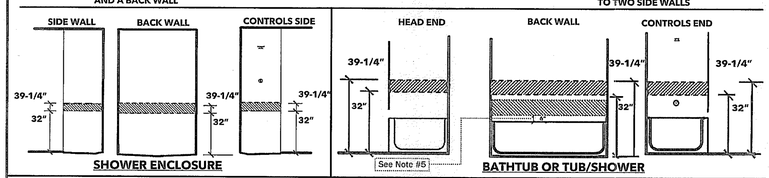
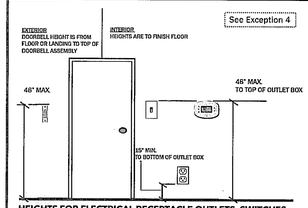
AGING-IN-PLACE DESIGN AND FALL PREVENTION REQUIREMENTS CRC R327





NOTES:

1. Reinforcement must be located between the dimensions specified.
2. Reinforcement must be continuous in bathtub, bathtub combo and shower wall enclosures, where wall framing is provided.
3. Reinforcement may be solid lumber or other construction materials that provide equal height and load capacity.
4. The location of the reinforcement must be incorporated in the Operation and Maintenance Manual (e.g., floor plan and elevation details) required by CAL Green Section 4.410.1.
5. Additional back wall reinforcement must be installed with the bottom edge no more than 6-inches above the bathtub rim.
6. The suggested dimensions are to accommodate the minimum required 36-inches clearance, center to center, at a water closet; and minimum 24-inches clear space in front of water closet (CPC 402.5). At this time CRC R327 does not specify the minimum lengths at these locations. However, please consult with the local jurisdiction.

EXCEPTIONS:

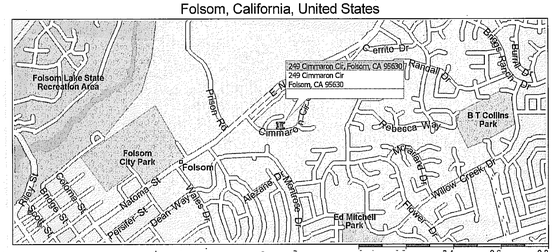
1. Reinforcement for future floor-mounted, foldaway or similar alternate grab bar may be installed with prior approvals from the enforcing agency.
2. Wall reinforcement is not required where pre-fabricated shower & bathtub panels that have integral factory-installed grab bars, or when factory-installed reinforcement for grab bars is provided.
3. Reinforcement of floor is not required for bathtubs and water closets installed on concrete floors.
4. Dedicated receptacle outlets: floor receptacle outlets; controls mounted on ceiling fans and ceiling lights and controls located on appliances; and required receptacles on a wall space that has a built-in feature above finish floor less than 15-inches.

EFFECTIVE JULY, 2024 AT LEAST ONE BATHROOM AND ONE BEDROOM ON THE ENTRY LEVEL MUST PROVIDE A DOORWAY WITH A NET CLEAR OPENING OF NOT LESS THAN 32-INCHES MEASURED WITH THE DOOR POSITIONED AT AN 90 DEGREE ANGLE. IN A 2- OR 3- STORY SFD, ON THE SECOND OR THIRD FLOOR IF A BATHROOM OR BEDROOM IS NOT LOCATED ON THE ENTRY LEVEL. CRC R327.1.3

DOCUMENT SOURCE: BUILDING CODEBUDDY ONLINE

VICINITY MAP

Folsom, California, United States



Construction Documents

(Per 2022 CBC Section 1603.1.1 to 1603.1.9, 1604, 1605, and all other sections of Chapter 16)

PROJECT INFORMATION

Name: DESIGNER - Will Chanbers
Address: 279 Cimmaron, Folsom, CA
Description: Remodel / Addition

Climate Zone:	12
Ground Elevation (Per ATC)	379 FT
Soil Bearing Capacity:	1,500 psf
Roof Drains:	Designed to accommodate 2"/hr of Rain

STANDARDS

Allowable Soil Bearing Pressure	qa =	1,500 psf
Wood Grade (Unless Noted Otherwise)	Grade =	DF No.2 UNO
Rebar Grade (Yield Strength)	fy =	60,000 psi
Compressive Strength of Concrete	fc =	2,500 psi

DESIGN LOADS

	DECK LL	INTERIOR LL	DL
Floor LL	60	40	15
Roof LL / DL		20	24
Ceiling LL / DL		10	5

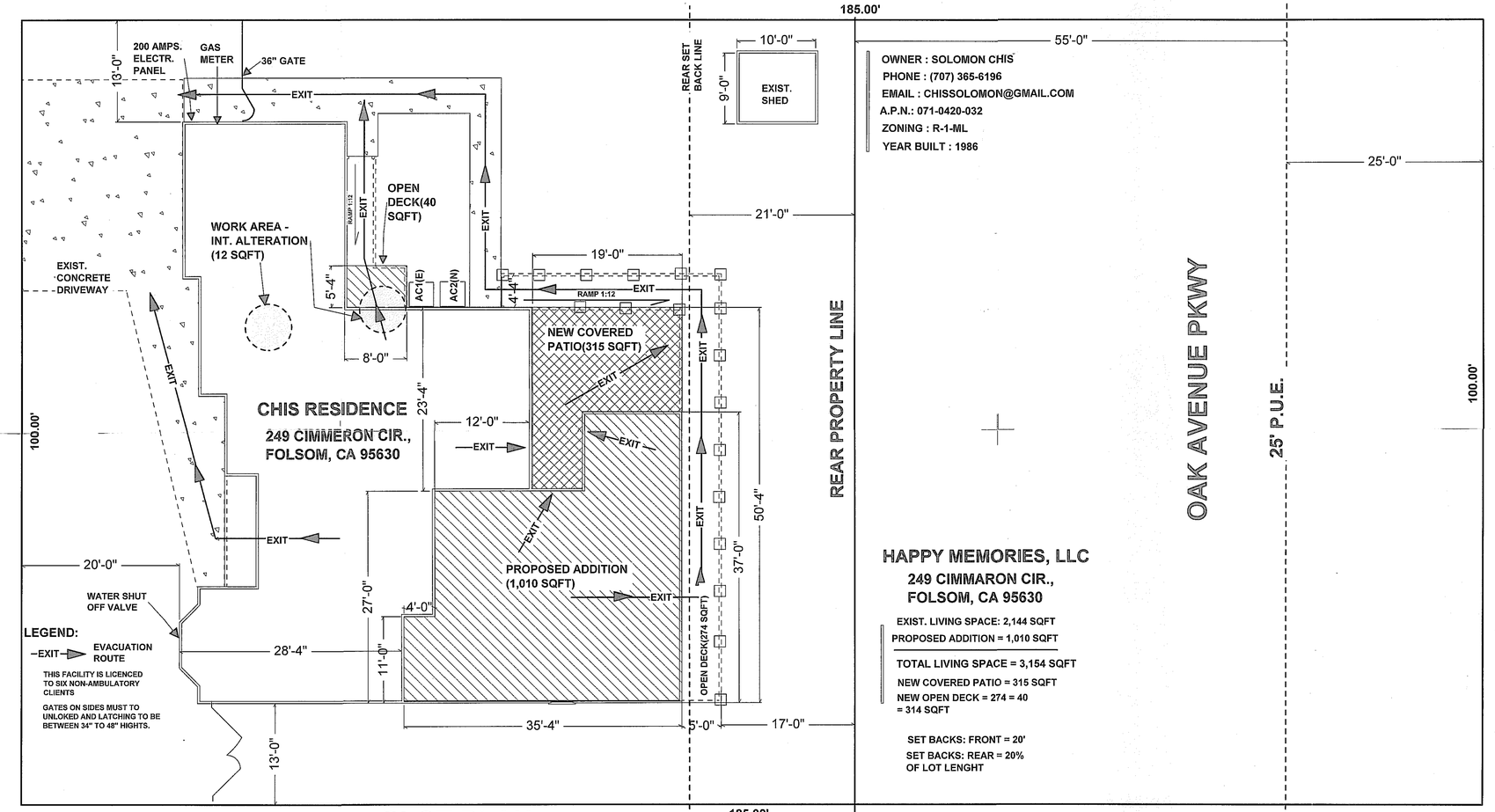
Snow LL	LLf =	30/40 psf
Pg (Ground snow load)	LLr / DLr =	20/14 psf
Pf (Flat-roof snow load)	LLr / DLr =	10/10 psf
Ce (Snow exposure factor)	Ps =	0 psf
Risk Category	Pg =	0 psf
Is (Snow importance factor)	Pf =	0 psf
Cs (Slope Factor)	Ce =	1.0
Ct (Thermal factor)	Risk =	II
i (Rain Intensity)	Is =	1.0
Rooftop Mounted Photovoltaic Panels	Cs =	0.9
	Ct =	1.0
	i =	2.0 in/hr
	DLp =	4.0 psf

WIND DESIGN DATA

Basic Design Wind Speed	Wsp =	94 mph
ASD Wind CBC 1609.1.1 Exceptions 4 & 5	Wasd =	72.8 mph
Risk Category	Risk =	II
Surface Roughness Category	Surface =	C
Exposure Category	Exp w =	C
GCpi (Internal Pressure Coefficient)	Gcpi =	0.18
Max Design Wind Pressure	P =	17.18
H (Mean Roof Height)	H =	20.50 ft
RP (Roof Pitch)	RP =	5 :12

EARTHQUAKE DESIGN DATA

Seismic Isolated / Dampening System?		No
Site Response Analysis required?		No
Ground Motion Hazard Analysis required?		Yes
I (Seismic Importance factor)	Is =	1.0
Risk Category	Risk =	II
Ss (Spectral Response Acceleration, Short)	Ss =	0.5 g
S1 (Spectral Response Acceleration, Long)	S1 =	0.2 g
Soil Site Class (D per ASCE 7-22 11.4.3)	Site =	D
Fa (Site Coefficient)	Fa =	1.396
Fv (Long Period Site Coefficient)	Fv =	2.200
SDs (Spectral Response Coefficient, Short)	SDs =	0.520 g
SD1 (Spectral Response Coefficient, Long)	SD1 =	0.360 g
SDC (Seismic Design Category)	SDC =	D
Basic Seismic Force Resisting System	Type =	Light Frame Wood
Design Base Shear	Vs =	0.073 * W
Cs (Seismic response coefficient)	Cs =	0.073
R (Response modification factor)	R =	6.5
Analysis Procedure (Simplified/Equivalent)	Type =	Equivalent Lateral
Long-Period Transition Period, TL	TL =	16
Detached One or Two Family Dwelling?	1/2 =	no
Project Exempt from Seismic Analysis?	Exempt =	No
Number of Stories	# Stories =	1



PLOT PLAN

SCALE : 1/8" = 1' - 0"

SCOPE OF WORK :

PROPOSED 1,010 SQF LIVING SPACE ADDITION

EXIST. CARE HOME FACILITY UP TO SIX NON-AMBULATORY- CHAGE THE OWENRSHIP

PROPOSED NEW COVERED PATIO = 315 SQFT

POPOSED NEW OPEN DECK 314 SQFT

SEISMIC ZONE C, EXPOSURE B, 85 MPH WIND SPEED AND CLIMATE ZONE 12

THE FACILITY IS TO BE LICENCED TO 6 NON-AMBULATORY CLIENTS- ONLY ONE BUSINESS LICENCE OWNER

RESTAINT SHAL NOT BE PRACTICED IN THIS FACILITY. (CRC T335.2.1)

CONSTRUCTION TYPE V-B, EXIST. R-3.1. PROPOSED R-3.1, NON SPRINLERED (R325.5.1#2)

SEISMIC ZONE C, EXPOSURE B, 85 MPH WIND SPEED AND CLIMATE ZONE 12

REGISTERED PROFESSIONAL ENGINEER PATRICE A. STAFFORD No. 61256 06/30/25 CIVIL STATE OF CALIFORNIA

Patrice A. Stafford

THE 2022 C.R.C., C.M.C., C.P.C., 2022 C.E.C., 2022 T24, 2022 CFC AND ALL RELATED NFPA STANDARDS, 2022 CALGREEN BUILDING CODE STANDARDS, OCCUPANCY GROUP DIVISION BUILDING USE, PARCEL NO., AND CONSTRUCTION TYPE AS AMENDED BY STATE OF CALIFORNIA AND LOCAL JURISDICTION ARE APLICABLE TO THIS PROJECT.

10/22/24

A.P.N.: 071-0420-032

NR SHEET	DESCRIPTION
1	*PLOT PLAN*
2	*FOUNDATION PLAN*
3	*FLOOR PLAN*
4	*ELECTRICAL PLAN*
5	*ROOF PLAN*
6	*MECHANICAL & PLUMBING PLAN*
7	*ELEVATION PLAN*
8	*STRUCTURAL SD-1A*
9	*STRUCTURAL SD-BA*
10	*STRUCTURAL SD-2*
11	*CALGREEN1*
12	*CALGREEN2*
13	*T24- 1*
14	*T24- 2*
15	*T24- 3*

YEAR BUILT : 1986
EXIST. LIVING : 2,144 SQFT
ZONING : R-1-ML

DRAWN BY: JOHN RADU
PHOINE : (916) 425-1067
ADRESS : 4916 MELVIN DR., CARMICHAEL, CA 95608

HAPPY MEMORIES II, LLC - ADDITION
PHONE : (707) 365-6196

SCALE : 1/8" = 1' - 0"	OWNER SIGNATURE	DRAWN BY: JOHN RADU
DATE : 10/22/24		PHONE # : (916) 425-1067

ADDRESS : 249 CIMMARON CIR., FOLSOM, CA 95630

PLOT PLAN — DRAWING NUMBER 1 OF 14

FOUNDATION PLAN

SCALE: 1/4" =1'-0"

LEGEND:

- EXIST. FOOTING
- NEW FOOTING
- RISED FLOOR FOUNDATION(E & N)
- REPRESENTS HOLDOWN PER BRACE WALL SCHEDULE
- REPRESENTS 5.5" X 14" UNDERFLOOR VENTS

UNDERFLOOR VENTING CALCULATION:

- 1,010 SQFT 21:150 = 7 SQFT DIRECT VENT
- 5.5" X 14" VEMT = 44 SQIN DIRECT VENT
- 7 X 144 : 44 = 23
- PROVIDE 23 =- 5.5 X 14" UNDERFLOOR VENTS

EXIST. SLAB ON GRADE FOUNDATION

EXIST. FOUNDATION STRUCTURE

EXIST. FOUNDATION STRUCTURE

EXIST. FOUNDATION STRUCTURE

RAMP 1:12

4 X 6 P.T. BEAM

2 X 10 P.T. LEDGER W/1/4" X 5" GALV. BOLTS @ 16" O.C.

2 #4 DOWELS EPOXY 6" INTO EXIST. FOUNDATION

2 X 6 PT W/#8 X 2'6" DECK SCREWS @ EACH FLOOR JOISTS.

2 X 6 PT FLOOR JOISTS W/GALV. SIMPS. LU26 EACH END

24" X 24" X 15" DEEP CONCRT. PIER

PROVIDE ONE #4 - 20' LONG REBAR AS UFER GROUND

18" X 18" X 12" DEEP CONCRT. PIER @ max 72" o.c.

PROVIDE MIN. 30" X 18" DEEP UNDERFLOOR ACCESS

2 X 10 PT BLOCKS

24" X 18" DEEP CONCRT. THIS FOOTING

24" X 24" X 12" DEEP CONCRT. PIER

4 X 6 P.T. GIRDER BEAM

4 X 10 #2 D.F. BEAM

2 X 6 PT W/#8 X 2'6" DECK SCREWS @ EACH FLOOR JOISTS.

2 X 6 P.T. LEDGER W/1/4" X 5" GALV. BOLTS @ 16" O.C.

30" X 30" X 18" DEEP CONCRT. PIER

2 X 10 #2 D.F. BLOCKS

MAX. SPAN FOR 2 X 10 #2 D.F. FLOOR JOISTA = 14'3" (TABLE R502.3.1(2)

2 X 6 PT W/#8 X 2'6" DECK SCREWS @ EACH FLOOR JOISTS.

MIN. 3/4" T&G OSB OR CDX PLYWOOD W/10D NAILS OR 2 1/2" SCREWS @ 6" O.C.

13'-2"

12'-4"

14'-1"

12'-0"

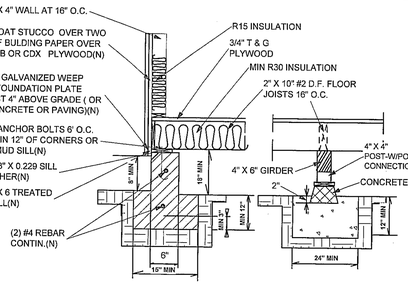
8'-10"

3'-0"

L = 3'

F1 - FOUNDATION DETAIL

(NO SCALE)

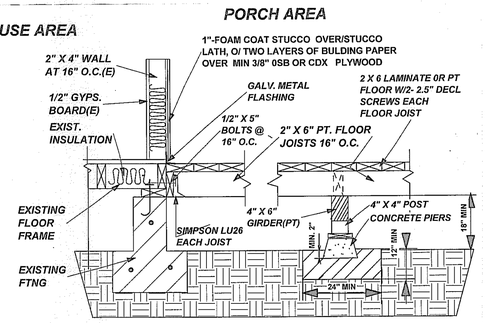


HOUSE AREA

PORCH AREA

F2 - PORCH TO HOUSE DETAIL

(NO SCALE)

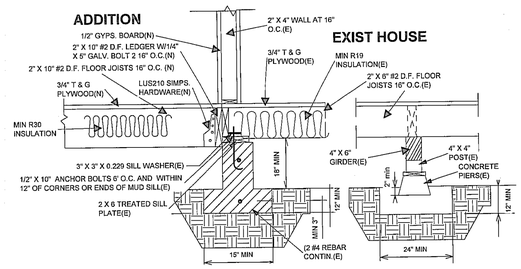


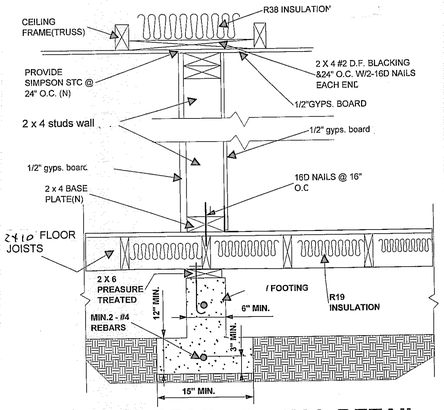
ADDITION

EXIST HOUSE

F3 RISED TO RISED FLOOR FUNDATION

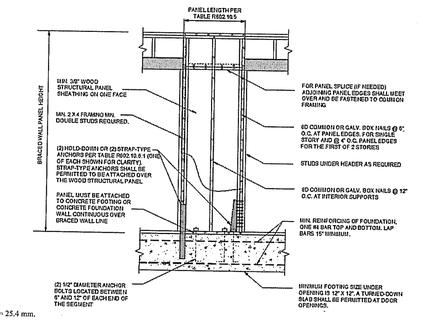
(NO SCALE)





F5 - INT. BEARING WALL DETAIL

(NO SCALE)



For SI: 1 inch = 25.4 mm.

FIGURE R602.10.6.1
METHOD ABW—ALTERNATE BRACED WALL PANEL

BRACEWALL SCHEDULE - WSP METHOD

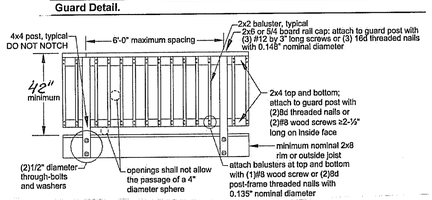
TYPE	MK	SHEATHING	NAILLING	ANCHOR BOLTS	HOLDOWN
BRACE WALL PANELS (PLYWOOD)	A	MIN 3/8" STRUCTURAL SHEATING (OSB OR CDX) OR 5.8" T1-11 EXT. SIDING OR 3-COAT STUCCO	8D @ 6" O.C. ON EDGE, 12" O.C. IN FIELD, BLOOCK ALL EDGES	MIN. 1/2"" DIA. X 10" @ 48" OC.(WHERE FOOTING)	N/A 32" CS16
ALTERNATE BRACE WALL PANELS	B	MIN 3/8" STRUCTURAL SHEATING (OSB OR CDX) OR 5.8" T1-11 EXT. SIDING	8D @ 6" O.C. ON EDGE, 12" O.C. IN FIELD, BLOCK ALL EDGES	5/8" DIA X 12" @ 12" OC.	HDU2 W/SSTB16
PORTAL FRAME W/HOLD DOWNS	C	MIN 3/8" STRUCTURAL SHEATING (OSB OR CDX)	8D @ 3" O.C. ON ALL FRAMING (STUDS, BLOCKING, AND SILLS)	ONE 5/8" DIAMETER	STHD14 OR STHD14RJ (RIM JOIST)
BRACE WALL PANELS (GYPS. BOARD)	D	MIN. 1/2" GYPS. BOARD	5D COOLER NAILS @ 7" O.C. - BLOCK ALL EDGES	N/A	N/A
SHEAR WALL	SW	MIN 3/8" STRUCTURAL SHEATING (GRADE C-C, OR OSB OR CDX)	8D @ 6" O.C. ON ALL FRAMING (STUDS, BLOCKING, AND SILLS)	SIMPSON SSTB16	HTT5 MST45/C

- NAILS AT BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING AT BRACE WALL PANEL : 2- 16d (3 1/2" X 0.135")

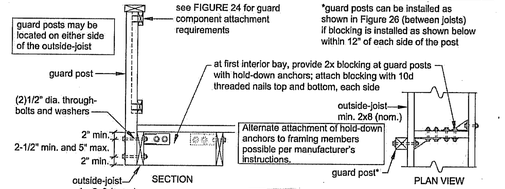
10/02/24

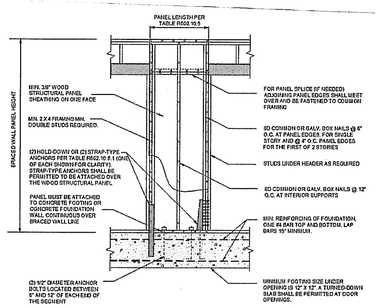
HAPPY MEMORIES II, LLC - ADDITION		
PHONE : (707) 355-5196		
SCALE : 1/4" = 1' - 0"	OWNER SIGNATURE	DRAWN BY: JOHN RADU
DATE : 10/22/24		PHONE # : (916) 425-1067
ADDRESS : 249 CIMMARON CIR., FOLSOM, CA 95630		
FOUNDATION PLAN		DRAWING NUMBER 2 OF 14

Guard Detail.



Post to Outside-Joist





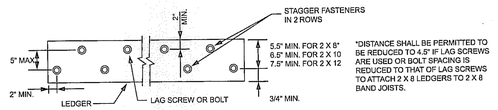
For SI: 1 inch = 25.4 mm.

FIGURE R602.10.6.1
METHOD ABW—ALTERNATE BRACED WALL PANEL

TABLE R507.9.1.3(2)
PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS

	MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS			
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
Ledger[a]	2 inches[d]	½ inch	2 inches[b]	1½ inches[b]
Band Joist[a]	½ inch	2 inches	2 inches[b]	1½ inches[b]

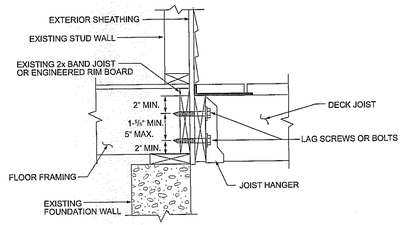
For SI: 1 inch = 25.4 mm.
a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.9.1.3(1).
b. Maximum 5 inches.
c. For engineered rim joists, the manufacturer's recommendations shall govern.
d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.9.1.3(1).



*DISTANCE SHALL BE PERMITTED TO BE REDUCED TO 4.5" IF LAG SCREWS ARE USED OR BOLT SPACING IS REDUCED TO THAT OF LAG SCREWS TO ATTACH 2 X 8 LEDGERS TO 2 X 8 BAND JOISTS.

For SI: 1 inch = 25.4 mm.

FIGURE R507.9.1.3(1)
PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS



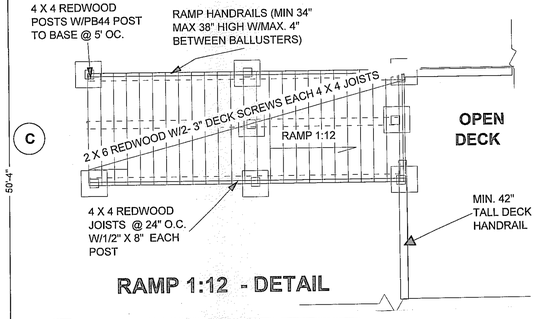
For SI: 1 inch = 25.4 mm.

FIGURE R507.9.1.3(2)
PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS

BRACEWALL SCHEDULE - WSP METHOD

TYPE	MK	SHEATHING	NAILLING	ANCHOR BOLTS	HOLDOWN
BRACE WALL PANELS (PLYWOOD)	A	MIN 3/8" STRUCTURAL SHEATING (OSB OR CDX) OR 5.8" T1-11 EXT. SIDING OR 3-COAT STUCCO	8D @ 6" O.C. ON EDGE, 12" O.C. IN FIELD, BLOCK ALL EDGES	MIN. 1/2"** DIA X 15" @ 45° OC.(WHERE FOOTING)	N/A ◇ 32" CS16
ALTERNATE BRACE WALL PANELS	B	MIN 3/8" STRUCTURAL SHEATING (OSB OR CDX) OR 5.8" T1-11 EXT. SIDING	8D @ 6" O.C. ON EDGE, 12" O.C. IN FIELD, BLOCK ALL EDGES	5/8" DIA X 12" @ 12" OC.	▷ HDU2 W/SSTB16
PORTAL FRAME W/HOLD DOWNS	C	MIN 3/8" STRUCTURAL SHEATING (OSB OR CDX)	8D @ 3" O.C. ON ALL FRAMING (STUDS, BLOCKING, AND SILLS)	ONE 5/8" DIAMETER	▶ STHD14 OR STHD14RJ (RIM JOIST)
BRACE WALL PANELS (GYPS. BOARD)	D	MIN. 1/2" GYPS. BOARD	5D COOLER NAILS @ 7" O.C. - BLOCK ALL EDGES	N/A	N/A
SHEAR WALL	SW	MIN 3/8" STRUCTURAL SHEATING (GRADE C-C, OR OSB OR CDX)	8D @ 6" O.C. ON ALL FRAMING (STUDS, BLOCKING, AND SILLS)	SIMPSON SSTB16	▲ HTT5 MSTA6/C

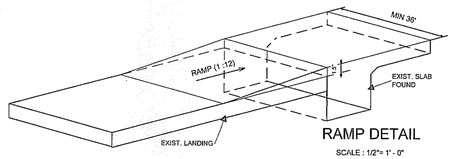
- NAILS AT BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING AT BRACE WALL PANEL : 3- 16d (3 1/2" X 0.135")



RAMP 1:12 - DETAIL

BEAMS SCHEDULE

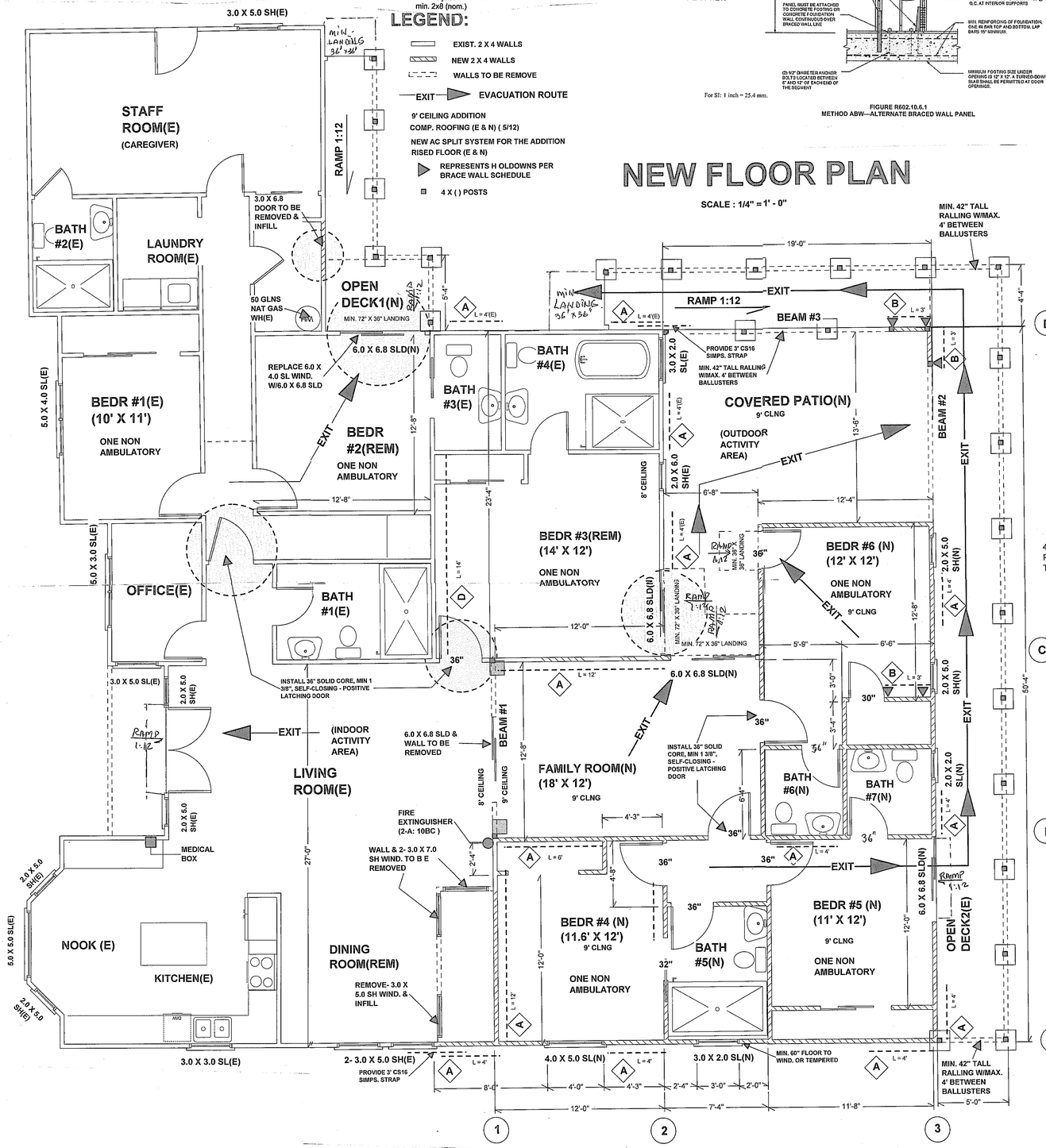
MARK	BEAM	LEFT	RIGHT
BEAM 1	3.5" X 11.25" #2 D.F.	4 X 4 #2 D.F.	4 X 4 #2 D.F.
BEAM 2	3.5" X 11.25" #2 D.F.	4 X 4 #2 D.F.	4 X 4 #2 D.F.
BEAM 3	3.5" X 11.875' 2.0E PARALLAM	4 X 4 #2 D.F.	4 X 4 #2 D.F.
BEAM 4 (header)	3.5" X 7.25" #2 D.F.	2 - 2 X 4 #2 D.F.	2 - 2 X 4 #2 D.F.

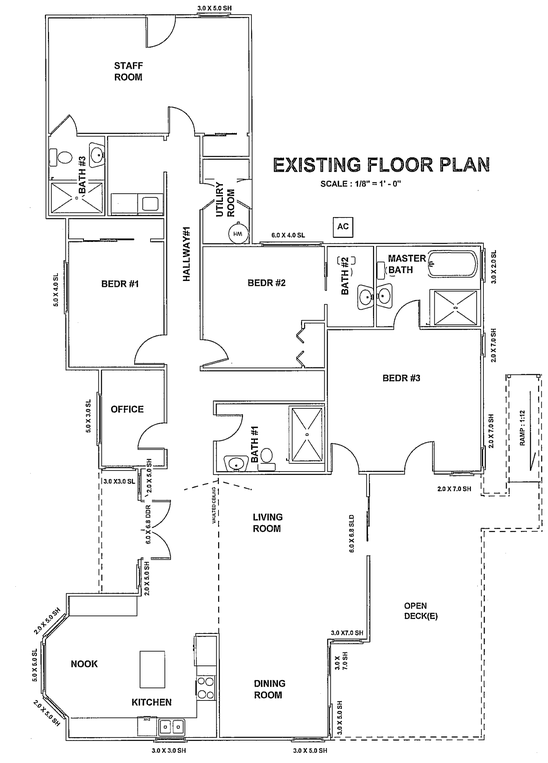


RAMP DETAIL
SCALE : 1/2"= 1' - 0"

NEW FLOOR PLAN

SCALE : 1/4" = 1' - 0"





NOTES:

THE FLOOR OR LANDING SHALL NOT BE MORE THAN 1/2" LOWER THAN THE THRESHOLD OF THE DOORWAY. CHANGES IN LEVEL BETWEEN 1/4" AND 1/2" BE BELEVED WHITH A SLOPE NO GREATER THAN 1- UNIT VERTICAL TO 2- UNITS HORIZONTAL, CHANGE IN LEVEL GREATER THAN 1/2" AHALL BE ACCOMPLISHED BY MEANS OF A RAMP.

THE DOOR SEPARATING THE LIVING ROOM FROM THE HALLWAY SHALL BE A DOOR NOT LESS THAN 1-3/8 INCH IN THICKNESS, FULL CORE, MAINTAINED SELF-CLOSING OR SHALL BE AUTOMATIC BY ACTIVATION OF A SMOKE DETECTOR INSLTALLED.

IN GROUP R-3.1 OCCUPANCIES HOUSING NON-AMBULATORY CLIENTS, CHANGES IN LEVEL UP TO 0.25 INCH MAY BE VERTICAL WITHOUT EDGE TREATEMENT. CHANGES IN LEVEL BETWEEN 0.25 INCH AND 0.5 INCH SHALL BE BEVELED WITH A SLOPE NO GREATER THAN ONE UNIT VERTICAL IN TWO UNITS HORIZONTAL (50 PERCENT SLOPE). CHANGE IN LEVEL GREATER THAN 0.5 INCH SHALL BE ACCOMPLISHED BY MEANS OF A RAMP.

CO PROVIDE CORBON MONOXIDE SD. OUTSIDE OF SLEEPING AREA

SD SMOKE DETECTORS MUST BE INTERCONNECTED

THE SMOKE ALLARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING AND SHALL BE EQUIPED WITH A BATERY BACKUP. SMOKE ALARMS WITH INTEGRAL STROBES TH AT ARE NOT EQUIPED WITH BATTERY BACKUP SHALL BE CONNECTED TO AN EMERGENCY ELECTRICAL SYSTEM. SMOKE ALARMS SHALL EMIT A SIGNAL WHEN THE BATTERIES ARE LOW. WIRING SHALL BE PERMANENT AND WIHTOUT A DISCONNECTING SWITCH OTHER THAN AS REQUIRED FOR OVERCURRENT PROTECTION.

THE DOORS TO THE EXTERIOR OF THE DWELLING SHALL NOT HAVE MANUALLY OPERATED DEAD BOLTS UNLESS THE OPERATION OF THE HARDWARE IS INTEGRATED WITH THE OPERATION OF THE DOOR KNOB, AS THE UNLATCHING OF THE DOOR SHALL NOT REQUIRE MORE THAN ONE OPERATION.

CBN 435.8.3.3 - NOTE:

A SLIDING GLASS DOOR CAN BE USED AS AN EXTERIOR EXIT DOORWAY AS LONG AS IT IS OPERABLE FROM THE INSIDE AND OUTSIDE AND THE CLEAR WIDTH OF THE EXIT WAY IS NOT LESS THAN 32 INCHES 9813 mm)

NOTES:

PROVIDE NON-REMOVABLE BACKFLOW PREVENTION DEVICES ON ALL EXTERIOR HOSE BIBES.

PROVIDE MIN 24" SHOWER TEMPERED DOOR AND MUST BE A MINIMUM "CATEGORY CLASS A" RATED TESTED IN ACCORDINCE WITH ANSIZ97.1 SINCE IT IS GREATER THAN 9 SQUARE FEET.

PROVIDE 2" MIN AND MAX CURB AT NEW SHOWER

PROVIDE TYPE "M" COPPER FOR WATER PIPING

A MINIMUM OF 2" X 6" WALL SHALL BE USED WHENEVER THE PIPING WITHIN THE WALL IS GREATER THAN TWO INCHES OUTER DIAMETER.

4" SEWER REQUIRED IF MORE THAN 3 W/C

PROVIDE SAFETY GLAZING FOR NEW SHOWER ENCLOSURE

PROVIDE BOND METALIC GAS PIPE AND WATER PIPES TO THE SERVICES GROUND.

PROVIDE FLOOR COVERING & CHALK BETWEEN FIXTURE & FLOOR TO MAKE WATERTIGHT

PROVIDE 72 INCH HIGH NON-ABSORBENT WALL ADJACENT TO SHOWER AND APROVED SHATTER-RESISTANT MATERIAL FOR SHOWER ENCLOSURE (GREEN SHEETROCK NOT ACCEPTED)

PROVIDE SHOWERS AND TUB/SHOWERS WITH PRESSURE BALANCE OR THERMOSTATIC MIXING VALVE CONTROL

PROVIDE DRAIN FOR WATER HEATER RELIEF VALVE OUTSIDE OF THE BUILDING WITH THE END OF THE PIPE NOT MORE THAN 2" NOR LESS THAN 6" ABOVE THE GROUND AND POINTING DOWN.

PROVIDE SMOOTH METAL DUCT FOR DRYER EXAUST TO OUTSIDE WITH BACK DRAFT DAMPER. THIS DUCT SHALL NOT EXCEED A TOTAL COMBINED HORIZONTAL AND VERTICAL LENGHT OF 14' INCLUDING TWO 90-DEGREE ELBOWS - TWO FEET SHALL BE DEDUCTED FOR EACH 90-DEGREE ELBOW IN EXCESS OF TWO.

ATTIC ACCESS SHALL BE WEATHER-STRIPPED TO PREVENT AIR LEAKAGE

WATHER HEATERS SHALL BE PROVIDED WITH A CONDENSATE DRAIN THAT IS NO MORE THEN 2 INCHES HIGHER THAN THE BASE OF TEH INSTALLED WATER HEATER, AND ALLOWS GRAVITY DRIAINING WITHOUT PUMP ASSISTANCE

IF WATER HEATER VENT PIPE MAKES BENDS THROUGH THE BUILDING STRUCTURE, THEN IT SHALL BE EITHER A CATEGORY III OR IV VENT PIPE.

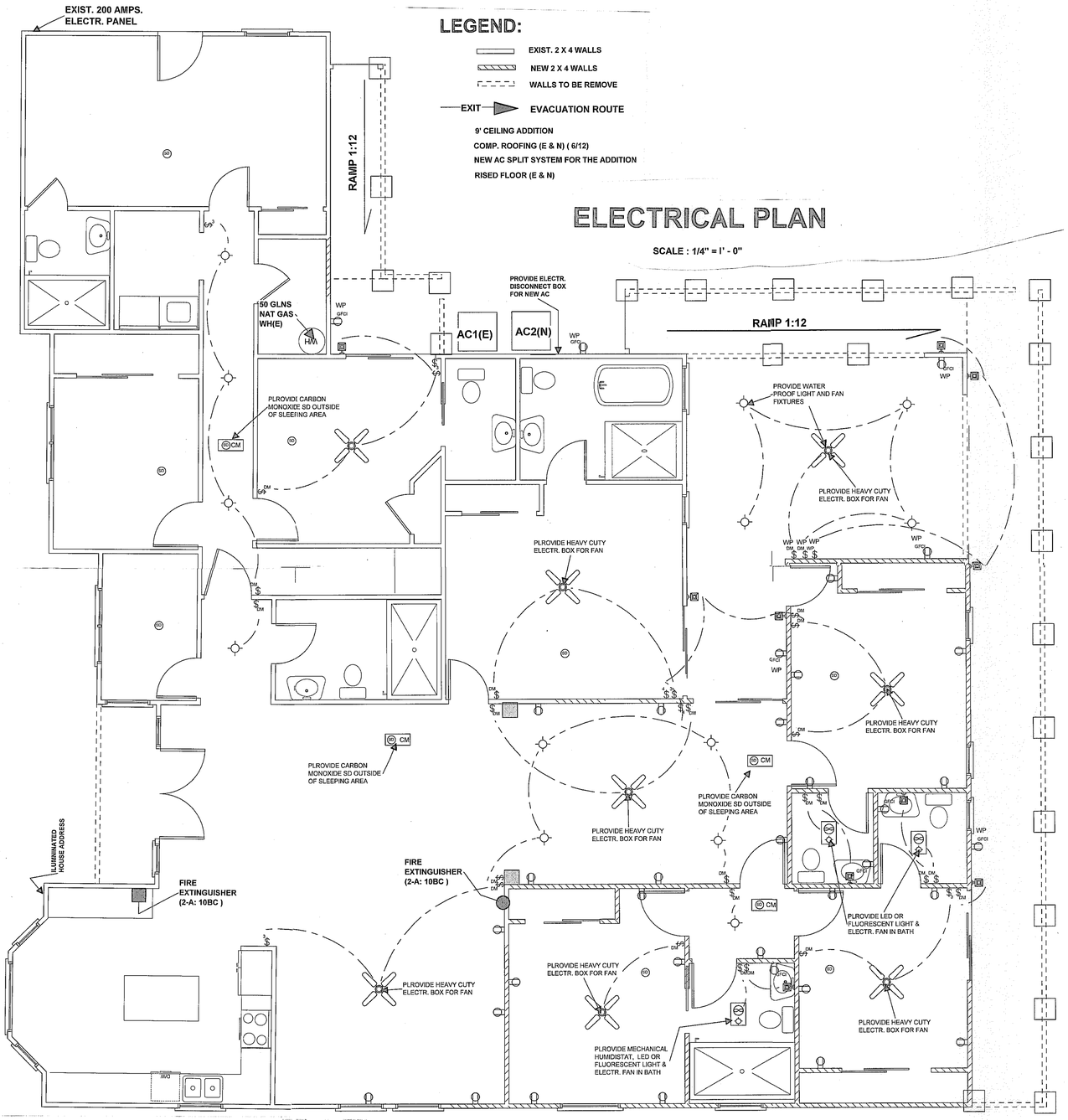
MIN. 1" THICK PIPE INSULATION SHALL BE INSTALLED ON HOT WATER PIPES FROM THE WATER HEATER TO THE KITCHEN FIXTURES.

REGISTERED PROFESSIONAL ENGINEER PATRICE A. STAFFORD No. 61256 06/30/25 C IV IL STATE OF CALIFORNIA

Patrice A. Stafford

10/22/24

HAPPY MEMORIES II, LLC - ADDITION		
PHONE : (707) 365-6196		
SCALE : 1/4" = 1' - 0"	OWNER SIGNATURE	DRAWN BY: JOHN RADU
DATE : 10/22/24		PHONE # : (916) 425-1067
ADDRESS : 249 CIMMARON CIR., FOLSOM, CA 95630		
FLOOR PLAN		DRAWING NUMBER 3 OF 14



LEGEND:

- EXIST. 2 X 4 WALLS
- NEW 2 X 4 WALLS
- WALLS TO BE REMOVE
- EXIT → EVACUATION ROUTE

9' CEILING ADDITION
COMP. ROOFING (E & N) (6/12)
NEW AC SPLIT SYSTEM FOR THE ADDITION
RISED FLOOR (E & N)

ELECTRICAL PLAN

SCALE : 1/4" = I' - 0"

ELECTRICAL SYMBOL KEYS

- AFCI — ARK FAULT INTRERUPT OUTLETS-TAMPERED RESISTENT
- 110V DUPL. ELECTRIC OUTLET - TAMPERED RESISTANT
- GFCI — 110V GFCI DUPL. ELECTRIC OUTLET - TAMPERED RESISTANT
- WP — 110V OUTDOOR EL. OUTLET-TAMPERD RESISTANT
- ALL 220V OUTLETS SHALL BE GFCI
- 220V - THREE PHASSES /W GROUND OUTLET
- SINGLE POLE SWITCH
- 3 — THREE WAY SWITCH
- DM — DIMMER SWITCH
- DUAL SPOTLIGHT W/MOTION SENSOR
- FLUORESCENT OR LED LIGHT & FIXTURE
- LIGHT & FIXTURE
- SURFACE MOUNTED FLOURESCENT LIGHT
- SD — SMOKE DETECTORS MUST BE INTERCONNECTED W/ BATTERY BACKUP
- CM — CARBON MONOXID SMOKE DETECTORS MUST BE INTERCONNECTED W/BATTERY BACKUP
- REC. LIGHT/FAN
- CEILLING PADDLE FAN

OUTDOOR RECEPTACLES SHALL BE WEATERPROOF AND HAVE GFCI

RECEPTACLES IN WET LOCATIONS MUST HAVE A LISTED " EXTRA DUTY " COVER.

Electrical receptacles outlets, switches and controls (inciuding controls for heating, ventilation and air conditioning and doorbell button) intended to be used by occupants shall be located no more than 48 inches measured from the top of the outlet box and not less than 15 inches measured from the bottom of the outlet above the vinish floor.

ALL 220V OUTLETS SHALL BE GFCI

ELECTR. NOTES:

PROVIDE CARBON MONOXID SMOKE DETECTORS OUTSIDE HABITABLE AREA SMOKE DETECTORS MUST BE INTERCONNECTED

ALL 125-VOLTS, 15- AND 20 AMPS RECEPTACLE OUTLETS SHALL BE TAMPER- RESISTANT RECEPTACLES.

PROVIDE SEPARATE GFCI CIRCUIT FOR BATHROOM (20 AMPS)

PROVIDE MECHANICAL/HUMIDISTAT CONTROLLED FAN IN NEW BATH

PROVIDE SPECIAL HEAVY-DUTTY ELECTRICAL BOX FOR CEILING FAN

PROVIDE HIGHT EFFICACY LIGHT (E.G., FLORESCENT) AT ALL GENERAL ROOMS AND HALLS OR CONTROLLED BY A MANUAL ON OCCUPANCY SENSOR OR A DIMMER SWITCH

PROVIDE HIGHT EFFICACY LIGHT (E.G., FLORESCENT) AT ALL OUTDOOR LIGHTING ATTACHED TO THE HOUSE OR SWITCHED BY MOTION SENSOR AND PHOTO CONTROL

ALL RECESSED LIGHTS MUST BE BOTH ZERO CLEARANCE AND AIR TIGHT RATED

> 6 POUND OR EXCEED 16 INCHES IN ANY DIMENSION SHALL NOT BE SUPPORTED BY THE SCEW SHELL OF A LAMP HOLDER

ALL BRANCH CIRCUITS THAT SUPPLY 120-VOLT, SINGLE PHASE, 15 - AND 20-AMPS OUTLETS INSTALLED IN DWELLING UNIT BEDROOM, KITCHEN,FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, SUNROOMS, RECREATION ROOMS, CLOSET, H ALLWAYS; LAUNDRY AREA OR SIMILAR ROOMS OR AREA SHALL BE ARC-FAULT CIRCUIT INTERRUPTER (AFCI) PREOTECTED.

EXHAUST FANS MUST BE SWITCHED SEPARATE FROM LIFHTING OR UTILIZE A DEVICE WHERE LIGHTING CAN BE TURN OFF WHILE THE FAN IS RUNNING. EXCLUDES KTCHEN EXHAUST HOODS.

LIGHTING INSTALLED IN ATTACHED AND DETACHED GARAGES, LAUNDRY ROOMS AND UTILITY ROOMS SHALL BE HIGH EFFICACY LIGHTING FIXTURES AND BE CONTROLLED BY VACANCY SENSORS

PROVIDE SEPARATE SWITCHES FOR EXAUST FAN AND LIGHT FIXTURE COMBINATION IN ALL BATHROOMS

SMOKE ALARMS SHALL NOT BE INSTALLED WITHIN A 36" HORIZONTAL PATH FROM THE SUPPLY REGISTERS OF A FORCED AIR OR COOLING SYSTEM AND SHALL BE INSTALLED OUTSIDE OF THE DIRECT AIRFLOW FROM THOSE REGISTERS.

ALL PERMANENTLY INSTALLED LUMINAIRES IN DWELLING UNITS SHALL BE HIGH EFFICACY AND HAVE MANUAL ONIOFF CONTROLS AND VACENCY SENSORS OR DIMMERS EXCEPT FOR HALLWYS & CLOSETS LESS THAN 70 SQ FT.

SMOKE ALARMS SHALL NOT BE INSTALLED WITHIN A 36" HORIZONTAL PATH FROM THE TIP OF THE BLADE OF A CEILLING-SUSPENDED FAN

Luminaires installed in wet or damp locations shall be installed such that water cannot enter or accumulate in wiring compaarments, lampholders, or other electrical parts. All luminaires installed in wet location s shall be marked "Suitable for Wet Locations". All luminires installed in dump location shall be marked "Suitable for Wet Locations" or "Suitable for Dump location".

SMOKE ALARMS SHALL BE ELECTRICALLY INTERCONNECTED SO AS TO CAUSE ALL SMOKE ALARMS TO SOUND A DISTINGTIVE ALARM SIGNAL UPON ACTUATION OF ANY SINGLE SMOKE ALARM. SUCH ALARM SIGNAL SHALL BE AUDIBLE THROUGHOUT THE FACILITY AT A MINIMAL LEVEL OF 15 DB ABOVE ABVIENT NOISE LEVEL. THESE DECIVES NEED TO BE INTERCONNECTED TO ANY OTHER FIRE ALARM DEVICE, HAVE A CONTROL PANEL, OR BE ELECTRICALLY SUPERVISED OR PROVIDED WITH EMERGENCY POWER.

PERMANENTLY INSTALLED LIGHTING IN CABINETS MUST BE HIGH EFFICACY.

LIGHTING IN BATHROOMS, GARAGES, LAUNDRY ROOMS & UTILITY ROOMS MUST HAVE AI LEAST ONE LUMINAIRE CONTROLLED BY VACANCY SENSORS..

WHERE MORE THAN ONE CARBON MONOXIDE ALARM IS REQUIRED TO BE INSTALLED WITHIN THE DWELLING UNIT OR WITHIN A SLEPING UNIT, THE ALARM SHALL BE INTERCONNECTED IN A MANNER THAT ACTIVATION OF ONE ALARM SHALL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT.

AN INTERSYSTEM BONDING TERMINATION FOR CONNECTION OF INTERSYSTEM BONDING CONDUCTORS REQUIRED FOR OTHER SYSTEMS SHALL BE PROVIDED EXTERNAL TO ENCLOSURES AT THE SERVICE EQUIPMENT OR METERING WQUIPMENT ENCLOSURE. THE INTERSYSTEM BONDING TERMINATION SHALL CONSIST OF A SET OF TERMINALS WITH THE CAPACITY FOR CONNECTION OF NOT THAN TREE INTERSYSTEM BONDING CONDUCTORS

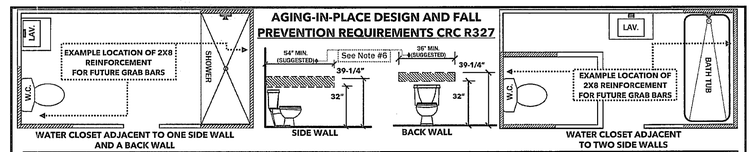
IN EACH SFD ATTACHED GARAGE AND EACH DETACHED GARAGE WITH ELECTRICAL POWER AT LEAST ONE RECEPTACLE SHALL BE INSTALLED FOR EACH CAR SPACE IN ADDITION TO RECEPTACLES REQUIRED FOR SPECIFIC EQUIPMENT. THE BRANCH CIRCUIT SUPPLYING THIS RECEPTACKE(S) SHALL NOT SUPPLY OUTLETS OUTSIDE OF THE GARAGE.

GFCI PROTECTION IS REQUIRED FOR ALL 15A AND 20A, 125V RECEPTACLES INSTALLED IN THE FOLLOWING LOCATIONS:
- SINKS - GFCI PROTECTION FOR RECEPTACLE IS REQUIRED WITHIN AN ARC MEASUREMENT OF 6 FT. FROM THE OUTSIDE EDGE OF THE SINK.
-BATH TUBS OR SHOWER STALLS - GFCI PROTECTION IS REQUIRED FOR RECEPTACLES LOCATED WITIN 6 FT. OF THE OUTSIDE EDGE OF A BATHTUB OR SHOWER STALL
- LAUNDRY AREA - RECEPTACLES INSTALLED IN LAUNDRY AREAS OF A DWELLING UNIT SHALL BE GFCI PROTECTED.
- DWELLING UNIT DISHWASHERS - OUTLETS SUPPLYING DISHWASHERS IN A DWELLING UNIT MUST BE GFCI PROTECTED.

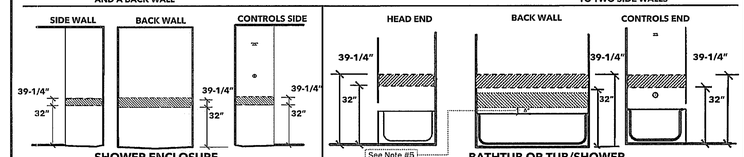
PERMANENTLY INSTALLED OUTDOOR LIGHTING ATTACHE TO RESIDENCE OR OTHER BUILDINGS MUST BE HIGH EFFICACY AND MUST BE CONTROLLED BY A MANUAL ON AND OFF SWITCH, AND USE ONE OF THEESE CONTROL TYPES: (1) PHOTO-CONTROL AND MOTION SENDOR OR PHOTO-CONTROL AND AUTOMATIC TIME SWITCH. - (2) PHOTO-CONTROL AND AUTOMATIC TIME SWITCH CONTROL OR ASTRONOMICAL TIME CLOCK THAT AUTOMATICALLY TURNS OUTDOOR LIGHTING OFF DURING DAYLIGHT HOURS OR (3) - ENERTY MANAGEMENT CONTROL SYSTEM SEMCIS THAT PROVIDES THE FUNCTIONALITY OF AN ASTRONOMICAL TIME CLOCK.

PROVIDE ONE 110V OUTLET & LIGHT IN ATTIC FOR HVAC

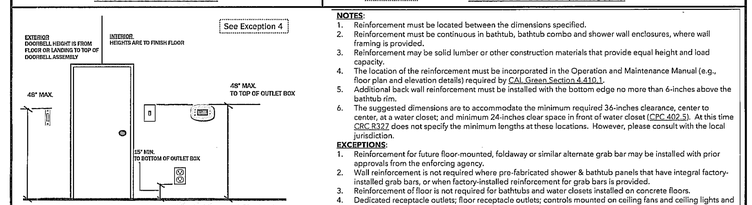
AGING-IN-PLACE DESIGN AND FALL PREVENTION REQUIREMENTS CRC R327



WATER CLOSET ADJACENT TO ONE SIDE WALL AND A BACK WALL — SIDE WALL — BACK WALL — WATER CLOSET ADJACENT TO TWO SIDE WALLS



SHOWER ENCLOSURE — BATHTUB OR TUB/SHOWER



HEIGHTS FOR ELECTRICAL RECEPTACLE OUTLETS, SWITCHES, DOORBELL BUTTONS, INCLUDING HVAC CONTROLS

NOTES:
1. Reinforcement must be located between the dimensions specified.
2. Reinforcement must be continuous in bathtub, bathtub combo and shower wall enclosures, where wall framing is provided.
3. Reinforcement may be solid lumber or other construction materials that provide equal height and load capacity.
4. The location of the reinforcement must be incorporated in the Operation and Maintenance Manual (e.g., floor plan and elevation details) required by CAL Green Section 4.410.1.
5. Additional back wall reinforcement must be installed with the bottom edge no more than 6-inches above the bathtub rim.
6. The suggested dimensions are to accommodate the minimum required 36-inches clearance, center to center, at a water closet; and minimum 24-inches clear space in front of water closet (CPC 402.5). At this time CRC R327 does not specify the minimum lengths at these locations. However, please consult with the local jurisdiction.

EXCEPTIONS:
1. Reinforcement for future floor-mounted, foldaway or similar alternate grab bar may be installed with prior approvals from the enforcing agency.
2. Wall reinforcement is not required where pre-fabricated shower & bathtub panels that have integral factory-installed grab bars, or when factory-installed reinforcement for grab bars is provided.
3. Reinforcement of floor is not required for bathtubs and water closets installed on concrete floors.
4. Dedicated receptacle outlets; floor receptacle outlets; controls mounted on ceiling fans and ceiling lights and controls located on appliances; and required receptacles on a wall space that has a built-in feature above finish floor less than 15-inches.

EFFECTIVE JULY, 2024 AT LEAST ONE BATHROOM AND ONE BEDROOM ON THE ENTRY LEVEL MUST PROVIDE A DOORWAY WITH A NET CLEAR OPENING OF NOT LESS THAN 32-INCHES MEASURED WITH THE DOOR POSITIONED AT AN 90 DEGREE ANGLE. IN A 2- OR 3- STORY SFD, ON THE SECOND OR THIRD FLOOR IF A BATHROOM OR BEDROOM IS NOT LOCATED ON THE ENTRY LEVEL. CRC R327.1.3

DOCUMENT SOURCE: BUILDING CODEBUDDY ONLINE

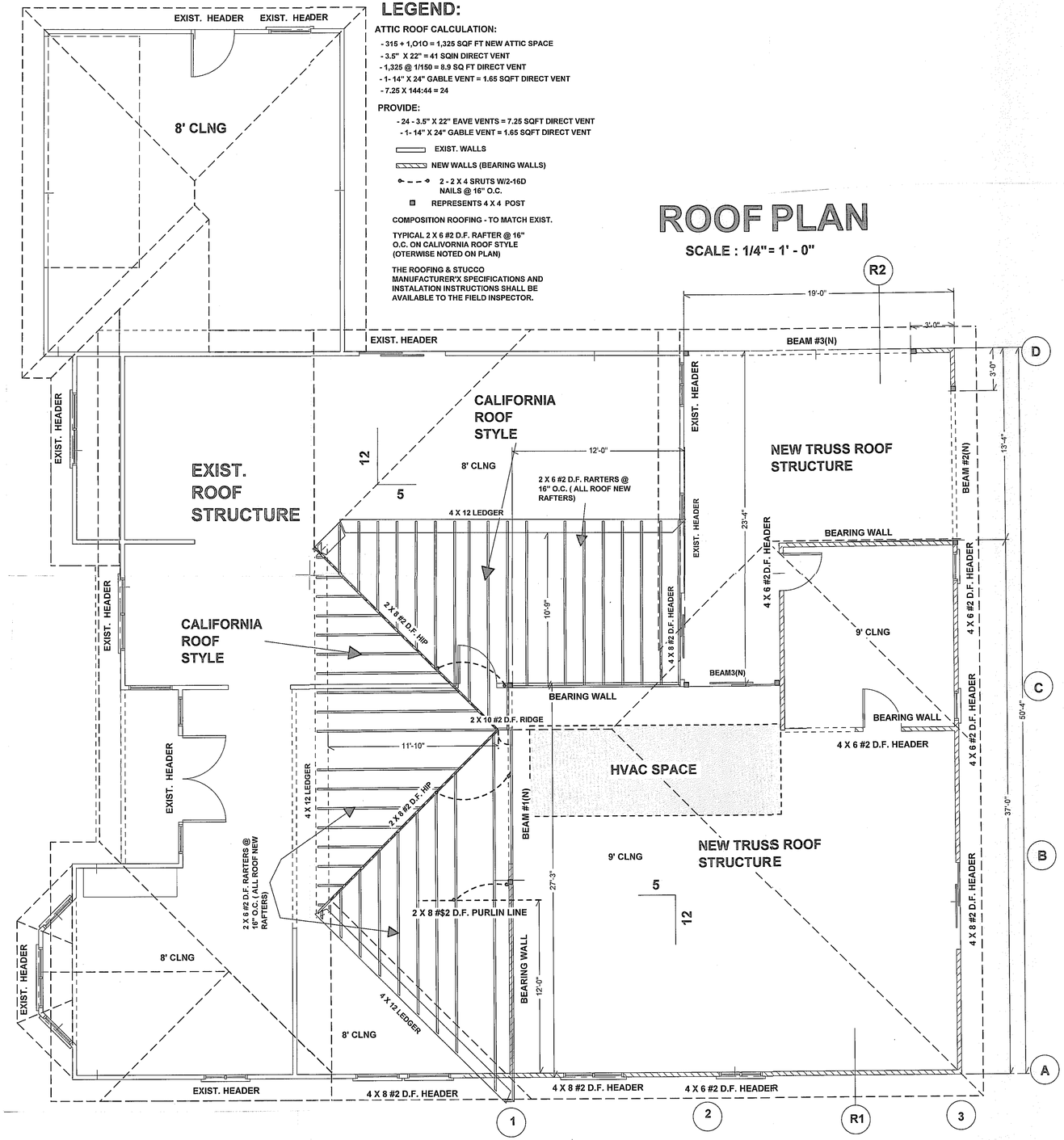
10/22/24

HAPPY MEMORIES II, LLC - ADDITION
PHONE : (707) 365-6196

SCALE : 1/4" = 1' - 0"	OWNER SIGNATURE	DRAWN BY: JOHN RADU
DATE : 10/22/24		PHONE # : (916) 425-1067

ADDRESS : 249 CIMMARON CIR., FOLSOM, CA 95630

ELECTRICAL PLAN — DRAWING NUMBER **4 OF 14**



ROOF PLAN

SCALE : 1/4"= 1' - 0"

LEGEND:

ATTIC ROOF CALCULATION:

- 315 + 1,010 = 1,325 SQF FT NEW ATTIC SPACE
- 3.5" X 22" = 41 SQIN DIRECT VENT
- 1,325 @ 1/150 = 8.9 SQ FT DIRECT VENT
- 1- 14" X 24" GABLE VENT = 1.65 SQFT DIRECT VENT
- 7.25 X 144:44 = 24

PROVIDE:

- 24 - 3.5" X 22" EAVE VENTS = 7.25 SQFT DIRECT VENT
- 1- 14" X 24" GABLE VENT = 1.65 SQFT DIRECT VENT

EXIST. WALLS

NEW WALLS (BEARING WALLS)

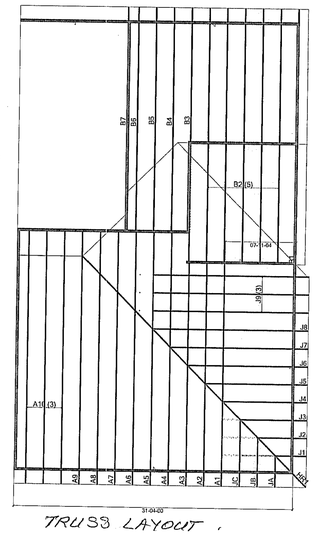
2 - 2 X 4 SRUTS W/2-16D NAILS @ 16" O.C.

REPRESENTS 4 X 4 POST

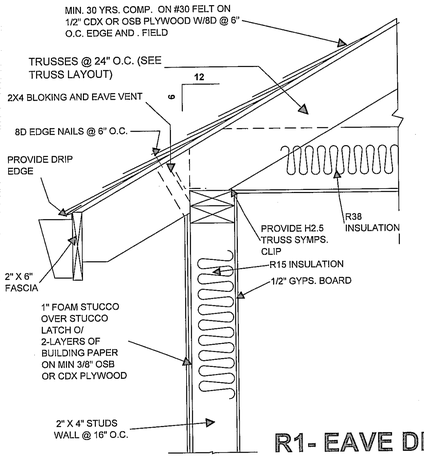
COMPOSITION ROOFING - TO MATCH EXIST.

TYPICAL 2 X 6 #2 D.F. RAFTER @ 16" O.C. ON CALIVORNIA ROOF STYLE (OTERWISE NOTED ON PLAN)

THE ROOFING & STUCCO MANUFACTURER'X SPECIFICATIONS AND INSTALATION INSTRUCTIONS SHALL BE AVAILABLE TO THE FIELD INSPECTOR.

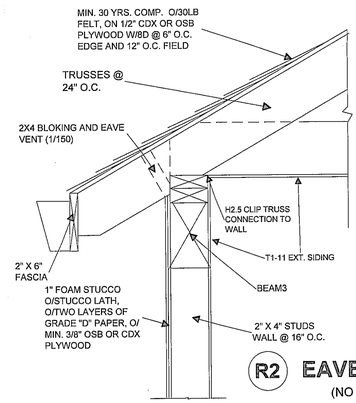


TRUSS LAYOUT .



R1- EAVE DETAIL

(NOT TO SCALE)



R2 EAVE DETAIL

(NO SCALE)

BEAMS SCHEDULE

MARK	BEAM	LEFT	RIGHT
BEAM 1	3.5" X 11.25" #2 D.F.	4 X 4 #2 D.F.	4 X 4 #2 D.F.
BEAM 2	3.5" X 11.25" #2 D.F.	4 X 4 #2 D.F.	4 X 4 #2 D.F.
BEAM 3	3.5" X 11.875' 2.0E PARALLAM	4 X 4 #2 D.F.	4 X 4 #2 D.F.
BEAM 4 (header)	3.5" X 7.25" #2 D.F.	2 - 2 X 4 #2 D.F.	2 - 2 X 4 #2 D.F.

REGISTERED PROFESSIONAL ENGINEER PATRICE A. STAFFORD No. 61256 06/30/25 CIVIL STATE OF CALIFORNIA

Patrice A. Stafford

HAPPY MEMORIES II, LLC - ADDITION		
PHONE : (707) 365-6196		
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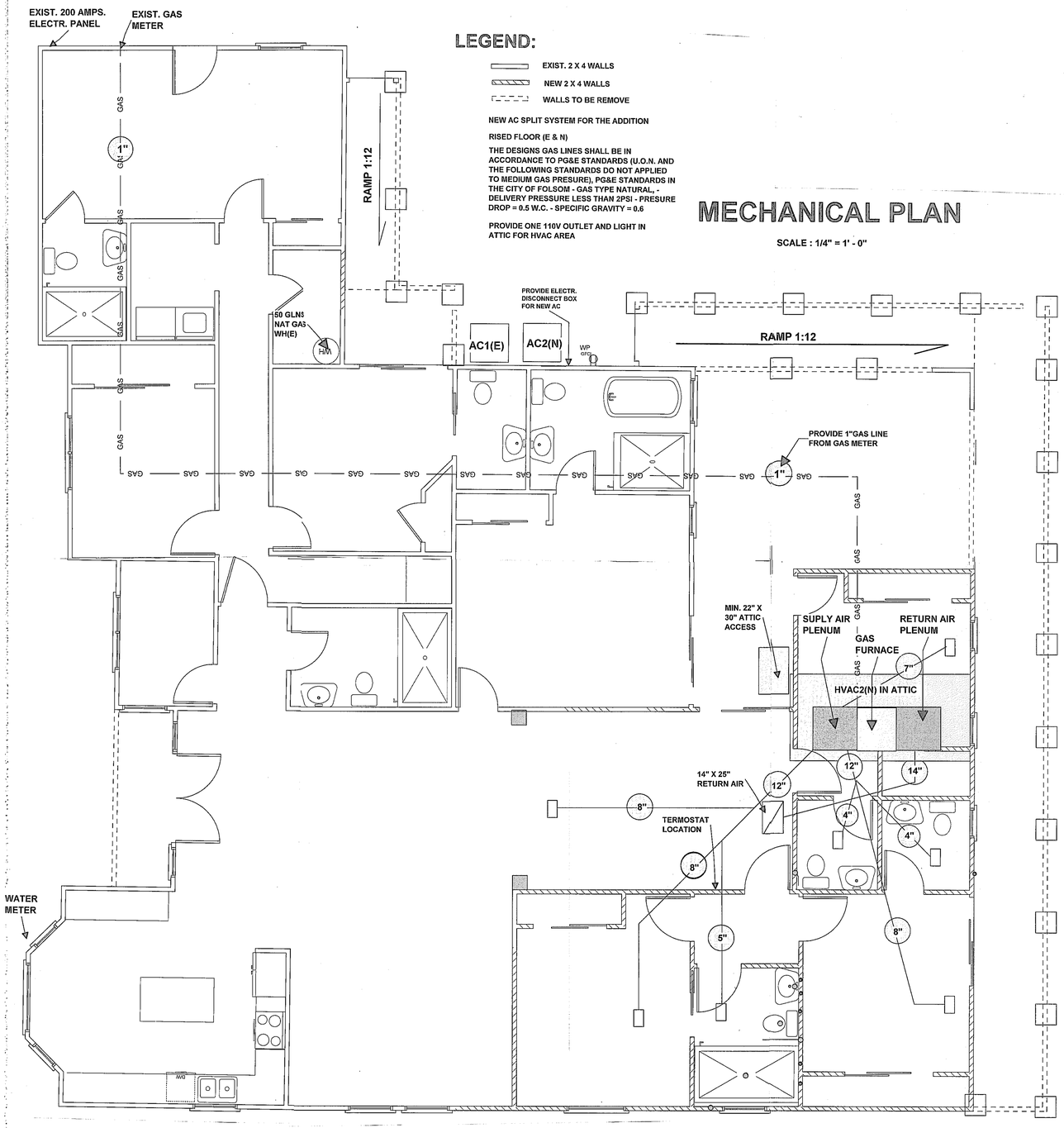
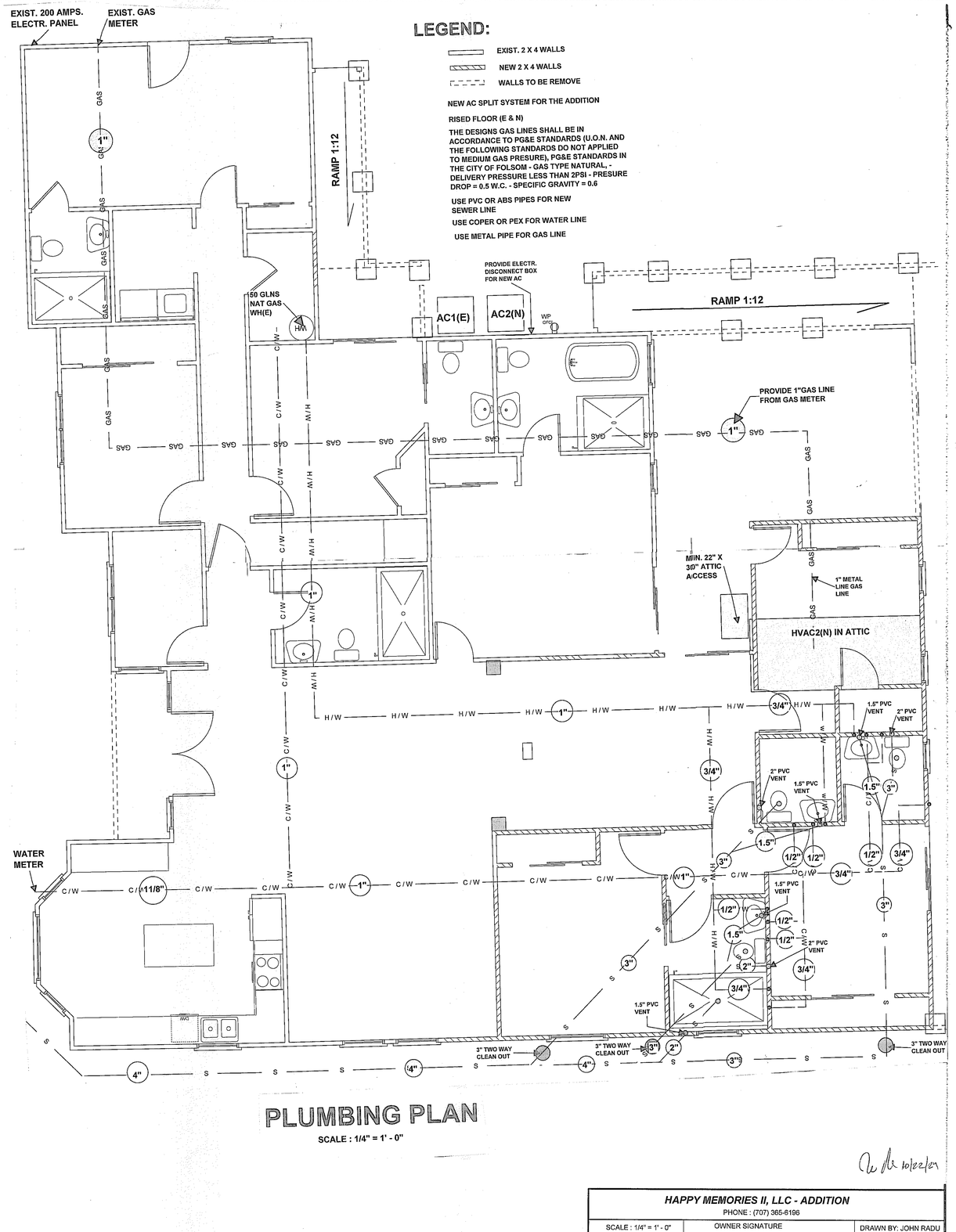
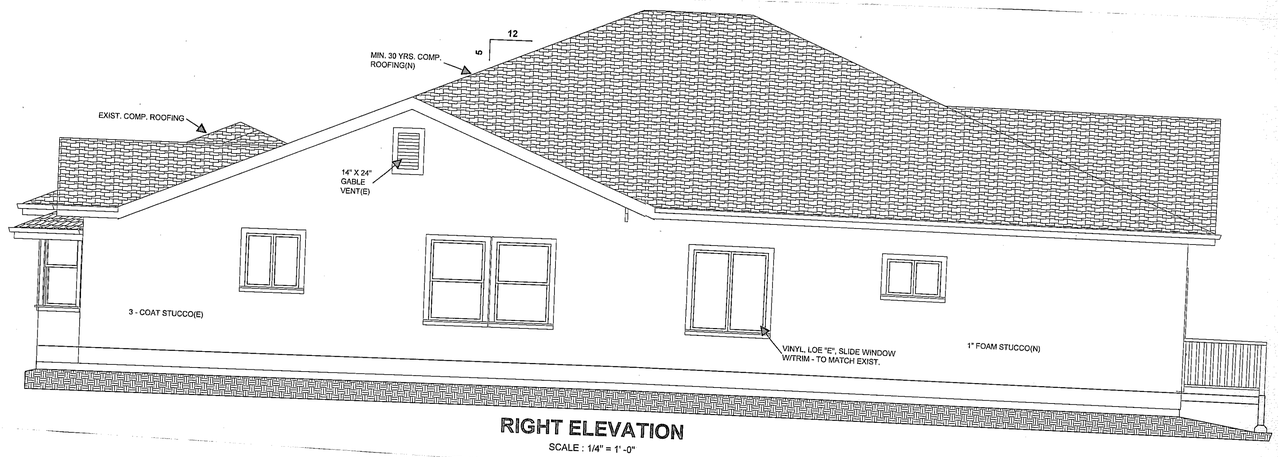
DATE : 10/22/24		PHONE # : (916) 425-1067
ADDRESS : 249 CIMMARON CIR., FOLSOM, CA 95630		
ROOF PLAN		DRAWING NUMBER 5 OF 14



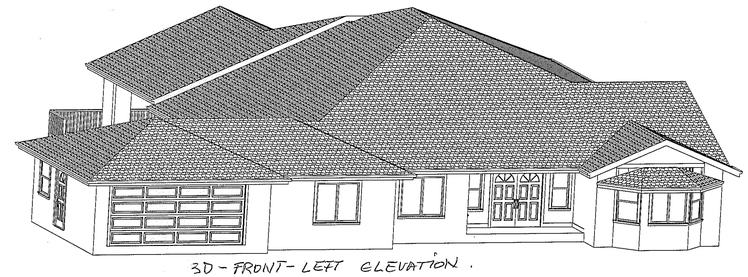


HAPPY MEMORIES II, LLC - ADDITION PHONE : (707) 365-6196		
SCALE : 1/4" = 1' - 0"	OWNER SIGNATURE	DRAWN BY: JOHN RADU
DATE : 10/22/24		PHONE # : (916) 425-1067
ADDRESS : 249 CIMMARON CIR., FOLSOM, CA 95630		
MECHANICAL & PLUMBING PLAN		DRAWING NUMBER 6 OF 14

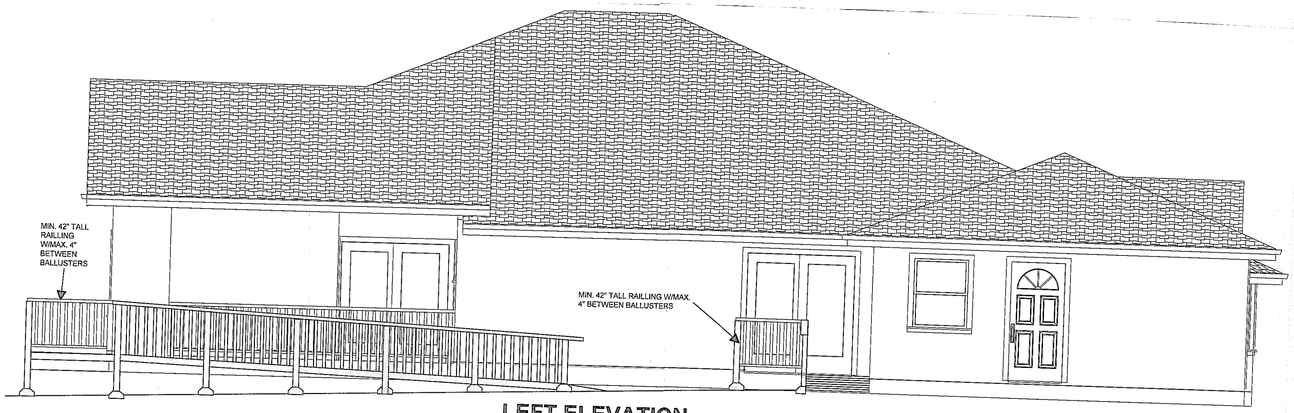


RIGHT ELEVATION

SCALE : 1/4" = 1' -0"

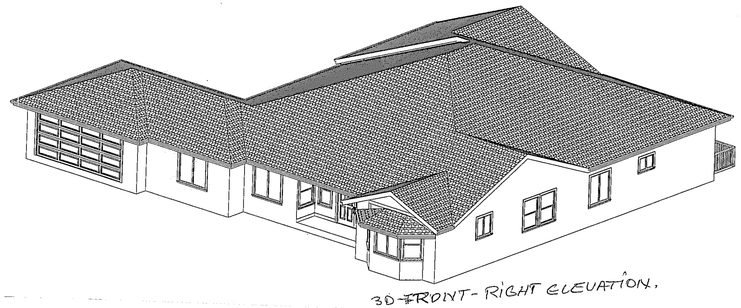


3D - FRONT - LEFT ELEVATION.

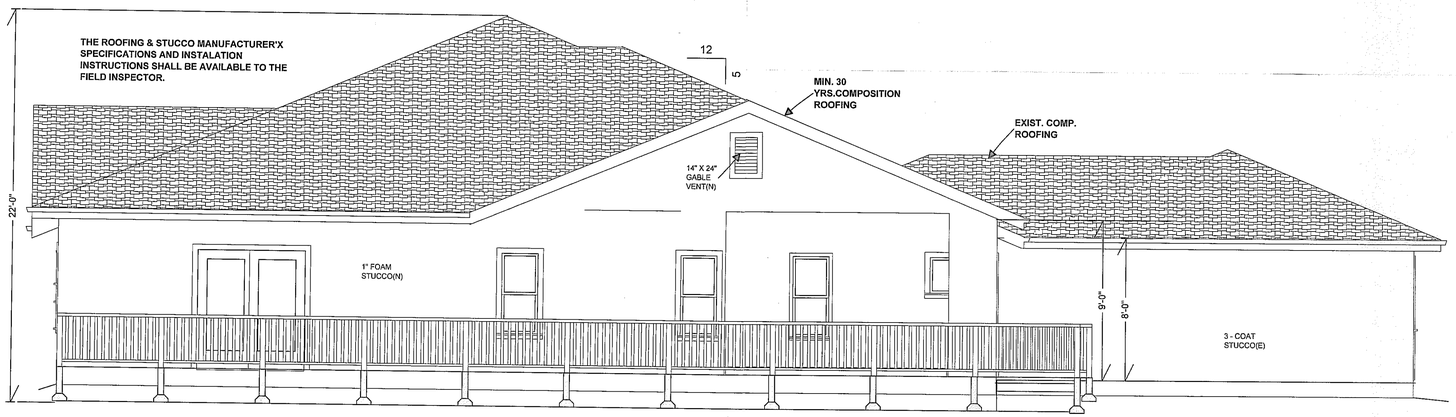


LEFT ELEVATION

SCALE : 1/4" = 1' - 0"



3D - FRONT - RIGHT ELEVATION.



REAR ELEVATION

SCALE : 1/4"= 1' - 0"

HAPPY MEMORIES II, LLC - ADDITION		
PHONE : (707) 365-6196		
SCALE : 1/4" = 1' - 0"	OWNER SIGNATURE	DRAWN BY: JOHN RADU
DATE : 10/22/24		PHONE # : (916) 425-1067
ADDRESS : 249 CIMMARON CIR., FOLSOM, CA 95630		
ELEVATION PLAN		DRAWING NUMBER 7 OF 14

STRUCTURAL NOTES:

GENERAL NOTES :

1. ALL CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE (C.B.C.) AND C.B.C. STANDARDS, UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE BUILDING DURING CONSTRUCTION AND SHALL PROVIDE ADEQUATE SHORING AND BRACING DURING CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH APPLICABLE SAFETY REGULATIONS.
3. DETAILS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO DETAILS FOR SIMILAR CONSTRUCTION SHOWN ON THESE DRAWINGS.
4. THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ANY DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE RESPONSIBLE PARTY AND BE RESOLVED BEFORE PROCEEDING WITH THE WORK.
5. NO STRUCTURAL MEMBERS SHALL BE CUT, NOTCHED OR OTHERWISE PENETRATED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER IN ADVANCE OR SHOWN ON THESE DRAWINGS.
6. TYPICAL DETAILS SHALL APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
7. WHERE THESE GENERAL NOTES AND TYPICAL DETAILS ARE IN CONFLICT WITH ANY SPECIFICATIONS, THESE NOTES SHALL GOVERN.
8. PROVIDE OPENINGS, CURBS, FRAMING AND/OR SUPPORTS FOR ITEMS INDICATED ON ANY OF THESE DRAWINGS INCLUDED IN THE CONSTRUCTION DOCUMENTS.
9. ALL ELEVATIONS ARE REFERENCED FROM TOP OF FINISH GROUND FLOOR ELEVATION =0'-0" UNLESS OTHERWISE NOTED.
10. PROVIDE INSPECTIONS AS REQUIRED BY THE BUILDING DEPT. OR THESE DRAWINGS.
11. CONTRACTOR OR OWNER IS RESPONSIBLE FOR THE INSTALLATION AND SHALL PROVIDE PROPER FUNCTION OF ALL COSMETIC TREATMENTS AND FINISHES – INCLUDING, BUT NOT LIMITED TO: TILE, STUCCO, GYPSUM BOARD, PAINT, ETC. WHERE STANDARD SPECIFICATIONS CALL FOR CONSTRUCTION MORE STRINGENT THAN SHOWN ON THESE PLANS, THE CONTRACTOR OR OWNER SHALL ADJUST THE CONSTRUCTION ACCORDINGLY.
12. CONTRACTOR SHALL READ AND BE FAMILIAR WITH ALL FACETS OF THE PLANS AND SPECIFICATIONS AND SHALL REQUEST CLARIFICATION AS REQUIRED BEFORE COMMENCING CONSTRUCTION.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CONSTRUCTION WHICH IS IN DEVIATION FROM THESE PLANS.
14. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL FIELD CONDITIONS AND SHALL OBTAIN APPROVAL BEFORE CONTINUING CONSTRUCTION.
15. CONTRACTOR IS RESPONSIBLE FOR THE CORRECT INSTALLATION OF ALL MANUFACTURED PRODUCTS, INCLUDING BUT NOT LIMITED TO OSB, T1-11 PARALLAMS AND MICRO-LAMS. ALL INSTALLATIONS SHALL BE DONE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS

FOUNDATION :

1. FOUNDATION SOIL STRATA IS NATIVE SOIL OR ENGINEERED FILL AS PER THE PROJECT SOILS REPORT WHEN APPLICABLE. IF ANY DISCREPENCIES ECIST BETWEEN THE SOILS REPORT & THESE PLANS, THE SOILS REPORT SHALL GOVERN.

   SOILS REPORT: NOT AVAILABLE

   WHEN NO SOILS REPORT IS AVAILABLE, IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR OWNER TO ENSURE THAT ALL SOIL CONDITIONS ARE APPROPRIATE FOR THE CONSTRUCTION OF THIS PROJECT AS DRAWN.

   FOUNDATIONS SHALL BEAR ON FIRM, UNDISTURBED FOUNDATION SOIL STRATA.
2. THE ELEVATIONS OF BOTTOMS OF FOOTINGS AS SHOWN ON THESE DRAWINGS INDICATE THE ESTIMATED MINIMUM FOUNDATION DEPTHS.
3. FOUNDATIONS ARE DESIGNED FOR A MAXIMUM DEAD PLUS LIVE LOAD ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF.
4. BOTTOMS OF FOOTINGS SHALL EXTEND A MINIMUM OF 12" BELOW LOWEST ADJACENT GRADE FOR ONE STORY SECTIONS, 18" FOR TWO STORIES (U.O.N.)
5. THE BOTTOM OF ALL FOOTINGS SHALL BE LEVEL. CHANGES IN FOOTING ELEVATIONS SHALL BE MADE UTILIZING THE TYPICAL FOOTING STEP DETAIL ON THESE DRAWINGS.
6. CENTER FOOTINGS UNDER WALLS OR COLUMNS UNLESS OTHERWISE INDICATED ON THESE DRAWINGS.

SITE :

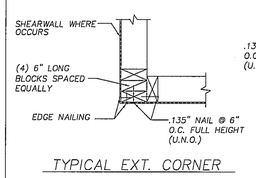
1. CONTRACTOR SHALL RECOGNIZE AND NOTIFY ENGINEER IF CLAYS OR SOILS NOT SUITABLE FOR CONSTRUCTION ARE PRESENT. CONSTRUCTION SHALL NOT CONTINUE WITHOUT APPROVAL OF THE ENGINEER.
2. THE CONTRACTOR AND/OR OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL PROPERTY LINES AND CORNERS AND SHALL ENSURE THAT CONSTRUCTION IS WITHIN ALL APPLICABLE SETBACKS AND EASEMENTS. CONTRACTOR TO VERIFY ALL CONDITIONS INDICATED ON THESE PLANS.
3. THE ENTIRE AREA TO BE COVERED BY STRUCTURES SHALL BE STRIPPED TO A SUFFICIENT DEPTH TO REMOVE SURFACE VEGETATION, ETC.
4. ALL GRADING SHALL CONFORM TO LOCAL GRADING ORDINANCES. GRADE AROUND STRUCTURE TO PROVIDE MINIMUM 2% DRAINAGE AWAY FROM THE BUILDING. CONNECT ROOF DRAINS / DOWN SPOUTS TO UNDERGROUND 4" PVC PIPE AND DRAIN TO STREET OR SUMP HOLE.
5. BEFORE POURING CONCRETE, ALL FORMS SHALL BE CLEARED OF DEBRIS AND DRIED OF ANY STANDING WATER.

CONCRETE :

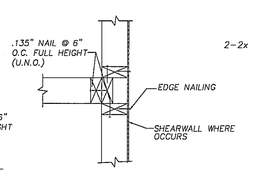
1. CONCRETE SHALL DEVELOP A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS IN ACCORDANCE WITH ASTM C39. ALL CONCRETE SHALL BE CONSOLIDATED BY MECHANICAL VIBRATORS.
2. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE C.B.C. AND ACI STANDARD 318, LATEST EDITION, OF THE AMERICAN CONCRETE INSTITUTE UNLESS SHOWN OR NOTED OTHERWISE ON THESE DRAWINGS.
3. AGGREGATE SHALL CONFORM TO ASTM C-33.
4. CEMENT SHALL BE ASTM C-150, TYPE I OR TYPE II.
5. REINFORCING STEEL SHALL BE DEFORMED COMFORMING TO ASTM A615 GRADE 40 UNLESS OTHERWISE NOTED.
6. WELDED WIRE FABRIC REINFORCEMENT SHALL CONFORM TO ASTM A-185.
7. WELDING OF REINFORCING STEEL SHALL BE PERFORMED ONLY WHERE INDICATED ON THE DRAWINGS AND SHALL BE IN COMPLIANCE WITH ALL REQUIREMENTS OF THE REINFORCING STEEL WELDING SOCIETY. PROVIDE WELDING PROCEDURE AND MILL TEST REPORTS FOR ALL REINFORCEMENT TO BE WELDED. ENGINEER SHALL APPROVE WELDING PROCEDURE AND MILL TEST REPORTS PRIOR TO EXECUTION OF WELDING.
8. COVERAGE FOR REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE C.B.C. AND ACI STANDARD 318 UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
9. LAP SPLICES FOR REINFORCING SHALL BE 40 BAR DIAMETERS OR 10" MINIMUM UNLESS SHOWN OTHERWISE ON THE DRAWINGS. WIRE BARS TOGETHER AT LAPS OR SPLICES. HOOKS SHALL BE C.B.C. STANDARD HOOKS UNLESS SHOWN OTHERWISE.
10. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ASTM C94 AND ACI STANDARD 304.
11. ALL EMBEDDED ITEMS SHALL BE PLACED ACCURATELY AND SECURELY PRIOR TO BEGINNING CONCRETE PLACEMENT.
12. CONSTRUCTION JOINTS SHALL BE LOCATED SO AS NOT TO IMPAIR THE STRENGTH OF THE STRUCTURE.
13. PROVIDE SHOP DRAWINGS FOR ALL RIENFORCING STEEL TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO BEGINNING ANY FABRICATION.
14. SUBMIT CONCRETE MIX DESIGNS TO THE ENGINEER FOR APPROVAL PRIOR TO PLACEMENT OF ANY CONCRETE.
15. ALL GROUT SHALL BE NON-METALLIC NON-SHRINK GROUT AS APPROVED BY THE ENGINEER.
16. REINFORCING AND EMBEDMENT ITEMS SHALL BE FREE OF EXCESSIVE SCALE OR RUST, DIRT, GREASE, OIL OR ANY OTHER SUBSTANCE THAT WILL IMPAIR BOND WITH CONCRETE.

WOOD :

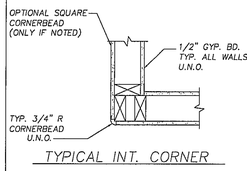
1. STRUCTURAL FRAMING SHALL BE DOUGLAS FIR – LARCH GRADED IN ACCORDANCE WITH THE STANDARD GRADING RULES OF THE WESTERN WOOD PRODUCTS ASSOCIATION. GRADES SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED ON THE DRAWINGS.
   6X & LARGER MEMBERS –NO. 1 2X & 4X MEMBERS –NO. 2 (MINIMUM)
   WALL STUDS STANDARD MINIMUM
2. ALL PLYWOOD SHOWN ON THESE DRAWINGS SHALL BE C-D WITH EXTERIOR GLUE IN ACCORDANCE WITH U.S. PRODUCT STANDARD PS1-09. ALL PANELS SHALL BE MARKED WITH AN APA GRADE MARK WITH AN IDENTIFICATION INDEX
   ROOF PLY SHALL BE PANEL INDEX 24/0 U.O.N, FLOOR PLY SHALL BE PANEL INDEX 48/24 U.O.N. EQUIVALENT OSB MAY REPLACE PLYWOOD SHEARWALLS OR DIAPHRAGMS
3. SILL PLATES SHALL BE PRESSURE PRESERVATIVE TREATED DOUGLAS FIR.
4. PROVIDE BLOCKING FOR ALL FRAMING MEMBERS AT ALL SUPPORTS.
5. BOLTS FOR TIMBER CONNECTIONS SHALL BE ASTM A307 MACHINE BOLTS UNLESS OTHERWISE NOTED. BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION BY THE NATIONAL FOREST PRODUCTS ASSOCIATION. BOLT HOLES SHALL BE 1/16 INCH LARGER THAN BOLT DIAMETER.
6. HOLES FOR LAG SCREW SHANKS SHALL BE BORED THE SAME DEPTH AND DIAMETER AS THE SHANK. THE REMAINING DEPTH OF PENETRATION OF THE SCREW SHALL BE BORED TO 70% OF THE SHANK DIAMETER.
7. PROVIDE 0.229"x3"x3" SQUARE CUT ANCHOR BOLT WASHERS OR EQUIVALENT CUT PLATE WASHERS UNDER NUTS AND BOLT OR LAG SCREW HEADS WHICH BEAR ON WOOD.
8. WOOD MEMBERS SHALL BE CUT OR NOTCHED ONLY AS SHOWN ON THESE DRAWINGS.
9. WHEN REQUIRED NAILING TENDS TO SPLIT WOOD MEMBERS, NAIL HOLES SHALL BE PRE-BORED TO 3/4 OF THE NAIL DIAMETER.
10. NAILING NOT SPECIFICALLY INDICATED SHALL COMPLY WITH C.B.C. TABLE 2304.9.1
11. STRUCTURAL NAILING SHALL BE WITH COMMON NAILS U.O.N ON TABLE BELOW
12. PROVIDE LATERAL SUPPORT FOR ALL FRAMING MEMBERS AT POINTS OF SUPPORT
13. PROVIDE SHOP DRAWINGS FOR ALL PREFABRICATED JOIST MEMBERS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
14. EXCEPT WHERE MORE STRINGENT CONSTRUCTION IS SHOWN ON THE DRAWINGS, WOOD CONSTRUCTION SHALL COMPLY WITH C.B.C. SECTION 2301 CONVENTIONAL CONSTRUCTION PROVISIONS, AS A MINIMUM.
15. ALL PREFABRICATED CONNECTING HARDWARE SPECIFIED IS MANUFACTURED BY SIMPSON COMPANY, SAN LEANDRO, CALIFORNIA, UNLESS OTHERWISE NOTED. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS FOR MAXIMUM RATED VALUES.
16. ALL GLU-LAM BEAMS SHALL BE 24F-V4 DF/DF, U.O.N.
    All GLU-LAMS SHALL BE MARKED "ANSI/AITC- STANDARD A 190.1"
    GLU-LAMS SHALL BE PROVIDED BY A CERTIFIED MANUFACTURER
    PROVIDE CERTIFICATION TO BUILDING INSPECTOR
    PROVIDE MINIMUM CAMBER UNLESS OTHERWISE NOTED
    ALL PARALLAMS AND SHALL HAVE E = 2,000,000 PSI
    ALL MICRO-LAMS SHALL HAVE E = 1,700,000 PSI
    ALL TIMBERSTRAND SHALL HAVE E = 1,300,000 PSI OR 1,700,000 PSI
17. BLOCK UNSUPPORTED EDGES OF PLYWOOD OR GYP. BD SHEARWALLS.
18. MAXIMUM MOISTURE CONTENT SHALL BE 19 O.N.
19. ALL BEAMS INTENDED FOR EXTERIOR USE SHALL BE TREATED FOR EXPOSURE TO WATER



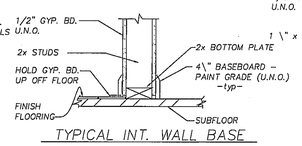
TYPICAL EXT. CORNER



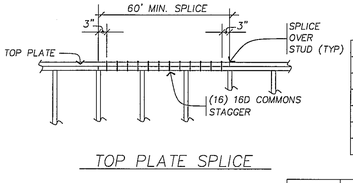
TYPICAL WALL INTERSECTION



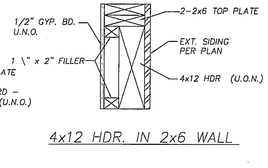
TYPICAL INT. CORNER



TYPICAL INT. WALL BASE



TOP PLATE SPLICE



4x12 HDR. IN 2x6 WALL

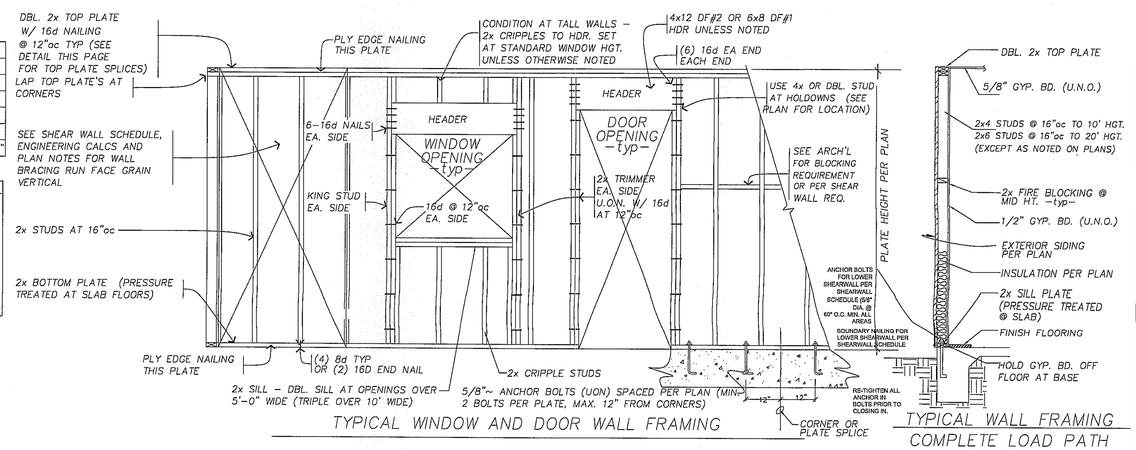
Header Sizes

Width	Header
0' – 4'	4" x 4"
4' – 6'	4" x 6"
6' – 8'	4" x 8"
8' – 10'	4" x 10"
10' – 12'	4" x 12"
20'-2" Microllam	5 1/4 " x 11 7/8 "

NAIL	L	D	H	PENETRATION
8d BOX	2 1/2"	.113	.297	1 3/8"
10d BOX	3"	.128	.312	1 1/2"
16d BOX	3 1/2"	.136	.344	1 5/8"
8d COMMOM	2 1/2"	.131	.281	1 1/2"
10d COMMOM	3"	.148	.312	1 3/4"
16d COMMOM	3 1/2"	.162	.344	2"

NOTES
1. LENGTH MAY BE ADJUSTED AS LONG AS REQUIRED PENETRATION IS MAINTAINED
2. SHEARWALLS USE GALVANIZED BOX OR COMMON
3. DIAPHRAGMS USE ONLY COMMONS
4. SEE 2019 CBC TABLE 2304.10.1 FOR OTHER NAILING

NOTE:
STRUCTURAL OBSERVATION SHALL BE REQUIRED BY THE ENGINEER FOR STRUCTURAL CONFORMANCE TO THE APPROVED PLANS.



TYPICAL WINDOW AND DOOR WALL FRAMING

TYPICAL WALL FRAMING COMPLETE LOAD PATH

REVISIONS	BY

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Patrice A. Stafford

STRUCTURAL NOTES & SPECIFICATIONS

ADDRESS :
249 CIMMARON CIR.,
FOLSOM, CA 95630

DATE 10/22/24

JOB NO.

SD1A

STRUCTURAL NOTES: NAILING SCHEDULE

TABLE 2304.10.2
FASTENING SCHEDULE

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a]	SPACING AND LOCATION
Roof		
1. Blocking between ceiling joists, rafters or trusses to top plate or other framing below	4-8d box (2½" × 0.113"); or 3-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3"14 gage staples, 7/16" crown	Each end, toenail
Blocking between rafters or truss not at the wall top plate, to rafter or truss	2-8d common (2½" × 0.131") 2-3" × 0.131" nails 2-3" 14 gage staples	Each end, toenail
	2-16 d common (3½" × 0.162") 3-3" × 0.131" nails 3-3" 14 gage staples	End nail
Flat blocking to truss and web filler	16d common (3½" × 0.162") @ 6" o.c. 3" × 0.131" nails @ 6" o.c. 3" × 14 gage staples @ 6" o.c	Face nail
2. Ceiling joists to top plate	4-8d box (2½" × 0.113"); or 3-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each joist, toenail
3. Ceiling joist not attached to parallel rafter, laps over partitions (no thrust) (see Section 2308.7.3.1, Table 2308.7.3.1)	3-16d common (3½" × 0.162"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
4. Ceiling joist attached to parallel rafter (heel joint) (see Section 2308.7.3.1, Table 2308.7.3.1)	Per Table 2308.7.3.1	Face nail
5. Collar tie to rafter	3-10d common (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
6. Rafter or roof truss to top plate (See Section 2308.7.5, Table 2308.7.5)	3-10 common (3" × 0.148"); or 3-16d box (3½" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131 nails; or 4-3" 14 gage staples, 7/16" crown	2 toenails on one side and 1 toenail on opposite side of rafter or truss[c]
7. Roof rafters to ridge valley or hip rafters; or roof rafter to 2-inch ridge beam	2-16d common (3½" × 0.162"); or 3-16d box (3½" × 0.135"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or	End nail
	3-3" 14 gage staples, 7/16" crown	
	3-10d common (3½" × 0.148"); or 4-16d box (3½" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Toenail
Wall		
8. Stud to stud (not at braced wall panels)	16d common (3½" × 0.162");	24" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	16" o.c. face nail
9. Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common (3½" × 0.162")	16" o.c. face nail
	16d box (3½" × 0.135"); or 3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	12" o.c. face nail
10. Built-up header (2" to 2" header)	16d common (3½" × 0.162")	16" o.c. each edge, face nail
	16d box (3½" × 0.135")	12" o.c. each edge, face nail
11. Continuous header to stud	4-8d common (2½" × 0.131"); or 4-10d box (3" × 0.128"); or 5-8d box (2½" x 0.113")	Toenail
12. Top plate to top plate	16d common (3½" × 0.162")	16" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
13. Top plate to top plate, at end joints	8-16d common (3½" × 0.162"); or 12-16d box (3½" × 0.135"); or 12-10d box (3" × 0.128"); or 12-3" × 0.131" nails; or 12-3" 14 gage staples, 7/16" crown	Each side of end joint, face nail (minimum 24" lap splice length each side of end joint)
14. Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3½" × 0.162")	16" o.c. face nail
	16d box (3½" × 0.135"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
15. Bottom plate to joist, rim joist, band joist or blocking at braced wall panels	2-16d common (3½" × 0.162"); or 3-16d box (3½" × 0.135"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	16" o.c. face nail
16. Stud to top or bottom plate	3-16d box (3½" × 0.135"); or 4-8d common (2½" × 0.131"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-8d box (2½" × 0.113"); or 4-3" 14 gage staples, 7/16" crown	Toenail
	2-16d common (3½" × 0.162"); or 3-16d box (3½" × 0.135"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	End nail
17. Top plates, laps at corners and intersections	2-16d common (3½" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Face nail
18. 1" brace to each stud and plate	3-8d box (2½" × 0.113"); or 2-8d common (2½" × 0.131"); or 2-10d box (3" × 0.128"); or 2-3" × 0.131" nails; or 2-3" 14 gage staples, 7/16" crown	Face nail
19. 1" × 6" sheathing to each bearing	3-8d box (2½" × 0.113"); or 2-8d common (2½" × 0.131"); or 2-10d box (3" × 0.128"); or 2-1¾" 16 gage staples, 1" crown	Face nail
20. 1" × 8" and wider sheathing to each bearing	3-8d common (2½" × 0.131"); or 3-8d box (2½" × 0.113"); or 3-10d box (3" × 0.128"); or 3-1¾" 16 gage staples, 1" crown	Face nail
	Wider than 1" x 8" 3-8d common (2½" × 0.131"); or 4-8d box (2½" × 0.113"); or 3-10d box (3" × 0.128"); or 4-1¾" 16 gage staples, 1" crown	
Floor		
21. Joist to sill, top plate, or girder	4-8d box (2½" × 0.113"); or 3-8d common (2½" × 0.131"); or floor 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Toenail
22. Rim joist, band joist, or blocking to top plate, sill or other framing below	8d box (2½" × 0.113")	4" o.c., toenail
	8d common (2½" × 0.131"); or 10d box (3" × 0.128"); or 3" × 0.131" nails; or	6" o.c., toenail
	3" 14 gage staples, 7/16" crown	
23. 1" × 6" subfloor or less to each joist	3-8d box (2½" × 0.113"); or 2-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 2-1¾" 16 gage staples, 1" crown	Face nail
24. 2 subfloor to joist or girder	3-16d box (3½" × 0.135"); or 2-16d common (3½" × 0.162")	Blind and face nail
25. 2" planks (plank & beam — floor & roof)	3-16d box (3½" × 0.135"); or 2-16d common (3½" × 0.162")	Each bearing, face nail
26. Built-up girders and beams, 2" lumber layers	20d common (4" × 0.192")	32" o.c., face nail at top and bottom staggered on opposite sides
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	24" o.c. face nail at top and bottom staggered on opposite sides
	And: 2-20d common (4" × 0.192"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Ends and at each splice, face nail
27. Ledger strip supporting joists or rafters	3-16d common (3½" × 0.162"); or 4-16d box (3½" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Each joist or rafter, face nail
28. Joist to band joist or rim joist	3-16d common (3½" × 0.162"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	End nail
29. Bridging or blocking to joist, rafter or truss	2-8d common (2½" × 0.131"); or 2-10d box (3" × 0.128"); or 2-3" × 0.131" nails; or 2-3" 14 gage staples, 7/16" crown	Each end, toenail

Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing[b]

		Edges (inches)	Intermediate supports (inches)
30. 3/8" — 1/2"	6d common or deformed (2" × 0.113"); or 2⅜" × 0.113" nail (subfloor and wall)	6	12
	8d common or deformed (2½" × 0.131"× 0.281" head) (roof) or RSRS-01 (2⅜" × 0.113") nail (roof)[d]	6[e]	6[e]
	1¾" 16 gage staple, 7/16" crown (subfloor and wall)	4	8
	2⅜" × 0.113"× 0.266" head nail (roof)	3[f]	3[f]
	1¾" 16 gage staple, 7/16" crown (roof)	3[f]	3[f]
31. 15/32" — ¾"	8d common (2½" × 0.131"); or deformed (2" × 0.113") (subfloor and wall)	6	12
	8d common or deformed (2½" × 0.131" × 0.281" head) (roof) or RSRS-01 (2⅜" × 0.113") nail (roof)[d]	6[e]	6[e]
	2⅜" × 0.113"× 0.266" head nail; or 2" 16 gage staple, 7/16" crown	4	8
32. 7/8" — 1 1/4"	10d common (3" × 0.148"); or deformed (2½" × 0.131" × 0.281" head)	6	12
Other exterior wall sheathing			
33. ½" fiberboard sheathing[b]	1½" × 0.120", galvanized roofing nail (7/16" head diameter); or 1¾" 16 gage staple with 7/16" or 1" crown	3	6
34. 25/32" fiberboard sheathing[b]	1¾" × 0.120" galvanized roofing nail (7/16" diameter head); or 1½" 16 gage staple with 7/16" or 1" crown	3	6
Wood structural panels, combination subfloor underlayment to framing			
35. ¾" and less	8d common (2½" × 0.131"); or deformed (2" × 0.113"); or deformed (2" × 0.120")	6	12
36. 7/8" — 1"	8d common (2½" × 0.131"); or deformed (2½" × 0.131"); or deformed (2½" × 0.120")	6	12
37. 1 1/8" — 1 1/4"	10d common (3" × 0.148"); or deformed (2½" × 0.131"); or deformed (2½" × 0.120")	6	12
Panel siding to framing			
38. ½" or less	6d corrosion-resistant siding (1⅞" × 0.106"); or 6d corrosion-resistant casing (2" × 0.099")	6	12
39. 5/8"	8d corrosion-resistant siding (2⅜" × 0.128"); or 8d corrosion-resistant casing	6	12
	(2½" × 0.113")		
Interior paneling			
40. ¼"	4d casing (1½" × 0.080"); or 4d finish (1½" × 0.072")	6	12
41. 3/8"	6d casing (2" × 0.099"); or 6d finish (2" × 0.092") (Panel supports at 24 inches)	6	12

For SI: 1 inch = 25.4 mm.

a. Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and she refer to Section 2305. Nails for wall sheathing are permitted to be common, box or casing.
b. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications. Panel supports at 16 inches (2 If strength axis in the long direction of the panel, unless otherwise marked).
c. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is fastened to the top plate in accordance with schedule, the number of toenails in the rafter shall be permitted to be reduced by one nail.
d. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.
e. Tabulated fastener requirements apply where the ultimate design wind speed is less than 140 mph. For wood structural panel roof sheathing attached to gable-e framing and to intermediate supports within 48 inches of roof edges and ridges, nails shall be spaced at 4 inches on center where the ultimate design wind spee greater than 130 mph in Exposure B or greater than 110 mph in Exposure C. Spacing exceeding 6 inches on center at intermediate supports shall be permitted where the fastening is designed per the AWC NDS.
f. Fastening is only permitted where the ultimate design wind speed is less than or equal to 110 mph.
g. Nails and staples are carbon steel meeting the specifications of ASTM F1667. Connections using nails and staples of other materials, such as stainless steel, shall designed by acceptable engineering practice or approved under Section 104.11.

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Patrice A. Stafford

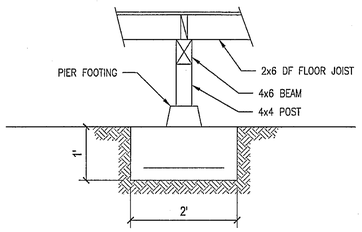
STRUCTURAL NOTES
NAILING SCHEDULE

ADDRESS :
249 CIMMARON CIR.,
FOLSOM, CA 95630

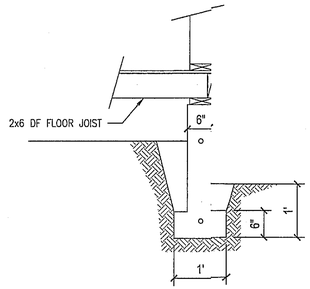
DATE 10/26/24

JOB NO.

SD1B



DETAIL A
3/4" = 1'-0"



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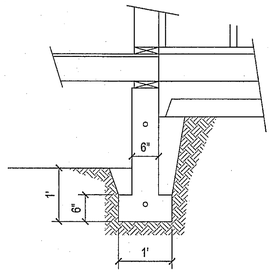

DETAIL C
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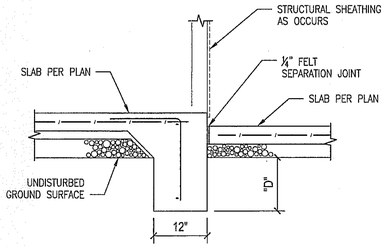

DETAIL D
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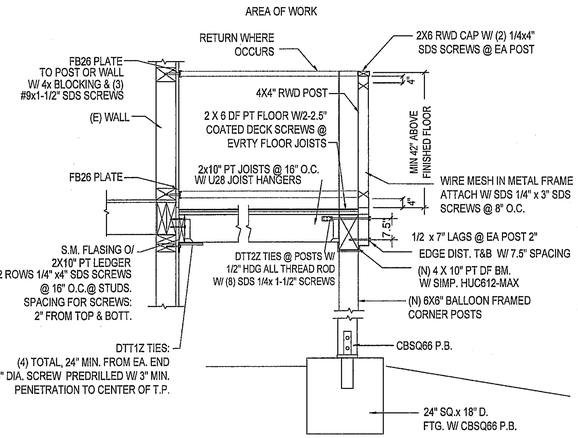
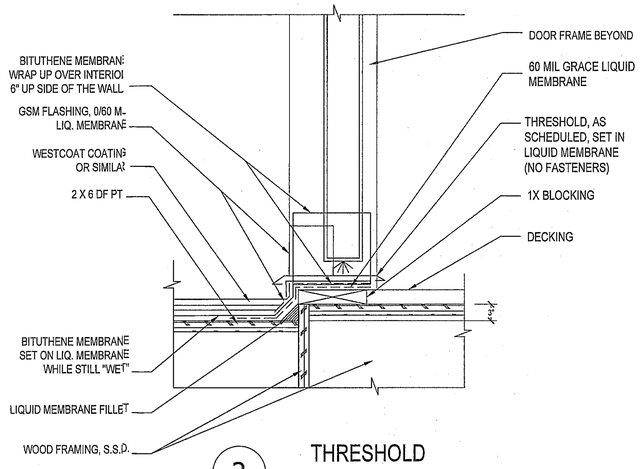
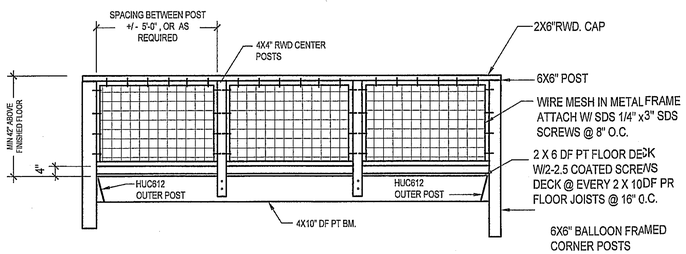


1 RAILING DETAIL



2 THRESHOLD



3- RAILING DETAIL

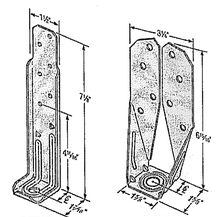
NOTES:

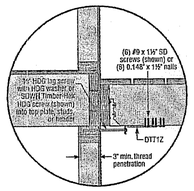
1. THE MAXIMUM DISTANCE BETWEEN ALL HORIZONTAL RAIL OPENINGS IS 4 INCHES

2. HANDRAIL GRIPPING SURFACES WITH A NON-CIRCULAR CROSS SECTION SHALL HAVE A PERIMETER DIMENSION OF 4" MIN AND 6.25" MAXIMUM, AN DA CROSS-SECTION DIMENSION OD 2.25" MAXIMUM. SEE CA BUILDING CODE SECTION 11B-505.7.2

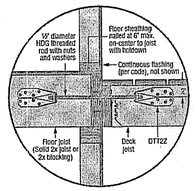
3. RAILINGS SHALL BE CAPABLE OF WITHSTANDING A 50 POUND LINEAR OR 200 POUND CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY LOCATION PER 2019 CBC 1607.8.1

4. ALL HARDWARE CONNECTORS (HANGERS, CLIPS, NAILS, ETC) ATTACHED TO PRESERVATIVE TREATED LUMBER SHALL BE HOT DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER PER 2019 CBC 2304.10.5





Typical DTT1Z Deck-to-House Lateral Load Connection
For more information on lateral load connections, see technical bulletin T-C-DECKLAT at **strongtie.com**



Typical DTT2Z Deck-to-House Lateral Load Connection
For more information on lateral load connections, see technical bulletin T-C-DECKLAT at **strongtie.com**

4-

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STATE OF CALIFORNIA

PROJECT NAME:

STRUCTURAL DETAILS 2 AND DECK FRAMING DETAILS

ADDRESS :
249 CIMMARON CIR.,
FOLSOM, CA 95630

DATE
10/22/24

JOB NO.

SD2

10 07/14

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2023)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

Y	N/A	RESPON. PARTY

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.

301.1.1 Additions and alterations. [HCD] The mandatory provisions of Chapter 4 shall be applied to additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration.

The mandatory provision of Section 4.106.4.2 may apply to additions or alterations of existing parking facilities or the addition of new parking facilities serving existing multifamily buildings. See Section 4.106.4.3 for application.

Note: Repairs including, but not limited to, resurfacing, restriping and repairing or maintaining existing lighting fixtures are not considered alterations for the purpose of this section.

Note: On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.

301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD] The provisions of individual sections of CALGreen may apply to either low-rise residential buildings high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies specifically to low-rise only (LR) or high-rise only (HR). When the section applies to both low-rise and high-rise buildings, no banner will be used.

SECTION 302 MIXED OCCUPANCY BUILDINGS

302.1 MIXED OCCUPANCY BUILDINGS. In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.
Exceptions:
1. [HCD] Accessory structures and accessory occupancies serving residential buildings shall comply with Chapter 4 and Appendix A4, as applicable.
2. [HCD] For purposes of *CALGreen*, live/work units, complying with Section 419 of the *California Building Code*, shall not be considered mixed occupancies. Live/Work units shall comply with Chapter 4 and Appendix A4, as applicable.

DIVISION 4.1 PLANNING AND DESIGN

ABBREVIATION DEFINITIONS:

HCD	Department of Housing and Community Development
BSC	California Building Standards Commission
DSA-SS	Division of the State Architect, Structural Safety
OSHPD	Office of Statewide Health Planning and Development
LR	Low Rise
HR	High Rise
AA	Additions and Alterations
N	New

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

SECTION 4.102 DEFINITIONS
4.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

FRENCH DRAIN. A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.

WATTLES. Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.

4.106 SITE DEVELOPMENT
4.106.1 GENERAL. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.

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 drainage 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.

Note: Refer to the State Water Resources Control Board for projects which disturb one acre or more of soil, or are part of a larger common plan of development which in total disturbs one acre or more of soil.

(Website: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html)

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 alterations 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 or 4.106.4.2 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 local utility power supply or the local utility is unable to supply adequate power.
   1.2 Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 4.106.4, may adversely impact the construction cost of the project.
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 208/240-volt minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

Exemption: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the proposed location of an EV charger at the time of original construction in accordance with the *California Electrical Code.*

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, hotels and motels and new residential parking facilities.
When parking is provided, parking spaces for new multifamily dwellings, hotels and motels shall meet the requirements of Sections 4.106.4.2.1 and 4.106.4.2.2. Calculations for spaces shall be rounded up to the nearest whole number. A parking space served by electric vehicle supply equipment or designed as a future EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by a local jurisdiction. See Vehicle Code Section 22511.2 for further details.

4.106.4.2.1Multifamily development projects with less than 20 dwelling units; and hotels and motels with less than 20 sleeping units or guest rooms.
The number of dwelling units, sleeping units or guest rooms shall be based on all buildings on a project site subject to this section.

1.EV Capable. 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 Level 2 EVSE. Electrical load calculations shall demonstrate 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 a minimum of 40 amperes.

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.

Exceptions:

1.When EV chargers (Level 2 EVSE) are installed in a number equal to or greater than the required number of EV capable spaces.

2.When EV chargers (Level 2 EVSE) are installed in a number less than the required number of EV capable spaces, the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed.

Notes:

a.Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.

b.There is no requirement for EV spaces to be constructed or available until receptacles for EV charging or EV chargers are installed for use.

2.EV Ready. Twenty-five (25) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit.

Exception: Areas of parking facilities served by parking lifts.

4.106.4.2.2 Multifamily development projects with 20 or more dwelling units, hotels and motels with 20 or more sleeping units or guest rooms.
The number of dwelling units, sleeping units or guest rooms shall be based on all buildings on a project site subject to this section.

1.EV Capable. 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 Level 2 EVSE. Electrical load calculations shall demonstrate 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 a minimum of 40 amperes.

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.

Exception: When EV chargers (Level 2 EVSE) are installed in a number greater than five (5) percent of parking spaces required by Section 4.106.4.2.2, Item 3, the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed over the five (5) percent required.

Notes:

a.Construction documents shall show locations of future EV spaces.

b.There is no requirement for EV spaces to be constructed or available until receptacles for EV charging or EV chargers are installed for use.

2.EV Ready. Twenty-five (25) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit.

Exception: Areas of parking facilities served by parking lifts.

3.EV Chargers. Five (5) percent of the total number of parking spaces shall be equipped with Level 2 EVSE. Where common use parking is provided, at least one EV charger shall be located in the common use parking area and shall be available for use by all residents or guests.

When low power Level 2 EV charging receptacles or Level 2 EVSE are installed beyond the minimum required, an automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least 3.3 kW simultaneously to each EV charging station (EVCS) served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes, and installed EVSE shall have a capacity of not less than 30 amperes. ALMS shall not be used to reduce the minimum required electrical capacity to the required EV capable spaces.

4.106.4.2.2.1 Electric vehicle charging stations (EVCS).
Electric vehicle charging stations required by Section 4.106.4.2.2, Item 3, shall comply with Section 4.106.4.2.2.1.

Exception: Electric vehicle charging stations serving public accommodations, public housing, motels and hotels shall not be required to comply with this section. See California Building Code, Chapter 11B, for applicable requirements.

4.106.4.2.2.1.1 Location.
EVCS shall comply with at least one of the following options:

1.The charging 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 charging 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 4.106.4.2.2.1.1 and Section 4.106.4.2.2.1.2, Item 3.

4.106.4.2.2.1.2 Electric vehicle charging stations (EVCS) dimensions.
The charging 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 charging spaces, 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 this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

4.106.4.2.2.1.3 Accessible EV spaces.
In addition to the requirements in Sections 4.106.4.2.2.1.1 and 4.106.4.2.2.1.2, all EVSE, when installed, shall comply with the accessibility provisions for EV chargers in the California Building Code, Chapter 11B. EV ready spaces and EVCS in multifamily developments shall comply with California Building Code, Chapter 11A, Section 1109A.

4.106.4.2.3 EV space requirements.
1.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 location or the proposed location of the EV space. Construction documents shall identify the raceway termination point, receptacle or charger location, as applicable. The service panel and/ or subpanel shall have a 40-ampere minimum dedicated branch circuit, including branch circuit overcurrent protective device installed, or space(s) reserved to permit installation of a branch circuit overcurrent protective device.

Exception: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the location or the proposed location of the EV space, at the time of original construction in accordance with the California Electrical Code.

2.Multiple EV spaces required. Construction documents shall indicate the raceway termination point and the location of installed or future EV spaces, receptacles or EV chargers. Construction documents shall also provide information on amperage of installed or future receptacles or EVSE, raceway method(s), wiring schematics and electrical load calculations. 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.

Exception: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the location or the proposed location of the EV space at the time of original construction in accordance with the California Electrical Code.

4.106.4.2.4 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.

4.106.4.2.5 Electric Vehicle Ready Space Signage.
Electric vehicle ready spaces shall be identified by signage or pavement markings, in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

4.106.4.3 Electric vehicle charging for additions and alterations of parking facilities serving existing multifamily buildings.
When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten (10) percent of the total number of parking spaces added or altered shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE.

Notes:

1.Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.

2.There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

DIVISION 4.2 ENERGY EFFICIENCY

4.201 GENERAL
4.201.1 SCOPE. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.

DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION

4.303 INDOOR WATER USE
4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.4.4.

Note: All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.

4.303.1.1 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 wall mounted 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. 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. When a shower is served by more than one showerhead, the combined flow rate of all the 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 only allow 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 60 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 dwellings or sleeping units) in residential buildings shall not exceed 0.5 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 0.2 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 default 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.

4.303.1.4.5 Pre-rinse spray valves.
When installed, shall meet the requirements in the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations), Sections 1605.1 (h)(4) Table H-2, Section 1605.3 (h)(4)(A), and Section 1607 (d)(7) and shall be equipped with an integral automatic shutoff.

FOR REFERENCE ONLY: The following table and code section have been reprinted from the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations),Section 1605.1 (h)(4) and Section 1605.3 (h)(4)(A).

TABLE H-2

STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALVES MANUFACTURED ON OR AFTER JANUARY 28, 2019

PRODUCT CLASS [spray force in ounce force (ozf)]	MAXIMUM FLOW RATE (gpm)
Product Class 1 (≤ 5.0 ozf)	1.00
Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)	1.20
Product Class 3 (> 8.0 ozf)	1.28

Title 20 Section 1605.3 (h)(4)(A): Commercial prerinse spray values manufactured on or after January 1, 2006, shall have a minimum spray force of not less than 4.0 ounces-force (ozf)[113 grams-force(gf)]

4.303.2 Submeters for multifamily buildings and dwelling units in mixed-used residential/commercial buildings.
Submeters shall be installed to measure water usage of individual rental dwelling units in accordance with the *California Plumbing Code*.

4.303.3 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*.

NOTE:
THIS TABLE COMPILES THE DATA IN SECTION 4.303.1, AND IS INCLUDED AS A CONVENIENCE FOR THE USER.

TABLE - MAXIMUM FIXTURE WATER USE

FIXTURE TYPE	FLOW RATE
SHOWER HEADS (RESIDENTIAL)	1.8 GMP @ 80 PSI
LAVATORY FAUCETS (RESIDENTIAL)	MAX. 1.2 GPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI
LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS	0.5 GPM @ 60 PSI
KITCHEN FAUCETS	1.8 GPM @ 60 PSI
METERING FAUCETS	0.2 GAL/CYCLE
WATER CLOSET	1.28 GAL/FLUSH
URINALS	0.125 GAL/FLUSH

4.304 OUTDOOR WATER USE
4.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. Residential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.

NOTES:

1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the *California Code Regulations,* Title 23, Chapter 2.7, Division 2. MWELO and supporting documents, including water budget calculator, are available at: https://www.water.ca.gov/

DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE
4.406.1 RODENT PROOFING. Annular spaces around pipes, electric 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 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING
4.408.1 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 4.408.2, 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 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.

4.408.2 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 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 collected 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 lbs./sq.ft. of the building area shall meet the minimum 65% 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% construction waste reduction requirement in Section 4.408.1

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/CALGreen.html 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 BUILDING MAINTENANCE AND OPERATION
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 with 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 consumption, including recycle programs and locations.
4. Public transportation and/or carpool options available in the area.
5. Educational material on the positive impacts of an interior relative humidity between 30-60 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 inspections verifications required by the enforcing agency or this code.
11. Information from the Department of Forestry and Fire Protection on maintenance of defensible space around residential structures.
12. Information and/or drawings identifying the location of grab bar reinforcements.

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 are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waster, 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 note required to comply with the organic waste portion of this section.

DIVISION 4.5 ENVIRONMENTAL QUALITY

SECTION 4.501 GENERAL
4.501.1 Scope
The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors.

SECTION 4.502 DEFINITIONS
5.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists or finger-jointed lumber, all as specified in California Code of regulations (CCR), title 17, Section 93120.1.

DIRECT-VENT APPLIANCE. A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.

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RESIDENTIAL MANDATORY MEASURES, SHEET 2 (January 2023)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O^3/g ROC).
Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).
Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521 (a).

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

VOC. A volatile organic compound (VOC) broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

4.503 FIREPLACES
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 POLLUTANT CONTROL
4.504.1 COVERING OF DUCT OPENINGS & PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust or debris which may enter the system.

4.504.2 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with this section.

4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealant 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, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and tricloroethylene), 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 1 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 of 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 Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 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 specification.
2. Field verification of on-site product containers.

TABLE 4.504.1 - ADHESIVE VOC LIMIT[1,2]
(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	60
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT & ASPHALT TILE ADHESIVES	50
DRYWALL & PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVE	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT 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 & 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.

TABLE 4.504.2 - SEALANT VOC LIMIT
(Less Water and Less Exempt Compounds in Grams per Liter)

SEALANTS	VOC LIMIT
ARCHITECTURAL	250
MARINE DECK	760
NONMEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420
SEALANT PRIMERS	
ARCHITECTURAL	
NON-POROUS	250
POROUS	775
MODIFIED BITUMINOUS	500
MARINE DECK	760
OTHER	750

TABLE 4.504.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2,3]
GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS

COATING CATEGORY	VOC LIMIT
FLAT COATINGS	50
NON-FLAT 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
GRAPHIC ARTS COATINGS (SIGN PAINTS)	500
HIGH TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS[1]	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 & UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB & 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 & EXEMPT COMPOUNDS

2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.

3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.

TABLE 4.504.5 - FORMALDEHYDE LIMITS[1]
MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

PRODUCT	CURRENT LIMIT
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICLE BOARD	0.09
MEDIUM DENSITY FIBERBOARD	0.11
THIN MEDIUM DENSITY FIBERBOARD[2]	0.13

1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIF. AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.

2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16" (8 MM).

DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)
4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

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 meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

hhttps://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

4.504.5 COMPOSITE WOOD PRODUCTS. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the buildings shall meet the requirements for formaldehyde as specified in ARB'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 Composite Wood Products regulation (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, European 636 3S standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards.
5. Other methods acceptable to the enforcing agency.

4.505 INTERIOR MOISTURE CONTROL
4.505.1 General. Buildings shall meet or exceed the provisions of the *California Building Standards Code*.

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 also 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 (101.6 mm) thick base of 1/2 inch (12.7mm) or larger clean aggregate shall be provided with a vapor barrier 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 302.2R-06.
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 percent moisture content. Moisture content shall be verified in compliance with the following:

1. Moisture content shall be determined with either a probe-type or 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 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 INDOOR AIR QUALITY AND EXHAUST
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 less than or equal to 50% to a maximum of 80%. 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)

Notes:

1. For the purposes 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 ENVIRONMENTAL COMFORT
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 - 2011 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods.
2. Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (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 system functions are acceptable.

CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS
702 QUALIFICATIONS
702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

1. State certified apprenticeship programs.
2. Public utility training programs.
3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.
4. Programs sponsored by manufacturing organizations.
5. Other programs acceptable to the enforcing agency.

702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:

1. Certification by a national or regional green building program or standard publisher.
2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
3. Successful completion of a third party apprentice training program in the appropriate trade.
4. Other programs acceptable to the enforcing agency.

Notes:
1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

[BSC] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.

Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

703 VERIFICATIONS
703.1 DOCUMENTATION. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.

GENERAL INFORMATION

01	Project Name	Chis Residence Addition			
02	Run Title	Title 24 Analysis			
03	Project Location	249 Cimmeron Circle			
04	City	Folsom	05	Standards Version	2022
06	Zip code	95630	07	Software Version	CBECC-Res 2022.3.1
08	Climate Zone	12	09	Front Orientation (deg/ Cardinal)	0
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Addition and/or Alteration	13	Number of Bedrooms	6
14	Addition Cond. Floor Area (ft²)	1010	15	Number of Stories	1
16	Existing Cond. Floor Area (ft²)	2144	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft²)	3154	19	Glazing Percentage (%)	12.59%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Fuel Type	Natural gas	23	No Dwelling Unit:	No

COMPLIANCE RESULTS

01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below

ENERGY USE SUMMARY

Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft² -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft² -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0	64.35	0	62.77	0	1.58
Space Cooling	0	58.7	0	60.21	0	-1.51
IAQ Ventilation	0	3.78	0	3.78	0	0
Water Heating	0	20.39	0	20.39	0	0
Self Utilization/Flexibility Credit				0		0
Efficiency Compliance Total	**0**	**147.22**	**0**	**147.15**	**0**	**0.07**
Photovoltaics	0			0		
Battery				0		
Flexibility						
Indoor Lighting	0	6.46	0	6.46		
Appl. & Cooking	0	18.64	0	18.66		
Plug Loads	0	27.21	0	27.21		
Outdoor Lighting	0	1.68	0	1.68		
TOTAL COMPLIANCE	**0**	**201.21**	**0**	**201.16**		

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ENERGY USE INTENSITY

	Standard Design (kBtu/ft² - yr)	Proposed Design (kBtu/ft² - yr)	Compliance Margin (kBtu/ft² - yr)	Margin Percentage
Gross EUI[1]	31.92	31.67	0.25	0.78
Net EUI[2]	31.92	31.67	0.25	0.78

Notes
1. Gross EUI is Energy Use Total (not including PV) / Total Building Area.
2. Net EUI is Energy Use Total (including PV) / Total Building Area.

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- Floor has high level of insulation
- Window overhangs and/or fins

HERS FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry

- Quality insulation installation (QII)
- Indoor air quality ventilation
- Minimum Airflow
- Verified EER/EER2
- Verified SEER/SEER2
- Verified Refrigerant Charge
- Refrigerant Charge verification required if a refrigerant containing component is altered
- Fan Efficacy Watts/CFM
- Duct leakage testing
- Duct Sealing required if a duct system component, plenum, or air handling unit is altered

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Chis Residence Addition	3154	1	6	2	0	1

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ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft²)	Avg. Ceiling Height	Water Heating System 1	Status
Existing	Conditioned	Existing HVAC1	2144	8	DHW Sys 1	Existing Unchanged
Addition	Conditioned	Addition HVAC2	1010	9	DHW Sys 1	New

OPAQUE SURFACES

01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window and Door Area (ft2)	Tilt (deg)	Wall Exceptions	Status	Verified Existing Condition
Front Wall	Existing	R-13 Wall	0	Front	608	120	90	none	Existing	No
Front-Left Wall	Existing	R-13 Wall	45	n/a	30	10	90	none	Existing	No
Left Wall	Existing	R-13 Wall	90	Left	470	75	90	none	Existing	No
Back Wall	Existing	R-13 Wall	180	Back	344	58	90	none	Existing	No
Back Wall Infill	Existing	R-15 Wall (Infill)	180	Back	20	0	90	none	Altered	No
Right Wall	Existing	R-13 Wall	270	Right	314	54	90	none	Existing	No
Front-Right Wall	Existing	R-13 Wall	315	n/a	30	10	90	none	Existing	No
Front Wall 2	Addition	R-15 Wall	0	Front	84	20	90	none	New	n/a
Left Wall 1	Addition	R-15 Wall	90	Left	60	40.02	90	Extension	New	n/a
Left Wall 2	Addition	R-15 Wall	90	Left	111	0	90	none	New	n/a
BackWall	Addition	R-15 Wall	180	Back	239	64	90	none	New	n/a
Right Wall 2	Addition	R-15 Wall	270	Right	318	26	90	Extension	New	n/a
Interior Surface	Addition>>Existing	R-0 Wall	n/a	n/a	344	0	n/a		New	No
Interior Surface 2	Addition>>Attic Addition	R-15 Wall1	n/a	n/a	34	0	n/a		New	n/a
Roof	Existing	R-19 Roof Attic	n/a	n/a	2144	n/a	n/a		Existing	No
Roof 2	Addition	R-38 Roof Attic	n/a	n/a	1010	n/a	n/a		New	n/a
Raised Floor	Existing	R-0 Floor Crawlspace	n/a	n/a	2144	n/a	n/a		Existing	No

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OPAQUE SURFACES

01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window and Door Area (ft2)	Tilt (deg)	Wall Exceptions	Status	Verified Existing Condition
Raised Floor 2	Addition	R-30 Floor Crawlspace	n/a	n/a	1010	n/a	n/a		New	n/a

ATTIC

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	Attic RoofExisting	Ventilated	4	0.1	0.85	No	No	Existing	No
Attic Addition	Attic RoofAddition	Ventilated	4	0.1	0.85	Yes	No	New	n/a

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
Window	Window	Front Wall	Front	0			1	25	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 2	Window	Front Wall	Front	0			1	10	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 3	Window	Front Wall	Front	0			1	10	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 4	Window	Front Wall	Front	0			1	15	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 5	Window	Front Wall	Front	0			1	20	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 6	Window	Front-Left Wall		45			1	10	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No

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FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
Window 7	Window	Left Wall	Left	90			1	15	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 8	Window	Left Wall	Left	90			1	40	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 9	Window	Back Wall	Back	180			1	6	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 10	Window	Back Wall	Back	180			1	12	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 11	Window	Back Wall	Back	180			1	40	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 12	Window	Right Wall	Right	270			1	15	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 13	Window	Right Wall	Right	270			1	15	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 14	Window	Right Wall	Right	270			1	9	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 15	Window	Right Wall	Right	270			1	15	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 16	Window	Front-Right Wall		315			1	10	0.79	Table 110.6-A	0.7	Table 110.6-B	Bug Screen	Existing	No
Window 17	Window	Left Wall 1	Left	90	6	6.67	1	40.02	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 18	Window	BackWall	Back	180			1	10	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 19	Window	BackWall	Back	180			1	10	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA

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FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
Window 20	Window	BackWall	Back	180			1	4	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 21	Window	BackWall	Back	180			1	40	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 22	Window	Right Wall 2	Right	270			1	6	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 23	Window	Right Wall 2	Right	270			1	20	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA

OPAQUE DOORS

01	02	03	04	05	06
Name	Side of Building	Area (ft²)	U-factor	Status	Verified Existing Condition
Door	Front Wall	40	0.5	Existing	No
Door 2	Left Wall	20	0.5	Existing	No
Door 3	Front Wall 2	20	0.2	New	n/a

OVERHANGS AND FINS

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
Window	Overhang					Left Fin				Right Fin						
	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up	Status	Verified Existing Condition	Existing Construction
Window 17	23	1	13	0.5	0	23	0	0.5	0	9.4	0	5	0	New	NA	

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OPAQUE SURFACE CONSTRUCTIONS

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-13 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-13	None / None	0.101	Inside Finish: Gypsum Board Cavity / Frame: R-13 / 2x4 Exterior Finish: 3 Coat Stucco
R-15 Wall (Infill)	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: 3 Coat Stucco
R-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: 3 Coat Stucco
R-0 Wall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-0	None / None	0.277	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Other Side Finish: Gypsum Board
R-15 Wall1	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.086	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Other Side Finish: Gypsum Board
Attic RoofExisting	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / 0	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
Attic RoofAddition	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / 0	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
R-0 Floor Crawlspace	Floors Over Crawlspace	Wood Framed Floor	2x12 @ 16 in. O. C.	R-0	None / None	0.216	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x12

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OPAQUE SURFACE CONSTRUCTIONS

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-30 Floor Crawlspace	Floors Over Crawlspace	Wood Framed Floor	2x10 @ 16 in. O. C.	R-30	None / None	0.034	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-30 / 2x10
R-19 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-19	None / None	0.049	Over Ceiling Joists: R-9.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board
R-38 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-38	None / None	0.025	Over Ceiling Joists: R-28.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04	05
Quality Insulation Installation (QII)	High R-value Spray Foam Insulation	Building Envelope Air Leakage	CFM50	CFM50
Required	Not Required	N/A	n/a	n/a

WATER HEATING SYSTEMS

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

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Red Tape Express
6015 Bear Creek Court
Elk Grove, CA 95758
(916) 684-0687 (Phone), (877)706-1667 (Fax)

Title 24 Energy Compliance Documentation

Chis Residence Addition
249 Cimmeron Circle
Folsom, California 95630
Job Number: JRC508A5

T24-1

WATER HEATERS

01 Name	02 Heating Element Type	03 Tank Type	04 # of Units	05 Tank Vol. (gal)	06 Heating Efficiency Type	07 Efficiency	08 Rated Input Type	09 Input Rating or Pilot	10 Tank Insulation R-value (Int/Ext)	11 Standby Loss or Recovery Eff	12 1st Hr. Rating or Flow Rate	13 Tank Location	14 Status	15 Verified Existing Condition
DHW Heater 1	Gas	Small Storage	1	50	EF	0.63	Btu/Hr	75000	0	80	n/a		Existing	No

WATER HEATING - HERS VERIFICATION

01 Name	02 Pipe Insulation	03 Parallel Piping	04 Compact Distribution	05 Compact Distribution Type	06 Recirculation Control	07 Shower Drain Water Heat Recovery
DHW Sys 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required

SPACE CONDITIONING SYSTEMS

01 Name	02 System Type	03 Heating Unit Name	04 Heating Equipment Count	05 Cooling Unit Name	06 Cooling Equipment Count	07 Fan Name	08 Distribution Name	09 Required Thermostat Type	10 Status	11 Verified Existing Condition	12 Existing HVAC System
Existing HVAC1	Heating and cooling system other	Heating Component 1	1	Cooling Component 1	1	HVAC Fan 1	Air Distribution System 1	n/a	Existing	No	
Addition HVAC2	Heating and cooling system other	Heating Component 2	1	Cooling Component 2	1	HVAC Fan 2	Air Distribution System 2	Setback	New	No	

HVAC - HEATING UNIT TYPES

01 Name	02 System Type	03 Number of Units	04 Heating Efficiency	05 Heating Unit Brand
Heating Component 1	Central gas furnace	1	AFUE - 78	n/a
Heating Component 2	Central gas furnace	1	AFUE - 94	n/a

HVAC - COOLING UNIT TYPES

01 Name	02 System Type	03 Number of Units	04 Efficiency Metric	05 Efficiency EER/EER2/CEER	06 Efficiency SEER/SEER2	07 Zonally Controlled	08 Multi-speed Compressor	09 HERS Verification
Cooling Component 1	Central split AC	1	EER/SEER	10	13	Not Zonal	Single Speed	Cooling Component 1-hers-cool
Cooling Component 2	Central split AC	1	EER/SEER	12.5	16	Not Zonal	Single Speed	Cooling Component 2-hers-cool

HVAC COOLING - HERS VERIFICATION

01 Name	02 Verified Airflow	03 Airflow Target	04 Verified EER/EER2	05 Verified SEERSEER2	06 Verified Refrigerant Charge
Cooling Component 2-hers-cool	Required	350	Required	Required	Required

HVAC - DISTRIBUTION SYSTEMS

01 Name	02 Type	03 Design Type	04 Duct Ins. R-value Supply	05 Duct Ins. R-value Return	06 Duct Location Supply	07 Duct Location Return	08 Surface Area Supply	09 Surface Area Return	10 Bypass Duct	11 Duct Leakage	12 HERS Verification	13 Status	14 Verified Existing Condition	15 Existing Distribution system	16 New Ducts >= 25 ft
Air Distribution System 1	Unconditioned attic	Non-Verified	R-4.2	R-4.2	Attic	Attic	n/a	n/a	No Bypass Duct	Existing (not specified)	Air Distribution System 1-hers-dist	Existing	No		n/a
Air Distribution System 2	Unconditioned attic	Non-Verified	R-8	R-8	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	Air Distribution System 2-hers-dist	Alteration	No		n/a

HVAC DISTRIBUTION - HERS VERIFICATION

01 Name	02 Duct Leakage Verification	03 Duct Leakage Target (%)	04 Verified Duct Location	05 Verified Duct Design	06 Buried Ducts	07 Deeply Buried Ducts	08 Low-leakage Air Handler	09 Low Leakage Ducts Entirely in Conditioned Space
Air Distribution System 2-hers-dist	Yes	10.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS

01 Name	02 Type	03 Fan Power (Watts/CFM)	04 Name
HVAC Fan 1	HVAC Fan	0.58	HVAC Fan 1-hers-fan
HVAC Fan 2	HVAC Fan	0.45	HVAC Fan 2-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01 Name	02 Verified Fan Watt Draw	03 Required Fan Efficacy (Watts/CFM)
HVAC Fan 1-hers-fan	Not Required	0
HVAC Fan 2-hers-fan	Required	0.45

INDOOR AIR QUALITY (IAQ) FANS

01 Dwelling Unit	02 Airflow (CFM)	03 Fan Efficacy (W/CFM)	04 IAQ Fan Type	05 Includes Heat/Energy Recovery?	06 IAQ Recovery Effectiveness - SRE/ASRE	07 Includes Fault Indicator Display?	08 HERS Verification	09 Status
SFam IAQVentRpt	144	0.35	Exhaust	No	n/a / n/a	No	Yes	

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: David Morgan	Documentation Author Signature: David Morgan
Company: Red Tape Express	Signature Date: 09/02/2024
Address: 6015 Bear Creek Court	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Elk Grove, CA 95758	Phone: (916) 684-6687

RESPONSIBLE PERSON'S DECLARATION STATEMENT	
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 the building design identified on 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: John Radu	Responsible Designer Signature: John Radu
Company: Radu General Construction	Date Signed: 09/02/2024
Address: 4916 Melvin Drive	License: 804432
City/State/Zip: Carmichael, CA 95608	Phone: (916) 425-1067

Digitally signed by California Home Energy Efficiency Rating Services (CHEERS). This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.

Red Tape Express
6015 Bear Creek Court
Elk Grove, CA 95758
(916) 684-6687 (Phone) (877)760-1667 (Fax)

Title 24 Energy Compliance Documentation

Chis Residence Addition
249 Cimmeron Circle
Folsom, California 95630
Job Number: JRC508A5

T24-2

2022 Single-Family Residential Mandatory Requirements Summary

NOTE: Single-family residential buildings subject to the Energy Codes must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information.
(04/2022)

Building Envelope:

§ 110.6(a)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283, or AAMA/WDMA/CSA 101/I.S.2/A440-2011. *
§ 110.6(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	**Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped. *
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Roof Deck, Ceiling and Rafter Roof Insulation.** Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average U-factor not exceeding U-0.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. 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 roof or ceiling which is sealed to limit infiltration and exfiltration, as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling. *
§ 150.0(b):	**Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	**Wall Insulation.** Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, 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 0.102. Masonry walls must meet Tables 150.1-A or B. *
§ 150.0(d):	**Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor. *
§ 150.0(f):	**Slab Edge Insulation.** Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm 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 § 110.8(g).
§ 150.0(g)1:	**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 controlled ventilation crawl space for buildings complying with the exception to §150.0(d).
§ 150.0(g)2:	**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, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45, or area-weighted average U-factor of all fenestration must not exceed 0.45. *

Fireplaces, Decorative Gas Appliances, and Gas Log:

§ 110.5(e)	**Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)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 tight-fitting damper or combustion-air control device.
§ 150.0(e)3:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control. *

Space Conditioning, Water Heating, and Plumbing System:

§ 110.0-§ 110.3:	**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. *
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-N. *
§ 110.2(b):	**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 cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat. *
§ 110.3(c)3:	**Insulation.** Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
§ 110.3(c)6:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.

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§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters. *
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.
§ 150.0(h)3A:	**Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.
§ 150.0(h)3B:	**Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(j)1:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in § 609.11 of the California Plumbing Code. *
§ 150.0(j)2:	**Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by §120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). 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-crushable casing or sleeve.
§ 150.0(n)1:	**Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2' higher than the base of the water heater
§ 150.0(n)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:

§ 110.8(d)3:	**Ducts.** Insulation installed on 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 certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	**CMC Compliance.** All air-distribution system ducts and plenums must meet CMC §§ 601.0-605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable UL requirements, or aerosol sealant that meets UL 723. The combination of mastic and ether mesh or tape must be used to seal openings greater than ¼". If mastic or tape is used: Building cavities, air handler support platforms, 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 may contain ducts; ducts installed in these spaces must not be compressed. *
§ 150.0(m)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 not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	**Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	**Gravity Ventilation Dampers.** Gravity ventilating 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 and elevator shaft vents.
§ 150.0(m)9:	**Protection of Insulation.** Insulation must be protected from damage due tosunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water retardant and solar radiation-resistant coating.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner cores of flex ducts must have a non-porous layer or air barrier between the inner core and outer vapor barrier.
§ 150.0(m)11:	**Duct System Sealing and Leakage Test.** When space conditioning systems use 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 Reference Residential Appendix RA3.1.
§ 150.0(m)12:	**Air Filtration.** Space conditioning systems with ducts exceeding 10 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 sized per Equation 150.0-A. Clean-filter pressure drop and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters to and prevents air from bypassing the filter. *

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2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(m)13:	**Space Conditioning System Airflow Rate and Fan Efficacy.** Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3. *

Ventilation and Indoor Air Quality:

§ 150.0(o)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 § 150.0(o)1. *
§ 150.0(o)1B:	**Central Fan Integrated (CFI) Ventilation Systems.** Continuous operation of CFI air handlers is not allowed to provide the whole-dwelling unit ventilation airflow required per §150.0(o)1C. A motorized damper(s) must be installed on the ventilation duct(s) that prevents all airflow through the space conditioning duct system when the damper(s) is closed andcontrolled per §150.0(o)1Biii&iv. CFI ventilation systems must have controls that track outdoor air ventilation run time, and either open or close the motorized damper(s) for compliance with §150.0(o)1C.
§ 150.0(o)1C:	**Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and townhouses** . 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 specified in § 150.0(o)1Ci–iii.
§ 150.0(o)1G:	**Local Mechanical Exhaust.** Kitchens and bathrooms must have local mechanical exhaust; nonenclosed kitchens must have demand-controlled exhaust system meeting requirements of §150.0(o)1Giii,enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting §150.0(o)1Giii–iv. Airflow must be measured by the installer per §150.0(o)1Gv, and rated for sound per §150.0(o)1Gvi. *
§ 150.0(o)1H&I:	**Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems.** The airflow required per § 150.0(o)1C must be measured by using a flow hood, flow grid, or other airflow measuring device at the fan's inlet or outlet terminals/grilles per Reference Residential Appendix RA3.7. Whole-Dwelling unit ventilation systems must be rated for sound per ASHRAE 62.2 §7.2 at no less than the minimum airflow rate required by §150.0(o)1C.
§ 150.0(o)2:	**Field Verification and Diagnostic Testing.** Whole-Dwelling Unit ventilation airflow, vented range hood airflow and sound rating, and HRV and ERV fan efficacy must be verified in accordance with Reference Residential Appendix RA3.7. Vented range hoods must be verified per Reference Residential Appendix RA3.7.4.3 to confirm if it is rated by HVI or AHAM to comply with the airflow rates and sound requirements per §150.0(o)1G

Pool and Spa Systems and Equipment:

§ 110.4(a):	**Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: compliance with the Appliance Efficiency Regulations and listing in MAEDbS; an on-off 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 heating. *
§ 110.4(b)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 suction and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)2:	**Covers.** Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3:	**Directional Inlets and Time Switches for Pools.** Pools must have directional inlets 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.
§ 150.0(p):	**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:

§ 110.9:	**Lighting Controls and Components.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9. *
§ 150.0(k)1A:	**Luminaire Efficacy.** All installed luminaires must meet the requirements in Table 150.0-A, except lighting integral to exhaust fans, kitchen range hoods, bath vanity mirrors, and garage door openers; navigation lighting less than 5 watts; and lighting internal to drawers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt.
§ 150.0(k)1B:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must not contain screw based sockets, must be airtight, and must be sealed with a gasket or caulk. California Electrical Code § 410.116 must also be met.
§ 150.0(k)1D:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1E:	**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 shall be no more than the number of bedrooms. These boxes must be served by a dimmer, vacancy sensor control, low voltage wiring, or fan speed control.
§ 150.0(k)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 § 150.0(k). *

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2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(k)1G:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *
§ 150.0(k)1H:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1I:	**Light Sources in Drawers, Cabinets, and Linen Closets.** Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-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 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(k)2A:	**Interior Switches and Controls.** All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B:	**Interior Switches and Controls.** Exhaust fans must be controlled separately from lighting systems. *
§ 150.0(k)2A:	**Accessible Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off. *
§ 150.0(k)2B:	**Multiple Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the dimmer or sensor is installed to comply with § 150.0(k).
§ 150.0(k)2C:	**Mandatory Requirements.** Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2D:	**Energy Management Control Systems.** An energy management control system (EMCS) may be used to comply with dimming, occupancy, and control requirements if it provides the functionality of the specified control per § 110.9 and the physical controls specified in § 150.0(k)2A.
§ 150.0(k)2E:	**Automatic Shutoff Controls.** In bathrooms, garages, laundry rooms, utility rooms and walk-in closets, at least one installed lumiaire must be controlled by an occupancy or vacancy sensor providing automatic-off functionality. Lighting inside drawers and cabinets with opaque fronts or doors must have controls that turn the light off when the drawer or door is closed.
§ 150.0(k)2F:	**Dimmers.** Lighting in habitable spaces (e.g., living rooms, dining rooms, kitchens, and bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. Forward phase cut dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.
§ 150.0(k)2K:	**Independent controls.** Integrated lighting of exhaust fans shall be controlled independently from the fans. Lighting under cabinets or shelves, lighting in display cabinets, and switched outlets must be controlled separately from ceiling-installed lighting.
§ 150.0(k)3A:	**Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must have a manual on/off switch and either a photocell and motion sensor or automatic time switch control) or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must either comply with § 140.8 or consume no more than 5 watts of power.
§ 150.0(k)5:	**Residential Garages for Eight or More Vehicles**. Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.

Solar Readiness:

§ 110.10(a)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 do not have a photovoltaic system installed, must comply with the requirements of § 110.10(b)-(e).
§110.10(b)1A:	**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 Title 24, Part 9 or other parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 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. *
§ 110.10(b)2:	**Azimuth.** All sections of the solar zone located on steep-sloped roofs must have an azimuth between 90-300° of true north.
§ 110.10(b)3A:	**Shading.** The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment. *
§ 110.10(b)3B:	**Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the horizontal distance of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane. *
§ 110.10(b)4:	**Structural Design Loads on 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.
§ 110.10(c):	**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 plumbing from the solar zone to the water-heating system.
§ 110.10(d):	**Documentation.** A copy of the construction documents or a comparable document indicating the information from § 110.10(b)-(c) must be provided to the occupant.
§ 110.10(e)1:	**Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	**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."

Electric and Energy Storage Ready:

§ 150.0(s)	**Energy Storage System (ESS) Ready.** All single-family residences must meet all of the following: Either ESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, or a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(s); at least four branch circuits must be identified and have their source collocated at a single panelboard suitable to be supplied by the ESS, with one circuit supplying the refrigerator, one lighting circuit near the primary exit, and one circuit supplying a sleeping room receptacle outlet; main panelboard must have a minimum busbar rating of 225 amps; sufficient space must be reserved to allow future installation of a system isolation equipment/transfer switch within 3' of the main panelboard, with raceways installed between the panelboard and the switch location to allow the connection of backup power source.
§ 150.0(t)	**Heat Pump Space Heater Ready.** Systems using gas or propane furnaces to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the furnace with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(u)	**Electric Cooktop Ready.** Systems using gas or propane cooktop to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the cooktop with circuit conductors rated at least 50 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(v)	**Electric Clothes Dryer Ready.** Clothes dryer locations with gas or propane plumbing to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the dryer location with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."

*Exceptions may apply.

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RESIDENTIAL MEASURES SUMMARY — RMS-1

Project Name	Building Type		Date
Chis Residence Addition	☑ Single Family ☐ Multi Family	☐ Addition Alone ☑ Existing+ Addition/Alteration	9/2/2024

Project Address	California Energy Climate Zone	Total Cond. Floor Area	Addition	# of Units
249 Cimmeron Circle Folsom	CA Climate Zone 12	3,154	1,010	1

INSULATION

Construction Type	Cavity	Area (ft^2)	Special Features	Status
Floor Wood Framed w/Crawl Space	– no insulation	2,144		Existing
Wall Wood Framed	R 13	488		Existing
Door Opaque Door	– no insulation	40		Existing
Wall Wood Framed	R 13	20		Existing
Wall Wood Framed	R 13	395		Existing
Door Opaque Door	– no insulation	20		Existing
Wall Wood Framed	R 13	286		Existing
Wall Wood Framed	R 15	20		Altered

FENESTRATION — Total Area: 397 | Glazing Percentage: 12.6% | New/Altered Average U-Factor: 0.30

Orientation	Area(ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status
Front (N)	80.0	0.790	0.70	none	none	N/A	Existing
Front (NE)	10.0	0.790	0.70	none	none	N/A	Existing
Left (E)	15.0	0.790	0.70	none	none	N/A	Existing
Left (E)	40.0	0.300	0.23	none	none	N/A	New
Rear (S)	18.0	0.790	0.70	none	none	N/A	Existing
Rear (S)	104.0	0.300	0.23	none	none	N/A	New
Right (W)	54.0	0.790	0.70	none	none	N/A	Existing
Right (NW)	10.0	0.790	0.70	none	none	N/A	Existing
Left (E)	40.0	0.300	0.23	23.0	23.00/9.40	N/A	New
Right (W)	26.0	0.300	0.23	none	none	N/A	New

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status
1	Gas Central Furnace	78% AFUE	Split Air Conditioner	13.0 SEER	Setback	Existing
1	Gas Central Furnace	94% AFUE	Split Air Conditioner	16.0 SEER	Setback	New

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status
Existing HVAC	Ducted	Ducted	Attic	4.2	Existing
Addition HVAC	Ducted	Ducted	Attic	8.0	Altered

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status

RESIDENTIAL MEASURES SUMMARY — RMS-1

Project Name	Building Type		Date
Chis Residence Addition	☑ Single Family ☐ Multi Family	☐ Addition Alone ☑ Existing+ Addition/Alteration	9/2/2024

Project Address	California Energy Climate Zone	Total Cond. Floor Area	Addition	# of Units
249 Cimmeron Circle Folsom	CA Climate Zone 12	3,154	1,010	1

INSULATION

Construction Type	Cavity	Area (ft^2)	Special Features	Status
Wall Wood Framed	R 13	260		Existing
Wall Wood Framed	R 13	20		Existing
Roof Wood Framed Attic	R 19	2,144		Existing
Floor Wood Framed w/Crawl Space	R 30	1,010		New
Wall Wood Framed	R 15	384		New
Door Opaque Door	R-5	20		New
Wall Wood Framed	R 15	20		New
Wall Wood Framed	R 15	292		New

FENESTRATION — Total Area: 397 | Glazing Percentage: 12.6% | New/Altered Average U-Factor: 0.30

Orientation	Area(ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status

RESIDENTIAL MEASURES SUMMARY — RMS-1

Project Name	Building Type		Date
Chis Residence Addition	☑ Single Family ☐ Multi Family	☐ Addition Alone ☑ Existing+ Addition/Alteration	9/2/2024

Project Address	California Energy Climate Zone	Total Cond. Floor Area	Addition	# of Units
249 Cimmeron Circle Folsom	CA Climate Zone 12	3,154	1,010	1

INSULATION

Construction Type	Cavity	Area (ft^2)	Special Features	Status
Roof Wood Framed Attic	R 38	1,010		New
Demising Wood Framed	– no insulation	344		Existing

FENESTRATION — Total Area: 397 | Glazing Percentage: 12.6% | New/Altered Average U-Factor: 0.30

Orientation	Area(ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status

Red Tape Express
6015 Bear Creek Court
Elk Grove, CA 95758
(916) 684-0687 (Phone) (877)706-1667 (Fax)

Title 24 Energy Compliance Documentation

Chis Residence Addition
249 Cimmeron Circle
Folsom, California 95630
Job Number: JRC508A5

T24-3