q(2)	Access. All sections of the solar zone located on steep slopes must be oriented between 50 degrees and 330 degrees of true north.
§ 110.0q(3A)	Shading. The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof-mounted equipment.
§ 110.0q(3B)	Shading. Any obstruction located on the roof or on any other part of the building that projects above a solar zone must be located at least twice the distance, measured in the horizontal plane, of the height difference between the highest point of the obstruction and the horizontal projection of the highest point of the solar zone, measured in the vertical plane.
§ 110.0q(4)	Structural Design Loads or Construction Documents. For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.
§ 110.0q(5)	Interconnection Pathways. The construction documents must indicate a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service, and for single family residences and central water-heating systems, a pathway reserved for routing of conduit from the solar zone to the water-heating system. Documentation, a copy of the construction documents or a comparable document indicating the information from § 110.0q(4) through § 110.0q(5) must be provided to the occupant.
§ 110.0q(6)	Main Electrical Service Panel. The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.0q(7)	Main Electrical Service Panel. The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric".

2019 Low-Rise Residential Mandatory Measures Summary	
Requirements for Ventilation and Indoor Air Quality:	
§ 150.0q(1)	Requirements for Ventilation and Indoor Air Quality. All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0q(1).
§ 150.0q(1C)	Single Family Detached Dwelling Units. Single family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2 and as specified in § 150.0q(1C).
§ 150.0q(1E)	Multifamily Attached Dwelling Units. Multifamily attached dwelling units must have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B and must be either a balanced system or continuous supply or continuous exhaust system. If a balanced system is not used, all units in the building must use the same system type and the dwelling unit envelope leakage must be 0.3 CFM at 50 Pa (7 in. H ₂ O) water per square foot of dwelling unit envelope surface area and verified in accordance with Reference Residential Appendix RAB 6.
§ 150.0q(1F)	Multifamily Building Central Ventilation Systems. Central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow for each dwelling unit served at a rate equal to or greater than the rate specified by Equation 150.0-B. All unit airflow must be within 20 percent of the unit with the lowest airflow rate as it relates to the individual unit's minimum required airflow rate needed for compliance.
§ 150.0q(1G)	Kitchen Range Hoods. Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0q(2)	Field Verification and Diagnostic Testing. Dwelling unit ventilation airflow must be verified in accordance with Reference Residential Appendix RAB 7. A kitchen range hood must be verified in accordance with Reference Residential Appendix RAB 7.4.2 to confirm it is rated for 100 cfm or more within the airflow rates and sound requirements as specified in Section 5 and 7.2 of ASHRAE 62.2.
Pool and Spa Systems and Equipment Measures:	
§ 110.4q(4)	Certification by Manufacturers. Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations, an on or switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting, a permanent weatherproof plate or card with operating instructions, and must not use electric resistance heaters.
§ 110.4q(1)	Piping. Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated outdoor return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4q(2)	Covers. Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4q(3)	Directional Vents and Time Switches for Pools. Pools must have directional vents that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5	Pilot Light. Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0q(1)	Pool Systems and Equipment Installation. Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.*
Lighting Measures:	
§ 110.9	Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.
§ 150.0q(1A)	Luminaire Efficacy. All installed luminaires must meet the requirements in Table 1500-A.
§ 150.0q(1B)	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0q(1C)	Recessed Ceiling Light Luminaires in Ceilings. Luminaires recessed into ceilings must meet all of the requirements for installation control (IC) labeling, air leakage, sealing, maintenance, and socket and light source as described in § 150.0q(1C).
§ 150.0q(1D)	Electronic Ballasts for Fluorescent Lamps. Ballasts for fluorescent lamps rated 15 watts or greater must be electronic and must have an input frequency no less than 20 kHz.
§ 150.0q(1E)	Night Lights, Step Lights, and Path Lights. Night lights, step lights and path lights are not required to comply with Table 1500-A or be controlled by vacancy sensors provided they are rated to consume no more than 0.5 watts of power and emit no more than 100 lumens.
§ 150.0q(1F)	Lighting Integral to Exhaust Fans. Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0q(1).
§ 150.0q(1G)	Screen based luminaires. Screen based luminaires must contain lamps that comply with Reference Joint Appendix JAB 7.
§ 150.0q(1H)	Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JAB elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0q(1I)	Light Sources in Drawers, Cabinets, and Linen Closets. Light sources integral to drawers, cabinets or linen closets are not required to comply with Table 1500-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 100 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0q(2A)	Interior Switches and Controls. All forward-phase dimmers used with LED light sources must comply with NEMA SS-7A.
§ 150.0q(2B)	Interior Switches and Controls. Exhaust fans must be controlled separately from lighting systems.*
§ 150.0q(2C)	Interior Switches and Controls. Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.*
§ 150.0q(2D)	Interior Switches and Controls. Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0q(2E)	Interior Switches and Controls. Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the control is installed to comply with § 150.0q(2).
§ 150.0q(3)	Interior Switches and Controls. Lighting controls must comply with the applicable requirements of § 110.9.

2019 Low-Rise Residential Mandatory Measures Summary	
§ 150.0q(3A)	Cleanroom. Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.
§ 150.0q(3B)	Liquid Line Drain. Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0q(1)	Storage Tank Insulation. Unheated water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have a minimum R-10 thermal insulation R-10 thermal insulation where the thermal insulation value is indicated on the exterior of the tank.
§ 150.0q(2A)	Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Installation. All plastic hot water piping must be installed as specified in Section 600.11 of the California Plumbing Code. In addition, the following piping conditions must have a minimum insulation wall thickness of one inch or a minimum insulation R-value of 7. The first five feet of cold water piping from the storage tank, all hot water piping with a nominal diameter equal to or greater than 3/4 inch and less than one inch, all hot water piping with a nominal diameter less than 3/4 inch that is associated with a domestic hot water reheat system, from the heating source to the hot tank or boiler/boilerless, buried below grade, and from the heating source to kitchen fixtures.*
§ 150.0q(3)	Insulation Protection. Piping insulation must be protected from damage, including that due to sunlight, insects, equipment maintenance, and as required by Section 120.3B. Insulation exposed to weather must be water resistant and protected from UV light by an adhesive tape. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-combustible casing or sleeve.
§ 150.0q(1)	Gas or Propane Water Heating Systems. Systems using gas or propane water heaters in semi-detached dwelling units must include all of the following: A dedicated 125 volt, 20 amp electrical receptacle connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within three feet of the water heater without obstruction. Both ends of the branch circuit must be labeled with the word "water" and be electrically isolated. Have a reversed single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words "Water (RAN Unit)", a Category III or IV arc, or a type 30 amp with integral gage between the outside termination and the space where the water heater is installed; a dedicated drain that is no more than two inches higher than the base of the water heater, and allow natural draining without pump assistance, and a gas supply line with a capacity of at least 20,000 Btu per hour.
§ 150.0q(2)	Recirculating Loops. Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3q(2).
§ 150.0q(3)	Solar Water-heating Systems. Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the Executive Director.
Ducts and Fans Measures:	
§ 110.8q(3)	Ducts. Installation of an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must notify the customer, in writing, that the insulation meets this requirement.
§ 150.0q(1)	CMC Compliance. All air-conditioning system ducts and plenums must meet the requirements of the CMC (CMC 101.0, 602.0, 603.0, 604.0, 605.0 and 605.0) and ASHRAE 62.2-2009 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to a minimum installed level of R-4.0 or a minimum installed level of R-4.2, which ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (FV&DT). Portions of the duct system completely exposed and surrounded by directly conditioned space are not required to be insulated. Connections of metal ducts and metal ducts of flexible ducts must be mechanically fastened. Connections must be sealed with mastic, tape, or other duct-sealing systems that meet the applicable requirements of UL 181A, UL 181A-A, UL 181B or UL 181B-A as specified in Table 1500-A. If mastic or tape is used to seal openings greater than 1/8 inch, the combination of mastic and either mastic or tape must be used. Building cavities, support platforms for fan handlers, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air, building cavities and support platforms that ducts installed in cavities and support platforms must not be compressed to cause reductions in the cross-sectional area.*
§ 150.0q(2)	Factory-Fabricated Duct Systems. Factory fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures, joints and seams of duct systems and their components must be sealed with a clean back rubber adhesive duct tapes unless such tapes is used in combination with mastic and draw bands.
§ 150.0q(3)	Field Fabricated Duct Systems. Field fabricated duct systems must comply with applicable requirements for pressure-sensitive tapes, connections, and closures, joints and seams of duct systems and their components must be sealed with a clean back rubber adhesive duct tapes unless such tapes is used in combination with mastic and draw bands.
§ 150.0q(7)	Backdraft Damper. Fan systems that exchange air between the conditioned space and outdoors must have a backdraft or automatic damper.
§ 150.0q(8)	Gravity Ventilation Dampers. Gravity ventilation systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings in elevators shaft vents.
§ 150.0q(9)	Protection of Insulation. Insulation must be protected from damage, sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, steel metal, painted canvas, or plastic cover. Outdoor foam insulation must be protected as above or protected with a coating that is water resistant and provides chinking from rainwater.
§ 150.0q(10)	Porous Inner Core Fire Duct. Porous inner core fire ducts must have a non-porous layer between the inner core and outer vapor barrier.
§ 150.0q(11)	Duct System Sealing and Leakage Test. When space conditioning systems are forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with § 150.0q(11) and Reference Residential Appendix RAB 3.
§ 150.0q(12)	Air Filtration. Space conditioning systems with ducts exceeding 12 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if size per Equation 1500-A. Pressure drops and leakage must meet the requirements in § 150.0q(12). Filters must be accessible for regular service.*
§ 150.0q(13)	Space Conditioning System Airflow Rate and Fan Efficiency. Space conditioning systems that use ducts to supply cooling must have a 200 CFM per ton of nominal cooling capacity, and an air-handling unit efficiency of 0.45 watts per CFM for gas furnace air handlers and 0.50 watts per CFM for all others. Small and high velocity systems must provide an airflow of 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficiency of 0.82 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RAB 3.*

2019 Low-Rise Residential Mandatory Measures Summary	
NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. * Exceptions may apply.	
Building Envelope Measures:	
§ 110.6q(1)	Air Leakage. Manufactured fenestration, exterior doors, and exterior wall doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-200, ASTM E-283 or AIAA/MNCMA/ASTM E-284/2001.*
§ 110.6q(5)	Labeling. Fenestration products and exterior doors must have a label meeting the requirements of § 110.11q(4).
§ 110.6q(6)	Field fabricated exterior doors and fenestration products must use U-factors and air leak test gage consistent (ASHRAE) values from Table 110.6-A, 110.6-B, or 110.6-C for exterior doors. They must be caulked and/or weather-stopped.*
§ 110.7	Air Leakage. At joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, sealed, or weather stopped.
§ 110.8q(1)	Insulation Certification by Manufacturers. Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8q(2)	Insulation Requirements for Heated Sub-Floors. Heated sub-floors must be insulated per the requirements of § 110.8q(2).
§ 110.8q(3)	Roofing Products Solar Reflectance and Thermal Emittance. The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8q(3) and be labeled per § 110.133 when the installation of a roof is specified on the CPIS.
§ 110.8q(4)	Radiant Barrier. When required, radiant barriers must have an emittance of 0.05 or less and be certified by the Department of Consumer Affairs.
§ 110.8q(5)	Ceiling and Rafter Roof Insulation. Minimum R-22 insulation in wood-frame ceilings, or the weighted average U-factor must not exceed 0.043 (minimum R-19 or weighted average U-factor of 0.034 or less in a rafter roof assembly). Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous and/or gasketing which is sealed to limit infiltration and exfiltration as specified in § 110.7, including but not limited to access insulation either above or below the roof deck or on top of a downward sloped.
§ 150.0q(6)	Loose-fill Insulation. Loose fill insulation must meet the manufacturer's required density for the applied R-value.
§ 150.0q(7)	Wall Insulation. Minimum R-13 insulation in 2x4 non-wood framing wall or base of a factor of 0.02 or more, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.02. Masonry walls must meet Table 1501-A or B.*
§ 150.0q(8)	Roof Edge Insulation. Minimum R-19 insulation in rafter wood framed roof or 0.027 "maximum U-factor".
§ 150.0q(9)	Slab Edge Insulation. Slab edge insulation must meet all of the following: have a water vapor permeance no greater than 2 perms per inch, be protected from physical damage and UV light deterioration, and, when installed as part of a heated slab floor, meet the requirements of § 110.8q(9).
§ 150.0q(10)	Vapor Retarder. In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to unvented ventilation crawl space for buildings compliant with the exception in § 150.0q(10).
§ 150.0q(11)	Vapor Retarder. In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vertical ducts, and unvented attics with air-permeable insulation.
§ 150.0q(12)	Fenestration Products. Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.35, or the weighted average U-factor of all fenestration must not exceed 0.05.*
Fireplaces, Decorative Gas Appliances, and Gas Log Measures:	
§ 110.5q(1)	Pilot Light. Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0q(1)	Decorative Boilers. Masonry or factory-built fireplaces must have a clothes metal or glass enclosure covering the entire opening of the firebox.
§ 150.0q(2)	Combustion Intake. Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and light-tight damper or combustion-air control device.*
§ 150.0q(3)	Flue Damper. Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.*
Space Conditioning:	
§ 110.8q(1)	Water Heating and Plumbing System Measures:
§ 110.8q(2)	Certification. Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.*
§ 110.8q(3)	HVAC Efficiency. Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-K.*
§ 110.2q(8)	Controls for Heat Pumps with Supplementary Electric Resistance Heaters. Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone, and in which the outdoor temperature for compression heating is higher than the outdoor temperature for supplementary heating, and the outdoor temperature for compression heating is higher than the outdoor temperature for supplementary heating.*
§ 110.2q(9)	Thermostat. All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.*
§ 110.2q(10)	Water Heating Recirculation Loops Serving Multiple Dwelling Units. Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and backflow check valve requirements of § 110.2q(10).
§ 110.3q(4)	Isolation Valves. Instantaneous water heaters with an input rating greater than 6.6 MBtu per hour (2.0 kW) must have isolation valves with those valves or other fittings on both cold and hot water lines to allow for turning the water heater when the valves are closed.
§ 110.3q(5)	Pilot Lights. Continuously burning pilot lights are prohibited for natural gas fan-type central furnaces, packaged cooling appliances, gas-fired appliances without an electrical supply voltage connection with pilot lights that consume less than 100 Btu per hour, and pool and spa heaters.*
§ 110.5	Building Cooling and Heating Loads. Heating and cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Application Volume, and Fundamentals Volume. The SHACNA Residential Comfort System Installation Standards Manual, or the ACCA Manual J using design conditions specified in § 150.0q(2).
§ 150.0q(1)	

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE		
CHAPTER 4 - RESIDENTIAL MANDATORY MEASURES		
SECTION	HEADING	REQUIREMENTS
DIVISION 4.5 - ENVIRONMENTAL QUALITY		
4.504.5	COMPOSITE WOOD PRODUCTS	HARDWOOD PLYWOOD, PARTICLEBOARD AND MEDIUM DENSITY FIBERBOARD COMPOSITE WOOD PRODUCTS USED ON THE INTERIOR OR EXTERIOR OF THE BUILDING SHALL MEET THE REQUIREMENTS FOR FORMALDEHYDE AS SPECIFIED IN ARES'S AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD (17 CCR 93120 ET SEQ.), BY OR BEFORE THE DATES SPECIFIED IN THOSE SECTIONS AS SHOWN IN TABLE 4.504.5.
4.504.5.1	DOCUMENTATION	VERIFICATION OF COMPLIANCE WITH THIS SECTION SHALL BE PROVIDED AS REQUESTED BY THE ENFORCING AGENCY. DOCUMENTATION SHALL INCLUDE AT LEAST ONE OF THE FOLLOWING: 1. PRODUCT CERTIFICATIONS AND SPECIFICATIONS. 2. CHAIN OF CUSTODY CERTIFICATIONS 3. PRODUCT LABELED AND INVOICED AS MEETING THE COMPOSITION WOOD PRODUCT REGULATIONS (SEE CCR, TITLE 17, SECTION 93120, ET SEQ.). 4. EXTERIOR GRADE PRODUCTS MARKED AS MEETING THE PS-1 OR PS-2 STANDARDS OF THE ENGINEERED WOOD ASSOCIATION, THE AUSTRALIAN AS/NZS 2269 OR EUROPEAN 636 3S STANDARDS. 5. OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY.
4.505.2	CONCRETE SLAB FOUNDATIONS	CONCRETE SLAB FOUNDATIONS REQUIRED TO HAVE A VAPOR RETARDER BY CALIFORNIA BUILDING CODE, CHAPTER 19 OR CONCRETE SLAB-ON-GROUND FLOORS REQUIRED TO HAVE A VAPOR RETARDER BY THE CALIFORNIA RESIDENTIAL CODE, CHAPTER 5, SHALL COMPLY WITH THIS SECTION.
4.505.2.1	CAPILLARY BREAK	A CAPILLARY BREAK SHALL BE INSTALLED IN COMPLIANCE WITH AT LEAST ONE OF THE FOLLOWING: 1. A 4-INCH THICK (101.6MM) THICK BASE OF 1/2 INCH (12.7MM) OR LARGER CLEAN AGGREGATE SHALL BE PROVIDED WITH A VAPOR RETARDER IN DIRECT CONTACT WITH CONCRETE AND A CONCRETE MIX DESIGN WHICH WILL ADDRESS BLEEDING, SHRINKAGE AND CURLING SHALL BE USED. FOR ADDITIONAL INFORMATION, SEE AMERICAN CONCRETE INSTITUTE, ACI 308.2R-08. 2. OTHER EQUIVALENT METHODS APPROVED BY THE ENFORCING AGENCY. 3. A SLAB DESIGN SPECIFIED BY A LICENSED DESIGN PROFESSIONAL.
4.505.3	MOISTURE CONTENT OF BUILDING MATERIALS	BUILDING MATERIALS WITH VISIBLE SIGNS OF WATER DAMAGE SHALL NOT BE INSTALLED. WALL AND FLOOR FRAMING SHALL NOT BE ENCLOSED WHEN THE FRAMING MEMBERS EXCEED 19% MOISTURE CONTENT. MOISTURE CONTENT SHALL BE VERIFIED IN COMPLIANCE WITH ONE OF THE FOLLOWING: 1. MOISTURE CONTENT SHALL BE DETERMINED WITH EITHER A PROBE-TYPE OR A CONTACT-TYPE MOISTURE METER. EQUIVALENT MOISTURE VERIFICATION METHODS MAY BE APPROVED BY THE ENFORCING AGENCY AND SHALL SATISFY REQUIREMENTS FOUND IN SECTION 101.8 OF THIS CODE. 2. MOISTURE READINGS SHALL BE TAKEN AT A POINT 2 FEET (610 MM) TO 4 FEET (1219 MM) FROM THE GRADE STAMPED END OF EACH PIECE TO BE VERIFIED. 3. AT LEAST THREE RANDOM MOISTURE READINGS SHALL BE PERFORMED ON WALL AND FLOOR FRAMING WITH DOCUMENTATION ACCEPTABLE TO THE ENFORCING AGENCY PROVIDED AT THE TIME OF APPROVAL TO ENCLOSE THE WALL AND FLOOR FRAMING. INSULATION PRODUCTS WHICH ARE VISIBLY WET OR HAVE A HIGH MOISTURE CONTENT SHALL BE REPLACED OR ALLOWED TO DRY PRIOR TO ENCLOSURE IN WALL OR FLOOR CAVITIES. WET-APPLIED INSULATION PRODUCTS SHALL FOLLOW THE MANUFACTURERS' DRYING RECOMMENDATIONS PRIOR TO ENCLOSURE.
4.506.1	BATHROOM EXHAUST FANS	EACH BATHROOM SHALL BE MECHANICALLY VENTILATED AND SHALL COMPLY WITH THE FOLLOWING: 1. FANS SHALL BE ENERGY STAR COMPLIANT AND BE DUCTED TO TERMINATE OUTSIDE THE BUILDING 2. UNLESS FUNCTIONING AS A COMPONENT OF A WHOLE HOUSE VENTILATION SYSTEM, FANS MUST BE CONTROLLED BY A HUMIDITY CONTROL. a. HUMIDITY CONTROLS SHALL BE CAPABLE OF ADJUSTMENT BETWEEN A RELATIVE HUMIDITY RANGE OF 50 PERCENT TO A MAXIMUM OF 80 PERCENT. A HUMIDITY CONTROL MAY UTILIZE MANUAL OR AUTOMATIC MEANS OF ADJUSTMENT. b. A HUMIDITY CONTROL MAY BE A SEPARATE COMPONENT TO THE EXHAUST FAN AND IS NOT REQUIRED TO BE INTEGRAL (I.E. BUILT-IN) NOTE: 1. FOR THE PURPOSE OF THIS SECTION A BATHROOM IS A ROOM WHICH CONTAINS A BATHTUB, SHOWER, OR TUB/SHOWER COMBINATION. 2. LIGHTING INTEGRAL TO BATHROOM EXHAUST FANS SHALL COMPLY WITH THE CALIFORNIA ENERGY CODE.
4.507.2	HEATING AND AIR-CONDITIONING SYSTEM DESIGN	HEATING AND AIR CONDITIONING SYSTEMS SHALL BE SIZED, DESIGNED, AND HAVE THEIR EQUIPMENT SELECTED USING THE FOLLOWING METHODS: 1. THE HEAT LOSS AND HEAT GAIN IS ESTABLISHED ACCORDING TO ANSI/ACCA 2 MANUAL J - 2016 (RESIDENTIAL LOAD CALCULATION), ASHRAE HANDBOOKS OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS. 2. DUCT SYSTEMS ARE SIZED ACCORDING TO ANSI/ACCA 1 MANUAL D - 2016 (RESIDENTIAL DUCT SYSTEMS), ASHRAE HANDBOOKS OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS. 3. SELECT HEATING AND COOLING EQUIPMENT ACCORDING TO ANSI/ACCA 3 MANUAL S - 2014 (RESIDENTIAL EQUIPMENT SELECTION), OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS. EXCEPTION: USE OF ALTERNATE DESIGN TEMPERATURES NECESSARY TO ENSURE THE SYSTEMS FUNCTION ARE ACCEPTABLE.

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE		
CHAPTER 4 - RESIDENTIAL MANDATORY MEASURES		
SECTION	HEADING	REQUIREMENTS
DIVISION 4.4 - MATERIAL CONSERVATION & RESOURCE EFFICIENCY		
4.408.5	DOCUMENTATION	DOCUMENTATION SHALL BE PROVIDED TO THE ENFORCING AGENCY WHICH DEMONSTRATES COMPLIANCE WITH SECTION 4.408.2, ITEMS 1 THROUGH 5, SECTION 4.408.3 OR SECTION 4.408.4. NOTES: 1. SAMPLE FORMS FOUND IN "A GUIDE TO THE CALIFORNIA GREEN BUILDING STANDARDS CODE (RESIDENTIAL)" LOCATED AT WWW.HCD.CA.GOV/BUILDING-STANDARDS/CALGREEN-CAL-GREEN-FORMS.SHTML MAY BE USED TO ASSIST IN DOCUMENTING COMPLIANCE WITH THIS SECTION. 2. MIXED CONSTRUCTION AND DEMOLITION DEBRIS (C&D) PROCESSORS CAN BE LOCATED AT THE CALIFORNIA DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY (CALRECYCLE).
4.410.1	OPERATION AND MAINTENANCE MANUAL	AT THE TIME OF FINAL INSPECTION, A MANUAL, COMPACT DISC, WEB-BASED REFERENCE OR OTHER MEDIA ACCEPTABLE TO THE ENFORCING AGENCY WHICH INCLUDES ALL OF THE FOLLOWING SHALL BE PLACED IN THE BUILDING: 1. DIRECTIONS TO THE OWNER OR OCCUPANT THAT THE MANUAL SHALL REMAIN IN THE BUILDING THROUGHOUT THE LIFE CYCLE OF THE STRUCTURE. 2. OPERATION AND MAINTENANCE INSTRUCTIONS FOR THE FOLLOWING a. EQUIPMENT AND APPLIANCES, INCLUDING WATER-SAVING DEVICES AND SYSTEMS, HVAC SYSTEMS, PHOTOVOLTAIC SYSTEMS, ELECTRIC VEHICLE CHARGERS, WATER-HEATING SYSTEMS AND OTHER MAJOR APPLIANCES AND EQUIPMENT. b. ROOF AND YARD DRAINAGE, INCLUDING GUTTERS AND DOWNSPOUTS. c. SPACE CONDITIONING SYSTEMS, INCLUDING CONDENSERS AND AIR FILTERS. d. LANDSCAPE IRRIGATION SYSTEMS e. WATER REUSE SYSTEMS. 3. INFORMATION FROM LOCAL UTILITY, WATER AND WASTE RECOVERY PROVIDERS ON METHODS TO FURTHER REDUCE RESOURCE CONSUMPTIONS, INCLUDING RECYCLE PROGRAMS AND LOCATIONS. 4. PUBLIC TRANSPORTATION AND/OR CARPOOL OPTIONS AVAILABLE IN THE AREA 5. EDUCATION MATERIAL ON THE POSITIVE IMPACTS OF AN INTERIOR RELATIVE HUMIDITY BETWEEN 30-50 PERCENT AND WHAT METHODS AN OCCUPANT MAY USE TO MAINTAIN THE RELATIVE HUMIDITY LEVEL IN THAT RANGE. 6. INFORMATION ABOUT WATER-CONSERVING LANDSCAPE AND IRRIGATION DESIGN AND CONTROLLERS WHICH CONSERVE WATER. 7. INSTRUCTIONS FOR MAINTAINING GUTTERS AND DOWNSPOUTS AND THE IMPORTANCE OF DIVERTING WATER AT LEAST 5 FEET AWAY FROM THE FOUNDATION. 8. INFORMATION ON REQUIRED ROUTINE MAINTENANCE MEASURES, INCLUDING, BUT NOT LIMITED TO, CAULKING, PAINTING, GRADING AROUND THE BUILDING, ETC. 9. INFORMATION ABOUT STATE SOLAR ENERGY AND INCENTIVE PROGRAMS AVAILABLE. 10. A COPY OF ALL SPECIAL INSPECTION VERIFICATIONS REQUIRED BY THE ENFORCING AGENCY OR THIS CODE.
4.410.2	RECYCLING BY OCCUPANTS	WHERE 5 OR MORE MULTIFAMILY DWELLING UNITS ARE CONSTRUCTED ON A BUILDING SITE, PROVIDE READILY ACCESSIBLE AREA(S) THAT SERVES ALL BUILDINGS ON THE SITE AND IS IDENTIFIED FOR THE DEPOSITING, STORAGE AND COLLECTION OF NON-HAZARDOUS MATERIALS FOR RECYCLING, INCLUDING (AT A MINIMUM) PAPER, CORRUGATED CARDBOARD, GLASS, PLASTICS, ORGANIC WASTE, AND METALS, OR MEET A LAWFULLY ENACTED LOCAL RECYCLING ORDINANCE, IF MORE RESTRICTIVE. EXCEPTION: RURAL JURISDICTIONS THAT MEET AND APPLY FOR THE EXEMPTION IN PUBLIC RESOURCES CODE SECTION 42649.82 (a)(2)(A) ET SEQ. ARE NOT REQUIRED TO COMPLY WITH THE ORGANIC WASTE PORTION OF THIS SECTION.

DIVISION 4.5 - ENVIRONMENTAL QUALITY		
4.503.1	GENERAL	ANY INSTALLED GAS FIREPLACE SHALL BE A DIRECT-VENT SEALED-COMBUSTION TYPE. ANY INSTALLED WOODSTOVE OR PELLET STOVE SHALL COMPLY WITH U.S. EPA NEW SOURCE PERFORMANCE STANDARDS (NSPS) EMISSION LIMITS AS APPLICABLE, AND SHALL HAVE A PERMANENT LABEL INDICATING THEY ARE CERTIFIED TO MEET THE EMISSION LIMITS. WOODSTOVES, PELLET STOVES AND FIREPLACES SHALL ALSO COMPLY WITH APPLICABLE LOCAL ORDINANCES.
4.504.1	COVERING OF DUCT OPENINGS AND PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION	AT THE TIME OF ROUGH INSTALLATION, DURING STORAGE ON THE CONSTRUCTION SITE AND UNTIL FINAL STARTUP OF THE FINS, COOLING AND VENTILATING, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEETMETAL OR METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF WATER, DUST AND DEBRIS WHICH MAY ENTER THE SYSTEM.
4.504.2.1	ADHESIVES, SEALANTS AND CAULKS	ADHESIVES, SEALANTS AND CAULKS USED ON THE PROJECT SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS UNLESS MORE STRINGENT LOCAL OR REGIONAL AIR POLLUTION OR AIR QUALITY MANAGEMENT DISTRICT RULES APPLY: 1. ADHESIVES, ADHESIVES BONDING PRIMERS, ADHESIVE PRIMERS, SEALANTS, SEALANT PRIMERS, AND CAULKS SHALL COMPLY WITH LOCAL OR REGIONAL AIR POLLUTION OR AIR QUALITY MANAGEMENT DISTRICT RULES WHERE APPLICABLE, OR SCAQMD RULE 116B VOC LIMITS, AS SHOWN IN TABLES 4.504.1 OR 4.504.2 AS APPLICABLE. SUCH PRODUCTS ALSO SHALL COMPLY WITH RULE 116B PROHIBITION ON THE USE OF CERTAIN TOXIC COMPOUNDS (CHLOROFORM, ETHYLENE, DICHLORIDE, METHYLENE CHLORIDE, PERCHLOROETHYLENE, AND TRICHLOROETHYLENE), EXCEPT FOR AEROSOL PRODUCTS AS SPECIFIED IN SUBSECTION 2 BELOW. 2. AEROSOL ADHESIVES, AND SMALLER UNIT SIZES OF ADHESIVES, AND SEALANT OR CAULKING COMPOUNDS (IN UNITS OF PRODUCT, LESS PACKAGING, WHICH DO NOT WEIGH MORE THAN ONE POUND AND DO NOT CONSIST OF MORE THAN 16 FLUID OUNCES) SHALL COMPLY WITH STATEWIDE VOC STANDARDS AND OTHER REQUIREMENTS, INCLUDING PROHIBITIONS ON USE OF CERTAIN TOXIC COMPOUNDS, OF CALIFORNIA CODE REGULATIONS, TITLE 17, COMMENCING WITH SECTION 94507.
4.504.2.2	PAINTS AND COATINGS	ARCHITECTURAL PAINTS AND COATINGS SHALL COMPLY WITH VOC LIMITS IN TABLE 1 OF THE ARB ARCHITECTURAL SUGGESTED CONTROL MEASURES AS SHOWN IN TABLE 4.504.3 UNLESS THE MORE STRINGENT LOCAL LIMITS APPLY. THE VOC CONTENT LIMIT FOR COATINGS THAT DO NOT MEET THE DEFINITIONS FOR THE SPECIALTY COATINGS LISTED IN TABLE 4.504.3, SHALL BE DETERMINED BY CLASSIFYING THE COATS AS FLAT, NONFLAT, OR NONFLAT-HIGH GLOSS COATING, BASED ON ITS GLOSS, AS DEFINED IN SUBSECTIONS 4.7.1.36, AND 4.7.1, OF THE 2007 CALIFORNIA AIR RESOURCES BOARD SUGGESTED CONTROL MEASURE, AND THE CORRESPONDING FLAT, NONFLAT, OR NONFLAT-HIGH GLOSS VOC LIMIT IN TABLE 4.504.3 SHALL APPLY.
4.504.2.3	AEROSOL PAINTS AND COATINGS	AEROSOL PAINTS AND COATINGS SHALL MEET THE PRODUCT-WEIGHTED MIR LIMITS FOR ROC IN SECTION 94522(a)(2) AND OTHER REQUIREMENTS, INCLUDING PROHIBITIONS ON USE OF CERTAIN TOXIC COMPOUNDS AND OZONE DEPLETING SUBSTANCES, IN SECTIONS 94522(e)(1) AND (f)(1) OF CALIFORNIA CODE OF REGULATIONS, TITLE 17, COMMENCING WITH SECTION 94520, AND IN AREAS UNDER THE JURISDICTION OF THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT ADDITIONALLY COMPLY WITH THE PERCENT VOC BY WEIGHT OF PRODUCT LIMITS OF REGULATION 8, RULE 49.
4.504.2.4	VERIFICATION	VERIFICATION OF COMPLIANCE WITH THIS SECTION SHALL BE PROVIDED AT THE REQUEST OF THE ENFORCING AGENCY. DOCUMENTATION MAY INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING: 1. MANUFACTURER'S PRODUCT SPECIFICATIONS 2. FIELD VERIFICATION OF ON-SITE PRODUCT CONTAINERS
4.504.3	CARPET SYSTEMS	ALL CARPET INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE TESTING AND PRODUCT REQUIREMENTS OF ONE OF THE FOLLOWING: 1. CARPET AND RUG INSTITUTE'S GREEN LABEL PLUS PROGRAM 2. CALIFORNIA DEPARTMENT OF PUBLIC HEALTH "STANDARD METHOD FOR THE TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMICAL EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENT CHAMBERS" VERSION 1.1, FEBRUARY 2010 (ALSO KNOWN AS SPECIFICATION 01350). 3. NSF/PANS 140 AT THE GOLD LEVEL. 4. SCIENTIFIC CERTIFICATIONS SYSTEMS INDOOR ADVANTAGE GOLD.
4.504.3.1	CARPET CUSHION	ALL CARPET CUSHION INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE REQUIREMENTS OF THE CARPET AND RUG INSTITUTE'S GREEN LABEL PROGRAM.
4.504.3.2	CARPET ADHESIVE	ALL CARPET ADHESIVE SHALL MEET THE REQUIREMENTS OF TABLE 4.504.1.
4.504.4	RESILIENT FLOORING SYSTEMS	WHERE RESILIENT FLOORING IS INSTALLED AT LEAST 80% OF FLOOR AREA RECEIVING RESILIENT FLOORING SHALL COMPLY WITH ONE OR MORE OF THE FOLLOWING: 1. PRODUCTS COMPLIANT WITH THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH "STANDARD METHOD FOR THE TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMICAL EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENTAL CHAMBERS, VERSION 1.1, FEBRUARY 2010 (ALSO KNOWN AS SPECIFICATION CERTIFIED AS A CHPS LOW-EMITTING MATERIAL IN THE COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS (CHPS) HIGH PERFORMANCE PRODUCTS DATABASE. 2. PRODUCTS CERTIFIED UNDER UL GREENGUARD GOLD (FORMERLY THE GREENGUARD CHILDREN & SCHOOLS PROGRAM). 3. CERTIFICATION UNDER THE RESILIENT FLOOR COVERING INSTITUTE (RFCI) FLOORSCORE PROGRAM. 4. MEET THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH "STANDARD METHOD FOR THE TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMICAL EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENT CHAMBERS" VERSION 1.1, FEBRUARY 2010 (ALSO KNOWN AS SPECIFICATION 01350).

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4.106.4.3.5	IDENTIFICATION	THE SERVICE PANELS OR SUBPANELS SHALL BE IDENTIFIED IN ACCORDANCE WITH SECTION 4.106.4.2.5.
4.106.4.3.6	ACCESSIBLE EV SPACES	IN ADDITION TO THE REQUIREMENTS IN SECTION 4.106.4.3, EV SPACES FOR HOTELS/MOTELS AND ALL EVSE, WHEN INSTALLED, SHALL COMPLY WITH THE ACCESSIBILITY PROVISIONS FOR EV CHARGING STATIONS IN THE CALIFORNIA BUILDING CODE, CHAPTER 11B.
DIVISION 4.3 - WATER EFFICIENCY AND CONSERVATION		
4.303.1	WATER CONSERVING PLUMBING FIXTURES AND FITTINGS	PLUMBING FIXTURES (WATER CLOSERS AND URINALS) AND FITTINGS (FAUCETS AND SHOWERHEADS) SHALL COMPLY WITH THE FOLLOWING SECTIONS.
4.303.1.1	WATER CLOSETS	WATER CLOSETS: THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS PER FLUSH. TANK-TYPE WATER CLOSETS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATION FOR TANK-TYPE TOILETS. NOTE: THE EFFECTIVE FLUSH VOLUME OF DUAL FLUSH TOILETS IS DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH.
4.303.1.2	URINALS	THE EFFECTIVE FLUSH VOLUME OF WALLMOUNTED URINALS SHALL NOT EXCEED 0.125 GALLONS PER FLUSH. THE EFFECTIVE FLUSH VOLUME OF ALL OTHER URINALS SHALL NOT EXCEED 0.5 GALLONS PER FLUSH.
4.303.1.3	SHOWERHEADS	4.303.1.3.1 SINGLE SHOWERHEAD. SINGLE SHOWERHEAD: SHOWERHEADS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS PER MINUTE AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATION FOR SHOWERHEADS. 4.303.1.3.2 MULTIPLE SHOWERHEADS SERVING ONE SHOWER. MULTIPLE SHOWERHEADS SERVING ONE SHOWER: WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GALLONS PER MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME. NOTE: A HAND-HELD SHOWER SHALL BE CONSIDERED A SHOWERHEAD.
4.303.1.4	FAUCETS	4.303.1.4.1 RESIDENTIAL LAVATORY FAUCETS. THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT EXCEED 1.2 GALLONS PER MINUTE AT 80 PSI. THE MINIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS PER MINUTE AT 20 PSI. 4.303.1.4.2 LAVATORY FAUCETS IN COMMON AND PUBLIC USE AREAS. THE MAXIMUM FLOW RATE OF LAVATORY FAUCETS INSTALLED IN COMMON AND PUBLIC USE AREAS (OUTSIDE OF DWELING OR SLEEPING UNITS) IN RESIDENTIAL BUILDINGS SHALL NOT EXCEED 0.9 GALLONS PER MINUTE AT 60 PSI. 4.303.1.4.3 METERING FAUCETS. METERING FAUCETS WHEN INSTALLED IN RESIDENTIAL BUILDINGS SHALL NOT DELIVER MORE THAN 0.25 GALLONS PER CYCLE. 4.303.1.4.4 KITCHEN FAUCETS. THE MAXIMUM FLOW RATE OF KITCHEN FAUCETS SHALL NOT EXCEED 1.8 GALLONS PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE THE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS PER MINUTE AT 60 PSI, AND MUST DEVIATE TO A MAXIMUM FLOW RATE OF 1.8 GALLONS PER MINUTE AT 60 PSI. NOTE: WHERE COMPLYING FAUCETS ARE UNAVAILABLE, AERATORS OR OTHER MEANS MAY BE USED TO ACHIEVE REDUCTION.
4.303.2	STANDARDS FOR PLUMBING FIXTURES AND FITTINGS	PLUMBING FIXTURES AND FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE CALIFORNIA PLUMBING CODE AND SHALL MEET THE APPLICABLE STANDARDS REFERENCED IN TABLE 1701.1 OF THE CALIFORNIA PLUMBING CODE.
4.304.1	OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS	AFTER DECEMBER 1, 2015, NEW RESIDENTIAL DEVELOPMENTS WITH AN AGGREGATE LANDSCAPE AREA EQUAL TO OR GREATER THAN 500 SQUARE FEET SHALL COMPLY WITH ONE OF THE FOLLOWING OPTIONS: 1. A LOCAL WATER EFFICIENT LANDSCAPE ORDINANCE OR THE CURRENT CALIFORNIA DEPARTMENT OF WATER RESOURCES' MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWEO), WHICHEVER IS MORE STRINGENT, OR 2. PROJECTS WITH AGGREGATE LANDSCAPE AREAS LESS THAN 2,500 SQUARE FEET MAY COMPLY WITH THE MWEO'S APPENDIX D PRESCRIPTIVE COMPLIANCE OPTION. NOTES: 1. THE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWEO) AND SUPPORTING DOCUMENTS ARE AVAILABLE AT HTTP://WWW.WATER.CA.GOV/WATERUSEEFFICIENCY/LANDSCAPEORDINANCE/ 2. A WATER BUDGET CALCULATOR IS AVAILABLE AT: HTTP://WWW.WATER.CA.GOV/WATERUSEEFFICIENCY/LANDSCAPEORDINANCE/
DIVISION 4.4 - MATERIAL CONSERVATION & RESOURCE EFFICIENCY		
4.406.1	RODENT PROOFING	ANNULAR SPACES AROUND PIPES, ELECTRICAL CABLES, CONDUITS OR OTHER OPENINGS IN SOLE/BOTTOM PLATES AT EXTERIOR WALLS SHALL BE PROTECTED AGAINST THE PASSAGE OF RODENTS BY CLOSING SUCH OPENINGS WITH CEMENT MORTAR, CONCRETE MASONRY OR A SIMILAR METHOD ACCEPTABLE TO THE ENFORCING AGENCY.
4.408.1	CONSTRUCTION WASTE MANAGEMENT	RECYCLE AND/OR SALVAGE FOR REUSE A MINIMUM OF 65% OF THE NON-HAZARDOUS CONSTRUCTION AND DEMOLITION DEBRIS IN ACCORDANCE WITH EITHER SECTION 4.408.2, 4.408.3 OR 4.408.4, OR MEET A MORE STRINGENT LOCAL CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT ORDINANCE. EXCEPTIONS: 1. EXCAVATED SOIL AND LAND-CLEARING DEBRIS. 2. ALTERNATE WASTE REDUCTION METHODS DEVELOPED BY WORKING WITH LOCAL AGENCIES IF DIVERSION OR RECYCLED FACILITIES CAPABLE OF COMPLIANCE WITH THIS ITEM DO NOT EXIST OR ARE NOT LOCATED REASONABLY CLOSE TO THE JOBSITE. 3. THE ENFORCING AGENCY MAY MAKE EXCEPTIONS TO THE REQUIREMENTS OF THIS SECTION WHEN ISOLATED JOB SITES ARE LOCATED IN AREAS BEYOND THE HAUL BOUNDARIES OF THE DIVERSION FACILITY.
4.408.2	CONSTRUCTION WASTE MANAGEMENT PLAN	SUBMIT A CONSTRUCTION WASTE MANAGEMENT PLAN IN CONFORMANCE WITH ITEMS 1 THROUGH 5. THE CONSTRUCTION WASTE MANAGEMENT PLAN SHALL BE UPDATED AS NECESSARY AND SHALL BE AVAILABLE DURING CONSTRUCTION FOR EXAMINATION BY THE ENFORCING AGENCY. 1. IDENTIFY THE CONSTRUCTION AND DEMOLITION WASTE MATERIAL TO BE DIVERTED FROM DISPOSAL BY RECYCLING, REUSE ON THE PROJECT OR SALVAGE FOR FUTURE USE OR SALE. 2. SPECIFY IF CONSTRUCTION AND DEMOLITION WASTE MATERIALS WILL BE SORTED ON-SITE (SOURCE-SEPARATED) OR BULK MIXED (SINGLE STREAM). 3. IDENTIFY DIVERSION FACILITIES WHERE THE CONSTRUCTION AND DEMOLITION WASTE MATERIAL WILL BE TAKEN. 4. IDENTIFY CONSTRUCTION METHODS EMPLOYED TO REDUCE THE AMOUNT OF CONSTRUCTION AND DEMOLITION WASTE GENERATED. 5. SPECIFY THAT THE AMOUNT OF CONSTRUCTION AND DEMOLITION WASTE MATERIALS DIVERTED SHALL BE CALCULATED BY WEIGHT OR VOLUME, BUT NOT BY BOTH.
4.408.3	WASTE MANAGEMENT COMPANY	UTILIZE A WASTE MANAGEMENT COMPANY APPROVED BY THE ENFORCING AGENCY WHICH CAN PROVIDE VERIFIABLE DOCUMENTATION THAT THE PERCENTAGE OF CONSTRUCTION AND DEMOLITION WASTE MATERIAL DIVERTED FROM THE LANDFILL COMPLIES WITH SECTION 4.408.1 NOTE: THE OWNER OR CONTRACTOR MAY MAKE THE DETERMINATION IF THE CONSTRUCTION AND DEMOLITION WASTE MATERIALS WILL BE DIVERTED BY A WASTE MANAGEMENT COMPANY.
4.408.4	WASTE STREAM REDUCTION ALTERNATIVE [LR]	PROJECTS THAT GENERATE A TOTAL COMBINED WEIGHT OF CONSTRUCTION AND DEMOLITION WASTE DISPOSED OF IN LANDFILLS, WHICH DO NOT EXCEED 3.4 POUNDS PER SQUARE FOOT OF THE BUILDING AREA, SHALL MEET THE MINIMUM 65 PERCENT CONSTRUCTION WASTE REDUCTION REQUIREMENT IN SECTION 4.408.1.
4.408.4.1	WASTE STREAM REDUCTION ALTERNATIVE	PROJECTS THAT GENERATE A TOTAL COMBINED WEIGHT OF CONSTRUCTION AND DEMOLITION WASTE DISPOSED OF IN LANDFILLS, WHICH DO NOT EXCEED 2 POUNDS PER SQUARE FOOT OF THE BUILDING AREA, SHALL MEET THE MINIMUM 65-PERCENT CONSTRUCTION WASTE REDUCTION REQUIREMENT IN SECTION 4.408.1.

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4.106.2	STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION	PROJECTS WHICH DISTURB LESS THAN ONE ACRE OF SOIL AND ARE NOT PART OF A LARGER COMMON PLAN OF DEVELOPMENT WHICH IN TOTAL DISTURBS ONE ACRE OR MORE, SHALL MANAGE STORM WATER DRAINAGE DURING CONSTRUCTION. IN ORDER TO MANAGE STORM WATER DURING CONSTRUCTION, ONE OR MORE OF THE FOLLOWING MEASURES SHALL BE IMPLEMENTED TO PREVENT FLOODING OF ADJACENT PROPERTY, PREVENT EROSION AND RETAIN SOIL RUNOFF ON THE SITE. 1. RETENTION BASINS OF SUFFICIENT SIZE SHALL BE UTILIZED TO RETAIN STORM WATER ON THE SITE. 2. WHERE STORM WATER IS CONVEYED TO A PUBLIC DRAINAGE SYSTEM, COLLECTION POINT, GUTTER OR SIMILAR DISPOSAL METHOD, WATER SHALL BE FILTERED BY USE OF A BARRIER SYSTEM, WATTLE OR OTHER METHOD APPROVED BY THE ENFORCING AGENCY. 3. COMPLIANCE WITH A LAWFULLY ENACTED STORM WATER MANAGEMENT ORDINANCE.
4.106.3	GRADING AND PAVING	CONSTRUCTION PLANS SHALL INDICATE HOW THE SITE GRADING OR DRAINAGE SYSTEM WILL MANAGE ALL SURFACE WATER FLOWS TO KEEP WATER FROM ENTERING BUILDINGS. EXAMPLES OF METHODS TO MANAGE SURFACE WATER INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: 1. SWALES 2. WATER COLLECTION AND DISPOSAL SYSTEMS 3. FRENCH DRAINS 4. WATER RETENTION GARDENS 5. OTHER WATER MEASURES WHICH KEEP SURFACE WATER AWAY FROM BUILDINGS AND AID IN GROUNDWATER RECHARGE. EXCEPTION: ADDITIONS AND ALTERNATIONS NOT ALTERING THE DRAINAGE PATH.
4.106.4	ELECTRIC VEHICLE (EV) CHARGING FOR NEW CONSTRUCTION	NEW CONSTRUCTION SHALL COMPLY WITH SECTIONS 4.106.4.1, 4.106.4.2, OR 4.106.4.3 TO FACILITATE FUTURE INSTALLATION AND USE OF EV CHARGERS. ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE) SHALL BE INSTALLED IN ACCORDANCE WITH THE CALIFORNIA ELECTRICAL CODE, ARTICLE 625. Exceptions: 1. ON A CASE-BY-CASE BASIS, WHERE THE LOCAL ENFORCING AGENCY HAS DETERMINED EV CHARGING AND INFRASTRUCTURE ARE NOT FEASIBLE BASED UPON ONE OR MORE OF THE FOLLOWING CONDITIONS: 1.1. WHERE THERE IS NO COMMERCIAL POWER SUPPLY 1.2. WHERE THERE IS EVIDENCE SUBSTANTIATING THAT MEETING THE REQUIREMENTS WILL ALTER THE LOCAL UTILITY INFRASTRUCTURE DESIGN REQUIREMENTS ON THE UTILITY SIDE OF THE METER SO AS TO INCREASE THE UTILITY SIDE COST TO THE HOMEOWNER OR THE DEVELOPER BY MORE THAN \$400.00 PER DWELLING UNIT. 2. ACCESSORY DWELLING UNITS (ADU) AND JUNIOR ACCESSORY DWELLING UNITS (JADU) WITHOUT ADDITIONAL PARKING FACILITIES.
4.106.4.1	NEW ONE- AND TWO-FAMILY DWELLINGS AND TOWNHOUSES WITH ATTACHED PRIVATE GARAGES	FOR EACH DWELLING UNIT, INSTALL A LISTED RACEWAY TO ACCOMMODATE A DEDICATED 208/240-VOLT BRANCH CIRCUIT. THE RACEWAY SHALL NOT BE LESS THAN TRADE SIZE 1 (NOMINAL 1-INCH INSIDE DIAMETER). THE RACEWAY SHALL ORIGINATE AT THE MAIN SERVICE OR SUBPANEL AND SHALL TERMINATE INTO A LISTED CABINET, BOX OR OTHER ENCLOSURE IN CLOSE PROXIMITY TO THE PROPOSED LOCATION OF AN EV CHARGER. RACEWAYS ARE REQUIRED TO BE CONTINUOUS AT ENCLOSED, INACCESSIBLE OR CONCEALED AREAS AND SPACES. THE SERVICE PANEL AND/OR SUBPANEL SHALL PROVIDE CAPACITY TO INSTALL A 40-AMPERE MINIMUM DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF A BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE.
4.106.4.1.1	IDENTIFICATION	THE SERVICE PANEL OR SUBPANEL CIRCUIT DIRECTORY SHALL IDENTIFY THE OVERCURRENT PROTECTIVE DEVICE SPACE(S) RESERVED FOR FUTURE EV CHARGING AS "EV CAPABLE". THE RACEWAY TERMINATION LOCATION SHALL BE PERMANENTLY AND VISIBLY MARKED AS "EV CAPABLE".
4.106.4.2	NEW MULTIFAMILY DWELLINGS	IF RESIDENTIAL PARKING IS AVAILABLE, TEN (10) PERCENT OF THE TOTAL NUMBER OF PARKING SPACES ON A BUILDING SITE, PROVIDED FOR ALL TYPES OF PARKING FACILITIES, SHALL BE ELECTRIC VEHICLE CHARGING SPACES (EV SPACES) CAPABLE OF SUPPORTING FUTURE EVSE. CALCULATIONS FOR THE REQUIRED NUMBER OF EV SPACES SHALL BE ROUNDED UP TO THE NEAREST WHOLE NUMBER. NOTE: CONSTRUCTION DOCUMENTS ARE INTENDED TO DEMONSTRATE THE PROJECT'S CAPABILITY AND CAPACITY FOR FACILITATING FUTURE EV CHARGING. THERE IS NO REQUIREMENT FOR EV SPACES TO BE CONSTRUCTED OR AVAILABLE UNTIL EV CHARGERS ARE INSTALLED FOR USE.
4.106.4.2.1	ELECTRIC VEHICLE CHARGING SPACE (EV SPACE) LOCATIONS	CONSTRUCTION DOCUMENTS SHALL INDICATE THE LOCATION OF PROPOSED EV SPACES. WHERE COMMON USE PARKING IS PROVIDED AT LEAST ONE EV SPACE SHALL BE LOCATED IN THE COMMON USE PARKING AREA AND SHALL BE AVAILABLE FOR USE BY ALL RESIDENTS. WHEN EV CHARGERS ARE INSTALLED, EV SPACES REQUIRED BY SECTION 4.106.4.2.2, ITEM 3, SHALL COMPLY WITH AT LEAST ONE OF THE FOLLOWING OPTIONS: 1. THE EV SPACE SHALL BE LOCATED ADJACENT TO AN ACCESSIBLE PARKING SPACE MEETING THE REQUIREMENTS OF THE CALIFORNIA BUILDING CODE, CHAPTER 11A, TO ALLOW USE OF THE EV CHARGER FROM THE ACCESSIBLE PARKING SPACE. 2. THE EV SPACE SHALL BE LOCATED ON AN ACCESSIBLE ROUTE, AS DEFINED IN THE CALIFORNIA BUILDING CODE, CHAPTER 2, TO THE BUILDING. EXCEPTION: ELECTRIC VEHICLE CHARGING STATIONS DESIGNED AND CONSTRUCTED IN COMPLIANCE WITH THE CALIFORNIA BUILDING CODE, CHAPTER 11B, ARE NOT REQUIRED TO COMPLY WITH SECTION 4.106.4.2.1.1 AND SECTION 4.106.4.2.2, ITEM 3. NOTE: ELECTRIC VEHICLE CHARGING STATIONS SERVING PUBLIC HOUSING ARE REQUIRED TO COMPLY WITH THE CALIFORNIA BUILDING CODE, CHAPTER 11B.
4.106.4.2.2	ELECTRIC VEHICLE CHARGING SPACE (EV SPACE) DIMENSIONS	THE EV SPACES SHALL BE DESIGNED TO COMPLY WITH THE FOLLOWING: 1. THE MINIMUM LENGTH OF EACH EV SPACE SHALL BE 18 FEET (5486 MM). 2. THE MINIMUM WIDTH OF EACH EV SPACE SHALL BE 9 FEET (2743 MM). 3. ONE IN EVERY 25 EV SPACE, BUT NOT LESS THAN ONE, SHALL ALSO HAVE AN 8-FOOT (2438 MM) WIDE MINIMUM AISLE. A 5-FOOT (1524 MM) WIDE MINIMUM AISLE SHALL BE PERMITTED PROVIDED THE MINIMUM WIDTH OF THE EV SPACE IS 12 FEET (3658 MM). a. SURFACE SLOPE FOR THE EV SPACE AND THE AISLE SHALL NOT EXCEED 1 UNIT VERTICAL IN 48 UNITS HORIZONTAL (2.083 PERCENT SLOPE) IN ANY DIRECTION.
4.106.4.2.3	SINGLE EV SPACE REQUIRED	INSTALL A LISTED RACEWAY CAPABLE OF ACCOMMODATING A 208/240-VOLT DEDICATED BRANCH CIRCUIT. THE RACEWAY SHALL NOT BE LESS THAN TRADE SIZE 1 (NOMINAL 1-INCH INSIDE DIAMETER). THE RACEWAY SHALL ORIGINATE AT THE MAIN SERVICE OR SUBPANEL AND SHALL TERMINATE INTO A LISTED CABINET, BOX OR ENCLOSURE IN CLOSE PROXIMITY TO THE PROPOSED LOCATION OF THE EV SPACE. CONSTRUCTION DOCUMENTS SHALL IDENTIFY THE RACEWAY TERMINATION POINT. THE SERVICE PANEL AND/OR SUBPANEL SHALL PROVIDE CAPACITY TO INSTALL A 40-AMPERE MINIMUM DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF A BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE.
4.106.4.2.4	MULTIPLE EV SPACES REQUIRED	CONSTRUCTION DOCUMENTS SHALL INDICATE THE RACEWAY TERMINATION POINT AND PROPOSED LOCATION OF FUTURE EV SPACES AND EV CHARGERS. CONSTRUCTION DOCUMENTS SHALL ALSO PROVIDE INFORMATION ON AMPERAGE OF FUTURE EVSE, RACEWAY METHODS, WIRING SCHEMATICS AND ELECTRICAL LOAD CALCULATIONS TO VERIFY THAT THE ELECTRICAL PANEL SERVICE CAPACITY AND ELECTRICAL SYSTEM, INCLUDING ANY ON-SITE DISTRIBUTION TRANSFORMER(S), HAVE SUFFICIENT CAPACITY TO SIMULTANEOUSLY CHARGE ALL EVS AT ALL REQUIRED EV SPACES AT THE FULL RATED AMPERAGE OF THE EVSE. PLAN DESIGN SHALL BE BASED UPON A 40-AMPERE MINIMUM BRANCH CIRCUIT. REQUIRED RACEWAYS AND RELATED COMPONENTS THAT ARE PLANNED TO BE INSTALLED UNDERGROUND, ENCLOSED, INACCESSIBLE OR IN CONCEALED AREAS AND SPACES SHALL BE INSTALLED AT THE TIME OF ORIGINAL CONSTRUCTION.
4.106.4.2.5	IDENTIFICATION	THE SERVICE PANEL OR SUBPANEL CIRCUIT DIRECTORY SHALL IDENTIFY THE OVERCURRENT PROTECTIVE DEVICE SPACE(S) RESERVED FOR FUTURE EV CHARGING PURPOSES AS "EV CAPABLE" IN ACCORDANCE WITH THE CALIFORNIA ELECTRICAL CODE.
4.106.4.3	NEW HOTELS AND MOTELS	ALL NEWLY CONSTRUCTED HOTELS AND MOTELS SHALL PROVIDE EV SPACES CAPABLE OF SUPPORTING FUTURE INSTALLATION OF EVSE. THE CONSTRUCTION DOCUMENTS SHALL IDENTIFY THE LOCATION OF THE EV SPACES. NOTES: 1. CONSTRUCTION DOCUMENTS ARE INTENDED TO DEMONSTRATE THE PROJECTS CAPABILITY AND CAPACITY FOR FUTURE EV CHARGING. 2. THERE IS NO REQUIREMENT FOR EV SPACES TO BE CONSTRUCTED OR AVAILABLE UNTIL EV CHARGERS ARE INSTALLED FOR USE.
4.106.4.3.1	NUMBER OF REQUIRED EV SPACES	THE NUMBER OF REQUIRED EV SPACES SHALL BE BASED ON THE TOTAL NUMBER OF PARKING SPACES PROVIDED FOR ALL TYPES OF PARKING FACILITIES IN ACCORDANCE WITH TABLE 4.106.4.3.1. CALCULATIONS FOR THE REQUIRED NUMBER OF EV SPACES SHALL BE ROUNDED UP TO THE NEAREST WHOLE NUMBER.
4.106.4.3.2	EV CHARGING SPACE DIMENSIONS	THE EV SPACES SHALL BE DESIGNED TO COMPLY WITH THE FOLLOWING: 1. THE MINIMUM LENGTH OF EACH EV SPACE SHALL BE 18 FEET (5486 MM). 2. THE MINIMUM WIDTH OF EACH EV SPACE SHALL BE 9 FEET (2743 MM).
4.106.4.3.3	SINGLE EV SPACE REQUIRED	WHEN A SINGLE EV SPACE IS REQUIRED, THE EV SPACE SHALL BE DESIGNED IN ACCORDANCE WITH SECTION 4.106.4.2.3.
4.106.4.3.4	MULTIPLE EV SPACE REQUIRED	WHEN A MULTIPLE EV SPACE ARE REQUIRED, THE EV SPACES SHALL BE DESIGNED IN ACCORDANCE WITH SECTION 4.106.4.2.4.



BRIGHT GREEN
STRATEGIES

SCHALLOP RESIDENCE

400 VIA VENADO
BONNY DOON, CALIFORNIA

RESIDENTIAL CALGREEN COMPLIANCE

DATE
06-16-2020

SCALE
NTS

BY
J. JACKSON

SHEET

GB1

JOB #: 7164-20

HOTEL/MOTEL PARKING	
TABLE 4.106.4.3.1	
TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EV SPACES
0-9	0
10-25	1
26-50	2
51-75	4
76-100	5
101-150	7
151-200	10
201 AND OVER	6 PERCENT OF TOTAL

ADHESIVE VOC LIMIT	
TABLE 4.504.1 Less Water and Less Exempt Compounds in Grams per Liter	
ARCHITECTURAL APPLICATIONS	VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVES	100
RUBBER FLOOR ADHESIVES	80
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT AND ASPHALT TILE ADHESIVES	50
DRYWALL AND PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVES	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT SPECIFICALLY LISTED	50
SPECIALTY APPLICATIONS	
PVC WELDING	510
CPVC WELDING	490
ABS WELDING	325
PLASTIC CEMENT WELDING	250
ADHESIVE PRIMER FOR PLASTIC	550
CONTACT ADHESIVE	80
SPECIAL PURPOSE CONTACT ADHESIVE	250
STRUCTURAL WOOD MEMBER ADHESIVE	140
TOP AND TRIM ADHESIVE	250
SUBSTRATE SPECIFIC APPLICATIONS	
METAL TO METAL	30
PLASTIC FOAMS	50
POROUS MATERIAL (EXCEPT WOOD)	50
WOOD	30
FIBERGLASS	80

1. If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content shall be allowed.
2. For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168.

SEALANT VOC LIMIT	
TABLE 4.504.2 Less Water and Less Exempt Compounds in Grams per Liter	
SEALANTS	VOC LIMIT
ARCHITECTURAL	250
MARINE DECK	760
NON-MEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420
SEALANT PRIMERS	
ARCHITECTURAL	
-NONPOROUS	250
-POROUS	775
MODIFIED BITUMINOUS	500
MARINE DECK	760
OTHER	750

VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS	
TABLE 4.504.3 Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds	
COATING CATEGORY	VOC LIMIT
FLAT COATINGS	50
NONFLAT COATINGS	100
NONFLAT HIGH GLOSS COATINGS	150
SPECIALTY COATINGS	
ALUMINUM ROOF COATINGS	400
BASEMENT SPECIALTY COATINGS	400
BITUMINOUS ROOF COATINGS	50
BITUMINOUS ROOF PRIMERS	350
BOND BREAKERS	350
CONCRETE CURING COMPOUNDS	350
CONCRETE / MASONRY SEALERS	100
DRIVEWAY SEALERS	50
DRY FOG COATINGS	150
FAUX FINISHING COATINGS	350
FIRE RESISTIVE COATINGS	350
FLOOR COATINGS	100
FORM-RELEASE COMPOUNDS	250
GRAPHICS ARTS COATINGS (SIGN PAINTS)	500
HIGH TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	500
MULTICOLOR COATINGS	250
PRETREATMENT WASH PRIMERS	420
PRIMERS, SEALERS, UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS	
-CLEAR	730
-OPAQUE	550
SPECIALTY PRIMERS, SEALERS AND UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB AND TILE REFINISH COATINGS	420
WATERPROOFING MEMBRANES	250
WOOD COATINGS	275
WOOD PRESERVATIVES	350
ZINC-RICH PRIMERS	340

1. Grams of VOC per liter of coating, including water and including exempt compounds.
2. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available from the Air Resources Board.

FORMALDEHYDE LIMITS	
TABLE 4.504.5 Maximum Formaldehyde Emmisions in Parts per Million	
PRODUCT	CURRENT LIMIT
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICULARBOARD	0.09
MEDIUM DENSITY FIBERBOARD	0.11
THIN MEDIUM DENSITY FIBERBOARD	0.13

- Values in this table are derived from those specified by the California Air Resources Board. Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E 1333. For additional information, see California Code of Regulations, Title 17, Sections 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness of 5/16 inch (8mm).

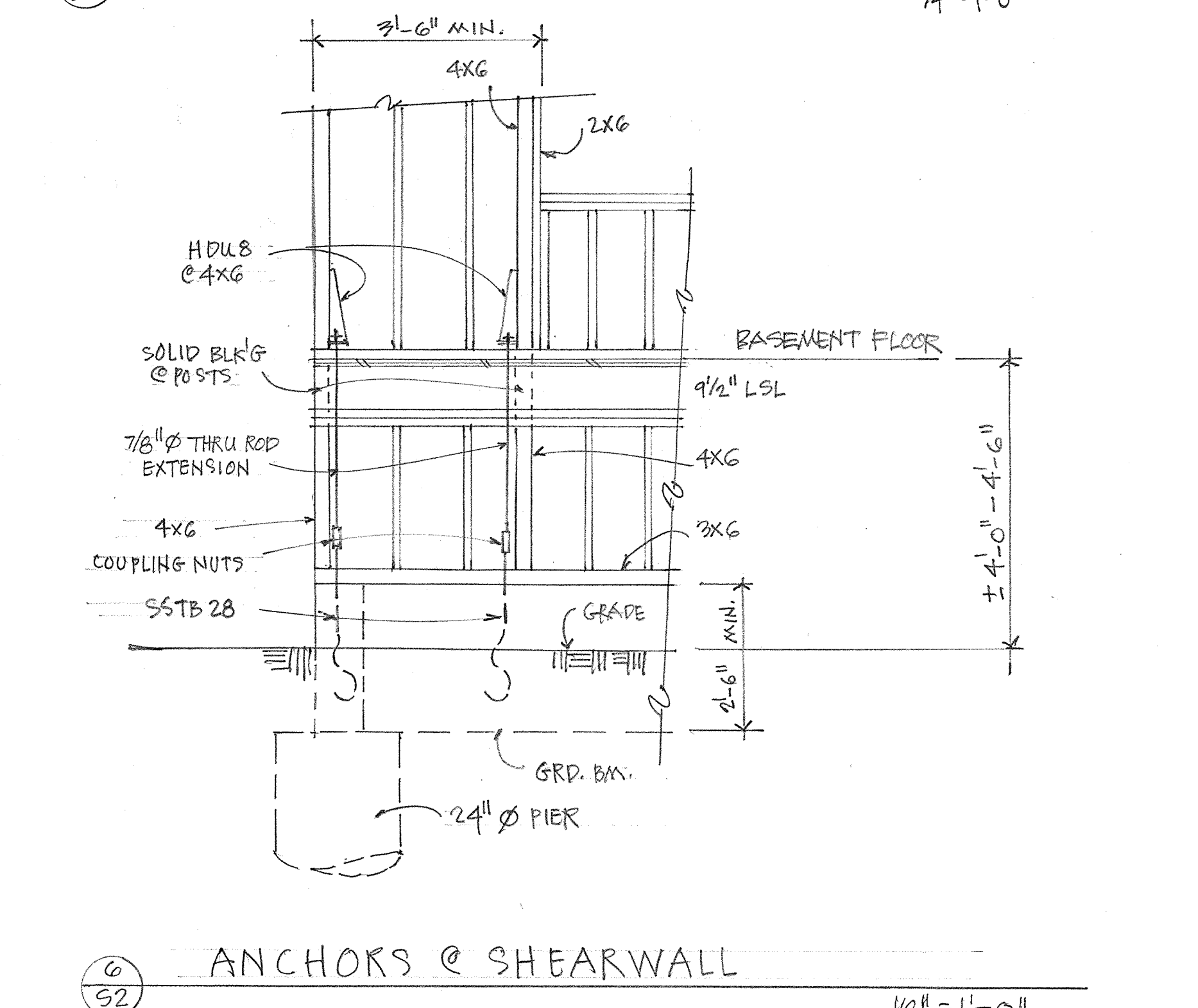
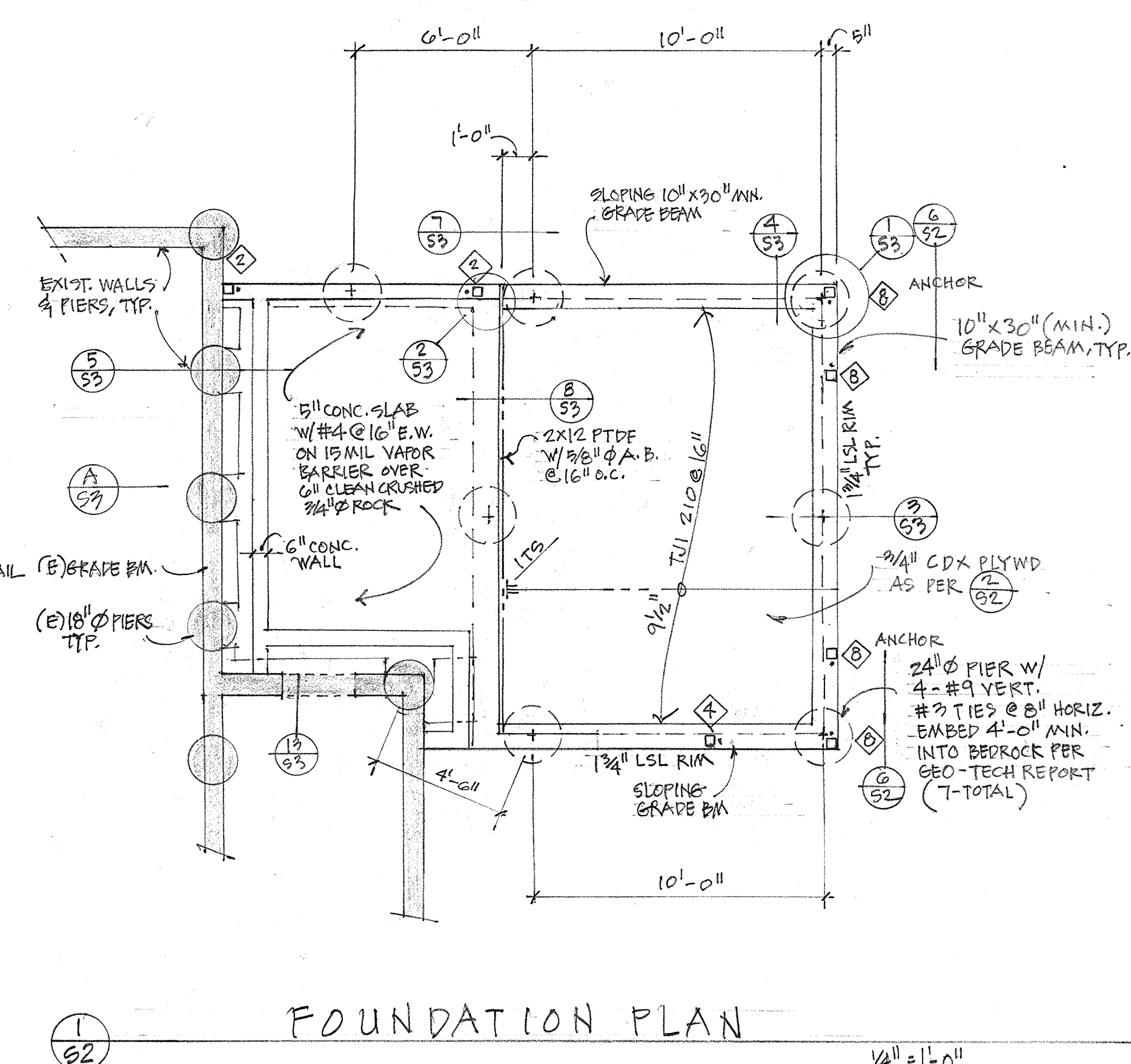
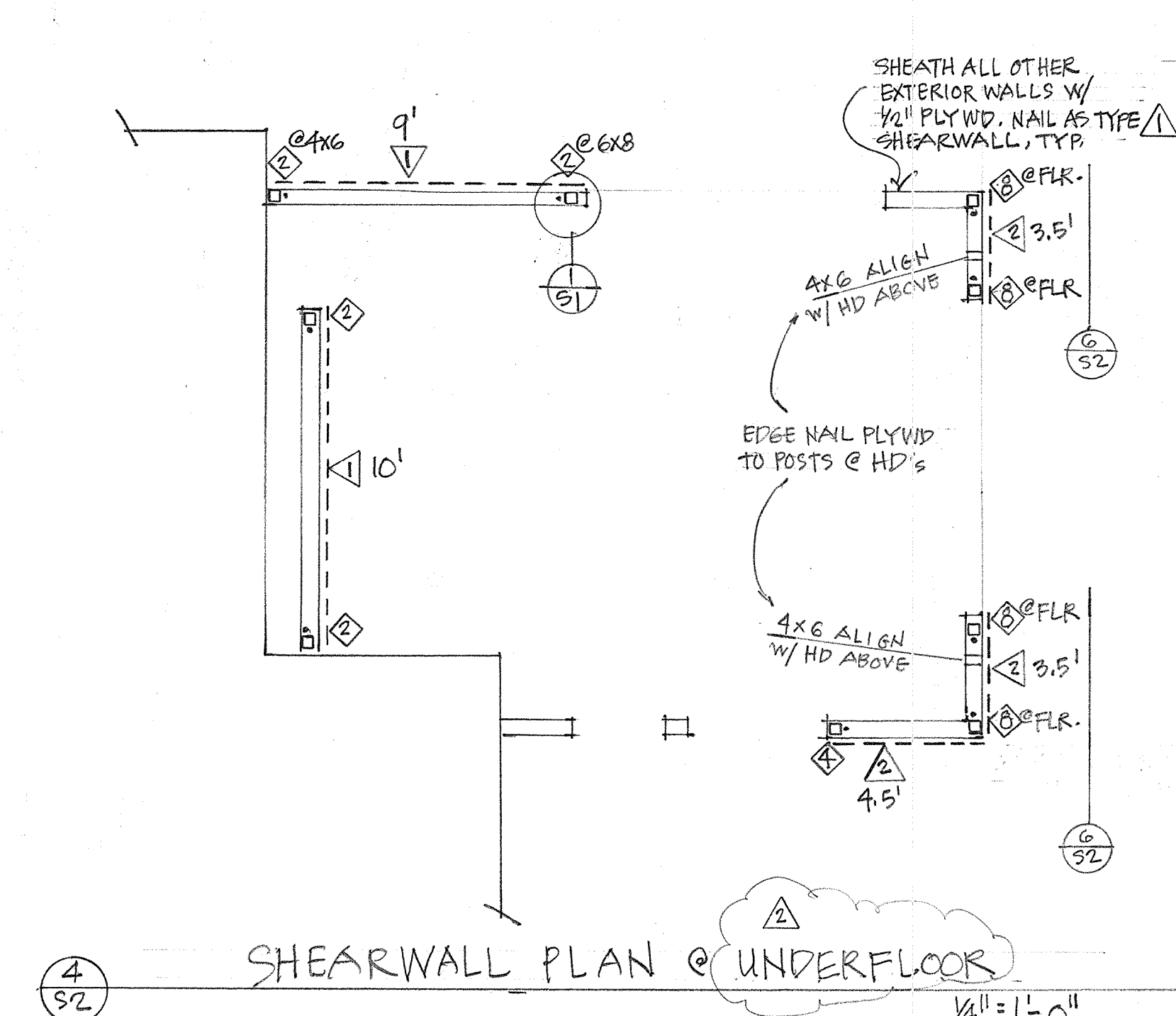
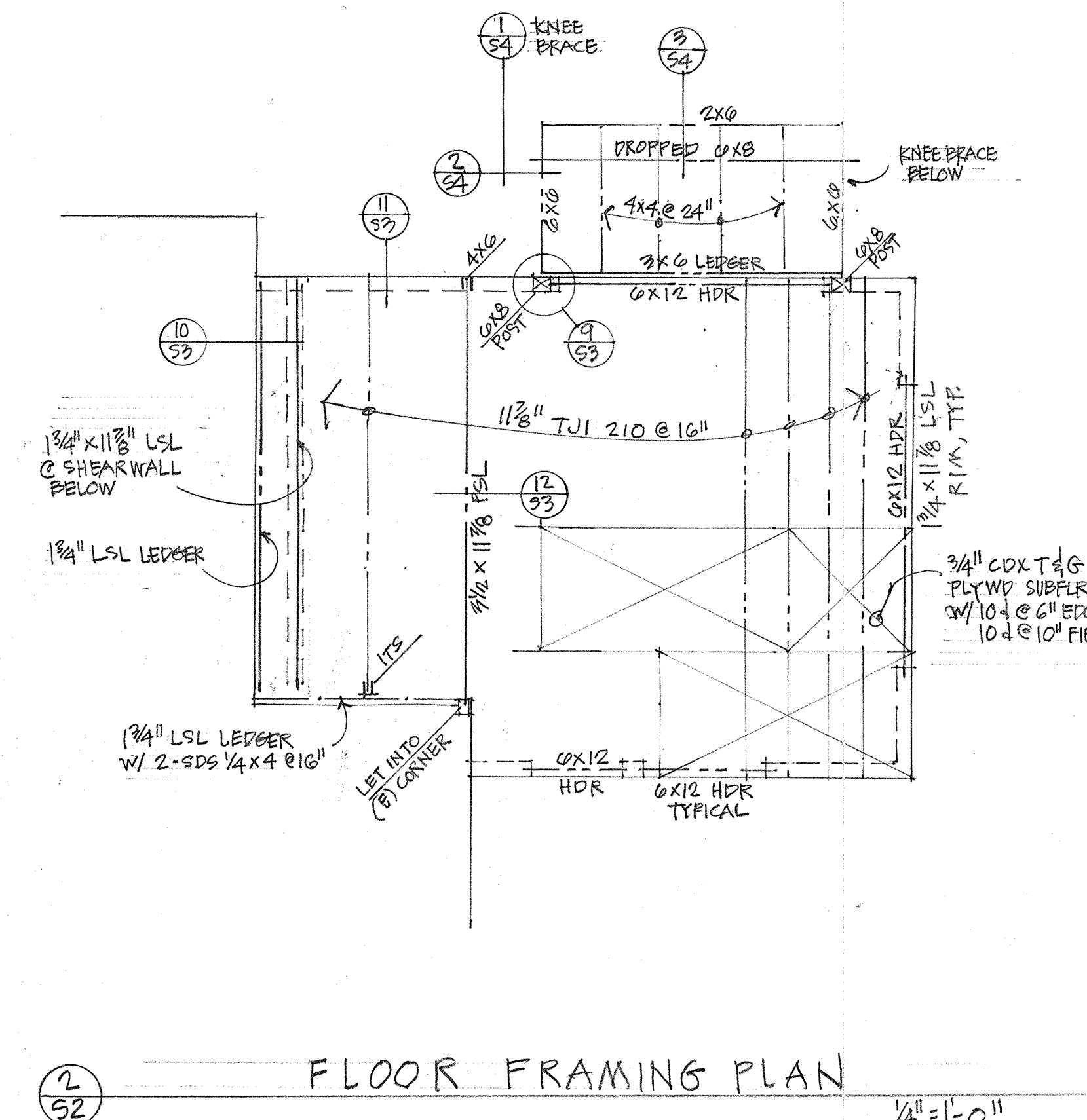
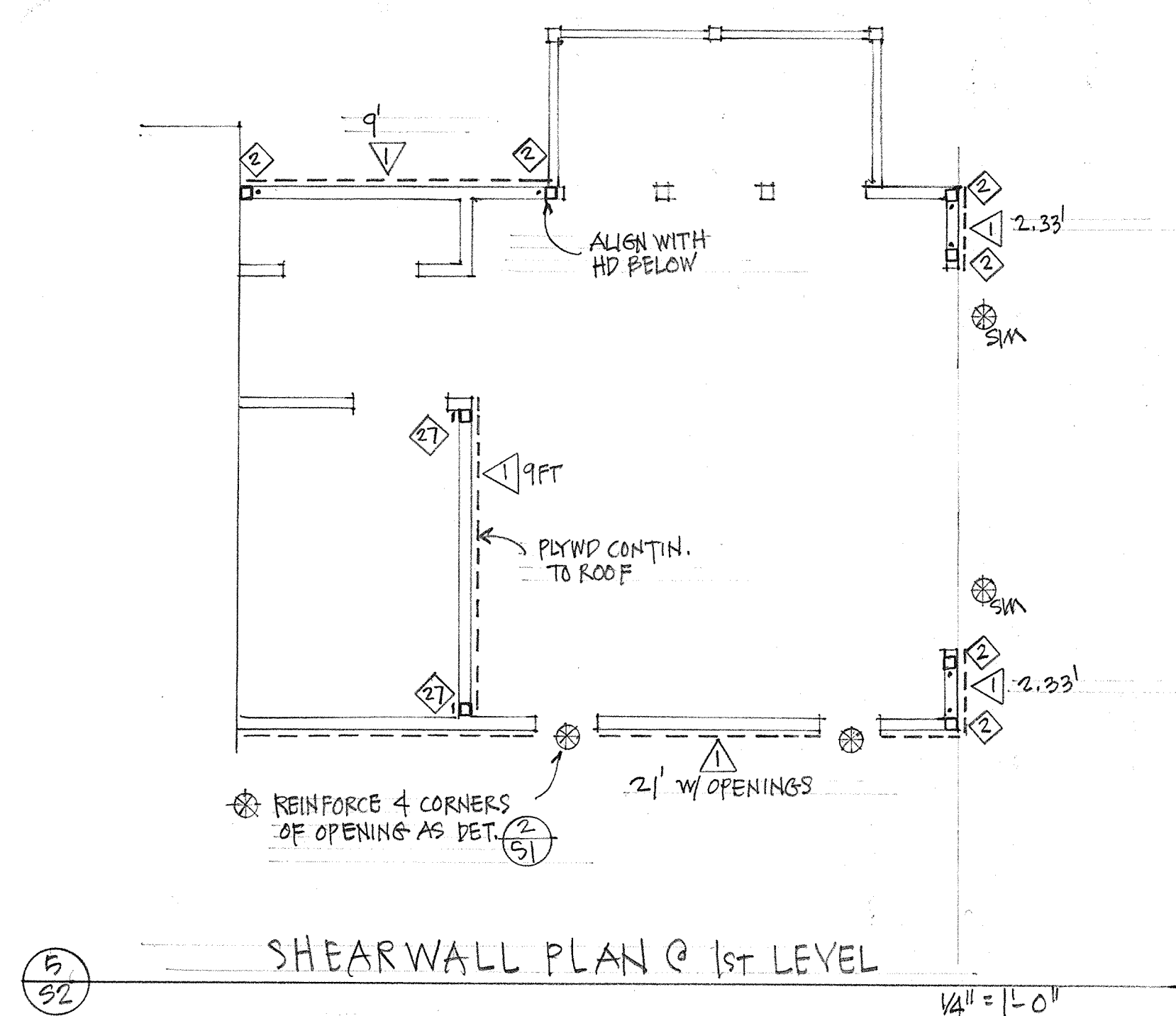
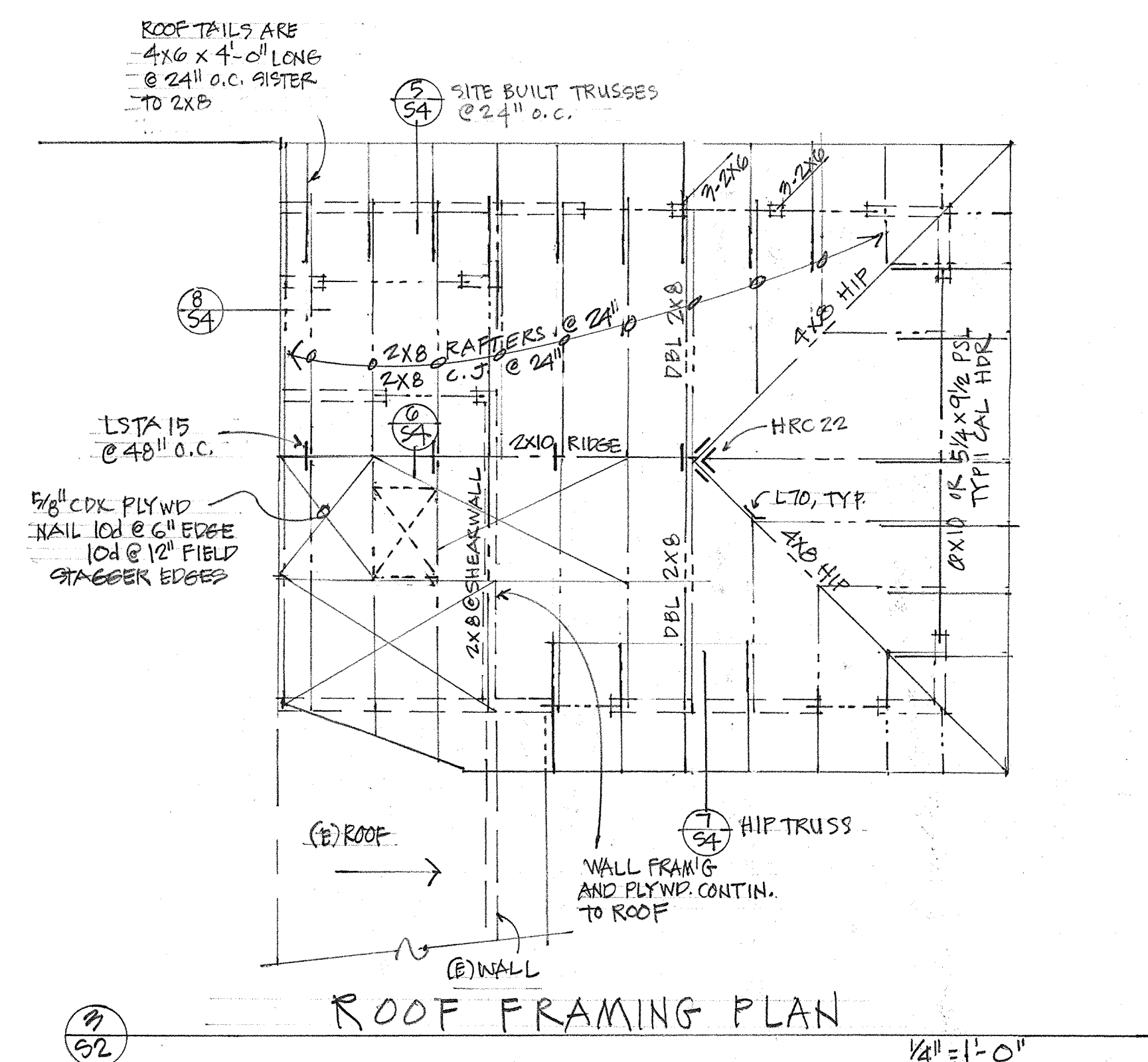
EXHAUST DUCT SIZING									
TABLE 4-9 Perscriptive Duct Sizing for Single Exhaust Systems									
DUCT TYPE	FLEX DUCT				SMOOTH DUCT				
FAN RATING (CFM @ 0.25 IN W.C.)	50	80	100	125	50	80	100	125	
DIAMETER (INCH)	MAXIMUM LENGTH FEET.								
3	X	X	X	X	5	X	X	X	
4	70	3	X	X	105	35	5	X	
5	NL	70	35	20	NL	135	85	55	
6	NL	NL	125	95	NL	NL	NL	145	
7 and Above	NL	NL	NL	NL	NL	NL	NL	NL	


This table assumes no elbows. deduct 15 feet of allowable duct length for each elbow.


NL = no limit on duct length of this size.

X = not allowed, any length of duct of this size with assumed turns and fittings will exceed the rated pressure drop.

FIXTURE FLOW RATES		
FOR REFERENCE FROM DIVISION 4.3		
CODE REFERENCE	FIXTURE TYPE	MAXIMUM FLOW RATE
4.303.1.1	WATER CLOSETS	≤ 1.28 GAL / FLUSH
4.303.1.2	URINALS	≤ 0.5 GAL / FLUSH
4.303.1.3.1	SINGLE SHOWERHEADS	≤ 1.8 GPM @ 80 PSI
4.303.1.3.2	MULTIPLE SHOWERHEADS	COMBINED FLOW RATE OF ALL SHOWERHEADS AND/ OR OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GPM @ 80 PSI, OR ONLY ONE SHOWER OUTLET IS TO BE OPERATIONAL AT A TIME.
4.303.1.4.1	RESIDENTIAL LAVATORY FAUCETS	≤ 1.2 GPM @ 60 PSI
4.303.1.4.2	LAVATORY FAUCETS IN COMMON AND PUBLIC AREAS ON RESIDENTIAL BUILDINGS	≤ 0.5 GPM @ 60 PSI
4.303.1.4.3	METERING FAUCETS	≤ 0.25 GALLONS PER CYCLE
4.303.1.4.4	KITCHEN FAUCETS	≤ 1.8 GPM @ 60 PSI; TEMPORARY INCREASE TO 2.2 GPM ALLOWED BUT SHALL DEFAULT TO 1.8 GPM



4 FT  INDICATES DESIGN SHEARWALL W/ MIN. LENGTH, SEE SHEARWALL SCHED. @ SHT. 51

 INDICATES HOLDOWN BRACKET/POST & ANCHOR, SEE HOLDOWN SCHED. @ SHT. 51

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PROPOSED ADDITION

TO THE RESIDENCE OF:
LISA AND MICHAEL SCHALLOP
400 VIA YENADO
REDWOOD MEADOWS RANCH
BONNY BOON, CA.

AFN: 063-071-21
IN THE COUNTY OF SANTA CRUZ

A DESIGN BY:
CLARKE L. SHULTES
301 NATIONAL STREET
SANTA CRUZ, CALIF.
9 5 0 6 0
tel: 631-404-1000 - shultesdesign@comcast.net

ONLY NAME CHANGE @ $\frac{4}{52}$
 2 REVISED 7.10.21



SHEET NO.

S2

DRAWN BY: P.E.

DATE: 6.15.90

SHEET NO.

53

DRAWN BY: P.E.

DATE: 6.15.20

