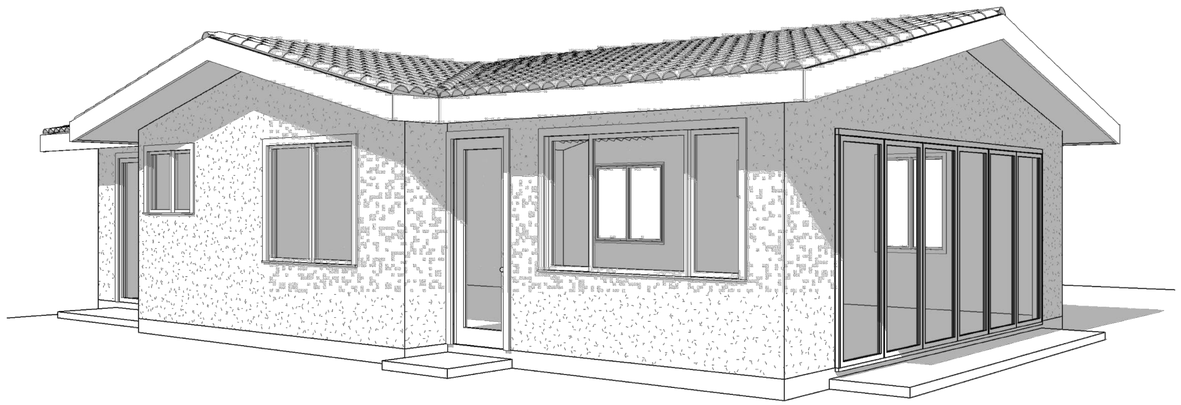
encinitas pradu three bedroom



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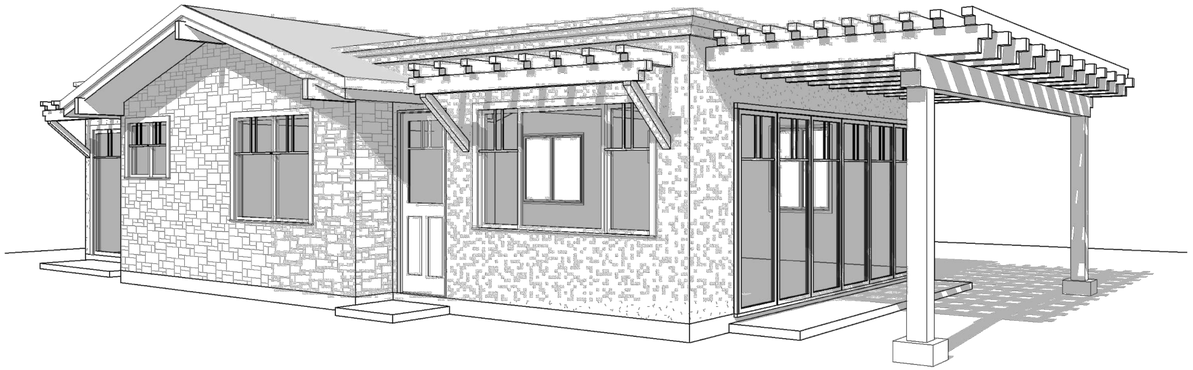

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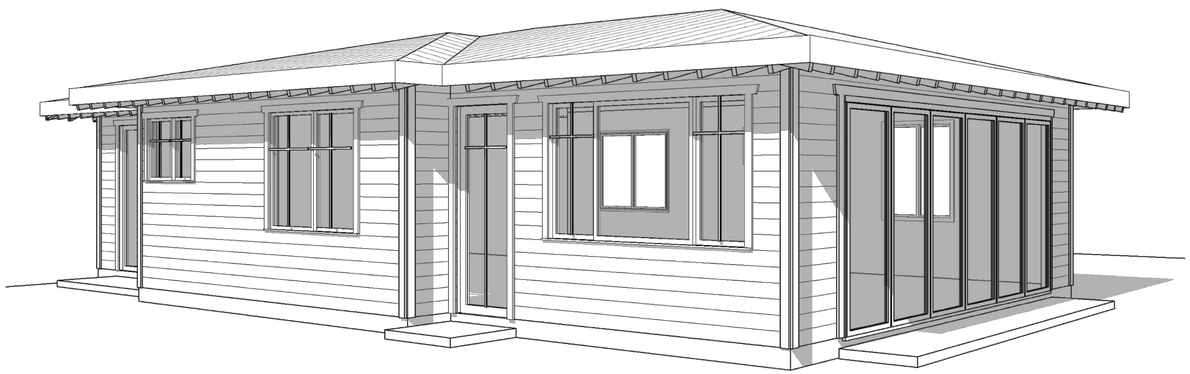

c

vicinity map:

project data:

PROPERTY OWNER	=	X
PROPERTY OWNER PHONE	=	X
PROJECT ADDRESS	=	X ENCINITAS, CA 92024
APN	=	X
GENERAL PLAN DESIGNATION	=	RESIDENTIAL
LEGAL DESCRIPTION	=	X
ZONE	=	R-__
ZONE OVERLAYS	=	X
OCCUPANCY	=	R-3
CONSTRUCTION TYPE	=	V-B
PROJECT DESCRIPTION	=	NEW ONE STORY DETACHED THREE BEDROOM ACCESSORY DWELLING UNIT (ADU)
LOT AREA	=	X SF
BUILDING AREAS		
(E) MAIN RESIDENCE AREA	=	X SF
(E) GARAGE AREA	=	X SF
TOTAL (E) AREA	=	X SF
(N) ACCESSORY DWELLING UNIT AREA	=	1199 SF
LOT COVERAGE	=	X
FLOOR AREA RATIO	=	X
BUILDING HEIGHT	=	X FT (14'-0" MAXIMUM W/ 3:12 SLOPE)
STORIES	=	ONE
PARKING	=	SEE SELECTION ON SHEET a0.1
GRADING	=	NONE REQUIRED OR PROPOSED
FIRE SPRINKLERS	=	SEE SELECTION ON SHEET a0.1
BUILDING CODES	=	SEE CODE TABLE THIS SHEET

codes governing construction:

2016	CALIFORNIA	BUILDING CODE	TITLE 24	PART 2, V. 1&2
2016	CALIFORNIA	RESIDENTIAL CODE	TITLE 24	PART 2.5
2016	CALIFORNIA	ELECTRICAL CODE	TITLE 24	PART 3
2016	CALIFORNIA	MECHANICAL CODE	TITLE 24	PART 4
2016	CALIFORNIA	PLUMBING CODE	TITLE 24	PART 5
2016	CALIFORNIA	ENERGY CODE	TITLE 24	PART 6
2016	CALIFORNIA	FIRE CODE	TITLE 24	PART 9
2016	CALIFORNIA	GREEN BUILDING CODE	TITLE 24	PART 11

sheet index:

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a0.1	CHECKLIST + SCHEDULE
a0.1F	VERY HIGH FIRE HAZARD SEVERITY ZONE
a0.2	SITE + DEPARTMENT NOTES
a1.0	FLOOR PLAN
a2.0	UTILITY PLAN
a3.0	ROOF PLAN
a3.1	ROOF PLAN
a4.0	ELEVATION A
a4.1	ELEVATION B
a4.2	ELEVATION C
a5.0	SECTION - ELEVATION A
a5.1	SECTION - ELEVATION B
a5.2	SECTION - ELEVATION C
s0.0	STRUCTURAL NOTES
s1.0	FOUNDATION PLAN
s1.1	FOUNDATION PLAN
s2.0	ROOF FRAMING PLAN
s2.1	ROOF FRAMING PLAN
d0.0	DETAILS
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d0.4	DETAILS
WSW1	WOOD STRONG WALL
WSW2	WOOD STRONG WALL
SW1	WOOD STRONG WALL
T-24.1	ENERGY REQUIREMENTS A
T-24.2	ENERGY REQUIREMENTS A
T-24.3	ENERGY REQUIREMENTS A&B
T-24.4	ENERGY REQUIREMENTS B
T-24.5	ENERGY REQUIREMENTS B
T-24.6	ENERGY REQUIREMENTS C
T-24.7	ENERGY REQUIREMENTS C
T-24.8	ENERGY REQUIREMENTS C
T-24.9	ENERGY REQUIREMENTS A RF
T-24.10	ENERGY REQUIREMENTS A RF
T-24.11	ENERGY REQUIREMENTS A&B RF
T-24.12	ENERGY REQUIREMENTS B RF
T-24.13	ENERGY REQUIREMENTS B RF
T-24.14	ENERGY REQUIREMENTS C RF
T-24.15	ENERGY REQUIREMENTS C RF
T-24.16	MANDATORY MEASURES

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

2019 . 04 - 02

JOB: 201848R

PROJECT DATA

a0.0

p:\2018\201848r pradu\plan 4\11 sheets\dwfx\0 project data.dwg

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abbreviations

&	AND	EP	ELECTRICAL PANEL	P	POLE
@	AT	EQ	EQUAL	PCC	PRECAST CONCRETE
°	DEGREES	EQUIP	EQUIPMENT	PKT	POCKET
Ø	DIAMETER	EW	EACH WAY	PL	PLATE
%	PERCENT	EXP	EXPANSION	P/L	PROPERTY LINE
d	PENNY (NAIL SIZE)	EXST	EXISTING	PLS	PLASTER
#	POUND OR NUMBER	EXT	EXTERIOR	PLY	PLYWOOD
(E)	EXISTING	FA	FIRE ALARM	PNL	PANEL
(N)	NEW	FAB	FABRICATE	PR	PAIR
(NR)	NEW REPLACEMENT	FAU	FORCED AIR UNIT	PRE	PREFABRICATED
AA	ATTIC ACCESS	FD	FLOOR DRAIN	PT	PRESSURE TREATED
AB	ANCHOR BOLT	FDN	FOUNDATION	PTR	PARTNER
AC	ASPHALT CONCRETE	FE	FIRE EXSTINGUISHER	PV	PRESSURE VALVE
A-C	ALTERNATING CURRENT	FF	FINISH FLOOR	PVC	POLYVINYL CHLORIDE
A/C	AIR CONDITIONING	FG	FUEL GAS	R	RISER, RIDGE OR RADIUS
ACOUS	ACOUSTICAL	FGR	FINISH GRADE	RA	RETURN AIR
ACT	ACOUSTICAL CEILING TILE	FIN	FINISH	RB	REINFORCING BAR
AD	AREA DRAIN	FJ	FLOOR JOIST	RBR	RUBBER
ADA	AMERICAN DISABILITY ACT	FL	FLOURESCENT	RCP	REFLECTED CEILING PLAN
AFO	ARCHED FRAMED OPENING	FLR	FLOOR	RD	ROOF DRAIN
AGGR	AGGREGATE	FLSH	FLASHING	REF	REFRIGERATOR
AGO	ARCH GYPSUM BOARD OPENING	FN	FIELD NAILING	REG	REGISTER
AHS	ALUMINUM HORIZONTAL SLIDING	FO	FRAMED OPENING	REINF	REINFORCE
AL	ALUMINUM	FP	FIREPLACE	REQD	REQUIRED
ALM	ALARM	FR	FIRE RATED	REV	REVISION
ALT	ALTERNATE	FRMG	FRAMING	RI	RIGID INSULATION
AMP	AMPERE	FT	FOOT/FEET	RM	ROOM
APN	ASSESSORS PARCEL NUMBER	FTG	FOOTING	RO	ROUGH OPENING
ARCH	ARCHITECT	FXD	FIXED	RR	ROOF RAFTER
AS	ALUMINUM SLIDING	FYSB	FRONT YARD SETBACK	R/S	RESAWN
ASPH	ASPHALT	GA	GAUGE	RYSB	REAR YARD SETBACK
AVE	AVENUE	GAL	GALLON	S	SOUTH
AVS	ALUMINUM VERTICAL SLIDING	GALV	GALVANIZED	SA	SUPPLY AIR
AWG	AWNING	GB	GYPSUM BOARD	SBO	SELECTION BY OWNER
B	BOTTOM	GFI	GROUND FORCE INTERRUPT	SC	SOLID CORE
BBQ	BARBEQUE	GI	GALVANIZED IRON	SDG	SIDING
BD	BOARD	GL	GLASS	SEC	SECTION
BFD	BIFOLDING DOOR	GLB	GLU-LAM BEAM	SF	SQUARE FEET
BI	BUILT IN	GM	GAS METER	SFD	SINGLE FAMILY DWELLING
BJ	BALCONY JOIST	GO	GYPSUM BOARD OPENING	SH	SINGLE HUNG OR SHELF
BLDG	BUILDING	GR	GRADE	SHR	SHEAR
BLK	BLOCK	GWB	GYPSUM WALL BOARD	SHT	SHEET
BLKG	BLOCKING	GYP	GYPSUM	SHTG	SHEATHING
BM	BEAM	H	HIP	SIM	SIMILAR
BN	BOUNDARY NAIL	HB	HOSE BIBB	SP	SHEAR PANEL
BOT	BOTTOM	HC	HOLLOW CORE	S & P	SHELF AND POLE
BPD	BYPASS DOOR	H/C	HANDICAPPED	SPEC	SPECIFICATIONS
BRG	BEARING	HD	HEAD	SQ	SQUARE
BRK	BRICK	HDR	HEADER	SS	STAINLESS STEEL
BSMT	BASEMENT	HDWR	HARDWARE	SSW	STEEL STRONG WALL
BTU	BRITISH THERMAL UNIT	HF	HARDY FRAME	SSYSB	STREET SIDEYARD SETBACK
BW	BOTH WAYS	HI	HIGH	ST	STAIR
CAB	CABINET	HM	HOLLOW METAL	STL	STEEL
CB	CATCH BASIN	HOR	HORIZONTAL	STP	STRAP
CEM	CEMENT	HP	HOPPER	STR	STRUCTURAL
CER	CERAMIC	HR	HOUR	STRG	STORAGE
CI	CAST IRON	HT	HEIGHT	SUSP	SUSPENDED
CIP	CAST IN PLACE	HTR	HEATER	SWU	SOFT WATER UNIT
CJ	CEILING JOIST / CONTROL JOINT	HW	HOT WATER	SYSB	SIDE YARD SETBACK
CL	CENTERLINE	INSUL	INSULATION	T	TREAD OR TOP
CLG	CEILING	IN	INCH	TB	THROUGH BOLT
CLKG	CAULKING	INT	INTERIOR	T & B	TOP AND BOTTOM
CLO	CLOSET	JST	JOIST	TC	TRASH COMPACTOR
CLR	CLEAR	JT	JOINT	TELE	TELEPHONE
CMN	COMMON	KIT	KITCHEN	TEMP	TEMPORARY
CMU	CONCRETE MASONRY UNIT	L	LINEN	TG	TEMPERED GLASS
CO	CLEANOUT	LAM	LAMINATE	T & G	TONGUE AND GROOVE
COL	COLUMN	LAT	LATERAL	THK	THICK
CONC	CONCRETE	LAV	LAVATORY	TME	TO MATCH EXISTING
CONT	CONTINUOUS	LDG	LANDING	TP	TOP PLATE
CONTR	CONTRACTOR	LG	LONG	TV	TELEVISION
CP	CEMENT PLASTER	LR	LARGE	TYP	TYPICAL
CPT	CARPET	LS	LAZY SUSAN	TWH	TANKLESS WATER HEATER
CSMT	CASEMENT	LSW	LAG SCREW	U/	UNDER
CTR	CENTER	LT	LAUNDRY TUB	U/C	UNDER COUNTER
CW	COLD WATER VALVE	LGT	LIGHT	UNO	UNLESS NOTED OTHERWISE
CY	CUBIC YARD	MAX	MAXIMUM	UON	UNLESS OTHERWISE NOTED
DBL	DOUBLE	MB	MACHINE BOLT	V	VALLEY OR VALVE
DEMO	DEMOLITION	MBPD	MIRROR BYPASS DOOR	VAC	VACUUM
DF	DOUGLAS FIR	MC	MEDICINE CABINET	VER	VERTICAL
DG	DUAL GLAZED	MDL	MODEL	VHS	VINYL HORIZONTAL SLIDER
DH	DOUBLE HUNG	MECH	MECHANICAL	VIF	VERIFY IN FIELD
DIA	DIAMETER	MEMB	MEMBRANE	VOL	VOLUME
DIM	DIMENSION	MFR	MANUFACTURER	VTR	VENT TO ROOF
DJ	DECK JOIST	MIN	MINIMUM	VVS	VINYL VERTICAL SLIDER
DN	DOWN	MISC	MISCELLANEOUS	W	WEST
DP	DEEP	MS	MACHINE SCREW	W/	WITH
DR	DOOR	MTL	METAL	W/O	WITHOUT
DS	DOWNSPOUT	MW	MICROWAVE OVEN	WC	WATER CLOSET
DTP	DOUBLE TOP PLATE	N	NORTH	WD	WOOD
DV	DRYER VENT	N/A	NOT APPLICABLE	WDW	WINDOW
DW	DISHWASHER	NAT	NATURAL	WDWR	WARMING DRAWER
DZN	DESIGN	NAP	NOT A PART	WH	WATER HEATER
E	EAST	NIC	NOT IN CONTRACT	WHS	WOOD HORIZONTAL SLIDER
EA	EACH	NO	NUMBER	WI	WROUGHT IRON
EGR	EXISTING GRADE	NOM	NOMINAL	WIC	WALK IN CLOSET
EJ	EXPANSION JOINT	NTS	NOT TO SCALE	WMH	WALL MOUNTED HEATER
ELEC	ELECTRICAL	O/	OVER	WP	WATERPROOF
ELEV	ELEVATOR OR ELEVATION	OC	ON CENTER	WS	WOOD SCREW
EM	ELECTRICAL METER	OAE	OR APPROVED EQUAL	WSW	WOOD STRONG WALL
EMER	EMERGENCY	OH	OVERHANG	WVS	WOOD VERTICAL SLIDER
EN	EDGE NAIL	OPG	OPENING	WWM	WELDED WIRE MESH
ENCL	ENCLOSURE	OZ	OUNCE	YD	YARD

door schedule - elevation a, b & c (d)

DOOR #	WIDTH	HEIGHT	THICKNESS	TYPE	OPERATION	CORE OR GLAZING	MATERIAL	FRAME	SCREEN	QUANTITY	NOTES
1	3'-0"	8'-0"	1-3/4"	FRENCH	SWING	DG, TG	WOOD	WOOD	OPTIONAL	1	ENTRY DOOR
2	18'-0"	8'-0"	1-3/4"	FRENCH	BIFOLDING	DG, TG	VINYL	VINYL	YES	1	
3	8'-0"	8'-0"	1-3/4"	FRENCH	SLIDING	DG, TG	VINYL	VINYL	YES	1	
4	2'-4"	8'-0"	1-1/2"	INTERIOR	SWING	HOLLOW	WOOD	WOOD	NO	5	PRIVACY/BTH
5	2'-6"	8'-0"	1-1/2"	INTERIOR	SWING	HOLLOW	WOOD	WOOD	NO	3	BED ENTRY
6	6'-0"	8'-0"	1-1/2"	INTERIOR	BYPASS	-	MIRROR	WOOD	NO	2	CLOSET
7	5'-0"	8'-0"	1-1/2"	INTERIOR	BIFOLD	HOLLOW	WOOD	ALUMINUM	NO	1	LAUNDRY

window schedule - elevation a, b & c (w)

WINDOW #	WIDTH	HEIGHT	TYPE	MATERIAL	GLAZING	SCREEN	QUANTITY	NOTES
1	9'-0"	5'-0"	HORIZONTAL SLIDER	VINYL	DG	YES	1	
2	6'-0"	5'-0"	HORIZONTAL SLIDER	VINYL	DG	YES	2	
3	4'-0"	3'-0"	HORIZONTAL SLIDER	VINYL	DG	YES	1	OPAQUE
4	6'-0"	3'-0"	HORIZONTAL SLDER	VINYL	DG	YES	1	
5	4'-0"	2'-0"	HORIZONTAL SLIDER	VINYL	DG	YES	2	OPAQUE
6	4'-0"	5'-0"	HORIZONTAL SLIDER	VINYL	DG	YES	1	KITCHEN

appliance schedule - three bedroom 3 (a)

APPLIANCE	OPERATION	MANUFACTURER	MODEL	QUANTITY	NOTES
ATTIC FORCED AIR UNIT [FAU]	GAS	RHEEM	TBD	1	OR EQUAL
AIR CONDITIONER	ELECTRICITY	RHEEM	TBD	1	OR EQUAL
TANKLESS WATER HEATER	GAS	RINNAI	V94eN	1	OR EQUAL
REFRIGERATOR	ELECTRICITY	BY OWNER	BY OWNER	1	36" WIDE, COUNTER DEPTH
RANGE	GAS	BY OWNER	BY OWNER	1	30" WIDE
MICROWAVE HOOD	ELECTRICITY	BY OWNER	BY OWNER	1	30" WIDE
DISHWASHER	ELECTRICITY	BY OWNER	BY OWNER	1	24" WIDE
WASHER	ELECTRICITY	BY OWNER	BY OWNER	1	
DRYER	ELEC OR GAS	BY OWNER	BY OWNER	1	
GARBAGE DISPOSAL	ELECTRICITY	BY OWNER	BY OWNER	1	

fixture schedule - three bedroom 3 (f)

FIXTURE	LOCATION	MANUFACTURER	MODEL	QUANTITY	NOTES
SINK	KITCHEN	BY OWNER	BY OWNER	1	
SINK FAUCET	KITCHEN	BY OWNER	BY OWNER	1	
LAVATORY	BATH	BY OWNER	BY OWNER	3	
LAVATORY FAUCET	BATH	BY OWNER	BY OWNER	3	
TOILET	BATH	BY OWNER	BY OWNER	3	
BATHTUB	BATH	BY OWNER	BY OWNER	1	30"x60" CAST IRON, OR EQUAL
BATH FILLER + SHOWERHEAD	BATH	BY OWNER	BY OWNER	1	
SHOWERHEAD	BATH	BY OWNER	BY OWNER	2	

material schedule - three bedroom 3 (m)

LOCATION	FLOOR	BASE	CASE	COUNTER	CABINET	WALL	CEILING	NOTES
LIVING ROOM	5	4	4	-	-	1	5	OR EQUAL
NOOK	5	4	4	-	-	2	1	OR EQUAL
KITCHEN	5	4	4	3	2	2	2	OR EQUAL
BATH	2	2	4	3	1	2	2	OR EQUAL
BEDROOM	5	4	4	-	-	1	5	OR EQUAL
WALK IN CLOSET	5	4	4	-	2	1	1	OR EQUAL
HALL	5	4	4	3	2	1	1	OR EQUAL
	1-CONCRETE	1-NONE	1-NONE	1-CONCRETE	1-PAINTED	1-FLAT PAINT	1-FLAT PAINT	
	2-TILE	2-TILE	2-TILE	2-TILE	WOOD	O/ GB	O/ GB	
	3-VINYL	3-VINYL	3-VINYL	3-STONE	2-STAINED	2-SEMIGLOSS	2-SEMIGLOSS	
	4-CARPET	4-P. WOOD	4-P. WOOD	4-GLASS	WOOD	PAINT O/ GB	PAINT O/ GB	
	5-WOOD	5-S. WOOD	5-S. WOOD	5-WOOD	3-METAL	5-WOOD	5-T&G WOOD	

fire sprinklers:

- √ EXISTING OR PROPOSED RESIDENCE
- ☐ NO
- ☐ YES

fire sprinklers:

- √ REQUIRED AT PROPOSED ADU
- ☐ NO
- ☐ YES

fire sprinkler notes:

1. IF FIRE SPRINKLERS ARE REQUIRED AT THE ADU THAN THESE NOTES APPLY. IF EXISTING RESIDENCE HAS FIRE SPRINKLERS REQUIRED AT ADU.
2. AUTOMATIC FIRE SPRINKLER SYSTEM - AN AUTOMATIC FIRE SPRINKLER SYSTEM SHALL BE INSTALLED AS PER N.F.P.A. 13D, THE MOST CURRENT EDITION SHALL BE USED AND THE ENCINITAS FIRE DEPARTMENT POLICIES. DETAILED SPRINKLER PLANS SHALL BE SUBMITTED TO THE FIRE PREVENTION BUREAU AND APPROVED PRIOR TO INSTALLATION. PLANS AND INSTALLATION MUST BE BY A C16 LICENSED SPRINKLER CONTRACTOR.
3. **SECTION 903.2.1. GROUP R** AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3 SHALL BE PROVIDED THROUGHOUT ALL BUILDINGS WITH A GROUP R FIRE AREA. THIS INCLUDES SINGLE FAMILY DWELLINGS, MULTI-FAMILY DWELLINGS AND ALL RESIDENTIAL CARE FACILITIES REGARDLESS OF OCCUPANT LOAD.
4. **SECTION 903.2.1.1** ADDITIONS AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH 903.3 MAY BE REQUIRED TO BE INSTALLED THROUGHOUT STRUCTURES WHEN THE ADDITION IS MORE THAN 50% OF THE EXISTING BUILDING OR WHEN THE ALTERED BUILDING WILL EXCEED A FIRE FLOW OF 1,500 GALLONS PER MINUTE AS CALCULATED PER SECTION 507.3. THE FIRE CODE OFFICIAL MAY REQUIRE AN AUTOMATIC SPRINKLER SYSTEM BE INSTALLED IN BUILDINGS WHERE NO WATER MAIN EXISTS TO PROVIDE THE REQUIRED FIRE FLOW OR WHERE A SPECIAL HAZARD EXISTS SUCH AS: POOR ACCESS ROADS, GRADE, BLUFFS AND CANYON RIMS, HAZARDOUS BRUSH AND RESPONSE TIMES GREATER THAN 5 MINUTES BY A FIRE DEPARTMENT.
5. **SECTION 903.2.1.2** REMODELS OR RECONSTRUCTION AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3 MAY BE REQUIRED IF THE SCOPE OF WORK INCLUDES SIGNIFICANT MODIFICATION TO THE INTERIOR AND/OR ROOF OF THE BUILDING, AND THE COST OF THE INSTALLATION DOES NOT EXCEED 15 PERCENT OF THE CONSTRUCTION COSTS OF THE REMODEL.
6. LOCATION AND SIZE OF WATER SERVICE UNDERGROUND SHALL BE INSTALLED AS SHOWN ON APPROVED FIRE SPRINKLER PLANS. A MINIMUM 1 INCH WATER SHALL BE INSTALLED.
7. A FIRE UNDERGROUND FLUSH CERTIFICATION SHALL BE REQUIRED AT FINAL INSPECTION.
8. A HYDRO INSPECTION OF THE FIRE SPRINKLER SYSTEM IS REQUIRED PRIOR TO FRAME INSPECTION. ONLY THE NEW PIPING SHALL BE TESTED.

waste water:

- √ SELECTION
- ☐ SEWER
- ☐ SEPTIC (REQUIRES SAN DIEGO COUNTY HEALTH APPROVAL)

DISTANCE TO CONNECTION = _____FEET

onsite parking:

- √ REQUIRED
- ☐ NONE
- ☐ ONE PARKING SPACE

very high fire severity zone:

- √ SELECTION
- ☐ NO
- ☐ YES

1. IF THE PROPERTY THAT WILL CONTAIN THE ADU IS IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE SEE NOTES BELOW & ON SHEET a0.1F
2. AN ADU IN THE VHFHSZ SHALL COMPLY WITH CHAPTER 7A OF THE CURRENT CALIFORNIA BUILDING CODE.
3. STRUCTURES IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE SHALL PROVIDE & MAINTAIN A FUEL MODIFICATION ZONE. FUEL MODIFICATION ZONES: THE APPLICANT SHALL PROVIDE & MAINTAIN FIRE/FUEL BREAKS TO THE SATISFACTION OF THE ENCINITAS FIRE DEPARTMENT. FIRE/FUEL BREAKS SIZE (MINIMUM 100 FEET FROM STRUCTURE) & COMPOSITION SHALL BE DETERMINED BY THE FIRE DEPARTMENT & SHOWN ON THE IMPROVEMENT/GRADING PLANS, FINAL MAP & BUILDING PLANS.

schedule notes:

1. ALL GLAZING IN DOORS SHALL BE TEMPERED.
2. SEE ELEVATIONS FOR 'TG' AT WINDOWS THAT REQUIRE TEMPERED GLAZING.
3. IF THE PROPERTY THAT WILL CONTAIN THE ADU IS IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE SEE NOTES ON SHEET a0.1F CONCERNING DOOR & WINDOW CONSTRUCTION AND TEMPERED GLAZING.
4. SEE ELEVATIONS FOR WINDOW OPERATION DIRECTION & LOCATION OF MUNTINS.
5. SEE FLOOR PLANS FOR DOOR SWING DIRECTION.
6. ALL GLAZED OPENINGS SHALL MEET THE REQUIREMENTS OF THE CBC T24 SHEETS PROVIDED IN THE PLANS.
7. VINYL WINDOWS AND EXTERIOR VINYL DOOR FRAMES & SASH WILL BE COMPRISED OF VINYL MATERIAL WITH WELDED CORNERS & METAL REINFORCEMENT IN THE INTERLOCK AREA.

three bedroom 3 plan selection:

- √ SELECTION
- ☐ STANDARD PLAN, ELEVATION A
- ☐ STANDARD PLAN, ELEVATION B
- ☐ STANDARD PLAN, ELEVATION C
- ☐ REVERSE PLAN, ELEVATION A
- ☐ REVERSE PLAN, ELEVATION B
- ☐ REVERSE PLAN, ELEVATION C

foundation type:

- √ SELECTION
- ☐ STANDARD SOIL, SLAB ON GRADE
- ☐ EXPANSIVE SOIL, SLAB ON GRADE
- ☐ STANDARD SOIL, RAISED FLOOR FOUNDATION
- ☐ EXPANSIVE SOIL, RAISED FLOOR FOUNDATION

exterior wall material:

#1	#2	MATERIAL
☐	☐	CEMENT PLASTER SIDING - SAND FINISH OR TME
☐	☐	STONE SIDING
☐	☐	FIBER CEMENT - BOARD & BATT SIDING
☐	☐	FIBER CEMENT - LAP SIDING
☐	☐	FIBER CEMENT - SHINGLE SIDING

window material:

√	MATERIAL
☐	VINYL
☐	FIBERGLASS
☐	WOOD
☐	ALUMINUM CLAD WOOD

eave/rake & parapet:

#1	#2	MATERIAL
☐	☐	SINGLE FASCIA - IGNITION RESISTANT
☐	☐	EXPOSED RAFTER - IGNITION RESISTANT
☐	☐	STEPPED DOUBLE FASCIA - IGNITION RESISTANT
☐	☐	HEAVY TIMBER RAFTER TAIL - IGNITION RESISTANT
☐	☐	PARAPET WITH WALL MATERIAL CAP - IGNITION RESISTANT
☐	☐	PARAPET WITH METAL CAP - IGNITION RESISTANT
☐	☐	CORBEL PARAPET WITH METAL CAP - IGNITION RESISTANT

roof material:

#1	#2	MATERIAL
☐	☐	FIBERGLAS ASPHALT SHINGLES - GAF INC - ICC ESR 1475 - OAE
☐	☐	CONCRETE ROOF TILES - EAGLE ROOFING PRODUCTS INC - IAPMO-UES ER 1900 - OAE
☐	☐	STANDING SEAM METAL ROOF - AEP SPAN INC - IAPMO-UES ER 0309 - OAE
☐	☐	TORCH APPLIED MODIFIED BITUMEN ROOFING - GAF INC - ICC ESR 1274 - OAE [USE ONLY FOR ROOF PITCH OF 2/12 OR LESS]
☐	☐	CLAY ROOF TILES - REDLAND CLAY TILE INC - IAPMO ER 445 - OAE

stormwater bioretention:

√	SELECTION
☐	A - BIORETENTION BASIN - PIPE IN WITH SHALLOW RISER
☐	B - BIORETENTION BASIN - PIPE IN WITH SPILLWAY
☐	C - BIORETENTION BASIN - PIPE IN WITH SUBDRAIN
☐	D - BIORETENTION BASIN - SURFACE FLOW WITH SPILLWAY
☐	E - VEGETATED SWALE

1. A SIZING CALCULATION IS REQUIRED TO SIZE THE NEW BMP DRAINAGE AREA.

trellis:

- √ SELECTION
- ☐ NO
- ☐ YES

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

JOB: 201848R

CHECKLIST + SCHEDULE

a0.1

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very high fire hazard severity zone

very high fire hazard severity zone notes:

CBC CHAPTER 7A - MATERIALS & CONSTRUCTION METHODS FOR EXTERIOR WILDFIRE EXPPOSURE

IF THE PROPERTY THAT WILL CONTAIN THE ADU IS IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE THESE NOTES & NOTES ON SHEET a0.1 APPLY. THE JURISDICTION HAS DETERMINED THAT THIS PROJECT IS IN A WILDLAND-URBAN INTERFACE AREA. PLEASE SHOW COMPLIANCE WITH THE FOLLOWING ITEMS FOR NEW BUILDINGS, PER THE 2016 CBC.

EXCEPTIONS

1. BUILDINGS OF AN ACCESSORY CHARACTER CLASSIFIED AS A GROUP U OCCUPANCY AND NOT EXCEEDING 120 SQUARE FEET IN FLOOR AREA, WHEN LOCATED AT LEAST 30 FEET FROM AN APPLICABLE BUILDING.
2. BUILDINGS OF AN ACCESSORY CHARACTER CLASSIFIED AS GROUP U OCCUPANCY OF ANY SIZE LOCATED LEAST 50' FROM AN APPLICABLE BUILDING.
3. BUILDINGS CLASSIFIED AS A GROUP U AGRICULTURAL BUILDING, AS DEFINED IN SECTION 202 OF THIS CODE (SEE ALSO APPENDIX C - GROUP U AGRICULTURAL BUILDINGS), WHEN LOCATED AT LEAST 50' FROM AN APPLICABLE BUILDING.

REQUIREMENTS

1. **705A.2 ROOF COVERINGS.** WHERE THE ROOF PROFILE ALLOWS A SPACE BETWEEN THE ROOF COVERING AND ROOF DECKING, THE SPACES SHALL BE CONSTRUCTED TO PREVENT THE INTRUSION OF FLAMES AND EMBERS, BE FIRESTOPPED WITH APPROVED MATERIALS OR HAVE ONE LAYER OF MINIMUM 72-POUND MINERAL-SURFACED NONPERFORATED CAP SHEET COMPLYING WITH ASTM D 3909 INSTALLED OVER THE COMBUSTIBLE DECKING.
2. **705A.3 ROOF VALLEYS.** WHERE VALLEY FLASHING IS INSTALLED, THE FLASHING SHALL BE NOT LESS THAN 0.019-INCH NO. 26 GAGE GALVANIZED SHEET CORROSION-RESISTANT METAL INSTALLED OVER NOT LESS THAN ONE LAYER OF MINIMUM 72- POUND MINERAL-SURFACED NONPERFORATED CAP SHEET COMPLYING W/ ASTM D 3909, AT LEAST 36-INCH-WIDE RUNNING THE FULL LENGTH OF THE VALLEY.
3. **705A.4 ROOF GUTTERS.** ROOF GUTTERS SHALL BE PROVIDED WITH THE MEANS TO PREVENT THE ACCUMULATION OF LEAVES & DEBRIS IN THE GUTTER.
4. **706A.2 VENTILATION OPENINGS** FOR ENCLOSED ATTICS, ENCLOSED EAVE SOFFIT SPACES, ENCLOSED RAFTER SPACES FORMED WHERE CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS, AND UNDERFLOOR VENTILATION OPENINGS SHALL BE FULLY COVERED WITH METAL WIRE MESH, VENTS, OTHER MATERIALS OR OTHER DEVICES THAT MEET THE FOLLOWING REQUIREMENTS:
   A) THE DIMENSIONS OF THE OPENINGS THEREIN SHALL BE A MINIMUM OF 1/16-INCH AND SHALL NOT EXCEED 1/8".
   B) THE MATERIALS USED SHALL BE NONCOMBUSTIBLE.
   EXCEPTION: VENTS LOCATED UNDER THE ROOF COVERING, ALONG THE RIDGE OF ROOFS, WITH THE EXPOSED SURFACE OF THE VENT COVERED BY NONCOMBUSTIBLE WIRE MESH, MAY BE OF COMBUSTIBLE MATERIALS.
   C) THE MATERIALS USED SHALL BE CORROSION RESISTANT.
5. **706A.3 VENTILATION OPENINGS ON THE UNDERSIDE OF EAVES AND CORNICES:** VENTS SHALL NOT BE INSTALLED ON THE UNDERSIDE OF EAVES AND CORNICES. SEE POSSIBLE ENCINITAS CITY EXCEPTIONS.
6. **707A.3 EXTERIOR WALLS.** THE EXTERIOR WALL COVERING OR WALL ASSEMBLY SHALL COMPLY WITH ONE OF THE FOLLOWINGS:
   1. NONCOMBUSTIBLE MATERIAL
   2. IGNITION-RESISTANT MATERIAL
   3. HEAVY TIMBER EXTERIOR WALL ASSEMBLY
   4. LOG WALL CONSTRUCTION ASSEMBLY
   5. WALL ASSEMBLIES THAT MEET THE PERFORMANCE CRITERIA IN ACCORDANCE WITH THE TEST PROCEDURES FOR A 10-MINUTE DIRECT FLAME CONTACT EXPOSURE TEST SET FORTH IN SFM STD 12-7A-1.

   EXCEPTION: ANY OF THE FOLLOWING SHALL BE DEEMED TO MEET THE ASSEMBLY PERFORMANCE CRITERIA AND INTENT OF THIS SECTION:
   1. ONE LAYER OF 5/8-INCH TYPE X GYPSUM SHEATHING APPLIED BEHIND THE EXTERIOR COVERING OR CLADDING ON THE EXTERIOR SIDE OF THE FRAMING.
   2. THE EXTERIOR PORTION OF A 1-HOUR FIRE RESISTIVE EXTERIOR WALL ASSEMBLY DESIGNED FOR EXTERIOR FIRE EXPOSURE INCLUDING ASSEMBLIES USING THE GYPSUM PANEL AND SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL.
7. **707A.3.1 EXTENT OF EXTERIOR WALL COVERING.** EXTERIOR WALL COVERINGS SHALL EXTEND FROM THE TOP OF THE FOUNDATION TO THE ROOF AND TERMINATE AT 2" NOMINAL SOLID WOOD BLOCKING BETWEEN RAFTERS AT ALL ROOF OVERHANGS, OR IN THE CASE OF ENCLOSED EAVES. TERMINATE AT THE ENCLOSURE.
8. **707A.4 OPEN ROOF EAVES.** THE EXPOSED ROOF DECK ON THE UNDERSIDE OF UNENCLOSED ROOF EAVES SHALL CONSIST OF ONE OF THE FOLLOWING:
   1. NONCOMBUSTIBLE MATERIAL
   2. IGNITION-RESISTANT MATERIAL
   3. 1 LAYER OF 5/8" TYPE X GYPSUM SHEATHING APPLIED BEHIND AN EXTERIOR COVERING ON THE UNDERSIDE EXTERIOR OF THE ROOF DECK
   4. THE EXTERIOR PORTION OF A 1-HOUR FIRE RESISTIVE EXTERIOR WALL ASSEMBLY APPLIED TO THE UNDERSIDE OF THE ROOF DECK DESIGNED FOR EXTERIOR FIRE EXPOSURE INCLUDING ASSEMBLIES USING THE GYPSUM PANEL & SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL.

   EXCEPTIONS: THE FOLLOWING MATERIALS DO NOT REQUIRE PROTECTION:
   1. SOLID WOOD RAFTER TAILS ON THE EXPOSED UNDERSIDE OF OPEN ROOF EAVES HAVING A MINIMUM NOMINAL DIMENSION OF 2 INCH
   2. SOLID WOOD BLOCKING INSTALLED BETWEEN RAFTER TAILS ON THE EXPOSED UNDERSIDE OF OPEN ROOF EAVES HAVING A MINIMUM NOMINAL DIMENSION OF 2 INCH
   3. GABLE END OVERHANGS AND ROOF ASSEMBLY PROJECTIONS BEYOND AN EXTERIOR WALL OTHER THAN AT THE LOWER END OF THE RAFTER TAILS
   4. FASCIA AND OTHER ARCHITECTURAL TRIM BOARDS
9. **707A.5 ENCLOSED ROOF EAVES AND ROOF EAVE SOFFITS.** THE EXPOSED UNDERSIDE OF ENCLOSED ROOF EAVES HAVING EITHER A BOXED-IN ROOF EAVE SOFFIT WITH A HORIZONTAL UNDERSIDE, OR SLOPING RAFTER TAILS WITH AN EXTERIOR COVERING APPLIED TO THE UNDERSIDE OF THE RAFTER TAILS, SHALL BE PROTECTED BY ONE OF THE FOLLOWING:
   1. NONCOMBUSTIBLE MATERIAL
   2. IGNITION-RESISTANT MATERIAL
   3. ONE LAYER OF 5/8-INCH TYPE X GYPSUM SHEATHING APPLIED BEHIND AN EXTERIOR COVERING ON THE UNDERSIDE OF THE RAFTER TAILS OR SOFFIT
   4. THE EXTERIOR PORTION OF A 1-HOUR FIRE RESISTIVE EXTERIOR WALL ASSEMBLY APPLIED TO THE UNDERSIDE OF THE RAFTER TAILS OR SOFFIT INCLUDING ASSEMBLIES USING THE GYPSUM PANEL AND SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL.
   5. BOXED-IN ROOF EAVE SOFFIT ASSEMBLIES WITH A HORIZONTAL UNDERSIDE THAT MEET THE PERFORMANCE CRITERIA IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN SFM STD 12-7A-3.

   EXCEPTIONS: THE FOLLOWING MATERIALS DO NOT REQUIRE PROTECTION:
   1. GABLE END OVERHANGS AND ROOF ASSEMBLY PROJECTIONS BEYOND AN EXTERIOR WALL OTHER THAN AT THE LOWER END OF THE RAFTER TAILS
   2. FASCIA AND OTHER ARCHITECTURAL TRIM BOARDS
10. **707A.6 EXTERIOR PORCH CEILINGS.** THE EXPOSED UNDERSIDE OF EXTERIOR PORCH CEILINGS SHALL BE PROTECTED BY ONE OF THE FOLLOWING:
    1. NONCOMBUSTIBLE MATERIAL
    2. IGNITION-RESISTANT MATERIAL
    3. ONE LAYER OF 5/8-INCH TYPE X GYPSUM SHEATHING APPLIED BEHIND THE EXTERIOR COVERING ON THE UNDERSIDE OF THE CEILING
    4. THE EXTERIOR PORTION OF A 1-HOUR FIRE RESISTIVE EXTERIOR WALL ASSEMBLY APPLIED TO THE UNDERSIDE OF THE CEILING ASSEMBLY INCLUDING ASSEMBLIES USING THE GYPSUM PANEL & SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL
    5. PORCH CEILING ASSEMBLIES WITH A HORIZONTAL UNDERSIDE THAT MEET THE PERFORMANCE CRITERIA IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN SFM STANDARD 12-7A-3.
11. **707A.7 FLOOR PROJECTIONS.** THE EXPOSED UNDERSIDE OF A CANTILEVERED FLOOR PROJECTION WHERE A FLOOR ASSEMBLY EXTENDS OVER AN EXTERIOR WALL SHALL BE PROTECTED BY ONE OF THE FOLLOWING:
    1. NONCOMBUSTIBLE MATERIAL
    2. IGNITION-RESISTANT MATERIAL
    3. ONE LAYER OF 5/8-INCH TYPE X GYPSUM SHEATHING APPLIED BEHIND AN EXTERIOR COVERING ON THE UNDERSIDE OF THE FLOOR PROJECTION
    4. THE EXTERIOR PORTION OF A 1-HOUR FIRE RESISTIVE EXTERIOR WALL ASSEMBLY APPLIED TO THE UNDERSIDE OF THE FLOOR PROJECTION INCLUDING ASSEMBLIES USING THE GYPSUM PANEL & SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL
    5. THE UNDERSIDE OF A FLOOR PROJECTION ASSEMBLY THAT MEET THE PERFORMANCE CRITERIA IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN SFM STD 12-7A-3.
12. **UNDERFLOOR PROTECTION.** THE UNDERFLOOR AREA OF ELEVATED OR OVERHANGING BUILDINGS SHALL BE ENCLOSED TO GRADE IN ACCORDANCE WITH THE REQUIREMENTS OF THIS CHAPTER OR THE UNDERSIDE OF THE EXPOSED UNDERFLOOR SHALL CONSIST OF ONE OF THE FOLLOWING:
    1. NONCOMBUSTIBLE MATERIAL
    2. IGNITION-RESISTANT MATERIAL
    3. ONE LAYER OF 5/8" TYPE X GYPSUM SHEATHING APPLIED BEHIND AN EXTERIOR COVERING ON THE UNDERSIDE OF THE FLOOR PROJECTION
    4. THE EXTERIOR PORTION OF A 1-HOUR FIRE RESISTIVE EXTERIOR WALL ASSEMBLY APPLIED TO THE UNDERSIDE OF THE FLOOR INCLUDING ASSEMBLIES USING THE GYPSUM PANEL AND SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL
    5. THE UNDERSIDE OF A FLOOR ASSEMBLY THAT MEETS THE PERFORMANCE CRITERIA IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN SFM STANDARD 12-7A-3

    EXCEPTION: HEAVY TIMBER STRUCTURAL COLUMNS AND BEAMS DO NOT REQUIRE PROTECTION.
13. **707A.9 UNDERSIDE OF APPENDAGES.** WHEN REQUIRED BY THE ENFORCING AGENCY THE UNDERSIDE OF OVERHANGING APPENDAGES SHALL BE ENCLOSED TO GRADE IN ACCORDANCE WITH THE REQUIREMENTS OF THIS CHAPTER OR THE UNDERSIDE OF THE EXPOSED UNDERFLOOR SHALL CONSIST OF ONE OF THE FOLLOWING:
    1. NONCOMBUSTIBLE MATERIAL
    2. IGNITION-RESISTANT MATERIAL
    3. ONE LAYER OF 5/8" TYPE X GYPSUM SHEATHING APPLIED BEHIND AN EXTERIOR COVERING ON THE UNDERSIDE OF THE FLOOR PROJECTION
    4. THE EXTERIOR PORTION OF A 1-HOUR FIRE RESISTIVE EXTERIOR WALL ASSEMBLY APPLIED TO THE UNDERSIDE OF THE FLOOR INCLUDING ASSEMBLIES USING THE GYPSUM PANEL AND SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL
    5. THE UNDERSIDE OF A FLOOR ASSEMBLY THAT MEETS THE PERFORMANCE CRITERIA IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN SFM STANDARD 12-7A-3

    EXCEPTION: HEAVY TIMBER STRUCTURAL COLUMNS AND BEAMS DO NOT REQUIRE PROTECTION.
14. **708A.2 EXTERIOR GLAZING.** THE FOLLOWING EXTERIOR GLAZING MATERIALS AND/OR ASSEMBLIES SHALL COMPLY WITH THIS SECTION:
    1. EXTERIOR WINDOWS
    2. EXTERIOR GLAZED DOORS
    3. GLAZED OPENINGS WITHIN EXTERIOR DOORS
    4. GLAZED OPENINGS WITHIN EXTERIOR GARAGE DOORS
    5. EXTERIOR STRUCTURAL GLASS VENEER
15. **708A.2.1 EXTERIOR WINDOWS AND EXTERIOR GLAZED DOOR ASSEMBLY REQUIREMENTS.** EXTERIOR WINDOWS & EXTERIOR GLAZED DOOR ASSEMBLIES SHALL COMPLY WITH ONE OF THE FOLLOWING REQUIREMENTS:
    1. BE CONSTRUCTED OF MULTI-PANE GLAZING WITH A MINIMUM OF ONE TEMPERED PANE MEETING THE REQUIREMENTS OF SECTION 2406 SAFETY GLAZING, OR
    2. BE CONSTRUCTED OF GLASS BLOCK UNITS, OR
    3. HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 20 MINUTES WHEN TESTED ACCORDING TO NFPA 257, OR
    4. BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-2
16. **708A.3 EXTERIOR DOORS.** EXTERIOR DOORS SHALL COMPLY WITH ONE OF THE FOLLOWING:
    1. THE EXTERIOR SURFACE OR CLADDING SHALL BE OF NON-COMBUSTIBLE OR IGNITION- RESISTANT MATERIAL, OR
    2. SHALL BE CONSTRUCTED OF SOLID CORE WOOD THAT COMPLY WITH THE FOLLOWING REQUIREMENTS:
    2.1. STILES AND RAILS SHALL NOT BE LESS THAN 1-3/8 INCHES THICK.
    2.2. RAISED PANELS SHALL NOT BE LESS THAN 1-1/4 INCHES THICK, EXCEPT FOR THE EXTERIOR PERIMETER OF THE RAISED PANEL THAT MAY TAPER TO A TONGUE NOT LESS THAN 3/8 INCH THICK.
    3. SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 20 MINUTES WHEN TESTED ACCORDING TO NFPA 252.
    4. SHALL BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-1.
17. **708A.3.1 EXTERIOR DOOR GLAZING.** GLAZING IN EXTERIOR DOORS SHALL COMPLY WITH SECTION 708A.2.1.

door schedule - elevation a, b & c (d)

DOOR #	WIDTH	HEIGHT	THICKNESS	TYPE	OPERATION	CORE OR GLAZING	MATERIAL	FRAME	SCREEN	QUANTITY	NOTES
1	3'-0"	8'-0"	1-3/4"	FRENCH	SWING	DG, TG	WOOD	WOOD	OPTIONAL	1	ENTRY DOOR
2	18'-0"	8'-0"	1-3/4"	FRENCH	BIFOLDING	DG, TG	VINYL	VINYL	YES	1	
3	8'-0"	8'-0"	1-3/4"	FRENCH	SLIDING	DG, TG	VINYL	VINYL	YES	1	
4	2'-4"	8'-0"	1-1/2"	INTERIOR	SWING	HOLLOW	WOOD	WOOD	NO	5	PRIVACY/BTH
5	2'-6"	8'-0"	1-1/2"	INTERIOR	SWING	HOLLOW	WOOD	WOOD	NO	3	BED ENTRY
6	6'-0"	8'-0"	1-1/2"	INTERIOR	BYPASS	-	MIRROR	WOOD	NO	2	CLOSET
7	5'-0"	8'-0"	1-1/2"	INTERIOR	BIFOLD	HOLLOW	WOOD	ALUMINUM	NO	1	LAUNDRY

window schedule - elevation a, b & c (w)

WINDOW #	WIDTH	HEIGHT	TYPE	MATERIAL	GLAZING	SCREEN	QUANTITY	NOTES
1	9'-0"	5'-0"	HORIZONTAL SLIDER	VINYL	DG, TG	YES	1	
2	6'-0"	5'-0"	HORIZONTAL SLIDER	VINYL	DG, TG	YES	2	
3	4'-0"	3'-0"	HORIZONTAL SLIDER	VINYL	DG, TG	YES	1	OPAQUE
4	6'-0"	3'-0"	HORIZONTAL SLDER	VINYL	DG, TG	YES	1	
5	4'-0"	2'-0"	HORIZONTAL SLIDER	VINYL	DG, TG	YES	2	OPAQUE
6	4'-0"	5'-0"	HORIZONTAL SLIDER	VINYL	DG, TG	YES	1	KITCHEN

schedule notes:

1. ALL GLAZING IN DOORS SHALL BE TEMPERED IN THE VHFSZ.
2. ALL GLAZING IN WINDOWS SHALL BE TEMPERED IN THE VHFSZ.
3. THE PROPERTY THAT WILL CONTAIN THE ADU IS IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE, SEE NOTES ON SHEET a0.1F CONCERNING DOOR & WINDOW CONSTRUCTION AND TEMPERED GLAZING.
4. SEE ELEVATIONS FOR WINDOW OPERATION DIRECTION & LOCATION OF MUNTINS.
5. SEE FLOOR PLANS FOR DOOR SWING DIRECTION.
6. ALL GLAZED OPENINGS SHALL MEET THE REQUIREMENTS OF THE CBC T24 SHEETS PROVIDED IN THE PLANS.
7. VINYL WINDOWS AND EXTERIOR VINYL DOOR FRAMES & SASH WILL BE COMPRISED OF VINYL MATERIAL WITH WELDED CORNERS & METAL REINFORCEMENT IN THE INTERLOCK AREA.

very high fire hazard severity zone notes:

1. THE ADU SHALL COMPLY WITH CHAPTER 7A OF THE CURRENT CALIFORNIA BUILDING CODE BECAUSE IT IS IN THE VHFHSZ.
2. STRUCTURES IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE SHALL PROVIDE & MAINTAIN A FUEL MODIFICATION ZONE. FUEL MODIFICATION ZONES: THE APPLICANT SHALL PROVIDE & MAINTAIN FIRE/FUEL BREAKS TO THE SATISFACTION OF THE ENCINITAS FIRE DEPARTMENT. FIRE/FUEL BREAKS SIZE (MINIMUM 100 FEET FROM STRUCTURE) & COMPOSITION SHALL BE DETERMINED BY THE FIRE DEPARTMENT & SHOWN ON THE IMPROVEMENT/GRADING PLANS, FINAL MAP & BUILDING PLANS.

DZN PARTNERS

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

JOB: 201848R

VERY HIGH FIRE HAZARD SEVERITY ZONE

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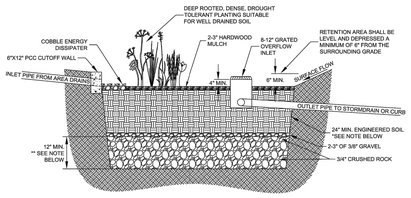
BIORETENTION DETAIL
FOR STANDARD PROJECTS ONLY



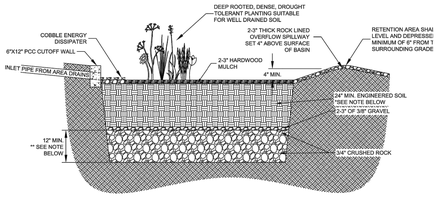
*BIORETENTION "ENGINEERED SOIL" LAYER SHALL BE MINIMUM 24" DEEP "SANDY LOAM" SOIL MIX WITH NO MORE THAN 5% CLAY CONTENT. THE MIX SHALL CONTAIN 50-60% SAND, 20-30% COMPOST OR HARDWOOD MULCH, AND 20-30% TOPSOIL.

**3/4" CRUSHED ROCK LAYER SHALL BE A MINIMUM OF 12" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE BASIN.

THE EFFECTIVE AREA OF THE BASIN SHALL BE LEVEL AND SHALL BE SIZED BASED ON CITY OF ENCINITAS BMP DESIGN MANUAL CALCULATIONS.

A - PIPE IN WITH SHALLOW RISER

BIORETENTION DETAIL
FOR STANDARD PROJECTS ONLY



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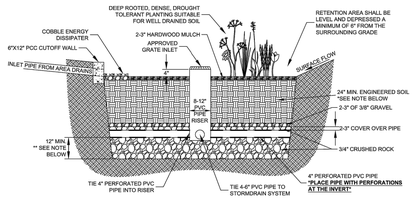
**3/4" CRUSHED ROCK LAYER SHALL BE A MINIMUM OF 12" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE BASIN.

THE EFFECTIVE AREA OF THE BASIN SHALL BE LEVEL AND SHALL BE SIZED BASED ON CITY OF ENCINITAS BMP DESIGN MANUAL CALCULATIONS.

B - PIPE IN WITH SPILLWAY

BIORETENTION DETAIL
FOR STANDARD PROJECTS ONLY



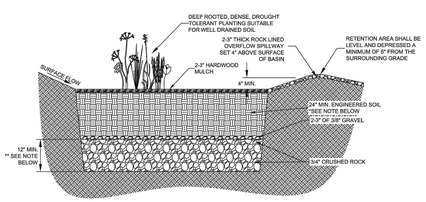
*BIORETENTION "ENGINEERED SOIL" LAYER SHALL BE MINIMUM 24" DEEP "SANDY LOAM" SOIL MIX WITH NO MORE THAN 5% CLAY CONTENT. THE MIX SHALL CONTAIN 50-60% SAND, 20-30% COMPOST OR HARDWOOD MULCH, AND 20-30% TOPSOIL.

**3/4" CRUSHED ROCK LAYER SHALL BE A MINIMUM OF 12" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE BASIN.

THE EFFECTIVE AREA OF THE BASIN SHALL BE LEVEL AND SHALL BE SIZED BASED ON CITY OF ENCINITAS BMP DESIGN MANUAL CALCULATIONS.

C - PIPE IN WITH SUBDRAIN

BIORETENTION DETAIL
FOR STANDARD PROJECTS ONLY



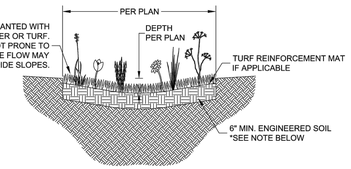
*BIORETENTION "ENGINEERED SOIL" LAYER SHALL BE MINIMUM 24" DEEP "SANDY LOAM" SOIL MIX WITH NO MORE THAN 5% CLAY CONTENT. THE MIX SHALL CONTAIN 50-60% SAND, 20-30% COMPOST OR HARDWOOD MULCH, AND 20-30% TOPSOIL.

**3/4" CRUSHED ROCK LAYER SHALL BE A MINIMUM OF 12" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE BASIN.

THE EFFECTIVE AREA OF THE BASIN SHALL BE LEVEL AND SHALL BE SIZED BASED ON CITY OF ENCINITAS BMP DESIGN MANUAL CALCULATIONS.

D - SURFACE FLOW WITH SPILL WAY

VEGETATED SWALE



**ENGINEERED SOIL" LAYER SHALL BE MINIMUM 6" DEEP "SANDY LOAM" SOIL MIX WITH NO MORE THAN 5% CLAY CONTENT. THE MIX SHALL CONTAIN 50-60% SAND, 20-30% COMPOST OR HARDWOOD MULCH, AND 20-30% TOPSOIL.

NOTE: VEGETATED SWALES ON GRADES OF MORE THAN 2.5% MUST INSTALL CHECK DAMS TO LIMIT THE SLOPE OF THE SWALE TO 2.5% UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING SERVICES.

NOTE: NO FILTER FABRIC IS TO BE USED IN THIS SECTION.

E - VEGETATED SWALE

CITY OF ENCINITAS

department notes:

BUILDING

B1 SURFACE WATER WILL DRAIN AWAY FROM BUILDING. THE GRADE SHALL FALL A MINIMUM OF 6" WITHIN THE FIRST 10 FEET. SECTION R401.3

B2 COMPLIANCE WITH THE DOCUMENTATION REQUIREMENTS OF THE 2016 ENERGY EFFICIENCY STANDARDS IS NECESSARY FOR THIS PROJECT. REGISTERED, SIGNED, AND DATED COPIES OF THE APPROPRIATE CF1R, CF2R, AND CF3R FORMS SHALL BE MADE AVAILABLE AT NECESSARY INTERVALS FOR BUILDING INSPECTOR REVIEW. FINAL COMPLETED FORMS WILL BE AVAILABLE FOR THE BUILDING OWNER.

B3 PROJECTIONS, INCLUDING EAVES, MUST BE AT LEAST 24" FROM A PROPERTY LINE. TABLE R302.1

ENGINEERING

E1 OWNER IS TO OBTAIN A CONSTRUCTION PERMIT FROM THE ENGINEERING DEPARTMENT AT LEAST 48 HOURS PRIOR TO WORKING IN THE PUBLIC RIGHT OF WAY. FAILURE TO DO SO WILL RESULT IN AN ISSUANCE OF A STOP WORK NOTICE AND DOUBLE PERMIT FEES. IT IS THE RESPONSIBILITY OF THE OWNER TO KNOW THE LOCATION OF THE PROPERTY LINES.

E2 ALL UTILITIES SERVING THE ADU FROM THE RESIDENCE SHALL BE INSTALLED UNDERGROUND.

E3 NO CONCENTRATED DRAINAGE FLOWS ARE PERMITTED OVER ADJACENT PROPERTY LINES. WATER IS TO DRAIN AWAY FROM STRUCTURES FOR A MINIMUM OF 5 FEET AT 2 PERCENT AND BE CONVEYED TO AN APPROVED DRAINAGE FACILITY.

E4 EARTHWORK, CUT OR FILL, WHICH IS OVER 50 CUBIC YARDS, REQUIRES AN ADDITIONAL ENGINEERING GRADING PERMIT. PROVIDE EARTHWORK QUANTITIES:
0 CUBIC YARDS CUT, 0 CUBIC YARDS FILL, 0 CUBIC YARDS IMPORT/EXPORT
0 CUBIC YARDS OVER-EXCAVATION AND RE-COMPACTION

E5 EROSION CONTROL MEASURES (E.G. BONDED FIBER MATRIX, VEGETATIVE COVER, JUTE MATTING) MUST BE IMPLEMENTED WHERE APPLICABLE TO PREVENT SOIL EROSION ON SITE. SEDIMENT CONTROL MEASURES (E.G. SILT FENCING, FIBER ROLLS, DETENTION BASINS) MUST BE IN PLACE TO PREVENT ERODED SOIL FROM LEAVING SITE. MATERIALS MANAGEMENT BMP MUST ALSO BE FOLLOWED TO ENSURE NO CONTACT OF RAINWATER WITH MATERIALS THAT MAY CONTRIBUTE TO WATER QUALITY DEGRADATION DOWNSTREAM (E.G. CONCRETE OR STUCCO WASHOUT AREAS, COVERED STORAGE AREAS FOR HAZARDOUS MATERIALS, PLACEMENT OF PORTABLE TOILETS OVER A PERVIOUS SURFACE).

E6 NO DIRECTLY CONNECTED IMPERVIOUS AREAS (DCIA) SHALL BE ALLOWED. DCIA MEANS STORM RUNOFF GENERATED AND CONVEYED VIA IMPERVIOUS AREAS, SUCH AS ROOF, ROOF DRAIN, DRIVEWAY, AND STREET. BMP MEASURES SHALL BE IDENTIFIED ON THE SITE PLAN. MOST COMMON MEASURES ARE DESIGNATED TURF AREAS, WHICH RECEIVE ROOF DRAINS AND RUNOFF FROM IMPERVIOUS AREAS. TURF AND LANDSCAPED AREAS THAT ARE DESIGNED FOR BMP'S SHALL BE DELINEATED ON PLANS AND A NOTE PLACED ON PLANS PROHIBITING MODIFICATION OR REMOVAL OF THE BMP LANDSCAPE AREAS WITHOUT A CITY PERMIT.

E7 RAIN GUTTERS FOR STORM WATER POLLUTION CONTROL PURPOSES, ALL RUNOFF FROM ALL ROOF DRAINS SHALL DISCHARGE ONTO GRASS AND LANDSCAPE AREAS PRIOR TO COLLECTION AND DISCHARGE ONTO THE STREET AND/OR INTO THE PUBLIC STORM DRAIN SYSTEM. GRASS AND LANDSCAPE AREAS DESIGNATED FOR STORM WATER POLLUTION CONTROL SHALL NOT BE MODIFIED WITHOUT A PERMIT FROM THE CITY.

E8 TOTAL AREA OF NEW IMPERVIOUS SURFACE: 224 SQ. FT.
TOTAL AREA OF REPLACED IMPERVIOUS SURFACES: 0 SQ. FT.

FIRE DEPARTMENT

F1 ADDRESS NUMBERS: STREET NUMBERS: APPROVED NUMBERS AND/OR ADDRESSES SHALL BE PLACED ON ALL NEW AND EXISTING BUILDINGS AND AT APPROPRIATE ADDITIONAL LOCATIONS AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROADWAY FRONTING THE PROPERTY FROM EITHER DIRECTION OF APPROACH. SAID NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND, AND SHALL MEET THE FOLLOWING MINIMUM STANDARDS AS TO SIZE: 4" HIGH WITH A 3/8" STROKE FOR RESIDENTIAL BUILDINGS, 8" HIGH WITH A 1/2" STROKE FOR COMMERCIAL AND MULTI-FAMILY RESIDENTIAL BUILDINGS, 12" HIGH WITH A 1" STROKE FOR INDUSTRIAL BUILDINGS. ADDITIONAL NUMBERS SHALL BE REQUIRED WHERE DEEMED NECESSARY BY THE FIRE MARSHAL, SUCH AS REAR ACCESS DOORS, BUILDING CORNERS, AND ENTRANCES TO COMMERCIAL CENTERS.

F2 **SECURITY GATES.** AN AUTOMATIC GATE ACROSS A FIRE ACCESS ROADWAY OR DRIVEWAY SHALL BE EQUIPPED WITH AN APPROVED EMERGENCY KEY-OPERATED SWITCH OVERRIDING ALL COMMAND FUNCTIONS & OPENING THE GATE. WHERE THIS SECTION REQUIRES AN APPROVED KEY-OPERATED SWITCH, IT MAY BE DUAL-KEYED OR EQUIPPED WITH DUAL SWITCHES PROVIDED TO FACILITATE ACCESS BY LAW ENFORCEMENT PERSONNEL. CFC SECTION 503.6 AMENDMENT
• ALL GATES PROVIDING ACCESS FROM A ROAD TO A DRIVEWAY SHALL BE LOCATED A MINIMUM OF 30 FEET FROM THE NEAREST EDGE OF THE ROADWAY AND SHALL BE AT LEAST TWO FEET WIDER THAN THE WIDTH OF THE TRAFFIC LANE(S) SERVING THE GATE.

F3 SHOW THE LOCATIONS OR PROVIDE NOTES OF ALL CARBON MONOXIDE ALARMS TO MEET THE REQUIREMENTS OF CALIFORNIA RESIDENTIAL CODE SECTION R315.
• INSTALLED IN DWELLING UNITS AND IN SLEEPING UNITS WITHIN WHICH FUEL-BURNING APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES.
• WHERE MORE THAN ONE CARBON MONOXIDE ALARM IS REQUIRED TO BE INSTALLED THE ALARM SHALL BE INTERCONNECTED IN A MANNER THAT ACTIVATION OF ONE ALARM SHALL ACTIVATE ALL THE ALARMS IN THE INDIVIDUAL UNIT.
*WHERE AREAS OF NO CONSTRUCTION IS TAKING PLACE CARBON MONOXIDE DETECTORS CAN BE SOLELY BATTERY POWERED

F4 CARBON MONOXIDE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING IS SERVED FROM A COMMERCIAL SOURCE AND, WHERE PRIMARY POWER IS INTERRUPTED, SHALL RECEIVE POWER FROM A BATTERY. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVER-CURRENT PROTECTION.

F5 SHOW THE LOCATIONS OR PROVIDE NOTES OF ALL SMOKE ALARMS MEETING THE REQUIREMENTS OF CRC SECTION R314.
• ON THE CEILING OR WALL OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BED ROOMS.
• IN EACH ROOM USED FOR SLEEPING PURPOSES.
• IN EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS.
• IN DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.
*WHERE AREAS OF NO CONSTRUCTION IS TAKING PLACE SMOKE DETECTORS CAN BE SOLELY BATTERY POWERED ONLY.

F6 VENT OPENINGS SHALL BE COVERED WITH A NONCOMBUSTIBLE AND CORROSION RESISTANT WIRE MESH WITH MESH OPENINGS OF A MINIMUM OF 1/16" AND SHALL NOT EXCEED 1/8"

PLANNING DEPARTMENT

P1 THE AVERAGE LOT SLOPE IS _____% WITHIN THE BUILDING ENVELOPE AREA.

P2 THE DETACHED ACCESSORY UNIT MUST BE SEPARATED FROM THE MAIN RESIDENCE BY A DISTANCE OF SIX FEET [6'] OR GREATER.

P3 THE DETACHED ACCESSORY UNIT ROOF EAVES MUST BE SEPARATED FROM THE MAIN RESIDENCE ROOF EAVES BY A DISTANCE OF FOUR FEET [4'] OR GREATER.

P4 A DETACHED ACCESSORY UNIT CAN BE PLACED A MINIMUM OF FIVE FEET [5'] FROM THE SIDE & REAR PROPERTY LINES.

P5 THE MAXIMUM HEIGHT FOR A DETACHED ADU WITH A FLAT ROOF IS TWELVE FEET [12'] & FOURTEEN FEET [14'] FOR A DETACHED ADU WITH A SLOPED ROOF WITH A PITCH OF 3/12 OR GREATER.

P6 ALLOWABLE HEIGHT IS MEASURED FROM THE LOWER OF EXISTING OR FINISH GRADE.

P7 PROJECTIONS, INCLUDING EAVES, MUST BE NO GREATER THAN 24" INTO A REQUIRED 5' SETBACK.

stormwater notes:

STORMWATER POLLUTION CONTROL BMP NOTES RELATIVE TO CONSTRUCTION ACTIVITIES

CONCRETE WASHOUT

SW1 CONTRACTOR SHALL ESTABLISH AND USE AN ADEQUATELY SIZED CONCRETE WASHOUT AREA TO CONTAIN WASHOUT WASTES ON SITE. IT IS ILLEGAL TO WASH CONCRETE, SLURRY, MORTAR, STUCCO, PLASTER AND THE LIKE INTO THE STORMWATER CONVEYANCE SYSTEM OR ANY RECEIVING WATER. CONTRACTOR SHALL POST A SIGN DESIGNATING THE WASHOUT LOCATION.

CONSTRUCTION SITE ACCESS

SW2 A STABILIZED CONSTRUCTION SITE ACCESS SHALL BE PROVIDED FOR VEHICLES EGRESS AND INGRESS TO PREVENT TRACKING DIRT OFF SITE. THIS SHALL INCLUDE USING MATERIAL SUCH AS GRAVEL AND/OR CORRUGATED STEEL PANELS/PLATES.

CONSTRUCTION VEHICLES

SW3 A SPECIFIC AREA AWAY FROM GUTTERS AND STORMDRAIN SHALL BE DESIGNATED FOR CONSTRUCTION VEHICLES PARKING, VEHICLE REFUELING, AND ROUTINE EQUIPMENT MAINTENANCE. ALL MAJOR REPAIRS SHALL BE MADE OFF-SITE.

EROSION CONTROL

SW4 EROSION CONTROL MUST BE PROVIDED FOR ALL EROSIVE SURFACES. SLOPED SURFACES ESPECIALLY SHALL BE PROTECTED AGAINST EROSION BY INSTALLING EROSION RESISTANT SURFACES SUCH AS EROSION CONTROL MATS, ADEQUATE GROUND COVER VEGETATION, AND BONDED FIBER MATRIX.

SW5 NO EXCAVATION AND GRADING ACTIVITIES ARE ALLOWED DURING WET WEATHER.

SW6 DIVERSION DIKES SHALL BE CONSTRUCTED TO CHANNEL RUNOFF AROUND THE CONSTRUCTION SITE. CONTRACTOR SHALL PROTECT CHANNELS AGAINST EROSION USING PERMANENT AND TEMPORARY EROSION CONTROL MEASURES.

SW7 REMOVE EXISTING VEGETATION ONLY WHEN ABSOLUTELY NECESSARY. LARGE PROJECTS SHALL BE CONDUCTED IN PHASES TO AVOID UNNECESSARY REMOVAL OF THE NATURAL GROUND COVER. DO NOT REMOVE TREES OR SHRUBS UNNECESSARILY; THEY HELP DECREASE EROSION.

SW8 PLANT PERMANENT VEGETATION AS SOON AS POSSIBLE, ONCE EXCAVATION AND GRADING ACTITIVIES ARE COMPLETE.

SW9 WATER USAGE FOR DUST CONTROL SHALL BE MINIMIZED.

ON-SITE CONSTRUCTION MATERIAL STORAGE

SW10 STORED MATERIALS SHALL BE CONTAINED IN A SECURE PLACE TO PREVENT SEEPAGE AND SPILLAGE. CONTRACTOR SHALL STORE THESE PRODUCTS WHERE THEY WILL STAY DRY OUT OF THE RAIN. CONTRACTOR SHALL PROVIDE SECONDARY CONTAINMENT FOR ALL FUEL STORED ON-SITE.

SW11 ELIMINATE OR REDUCE POLLUTION OF STORMWATER FROM STOCKPILES KEPT ON-SITE. STOCKPILES MAY INCLUDE SOIL, PARING MATERIALS, ASPHALT CONCRETE, AGGREGATE BASE, ETC. STOCKPILES SHALL BE LOCATED AWAY FROM CONCENTRATED STORMWATER FLOWS AND STORMDRAIN INLETS. STOCKPILES SHALL BE COVERED OR PROTECTED WITH SOIL STABILIZATION MEASURES AND PROVIDED WITH A TEMPORARY SEDIMENT BARRIER AROUND THE PERIMETER AT ALL TIMES.

TRAINING

SW12 CONTRACTORS' EMPLOYEES WHO PERFORM CONSTRUCTION IN THE CITY OF ENCINITAS SHALL BE TRAINED TO BE FAMILIAR WITH THE CITY OF ENCINITAS STORMWATER POLLUTION CONTROL REQUIREMENTS. THESE BMP NOTES SHALL BE AVAILABLE TO EVERYONE WORKING ON SITE. THE PROPERTY OWNER(S) AND THE PRIME CONTRACTOR MUST INFORM SUBCONTRACTORS ABOUT STORMWATER REQUIREMENTS AND THEIR OWN RESPONSIBILITIES.

WASTE MANAGEMENT

SW13 CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY DISPOSING OF ALL WASTE AND UNUSED CONSTRUCTION MATERIALS. DUMPING OF UNUSED OR WASTE PRODUCTS ON THE GROUND, WHERE WATER CAN CARRY THEM INTO THE CONVEYANCE SYSTEM IS STRICTLY PROHIBITED.

SW14 NO SEEPAGE FROM DUMPSTERS SHALL BE DISCHARGED INTO STORMWATER. BERMS/DIKES SHALL BE PLACED AROUND DUMPSTERS TO DIVERT THE NATURAL STORM RUNOFF. DUMPSTERS SHALL BE CHECKED FREQUENTLY FOR LEAKS. DUMPSTER LIDS SHALL REMAIN CLOSED AT ALL TIMES. DUMPSTERS WITHOUT LIDS SHALL BE PLACED WITHIN STRUCTURES WITH IMPERVIOUS ROOFING OR COVERED WITH TARPS IN ORDER TO AVOID RAIN CONTACT WITH ANY TRASH MATERIAL.

SW15 MANY CONSTRUCTION MATERIALS, INCLUDING SOLVENTS, WATER-BASED PAINTS, VEHICLE FLUIDS, BROKEN ASPHALT AND CONCRETE, WOOD, AND CLEARED VEGETATION CAN BE RECYCLED. NON-RECYCLABLE MATERIALS MUST BE TAKEN TO AN APPROPRIATE LANDFILL OR DISPOSED OF AS HAZARDOUS WASTE. FOR INFORMATION ON DISPOSAL OF HAZARDOUS MATERIAL, CALL THE **HAZARDOUS WASTE HOTLINE** TOLL FREE AT (800) 714-1195. FOR INFORMATION ON LANDFILLS AND TO ORDER DUMPSTERS CALL **EDCO** AT (760) 436-4151.

SW16 POLLUTANTS SHALL BE KEPT OFF EXPOSED SURFACES. PLACE TRASH CANS AND RECYCLING RECEPTACLES AROUND THE SITE.

SW17 PORTABLE TOILETS MUST BE IN GOOD WORKING ORDER AND CHECKED FREQUENTLY FOR LEAKS. CONTRACTOR SHALL PROVIDE SECONDARY CONTAINMENT AND LOCATE PORTABLE TOILETS AWAY FROM STORMDRAIN INLETS ON PERVIOUS SURFACES.

SW18 ALL CONSTRUCTION DEBRIS SHALL BE KEPT AWAY FROM THE STREET, GUTTER, AND STORMDRAIN. CONTRACTOR MUST ROUTINELY CHECK AND CLEAN UP MATERIAL THAT MAY HAVE TRAVELED AWAY FROM CONSTRUCTION SITE.

swimming pool notes:

IF THE PROPERTY WHERE THE ADU IS TO BE LOCATED HAS A SWIMMING POOL, THE POOL MUST MEET THE RULES BELOW:

SWIMMING POOL SAFETY SHALL COMPLY WITH SECTION 3109.4 CBC (INCLUDING 3109.4.4) INCLUDING:

• POOL SHALL BE COMPLETELY ENCLOSED BY A BARRIER COMPLYING WITH SECTIONS 3109.4.1 THRU 3109.4.3.

• SHALL COMPLY WITH SECTION 3109.4.4.2: POOL SHALL BE EQUIPPED WITH *TWO* OF THE FOLLOWING SEVEN DROWNING PREVENTION SAFETY FEATURES:

SP1 THE POOL SHALL BE ISOLATED FROM ACCESS TO A HOME BY AN ENCLOSURE THAT MEETS THE REQUIREMENTS OF SECTION 3109.4.4.3.

SP2 THE POOL SHALL INCORPORATE REMOVABLE MESH POOL FENCING THAT MEETS AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) SPECIFICATIONS F2286 STANDARDS IN CONJUNCTION WITH A GATE THAT IS SELF CLOSING AND SELF-LATCHING AND CAN ACCOMMODATE A KEY LOCKABLE DEVICE.

SP3 THE POOL SHALL BE EQUIPPED WITH AN APPROVED SAFETY POOL COVER THAT MEETS ALL REQUIREMENTS OF THE ASTM SPECIFICATIONS F1346.

SP4 THE RESIDENCE SHALL BE EQUIPPED WITH EXIT ALARMS ON THOSE DOORS PROVIDING DIRECT ACCESS TO THE POOL.

SP5 ALL DOORS PROVIDING DIRECT ACCESS FROM THE HOME TO THE SWIMMING POOL SHALL BE EQUIPPED WITH A SELF-CLOSING, SELF-LATCHING DEVICE WITH A RELEASE MECHANISM PLACED NO LOWER THAN 54 INCHES (1372 MM) ABOVE THE FLOOR.

SP6 SWIMMING POOL ALARMS THAT, WHEN PLACED IN POOLS, WILL SOUND UPON DETECTION OF ACCIDENTAL OR UNAUTHORIZED ENTRANCE INTO THE WATER. THESE POOL ALARMS SHALL MEET AND BE INDEPENDENTLY CERTIFIED TO THE ASTM STANDARD 2208 "STANDARDS SPECIFICATION FOR POOL ALARMS" WHICH INCLUDES SURFACE MOTION, PRESSURE, SONAR, LASER AND INFRARED TYPE ALARMS. FOR PURPOSES OF THIS ARTICLE, "SWIMMING POOL ALARMS" SHALL NOT INCLUDE SWIMMING PROTECTION ALARM DEVICES DESIGNED FOR INDIVIDUAL USE, SUCH AS AN ALARM ATTACHED TO A CHILD THAT SOUNDS WHEN THE CHILD EXCEEDS A CERTAIN DISTANCE OR BECOMES SUBMERGED IN WATER.

SP7 OTHER MEANS OF PROTECTION, IF THE DEGREE OF PROTECTION AFFORDED IS EQUAL TO OR GREATER THAN THAT AFFORDED BY ANY OF THE DEVICES SET FORTH IN ITEMS 1-4, & HAVE BEEN INDEPENDENTLY VERIFIED BY AN APPROVED TESTING LABORATORY AS MEETING STANDARDS FOR THOSE DEVICES ESTABLISHED BY THE ASTM OR THE AMERICAN SOCIETY OF TESTING MECHANICAL ENGINEERS (ASME).

site plan notes:

1. THE APPLICANT SHALL PROVIDE A DIMENSIONED SITE PLAN DRAWN TO SCALE SHOWING THE FOLLOWING: NORTH ARROW, PROPERTY LINES, EASEMENTS, STREETS, EXISTING AND PROPOSED BUILDINGS, AND STRUCTURES, LOCATION OF YARDS USED FOR ALLOWABLE INCREASE OF BUILDING AREA, DIMENSIONED SETBACKS, MINIMUM SEPARATION FROM EXISTING STRUCTURES AND FUEL MODIFICATION ZONES. UNIFORM ADMINISTRATIVE CODE SECTION 302.
2. IF A GRADING PLAN IS REQUIRED, INCORPORATE THE ENTIRE APPROVED GRADING/IMPROVEMENT PLAN (ALL SHEETS) WITH THE BUILDING PLANS.
3. SITE PLAN SHALL PROVIDE DIMENSIONS SHOWING REQUIRED FIRE APPARATUS ACCESS ROADS. FIRE ACCESS ROADWAYS SHALL HAVE AN UNOBSTRUCTED IMPROVED WIDTH OF NOT LESS THAN 24 FEET, EXCEPTIONS: 1. RESIDENTIAL DWELLINGS NOT IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE SHALL HAVE A MINIMUM OF 20 FEET OF UNOBSTRUCTED IMPROVED WIDTH. 2. SINGLE-FAMILY RESIDENTIAL DRIVEWAYS SERVING NO MORE THAN TWO SINGLE-FAMILY DWELLINGS SHALL HAVE A MINIMUM OF 16 FEET OF UNOBSTRUCTED IMPROVED WIDTH.
FIRE ACCESS ROADWAYS
• SURFACE FIRE APPARATUS ACCESS ROADS SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS NOT LESS THAN 75,000 LBS. AND SHALL BE PROVIDED WITH AN APPROVED PAVED SURFACE TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES.
• GATED ENTRANCES WITH CARD READERS, GUARD STATIONS OR CENTER MEDIANS, WHICH HAVE SEPARATED LANES OF ONE-WAY TRAFFIC, SHALL BE NOT LESS THAN 14 FEET WIDE PER LANE.
• EXISTING LEGAL LOTS THAT HAVE EASEMENT ACCESS ROADWAYS LESS THAN 20 FEET WIDE THAT PROVIDE PRIMARY ACCESS TO OTHER LOTS SHALL RECORD A COVENANT GRANTING EASEMENT RIGHTS FOR EMERGENCY VEHICLE INGRESS AND EGRESS PURPOSES AND SHALL RELINQUISH RIGHTS TO BUILD ANY BUILDING, WALL, FENCE OR OTHER STRUCTURE WITHIN 5 FEET OF THE EXISTING ACCESS EASEMENT.
• ALL DEAD END FIRE APPARATUS ACCESS ROADWAYS IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH AN APPROVED AREA FOR TURNING AROUND FIRE APPARATUS. ACCESS ROADS SERVING MORE THAN FOUR (4) DWELLING UNITS SHALL BE PROVIDED WITH A CUL-DE-SAC. THE MINIMUM UNOBSTRUCTED PAVED RADIUS WIDTH FOR A CUL-DE-SAC SHALL BE 36 FEET CURB LINE TO CURB LINE WITH NO PARKING. ALTERNATE TYPES OF TURN-AROUND (HAMMERHEADS, ETC.) MAY BE CONSIDERED BY THE FIRE MARSHAL AS NEEDED TO ACCOMPLISH THE INTENT OF THE FIRE CODE.

1 site plan

site plan note:

THE APPLICANT SHALL PROVIDE A DIMENSIONED SITE PLAN DRAWN TO SCALE SHOWING THE FOLLOWING: NORTH ARROW, PROPERTY LINES, EASEMENTS, STREETS, EXISTING AND PROPOSED BUILDINGS, AND STRUCTURES, LOCATION OF YARDS USED FOR ALLOWABLE INCREASE OF BUILDING AREA, DIMENSIONED SETBACKS, MINIMUM SEPARATION FROM EXISTING STRUCTURES AND FUEL MODIFICATION ZONES. UNIFORM ADMINISTRATIVE CODE SECTION 302.

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

JOB: 201848R

SITE + DEPARTMENT NOTES

a0.2

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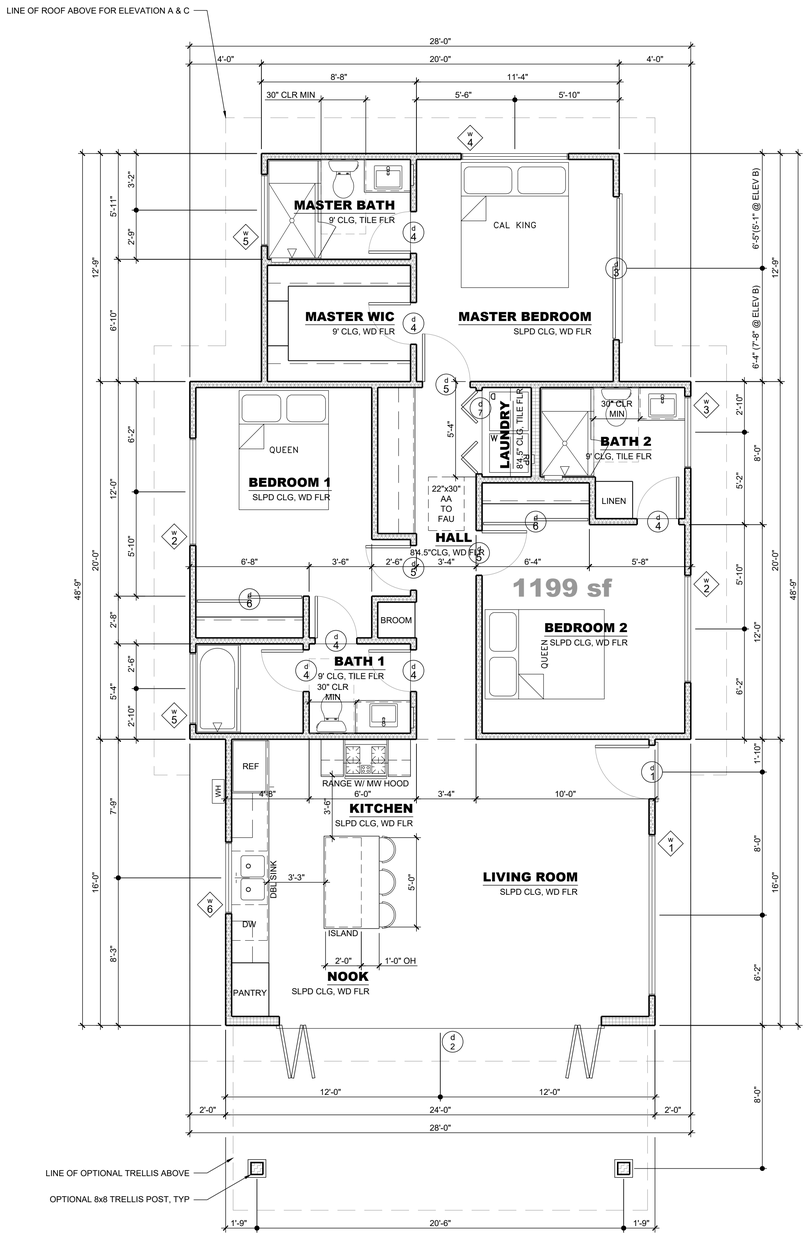
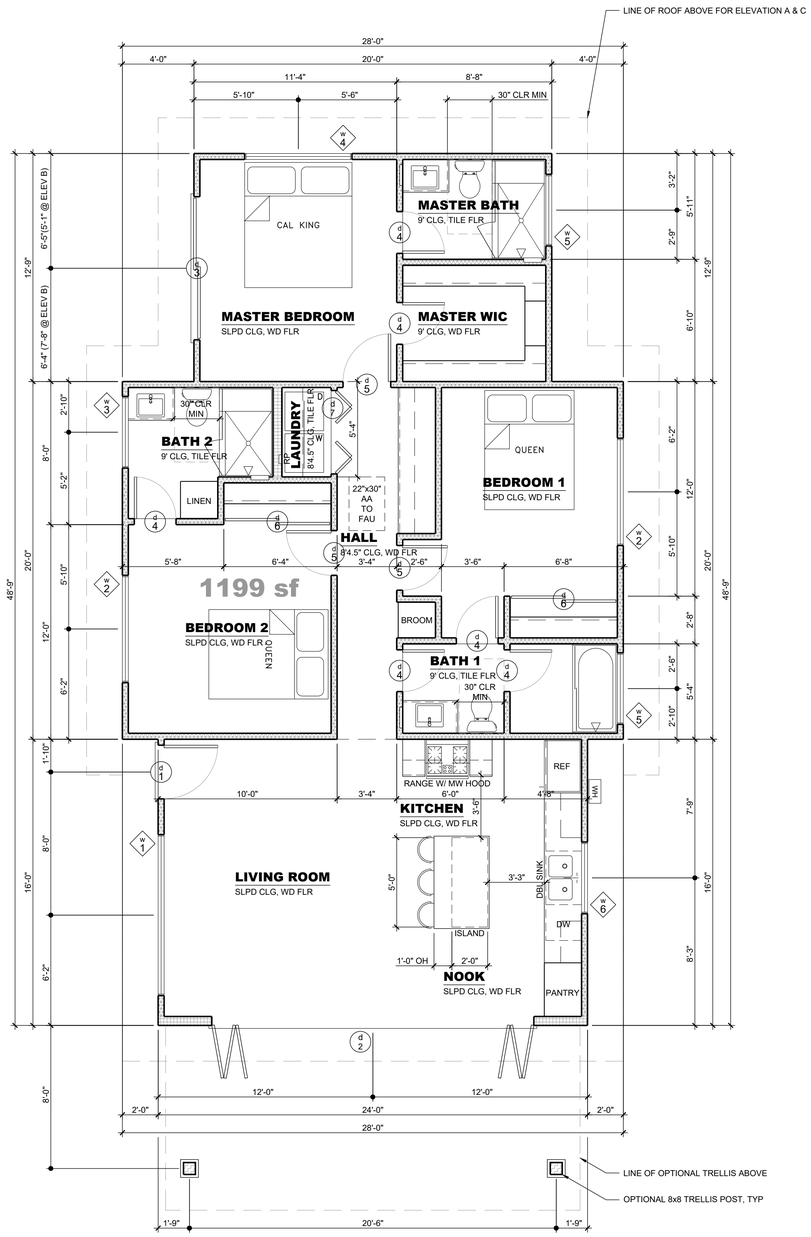


2 reverse floor plan

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

0 1' 5' 10' 20'



1 floor plan

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

0 1' 5' 10' 20'

drawing:

SYMBOL	=	DESCRIPTION
(N)	=	NEW
(E)	=	EXISTING
	=	EXISTING WALL REMOVED
	=	EXISTING WALL TO REMAIN
	=	NEW 4" WALL
	=	NEW 6" WALL
	=	NEW 8" WALL
	=	NEW 8" CMU WALL
	=	NEW DWELLING UNIT SEPARATION WALL
	=	BEARING WALL
	=	NON-BEARING WALL AT FRAMING PLANS
	=	EXISTING FOOTING
	=	NEW FOOTING
	=	NORTH ARROW
+ 100.0	=	NEW POINT ELEVATION
+ 100.0	=	EXISTING POINT ELEVATION
100.0	=	NEW CONTOUR
100.0	=	EXISTING CONTOUR
	=	PROPERTY LINE
	=	CENTER LINE
	=	SET BACK LINE
	=	FLOOR MATERIAL CHANGE

drawing:

SYMBOL	=	DESCRIPTION
A A-1	=	BUILDING SECTION LETTER SHEET NUMBER
A A-1	=	WALL SECTION LETTER SHEET NUMBER
1 D-1	=	DETAIL NUMBER SHEET NUMBER
A	=	INTERIOR ELEVATION
	=	LEVEL CHANGE
101	=	ROOM OR SPACE NUMBER
ROOM 0' CLG, FLOORING	=	ROOM NAME CEILING HEIGHT, FLOORING
W1	=	WINDOW NUMBER
D1	=	DOOR NUMBER
#	=	REVISION NUMBER
1	=	KEYNOTE NUMBER
A SP 0'	=	SHEAR PANEL LETTER SHEAR PANEL LENGTH
T1	=	TRUSS NUMBER
1	=	STRUCTURAL GRID LINE
DL	=	SHEAR DRAG LINE
P-1	=	PAD FOOTING
	=	POST
	=	HOLD DOWN
	=	FACTORY BUILT SHEAR PANEL
	=	FLOOR JOISTS
	=	CEILING JOISTS
	=	RAFTER OR TRUSS

floor plan notes:

1. SEE LEGEND ABOVE FOR SYMBOLS RELATING TO THE FLOOR PLAN.
2. SEE SHEET a0.1 FOR SCHEDULES RELATING TO THE FLOOR PLAN.
3. SEE SHEET a2.0 FOR INTERIOR ELEVATIONS DEPICTING CABINETS SHOWN ON THIS FLOOR PLAN.
4. THE KITCHEN SHALL HAVE UPPER CABINETS, BASE CABINETS, AND COUNTERTOPS AS DEPICTED ON THIS FLOOR PLAN AND IN THE INTERIOR ELEVATIONS.
5. BATHROOMS
   - LAVATORIES:
     - SHALL BE PLACED IN A VANITY BASE CABINET WITH A COUNTERTOP.
     - SHALL HAVE A MIRROR AT THE WALL BEHIND THE LAVATORY.
     - SHALL HAVE A MIRRORED MEDICINE CABINET AT THE SIDE WHEN DEPICTED WITH A RECTANGLE IN THE WALL.
   - TOILETS:
     - SHALL BE FLUSH TANK.
     - SHALL BE PLACED IN A SPACE WITH 30" CLEAR WIDTH.
     - SHALL HAVE 24" CLEAR IN FRONT OF THE FIXTURE.
   - BATHTUB/SHOWER COMBINATIONS
     - BATHTUB SHALL BE PORCELAIN OVER CAST IRON.
     - PROVIDE FULL HEIGHT TILE WAINSCOT ON WALLS WITHIN TUB AREA.
     - PROVIDE SLIDING CLEAR TEMPERED GLASS TUB/SHOWER ENCLOSURE OR EQUAL.
   - SHOWERS
     - FLOOR TO BE TILE OVER ASPHALTIC WATERPROOF MEMBRANE LINER, TYPICAL.
     - DRAIN TO BE LINEAR OR ROUND AS DEPICTED ON THE FLOOR PLAN.
     - ENTRY CURB SHALL BE 4" WIDE AND TALL WITH TILE FINISH, TYP.
     - SHALL HAVE A CLEAR TEMPERED GLASS SHOWER ENCLOSURE WITH OPENING AS SHOWN ON THE FLOOR PLAN OR EQUAL.
     - WALLS IN SHOWER AREA WILL HAVE A FULL HEIGHT TILE WAINSCOT.
     - SEATS SHOWN IN SHOWERS SHALL BE 16" HIGH AND WILL BE TILED TO MATCH THE WALLS.
     - EACH SHOWER SHALL HAVE A 12" WIDE X 16" HIGH NICHE FOR SOAP AND SHAMPOO BOTTLES IN A WAINSCOT WALL.
6. CLOSETS SHALL HAVE A SHELF AND POLE AS SHOWN ON THE FLOOR PLAN.
7. ELEVATION B HAS 9' CEILING HEIGHTS AT THE LIVING ROOM, KITCHEN, NOOK AND MASTER BEDROOM.

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

JOB: 201848R

FLOOR PLAN

a1.0

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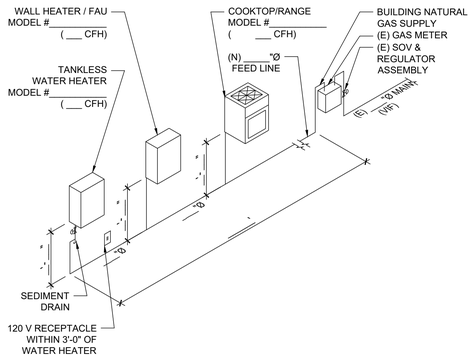


gas calculation

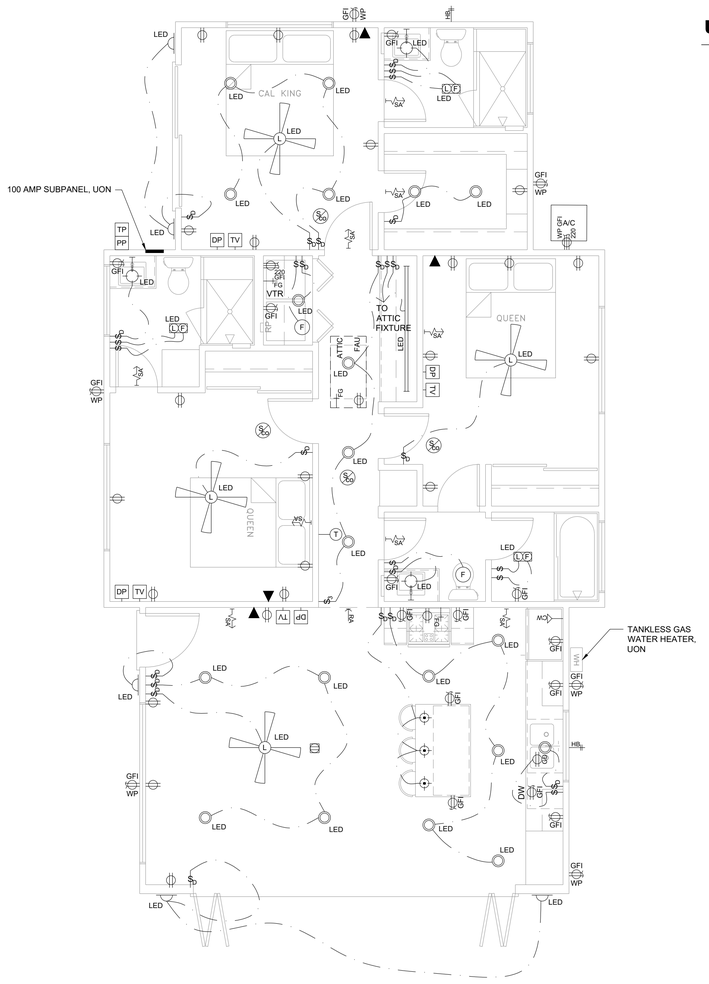
EQUIPMENT	CFH	DEVELOPED LENGTH
TANK LESS WATER HEATER	____	____
WALL HEATER OR FAU	____	____
COOKTOP OR RANGE	____	____
TOTAL GAS DEMAND LOAD = _____ CFH		
MAX DEVELOPED LENGTH TO METER = _____'		

LONGEST RUN ____ FEET
INLET PRESSURE ____ PSI
REGULATED PRESSURE ____ PSI
TOTAL DEMAND ____ CFH

NOTES:
1. GAS CALCULATION BASED ON TABLE 1216.2(1) CH 12 CPC

2 gas

SCALE: NTS



1 utility plan

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

0 1' 5' 10' 20'

utility plan notes:

1. SEE LEGENDS BELOW FOR SYMBOLS RELATING TO THE UTILITY PLAN.
2. SEE SHEET a0.1 FOR SCHEDULES RELATING TO THE UTILITY PLAN.
3. RECEPTACLE OUTLET LOCATION PER NEC ARTICLE 210.52.
4. GFCI PROTECTED OUTLETS FOR LOCATIONS DESCRIBED IN NEC 210.8(A): LAUNDRY AREAS, KITCHEN DISHWASHERS, KITCHENS, GARAGES, BATH ROOMS, OUTDOORS, WITHIN 6' OF A SINK, ETC. RECEPTACLE OUTLET LOCATION PER NEC ARTICLE 210.52.
5. BATH RECEPTACLE OUTLETS SHALL BE SUPPLIED BY A MINIMUM OF ONE 20 AMP CIRCUIT. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS. THIS CIRCUIT MAY SERVE MULTIPLE BATHS (NEC ART. 210-52(D)).
6. TAMPER RESISTANT RECEPTACLES ARE REQUIRED FOR ALL LOCATIONS DESCRIBED IN 210.52 (IE ALL RECEPTACLES IN A DWELLING).
7. WEATHER RESISTANT TYPE FOR RECEPTACLES INSTALLED IN DAMP OR WET LOCATIONS.
8. ARC-FAULT PROTECTION FOR ALL OUTLETS (NOT JUST RECEPTACLES) LOCATED IN ROOMS DESCRIBED IN NEC 210.12(A): KITCHENS, LAUNDRY AREAS, FAMILY, LIVING BEDROOMS, DINING, HALLS, ETC.
9. OUTLETS MUST BE WITHIN 6FT OF ANY OPENING AND NOT TO EXCEED 12FT APART. ANY ISOLATED WALL 2FT OR WIDER TO HAVE OUTLET(S).
10. ALL EXTERIOR LIGHTING SHALL BE HIGH EFFICACY, OAE
11. RECESSED LIGHTS SHOWN IN SLOPED CEILINGS SHALL BE A MODEL DESIGNED TO PROVIDE A PERPENDICULAR LIGHT SOURCE IN A SLOPED CEILING.
12. PROVIDE UFER GROUND AT ELECTRIC SERVICE LOCATION IN FOUNDATION. GROUND SHALL BE A 20' LONG #4 REINFORCING BAR, OAE.
13. PROVIDE SMOKE DETECTORS IN EACH SLEEPING ROOM AND AT A POINT CENTRALLY LOCATED IN AN AREA GIVING ACCESS TO EACH SEPARATE SLEEPING AREA. SMOKE DETECTORS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. SMOKE DETECTORS MAYBE SOLELY BATTERY POWERED WHEN INSTALLED IN EXISTING BUILDINGS (CBC §310.9.1).
14. WHERE MORE THAN ONE COMBINATION SMOKE/CARBON MONOXIDE DETECTOR IS REQUIRED, THE ALARM SHALL BE INTERCONNECTED IN A MANNER THAT ACTIVATION OF ONE ALARM SHALL ACTIVATE ALL THE ALARMS IN THE RESIDENCE.
15. CONTROL VALVES IN BATHTUBS, WHIRLPOOL BATHTUBS, SHOWERS AND TUB-SHOWER COMBINATIONS MUST BE PRESSURE BALANCED OR THERMOSTATIC MIXING VALVES. CPC SECTION 414.5 AND 418.0.
16. ALL HOT WATER PIPING SIZED ¾" OR LARGER IS REQUIRED TO BE INSULATED AS FOLLOWS: 1" PIPE SIZE OR LESS; 1" THICK INSULATION; LARGER PIPE SIZES REQUIRE 1½" THICK INSULATION. NOTE: IN ADDITION, THE ½" SIZE HOT WATER PIPE TO THE KITCHEN SINK IS REQUIRED TO BE INSULATED. ES 150.0(J)2
17. SEE T24 DOCUMENTATION SHEET FOR MORE INFORMATION ON WATER HEATING, SPACE HEATING, AND COOLING EQUIPMENT SPECIFICATIONS.
18. SHOW THE LOCATIONS OR PROVIDE NOTES OF ALL CARBON MONOXIDE ALARMS TO MEET THE REQUIREMENTS OF CALIFORNIA RESIDENTIAL CODE SECTION R315.
    • INSTALLED IN DWELLING UNITS AND IN SLEEPING UNITS WITHIN WHICH FUEL-BURNING APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES.
    • WHERE MORE THAN ONE CARBON MONOXIDE ALARM IS REQUIRED TO BE INSTALLED THE ALARM SHALL BE INTERCONNECTED IN A MANNER THAT ACTIVATION OF ONE ALARM SHALL ACTIVATE ALL THE ALARMS IN THE INDIVIDUAL UNIT.
    *WHERE AREAS OF NO CONSTRUCTION IS TAKING PLACE CARBON MONOXIDE DETECTORS CAN BE SOLELY BATTERY POWERED
19. CARBON MONOXIDE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING IS SERVED FROM A COMMERCIAL SOURCE AND, WHERE PRIMARY POWER IS INTERRUPTED, SHALL RECEIVE POWER FROM A BATTERY. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVER-CURRENT PROTECTION.
20. SHOW THE LOCATIONS OR PROVIDE NOTES OF ALL SMOKE ALARMS MEETING THE REQUIREMENTS OF CRC SECTION R314.
    • ON THE CEILING OR WALL OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BED ROOMS.
    • IN EACH ROOM USED FOR SLEEPING PURPOSES.
    • IN EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS.
    • IN DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.
    *WHERE AREAS OF NO CONSTRUCTION IS TAKING PLACE SMOKE DETECTORS CAN BE SOLELY BATTERY POWERED ONLY.

electric:

- √ SELECTION
- ☐ NEW METER WITH _____ AMP PANEL
- ☐ SUBPANEL _____ AMP TO EXISTING _____ AMP MAIN PANEL

DISTANCE TO CONNECTION =_____FEET

electrical:

SYMBOL	=	DESCRIPTION
FL	=	FLOURESCENT
LED	=	LIGHT EMITTING DIODE
E	=	ELECTRICAL METER
	=	ELECTRICAL PANEL
ALARM	=	ALARM SOURCE
AUDIO	=	AUDIO SOURCE
DATA	=	DATA SOURCE
PP	=	PHONE PANEL
TP	=	TELEVISION PANEL
VP	=	VIDEO PANEL
	=	DUPLEX OUTLET
	=	HALF HOT DUPLEX OUTLET

electrical:

SYMBOL	=	DESCRIPTION
	=	QUADRAPLEX OUTLET
GFI	=	GROUND FORCE OUTLET
WP	=	WATERPROOF GFI OUTLET
	=	IN-FLOOR OUTLET
GD	=	GARBAGE DISPOSAL OUTLET
DG	=	DEDICATED GROUND OUTLET
	=	220V OUTLET
WP GFI 220	=	WATERPROOF 220V OUTLET
$	=	1 WAY SWITCH
$3	=	3 WAY SWITCH
$D	=	DIMMER SWITCH
$K	=	KEY OPERATED SWITCH

electrical:

SYMBOL	=	DESCRIPTION
$WP	=	WEATHERPROOF SWITCH
D	=	DOOR OPERATED SWITCH
TV	=	CABLE TELEVISION JACK
DP	=	DATAPORT JACK
	=	TELEPHONE JACK
	=	DOORBELL
	=	DOORBELL CHIMES
DB	=	DOORBELL TRANSFORMER
A	=	ALARM SYSTEM PAD
CO	=	CARBON MONOXIDE DETECTOR
F	=	VENT FAN
H	=	HEAT LAMP

electrical:

SYMBOL	=	DESCRIPTION
J	=	JUNCTION BOX
L	=	LIGHT
M	=	MOTION DETECTOR
P	=	PHOTOELECTRIC SENSOR
S	=	SMOKE DETECTOR
SCO	=	SMOKE & CARBON MONOXIDE DETECTOR
HF	=	HEAT/FAN COMBO
LF	=	FLOURESCENT LIGHT/FAN COMBO
LHF	=	FLOURESCENT LIGHT/HEAT LAMP/FAN COMBO
	=	CEILING SURFACE MOUNT FIXTURE
	=	WALL MOUNTED FIXTURE
	=	HANGING FIXTURE

electrical:

SYMBOL	=	DESCRIPTION
	=	WALL SCONCE
	=	RECESSED CEILING FIXTURE
	=	RECESSED CEILING WALL WASH FIXTURE
M	=	RECESSED MOISTURE RESISTANT CEILING FIXTURE
	=	FLOOD FIXTURE
	=	TRACK LIGHT FIXTURE
	=	FLOURESCENT TUBE FIXTURE
	=	UNDERCABINET FIXTURE
	=	CEILING FAN WITH LIGHT
	=	STEP LIGHT
L	=	GRID CEILING LIGHT
	=	EMERGENCY LIGHT FIXTURE

electrical:

SYMBOL	=	DESCRIPTION
EXIT	=	ILLUMINATED EXIT SIGN
SP	=	SPEAKER
	=	VIDEO CAMERA

mechanical:

SYMBOL	=	DESCRIPTION
FAU	=	FORCED AIR HEATING UNIT
ATTIC FAU	=	ATTIC MOUNTED FORCED AIR UNIT
A/C	=	AIR CONDITIONING UNIT
HPSU	=	SPLIT SYSTEM HEAT PUMP EXTERIOR UNIT
HPIU	=	SPLIT SYSTEM HEAT PUMP INTERIOR UNIT
W HTR	=	WALL HEATER
DV W HTR	=	DIRECT VENT WALL HEATER
T	=	THERMOSTAT
SA	=	SUPPLY AIR WALL REGISTER
	=	SUPPLY AIR CEILING REGISTER
	=	SUPPLY AIR FLOOR REGISTER
RA	=	RETURN AIR WALL REGISTER

mechanical:

SYMBOL	=	DESCRIPTION
	=	RETURN AIR CEILING REGISTER
	=	RETURN AIR FLOOR REGISTER
	=	RIGID SUPPLY AIR DUCT
	=	RIGID RETURN AIR DUCT
	=	FLEXIBLE SUPPLY AIR DUCT
FE	=	FIRE EXTINGUISHER
VM	=	VACUUM MOTOR
V	=	VACUUM OUTLET
DV	=	DRYER VENT
FV	=	FAN VENT
RV	=	RANGE / OVEN VENT

plumbing:

SYMBOL	=	DESCRIPTION
WM	=	WATER METER
WH	=	TANK WATER HEATER
WH	=	TANKLESS WATER HEATER
WC	=	WATER CONDITIONER
SO	=	WATER SERVICE SHUTOFF
HB	=	HOSE BIB
CW	=	COLD WATER VALVE
RP	=	RECESSED PLUMBING
	=	SHOWERHEAD
	=	OVERHEAD SHOWERHEAD
	=	ADJUSTABLE SHOWERHEAD
	=	FIRE SPRINKLER
	=	ROUND SHOWER DRAIN

plumbing:

SYMBOL	=	DESCRIPTION
	=	LINEAR SHOWER DRAIN
CO	=	CLEAN OUT
FD	=	FLOOR DRAIN
FS	=	FLOOR SINK
GM	=	GAS METER
FG	=	FUEL GAS
LL	=	LOG LIGHTER
	=	LOOSE GAS KEY
	=	DECK OR ROOF DRAIN
OS	=	OVERFLOW SCUPPER
	=	DECK OR ROOF DRAIN + OVERFLOW SCUPPER
DS	=	DOWNSPOUT

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

JOB: 201848R

UTILITY PLAN

a2.0

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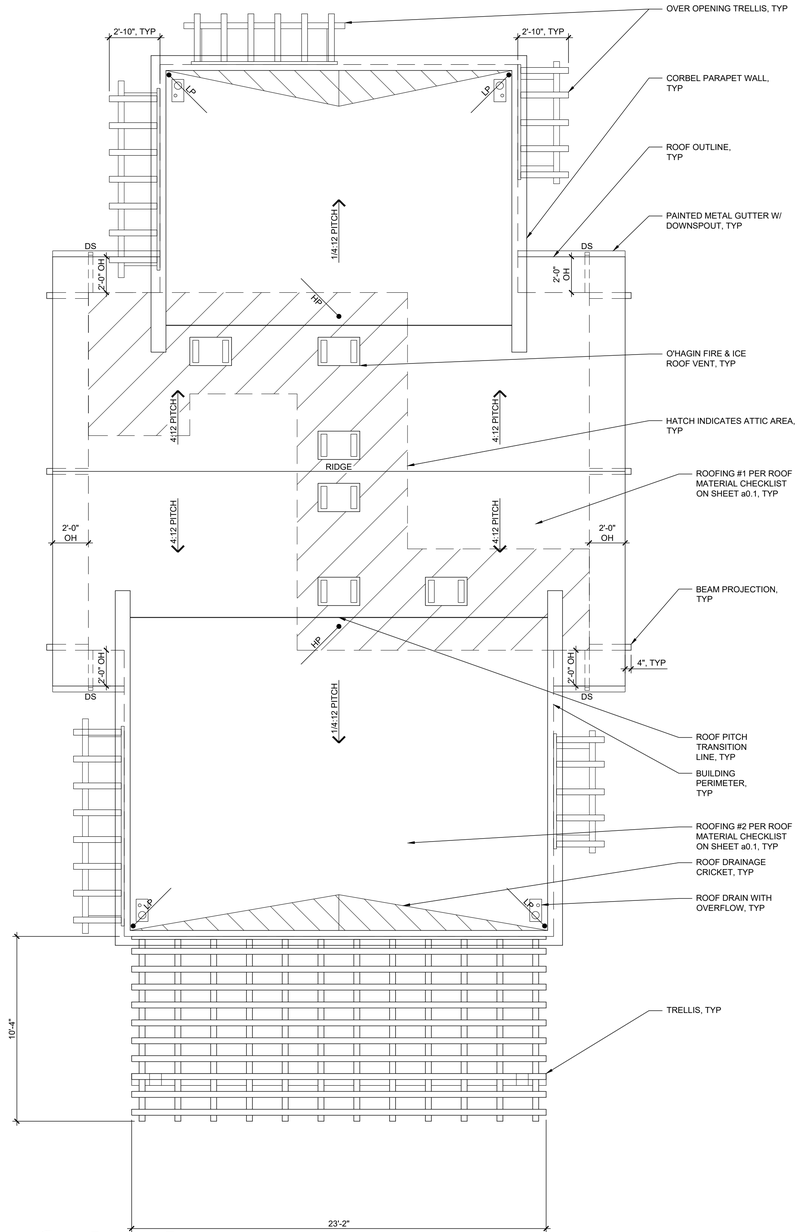
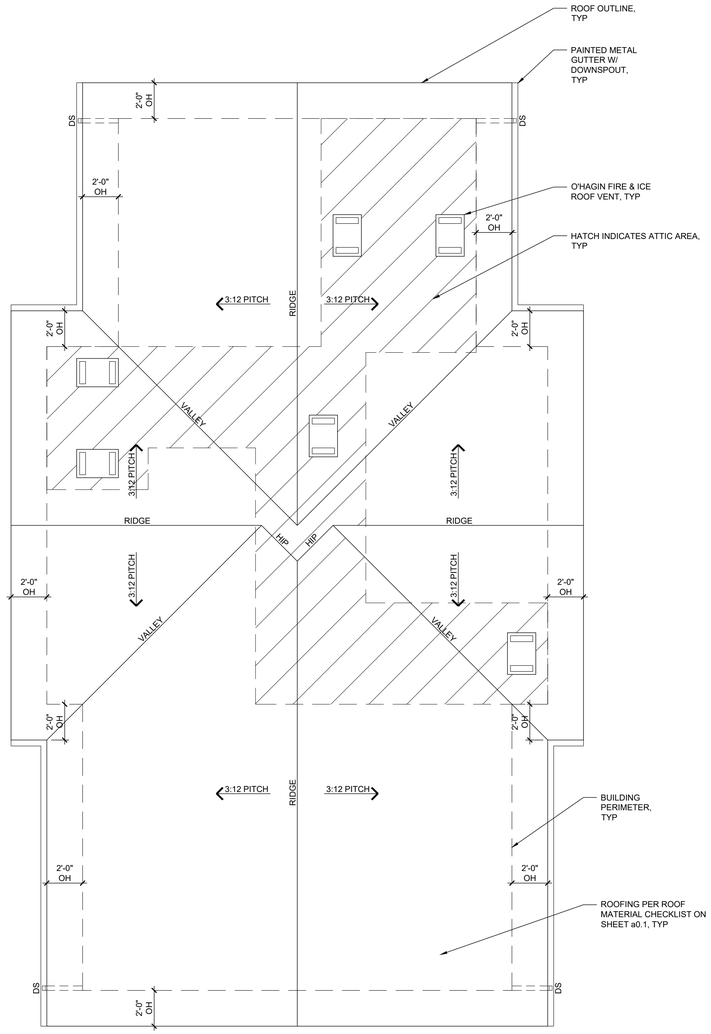


2 roof plan b

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

0 1' 5' 10' 20'



1 roof plan a

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

0 1' 5' 10' 20'

roof plan notes:

1. ALL ROOFING SHALL BE CLASS A RATED.
2. ROOFING SELECTIONS PER ROOF MATERIAL CHECKLIST ON SHEET a0.1.
3. ATTIC PROPOSED OF 227 sf
   ATTIC VENTING REQUIRED: 373 sf / 150 = 2.49 sf VENT AREA
   ATTIC VENTING PROVIDED: 3 sf [6 O'HAGIN VENTS @ 1/2 sf EACH]
4. IF THE ADU IS IN THE VHFHSZ THE O'HAGIN ROOF VENTS SHALL BE O'HAGIN FIRE & ICE® LINE – FLAME AND EMBER RESISTANT ROOF VENTS

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ROOF PLAN

a3.0

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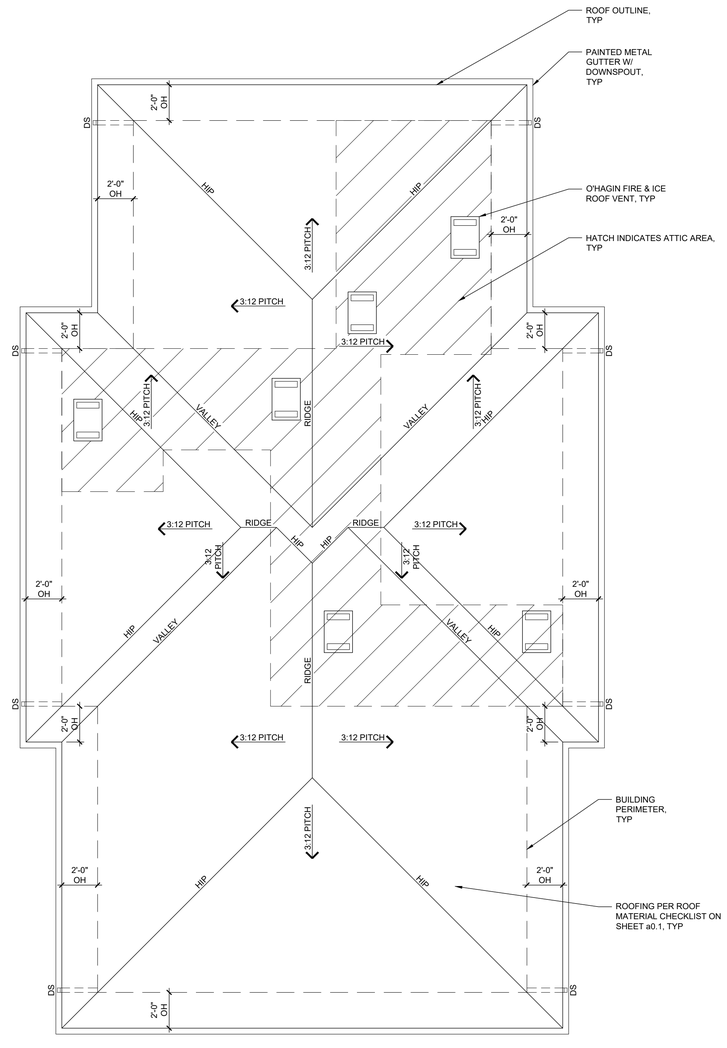

3 roof plan c

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

0 1' 5' 10' 20'

roof plan notes:

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PRADU THREE BEDROOM 3

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JOB: 201848R

ROOF PLAN

a3.1

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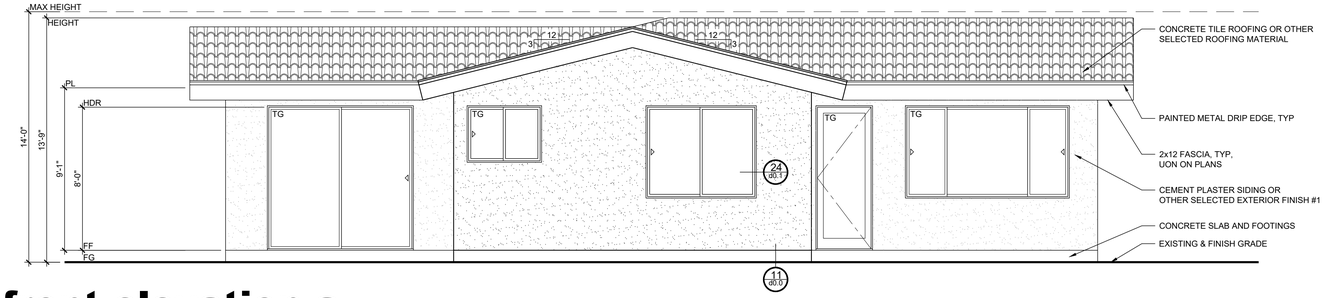
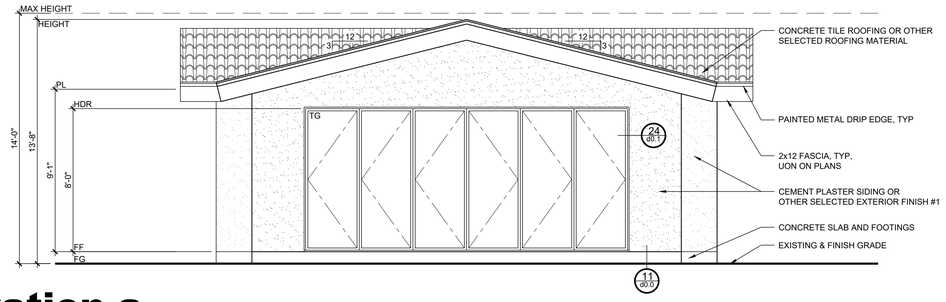


1 front elevation a

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

0 1' 5' 10' 20'



2 right elevation a

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

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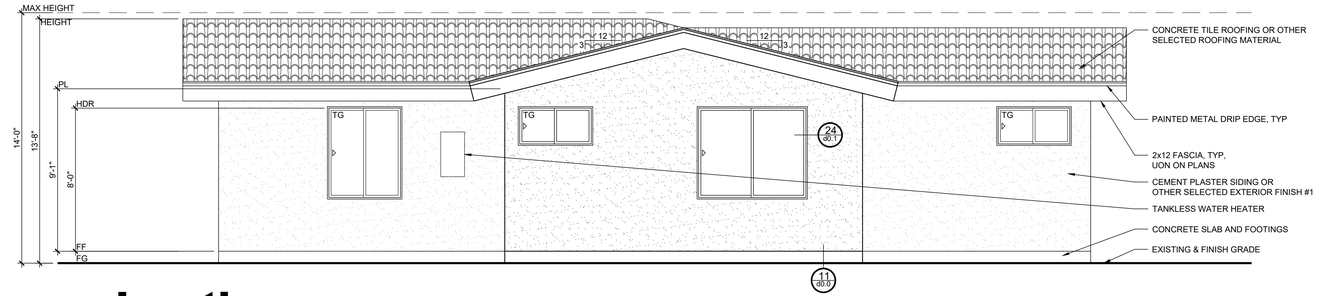

3 rear elevation a

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

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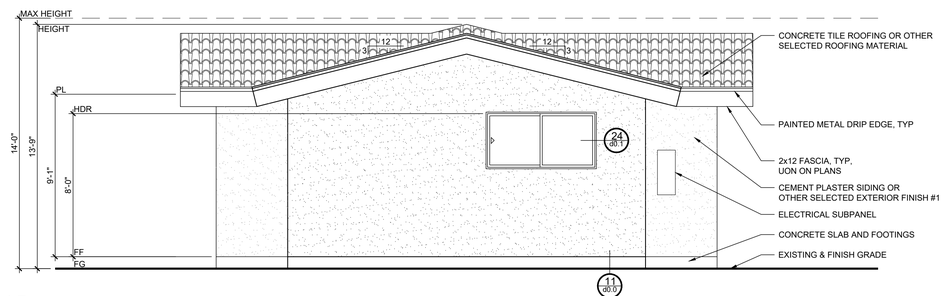

4 left elevation a

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

0 1' 5' 10' 20'

notes:

1. ROOF PLAN NOTES THE LOCATION OF GUTTERS AND DOWNSPOUTS.
2. ROOF PLAN NOTES THE LOCATION OF ROOF MOUNTED ATTIC VENTS.
3. ADJUSTMENT OF ROOF PITCH OR PLATE HEIGHT MAY BE REQUIRED IF RAISED FLOOR FOUNDATION IS SELECTED TO MEET HEIGHT REQUIREMENTS.

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PRADU THREE BEDROOM 3

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ELEVATION A

a4.0

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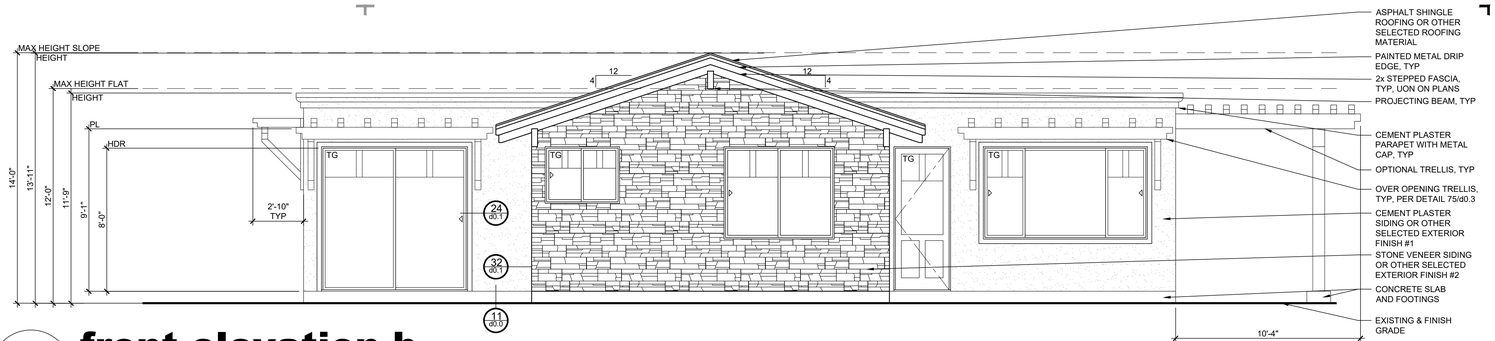

1 front elevation b

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

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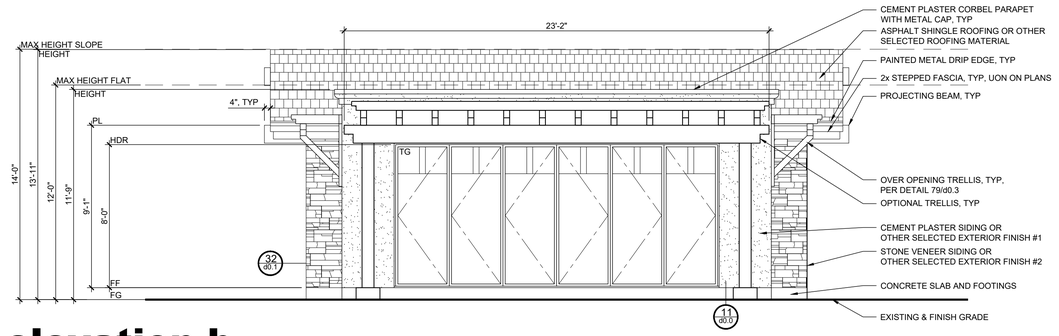

2 right elevation b

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

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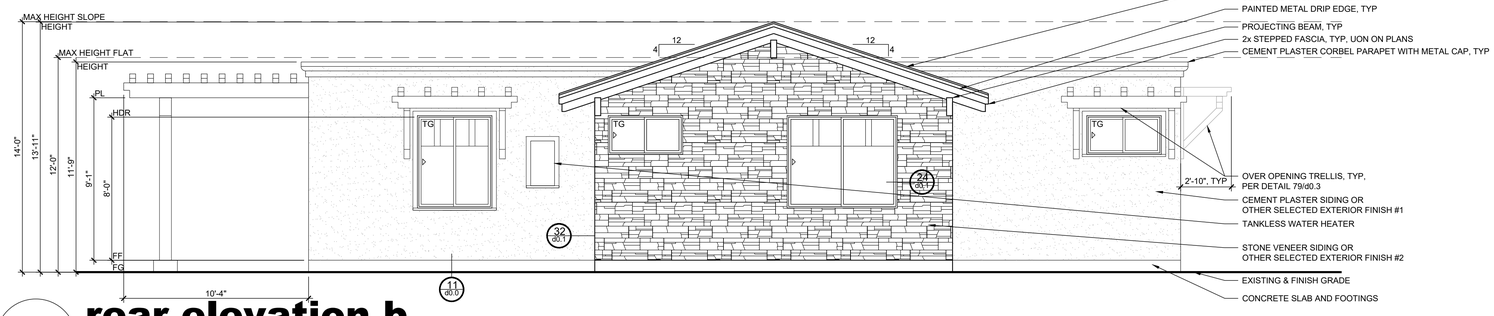

3 rear elevation b

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

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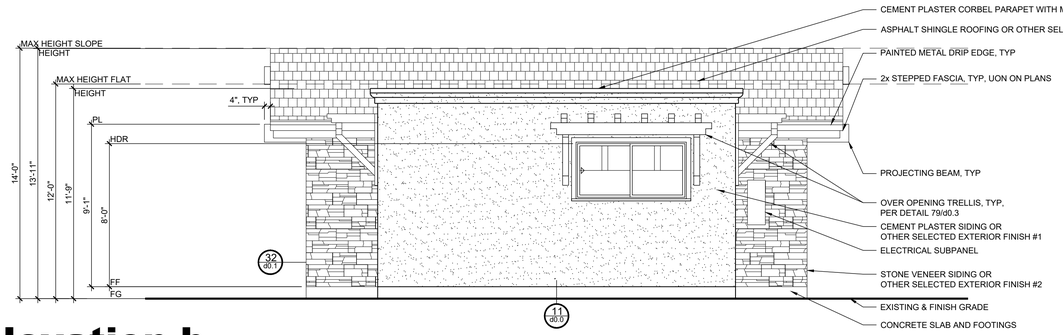

4 left elevation b

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

0 1' 5' 10' 20'

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ELEVATION B

a4.1

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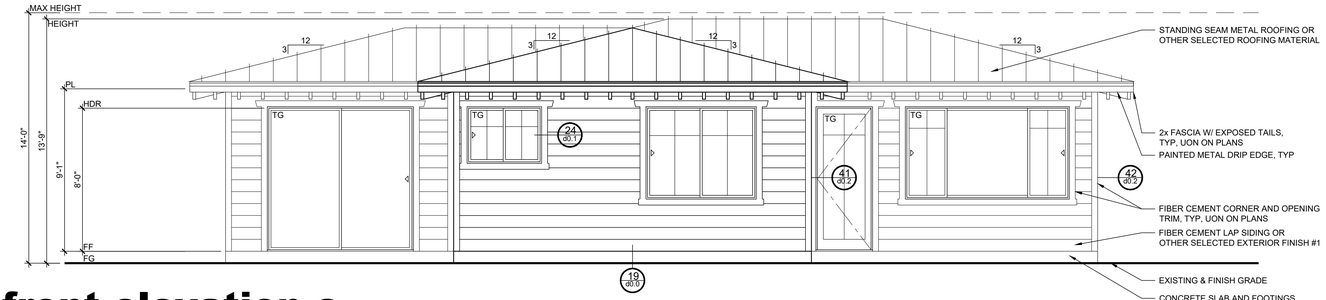
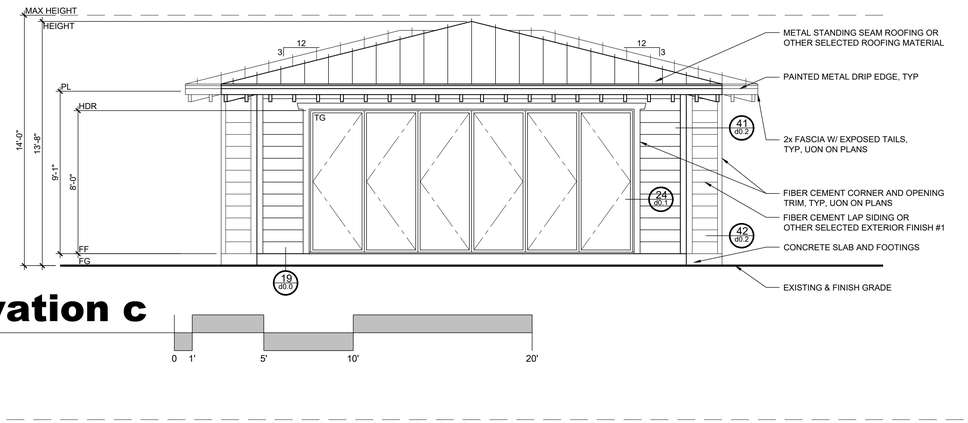


1 front elevation c

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

0 1' 5' 10' 20'



2 right elevation c

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

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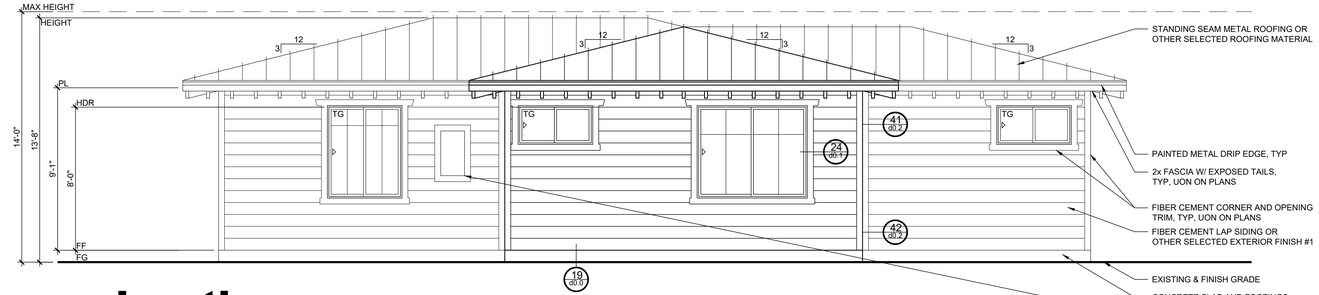
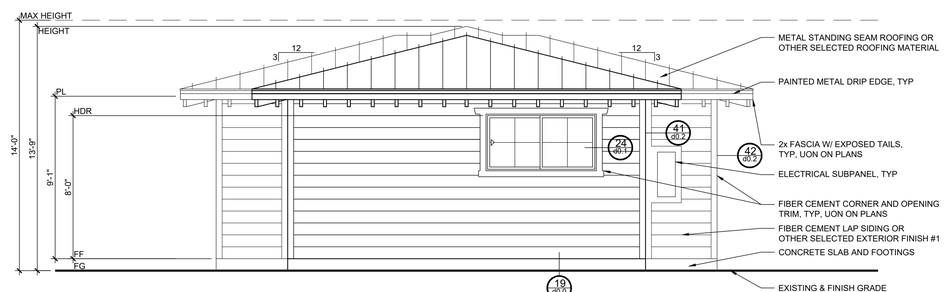


3 rear elevation c

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

0 1' 5' 10' 20'



4 left elevation c

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

0 1' 5' 10' 20'

notes:

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PRADU THREE BEDROOM 3

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ELEVATION C

a4.2

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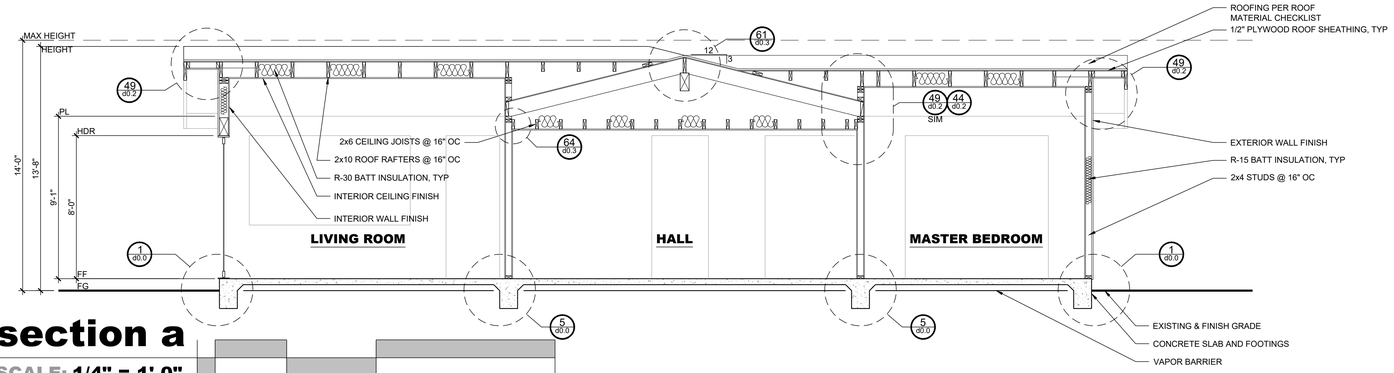
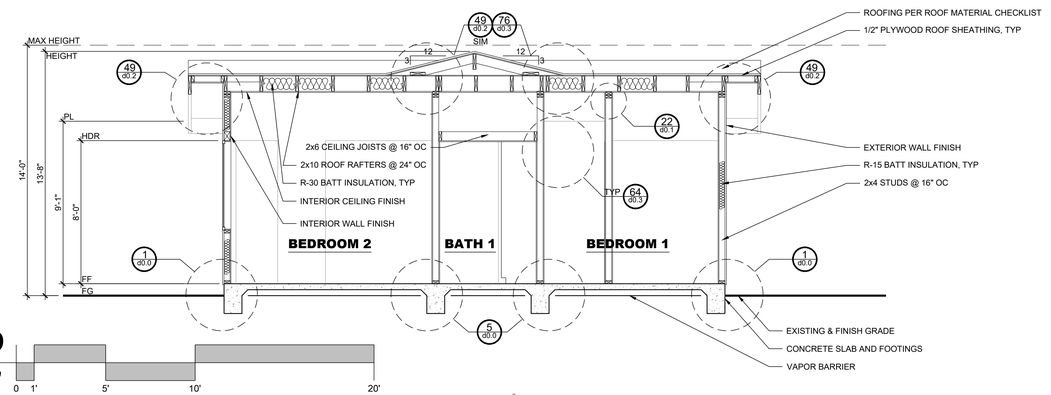


1 section a

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

0 1' 5' 10' 20'



2 section b

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

0 1' 5' 10' 20'

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PRADU THREE BEDROOM 3

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SECTION - ELEVATION A

a5.0

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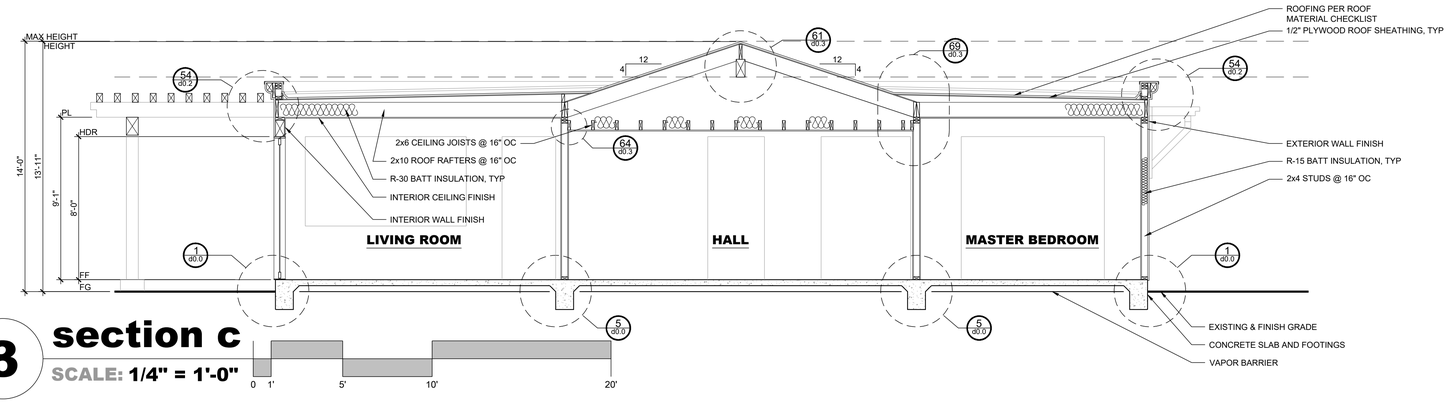

3 section c

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

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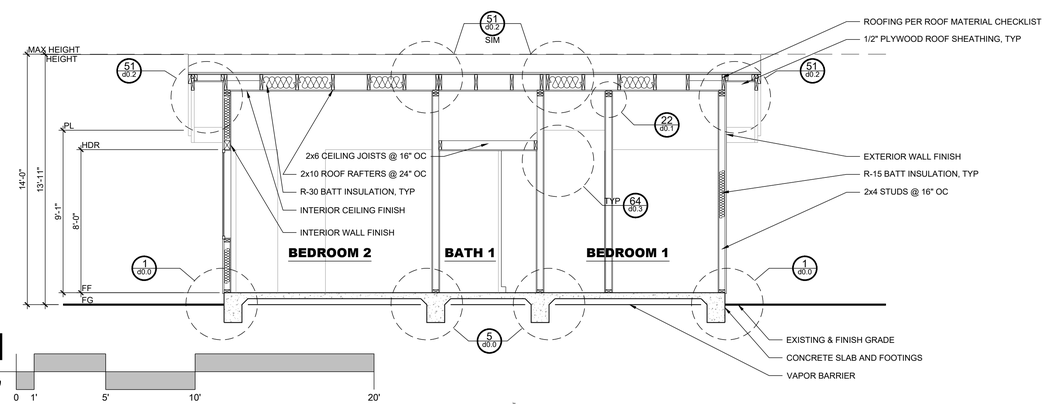

4 section d

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

0 1' 5' 10' 20'

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

JOB: 201848R

SECTION - ELEVATION B

a5.1

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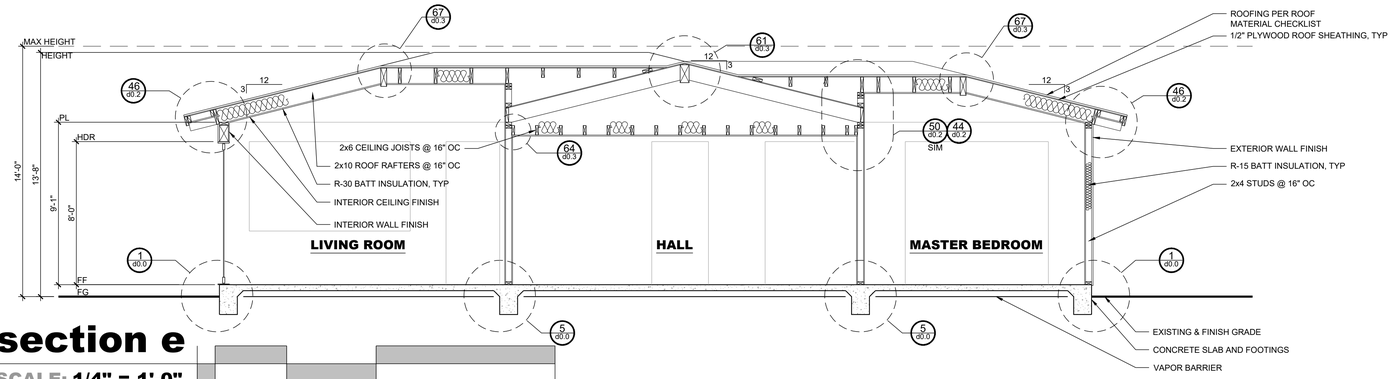

5 section e

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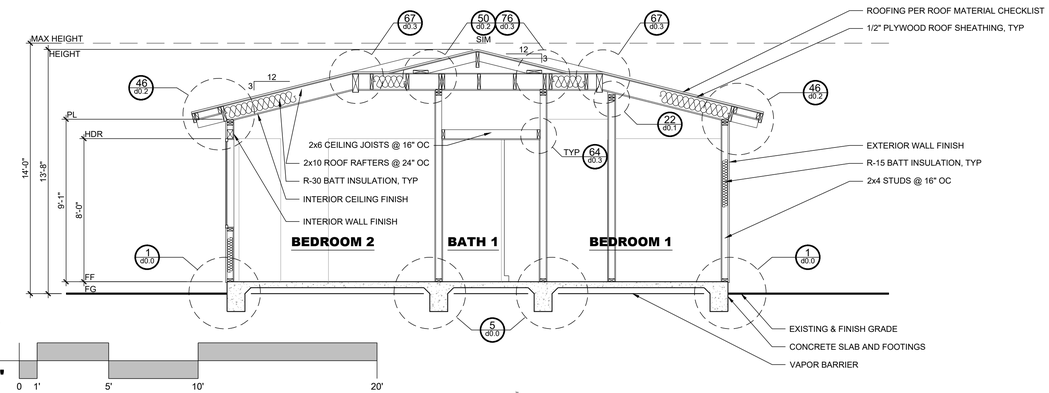

6 section f

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

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

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SECTION - ELEVATION C

a5.2

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fastening schedule - table 2304.10.1

DESCRIPTION OF BUILDING ELEMENT	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF		
1. BLOCKING BETWEEN CEILING JOISTS, RAFTERS OR TRUSSES TO TOP PLATE OR OTHER FRAMING BELOW	3-8d COMMON (2-1/2"x0.131"); OR 3-10d BOX (3"x0.128"); OR 3-3"x0.131" NAILS; OR 3-3"x14 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 (2-1/2"x0.131"); OR 2-3"x0.131" NAILS; OR 2-3" 14 GAGE STAPLES	EACH END, TOENAIL
	2-16d COMMON (3-1/2"x0.162"); OR 3-3"x0.131" NAILS; OR 3-3"x14 GAGE STAPLES	END NAIL
FLAT BLOCKING TO TRUSS AND WEB FILLER	16d COMMON (3-1/2"x0.162") @ 6"OC; OR 3"x0.131" NAILS @ 6" OC; OR 3"x14 GAGE STAPLES @ 6" OC	FACE NAIL
2. CEILING JOISTS TO TOP PLATE	3-8d COMMON (2-1/2"x0.131"); OR 3-10d BOX (3"x0.128"); OR 3-3"x0.131" NAILS; OR 3-3"x14 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 (3-1/2"x0.162"); OR 4-10d BOX (3"x0.128"); OR 4-3"x0.131" NAILS; OR 4-3"x14 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"x0.148"); OR 4-10d BOX (3"x0.128"); OR 4-3"x0.131" NAILS; OR 4-3"x14 GAGE STAPLES,7/16" CROWN	FACE NAIL
6. RAFTER OR TRUSS TO TOP PLATE (SEE SECTION 2308.7.5, TABLE 2308.7.5)	3-10d COMMON (3"x0.148"); OR 3-16d BOX (3-1/2"x0.135"); OR 4-10d BOX (3"x0.128"); OR 4-3"x0.131" NAILS; OR 4-3"x14 GAGE STAPLES,7/16" CROWN	TOENAIL
7. ROOF RAFTERS TO RIDGE, VALLEY OR HIP RAFTERS; OR ROOF RAFTER TO 2-INCH RIDGE BEAM	2-16d COMMON (3-1/2"x0.162"); OR 3-10d BOX (3"x0.128"); OR 3-3"x0.131" NAILS; OR 3-3"x14 GAGE STAPLES,7/16" CROWN; OR	END NAIL
	3-10d COMMON (3-1/2"x0.148"); OR 3-16d BOX (3-1/2"x0.135"); OR 4-10d BOX (3"x0.128"); OR 4-3"x0.131" NAILS; OR 4-3"x14 GAGE STAPLES,7/16" CROWN	TOENAIL
WALL		
8. STUD TO STUD (NOT AT BRACED WALL PANELS)	16d COMMON (3-1/2"x0.162");	24" OC, FACE NAIL
	10d BOX (3"x0.128"); OR 3"x0.131" NAILS; OR 3-3"x14 GAGE STAPLES,7/16" CROWN	16" OC, FACE NAIL
9. STUD TO STUD AND ABUTTING STUDS AT INTERSECTING WALL CORNERS (AT BRACED WALL PANELS)	16d COMMON (3-1/2"x0.162"); OR	16" OC, FACE NAIL
	16d BOX (3-1/2"x0.135"); OR	12" OC, FACE NAIL
	3"x0.131" NAILS; OR 3-3"x14 GAGE STAPLES,7/16" CROWN	12" OC, FACE NAIL
10. BUILT-UP HEADER (2" TO 2" HEADER)	16d COMMON (3-1/2"x0.162"); OR	16" OC, EA EDGE, FACE NAIL
	16d BOX (3-1/2"x0.135")	12" OC, EA EDGE, FACE NAIL
11. CONTINUOUS HEADER TO STUD	4-8d COMMON (2-1/2"X.131"); OR 4-10d BOX (3"x0.128")	TOENAIL
12. TOP PLATE TO TOP PLATE	16d COMMON (3-1/2"x0.162"); OR	16" OC, FACE NAIL
	10d BOX (3"x0.128"); OR 3"x0.131" NAILS; OR 3"x14 GAGE STAPLES,7/16" CROWN	12" OC, FACE NAIL
13. TOP PLATE TO TOP PLATE, AT END JOINTS	8-16d COMMON (3-1/2"x0.162"); OR 12-10d BOX (3"x0.128"); OR 12-3"x0.131" NAILS; OR 12-3"x14 GAGE STAPLES,7/16" CROWN	EA SIDE OF END JOINT, FACE NAIL (MINIMUM 24" LAP SPLICE LENGTH EACH ISDE OF END JOINT)
14. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING (NOT AT BRACED WALL PANELS)	16d COMMON (3-1/2"x0.162"); OR	16" OC, FACE NAIL
	16d BOX (3"x0.135"); OR 3"x0.131" NAILS; OR 3"x14 GAGE STAPLES,7/16" CROWN	12" OC, FACE NAIL
15. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING AT BRACED WALL PANELS	2- 16d COMMON (3-1/2"x0.162"); OR 3-16d BOX (3"x0.135"); OR 4-3"x0.131" NAILS; OR 4-3"x14 GAGE STAPLES,7/16" CROWN	16" OC, FACE NAIL
16. STUD TO TOP OR BOTTOM PLATE	4-8d COMMON (2-1/2"x0.131"); OR 4-10d BOX (3"x0.128"); OR 4-3"x0.131" NAILS; OR 4-3"x14 GAGE STAPLES,7/16" CROWN; OR	TOENAIL
	2-16d COMMON (3-1/2"x0.162"); OR 3- 10d BOX (3"x0.128"); OR 3-3"x0.131" NAILS; OR 3-3"x14 GAGE STAPLES,7/16" CROWN	END NAIL
17. TOP OR BOTTOM PLATE TO STUD	2-16d COMMON (3-1/2"x0.162"); OR 3-10d BOX (3"x0.128"); OR 3-3"x0.131" NAILS; OR 3-3"x14 GAGE STAPLES,7/16" CROWN	END NAIL
18. TOP PLATES, LAP AT CORNERS AND INTERSECTIONS	2-16d COMMON (3-1/2"x0.162"); OR 3-10d BOX (3"x0.128"); OR 3-3"x0.131" NAILS; OR 3-3"x14 GAGE STAPLES,7/16" CROWN	END NAIL
19. 1" BRACE TO EACH STUD AND PLATE	2-8d COMMON (2-1/2"x0.131"); OR 2-10d BOX (3"x0.128"); OR 2-3"x0.131" NAILS; OR 2-3"x14 GAGE STAPLES,7/16" CROWN	FACE NAIL
20. 1"x6" SHEATHING TO EACH BEARING	2-8d COMMON (2-1/2"x0.131"); OR 2-10d BOX (3"x0.128")	FACE NAIL
21. 1"x8" AND WIDER SHEATHING TO BEARING	3-8d COMMON (2-1/2"x0.131"); OR 3-10d BOX (3"x0.128";	FACE NAIL
FLOOR		
22. JOIST TO SILL, TOP PLATE OR GIRDER	3-8d COMMON (2-1/2"x0.131"); OR FLOOR 3-10d BOX (3"x0.128"); OR 3-3"x0.131" NAILS; OR 3-3"x14 GAGE STAPLES,7/16" CROWN	TOENAIL
23. RIM JOIST, BAND JOIST, OR BLOCKING TO TOP PLATE, SILL OR OTHER FRAMING BELOW	8d COMMON (2-1/2"x0.131"); OR 10d BOX (3"x0.128"); OR 3"x0.131" NAILS; OR 3"x14 GAGE STAPLES,7/16" CROWN	6" OC, TOENAIL
24. 1"X6" SUBFLOOR OR LESS TO EACH JOIST	2-8d COMMON (2-1/2"x0.131"); OR 2-10d BOX (3"x0.128")	FACE NAIL
25. 2" SUBFLOOR TO JOIST OR GIRDER	2- 16d COMMON (3-1/2"x0.162")	FACE NAIL
26. 2" PLANKS (PLANK & BEAM - FLOOR & ROOF)	2- 16d COMMON (3-1/2"x0.162")	EACH BEARING, FACE NAIL
27. BUILT-UP GIRDERS AND BEAMS, 2" LUMBER LAYERS	20d COMMON (4"x0.192")	32" OC, FACE NAIL AT TOP & BOTTOM STAGGERED ON OPPOSITE SIDES
	10d BOX (3"x0.128"); OR 3"x0.131" NAILS; OR 3"x14 GAGE STAPLES,7/16" CROWN	24" OC, FACE NAIL AT TOP & BOTTOM STAGGERED ON OPPOSITE SIDES
	AND: 2- 20d COMMON (4"x0.192") 3- 10d BOX (3"x0.128"); OR 3-3"x0.131" NAILS; OR 3-3"x14 GAGE STAPLES,7/16" CROWN	ENDS AND AT EACH SPLICE, FACE NAIL
28. LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	3- 16d COMMON (3-1/2"x0.162"); OR 4-10d BOX (3"x0.128"); OR 4-3"x0.131" NAILS; OR 4-3"x14 GAGE STAPLES,7/16" CROWN	EACH JOIST OR RAFTER, FACE NAIL
29. JOIST TO BAND JOIST OR RIM JOIST	3- 16d COMMON (3-1/2"x0.162"); OR 4-10d BOX (3"x0.128"); OR 4-3"x0.131" NAILS; OR 4-3"x14 GAGE STAPLES,7/16" CROWN	END NAIL
30. BRIDGING OR BLOCKING TO JOIST, RAFTER OR TRUSS	2-8d COMMON (2-1/2"x0.131"); OR 2-10d BOX (3"x0.128"); OR 2-3"x0.131" NAILS; OR 2-3"x14 GAGE STAPLES,7/16" CROWN	EACH END, TOE NAIL
WOOD STRUCTURAL PANELS (WSP), SUBFLOOR, ROOF AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLE BOARD WALL SHEATHING TO FRAMING a		
FIELD = INTERMEDIATE SUPPORTS		EDGES - FIELD (INCHES)

DESCRIPTION OF BUILDING ELEMENT	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
31. 3/8" - 1/2"	6d COMMON OR DEFORMED (2" x 0.113") (SUBFLOOR & WALL)	6 - 12
	8d BOX OR DEFORMED(2-1/2"x0.113") (ROOF)	6 - 12
	2-3/8" x 0.113" NAIL (SUBFLOOR & WALL)	6 - 12
	1-3/4" 16 GAGE STAPLE, 7/16" CROWN (SUBFLOOR & WALL)	4 - 8
	2-3/8" x 0.113" NAIL (ROOF)	4 - 8
	1-3/4" 16 GAGE STAPLE,7/16" CROWN (ROOF)	3 - 6
32. 19/32" - 3/4"	8d COMMON (2-1/2"x0.131"); OR 6d DEFORMED (2" x 0.113")	6 - 12
	2-3/8"x0.131" NAIL; OR 2"x16 GAGE STAPLES,7/16" CROWN	4 - 8
33. 7/8" - 1-1/4"	10d COMMON (3"x0.148"); OR 8d DEFORMED (2-1/2" x 0.131")	6-12
OTHER EXTERIOR WALL SHEATHING		
34. 1/2" FIBERBOARD SHEATHING b	1-1/2" GALVANIZED ROOFING NAIL (7/16" DIAMETER HEAD); OR 1-1/4" 16 GAGE STAPLE WITH 7/16" OR 1" CROWN	3 - 6
35. 5/8" FIBERBOARD SHEATHING b	1-3/4" GALVANIZED ROOFING NAIL (7/16" DIAMETER HEAD); OR 1-1/2" 16 GAGE STAPLE WITH 7/16" OR 1" CROWN	3 - 6
WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING		
36. 3/4" AND LESS	8d COMMON (2-1/2"x0.131"); OR 6d DEFORMED (2" x 0.113")	6 - 12
37. 7/8" - 1"	8d COMMON (2-1/2"x0.131"); OR 8d DEFORMED (2-1/2" x 0.131")	6 - 12
38. 1- 1/8" - 1- 1/4"	10d COMMON (3"x0.148"); OR 8d DEFORMED (2-1/2"" x 0.131")	6 - 12
PANEL SIDING TO FRAMING		
39. 1/2" OR LESS	6d CORROSION-RESISTANT SIDING (1-7/8"x0.106"); OR 6d CORROSION-RESISTANT CASING (2"x0.099")	6 - 12
40. 5/8"	8d CORROSION-RESISTANT SIDING (2-3/8"x0.128"); OR 8d CORROSION-RESISTANT CASING (2-1/2"x0.113")	6 - 12
INTERIOR PANELING		
41. 1/4"	4d CASING (1-1/2"x0.080"); OR 4d FINISH (1-1/2"x0.072")	6 - 12
42. 3/8"	6d CASING (2"x0.099"); OR 6d FINISH (PANEL SUPPORTS @ 24")	6 - 12

FOR SI: 1 INCH = 25.4 MM

a. NAILS SPACED 6 INCHES AT INTERMEDIATE SUPPORTS (FIELD) WHERE SPANS ARE GREATER THAN 48" OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLE BOARD DIAPHRAGMS AND SHEAR WALLS, REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX OR CASING.

b. SPACING SHALL BE 6" OC ON THE EDGES AND 12" OC AT INTERMEDIATE SUPPORTS (FIELD) FOR NON-STRUCTURAL APPLICATIONS. PANEL SUPPORTS AT 16" (20" IF STRENGTH AXIS IS 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 ACCORDING TO THIS SCHEDULE, THE NUMBER OF TOENAILS IN THE RAFTER SHALL BE PERMITTED TO BE REDUCED BY ONE NAIL.

green building code notes:

CGC1 THE SITE SHALL BE PLANNED & DEVELOPED TO KEEP SURFACE WATER AWAY FROM BUILDINGS. PLANS SHALL BE PROVIDED AND APPROVED BY THE CITY ENGINEER THAT SHOW SITE GRADING AND PROVIDE FOR STORM WATER RETENTION AND DRAINAGE DURING CONSTRUCTION. BMP'S THAT ARE CURRENTLY ENFORCED BY THE CITY ENGINEER MUST BE IMPLEMENTED PRIOR TO INITIAL INSPECTION BY THE BUILDING DEPARTMENT. CGC 4.106.3.

CGC2 A MIN OF 65% OF CONSTRUCTION WASTE IS TO BE RECYCLED. CGC 4.408.1.

CGC3 THE BUILDER IS TO PROVIDE AN OPERATION MANUAL (CONTAINING INFORMATION FOR MAINTAINING APPLIANCES, ETC.) FOR THE OWNER AT TIME OF FINAL INSPECTION. CGC 4.410.1.

CGC4 DURING CONSTRUCTION, ENDS OF DUCT OPENINGS ARE TO BE SEALED, AND MECHANICAL EQUIPMENT IS TO BE COVERED. CGC 4.504.1.

CGC5 VOCs MUST COMPLY WITH THE LIMITATIONS LISTED IN SEC 4.504.3 AND TABLES 4.504.1, 4.504.2, 4.504.3 AND 4.504.5 for: ADHESIVES, PAINTS AND COATINGS, CARPET AND COMPOSITION WOOD PRODUCTS. CGC 4.504.2.

CGC6 IF PROVIDED, WHOLE HOUSE EXHAUST FANS SHALL HAVE INSULATED COVERS OR LOUVERS WHICH CLOSE WHEN THE FAN IS OFF. THE COVERS OR LOUVERS SHALL HAVE MIN R4.2 INSULATION. CGC 5.507.1.

CGC7 BATHROOM FANS SHALL BE ENERGY STAR RATED, VENTED DIRECTLY TO THE OUTSIDE AND CONTROLLED BY A HUMIDISTAT. CGC 4.506.1.

CGC8 HEATING AND AC SHALL BE SIZED AND SELECTED BY ACCA MANUAL J OR ASHRAE HANDBOOK OR EQUIVALENT. THE DUCT SIZING SHALL BE SIZED IN ACCORDANCE WITH ONE OF THE ACCA METHODS LISTED IN CGC SECTION 4.507.2.

CGC9 PRIOR TO FINAL APPROVAL OF THE BUILDING THE LICENSED CONTRACTOR, ARCHITECT, OR ENGINEER IN RESPONSIBLE CHARGE OF THE OVERALL CONSTRUCTION MUST COMPLETE AND SIGN THE GREEN BUILDING STANDARDS CERTIFICATION FORM AND GIVE TO THE BUILDING DEPARTMENT OFFICIAL TO BE FILED WITH THE APPROVED PLANS.
LANDSCAPE IRRIGATION WATER USE SHALL HAVE WEATHER BASED CONTROLLERS. CGC 4.304.1.

CGC11 WHEN A SHOWER IS PROVIDED WITH MULTIPLE SHOWER HEADS, THE SUM OF FLOW TO ALL THE HEADS SHALL NOT EXCEED THE 20% REDUCED LIMIT, OR THE SHOWER SHALL BE DESIGNED SO THAT ONLY ONE HEAD IS ON AT A TIME. CGC 4.303.2.

CGC12 THE CONTRACTOR SHALL SUBMIT A CONSTRUCTION WASTE MANAGEMENT PLAN TO THE JURISDICTION AGENCY THAT REGULATES WASTE MANAGEMENT, PER CGC 4.408.2.

CGC13 THE MOISTURE CONTENT OF WOOD SHALL NOT EXCEED 19% BEFORE IT IS ENCLOSED IN CONSTRUCTION. THE MOISTURE CONTENT NEEDS TO BE CERTIFIED BY ONE OF 3 METHODS SPECIFIED IN SECTION 4.505.3. BUILDING MATERIALS WITH VISIBLE SIGNS OF WATER DAMAGE SHOULD NOT BE USED IN CONSTRUCTION. THE MOISTURE CONTENT MUST BE DETERMINED BY THE CONTRACTOR BY ONE OF THE METHODS LISTED IN CGC 4.505.3.

CGC14 STORM WATER DRAINAGE/RETENTION DURING CONSTRUCTION: PROJECTS WHICH DISTURB LESS THAN ONE ACRE OF SOIL SHALL MANAGE STORM WATER DRAINAGE DURING CONSTRUCTION BY ONE OF THE FOLLOWING: A. RETENTION BASINS. B. WHERE STORM WATER IS CONVEYED TO A PUBLIC DRAINAGE SYSTEM, WATER SHALL BE FILTERED BY USE OF A BARRIER SYSTEM, WATTLE OR OTHER APPROVED METHOD. CGC 4.106.2.

CGC15 GRADING AND PAVING. SITE GRADING OR DRAINAGE SYSTEM WILL MANAGE ALL SURFACE WATER FLOWS TO KEEP WATER FROM ENTERING BUILDINGS (SWALES, WATER COLLECTION, FRENCH DRAINS, ETC.). CGC 4.106.3.
EXCEPTION: ADDITIONS NOT ALTERING THE DRAINAGE PATH.

CGC16 PRIOR TO FINAL INSPECTION THE LICENSED CONTRACTOR, ARCHITECT OR ENGINEER IN RESPONSIBLE CHARGE OF THE OVERALL CONSTRUCTION MUST PROVIDE TO THE BUILDING DEPARTMENT OFFICIAL WRITTEN VERIFICATION THAT ALL APPLICABLE PROVISIONS FROM THE GREEN BUILDING STANDARDS CODE HAVE BEEN IMPLEMENTED AS PART OF THE CONSTRUCTION. CGC 102.3.

CGC17 RECYCLING: THE CONTRACTOR SHALL SUBMIT A CONSTRUCTION WASTE MANAGEMENT PLAN TO THE JURISDICTION AGENCY THAT REGULATES WASTE MANAGEMENT, PER CGC 4.408.2.

CGC18 ELECTRIC VEHICLE CHARGING. NOTE ON THE PLANS THAT ELECTRICAL VEHICLE SUPPLY EQUIPMENT (EVSE) IS REQUIRED IN NEW ONE AND TWO FAMILY DWELLINGS AND TOWNHOMES WITH ATTACHED GARAGES. SHOW ON THE PLANS THE LOCATION OF THE ELECTRICAL VEHICLE SUPPLY EQUIPMENT. THE EVSE MUST CONSIST OF MINIMUM 1" CONDUIT EXTENDING FROM THE MAIN PANEL TO A JUNCTION BOX WHERE THE EVSE RECEPTACLE WILL BE PROVIDED. THE MAIN SERVICE PANEL MUST BE SIZED TO ACCOMMODATE 208/240 VOLT, 40 AMP DEDICATED BRANCH CIRCUIT. CGC 4.106.4.

CGC19 NOTE ON THE PLANS THAT THE GAS FIREPLACE(S) SHALL BE A DIRECT-VENT SEALED COMBUSTION TYPE. WOODSTOVE OR PELLET STOVES MUST BE US EPA PHASE II RATED APPLIANCES. CGC 4.503.1.

CGC20 SHOW COMPLIANCE WITH THE FOLLOWING TABLE FOR NEW/REPLACED FIXTURES, PER CGC 4.303.1.

FIXTURE FLOW RATES FOR INDOOR WATER USE	
FIXTURE TYPE	**MAXIMUM FLOW RATE AT ≥ 20% REDUCTION**
SHOWERHEADS	1.8 GPM @ 80psi
LAVATORY FAUCETS, RESIDENTIAL	1.5 GPM @ 60psi [2]
KITCHEN FAUCETS	1.8 GPM @ 60psi
GRAVITY TANK-TYPEWATER CLOSETS	1.28 GALLONS/FLUSH [1]
FLUSHOMETER TANKWATER CLOSETS	1.28 GALLONS/FLUSH [1]
FLUSHOMETER VALVEWATER CLOSETS	1.28 GALLONS/FLUSH [1]
ELECTROMECHANICAL HYDRAULIC WATER CLOSETS	1.28 GALLONS/FLUSH [1]

1. INCLUDES SINGLE AND DUAL FLUSH WATER CLOSETS WITH AN EFFECTIVE FLUSH OF 1.28 GALLONS OR LESS. SINGLE FLUSH TOILETS - THE EFFECTIVE FLUSH VOLUME SHALL NOT EXCEED 1.28 GALLONS (4.8 LITERS). THE EFFECTIVE FLUSH VOLUME IS THE AVERAGE FLUSH VOLUME WHEN TESTED IN ACCORDANCE WITH ASME A112.19.233.2. DUAL FLUSH TOILETS - THE EFFECTIVE FLUSH VOLUME SHALL NOT EXCEED 1.28 GALLONS (4.8 LITERS). THE EFFECTIVE FLUSH VOLUME IS DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH. FLUSH VOLUMES WILL BE TESTED IN ACCORDANCE WITH ASME A112.19.2 AND ASME A112.19.14.
2. LAVATORY FAUCETS SHALL NOT HAVE A FLOW RATE LESS THAN 0.8 GPM AT 20 PSI.

structural design basis

VERTICAL DESIGN			LATERAL DESIGN						FOUNDATION DESIGN		
			SEISMIC			WIND					
LOAD		#/SF	ITEM		VALUE	ITEM		VALUE	ITEM		VALUE
ROOF DEAD	=	18	SITE CLASS	=	D	BASIC WIND SPEED	=	110 MPH	SOIL	=	TYPE 5
ROOF LIVE	=	20	IMPORTANCE FACTOR, I	=	1.0	IMPORTANCE FACTOR	=	1.0	SITE CLASS	=	D, LATERAL DESIGN
ROOF SNOW	=	N/A	OCCUPANCY CATEGORY	=	II	OCCUPANCY CATEGORY	=	II	SOIL BEARING PRESSURE	=	1,000 #/SF
FLOOR DEAD	=	15	SEISMIC DESIGN CATEGORY	=	D	WIND EXPOSURE CATEGORY	=	B	RETAINING WALLS		
FLOOR LIVE	=	40	Ss	=	1.104	HEIGHT & EXPOSURE ADJ. COEFF.	=	1.0	RESTRAINED LOAD (EFP)	=	N/A
			S1	=	0.425	TOPO ADJ. FACTOR	=	1.0	CANTILEVER LOAD (EFP)	=	N/A
			Sds	=	0.779	SIMPLIFIED DESIGN WIND PRESSURE	=	26.6 #/SF (Ps30)	PASSIVE SOIL PRESSURE	=	N/A
			Sd1	=	0.446	DESIGN WIND PRESSURE	=	16.0 #/SF	COEFFICIENT OF FRICTION	=	N/A
			LATITUDE	=	33.191				SOILS REPORT		
			LONGITUDE	=	-117.423				BY	=	N/A
			PLYWOOD SHEAR, R	=	6.5						
			SEISMIC FORCE RESISTING SYSTEMS :								
			Cs = Sds/(R/I) = 0.120/1.4 (ASD)								
			V = Cs • W (ASD) = 0.086 • W								

2016 cbc/crc shear panel schedule

SHEAR PANEL DESIGNATION (X) SP LENGTH (FT)	STRUCTURAL 1 APA-RATED WOOD STRUCTURAL PANEL THICKNESS	COMMON NAIL SPACING @ BOUNDARIES & EDGES (BN &EN) FIELD NAILING (FN) @ 12" OC OC (INCH)	ALLOWABLE SHEAR/FT W/ WOOD STUDS @ 16" OC #/FT	SLIDING ANCHOR SYSTEM[4] 5/8" Ø ANCHOR BOLT SPACING[2] 2x SILL V=1184# 3x SILL V=1520# OC (INCH)	FRAMING CLIP SPACING V=450# - SIMPSON CO A35, OAE OC (INCH)	16d COMMON NAIL SPACING[3] 2x SOLE PLATE ONLY V=121# OC (INCH)	1/2"Ø LAG SCREW SPACING[5] 2x SOLE PLATE ONLY V=880# OC (INCH)
P	7/8" PLASTER	#11 GA @ 6	180	60	30	8	36
A	3/8"	8d@6	280	48	18	5	23
B[1]	15/32"	8d@4	430	42	12	3	15
C[1]	15/32"	8d@3	550	32	9	2	12
D[1]	15/32"	8d@2	730	24	7	→	9
E[1]	15/32"	8d@2	870	20	6	→	6
SW	SIMPSON CO. STRONGWALL (SEE ATTACHED DETAIL SHEETS).						
SSW	SIMPSON CO. STEEL STRONGWALL (SEE ATTACHED DETAIL SHEETS).						
HF	HARDY FRAME (SEE ATTACHED DETAIL SHEETS).						
NOTES:							

1. FRAMING AT FOUNDATION SILL PLATES AND ADJOINING PANEL EDGE STUDS SHALL BE A SINGLE 3X NOMINAL MEMBER, AND ALL NAILS SHALL BE STAGGERED W/ ½" EDGE DISTANCE. 2X NOMINAL SOLE PLATE MAYBE USED AT RAISED FLOOR AND UPPER LEVELS.
2. SIMPSON CO BP 5/8 BEARING PLATES (LARR 25293), OR EQUAL, SHALL BE USED WITH ALL 5/8" DIAMETER ANCHOR BOLTS. 5/8" DIAMETER SIMPSON WEDGE-ALL WEDGE ANCHORS (ICBO ER-3631) MAY BE USED IN LIEU OF 5/8" DIAMETER ANCHOR BOLTS AT EXISTING FOOTINGS WITH THE SAME SPACING AS THE TABLE ABOVE.
3. ALL SILL NAILING SHALL BE STAGGERED A 1/2" MINIMUM.
4. WHEN A SHEAR PANEL IS SPECIFIED ON BOTH SIDES OF A WALL, ALL SLIDING ANCHOR CONNECTORS SHALL BE ATTACHED WITH SPACING FROM THE TABLE ABOVE TO BE REDUCED BY HALF.
5. MINIMUM 4" PENETRATION INTO 4X MATERIAL.

BY USING THESE PERMIT READY CONSTRUCTION DOCUMENTS, THE USER AGREES TO RELEASE THE CITY OF ENCINITAS AND THE ARCHITECT WHO PREPARED THESE CONSTRUCTION DOCUMENTS FROM ANY AND ALL CLAIMS, LIABILITIES, SUITS AND DEMANDS ON ACCOUNT OF ANY INJURY, DAMAGE OR LOSS TO PERSONS OR PROPERTY, INCLUDING INJURY OR DEATH, OR ECONOMIC LOSSES, ARISING OUT OF THE USE OF THESE CONSTRUCTION DOCUMENTS.

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

JOB: 201848R

STRUCTURAL NOTES

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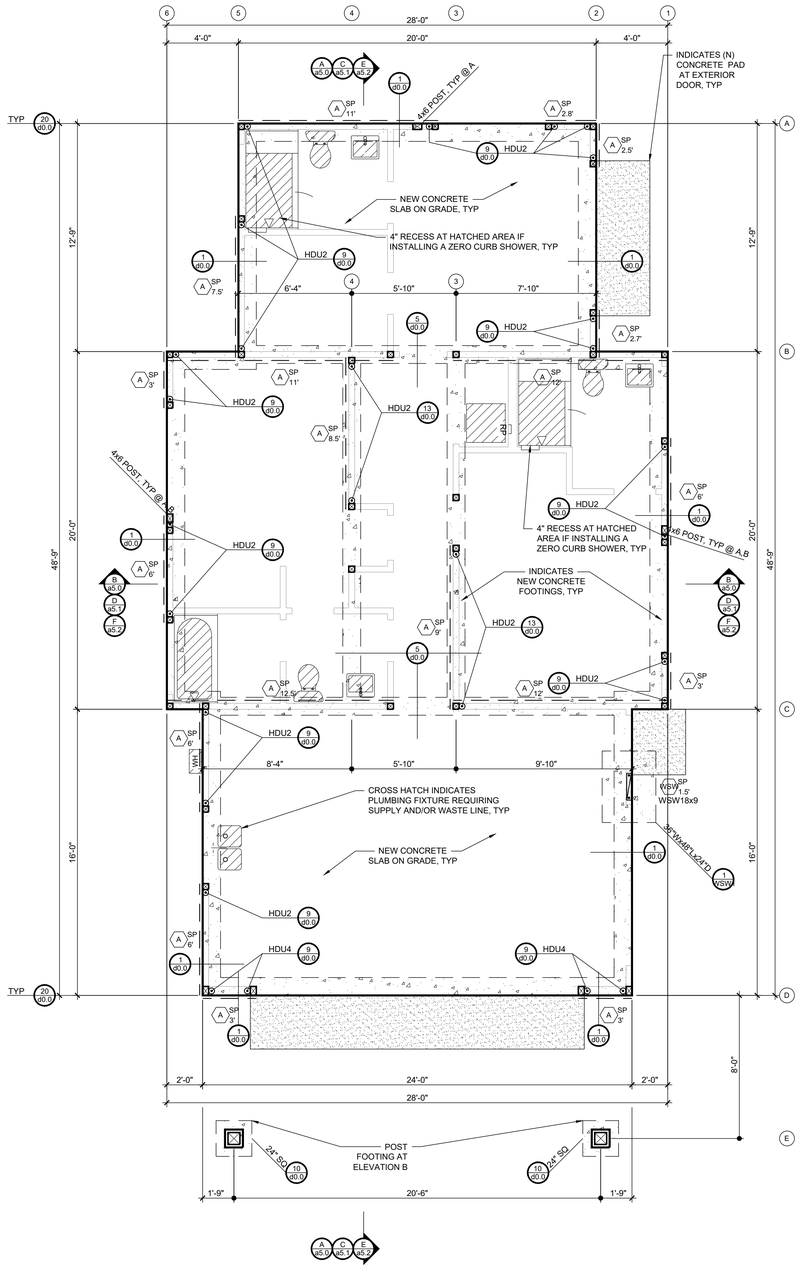
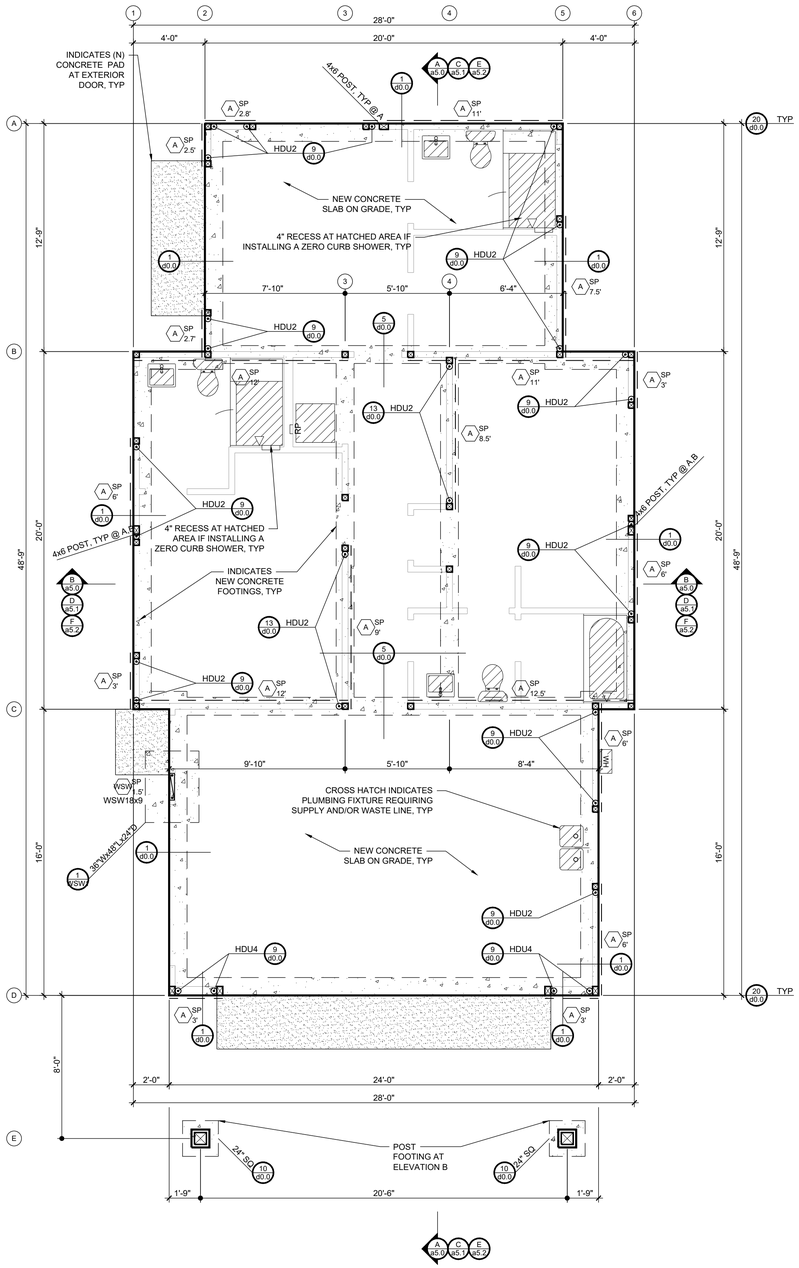


2 reverse foundation plan

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

0 1' 5' 10' 20'



1 foundation plan

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

0 1' 5' 10' 20'

foundation plan notes:

1. EXPANSIVE SOIL LOCATIONS SHALL SUBSTITUTE DETAIL 2/d0.0 FOR DETAIL 1/d0.0 AT PERIMETER FOOTINGS.
2. EXPANSIVE SOIL LOCATIONS SHALL SUBSTITUTE DETAIL 6/d0.0 FOR DETAIL 5/d0.0 AT INTERIOR FOOTINGS.
3. ROOF FRAMING PLAN FOR OTHER ELEVATIONS [B] MAY HAVE DIFFERENT SHEAR PANEL LENGTHS. VERIFY SHEAR PANEL LENGTHS WITH ROOF FRAMING PLAN PRIOR TO PLACING HOLD DOWN AND/OR ANCHOR BOLTS.

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

JOB: 201848R

FOUNDATION PLAN

s1.0

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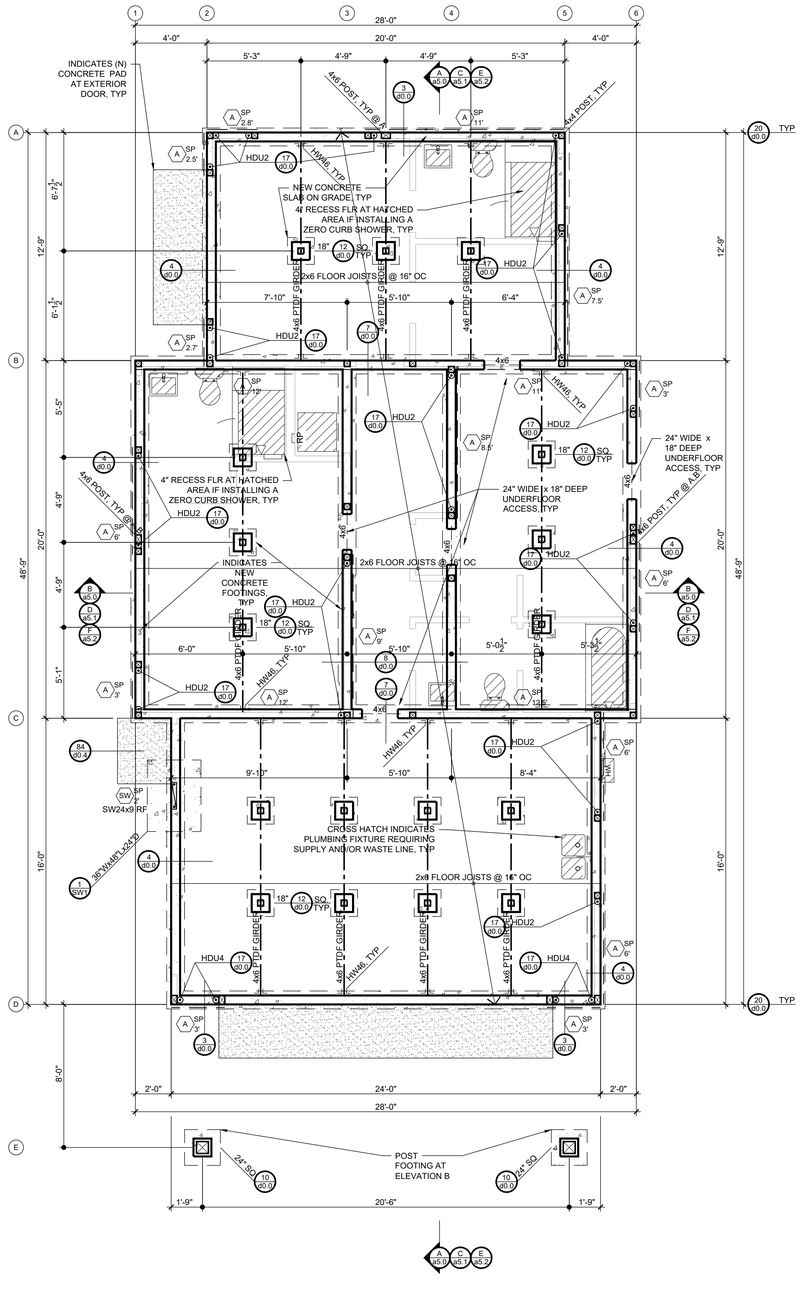

3 raised floor foundation

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

0 1' 5' 10' 20'

raised floor foundation notes:

1. EXPANSIVE SOIL LOCATIONS SHALL PROVIDE FOOTING DIMENSIONS SPECIFIED IN DETAILS 3, 4, 7, 8 & 12/ d0.0 FOR EXPANSIVE SOILS.
2. ROOF FRAMING PLAN FOR OTHER ELEVATIONS [B] MAY HAVE DIFFERENT SHEAR PANEL LENGTHS. VERIFY SHEAR PANEL LENGTHS WITH ROOF FRAMING PLAN PRIOR TO PLACING HOLD DOWN AND/OR ANCHOR BOLTS.
3. PROVIDE FOUNDATION VENTS FOR RAISED FLOOR AREA AT 1 SQ. FT. OF VENT AREA FOR EVERY 150 SQ. FT. OF RAISED FLOOR AREA. 1,199/150 = 8 SQ. FT. TWENTY TWO [22] 4"X14" FOUNDATION VENTS ARE REQUIRED AND SHALL BE EVENLY DISTRIBUTED AT THE FOUNDATION PERIMETER. CRC §408.1
4. PROVIDE A 18"X24" FOUNDATION ACCESS TO RAISED FLOOR FOUNDATION AREAS. CRC §408.4
5. PROVIDE R-19 BATT INSULATION AT UNDER-FLOOR JOISTS, TYP.
6. FLOOR DIAPHRAGM SHALL BE 23/32" APA STURD-I-FLOOR, EXPOSURE 1, 40/20, TONGUE & GROOVE WITH 10d COMMON NAILS @ 6" OC AT BOUNDARY (BN) & PANEL EDGE NAILING (EN) AND 12" OC AT INTERMEDIATE FRAMING MEMBERS (FN).

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PRADU THREE BEDROOM 3

CITY: ENCINITAS

JOB: 201848R

FOUNDATION PLAN

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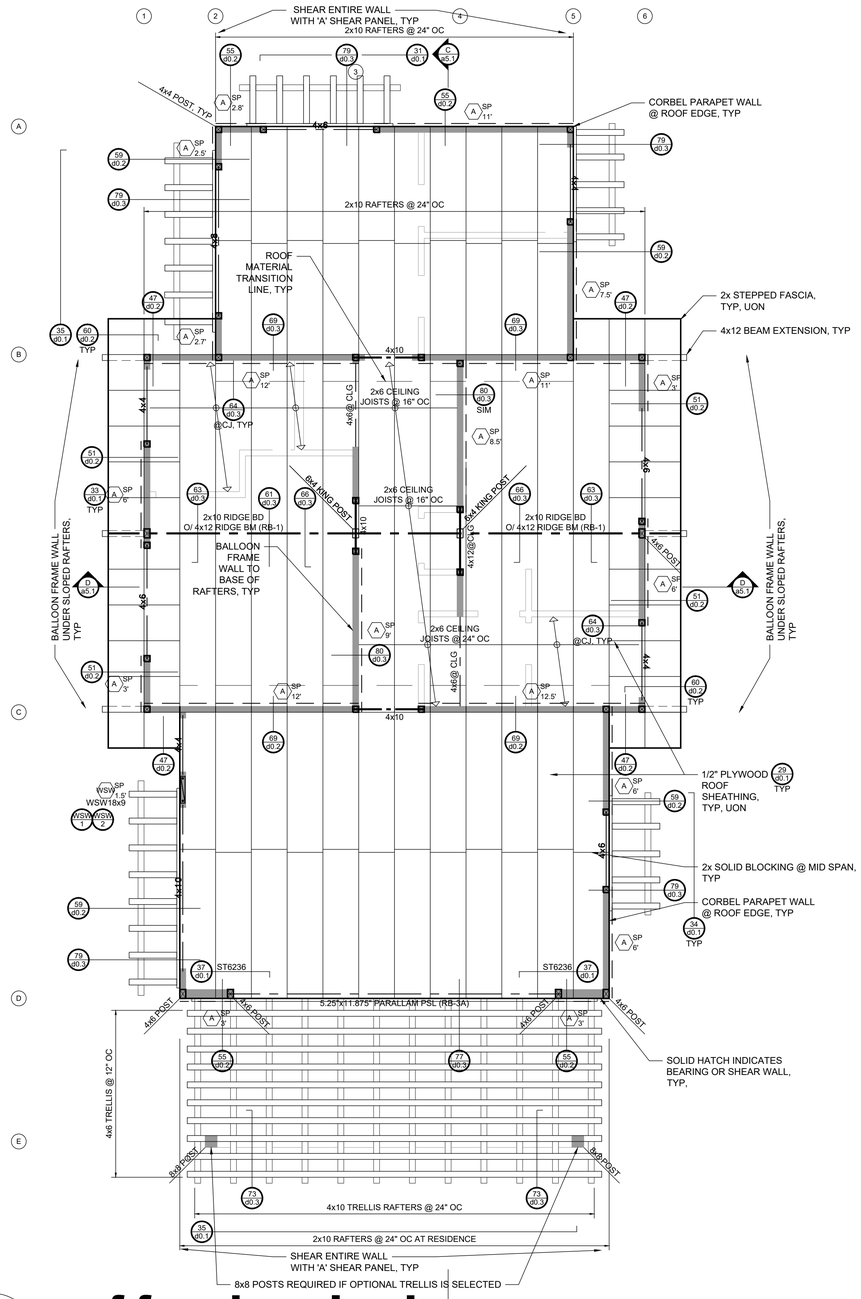
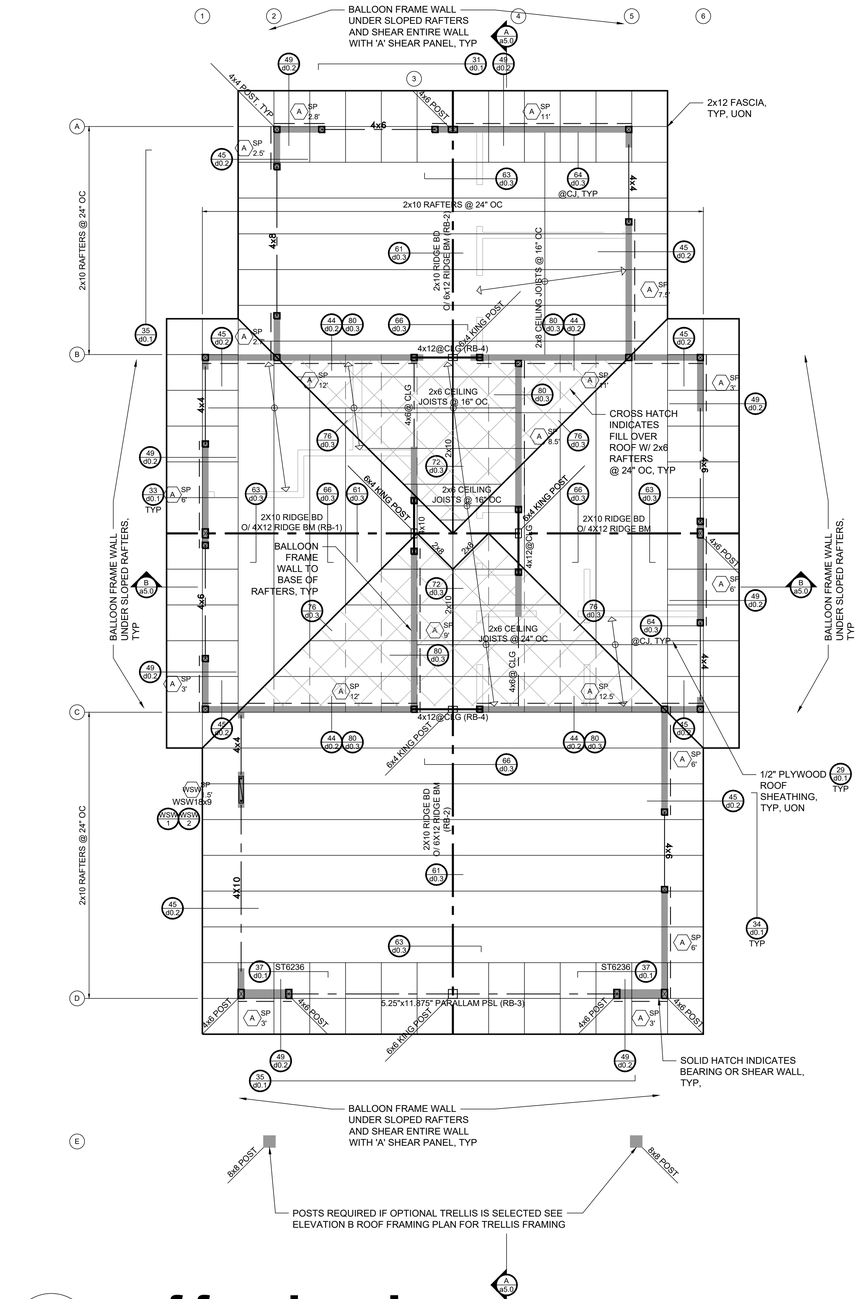


2 roof framing plan b

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



1 roof framing plan a

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

roof framing plan notes:

1. ENCLOSED RAFTER SPACES DO NOT REQUIRE VENTING IF THE FOLLOWING SPECIFIC INSULATION DESIGN IS USED, PER SECTIONS R806.5/EM3.9.6:

a. IF THE INSULATION IS AIR-**PERMEABLE** AND IT IS INSTALLED DIRECTLY BELOW THE ROOF SHEATHING WITH RIGID BOARD OR SHEET INSULATION WITH A MINIMUM R-4 VALUE INSTALLED ABOVE THE ROOF SHEATHING. (OR)

b. IF THE INSULATION IS AIR-**IMPERMEABLE** AND IT IS IN DIRECT CONTACT WITH THE UNDERSIDE OF THE ROOF SHEATHING. (OR)

c. IF **TWO LAYERS** OF INSULATION ARE INSTALLED BELOW THE ROOF SHEATHING: AN **AIR-IMPERMEABLE** LAYER IN DIRECT CONTACT WITH THE UNDERSIDE OF THE ROOF SHEATHING AND AN ADDITIONAL LAYER **OF AIR PERMEABLE** INSULATION INSTALLED DIRECTLY UNDER THE AIR-IMPERMEABLE INSULATION.

2. ROOF DIAPHRAGM SHALL BE 15/32" APA RATED SHEATHING (MIN), EXPOSURE 1, 24/0 MAXIMUM SPAN RATING WITH 8d COMMON NAILS @ 6" OC AT BOUNDARY (BN) & PANEL EDGE NAILING (EN) AND 12" OC AT INTERMEDIATE FRAMING MEMBERS (FN).

3. 4X6 IS THE MINIMUM MEMBER ALLOWED AT A TRELLIS.

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PRADU THREE BEDROOM 3

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ROOF FRAMING PLAN

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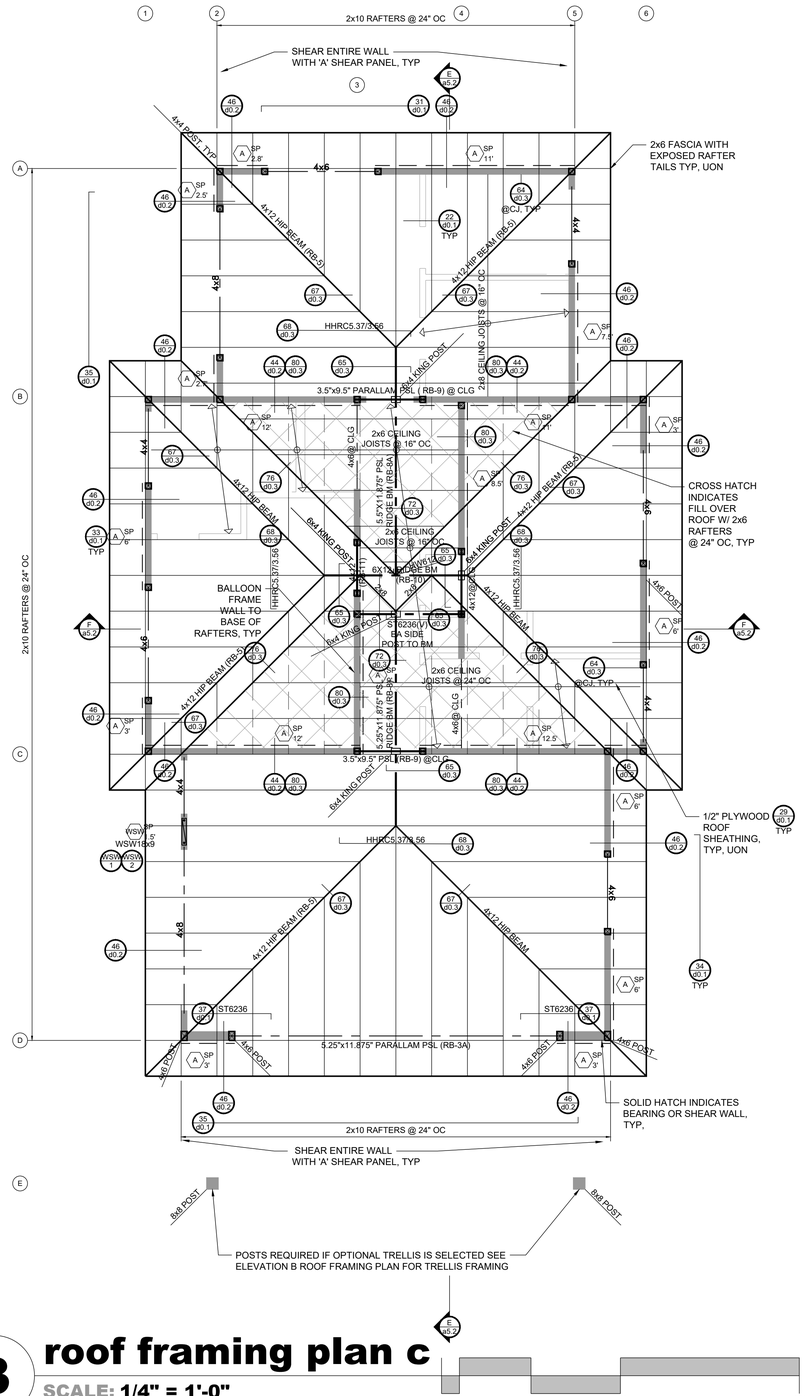

3 roof framing plan c

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

roof framing plan notes:

1. ENCLOSED RAFTER SPACES DO NOT REQUIRE VENTING IF THE FOLLOWING SPECIFIC INSULATION DESIGN IS USED, PER SECTIONS R806.5/EM3.9.6:

a. IF THE INSULATION IS AIR-**PERMEABLE** AND IT IS INSTALLED DIRECTLY BELOW THE ROOF SHEATHING WITH RIGID BOARD OR SHEET INSULATION WITH A MINIMUM R-4 VALUE INSTALLED ABOVE THE ROOF SHEATHING. (OR)

b. IF THE INSULATION IS AIR-**IMPERMEABLE** AND IT IS IN DIRECT CONTACT WITH THE UNDERSIDE OF THE ROOF SHEATHING. (OR)

c. IF **TWO LAYERS** OF INSULATION ARE INSTALLED BELOW THE ROOF SHEATHING: AN **AIR-IMPERMEABLE** LAYER IN DIRECT CONTACT WITH THE UNDERSIDE OF THE ROOF SHEATHING AND AN ADDITIONAL LAYER **OF AIR PERMEABLE** INSULATION INSTALLED DIRECTLY UNDER THE AIR-IMPERMEABLE INSULATION.

2. ROOF DIAPHRAGM SHALL BE 15/32" APA RATED SHEATHING (MIN), EXPOSURE 1, 24/0 MAXIMUM SPAN RATING WITH 8d COMMON NAILS @ 6" OC AT BOUNDARY (BN) & PANEL EDGE NAILING (EN) AND 12" OC AT INTERMEDIATE FRAMING MEMBERS (FN).

3. 4X6 IS THE MINIMUM MEMBER ALLOWED AT A TRELLIS.

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PRADU THREE BEDROOM 3

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ROOF FRAMING PLAN

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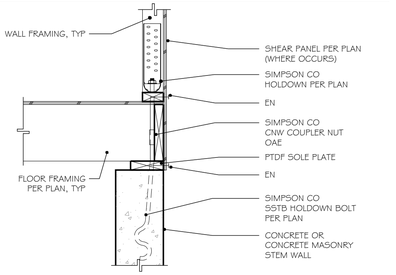
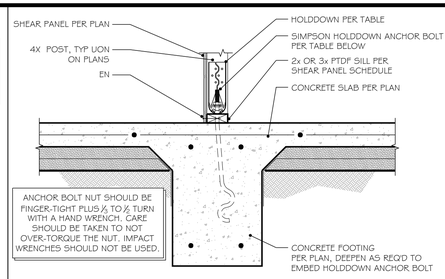
MODEL NO.	ANCHOR BOLT	CONNECTION TO POST	EMBEDMENT	EDGE DISTANCE	MIN WD MEMBER THICKNESS
HDU2	⅝" (SSTB16)	6-SDS ¼"X2 ½"	12 ⅜"	1 ¾"	3"
HDU4	⅝" (SSTB20)	10-SDS ¼"X2 ½"	16 ⅜"	1 ¾"	3"
HDU5	⅝" (SSTB24)	14-SDS ¼"X2 ½"	20 ⅜"	1 ¾"	3"
HDU8	⅞" (SSTB28)	20-SDS ¼"X2 ½"	24 ⅞"	1 ¾"	3"
HDU11	1" (SB1x30)	30-SDS ¼"X2 ½"	24"	1 ¾"	5 ½"
HDU14	1" (SB1x30)	36-SDS ¼"X2 ½"	24"	1 ¾"	7 ½"

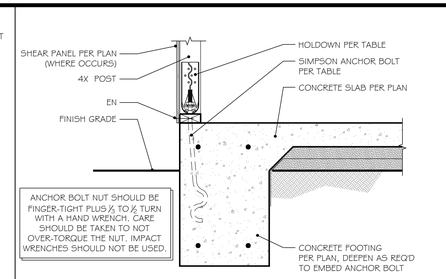


17 HOLDOWN AT STEM WALL FOOTING
SCALE: 1" = 1'-0" A-DT-FDN-SW-0096



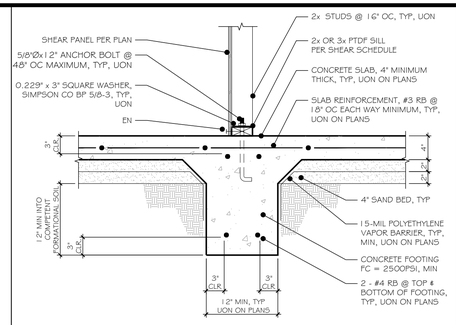
HOLD DOWN	ANCHOR Ø	POST SCREWS	EDGE DISTANCE	EMBED	MIN POST
HDU2	5/8" (SSTB16)	6 SDS ¼" x 2½"	1¾"	16"	4x4
HDU4	5/8" (SSTB20)	10 SDS ¼" x 2½"	1¾"	16"	4x4
HDU5	**5/8" (SSTB24)**	14 SDS ¼" x 2½"	1¾"	20"	4x4
HDU8	**7/8" (SSTB28)**	20 SDS ¼" x 2½"	1¾"	24"	4x4
HDU11	**1" (SB1X30)**	30 SDS ¼" x 2½"	1¾"	24"	4x6
HDU14	**1" (SB1X30)**	36 SDS ¼" x 2½"	1¾"	24"	4x8

13 HOLDOWN - INTERIOR FOOTING
SCALE: 1" = 1'-0" A-DT-FDN-SG-ANC-017

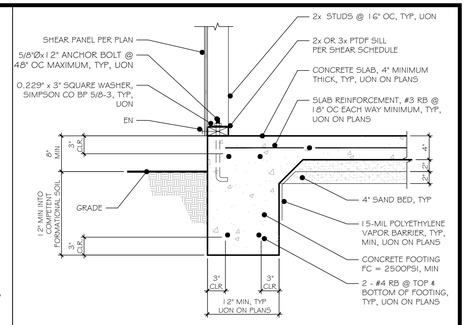


HOLD DOWN	ANCHOR Ø	POST SCREWS	EDGE DISTANCE	EMBED	MIN POST
HDU2	5/8" (SSTB16)	6 SDS ¼" x 2½"	1¾"	12"	4x4
HDU4	5/8" (SSTB20)	10 SDS ¼" x 2½"	1¾"	16"	4x4
HDU5	5/8" (SSTB24)	14 SDS ¼" x 2½"	1¾"	20"	4x4
HDU8	7/8" (SSTB28)	20 SDS ¼" x 2½"	1¾"	24"	4x4
HDU11	1" (SB1X30)	30 SDS ¼" x 2½"	1¾"	24"	4x6
HDU14	1" (SB1X30)	36 SDS ¼" x 2½"	1¾"	24"	4x8

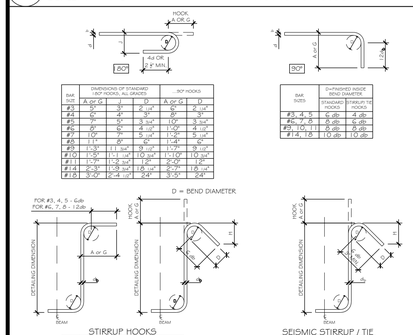
9 HOLDOWN - PERIMETER FOOTING
SCALE: 1" = 1'-0" A-DT-FDN-SG-ANC-013



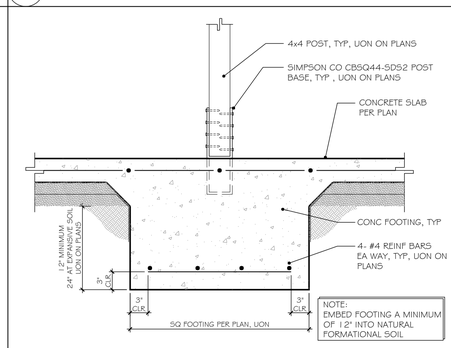
5 SLAB ON GRADE ONE STORY INTERIOR FOOTING
SCALE: 1" = 1'-0" A-DT-FDN-SG-INT-014



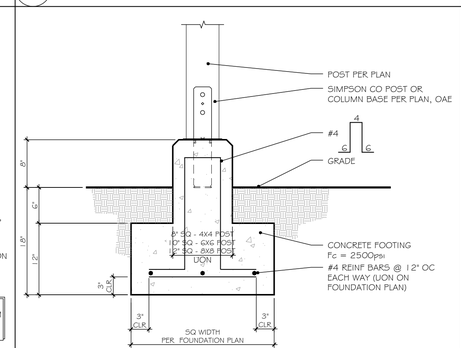
1 SLAB ON GRADE ONE STORY PERIMETER FOOTING
SCALE: 1" = 1'-0" A-DT-FDN-SG-PTR-025



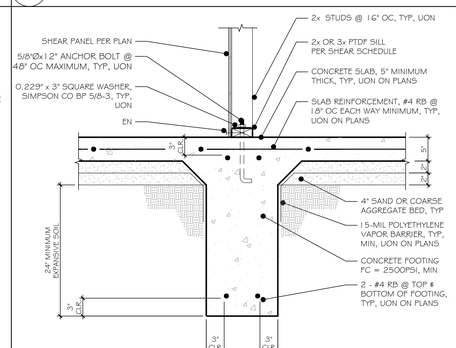
18 STANDARD HOOK DETAILS
SCALE = N.T.S. A-DT-FDN-SG-0041



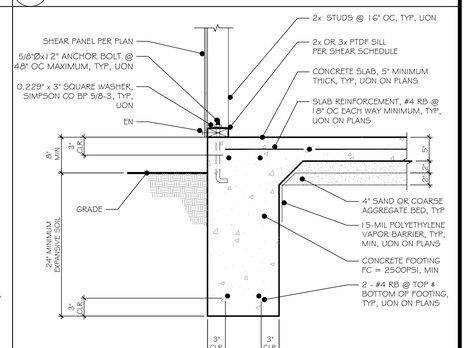
14 POST FOOTING WITHIN SLAB
SCALE : 1" = 1'-0" A-DT-FDN-CP-0020



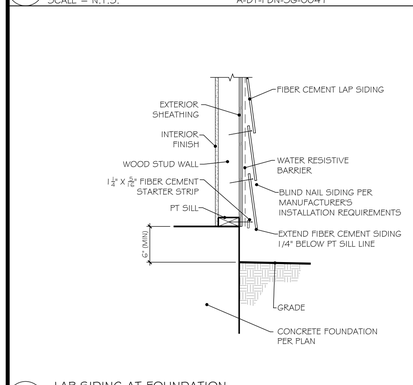
10 TYPICAL POST FOOTING
SCALE: 1" = 1'-0" A-DT-FDN-CP-0003



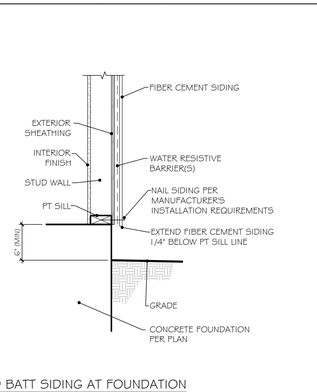
6 ONE STORY INTERIOR EXPANSIVE SOIL FOOTING
SCALE: 1" = 1'-0" A-DT-FDN-SG-INT-015



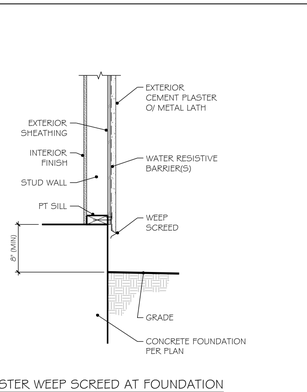
2 ONE STORY PERIMETER EXPANSIVE SOIL FOOTING
SCALE: 1" = 1'-0" A-DT-FDN-SG-PTR-026



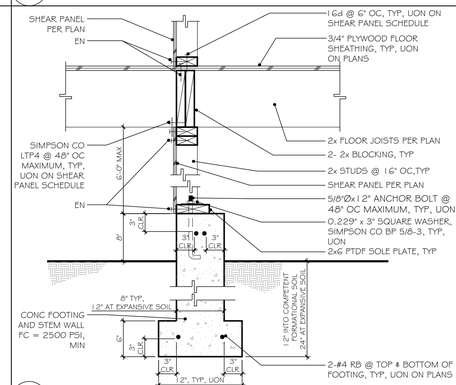
19 LAP SIDING AT FOUNDATION
SCALE: 1" = 1'-0" A-DT-FIN-FCS-LS-0001



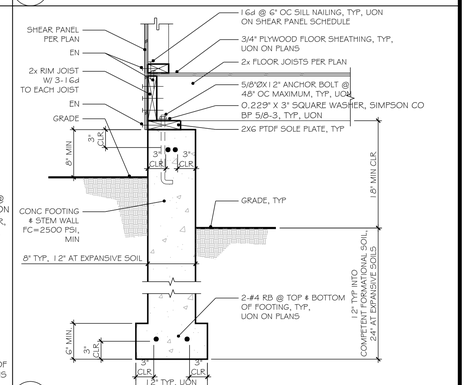
15 BOARD AND BATT SIDING AT FOUNDATION
SCALE: 1" = 1'-0" A-DT-FIN-FCS-BB-0001



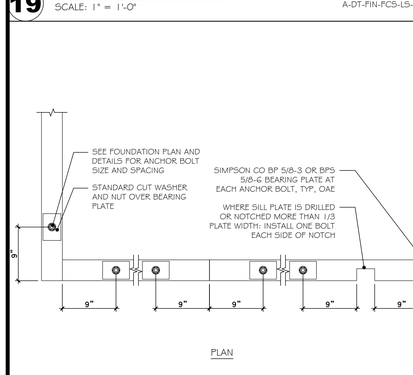
11 CEMENT PLASTER WEEP SCREED AT FOUNDATION
SCALE: 1" = 1'-0" A-DT-FIN-PL-0001



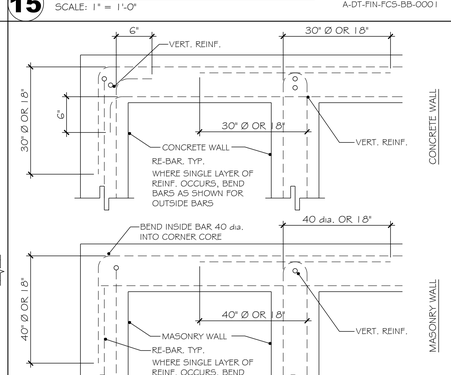
7 ONE-STORY INTERIOR STEM WALL FOOTING - PERPENDICULAR
SCALE = 1" : 1'-0" A-DT-FDN-SW-0073



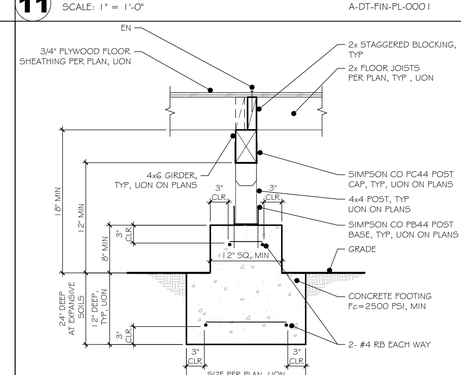
3 ONE STORY EXTERIOR STEM WALL FOOTING-PERPENDICULAR
SCALE = 1" : 1'-0" A-DT-FDN-SW-0002



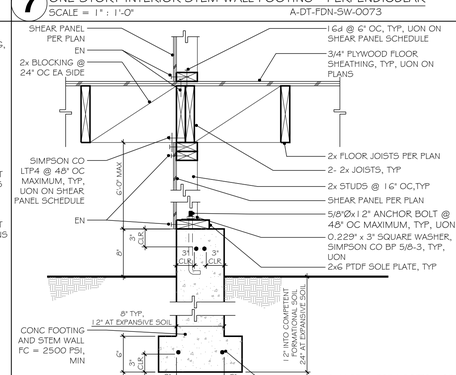
20 SILL PLATE ANCHOR BOLTING
SCALE: 1" = 1'-0" A-DT-FDN-SG-ANC-002



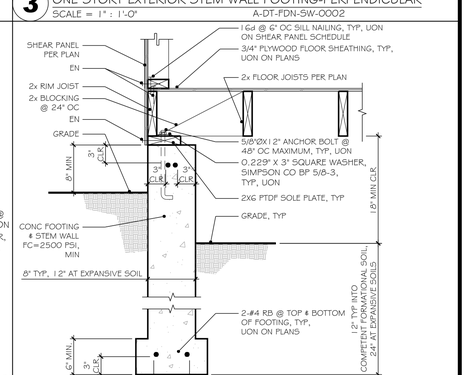
16 TYPICAL CONCRETE / MASONRY WALL REINFORCEMENT
SCALE = 1" : 1'-0" A-DT-FDN-SW-0021



12 FLOOR JOIST AND GIRDER BEAMS AT PAD FOOTING
SCALE: 1" = 1'-0" A-DT-FDN-SW-0133



8 ONE-STORY INTERIOR STEM WALL FOOTING - PARALLEL
SCALE = 1" : 1'-0" A-DT-FDN-SW-0134



4 ONE STORY EXTERIOR STEM WALL FOOTING-PARALLEL
SCALE = 1" : 1'-0" A-DT-FDN-SW-0135

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DETAILS

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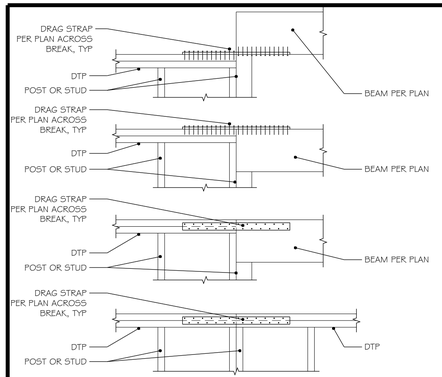
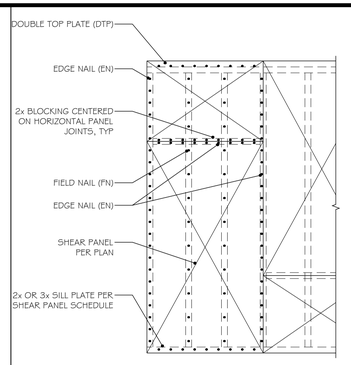
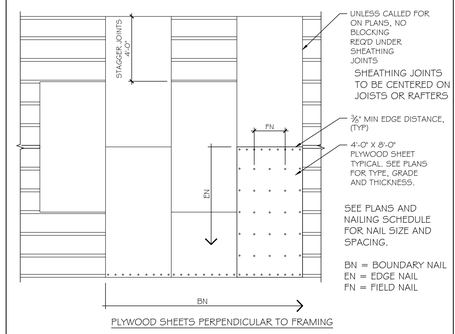


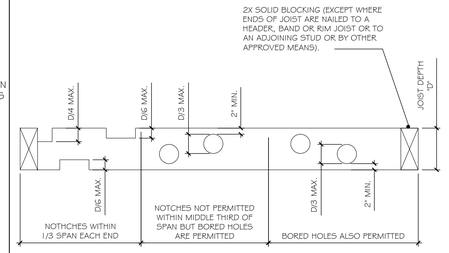
37 DRAG STRAP AT TOP PLATE TO BEAM OR TOP PLATE
SCALE: 3/4" = 1'-0" A-DT-FMG-WF-0013



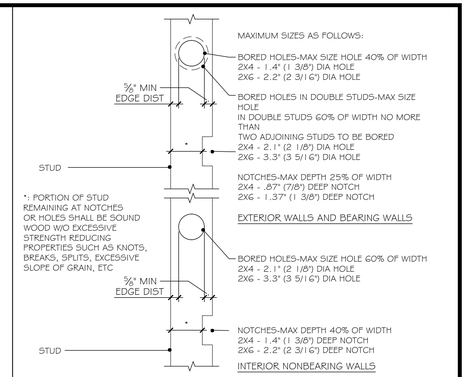
33 TYPICAL SHEAR PANEL
SCALE : NTS A-DT-FMG-WF-0018



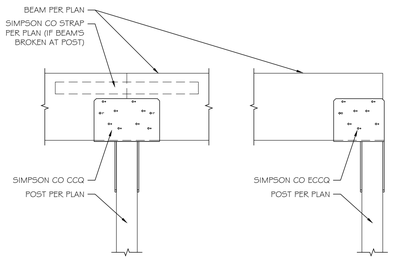
29 WOOD ROOF AND FLOOR SHEATHING LAYOUT
SCALE: 1" = 1'-0" A-DT-FMG-FF-0002



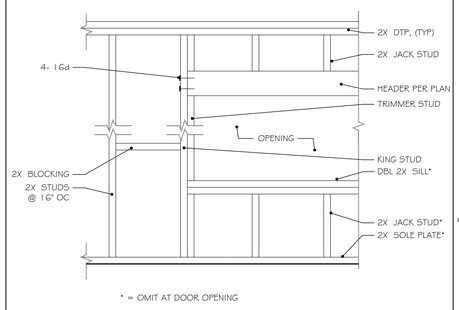
25 JOIST CUTTING, BORING AND NOTCHING
SCALE = N.T.S. A-DT-FMG-FF-0001



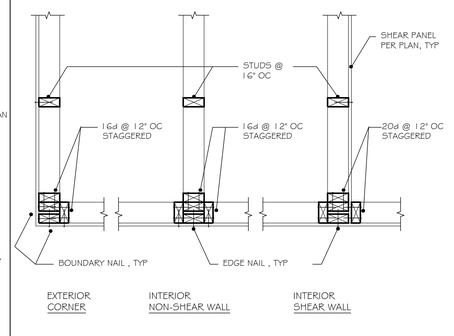
21 STUD CUTTING, BORING AND NOTCHING
SCALE = NTS A-DT-FMG-WF-0004



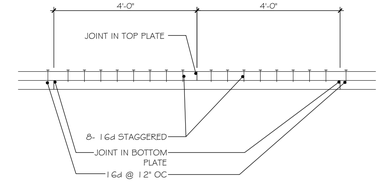
38 POST TO BEAM WITH CCQ/ECCQ
SCALE: 1" = 1'-0" A-DT-FMG-PB-0007



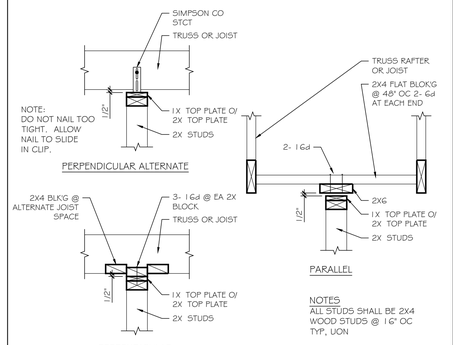
34 FRAMING FOR ROUGH WINDOW OR DOOR OPENING
SCALE: 1½" = 1'-0" A-DT-FMG-WF-0006



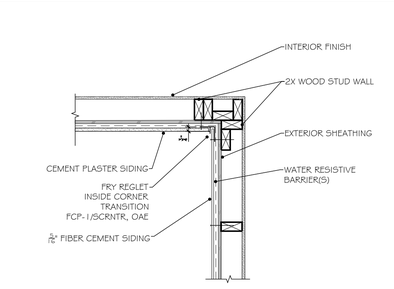
30 STUD WALL INTERSECTION
SCALE: 1" = 1'-0" A-DT-FMG-WF-0005



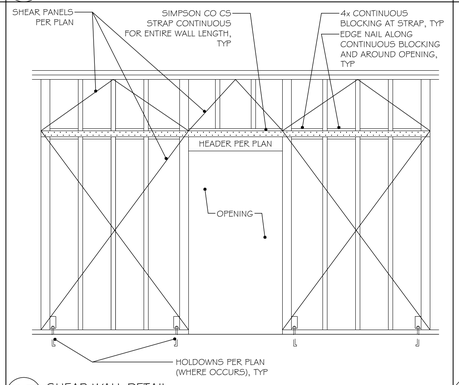
26 DOUBLE TOP-PLATE SPLICE
SCALE : NTS A-DT-FMG-WF-0019



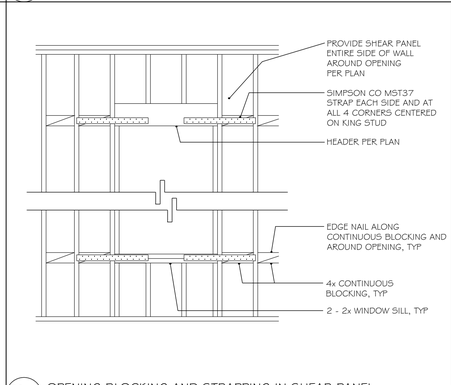
22 NON-BEARING/NON-SHEAR PARTITIONS AT TOP
SCALE: 1" = 1'-0" A-DT-FMG-WF-0008



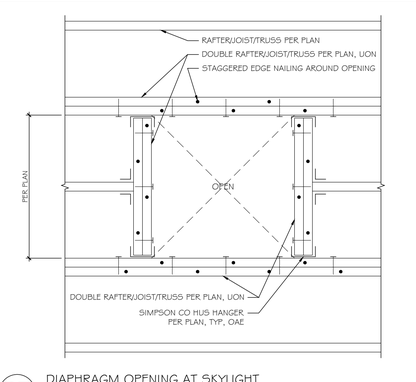
39 SIDING TO PLASTER AT INSIDE CORNER
SCALE: 1" = 1'-0" A-DT-FIN-FCS-BB-0004



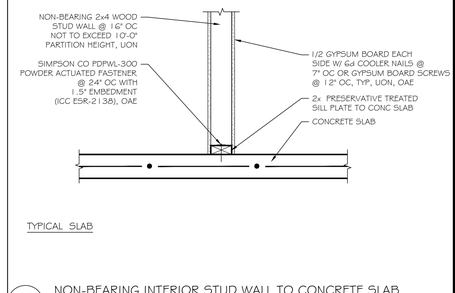
35 SHEAR WALL DETAIL
SCALE : NTS A-DT-FMG-WF-0020



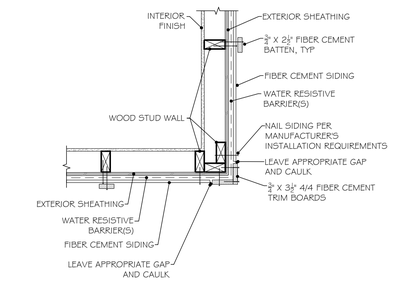
31 OPENING BLOCKING AND STRAPPING IN SHEAR PANEL
SCALE : 1/2" = 1'-0" A-DT-FMG-WF-0009



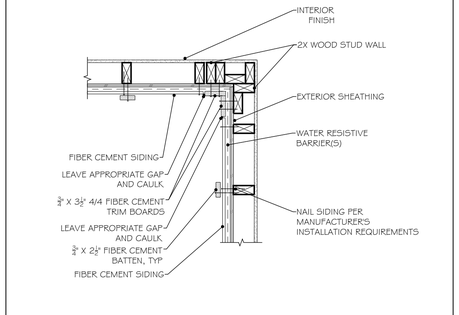
27 DIAPHRAGM OPENING AT SKYLIGHT
SCALE: 1" = 1'-0" A-DT-FEN-SL-0002



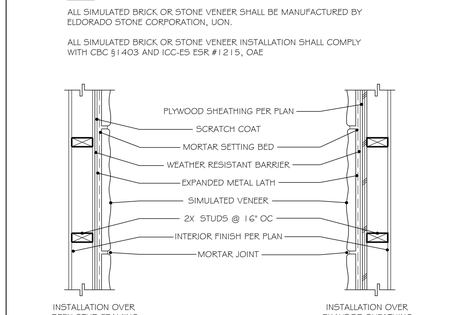
23 NON-BEARING INTERIOR STUD WALL TO CONCRETE SLAB
SCALE: 1" = 1'-0" A-DT-FMG-WF-COM-005



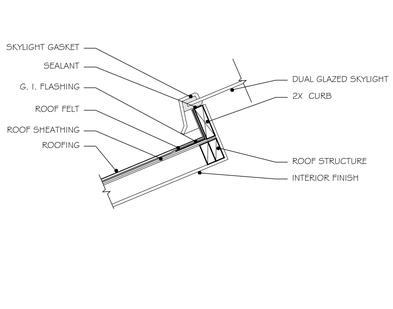
40 SIDING AT OUTSIDE CORNER
SCALE: 1" = 1'-0" A-DT-FIN-FCS-BB-0002



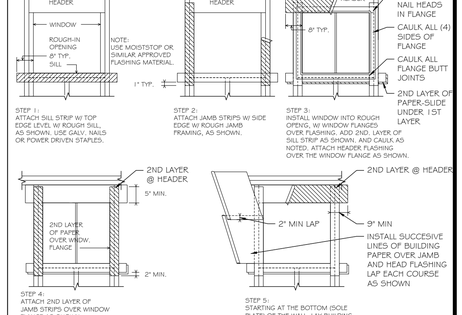
36 SIDING AT INSIDE CORNER
SCALE: 1" = 1'-0" A-DT-FIN-FCS-BB-0003



32 SIMULATED BRICK OR STONE ADHERED VENEER AT STUD WALL
SCALE: 1" = 1'-0" A-DT-FMG-WF-0026



28 CURB MOUNTED SKYLIGHT -SLOPED ROOF
SCALE: 1" = 1'-0" A-DT-FEN-SL-0001



24 WINDOW FLASHING
SCALE: 1/2" = 1'-0" A-DT-FEN-WD-0002

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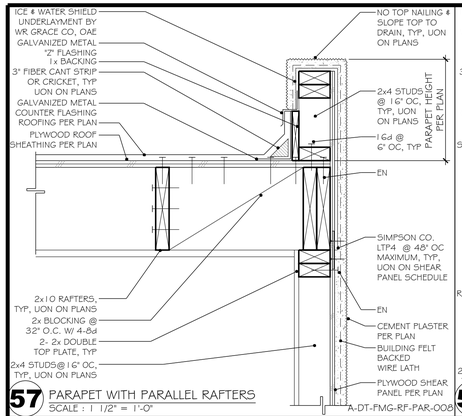
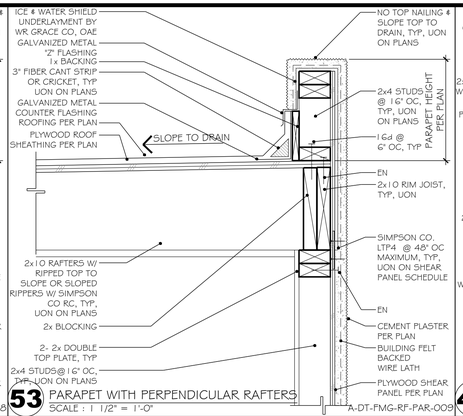
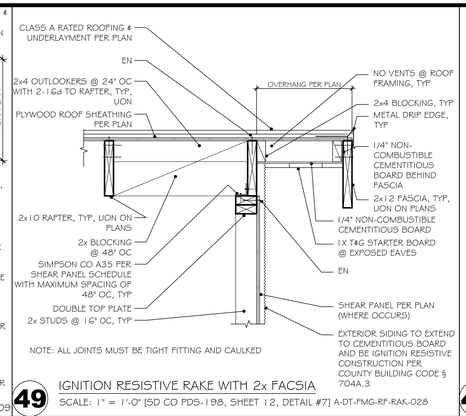


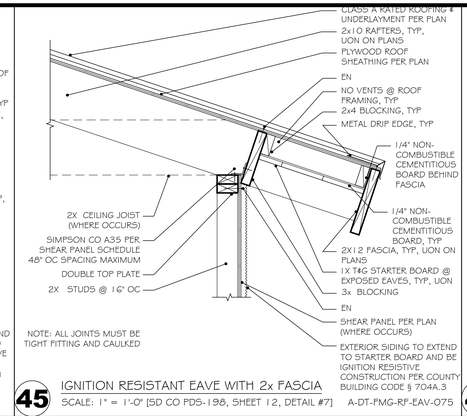
57 PARAPET WITH PARALLEL RAFTERS
SCALE: 1 1/2" = 1'-0" A-DT-FMG-RF-PAR-008



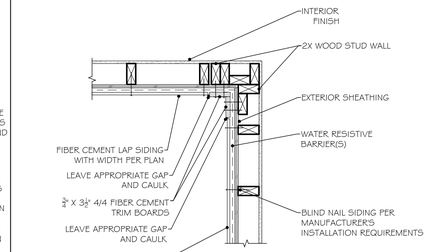
53 PARAPET WITH PERPENDICULAR RAFTERS
SCALE: 1 1/2" = 1'-0" A-DT-FMG-RF-PAR-009



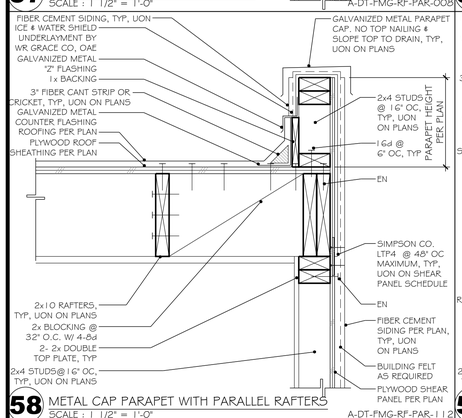
49 IGNITION RESISTIVE RAKE WITH 2x FACSIA
SCALE: 1" = 1'-0" [SD CO PDS-198, SHEET 12, DETAIL #7] A-DT-FMG-RF-RAK-028



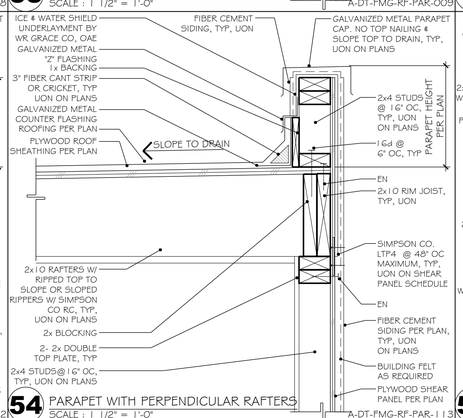
45 IGNITION RESISTANT EAVE WITH 2x FASCIA
SCALE: 1" = 1'-0" [SD CO PDS-198, SHEET 12, DETAIL #7] A-DT-FMG-RF-EAV-075



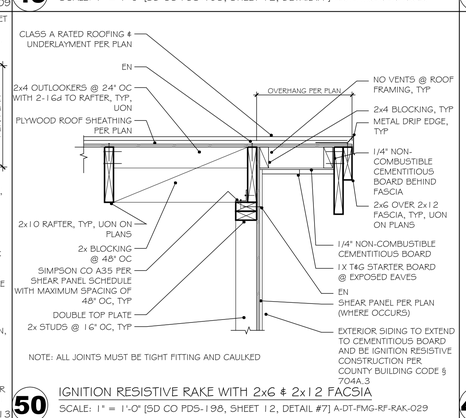
41 SIDING AT INSIDE CORNER
SCALE: 1" = 1'-0" A-DT-FIN-FCS-LS-0003



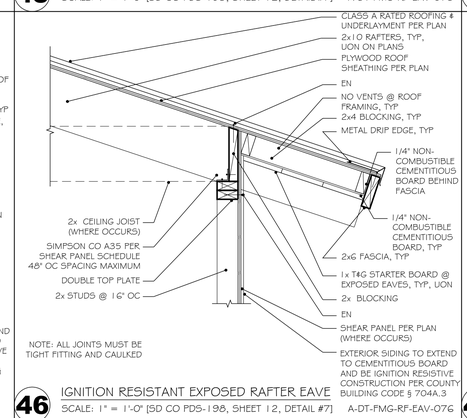
58 METAL CAP PARAPET WITH PARALLEL RAFTERS
SCALE: 1 1/2" = 1'-0" A-DT-FMG-RF-PAR-112



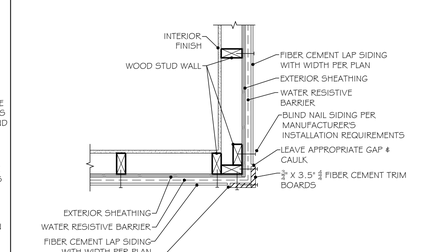
54 PARAPET WITH PERPENDICULAR RAFTERS
SCALE: 1 1/2" = 1'-0" A-DT-FMG-RF-PAR-113



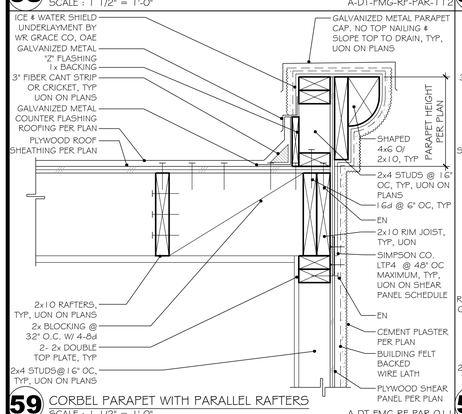
50 IGNITION RESISTIVE RAKE WITH 2x6 & 2x12 FACSIA
SCALE: 1" = 1'-0" [SD CO PDS-198, SHEET 12, DETAIL #7] A-DT-FMG-RF-RAK-029



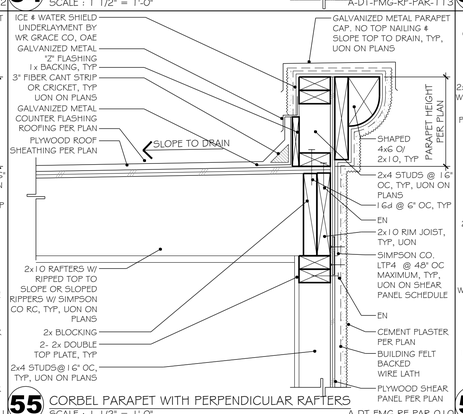
46 IGNITION RESISTANT EXPOSED RAFTER EAVE
SCALE: 1" = 1'-0" [SD CO PDS-198, SHEET 12, DETAIL #7] A-DT-FMG-RF-EAV-076



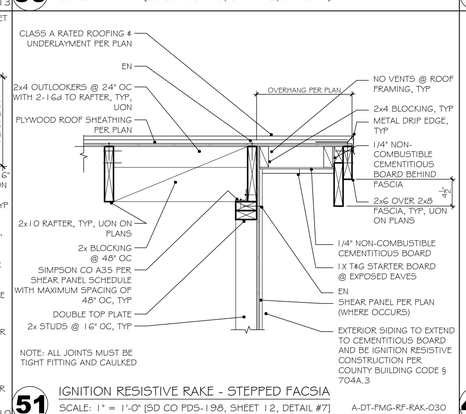
42 LAP SIDING AT OUTSIDE CORNER
SCALE: 1" = 1'-0" A-DT-FIN-FCS-LS-0002



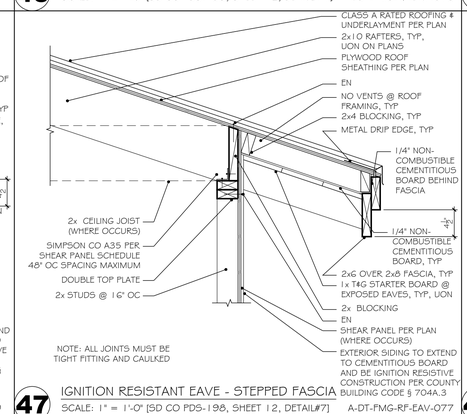
59 CORBEL PARAPET WITH PARALLEL RAFTERS
SCALE: 1 1/2" = 1'-0" A-DT-FMG-RF-PAR-011



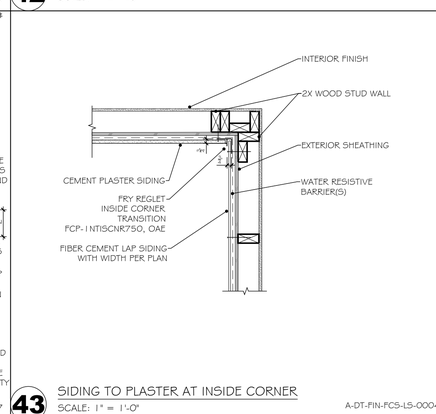
55 CORBEL PARAPET WITH PERPENDICULAR RAFTERS
SCALE: 1 1/2" = 1'-0" A-DT-FMG-RF-PAR-010



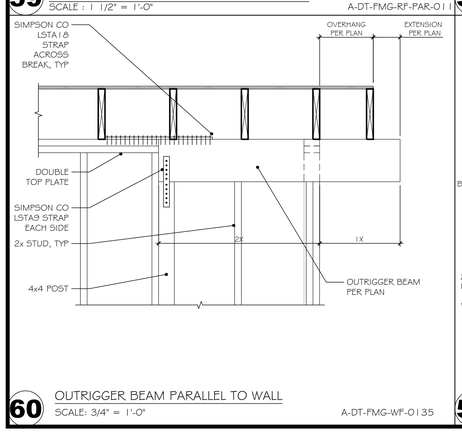
51 IGNITION RESISTIVE RAKE - STEPPED FACSIA
SCALE: 1" = 1'-0" [SD CO PDS-198, SHEET 12, DETAIL #7] A-DT-FMG-RF-RAK-030



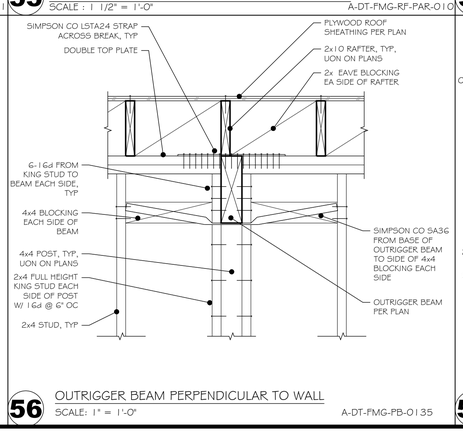
47 IGNITION RESISTANT EAVE - STEPPED FASCIA
SCALE: 1" = 1'-0" [SD CO PDS-198, SHEET 12, DETAIL#7] A-DT-FMG-RF-EAV-077



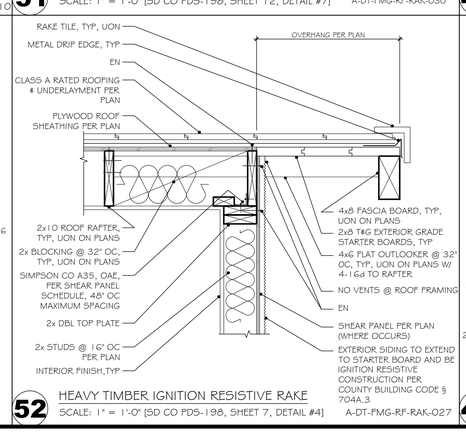
43 SIDING TO PLASTER AT INSIDE CORNER
SCALE: 1" = 1'-0" A-DT-FIN-FCS-LS-0004



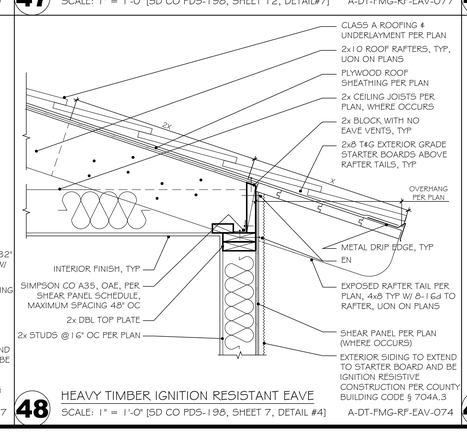
60 OUTRIGGER BEAM PARALLEL TO WALL
SCALE: 3/4" = 1'-0" A-DT-FMG-WF-0135



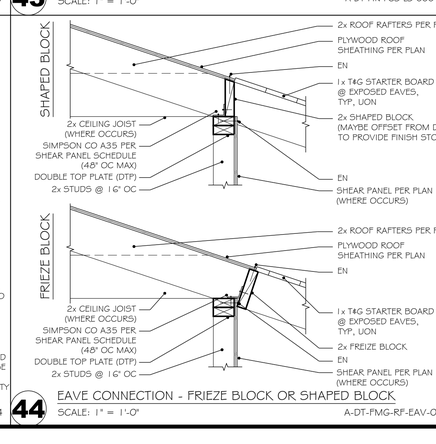
56 OUTRIGGER BEAM PERPENDICULAR TO WALL
SCALE: 1" = 1'-0" A-DT-FMG-PB-0135



52 HEAVY TIMBER IGNITION RESISTIVE RAKE
SCALE: 1" = 1'-0" [SD CO PDS-198, SHEET 7, DETAIL #4] A-DT-FMG-RF-RAK-027



48 HEAVY TIMBER IGNITION RESISTANT EAVE
SCALE: 1" = 1'-0" [SD CO PDS-198, SHEET 7, DETAIL #4] A-DT-FMG-RF-EAV-074



44 EAVE CONNECTION - FRIEZE BLOCK OR SHAPED BLOCK
SCALE: 1" = 1'-0" A-DT-FMG-RF-EAV-073

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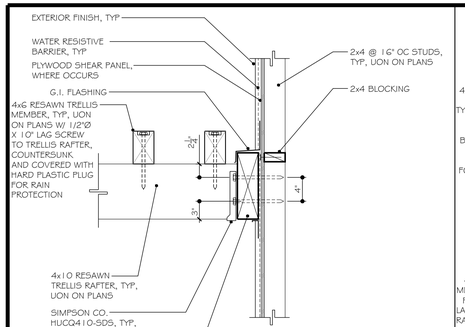
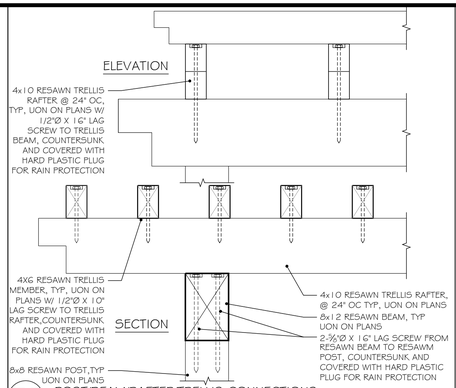
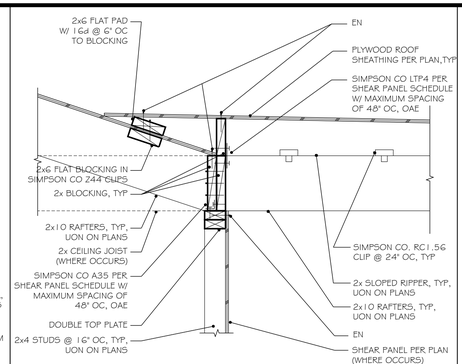


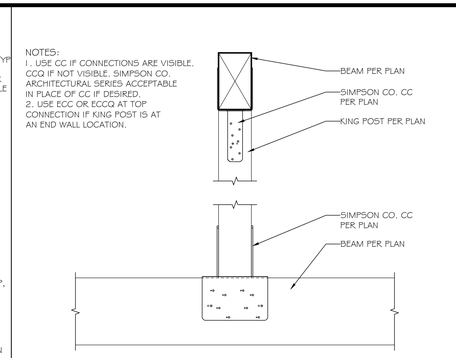
77 TRELLIS LEDGER AT WALL
SCALE : 1" = 1'-0" A-DT-FMG-RF-TRL-055



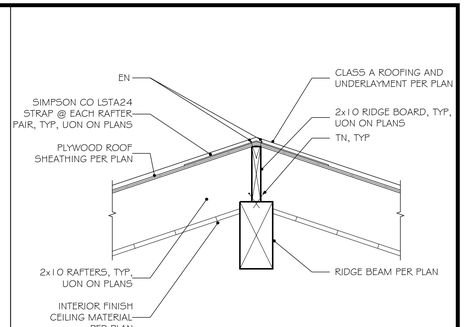
73 POST/BEAM/RAFTER/TRELLIS CONNECTIONS
SCALE: 1" = 1'-0" A-DT-FMG-RF-TRL-054



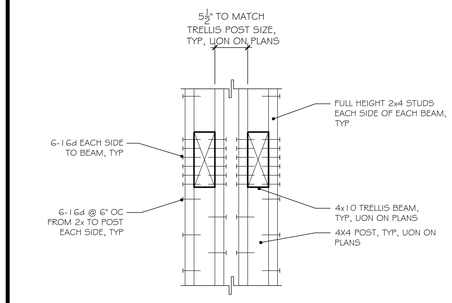
69 SLOPED TO LOW SLOPE ROOF TRANSITION
SCALE: 1" = 1'-0" A-DT-FMG-RF-0320



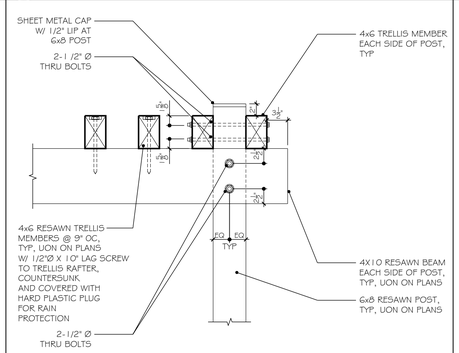
65 KING POST
SCALE: 1" = 1'-0" A-DT-FMG-PB-0006



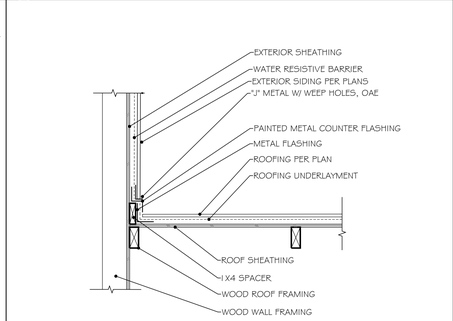
61 RAFTERS AT RIDGE BOARD OVER RIDGE BEAM
SCALE : 1" = 1'-0" A-DT-FMG-RF-RDG-003



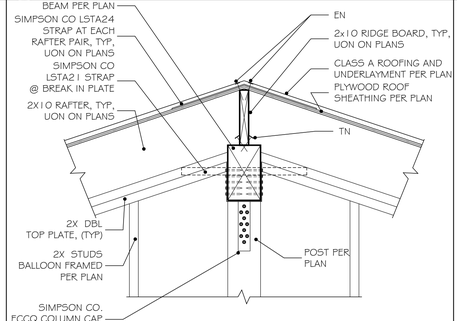
78 TRELLIS BEAMS TO STUD WALL
SCALE : 1" = 1'-0" A-DT-FMG-PB-0034



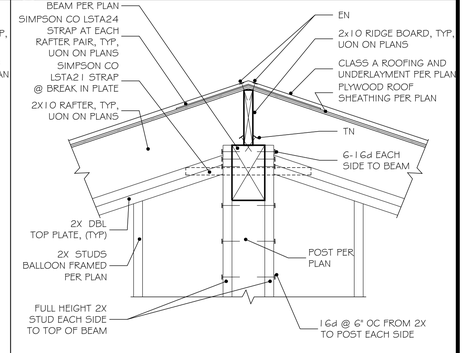
74 TRELLIS AT POST
SCALE: 1" = 1'-0" A-DT-FMG-PB-0136



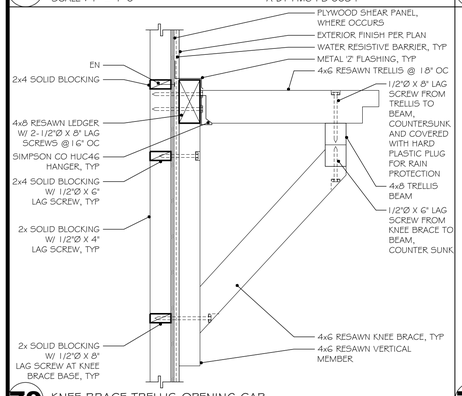
70 ROOF TO WALL - FIBER CEMENT LAP SIDING
SCALE: 1" = 1'-0" A-DT-FIN-WP-0004



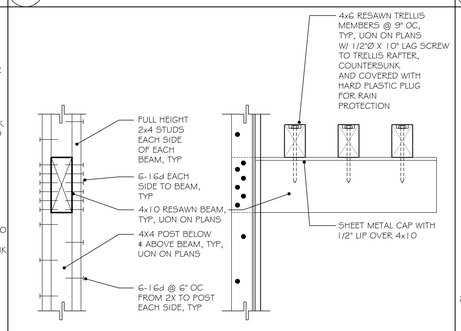
66 RIDGE BOARD & BEAM AT WALL POST W/ HARDWARE
SCALE : 1" = 1'-0" A-DT-FMG-RF-RDG-023



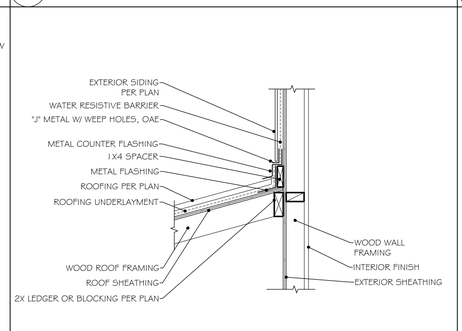
62 RIDGE BOARD & BEAM AT WALL POST W/O HARDWARE
SCALE : 1" = 1'-0" A-DT-FMG-RF-RDG-005B



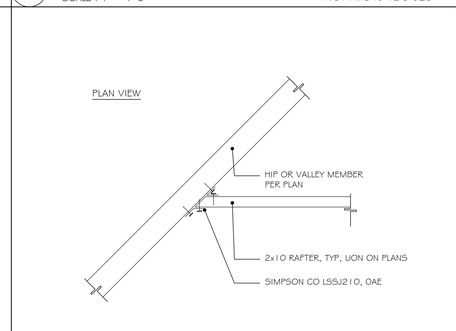
79 KNEE BRACE TRELLIS OPENING CAP
SCALE : 1" = 1'-0" A-DT-FMG-RF-0321



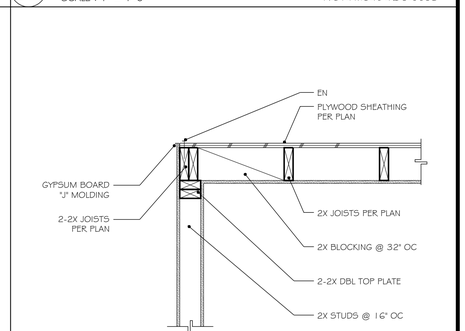
75 CANTILEVER TRELLIS OPENING CAP
SCALE : 1" = 1'-0" A-DT-FMG-PB-0137



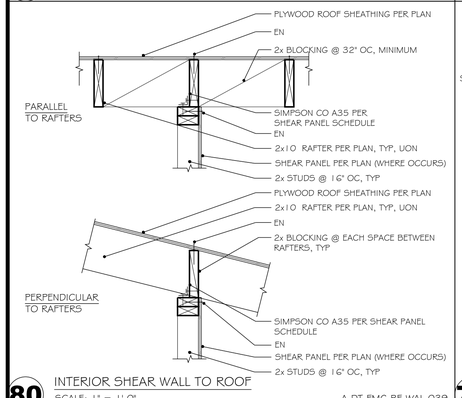
71 SLOPED ROOF TO WALL
SCALE: 1" = 1'-0" A-DT-FIN-WP-0003



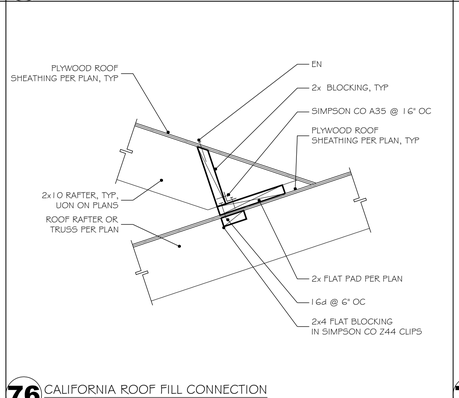
67 RAFTER TO HIP OR VALLEY
SCALE : 1" = 1'-0" A-DT-FMG-RF-0230



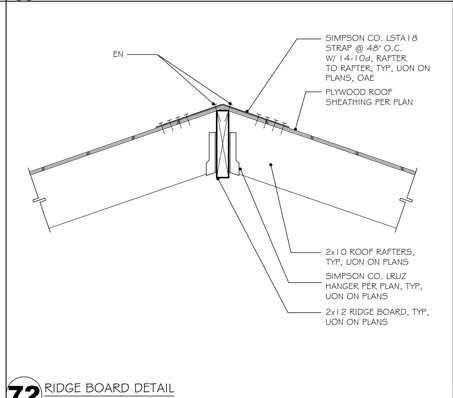
63 PARALLEL JOISTS AT EDGE WITH WALL
SCALE : 1" = 1'-0" A-DT-FMG-FF-0132



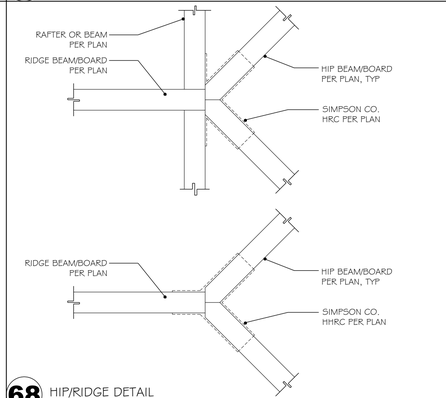
80 INTERIOR SHEAR WALL TO ROOF
SCALE: 1" = 1'-0" A-DT-FMG-RF-WAL-039



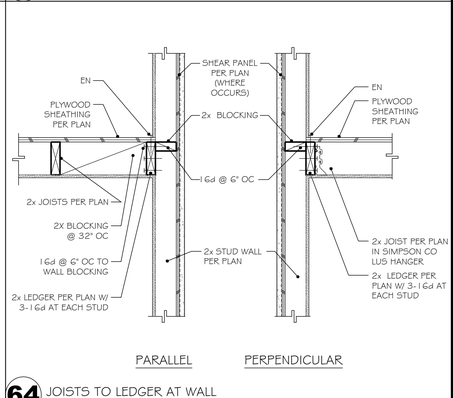
76 CALIFORNIA ROOF FILL CONNECTION
SCALE : 1" = 1'-0" A-DT-FMG-RF-0183



72 RIDGE BOARD DETAIL
SCALE = 1" : 1'-0" A-DT-FMG-RF-0074



68 HIP/RIDGE DETAIL
SCALE : 1" = 1'-0" A-DT-FMG-RF-0017



64 JOISTS TO LEDGER AT WALL
SCALE : 1" = 1'-0" A-DT-FMG-FF-0153

DZN PARTNERS
682 SECOND ST
ENCINITAS, CA
(760) 753 2464
DZNPARTNERS.COM

PRADU

CITY: ENCINITAS

JOB: 201848R

DETAILS

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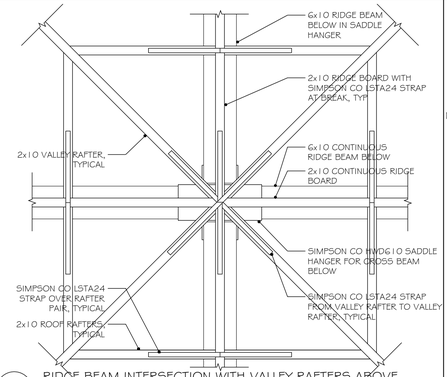
97

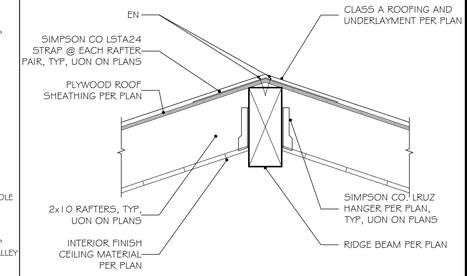
93

89



85 RIDGE BEAM INTERSECTION WITH VALLEY RAFTERS ABOVE

SCALE: 1" = 1'-0" A-DT-FMG-RF-RDG-026



81 RAFTERS TO RIDGE BEAM

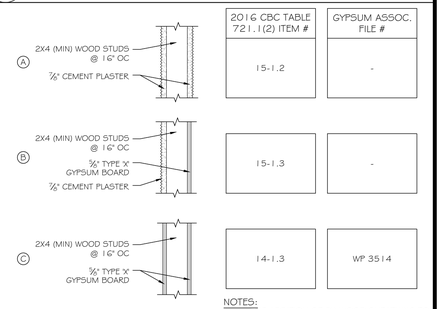
SCALE: 1" = 1'-0" A-DT-FMG-RF-RDG-024

98

94

90

86



	2016 CBC TABLE 721.1(2) ITEM #	GYPSUM ASSOC. FILE #
A	15-1.2	-
B	15-1.3	-
C	14-1.3	WP 3514

NOTES:
1. THE ADDITION OF PLYWOOD SHEATHING TO THESE ASSEMBLIES DOES NOT LESSEN THEIR FIRE RESISTANCE.
2. ATTACH WALL TO EXISTING OR NEW FIRE RATED FLOOR/CEILING ASSEMBLY AS REQUIRED.

82 FIRE RESISTANCE - ONE HOUR WOOD FRAMED WALLS

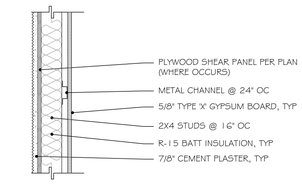
SCALE: 1" = 1'-0" A-DT-FIN-FR-WAL-021

99

95

91

87



NOTE:
WALL ASSEMBLY PER 2016 CBC TABLE 721.1(2) ITEM NUMBER 15-1.3 & 14.1.3 AND UL U305 & NGC 2016071

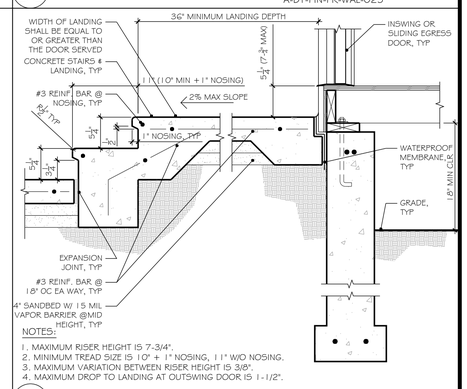
83 A-DT-FIN-FR-WAL-025

100

96

92

88



NOTES:
1. MAXIMUM RISER HEIGHT IS 7-3/4".
2. MINIMUM TREAD SIZE IS 10" + 1" NOSING, 11" W/O NOSING.
3. MAXIMUM VARIATION BETWEEN RISER HEIGHT IS 3/8".
4. MAXIMUM DROP TO LANDING AT OUTSWING DOOR IS 1-1/2".

84 EXTERIOR STAIRS AT STEM WALL FOOTING

SCALE = 1" : 1'-0" A-DT-FDN-SW-0136

DZN PARTNERS
682 SECOND ST
ENCINITAS, CA
(760) 753 2464
DZNPARTNERS.COM

PRADU

CITY: ENCINITAS

JOB: 201848R

DETAILS

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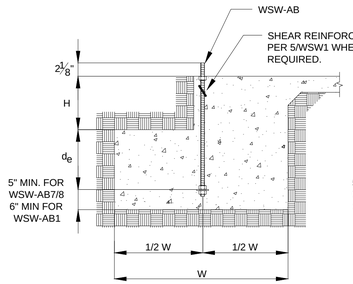
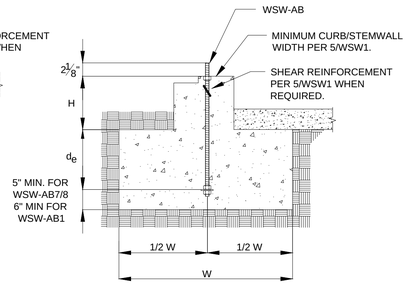


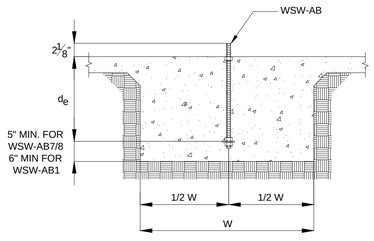
SLAB ON GRADE FOUNDATION



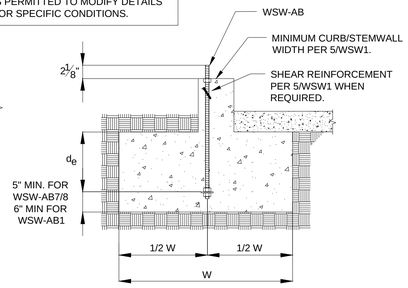
BRICK LEDGE FOUNDATION

NOTES:
1. SEE 2/WSW1 FOR DIMENSIONS AND ADDITIONAL NOTES.
2. SEE 5/WSW1 FOR SHEAR REINFORCEMENT WHEN REQUIRED.
3. MAXIMUM H = l_e - d_e. SEE 3/WSW1 AND 4/WSW1 FOR l_e.

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

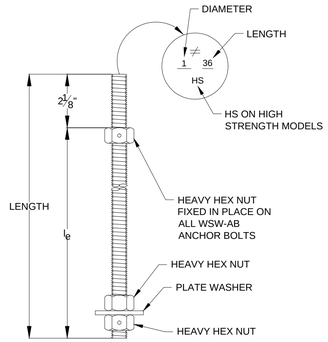


INTERIOR FOUNDATION



CURB OR STEMWALL FOUNDATION

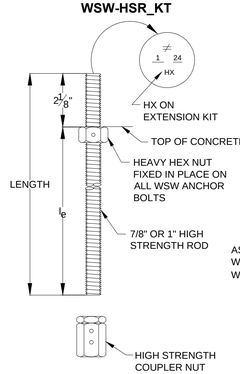
STRONG-WALL® WSW ANCHORAGE - TYPICAL SECTIONS 1



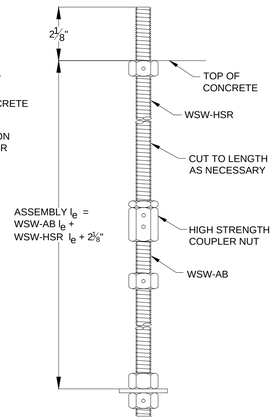
WSW PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l_e
WSW12 AND WSW18	WSW-AB7/8x24	7/8"	24"	20"
	WSW-AB7/8x24HS	7/8"	24"	20"
	WSW-AB7/8x30	7/8"	30"	26"
	WSW-AB7/8x30HS	7/8"	30"	26"
	WSW-AB7/8x36HS	7/8"	36"	32"
WSW24	WSW-AB1x24	1"	24"	20"
	WSW-AB1x24HS	1"	24"	20"
	WSW-AB1x30	1"	30"	26"
	WSW-AB1x30HS	1"	30"	26"
	WSW-AB1x36HS	1"	36"	32"

WSW ANCHOR BOLTS 3

WSW-HSR_KT



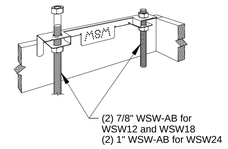
WSW-HSR AND WSW-AB ASSEMBLY



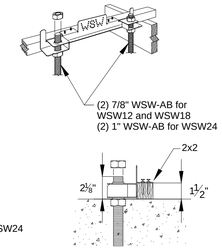
WSW PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l_e
WSW12 AND WSW18	WSW-HSR7/8x24KT	7/8"	24"	22"
	WSW-HSR7/8x36KT	7/8"	36"	34"
WSW24	WSW-HSR1x24KT	1"	24"	22"
	WSW-HSR1x36KT	1"	36"	34"

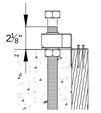
WSW ANCHOR BOLT EXTENSION 4

WSW-RT EXTERIOR INSTALLATION

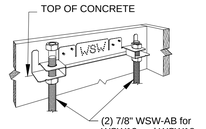


WSW-RT INTERIOR INSTALLATION

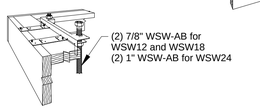




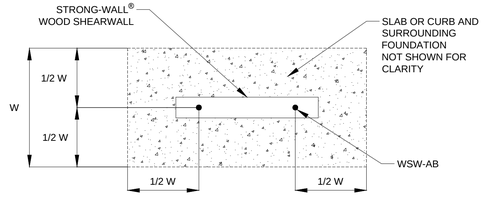
WSW-RTPF PANEL FORM INSTALLATION



WSW-RTBL BRICK LEDGE INSTALLATION



WSW ANCHOR BOLT TEMPLATES 6



FOUNDATION PLAN VIEW

WSW ANCHORAGE SOLUTIONS FOR 2500 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSW-AB7/8 ANCHOR BOLT			WSW-AB1 ANCHOR BOLT		
			ASD ALLOWABLE TENSION (lb.)	W (in.)	d_e (in.)	ASD ALLOWABLE TENSION (lb.)	W (in.)	d_e (in.)
SEISMIC	CRACKED	STANDARD	11,900	27	9	16,100	33	11
			13,100	29	10	17,100	35	12
		HIGH STRENGTH	24,900	43	15	33,000	51	17
			27,100	46	16	35,300	54	18
	UNCRACKED	STANDARD	12,500	24	8	15,700	28	10
			13,100	25	9	17,100	30	10
		HIGH STRENGTH	25,300	38	13	32,300	44	15
			27,100	40	14	35,300	47	16
WIND	CRACKED	STANDARD	5,100	14	6	6,200	16	6
			8,700	20	7	11,400	24	8
		HIGH STRENGTH	13,100	27	9	17,100	32	11
			15,900	30	10	21,100	36	12
			18,400	33	11	27,300	42	14
			23,100	38	13	31,800	46	16
			27,100	42	14	35,300	50	17
	UNCRACKED	STANDARD	5,000	12	6	6,400	14	6
			9,300	18	6	12,500	22	8
			13,100	23	8	17,100	28	10
		HIGH STRENGTH	15,200	25	9	21,900	32	11
			19,900	30	10	26,400	36	12
			24,000	34	12	31,500	40	14
			27,100	37	13	35,300	43	15

NOTES:
1. ANCHORAGE DESIGNS CONFORM TO ACI 318-11 APPENDIX D AND ACI 318-14 WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF WSW-AB ANCHOR BOLT. STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A449).
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C - F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC ANCHORAGE DESIGNS CONFORM TO ACI 318-11 SECTION D.3.3.4.3 AND ACI 318-14 SECTION 17.2.3.4.3.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C.
5. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. FOUNDATION DESIGN (SIZE AND REINFORCEMENT) BY OTHERS. THE REGISTERED DESIGN PROFESSIONAL MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
6. REFER TO 1/WSW1 FOR d_e.

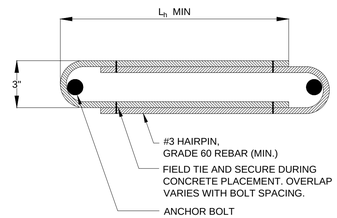
WSW ANCHORAGE SOLUTIONS FOR 3000 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSW-AB7/8 ANCHOR BOLT			WSW-AB1 ANCHOR BOLT		
			ASD ALLOWABLE TENSION (lb.)	W (in.)	d_e (in.)	ASD ALLOWABLE TENSION (lb.)	W (in.)	d_e (in.)
SEISMIC	CRACKED	STANDARD	12,300	26	9	16,000	31	11
			13,100	28	10	17,100	33	11
		HIGH STRENGTH	25,200	41	14	32,700	48	16
			27,100	43	15	35,300	51	17
	UNCRACKED	STANDARD	12,000	22	8	16,300	27	9
			13,100	24	8	17,100	28	10
		HIGH STRENGTH	25,300	36	12	32,700	42	14
			27,100	38	13	35,300	44	15
WIND	CRACKED	STANDARD	5,000	13	6	5,600	14	6
			8,800	19	7	10,200	21	7
		HIGH STRENGTH	13,100	25	9	17,100	30	10
			15,700	28	10	20,100	33	11
			19,200	32	11	25,300	38	13
			23,200	36	12	32,300	44	15
			27,100	40	14	35,300	47	16
	UNCRACKED	STANDARD	5,500	12	6	6,200	13	6
			8,500	16	6	12,800	21	7
		HIGH STRENGTH	13,100	22	8	17,100	26	9
			16,600	25	9	21,800	30	10
			19,700	28	10	25,200	33	11
			24,000	32	11	31,700	38	13
			27,100	35	12	35,300	41	14

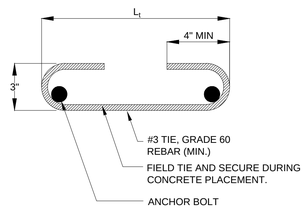
WSW ANCHORAGE SOLUTIONS FOR 4500 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSW-AB7/8 ANCHOR BOLT			WSW-AB1 ANCHOR BOLT		
			ASD ALLOWABLE TENSION (lb.)	W (in.)	d_e (in.)	ASD ALLOWABLE TENSION (lb.)	W (in.)	d_e (in.)
SEISMIC	CRACKED	STANDARD	12,600	23	8	16,000	27	9
			13,100	24	8	17,100	29	10
		HIGH STRENGTH	24,800	36	12	32,100	42	14
			27,100	38	13	35,300	45	15
	UNCRACKED	STANDARD	12,700	20	7	15,700	23	8
			13,100	21	7	17,100	25	9
		HIGH STRENGTH	24,600	31	11	32,500	37	13
			27,100	34	12	35,300	39	13
WIND	CRACKED	STANDARD	5,400	12	6	6,800	14	6
			8,300	16	6	11,600	20	7
		HIGH STRENGTH	13,100	22	8	17,100	26	9
			15,300	24	8	21,400	30	10
			19,300	28	10	25,800	34	12
			23,600	32	11	31,000	38	13
			27,100	36	12	35,300	42	14
	UNCRACKED	STANDARD	6,800	12	6	6,800	12	6
			9,400	15	6	12,400	18	6
		HIGH STRENGTH	13,100	19	7	17,100	23	8
			16,800	22	8	21,600	26	9
			20,300	25	9	26,700	30	10
			24,100	28	10	32,200	34	12
			27,100	31	11	35,300	36	12

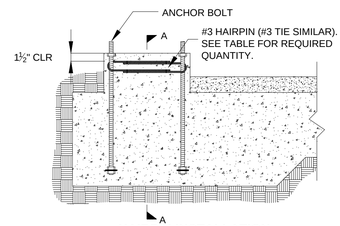
STRONG-WALL® WOOD SHEARWALL TENSION ANCHORAGE SCHEDULE 2,500, 3,000 AND 4,500 PSI 2



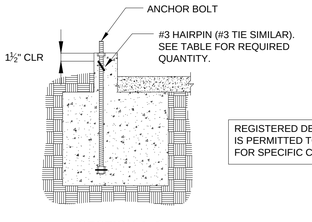
HAIRPIN SHEAR REINFORCEMENT



TIE SHEAR REINFORCEMENT



HAIRPIN INSTALLATION
(GARAGE CURB SHOWN. OTHER FOOTING TYPES SIMILAR.)



SECTION A-A

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

STRONG-WALL® WOOD SHEARWALL SHEAR ANCHORAGE

MODEL	L_t OR L_h (in.)	SEISMIC [3]		WIND [4]			
		SHEAR REINFORCEMENT	MINIMUM CURB/ STEMWALL WIDTH (in.)	SHEAR REINFORCEMENT	MINIMUM CURB/ STEMWALL WIDTH (in.)	ASD ALLOWABLE SHEAR LOAD, V (lb.) [6]	
						UNCRACKED	CRACKED
WSW12	10¼	(1) #3 HAIRPIN	8 [5]	SEE NOTE 6	6	1,035	740
WSW18	15	(1) #3 HAIRPIN	8 [5]	(1) #3 HAIRPIN	6	HAIRPIN REINFORCEMENT ACHIEVES MAXIMUM ALLOWABLE SHEAR LOAD OF THE WSW	
WSW24	19	(2) #3 HAIRPINS	8 [5]	(1) #3 HAIRPIN	6		

NOTES:
1. SHEAR ANCHORAGE DESIGNS CONFORM TO ACI 318-11 AND ACI 318-14 AND ASSUME MINIMUM 2,500 PSI CONCRETE.
2. SHEAR REINFORCEMENT IS NOT REQUIRED FOR INTERIOR FOUNDATION APPLICATIONS (PANEL INSTALLED AWAY FROM EDGE OF CONCRETE), OR BRACED WALL PANEL APPLICATIONS.
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C.
5. WHERE NOTED, MINIMUM CURB/STEMWALL WIDTH IS 6 INCHES WHEN STANDARD STRENGTH ANCHOR BOLT IS USED.
6. USE (1) #3 TIE FOR WSW12 WHEN PANEL DESIGN SHEAR FORCE EXCEEDS TABULATED ANCHORAGE ALLOWABLE SHEAR LOAD.
7. #4 GRADE 40 SHEAR REINFORCEMENT MAY BE SUBSTITUTED FOR WSW SHEAR ANCHORAGE SOLUTIONS.

STRONG-WALL® WSW SHEAR ANCHORAGE SCHEDULE AND DETAILS 5

REVISIONS

NO.	DATE	
0	07/01/2016	FIRST RELEASE - 2015 IBC

SIMPSON STRONG-TIE COMPANY, INC.
HOME OFFICE:
5956 W. LAS POSITAS BLVD.
PLEASANTON, CA 94588
TEL: (800) 999-5099

SIMPSON Strong-Tie® THERE IS NO EQUAL

STRONG-WALL® WSW
ANCHORAGE DETAILS
ENGINEERED DESIGNS

SIMPSON Strong-Tie® THERE IS NO EQUAL

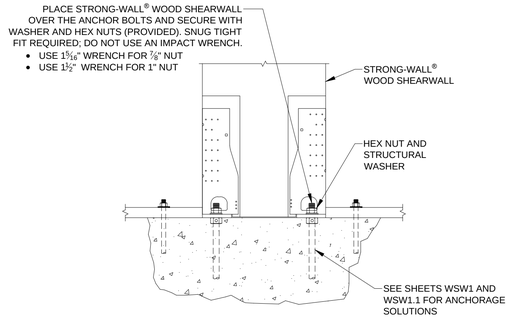
NAME
DATE 07-01-2016
SCALE N.T.S.
CHECKED
SHEET **WSW1**
OF SHEETS
JOB NO.

STRONG-WALL® WOOD SHEARWALL MODELS

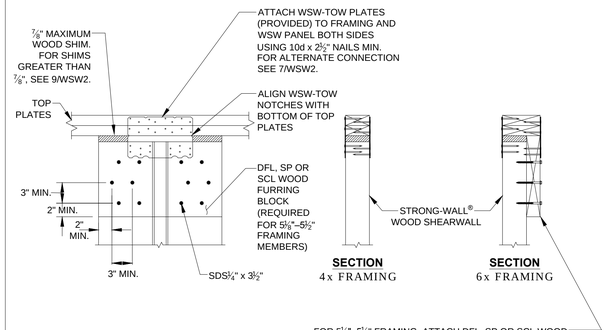
MODEL NO.	W (in.)	H (in.)	ANCHOR BOLTS		TOTAL WALL WEIGHT (lb.)
			QUANTITY	DIA. (in.)	
WSW12x7	12	78	2	7/8	100
WSW18x7	18	78	2	7/8	145
WSW12x7.5	12	85 1/2	2	7/8	110
WSW18x7.5	18	85 1/2	2	7/8	155
WSW12x8	12	93 1/4	2	7/8	115
WSW18x8	18	93 1/4	2	7/8	165
WSW24x8	24	93 1/4	2	1	225
WSW12x9	12	105 1/4	2	7/8	130
WSW18x9	18	105 1/4	2	7/8	185
WSW24x9	24	105 1/4	2	1	245
WSW12x10	12	117 1/4	2	7/8	140
WSW18x10	18	117 1/4	2	7/8	205
WSW24x10	24	117 1/4	2	1	270
WSW12x11	12	129 1/4	2	7/8	150
WSW18x11	18	129 1/4	2	7/8	220
WSW24x11	24	129 1/4	2	1	295
WSW12x12	12	141 1/4	2	7/8	165
WSW18x12	18	141 1/4	2	7/8	240
WSW24x12	24	141 1/4	2	1	320
WSW18x13	18	153 1/4	2	7/8	255
WSW24x13	24	153 1/4	2	1	345
WSW24x14	24	168	2	1	375
WSW24x16	24	192	2	1	425
WSW18x20	18	240	2	7/8	385
WSW24x20	24	240	2	1	520

NOTES:
1. FOR HEIGHTS NOT LISTED, ORDER THE NEXT TALLEST PANEL AND TRIM TO FIT. MINIMUM TRIMMED HEIGHT FOR ALL PANELS IS 74⅛".
2. ALL PANELS COME WITH TWO PRE-ATTACHED HOLDOWNS, TWO STANDARD HEX NUTS, TWO STRUCTURAL WASHERS, TWO WSW-TOW PLATES AND INSTALLATION INSTRUCTIONS.
3. ALL PANELS ARE 3½" THICK.

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

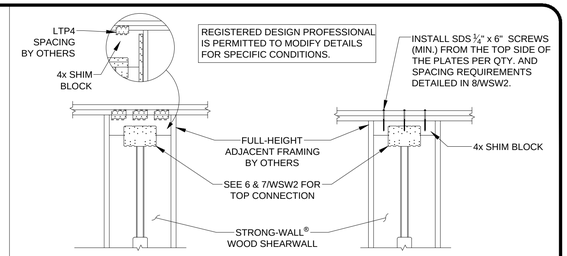


REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

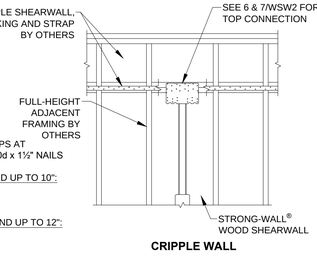


FOR 5⅛"–5½" FRAMING, ATTACH DFL, SP OR SCL WOOD FURRING BLOCK BETWEEN WSW PANEL AND WSW-TOW WITH SDS ¼" x 3½" SCREWS (MIN.) OR 16d COMMON NAILS (8 TOTAL FASTENERS FOR WSW12, 10 FOR WSW18 AND 14 FOR WSW24). MINIMUM BLOCK SIZE IS 1¾" x 11⅞" x WSW PANEL WIDTH.

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



REGISTERED DESIGN PROFESSIONAL SHALL DESIGN AND DETAIL FOR :
1. SHEAR TRANSFER
2. OUT-OF-PLANE LOADING EFFECT
3. INCREASED OVERTURNING AND DRIFT DUE TO ADDITIONAL HEIGHT

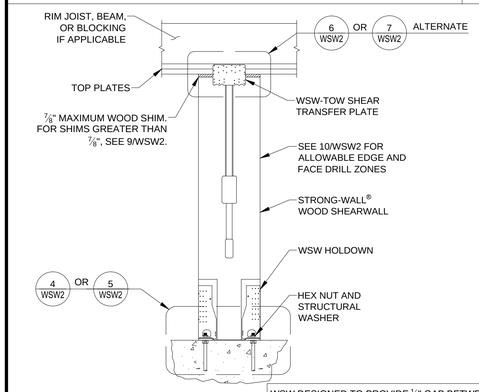


FOR 8" TO 12" BLOCK DEPTHS:
ATTACH SIMPSON STRONG-TIE® CS16 STRAPS AT EDGE OF WSW PANEL (EACH SIDE) USING 10d x 1½" NAILS

SHIM BLOCK HEIGHTS GREATER THAN 8" AND UP TO 10":
- 8 NAILS INTO BLOCK
- 8 NAILS INTO WSW PANEL

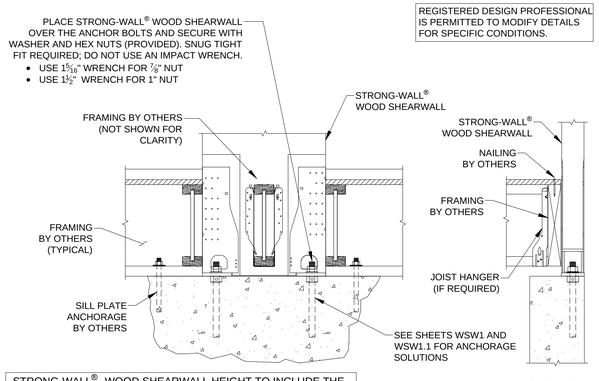
SHIM BLOCK HEIGHTS GREATER THAN 10" AND UP TO 12":
- 10 NAILS INTO BLOCK
- 10 NAILS INTO WSW PANEL

STRONG-WALL® WSW MODELS 1
STANDARD INSTALLATION BASE CONNECTION 4
STANDARD TOP CONNECTION 6
TOP OF WALL HEIGHT ADJUSTMENTS 9



REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

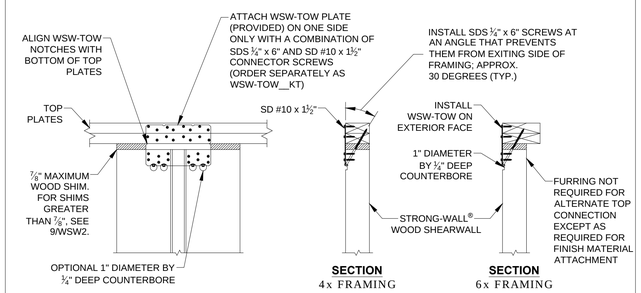
WSW DESIGNED TO PROVIDE ⅛" GAP BETWEEN LSL AT BASE OF WSW AND CONCRETE. ENSURE CONCRETE IS LEVEL AND SMOOTH BENEATH PANEL. GRIND OR FILL AS NECESSARY.

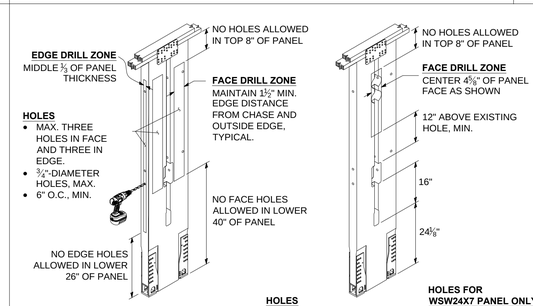


STRONG-WALL® WOOD SHEARWALL HEIGHT TO INCLUDE THE DEPTH OF THE FLOOR SYSTEM AND SHALL BE INSTALLED DIRECTLY ON THE FOUNDATION. SPECIFY PANEL HEIGHT FROM TOP OF FOUNDATION TO UNDERSIDE OF TOP PLATES OR BEAM.

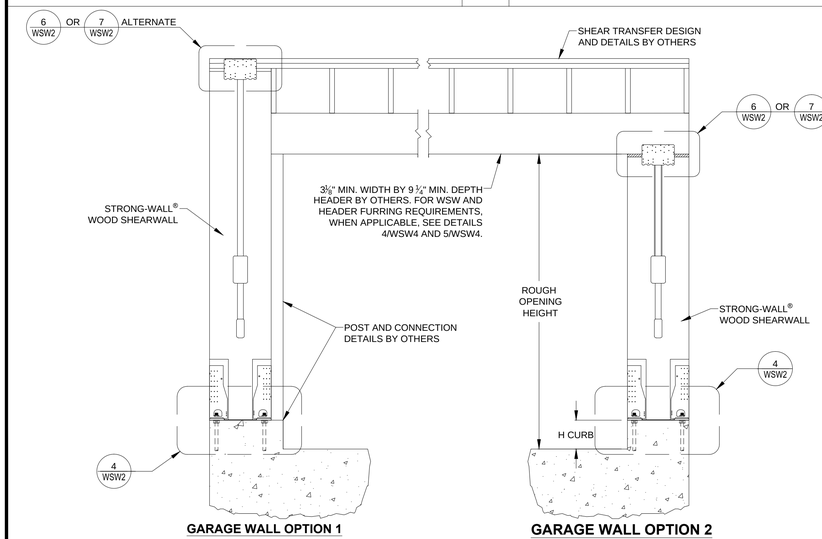
WSW-TOW ALTERNATE CONNECTION KIT		
MODEL NO.	FASTENER QUANTITY	
	SD #10 x 1½"	SDS ¼" x 6"
WSW-TOW12KT	20	2
WSW-TOW18KT	28	4
WSW-TOW24KT	40	8

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.





SINGLE STORY WSW ON CONCRETE 2
WOOD FLOOR SYSTEM BASE CONNECTION 5
ALTERNATE TOP CONNECTION 7
TRIM ZONE AND ALLOWABLE HOLES 10



REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

WHEN WSW-PS STRAPS OMITTED, ALLOWABLE SHEAR VALUES FOR STANDARD PANEL APPLY.

GARAGE HEADER ROUGH OPENING HEIGHT		
MODEL NO.	H CURB	ROUGH OPENING HEIGHT
WSW12x7 WSW18x7 WSW24x7	5½"	6'-11½"
	6"	7'-0"
WSW12x7.5 WSW18x7.5 WSW24x7.5	0"	7'-1½"
WSW12x8 WSW18x8 WSW24x8	5½"	8'-2¾"
	6"	8'-3¾"

NOTES:
1. IF REQUIRED ROUGH OPENING HEIGHT EXCEEDS TABLE VALUE, SPECIFY NEXT TALLER PANEL AND TRIM AS NECESSARY. THE STRONG-WALL® WOOD SHEARWALL MAY BE TRIMMED TO A MINIMUM HEIGHT OF 74½".
2. FURRING DOWN GARAGE HEADER MAY BE REQUIRED FOR CORRECT ROUGH OPENING HEIGHT.

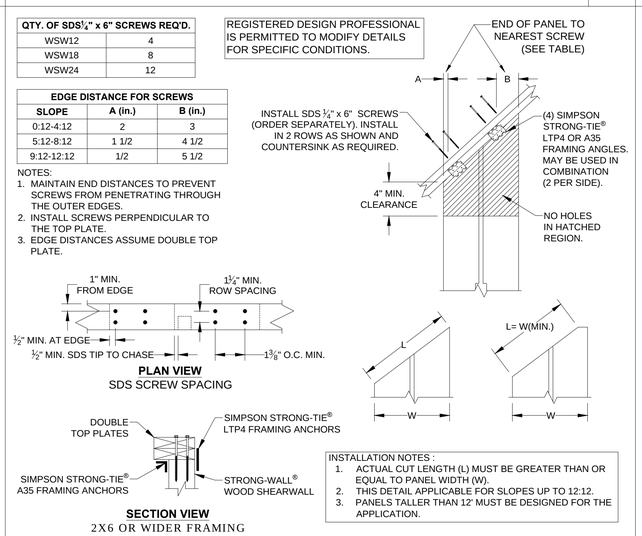
FOR GARAGE WALL OPTION 2, REGISTERED DESIGN PROFESSIONAL SHALL DESIGN AND DETAIL FOR :
1. SHEAR TRANSFER
2. OUT-OF-PLANE LOADING EFFECT
3. INCREASED OVERTURNING AND DRIFT DUE TO ADDITIONAL HEIGHT

QTY. OF SDS¼" x 6" SCREWS REQ'D.	
WSW12	4
WSW18	8
WSW24	12

EDGE DISTANCE FOR SCREWS		
SLOPE	A (in.)	B (in.)
0:12-4:12	2	3
5:12-8:12	1 1/2	4 1/2
9:12-12:12	1/2	5 1/2

NOTES:
1. MAINTAIN END DISTANCES TO PREVENT SCREWS FROM PENETRATING THROUGH THE OUTER EDGES.
2. INSTALL SCREWS PERPENDICULAR TO THE TOP PLATE.
3. EDGE DISTANCES ASSUME DOUBLE TOP PLATE.

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



INSTALLATION NOTES :
1. ACTUAL CUT LENGTH (L) MUST BE GREATER THAN OR EQUAL TO PANEL WIDTH (W).
2. THIS DETAIL APPLICABLE FOR SLOPES UP TO 12:12.
3. PANELS TALLER THAN 12' MUST BE DESIGNED FOR THE APPLICATION.

ALTERNATE WSW GARAGE FRONT OPTIONS 3
RAKE WALL 8
NOTES 11

1. STRONG-WALL WOOD SHEARWALL IS MANUFACTURED AND TRADEMARKED BY "SIMPSON STRONG-TIE COMPANY INC."HOME OFFICE: 5956 W. LAS POSITAS BLVD. , PLEASANTON, CA 94588 TEL: (800) 999-5099, FAX: (925) 847-1597. "SIMPSON STRONG-TIE COMPANY INC." IS AN ISO 9001-2008 REGISTERED COMPANY.
2. USE OF THIS PRODUCT IS SUBJECT TO THE APPROVAL OF THE LOCAL BUILDING DEPARTMENT.
3. THIS PRODUCT IS PART OF THE OVERALL LATERAL FORCE RESISTING SYSTEM OF THE STRUCTURE. DESIGN OF THE BUILDING'S LATERAL FORCE RESISTING SYSTEM, INCLUDING THE LOAD PATH TO TRANSFER LATERAL FORCES FROM THE STRUCTURE TO THE GROUND, IS THE RESPONSIBILITY OF THE DESIGNER.
4. ENGINEER OF RECORD IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONDITIONS, ELEVATIONS, ETC. PRIOR TO INSTALLATION OF ANY COMPONENTS FOR THE STRONG-WALL SB SYSTEM. IF ANY DISCREPANCIES ARE FOUND, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER FOR CLARIFICATION PRIOR TO CONSTRUCTION.
6. INSTALLATION OF PRODUCT SHALL BE DONE IN CONFORMANCE TO THESE DRAWINGS. THE PERFORMANCE OF MODIFIED PRODUCTS OR ALTERED INSTALLATION PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE DESIGNER.
7. SIMPSON STRONG-TIE COMPANY INC. RESERVES THE RIGHT TO CHANGE SPECIFICATIONS, DESIGNS, AND MODELS WITHOUT NOTICE OR LIABILITY FOR SUCH CHANGES.
8. ALL HARDWARE CALLED OUT IS SIMPSON STRONG-TIE.
9. SEE ICC-ES ESR-2652 OR CITY OF LOS ANGELES RR25730 AS APPLICABLE FOR ADDITIONAL INFORMATION.

REVISIONS	DATE	NO.
FIRST RELEASE - 2015 IBC	07/01/2016	0

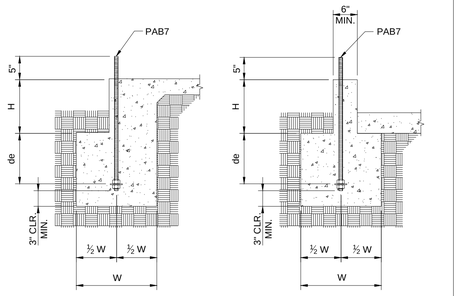
SIMPSON STRONG-TIE COMPANY, INC.
HOME OFFICE: 5956 W. LAS POSITAS BLVD.
PLEASANTON, CA 94588
TEL: (800) 999-5099

SIMPSON Strong-Tie® THERE IS NO EQUAL

STRONG-WALL WSW
FRAMING DETAILS
ENGINEERED DESIGNS

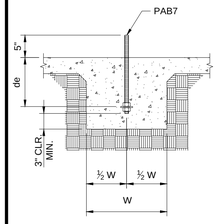
SIMPSON Strong-Tie® THERE IS NO EQUAL

NAME	
DATE	07-01-2016
SCALE	N.T.S.
CHECKED	
SHEET	WSW2
	OF SHEETS
JOB NO.	

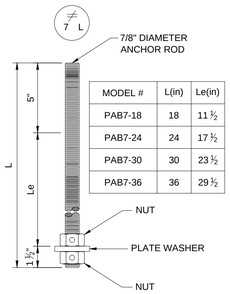


H = 13 ½" MAXIMUM WITH PAB7-30 ANCHOR BOLT WHEN de = 10"
H = 19 ½" MAXIMUM WITH PAB7-36 ANCHOR BOLT WHEN de = 10"

SLAB ON GRADE FOUNDATION **CURB OR STEMWALL FOUNDATION**



INTERIOR FOUNDATION

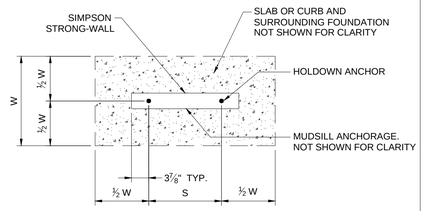


PAB7 ANCHOR BOLT

MODEL #	L(in)	Le(in)
PAB7-18	18	11 ½
PAB7-24	24	17 ½
PAB7-30	30	23 ½
PAB7-36	36	29 ½

NOTES:
1. SEE 2-SW1 FOR DIMENSIONS AND ADDITIONAL NOTES.

ANCHORAGE - TYPICAL SECTIONS 1



S = WALL LENGTH MINUS 7 ¾"
SEE TABLE BELOW FOR DIMENSIONS

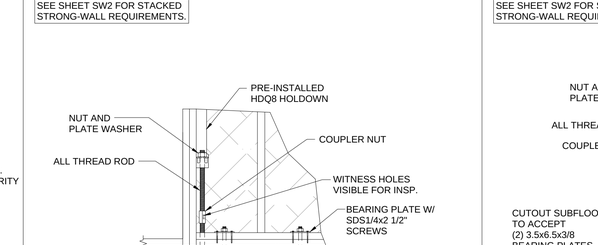
FOUNDATION PLAN VIEW

FOUNDATION DIMENSIONS FOR STRONG-WALL ANCHORAGE				
	CONDITION	ASD ALLOWABLE UPLIFT (lbs)	W (in)	de (in)
SEISMIC	CRACKED	11,900	27	9
		13,100	29	10
	UNCRACKED	12,500	24	8
		13,100	25	9
WIND	CRACKED	6,200	16	6
		10,000	22	8
		12,900	26	9
		13,100	27	9
	UNCRACKED	6,400	14	6
		9,300	18	6
		12,500	22	8
		13,100	23	8

NOTES:
1. ANCHORAGE DESIGNS CONFORM TO ACI 318-14 AND ACI 318-11 APPENDIX D AND ASSUME MINIMUM f'c=2,500 PSI CONCRETE, ASTM A307 OR ASTM F1554, GRADE 36 ANCHOR RODS AND NO SUPPLEMENTARY REINFORCEMENT. HIGH STRENGTH ANCHORAGE DESIGN BY OTHERS WHEN REQUIRED.
2. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC ANCHORAGE DESIGNS CONFORM TO ACI 318-14 SECTION 17.2.3.4.3 AND ACI 318-11 SECTION D.3.3.4.
3. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B.
4. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. FOUNDATION DESIGN (SIZE AND REINFORCEMENT) BY OTHERS. THE REGISTERED DESIGN PROFESSIONAL MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
5. FOR ANCHORAGE SOLUTIONS USING SSTB, SEE ICC-ES ESR-2611.

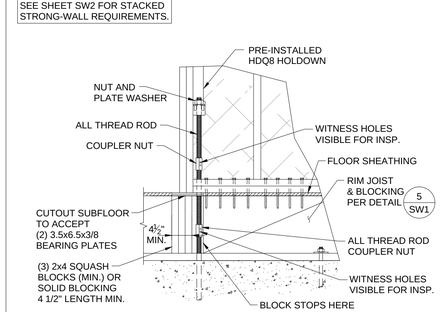
ANCHORAGE SCHEDULE 2

SEE SHEET SW2 FOR STACKED STRONG-WALL REQUIREMENTS.

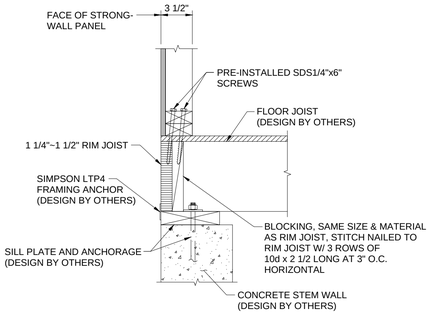


STANDARD WALL SILL 3

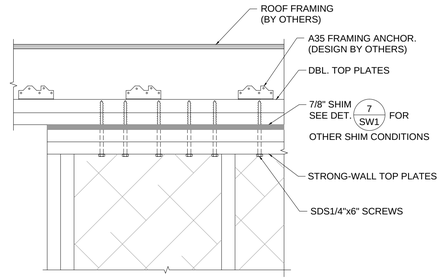
SEE SHEET SW2 FOR STACKED STRONG-WALL REQUIREMENTS.



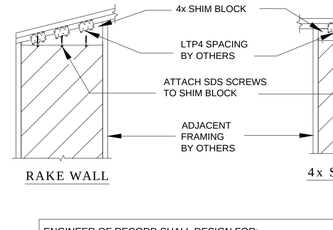
RAISED FLOOR WALL SILL 4



RAISED FLOOR WALL SECTION 5

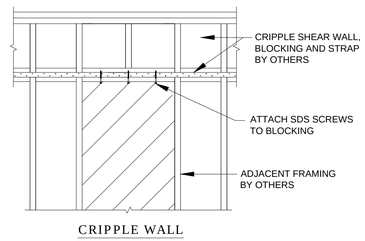


TOP PLATE CONNECTION 6



ENGINEER OF RECORD SHALL DESIGN FOR:
1. SHEAR TRANSFER
2. OUT OF PLANE LOADING EFFECT
3. INCREASED OVERTURNING AND DRIFT DUE TO ADDITIONAL HEIGHT.

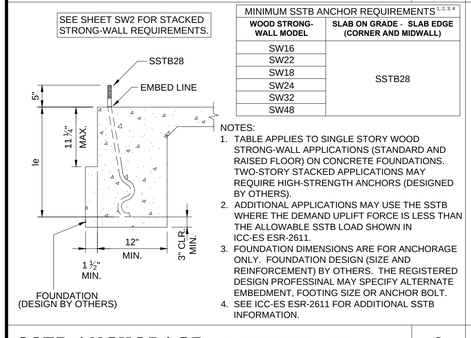
SHIM BLOCK ON STD. & RF WALLS 7



ENGINEER OF RECORD SHALL DESIGN FOR:
1. SHEAR TRANSFER
2. OUT OF PLANE LOADING EFFECT
3. INCREASED OVERTURNING AND DRIFT DUE TO ADDITIONAL HEIGHT.

CRIPPLE WALL ON STD & RF WALLS 8

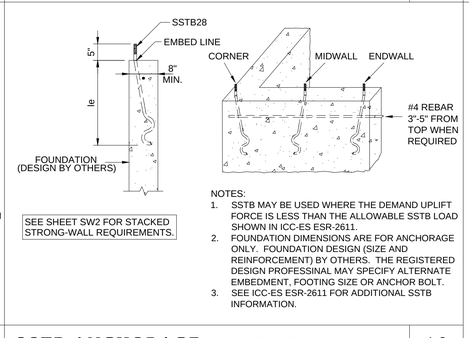
SEE SHEET SW2 FOR STACKED STRONG-WALL REQUIREMENTS.



MINIMUM SSTB ANCHOR REQUIREMENTS [1,2,3,4]	
WOOD STRONG-WALL MODEL	SLAB ON GRADE - SLAB EDGE (CORNER AND MIDWALL)
SW16	SSTB28
SW22	
SW18	
SW24	
SW32	
SW48	

NOTES:
1. TABLE APPLIES TO SINGLE STORY WOOD STRONG-WALL APPLICATIONS (STANDARD AND RAISED FLOOR) ON CONCRETE FOUNDATIONS. TWO-STORY STACKED APPLICATIONS MAY REQUIRE HIGH-STRENGTH ANCHORS (DESIGNED BY OTHERS).
2. ADDITIONAL APPLICATIONS MAY USE THE SSTB WHERE THE DEMAND UPLIFT FORCE IS LESS THAN THE ALLOWABLE SSTB LOAD SHOWN IN ICC-ES ESR-2611.
3. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. FOUNDATION DESIGN (SIZE AND REINFORCEMENT) BY OTHERS. THE REGISTERED DESIGN PROFESSINAL MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
4. SEE ICC-ES ESR-2611 FOR ADDITIONAL SSTB INFORMATION.

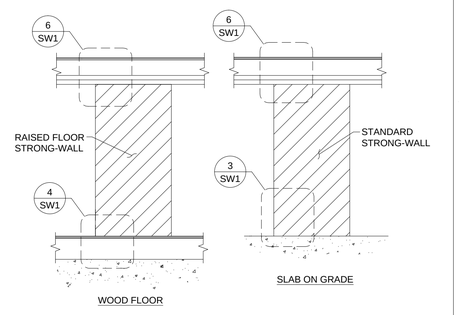
SSTB ANCHORAGE (SLAB ON GRADE) 9



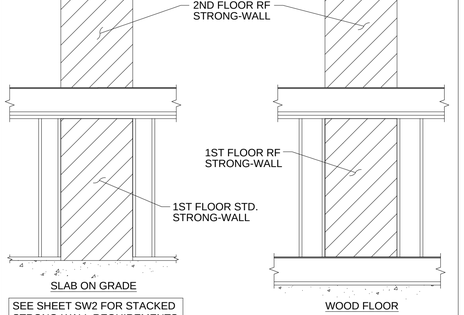
SEE SHEET SW2 FOR STACKED STRONG-WALL REQUIREMENTS.

NOTES:
1. SSTB MAY BE USED WHERE THE DEMAND UPLIFT FORCE IS LESS THAN THE ALLOWABLE SSTB LOAD SHOWN IN ICC-ES ESR-2611.
2. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. FOUNDATION DESIGN (SIZE AND REINFORCEMENT) BY OTHERS. THE REGISTERED DESIGN PROFESSINAL MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
3. SEE ICC-ES ESR-2611 FOR ADDITIONAL SSTB INFORMATION.

SSTB ANCHORAGE (CONC. STEM WALL) 10

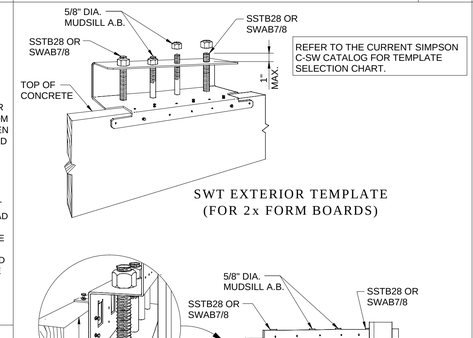


SINGLE STORY STRONG-WALL® 11



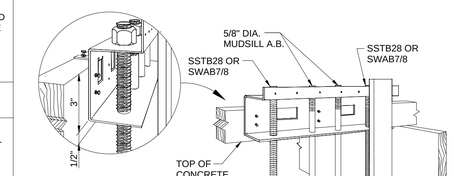
SEE SHEET SW2 FOR STACKED STRONG-WALL REQUIREMENTS.

STACKED STRONG-WALL® 12

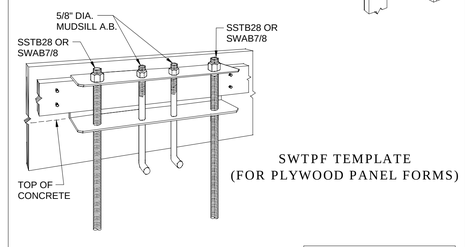


REFER TO THE CURRENT SIMPSON C-SW CATALOG FOR TEMPLATE SELECTION CHART.

SWT EXTERIOR TEMPLATE
(FOR 2x FORM BOARDS)



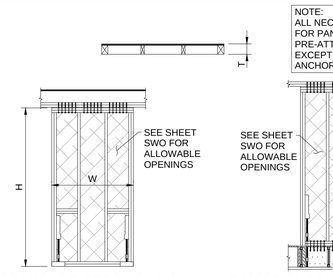
SWTI INTERIOR TEMPLATE
(FOR 2x4 ABOVE CONCRETE)



SWTPF TEMPLATE
(FOR PLYWOOD PANEL FORMS)

SEE SHEET SW2 FOR STACKED STRONG-WALL ANCHOR BOLT REQUIREMENTS.

STRONG-WALL® TEMPLATES 13



NOTE:
ALL NECESSARY HARDWARE, FOR PANEL INSTALLATION, IS PRE-ATTACHED OR PROVIDED. EXCEPT FOR TEMPLATE AND ANCHOR BOLTS.

STANDARD STRONG-WALL RAISED FLOOR STRONG-WALL

STANDARD STRONG-WALL MODELS						
MODEL SET UP	W (IN)	H (IN)	T (IN)	NUMBER OF MUDSILL ANCHORS	HOLDOWN ANCHOR BOLTS	ASSEMBLED WALL WEIGHT (lbs)
SW18x8	18	93 1/4	3 1/2	2-5/8"Ø	2-7/8"Ø	85
SW24x8	24	93 1/4	3 1/2	2-5/8"Ø	2-7/8"Ø	91
SW32x8	32	93 1/4	3 1/2	2-5/8"Ø	2-7/8"Ø	116
SW48x8	48	93 1/4	3 1/2	3-5/8"Ø	2-7/8"Ø	149
SW18x9	18	105 1/4	3 1/2	2-5/8"Ø	2-7/8"Ø	94
SW24x9	24	105 1/4	3 1/2	2-5/8"Ø	2-7/8"Ø	101
SW32x9	32	105 1/4	3 1/2	2-5/8"Ø	2-7/8"Ø	128
SW48x9	48	105 1/4	3 1/2	3-5/8"Ø	2-7/8"Ø	165
SW24x10	24	117 1/4	3 1/2	2-5/8"Ø	2-7/8"Ø	111
SW32x10	32	117 1/4	3 1/2	2-5/8"Ø	2-7/8"Ø	134
SW48x10	48	117 1/4	3 1/2	3-5/8"Ø	2-7/8"Ø	171
SW24x12x6	24	141 1/4	5 1/2	2-5/8"Ø	2-7/8"Ø	187
SW32x12x6	32	141 1/4	5 1/2	2-5/8"Ø	2-7/8"Ø	201
SW48x12x6	48	141 1/4	5 1/2	3-5/8"Ø	2-7/8"Ø	256

RAISED FLOOR STRONG-WALL MODELS							
MODEL SET UP	W (IN)	H (IN)	T (IN)	NUMBER OF FASTENERS IN BOTTOM OF WALL	NUMBER OF FASTENERS IN TOP OF WALL	HOLDOWN ANCHOR BOLTS	MAX. WALL WEIGHT (lbs)
SW18x8-RF	18	93 1/4	3 1/2	13-SDS 1/4x6	9-SDS 1/4x6	2-7/8"Ø	85
SW24x8-RF	24	93 1/4	3 1/2	16-SDS 1/4x6	12-SDS 1/4x6	2-7/8"Ø	91
SW32x8-RF	32	93 1/4	3 1/2	20-SDS 1/4x6	16-SDS 1/4x6	2-7/8"Ø	116
SW48x8-RF	48	93 1/4	3 1/2	28-SDS 1/4x6	24-SDS 1/4x6	2-7/8"Ø	149
SW18x9-RF	18	105 1/4	3 1/2	13-SDS 1/4x6	9-SDS 1/4x6	2-7/8"Ø	94
SW24x9-RF	24	105 1/4	3 1/2	16-SDS 1/4x6	12-SDS 1/4x6	2-7/8"Ø	101
SW32x9-RF	32	105 1/4	3 1/2	20-SDS 1/4x6	16-SDS 1/4x6	2-7/8"Ø	128
SW48x9-RF	48	105 1/4	3 1/2	28-SDS 1/4x6	24-SDS 1/4x6	2-7/8"Ø	165
SW24x10-RF	24	117 1/4	3 1/2	16-SDS 1/4x6	12-SDS 1/4x6	2-7/8"Ø	111
SW32x10-RF	32	117 1/4	3 1/2	20-SDS 1/4x6	16-SDS 1/4x6	2-7/8"Ø	134
SW48x10-RF	48	117 1/4	3 1/2	28-SDS 1/4x6	24-SDS 1/4x6	2-7/8"Ø	171

WALL SPECIFICATIONS 14

1. STRONG-WALL® SHEARWALL IS MANUFACTURED AND TRADEMARKED BY "SIMPSON STRONG-TIE COMPANY INC.", HOME OFFICE: 5956 W. LAS POSITAS BOULEVARD, PLEASANTON, CA 94588 TEL: (800) 999-5099, FAX: (925) 875-0826 "SIMPSON STRONG-TIE COMPANY INC." IS AN ISO 9001 REGISTERED COMPANY.
2. INSTALLATION OF PRODUCT SHALL BE DONE IN STRICT CONFORMANCE TO THESE DRAWINGS AND THE STRONG-WALL® INSTALLATION GUIDE. MODIFICATIONS TO THIS PRODUCT AND ASSOCIATED SYSTEMS OR CHANGES IN THE INSTALLATION METHODS SHOWN ON THESE DRAWINGS AND THE INSTALLATION GUIDE SHOULD ONLY BE MADE BY A QUALIFIED ARCHITECT, CIVIL, OR STRUCTURAL ENGINEER. THE PERFORMANCE OF SUCH MODIFIED PRODUCTS OR ALTERED INSTALLATION PROCEDURES IS THE SOLE RESPONSIBILITY OF THE DESIGNER. REFER TO ICC-ES ESR-1267 FOR FURTHER INFORMATION.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONDITIONS, ELEVATIONS, ETC. PRIOR TO INSTALLATION OF ANY COMPONENTS FOR THE STRONG-WALL® SYSTEM. IF ANY DISCREPANCIES ARE FOUND, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ARCHITECT, PROJECT ENGINEER OR BUILDING DESIGNER FOR CLARIFICATION PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL VERIFY THE POSITION OF THE STRONG-WALL IN RELATION TO THE REST OF THE BUILDING SYSTEM AS SHOWN ON THE PROJECT DRAWINGS.
5. USE OF THIS PRODUCT IS SUBJECT TO THE APPROVAL OF THE LOCAL BUILDING OFFICIAL.
6. THE BUILDING STRUCTURE SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE BUILDING CODE AND ANY OTHER LOCAL, STATE OR FEDERAL REQUIREMENTS THAT MAY APPLY. VERIFY DESIGN REQUIREMENTS WITH THE LOCAL BUILDING DEPARTMENT.
7. THIS PRODUCT IS PART OF THE OVERALL LATERAL FORCE RESISTING SYSTEM OF THE STRUCTURE. DESIGN OF THE BUILDING'S LATERAL FORCE RESISTING SYSTEM, INCLUDING A COMPLETE LOAD PATH NECESSARY TO TRANSFER LATERAL FORCES FROM THE STRUCTURE TO THE GROUND, IS THE RESPONSIBILITY OF THE DESIGNER.
8. SIMPSON STRONG-TIE COMPANY INC. RESERVES THE RIGHT TO CHANGE SPECIFICATIONS, DESIGNS AND MODELS WITHOUT NOTICE OR LIABILITY FOR SUCH CHANGES.
9. ALL HARDWARE CALLED OUT IS SIMPSON STRONG-TIE®

NOTES 15

NO.	DATE	REVISIONS
3	09/23/07	GENERAL REVISIONS
4	08/29/08	ESR-1267 REVISIONS
5	02/22/11	ESR-2611 REVISIONS
6	07/11/13	2012 IBC REVISIONS
7	08/08/16	2015 IBC REVISIONS

SIMPSON STRONG-TIE COMPANY INC.
HOME OFFICE:
5956 W. LAS POSITAS BLVD., PLEASANTON, CA 94588
Tel: (800) 999-5099 Fax: (925) 875-0826

SIMPSON Strong-Tie® THERE IS NO EQUAL

STRONG-WALL® SINGLE STORY WALLS

NAME
DATE 8-8-2016
SCALE N.T.S.
CHECKED
SHEET SW1
OF SHEETS
JOB NO.

GENERAL INFORMATION					
01	Project Name	PRADU - Three Bedroom - a			
02	Calculation Description	Title 24 Analysis			
03	Project Location	TBD			
04	City	Encinitas	05	Standards Version	Compliance 2017
06	Zip Code	92024	07	Compliance Manager Version	BEMCmpMgr 2016.3.1 (1149)
08	Climate Zone	CZ7	09	Software Version	EnergyPro 7.2
10	Building Type	Single Family	11	Front Orientation (deg/Cardinal)	Cardinal
12	Project Scope	Newly Constructed	13	Number of Dwelling Units	1
14	Total Cond. Floor Area (ft^2)	1199	15	Number of Zones	2
16	Slab Area (ft^2)	1199	17	Number of Stories	1
18	Addition Cond. Floor Area(ft^2)	n/a	19	Natural Gas Available	Yes
20	Addition Slab Area (ft^2)	n/a	21	Glazing Percentage (%)	33.6%

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 (kTDV/ft^2-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	2.29	5.77	-3.48	-152.0%
Space Cooling	2.64	0.60	2.04	77.3%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
North Facing Compliance Total	**20.15**	**19.96**	**0.19**	**0.9%**
Space Heating	2.29	4.68	-2.39	-104.4%
Space Cooling	2.64	1.16	1.48	56.1%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
East Facing Compliance Total	**20.15**	**19.43**	**0.72**	**3.6%**
Space Heating	2.29	2.11	0.18	7.9%
Space Cooling	2.64	1.49	1.15	43.6%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
South Facing Compliance Total	**20.15**	**17.19**	**2.96**	**14.7%**
Space Heating	2.29	3.01	-0.72	-31.4%
Space Cooling	2.64	3.50	-0.86	-32.6%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
West Facing Compliance Total	**20.15**	**20.10**	**0.05**	**0.2%**

ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to "zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).
As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

	EDR of Standard Efficiency	EDR of Proposed Efficiency	EDR Value of Proposed PV + Battery	Final Proposed EDR
North	53.8	53.5	0.0	53.5
East	53.8	53.1	0.0	53.1
South	53.8	51.7	0.0	51.7
West	53.8	53.7	0.0	53.7

☐	**Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.**
☐	**Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.**
☐	**Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ7 (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System and QII must be verified.**

Notes:
- **Excess PV Generation EDR Credit: Bypassing PV size limit may violate Net Energy Metering (NEM) rules**

REQUIRED SPECIAL FEATURES

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

- **Non-standard duct location (any location other than attic)**

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 components tables below.

Building-level Verifications:
- **High quality insulation installation (QII)**
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Verified EER**
- **Verified Refrigerant Charge**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**
- **Ducts located entirely in conditioned space confirmed by duct leakage testing**

Domestic Hot Water System Verifications:
- **Pipe Insulation, All Lines**

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft^2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
PRADU - Three Bedroom - a	1199	1	3	2	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
Living Area	Conditioned	ATTIC FAU1	826	8	DHW Sys 1	n/a
Master Bedroom	Conditioned	ATTIC FAU1	373	9	DHW Sys 1	n/a

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window & Door Area (ft^2)	Tilt (deg)
Front Wall	Living Area	_ExteriorWall	0	Front	252	99	90
Left Wall	Living Area	_ExteriorWall	90	Left	36	0	90
Rear Wall	Living Area	_ExteriorWall	180	Back	252	50	90
Right Wall	Living Area	_ExteriorWall	270	Right	252	144	90
Roof 3	Living Area	_Roof	n/a	n/a	67	n/a	n/a
Front Wall 2	Master Bedroom	_ExteriorWall	0	Front	186	76	90
Left Wall 2	Master Bedroom	_ExteriorWall	90	Left	180	18	90
Rear Wall 2	Master Bedroom	_ExteriorWall	180	Back	186	16	90
IS	Master Bedroom>>Living Area	_InteriorWall	n/a	n/a	180	0	n/a
Roof 4	Master Bedroom	__Roof	n/a	n/a	229	n/a	n/a

OPAQUE SURFACES – Cathedral Ceilings

01	02	03	04	05	06	07	08	09	10
Name	Zone	Type	Orientation	Area (ft^2)	Skylight Area (ft2)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof	Living Area	_Roof	Front	759	0	4	0.1	0.85	No
Roof 2	Master Bedroom	_Roof	Front	144	0	4	0.1	0.85	No

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http://www.beartechconsulting.com

TITLE 24 ENERGY COMPLIANCE

PRADU - THREE BEDROOM - a
TBD
ENCINITAS, CALIFORNIA 92024

DRAWN BY
WCS
CHECKED BY
DATE
12/21/2018
SCALE
JOB NO.
18Q4079-a.1-8
SHEET
T-24.1
OF SHEETS

ATTIC

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic Living Area	Attic Roof/Living Area	Ventilated	4	0.1	0.85	No	No
Attic Master Bedroom	Attic Roof/Master Bedroom	Ventilated	4	0.1	0.85	No	No

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface (Orientation-Azimuth)	Width (ft)	Height (ft)	Multiplier	Area (ft^2)	U-factor	SHGC	Exterior Shading
w1	Window	Front Wall (Front-0)	----	----	1	45.0	0.36	0.21	Insect Screen (default)
d1	Window	Front Wall (Front-0)	----	----	1	24.0	0.40	0.24	Insect Screen (default)
w2	Window	Front Wall (Front-0)	----	----	1	30.0	0.36	0.21	Insect Screen (default)
w2 2	Window	Rear Wall (Back-180)	----	----	1	30.0	0.36	0.21	Insect Screen (default)
w6	Window	Rear Wall (Back-180)	----	----	1	20.0	0.36	0.21	Insect Screen (default)
d2	Window	Right Wall (Right-270)	----	----	1	144.0	0.41	0.20	Insect Screen (default)
d3	Window	Front Wall 2 (Front-0)	----	----	1	64.0	0.42	0.33	Insect Screen (default)
w3	Window	Front Wall 2 (Front-0)	----	----	1	12.0	0.36	0.21	Insect Screen (default)
w4	Window	Left Wall 2 (Left-90)	----	----	1	18.0	0.36	0.21	Insect Screen (default)
w5	Window	Rear Wall 2 (Back-180)	----	----	1	8.0	0.36	0.21	Insect Screen (default)
w5 2	Window	Rear Wall 2 (Back-180)	----	----	1	8.0	0.36	0.21	Insect Screen (default)

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Winter Design U-factor	Assembly Layers
Attic Roof/Living Area	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.151	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R5 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
__Roof	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 30	0.032	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4* • *Over Ceiling Joists: R-20.9 insul.*
_Roof	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in. O.C.	R 30	0.030	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-30 / 2x10* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R5 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
_ExteriorWall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
Attic Roof/Master Bedroom	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.151	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R5 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
_InteriorWall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.086	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Other Side Finish: Gypsum Board*

SLAB FLOORS

01	02	03	04	05	06	07
Name	Zone	Area (ft^2)	Perimeter (ft)	Edge Insul. R-value & Depth	Carpeted Fraction	Heated
Slab-on-Grade	Living Area	826	88	None	0.8	No
Slab-on-Grade 2	Master Bedroom	373	67	None	0.8	No

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	Quality Installation of Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Required	Not Required	Not Required	n/a

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	System Type	Distribution Type	Water Heater	Number of Heaters	Solar Fraction (%)
DHW Sys 1	DHW	(HERS req'd) Pipe Insulation, All Lines	DHW Heater 1 (1)	1	.0%

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Heater Element Type	Tank Type	Number of Units	Tank Volume (gal)	Uniform Energy Factor / Energy Factor / Efficiency	Input Rating / Pilot / Thermal Efficiency	Tank Insulation R-value (Int/Ext)	Standby Loss / Recovery Eff	First Hour Rating / Flow Rate	NEEA Heat Pump Brand / Model / Other	Tank Location or Ambient Condition
DHW Heater 1	Gas	Small Instantaneous	1	0	0.92 EF	<= 200 kBtu/hr	R-0/R-0	0	n/a	n/a	n/a

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Point-of Use	Recirculation Control	Central DHW Distribution
DHW Sys 1 - 1/1	Pipe Insulation, All Lines	n/a	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06
SC Sys Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name
ATTIC FAU1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	System Type	Number of Units	Efficiency
Heating Component 1	CntrlFurnace	1	80 AFUE

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
Name	System Type	Number of Units	Efficiency EER	Efficiency SEER	Zonally Controlled	Compressor Type	HERS Verification
Cooling Component 1	SplitAirCond	1	12.2	14	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Cooling Component 1-hers-cool	Required	350	Required	Not Required	Required

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	Type	Duct Leakage	Insulation R-value	Duct Location	Bypass Duct	HERS Verification
Air Distribution System 1	DuctsInAll	Sealed and tested	6	Conditioned zone	None	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler
Air Distribution System 1-hers-dist	Required	5.0	Required	Not Required	Not Required	Not Required	n/a

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Rsquired Fan Efficiency (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS

01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness(%)	HERS Verification
SFam IAQVentRpt	42	0.25	Default	0	Required

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SHEET
T-24.2
OF SHEETS

PROJECT NOTES
This report is based on the drawings received on 12/10/2018. 1) DO NOT USE FOR ACTUAL HEATING/COOLING DESIGN. 2) The Title 24 calculations used for this project are used for the purpose of complying with the current Title 24 code provisions and are intended to be used in order to obtain compliance per Title 24 regulations. They are NOT intended to be used as a substitute for the heating and cooling loads required for the structure(s) that are normally done by a mechanical engineer(s) or HVAC contractor(s) and in NO CIRCUMSTANCES is this to be used in lieu of the normal calculation methods used by a mechnical engineer(s) or HVAC contractor(s). 3) The assembly components found in this document are for modeling purposes only and may not reflect the actual conditions of the walls, roof(s), floor(s), windows and doors of the structure.

GENERAL INFORMATION					
01	**Project Name**	PRADU - Three Bedroom - b			
02	**Calculation Description**	Title 24 Analysis			
03	**Project Location**	TBD			
04	**City**	Encinitas	05	**Standards Version**	Compliance 2017
06	**Zip Code**	92024	07	**Compliance Manager Version**	BEMCmpMgr 2016.3.1 (1149)
08	**Climate Zone**	CZ7	09	**Software Version**	EnergyPro 7.2
10	**Building Type**	Single Family	11	**Front Orientation (deg/Cardinal)**	Cardinal
12	**Project Scope**	Newly Constructed	13	**Number of Dwelling Units**	1
14	**Total Cond. Floor Area (ft^2)**	1199	15	**Number of Zones**	2
16	**Slab Area (ft^2)**	1199	17	**Number of Stories**	1
18	**Addition Cond. Floor Area(ft^2)**	n/a	19	**Natural Gas Available**	Yes
20	**Addition Slab Area (ft^2)**	n/a	21	**Glazing Percentage (%)**	33.6%

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

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Wayne Seward	Documentation Author Signature: Wayne Seward
Company: Bear Technologies Consulting Inc.	Signature Date: 2018-12-21 10:27:48
Address: 3431 Don Arturo Drive	CEA/HERS Certification Identification (If applicable): R16-04-20130
City/State/Zip: Carlsbad, CA 92010	Phone: 760-635-2327

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: Bart M Smith	Responsible Designer Signature: Bart M Smith
Company: DZN Partners	Date Signed: 2018-12-21 11:50:33
Address: 682 2nd Street	License: C-22557
City/State/Zip: Encinitas, CA 92024	Phone: 760-753-2464

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Easy to Verify at CalCERTS.com

ENERGY USE SUMMARY				
Energy Use ($kTDV/ft^2$-yr)	**Standard Design**	**Proposed Design**	**Compliance Margin**	**Percent Improvement**
Space Heating	2.27	3.66	-1.39	-61.2%
Space Cooling	2.63	1.41	1.22	46.4%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
North Facing Compliance Total	**20.12**	**18.66**	**1.46**	**7.3%**
Space Heating	2.27	3.64	-1.37	-60.4%
Space Cooling	2.63	1.59	1.04	39.5%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
East Facing Compliance Total	**20.12**	**18.82**	**1.30**	**6.5%**
Space Heating	2.27	1.52	0.75	33.0%
Space Cooling	2.63	1.96	0.67	25.5%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
South Facing Compliance Total	**20.12**	**17.07**	**3.05**	**15.2%**
Space Heating	2.27	1.70	0.57	25.1%
Space Cooling	2.63	4.68	-2.05	-77.9%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
West Facing Compliance Total	**20.12**	**19.97**	**0.15**	**0.7%**

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TITLE 24 ENERGY COMPLIANCE

PRADU - THREE BEDROOM - a & b
TBD
ENCINITAS, CALIFORNIA 92024

DRAWN BY: WCS
CHECKED BY:
DATE: 12/21/2018
SCALE:
JOB NO.: 18Q4079-a & b
SHEET: T-24.3
OF SHEETS

ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to"zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).
As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

	EDR of Standard Efficiency	EDR of Proposed Efficiency	EDR Value of Proposed PV + Battery	Final Proposed EDR
North	53.7	52.7	0.0	52.7
East	53.7	52.8	0.0	52.8
South	53.7	51.6	0.0	51.6
West	53.7	53.7	0.0	53.7

☐ Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.
☐ Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.
☐ Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ7 (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System and QII must be verified.

Notes:
- **Excess PV Generation EDR Credit: Bypassing PV size limit may violate Net Energy Metering (NEM) rules**

REQUIRED SPECIAL FEATURES

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

- **Cool roof**
- **Insulation above roof deck**

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 components tables below.

Building-level Verifications:
- **High quality insulation installation (QII)**
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Verified EER**
- **Verified Refrigerant Charge**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**

Domestic Hot Water System Verifications:
- **Pipe Insulation, All Lines**

BUILDING - FEATURES INFORMATION

01 Project Name	02 Conditioned Floor Area (ft^2)	03 Number of Dwelling Units	04 Number of Bedrooms	05 Number of Zones	06 Number of Ventilation Cooling Systems	07 Number of Water Heating Systems
PRADU - Three Bedroom - b	1199	1	3	2	0	1

ZONE INFORMATION

01 Zone Name	02 Zone Type	03 HVAC System Name	04 Zone Floor Area (ft^2)	05 Avg. Ceiling Height	06 Water Heating System 1	07 Water Heating System 2
Living Area	Conditioned	ATTIC FAU1	944	8	DHW Sys 1	n/a
Master Bedroom	Conditioned	ATTIC FAU1	255	9	DHW Sys 1	n/a

OPAQUE SURFACES

01 Name	02 Zone	03 Construction	04 Azimuth	05 Orientation	06 Gross Area (ft^2)	07 Window & Door Area (ft^2)	08 Tilt (deg)
Front Wall	Living Area	_ExteriorWall	0	Front	144	69	90
Front Wall 2	Living Area	_StoneWall	0	Front	180	42	90
Left Wall	Living Area	_StoneWall	90	Left	72	0	90
Rear Wall	Living Area	_ExteriorWall	180	Back	144	20	90
Rear Wall 2	Living Area	_ExteriorWall	180	Back	180	38	90
Right Wall	Living Area	_ExteriorWall	270	Right	216	144	90
Right Wall 2	Living Area	_StoneWall	270	Right	36	0	90
Roof 3	Living Area	__Roof	n/a	n/a	560	n/a	n/a
Front Wall 3	Master Bedroom	_ExteriorWall	0	Front	114.8	64	90
Left Wall 2	Master Bedroom	_ExteriorWall	90	Left	180	18	90
Rear Wall 3	Master Bedroom	_ExteriorWall	180	Back	114.8	8	90
IS	Master Bedroom>>Living Area	_InteriorWall	n/a	n/a	180	0	n/a

OPAQUE SURFACES – Cathedral Ceilings

01 Name	02 Zone	03 Type	04 Orientation	05 Area (ft^2)	06 Skylight Area (ft2)	07 Roof Rise (x in 12)	08 Roof Reflectance	09 Roof Emittance	10 Cool Roof
Roof	Living Area	_Roof	Front	384	0	0.3	0.1	0.85	No
Roof 2	Master Bedroom	_Roof	Front	255	0	0.3	0.1	0.85	No

ATTIC

01 Name	02 Construction	03 Type	04 Roof Rise	05 Roof Reflectance	06 Roof Emittance	07 Radiant Barrier	08 Cool Roof
Attic Living Area	Attic Roof/Living Area	Ventilated	4	0.65	0.85	Yes	Yes

FENESTRATION / GLAZING

01 Name	02 Type	03 Surface (Orientation-Azimuth)	04 Width (ft)	05 Height (ft)	06 Multiplier	07 Area (ft^2)	08 U-factor	09 SHGC	10 Exterior Shading
w1	Window	Front Wall (Front-0)	----	----	1	45.0	0.32	0.25	Insect Screen (default)
d1	Window	Front Wall (Front-0)	----	----	1	24.0	0.32	0.25	Insect Screen (default)
w2	Window	Front Wall 2 (Front-0)	----	----	1	30.0	0.32	0.25	Insect Screen (default)
w3	Window	Front Wall 2 (Front-0)	----	----	1	12.0	0.32	0.25	Insect Screen (default)
w6	Window	Rear Wall (Back-180)	----	----	1	20.0	0.32	0.25	Insect Screen (default)
w2 2	Window	Rear Wall 2 (Back-180)	----	----	1	30.0	0.32	0.25	Insect Screen (default)
w5	Window	Rear Wall 2 (Back-180)	----	----	1	8.0	0.32	0.25	Insect Screen (default)
d2	Window	Right Wall (Right-270)	----	----	1	144.0	0.32	0.25	Insect Screen (default)
d3	Window	Front Wall 3 (Front-0)	----	----	1	64.0	0.32	0.25	Insect Screen (default)
w4	Window	Left Wall 2 (Left-90)	----	----	1	18.0	0.32	0.25	Insect Screen (default)
w5 2	Window	Rear Wall 3 (Back-180)	----	----	1	8.0	0.32	0.25	Insect Screen (default)

OPAQUE SURFACE CONSTRUCTIONS

01 Construction Name	02 Surface Type	03 Construction Type	04 Framing	05 Total Cavity R-value	06 Winter Design U-factor	07 Assembly Layers
Attic Roof/Living Area	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.094	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R9 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
__Roof	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 30	0.032	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4* • *Over Ceiling Joists: R-20.9 Insul.*
_Roof	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in. O.C.	R 30	0.032	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-30 / 2x10* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R4 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
_ExteriorWall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
_StoneWall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
_InteriorWall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.086	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Other Side Finish: Gypsum Board*

SLAB FLOORS

01 Name	02 Zone	03 Area (ft^2)	04 Perimeter (ft)	05 Edge Insul. R-value & Depth	06 Carpeted Fraction	07 Heated
Slab-on-Grade	Living Area	944	104	None	0.8	No
Slab-on-Grade 2	Master Bedroom	255	46	None	0.8	No

BUILDING ENVELOPE - HERS VERIFICATION

01 Quality Insulation Installation (QII)	02 Quality Installation of Spray Foam Insulation	03 Building Envelope Air Leakage	04 CFM50
Required	Not Required	Not Required	n/a

TITLE 24 ENERGY COMPLIANCE
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PRADU - THREE BEDROOM - b
TBD
ENCINITAS, CALIFORNIA 92024

DRAWN BY: WCS
CHECKED BY:
DATE: 12/21/2018
SCALE:
JOB NO.: 18Q4079-b.1-8
SHEET: T-24.4
OF SHEETS

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	System Type	Distribution Type	Water Heater	Number of Heaters	Solar Fraction (%)
DHW Sys 1	DHW	(HERS req'd) Pipe Insulation, All Lines	DHW Heater 1 (1)	1	.0%

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Heater Element Type	Tank Type	Number of Units	Tank Volume (gal)	Uniform Energy Factor / Energy Factor / Efficiency	Input Rating / Pilot / Thermal Efficiency	Tank Insulation R-value (Int/Ext)	Standby Loss / Recovery Eff	First Hour Rating / Flow Rate	NEEA Heat Pump Brand / Model / Other	Tank Location or Ambient Condition
DHW Heater 1	Gas	Small Instantaneous	1	0	0.92 EF	<= 200 kBtu/hr	R-0/R-0	0	n/a	n/a	n/a

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Point-of Use	Recirculation Control	Central DHW Distribution
DHW Sys 1 - 1/1	Pipe Insulation, All Lines	n/a	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06
SC Sys Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name
ATTIC FAU1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	System Type	Number of Units	Efficiency
Heating Component 1	CntrlFurnace	1	80 AFUE

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
			Efficiency				
Name	System Type	Number of Units	EER	SEER	Zonally Controlled	Compressor Type	HERS Verification
Cooling Component 1	SplitAirCond	1	12.2	14	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Cooling Component 1-hers-cool	Required	350	Required	Not Required	Required

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	Type	Duct Leakage	Insulation R-value	Duct Location	Bypass Duct	HERS Verification
Air Distribution System 1	DuctsAttic	Sealed and tested	6	Attic	None	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler
Air Distribution System 1-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	n/a

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficiency (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS

01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness(%)	HERS Verification
SFam IAQVentRpt	42	0.25	Default	0	Required

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I certify that this Certificate of Compliance documentation is accurate and complete.

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Company: Bear Technologies Consulting Inc.	Signature Date: 2018-12-21 10:29:03
Address: 3431 Don Arturo Drive	CEA/HERS Certification Identification (If applicable): R16-04-20130
City/State/Zip: Carlsbad, CA 92010	Phone: 760-635-2327

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Company: DZN Partners	Date Signed: 2018-12-21 11:50:33
Address: 682 2nd Street	License: C-22557
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TITLE 24 ENERGY COMPLIANCE

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PRADU - THREE BEDROOM - b
TBD
ENCINITAS, CALIFORNIA 92024

DRAWN BY: WCS
CHECKED BY:
DATE: 12/21/2018
SCALE:
JOB NO.: 18Q4079-b.1-8
SHEET: T-24.5
OF SHEETS

GENERAL INFORMATION					
01	Project Name	PRADU - Three Bedroom - c			
02	Calculation Description	Title 24 Analysis			
03	Project Location	TBD			
04	City	Encinitas	05	Standards Version	Compliance 2017
06	Zip Code	92024	07	Compliance Manager Version	BEMCmpMgr 2016.3.1 (1149)
08	Climate Zone	CZ7	09	Software Version	EnergyPro 7.2
10	Building Type	Single Family	11	Front Orientation (deg/Cardinal)	Cardinal
12	Project Scope	Newly Constructed	13	Number of Dwelling Units	1
14	Total Cond. Floor Area (ft^2)	1199	15	Number of Zones	2
16	Slab Area (ft^2)	1199	17	Number of Stories	1
18	Addition Cond. Floor Area(ft^2)	n/a	19	Natural Gas Available	Yes
20	Addition Slab Area (ft^2)	n/a	21	Glazing Percentage (%)	33.6%

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 ($kTDV/ft^2$-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	2.45	3.32	-0.87	-35.5%
Space Cooling	2.88	1.93	0.95	33.0%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
North Facing Compliance Total	**20.55**	**18.84**	**1.71**	**8.3%**
Space Heating	2.45	2.93	-0.48	-19.6%
Space Cooling	2.88	1.97	0.91	31.6%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
East Facing Compliance Total	**20.55**	**18.49**	**2.06**	**10.0%**
Space Heating	2.45	1.13	1.32	53.9%
Space Cooling	2.88	2.29	0.59	20.5%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
South Facing Compliance Total	**20.55**	**17.01**	**3.54**	**17.2%**
Space Heating	2.45	1.43	1.02	41.6%
Space Cooling	2.88	5.22	-2.34	-81.3%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
West Facing Compliance Total	**20.55**	**20.24**	**0.31**	**1.5%**

ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to"zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).
As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for Information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

	EDR of Standard Efficiency	EDR of Proposed Efficiency	EDR Value of Proposed PV + Battery	Final Proposed EDR
North	53.8	52.6	0.0	52.6
East	53.8	52.4	0.0	52.4
South	53.8	51.5	0.0	51.5
West	53.8	53.7	0.0	53.7

☐	**Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.**
☐	**Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.**
☐	**Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ7 (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System and QII must be verified.**

Notes:
- **Excess PV Generation EDR Credit: Bypassing PV size limit may violate Net Energy Metering (NEM) rules**

REQUIRED SPECIAL FEATURES

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

- **Cool roof**
- **Non-standard duct location (any location other than attic)**

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 components tables below.

Building-level Verifications:
- **High quality insulation installation (QII)**
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Verified EER**
- **Verified Refrigerant Charge**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**
- **Ducts located entirely in conditioned space confirmed by duct leakage testing**

Domestic Hot Water System Verifications:
- **Pipe Insulation, All Lines**

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft^2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
PRADU - Three Bedroom - c	1199	1	3	2	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
Living Area	Conditioned	ATTIC FAU1	826	8	DHW Sys 1	n/a
Master Bedroom	Conditioned	ATTIC FAU1	373	9	DHW Sys 1	n/a

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window & Door Area (ft^2)	Tilt (deg)
Front Wall	Living Area	_ExteriorWall	0	Front	252	99	90
Left Wall	Living Area	_StoneWall	90	Left	36	0	90
Rear Wall	Living Area	_ExteriorWall	180	Back	276.3	50	90
Right Wall	Living Area	_ExteriorWall	270	Right	234	144	90
Roof 3	Living Area	__Roof	n/a	n/a	66.6	n/a	n/a
Front Wall 2	Master Bedroom	_ExteriorWall	0	Front	186.8	76	90
Left Wall 2	Master Bedroom	_ExteriorWall	90	Left	216	18	90
Rear Wall 2	Master Bedroom	_ExteriorWall	180	Back	162.7	16	90
Right Wall 2	Master Bedroom	_ExteriorWall	270	Right	18	0	90
IS	Master Bedroom>>Living Area	_InteriorWall	n/a	n/a	180	0	n/a
Roof 4	Master Bedroom	__Roof	n/a	n/a	229	n/a	n/a

OPAQUE SURFACES – Cathedral Ceilings

01	02	03	04	05	06	07	08	09	10
Name	Zone	Type	Orientation	Area (ft^2)	Skylight Area (ft2)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof	Living Area	_Roof	Front	759	0	3	0.1	0.85	No
Roof 2	Master Bedroom	_Roof	Front	144	0	3	0.1	0.85	No

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TITLE 24 ENERGY COMPLIANCE

PRADU - THREE BEDROOM - c
TBD
ENCINITAS, CALIFORNIA 92024

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12/21/2018
SCALE
JOB NO.
18Q4079-c.1-5
SHEET
T-24.6
OF SHEETS

ATTIC

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic Living Area	Attic Roof/Living Area	Ventilated	3	0.65	0.85	Yes	Yes
Attic Master Bedroom	Attic Roof/Master Bedroom	Ventilated	3	0.65	0.85	Yes	Yes

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface (Orientation-Azimuth)	Width (ft)	Height (ft)	Multiplier	Area (ft^2)	U-factor	SHGC	Exterior Shading
w1	Window	Front Wall (Front-0)	----	----	1	45.0	0.32	0.25	Insect Screen (default)
d1	Window	Front Wall (Front-0)	----	----	1	24.0	0.32	0.25	Insect Screen (default)
w2	Window	Front Wall (Front-0)	----	----	1	30.0	0.36	0.31	Insect Screen (default)
w2 2	Window	Rear Wall (Back-180)	----	----	1	30.0	0.36	0.31	Insect Screen (default)
w6	Window	Rear Wall (Back-180)	----	----	1	20.0	0.32	0.25	Insect Screen (default)
d2	Window	Right Wall (Right-270)	----	----	1	144.0	0.32	0.25	Insect Screen (default)
w3	Window	Front Wall 2 (Front-0)	----	----	1	12.0	0.36	0.31	Insect Screen (default)
d3	Window	Front Wall 2 (Front-0)	----	----	1	64.0	0.32	0.25	Insect Screen (default)
w4	Window	Left Wall 2 (Left-90)	----	----	1	18.0	0.32	0.25	Insect Screen (default)
w5	Window	Rear Wall 2 (Back-180)	----	----	1	8.0	0.32	0.25	Insect Screen (default)
w5 2	Window	Rear Wall 2 (Back-180)	----	----	1	8.0	0.32	0.25	Insect Screen (default)

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Winter Design U-factor	Assembly Layers
Attic Roof/Living Area	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.178	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R4 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
__Roof	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 30	0.032	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4* • *Over Ceiling Joists: R-20.9 insul.*
_Roof	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in. O.C.	R 30	0.032	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-30 / 2x10* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R4 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
_ExteriorWall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.089	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: Wood Siding/sheathing/decking*
_StoneWall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
Attic Roof/Master Bedroom	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.178	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R4 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
_InteriorWall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.086	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Other Side Finish: Gypsum Board*

SLAB FLOORS

01	02	03	04	05	06	07
Name	Zone	Area (ft^2)	Perimeter (ft)	Edge Insul. R-value & Depth	Carpeted Fraction	Heated
Slab-on-Grade	Living Area	825	104	None	0.8	No
Slab-on-Grade 2	Master Bedroom	373	46	None	0.8	No

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	Quality Installation of Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Required	Not Required	Not Required	n/a

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	System Type	Distribution Type	Water Heater	Number of Heaters	Solar Fraction (%)
DHW Sys 1	DHW	(HERS req'd) Pipe Insulation, All Lines	DHW Heater 1 (1)	1	.0%

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Heater Element Type	Tank Type	Number of Units	Tank Volume (gal)	Uniform Energy Factor / Energy Factor / Efficiency	Input Rating / Pilot / Thermal Efficiency	Tank Insulation R-value (Int/Ext)	Standby Loss / Recovery Eff	First Hour Rating / Flow Rate	NEEA Heat Pump Brand / Model / Other	Tank Location or Ambient Condition
DHW Heater 1	Gas	Small Instantaneous	1	0	0.92 EF	<= 200 kBtu/hr	R-0/R-0	0	n/a	n/a	n/a

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Point-of Use	Recirculation Control	Central DHW Distribution
DHW Sys 1 - 1/1	Pipe Insulation, All Lines	n/a	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06
SC Sys Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name
ATTIC FAU1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	System Type	Number of Units	Efficiency
Heating Component 1	CntrlFurnace	1	80 AFUE

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
Name	System Type	Number of Units	Efficiency EER	Efficiency SEER	Zonally Controlled	Compressor Type	HERS Verification
Cooling Component 1	SplitAirCond	1	12.2	14	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Cooling Component 1-hers-cool	Required	350	Required	Not Required	Required

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	Type	Duct Leakage	Insulation R-value	Duct Location	Bypass Duct	HERS Verification
Air Distribution System 1	DuctsInAll	Sealed and tested	6	Conditioned zone	None	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler
Air Distribution System 1-hers-dist	Required	5.0	Required	Not Required	Not Required	Not Required	n/a

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficiency (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS

01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness(%)	HERS Verification
SFam IAQVentRpt	42	0.25	Default	0	Required

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TITLE 24 ENERGY COMPLIANCE

PRADU - THREE BEDROOM - c
TBD
ENCINITAS, CALIFORNIA 92024

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PROJECT NOTES
This report is based on the drawings received on 12/10/2018. 1) DO NOT USE FOR ACTUAL HEATING/COOLING DESIGN. 2) The Title 24 calculations used for this project are used for the purpose of complying with the current Title 24 code provisions and are intended to be used in order to obtain compliance per Title 24 regulations. They are NOT intended to be used as a substitute for the heating and cooling loads required for the structure(s) that are normally done by a mechanical engineer(s) or HVAC contractor(s) and in NO CIRCUMSTANCES is this to be used in lieu of the normal calculation methods used by a mechnical engineer(s) or HVAC contractor(s). 3) The assembly components found in this document are for modeling purposes only and may not reflect the actual conditions of the walls, roof(s), floor(s), windows and doors of the structure.

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Wayne Seward	Documentation Author Signature: *Wayne Seward*
Company: Bear Technologies Consulting Inc.	Signature Date: 2018-12-21 10:30:37
Address: 3431 Don Arturo Drive	CEA/HERS Certification Identification (If applicable): R16-04-20130
City/State/Zip: Carlsbad, CA 92010	Phone: 760-635-2327

CABEC California Association of Building Energy Consultants CERTIFIED ENERGY ANALYST

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: Bart M Smith	Responsible Designer Signature: *Bart M Smith*
Company: DZN Partners	Date Signed: 2018-12-21 11:50:33
Address: 682 2nd Street	License: C-22557
City/State/Zip: Encinitas, CA 92024	Phone: 760-753-2464

Digitally signed by CalCERTS. 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.

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TITLE 24 ENERGY COMPLIANCE

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PRADU - THREE BEDROOM - c
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18Q4079-c.1-5
SHEET
T-24.8
OF SHEETS

GENERAL INFORMATION					
01	Project Name	PRADU - Three Bedroom - A			
02	Calculation Description	Title 24 Analysis			
03	Project Location	TBD			
04	City	Encinitas	05	Standards Version	Compliance 2017
06	Zip Code	92024	07	Compliance Manager Version	BEMCmpMgr 2016.3.1 (1149)
08	Climate Zone	CZ7	09	Software Version	EnergyPro 7.2
10	Building Type	Single Family	11	Front Orientation (deg/Cardinal)	Cardinal
12	Project Scope	Newly Constructed	13	Number of Dwelling Units	1
14	Total Cond. Floor Area (ft^2)	1199	15	Number of Zones	2
16	Slab Area (ft^2)	0	17	Number of Stories	1
18	Addition Cond. Floor Area(ft^2)	n/a	19	Natural Gas Available	Yes
20	Addition Slab Area (ft^2)	n/a	21	Glazing Percentage (%)	33.6%

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 ($kTDV/ft^2$-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	1.16	3.41	-2.25	-194.0%
Space Cooling	9.93	4.14	5.79	58.3%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
North Facing Compliance Total	**26.31**	**21.14**	**5.17**	**19.7%**
Space Heating	1.16	2.75	-1.59	-137.1%
Space Cooling	9.93	6.04	3.89	39.2%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
East Facing Compliance Total	**26.31**	**22.38**	**3.93**	**14.9%**
Space Heating	1.16	1.16	0.00	0.0%
Space Cooling	9.93	6.26	3.67	37.0%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
South Facing Compliance Total	**26.31**	**21.01**	**5.30**	**20.1%**
Space Heating	1.16	1.59	-0.43	-37.1%
Space Cooling	9.93	9.73	0.20	2.0%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
West Facing Compliance Total	**26.31**	**24.91**	**1.40**	**5.3%**

ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to"zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).
As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

	EDR of Standard Efficiency	EDR of Proposed Efficiency	EDR Value of Proposed PV + Battery	Final Proposed EDR
North	54.9	51.5	0.0	51.5
East	54.9	52.3	0.0	52.3
South	54.9	51.5	0.0	51.5
West	54.9	54.0	0.0	54.0

☐ **Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.**
☐ **Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.**
☐ **Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ7 (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System and QII must be verified.**

Notes:
- **Excess PV Generation EDR Credit: Bypassing PV size limit may violate Net Energy Metering (NEM) rules**

REQUIRED SPECIAL FEATURES

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

- **Non-standard duct location (any location other than attic)**

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 components tables below.

Building-level Verifications:
- **High quality insulation installation (QII)**
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Verified EER**
- **Verified Refrigerant Charge**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**
- **Ducts located entirely in conditioned space confirmed by duct leakage testing**

Domestic Hot Water System Verifications:
- **Pipe Insulation, All Lines**

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft^2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
PRADU - Three Bedroom - A	1199	1	3	2	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
Living Area	Conditioned	ATTIC FAU1	826	8	DHW Sys 1	n/a
Master Bedroom	Conditioned	ATTIC FAU1	373	9	DHW Sys 1	n/a

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window & Door Area (ft^2)	Tilt (deg)
Front Wall	Living Area	_ExteriorWall	0	Front	252	99	90
Left Wall	Living Area	_ExteriorWall	90	Left	36	0	90
Rear Wall	Living Area	_ExteriorWall	180	Back	252	50	90
Right Wall	Living Area	_ExteriorWall	270	Right	252	144	90
Roof 3	Living Area	__Roof	n/a	n/a	67	n/a	n/a
Raised Floor	Living Area	_RaisedFloor	n/a	n/a	826	n/a	n/a
Front Wall 2	Master Bedroom	_ExteriorWall	0	Front	186	76	90
Left Wall 2	Master Bedroom	_ExteriorWall	90	Left	180	18	90
Rear Wall 2	Master Bedroom	_ExteriorWall	180	Back	186	16	90
IS	Master Bedroom>>Living Area	_InteriorWall	n/a	n/a	180	0	n/a
Roof 4	Master Bedroom	__Roof	n/a	n/a	229	n/a	n/a
Raised Floor 2	Master Bedroom	_RaisedFloor	n/a	n/a	373	n/a	n/a

OPAQUE SURFACES – Cathedral Ceilings

01	02	03	04	05	06	07	08	09	10
Name	Zone	Type	Orientation	Area (ft^2)	Skylight Area (ft2)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof	Living Area	_Roof	Front	759	0	4	0.1	0.85	No
Roof 2	Master Bedroom	_Roof	Front	144	0	4	0.1	0.85	No

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TITLE 24 ENERGY COMPLIANCE

PRADU - THREE BEDROOM RF - A
TBD
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T-24.9
OF SHEETS

ATTIC

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic Living Area	Attic RoofLiving Area	Ventilated	4	0.1	0.85	No	No
Attic Master Bedroom	Attic RoofMaster Bedroom	Ventilated	4	0.1	0.85	No	No

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface (Orientation-Azimuth)	Width (ft)	Height (ft)	Multiplier	Area (ft^2)	U-factor	SHGC	Exterior Shading
w1	Window	Front Wall (Front-0)	----	----	1	45.0	0.36	0.21	Insect Screen (default)
d1	Window	Front Wall (Front-0)	----	----	1	24.0	0.40	0.24	Insect Screen (default)
w2	Window	Front Wall (Front-0)	----	----	1	30.0	0.36	0.21	Insect Screen (default)
w2 2	Window	Rear Wall (Back-180)	----	----	1	30.0	0.36	0.21	Insect Screen (default)
w6	Window	Rear Wall (Back-180)	----	----	1	20.0	0.36	0.21	Insect Screen (default)
d2	Window	Right Wall (Right-270)	----	----	1	144.0	0.41	0.20	Insect Screen (default)
d3	Window	Front Wall 2 (Front-0)	----	----	1	64.0	0.42	0.33	Insect Screen (default)
w3	Window	Front Wall 2 (Front-0)	----	----	1	12.0	0.36	0.21	Insect Screen (default)
w4	Window	Left Wall 2 (Left-90)	----	----	1	18.0	0.36	0.21	Insect Screen (default)
w5	Window	Rear Wall 2 (Back-180)	----	----	1	8.0	0.36	0.21	Insect Screen (default)
w5 2	Window	Rear Wall 2 (Back-180)	----	----	1	8.0	0.36	0.21	Insect Screen (default)

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Winter Design U-factor	Assembly Layers
Attic RoofLiving Area	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.151	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R5 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
__Roof	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 30	0.032	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4* • *Over Ceiling Joists: R-20.9 insul.*
_Roof	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in. O.C.	R 30	0.030	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-30 / 2x10* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R5 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
_ExteriorWall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
_RasideFloor	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O.C.	R 19 in 5-1/2 in cavity (R-18)	0.050	• *Floor Surface: Carpeted* • *Floor Deck: Wood Siding/sheathing/decking* • *Cavity / Frame: R-19 in 5-1/2 in (R-18) / 2x6*
Attic RoofMaster Bedroom	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.151	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R5 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
_InteriorWall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.086	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Other Side Finish: Gypsum Board*

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	Quality Installation of Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Required	Not Required	Not Required	n/a

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	System Type	Distribution Type	Water Heater	Number of Heaters	Solar Fraction (%)
DHW Sys 1	DHW	(HERS req'd) Pipe Insulation, All Lines	DHW Heater 1 (1)	1	.0%

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Heater Element Type	Tank Type	Number of Units	Tank Volume (gal)	Uniform Energy Factor / Energy Factor / Efficiency	Input Rating / Pilot / Thermal Efficiency	Tank Insulation R-value (Int/Ext)	Standby Loss / Recovery Eff	First Hour Rating / Flow Rate	NEEA Heat Pump Brand / Model / Other	Tank Location or Ambient Condition
DHW Heater 1	Gas	Small Instantaneous	1	0	0.92 EF	<= 200 kBtu/hr	R-0/R-0	0	n/a	n/a	n/a

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Point-of-Use	Recirculation Control	Central DHW Distribution
DHW Sys 1 - 1/1	Pipe Insulation, All Lines	n/a	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06
SC Sys Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name
ATTIC FAU1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	System Type	Number of Units	Efficiency
Heating Component 1	CntrlFurnace	1	80 AFUE

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
			Efficiency				
Name	System Type	Number of Units	EER	SEER	Zonally Controlled	Compressor Type	HERS Verification
Cooling Component 1	SplitAirCond	1	12.2	14	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Cooling Component 1-hers-cool	Required	350	Required	Not Required	Required

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	Type	Duct Leakage	Insulation R-value	Duct Location	Bypass Duct	HERS Verification
Air Distribution System 1	DuctsInAll	Sealed and tested	6	Conditioned zone	None	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler
Air Distribution System 1-hers-dist	Required	5.0	Required	Not Required	Not Required	Not Required	n/a

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficiency (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS

01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness(%)	HERS Verification
SFam IAQVentRpt	42	0.25	Default	0	Required

PROJECT NOTES

This report is based on the drawings received on 01/09/2019. 1) DO NOT USE FOR ACTUAL HEATING/COOLING DESIGN. 2) The Title 24 calculations used for this project are used for the purpose of complying with the current Title 24 code provisions and are intended to be used in order to obtain compliance per Title 24 regulations. They are NOT intended to be used as a substitute for the heating and cooling loads required for the structure(s) that are normally done by a mechanical engineer(s) or HVAC contractor(s) and in NO CIRCUMSTANCES is this to be used in lieu of the normal calculation methods used by a mechnical engineer(s) or HVAC contractor(s). 3) The assembly components found in this document are for modeling purposes only and may not reflect the actual conditions of the walls, roof(s), floor(s), windows and doors of the structure.

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TITLE 24 ENERGY COMPLIANCE

PRADU - THREE BEDROOM RF - A
TBD
ENCINITAS, CALIFORNIA 92024

DRAWN BY
WCS
CHECKED BY
DATE
01/22/2019
SCALE
JOB NO.
19Q1031A.1-1
SHEET
T-24.10
OF SHEETS

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Wayne Seward	Documentation Author Signature: Wayne Seward
Company: Bear Technologies Consulting Inc.	Signature Date: 2019-01-17 10:19:23
Address: 3431 Don Arturo Drive	CEA/HERS Certification Identification (If applicable): R16-04-20130
City/State/Zip: Carlsbad, CA 92010	Phone: 760-635-2327

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: Bart M Smith	Responsible Designer Signature: Bart M Smith
Company: DZN Partners	Date Signed: 2019-01-21 09:38:30
Address: 682 2nd Street	License: C-22558
City/State/Zip: Encinitas, CA 92024	Phone: 760-753-2464

Digitally signed by CalCERTS. 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.

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GENERAL INFORMATION					
01	Project Name	PRADU - Three Bedroom - B			
02	Calculation Description	Title 24 Analysis			
03	Project Location	TBD			
04	City	Encinitas	05	Standards Version	Compliance 2017
06	Zip Code	92024	07	Compliance Manager Version	BEMCmpMgr 2016.3.1 (1149)
08	Climate Zone	CZ7	09	Software Version	EnergyPro 7.2
10	Building Type	Single Family	11	Front Orientation (deg/Cardinal)	Cardinal
12	Project Scope	Newly Constructed	13	Number of Dwelling Units	1
14	Total Cond. Floor Area (ft^2)	1199	15	Number of Zones	2
16	Slab Area (ft^2)	0	17	Number of Stories	1
18	Addition Cond. Floor Area(ft^2)	n/a	19	Natural Gas Available	Yes
20	Addition Slab Area (ft^2)	n/a	21	Glazing Percentage (%)	33.6%

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 ($kTDV/ft^2$-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	1.30	1.91	-0.61	-46.9%
Space Cooling	10.11	6.91	3.20	31.7%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
North Facing Compliance Total	**26.63**	**22.41**	**4.22**	**15.8%**
Space Heating	1.30	1.99	-0.69	-53.1%
Space Cooling	10.11	7.42	2.69	26.6%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
East Facing Compliance Total	**26.63**	**23.00**	**3.63**	**13.6%**
Space Heating	1.30	0.83	0.47	36.2%
Space Cooling	10.11	7.86	2.25	22.3%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
South Facing Compliance Total	**26.63**	**22.28**	**4.35**	**16.3%**
Space Heating	1.30	0.86	0.44	33.8%
Space Cooling	10.11	11.97	-1.86	-18.4%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
West Facing Compliance Total	**26.63**	**26.42**	**0.21**	**0.8%**

ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to "zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).
As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

	EDR of Standard Efficiency	EDR of Proposed Efficiency	EDR Value of Proposed PV + Battery	Final Proposed EDR
North	55.0	52.2	0.0	52.2
East	55.0	52.6	0.0	52.6
South	55.0	52.2	0.0	52.2
West	55.0	54.9	0.0	54.9

☐ **Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.**
☐ **Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.**
☐ **Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ7 (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System and QII must be verified.**

Notes:
- **Excess PV Generation EDR Credit: Bypassing PV size limit may violate Net Energy Metering (NEM) rules**

REQUIRED SPECIAL FEATURES

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

- **Cool roof**
- **Insulation above roof deck**

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 components tables below.

Building-level Verifications:
- **High quality insulation installation (QII)**
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Verified EER**
- **Verified Refrigerant Charge**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**

Domestic Hot Water System Verifications:
- **Pipe Insulation, All Lines**

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TITLE 24 ENERGY COMPLIANCE

PRADU - THREE BEDROOM RF - A & B
TBD
ENCINITAS, CALIFORNIA 92024

DRAWN BY: WCS
CHECKED BY:
DATE: 01/22/2019
SCALE:
JOB NO.: 19Q1031A-B.1-1
SHEET: T-24.11
OF SHEETS

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft^2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
PRADU - Three Bedroom - B	1199	1	3	2	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
Living Area	Conditioned	ATTIC FAU1	944	8	DHW Sys 1	n/a
Master Bedroom	Conditioned	ATTIC FAU1	255	9	DHW Sys 1	n/a

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window & Door Area (ft^2)	Tilt (deg)
Front Wall	Living Area	_ExteriorWall	0	Front	144	69	90
Front Wall 2	Living Area	_StoneWall	0	Front	180	42	90
Left Wall	Living Area	_StoneWall	90	Left	72	0	90
Rear Wall	Living Area	_ExteriorWall	180	Back	144	20	90
Rear Wall 2	Living Area	_ExteriorWall	180	Back	180	38	90
Right Wall	Living Area	_ExteriorWall	270	Right	216	144	90
Right Wall 2	Living Area	_StoneWall	270	Right	36	0	90
Roof 3	Living Area	__Roof	n/a	n/a	560	n/a	n/a
Raised Floor	Living Area	_RasideFloor	n/a	n/a	944	n/a	n/a
Front Wall 3	Master Bedroom	_ExteriorWall	0	Front	114.8	64	90
Left Wall 2	Master Bedroom	_ExteriorWall	90	Left	180	18	90
Rear Wall 3	Master Bedroom	_ExteriorWall	180	Back	114.8	8	90
IS	Master Bedroom>>Living Area	_InteriorWall	n/a	n/a	180	0	n/a
Raised Floor 2	Master Bedroom	_RasideFloor	n/a	n/a	255	n/a	n/a

OPAQUE SURFACES – Cathedral Ceilings

01	02	03	04	05	06	07	08	09	10
Name	Zone	Type	Orientation	Area (ft^2)	Skylight Area (ft2)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof	Living Area	_Roof	Front	384	0	0.3	0.1	0.85	No
Roof 2	Master Bedroom	_Roof	Front	255	0	0.3	0.1	0.85	No

ATTIC

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic Living Area	Attic Roof/Living Area	Ventilated	4	0.65	0.85	Yes	Yes

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface (Orientation-Azimuth)	Width (ft)	Height (ft)	Multiplier	Area (ft^2)	U-factor	SHGC	Exterior Shading
w1	Window	Front Wall (Front-0)	----	----	1	45.0	0.32	0.25	Insect Screen (default)
d1	Window	Front Wall (Front-0)	----	----	1	24.0	0.32	0.25	Insect Screen (default)
w2	Window	Front Wall 2 (Front-0)	----	----	1	30.0	0.32	0.25	Insect Screen (default)
w3	Window	Front Wall 2 (Front-0)	----	----	1	12.0	0.32	0.25	Insect Screen (default)
w6	Window	Rear Wall (Back-180)	----	----	1	20.0	0.32	0.25	Insect Screen (default)
w2 2	Window	Rear Wall 2 (Back-180)	----	----	1	30.0	0.32	0.25	Insect Screen (default)
w5	Window	Rear Wall 2 (Back-180)	----	----	1	8.0	0.32	0.25	Insect Screen (default)
d2	Window	Right Wall (Right-270)	----	----	1	144.0	0.32	0.25	Insect Screen (default)
d3	Window	Front Wall 3 (Front-0)	----	----	1	64.0	0.32	0.25	Insect Screen (default)
w4	Window	Left Wall 2 (Left-90)	----	----	1	18.0	0.32	0.25	Insect Screen (default)
w5 2	Window	Rear Wall 3 (Back-180)	----	----	1	8.0	0.32	0.25	Insect Screen (default)

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Winter Design U-factor	Assembly Layers
Attic Roof/Living Area	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.094	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R9 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
__Roof	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 30	0.032	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4* • *Over Ceiling Joists: R-20.9 insul.*
_Roof	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in. O.C.	R 30	0.032	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-30 / 2x10* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R4 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
_ExteriorWall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
_StoneWal	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
_RasideFloor	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O.C.	R 19 in 5-1/2 in. cavity (R-18)	0.050	• *Floor Surface: Carpeted* • *Floor Deck: Wood Siding/sheathing/decking* • *Cavity / Frame: R-19 in 5-1/2 in. (R-18) / 2x6*
_InteriorWall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.086	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Other Side Finish: Gypsum Board*

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	Quality Installation of Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Required	Not Required	Not Required	n/a

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	System Type	Distribution Type	Water Heater	Number of Heaters	Solar Fraction (%)
DHW Sys 1	DHW	(HERS req'd) Pipe Insulation, All Lines	DHW Heater 1 (1)	1	.0%

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Heater Element Type	Tank Type	Number of Units	Tank Volume (gal)	Uniform Energy Factor / Energy Factor / Efficiency	Input Rating / Pilot / Thermal Efficiency	Tank Insulation R-value (Int/Ext)	Standby Loss / Recovery Eff	First Hour Rating / Flow Rate	NEEA Heat Pump Brand / Model / Other	Tank Location or Ambient Condition
DHW Heater 1	Gas	Small Instantaneous	1	0	0.92 EF	<= 200 kBtu/hr	R-0/R-0	0	n/a	n/a	n/a

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Point-of Use	Recirculation Control	Central DHW Distribution
DHW Sys 1 - 1/1	Pipe Insulation, All Lines	n/a	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06
SC Sys Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name
ATTIC FAU1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	System Type	Number of Units	Efficiency
Heating Component 1	Cntrl/Furnace	1	80 AFUE

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
Name	System Type	Number of Units	Efficiency EER	Efficiency SEER	Zonally Controlled	Compressor Type	HERS Verification
Cooling Component 1	SplitAirCond	1	12.2	14	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Cooling Component 1-hers-cool	Required	350	Required	Not Required	Required

TITLE 24 ENERGY COMPLIANCE
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01/22/2019
SCALE
JOB NO.
19Q1031B.1-1
SHEET
T-24.12
OF SHEETS

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	Type	Duct Leakage	Insulation R-value	Duct Location	Bypass Duct	HERS Verification
Air Distribution System 1	DuctsAttic	Sealed and tested	6	Attic	None	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler
Air Distribution System 1-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	n/a

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficiency (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS

01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness(%)	HERS Verification
SFam IAQVentRpt	42	0.25	Default	0	Required

PROJECT NOTES

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Wayne Seward	Documentation Author Signature: Wayne Seward
Company: Bear Technologies Consulting Inc.	Signature Date: 2019-01-17 11:22:13
Address: 3431 Don Arturo Drive	CEA/HERS Certification Identification (If applicable): R16-04-20130
City/State/Zip: Carlsbad, CA 92010	Phone: 760-635-2327

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: Bart M Smith	Responsible Designer Signature: Bart M Smith
Company: DZN Partners	Date Signed: 2019-01-21 09:38:30
Address: 682 2nd Street	License: C-22558
City/State/Zip: Encinitas, CA 92024	Phone: 760-753-2464

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GENERAL INFORMATION

01	Project Name	PRADU - Three Bedroom - C			
02	Calculation Description	Title 24 Analysis			
03	Project Location	TBD			
04	City	Encinitas	05	Standards Version	Compliance 2017
06	Zip Code	92024	07	Compliance Manager Version	BEMCmpMgr 2016.3.1 (1149)
08	Climate Zone	CZ7	09	Software Version	EnergyPro 7.2
10	Building Type	Single Family	11	Front Orientation (deg/Cardinal)	Cardinal
12	Project Scope	Newly Constructed	13	Number of Dwelling Units	1
14	Total Cond. Floor Area (ft^2)	1199	15	Number of Zones	2
16	Slab Area (ft^2)	0	17	Number of Stories	1
18	Addition Cond. Floor Area(ft^2)	n/a	19	Natural Gas Available	Yes
20	Addition Slab Area (ft^2)	n/a	21	Glazing Percentage (%)	33.6%

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 ($kTDV/ft^2$-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	1.30	1.68	-0.38	-29.2%
Space Cooling	10.15	7.16	2.99	29.5%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
North Facing Compliance Total	**26.67**	**22.43**	**4.24**	**15.9%**
Space Heating	1.30	1.52	-0.22	-16.9%
Space Cooling	10.15	7.69	2.46	24.2%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
East Facing Compliance Total	**26.67**	**22.80**	**3.87**	**14.5%**
Space Heating	1.30	0.59	0.71	54.6%
Space Cooling	10.15	8.13	2.02	19.9%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
South Facing Compliance Total	**26.67**	**22.31**	**4.36**	**16.3%**
Space Heating	1.30	0.68	0.62	47.7%
Space Cooling	10.15	12.32	-2.17	-21.4%
IAQ Ventilation	1.69	1.69	0.00	0.0%
Water Heating	13.53	11.90	1.63	12.0%
PV Credit	----	0.00	0.00	----
West Facing Compliance Total	**26.67**	**26.59**	**0.08**	**0.3%**

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TITLE 24 ENERGY COMPLIANCE

PRADU - THREE BEDROOM RF - B
TBD
ENCINITAS, CALIFORNIA 92024

DRAWN BY
WCS
CHECKED BY

DATE
01/22/2019
SCALE

JOB NO.
19Q1031B.1-1
SHEET

T-24.13

OF SHEETS

ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where **100** represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the **2006** International Energy Conservation Code (IECC) with **California** modeling **assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to"zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).**
As a Standard Design building under the **2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen**

	EDR of Standard Efficiency	EDR of Proposed Efficiency	EDR Value of Proposed PV + Battery	Final Proposed EDR
North	55.0	52.2	0.0	52.2
East	55.0	52.4	0.0	52.4
South	55.0	52.2	0.0	52.2
West	55.0	55.0	0.0	55.0

☐ **Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.**
☐ **Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.**
☐ **Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ7 (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System and QII must be verified.**

Notes:
- **Excess PV Generation EDR Credit: Bypassing PV size limit may violate Net Energy Metering (NEM) rules**

REQUIRED SPECIAL FEATURES

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

- **Cool roof**
- **Non-standard duct location (any location other than attic)**

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 components tables below.

Building-level Verifications:
- **High quality insulation installation (QII)**
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Verified EER**
- **Verified Refrigerant Charge**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**
- **Ducts located entirely in conditioned space confirmed by duct leakage testing**

Domestic Hot Water System Verifications:
- **Pipe Insulation, All Lines**

BUILDING - FEATURES INFORMATION

01 Project Name	02 Conditioned Floor Area (ft²)	03 Number of Dwelling Units	04 Number of Bedrooms	05 Number of Zones	06 Number of Ventilation Cooling Systems	07 Number of Water Heating Systems
PRADU - Three Bedroom - C	1199	1	3	2	0	1

ZONE INFORMATION

01 Zone Name	02 Zone Type	03 HVAC System Name	04 Zone Floor Area (ft²)	05 Avg. Ceiling Height	06 Water Heating System 1	07 Water Heating System 2
Living Area	Conditioned	ATTIC FAU1	826	8	DHW Sys 1	n/a
Master Bedroom	Conditioned	ATTIC FAU1	373	9	DHW Sys 1	n/a

OPAQUE SURFACES

01 Name	02 Zone	03 Construction	04 Azimuth	05 Orientation	06 Gross Area (ft²)	07 Window & Door Area (ft²)	08 Tilt (deg)
Front Wall	Living Area	_ExteriorWall	0	Front	252	99	90
Left Wall	Living Area	_StoneWall	90	Left	36	0	90
Rear Wall	Living Area	_ExteriorWall	180	Back	276.3	50	90
Right Wall	Living Area	_ExteriorWall	270	Right	234	144	90
Roof 3	Living Area	__Roof	n/a	n/a	66.6	n/a	n/a
Raised Floor	Living Area	_RasideFloor	n/a	n/a	826	n/a	n/a
Front Wall 2	Master Bedroom	_ExteriorWall	0	Front	186.8	76	90
Left Wall 2	Master Bedroom	_ExteriorWall	90	Left	216	18	90
Rear Wall 2	Master Bedroom	_ExteriorWall	180	Back	162.7	16	90
Right Wall 2	Master Bedroom	_ExteriorWall	270	Right	18	0	90
IS	Master Bedroom>>Living Area	_InteriorWall	n/a	n/a	180	0	n/a
Roof 4	Master Bedroom	__Roof	n/a	n/a	229	n/a	n/a
Raised Floor 2	Master Bedroom	_RasideFloor	n/a	n/a	373	n/a	n/a

OPAQUE SURFACES – Cathedral Ceilings

01 Name	02 Zone	03 Type	04 Orientation	05 Area (ft²)	06 Skylight Area (ft2)	07 Roof Rise (x in 12)	08 Roof Reflectance	09 Roof Emittance	10 Cool Roof
Roof	Living Area	_Roof	Front	759	0	3	0.1	0.85	No
Roof 2	Master Bedroom	_Roof	Front	144	0	3	0.1	0.85	No

ATTIC

01 Name	02 Construction	03 Type	04 Roof Rise	05 Roof Reflectance	06 Roof Emittance	07 Radiant Barrier	08 Cool Roof
Attic Living Area	Attic Roof,Living Area	Ventilated	3	0.65	0.85	Yes	Yes
Attic Master Bedroom	Attic Roof,Master Bedroom	Ventilated	3	0.65	0.85	Yes	Yes

FENESTRATION / GLAZING

01 Name	02 Type	03 Surface (Orientation-Azimuth)	04 Width (ft)	05 Height (ft)	06 Multiplier	07 Area (ft²)	08 U-factor	09 SHGC	10 Exterior Shading
w1	Window	Front Wall (Front-0)	----	----	1	45.0	0.32	0.25	Insect Screen (default)
d1	Window	Front Wall (Front-0)	----	----	1	24.0	0.32	0.25	Insect Screen (default)
w2	Window	Front Wall (Front-0)	----	----	1	30.0	0.36	0.31	Insect Screen (default)
w2 2	Window	Rear Wall (Back-180)	----	----	1	30.0	0.36	0.31	Insect Screen (default)
w6	Window	Rear Wall (Back-180)	----	----	1	20.0	0.32	0.25	Insect Screen (default)
d2	Window	Right Wall (Right-270)	----	----	1	144.0	0.32	0.25	Insect Screen (default)
w3	Window	Front Wall 2 (Front-0)	----	----	1	12.0	0.36	0.31	Insect Screen (default)
d3	Window	Front Wall 2 (Front-0)	----	----	1	64.0	0.32	0.25	Insect Screen (default)
w4	Window	Left Wall 2 (Left-90)	----	----	1	18.0	0.32	0.25	Insect Screen (default)
w5	Window	Rear Wall 2 (Back-180)	----	----	1	8.0	0.32	0.25	Insect Screen (default)
w5 2	Window	Rear Wall 2 (Back-180)	----	----	1	8.0	0.32	0.25	Insect Screen (default)

OPAQUE SURFACE CONSTRUCTIONS

01 Construction Name	02 Surface Type	03 Construction Type	04 Framing	05 Total Cavity R-value	06 Winter Design U-factor	07 Assembly Layers
Attic Roof\Living Area	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.178	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R4 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
__Roof	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 30	0.032	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4* • *Over Ceiling Joists: R-20.9 insul.*
_Roof	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in. O.C.	R 30	0.032	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-30 / 2x10* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R4 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
_ExteriorWall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.089	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: Wood Siding/sheathing/decking*
_StoneWall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
_RasideFloor	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O.C.	R 19 in 5-1/2 in. cavity (R-18)	0.050	• *Floor Surface: Carpeted* • *Floor Deck: Wood Siding/sheathing/decking* • *Cavity / Frame: R-19 in 5-1/2 in. (R-18) / 2x6*
Attic Roof\Master Bedroom	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.178	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Above Deck Insulation: R4 Sheathing* • *Roofing: Light Roof (Asphalt Shingle)*
_InteriorWall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.086	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Other Side Finish: Gypsum Board*

BUILDING ENVELOPE - HERS VERIFICATION

01 Quality Insulation Installation (QII)	02 Quality Installation of Spray Foam Insulation	03 Building Envelope Air Leakage	04 CFM50
Required	Not Required	Not Required	n/a

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TITLE 24 ENERGY COMPLIANCE

PRADU - THREE BEDROOM RF - C
TBD
ENCINITAS, CALIFORNIA 92024

DRAWN BY: WCS
CHECKED BY:
DATE: 01/22/2019
SCALE:
JOB NO.: 19Q1031C.1-1
SHEET: T-24.14
OF SHEETS

WATER HEATING SYSTEMS

01 Name	02 System Type	03 Distribution Type	04 Water Heater	05 Number of Heaters	06 Solar Fraction (%)
DHW Sys 1	DHW	(HERS req'd) Pipe Insulation, All Lines	DHW Heater 1 (1)	1	.0%

WATER HEATERS

01 Name	02 Heater Element Type	03 Tank Type	04 Number of Units	05 Tank Volume (gal)	06 Uniform Energy Factor / Energy Factor / Efficiency	07 Input Rating / Pilot / Thermal Efficiency	08 Tank Insulation R-value (Int/Ext)	09 Standby Loss / Recovery Eff	10 First Hour Rating / Flow Rate	11 NEEA Heat Pump Brand / Model / Other	12 Tank Location or Ambient Condition
DHW Heater 1	Gas	Small Instantaneous	1	0	0.92 EF	<= 200 kBtu/hr	R-0/R-0	0	n/a	n/a	n/a

WATER HEATING - HERS VERIFICATION

01 Name	02 Pipe Insulation	03 Parallel Piping	04 Compact Distribution	05 Point-of Use	06 Recirculation Control	07 Central DHW Distribution
DHW Sys 1 - 1/1	Pipe Insulation, All Lines	n/a	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01 SC Sys Name	02 System Type	03 Heating Unit Name	04 Cooling Unit Name	05 Fan Name	06 Distribution Name
ATTIC FAU1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES

01 Name	02 System Type	03 Number of Units	04 Efficiency
Heating Component 1	CntrlFurnace	1	80 AFUE

HVAC - COOLING UNIT TYPES

01 Name	02 System Type	03 Number of Units	04 Efficiency EER	05 Efficiency SEER	06 Zonally Controlled	07 Compressor Type	08 HERS Verification
Cooling Component 1	SplitAirCond	1	12.2	14	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01 Name	02 Verified Airflow	03 Airflow Target	04 Verified EER	05 Verified SEER	06 Verified Refrigerant Charge
Cooling Component 1-hers-cool	Required	350	Required	Not Required	Required

HVAC - DISTRIBUTION SYSTEMS

01 Name	02 Type	03 Duct Leakage	04 Insulation R-value	05 Duct Location	06 Bypass Duct	07 HERS Verification
Air Distribution System 1	DuctsInAll	Sealed and tested	6	Conditioned zone	None	Air Distribution System 1-hers-dist

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
Air Distribution System 1-hers-dist	Required	5.0	Required	Not Required	Not Required	Not Required	n/a

HVAC - FAN SYSTEMS

01 Name	02 Type	03 Fan Power (Watts/CFM)	04 HERS Verification
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01 Name	02 Verified Fan Watt Draw	03 Required Fan Efficiency (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS

01 Dwelling Unit	02 IAQ CFM	03 IAQ Watts/CFM	04 IAQ Fan Type	05 IAQ Recovery Effectiveness(%)	06 HERS Verification
SFam IAQVentRpt	42	0.25	Default	0	Required

PROJECT NOTES

This report is based on the drawings received on 01/09/2019. 1) DO NOT USE FOR ACTUAL HEATING/COOLING DESIGN. 2) The Title 24 calculations used for this project are used for the purpose of complying with the current Title 24 code provisions and are intended to be used in order to obtain compliance per Title 24 regulations. They are NOT intended to be used as a substitute for the heating and cooling loads required for the structure(s) that are normally done by a mechanical engineer(s) or HVAC contractor(s) and in NO CIRCUMSTANCES is this to be used in lieu of the normal calculation methods used by a mechnical engineer(s) or HVAC contractor(s). 3) The assembly components found in this document are for modeling purposes only and may not reflect the actual conditions of the walls, roof(s), floor(s), windows and doors of the structure.

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Bart M Smith	*Bart M Smith*
Company: DZN Partners	Date Signed: 2019-01-21 09:38:30
Address: 682 2nd Street	License: C-22558
City/State/Zip: Encinitas, CA 92024	Phone: 760-753-2464

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PRADU - THREE BEDROOM RF - C
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DRAWN BY: wcs
CHECKED BY:
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SCALE:
JOB NO.: 19Q1031C.1-1
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OF SHEETS

2016 Low-Rise Residential Mandatory Measures Summary

NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. "Exceptions may apply.
(Original 08/2016)

Building Envelope Measures:	
§ 110.6(a)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 cfm/ft² or less when tested per NFRC-400 or ASTM E283 or AAMA/WDMA/CSA 101/I.S.2/A440-2011.'
§ 110.6(a)5:	**Labeling.** Fenestration products 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 and 110.6-B for compliance and must be caulked and/or weatherstripped.'
§ 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 specified or installed must meet Standards for Insulating Material.
§ 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), when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** A radiant barrier must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Ceiling and Rafter Roof Insulation.** Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous 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 labelled 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 (R-19 in 2x6 or U-factor of 0.074 or less). Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102, equivalent to an installed value of R-13 in a wood framed assembly.'
§ 150.0(d):	**Raised-floor Insulation.** Minimum R-19 insulation n 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%; have a water vapor permeance no greater than 2.0 perm/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 1-16, 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 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.'
Fireplaces, Decorative Gas Appliances, and Gas Log Measures:	
§ 150.0(e)1A:	**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)1B:	**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)1C:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.'
§ 150.0(e)2:	**Pilot Light.** Continuous burning pilot lights and the use of indoor air for cooling a firebox jacket, when that indoor air is vented to the outside of the building, are prohibited.
Space Conditioning, Water heating, and Plumbing System Measures:	
§ 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 Energy Commission.'
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in TABLE 110.2-A through TABLE 110.2-K.'
§ 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 unitary heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.'
§ 110.3(c)5:	**Water Heating Recirculation Loops Serving Multiple Dwelling Units.** Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)5.
§ 110.3(c)7:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBTU/hr (2 kW) must have isolation valves with hose bibb or other fittings on both cold water and hot water lines of water heating systems to allow for water tank flushing when the valves are closed.
§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu/hr are exempt); and pool and spa heaters.
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; SMACNA Residential Comfort System Installation Standards Manual; or ACCA Manual J using design conditions specified in § 150.0(h)2.

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§ 150.0(h)3A:	**Clearances.** Installed air conditioner and heat pump outdoor condensing units must have a clearance of at least 5 feet from the outlet of any dryer vent.
§ 150.0(h)3B:	**Liquid Line Drier.** Installed air conditioner and heat pump systems must be equipped with liquid line filter driers if required, as specified by manufacturer's instructions.
§ 150.0(j)1:	**Storage Tank insulation.** Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
§ 150.0(j)2A:	**Water piping and cooling system line insulation.** For domestic hot water system piping, whether buried or unburied, all of the following must be insulated according to the requirements of TABLE 120.3-A: the first 5 feet of hot and cold water pipes from the storage tank; all piping with a nominal diameter of 3/4 inch or larger; all piping associated with a domestic hot water recirculation system regardless of the pipe diameter; piping from the heating source to storage tank or between tanks; piping buried below grade; and all hot water pipes from the heating source to kitchen fixtures.'
§ 150.0(j)2B:	**Water piping and cooling system line insulation** All domestic hot water pipes that are buried below grade must be installed in a water proof and non-crushable casing or sleeve.'
§ 150.0(j)2C:	**Water piping and cooling system line insulation.** Pipe for cooling system lines must be insulated as specified in § 150.0(j)2A. Distribution piping for steam and hydronic heating systems or hot water systems must meet the requirements in TABLE 120.3-A.'
§ 150.0(j)3:	**Insulation Protection.** Insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.
§ 150.0(j)3A:	**Insulation Protection.** Insulation exposed to weather must be installed with a cover suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. The cover must be water-retardant and provide shielding from solar radiation that can cause degradation of the material.
§ 150.0(j)3B:	**Insulation Protection.** Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must have a Class I or Class II vapor retarder.
§ 150.0(n)1:	**Gas or Propane Systems.** Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: a 120V electrical receptacle within 3 feet of the water heater; a Category II or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than 2 inches higher than the base of the water heater, and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu/hr.
§ 150.0(n)2:	**Recirculating Loops.** Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.
§ 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) or by a listing agency that is approved by the Executive Director.
Ducts and Fans Measures:	
§ 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 be installed, sealed, and insulated to meet the requirements of CMC §§ 601.0, 602.0, 603.0, 604.0, 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 a minimum installed level of R-6.0 (or higher if required by CMC § 605.0) or a minimum installed level of R 4.2 when entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8). 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 requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than ¼ inch, the combination of mastic and either mesh or tape must be used. Building cavities, support platforms for air handlers, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used for conveying conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms must not be compressed to cause reductions in the cross-sectional area of the ducts.'
§ 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 Dampers.** All fan systems tha exchange air between the conditioned space and the outside of the building 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, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner core flex duct must have a non-porous layer 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 § 150.0(m)11and Reference Residential Appendix RA3.
§ 150.0(m)12:	**Air Filtration.** Mechanical systems that supply air to an occupiable space through ductwork exceeding 10 feet in length and through a thermal conditioning component, except evaporative coolers, must be provided with air filter devices that meet the design, installation, efficiency, pressure drop, and labeling requirements of § 150.0(m)12.

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§ 150.0(q)13:	**Duct System Sizing and Air Filter Grille Sizing.** Space conditioning systems that use forced air ducts to supply cooling to an occupiable space must have a hole for the placement of a static pressure probe (HSPP), or a permanently installed static pressure probe (PSPP) in the supply plenum. The space conditioning system must also demonstrate airflow ≥ 350 CFM per ton of nominal cooling capacity through the return grilles, and an air-handling unit fan efficacy ≤ 0.58 W/CFM as confirmed by field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.3. This applies to both single zone central forced air systems and every zone for zonally controlled central forced air systems.'
§150.0(o):	**Ventilation for Indoor Air Quality.** All dwelling units must meet the requirements of ASHRAE Standard 62.2. Neither window operation nor continuous operation of central forced air system air handlers used in central fan integrated ventilation systems are permissible methods of providing whole-building ventilation.
§ 150.0(o)1A:	**Field Verification and Diagnostic Testing.** Whole building ventilation airflow must be confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.7.
Pool and Spa Systems and Equipment Measures:	
§ 110.4(a):	**Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-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 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 Measures:	
§ 110.9:	**Lighting Controls and Components.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.
§ 110.9(e)	**JA8 High Efficacy Light Sources.** To qualify as a JA8 high efficacy light source for compliance with § 150.0(k), a residential light source must be certified to the Energy Commission according to Reference Joint Appendix JA8.
§ 150.0(k)1A:	**Luminaire Efficacy.** All installed luminaires must be high efficacy in accordance with TABLE 150.0-A.
§ 150.0(k)1B:	**Blank Electrical Boxes.** The number of electrical boxes that are more than 5 feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C. 4. JA8-2016-E light source rated for elevated temperature must be installed by final inspection in all recessed downlight luminaires in ceilings.
§ 150.0(k)1D:	**Electronic Ballasts.** Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(k)1E:	**Night Lights.** Permanently installed night lights and night lights integral to installed luminaires or exhaust fans must be rated to consume no more than 5 watts of power per luminaire or exhaust fan as determined in accordance with § 130.0(c). Night lights do not need to be controlled by vacancy sensors.
§ 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)."
§ 150.0(k)1G:	**Screw based luminaires.** Screw based luminaires must not be recessed downlight luminaires in ceilings and must contain lamps that comply with Reference Joint Appendix JA8. Installed lamps must be marked with "JA8-2016" or "JA8-2016-E" as specified in Reference Joint Appendix JA8."
§ 150.0(k)1H:	**Enclosed Luminaires.** Light sources installed in enclosed luminaires must be JA8 compliant and must be marked with "JA8-2016-E."
§ 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 switched separately from lighting systems.'
§ 150.0(k)2C:	**Interior Switches and Controls.** Luminaires must be switched with readily accessible controls that permit the luminaires to be manually switched ON and OFF.
§ 150.0(k)2D:	**Interior Switches and Controls.** Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(k)2E:	**Interior Switches and Controls.** No control must bypass a dimmer or vacancy sensor function if the control is installed to comply with § 150.0(k).
§ 150.0(k)2F:	**Interior Switches and Controls.** Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2G:	**Interior Switches and Controls.** An energy management control system (EMCS) may be used to comply with dimmer requirements if it: functions as a dimmer according to § 110.9; meets the Installation Certificate requirements of § 130.4; meets the EMCS requirements of § 130.5(f); and meets all other requirements in § 150.0(k)2.
§ 150.0(k)2H:	**Interior Switches and Controls.** An EMCS may be used to comply with vacancy sensor requirements in § 150.0(k) if it meets all of the following: it functions as a vacancy sensor according to § 110.9; the Installation Certificate requirements of § 130.4; the EMCS requirements of § 130.5(f); and all other requirements in § 150.0(k)2.
§ 150.0(k)2I:	**Interior Switches and Controls.** A multisceire programmable controller may be used to comply with dimmer requirements in § 150.0(k) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(k)2.

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§ 150.0(k)2J:	**Interior Switches and Controls.** In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces must be controlled by a vacancy sensor.
§ 150.0(k)2K:	**Interior Switches and Controls.** Dimmers or vacancy sensors must control all luminaires required to have light sources compliant with Reference Joint Appendix JA8, except luminaires in closets less than 70 square feet and luminaires in hallways.'
§ 150.0(k)2L:	**Interior Switches and Controls.** Undercabinet lighting must be switched separately from other lighting systems.
§ 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 meet the requirement in item § 150.0(k)3Ai (ON and OFF switch) and the requirements in either item § 150.0(k)3Aii (photocell and motion sensor) or item § 150.0(k)3Aiii (photo control and automatic time switch control, astronomical time clock, or EMCS).
§ 150.0(k)3B:	**Residential Outdoor Lighting.** For low-rise multifamily residential buildings, outdoor lighting for private patios, entrances, balconies, and porches; and outdoor lighting for residential parking lots and residential carports with less than eight vehicles per site must comply with either § 150.0(k)3A or with the applicable requirements in §§ 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3C:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, outdoor lighting not regulated by § 150.0(k)3B or § 150.0(k)3D must comply with the applicable requirements in §§ 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3D:	**Residential Outdoor Lighting.** Outdoor lighting for residential parking lots and residential carports with a total of eight or more vehicles per site must comply with the applicable requirements in §§ 110.9, 130.0, 130.2, 130.4, 140.7, and 141.0.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must comply with § 140.8; or must consume no more than 5 watts of power as determined according to § 130.0(c).
§ 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.
§ 150.0(k)6A:	**Interior Common Areas of Low-rise Multi-Family Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must be high efficacy luminaires and controlled by an occupant sensor.
§ 150.0(k)6B:	**Interior Common Areas of Low-rise Multi-Family Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting in that building must: i. Comply with the applicable requirements in §§ 110.9, 130.0, 130.1, 140.6 and 141.0; and ii. Lighting installed in corridors and stairwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off from all designed paths of ingress and egress.
Solar Ready Buildings:	
§ 110.10(a)1:	**Single Family Residences.** Single family residences located in subdivisions with ten or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete by the enforcement agency must comply with the requirements of § 110.10(b) through § 110.10(e).
§ 110.10(a)2:	**Low-rise Multi-family Buildings.** Low-rise multi-family buildings must comply with the requirements of § 110.10(b) through § 110.10(c).
§ 110.10(b)1:	**Minimum 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 composed 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. For low-rise multi-family buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on covered parking installed with the building project, and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area.
§ 110.10(b)2:	**Orientation.** All sections of the solar zone located on sloped-sloped roofs must be oriented between 110 degrees and 270 degrees 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 distance, measured in the horizontal plane, 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 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 for inverters and metering equipment and a pathway for routing of conduit from the solar zone to the point of interconnection with the electrical service (for single family residences the point of interconnection will be the main service panel); and a pathway for routing of 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) through § 110.10(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: positioned at the opposite (load) end from the input feeder location or main circuit location; and permanently marked as "For Future Solar Electric".

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