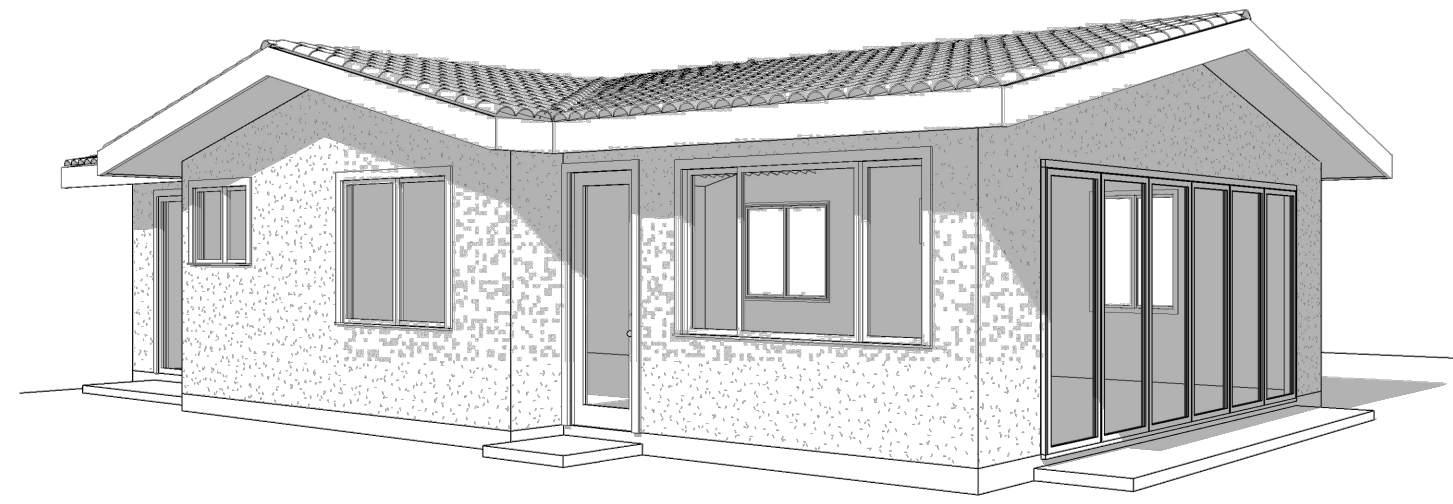


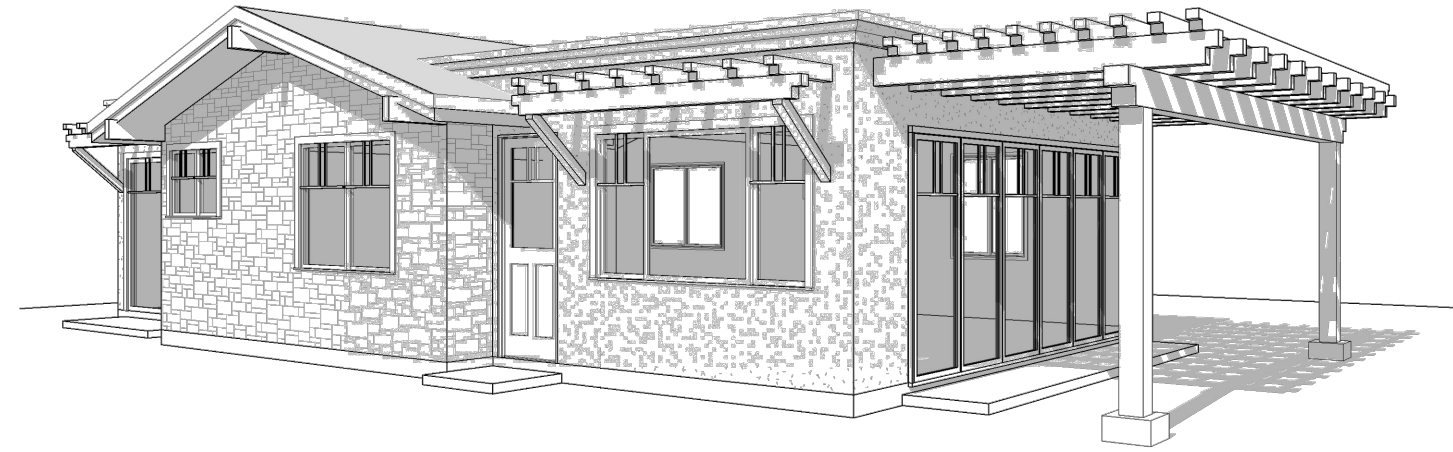
# anaheim pradu 3 bedroom

CONTACT UTILITY COMPANY REGARDING ELECTRIC SERVICE TO THIS DETACHED ADU. ANY EXISTING SERVICE UPGRADE OR NEW SERVICE FOR THE ADU WILL REQUIRE A SEPARATE PERMIT FROM THE CITY OF ANAHEIM.

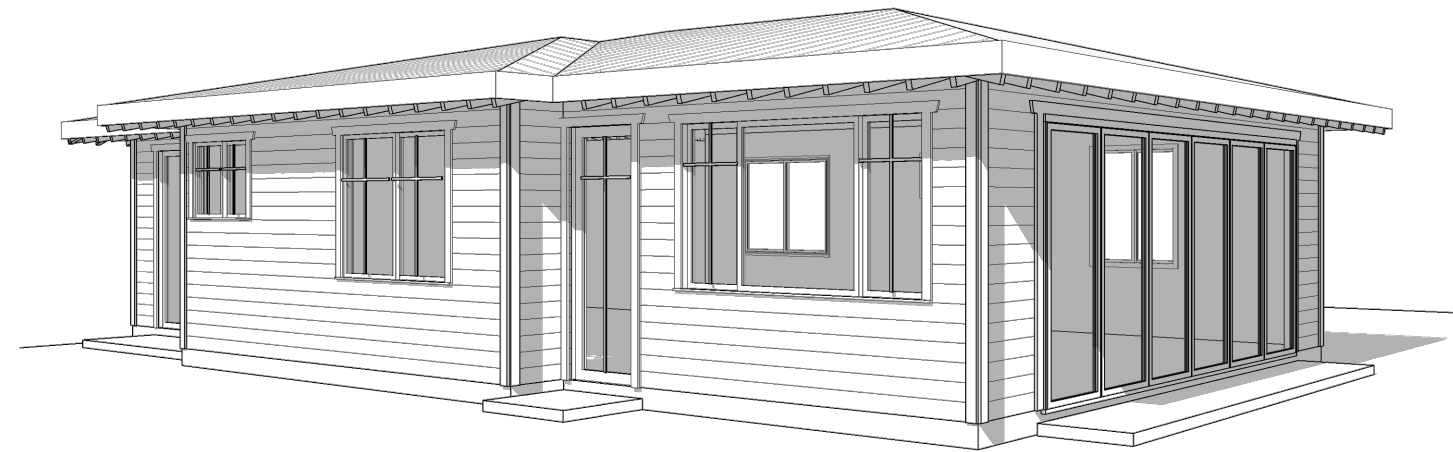
a



b



c



## construction codes:

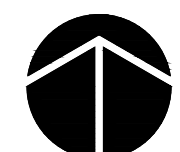
2022	CALIFORNIA	BUILDING CODE	TITLE 24	PART 2, V. 1&2
2022	CALIFORNIA	RESIDENTIAL CODE	TITLE 24	PART 2.5
2022	CALIFORNIA	ELECTRICAL CODE	TITLE 24	PART 3
2022	CALIFORNIA	MECHANICAL CODE	TITLE 24	PART 4
2022	CALIFORNIA	PLUMBING CODE	TITLE 24	PART 5
2022	CALIFORNIA	ENERGY CODE	TITLE 24	PART 6
2022	CALIFORNIA	FIRE CODE	TITLE 24	PART 9
2022	CALIFORNIA	GREEN BUILDING CODE	TITLE 24	PART 11

PROJECT SHALL COMPLY WITH THE 2022 CALIFORNIA BUILDING CODE WHICH ADOPTS: 2021 IRC, 2021 UMC, 2021 UPC & 2020 NEC.

## vicinity map:

SITE ADDRESS =

COMMUNITY =



NOT TO SCALE

## required for plan check submittal and permits:

ITEM	✓ COMPLETED OR ACKNOWLEDGED
SHEET a0.0	<input type="checkbox"/> PROJECT DATA SHEET INFORMATION FILLED OUT
SHEET a0.1	<input type="checkbox"/> CHECKLIST SHEET INFORMATION FILLED OUT
SHEET a0.3	<input type="checkbox"/> CAL GREEN CHECKLIST FILLED OUT
SHEET a0.4	<input type="checkbox"/> SITE PLAN DRAFTED & NOTED PER SITE PLAN INFORMATION CHECKLIST AND SAMPLE SITE PLAN DIAGRAM
SHEET a0.5	<input type="checkbox"/> AVERAGE LOT SLOPE DIAGRAM DRAFTED & NOTED WITH TABLE FILLED OUT
SHEET a2.0	<input type="checkbox"/> ELECTRIC UTILITY TABLE FILLED OUT & ADU ELECTRICAL PANEL LOAD CALCULATION REVISED IF MODIFIED
T24 SHEETS	<input type="checkbox"/> REPORT WITH PROJECT OWNER & LOCATION IF NEEDED
SEPARATE PERMIT	<input type="checkbox"/> DISCRETIONARY PERMIT (IF APPLICABLE)
SEPARATE PERMIT	<input type="checkbox"/> CONTACT UTILITY PROJECT PLANNING FOR WORK ORDER, GET CITY PERMIT FOR ELECTRICAL UPGRADE (IF APPLICABLE)
DEFERRED SUBMITTAL	<input type="checkbox"/> PHOTOVOLTAIC PERMIT OR EXISTING PV SYSTEM REPORT, SEE DEFERRED SUBMITTAL TABLE ON THIS SHEET
DEFERRED SUBMITTAL	<input type="checkbox"/> FIRE SPRINKLER PERMIT (IF APPLICABLE), SEE FIRE SPRINKLER CHECKLIST ON SHEET a0.1
BY OWNER	<input type="checkbox"/> SOIL REPORT FOR ADU OVER 500 SF WITH FOUNDATION DESIGN REVIEW APPROVAL LETTER
BY OWNER	<input type="checkbox"/> PROPERTY GRANT DEED WITH LEGAL DESCRIPTION
BY OWNER	<input type="checkbox"/> RESIDENTIAL BUILDING RECORD FROM COUNTY ASSESSOR
BY OWNER	<input type="checkbox"/> AGENCY LETTER IF OWNER IS USING AGENT FOR PLAN CHECK & PERMIT PROCESSING
CITY FORM	<input type="checkbox"/> BUILDING PERMIT CALCULATIONS - BUILDING SQUARE FOOTAGE
CITY FORM	<input type="checkbox"/> CONSTRUCTION & DEMO WASTE MANAGEMENT PLAN
CITY FORM	<input type="checkbox"/> STORMWATER INTAKE FORM & STANDARD SWQMP
CITY FORM	<input type="checkbox"/> LOCAL GREEN BUILDING ORDINANCE CHECKLIST
CITY FORM	<input type="checkbox"/> BUILDING ACKNOWLEDGMENT OWNER-BUILDER
CITY FORM	<input type="checkbox"/> HOUSING DEVELOPMENT TRACKING FORM
CITY FORM	<input type="checkbox"/> ADU COVENANT PROVIDED BY PROJECT PLANNER NOTARIZED AND OWNER CHECK PROVIDED FOR COUNTY RECORDER
CITY FORM	<input type="checkbox"/> WATER DISTRICT SIGN OFF
CITY FORM	<input type="checkbox"/> SEWER DISTRICT OR COUNTY HEALTH SEPTIC SIGN OFF
CITY FORM	<input type="checkbox"/> SCHOOL DISTRICT(S) SIGN OFF IF ADU IS 500 SF OR GREATER

## energy requirement notes:

- CONNECTION TO A PHOTOVOLTAIC SOLAR SYSTEM IS REQUIRED FOR THIS PROJECT. SOLAR SYSTEM IS A DEFERRED SUBMITTAL.
- REQUIRED SPECIAL FEATURES:
  - PV MODULE TYPE: PREMIUM
  - PV POWER ELECTRONICS: MICROINVERTERS
  - WHOLE HOUSE FAN
  - CEILING HAS HIGH LEVEL OF INSULATION (ELEV A & B ONLY)
  - EXPOSED SLAB FLOOR IN CONDITIONED ZONE
  - VARIABLE CAPACITY HEAT PUMP COMPLIANCE OPTION (VERIFICATION DETAILS FROM VCHP STAFF REPORT, APPENDIX B, AND RA3)
  - NORTHWEST ENERGY EFFICIENCY ALLIANCE (NEEA) RATED HEAT PUMP WATER HEATER, SPECIFIC BRAND/MODEL, OR EQUAL, MUST BE INSTALLED
- HERS FEATURE SUMMARY
  - BUILDING LEVEL VERIFICATIONS:
    - INDOOR AIR QUALITY VENTILATION
    - KITCHEN RANGE HOOD
    - WHOLE HOUSE FAN AIRFLOW AND FAN EFFICACY
  - COOLING SYSTEM VERIFICATIONS:
    - VERIFIED EER/EER2
    - VERIFIED SEER/SEER2
    - VERIFIED REFRIGERANT CHARGE
    - AIRFLOW IN HABITABLE ROOMS(SC3.1.4.1.7)
  - HEATING SYSTEM VERIFICATIONS:
    - VERIFIED HSPF
    - VERIFIED HEAT PUMP RATED HEATING CAPACITY
    - WALL MOUNTED THERMOSTAT IN ZONES GREATER THAN 150 SF(SC3.4.5)
    - DUCTLESS INDOOR UNITS LOCATED ENTIRELY IN CONDITIONED SPACE (SC3.1.4.1.8)
    - PIPE INSULATION, ALL LINES
  - HVAC DISTRIBUTION SYSTEM VERIFICATIONS:
    - NONE
  - DOMESTIC HOT WATER SYSTEM VERIFICATIONS:
    - NONE

## deferred submittals:

- A PHOTOVOLTAIC SYSTEM MEETING THE MINIMUM QUALIFICATION REQUIREMENTS AS SPECIFIED IN JOINT APPENDIX JA11, WITH ANNUAL ELECTRICAL OUTPUT EQUAL TO OR GREATER THAN THE DWELLING'S ANNUAL ELECTRICAL USAGE AS DETERMINED BY EQUATION 150.1-C IS REQUIRED. ES SECTION 150.1(C)14.
- SUBMITTED DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE, WHO SHALL REVIEW THEM AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

## solar system notes:

- A PHOTOVOLTAIC (PV) SOLAR SYSTEM IS REQUIRED AND A SEPARATE PERMIT WILL BE REQUIRED. THE PV SYSTEM MUST BE INSTALLED, OPERATIONAL AND HAVE FINAL APPROVAL PRIOR TO FINAL BUILDING INSPECTION AND APPROVAL FOR THE ADU.
- ADDITIONAL INFORMATION ABOUT THE PV SOLAR SYSTEM IS PROVIDED AT THE UTILITY PLAN ON SHEET a2.0 AND AT THE T-24 ENERGY REQUIREMENT SHEETS.

## parking:

REQUIRED VEHICLE SPACES FOR EXISTING RESIDENCE	=	SPACES
REQUIRED VEHICLE SPACES FOR ADU	=	SPACES
REQUIRED SPACES ON SITE	=	TOTAL REQUIRED SPACES
PROVIDED ENCLOSED SPACES PROVIDED FOR EXISTING RESIDENCE	=	SPACES
PROVIDED UNENCLOSED SPACES PROVIDED FOR EXISTING RESIDENCE	=	SPACES
PROVIDED ENCLOSED SPACES PROVIDED FOR ADU	=	SPACES
PROVIDED UNENCLOSED SPACES PROVIDED FOR ADU	=	SPACES
VEHICLE SPACES PROVIDED ON SITE	=	TOTAL PROVIDED SPACES

## conditions of use:

- THE PERMITTEE AND OWNER OF THE PROPERTY THAT IS THE SUBJECT OF THESE PLANS AGREES TO AND DOES BY UTILIZING THESE PLANS AND BY SUBMITTING THEM TO THE CITY OF ANAHEIM FOR PERMITTING DOES HEREBY RELEASE, HOLD HARMLESS AND AGREE TO INDEMNIFY AND DEFEND THE CITY OF ANAHEIM AND THE ARCHITECT, INCLUDING WITHOUT LIMITATION, ALL EMPLOYEES, OFFICERS, COUNCILMEMBERS, COMMISSIONERS, AND AGENTS AND/OR CONSULTANTS OF THE FOREGOING WHO PREPARED THESE CONSTRUCTION DOCUMENTS, AND EACH OF THEM, 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. THE OWNER AND THE PERMITTEE, AND EACH OF THEM ACKNOWLEDGE AGREING TO THIS COVENANT, IS A CONDITION PRECEDENT TO BEING ABLE TO UTILIZE THESE PLANS, AND THAT WITHOUT THIS HOLD HARMLESS AND RELEASE, WOULD NOT BE ABLE TO UTILIZE THESE PLANS. FURTHER, OWNER AND PERMITTEE ACKNOWLEDGES THAT THE OWNER/PERMITTEE HAS BEEN ADVISED TO SEEK THE SERVICES OF ANY AND ALL CONSULTANTS, THEY CHOOSE, TO REVIEW THESE PLANS PRIOR TO USING THEM, TO SEEK ADVICE ON THE SUITABILITY OF THESE PLANS FOR THEIR USE FOR THE INTENDED USE BY THE OWNER/PERMITTEE. THE INDEMNITY DOES NOT INCLUDE ANY LIABILITY ARISING OUT OF THE SOLE NEGLIGENCE OR WILLFUL MISCONDUCT OF THE PARTIES BEING INDEMNIFIED.
- BY USING THESE PERMIT READY CONSTRUCTION DOCUMENTS, THE USER AGREES TO RELEASE THE CITY OF ANAHEIM 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.

## scope of work:

PROJECT DESCRIPTION	=	ONE STORY DETACHED 3 BEDROOM ACCESSORY DWELLING UNIT (ADU)
PLAN CHECK NUMBER	=	

## area calculations:

LOT AREAS		
GROSS LOT AREA	=	SF
NET LOT AREA	=	SF
(DEDUCTIONS PER CHAP 30.04)	=	( SF)
BUILDING AREAS		
PROPOSED		
PROPOSED ADU	=	1,199 SF
EXISTING		
EXISTING RESIDENCE BASEMENT	=	SF
EXISTING RESIDENCE FIRST FLOOR	=	SF
EXISTING RESIDENCE SECOND FLOOR	=	SF
TOTAL EXISTING RESIDENCE	=	SF
EXISTING GARAGE ATTACHED	=	SF
EXISTING GARAGE DETACHED	=	SF
EXISTING ACCESSORY STRUCTURE	=	SF
FAR (FLOOR AREA RATIO)		
BULK FLOOR AREA (AS APPLIED TO FAR)		
FIRST FLOOR LIVING AREA	=	SF
SECOND FLOOR LIVING AREA	=	SF
GARAGE AREA EXCEEDING 400 SF	=	SF
ADU LIVING AREA	=	SF
ADU DEDUCTION	=	( SF - NTE 800 SF)
ACCESSORY STRUCTURE TOTAL SF	=	SF
OUTDOOR COVERED AREAS	=	SF - IF QUALIFY AS FAR
TOTAL BULK FLOOR AREA	=	SF
ALLOWED FAR		
FAR ALLOWED	=	SF
FAR ALLOWED x GROSS LOT AREA	=	SF
PROPOSED FAR (TOTAL BULK FLOOR AREA / GROSS LOT AREA)	=	SF
FAR PROPOSED	=	SF
LOT COVERAGE (LC)		
ALLOWED LOT COVERAGE (BY ZONE)	=	%
TOTAL STRUCTURE FOOTPRINT AREA	=	SF( EXISTING + PROPOSED)
CANTILEVERED FLOOR AREA ABOVE	=	SF
ADU DEDUCTION	=	( SF - NTE 800 SF)
LC SF / NET LOT AREA	=	. x 100 = %
PROPOSED LOT COVERAGE	=	%

## agencies:

MUNICIPAL JURISDICTION	=	CITY OF ANAHEIM
ELEMENTARY SCHOOL DISTRICT	=	
HIGH SCHOOL DISTRICT	=	
SEWER DISTRICT	=	
WATER DISTRICT	=	
FIRE DEPARTMENT	=	ANAHEIM FIRE DEPARTMENT

## sheet index:

SHEET #	SHEET TITLE
a0.0	PROJECT DATA
a0.1	CHECKLIST + SCHEDULE
a0.1F	VERY HIGH FIRE HAZARD SEVERITY ZONE
a0.2	GENERAL SPECIFICATIONS
a0.3	CAL GREEN CHECKLIST
a0.4	SITE PLAN + NOTES
a0.5	AVERAGE LOT SLOPE DIAGRAM
a1.0	FLOOR PLAN + REVERSE FLOOR PLAN
a2.0	UTILITY PLAN
a3.0	ROOF PLAN A + ROOF PLAN B
a3.1	ROOF PLAN C
a4.0	ELEVATION A
a4.1	ELEVATION B
a4.2	ELEVATION C
a5.0	SECTION A
a5.1	SECTION B
a5.2	SECTION C
a0.0	STRUCTURAL NOTES
s1.0	FOUNDATION PLAN + REVERSE FOUNDATION PLAN
s1.1	RAISED FLOOR FOUNDATION PLAN
s2.0	ROOF FRAMING PLAN A + B
s2.1	ROOF FRAMING PLAN C
s2.2	REVERSE ROOF FRAMING PLAN A + B
s2.3	REVERSE ROOF FRAMING PLAN C
d0.0	DETAILS
d0.1	DETAILS
d0.2	DETAILS
d0.3	DETAILS
d0.4	DETAILS
WSW1	WOOD STRONG WALL DETAILS
WSW2	WOOD STRONG WALL DETAILS
T-01 to T-04	ELEV A ENERGY REQUIREMENTS
T-01 to T-04	ELEV B ENERGY REQUIREMENTS
T-01 to T-04	ELEV C ENERGY REQUIREMENTS
T-05	HVAC SYSTEM SUMMARIES

## project data:

SITE ADDRESS (EXISTING RESIDENCE)	=	
SITE ADDRESS (PROPOSED ADU)	=	
PROPERTY OWNER (LEGAL)	=	
PROPERTY OWNER PHONE	=	
PROPERTY OWNER EMAIL	=	
PROPERTY OWNER ADDRESS	=	
APN	=	
LEGAL DESCRIPTION	=	RESIDENTIAL _____
GENERAL PLAN DESIGNATION	=	R-_____
ZONE	=	R-_____
ZONE OVERLAYS	=	
OCCUPANCY	=	R-3
CONSTRUCTION TYPE	=	V-B
ORIGINAL CONSTRUCTION YEAR	=	
EXISTING USE	=	___ SINGLE OR ___ MULTI FAMILY
PROPOSED USE	=	ACCESSORY DWELLING UNIT (ADU)
FIRE SPRINKLERS	=	SEE SELECTION ON SHEET a0.1
AVERAGE LOT SLOPE	=	___ % (FROM TABLE ON SHEET a0.5)
SLOPE ANALYSIS	=	SEE NOTE ON THIS SHEET

## setback, height & story

SETBACKS	FRONT	INTERIOR SIDE	EXTERIOR SIDE	REAR
REQUIRED - STANDARD	FT	FT	FT	FT
EXISTING RESIDENCE	FT	FT	FT	FT
EXISTING ACCESSORY STRUCTURE	FT	FT	FT	FT
REQUIRED - ADU	FT	FT	FT	FT
PROPOSED - ADU	FT	FT	FT	FT
HEIGHT				
EXISTING RESIDENCE	=	FT		
EXISTING ACCESSORY STRUCTURE	=	FT		
PROPOSED ADU	=	FT		
STORY				
EXISTING RESIDENCE	=	1		
EXISTING ACCESSORY STRUCTURE	=			
PROPOSED ADU	=	1		

## grading:

CUT	=	YD <sup>3</sup>
FILL	=	YD <sup>3</sup>
IMPORT	=	YD <sup>3</sup>
EXPORT	=	YD <sup>3</sup>
OVEREXCAVATION & RECOMPACTION	=	YD <sup>3</sup>
MAXIMUM CUT HEIGHT	=	FT
MAXIMUM FILL HEIGHT	=	FT

## landscape area:

EXISTING LANDSCAPE SITE AREA	=	SF, %
PROPOSED LANDSCAPE SITE AREA	=	SF, %
NON LANDSCAPE SITE AREA	=	SF, %
TOTAL SITE AREA	=	SF, 100%

## impervious surfaces:

EXISTING IMPERVIOUS SITE AREA	=	SF, %
PROPOSED IMPERVIOUS SITE AREA	=	SF, %
NON IMPERVIOUS SITE AREA	=	SF, %
TOTAL SITE AREA	=	SF, 100%
CHANGE (+/-) IMPERVIOUS SITE AREA	=	SF, %

## project team:

ARCHITECT	ENGINEER
<p><b>partners ARCHITECTURE</b></p>	<p><b>PCSD ENGINEERING CORPORATION</b></p>
<p>FIRM: DZN PARTNERS</p> <p>ADDRESS: 662 2ND ST</p> <p>CITY, STATE, ZIP: ENCINITAS, CA 92024</p> <p>PHONE: (760) 753-2464</p> <p>EMAIL: B.SMITH@DZNPARTNERS.COM</p> <p>CONTACT: BART SMITH, AIA LEED AP</p>	<p>FIRM: BEAR TECHNOLOGYS CONSULTANTING, INC</p> <p>ADDRESS: 3431 DON ARTURO DR</p> <p>CITY, STATE, ZIP: CARLSBAD, CA 92010</p> <p>PHONE: (760) 635-2327</p> <p>EMAIL: WAYNE@BEARTECHCONSULTING.COM</p> <p>CONTACT: WAYNE SEWARD</p> <p>FIRM: PCSD ENGINEERING</p> <p>ADDRESS: 3529 COASTVIEW COURT</p> <p>CITY, STATE, ZIP: CARLSBAD, CA 92010</p> <p>PHONE: (760) 207-1885</p> <p>EMAIL: PAUL.PCSD@GMAIL.COM</p> <p>CONTACT: PAUL CHRISTENSON</p>

PREPARER SIGNATURE

FOR CITY STAMPS

BY USING THESE PERMIT READY CONSTRUCTION DOCUMENTS, THE USER AGREES TO RELEASE THE CITY OF ANAHEIM 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.



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

**3 BEDROOM PRADU**

CITY: ANAHEIM

JOB: 202409R

PROJECT DATA

**a0.0**

# Abbreviations

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

## door schedule - elevation a, b & c

DOOR #	WIDTH	HEIGHT	THICK	TYPE	OPERATION	CORE OR GLAZING	MATERIAL	FRAME	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	3'-0"	8'-0"	1-3/4"	FRENCH	SWING	DG, TG	WOOD	WOOD	OPTIONAL	.43	.3	1	ENTRY DOOR
2	18'-0"	8'-0"	1-3/4"	FRENCH	BIFOLDING	DG, TG	VINYL	VINYL	YES	.43	.3	1	
3	8'-0"	8'-0"	1-3/4"	FRENCH	SLIDING	DG, TG	VINYL	VINYL	YES	.43	.3	1	
4	2'-4"	8'-0"	1-1/2"	INTERIOR	SWING	HOLLOW	WOOD	WOOD	NO	N/A	N/A	5	PRIVACY/BTH
5	2'-6"	8'-0"	1-1/2"	INTERIOR	SWING	HOLLOW	WOOD	WOOD	NO	N/A	N/A	3	BED ENTRY
6	6'-0"	8'-0"	1-1/2"	INTERIOR	BYPASS	-	MIRROR	ALUMINUM	NO	N/A	N/A	2	CLOSET
7	5'-0"	8'-0"	1-1/2"	INTERIOR	BIFOLD	HOLLOW	WOOD	WOOD	NO	N/A	N/A	1	LAUNDRY

## window schedule - elevation a, b & c

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

## trellis:

SELECTION

NO

YES

## appliance schedule - three bedroom 3

APPLIANCE	OPERATION	MANUFACTURER	MODEL	QUANTITY	NOTES
SPLIT SYSTEM HEAT PUMP	ELECTRICITY	PANASONIC	CU-5E36QBU-5	1	OR EQUAL, INTERIOR UNITS TO BE DETERMINED
HEATPUMP TANK WATER HEATER	ELECTRICITY	RHEEM	PROPH40 T2 RH375-SO	1	OR EQUAL
REFRIGERATOR	ELECTRICITY	BY OWNER	BY OWNER	1	36" WIDE, COUNTER DEPTH
RANGE	ELECTRICITY	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	ELECTRICITY	BY OWNER	BY OWNER	1	
GARBAGE DISPOSAL	ELECTRICITY	BY OWNER	BY OWNER	1	

## fixture schedule - three bedroom 3

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

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	2-TILE	WOOD O/ GB	O/ GB	
	3-VINYL	3-VINYL	3-VINYL	3-STONE	2-STAINED	2-SEMGLOSS	2-SEMGLOSS	
	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:

- IF FIRE SPRINKLERS ARE REQUIRED AT THE ADU THAN THESE NOTES APPLY.
- 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 ANAHEIM FIRE DEPARTMENT POLICIES/ORDINANCES. 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.
- SECTION 903.2 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.
- SECTION 903.2.01** 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.
- SECTION 903.2.01** 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 VALUATION OF THE REMODEL.
- 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.
- A FIRE UNDERGROUND FLUSH CERTIFICATION SHALL BE REQUIRED AT FINAL INSPECTION.
- 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

- IF THE PROPERTY THAT WILL CONTAIN THE ADU IS IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE SEE NOTES BELOW & ON SHEET a0.1F
- THE ADU SHALL COMPLY WITH CHAPTER 7A OF THE CURRENT CALIFORNIA BUILDING CODE.
- 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 ANAHEIM 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:

- ALL GLAZING IN DOORS SHALL BE TEMPERED.
- SEE ELEVATIONS FOR 'TG' AT WINDOWS THAT REQUIRE TEMPERED GLAZING.
- IF THE PROPERTY THAT WILL CONTAIN THE ADU IS IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE SEE NOTES AND SCHEDULES ON SHEET a0.1F CONCERNING DOOR & WINDOW CONSTRUCTION AND TEMPERED GLAZING.
- SEE ELEVATIONS FOR WINDOW OPERATION DIRECTION & LOCATION OF MUNTINS.
- SEE FLOOR PLANS FOR DOOR SWING DIRECTION.
- ALL GLAZED OPENINGS SHALL MEET THE REQUIREMENTS OF THE CBC T24 SHEETS PROVIDED IN THE PLANS.
- 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 (ENERGY CALCS AVAILABLE ON REQUEST)

EXPANSIVE SOIL, RAISED FLOOR FOUNDATION (ENERGY CALCS AVAILABLE ON REQUEST)

## exterior wall material:

# very high fire hazard severity zone

PREPARER SIGNATURE

FOR CITY STAMPS

## very high fire hazard severity zone notes:

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

IF THE PROPERTY THAT WILL CONTAIN THE ADU IS IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE THESE NOTES APPLY TO SHEET #01 APPLY.

**701A.3 APPLICATION** 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 2022 CBC.

- EXCEPTIONS**
- GROUP U OCCUPANCY ACCESSORY BUILDINGS OF ANY SIZE LOCATED AT LEAST 50 FEET (15 240 MM) FROM AN APPLICABLE BUILDING ON THE SAME LOT.
  - GROUP U OCCUPANCY AGRICULTURAL BUILDINGS, AS DEFINED IN SECTION 202 OF THIS CODE OF ANY SIZE LOCATED AT LEAST 50 FEET (15 240 MM) FROM AN APPLICABLE BUILDING.
  - GROUP C OCCUPANCY SPECIAL BUILDINGS CONFORMING TO THE LIMITATIONS SPECIFIED IN SECTION 450.4.1.
  - NEW ACCESSORY BUILDINGS AND MISCELLANEOUS STRUCTURES SPECIFIED IN SECTION 710A SHALL COMPLY ONLY WITH THE REQUIREMENTS OF THAT SECTION.
  - ADDITIONS TO BUILDINGS ORIGINALLY CONSTRUCTED PRIOR TO JULY 1, 2008

### REQUIREMENTS

#### ROOFING

- 705A.2 ROOF COVERINGS** WHERE THE ROOFING PROFILE HAS AN AIRSPACE UNDER THE ROOF COVERING, INSTALLED OVER A COMBUSTIBLE DECK, A 7/2 LB. (32.7 KG) GAP SHEET COMPLYING WITH ASTM D3909 STANDARD SPECIFICATION FOR "ASPHALT ROLLED ROOFING (GLASS FELT) SURFACED WITH MINERAL GRANULES" SHALL BE INSTALLED OVER THE ROOF DECK. BIRD STOPS SHALL BE USED AT THE EAVES WHEN THE PROFILE FITS, TO PREVENT DEBRIS AT THE EAVE. HIP AND RIDGE CAPS SHALL BE MUDDED IN TO PREVENT INTRUSION OF FIRE OR EMBERS.  
EXCEPTION: GAP SHEET IS NOT REQUIRED WHEN NO LESS THAN 1" OF MINERAL WOOL BOARD OR OTHER NONCOMBUSTIBLE MATERIAL IS LOCATED BETWEEN THE ROOFING MATERIAL & WOOD FRAMING OR DECK.  
ALTERNATELY, A CLASS A FIRE RATED ROOF UNDERLAYMENT, TESTED IN ACCORDANCE WITH ASTM E108, SHALL BE PERMITTED TO BE USED. IF THE SHEATHING CONSISTS OF EXTERIOR FIRE-RETARDANT-TREATED WOOD, THE UNDERLAYMENT SHALL NOT BE REQUIRED TO COMPLY WITH A CLASS A CLASSIFICATION. BIRD STOPS SHALL BE USED AT THE EAVES WHEN THE PROFILE FITS, TO PREVENT DEBRIS AT THE EAVE. HIP AND RIDGE CAPS SHALL BE MUDDED IN TO PREVENT INTRUSION OF FIRE OR EMBERS.
- 705A.3 ROOF VALLEYS** WHERE VALLEY FLASHING IS INSTALLED, THE FLASHING SHALL BE AT LEAST 18 INCH (457 MM) WIDE, 26 GAUGE GALVANIZED SHEET CORROSION-RESISTANT METAL INSTALLED OVER NOT LESS THAN ONE LAYER OF MINIMUM 72 POUND (32.4 KG) MINERAL-SURFACED NONPERFORATED CAP SHEET COMPLYING WITH ASTM D3909, AT LEAST 36-INCH-WIDE (914 MM) RUNNING THE FULL LENGTH OF THE VALLEY.
- 705A.4 ROOF GUTTERS.** ROOF GUTTERS SHALL BE PROVIDED WITH THE MEANS TO PREVENT THE ACCUMULATION OF LEAVES & DEBRIS IN THE GUTTER.

#### VENTS

- 706A.1 GENERAL** WHERE PROVIDED, VENTILATION OPENINGS FOR ENCLOSED ATTICS, GABLE ENDS, RIDGE ENDS, UNDER EAVES AND CORNICES, ENCLOSED EAVE SOFFIT SPACES, ENCLOSED RAFTER SPACES FORMED WHERE CEILING ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS, UNDER FLOOR VENTILATION, FOUNDATIONS AND CRAWL SPACES, OR ANY OTHER OPENING INTENDED TO PERMIT VENTILATION, EITHER IN A HORIZONTAL OR VERTICAL PLANE, SHALL BE IN ACCORDANCE WITH SECTION 1202 AND SECTIONS 706A.1 THROUGH 706A.2 TO RESIST BUILDING IGNITION FROM THE INTRUSION OF BURNING EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS.
- 706A.2 REQUIREMENTS** VENTILATION OPENINGS SHALL BE FULLY COVERED WITH WILDFIRE FLAME AND EMBER RESISTANT VENTS APPROVED AND LISTED BY THE CALIFORNIA STATE FIRE MARSHAL, OR WU VENTS TESTED TO ASTM E2886 AND LISTED, BY COMPLYING WITH ALL OF THE FOLLOWING REQUIREMENTS:
  - THERE SHALL BE NO FLAMING IGNITION OF THE COTTON MATERIAL DURING THE EMBER INTRUSION TEST.
  - THERE SHALL BE NO FLAMING IGNITION DURING THE INTEGRITY TEST PORTION OF THE FLAME INTRUSION TEST.
  - THE MAXIMUM TEMPERATURE OF THE UNEXPOSED SIDE OF THE VENT SHALL NOT EXCEED 662°F (350°C).
- 706A.2.1 OFF RIDGE AND RIDGE VENT VENTS** THAT ARE INSTALLED ON A SLOPED ROOF, SUCH AS DORMER VENTS, SHALL COMPLY WITH ALL OF THE FOLLOWING:
  - VENTS SHALL BE COVERED WITH A MESH WHERE THE DIMENSIONS OF THE MESH THEREIN SHALL BE A MINIMUM OF 1/8-INCH (1.6 MM) AND SHALL NOT EXCEED 1/8-INCH (3.2 MM) IN DIAMETER.
  - THE MESH MATERIAL SHALL BE NONCOMBUSTIBLE.
  - THE MESH MATERIAL SHALL BE CORROSION RESISTANT.

#### EXTERIOR COVERINGS

- 707A.3 EXTERIOR WALL COVERINGS** THE EXTERIOR WALL COVERING SHALL COMPLY WITH ONE OR MORE OF THE FOLLOWING REQUIREMENTS, EXCEPT AS PERMITTED FOR EXTERIOR WALL ASSEMBLIES COMPLYING WITH SECTION 707A.4:
  - NONCOMBUSTIBLE MATERIAL.
  - IGNITION-RESISTANT MATERIAL. THE IGNITION-RESISTANT MATERIAL SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 704A.2.
  - FIRE-RETARDANT-TREATED WOOD. THE FIRE-RETARDANT-TREATED WOOD SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 2303.2.
- 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 INCH (50.8 MM) NOMINAL SOLID WOOD BLOCKING BETWEEN RAFTERS AT ALL ROOF OVERHANGS, OR IN THE CASE OF ENCLOSED EAVES, TERMINATE AT THE ENCLOSURE.

#### EXTERIOR WALL ASSEMBLIES

- 707A.4 EXTERIOR WALL ASSEMBLIES** EXTERIOR WALL ASSEMBLIES OF BUILDINGS OR STRUCTURES SHALL BE CONSTRUCTED USING ONE OR MORE OF THE FOLLOWING METHODS, UNLESS THEY ARE COVERED BY AN EXTERIOR WALL COVERING COMPLYING WITH SECTION 707A.3:
  - ASSEMBLY OF SAWN LUMBER OR GLUE-LAMINATED WOOD WITH THE SMALLEST MINIMUM NOMINAL DIMENSION OF 4 INCHES (102 MM), SAWN OR GLUE-LAMINATED PLANKS SPLINED, TONGUE-AND-GROOVE, OR SET CLOSE TOGETHER AND WELL SPIKED.
  - LOG WALL CONSTRUCTION ASSEMBLY.
  - ASSEMBLY THAT HAS BEEN TESTED IN ACCORDANCE WITH THE TEST PROCEDURES FOR A 10-MINUTE DIRECT FLAME CONTACT EXPOSURE TEST SET FORTH IN ASTM E2370 WITH THE CONDITIONS OF ACCEPTANCE SHOWN IN SECTION 707A.4.1.
  - ASSEMBLY THAT MEETS THE PERFORMANCE CRITERIA IN ACCORDANCE WITH THE TEST PROCEDURES FOR A 10-MINUTE DIRECT FLAME CONTACT EXPOSURE TEST SET FORTH IN SFM STANDARD 12-7A-1.
  - ASSEMBLY SUITABLE FOR EXTERIOR FIRE EXPOSURE WITH A 1-HOUR FIRE-RESISTANCE RATING, RATED FROM THE EXTERIOR SIDE, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263.
  - ASSEMBLY SUITABLE FOR EXTERIOR FIRE EXPOSURE CONTAINING ONE LAYER OF 5/8-INCH (15.9 MM) TYPE X GYPSUM SHEATHING APPLIED BEHIND THE EXTERIOR WALL COVERING OR CLADDING ON THE EXTERIOR SIDE OF THE FRAMING.
  - ASSEMBLY SUITABLE FOR EXTERIOR FIRE EXPOSURE CONTAINING ANY OF THE GYPSUM PANEL AND SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL AS COMPLYING WITH A 1-HOUR FIRE-RESISTANCE RATING, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263.

#### OPEN ROOF EAVES

- 707A.5 OPEN ROOF EAVES** THE EXPOSED ROOF DECK ON THE UNDERSIDE OF UNENCLOSED ROOF EAVES SHALL CONSIST OF ONE OR MORE OF THE FOLLOWING:
  - NONCOMBUSTIBLE MATERIAL.
  - IGNITION-RESISTANT MATERIAL. THE IGNITION-RESISTANT MATERIAL SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 704A.2.
  - FIRE-RETARDANT-TREATED WOOD. THE FIRE-RETARDANT-TREATED WOOD SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 2303.2.
  - MATERIALS APPROVED FOR NOT LESS THAN 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION ON THE EXTERIOR SIDE, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263.
  - ONE LAYER OF 5/8-INCH (15.9 MM) TYPE X GYPSUM SHEATHING APPLIED BEHIND AN EXTERIOR COVERING ON THE UNDERSIDE OF THE ROOF DECK.
  - THE EXTERIOR PORTION OF A 1-HOUR FIRE-RESISTANCE-RATED EXTERIOR ASSEMBLY, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263, APPLIED TO THE UNDERSIDE OF THE ROOF DECK DESIGNED FOR EXTERIOR FIRE EXPOSURE, INCLUDING ASSEMBLIES USING THE GYPSUM PANEL AND SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL.
  - EXCEPTION TO SECTION 707A.5: THE FOLLOWING MATERIALS DO NOT REQUIRE PROTECTION: FASCIA & OTHER ARCHITECTURAL TRIM BOARDS.

#### ENCLOSED ROOF EAVES AND ROOF EAVE SOFFITS

- 707A.6 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 OR MORE OF THE FOLLOWING:
  - NONCOMBUSTIBLE MATERIAL.
  - IGNITION-RESISTANT MATERIAL. THE IGNITION-RESISTANT MATERIAL SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 704A.2.
  - FIRE-RETARDANT-TREATED WOOD. THE FIRE-RETARDANT-TREATED WOOD SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 2303.2.
  - MATERIALS APPROVED FOR NOT LESS THAN 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION ON THE EXTERIOR SIDE, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263.
  - ONE LAYER OF 5/8-INCH (15.9 MM) TYPE X GYPSUM SHEATHING APPLIED BEHIND THE EXTERIOR COVERING OR CLADDING ON THE UNDERSIDE OF THE RAFTER TAILS OR SOFFIT.
  - THE EXTERIOR PORTION OF A 1-HOUR FIRE-RESISTIVE EXTERIOR 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.
  - BOXED-IN ROOF EAVE SOFFIT ASSEMBLIES WITH A HORIZONTAL UNDERSIDE THAT MEET THE PERFORMANCE CRITERIA IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN ASTM E2957.
  - 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 STANDARD 12-7A-3. EXCEPTION TO SECTION 707A.6: THE FOLLOWING MATERIALS DO NOT REQUIRE PROTECTION: FASCIA & OTHER ARCHITECTURAL TRIM BOARDS.

#### PORCH CEILING

- 707A.7 EXTERIOR PORCH CEILING** THE EXPOSED UNDERSIDE OF EXTERIOR PORCH CEILING SHALL BE PROTECTED BY ONE OR MORE OF THE FOLLOWING:
  - NONCOMBUSTIBLE MATERIAL.
  - IGNITION-RESISTANT MATERIAL. THE IGNITION-RESISTANT MATERIAL SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 704A.2.
  - FIRE-RETARDANT-TREATED WOOD. THE FIRE-RETARDANT-TREATED WOOD SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 2303.2.
  - MATERIALS APPROVED FOR NOT LESS THAN 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION ON THE EXTERIOR SIDE, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263.
  - ONE LAYER OF 5/8-INCH (15.9 MM) TYPE X GYPSUM SHEATHING APPLIED BEHIND THE EXTERIOR COVERING OR CLADDING ON THE UNDERSIDE OF THE RAFTER TAILS OR SOFFIT.
  - THE EXTERIOR PORTION OF A 1-HOUR FIRE-RESISTANCE-RATED EXTERIOR ASSEMBLY, AS TESTED IN ACCORDANCE WITH ASTM E119, APPLIED TO THE UNDERSIDE OF THE CEILING ASSEMBLY, INCLUDING ASSEMBLIES USING THE GYPSUM PANEL AND SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL.
  - PORCH CEILING ASSEMBLIES WITH A HORIZONTAL UNDERSIDE THAT MEET THE PERFORMANCE CRITERIA IN SECTION 707A.11 WHEN TESTED IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN ASTM E2957.
  - 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. EXCEPTION TO SECTION 707A.7: ARCHITECTURAL TRIM BOARDS DO NOT REQUIRE PROTECTION.

#### FLOOR PROJECTIONS

- 707A.8 FLOOR PROJECTIONS** THE EXPOSED UNDERSIDE OF A CANTILEVERED FLOOR PROJECTION WHERE A FLOOR ASSEMBLY EXTENDS OVER AN EXTERIOR WALL SHALL BE PROTECTED BY ONE OR MORE OF THE FOLLOWING:
  - NONCOMBUSTIBLE MATERIAL.
  - IGNITION-RESISTANT MATERIAL. THE IGNITION-RESISTANT MATERIAL SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 704A.2.
  - FIRE-RETARDANT-TREATED WOOD. THE FIRE-RETARDANT-TREATED WOOD SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 2303.2.
  - MATERIALS APPROVED FOR NOT LESS THAN 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION ON THE EXTERIOR SIDE, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263.
  - ONE LAYER OF 5/8-INCH (15.9 MM) TYPE X GYPSUM SHEATHING APPLIED BEHIND THE EXTERIOR COVERING ON THE UNDERSIDE OF THE CEILING.
  - THE EXTERIOR PORTION OF A 1-HOUR FIRE-RESISTANCE-RATED EXTERIOR ASSEMBLY, AS TESTED IN ACCORDANCE WITH ASTM E119, APPLIED TO THE UNDERSIDE OF THE CEILING ASSEMBLY, INCLUDING ASSEMBLIES USING THE GYPSUM PANEL AND SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL.
  - THE UNDERSIDE OF A FLOOR PROJECTION ASSEMBLY THAT MEETS THE PERFORMANCE CRITERIA IN SECTION 707A.10 WHEN TESTED IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN ASTM E2957.
  - THE UNDERSIDE OF A FLOOR PROJECTION ASSEMBLY THAT MEETS THE PERFORMANCE CRITERIA IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN SFM STANDARD 12-7A-3.
  - EXCEPTION TO SECTION 707A.8: ARCHITECTURAL TRIM BOARDS DO NOT REQUIRE PROTECTION.

#### UNDER FLOOR & UNDERSIDE PROTECTION

#### 707A.9 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 BE PROTECTED BY ONE OR MORE OF THE FOLLOWING:
- NONCOMBUSTIBLE MATERIAL.
  - IGNITION-RESISTANT MATERIAL. THE IGNITION-RESISTANT MATERIAL SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 704A.2.
  - FIRE-RETARDANT-TREATED WOOD. THE FIRE-RETARDANT-TREATED WOOD SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 2303.2.
  - MATERIALS APPROVED FOR NOT LESS THAN 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION ON THE EXTERIOR SIDE, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263.
  - ONE LAYER OF 5/8-INCH (15.9 MM) TYPE X GYPSUM SHEATHING APPLIED BEHIND AN EXTERIOR COVERING ON THE UNDERSIDE OF THE FLOOR PROJECTION.
  - THE EXTERIOR PORTION OF A 1-HOUR FIRE-RESISTANCE-RATED EXTERIOR ASSEMBLY, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263, 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.
  - THE UNDERSIDE OF A FLOOR ASSEMBLY THAT MEETS THE PERFORMANCE CRITERIA IN SECTION 707A.11 WHEN TESTED IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN ASTM E2957.
  - 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 TO SECTION 707A.9: STRUCTURAL COLUMNS AND BEAMS DO NOT REQUIRE PROTECTION WHEN CONSTRUCTED WITH SAWN LUMBER OR GLUE-LAMINATED WOOD WITH THE SMALLEST MINIMUM NOMINAL DIMENSION OF 4 INCHES (102 MM), SAWN OR GLUE-LAMINATED PLANKS SHALL BE SPLINED, TONGUE-AND-GROOVE, OR SET CLOSE TOGETHER AND WELL SPIKED.

#### 707A.10 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 UNDER-FLOOR SHALL BE PROTECTED BY ONE OR MORE OF THE FOLLOWING:
- NONCOMBUSTIBLE MATERIAL.
  - IGNITION-RESISTANT MATERIAL. THE IGNITION-RESISTANT MATERIAL SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 704A.2.
  - FIRE-RETARDANT-TREATED WOOD. THE FIRE-RETARDANT-TREATED WOOD SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 2303.2.
  - MATERIALS APPROVED FOR NOT LESS THAN 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION ON THE EXTERIOR SIDE, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263.
  - ONE LAYER OF 5/8-INCH (15.9 MM) TYPE X GYPSUM SHEATHING APPLIED BEHIND THE EXTERIOR COVERING ON THE UNDERSIDE OF THE APPENDAGE PROJECTION.
  - THE EXTERIOR PORTION OF A 1-HOUR FIRE-RESISTANCE-RATED EXTERIOR ASSEMBLY, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263, APPLIED TO THE UNDERSIDE OF THE APPENDAGE, INCLUDING ASSEMBLIES USING THE GYPSUM PANEL AND SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL.
  - THE UNDERSIDE OF AN APPENDAGE ASSEMBLY THAT MEETS THE PERFORMANCE CRITERIA IN SECTION 707A.11 WHEN TESTED IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN ASTM E2957.
  - THE UNDERSIDE OF AN APPENDAGE ASSEMBLY THAT MEETS THE PERFORMANCE CRITERIA IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN SFM STANDARD 12-7A-3.
  - EXCEPTION TO SECTION 707A.10: STRUCTURAL COLUMNS AND BEAMS DO NOT REQUIRE PROTECTION WHEN CONSTRUCTED WITH SAWN LUMBER OR GLUE LAMINATED WOOD WITH THE SMALLEST MINIMUM NOMINAL DIMENSION OF 4 INCHES (102 MM), SAWN OR GLUE-LAMINATED PLANKS SHALL BE SPLINED, TONGUE-AND-GROOVE, OR SET CLOSE TOGETHER AND WELL SPIKED.

#### EXTERIOR GLAZING & OPENINGS

- 708A.2 EXTERIOR GLAZING** THE FOLLOWING EXTERIOR GLAZING MATERIALS AND/OR ASSEMBLIES SHALL COMPLY WITH THIS SECTION:
  - EXTERIOR WINDOWS.
  - EXTERIOR GLAZED DOORS.
  - GLAZED OPENINGS WITHIN EXTERIOR DOORS.
  - GLAZED OPENINGS WITHIN EXTERIOR GARAGE DOORS.
  - EXTERIOR STRUCTURAL GLASS VENEER.
  - SKYLIGHTS.
- 708A.2.1 EXTERIOR WINDOWS, SKYLIGHTS AND EXTERIOR GLAZED DOOR ASSEMBLY REQUIREMENTS** EXTERIOR WINDOWS, SKYLIGHTS & EXTERIOR GLAZED DOOR ASSEMBLIES SHALL COMPLY WITH ONE OF THE FOLLOWING REQUIREMENTS:
  - BE CONSTRUCTED OF MULTIPANE GLAZING WITH A MINIMUM OF ONE TEMPERED PANE MEETING THE REQUIREMENTS OF SECTION 2406 SAFETY GLAZING, OR
  - BE CONSTRUCTED OF GLASS BLOCK UNITS, OR
  - HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 20 MINUTES WHEN TESTED ACCORDING TO NFPA 257, OR
  - BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-2.
- 708A.2.2 OPERABLE SKYLIGHTS.** OPERABLE SKYLIGHTS SHALL BE PROTECTED BY A NON-COMBUSTIBLE MESH SCREEN WHERE THE DIMENSIONS OF THE OPENINGS IN THE SCREEN SHALL NOT EXCEED 1/8-INCH (3.2MM).
- 708A.2.3 STRUCTURAL GLASS VENEER** THE WALL ASSEMBLY BEHIND STRUCTURAL GLASS VENEER SHALL COMPLY WITH SECTION 707A.3.
- 708A.3 EXTERIOR DOORS** EXTERIOR DOORS SHALL COMPLY WITH ONE OF THE FOLLOWING:
  - THE EXTERIOR SURFACE OR CLADDING SHALL BE OF NONCOMBUSTIBLE MATERIAL.
  - THE EXTERIOR SURFACE OR CLADDING SHALL BE OF IGNITION RESISTANT MATERIAL.
  - THE EXTERIOR DOOR SHALL BE CONSTRUCTED OF SOLID CORE WOOD THAT COMPLIES WITH THE FOLLOWING REQUIREMENTS:
    - STILES AND RAILS SHALL NOT BE LESS THAN 13/8 INCHES THICK.
    - PANELS SHALL NOT BE LESS THAN 11/4 INCHES THICK, EXCEPT FOR THE EXTERIOR PERIMETER OF THE PANEL THAT SHALL BE PERMITTED TO TAPER TO A TONGUE NOT LESS THAN 3/8 INCH THICK.
    - THE EXTERIOR DOOR ASSEMBLY SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 20 MINUTES WHEN TESTED ACCORDING TO NFPA 252.
    - THE EXTERIOR SURFACE OR CLADDING SHALL BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SECTION 707A.3.1 WHEN TESTED IN ACCORDANCE WITH ASTM E2370.
    - THE EXTERIOR SURFACE OR CLADDING SHALL BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-1.
- 708A.3.1 EXTERIOR DOOR GLAZING.** GLAZING IN EXTERIOR DOORS SHALL COMPLY WITH SECTION 708A.2.1.
- 708A.4 GARAGE DOOR PERIMETER GAP** EXTERIOR GARAGE DOORS SHALL RESIST THE INTRUSION OF EMBERS FROM ENTERING BY PREVENTING GAPS BETWEEN DOORS AND DOOR OPENINGS, AT THE BOTTOM, SIDE & TOPS OF DOORS, FROM EXCEEDING 1/8 INCH (3.2 MM). GAPS BETWEEN DOORS & DOOR OPENINGS SHALL BE CONTROLLED BY ONE OF THE FOLLOWING METHODS:
  - WEATHER-STRIPPING PRODUCTS MADE OF MATERIALS THAT: (A) HAVE BEEN TESTED FOR TENSILE STRENGTH IN ACCORDANCE WITH ASTM D638 (STANDARD TEST METHOD FOR TENSILE PROPERTIES OF PLASTICS) AFTER EXPOSURE TO ASTM G155 (STANDARD PRACTICE FOR OPERATING XENON ARC LIGHT APPARATUS FOR EXPOSURE OF NON-METALLIC MATERIALS) FOR A PERIOD OF 2,000 HOURS, WHERE THE MAXIMUM ALLOWABLE DIFFERENCE IN TENSILE STRENGTH VALUES BETWEEN EXPOSED AND NON-EXPOSED SAMPLES DOES NOT EXCEED 10%, AND (B) EXHIBIT A V-2 OR BETTER FLAMMABILITY RATING WHEN TESTED TO UL 94, STANDARD FOR TESTS FOR FLAMMABILITY OF PLASTIC MATERIALS FOR PARTS IN DEVICES AND APPLIANCES.
  - DOOR OVERLAPS ONTO JAMBS AND HEADERS.
  - GARAGE DOOR JAMBS & HEADERS COVERED WITH METAL FLASHING.

#### DECKING

- 709A.1.1 FLASHING.** A MINIMUM OF A 6-INCH (150 MM) METAL FLASHING, APPLIED VERTICALLY ON THE EXTERIOR OF THE WALL, SHALL BE INSTALLED AT ALL DECK-TO-WALL INTERSECTIONS.

#### 709A.3 DECKING SURFACES

- THE WALKING SURFACE MATERIAL OF DECKS, PORCHES, BALCONIES & STAIRS SHALL BE CONSTRUCTED WITH ONE OF THE FOLLOWING MATERIALS:
- NONCOMBUSTIBLE MATERIAL.
  - IGNITION-RESISTANT MATERIAL. THE IGNITION-RESISTANT MATERIAL SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 704A.2.
  - FIRE-RETARDANT-TREATED WOOD. THE FIRE-RETARDANT-TREATED WOOD SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 2303.2.
  - MATERIALS APPROVED FOR NOT LESS THAN 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION ON THE EXTERIOR SIDE, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263.
  - ONE LAYER OF 5/8-INCH (15.9 MM) TYPE X GYPSUM SHEATHING APPLIED BEHIND AN EXTERIOR COVERING ON THE UNDERSIDE OF THE FLOOR PROJECTION.
  - THE EXTERIOR PORTION OF A 1-HOUR FIRE-RESISTANCE-RATED EXTERIOR ASSEMBLY, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263, 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.
  - THE UNDERSIDE OF A FLOOR ASSEMBLY THAT MEETS THE PERFORMANCE CRITERIA IN SECTION 707A.11 WHEN TESTED IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN SFM STANDARD 12-7A-3.
  - EXCEPTION TO SECTION 709A.3: STRUCTURAL COLUMNS AND BEAMS DO NOT REQUIRE PROTECTION WHEN CONSTRUCTED WITH SAWN LUMBER OR GLUE-LAMINATED WOOD WITH THE SMALLEST MINIMUM NOMINAL DIMENSION OF 4 INCHES (102 MM), SAWN OR GLUE-LAMINATED PLANKS SHALL BE SPLINED, TONGUE-AND-GROOVE, OR SET CLOSE TOGETHER AND WELL SPIKED.

#### 709A.10 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 UNDER-FLOOR SHALL BE PROTECTED BY ONE OR MORE OF THE FOLLOWING:
- NONCOMBUSTIBLE MATERIAL.
  - IGNITION-RESISTANT MATERIAL. THE IGNITION-RESISTANT MATERIAL SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 704A.2.
  - FIRE-RETARDANT-TREATED WOOD. THE FIRE-RETARDANT-TREATED WOOD SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE REQUIREMENTS OF SECTION 2303.2.
  - MATERIALS APPROVED FOR NOT LESS THAN 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION ON THE EXTERIOR SIDE, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263.
  - ONE LAYER OF 5/8-INCH (15.9 MM) TYPE X GYPSUM SHEATHING APPLIED BEHIND AN EXTERIOR COVERING ON THE UNDERSIDE OF THE APPENDAGE PROJECTION.
  - THE EXTERIOR PORTION OF A 1-HOUR FIRE-RESISTANCE-RATED EXTERIOR ASSEMBLY, AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263, APPLIED TO THE UNDERSIDE OF THE APPENDAGE, INCLUDING ASSEMBLIES USING THE GYPSUM PANEL AND SHEATHING PRODUCTS LISTED IN THE GYPSUM ASSOCIATION FIRE RESISTANCE DESIGN MANUAL.
  - THE UNDERSIDE OF AN APPENDAGE ASSEMBLY THAT MEETS THE PERFORMANCE CRITERIA IN SECTION 707A.11 WHEN TESTED IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN SFM STANDARD 12-7A-3.
  - EXCEPTION TO SECTION 707A.10: STRUCTURAL COLUMNS AND BEAMS DO NOT REQUIRE PROTECTION WHEN CONSTRUCTED WITH SAWN LUMBER OR GLUE LAMINATED WOOD WITH THE SMALLEST MINIMUM NOMINAL DIMENSION OF 4 INCHES (102 MM), SAWN OR GLUE-LAMINATED PLANKS SHALL BE SPLINED, TONGUE-AND-GROOVE, OR SET CLOSE TOGETHER AND WELL SPIKED.

## door schedule - elevation a, b & c

DOOR #	WIDTH	HEIGHT	THICK	TYPE	OPERATION	CORE OR GLAZING	MATERIAL	FRAME	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	3'-0"	8'-0"	1-3/4"	FRENCH	SWING	DG, TG	WOOD	WOOD	OPTIONAL	.43	.3	1	ENTRY DOOR
2	18'-0"	8'-0"	1-3/4"	FRENCH	BIFOLDING	DG, TG	VINYL	VINYL	YES	.43	.3	1	
3	8'-0"	8'-0"	1-3/4"	FRENCH	SLIDING	DG, TG	VINYL	VINYL	YES	.43	.3	1	
4	2'-4"	8'-0"	1-1/2"	INTERIOR	SWING	HOLLOW	WOOD	WOOD	NO	N/A	N/A	5	PRIVACY/BTH
5	2'-6"	8'-0"	1-1/2"	INTERIOR	SWING	HOLLOW	WOOD	WOOD	NO	N/A	N/A	3	BED ENTRY
6	6'-0"	8'-0"	1-1/2"	INTERIOR	BYPASS	-	MIRROR	ALUMINUM	NO	N/A	N/A	2	CLOSET
7	5'-0"	8'-0"	1-1/2"	INTERIOR	BIFOLD	HOLLOW	WOOD	WOOD	NO	N/A	N/A	1	LAUNDRY

## window schedule - elevation a, b & c

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

## schedule notes:

- ALL GLAZING IN EXTERIOR DOORS SHALL BE TEMPERED IN THE VHF5Z.
- ALL GLAZING IN WINDOWS SHALL BE TEMPERED IN THE VHF5Z.
- THE PROPERTY THAT WILL CONTAIN THE ADU IS IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE. SEE NOTES ON SHEET #01 CONCERNING DOOR & WINDOW CONSTRUCTION AND TEMPERED GLAZING.
- SEE ELEVATIONS FOR WINDOW OPERATION DIRECTION & LOCATION OF MUNTINS.
- SEE FLOOR PLANS FOR DOOR SWING DIRECTION.
- ALL GLAZED OPENINGS SHALL MEET THE REQUIREMENTS OF THE CBC 724 SHEETS PROVIDED IN THE PLANS.
- 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:

- THE ADU SHALL COMPLY WITH CHAPTER 7A OF THE CURRENT CALIFORNIA BUILDING CODE BECAUSE IT IS IN THE VHF5Z.
- 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 ANAHEIM 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.

BY USING THESE PERMIT READY CONSTRUCTION DOCUMENTS, THE USER AGREES TO RELEASE THE CITY OF ANAHEIM 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.



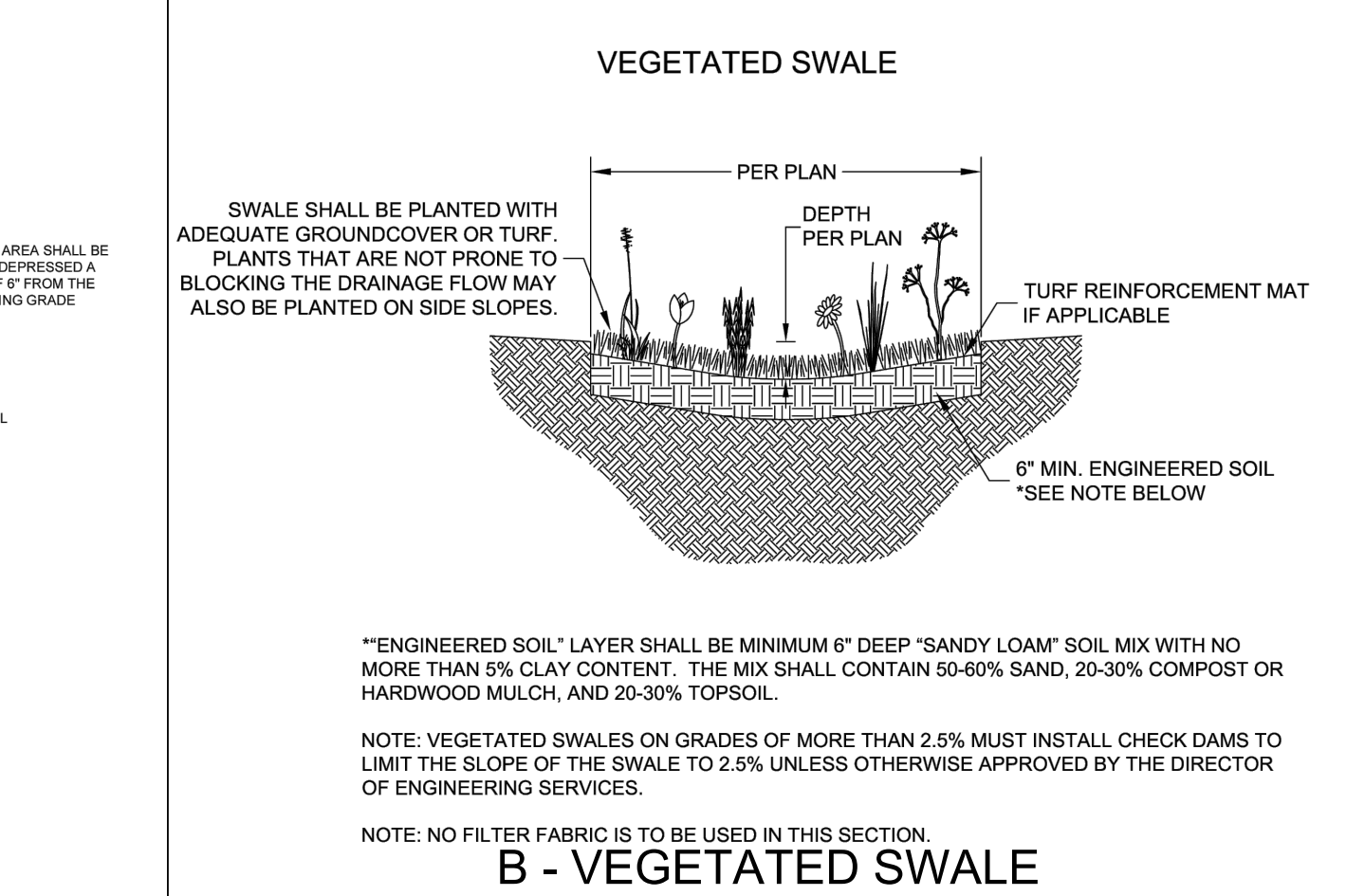
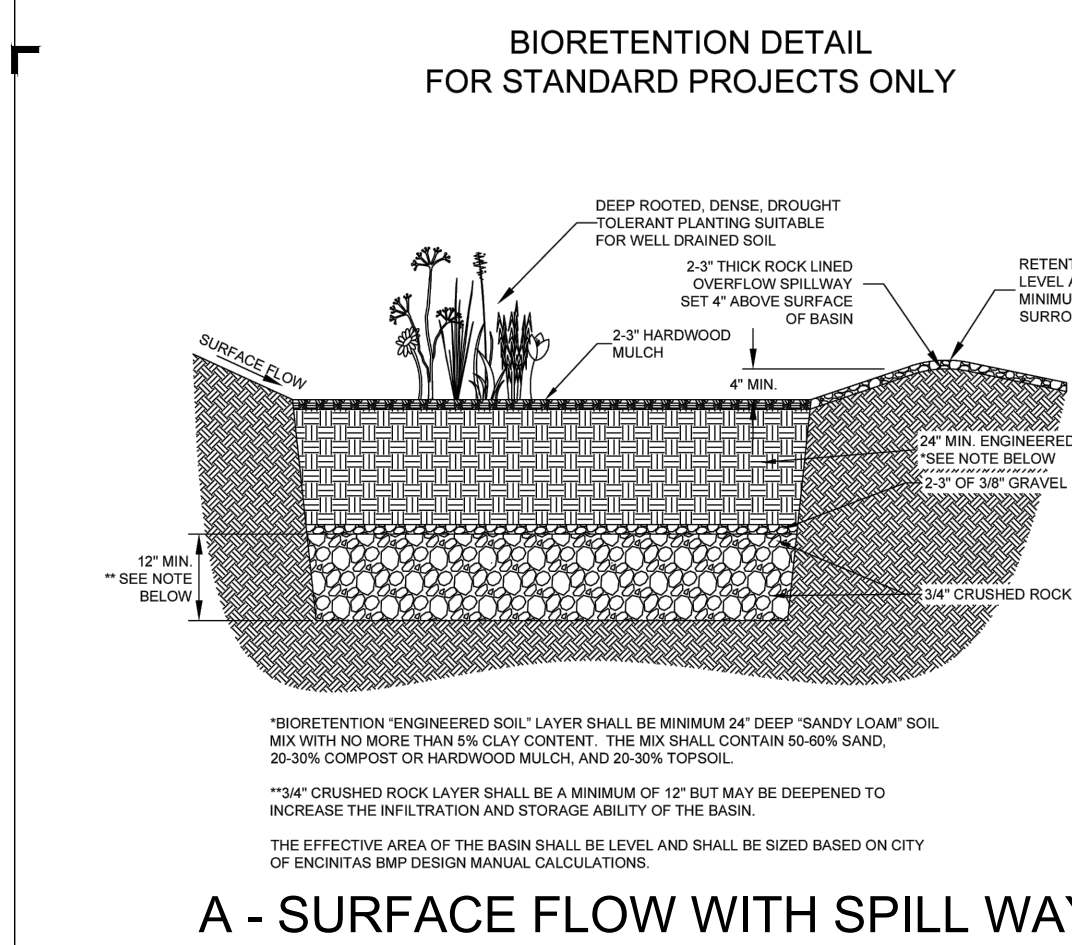
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# general specifications:

#	NOTE				
<b>GENERAL REQUIREMENTS</b>					
STANDARDS					
1	2022 CALIFORNIA BUILDING CODE (CBC)	TITLE 24	PART 2	SECTION 1.4.2	
2	2022 CALIFORNIA RESIDENTIAL CODE (CRC)	TITLE 24	PART 2.5		
3	2022 CALIFORNIA ELECTRICAL CODE (CEC)	TITLE 24	PART 4		
4	2022 CALIFORNIA MECHANICAL CODE (CMC)	TITLE 24	PART 4		
5	2022 CALIFORNIA FIRE CODE (FC)	TITLE 24	PART 6		
6	2022 CALIFORNIA ENERGY CODE (CEC)	TITLE 24	PART 6		
7	2022 CALIFORNIA FIRE CODE (FC)	TITLE 24	PART 6		
8	2022 CALIFORNIA GREEN BUILDING STDS CODE (CALGREEN)	TITLE 24	PART 11		
9	2022 CALIFORNIA BLENDED ENERGY STDS (CESBS)				
10	ALL WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE 2022 EDITION OF THE CALIFORNIA BUILDING STANDARDS CODE (TITLE 24), WHICH ADOPTS THE 2021 IBC, 2021 IRC, 2021 UPC, 2021 IBC, 2021 CEC AND THE 2021 CGSBC.				
11	ALL WORK SHALL CONFORM TO THE CODE AMENDMENTS, ORDINANCES AND REQUIREMENTS OF THE LOCAL GOVERNMENTAL JURISDICTION HAVING JURISDICTION OVER THE PROJECT.				
12	THE APPROVED PLANS, SPECIFICATIONS, CALCULATIONS AND OTHER PRODUCT CONSTRUCTION DOCUMENTS REPRESENT THE DESIGNED PROJECT. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION.				
13	THE APPROVED CONSTRUCTION DOCUMENTS, INCLUDING ALL APPROVED REVISIONS SHALL BE PRESENT AT THE PROJECT SITE AT ALL TIMES.				
14	ALL DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE FIELD BY EACH SUBCONTRACTOR BEFORE COMMENCING WORK. ANY ERRORS, OMISSIONS OR DISCREPANCIES SHALL BE REPORTED TO THE ATTENTION OF THE ARCHITECT, ENGINEER, GENERAL CONTRACTOR AND/OR PROJECT MANAGER BEFORE COMMENCING CONSTRUCTION.				
15	ALL WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED MEASUREMENTS.				
16	NOTES & DETAILS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES & TYPICAL DETAILS IN CASE OF CONFLICT.				
17	WHERE CONSTRUCTION DETAILS ARE NOT SHOWN OR NOTED FOR ANY PART OF THE WORK, SUCH DETAILS SHALL BE THE SAME AS FOR SIMILAR WORK SHOWN ON THE DRAWINGS. WHERE SUFFICIENT SIMILAR WORK IS NOT SHOWN BY THE ARCHITECT, ENGINEER, GENERAL CONTRACTOR AND/OR PROJECT MANAGER SHALL BE CONSULTED FOR CLARIFICATION.				
18	ANY OPTIONS OR SUBSTITUTIONS ARE FOR THE CONTRACTOR'S CONVENIENCE. NO STRUCTURAL CHANGES OR MATERIALS SHALL BE SUBSTITUTED WITHOUT THE ARCHITECT'S WRITTEN APPROVAL. ANY CHANGES ARE AT THE CONTRACTOR'S RISK. ANY CHANGES OR SUBSTITUTIONS OBTAINED FROM THE ARCHITECT AND/OR ENGINEER IF CHANGES ARE NOT WRITTEN APPROVAL FROM THE ARCHITECT, ENGINEER, GENERAL CONTRACTOR AND/OR PROJECT MANAGER WITH OTHER AFFECTED ITEMS SHALL BE THE LEGAL AND FINANCIAL RESPONSIBILITY OF THE CONTRACTOR AND/OR SUBCONTRACTOR INVOLVED WITH THE CHANGE.				
19	IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL MEASURES NECESSARY TO PROTECT THE SAFETY OF THE WORKERS AND THE PUBLIC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL METHODS, TECHNIQUES, SEQUENCING AND SCHEDULING OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE SAFETY OF THE WORK. BRACING & SHORING IS TO BE INSTALLED PER THE CURRENT OSHA & ANY OTHER APPLICABLE SAFETY REGULATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENTAL JURISDICTION.				
20	THE STRUCTURE IS DESIGNED AS A STABLE UNIT. UNDER ALL CONDITIONS ARE IN PLACE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY BRACING AND SHORING AS REQUIRED TO INSURE THE VERTICAL AND LATERAL STABILITY OF THE STRUCTURE OR ANY PORTION THEREOF DURING CONSTRUCTION.				
21	THE CONTRACTOR SHALL MAINTAIN A MINIMUM SAFETY DISTANCE FROM ALL EXISTING BRACING & SHORING. A SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE & FEDERAL HEALTH & SAFETY LAWS, REGULATIONS & STANDARDS.				
22	CONSTRUCTION MATERIALS SHALL BE SPREAD OUT OR PLACED ON FIRM FLOORS OR SURFACES. LOADS SHALL NOT EXCEED THE DESIGNED LOADING FOR THE SUPPORTING MEMBER.				
23	1/4" ICD CONTACT SHALL BE TAKEN KEEP PROJECT AREA FREE FROM ACCUMULATION OF WASTE MATERIALS CAUSED BY THEIR WORK.				
24	CONTRACTORS SHALL MAINTAIN, FOR THE ENTIRE DURATION OF THE PROJECT, FULL AND UNLIMITED WORKMANS COMPENSATION INSURANCE IN ACCORDANCE WITH THE LABOR CODE OF THE STATE OF CALIFORNIA. THEY SHALL ALSO CARRY PUBLIC CONTENT LIABILITY INSURANCE TO THE OWNER AND/OR CONTRACTOR TO COVER THE PROJECT'S CONSTRUCTION COMPANIES SELECTED BY THE CONTRACTOR.				
<b>DEMOLITION AND PREPARATION</b>					
1	REMOVE ALL DEBRIS FROM THE PROJECT AND DISPOSE OF IT LEGALLY IN A TIMELY FASHION.				
2	DO NOT REMOVE ANY VEGETATION EXCEPT AS NOTED ON THE DRAWINGS OR FROM OWNER OR ARCHITECT APPROVAL.				
3	CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO LOCATE AND PROTECT ANY UNDERGROUND OR CONCEALED UTILITIES. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENTAL JURISDICTION.				
4	PROTECT EXISTING UTILITIES, UNPAVED AND PROTECTED TO MEET APPLICABLE CODE REQUIREMENTS & INDUSTRY STANDARD CONSTRUCTION PROCEDURES.				
5	FORM SIZES OF TRENCHES FOR FOOTINGS AS REQUIRED TO PROVIDE FOR FIRM CONTAINMENT OF FOOTINGS AND REMOVE EXCESS MATERIAL AND STANDING WATER FROM THE TRENCHES IMMEDIATELY.				
6	SHOULD LOGS, FILL, EXPANSIVE SOIL, GROUND WATER OR OTHER HAZARDOUS CONDITIONS BE ENCOUNTERED DURING THE EXCAVATION OF THE FOOTING, THE ARCHITECT SHALL BE NOTIFIED AND ALL FOUNDATION WORK SHALL HALT UNTIL SOLUTION TO THE ISSUE IS REACHED.				
7	TRENCH OR EXCAVATIONS MORE THAN 5 FEET IN DEPTH INTO WHICH A PERSON IS DROPPED TO DESCEND SHALL HAVE ALL SAFETY EQUIPMENT INSTALLED TO THE SATISFACTION OF THE ARCHITECT PRIOR TO BUILDING COMMENCEMENT.				
8	REPAIR AND RECONSTRUCT ALL EXISTING DAMAGE TO EXISTING UTILITIES, UNPAVED AND PROTECTED TO MEET APPLICABLE CODE REQUIREMENTS & INDUSTRY STANDARD CONSTRUCTION PROCEDURES.				
9	ALL UTILITIES TRENCHES SHALL BE COMPACTED TO A MINIMUM OF 90% RELATIVE DENSITY.				
10	GRADING PERMIT REQUIRED IF VOLUME OF EARTH MOVED EXCEEDS THE MAXIMUM CUBIC YARDS ALLOWED BY THE MUNICIPAL GOVERNMENT. ANY CUTS OR FILLS DEEPER THAN 4 FEET OR HILLSIDE CUTS DEEPER THAN 2 FEET SHALL BE REINFORCED WITH FINISH GRADES SHALL BE SLOPED SO THAT SURFACE WATER DRAINS AWAY FROM THE BUILDING. (CRC R401.3 & CRC 180.4.1).				
11	ALL REQUIRED BACKFILL SHALL BE COMPACTED TO AT LEAST 90% OF THE MAXIMUM DENSITY OBTAINABLE BY ASTM D1557-12E1 (LATEST APPROVED EDITION) USING THE PROPER METHOD OF COMPACTING. REINFORCEMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS IF A SOIL REPORT IS PART OF THE CONSTRUCTION DOCUMENTS. (CRC R401.3)				
12	BACKFILL FOR ALL RETAINING WALLS SHALL BE PERVIOUS MATERIAL. BACKFILLING SHALL NOT BEGIN UNTIL THE MASONRY OR CONCRETE PARTS ARE IN PLACE AND THE SPECIFIED FINISH GRADE IS ESTABLISHED.				
13	FOR RETAINING WALLS, CONTRACTORS SHALL MAINTAIN A MINIMUM SAFETY DISTANCE FROM ALL EXISTING BRACING & SHORING. CONTRACTORS SHALL MAINTAIN, FOR THE ENTIRE DURATION OF THE PROJECT, FULL AND UNLIMITED WORKMANS COMPENSATION INSURANCE IN ACCORDANCE WITH THE LABOR CODE OF THE STATE OF CALIFORNIA. THEY SHALL ALSO CARRY PUBLIC CONTENT LIABILITY INSURANCE TO THE OWNER AND/OR CONTRACTOR TO COVER THE PROJECT'S CONSTRUCTION COMPANIES SELECTED BY THE CONTRACTOR.				
<b>FOUNDATIONS AND CONCRETE</b>					
STANDARDS					
1	2022 CALIFORNIA BUILDING CODE (CBC)	TITLE 24	PART 2	SECTION 1.4.2	
2	2022 CALIFORNIA RESIDENTIAL CODE (CRC)	TITLE 24	PART 2.5		
3	2022 CALIFORNIA ELECTRICAL CODE (CEC)	TITLE 24	PART 4		
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THE APPLICANT SHALL IMPLEMENT SITE DESIGN STORMWATER BEST MANAGEMENT PRACTICES (BMP) AND LOW IMPACT DEVELOPMENT (LID) CONCEPTS SUCH AS IMPERVIOUS AREA DISPERSION, DRAINAGE TO NATURAL VEGETATION, REDUCTION IN IMPERVIOUS SURFACES, BREAKING UP HARDSCAPE AREA, ETC. APPLICANT IS REQUIRED TO INCORPORATE THESE CONCEPTS WITH NEW CONSTRUCTION IN LIEU OF SELECTIONS A OR B.

**C - SITE DESIGN + LID CONCEPTS**

**department notes:**

**site plan notes:**

**stormwater notes:**

**site plan information:**

- BUILDING**
- B1 SURFACE WATER WILL DRAIN AWAY FROM BUILDING. THE GRADE SHALL FALL A MINIMUM OF 6" WITHIN THE FIRST 10 FEET. SECTION R401.2
  - B2 COMPLIANCE WITH THE DOCUMENTATION REQUIREMENTS OF THE 2022 ENERGY EFFICIENCY STANDARDS IS NECESSARY FOR THIS PROJECT. REGISTERED, SIGNED, AND DATED COPIES OF THE APPROPRIATE CFR, CFCR, AND CTR 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 ORDER AND DOUBLE PERMIT FEES. IT IS THE RESPONSIBILITY OF THE OWNER TO KNOW THE LOCATION OF THE PROPERTY LINES.
  - E2 ALL UTILITIES SERVING THE ADJ 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:
    - \*CUBIC YARDS CUT, \*CUBIC YARDS FILL, \*CUBIC YARDS IMPORT/EXPORT, \*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 (E.G. CONCRETE OR STUCCO WASHOUT AREAS, COVERED STORAGE AREAS FOR HAZARDOUS MATERIALS, PLACEMENT OF PORTABLE TOILETS OVER A PVIOUS SURFACE).
  - E6 NO DIRECTLY CONNECTED IMPERVIOUS AREAS (DCIA) SHALL BE ALLOWED. DCIA MEANS STORM RUNOFF GENERATED AND CONVEYED VIA IMPERVIOUS AREAS, SUCH AS CURB, 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 DESIGNATED 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:          SQ. FT.  
TOTAL AREA OF REPLACED IMPERVIOUS SURFACES:          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 ACCESS IS A FIRE ACCESS ROADWAY OR DRIVEWAY SHALL BE EQUIPPED WITH AN APPROVED SAFETY 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
  - F3 ALL GATES PROVIDING ACCESS FROM A ROAD TO A DRIVEWAY SHALL BE AT LEAST TWO FEET WIDER THAN THE WIDTH OF THE TRAFFIC LANE(S) SERVING THE GATE.
  - F4 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
  - F5 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.
  - F6 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.
  - F7 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"

**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 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 14, & 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 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.

IF A GRADING PLAN IS REQUIRED, INCORPORATE THE ENTIRE APPROVED GRADING/IMPROVEMENT PLAN (ALL SHEETS) WITH THE BUILDING PLANS.

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 EXCEPTS: 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 CIRCUMFERENCE 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.

AN ADJ PLACED CLOSER THAN 5' TO PROPERTY LINES IS REQUIRED TO PROVIDE A BOUNDARY SURVEY REPORT. CONCRETE PLACEMENT WILL NOT BE APPROVED UNTIL A BOUNDARY SURVEY SHOWING COMPLIANCE TO THE APPROVED PLANS IS PROVIDED TO THE BUILDING DIVISION. A CALIFORNIA LICENSED SURVEYOR IS REQUIRED TO COMPLETE ENCINITAS BOUNDARY LAND SURVEY FORM AND PROVIDE IT TO THE BUILDING INSPECTOR AT THE FOUNDATION INSPECTION.

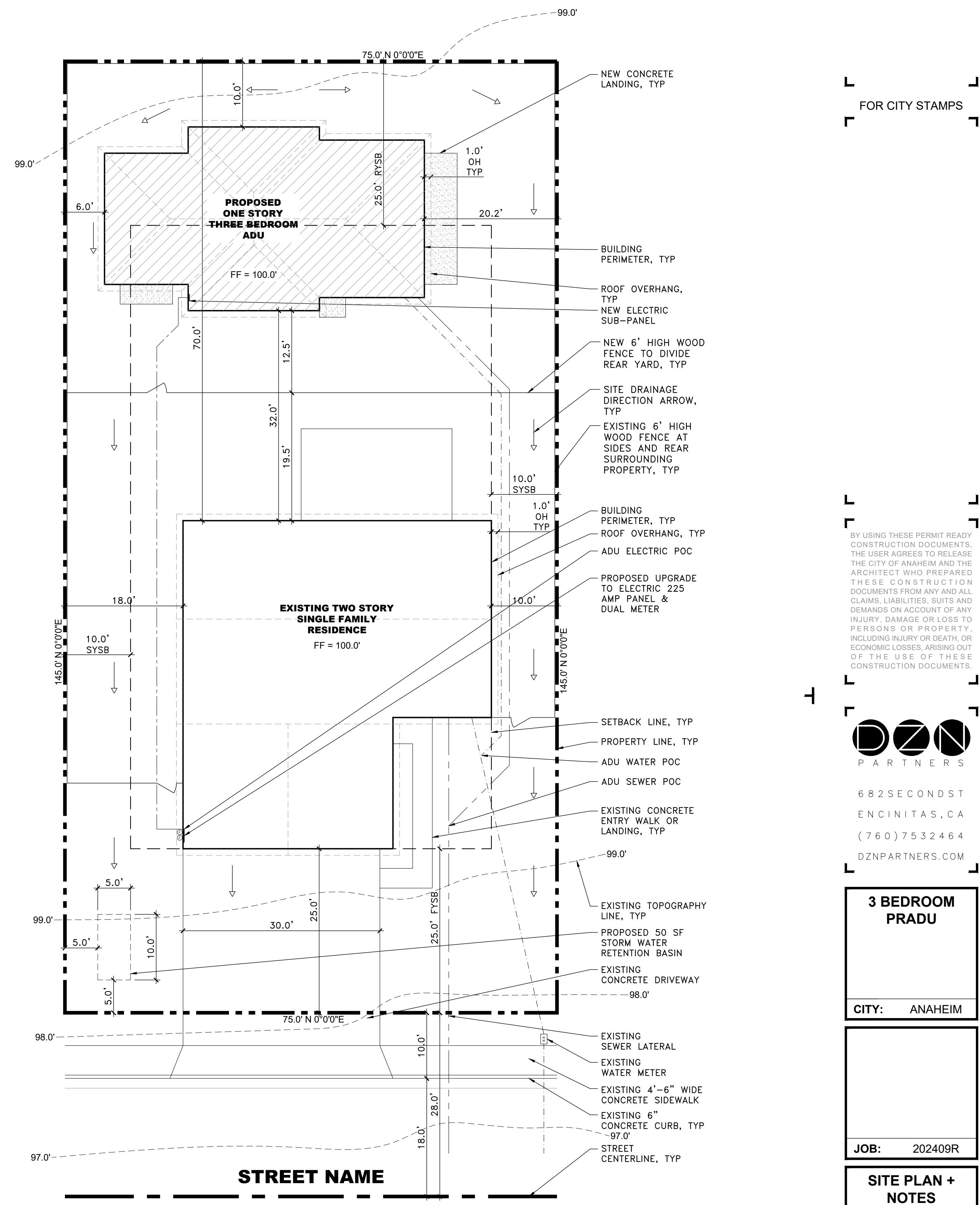
THE CITY OF ANAHEIM REQUIRES A SOILS REPORT, PER CBC SEC. 1803.5.12 WHICH REQUIRES A SOILS REPORT FOR ALL PROJECTS, WITH EXCEPTIONS GRANTED ON A CASE-BY-CASE BASIS.

THE CITY MAY EXEMPT A PROJECT FROM THE SOILS REPORT REQUIREMENTS FOR ROOM ADJACENT UNDER 500 SQUARE FEET IN ACCORDANCE WITH CBC, SEC. 1803.1.1.1, WHICH STATES THAT IF THE BUILDING DIVISION HAS KNOWLEDGE OF THE SOIL QUALITIES FOR THAT PROPERTY, THEN A REPORT IS NOT REQUIRED. THAT POLICY MAY BE APPLIED TO AN ADU UNDER 500 SQUARE FEET.

ALL INDEPENDENT STRUCTURES OUTSIDE OF A CERTIFIED PAD WILL REQUIRE A LIMITED SOILS REPORT INCLUDING DETACHED ADU. ALTERNATIVELY, A SOILS LETTER SHALL BE PREPARED THAT REPRESENTS THE SUITABILITY OF THE SITE SOILS FOR THE PROPOSED ADU, BASED ON THE SOIL ENGINEER'S KNOWLEDGE OF THE NEIGHBORING PROPERTIES. IN ADDITION TO THE ABOVE, THE BUILDING OFFICIAL MAY WAIVE THE SOILS REPORT REQUIREMENT IN CERTAIN SCENARIOS ON A CASE-BY-CASE BASIS:

- A. A SOILS REPORT OR SOILS LETTER PREPARED BY A SOILS ENGINEER THAT ADDRESSES THE SUITABILITY OF THE SITE SOIL FOR THE PROPOSED ADU IS REQUIRED BY THE CITY OF ANAHEIM.
- EXCEPTION:
  - A. STRUCTURE IS TO BE CONSTRUCTED ON A CERTIFIED PAD.
  - B. THE CITY HAS A COMPACTION REPORT ON RECORD FOR THE SITE.
  - C. THE CITY HAS A SOILS REPORT ON FILE FOR THE SITE.
  - D. OTHER CIRCUMSTANCES SUBJECT TO REVIEW AND APPROVAL BY THE BUILDING OFFICIAL ON A CASE-BY-CASE BASIS.

- ✓ CHECKLIST TO BE INCLUDED ON SITE PLAN
- ALL EXTERIOR SITE BOUNDARIES CORRECTLY SCALED & DIMENSIONED
  - NORTH ARROW
  - SCALE OF PLAN, GRAPHIC & WRITTEN
  - LEGEND OF SYMBOLS, LINES, ABBREVIATIONS, ETC. USED ON PLAN
  - SITE CONTOURS, GRADE ELEVATIONS & OTHER TOPOGRAPHIC FEATURES
  - LOCATE & DIMENSION ALL DRIVEWAYS, ACCESS ROADS, & CURB CUTS
  - ULTIMATE RIGHT OF WAY DIMENSION TO CENTERLINE OF ROAD
  - SHOW FIRE ACCESS ROADS / DRIVEWAY & MAXIMUM FIRE HOSE PULL LENGTH OF 150 FT
  - LOCATION & DIMENSIONS OF ALL EASEMENTS (ROAD, ELECTRIC, WATER, SEWER, GAS & OPEN SPACE ETC.)
  - SHOW & DIMENSION REQUIRED & PROPOSED BUILDING SETBACKS
  - LOCATION OF EXISTING & PROPOSED BUILDINGS AND STRUCTURES WITH NUMBER OF STORIES
  - SHOW & DIMENSION HORIZONTAL PROJECTIONS (EAVES, DECKS, BAY WINDOWS, ETC.)
  - DISTANCE OF ALL EXISTING & PROPOSED STRUCTURES FROM EACH OTHER & FROM PROPERTY LINES
  - LOCATION & HEIGHT OF ALL FENCES & RETAINING WALLS
  - LOCATION & SIZE OF OFF-STREET PARKING
  - LOCATION OF EXISTING & PROPOSED VEGETATION
  - LOCATION OF EXISTING & PROPOSED UTILITIES TO NEW ADU
  - LOCATION OF EXISTING & NEW UTILITIES (SEWER LATERAL WITH CLEANOUTS, WATER LINES WITH SHUT OFF, GAS LINES, ELECTRICAL OVERHEAD OR UNDERGROUND CONDUITS)
  - LOCATE & NOTE NEW SEWER LATERAL SERVING THE PROPOSED ADU. REFER TO CPC 311.1
  - ADU SEWER LINE CANNOT BE CONNECTED DIRECTLY TO THE EXISTING MAIN DWELLING UNIT EXCEPT AS SPECIFIED IN GOVERNMENT CODE SECTION 65852.2
  - LOCATION OF EXISTING AND NEW METER LOCATIONS (ELECTRICAL, GAS & WATER.)
  - SITE PLAN SIGNED BY PREPARER.
  - IF REQUIRED, INCORPORATE THE APPROVED GRADING PLAN/IMPROVEMENT PLAN WITH THE BUILDING PLANS.
  - IF REQUIRED, PROVIDE A FUEL MODIFICATION ZONE PER UNIFORM ADMINISTRATION CODE SECTION 302. SEE SHEET a0.1 FOR MORE INFORMATION.
  - LOCATION OF APPLICABLE PERMANENT SOURCE CONTROL & SITE DESIGN BMPs PER STORM WATER INTAKE FORM & STANDARD PROJECT SWMP (CITY FORM)



BY USING THESE PERMIT READY CONSTRUCTION DOCUMENTS, THE USER AGREES TO RELEASE THE CITY OF ANAHEIM 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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**3 BEDROOM PRADU**

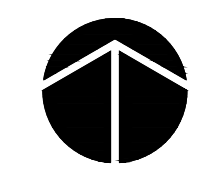
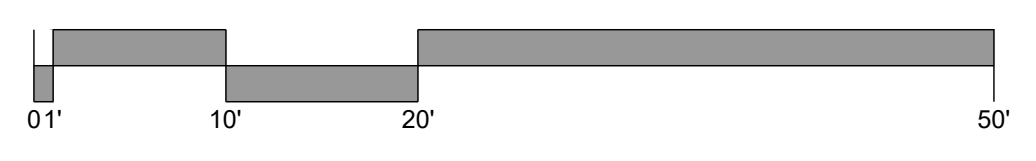
CITY: ANAHEIM

JOB: 202409R

**SITE PLAN + NOTES**

**a0.4**

**1** **sample site plan**  
SCALE: 1"=10'-0"



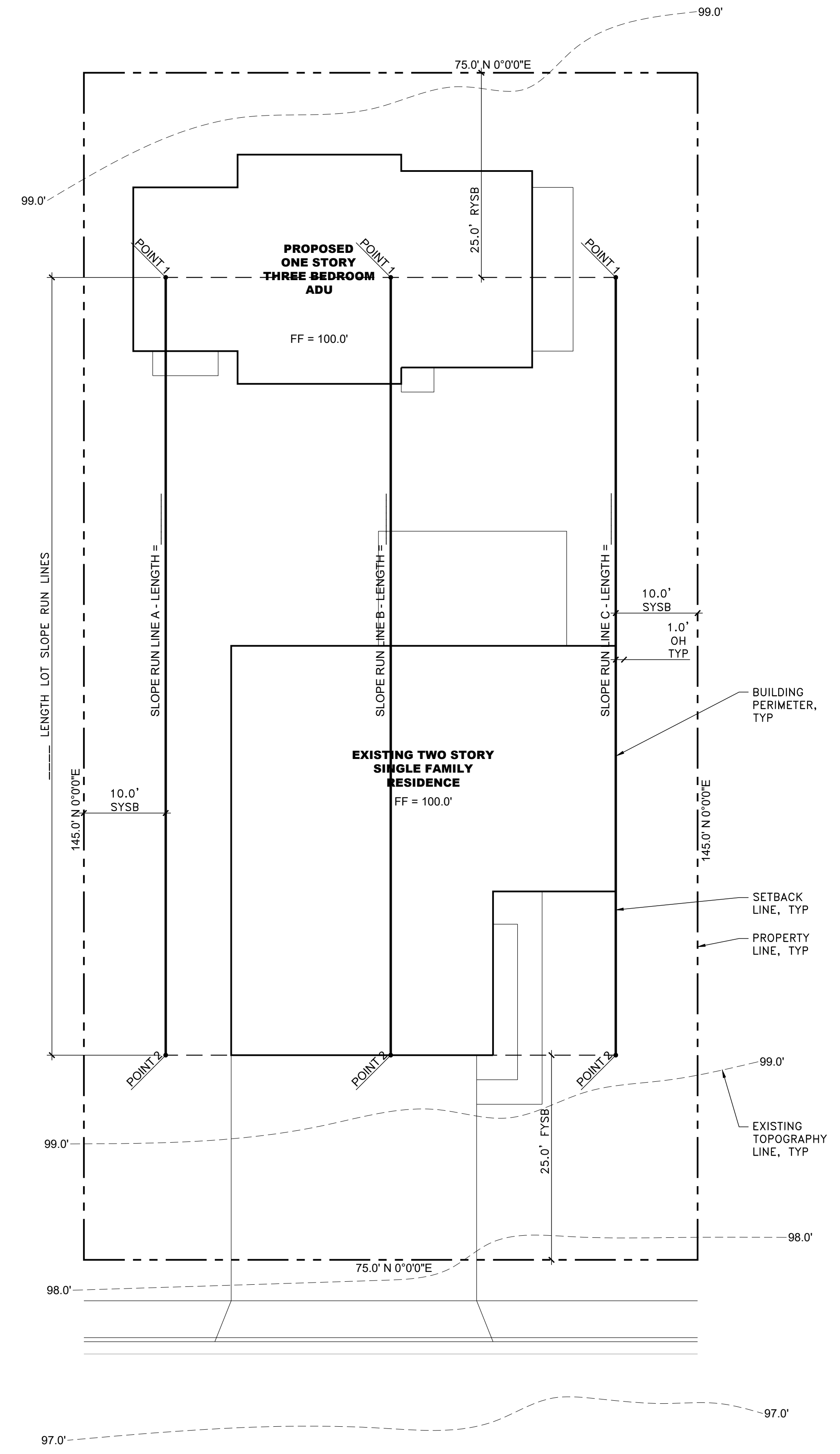
### average lot slope calcs:

A.	LENGTH LOT SLOPE RUN LINE A =	FT
	LOT SLOPE RUN LINE A ELEVATION AT POINT 1 =	FT
	LOT SLOPE RUN LINE A ELEVATION AT POINT 2 =	FT
	POINT 1 ( FT) - POINT 2 ( FT) / LENGTH ( FT) =	% SLOPE AT RUN LINE A
B.	LENGTH LOT SLOPE RUN LINE B =	FT
	LOT SLOPE RUN LINE B ELEVATION AT POINT 1 =	FT
	LOT SLOPE RUN LINE B ELEVATION AT POINT 2 =	FT
	POINT 1 ( FT) - POINT 2 ( FT) / LENGTH ( FT) =	% SLOPE AT RUN LINE B
C.	LENGTH LOT SLOPE RUN LINE C =	FT
	LOT SLOPE RUN LINE A ELEVATION AT POINT 1 =	FT
	LOT SLOPE RUN LINE A ELEVATION AT POINT 2 =	FT
	POINT 1 ( FT) - POINT 2 ( FT) / LENGTH ( FT) =	% SLOPE AT RUN LINE C
T.	RUN LINE A % + RUN LINE B % + RUN LINE C % / 3 =	% TOTAL
	AVERAGE LOT SLOPE IS	%

NOTES:

- SEE SAMPLE AVERAGE LOT SLOPE EXHIBIT ON SHEET a0.5
- FOR LOTS THAT EXCEED AN AVERAGE LOT SLOPE OF 10% ADDITIONAL HEIGHT RESTRICTIONS WILL APPLY AS PER EMC 30.16

FOR CITY STAMPS



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**3 BEDROOM PRADU**

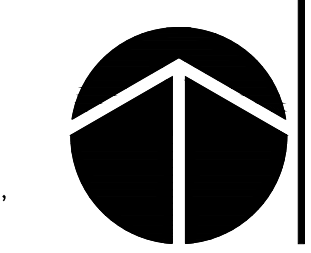
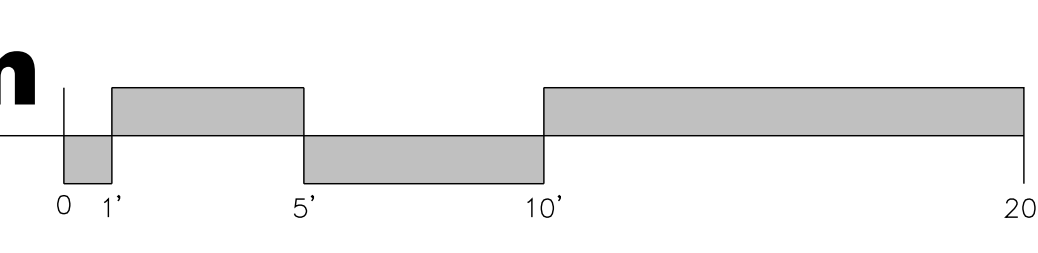
CITY: ANAHEIM

JOB: 202409R

**AVERAGE LOT SLOPE DIAGRAM**

**a0.5**

**1** sample average lot slope diagram  
 SCALE: 1"=10'-0"



**drawing:**

SYMBOL	=	DESCRIPTION	SYMBOL	=	DESCRIPTION
(N)	=	NEW	⊕	=	WALL SECTION LETTER SHEET NUMBER
(E)	=	EXISTING	⊖	=	DETAIL NUMBER SHEET NUMBER
▭	=	EXISTING WALL REMOVED	⊕	=	INTERIOR ELEVATION
▭	=	EXISTING WALL TO REMAIN	▨	=	LEVEL CHANGE
▭	=	NEW 4" WALL	101	=	ROOM OR SPACE NUMBER
▭	=	NEW 6" WALL	ROOM	=	ROOM NAME 9' CLG. FLOORING
▭	=	NEW 8" WALL	W1	=	WINDOW NUMBER
▭	=	NEW 8" CMU WALL	D1	=	DOOR NUMBER
▭	=	NEW DWELLING UNIT SEPARATION WALL	#	=	REVISION NUMBER
▭	=	BEARING WALL	1	=	KEYNOTE NUMBER
▭	=	NON-BEARING WALL AT FRAMING PLANS	SP	=	SHEAR PANEL LETTER SHEAR PANEL LENGTH
▭	=	EXISTING FOOTING	T1	=	TRUSS NUMBER
▭	=	NEW FOOTING	1	=	STRUCTURAL GRID LINE
⬆	=	NORTH ARROW	DL	=	SHEAR DRAG LINE
+ 100.0	=	NEW POINT ELEVATION	P-1	=	PAD FOOTING
+ 100.0	=	EXISTING POINT ELEVATION	⊗	=	POST
— 100.0	=	NEW CONTOUR	⊙	=	HOLD DOWN
— 100.0	=	EXISTING CONTOUR	▭	=	FACTORY BUILT SHEAR PANEL
▭	=	PROPERTY LINE	→	=	FLOOR JOISTS
▭	=	CENTER LINE	▷	=	CEILING JOISTS
▭	=	SET BACK LINE	▷	=	RAFTER OR TRUSS
⊕	=	FLOOR MATERIAL CHANGE		=	
⊕	=	BUILDING SECTION LETTER SHEET NUMBER		=	

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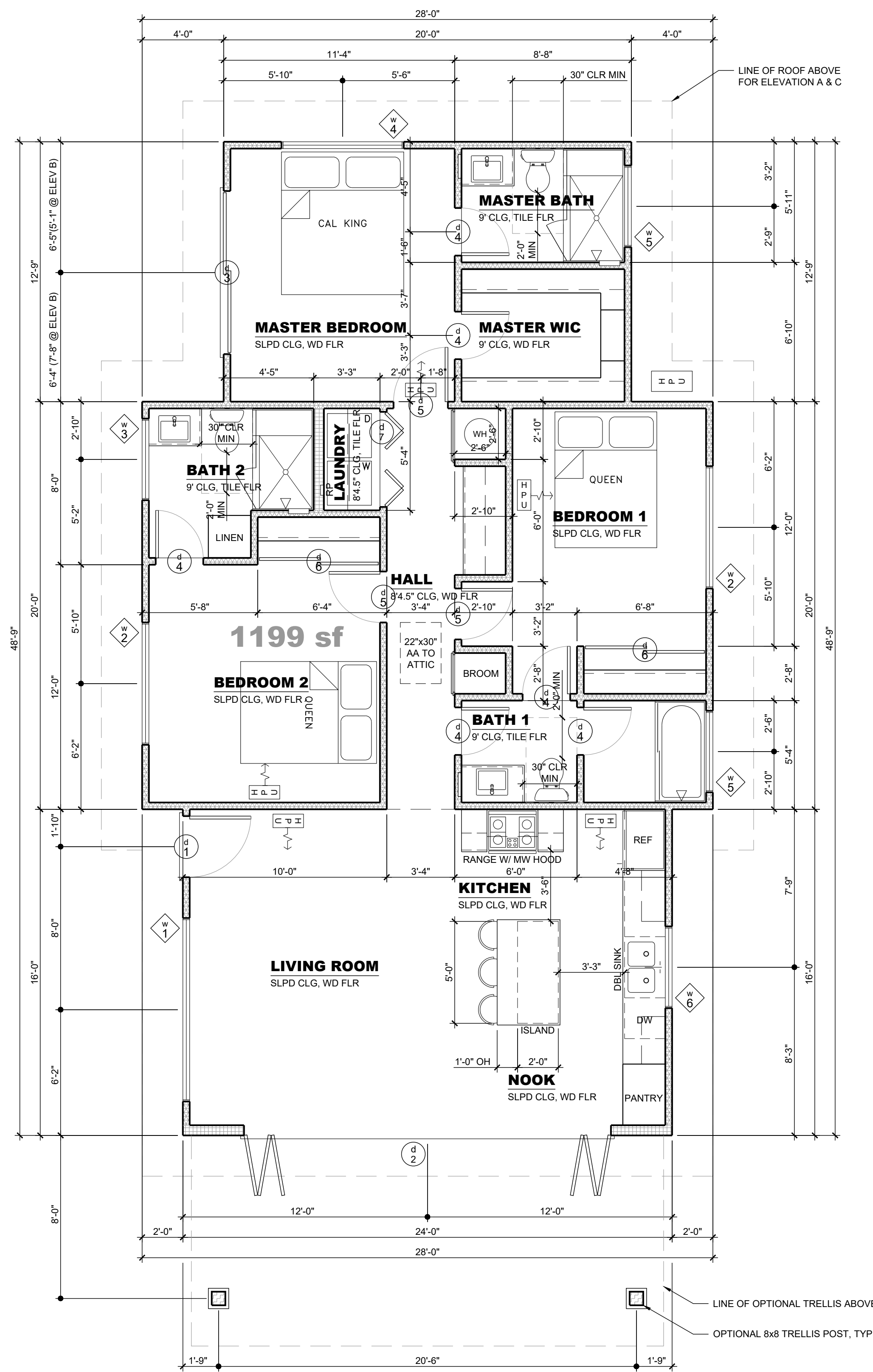
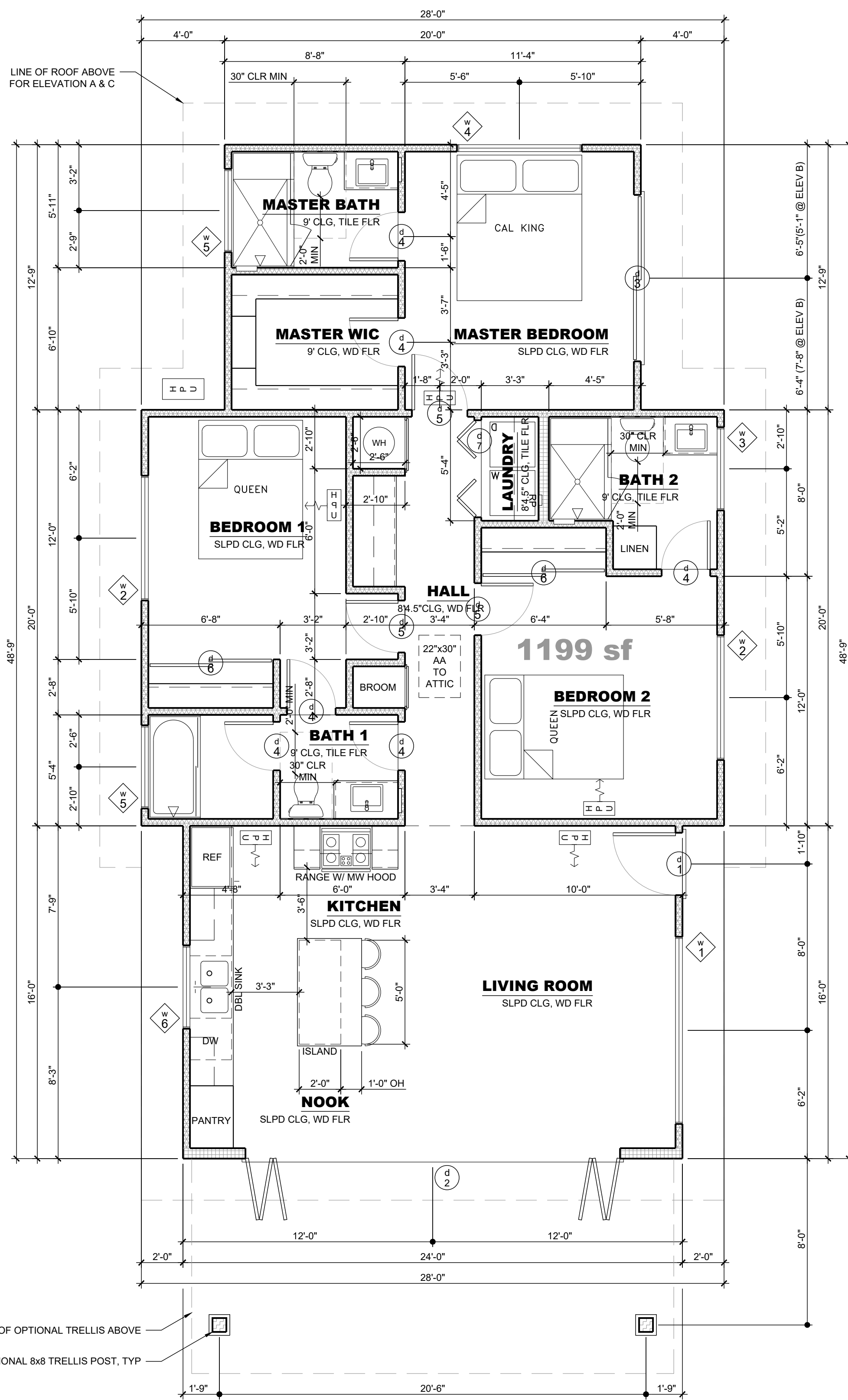
**3 BEDROOM PRADU**

CITY: ANAHEIM

JOB: 202409R

**FLOOR PLAN + REVERSE FLOOR PLAN**

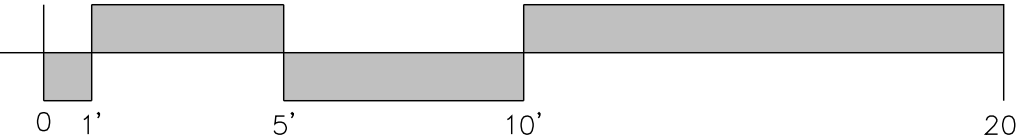
**a1.0**



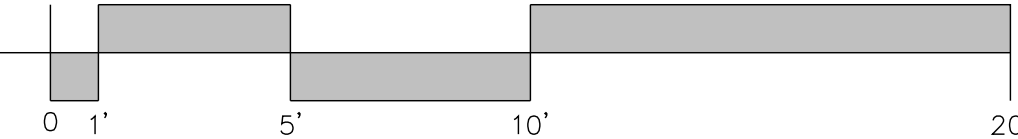
**floor plan notes:**

- SEE LEGENDS TO THE LEFT FOR SYMBOLS RELATING TO THE FLOOR PLAN.
- SEE SHEET a0.1 FOR SCHEDULES RELATING TO THE FLOOR PLAN.
- THE KITCHEN SHALL HAVE UPPER CABINETS, BASE CABINETS, AND COUNTERTOPS AS DEPICTED ON THIS FLOOR PLAN AND IN THE INTERIOR ELEVATIONS.
  - 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 MIRROR 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/SOWER COMBINATIONS
    - BATHTUB SHALL BE PORCELAIN OVER CAST IRON.
    - PROVIDE FULL HEIGHT TILE WAINSCOT ON WALLS WITHIN TUB AREA.
    - PROVIDE SLIDING CLEAR TEMPERED GLASS TUB/SOWER 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.
- CLOSETS SHALL HAVE A SHELF AND POLE AS SHOWN ON THE FLOOR PLAN.

**1 reverse floor plan**  
SCALE: 1/4" = 1'-0"



**2 floor plan**  
SCALE: 1/4" = 1'-0"





# photovoltaic requirements:

2022 CALIFORNIA ENERGY CODE SECTION 150.1(c)14:  
 ALL LOW-RISE RESIDENTIAL BUILDINGS SHALL HAVE A PHOTOVOLTAIC (PV) SYSTEM MEETING THE MINIMUM QUALIFICATION REQUIREMENTS AS SPECIFIED IN JOINT APPENDIX JA11, WITH ANNUAL ELECTRICAL OUTPUT EQUAL TO OR GREATER THAN THE DWELLING'S ANNUAL ELECTRICAL USAGE AS DETERMINED BY EQUATION 150.1-C:  

$$\text{EQUATION 150.1-C}$$

$$\text{ANNUAL PHOTOVOLTAIC ELECTRICAL OUTPUT}$$

$$kW_{PV} = (CFA \times A) / 1000 + (NDwell \times B)$$

WHERE:  
 $kW_{PV}$  = KWDC SIZE OF THE PV SYSTEM  
 CFA = CONDITIONED FLOOR AREA  
 NDwell = NUMBER OF DWELLING UNITS  
 A = ADJUSTMENT FACTOR FROM TABLE 150.1-C  
 B = DWELLING ADJUSTMENT FACTOR FROM TABLE 150.1-C

EXCEPTION 1 TO SECTION 150.1(C)14:  
 NO PV SYSTEM IS REQUIRED IF THE EFFECTIVE ANNUAL SOLAR ACCESS IS RESTRICTED TO LESS THAN 80 CONTIGUOUS SQUARE FEET BY SHADING FROM EXISTING PERMANENT NATURAL OR MANMADE BARRIERS EXTERNAL TO THE DWELLING, INCLUDING BUT NOT LIMITED TO TREES, HILLS, AND ADJACENT STRUCTURES. THE EFFECTIVE ANNUAL SOLAR ACCESS SHALL BE 70 PERCENT OR GREATER OF THE OUTPUT OF AN UNSHADED PV ARRAY ON AN ANNUAL BASIS.

EXCEPTION 2 TO SECTION 150.1(C)14:  
 IN CLIMATE ZONE 15, THE PV SYSTEM SIZE SHALL BE THE SMALLER OF A SIZE THAT CAN BE ACCOMMODATED BY THE EFFECTIVE ANNUAL SOLAR ACCESS OR A PV SYSTEM SIZE REQUIRED BY THE EQUATION 150.1-C, BUT NO LESS THAN 1.5 WATT DC PER SQUARE FOOT OF CONDITIONED FLOOR AREA.

EXCEPTION 3 TO SECTION 150.1(C)14:  
 IN ALL CLIMATE ZONES, FOR DWELLING UNITS WITH TWO HABITABLE STORIES, THE PV SYSTEM SIZE SHALL BE THE SMALLER OF A SIZE THAT CAN BE ACCOMMODATED BY THE EFFECTIVE ANNUAL SOLAR ACCESS OR A PV SYSTEM SIZE REQUIRED BY THE EQUATION 150.1-C, BUT NO LESS THAN 1.0 WATT DC PER SQUARE FOOT OF CONDITIONED FLOOR AREA.

EXCEPTION 4 TO SECTION 150.1(C)14:  
 IN ALL CLIMATE ZONES, FOR LOW-RISE RESIDENTIAL DWELLINGS WITH THREE HABITABLE STORIES AND SINGLE-FAMILY DWELLINGS WITH THREE OR MORE HABITABLE STORIES, THE PV SYSTEM SIZE SHALL BE THE SMALLER OF A SIZE THAT CAN BE ACCOMMODATED BY THE EFFECTIVE ANNUAL SOLAR ACCESS OR A PV SYSTEM SIZE REQUIRED BY THE EQUATION 150.1-C, BUT NO LESS THAN 0.8 WATT DC PER SQUARE FOOT OF CONDITIONED FLOOR AREA.

EXCEPTION 5 TO SECTION 150.1(C)14:  
 FOR A DWELLING UNIT PLAN THAT IS APPROVED BY THE PLANNING DEPARTMENT PRIOR TO JANUARY 1, 2020 WITH AVAILABLE SOLAR READY ZONE BETWEEN 80 AND 200 SQUARE FEET, THE PV SYSTEM SIZE IS LIMITED TO THE LESSER OF THE SIZE THAT CAN BE ACCOMMODATED BY THE EFFECTIVE ANNUAL SOLAR ACCESS OR A SIZE THAT IS REQUIRED BY THE EQUATION 150.1-C.

EXCEPTION 6 TO SECTION 150.1(C)14:  
 PV SYSTEM SIZES FROM EQUATION 150.1-C MAY BE REDUCED BY 25 PERCENT IF INSTALLED IN CONJUNCTION WITH A BATTERY STORAGE SYSTEM. THE BATTERY STORAGE SYSTEM SHALL MEET THE QUALIFICATION REQUIREMENTS SPECIFIED IN JOINT APPENDIX JA12 AND HAVE A MINIMUM CAPACITY OF 7.5 KWH.

# residential ventilation requirements:

- KITCHENS REQUIRE EXHAUST FANS WITH A MINIMUM 100 CFM DUCTED TO THE EXTERIOR. DETAIL COMPLIANCE BY INCLUDING A COMPLYING EXHAUST FAN OR A DUCTED RANGE HOOD TO THE EXTERIOR. 3 SONES MAXIMUM.
- EACH BATHROOM CONTAINING A BATHTUB, SHOWER OR TUB/SHOWER COMBINATION SHALL BE MECHANICALLY VENTILATED FOR PURPOSES OF HUMIDITY CONTROL IN ACCORDANCE WITH THE CALIFORNIA MECHANICAL CODE, CHAPTER 4; AND THE CALIFORNIA GREEN BUILDING STANDARDS CODE, CHAPTER 4, DIVISION 4.5.
- BATHROOMS REQUIRE EXHAUST FANS (MINIMUM 50 CFM SWITCHED OR 20 CM CONTINUOUS) TO BE DUCTED TO THE EXTERIOR. A BATHROOM IS DEFINED AS A ROOM WITH A BATHTUB, SHOWER, OR SPA OR SOME SIMILAR SOURCE OF MOISTURE.
- RESIDENTIAL BATHROOM EXHAUST FANS SHALL BE ENERGY STAR RATED AND SHALL BE CONTROL BY A HUMIDISTAT CAPABLE OF AN ADJUSTMENT BETWEEN 50 AND 80% HUMIDITY. CALGREEN 4.506.1. EXCEPTION: CONTROL BY A HUMIDISTAT IS NOT REQUIRED IF THE BATHROOM EXHAUST FAN IS ALSO THE DWELLING WHOLE HOUSE VENTILATION. A) ALL FANS INSTALLED TO MEET ALL OF THE PRECEDING VENTILATION REQUIREMENTS MUST BE SPECIFIED AT A NOISE RATING OF A MAXIMUM 1 "SONE" (CONTINUOUS USE) OR 3 "SONE" (INTERMITTENT).
- EXHAUST DUCT SIZE, LENGTH AND OUTLET LOCATION FOR FANS AND HOODS TO BE NOTED ON THE PLANS.

# electric:

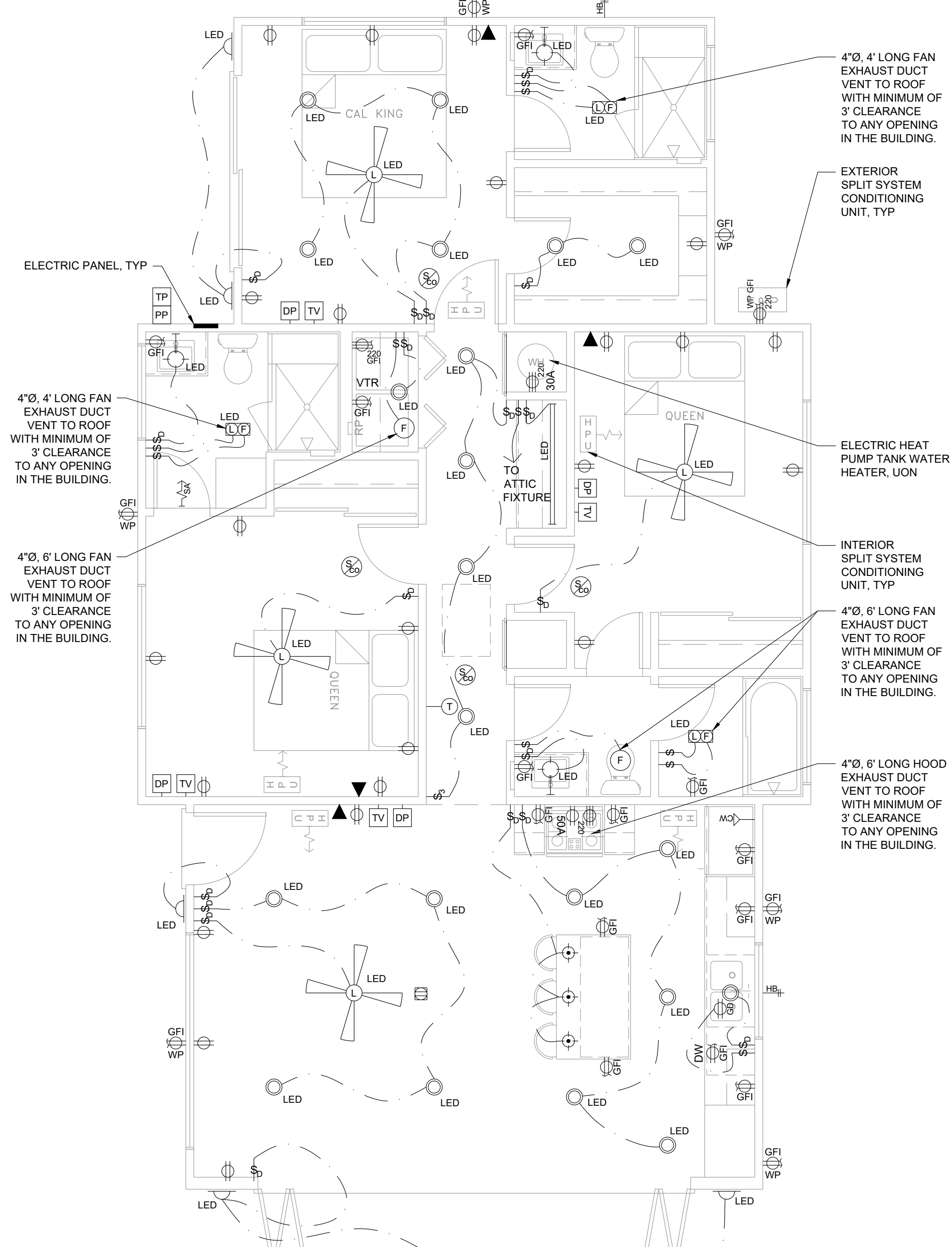
- ✓ SELECTION
- NEW METER WITH \_\_\_\_\_ AMP PANEL
- SUBPANEL \_\_\_\_\_ AMP TO EXISTING \_\_\_\_\_ AMP MAIN PANEL
- DISTANCE TO CONNECTION = \_\_\_\_\_ FEET
- CONTACT SDG&E REGARDING ELECTRIC SERVICE TO THIS DETACHED ADU. ANY EXISTING SERVICE UPGRADE OR NEW SERVICE FOR THE ADU WILL REQUIRE A SEPARATE PERMIT FROM THE CITY OF ENCINITAS.

SINGLE FAMILY DWELLING ELECTRICAL SERVICE LOAD CALCULATION	
OPTIONAL METHOD NEC 220-30	
As an alternative method, the STANDARD METHOD, found in ARTICLE 220 of the National Electric Code, may be used	
1. GENERAL LIGHTING LOADS	
Dwelling 1199	90 ft. x 3 VA = 2700 VA
Small appliance loads - 220.16(b) 1500 VA x 2 circuits =	3000 VA
Laundry load - 220.16(d) 1500 VA x 1 circuit =	1500 VA
General Lighting Total	8100 VA
2. COOKING EQUIPMENT LOADS - Nameplate Value	
Range = 3000 VA =	5000 VA
Cooktop = VA =	1500 VA
Oven(s) = VA =	4500 VA
Cooking Equipment Total	5000 VA
3. ELECTRIC DRYER 220-18 (Nameplate, 5000 VA minimum)	Dryer Total 5000 VA
4. FIXED APPLIANCE LOADS 230-30(b)3	
Dishwasher = 1500 VA	
Disposal = 1000 VA	
Compressor = VA	
Water Heater = 4500 VA	
Hydromassage Bathtub = VA	
Microwave Oven = 1500 VA	
Built-in Vacuum = VA	
Fixed Appliance Total	8500 VA
5. OPTIONAL SUBTOTAL (Add all of the above totals)	28600 VA
6. APPLYING DEMAND FACTORS - TABLE 220-30	
Optional Subtotal (from line 5) { First 10,000 VA x 100% =	10,000 VA
Remaining 18600 VA x 40% =	7440 VA
7. HEATING OR AC LOAD - TABLE 220-30	
Larger of the Heating or AC Load =	10000 VA
8. OPTIONAL LOADS TOTAL (Add totals from lines 6 and 7) =	28640 VA
9. MINIMUM SERVICE SIZE = $\frac{\text{Optional Loads Total}}{80 \text{ Volt}}$	111 Amperes

(Please put total on front of card under Computed Load)

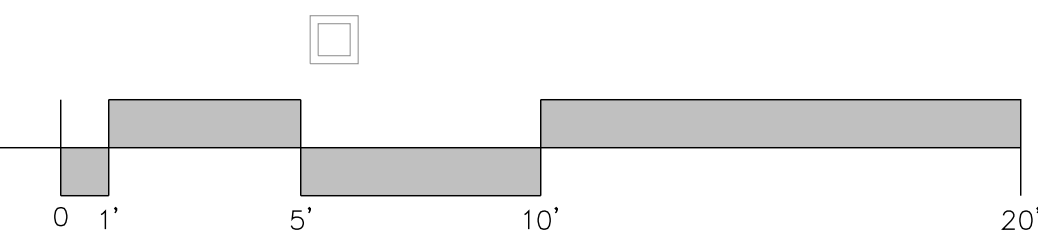
# utility plan notes:

- SEE LEGENDS BELOW FOR SYMBOLS RELATING TO THE UTILITY PLAN.
- SEE SHEET #0.1 FOR SCHEDULES RELATING TO THE UTILITY PLAN.
- RECEPTACLE OUTLET LOCATION PER NEC ARTICLE 210.52.
- 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.
- 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)).
- TAMPER RESISTANT RECEPTACLES ARE REQUIRED FOR ALL LOCATIONS DESCRIBED IN 210.52 (IE ALL RECEPTACLES IN A DWELLING).
- WEATHER RESISTANT TYPE FOR RECEPTACLES INSTALLED IN DAMP OR WET LOCATIONS.
- 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.
- OUTLETS MUST BE WITHIN 6FT OF ANY OPENING AND NOT TO EXCEED 12FT APART. ANY ISOLATED WALL 2FT OR WIDER TO HAVE OUTLET(S).
- ALL EXTERIOR LIGHTING SHALL BE HIGH EFFICACY, OAE
- RECESSED LIGHTS SHOWN IN SLOPED CEILINGS SHALL BE A MODEL DESIGNED TO PROVIDE A PERPENDICULAR LIGHT SOURCE IN A SLOPED CEILING.
- PROVIDE UFER GROUND AT ELECTRIC SERVICE LOCATION IN FOUNDATION. GROUND SHALL BE A 20' LONG #4 REINFORCING BAR, OAE.
- 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. (CRC §R314.6)
- 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.
- 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.
- ALL HOT WATER PIPING SIZED 1/2" OR LARGER IS REQUIRED TO BE INSULATED AS FOLLOWS: 1" PIPE SIZE OR LESS: 1" THICK INSULATION. LARGER PIPE SIZES REQUIRE 1 1/2" THICK INSULATION. NOTE: IN ADDITION, THE 1/2" SIZE HOT WATER PIPE TO THE KITCHEN SINK IS REQUIRED TO BE INSULATED. ES 150.0(J)2
- SEE T24 DOCUMENTATION SHEET FOR MORE INFORMATION ON WATER HEATING, SPACE HEATING, AND COOLING EQUIPMENT SPECIFICATIONS.
- 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
- 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.
- 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.



# 1 utility plan

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



electrical:		electrical:		electrical:		plumbing:		plumbing:		plumbing:		mechanical:		mechanical:		media+safety:		media+safety:	
SYMBOL =	DESCRIPTION	SYMBOL =	DESCRIPTION	SYMBOL =	DESCRIPTION	SYMBOL =	DESCRIPTION	SYMBOL =	DESCRIPTION	SYMBOL =	DESCRIPTION	SYMBOL =	DESCRIPTION	SYMBOL =	DESCRIPTION	SYMBOL =	DESCRIPTION	SYMBOL =	DESCRIPTION
LED	= LIGHT EMITTING DIODE	\$D	= DIMMER SWITCH	LHF	= LED LIGHT/HEAT LAMP/FAN COMBO	WM	= WATER METER	FS	= FIRE SPRINKLER	TM	= TOILET - WALL MOUNT	SP	= SPLIT SYSTEM HEAT PUMP EXTERIOR UNIT	RA	= RIGID SUPPLY AIR DUCT	ALARM	= ALARM SOURCE	DB	= DOORBELL CHIMES
E	= ELECTRICAL METER	\$K	= KEY OPERATED SWITCH	CS	= CEILING SURFACE MOUNT FIXTURE	FM	= FIRE WATER METER	SD	= ROUND SHOWER DRAIN	F	= FAUCET	SP	= SPLIT SYSTEM HEAT PUMP INTERIOR UNIT	RD	= RIGID RETURN AIR DUCT	AUDIO	= AUDIO SOURCE	DB	= DOORBELL TRANSFORMER
I	= ELECTRICAL PANEL	\$WP	= WEATHERPROOF SWITCH	WM	= WALL MOUNTED FIXTURE	WH	= TANK WATER HEATER	LD	= LINEAR SHOWER DRAIN	PS	= PEDESTAL SINK	T	= THERMOSTAT	FS	= FLEXIBLE SUPPLY AIR DUCT	DATA	= DATA SOURCE	A	= ALARM SYSTEM PAD
DO	= DUPLEX OUTLET	\$VS	= VACANCY SENSOR SWITCH	HF	= HANGING FIXTURE	HPWH	= ELECTRIC HEAT PUMP WATER HEATER	CO	= CLEAN OUT	BS	= BATH SINK	SA	= SUPPLY AIR WALL REGISTER	FE	= FIRE EXTINGUISHER	PP	= PHONE PANEL	CO	= CARBON MONOXIDE DETECTOR
HO	= HALF HOT DUPLEX OUTLET	D	= DOOR OPERATED SWITCH	WS	= WALL SCONCE	WH	= TANKLESS WATER HEATER	FD	= FLOOR DRAIN	B	= BATHTUB	SC	= SUPPLY AIR CEILING REGISTER	VM	= VACUUM MOTOR	TP	= TELEVISION PANEL	S	= SMOKE DETECTOR
QO	= QUADRUPLEX OUTLET	F	= VENT FAN	CF	= RECESSED CEILING FIXTURE	WC	= WATER CONDITIONER	FS	= FLOOR SINK	FB	= FREESTANDING BATHTUB	FR	= SUPPLY AIR FLOOR REGISTER	V	= VACUUM OUTLET	VP	= VIDEO PANEL	SCD	= SMOKE & CARBON MONOXIDE DETECTOR
GFI	= GROUND FORCE OUTLET	FACQ	= INDOOR AIR QUALITY FAN	CFW	= RECESSED CEILING WALL WASH FIXTURE	WSO	= WATER SERVICE SHUTOFF	DR	= DECK OR ROOF DRAIN	BHS	= BAR OR HAND SINK	RA	= RETURN AIR WALL REGISTER	DV	= DRYER VENT	TV	= CABLE TELEVISION JACK	EXIT	= ILLUMINATED EXIT SIGN
WP	= WATERPROOF GFI OUTLET	FVH	= WHOLE HOUSE FAN	M	= RECESSED MOISTURE RESISTANT CEILING FIXTURE	OS	= OVERFLOW SCUPPER	OS	= OVERFLOW SCUPPER	S	= SINGLE SINK	RC	= RETURN AIR CEILING REGISTER	FV	= FAN VENT	DP	= DATAPORT NETWORK JACK	EXIT	= ILLUMINATED EXIT SIGN
IO	= IN-FLOOR OUTLET	H	= HEAT LAMP	F	= FLOOD FIXTURE	CW	= COLD WATER VALVE	DR	= DECK OR ROOF DRAIN + OVERFLOW SCUPPER	DS	= DOUBLE SINK	RA	= RETURN AIR FLOOR REGISTER	RV	= RANGE / OVEN VENT	TR	= TELEPHONE JACK	SP	= SPEAKER
GD	= GARBAGE DISPOSAL OUTLET	J	= JUNCTION BOX	TL	= TRACK LIGHT FIXTURE	RP	= RECESSED PLUMBING	DS	= DOWNSPOUT	DS	= DOWNSPOUT	TS	= TRIPLE SINK	AP	= APRON SINK	TR	= TELEPHONE JACK	VC	= VIDEO CAMERA
DG	= DEDICATED GROUND OUTLET	L	= LIGHT	FT	= FLOURESCENT TUBE FIXTURE	SH	= SHOWERHEAD	UR	= URINAL	UR	= URINAL	TS	= TRIPLE SINK	AP	= APRON SINK	TR	= TELEPHONE JACK	VC	= VIDEO CAMERA
220	= 220V OUTLET	M	= MOTION DETECTOR	UL	= LED UNDERCABINET FIXTURE	OV	= OVERHEAD SHOWERHEAD	BI	= BIDET	BI	= BIDET	TS	= TRIPLE SINK	AP	= APRON SINK	TR	= TELEPHONE JACK	VC	= VIDEO CAMERA
WP GFI 220	= WATERPROOF 220V OUTLET	P	= PHOTOELECTRIC SENSOR	CFWL	= CEILING FAN WITH LIGHT	AS	= ADJUSTABLE SHOWERHEAD	FM	= FLOOR MOUNT	FM	= FLOOR MOUNT	TS	= TRIPLE SINK	AP	= APRON SINK	TR	= TELEPHONE JACK	VC	= VIDEO CAMERA
\$	= 1 WAY SWITCH	HXF	= HEAT LAMP/FAN COMBO	SL	= STEP LIGHT														
\$3	= 3 WAY SWITCH	LXF	= LED LIGHT/FAN COMBO	GL	= GRID CEILING LIGHT														

PREPARER SIGNATURE

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**3 BEDROOM PRADU**

CITY: ANAHEIM

JOB: 202409R

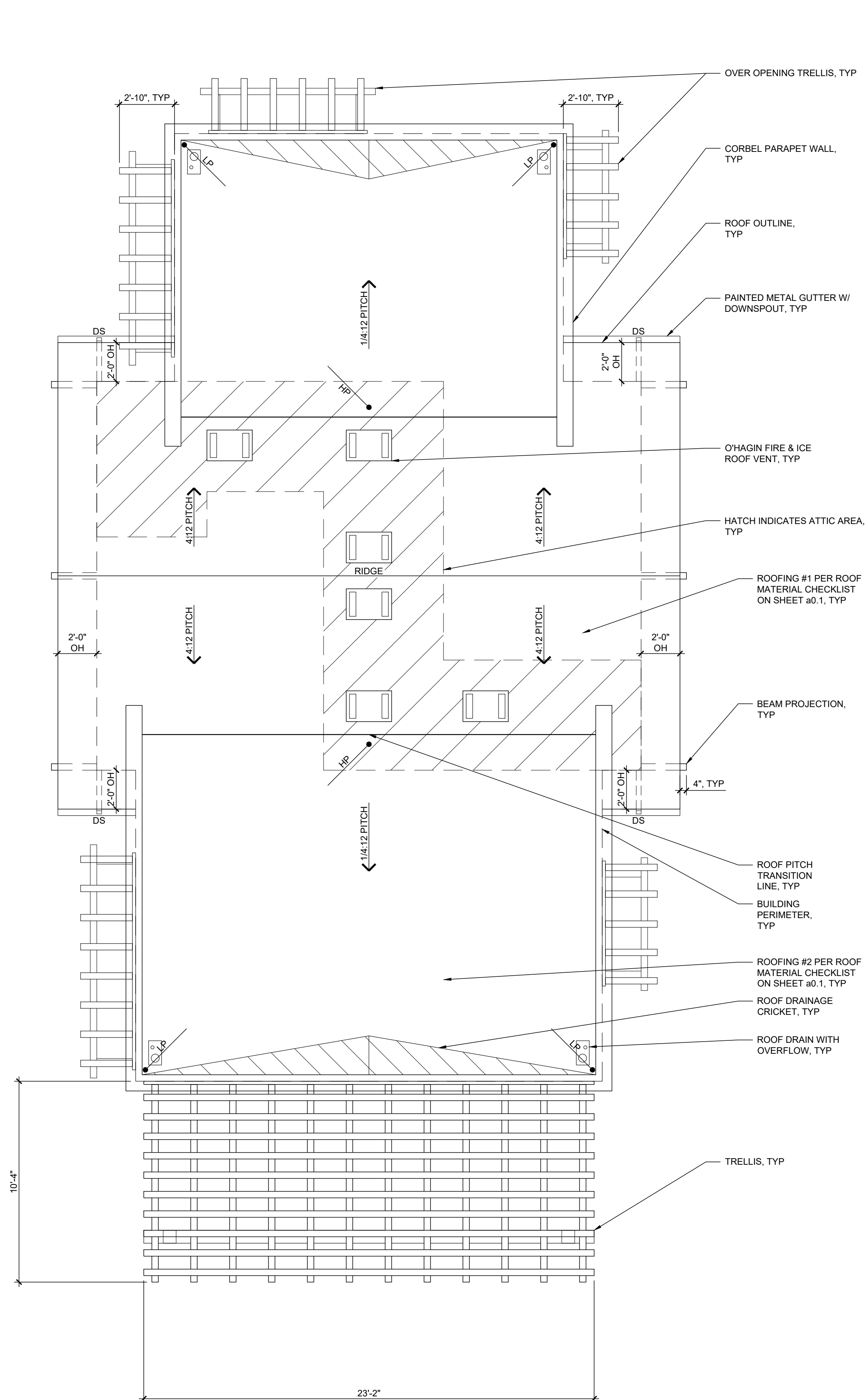
**UTILITY PLAN**

**a2.0**

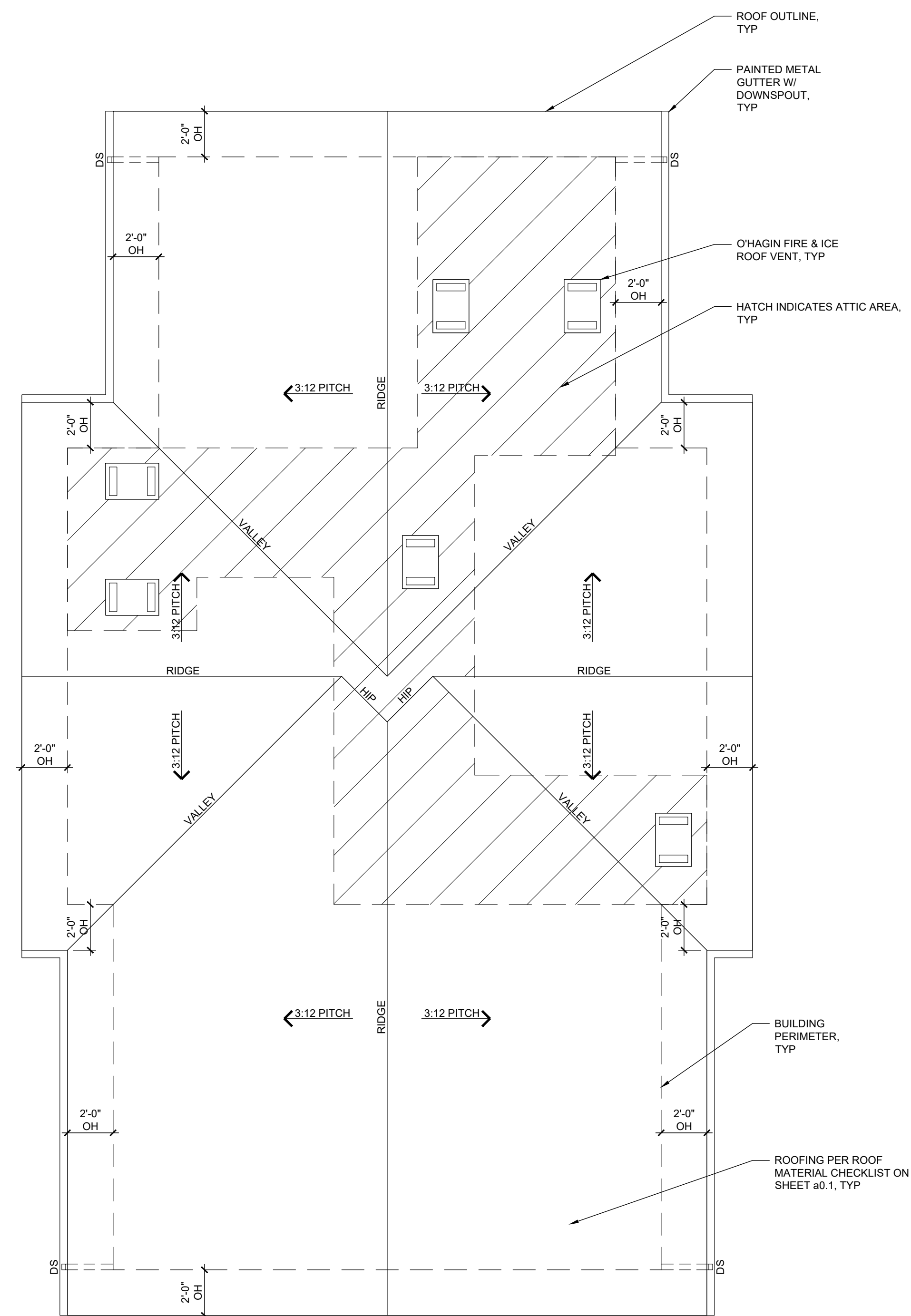
roof plan notes:

1. ALL ROOFING SHALL BE CLASS A RATED.
2. ROOFING SELECTIONS PER ROOF MATERIAL CHECKLIST ON SHEET #0.1.
3. ATTIC PROPOSED OF 373 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
5. WHERE NO ATTIC IS PROPOSED DETAILS 86, 87 & 88/60.4 PROVIDE INSULATION ALTERNATIVES.

FOR CITY STAMPS



**1** roof plan b  
SCALE: 1/4" = 1'-0"



**2** roof plan a  
SCALE: 1/4" = 1'-0"

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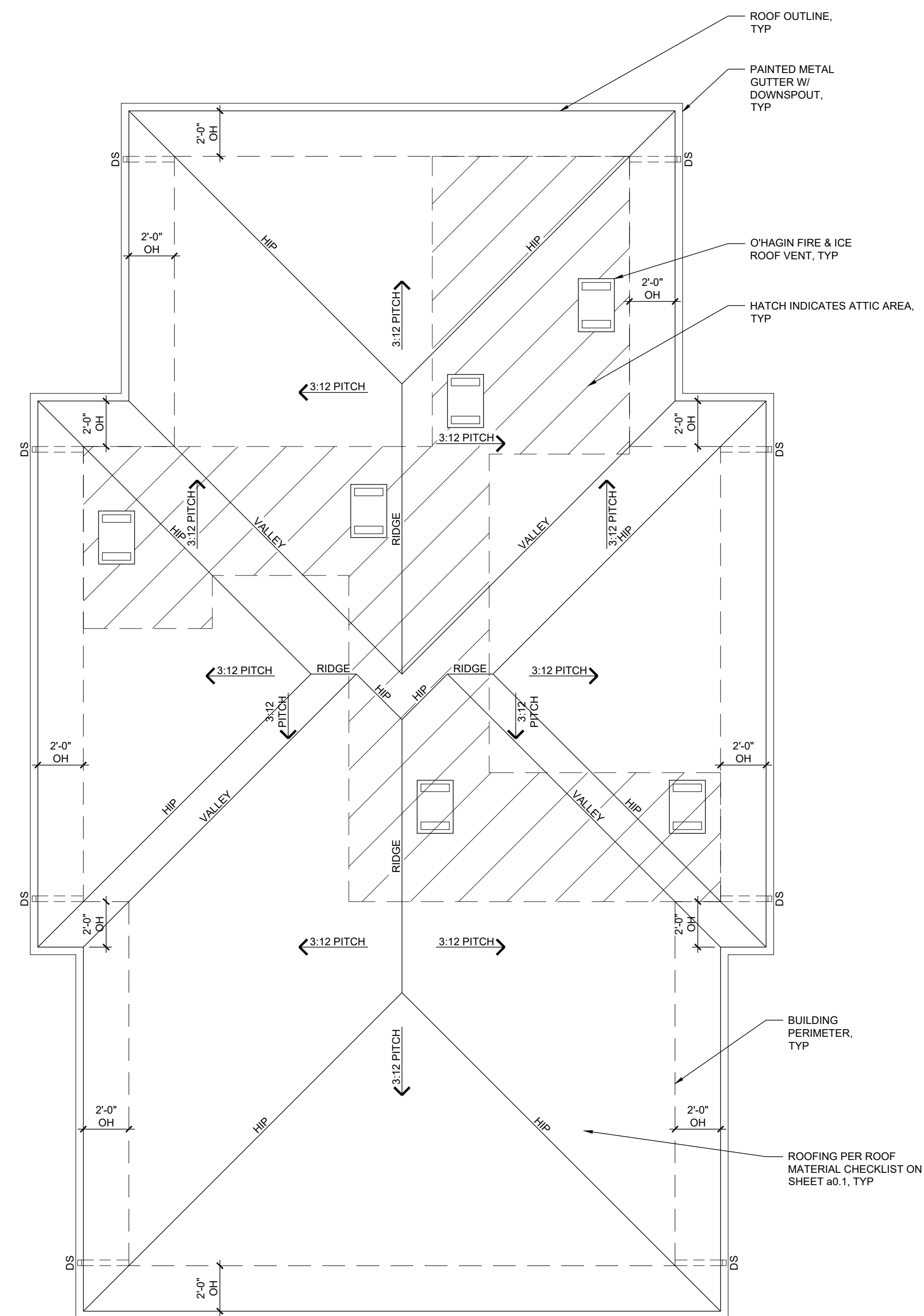
ROOF PLAN A + ROOF PLAN B

**a3.0**

roof plan notes:

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3 BEDROOM PRADU

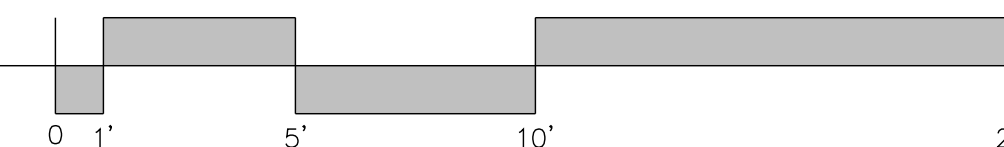
CITY: ANAHEIM

JOB: 202409R

ROOF PLAN C

a3.1

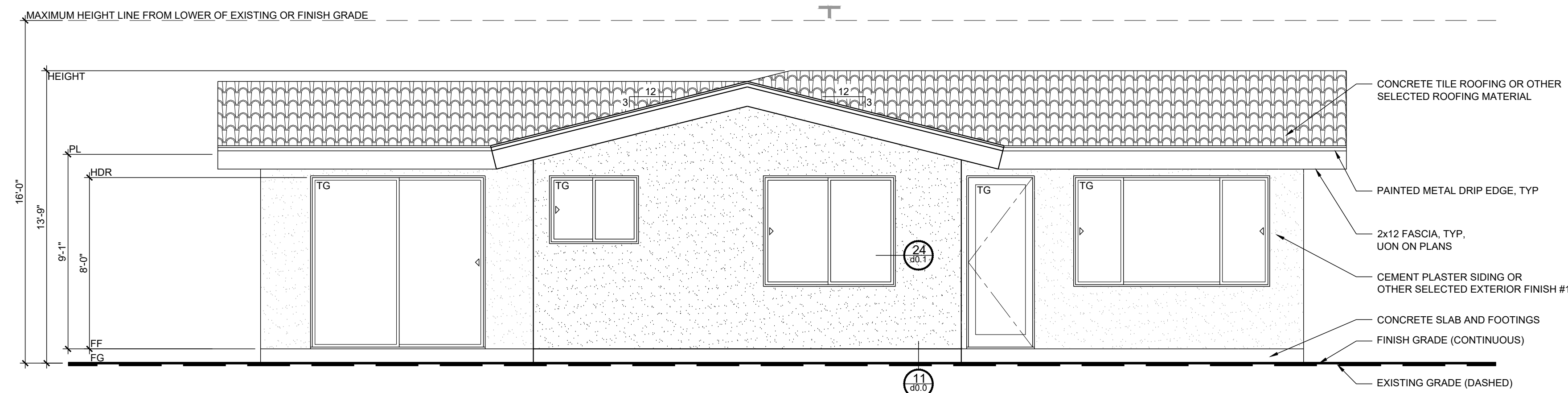
**3** roof plan c  
SCALE: 1/4" = 1'-0"



**elevation + section notes:**

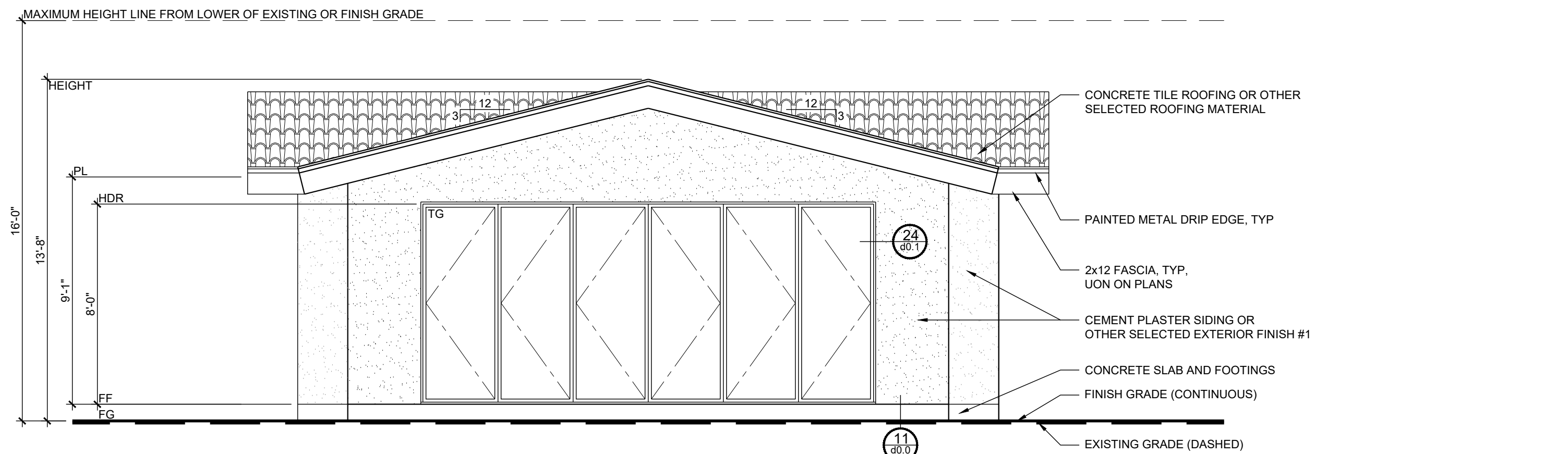
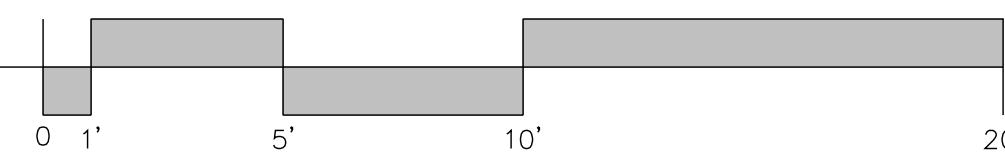
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4. IF THE AVERAGE LOT SLOPE EXCEEDS 10% (NOT INCLUDING RR ZONED LOTS) THAN THE ADDITIONAL SLOPED LOT HEIGHT LIMITATION LINES SHALL BE SHOWN AS WELL.

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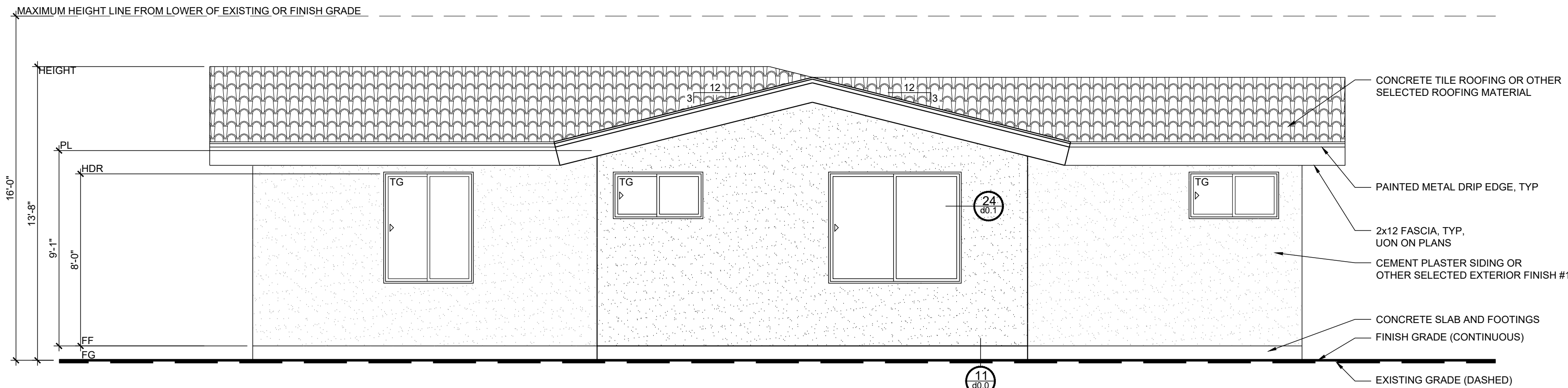
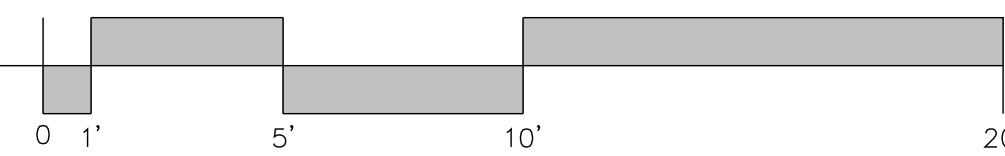
**1 front elevation a**

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



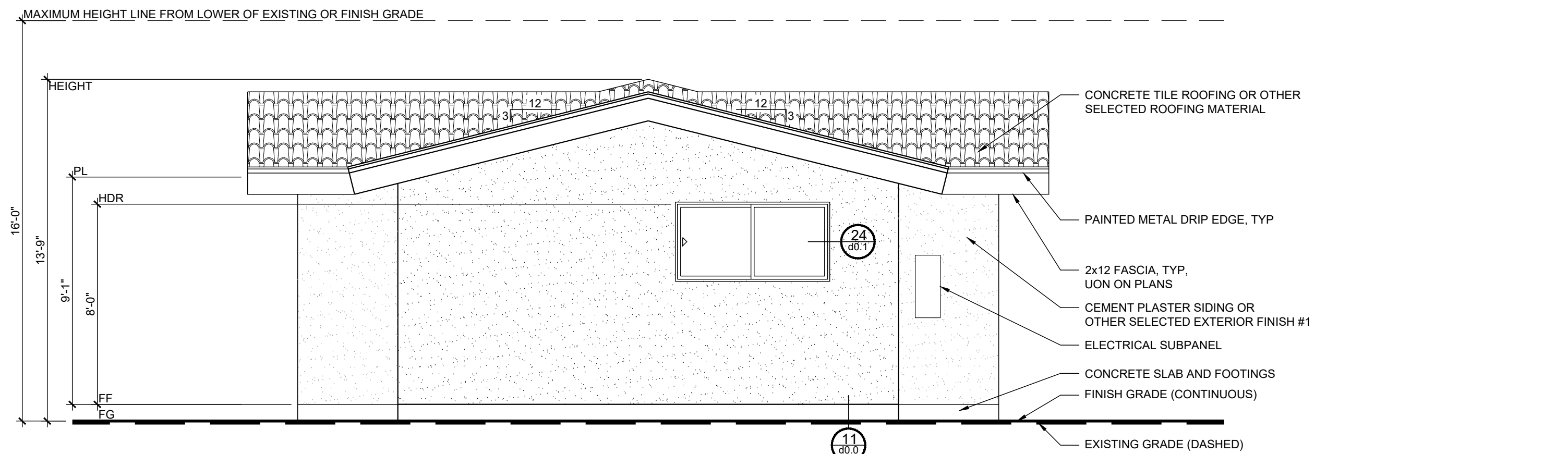
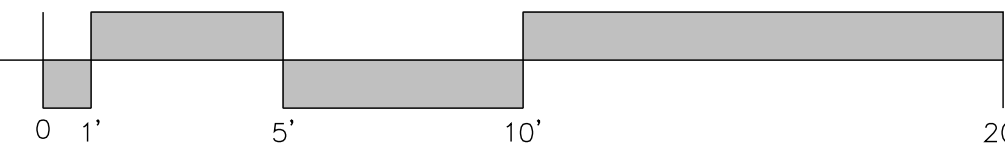
**2 right elevation a**

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



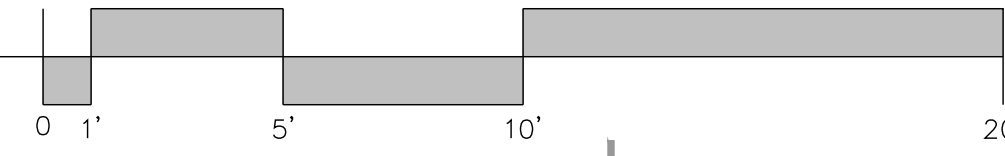
**3 rear elevation a**

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



**4 left elevation a**

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



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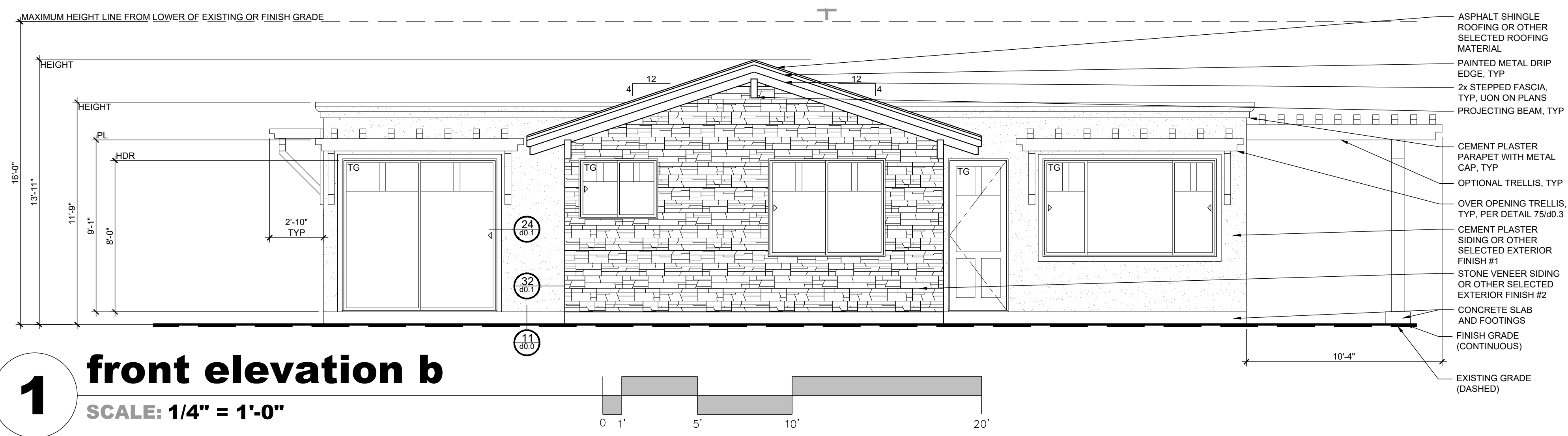
**ELEVATION A**

**a4.0**

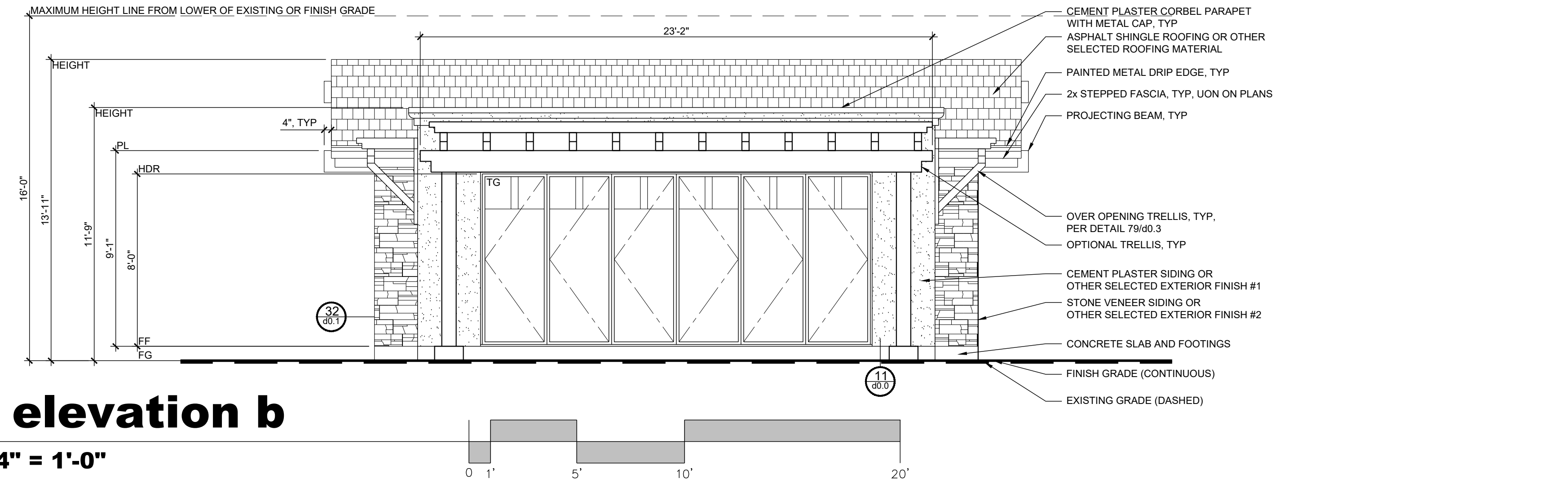
### elevation + section notes:

1. ROOF PLAN NOTES THE LOCATION OF GUTTERS, DOWNSPOUTS & ROOF MOUNTED ATTIC VENTS.
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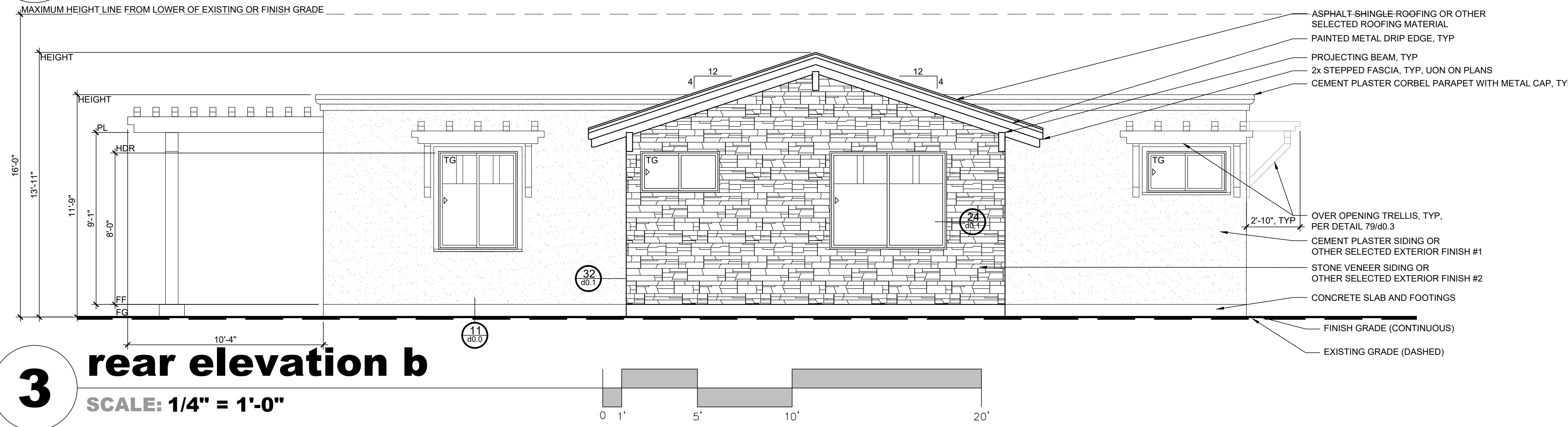
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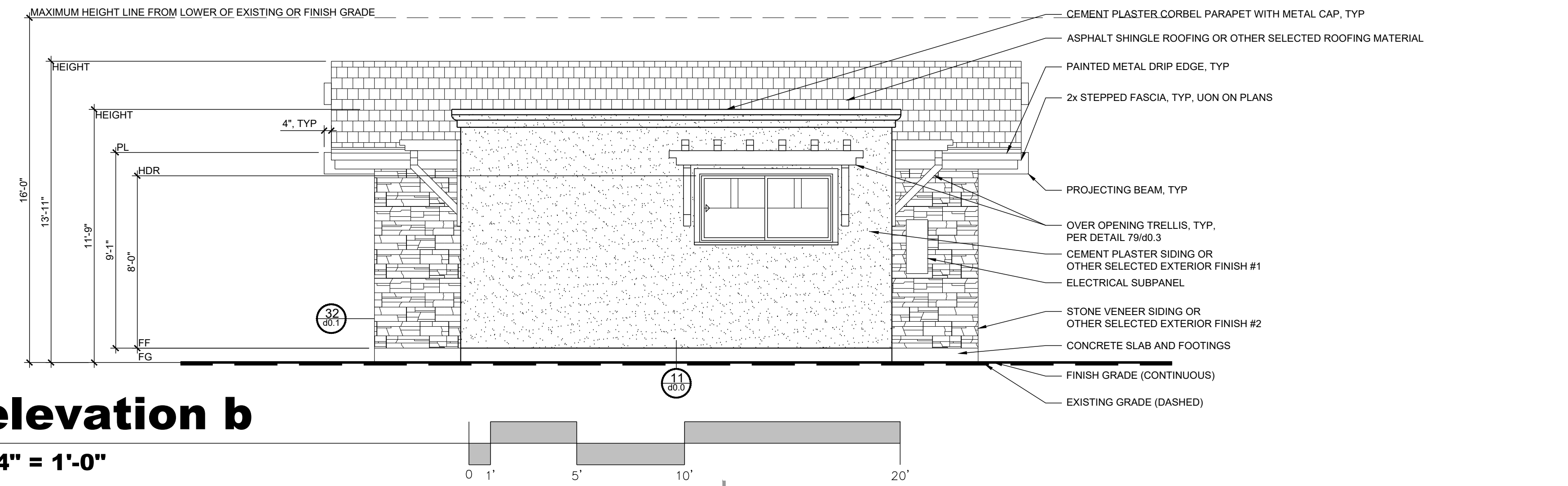
**1 front elevation b**  
SCALE: 1/4" = 1'-0"



**2 right elevation b**  
SCALE: 1/4" = 1'-0"



**3 rear elevation b**  
SCALE: 1/4" = 1'-0"



**4 left elevation b**  
SCALE: 1/4" = 1'-0"

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**3 BEDROOM PRADU**  
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**ELEVATION B**

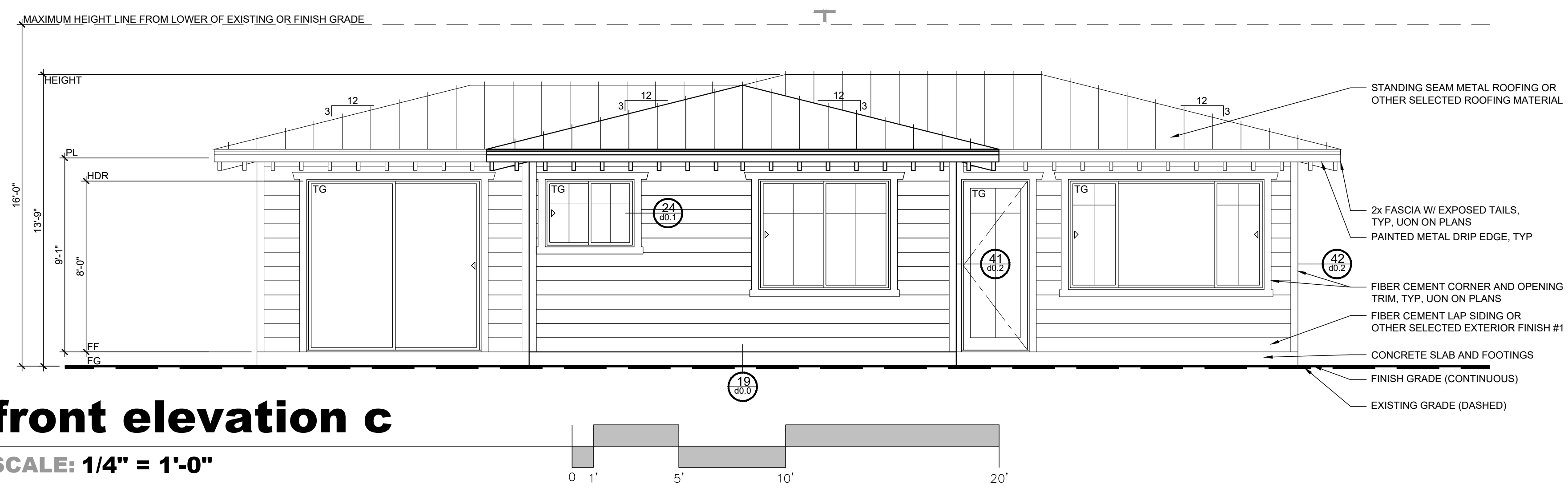
**a4.1**

**elevation + section notes:**

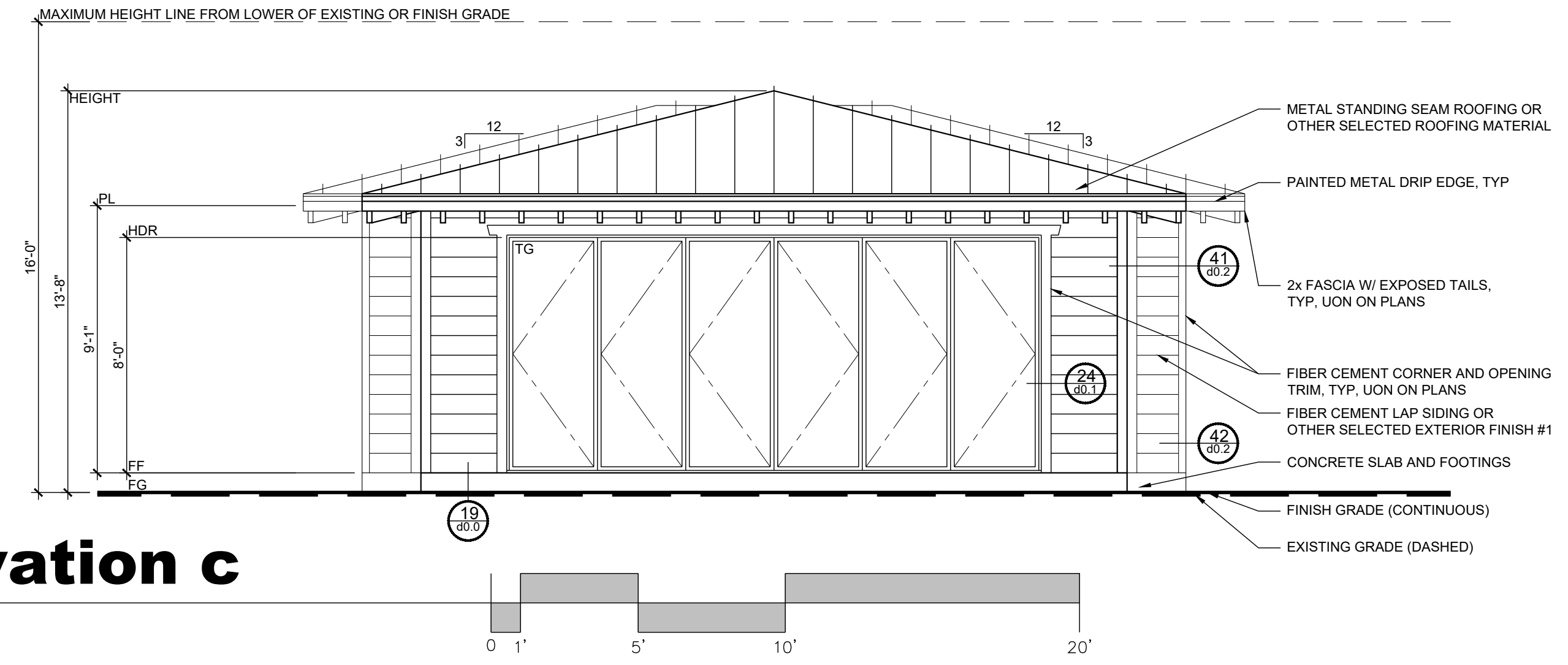
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FOR CITY STAMPS

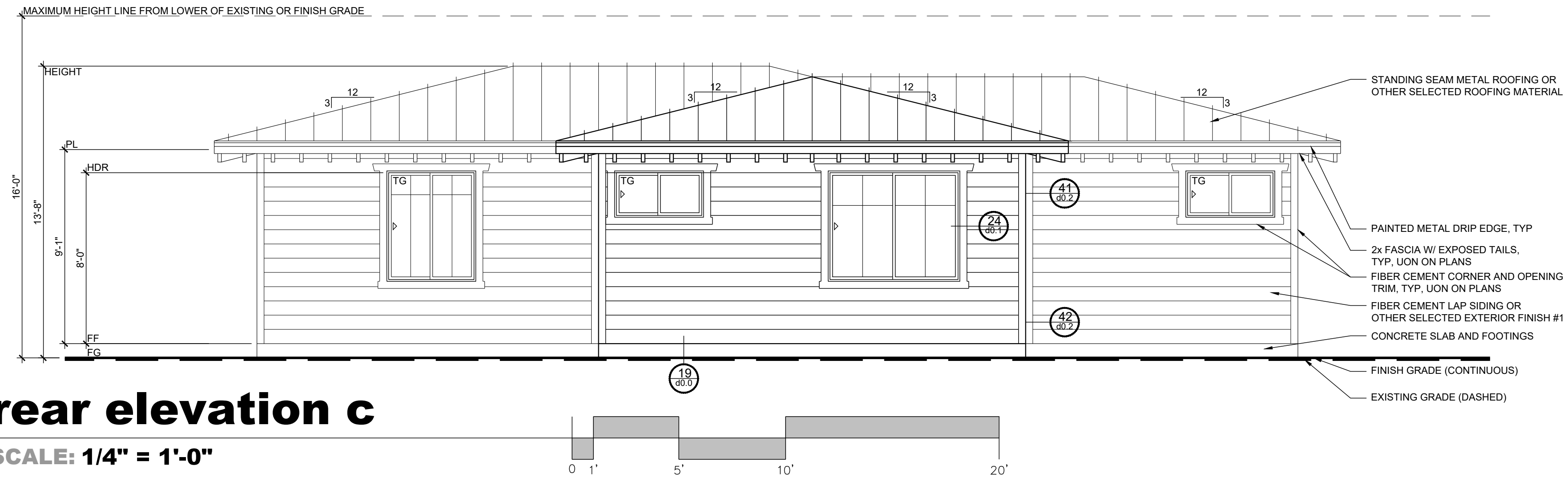
**1 front elevation c**  
SCALE: 1/4" = 1'-0"



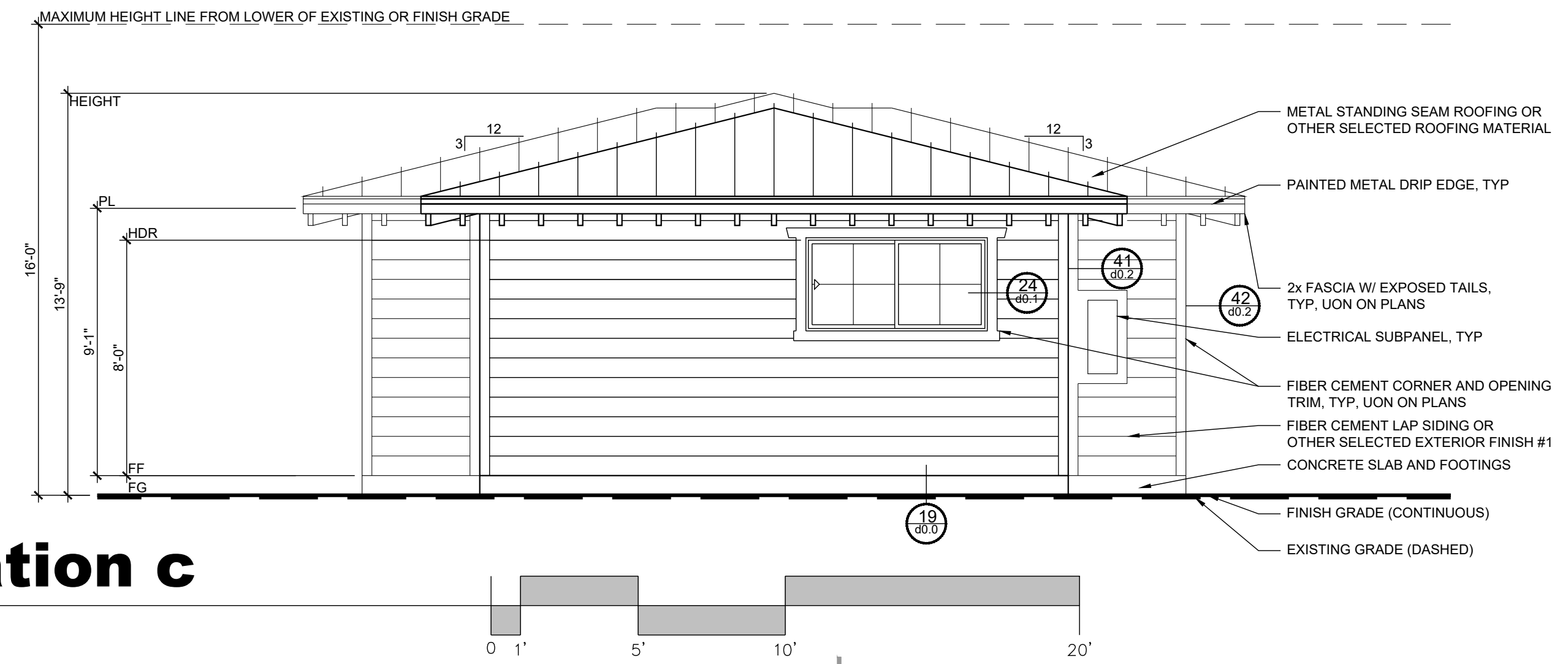
**2 right elevation c**  
SCALE: 1/4" = 1'-0"



**3 rear elevation c**  
SCALE: 1/4" = 1'-0"



**4 left elevation c**  
SCALE: 1/4" = 1'-0"



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JOB: 202409R

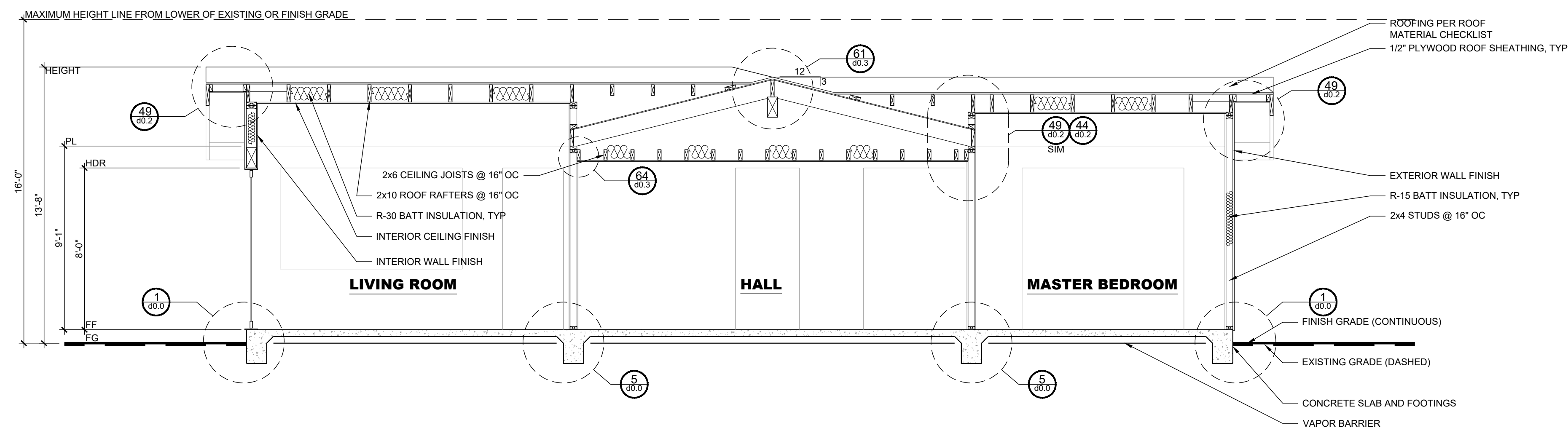
ELEVATION C

**a4.2**

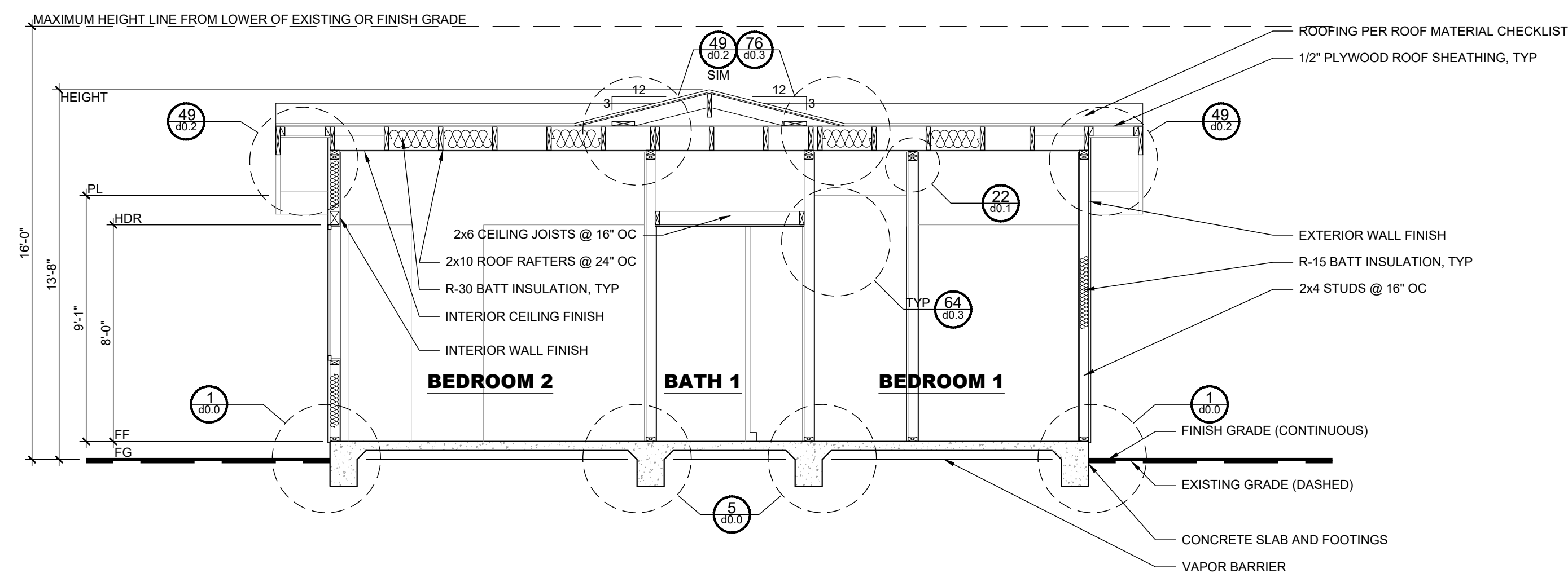
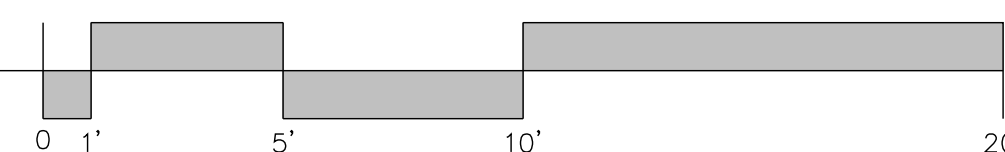
**elevation + section notes:**

- 0. SECTIONS A & B FOR ELEVATION A
- 1. ROOF PLAN NOTES THE LOCATION OF GUTTERS, DOWNSPOUTS & ROOF MOUNTED ATTIC VENTS.
- 2. ADJUSTMENT OF ROOF PITCH OR PLATE HEIGHT MAY BE REQUIRED IF RAISED FLOOR FOUNDATION IS SELECTED TO MEET HEIGHT REQUIREMENTS.
- 3. ELEVATIONS & SECTIONS SHALL SHOW BOTH FINISH (CONTINUOUS) & EXISTING (DASHED) GRADE AND THE CORRESPONDING HEIGHT LIMITATION LINE FROM THE LOWER OF THE FINISH OR EXISTING GRADE.
- 4. IF THE AVERAGE LOT SLOPE EXCEEDS 10% (NOT INCLUDING RR ZONED LOTS) THAN THE ADDITIONAL SLOPED LOT HEIGHT LIMITATION LINES SHALL BE SHOWN AS WELL.

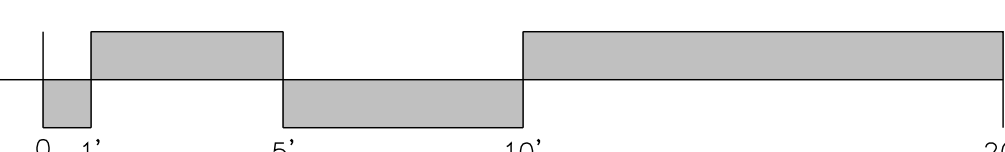
FOR CITY STAMPS



**1 section a**  
SCALE: 1/4" = 1'-0"



**2 section b**  
SCALE: 1/4" = 1'-0"



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**3 BEDROOM PRADU**

CITY: ANAHEIM

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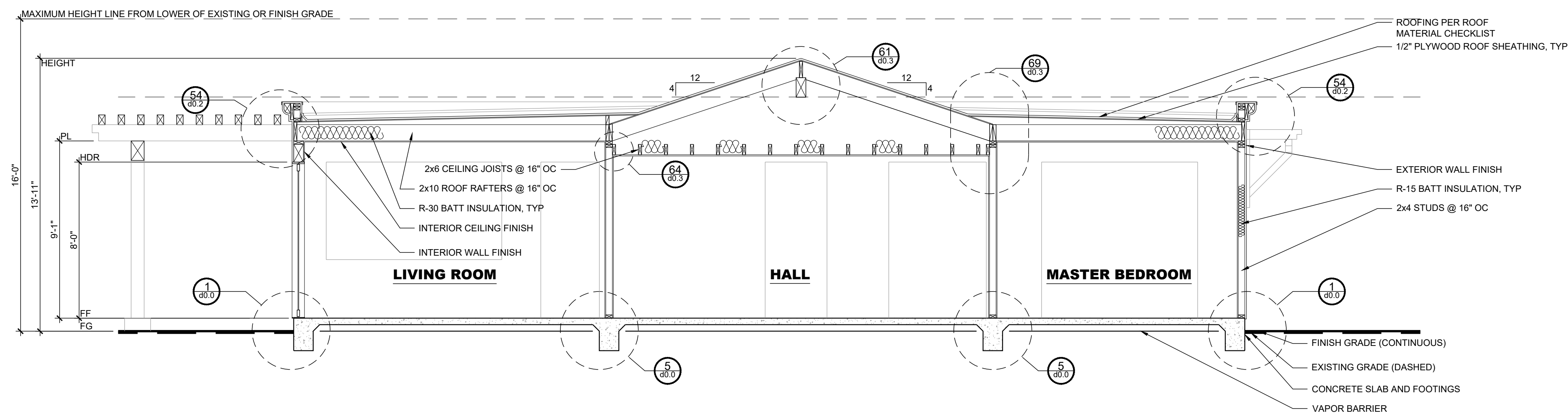
**SECTION A**

**a5.0**

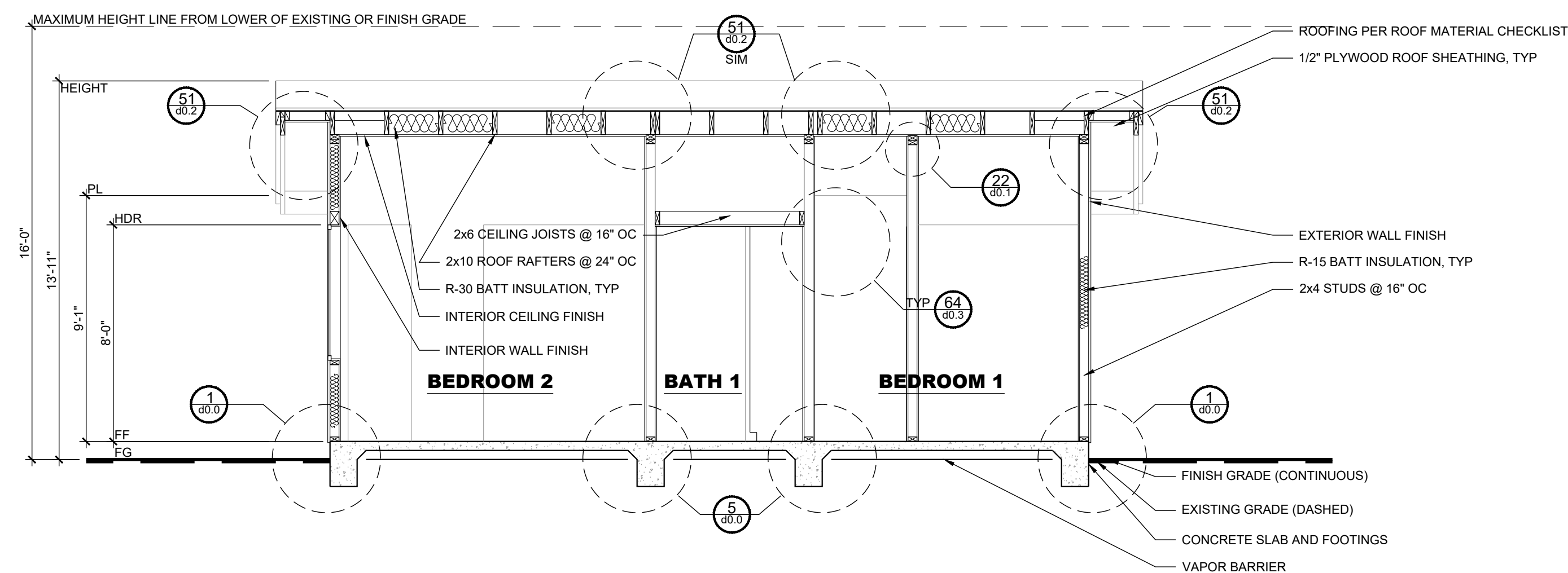
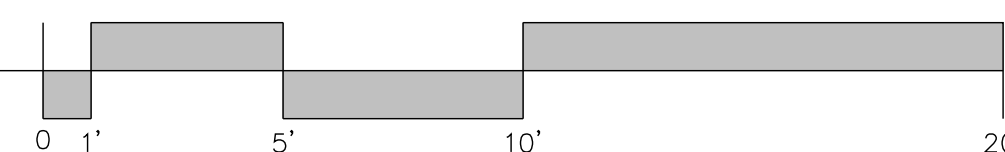
**elevation + section notes:**

- 0. SECTIONS C & D FOR ELEVATION B
- 1. ROOF PLAN NOTES THE LOCATION OF GUTTERS, DOWNSPOUTS & ROOF MOUNTED ATTIC VENTS.
- 2. ADJUSTMENT OF ROOF PITCH OR PLATE HEIGHT MAY BE REQUIRED IF RAISED FLOOR FOUNDATION IS SELECTED TO MEET HEIGHT REQUIREMENTS.
- 3. ELEVATIONS & SECTIONS SHALL SHOW BOTH FINISH (CONTINUOUS) & EXISTING (DASHED) GRADE AND THE CORRESPONDING HEIGHT LIMITATION LINE FROM THE LOWER OF THE FINISH OR EXISTING GRADE.
- 4. IF THE AVERAGE LOT SLOPE EXCEEDS 10% (NOT INCLUDING RR ZONED LOTS) THAN THE ADDITIONAL SLOPED LOT HEIGHT LIMITATION LINES SHALL BE SHOWN AS WELL.

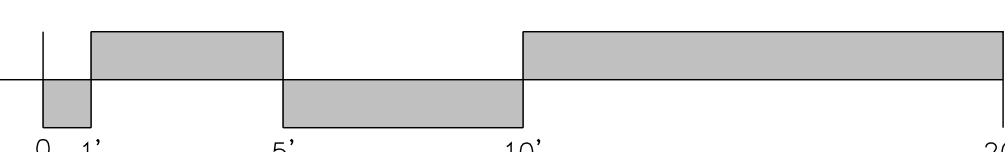
FOR CITY STAMPS



**1 section c**  
SCALE: 1/4" = 1'-0"



**2 section d**  
SCALE: 1/4" = 1'-0"



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**3 BEDROOM PRADU**

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**SECTION B**

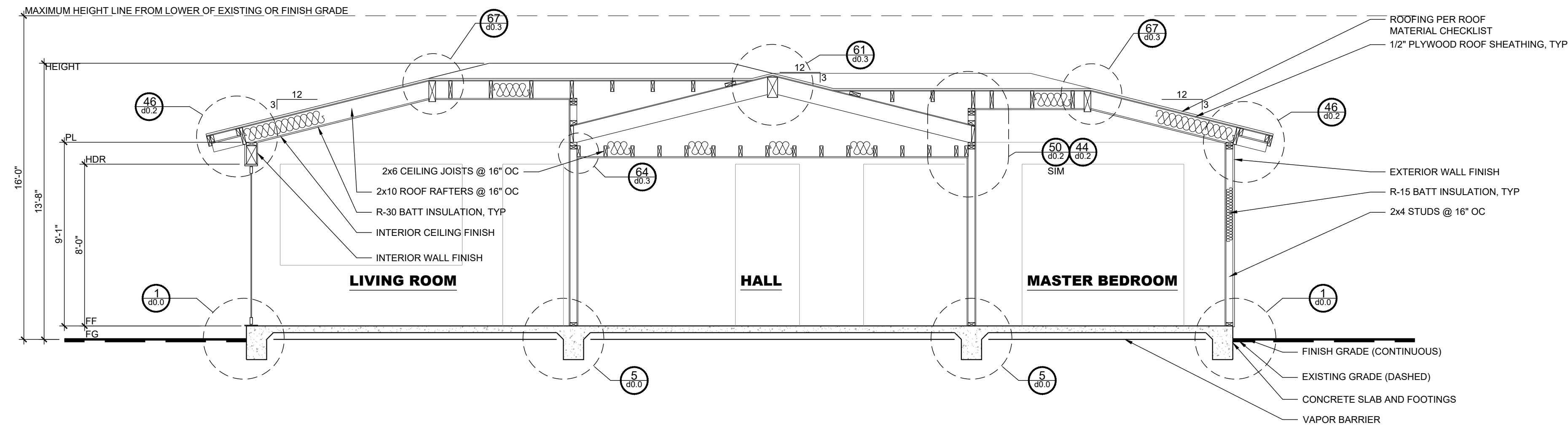
**a5.1**



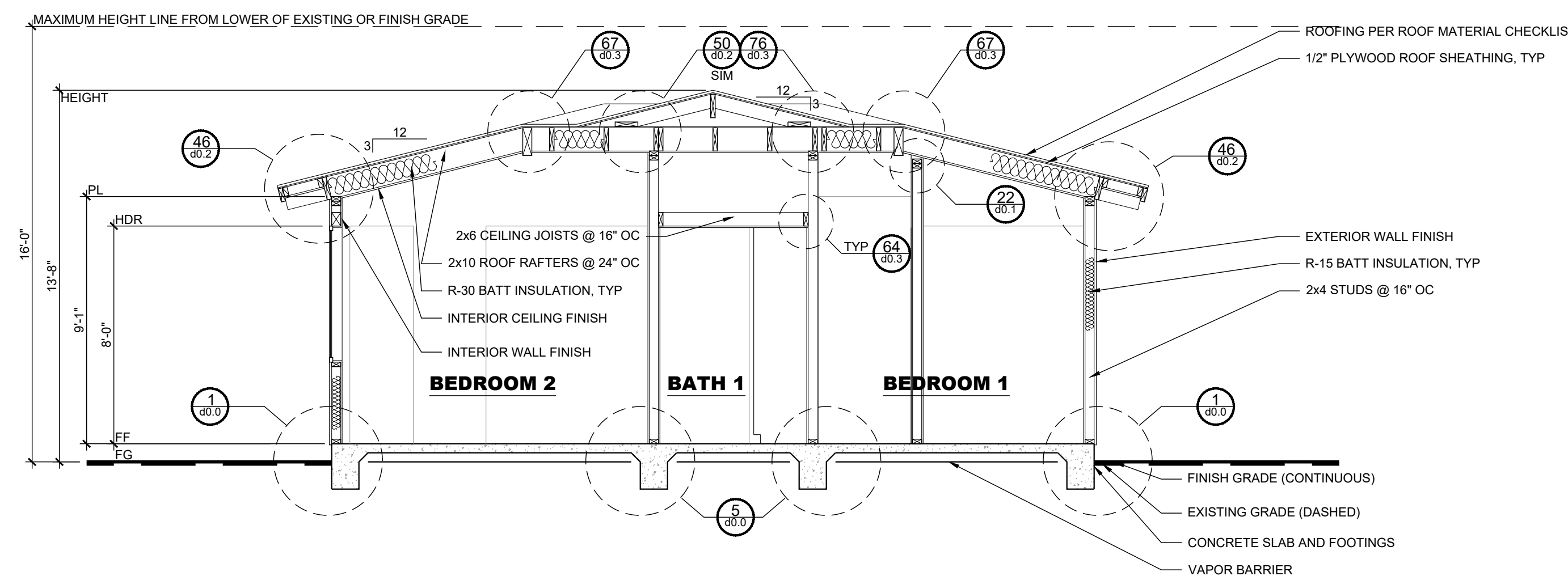
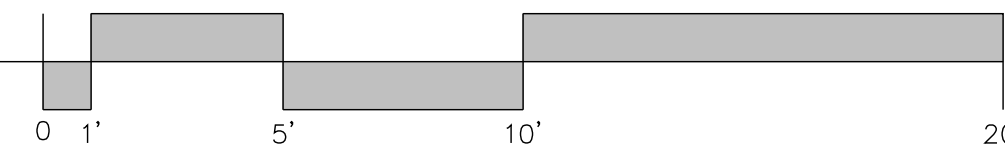
**elevation + section notes:**

0. SECTIONS E & F FOR ELEVATION C
1. ROOF PLAN NOTES THE LOCATION OF GUTTERS, DOWNSPOUTS & ROOF MOUNTED ATTIC VENTS.
2. ADJUSTMENT OF ROOF PITCH OR PLATE HEIGHT MAY BE REQUIRED IF RAISED FLOOR FOUNDATION IS SELECTED TO MEET HEIGHT REQUIREMENTS.
3. ELEVATIONS & SECTIONS SHALL SHOW BOTH FINISH (CONTINUOUS) & EXISTING (DASHED) GRADE AND THE CORRESPONDING HEIGHT LIMITATION LINE FROM THE LOWER OF THE FINISH OR EXISTING GRADE.
4. IF THE AVERAGE LOT SLOPE EXCEEDS 10% (NOT INCLUDING RR ZONED LOTS) THAN THE ADDITIONAL SLOPED LOT HEIGHT LIMITATION LINES SHALL BE SHOWN AS WELL.

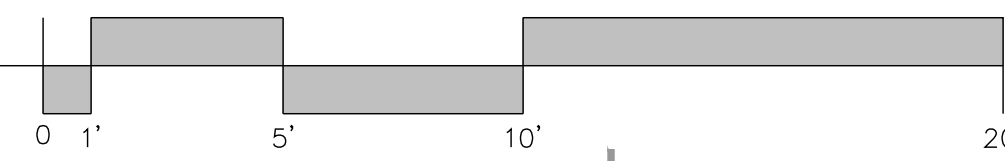
FOR CITY STAMPS



**1 section e**  
SCALE: 1/4" = 1'-0"



**2 section f**  
SCALE: 1/4" = 1'-0"



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**3 BEDROOM PRADU**

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SECTION C

**a5.2**

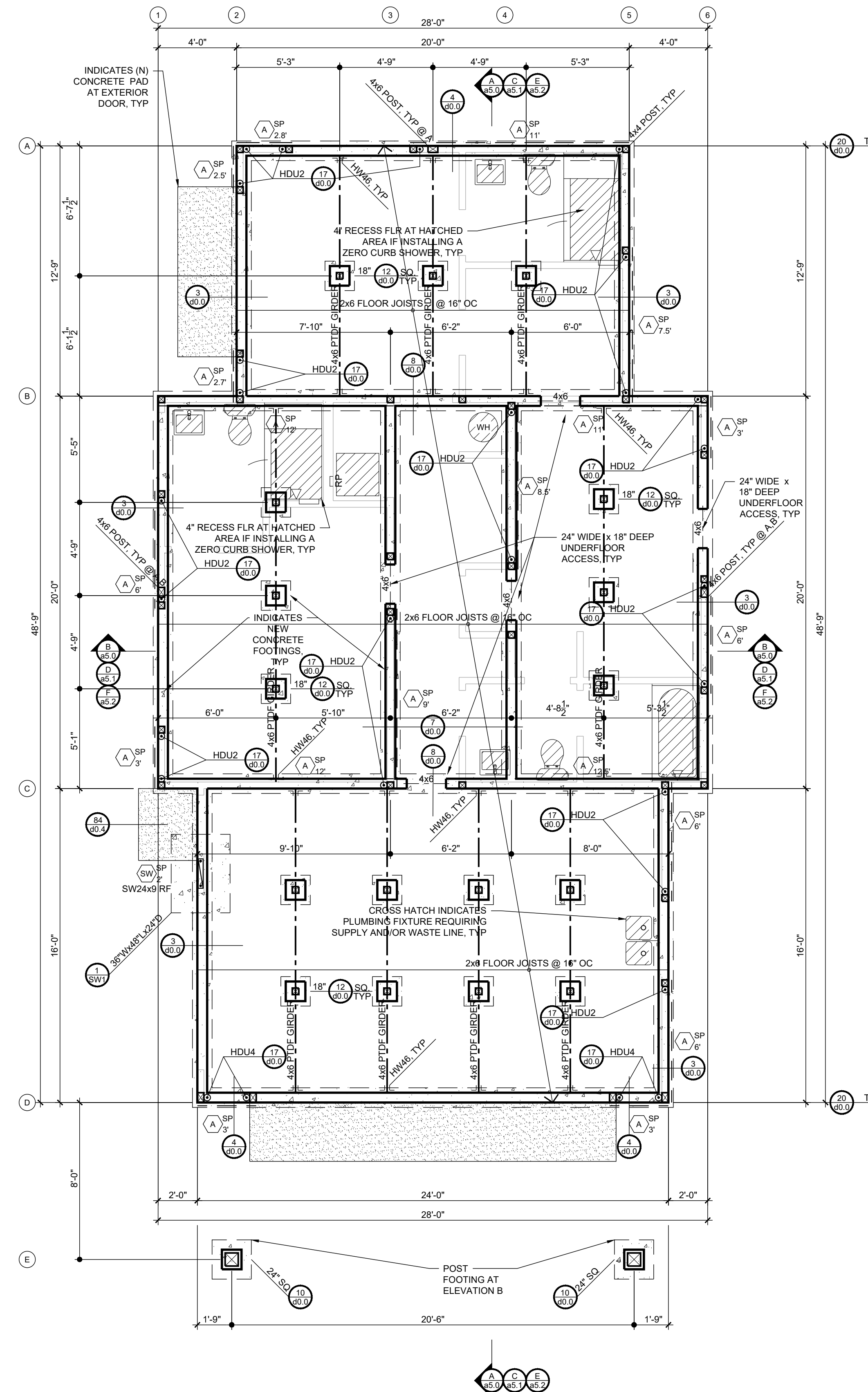




**raised floor foundation notes:**

- EXPANSIVE SOIL LOCATIONS SHALL PROVIDE FOOTING DIMENSIONS SPECIFIED IN DETAILS 3, 4, 7, 8 & 12/40.0 FOR EXPANSIVE SOILS.
- 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.
- 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
- PROVIDE A 18"X24" FOUNDATION ACCESS TO RAISED FLOOR FOUNDATION AREAS. CRC §408.4
- PROVIDE R-19 BATT INSULATION AT UNDER-FLOOR JOISTS, TYP.
- 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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**3 BEDROOM  
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CITY: ANAHEIM

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**RAISED FLOOR  
FOUNDATION  
PLAN**

**s1.1**

**3 raised floor foundation**  
SCALE: 1/4" = 1'-0"



roof framing plan notes:

- ENCLOSED RAFTER SPACES DO NOT REQUIRE VENTING IF THE FOLLOWING SPECIFIC INSULATION DESIGN IS USED, PER SECTIONS R806.5/EM3.9.6:
  - 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-5 VALUE INSTALLED ABOVE THE ROOF SHEATHING. (OR)
  - IF THE INSULATION IS AIR-IMPERMEABLE AND IT IS IN DIRECT CONTACT WITH THE UNDERSIDE OF THE ROOF SHEATHING. (OR)
  - 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.
 DETAILS 86, 87 & 88/d0.4 PROVIDE MORE INFORMATION ABOUT THESE ROOF INSULATION ALTERNATIVES.
- 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).
- 4X6 IS THE MINIMUM MEMBER ALLOWED AT A TRELLIS.
- TRELLIS MEMBERS AND OTHER WEATHER EXPOSED MEMBERS SHALL BE PRESSURE TREATED DOUGLAS FIR (PTDF) OR NATURALLY PEST AND ROT RESISTANT WOOD SPECIES SUCH AS REDWOOD OR CEDAR, TYP.OAE

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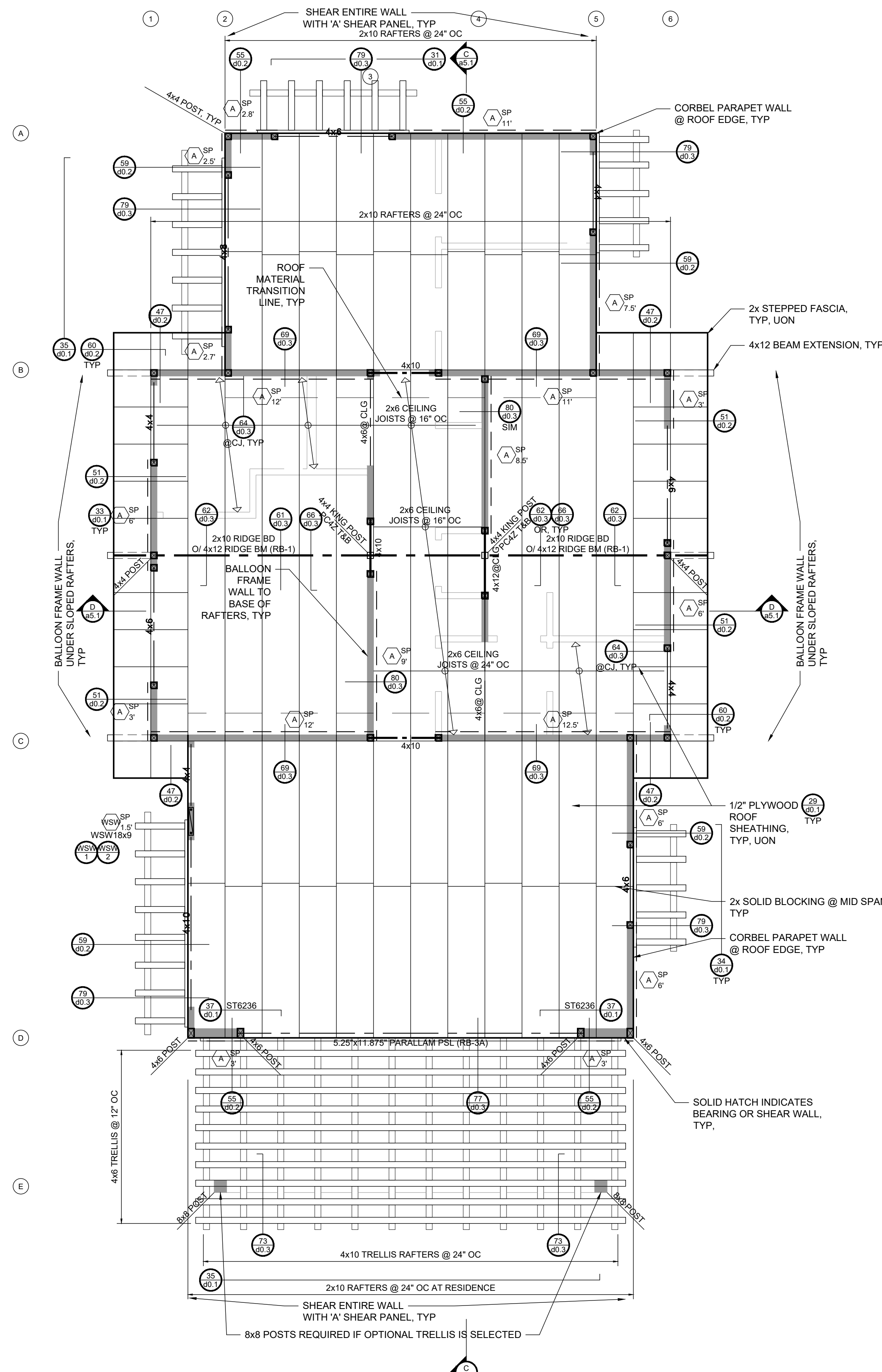
3 BEDROOM PRADU

CITY: ANAHEIM

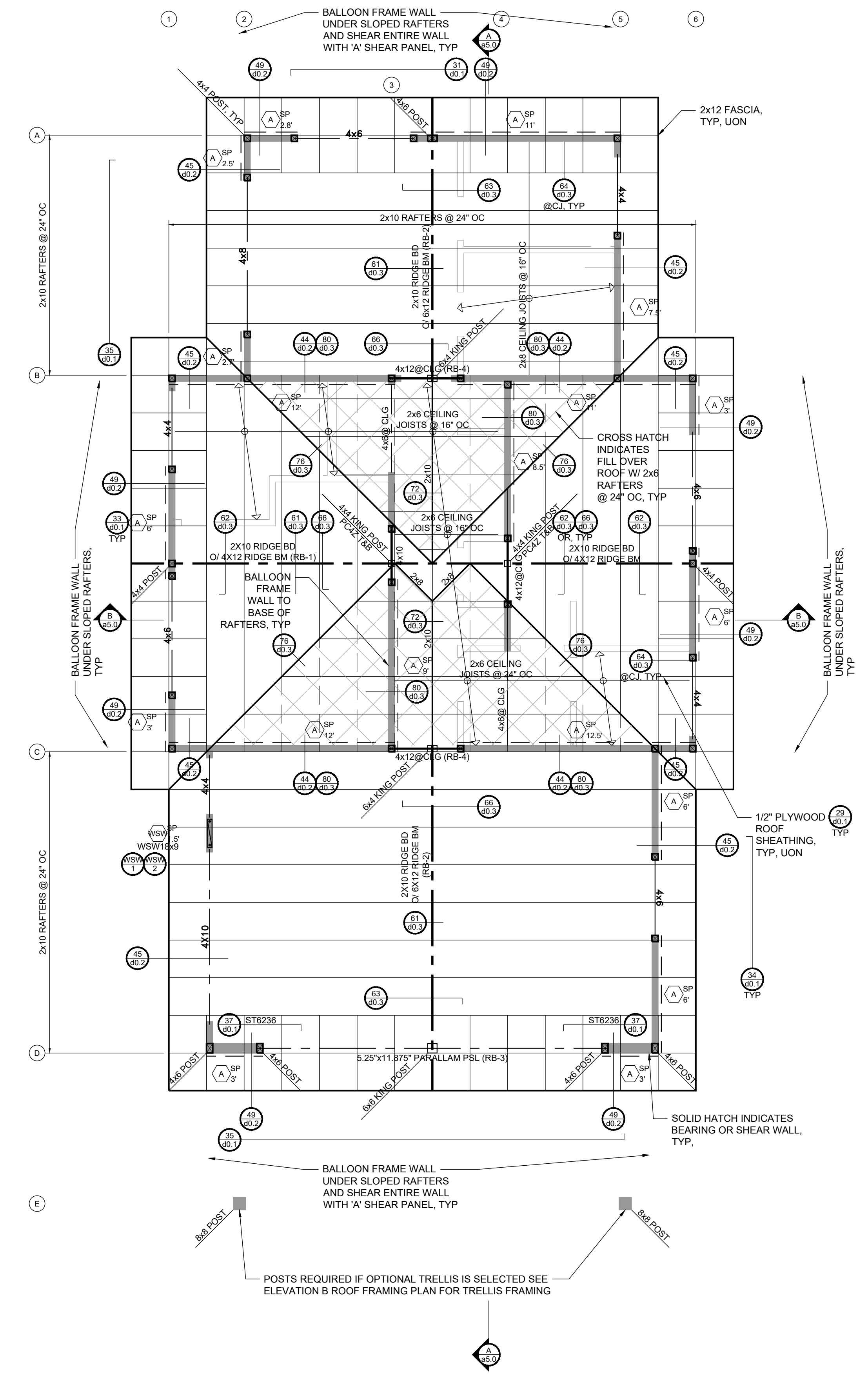
JOB: 202409R

ROOF FRAMING PLAN A + B

s2.0



**1** roof framing plan b  
SCALE: 1/4" = 1'-0"  
0' 5' 10' 20'



**2** roof framing plan a  
SCALE: 1/4" = 1'-0"  
0' 5' 10' 20'

### roof framing plan notes:

- ENCLOSED RAFTER SPACES DO NOT REQUIRE VENTING IF THE FOLLOWING SPECIFIC INSULATION DESIGN IS USED, PER SECTIONS R806.5/EM3.9.6:
  - 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-5 VALUE INSTALLED ABOVE THE ROOF SHEATHING. (OR)
  - IF THE INSULATION IS AIR-IMPERMEABLE AND IT IS IN DIRECT CONTACT WITH THE UNDERSIDE OF THE ROOF SHEATHING. (OR)
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DETAILS 86, 87 & 88/d0.4 PROVIDE MORE INFORMATION ABOUT THESE ROOF INSULATION ALTERNATIVES.
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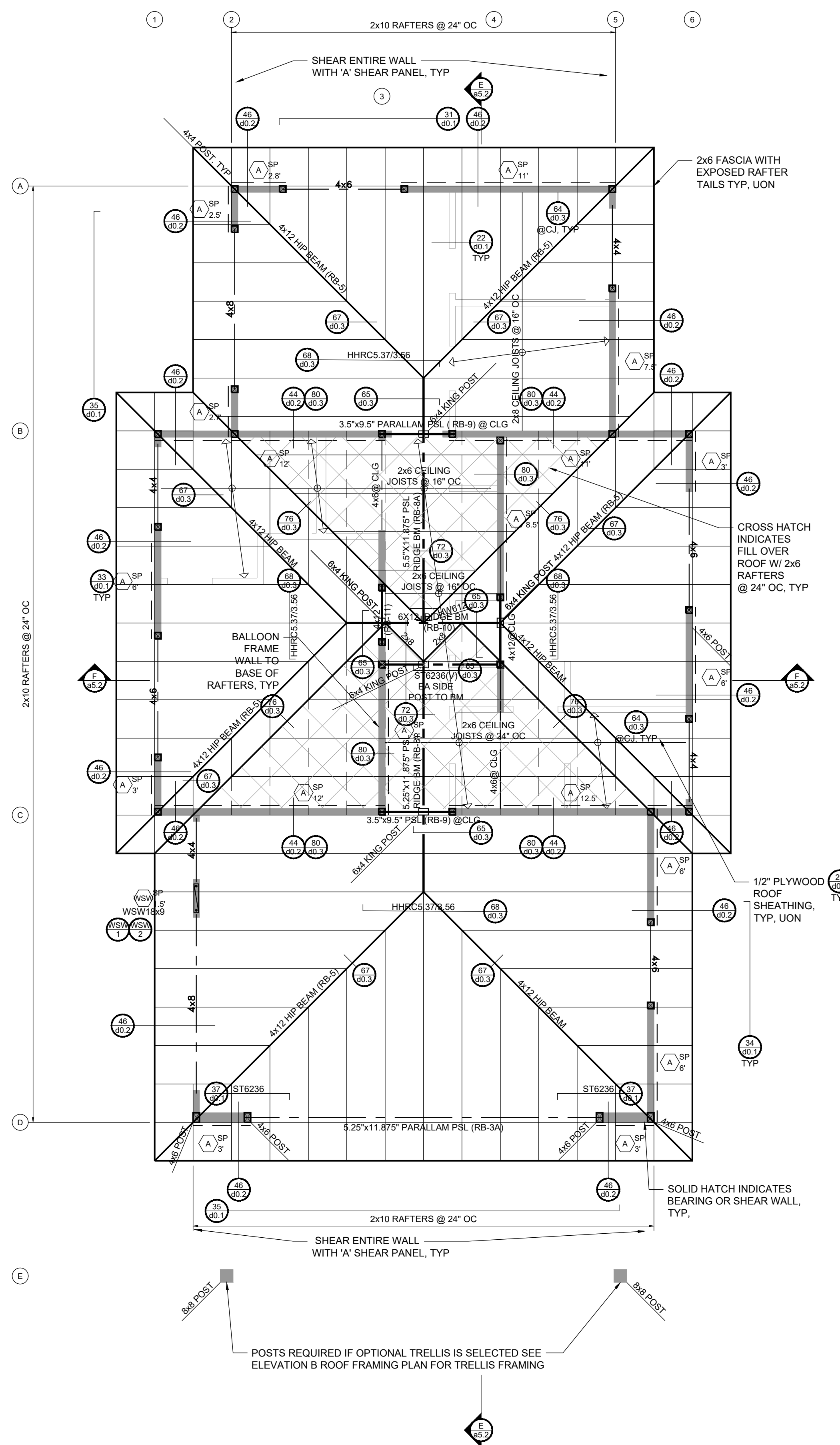
**3 BEDROOM  
PRADU**

CITY: ANAHEIM

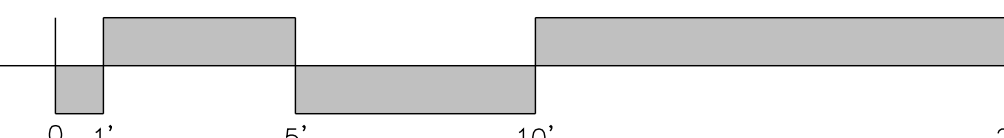
JOB: 202409R

**ROOF FRAMING  
PLAN C**

**s2.1**



**3** roof framing plan c  
SCALE: 1/4" = 1'-0"



### roof framing plan notes:

- ENCLOSED RAFTER SPACES DO NOT REQUIRE VENTING IF THE FOLLOWING SPECIFIC INSULATION DESIGN IS USED, PER SECTIONS R806.5/EM3.9.6:
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  - IF THE INSULATION IS AIR-IMPERMEABLE AND IT IS IN DIRECT CONTACT WITH THE UNDERSIDE OF THE ROOF SHEATHING. (OR)
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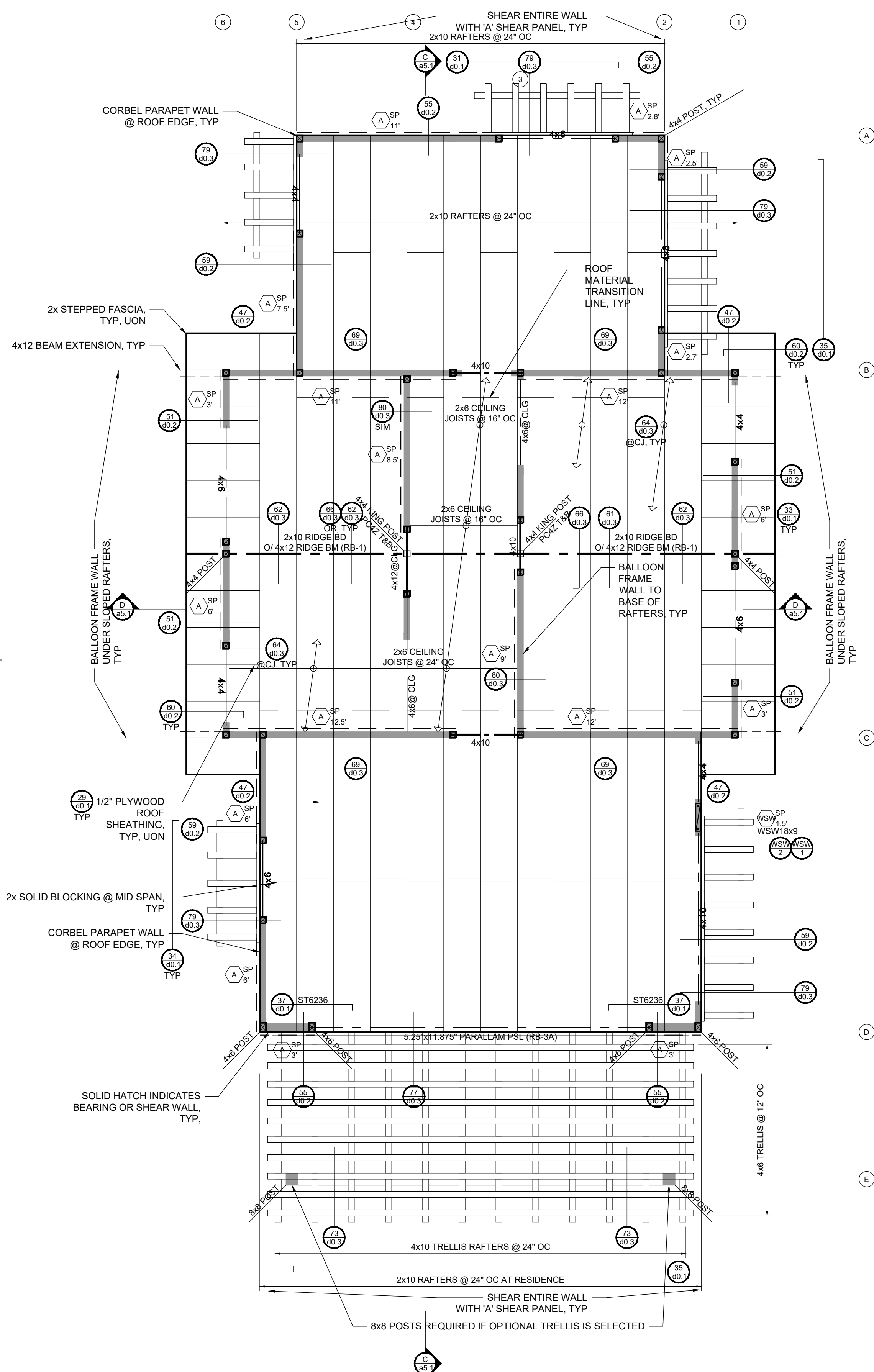
**3 BEDROOM PRADU**

CITY: ANAHEIM

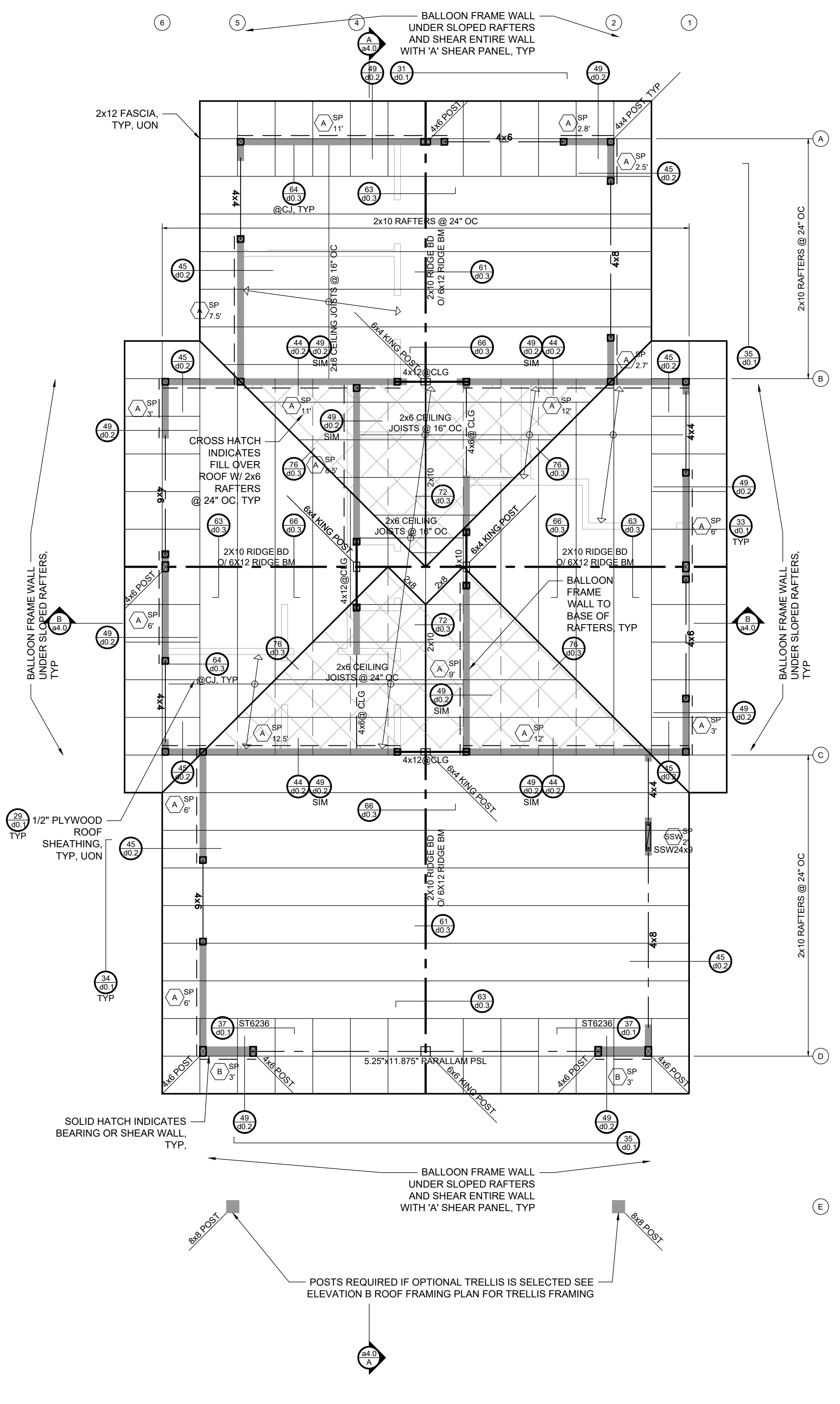
JOB: 202409R

**REVERSE ROOF FRAMING PLAN A + B**

**s2.2**



**1 reverse roof framing plan b**  
SCALE: 1/4" = 1'-0"

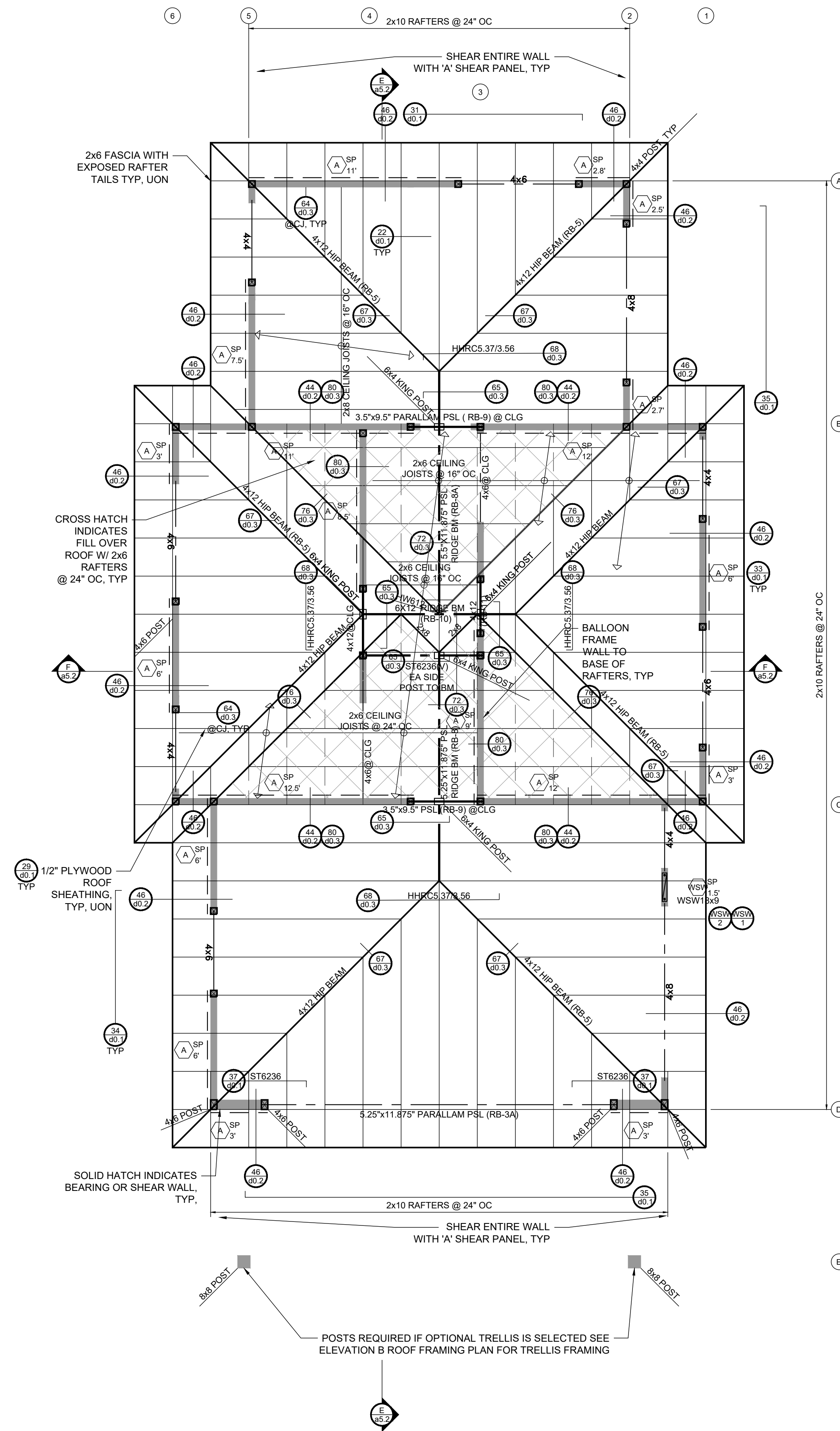


**2 reverse roof framing plan a**  
SCALE: 1/4" = 1'-0"

### 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-5 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.
 DETAILS 86, 87 & 88/d0.4 PROVIDE MORE INFORMATION ABOUT THESE ROOF INSULATION ALTERNATIVES.
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.
4. TRELLIS MEMBERS AND OTHER WEATHER EXPOSED MEMBERS SHALL BE PRESSURE TREATED DOUGLAS FIR (PTDF) OR NATURALLY PEST AND ROT RESISTANT WOOD SPECIES SUCH AS REDWOOD OR CEDAR, TYP.OAE

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**3 BEDROOM PRADU**

CITY: ANAHEIM

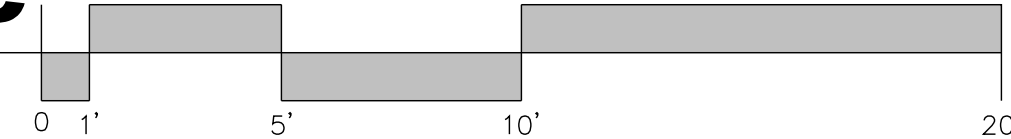
JOB: 202409R

**REVERSE ROOF FRAMING PLAN C**

**s2.3**

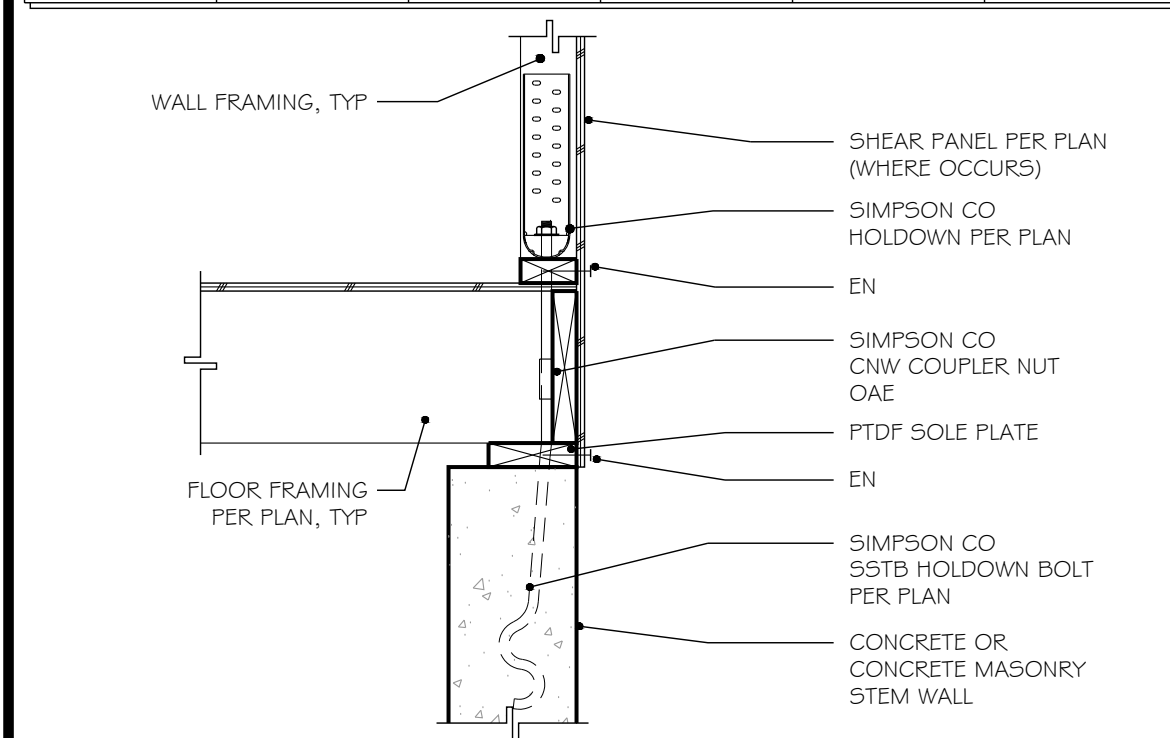
# 3 reverse roof framing plan c

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

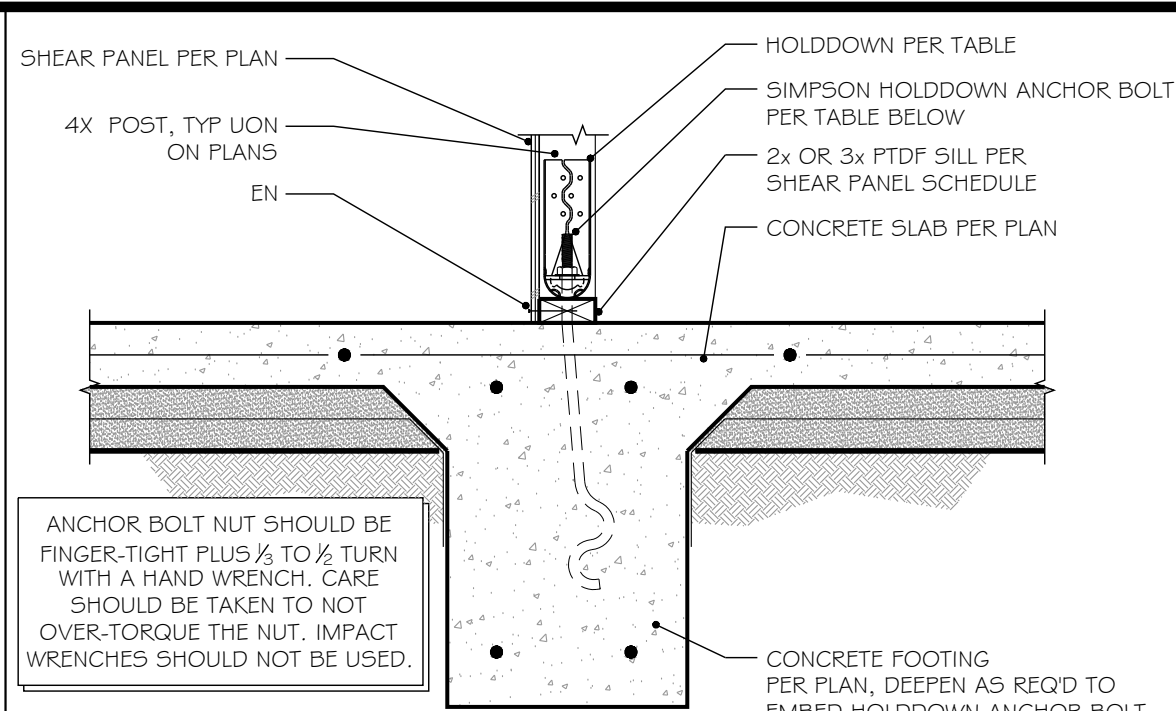




MODEL NO.	ANCHOR BOLT	CONNECTION TO POST	EMBEDMENT	EDGE DISTANCE	MIN WD MEMBER THICKNESS
HDU2	5/8" (S5TB16)	6-SDS 1/2"x2 1/2"	12 3/4"	1 3/4"	3"
HDU4	5/8" (S5TB20)	10-SDS 1/2"x2 1/2"	16 3/4"	1 3/4"	3"
HDU5	5/8" (S5TB24)	14-SDS 1/2"x2 1/2"	20 3/4"	1 3/4"	3"
HDU6	5/8" (S5TB28)	20-SDS 1/2"x2 1/2"	24 3/4"	1 3/4"	3"
HDU1	1" (S81X30)	30-SDS 1/2"x2 1/2"	24"	1 3/4"	5 1/2"
HDU14	1" (S81X30)	36-SDS 1/2"x2 1/2"	24"	1 3/4"	7 1/4"

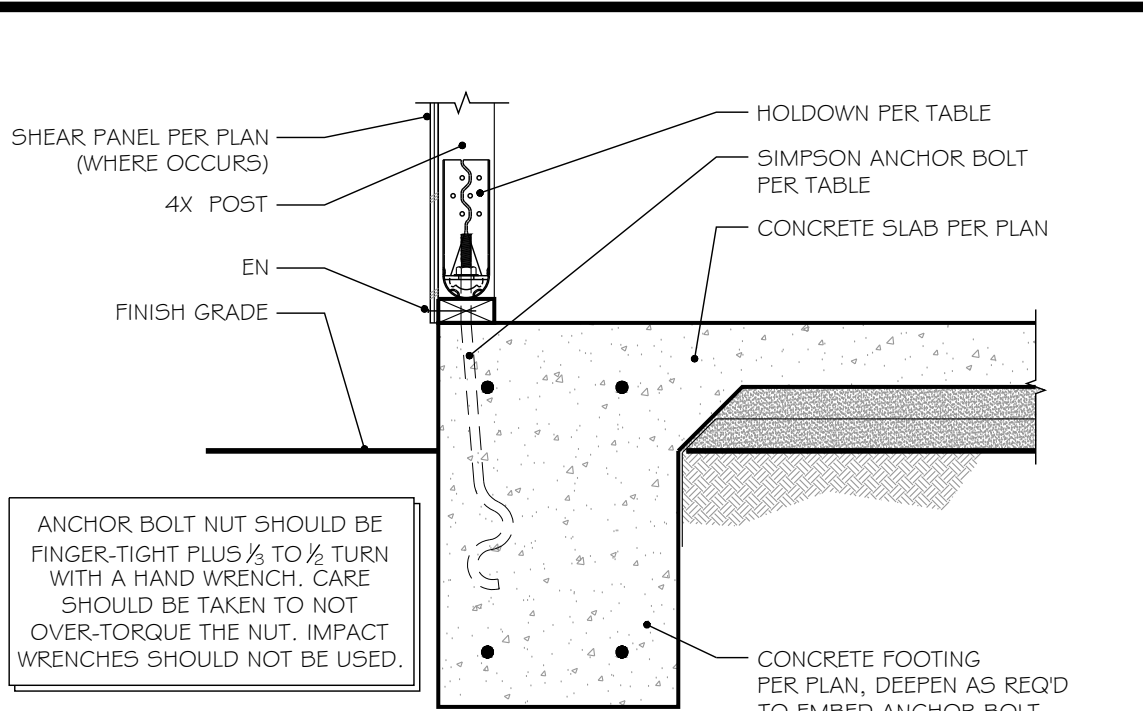


**17** HOLDOWN AT STEM WALL FOOTING  
SCALE: 1" = 1'-0"  
A-DT-FDN-SW-0096



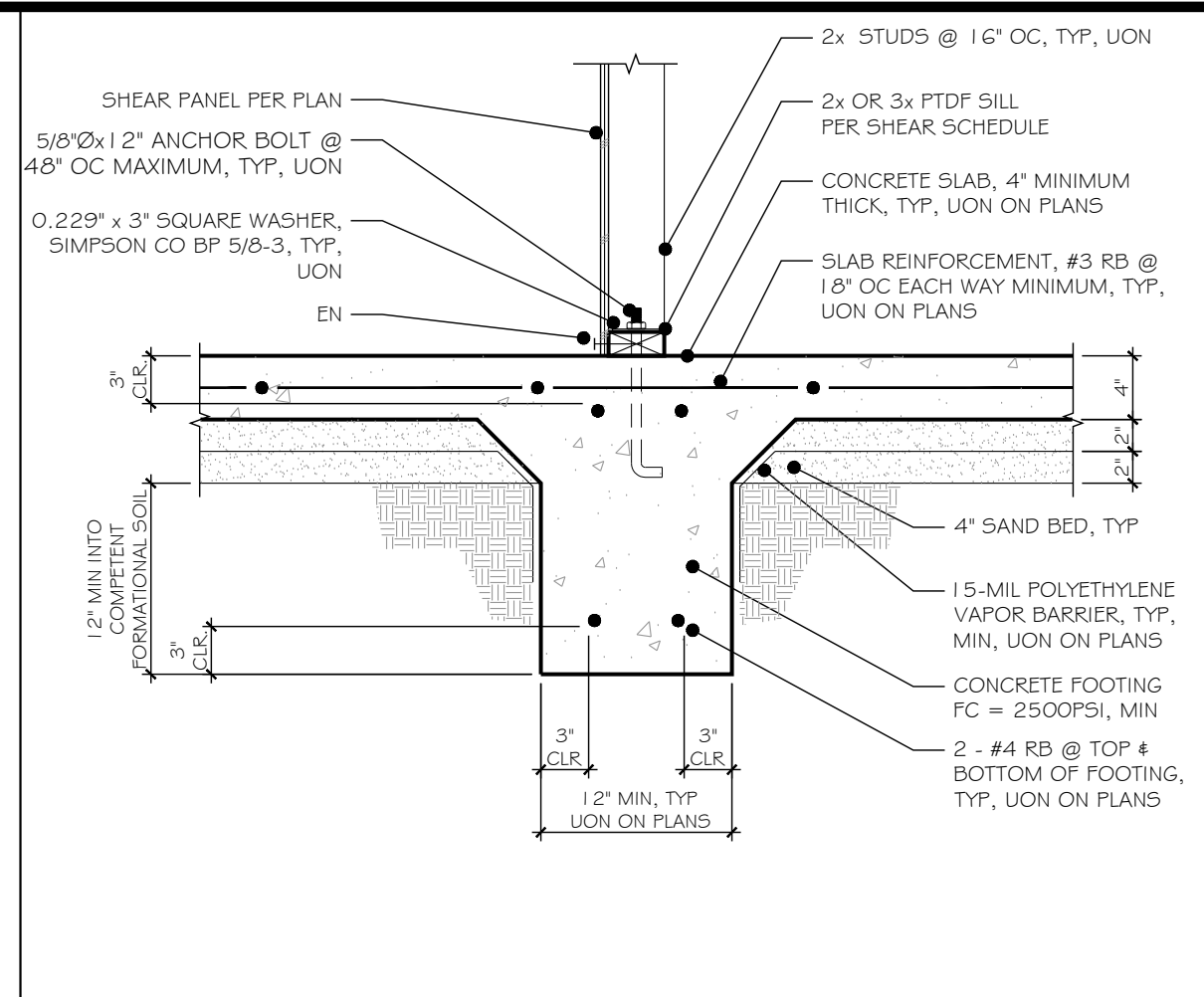
HOLD DOWN	ANCHOR Ø	POST SCREWS	EDGE DISTANCE	EMBED	MIN POST
HDU2	5/8" (S5TB16)	6-SDS 1/2" x 2 1/2"	1 3/4"	16"	4x4
HDU4	5/8" (S5TB20)	10-SDS 1/2" x 2 1/2"	1 3/4"	16"	4x4
HDU5	5/8" (S5TB24)	14-SDS 1/2" x 2 1/2"	1 3/4"	20"	4x4
HDU6	5/8" (S5TB28)	20-SDS 1/2" x 2 1/2"	1 3/4"	24"	4x4
HDU11	1" (S81X30)	30-SDS 1/2" x 2 1/2"	1 3/4"	24"	4x6
HDU14	1" (S81X30)	36-SDS 1/2" x 2 1/2"	1 3/4"	24"	4x6

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

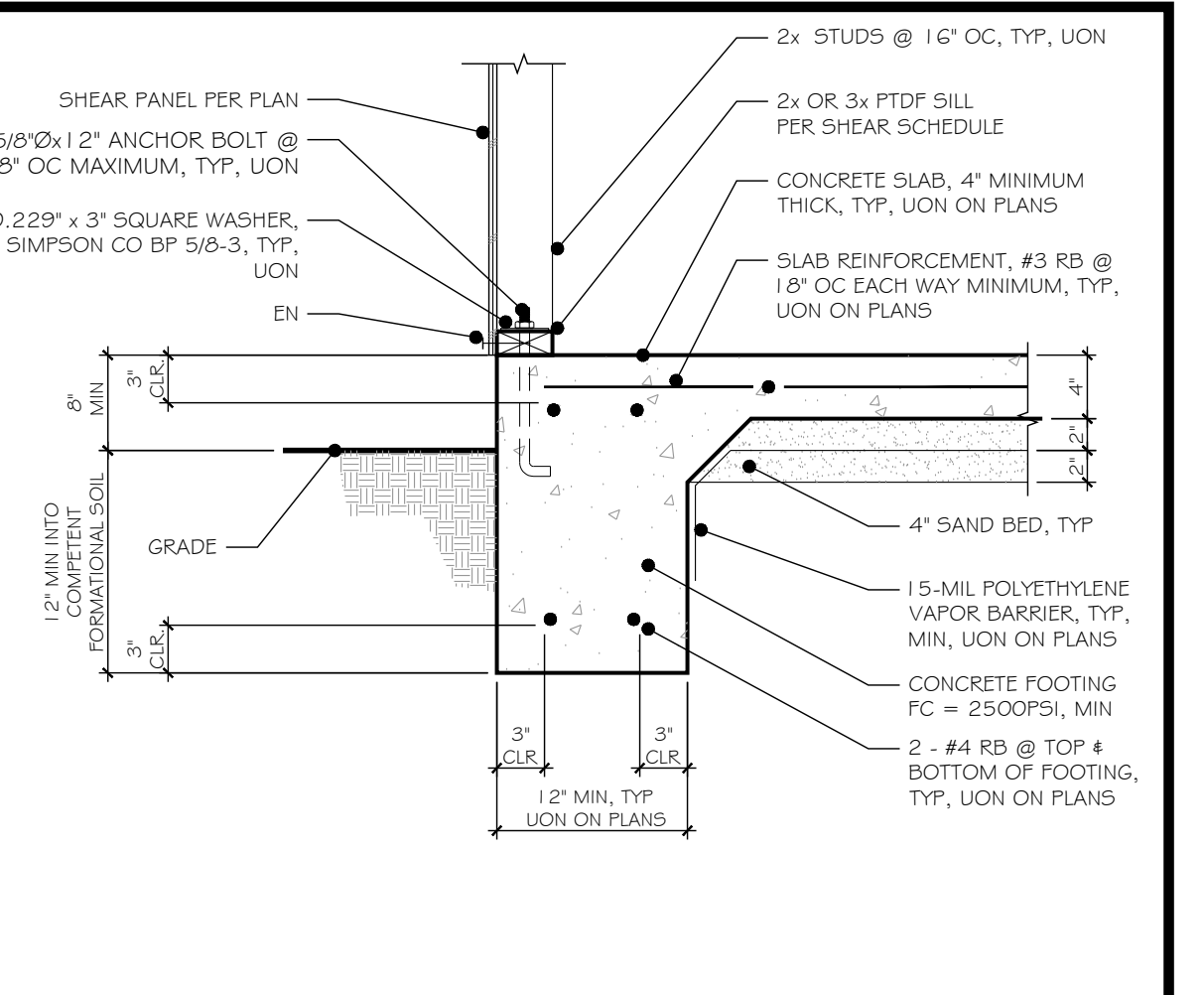


HOLD DOWN	ANCHOR Ø	POST SCREWS	EDGE DISTANCE	EMBED	MIN POST
HDU2	5/8" (S5TB16)	6-SDS 1/2" x 2 1/2"	1 3/4"	12"	4x4
HDU4	5/8" (S5TB20)	10-SDS 1/2" x 2 1/2"	1 3/4"	16"	4x4
HDU5	5/8" (S5TB24)	14-SDS 1/2" x 2 1/2"	1 3/4"	20"	4x4
HDU6	5/8" (S5TB28)	20-SDS 1/2" x 2 1/2"	1 3/4"	24"	4x4
HDU11	1" (S81X30)	30-SDS 1/2" x 2 1/2"	1 3/4"	24"	4x6
HDU14	1" (S81X30)	36-SDS 1/2" x 2 1/2"	1 3/4"	24"	4x6

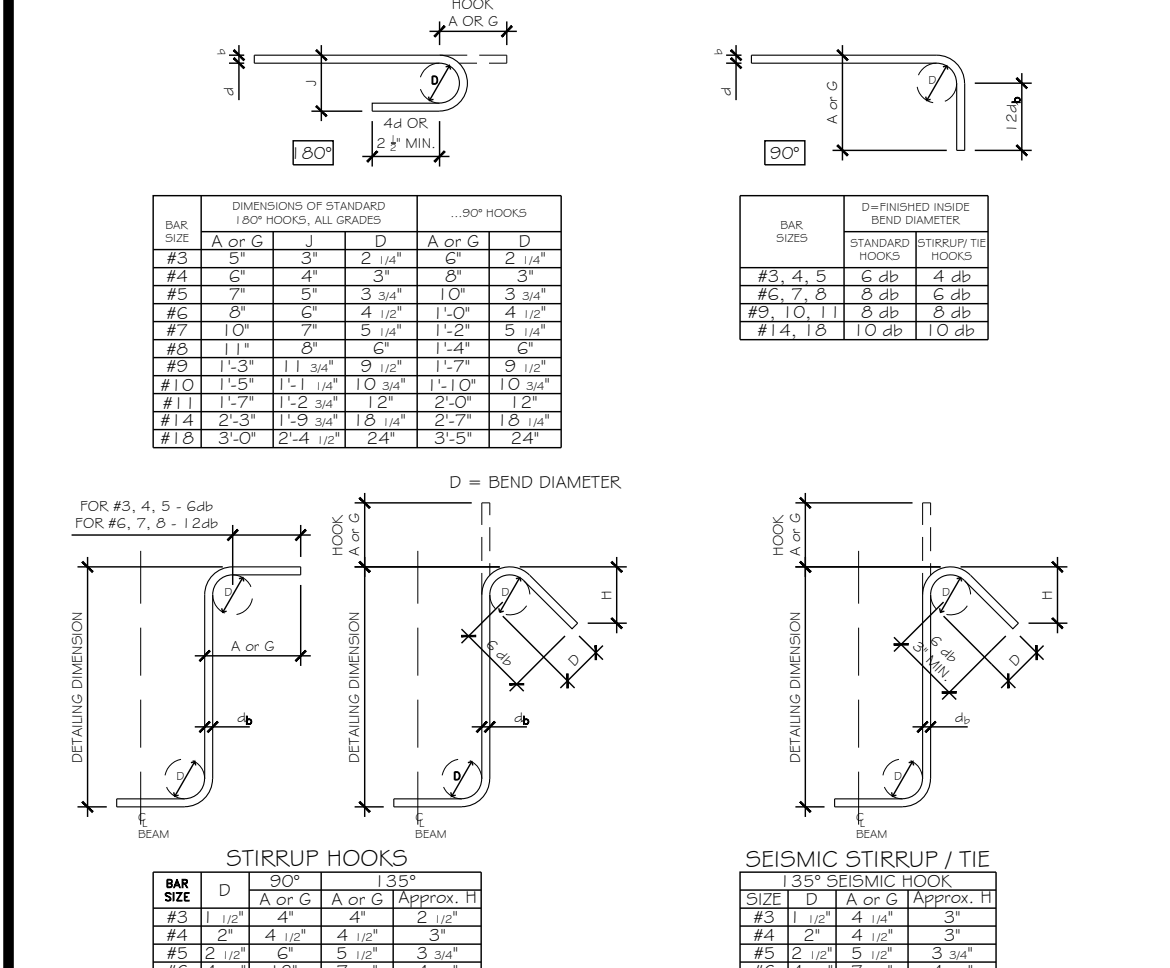
**9** HOLDOWN - PERIMETER FOOTING  
SCALE: 1" = 1'-0"  
A-DT-FDN-SG-ANC-013



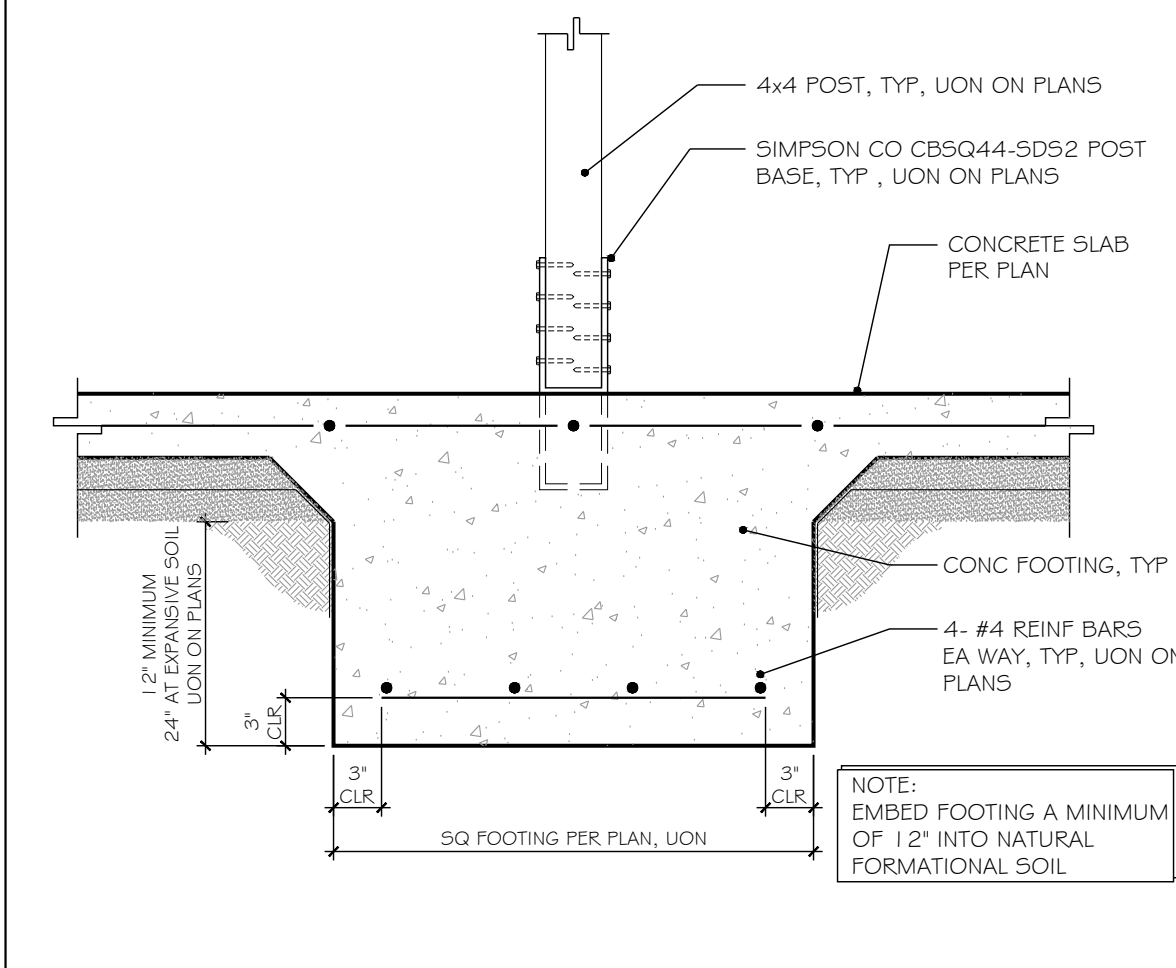
**5** SLAB ON GRADE ONE STORY INTERIOR FOOTING  
SCALE: 1" = 1'-0"  
A-DT-FDN-SG-INT-014



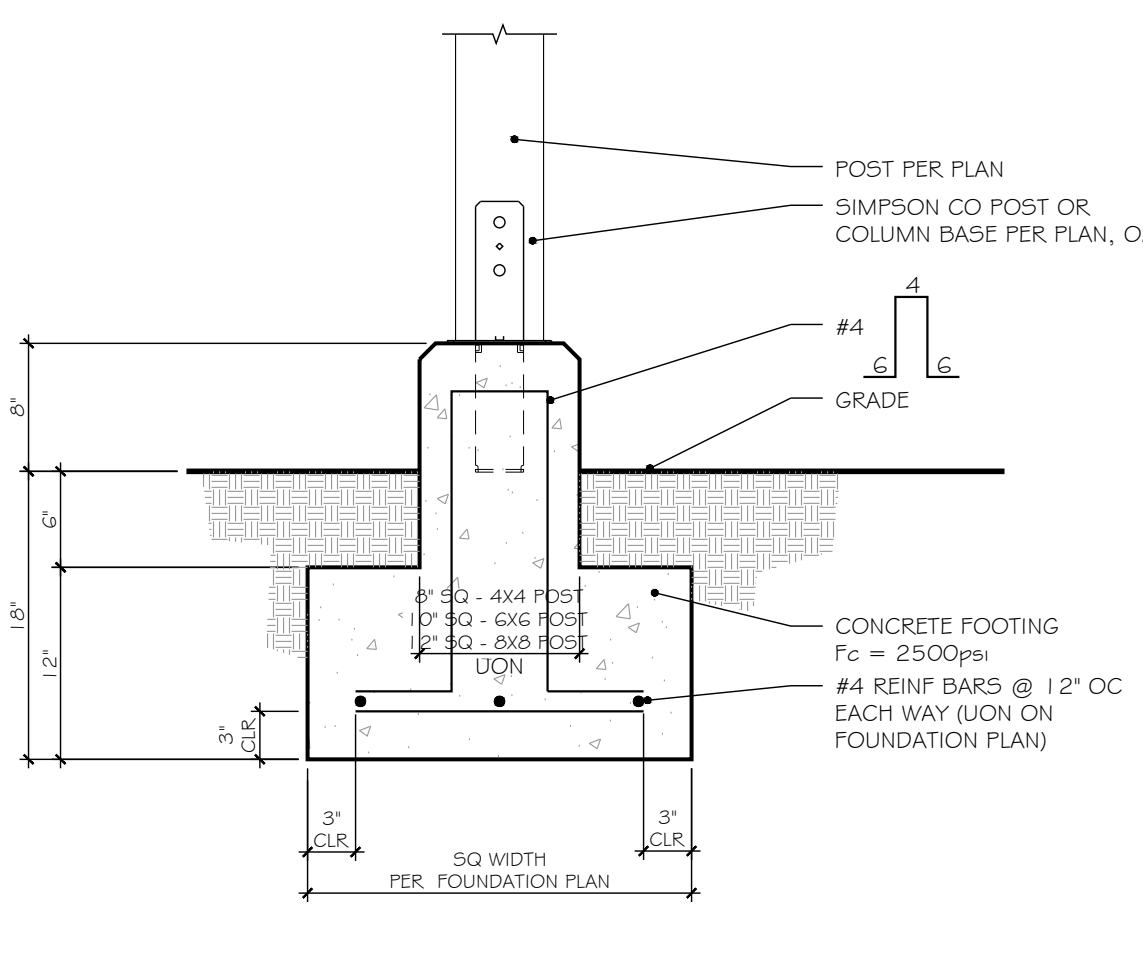
**1** SLAB ON GRADE ONE STORY PERIMETER FOOTING  
SCALE: 1" = 1'-0"  
A-DT-FDN-SG-PTR-025



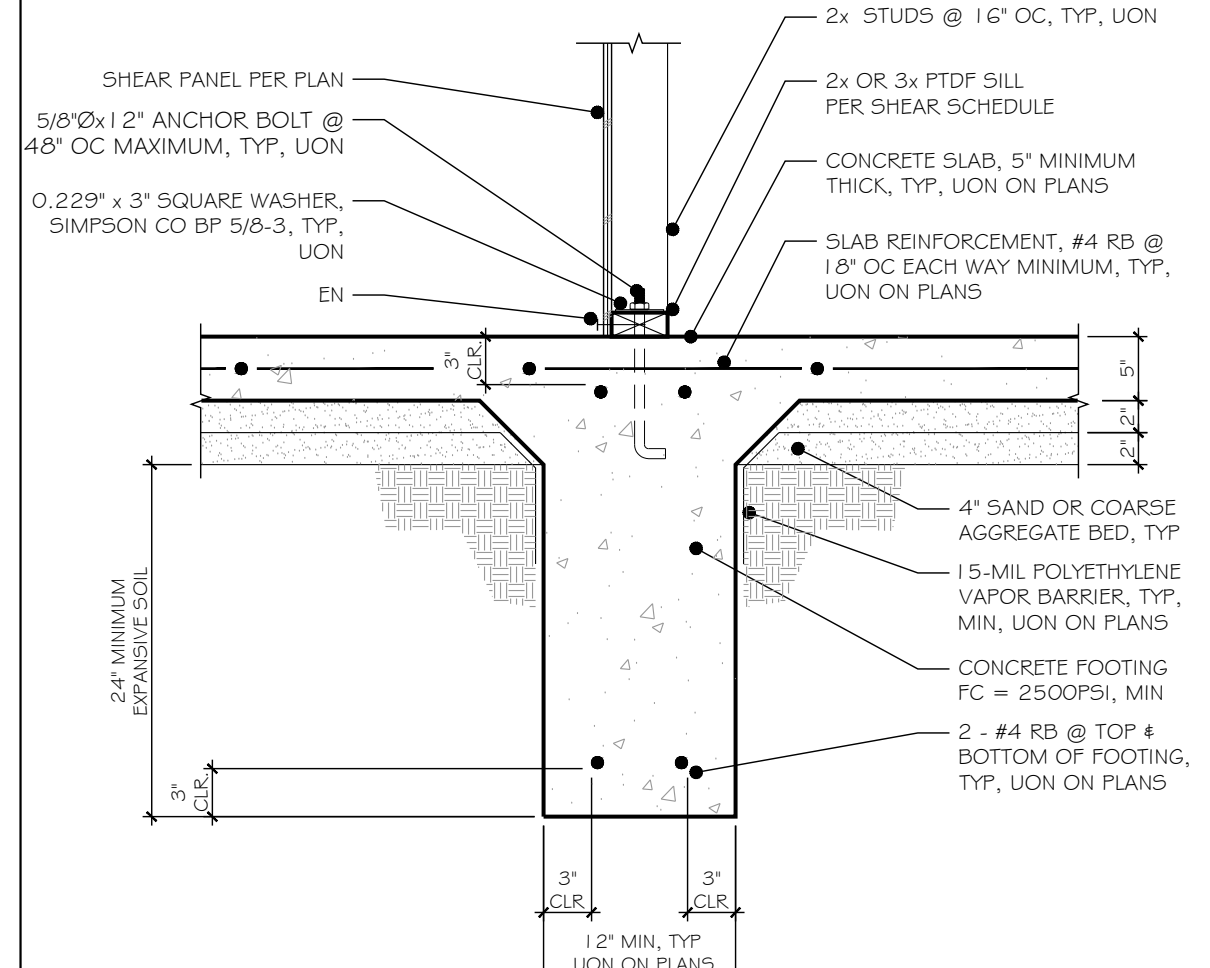
**18** STANDARD HOOK DETAILS  
SCALE: N.T.S.  
A-DT-FDN-SG-0041



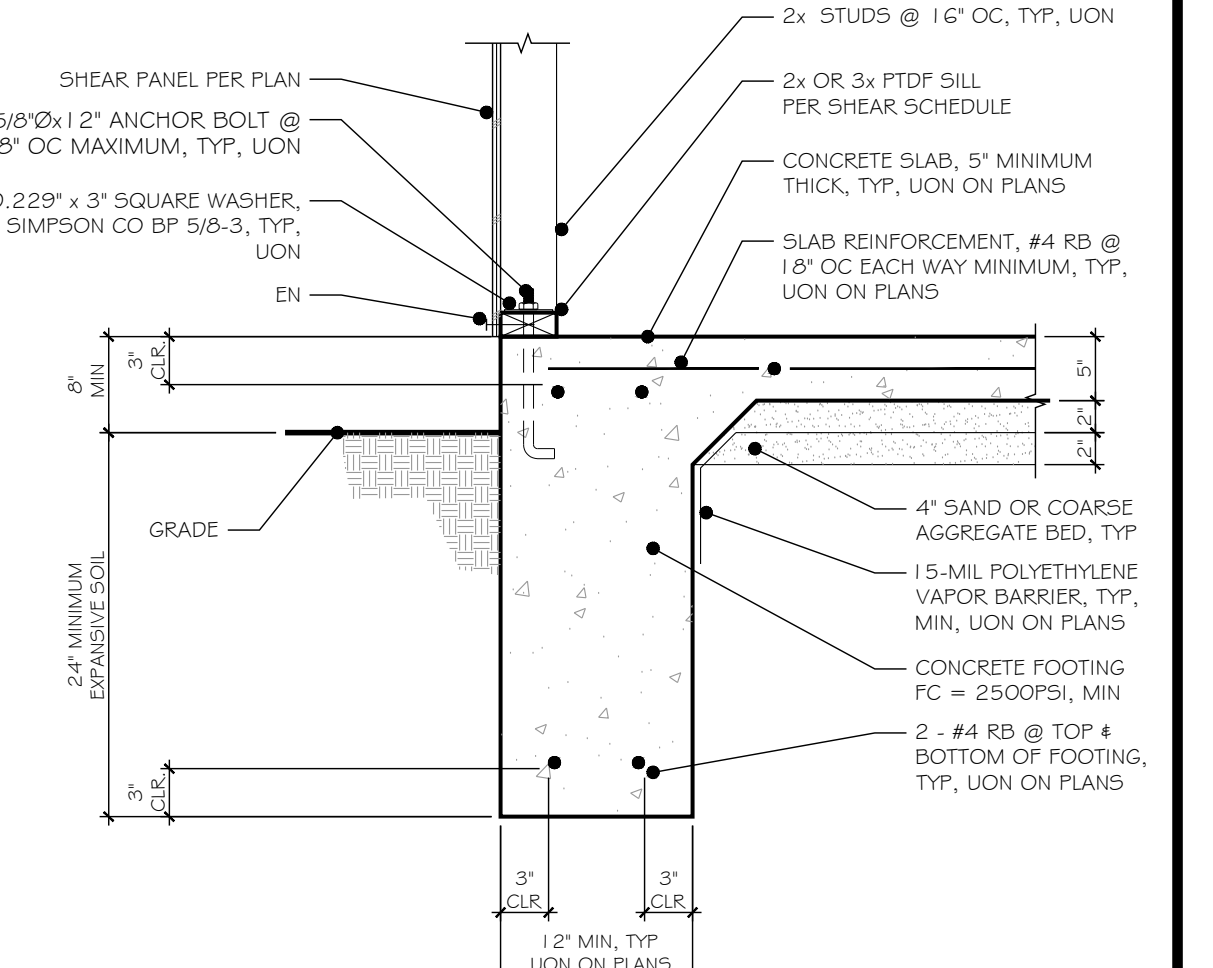
**14** POST FOOTING WITHIN SLAB  
SCALE: 1" = 1'-0"  
A-DT-FDN-CP-0020



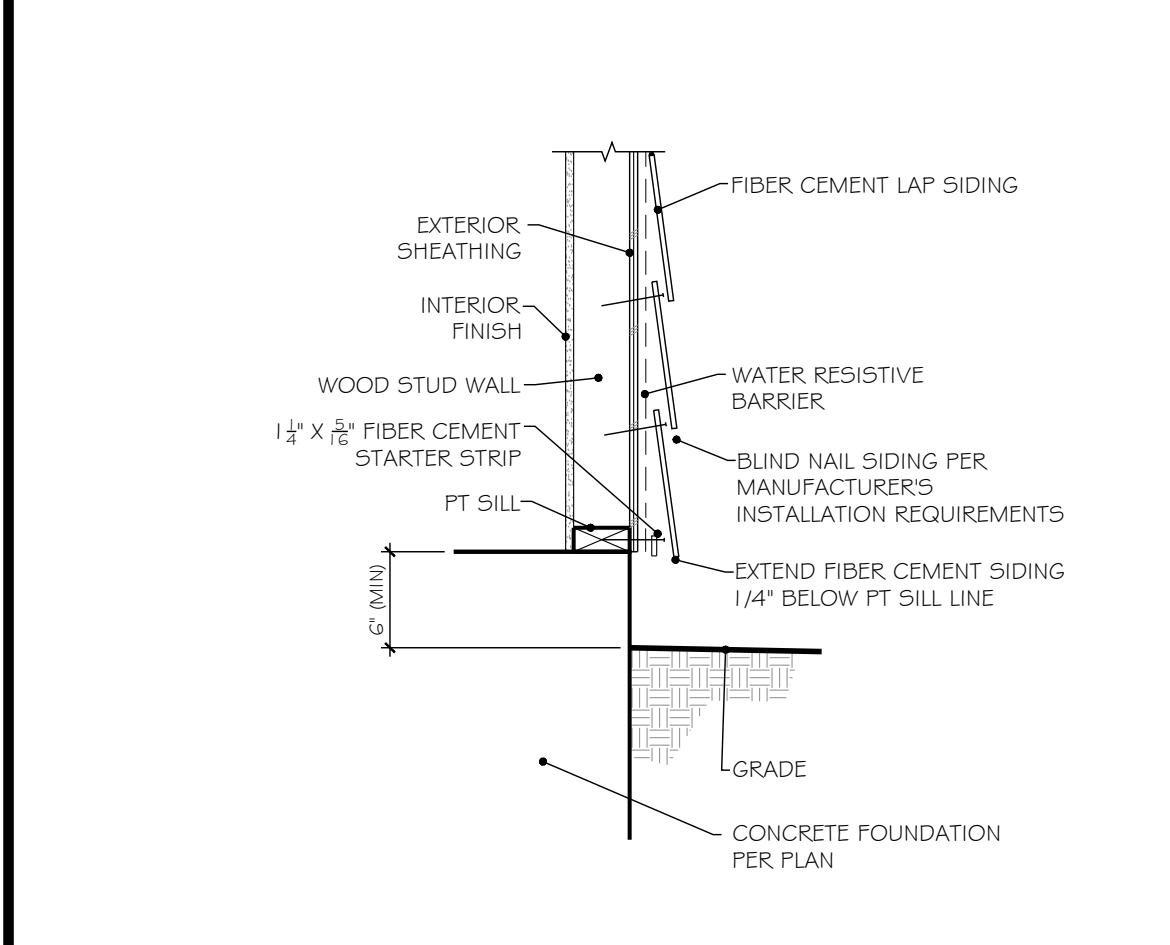
**10** TYPICAL POST FOOTING  
SCALE: 1" = 1'-0"  
A-DT-FDN-CP-0003



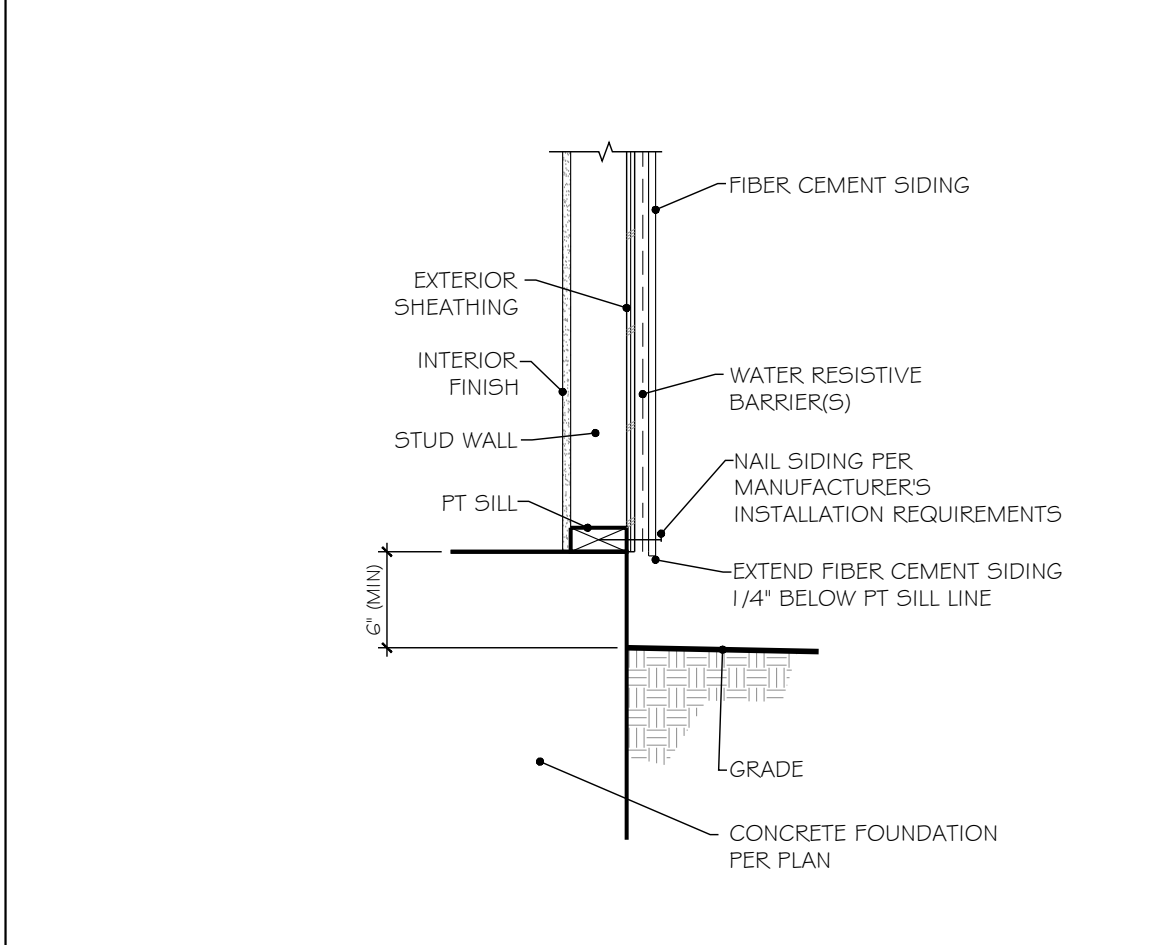
**6** ONE STORY INTERIOR EXPANSIVE SOIL FOOTING  
SCALE: 1" = 1'-0"  
A-DT-FDN-SG-INT-015



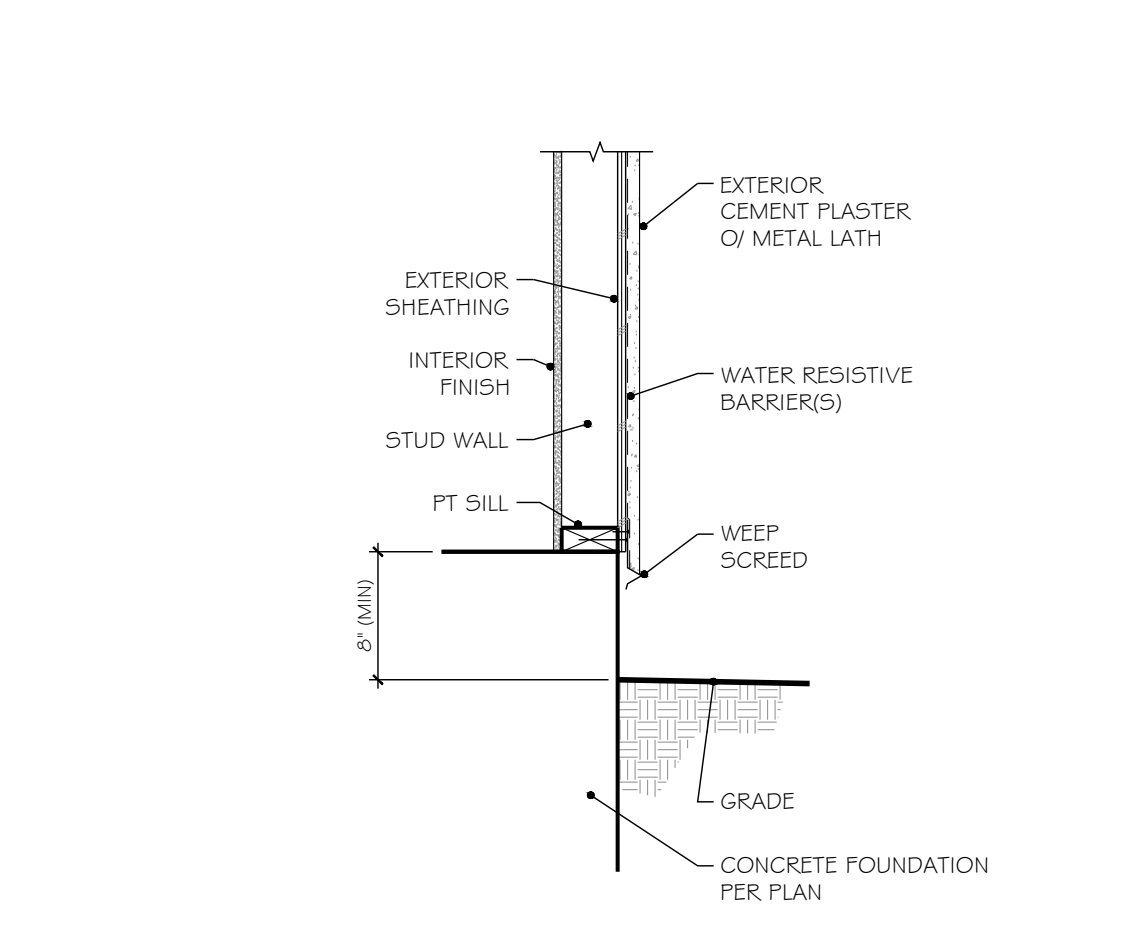
**2** ONE STORY PERIMETER EXPANSIVE SOIL FOOTING  
SCALE: 1" = 1'-0"  
A-DT-FDN-SG-PTR-026



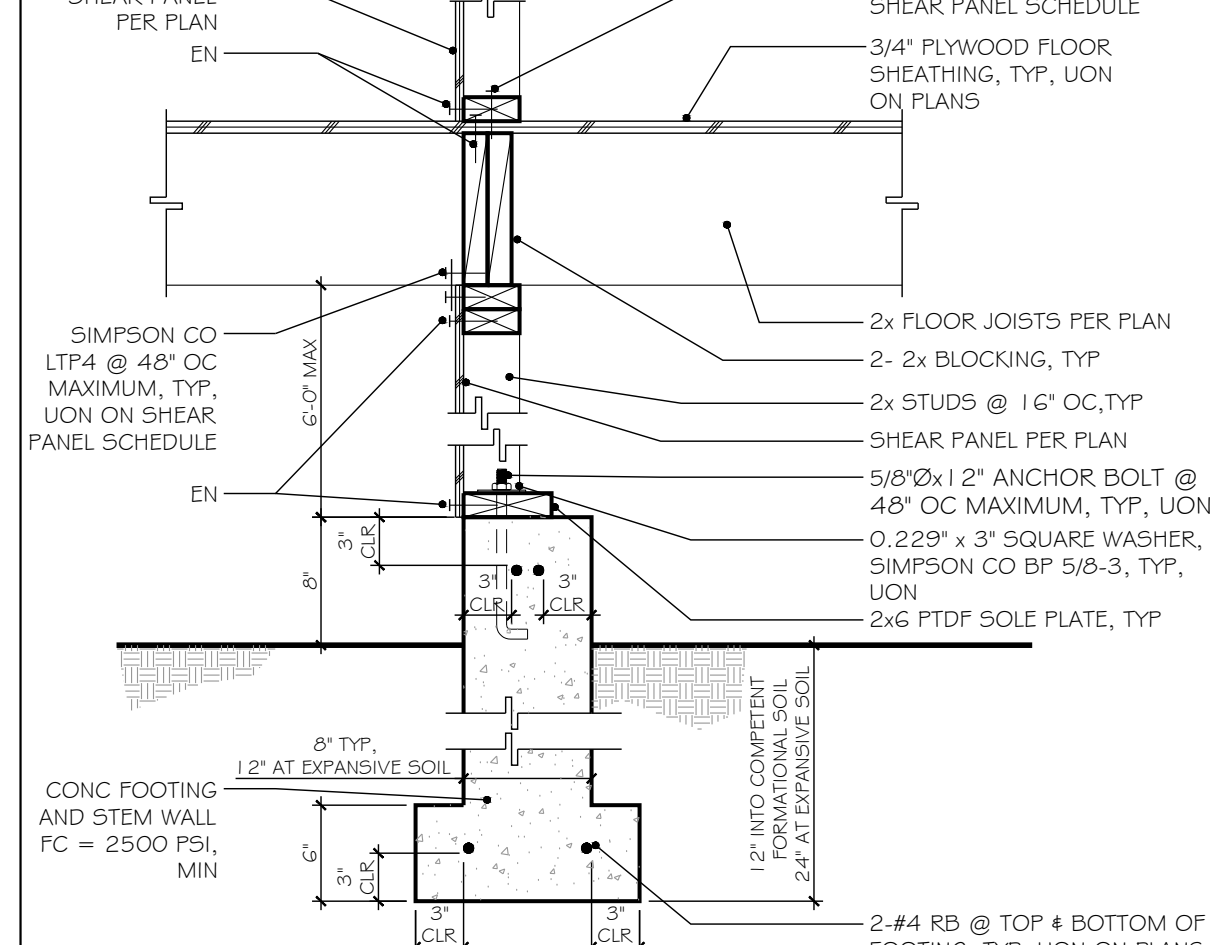
**19** LAP SIDING AT FOUNDATION  
SCALE: 1" = 1'-0"  
A-DT-FIN-FC5-L5-0001



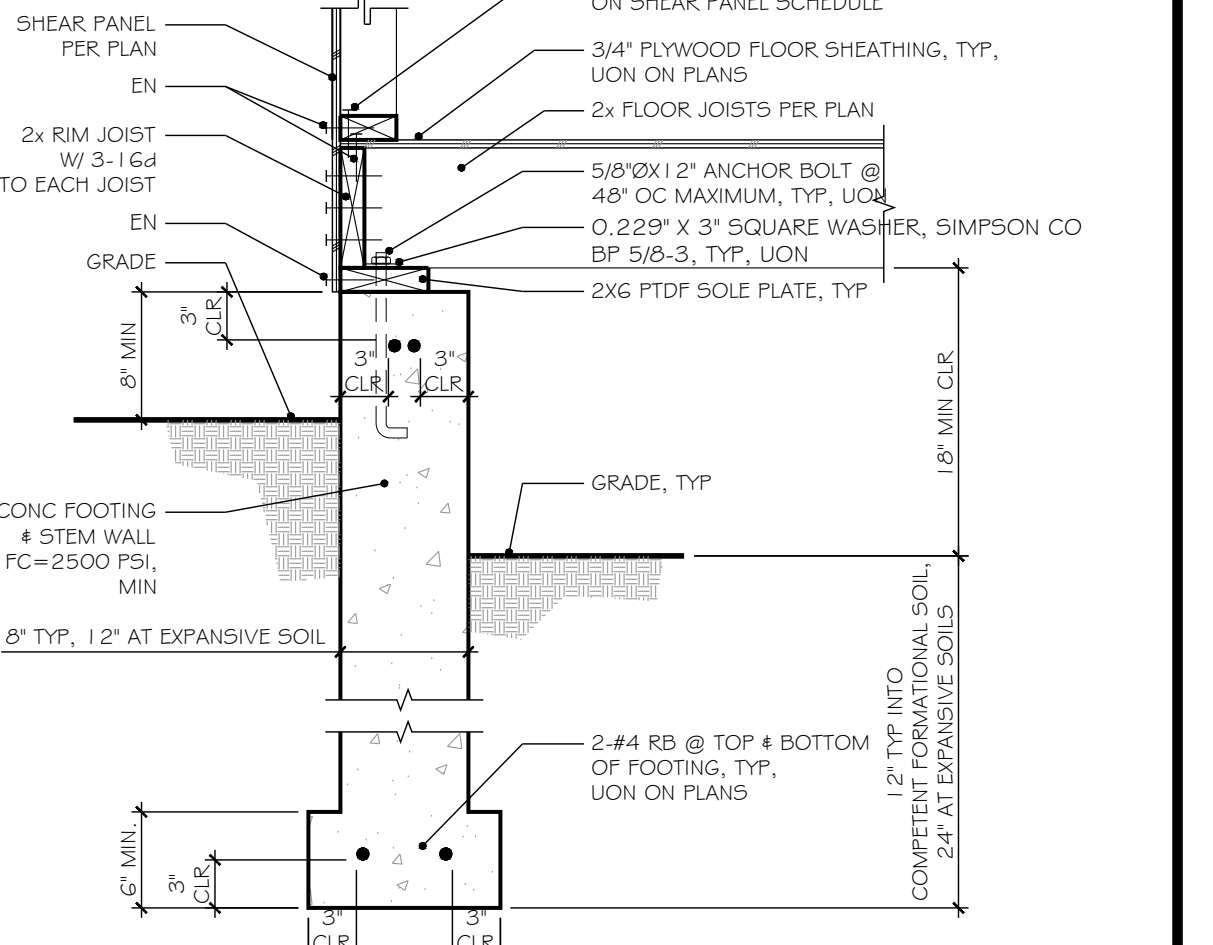
**15** BOARD AND BATT SIDING AT FOUNDATION  
SCALE: 1" = 1'-0"  
A-DT-FIN-FC5-BB-0001



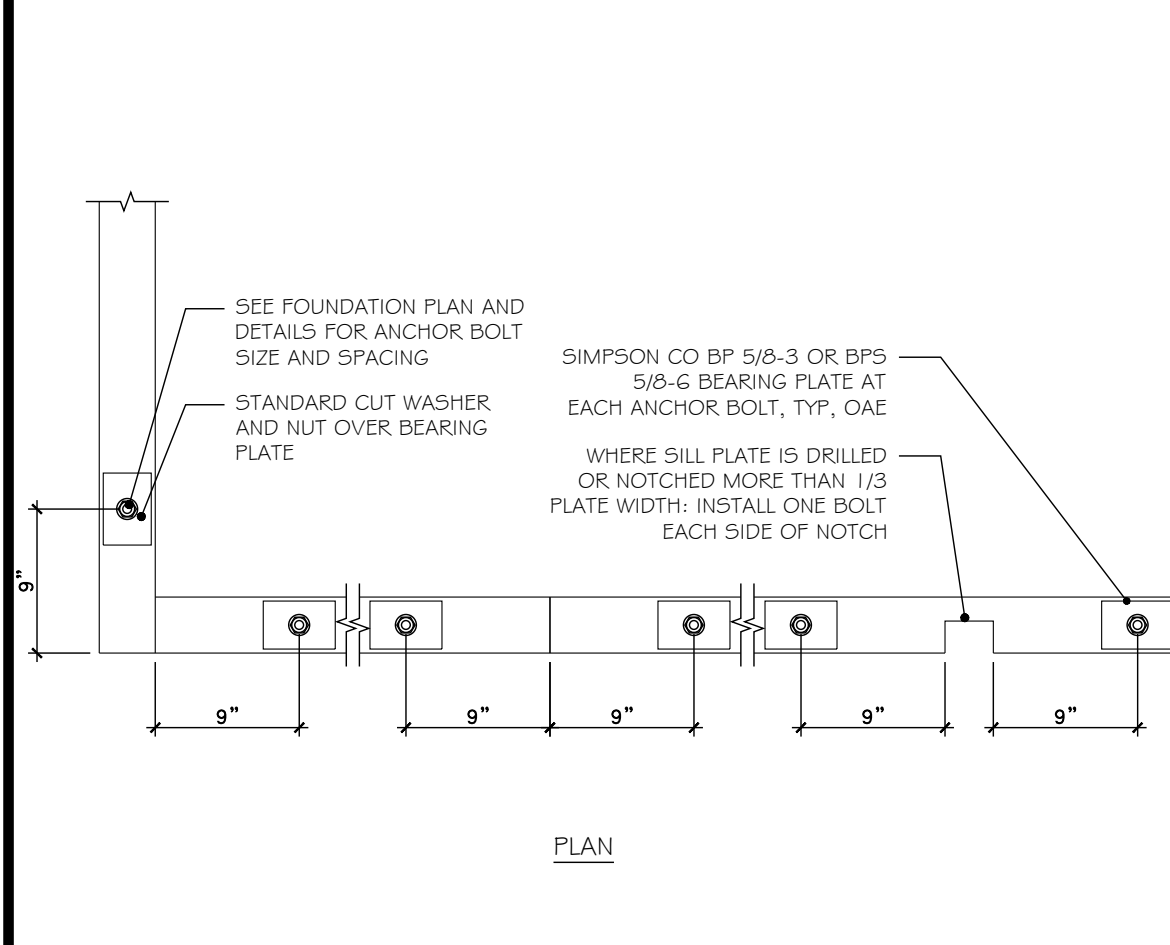
**11** CEMENT PLASTER WEEP SCREED AT FOUNDATION  
SCALE: 1" = 1'-0"  
A-DT-FIN-PL-0001



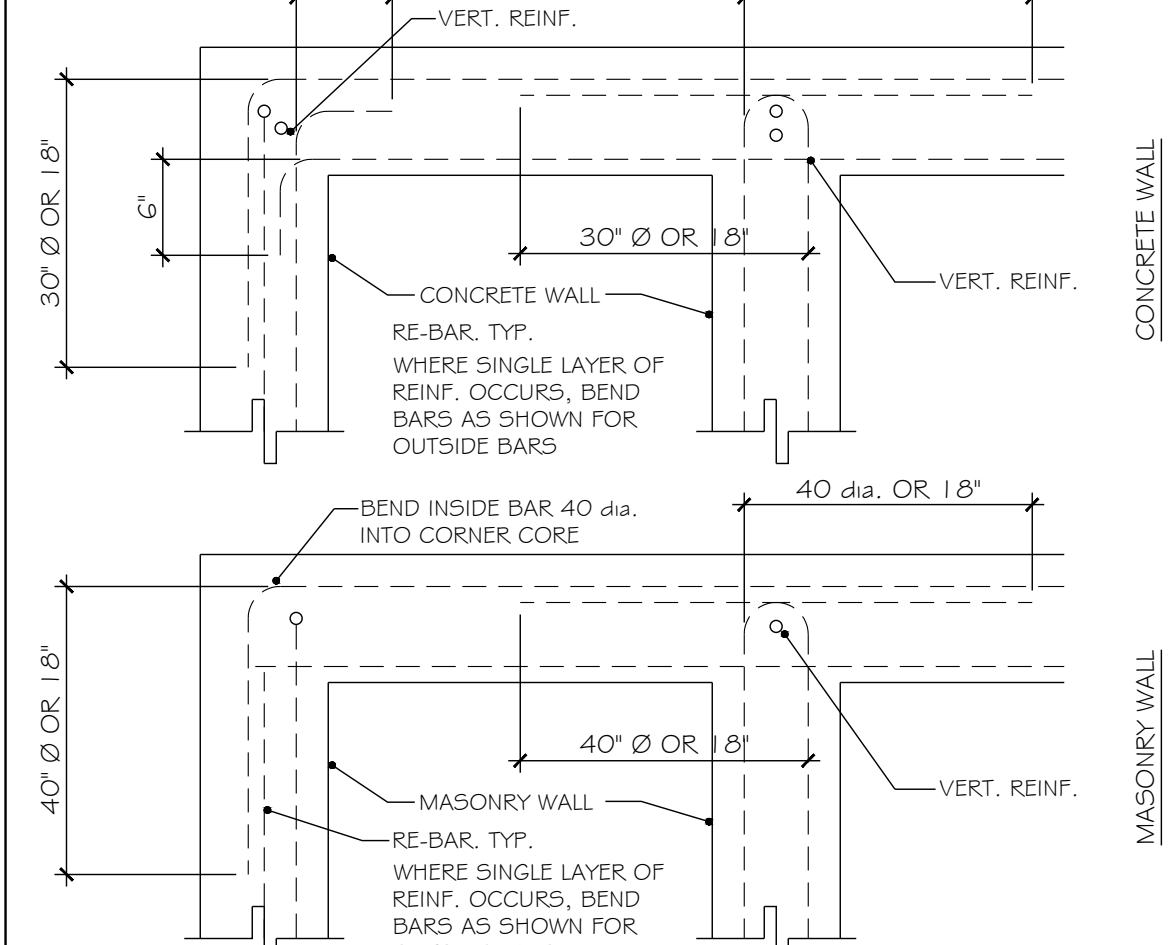
**7** ONE-STORY INTERIOR STEM WALL FOOTING - PERPENDICULAR  
SCALE: 1" = 1'-0"  
A-DT-FDN-SW-0073



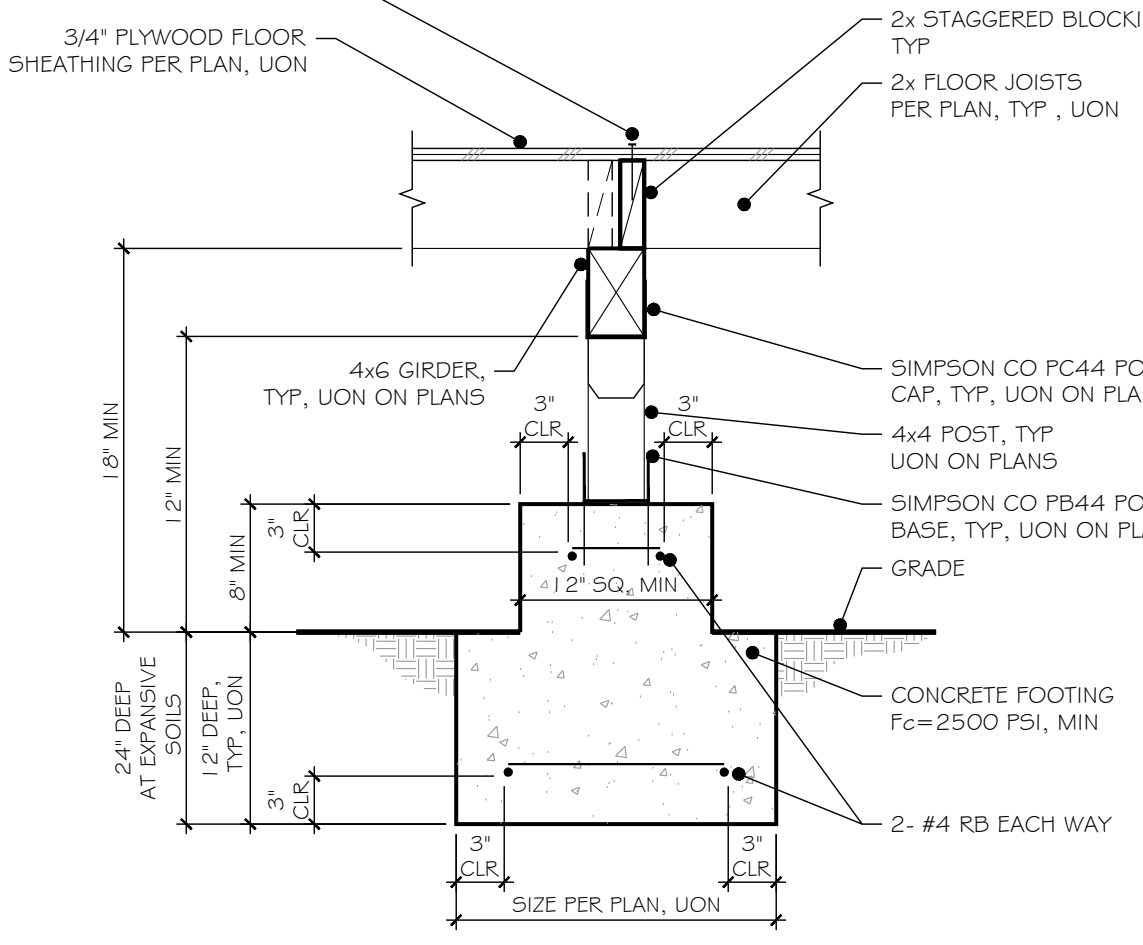
**3** ONE STORY EXTERIOR STEM WALL FOOTING-PERPENDICULAR  
SCALE: 1" = 1'-0"  
A-DT-FDN-SW-0002



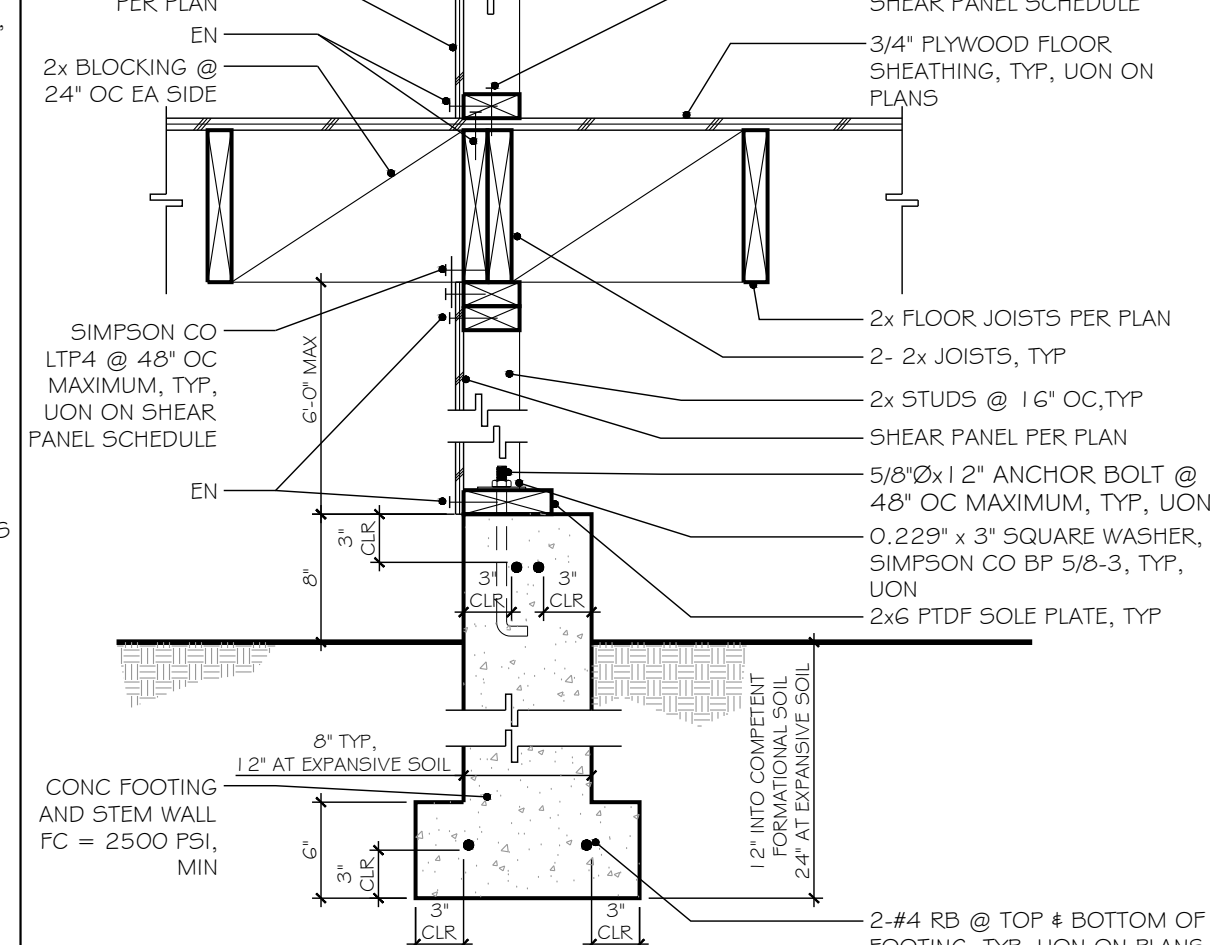
**20** SILL PLATE ANCHOR BOLTING  
SCALE: 1" = 1'-0"  
A-DT-FDN-SG-ANC-002



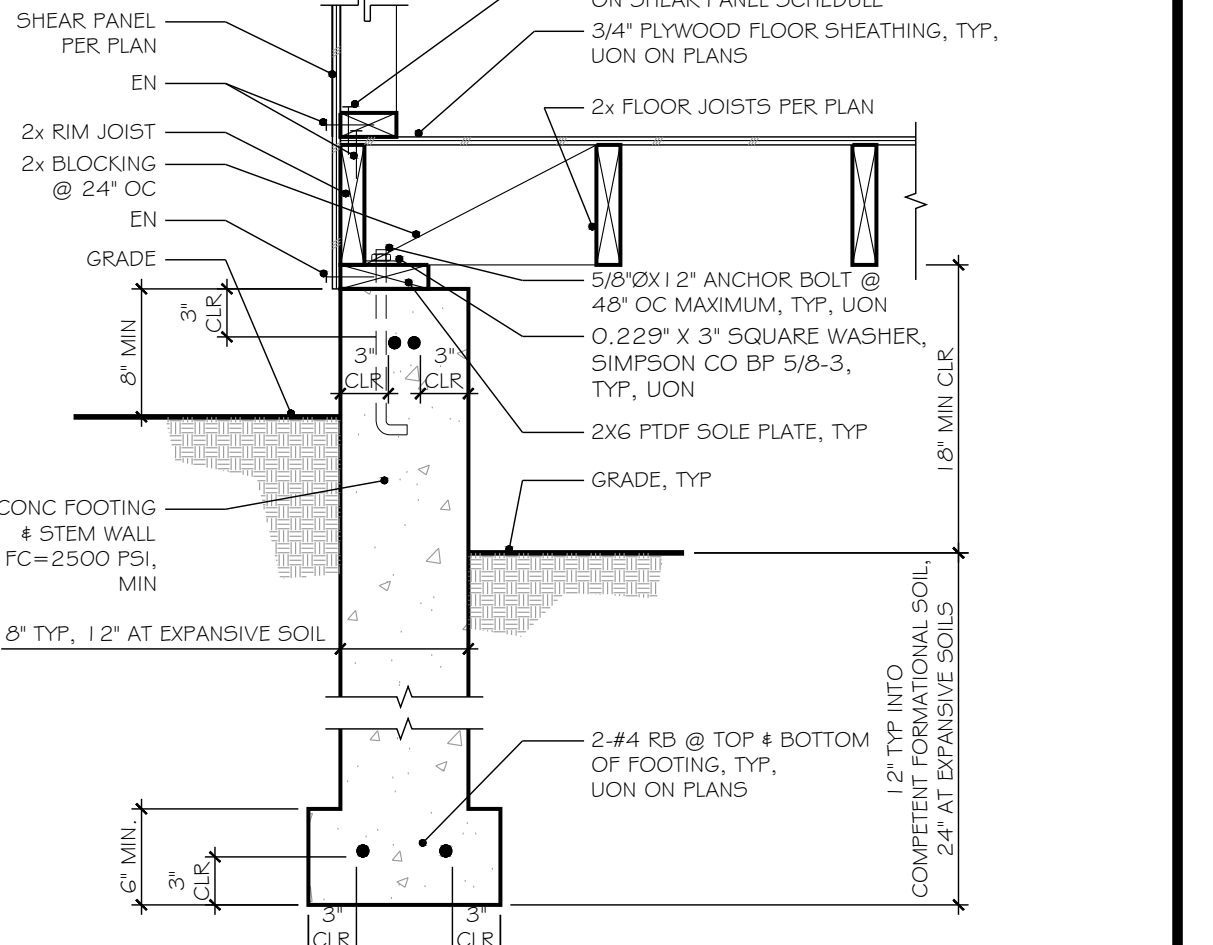
**16** TYPICAL CONCRETE / MASONRY WALL REINFORCEMENT  
SCALE: 1" = 1'-0"  
A-DT-FDN-SW-0021



**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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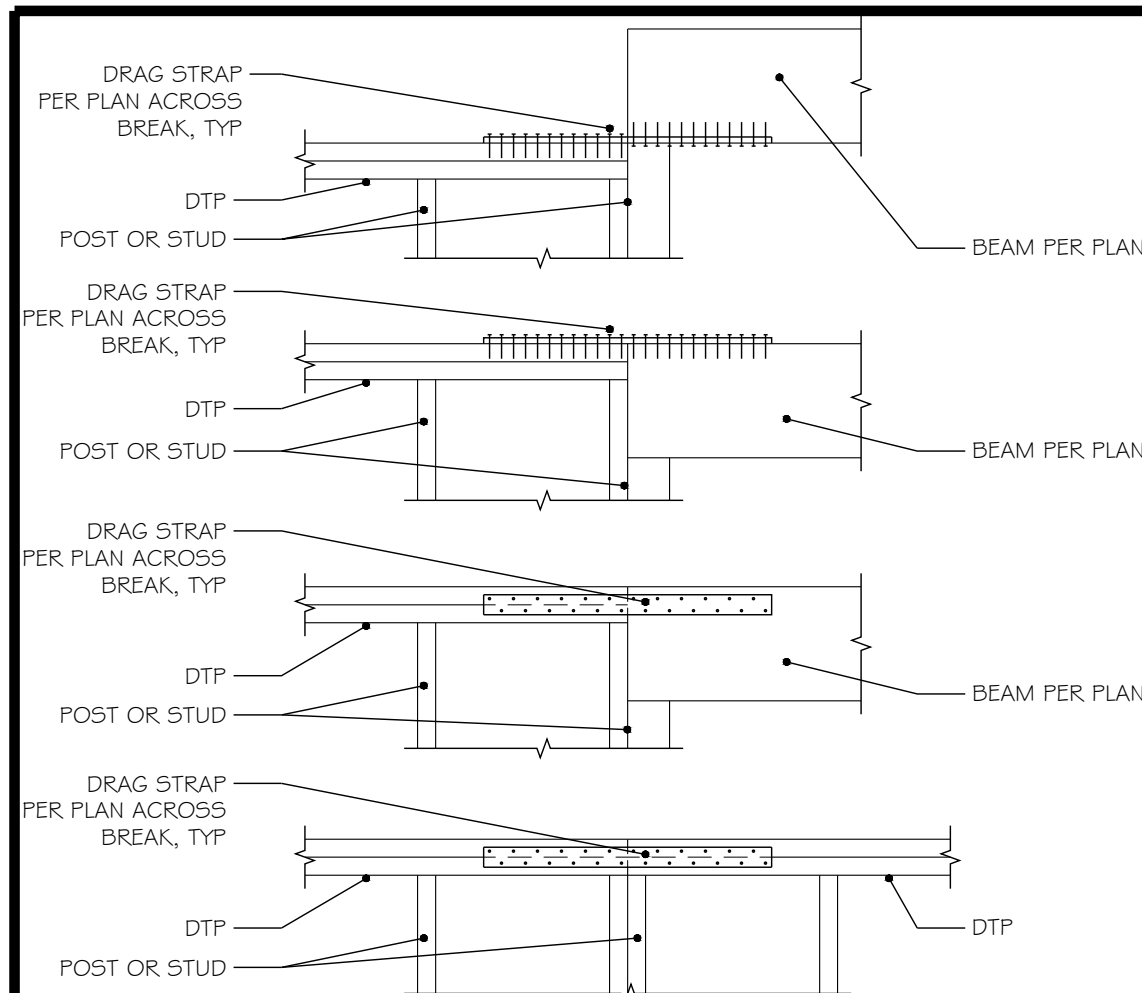
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CITY: ANAHEIM

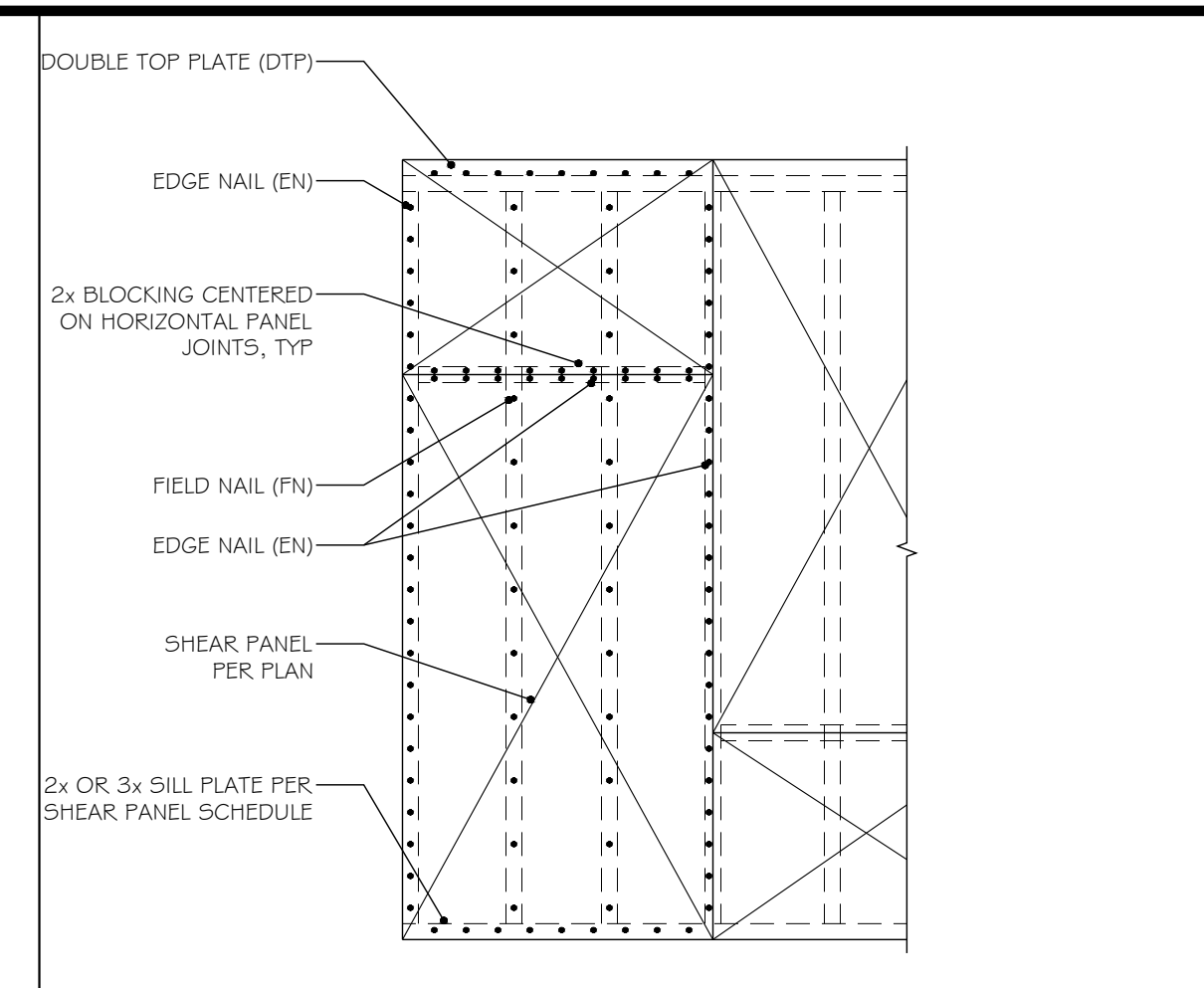
JOB: 202409R

**DETAILS**

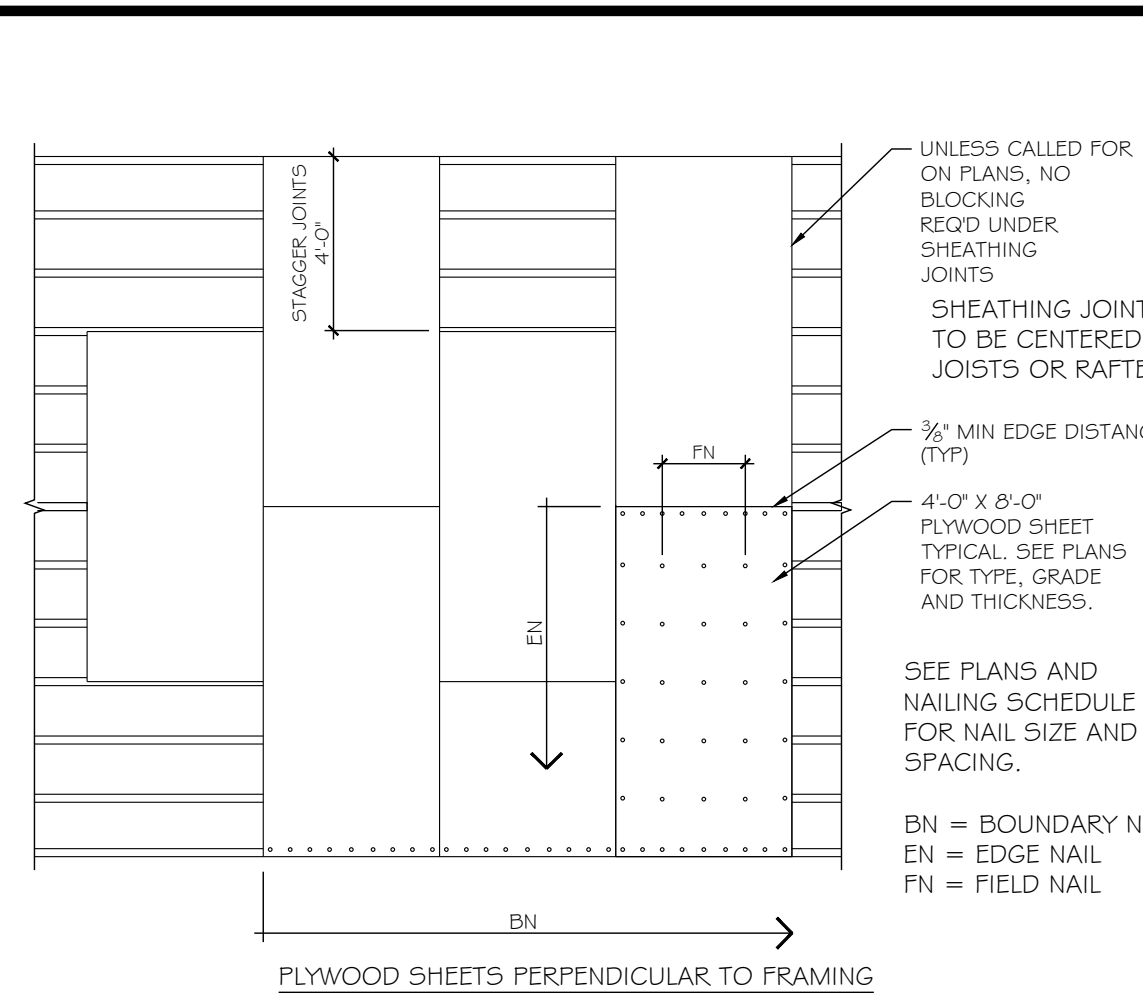
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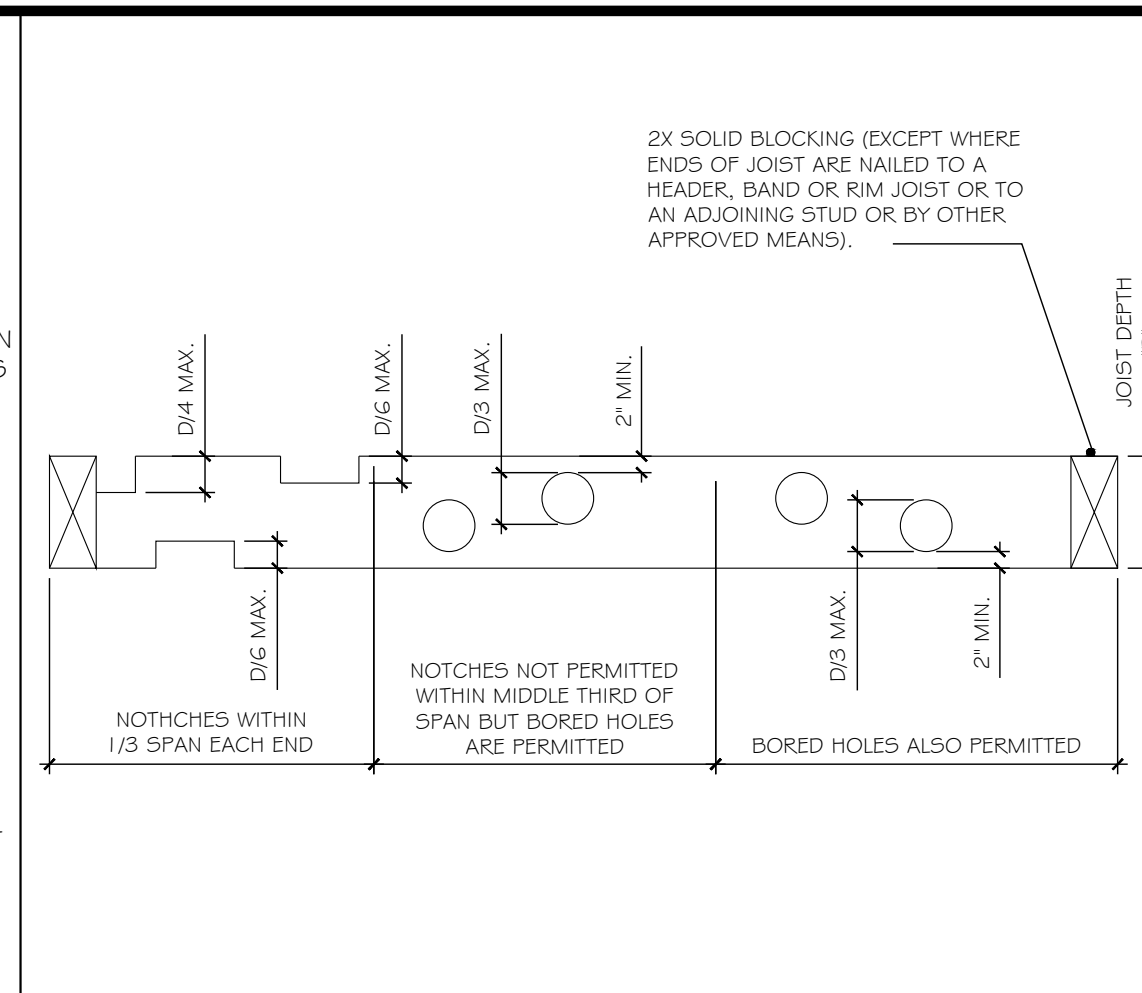
**37** DRAG STRAP AT TOP PLATE TO BEAM OR TOP PLATE  
SCALE: 3/4" = 1'-0"  
A-DT-FMG-WF-0013



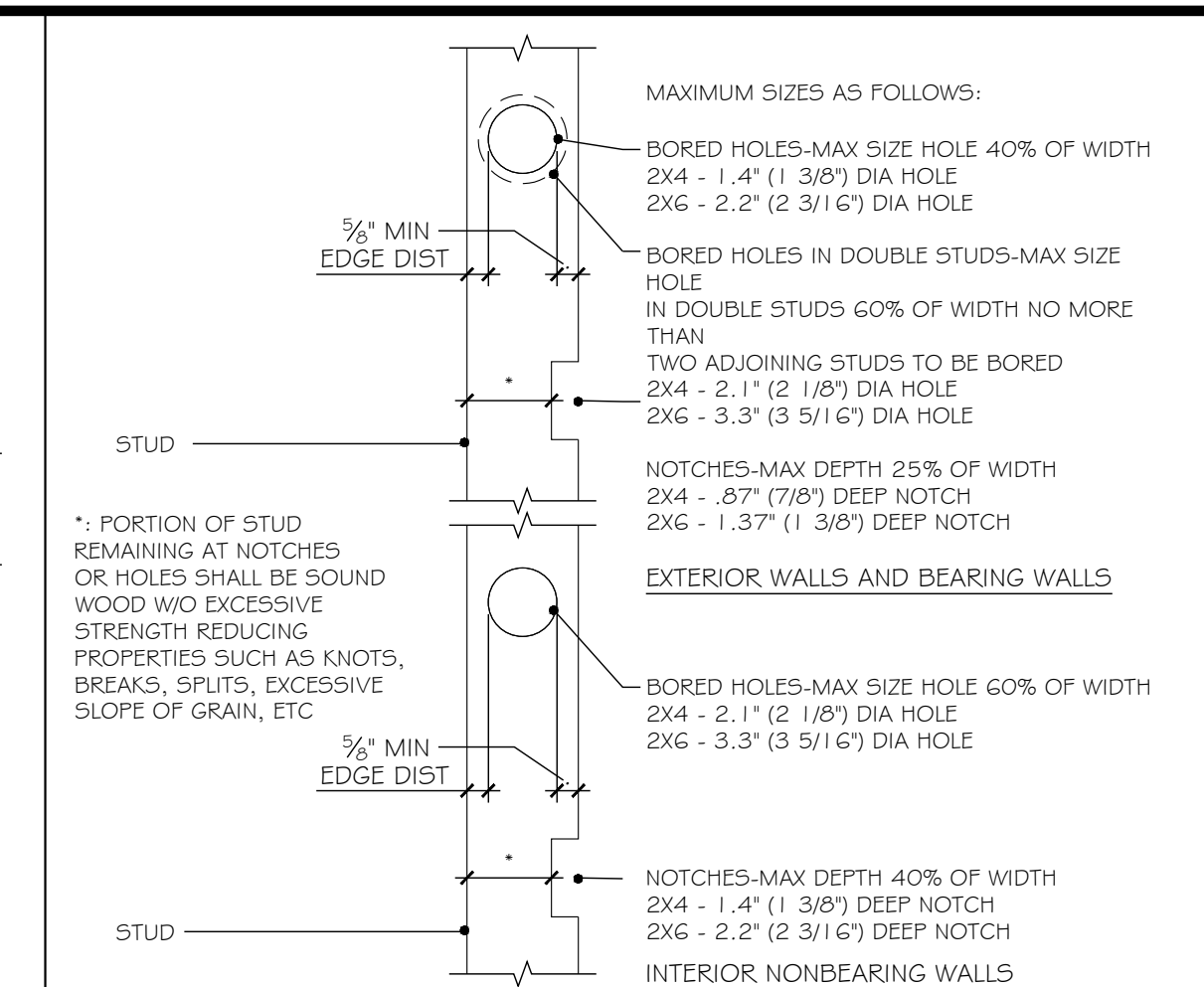
**33** TYPICAL SHEAR PANEL  
SCALE: N.T.S.  
A-DT-FMG-WF-0018



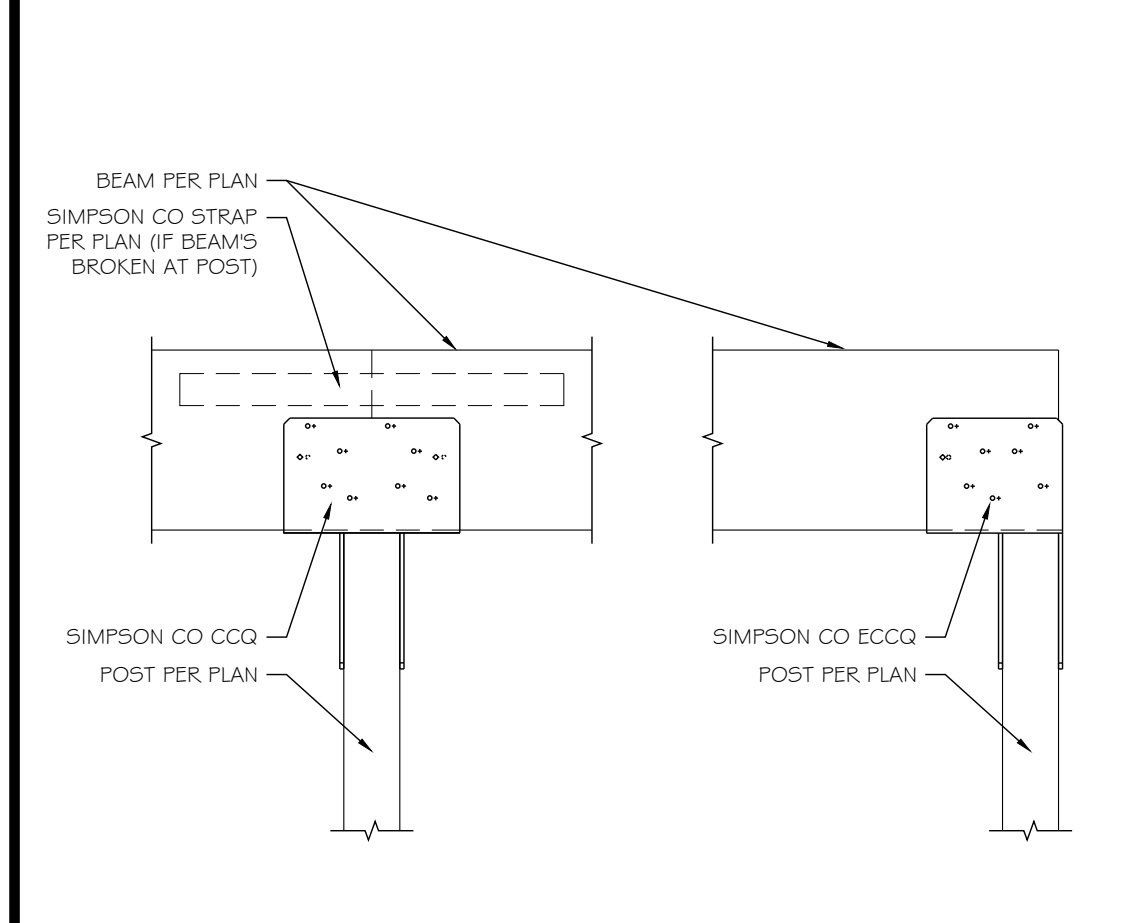
**29** WOOD ROOF AND FLOOR SHEATHING LAYOUT  
SCALE: 1" = 1'-0"  
A-DT-FMG-FF-0002



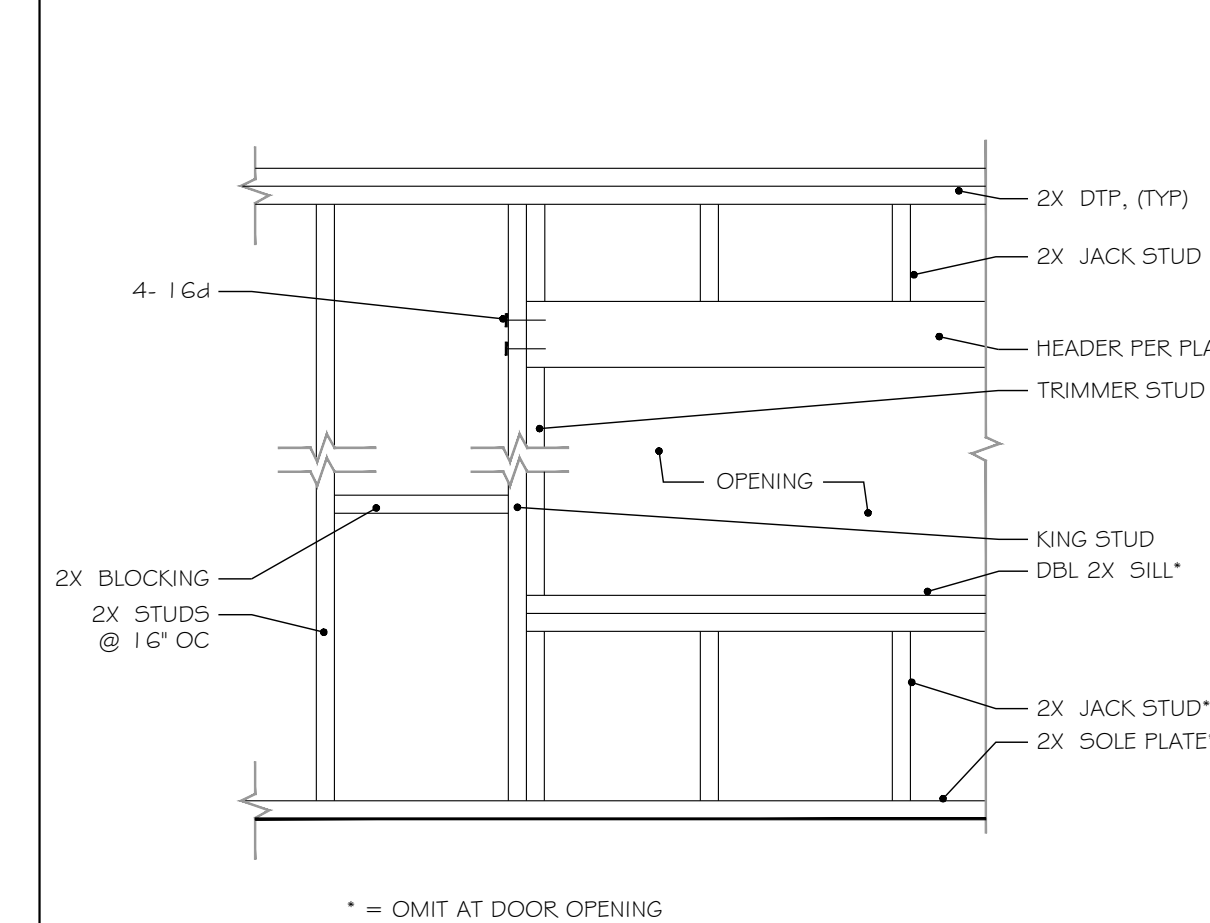
**25** JOIST CUTTING, BORING AND NOTCHING  
SCALE: N.T.S.  
A-DT-FMG-FF-0001



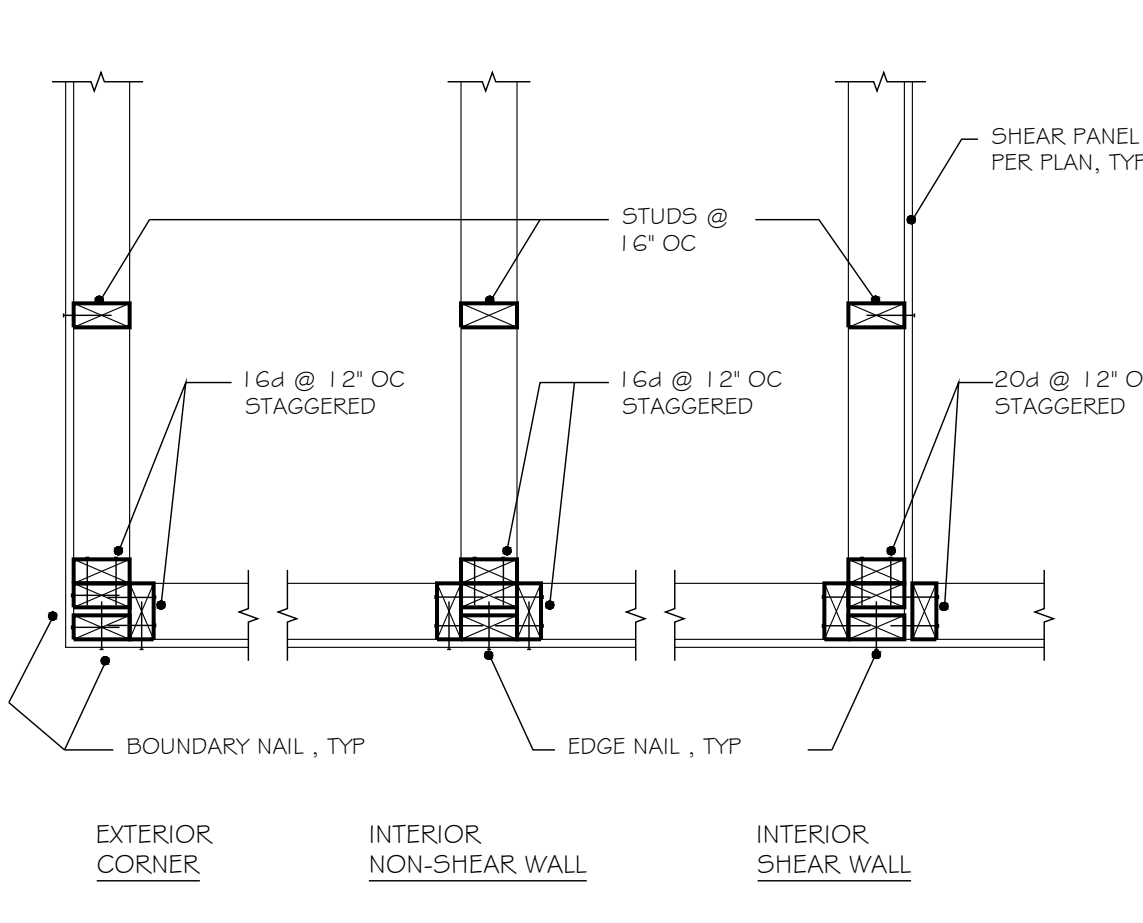
**21** STUD CUTTING, BORING AND NOTCHING  
SCALE: N.T.S.  
A-DT-FMG-WF-0004



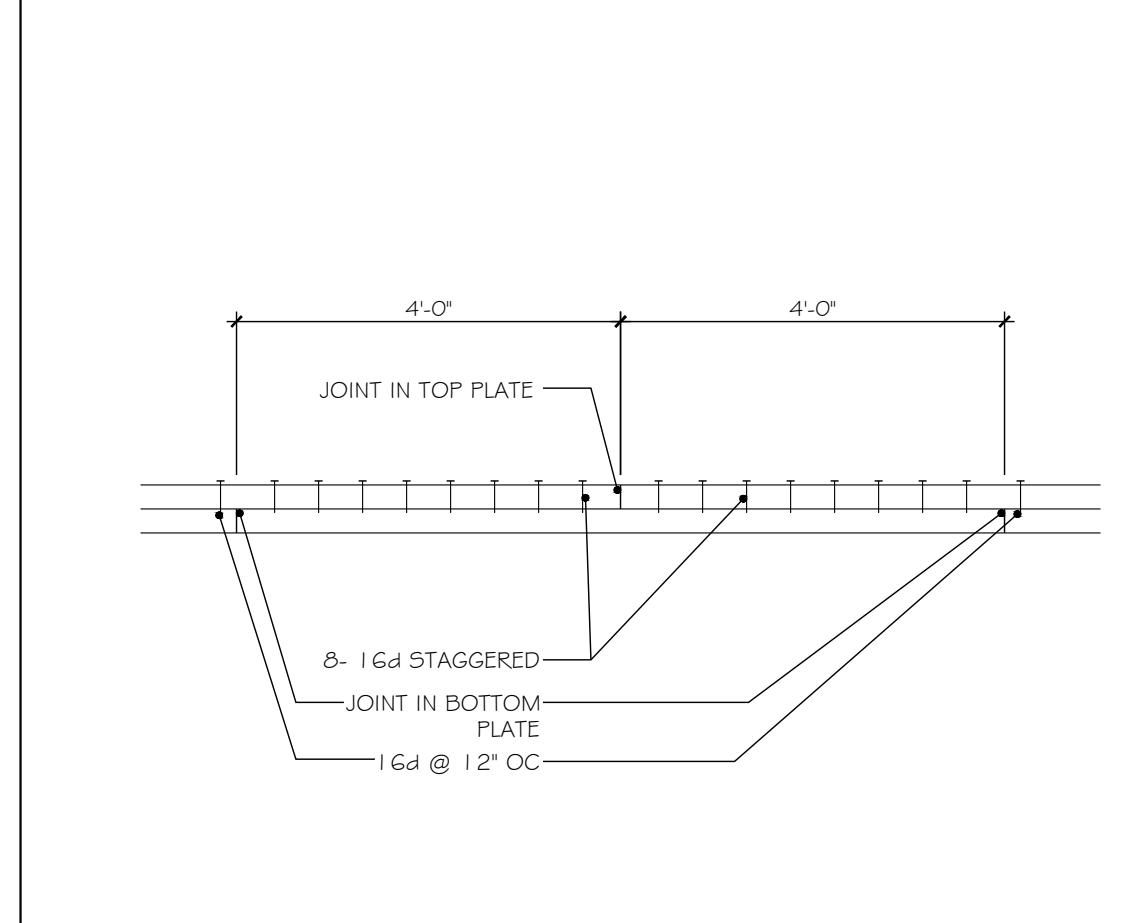
**38** POST TO BEAM WITH CCQ/ECCQ  
SCALE: 1" = 1'-0"  
A-DT-FMG-PB-0007



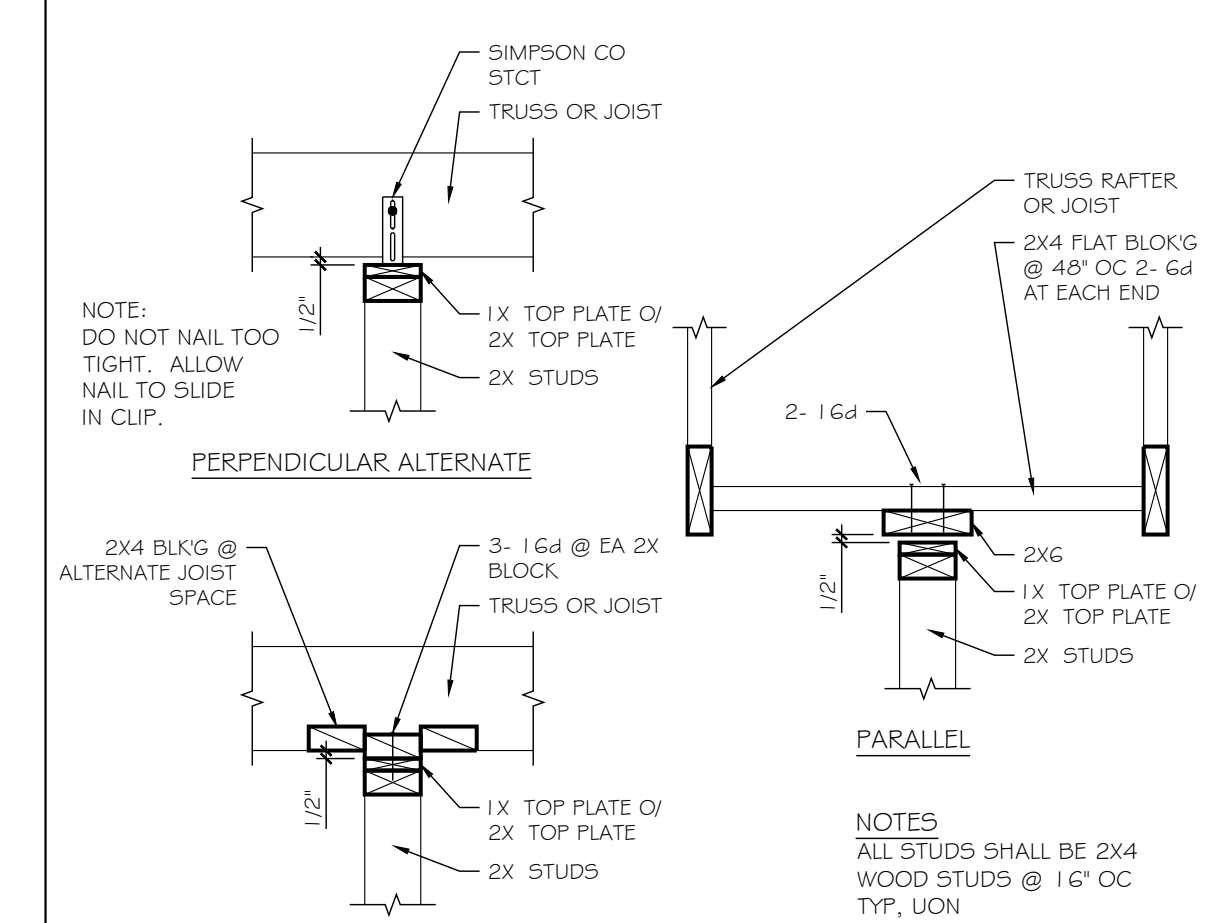
**34** FRAMING FOR ROUGH WINDOW OR DOOR OPENING  
SCALE: 1/2" = 1'-0"  
A-DT-FMG-WF-0006



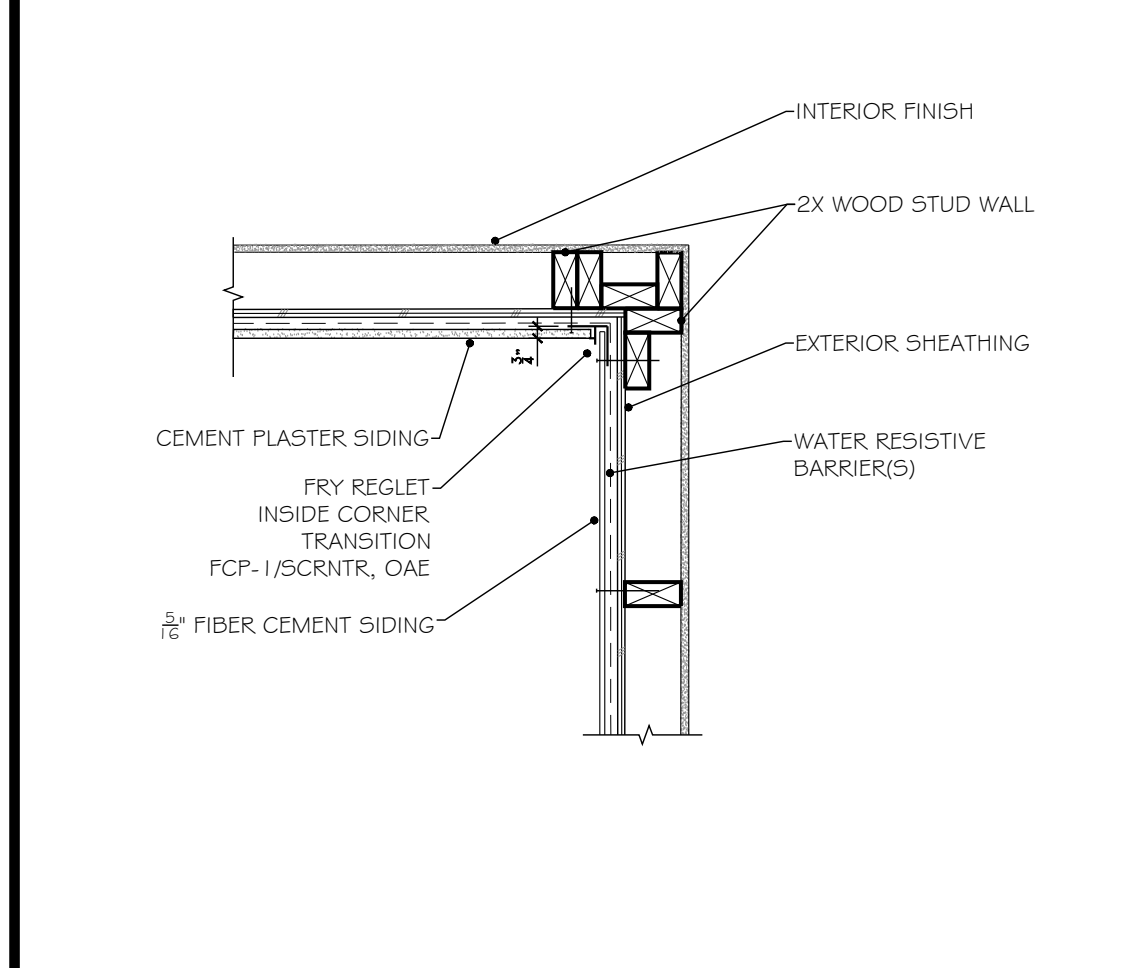
**30** STUD WALL INTERSECTION  
SCALE: 1" = 1'-0"  
A-DT-FMG-WF-0005



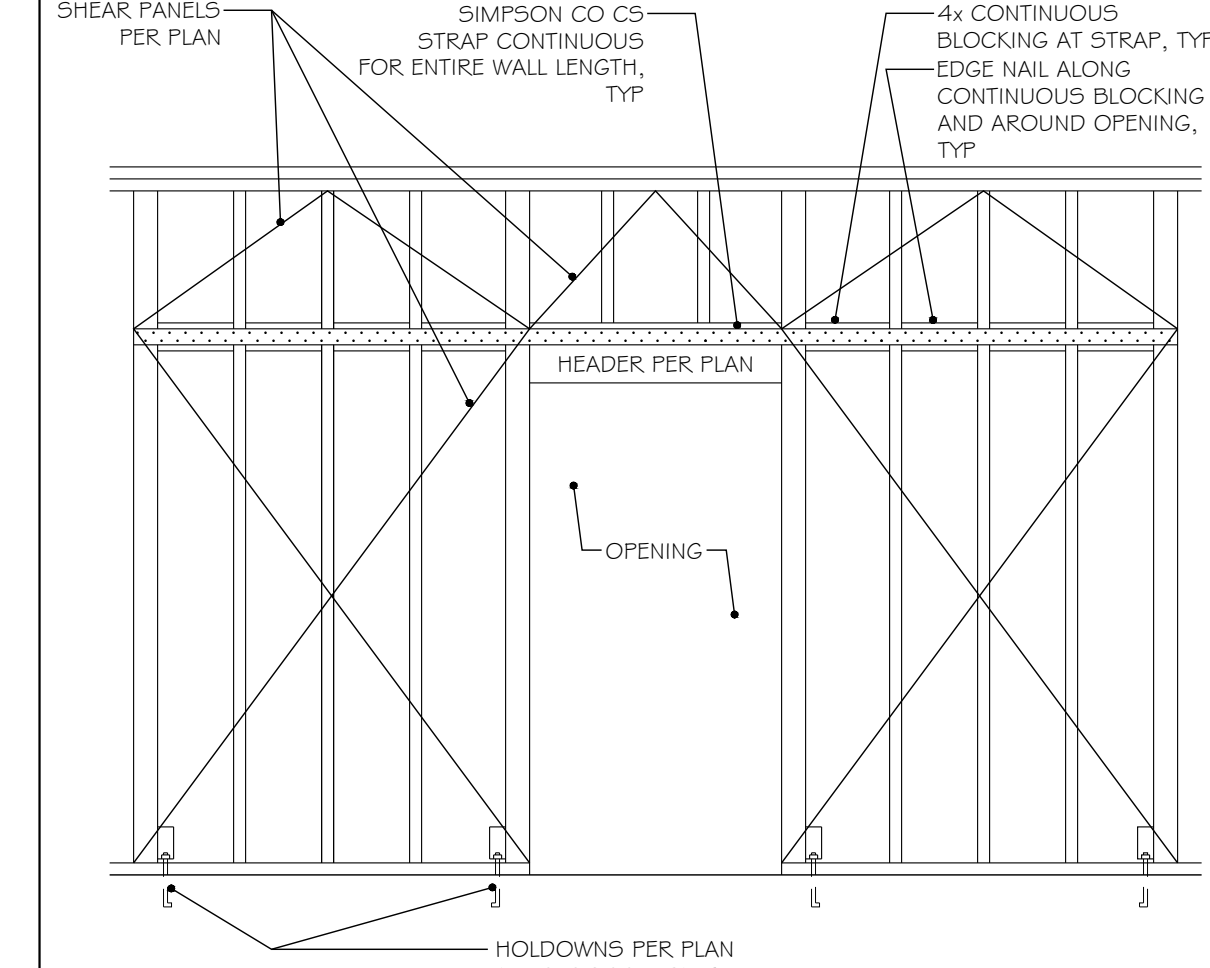
**26** DOUBLE TOP-PLATE SPLICE  
SCALE: N.T.S.  
A-DT-FMG-WF-0019



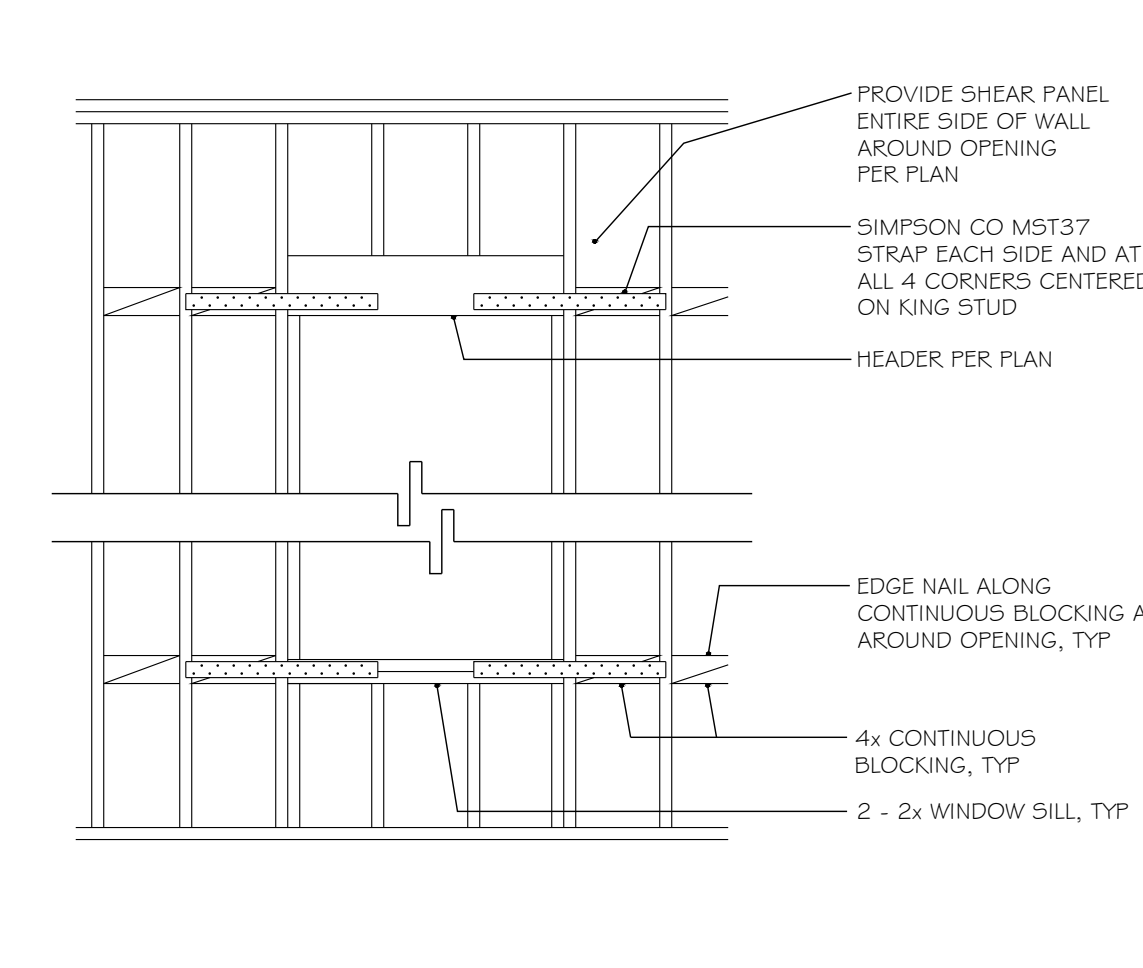
**22** NON-BEARING/NON-SHEAR PARTITIONS AT TOP  
SCALE: 1" = 1'-0"  
A-DT-FMG-WF-0008



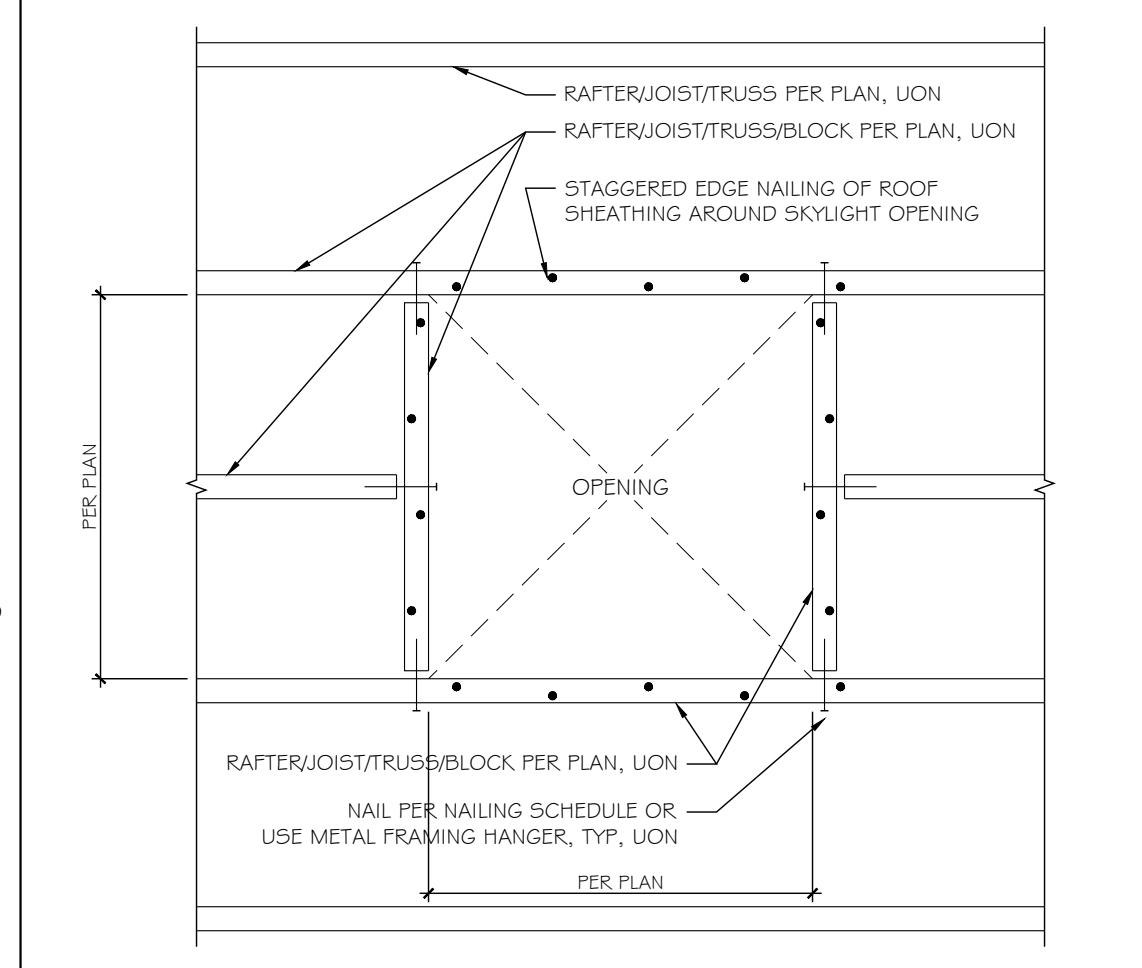
**39** SIDING TO PLASTER AT INSIDE CORNER  
SCALE: 1" = 1'-0"  
A-DT-FIN-FC5-BB-0004



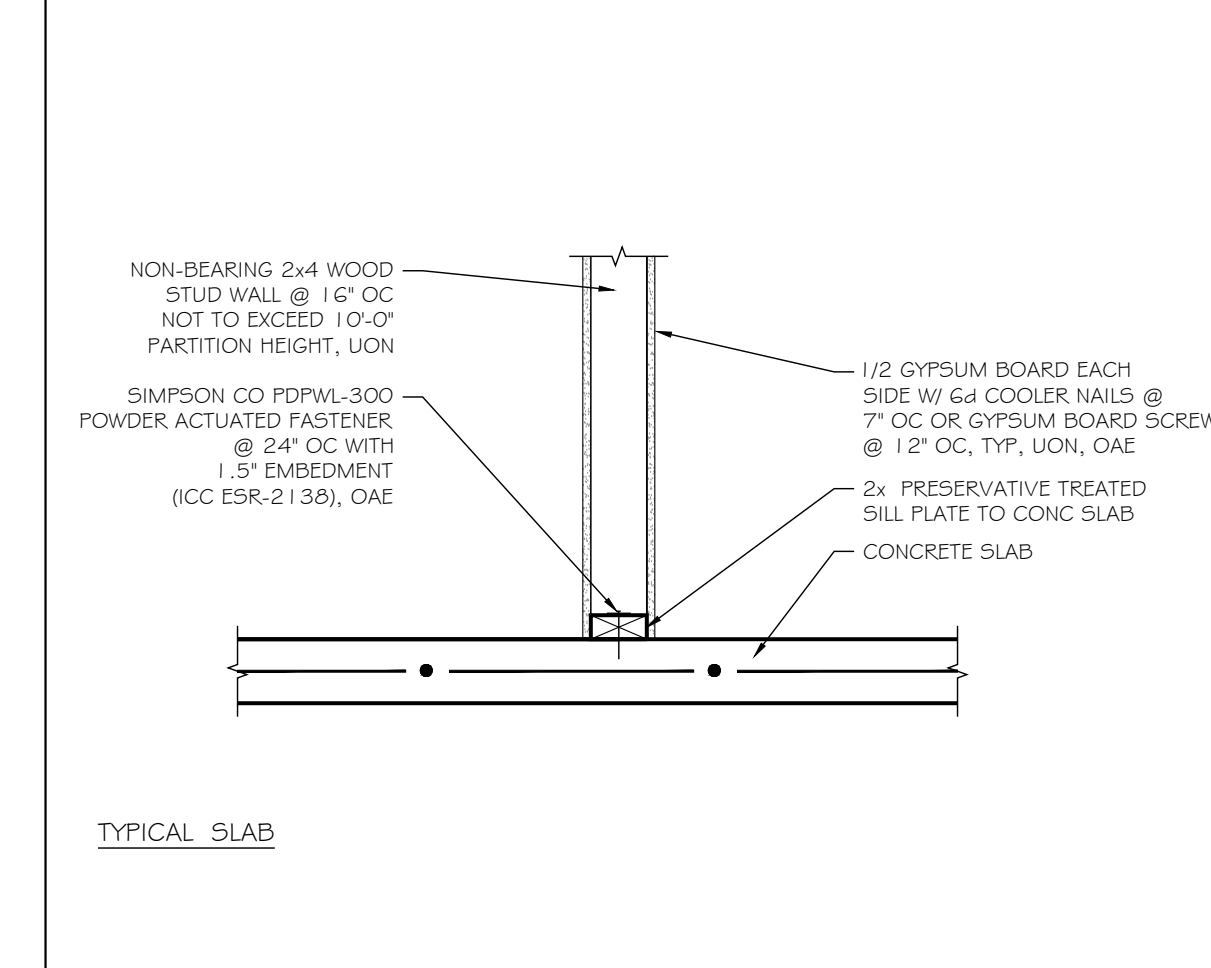
**35** SHEAR WALL DETAIL  
SCALE: N.T.S.  
A-DT-FMG-WF-0020



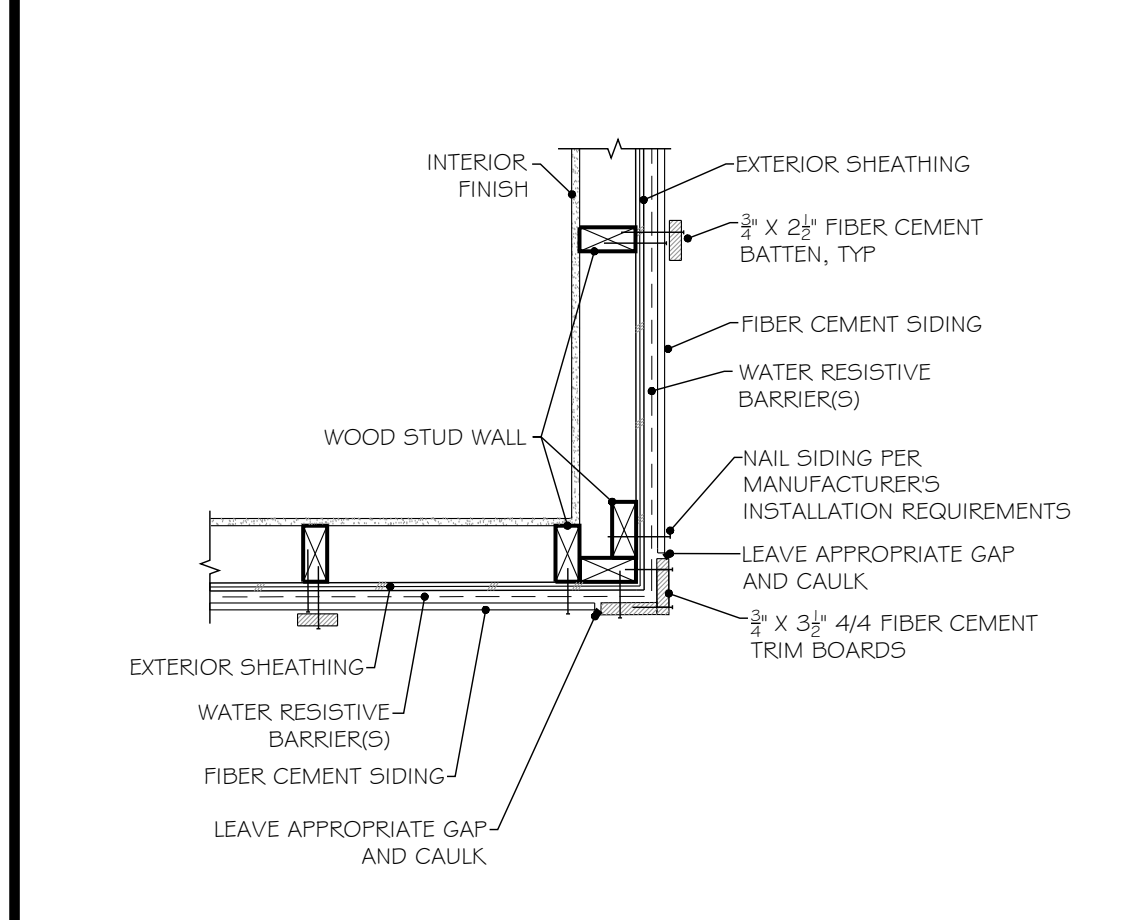
**31** OPENING BLOCKING AND STRAPPING IN SHEAR PANEL  
SCALE: 1/2" = 1'-0"  
A-DT-FMG-WF-0009



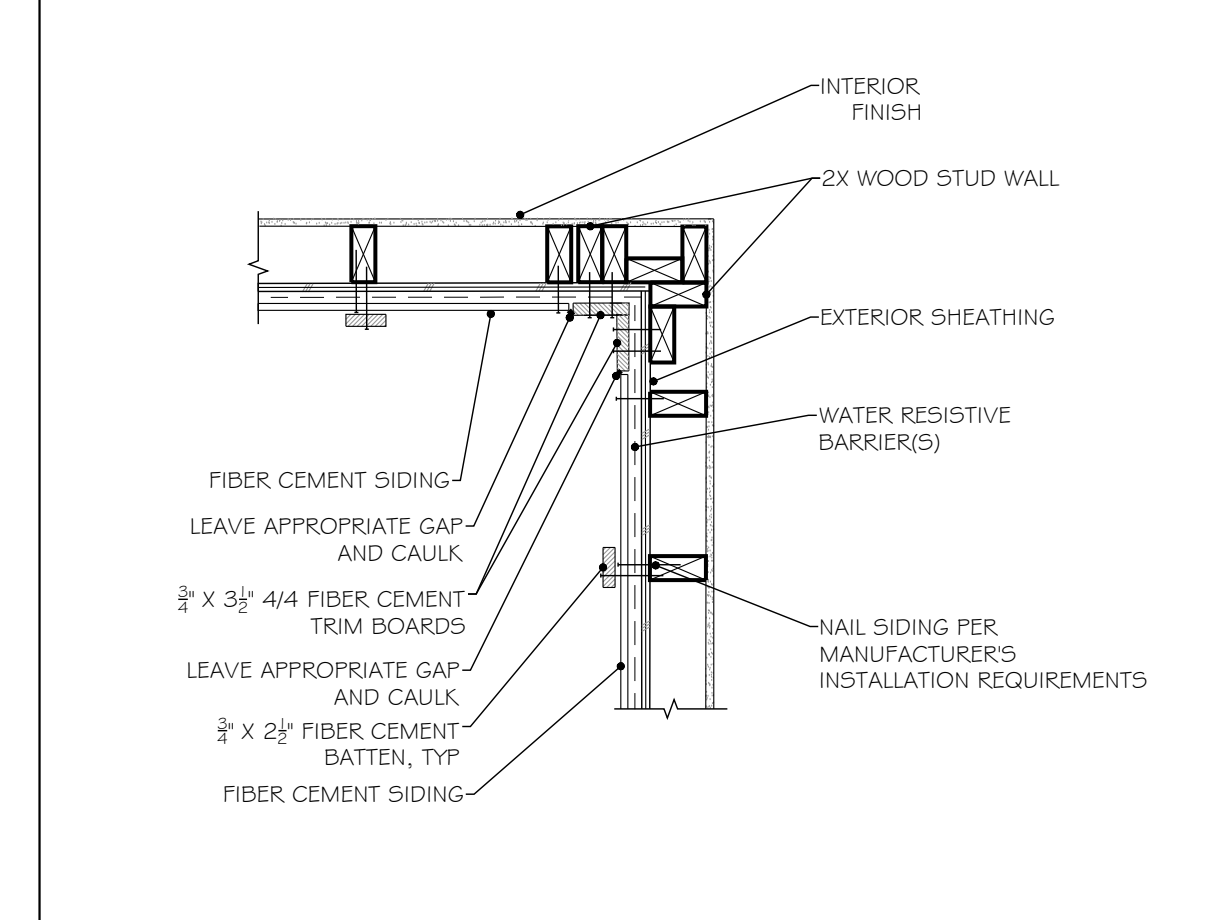
**27** DIAPHRAGM OPENING AT SKYLIGHT  
SCALE: 1" = 1'-0"  
A-DT-FEN-SL-0007



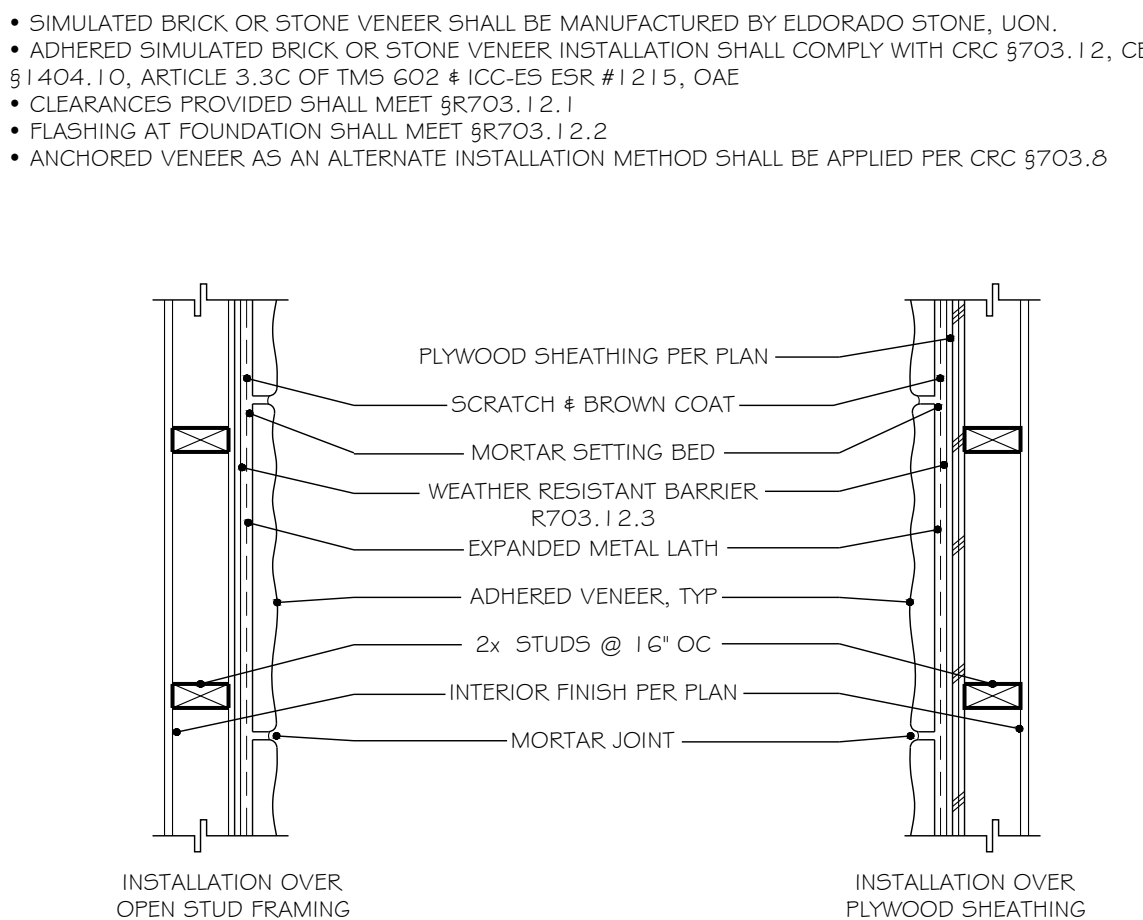
**23** NON-BEARING INTERIOR STUD WALL TO CONCRETE SLAB  
SCALE: 1" = 1'-0"  
A-DT-FMG-WF-COM-0005



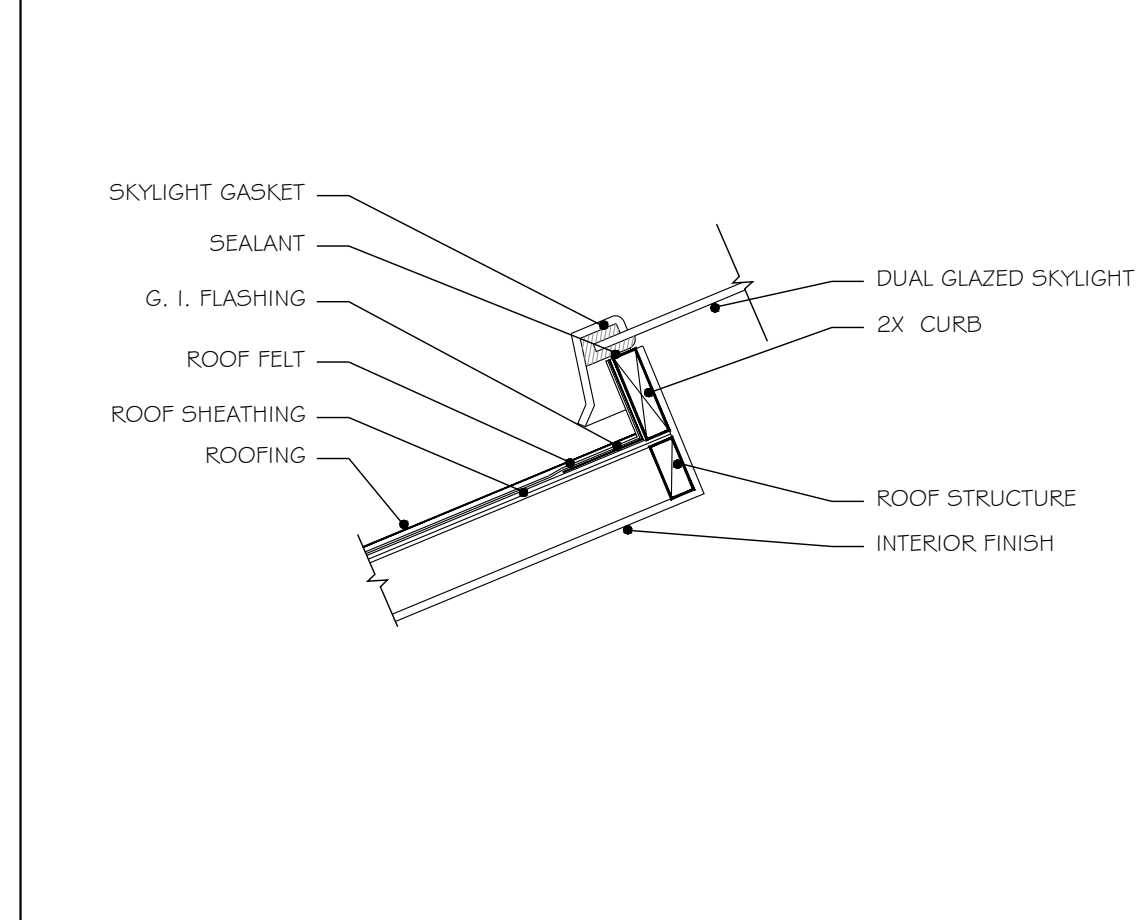
**40** SIDING AT OUTSIDE CORNER  
SCALE: 1" = 1'-0"  
A-DT-FIN-FC5-BB-0002



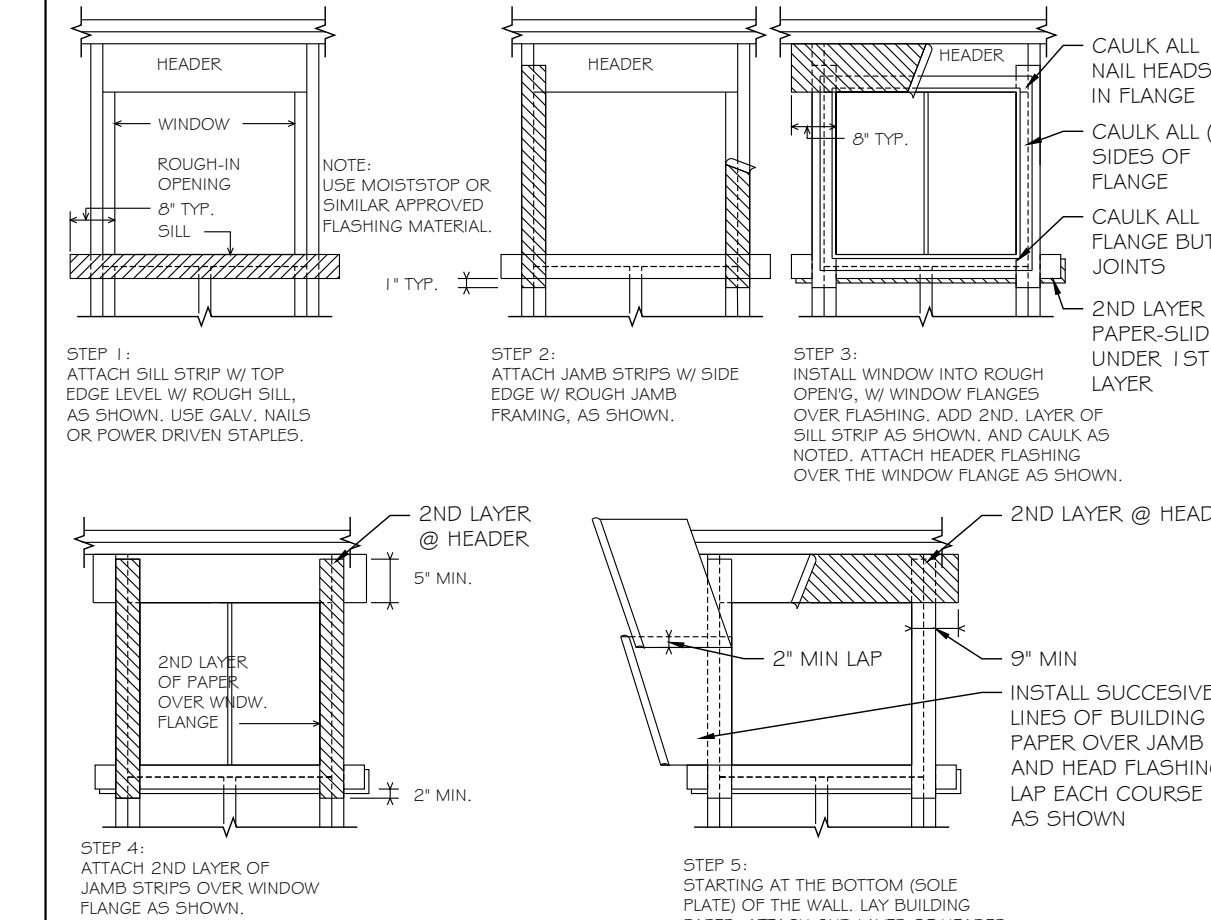
**36** SIDING AT INSIDE CORNER  
SCALE: 1" = 1'-0"  
A-DT-FIN-FC5-BB-0003



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



**28** CURB MOUNTED SKYLIGHT AT 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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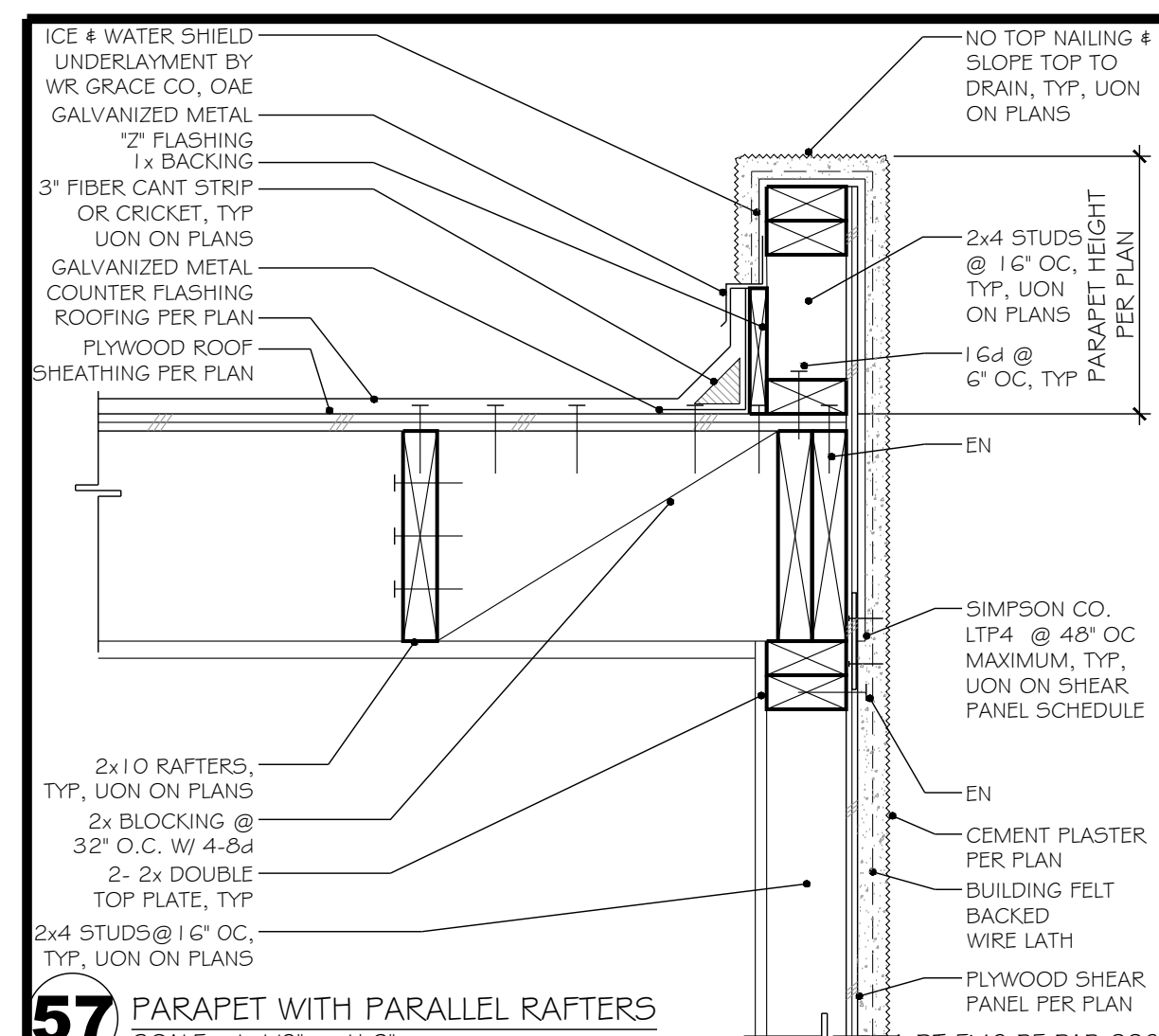
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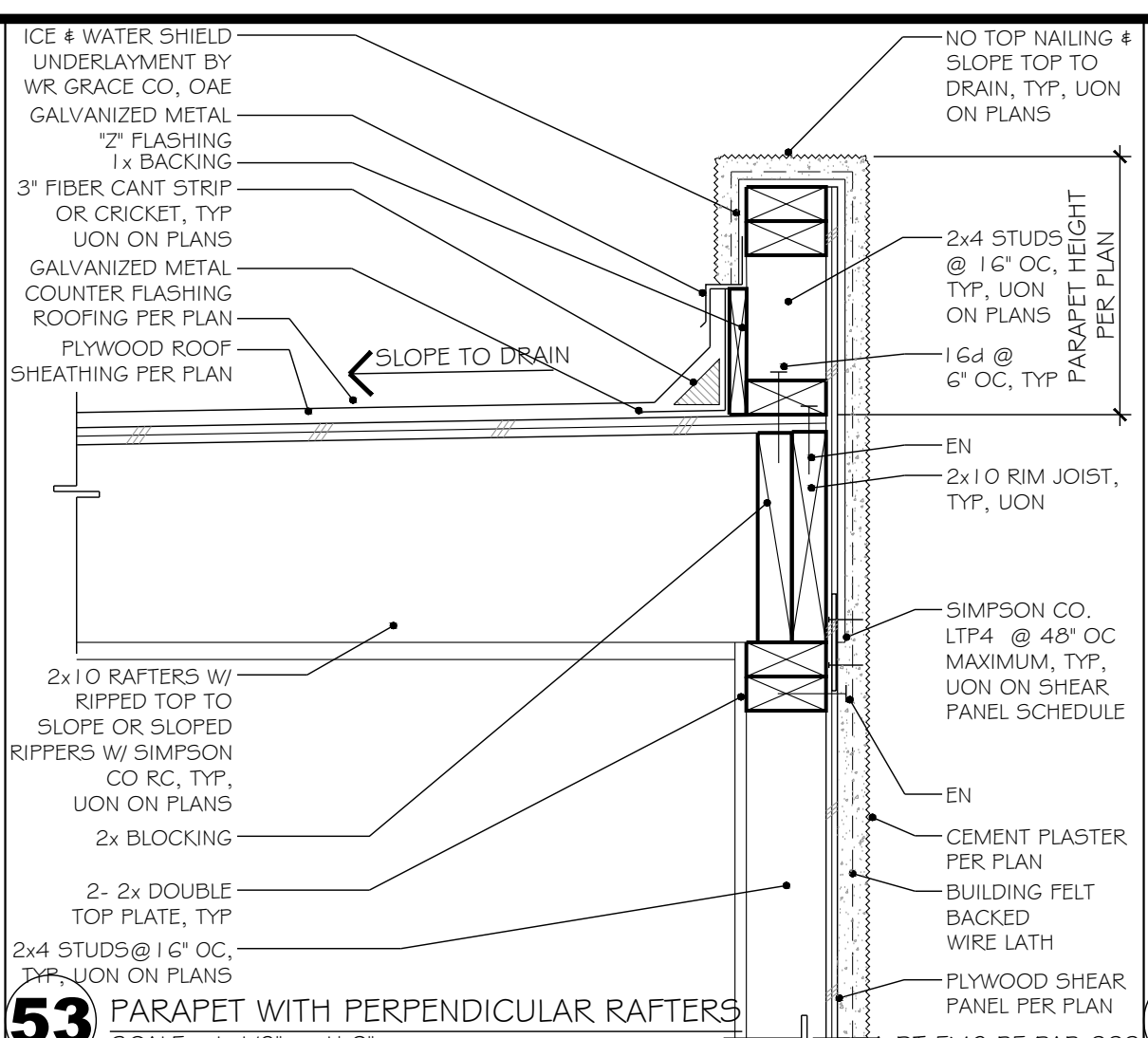
JOB: 202409R

DETAILS

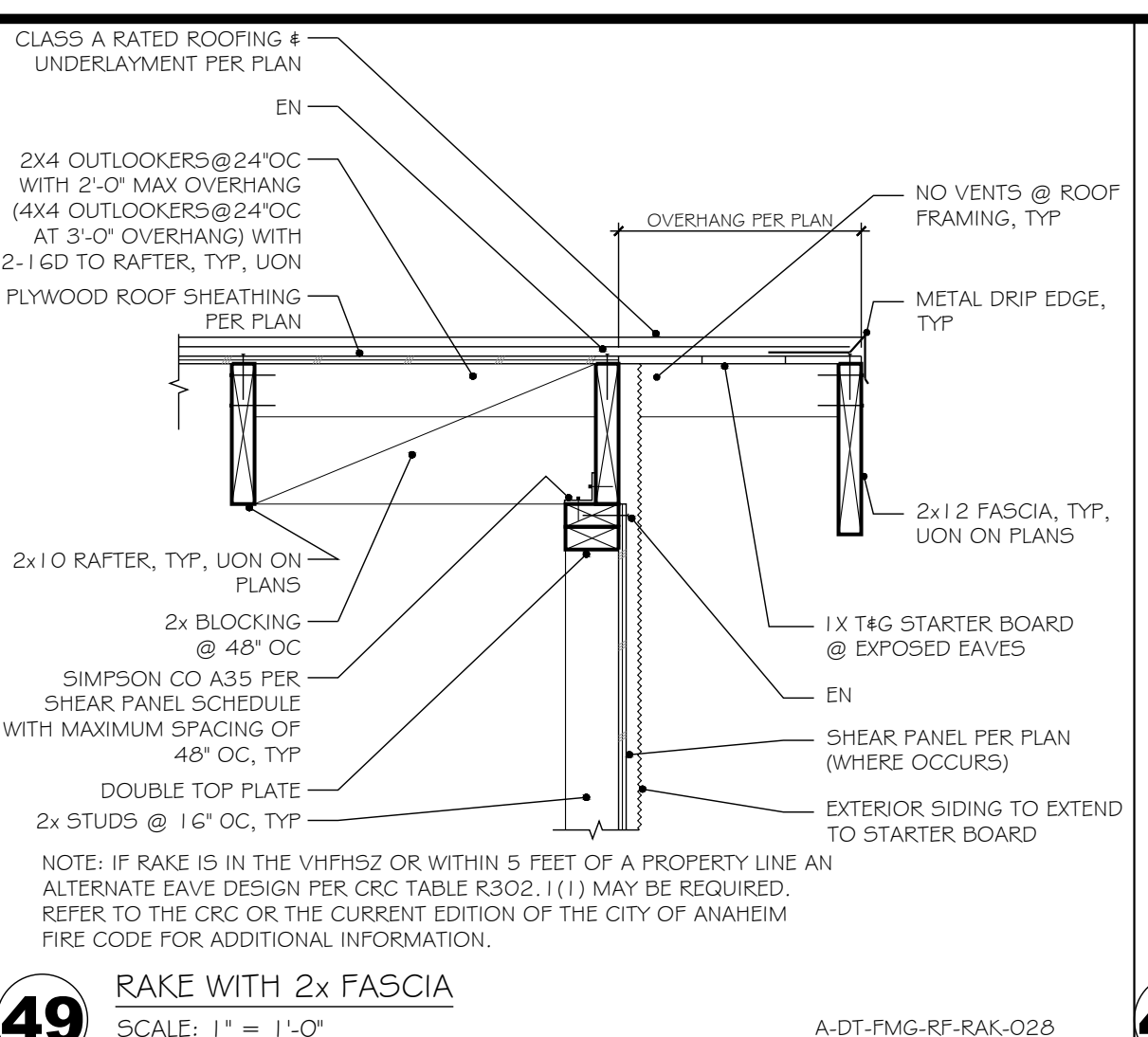
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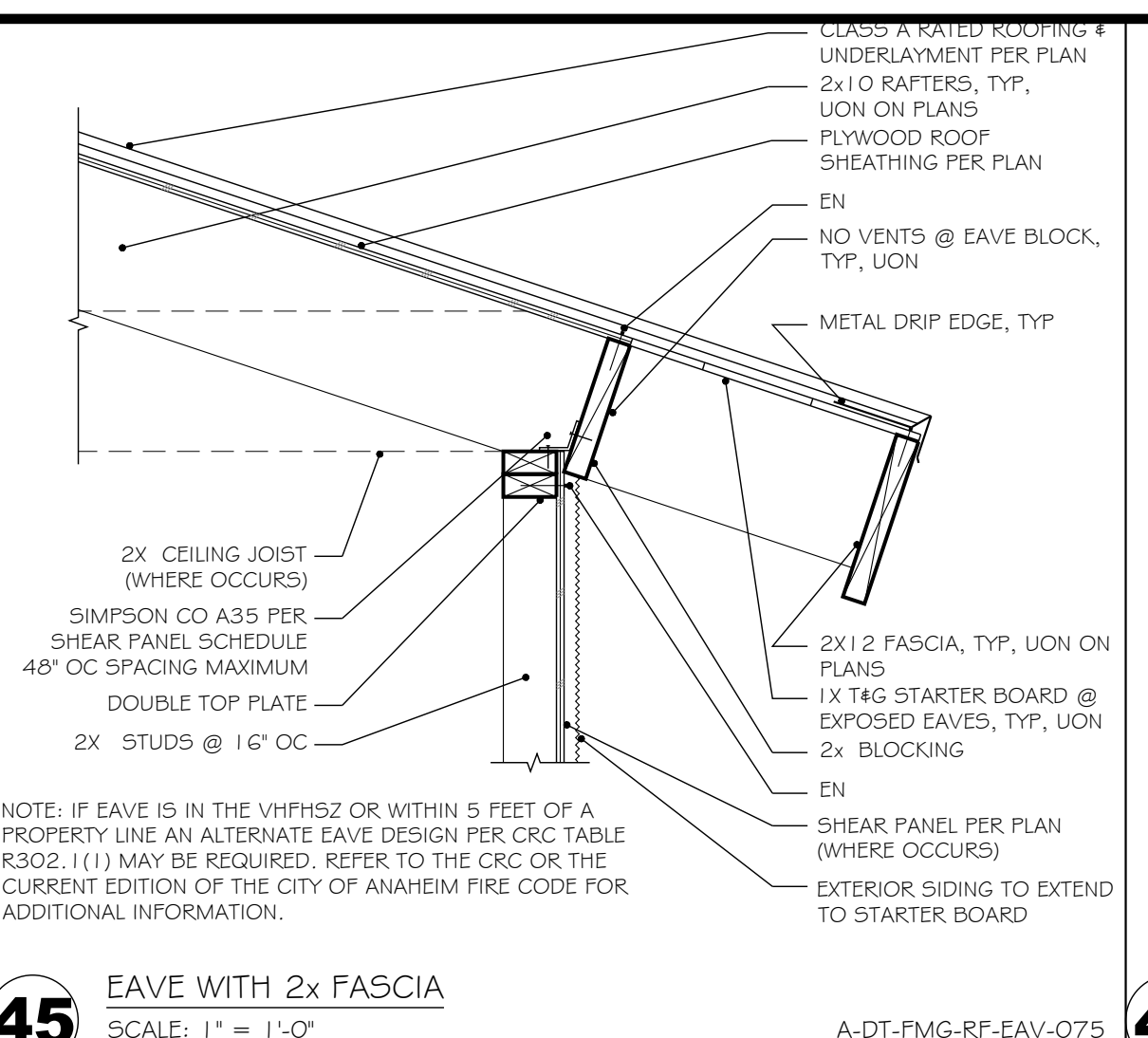
**57** PARAPET WITH PARALLEL RAFTERS  
SCALE: 1/2" = 1'-0"



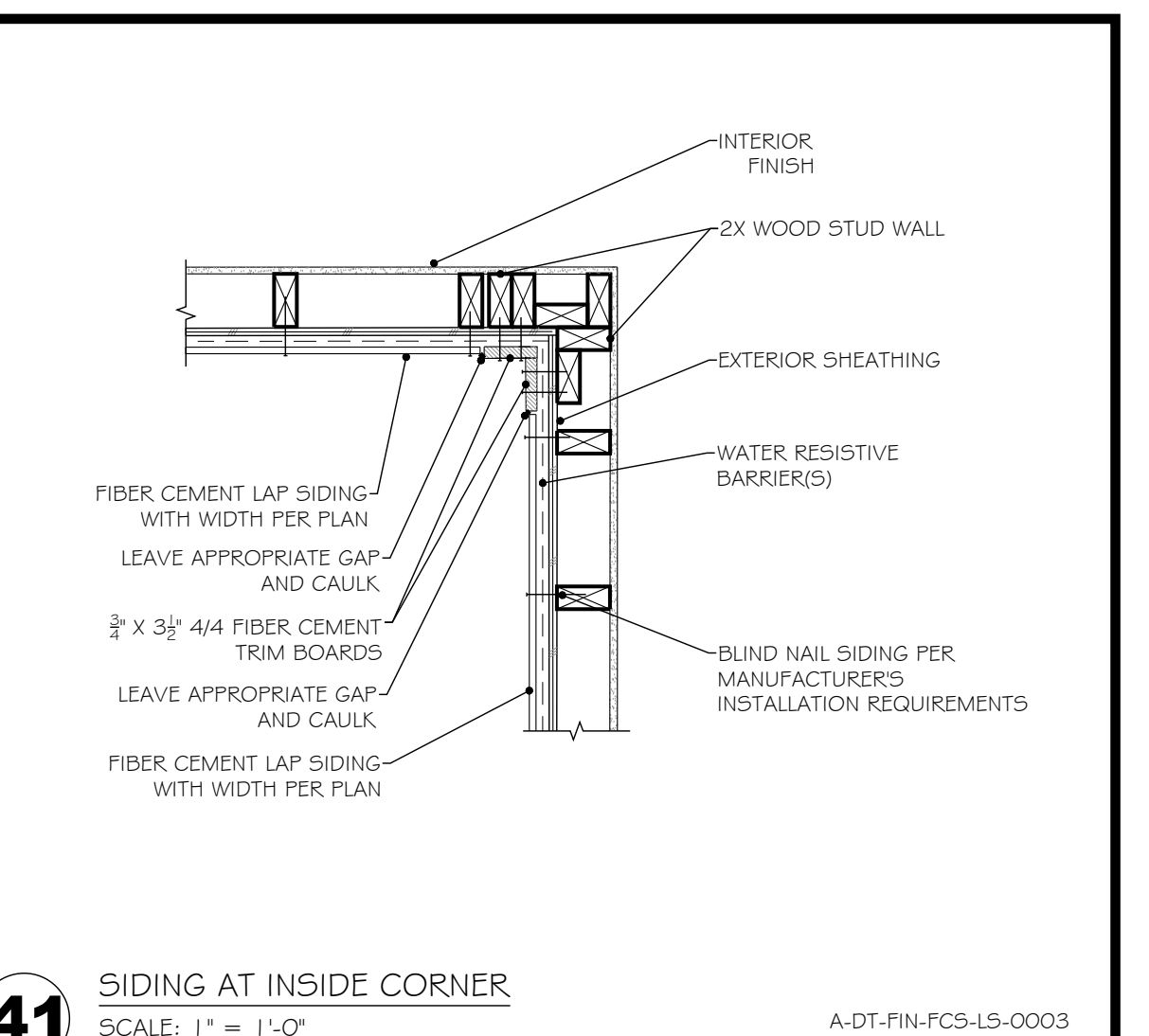
**53** PARAPET WITH PERPENDICULAR RAFTERS  
SCALE: 1/2" = 1'-0"



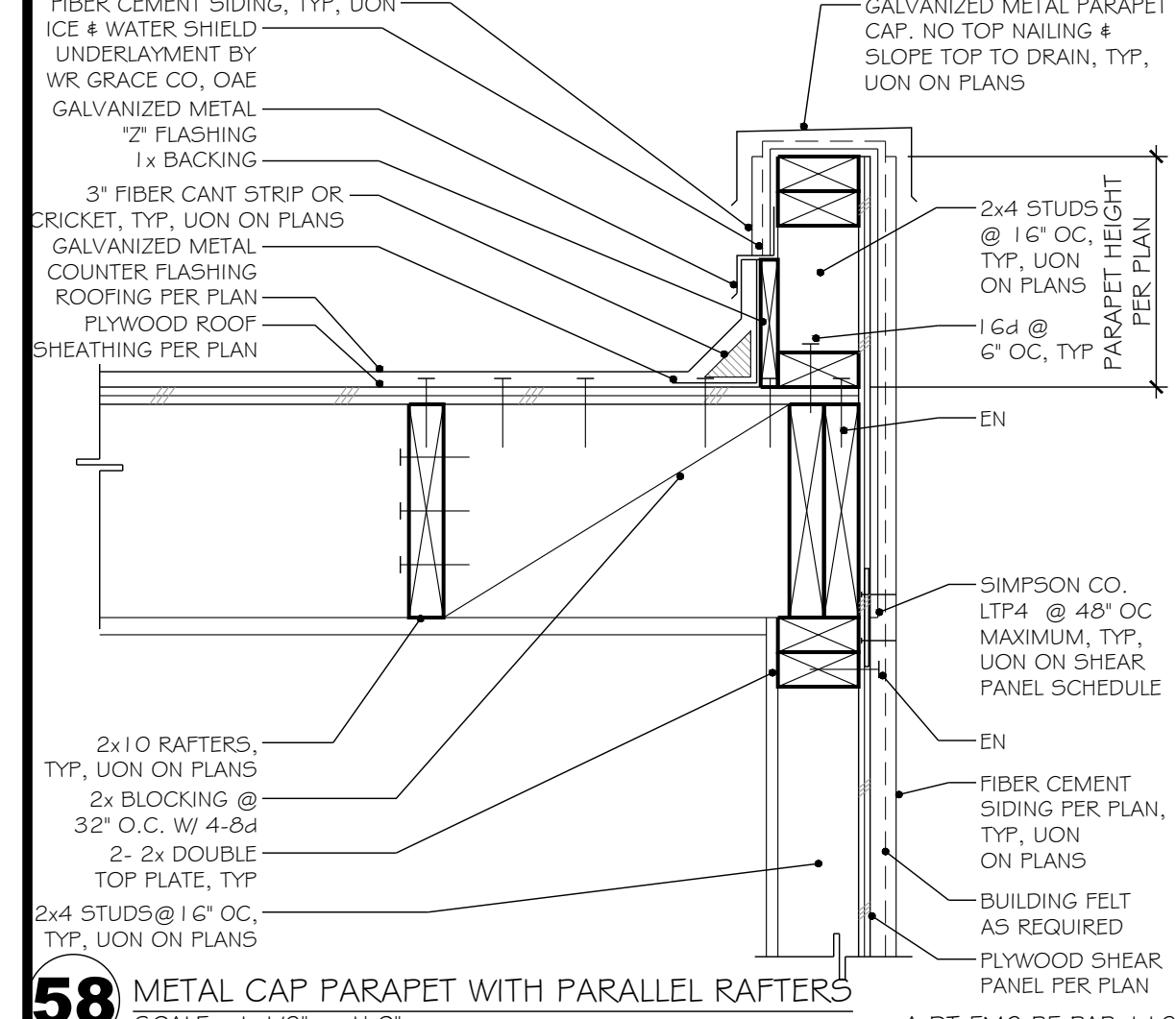
**49** RAKE WITH 2x FASCIA  
SCALE: 1" = 1'-0"



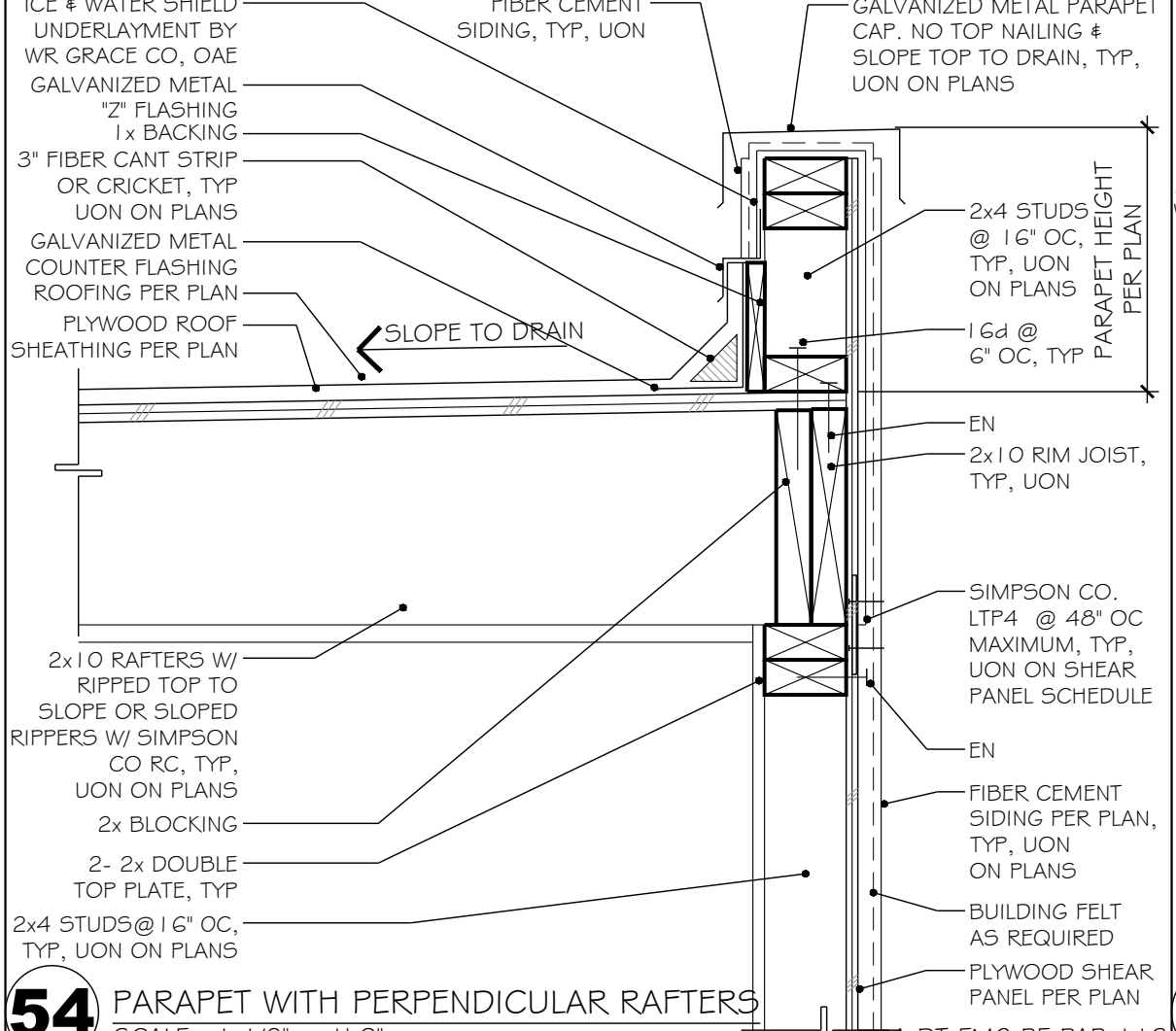
**45** EAVE WITH 2x FASCIA  
SCALE: 1" = 1'-0"



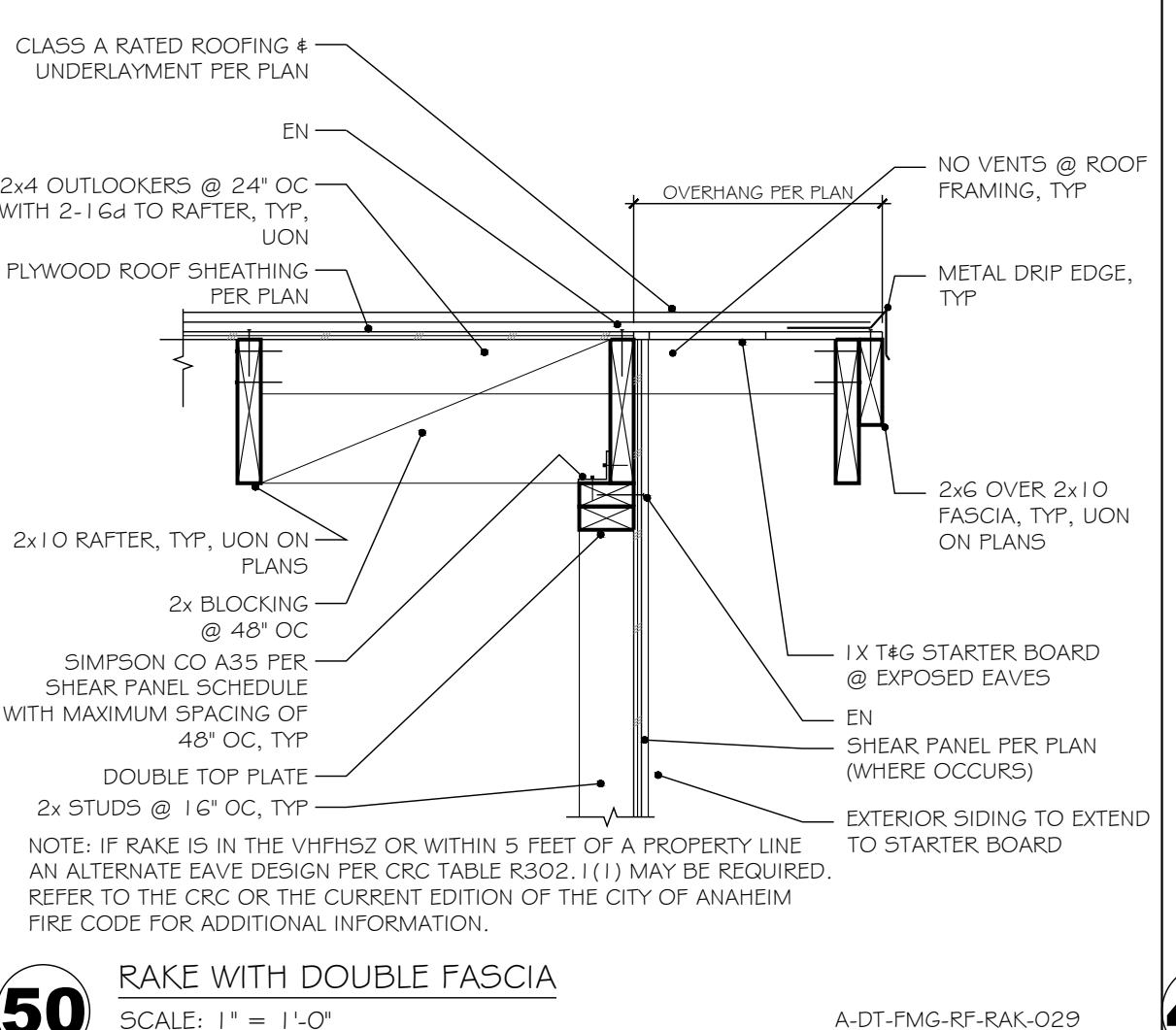
**41** SIDING AT INSIDE CORNER  
SCALE: 1" = 1'-0"



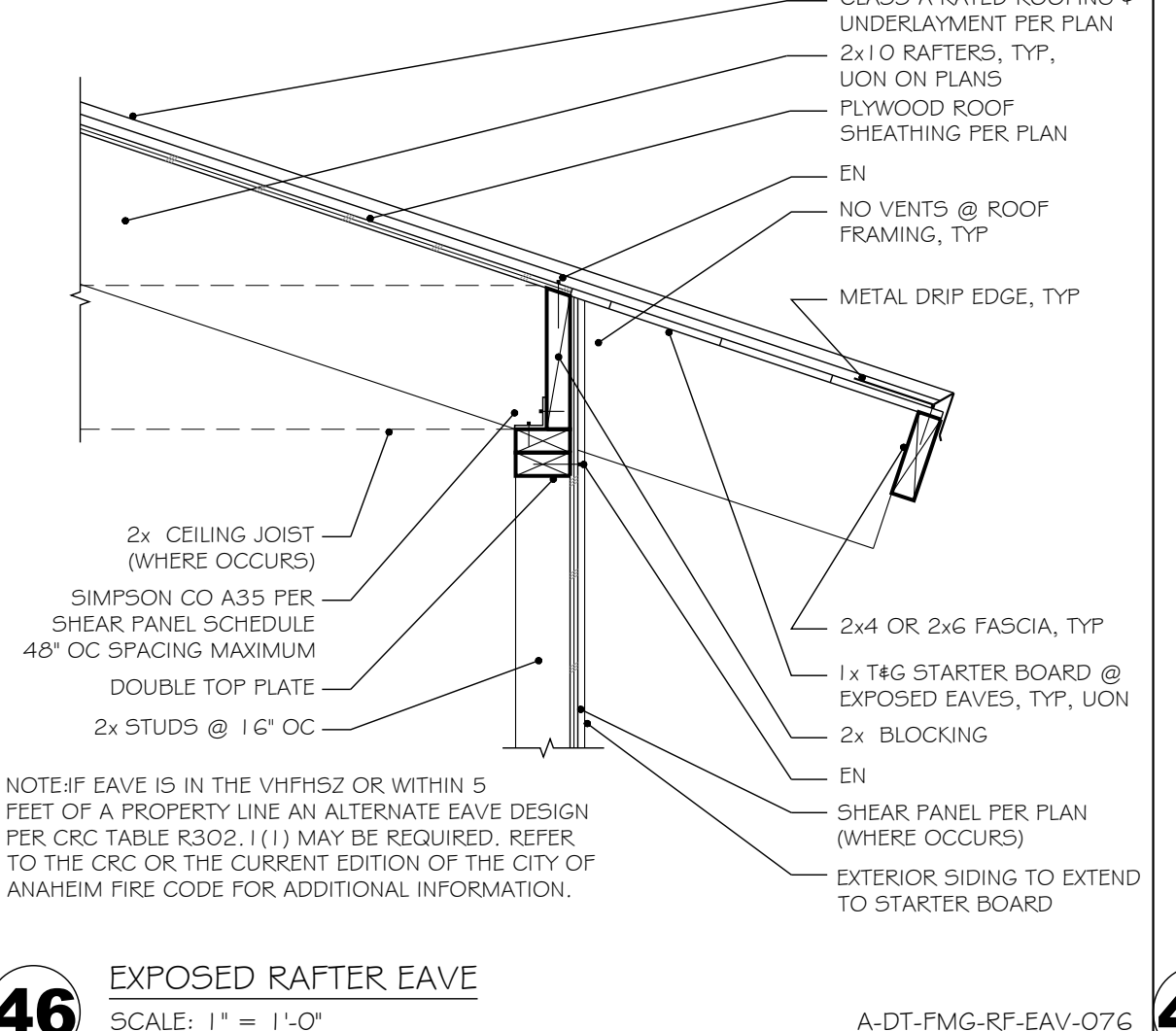
**58** METAL CAP PARAPET WITH PARALLEL RAFTERS  
SCALE: 1/2" = 1'-0"



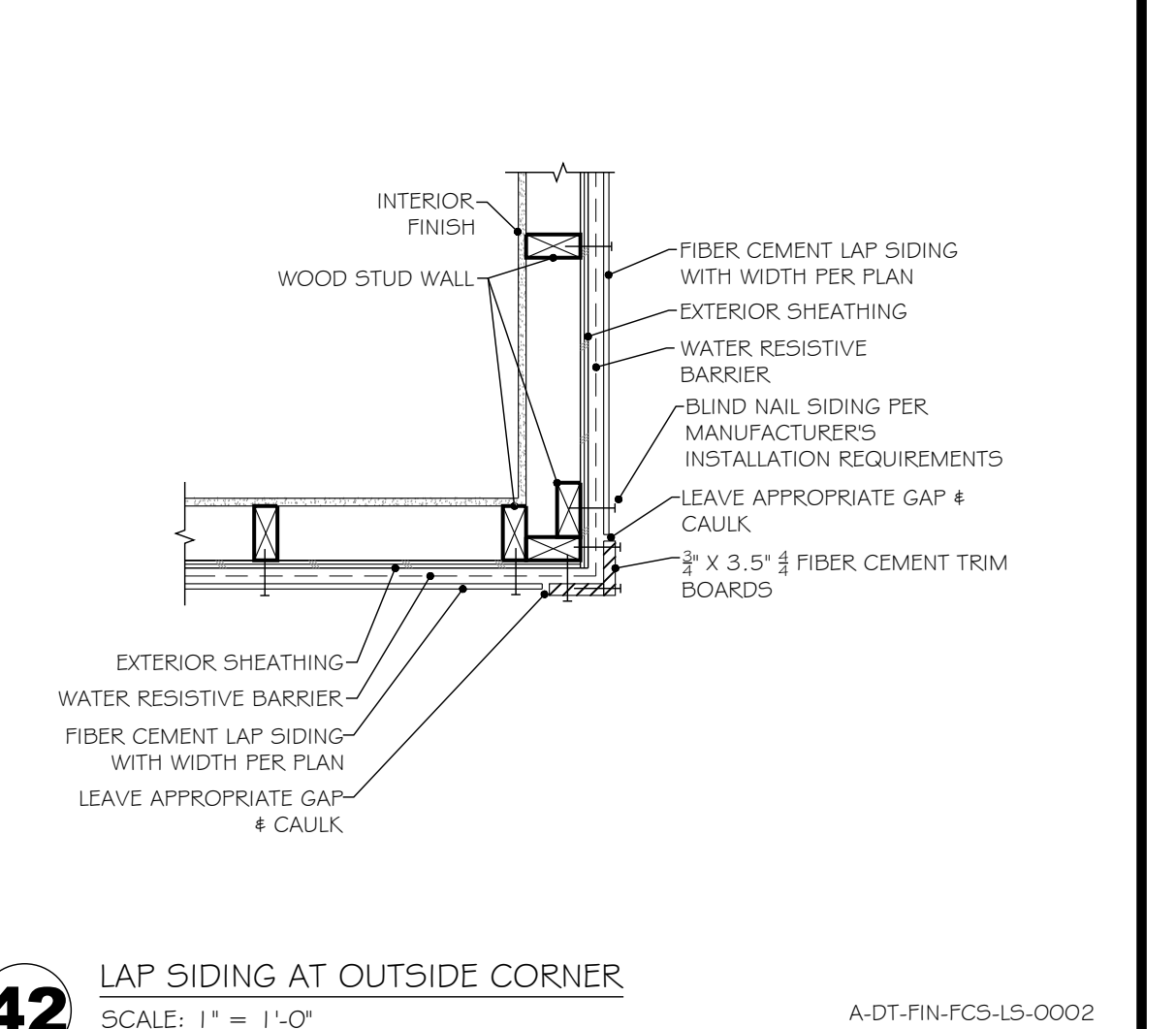
**54** PARAPET WITH PERPENDICULAR RAFTERS  
SCALE: 1/2" = 1'-0"



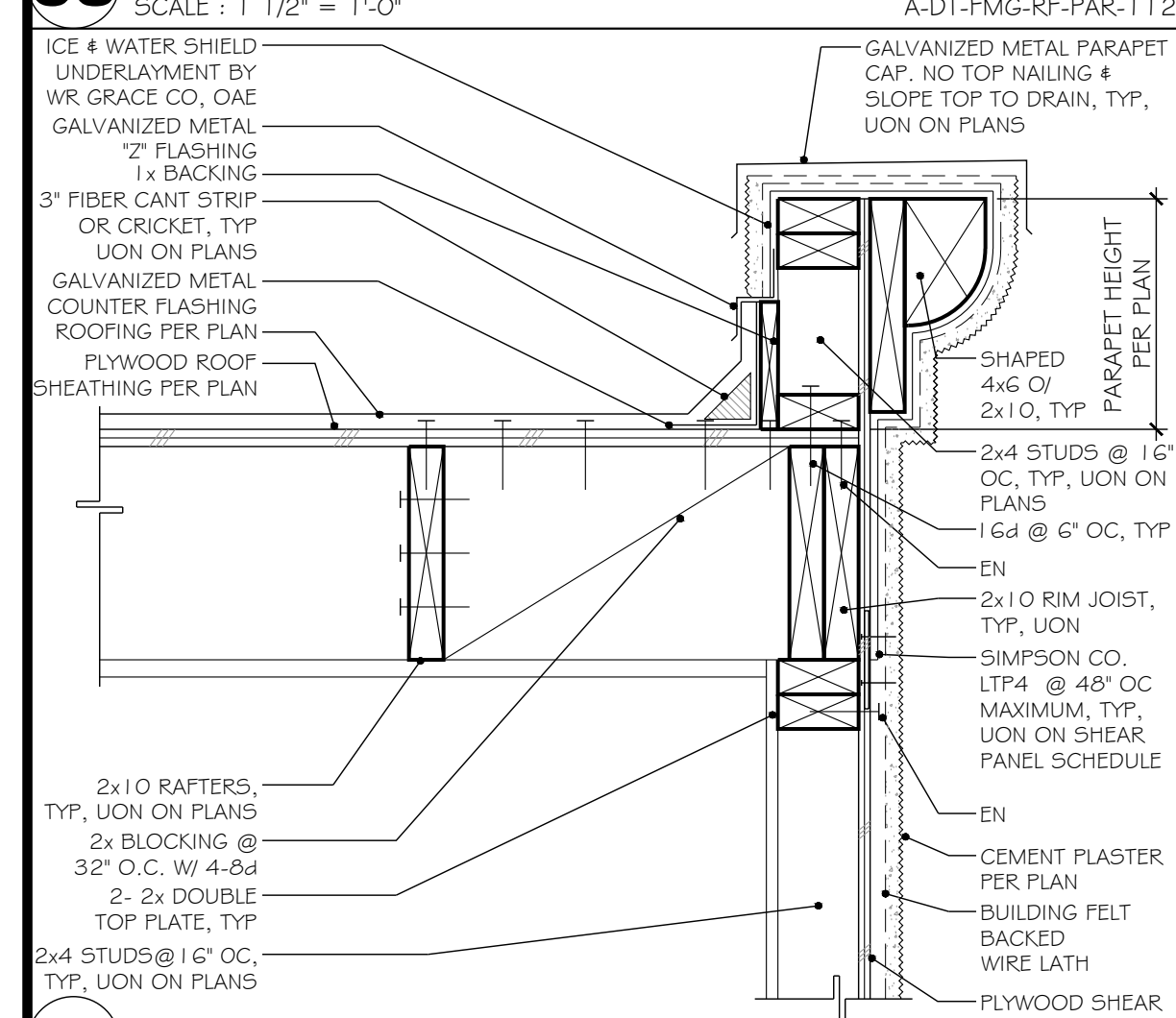
**50** RAKE WITH DOUBLE FASCIA  
SCALE: 1" = 1'-0"



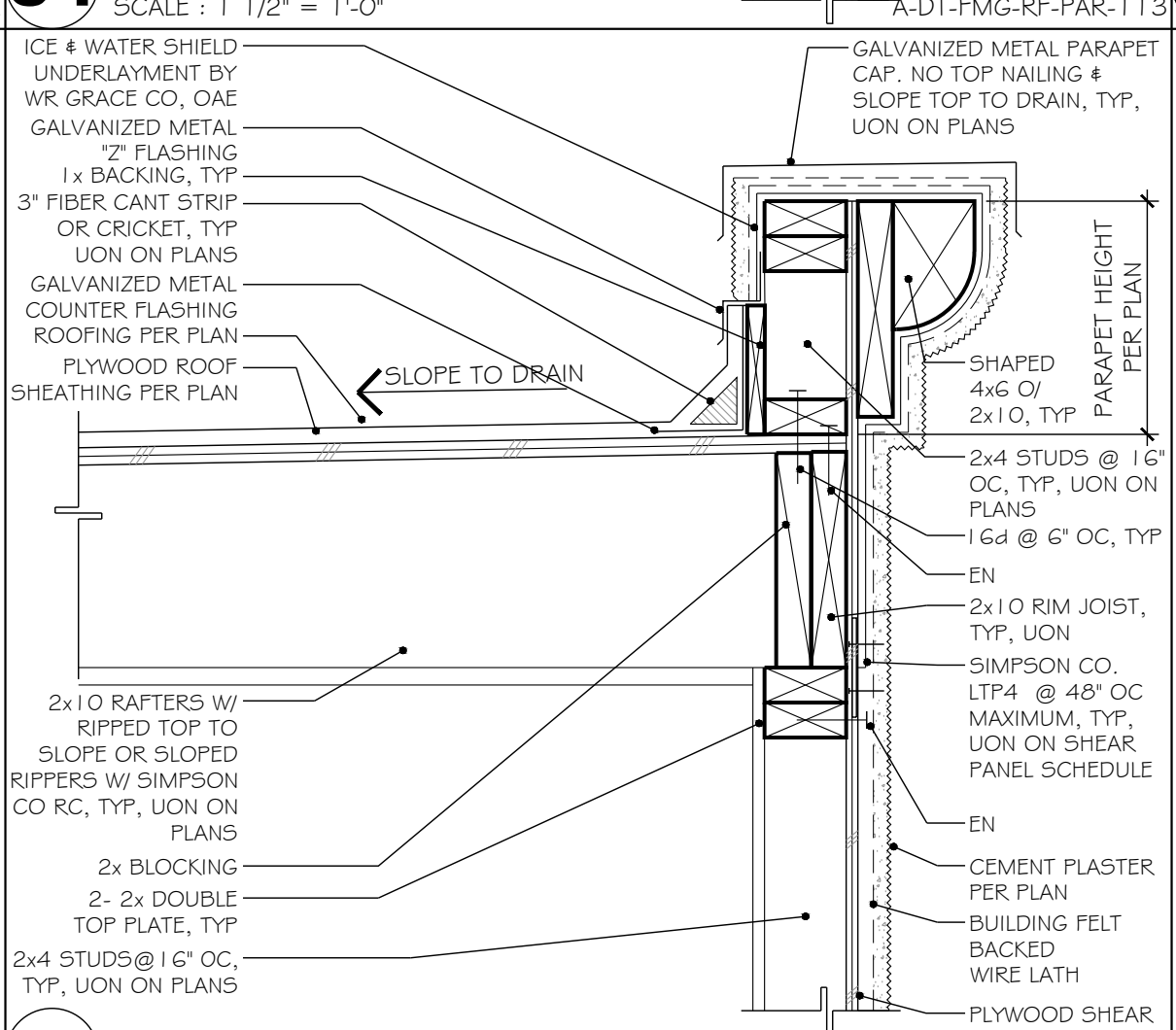
**46** EXPOSED RAFTER EAVE  
SCALE: 1" = 1'-0"



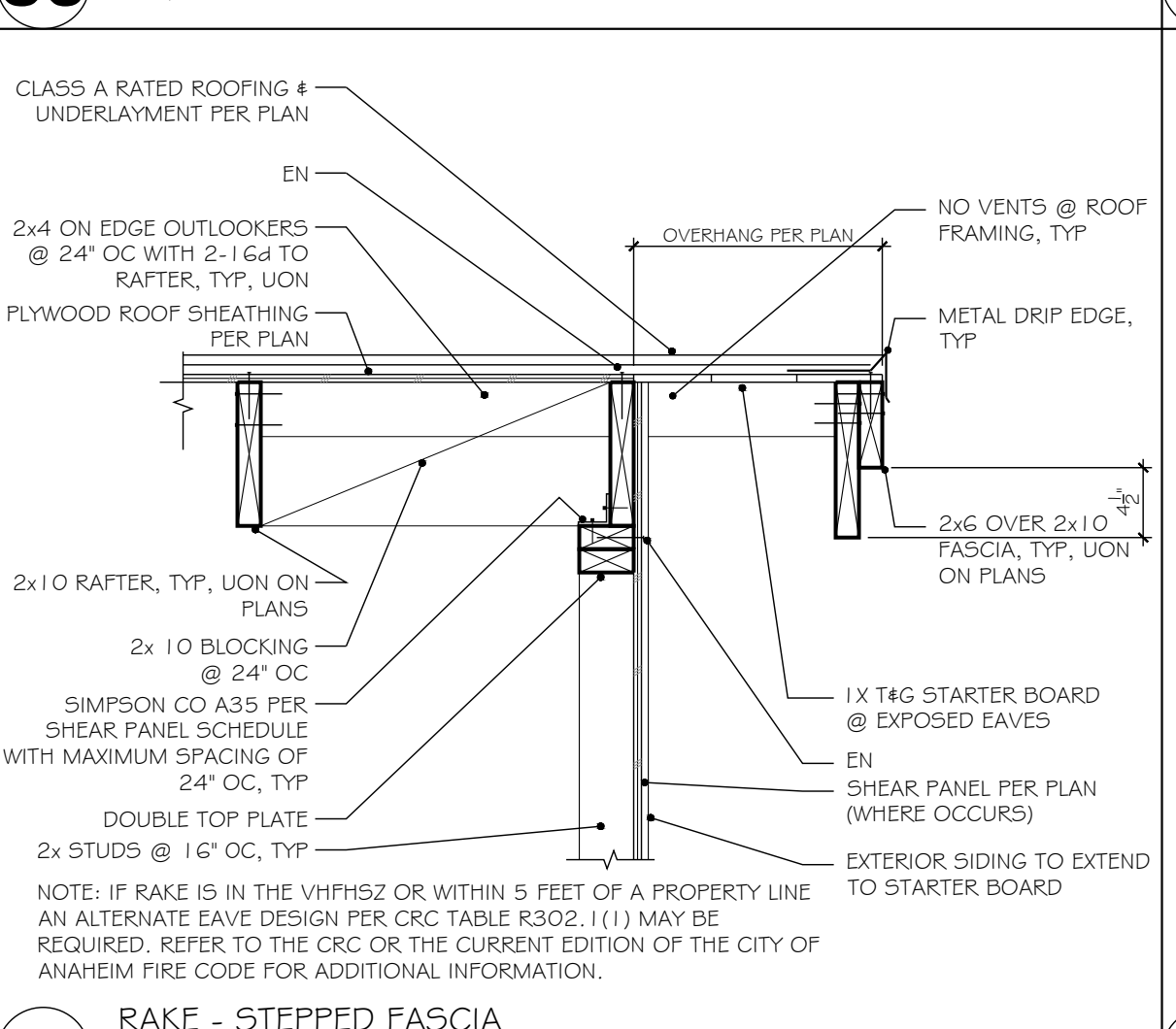
**42** LAP SIDING AT OUTSIDE CORNER  
SCALE: 1" = 1'-0"



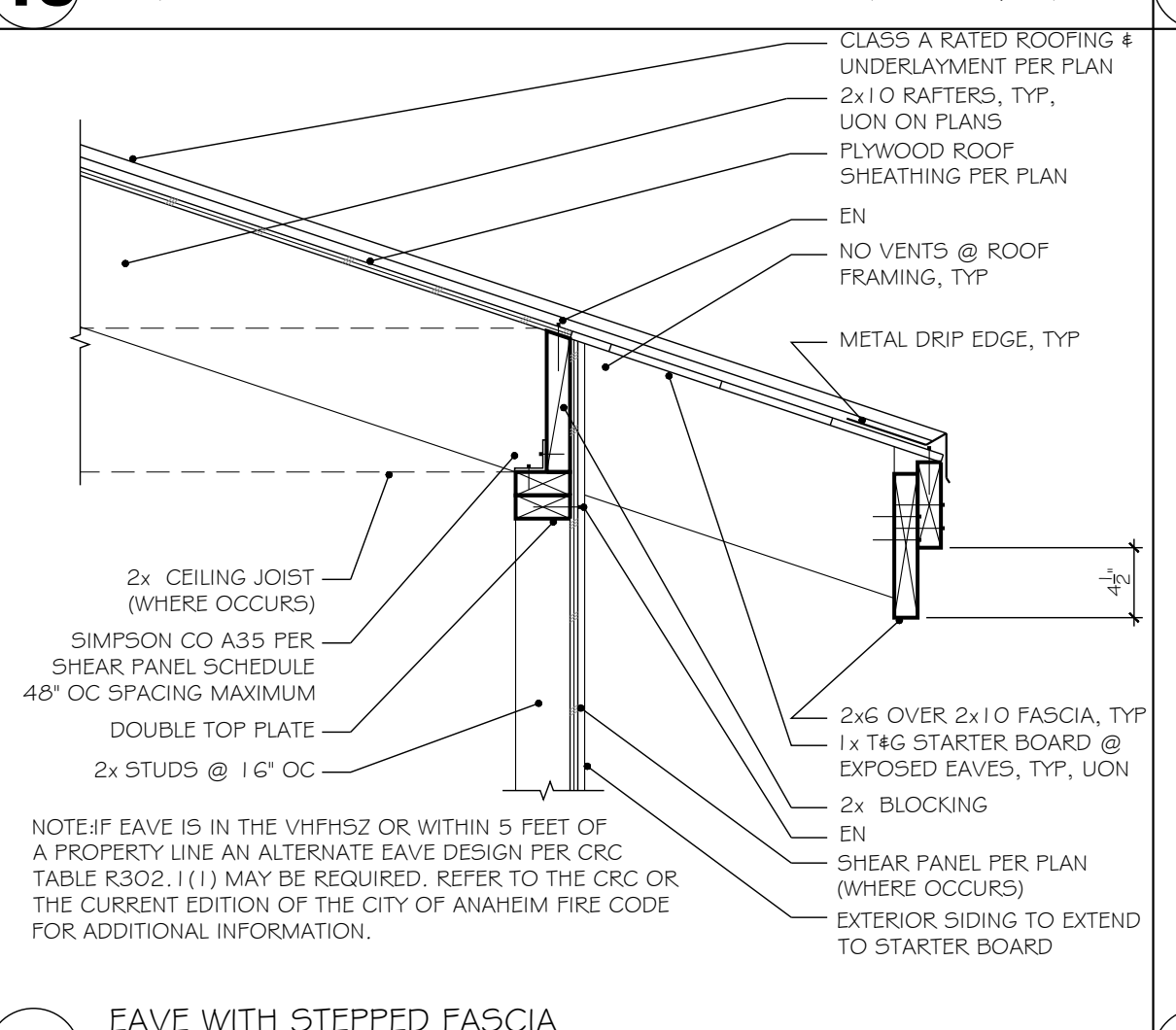
**59** CORBEL PARAPET WITH PARALLEL RAFTERS  
SCALE: 1/2" = 1'-0"



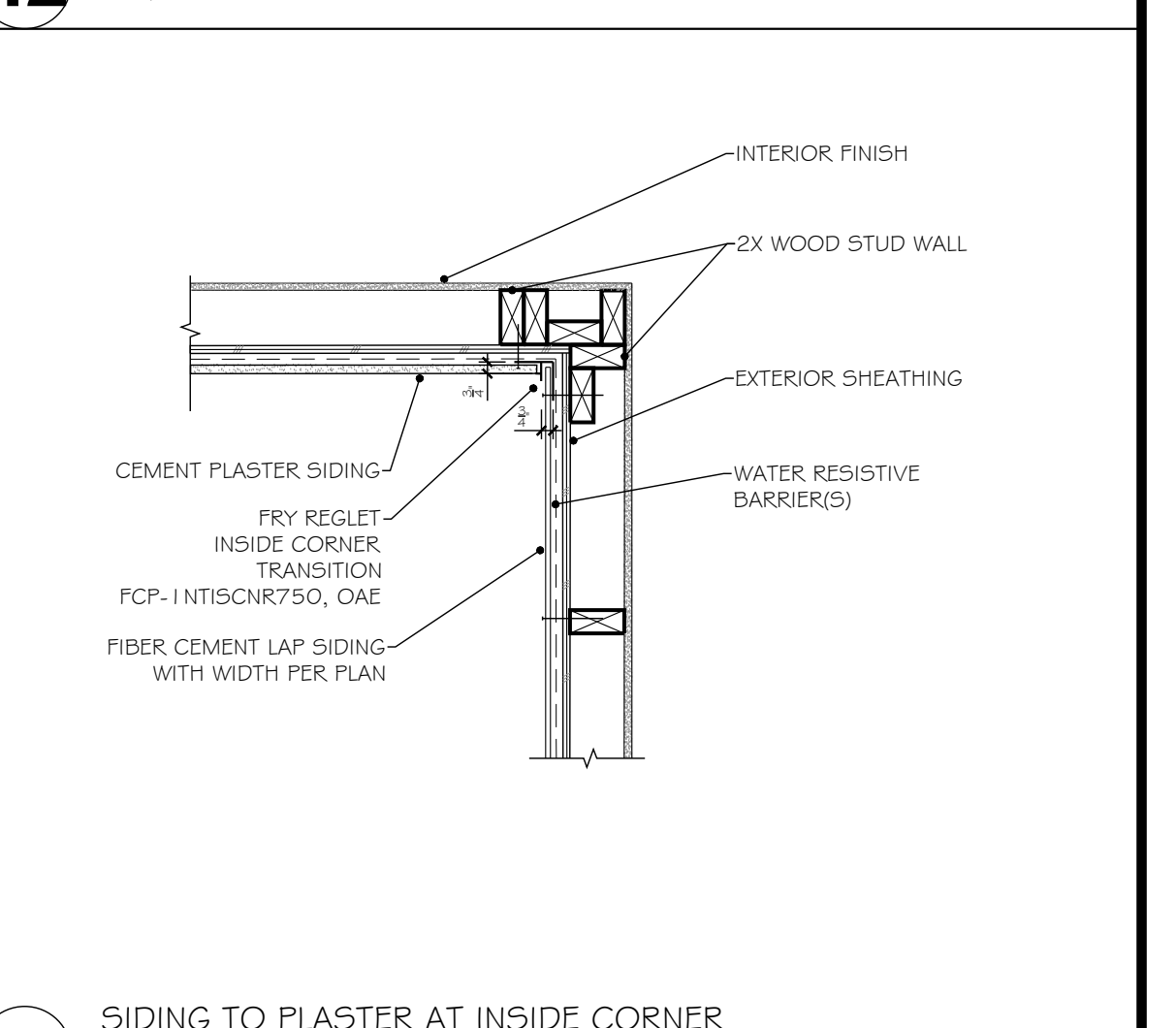
**55** CORBEL PARAPET WITH PERPENDICULAR RAFTERS  
SCALE: 1/2" = 1'-0"



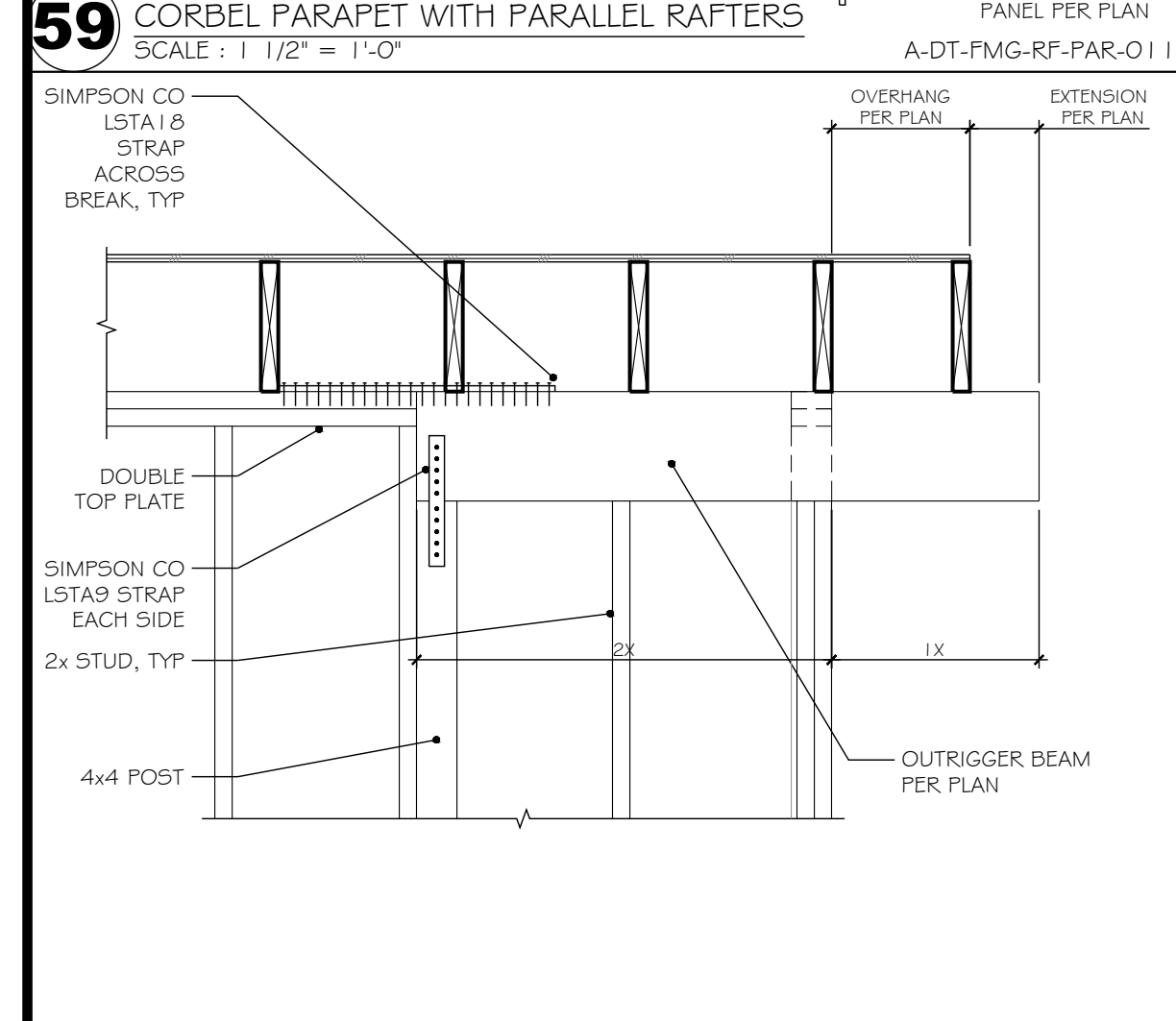
**51** RAKE - STEPPED FASCIA  
SCALE: 1" = 1'-0"



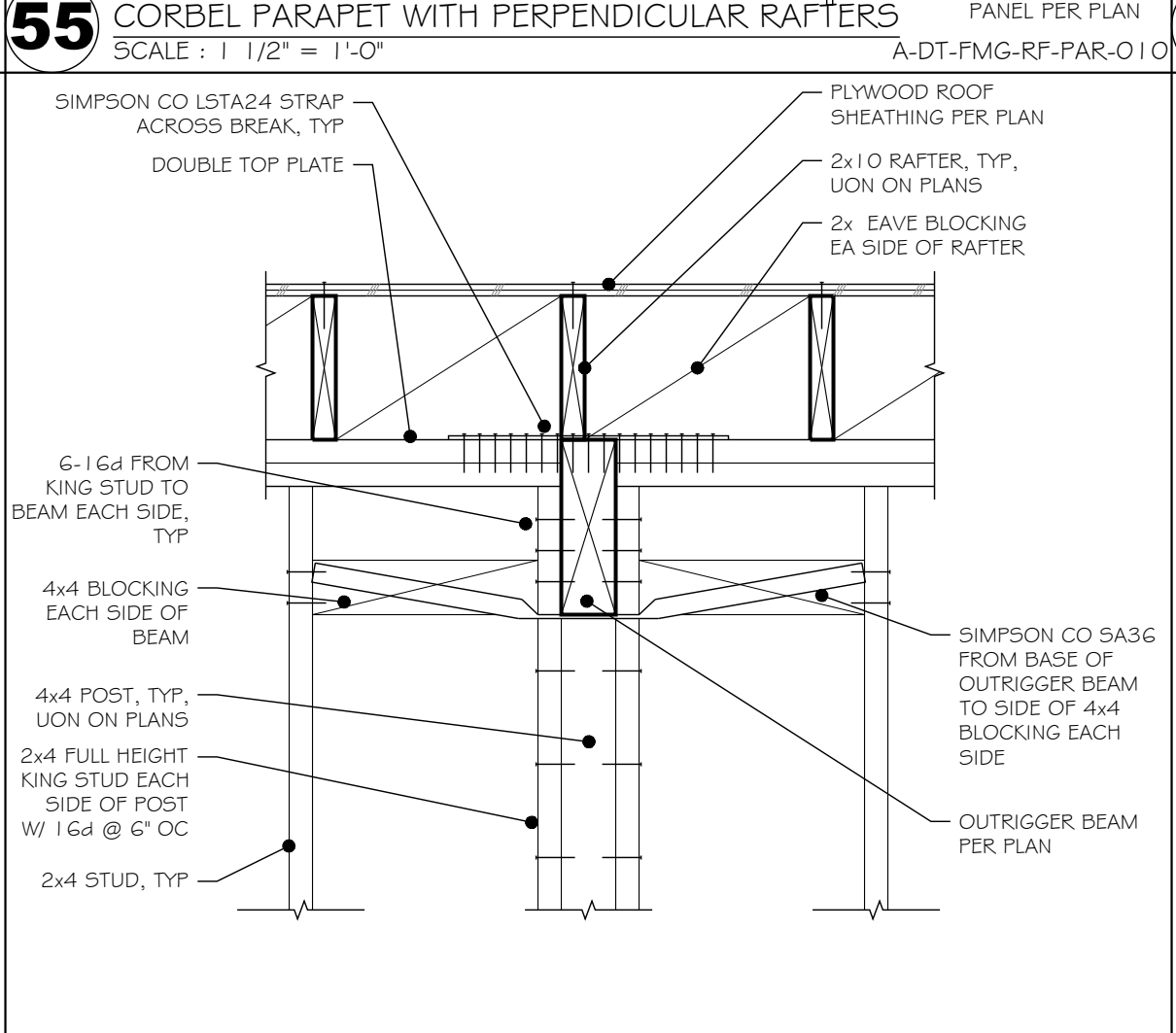
**47** EAVE WITH STEPPED FASCIA  
SCALE: 1" = 1'-0"



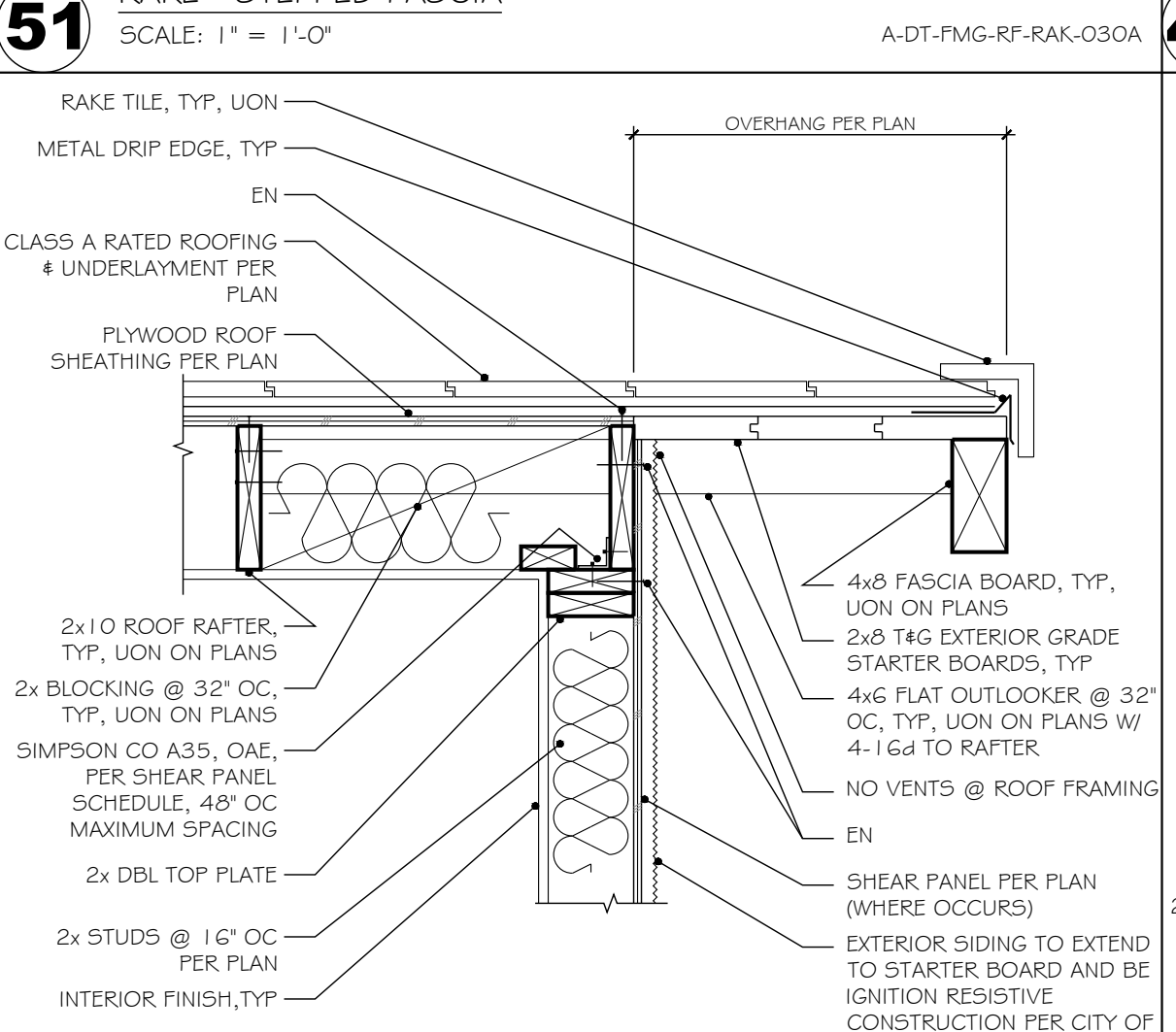
**43** SIDING TO PLASTER AT INSIDE CORNER  
SCALE: 1" = 1'-0"



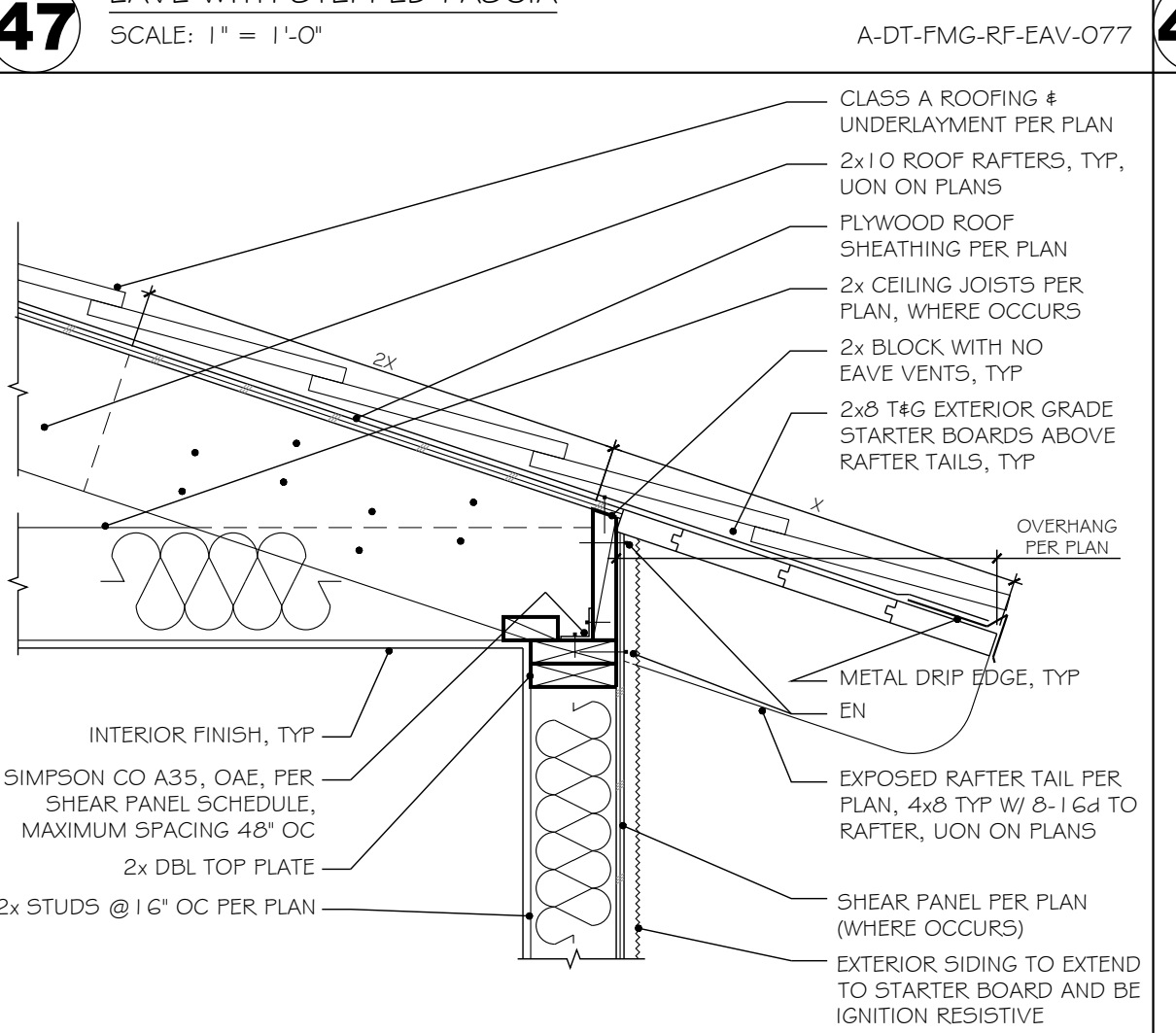
**60** OUTRIGGER BEAM PARALLEL TO WALL  
SCALE: 3/4" = 1'-0"



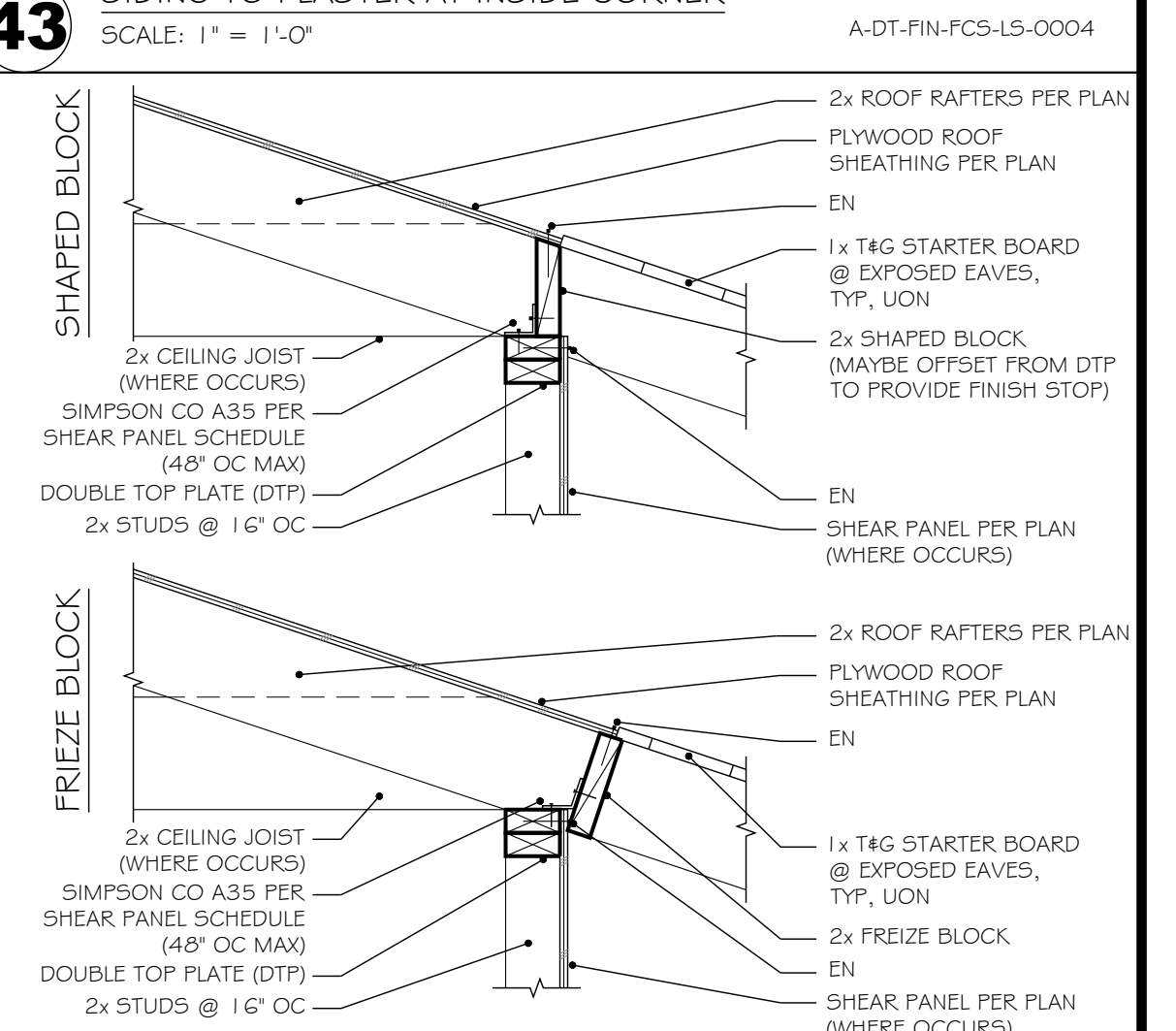
**56** OUTRIGGER BEAM PERPENDICULAR TO WALL  
SCALE: 1" = 1'-0"



**52** HEAVY TIMBER IGNITION RESISTANT RAKE  
SCALE: 1" = 1'-0"



**48** HEAVY TIMBER IGNITION RESISTANT EAVE  
SCALE: 1" = 1'-0"



**44** EAVE CONNECTION - FRIEZE BLOCK OR SHAPED BLOCK  
SCALE: 1" = 1'-0"

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**ANAHEIM PRADU**

CITY: ANAHEIM

JOB: 202409R

DETAILS

**d0.2**

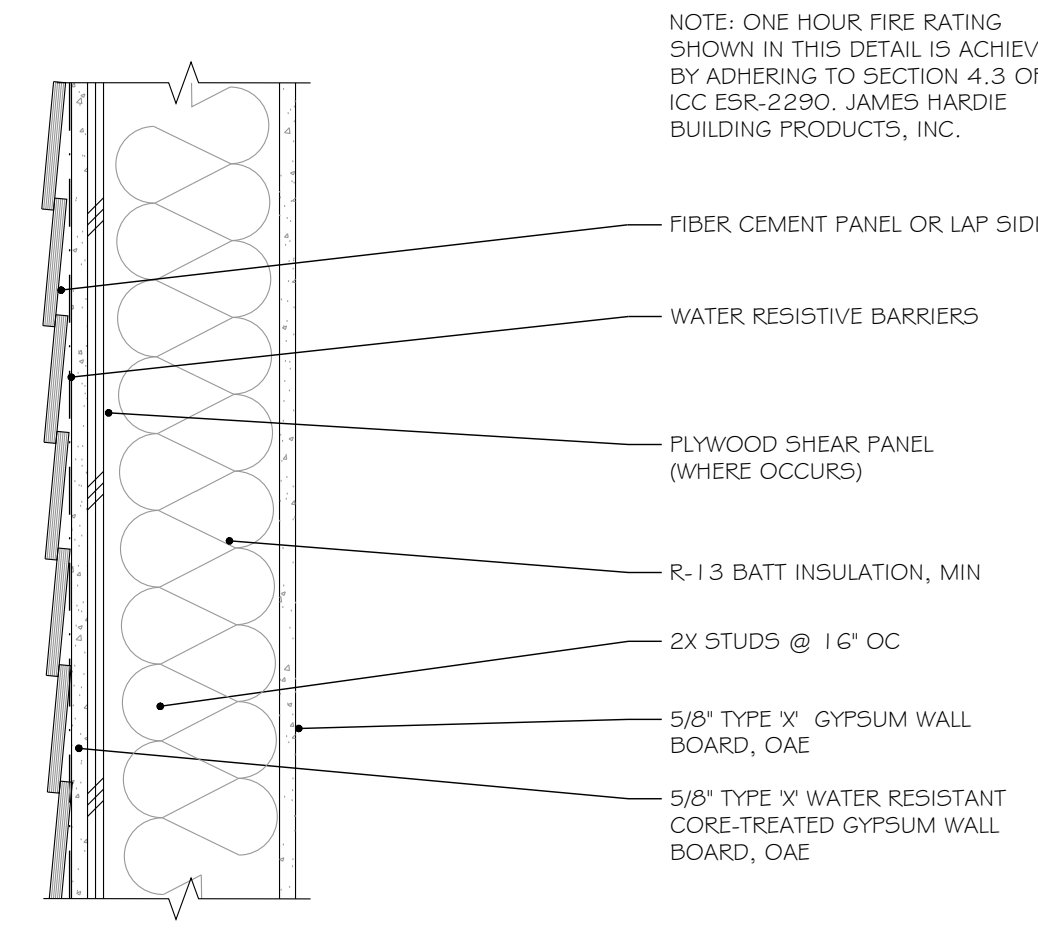


97

93

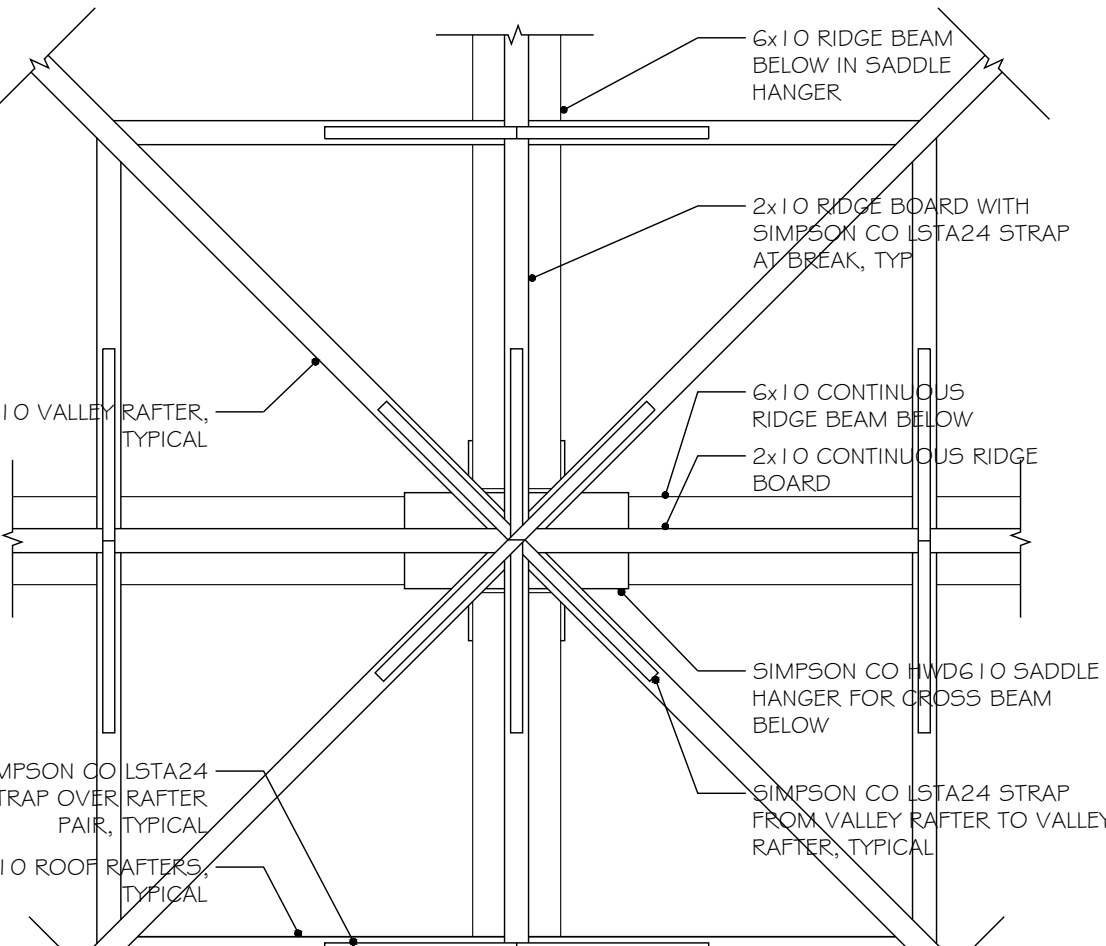
89

EXTERIOR ONE HOUR WALL - FIBER CEMENT SIDING EXTERIOR  
SCALE: 2" = 1'-0" A-DT-FIN-FR-WAL-033



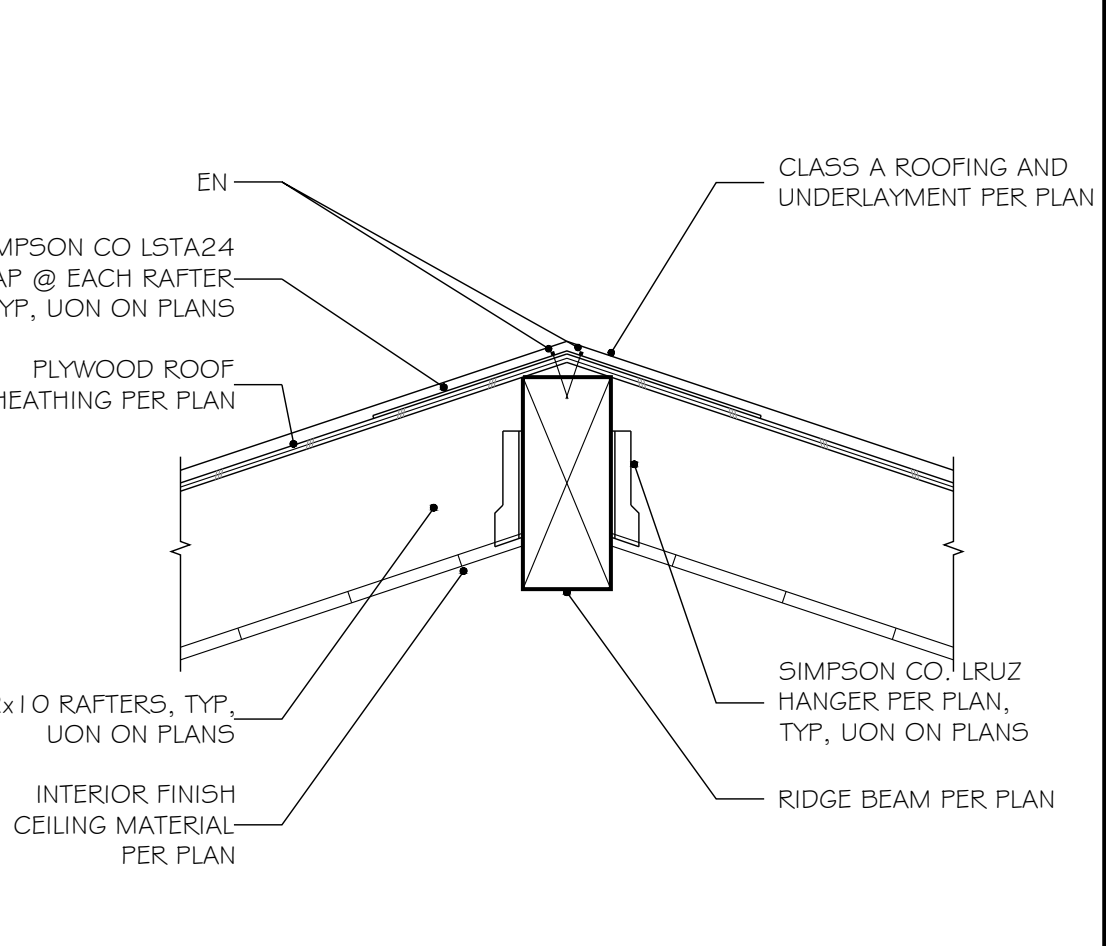
85

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

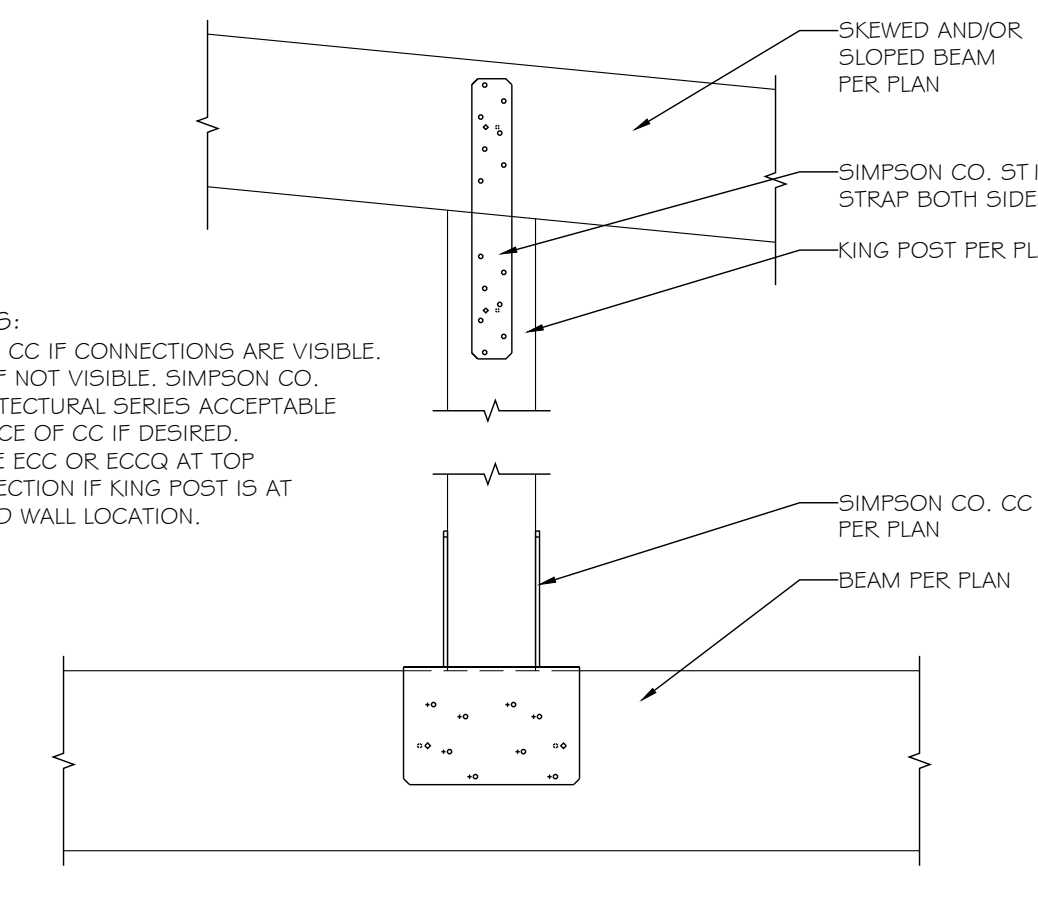


98

94

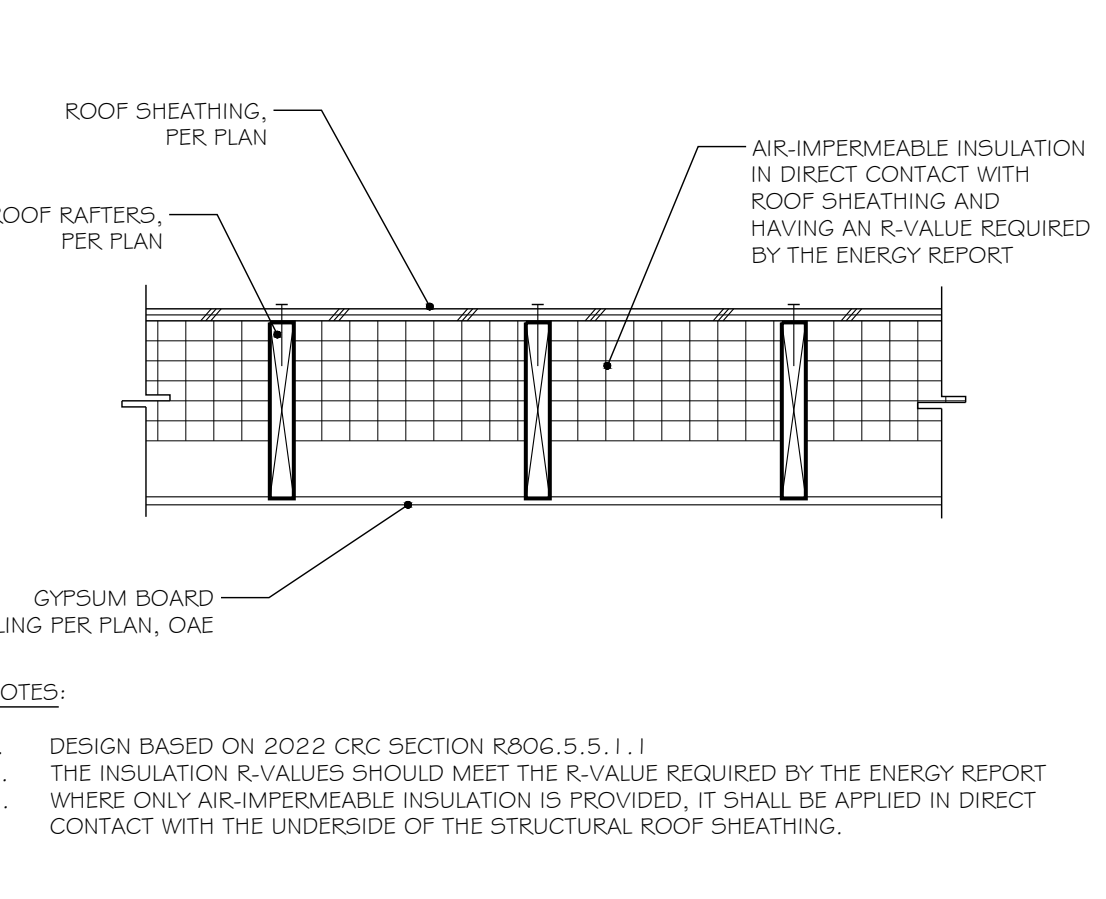
90

KING POST WITH SLOPED AND/OR SKEWED TOP BEAM  
SCALE: 1" = 1'-0" A-DT-FMG-PB-0142



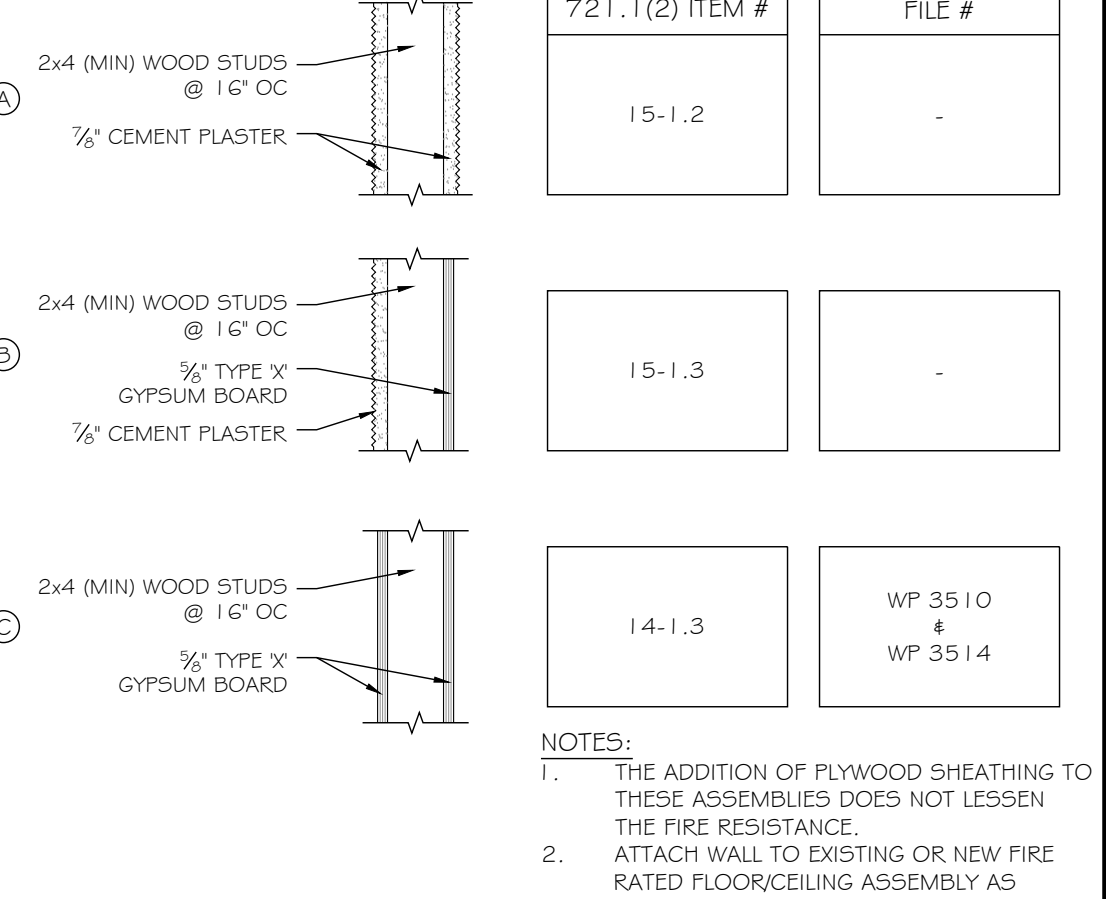
86

INSULATION AT UNVENTED ROOF ASSEMBLY - IMPERMEABLE ONLY  
SCALE: 1" = 1'-0" CRC R806.5 A-DT-FMG-RF-0326



82

FIRE RESISTANCE - ONE HOUR WOOD FRAMED WALLS  
SCALE: 1" = 1'-0" A-DT-FIN-FR-WAL-001

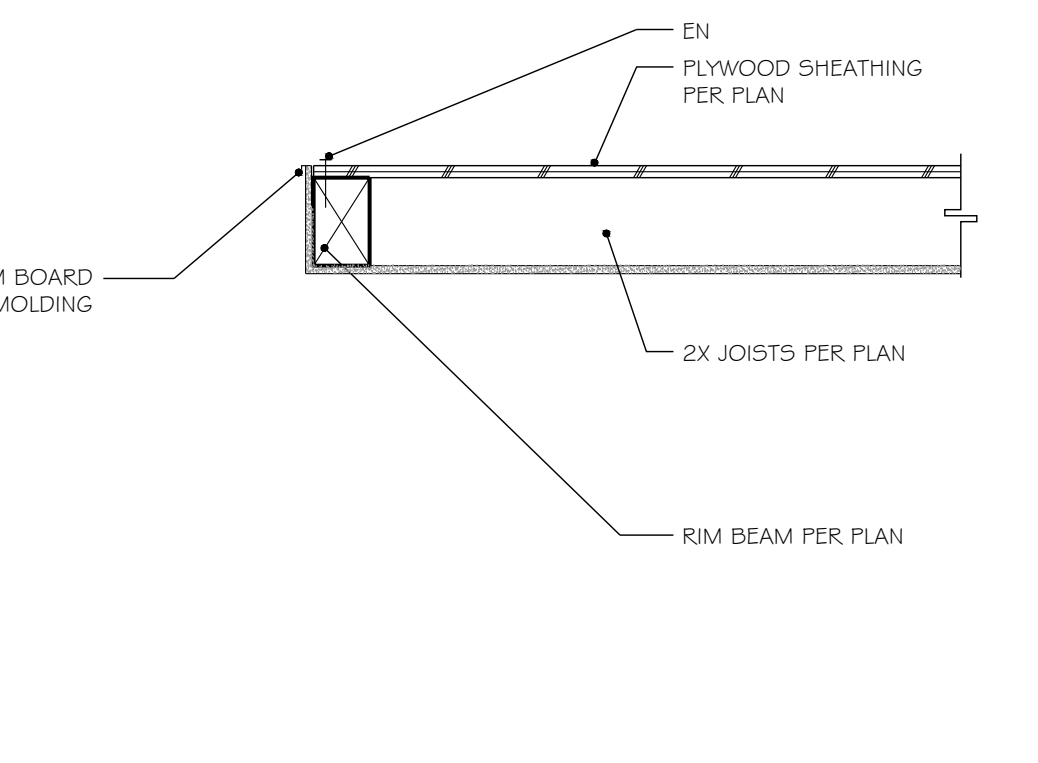


99

95

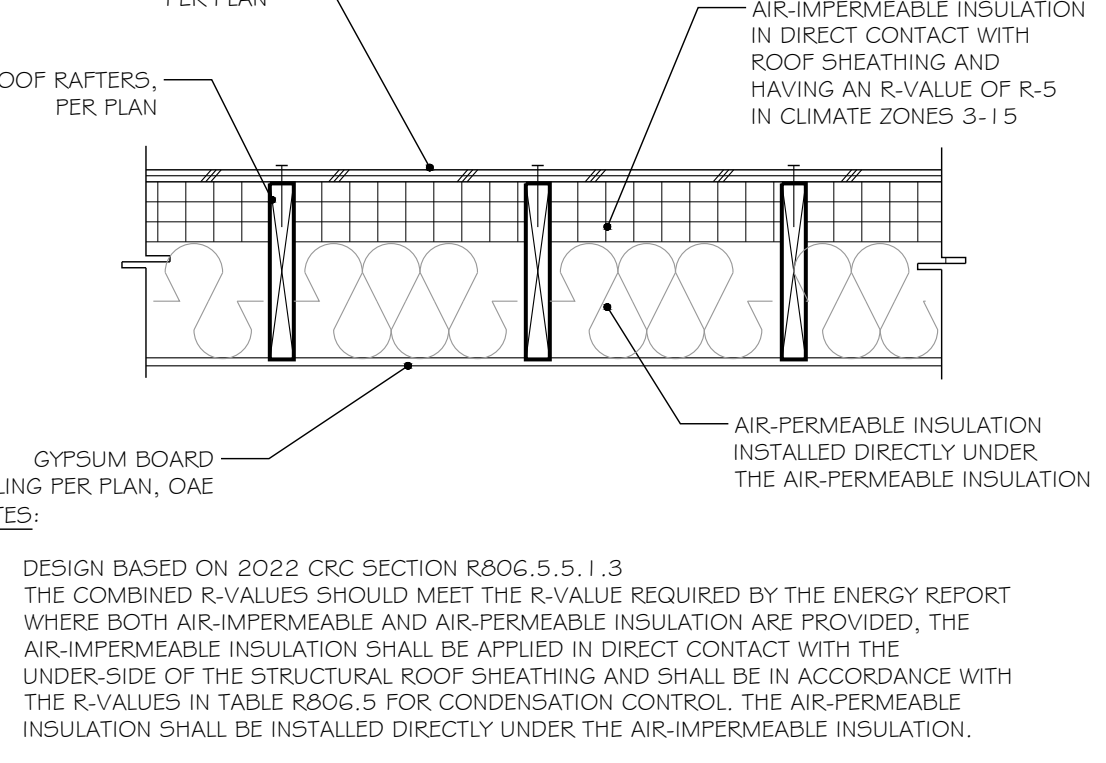
91

PERPENDICULAR JOISTS AT EDGE  
SCALE: 1" = 1'-0" A-DT-FMG-FF-0154



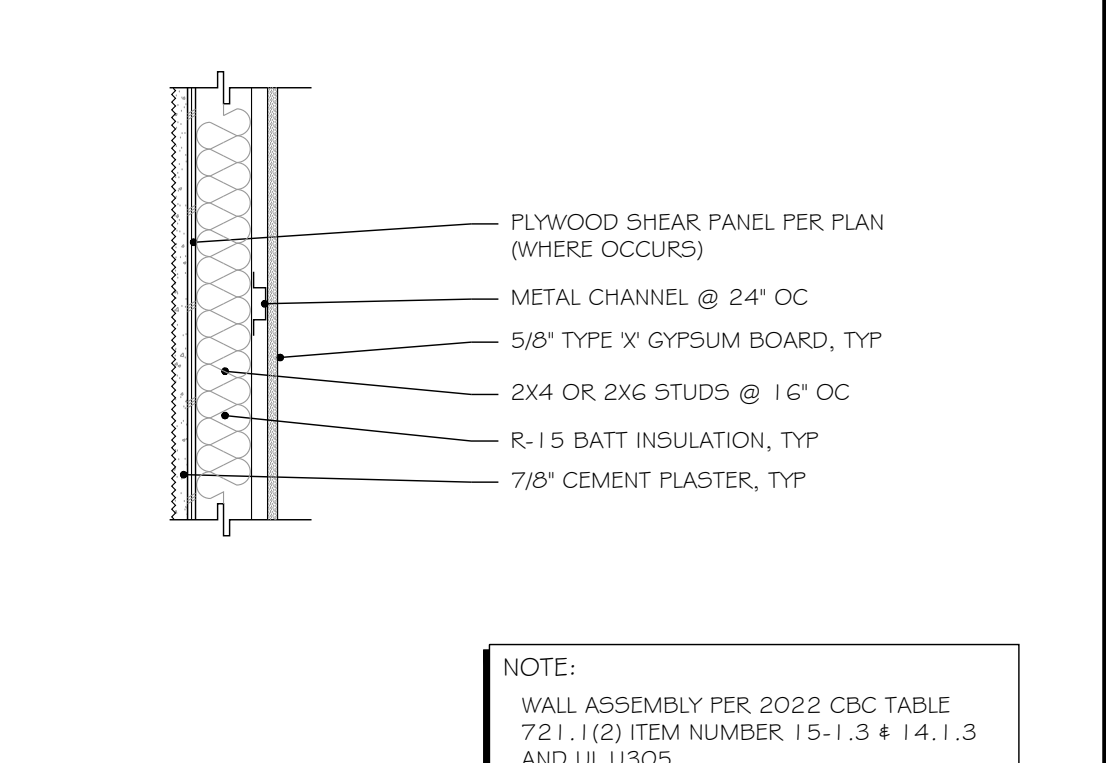
87

INSULATION AT UNVENTED ROOF ASSEMBLY - BOTH TYPES  
SCALE: 1" = 1'-0" CRC R806.5 A-DT-FMG-RF-0325



83

FIRE RESISTANCE: 1 HR EXTERIOR WALL, SOUND: STC 51  
SCALE: 1" = 1'-0" A-DT-FIN-FR-WAL-025

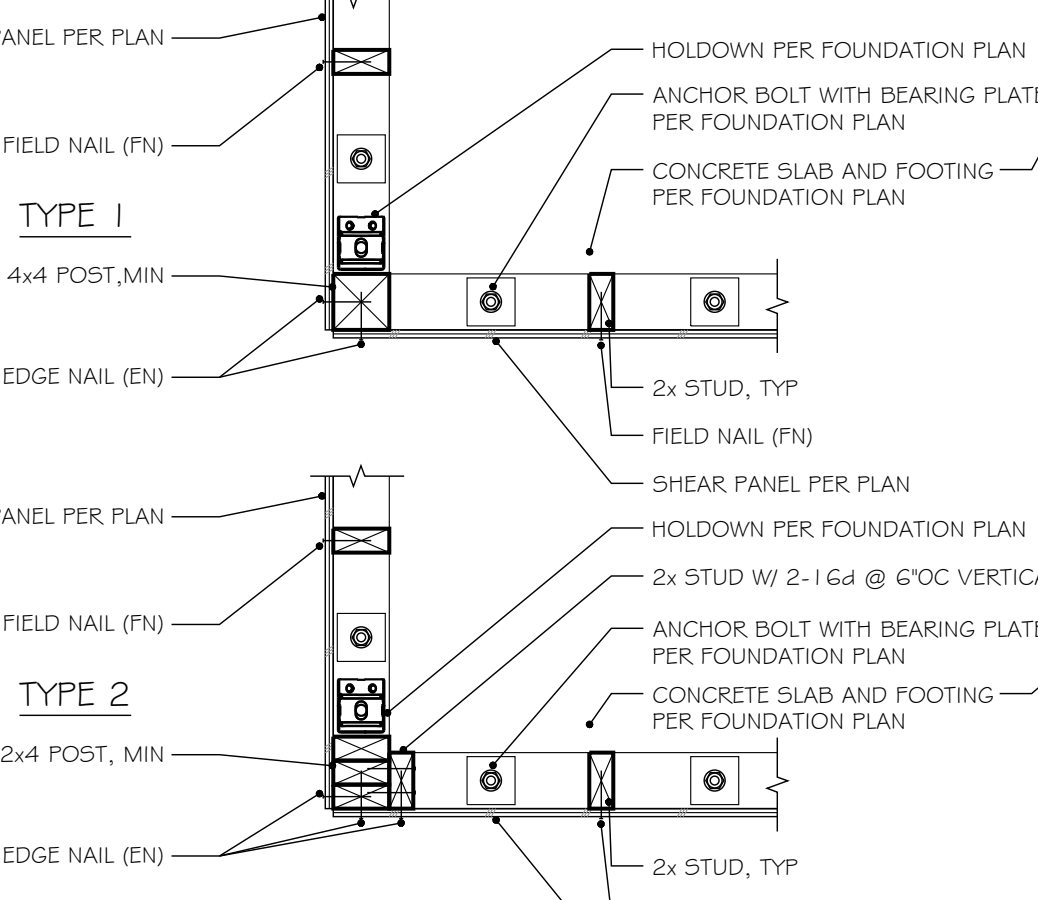


100

96

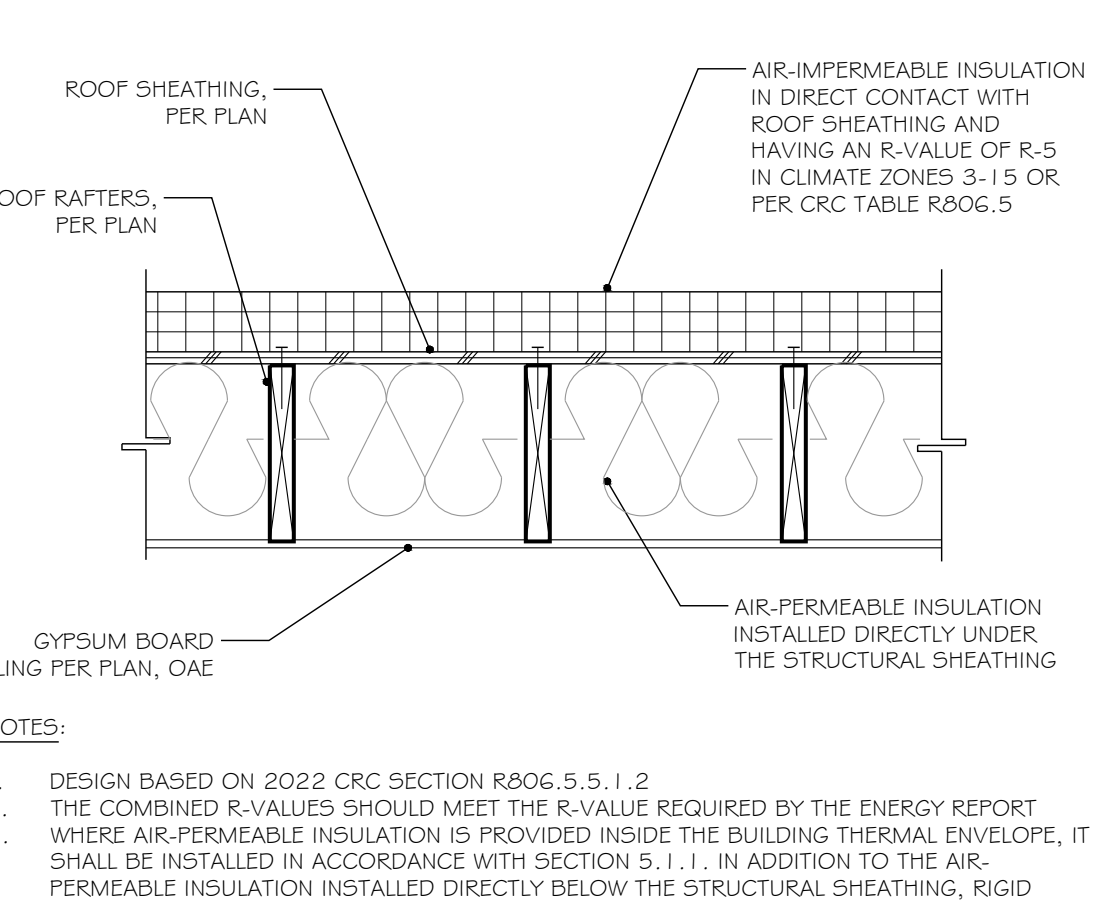
92

HOLD DOWN AT SHEAR WALL INTERSECTION  
SCALE: 1" = 1'-0" A-DT-FDN-SG-ANC-018



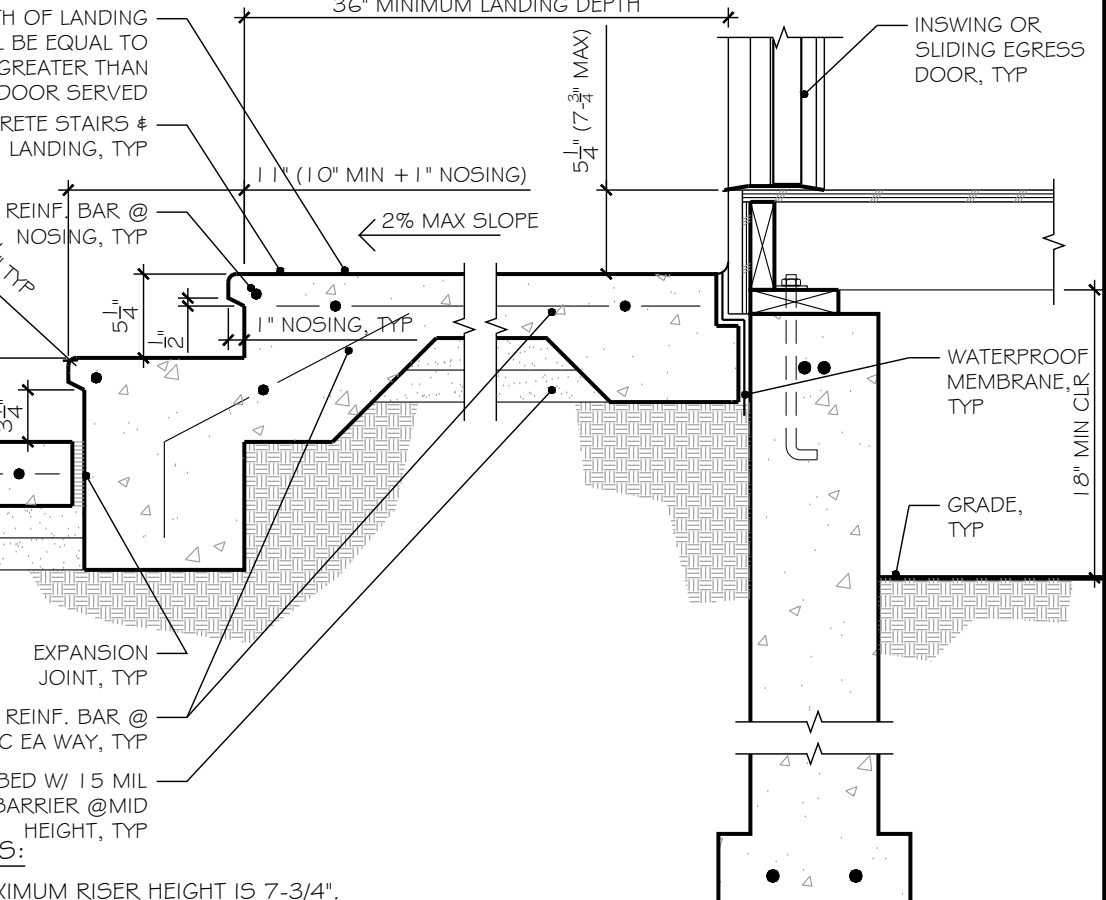
88

INSULATION AT UNVENTED ROOF ASSEMBLY - OVER/UNDER  
SCALE: 1" = 1'-0" CRC R806.5 A-DT-FMG-RF-0327



84

EXTERIOR STAIRS AT STEM WALL FOOTING  
SCALE: 1" = 1'-0" A-DT-FDN-SW-0136



BY USING THESE PERMIT READY CONSTRUCTION DOCUMENTS, THE USER AGREES TO RELEASE THE CITY OF ANAHEIM 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.



ANAHEIM PRADU

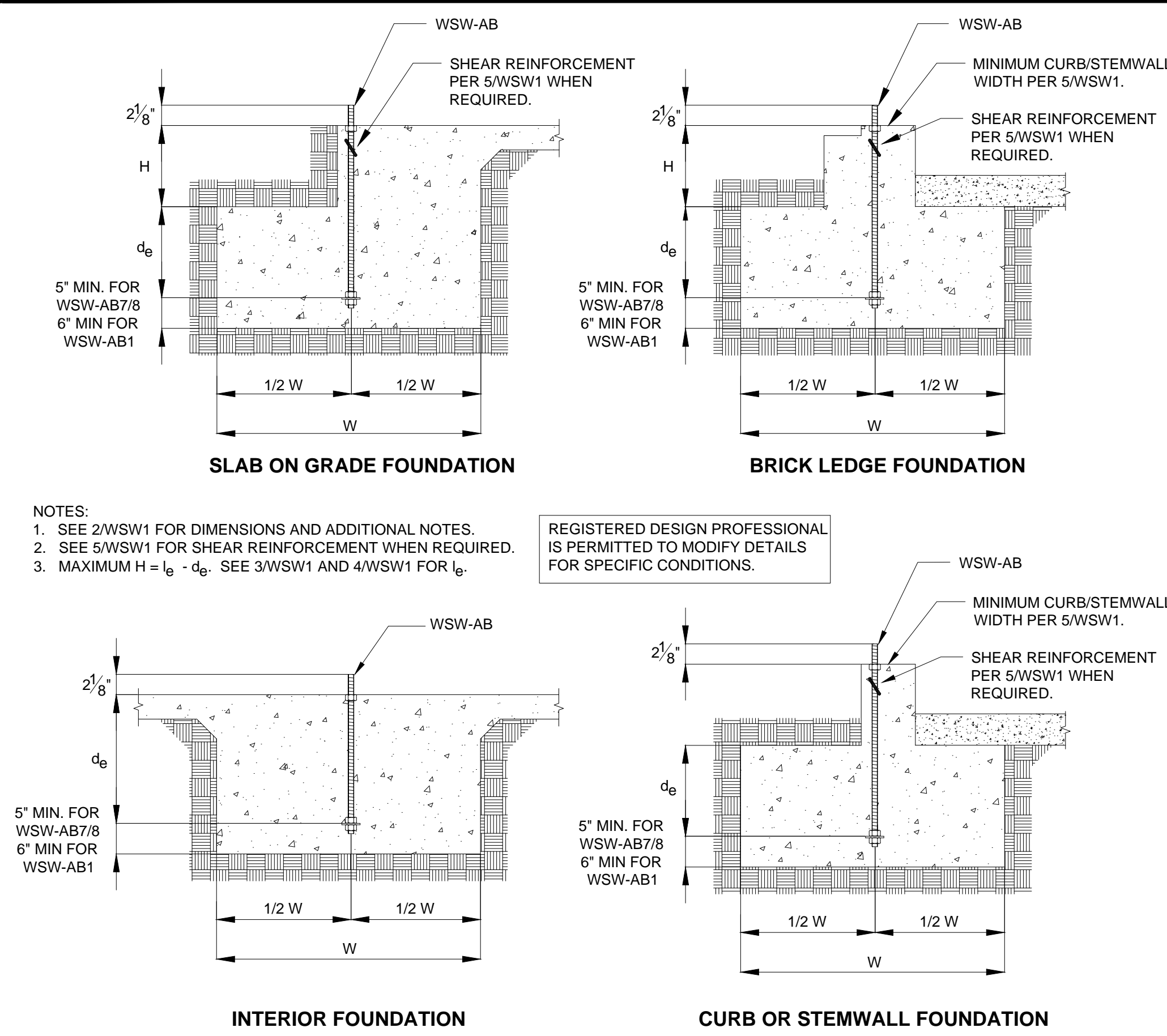
CITY: ANAHEIM

JOB: 202409R

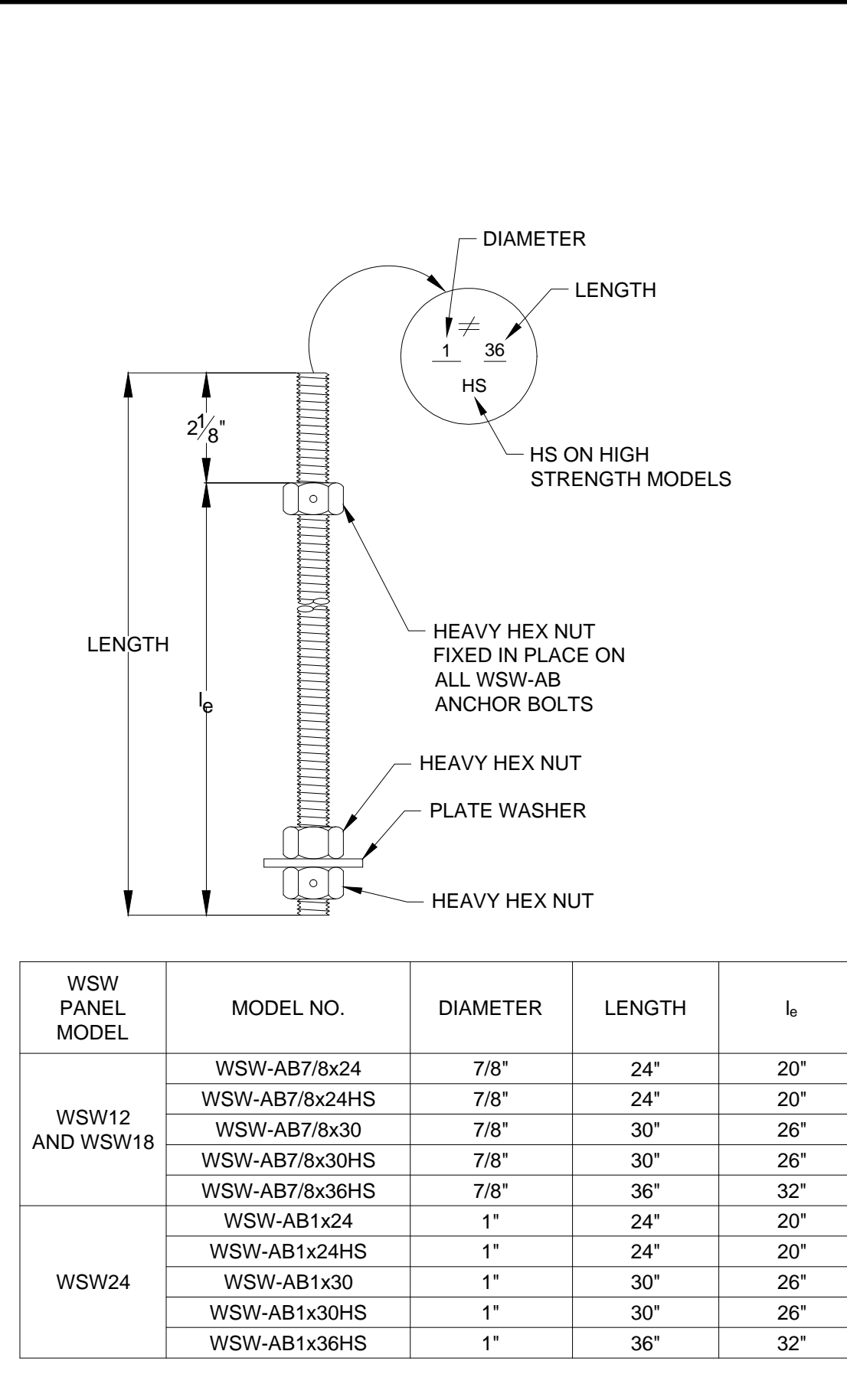
DETAILS

d0.4

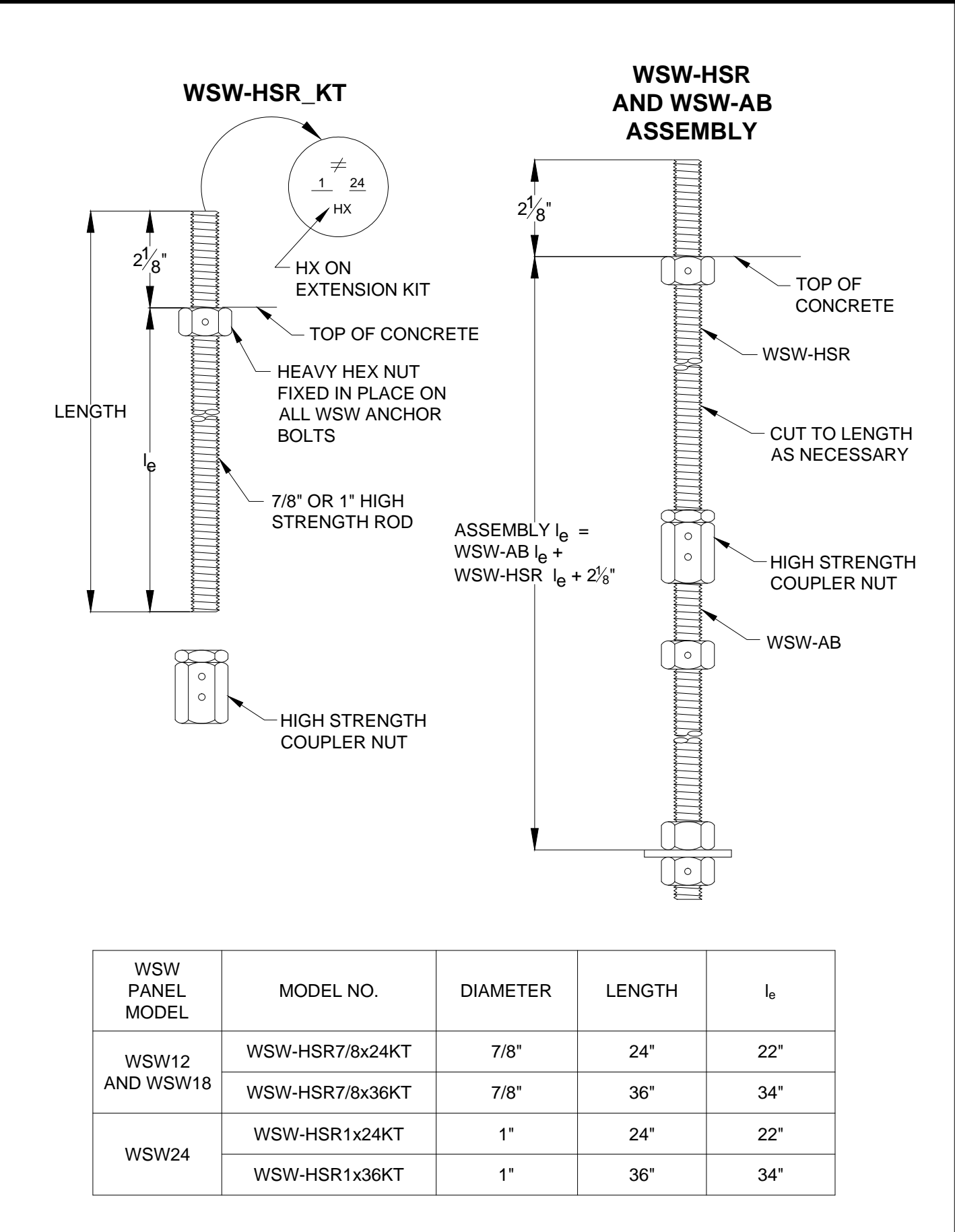




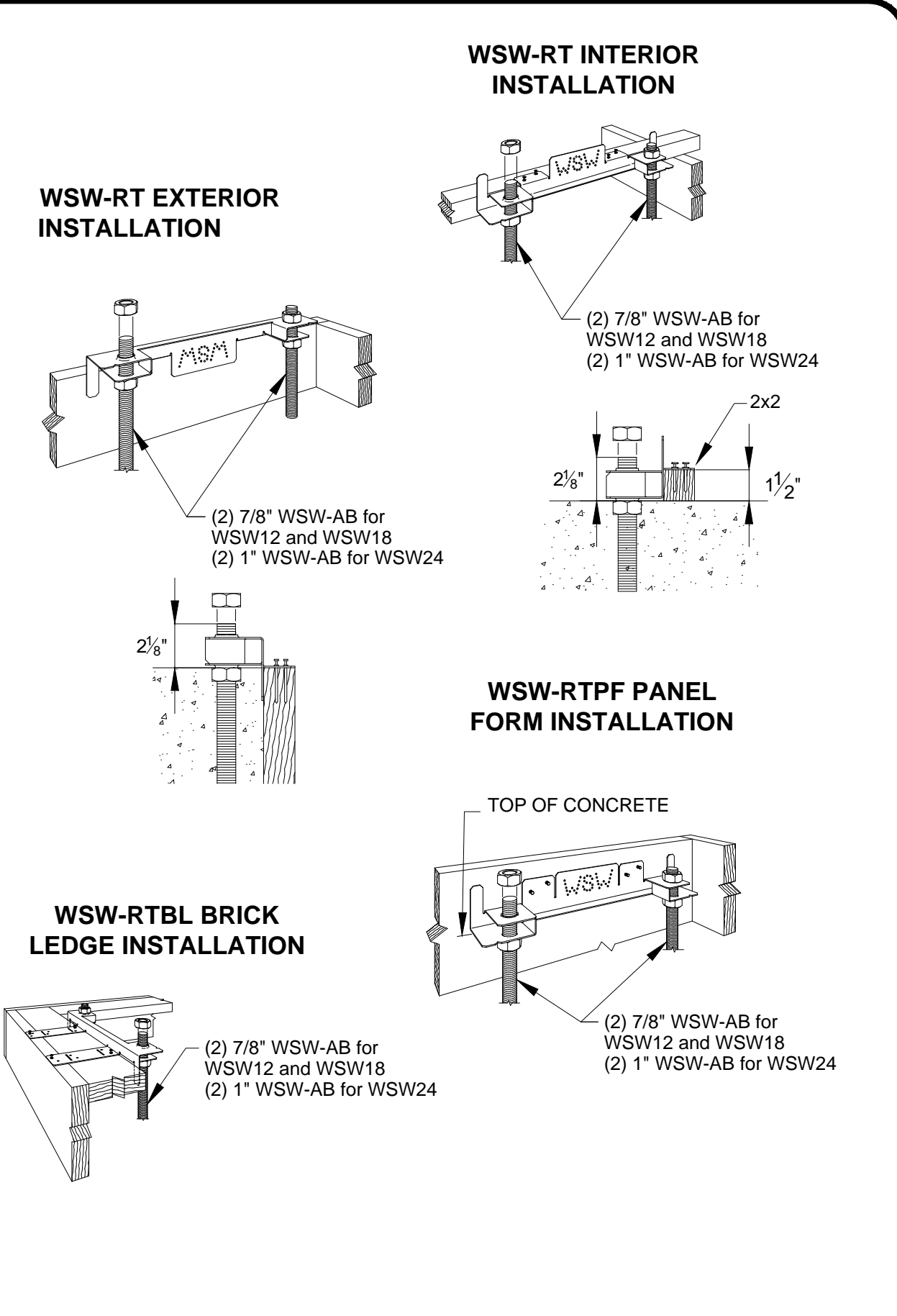
**STRONG-WALL® WSW ANCHORAGE - TYPICAL SECTIONS**



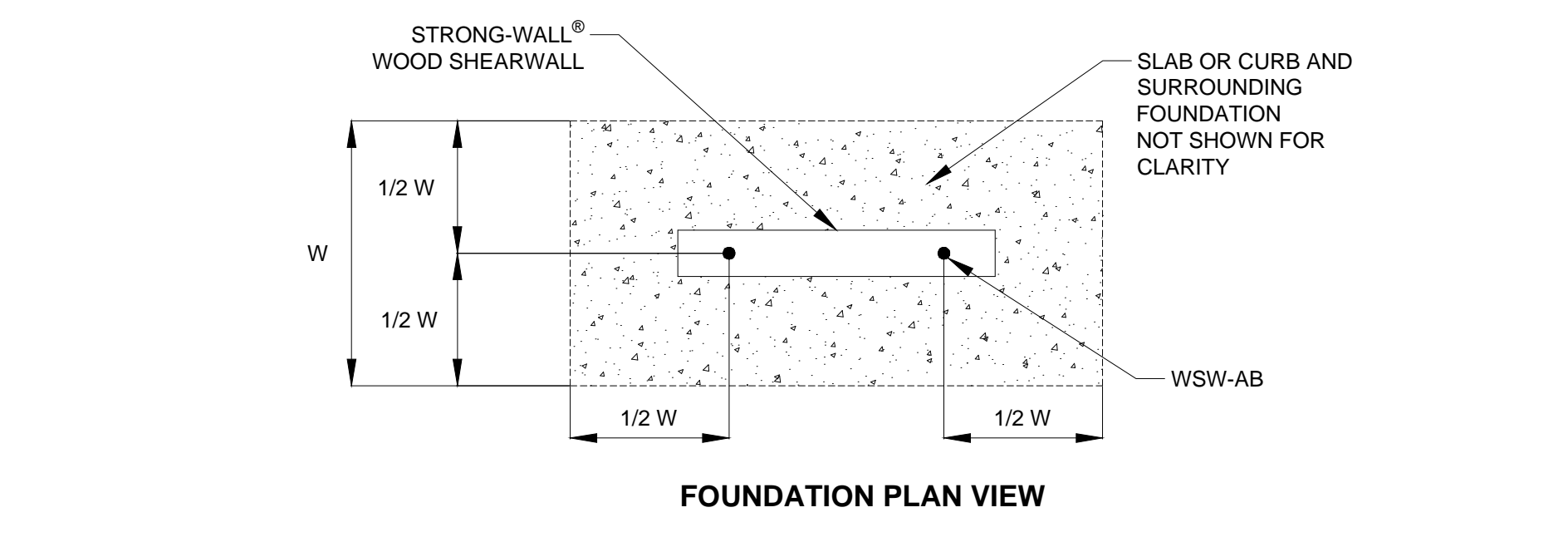
**WSW ANCHOR BOLTS**



**WSW ANCHOR BOLT EXTENSION**



**WSW ANCHOR BOLT TEMPLATES**



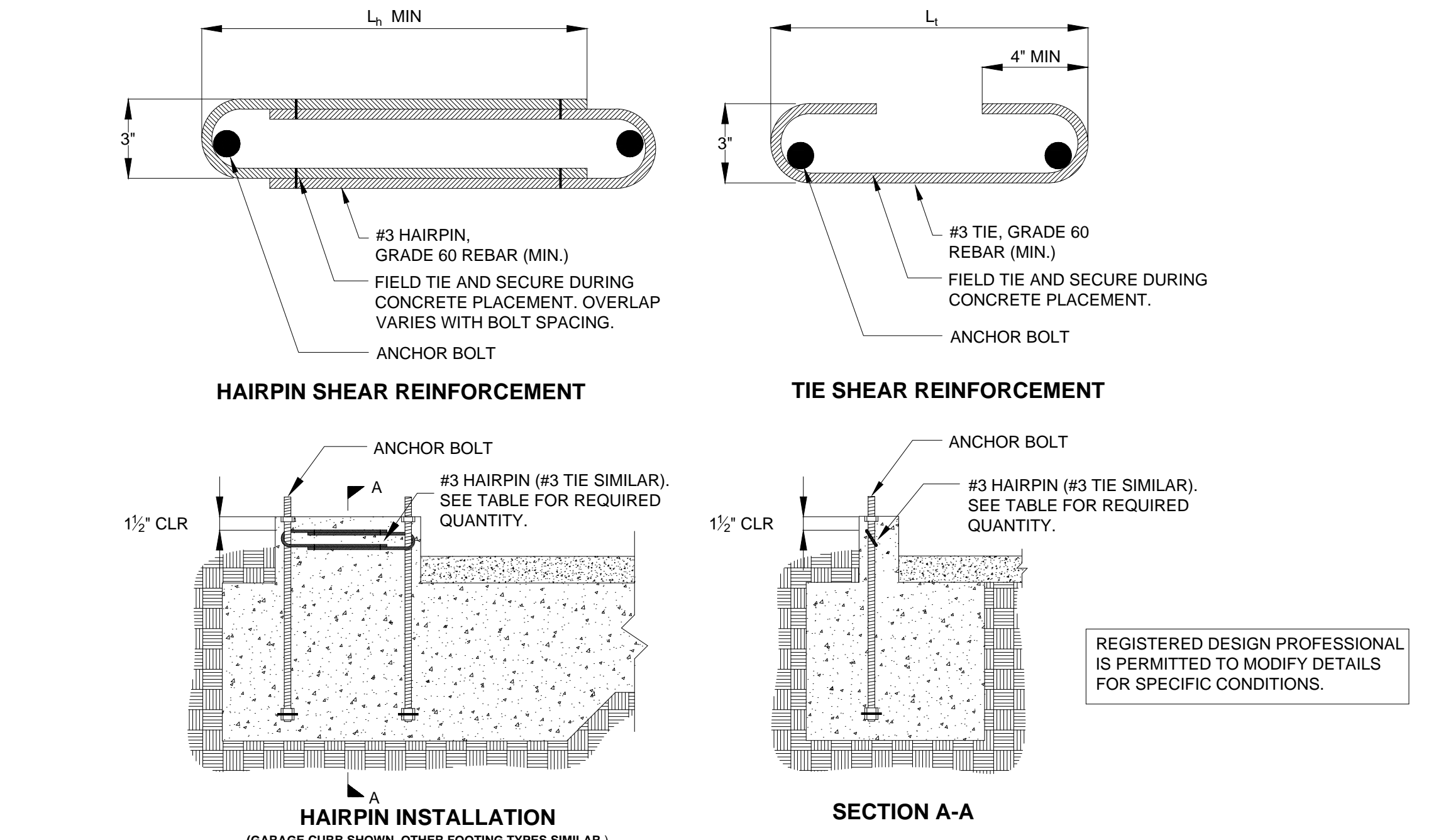
WSW ANCHORAGE SOLUTIONS FOR 2500 PSI CONCRETE								
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSW-AB7/8 ANCHOR BOLT			WSW-AB1 ANCHOR BOLT		
			ASD ALLOWABLE TENSION (lb.)	W (in.)	$d_b$ (in.)	ASD ALLOWABLE TENSION (lb.)	W (in.)	$d_b$ (in.)
SEISMIC	CRACKED	STANDARD	11,900	27	9	16,100	33	11
		HIGH STRENGTH	13,100	29	10	17,100	35	12
		HIGH STRENGTH	24,900	43	15	33,000	51	17
	UNCRAKED	STANDARD	27,100	46	16	35,300	54	18
		HIGH STRENGTH	12,500	24	8	15,700	28	10
		HIGH STRENGTH	13,100	25	9	17,100	30	10
WIND	CRACKED	STANDARD	25,300	38	13	32,300	44	15
		HIGH STRENGTH	27,100	40	14	35,300	47	16
		HIGH STRENGTH	5,100	14	6	6,200	16	6
	UNCRAKED	STANDARD	8,700	20	7	11,400	24	8
		HIGH STRENGTH	13,100	27	9	17,100	32	11
		HIGH STRENGTH	15,900	30	10	21,100	36	12

- NOTES:
- ANCHORAGE DESIGNS CONFORM TO ACI 318-11 APPENDIX D AND ACI 318-14 WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
  - ANCHOR STRENGTH INDICATES REQUIRED GRADE OF WSW-AB ANCHOR BOLT. STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A449).
  - 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.
  - WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C.
  - 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.
  - REFER TO 1/WSW1 FOR  $d_c$ .

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

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.)	$d_b$ (in.)	ASD ALLOWABLE TENSION (lb.)	W (in.)	$d_b$ (in.)
SEISMIC	CRACKED	STANDARD	12,300	26	9	16,000	31	11
		HIGH STRENGTH	13,100	28	10	17,100	33	11
		HIGH STRENGTH	25,200	41	14	32,700	48	16
	UNCRAKED	STANDARD	27,100	43	15	35,300	51	17
		HIGH STRENGTH	12,000	22	8	16,300	27	9
		HIGH STRENGTH	13,100	24	8	17,100	28	10
WIND	CRACKED	STANDARD	25,300	36	12	32,700	42	14
		HIGH STRENGTH	27,100	38	13	35,300	44	15
		HIGH STRENGTH	5,000	13	6	5,600	14	6
	UNCRAKED	STANDARD	8,800	19	7	10,200	21	7
		HIGH STRENGTH	13,100	25	9	17,100	30	10
		HIGH STRENGTH	15,700	28	10	20,100	33	11

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.)	$d_b$ (in.)	ASD ALLOWABLE TENSION (lb.)	W (in.)	$d_b$ (in.)
SEISMIC	CRACKED	STANDARD	12,600	23	8	16,000	27	9
		HIGH STRENGTH	13,100	24	8	17,100	29	10
		HIGH STRENGTH	24,800	36	12	32,100	42	14
	UNCRAKED	STANDARD	27,100	38	13	35,300	45	15
		HIGH STRENGTH	12,700	20	7	15,700	23	8
		HIGH STRENGTH	13,100	21	7	17,100	25	9
WIND	CRACKED	STANDARD	24,600	31	11	32,500	37	13
		HIGH STRENGTH	27,100	34	12	35,300	39	13
		HIGH STRENGTH	5,400	12	6	6,800	14	6
	UNCRAKED	STANDARD	8,300	16	6	11,600	20	7
		HIGH STRENGTH	13,100	22	8	17,100	26	9
		HIGH STRENGTH	15,300	24	8	21,400	30	10

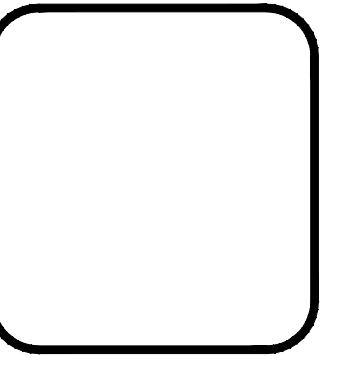


STRONG-WALL® WOOD SHEARWALL SHEAR ANCHORAGE						
MODEL	$L_1$ OR $L_n$ (in.)	SEISMIC <sup>3</sup>			WIND <sup>4</sup>	
		SHEAR REINFORCEMENT	MINIMUM CURB/STEMWALL WIDTH (in.)	SHEAR REINFORCEMENT	MINIMUM CURB/STEMWALL WIDTH (in.)	ASD ALLOWABLE SHEAR LOAD, V (lb.) <sup>6</sup>
WSW12	10 $\frac{1}{4}$	(1) #3 HAIRPIN	8 <sup>5</sup>	SEE NOTE 6	6	1,035
WSW18	15	(1) #3 HAIRPIN	8 <sup>5</sup>	(1) #3 HAIRPIN	6	740
WSW24	19	(2) #3 HAIRPINS	8 <sup>5</sup>	(1) #3 HAIRPIN	6	HAIRPIN REINFORCEMENT ACHIEVES MAXIMUM ALLOWABLE SHEAR LOAD OF THE WSW

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

**STRONG-WALL® WSW SHEAR ANCHORAGE SCHEDULE AND DETAILS**

REVISIONS	DATE	NO.
0	07/01/2016	0



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



**STRONG-WALL® WSW ANCHORAGE DETAILS**  
 ENGINEERED DESIGNS



NAME	DATE	07-01-2016
SCALE	N.T.S.	
CHECKED		
SHEET	<b>WSW1</b>	
OF SHEETS		
JOB NO.		

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - 3-Bedroom Plan A Calculation Date/Time: 2023-01-16T18:37:25-08:00 (Page 1 of 13)  
 Calculation Description: Title 24 Analysis Input File Name: 23Q1019-3BA.1-03.rbd22x

GENERAL INFORMATION						
01	Project Name	Anaheim PRADU - 3-Bedroom Plan A				
02	Run Title	Title 24 Analysis				
03	Project Location	Anaheim PRADU Street				
04	City	Anaheim	05	Standards Version	2022	
06	Zip code	92805	07	Software Version	EnergyPro 9.0	
08	Climate Zone	7	09	Front Orientation (deg/ Cardinal)	All orientations	
10	Building Type	Single family	11	Number of Dwelling Units	1	
12	Project Scope	Newly Constructed	13	Number of Bedrooms	3	
14	Addition Cond. Floor Area (ft <sup>2</sup> )	0	15	Number of Stories	1	
16	Existing Cond. Floor Area (ft <sup>2</sup> )	n/a	17	Fenestration Average U-factor	0.54	
18	Total Cond. Floor Area (ft <sup>2</sup> )	1199	19	Glazing Percentage (%)	33.60%	
20	ADU Bedroom Count	n/a				

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

Registration Number: 223-P010009280A-000-000-0000000-0000 Registration Date/Time: 2023-01-23 10:20:19 HERS Provider: CalCERTS inc.  
 CA Building Energy Efficiency Standards - 2022 Residential Compliance Report Version: 2022.0.000 Report Generated: 2023-01-16 18:38:07  
 Schema Version: rev 20220901

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - 3-Bedroom Plan A Calculation Date/Time: 2023-01-16T18:37:25-08:00 (Page 2 of 13)  
 Calculation Description: Title 24 Analysis Input File Name: 23Q1019-3BA.1-03.rbd22x

ENERGY DESIGN RATINGS	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency <sup>1</sup> EDR (EDR2efficiency)	Total <sup>2</sup> EDR (EDR2total)	Source Energy (EDR1)	Efficiency <sup>1</sup> EDR (EDR2efficiency)	Total <sup>2</sup> EDR (EDR2total)
Standard Design	36	30.5	30.7			
Proposed Design						
North Facing	35.6	28.5	28.9	0.4	2	1.8
East Facing	35.7	29.5	29.2	0.3	1	1.5
South Facing	33.7	26.1	27.7	2.3	4.4	3
West Facing	34.9	30.2	29.6	1.1	0.3	1.1
<b>RESULT<sup>3</sup>: PASS</b>						
<sup>1</sup> Efficiency EDR includes improvements like a better building envelope and more efficient equipment <sup>2</sup> Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries <sup>3</sup> Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded • Standard Design PV Capacity: 2.30 kWdc						

Registration Number: 223-P010009280A-000-000-0000000-0000 Registration Date/Time: 2023-01-23 10:20:19 HERS Provider: CalCERTS inc.  
 CA Building Energy Efficiency Standards - 2022 Residential Compliance Report Version: 2022.0.000 Report Generated: 2023-01-16 18:38:07  
 Schema Version: rev 20220901

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - 3-Bedroom Plan A Calculation Date/Time: 2023-01-16T18:37:25-08:00 (Page 3 of 13)  
 Calculation Description: Title 24 Analysis Input File Name: 23Q1019-3BA.1-03.rbd22x

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Standard Design TDV Energy (EDR2) (KTDU/ft <sup>2</sup> -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Proposed Design TDV Energy (EDR2) (KTDU/ft <sup>2</sup> -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0.51	3.48	0.94	6.55	-0.43	-3.07
Space Cooling	0.31	7.91	0.31	7.34	0	0.57
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.05	1.29	15.25	0.5	4.8
Self Utilization/Flexibility Credit				0		0
<b>North Facing Efficiency Compliance Total</b>	<b>3.03</b>	<b>35.95</b>	<b>2.96</b>	<b>33.65</b>	<b>0.07</b>	<b>2.3</b>
Space Heating	0.51	3.48	0.97	6.74	-0.46	-3.26
Space Cooling	0.31	7.91	0.31	8.43	0	-0.52
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.05	1.3	15.17	0.49	4.88
Self Utilization/Flexibility Credit				0		0
<b>East Facing Efficiency Compliance Total</b>	<b>3.03</b>	<b>35.95</b>	<b>3</b>	<b>34.85</b>	<b>0.03</b>	<b>1.1</b>

Registration Number: 223-P010009280A-000-000-0000000-0000 Registration Date/Time: 2023-01-23 10:20:19 HERS Provider: CalCERTS inc.  
 CA Building Energy Efficiency Standards - 2022 Residential Compliance Report Version: 2022.0.000 Report Generated: 2023-01-16 18:38:07  
 Schema Version: rev 20220901

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - 3-Bedroom Plan A Calculation Date/Time: 2023-01-16T18:37:25-08:00 (Page 4 of 13)  
 Calculation Description: Title 24 Analysis Input File Name: 23Q1019-3BA.1-03.rbd22x

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Standard Design TDV Energy (EDR2) (KTDU/ft <sup>2</sup> -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Proposed Design TDV Energy (EDR2) (KTDU/ft <sup>2</sup> -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0.51	3.48	0.38	2.61	0.13	0.87
Space Cooling	0.31	7.91	0.26	8.7	0.05	-0.79
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.05	1.27	15	0.52	5.05
Self Utilization/Flexibility Credit				0		0
<b>South Facing Efficiency Compliance Total</b>	<b>3.03</b>	<b>35.95</b>	<b>2.33</b>	<b>30.82</b>	<b>0.7</b>	<b>5.13</b>
Space Heating	0.51	3.48	0.5	3.43	0.01	0.05
Space Cooling	0.31	7.91	0.53	12.72	-0.22	-4.81
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.05	1.27	15	0.52	5.05
Self Utilization/Flexibility Credit				0		0
<b>West Facing Efficiency Compliance Total</b>	<b>3.03</b>	<b>35.95</b>	<b>2.72</b>	<b>35.66</b>	<b>0.31</b>	<b>0.29</b>

Registration Number: 223-P010009280A-000-000-0000000-0000 Registration Date/Time: 2023-01-23 10:20:19 HERS Provider: CalCERTS inc.  
 CA Building Energy Efficiency Standards - 2022 Residential Compliance Report Version: 2022.0.000 Report Generated: 2023-01-16 18:38:07  
 Schema Version: rev 20220901

General Notes



R19-04-30011  
NR19-04-30020

TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

No.	Revision/Issue	Date

Firm Name and Address  
  
 BEAR TECHNOLOGIES CONSULTING, INC.  
 3431 DON ARTURO DRIVE,  
 CARLSBAD, CALIFORNIA 92010  
 (760) 635-2327  
 wayne@beartechconsulting.com  
 http://www.beartechconsulting.com

Project Name and Address  
 ANAHEIM PRADU- 3 BEDROOM PLAN A  
 3 BEDROOM A STREET  
 ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-3BA.1-03	T-01
Date	01/24/2023
Scale	



CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - 3-Bedroom Plan A  
Calculation Description: Title 24 Analysis

Calculation Date/Time: 2023-01-16T18:37:25-08:00  
Input File Name: 23Q1019-3BA.1-03.rbd22x

(Page 5 of 13)

ENERGY USE INTENSITY				
	Standard Design (kBtu/ft <sup>2</sup> - yr)	Proposed Design (kBtu/ft <sup>2</sup> - yr)	Compliance Margin (kBtu/ft <sup>2</sup> - yr)	Margin Percentage
<b>North Facing</b>				
Gross EUI <sup>1</sup>	16.92	16.67	0.25	1.48
Net EUI <sup>2</sup>	6.58	5.87	0.71	10.79
<b>East Facing</b>				
Gross EUI <sup>1</sup>	16.92	16.92	0	0
Net EUI <sup>2</sup>	6.58	6.11	0.47	7.14
<b>South Facing</b>				
Gross EUI <sup>1</sup>	16.92	16.54	0.38	2.25
Net EUI <sup>2</sup>	6.58	5.73	0.85	12.92
<b>West Facing</b>				
Gross EUI <sup>1</sup>	16.92	17.01	-0.09	-0.53
Net EUI <sup>2</sup>	6.58	6.2	0.38	5.78

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

Registration Number: 223-P010009290A-000-000-0000000-0000  
CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time: 2023-01-23 10:20:19  
Report Version: 2022.0.000  
Schema Version: rev 20220901

HERS Provider: CalCERTS inc.  
Report Generated: 2023-01-16 18:38:07

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - 3-Bedroom Plan A  
Calculation Description: Title 24 Analysis

Calculation Date/Time: 2023-01-16T18:37:25-08:00  
Input File Name: 23Q1019-3BA.1-03.rbd22x

(Page 7 of 13)

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft <sup>2</sup> )	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Anaheim PRADU - 3-Bedroom Plan A	1199	1	3	1	1	1

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft <sup>2</sup> )	Avg. Ceiling Height	Water Heating System 1	Status
ADU 3-Bedroom A	Conditioned	Ductless Mini-Split1	1199	9	DHW Sys 1	New

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft <sup>2</sup> )	Window and Door Area (ft <sup>2</sup> )	Tilt (deg)
Front Wall	ADU 3-Bedroom A	_WALL: 2x4 Exterior	0	Front	438.8	175	90
Left Wall	ADU 3-Bedroom A	_WALL: 2x4 Exterior	90	Left	252	18	90
Rear Wall	ADU 3-Bedroom A	_WALL: 2x4 Exterior	180	Back	438.8	66	90
Right Wall	ADU 3-Bedroom A	_WALL: 2x4 Exterior	270	Right	252	144	90
Roof 2	ADU 3-Bedroom A	_ROOF: CLG.	n/a	n/a	372	n/a	n/a

OPAQUE SURFACES - CATHEDRAL CEILINGS										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Area (ft <sup>2</sup> )	Skylight Area (ft <sup>2</sup> )	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof	ADU 3-Bedroom A	_ROOF: SLPD. CLG.	0	Front	827	0	3	0.1	0.85	No

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

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REQUIRED PV SYSTEMS											
01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
2.3	NA	Premium (~18-20%)	Fixed	Microinverters	false	180	Degrees	22	4.85	96	100

REQUIRED SPECIAL FEATURES
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
<ul style="list-style-type: none"> <li>PV module type: Premium</li> <li>PV power electronics: Microinverters</li> <li>Whole house fan</li> <li>Ceiling has high level of insulation</li> <li>Exposed slab floor in conditioned zone</li> <li>Variable capacity heat pump compliance option (verification details from VCHP Staff report, Appendix B, and RA3)</li> <li>Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed</li> </ul>

HERS FEATURE SUMMARY
The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry
<ul style="list-style-type: none"> <li>Indoor air quality ventilation</li> <li>Kitchen range hood</li> <li>Whole house fan airflow and fan efficacy</li> <li>Verified EER/EER2</li> <li>Verified SEER/SEER2</li> <li>Verified Refrigerant Charge</li> <li>Airflow in habitable rooms (SC3.1.4.1.7)</li> <li>Verified HSPF2</li> <li>Verified heat pump rated heating capacity</li> <li>Wall-mounted thermostat in zones greater than 150 ft2 (SC3.4.5)</li> <li>Ductless indoor units located entirely in conditioned space (SC3.1.4.1.8)</li> <li>Pipe Insulation, All Lines</li> </ul>

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ATTIC							
01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic ADU 3-Bedroom A	Attic RoofADU 3-Bedroom A	Ventilated	3	0.1	0.85	Yes	No

FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft <sup>2</sup> )	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
w1	Window	Front Wall	Front	0			1	45	0.58	NFRC	0.65	NFRC	Bug Screen
d1	Window	Front Wall	Front	0			1	24	0.53	NFRC	0.65	NFRC	Bug Screen
w2	Window	Front Wall	Front	0			1	30	0.58	NFRC	0.65	NFRC	Bug Screen
w3	Window	Front Wall	Front	0			1	12	0.58	NFRC	0.65	NFRC	Bug Screen
d3	Window	Front Wall	Front	0			1	64	0.53	NFRC	0.5	NFRC	Bug Screen
w4	Window	Left Wall	Left	90			1	18	0.58	NFRC	0.65	NFRC	Bug Screen
w5	Window	Rear Wall	Back	180			1	8	0.58	NFRC	0.65	NFRC	Bug Screen
w2 2	Window	Rear Wall	Back	180			1	30	0.58	NFRC	0.65	NFRC	Bug Screen
w5 2	Window	Rear Wall	Back	180			1	8	0.58	NFRC	0.65	NFRC	Bug Screen
w6	Window	Rear Wall	Back	180			1	20	0.58	NFRC	0.65	NFRC	Bug Screen
d2	Window	Right Wall	Right	270			1	144	0.5	NFRC	0.5	NFRC	Bug Screen

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General Notes



R19-04-30011  
NR19-04-30020

TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

No.	Revision/Issue	Date

Firm Name and Address  
BEAR TECHNOLOGIES CONSULTING, INC.  
3431 DON ARTURO DRIVE,  
CARLSBAD, CALIFORNIA 92010  
(760) 635-2327  
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Project Name and Address  
ANAHEIM PRADU - 3 BEDROOM PLAN A  
3 BEDROOM A STREET  
ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-3BA.1-03	T-02
Date	01/24/2023
Scale	

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01	02	03	04	05	06	07	08
Name	Zone	Area (ft <sup>2</sup> )	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab On Grade	ADU 3-Bedroom A	1199	153	none	0	0%	No

**OPAQUE SURFACE CONSTRUCTIONS**

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
_WALL: 2x4 Exterior	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: All Other Siding
_ROOF: SLPD. CLG.	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in. O. C.	R-30	None / None	0.037	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-30 / 2x10 Inside Finish: Gypsum Board
Attic RoofADU 3-Bedroom A	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / 0	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
_ROOF: CLG.	Ceilings (below attic)	Wood Framed Ceiling	2x6 @ 16 in. O. C.	R-38	None / None	0.026	Over Ceiling Joists: R-23.7 insul. Cavity / Frame: R-14.3 / 2x6 Inside Finish: Gypsum Board

**BUILDING ENVELOPE - HERS VERIFICATION**

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

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**HVAC - HEAT PUMPS**

01	02	03	04	05	06	07	08	09	10	11	12	13
Name	System Type	Number of Units	Heating			Cooling			Zonally Controlled	Compressor Type	HERS Verification	
			Efficiency Type	HSPF / HSPF2 / COP	Cap 47	Cap 17	Efficiency Type	SEER / SEER2				EER / EER / CEER
Heat Pump System 1	VCHP-ductless	2	HSPF2	12.2	26000	15600	EER2SEER2	21.5	11.9	Zonally Controlled	Multi-speed	Heat Pump System 1-hers-htpump

**HVAC HEAT PUMPS - HERS VERIFICATION**

01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER/SEER2	Verified SEER/SEER2	Verified Refrigerant Charge	Verified HSPF/HSPF2	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Not Required	0	Not Required	Not Required	Yes	No	Yes	Yes

**VARIABLE CAPACITY HEAT PUMP COMPLIANCE OPTION - HERS VERIFICATION**

01	02	03	04	05	06	07	08	09	10
Name	Certified Low-Static VCHP System	Airflow to Habitable Rooms	Ductless Units in Conditioned Space	Wall Mount Thermostat	Air Filter Sizing & Pressure Drop Rating	Low Leakage Ducts in Conditioned Space	Minimum Airflow per RA3.3 and SC3.3.4.1	Certified non-continuous Fan	Indoor Fan not Running Continuously
Heat Pump System 1	Not required	Required	Required	Required	Not required	Not required	Not required	Not required	Not required

**INDOOR AIR QUALITY (IAQ) FANS**

01	02	03	04	05	06	07	08	09
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE	Includes Fault Indicator Display?	HERS Verification	Status
Sfam IAQVentRpt	65	0.35	Exhaust	No	n/a	No	Yes	

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**WATER HEATING SYSTEMS**

01	02	03	04	05	06	07	08	09
Name	System Type	Distribution Type	Water Heater Name	Number of Units	Solar Heating System	Compact Distribution	HERS Verification	Water Heater Name (#)
DHW Sys 1	Domestic Hot Water (DHW)	HERS Verified Pipe Insulation credit	DHW Heater 1	1	n/a	None	DHW Sys 1-hers-dhw	DHW Heater 1 (1)

**WATER HEATERS - NEEA HEAT PUMP**

01	02	03	04	05	06	07	08
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source
DHW Heater 1	1	50	AOSmith	AOSmithFPTU50	ADU 3-Bedroom A	ADU 3-Bedroom A	ADU 3-Bedroom A

**WATER HEATING - HERS VERIFICATION**

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

**SPACE CONDITIONING SYSTEMS**

01	02	03	04	05	06	07	08	09
Name	System Type	Heating Unit Name	Heating Equipment Count	Cooling Unit Name	Cooling Equipment Count	Fan Name	Distribution Name	Required Thermostat Type
Ductless Mini-Split1	Heat pump heating cooling	Heat Pump System 1	2	Heat Pump System 1	2	n/a	n/a	Setback

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**COOLING VENTILATION**

01	02	03	04	05	06	07	08	09
Name	Airflow Rate (CFM/ft2)	Cooling Vent CFM	Cooling Vent Watts/CFM	Total Watts	Number of Fans	CFVCS Type	Exhausts to	HERS Verification
WH Fan 1	0.04	42	0.0238	1	1	Not a CFVCS	Outside	Required

**PROJECT NOTES**

\*\*\*\*\*  
 This report is based on the drawings received on 01/03/2023.  
 \*\*\*\*\*  
 SCOPE OF WORK: Construct a ADU - 3-Bedroom (A Elevation).  
 \*\*\*\*\*  
 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 mechanical 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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General Notes



R19-04-30011  
 NR19-04-30020

TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

No. Revision/Issue Date

Firm Name and Address  
  
 BEAR TECHNOLOGIES CONSULTING, INC.  
 3431 DON ARTURO DRIVE,  
 CARLSBAD, CALIFORNIA 92010  
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Project Name and Address  
 ANAHEIM PRADU - 3 BEDROOM PLAN A  
 3 BEDROOM A STREET  
 ANAHEIM, CALIFORNIA 92805

Project: 23Q1019-3BA.1-03  
 Date: 01/24/2023  
 Scale: T-03

**2022 Single-Family Residential Mandatory Requirements Summary**

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

**Building Envelope:**

- § 110.0(a)(1): **Air Leakage.** Manufactured fenestration, exterior doors, and exterior pole doors must limit air leakage to 0.3 CFM per square foot or area when tested per NFRC-400, ASTM E283, or AIAA/MCALCSA 1991.5.04446-2011.
- § 110.0(a)(2): **Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 110.11(a).
- § 110.0(a)(3): **Field-fabricated exterior doors and fenestration products** must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6.A, 110.6.B, or JAM 5 for exterior doors. They must be caulked and/or weather stripped.
- § 110.7: **Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
- § 110.8(a): **Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
- § 110.8(b): **Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
- § 110.8(c): **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(j) and be labeled per § 110.113 when the installation of a cool roof is specified on the CRF.
- § 110.8(d): **Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
- § 110.8(e): **Roof Deck, Ceiling and Rafter Roof Insulation.** Roof decks in newly constructed attic in climate zones 4 and 6-10 area-weighted average U-factor not exceeding U-0.164. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; or area-weighted average U-factor not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.084 or less. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a roof or ceiling which is sealed to limit infiltration and exfiltration, as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a crawl space.
- § 150.0(b): **Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
- § 150.0(c): **Wall Insulation.** Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.084. Opposite non-vented assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1.A or B.
- § 150.0(d): **Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.
- § 150.0(e): **Slab Edge Insulation.** Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light degradation; and when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
- § 150.0(f): **Vapor Retarder.** In climate zones 1 through 16, the earth floor or 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(f).
- § 150.0(g): **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, including but not limited to the exterior wall insulation.
- § 150.0(h): **Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned spaces or outdoors must have a U-factor of 0.45 or area-weighted average U-factor of fenestration must not exceed 0.45.

**Fenestration, Decorative Gas Appliances, and Gas Logs:**

- § 110.5(a): **Pilot Lights.** Continuously burning pilot lights are not allowed for indoor and outdoor fenestration.
- § 150.0(i)(1): **Closable Doors.** Masonry or factory-built fenestration must have a closable metal or glass door covering the entire opening of the fenestration.
- § 150.0(i)(2): **Combustion Intake.** Masonry or factory-built fenestration 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 tamper-resistant damper or combustion-air control device.
- § 150.0(i)(3): **Flue Damper.** Masonry or factory-built fenestration must have a flue damper with a readily accessible control.

**Space Conditioning, Water Heating, and Plumbing Systems:**

- § 110.0(j) 110.3: **Certification, Labeling, and Listing.** Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other room appliances must be certified by the manufacturer to the California Energy Commission.
- § 110.0(j) 110.4: **HVAC Efficiency.** Equipment must meet applicable efficiency requirements in Table 110.2.A through Table 110.2.A.4.
- § 110.0(j) 110.5: **Controls for Heat Pumps with Supplementary Electric Resistance Heating.** 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 carbon dioxide (CO<sub>2</sub>) concentration is higher than the setpoint temperature for supplementary heating; and the out-of-temperature for compression heating is higher than the setpoint temperature for supplementary heating.
- § 110.0(j) 110.6: **Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.
- § 110.0(j) 110.7: **Insulation.** Unvented water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
- § 110.0(j) 110.8: **Isolation Valves.** Instantaneous water heaters with an inlet rating greater than 6.8 l/min per 2.0 in (2.0 in) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.

5/6/22

**2022 Single-Family Residential Mandatory Requirements Summary**

- § 110.6: **Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas, fan-type central furnaces, household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour), and pool and spa heaters.
- § 150.0(h)(1): **Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)(2).
- § 150.0(h)(3): **Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.
- § 150.0(i)(1): **Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
- § 150.0(i)(2): **Water Piping, Solar Water-Heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in § 609.11 of the California Plumbing Code.
- § 150.0(j): **Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by § 120.3(b). Insulation exposed to weather must be water resistant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-shrinkable casing or sleeve.
- § 150.0(k)(1): **Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2'5" x 2' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2' higher than the base of the water heater.
- § 150.0(k)(2): **Solar Water-Heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO RBT), or by a listing agency that is approved by the executive director.

**Ducts and Fans:**

- § 110.8(g)(3): **Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604 of the California Mechanical Code (CMC), and a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
- § 150.0(m)(1): **CMC Compliance.** All air-distribution system ducts and plenums must meet CMC §§ 601.4.605.0 and ANSI/SMACNA-005-2009 HVAC Duct Construction Standards Metal and Flexible, 3rd Edition, Part 1 of supply air and return air ducts and plenums must be insulated to R-8.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape or other duct-sealing system that meets the applicable LE requirements, or aerosol sealant that meets LE 723. The combination of mastic and either mastic or tape must be used to seal openings greater than 1/4". Mastic or tape is used. Building cavities, air handler support platforms, and plenums designed or constructed with materials other than sealed metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts located in these spaces must not be compressed.
- § 150.0(m)(2): **Factory-Fabricated Duct Systems.** Factory-fabricated duct systems must comply with applicable requirements for duct construction, connection, and duct joints and seams of duct systems and their components but shall not be sealed with duct-back-robor adhesive duct tape 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-resistive tapes, mastic, sealants, and other requirements specified for duct construction.
- § 150.0(m)(4): **Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic damper.
- § 150.0(m)(5): **Gravily Ventilation Dampers.** Gravily 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)(6): **Protection of Insulation.** Insulation must be protected from damage due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (e.g., protected by aluminum, sheet metal, painted metal, or plastic cover). Cellular foam insulation must be protected as above or painted with a water resistant and solar radiation-resistant coating.
- § 150.0(m)(7): **Porous Inner Core Flex Duct.** Porous inner cores of flex ducts must have a non-porous layer or air barrier between the inner core and outer surface barrier.
- § 150.0(m)(8): **Duct System Sealing and Leakage Test.** When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.1.
- § 150.0(m)(9): **Air Filtration.** Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if rated per Equation 150.0.A. Clean filter pressure drop and labeling must meet the requirements in § 150.0(m)(9). Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters and to prevent air from bypassing the filter.

5/6/22

**CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD**

Project Name: Anaheim PRADU - 3-Bedroom Plan A  
 Calculation Date/Time: 2023-01-16T18:37:25-08:00 (Page 13 of 13)  
 Input File Name: 23Q1019-3BA-1-03.rbd2zx

**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**

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

Documentation Author Name: **Wayne Seward**  
 Signature Date: **2023-01-23 09:55:05**  
 Address: **3431 Don Arturo Drive**  
 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:

- 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.
- 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.
- 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: **Bar M Smith**  
 Signature Date: **2023-01-23 10:20:19**  
 Address: **682 2nd Street**  
 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.

Registration Number: 223-P010099200-000-000-000000-0000  
 CA Building Energy Efficiency Standards - 2022 Residential Compliance  
 Registration Date/Time: 2023-01-23 10:20:19  
 Report Version: 2022.0.000  
 Schema Version: rev 20220901  
 HERS Provider: CalCERTS Inc.  
 Report Generated: 2023-01-16 18:38:07

**2022 Single-Family Residential Mandatory Requirements Summary**

- § 150.0(m)(13): **Space Conditioning System Airflow Rate and Fan Efficacy.** Space conditioning systems that use ducts to supply cooling must have a space for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be 3-30 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficiency 0.4-0.45 watts per CFM for gas furnace air handlers and 0.3-0.38 watts per CFM for others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.82 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.

**Ventilation and Indoor Air Quality:**

- § 150.0(i)(1): **Requirements for Ventilation and Indoor Air Quality.** All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings, subject to the amendments specified in § 150.0(i)(1).
- § 150.0(i)(2): **Central Fan Integrated (CFI) Ventilation Systems.** Continuous operation of CFI air handlers is not allowed to provide the whole-dwelling unit ventilation airflow required per § 150.0(i)(1). A motorized damper(s) must be installed on the ventilation duct(s) that prevents air from the space conditioning duct system when the conditioning duct system is closed and/or when the damper(s) is closed. CFI ventilation systems must have controls that track outdoor air ventilation run time, and either open or close the motorized damper(s) for compliance with § 150.0(i)(1).
- § 150.0(i)(3): **Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and Townhouses.** Single-family detached dwelling units and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(i)(1).
- § 150.0(i)(4): **Local Mechanical Exhaust.** Kitchens and bathrooms must have local mechanical exhaust, nonrecirculating kitchen exhaust controlled exhaust system meeting requirements of § 150.0(i)(1) and enclosed kitchens and bathrooms can use demand controlled or continuous exhaust meeting § 150.0(i)(1) or airflow must be measured by the installer per § 150.0(i)(1) and, rated for sound per § 150.0(i)(1).
- § 150.0(i)(5): **Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems.** The airflow required per § 150.0(i)(1) must be measured by using a flow hood, flow grid, or other airflow measuring device at the fan's inlet or outlet terminals/grilles per Reference Residential Appendix RA3.7. Whole-dwelling unit ventilation systems must be rated for sound per ASHRAE 62.2 § 7.2 or less than the minimum airflow rate required by § 150.0(i)(1).
- § 150.0(i)(6): **Field Verification and Diagnostic Testing.** Whole-dwelling unit ventilation airflow, vented range hood airflow and sound rating, and HVI and ERV fan efficacy must be verified in accordance with Reference Residential Appendix RA3.7. Vented range hoods must be verified per Reference Residential Appendix RA3.7.3 to confirm if it is rated by HVI or AHAM to comply with the airflow rates and sound requirements per § 150.0(i)(1).

**Pool and Spa Systems and Equipment:**

- § 110.4(a): **Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: compliance with the Appliance Efficiency Regulations and listing in MAEDS; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating.
- § 110.4(b)(1): **Piping.** Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in 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 no pumps to be set or programmed to run only during off-peak electric demand periods.
- § 110.5: **Pilot Light.** Heaters and water heaters must not have a continuously burning pilot light.
- § 150.0(j): **Pool Systems and Equipment Installation.** Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.

**Lighting:**

- § 110.9: **Lighting Controls and Components.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.
- § 150.0(k)(1A): **Luminaire Efficacy.** All installed luminaires must meet the requirements in Table 150.0.A, except lighting integral to exhaust fans, kitchen range hoods, built vanity mirrors, and garage door openers; navigation lighting less than 5 watts; and lighting integral to drawers, cabinets, and linen closets with an efficacy of at least 65 lumens per watt.
- § 150.0(k)(1B): **Recessed Downlight Luminaires in Ceilings.** Recessed downlight luminaires must not contain screw-based sockets, must be airtight, and must be sealed with a gasket or caulk. California Electrical Code § 410.119 must also be met.
- § 150.0(k)(1C): **Light Sources in Enclosed or Recessed Luminaires.** Lamps and other replaceable light sources that are not compliant with the JAS elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
- § 150.0(k)(1E): **Bank Electrical Boxes.** The number of electrical boxes that are more than five feet above the finished floor and do not contain a receptacle or other device shall be no more than the number of bedrooms. These boxes must be served by a dedicated, voltage detector control, low voltage wiring, or fan speed control.
- § 150.0(k)(1F): **Lighting Integral to Exhaust Fans.** Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).

5/6/22

**2022 Single-Family Residential Mandatory Requirements Summary**

- § 150.0(k)(1G): **Screw-based luminaires.** Screw-based luminaires must contain lamps that comply with Reference Joint Appendix JAS 7.
- § 150.0(k)(1H): **Light Sources in Enclosed or Recessed Luminaires.** Lamps and other replaceable light sources that are not compliant with the JAS elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
- § 150.0(k)(1I): **Light Sources in Drawers, Cabinets, and Linen Closets.** Light sources internal to drawers, cabinets or linen closets are not required to comply with Table 150.0.A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
- § 150.0(k)(2): **Interior Switches and Controls.** All forward phase out dimmers used with LED light sources must comply with NEMA SSL 7A.
- § 150.0(k)(3): **Accessible Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off.
- § 150.0(k)(4): **Multiple Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function of the dimmer or sensor is installed to comply with § 150.0(k).
- § 150.0(k)(5): **Mandatory Requirements.** Lighting controls must comply with the applicable requirements of § 110.9.
- § 150.0(k)(6): **Energy Management Control Systems.** An energy management control system (EMCS) may be used to comply with dimming, occupancy, and control requirements if it provides the functionality of the specified control per § 110.9 and the physical controls specified in § 150.0(k)(6).
- § 150.0(k)(7): **Automatic Shutoff Controls.** In bedrooms, garages, laundry rooms, utility rooms and walk-in closets, at least one installed luminaire must be controlled by an occupancy or vacancy sensor providing automatic-off functionality. Lighting inside drawers and cabinets with opaque fronts or doors must have controls that turn the light off when the drawer or door is closed.
- § 150.0(k)(8): **Dimmers.** Lighting in habitable spaces (e.g., living room, dining room, kitchen, and bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. Forward phase out dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.
- § 150.0(k)(9): **Independent controls.** Integrated lighting of exhaust fans shall be controlled independently from the fans. Lighting under cabinets or shelves, lighting in display cabinets, and window outlets must be controlled separately from ceiling-installed lighting.
- § 150.0(k)(10): **Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must have a manual on/off switch and either a photocell and motion sensor or automatic time switch control) or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.
- § 150.0(k)(11): **Internally illuminated address signs.** Internally illuminated address signs must other comply with § 140.8 or consume no more than 5 watts of power.
- § 150.0(k)(12): **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 § 110.5, 130.0, 130.1, 130.4, 140.6, and 141.0.

**Solar Readiness:**

- § 110.10(a)(1): **Single-Family Residences.** Single-family residences located in subdivisions with 10 or more single-family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(a)(1).
- § 110.10(a)(2): **Minimum Solar Zone Area.** The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 6 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 net area no less than 200 square feet.
- § 110.10(a)(3): **Animals.** All sections of the solar zone located on steep-sloped roofs must have an accumulative horizontal projection of 90:300' of free north.
- § 110.10(a)(4): **Shading.** The solar zone must not contain any obstructions, including but not limited to, vents, chimneys, architectural features, and roof-mounted equipment.
- § 110.10(a)(5): **Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the horizontal distance of the obstruction from the solar zone to the point of obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.
- § 110.10(a)(6): **Structural Design Loads for Construction Documents.** Areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.
- § 110.10(a)(7): **Interconnection Pathways.** The construction documents must indicate a location reserved for inverters and metering equipment and a pathway reserved for routing of conduct from the solar zone to the point of interconnection with the electrical service; and for single-family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system.
- § 110.10(a)(8): **Documentation.** A copy of the construction documents or a comparable document indicating the information from § 110.10(a)(1) must be provided to the occupant.
- § 110.10(a)(9): **Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.
- § 110.10(a)(10): **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 identified as "For Future 240V use."

**Electric and Energy Storage Ready:**

5/6/22

**2022 Single-Family Residential Mandatory Requirements Summary**

- § 150.0(k): **Energy Storage System (ESS) Ready.** All single-family residences must meet all of the following: Either ESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, or a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(k); at least four branch circuits must be identified and have their source collected at a single panelboard suitable to be supplied by the ESS; with one circuit supplying the refrigerator; one lighting circuit near the primary exit, and one circuit supplying a sleeping room receptacle outlet; main panelboard must have a minimum busbar rating of 225 amps; sufficient space must be reserved to allow future installation of a system isolation equipment/trippler switch within 3' of the main panelboard, with necessary installed between the panelboard and the switch location to allow the connection of backup power source.
- § 150.0(l): **Heat Pump Space Heater Ready.** Systems using gas or propane furnaces to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the furnace with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
- § 150.0(m): **Electric Cooktop Ready.** Systems using gas or propane cooktops to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the cooktop with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
- § 150.0(n): **Electric Clothes Dryer Ready.** Clothes dryer locations with gas or propane plumbing to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the dryer location with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."

\*Exceptions may apply.

General Notes



R19-04-30011  
 NR19-04-30020

TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

No.	Revision/Issue	Date

Firm Name and Address

**BEAR TECHNOLOGIES CONSULTING, INC.**  
 3431 DON ARTURO DRIVE,  
 CARLSBAD, CALIFORNIA 92010  
 (760) 635-2327  
 wayne@beartechconsulting.com  
 http://www.beartechconsulting.com

Project Name and Address

**ANAHEIM PRADU - 3 BEDROOM PLAN A**  
 3 BEDROOM 4 STREET  
 ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-3BA-1-03	T-04
Date	01/24/2023
Scale	

GENERAL INFORMATION					
01	Project Name	Anaheim PRADU - 3-Bedroom Plan B			
02	Run Title	Title 24 Analysis			
03	Project Location	Anaheim PRADU Street			
04	City	Anaheim	05	Standards Version	2022
06	Zip code	92805	07	Software Version	EnergyPro 9.0
08	Climate Zone	7	09	Front Orientation (deg/ Cardinal)	All orientations
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed	13	Number of Bedrooms	3
14	Addition Cond. Floor Area (ft <sup>2</sup> )	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft <sup>2</sup> )	n/a	17	Fenestration Average U-factor	0.54
18	Total Cond. Floor Area (ft <sup>2</sup> )	1199	19	Glazing Percentage (%)	33.60%
20	ADU Bedroom Count	n/a			

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 DESIGN RATINGS						
	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency <sup>1</sup> EDR (EDR2efficiency)	Total <sup>2</sup> EDR (EDR2total)	Source Energy (EDR1)	Efficiency <sup>1</sup> EDR (EDR2efficiency)	Total <sup>2</sup> EDR (EDR2total)
Standard Design	30.3	30.3	30.3			
Proposed Design						
North Facing	29.8	28.4	28.5	0.5	1.9	1.8
East Facing	30.1	29.7	29	0.2	0.6	1.3
South Facing	28	26	27.4	2.3	4.3	2.9
West Facing	29.1	30	29.2	1.2	0.3	1.1
<b>RESULT<sup>3</sup>: PASS</b>						
<sup>1</sup> Efficiency EDR includes improvements like a better building envelope and more efficient equipment <sup>2</sup> Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries <sup>3</sup> Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded						
* Standard Design PV Capacity: 2.30 kWdc						

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Standard Design TDV Energy (EDR2) (KTDV/ft <sup>2</sup> -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Proposed Design TDV Energy (EDR2) (KTDV/ft <sup>2</sup> -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0.51	3.49	0.9	6.31	-0.39	-2.82
Space Cooling	0.3	7.62	0.31	7.41	-0.01	0.21
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.05	1.29	15.22	0.5	4.83
Self Utilization/Flexibility Credit			0			0
<b>North Facing Efficiency Compliance Total</b>	<b>3.02</b>	<b>35.67</b>	<b>2.92</b>	<b>33.45</b>	<b>0.1</b>	<b>2.22</b>
Space Heating	0.51	3.49	0.99	6.88	-0.48	-3.39
Space Cooling	0.3	7.62	0.32	8.36	-0.02	-0.74
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.05	1.3	15.19	0.49	4.86
Self Utilization/Flexibility Credit			0			0
<b>East Facing Efficiency Compliance Total</b>	<b>3.02</b>	<b>35.67</b>	<b>3.03</b>	<b>34.94</b>	<b>-0.01</b>	<b>0.73</b>

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Standard Design TDV Energy (EDR2) (KTDV/ft <sup>2</sup> -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Proposed Design TDV Energy (EDR2) (KTDV/ft <sup>2</sup> -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0.51	3.49	0.41	2.82	0.1	0.67
Space Cooling	0.3	7.62	0.25	8.29	0.05	-0.67
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.05	1.27	14.99	0.52	5.06
Self Utilization/Flexibility Credit				0		0
<b>South Facing Efficiency Compliance Total</b>	<b>3.02</b>	<b>35.67</b>	<b>2.35</b>	<b>30.61</b>	<b>0.67</b>	<b>5.06</b>
Space Heating	0.51	3.49	0.5	3.47	0.01	0.02
Space Cooling	0.3	7.62	0.51	12.4	-0.21	-4.78
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.05	1.27	15	0.52	5.05
Self Utilization/Flexibility Credit				0		0
<b>West Facing Efficiency Compliance Total</b>	<b>3.02</b>	<b>35.67</b>	<b>2.7</b>	<b>35.38</b>	<b>0.32</b>	<b>0.29</b>



R19-04-30011  
 NR19-04-30020

TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

No.	Revision/Issue	Date

Firm Name and Address  
  
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Project Name and Address  
 ANAHEIM PRADU - 3 BEDROOM PLAN B  
 3 BEDROOM A STREET  
 ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-3BB.1-03	T-01
Date	01/24/2023
Scale	

ENERGY USE INTENSITY				
	Standard Design (kBtu/ft <sup>2</sup> - yr)	Proposed Design (kBtu/ft <sup>2</sup> - yr)	Compliance Margin (kBtu/ft <sup>2</sup> - yr)	Margin Percentage
<b>North Facing</b>				
Gross EUI <sup>1</sup>	16.31	16.07	0.24	1.47
Net EUI <sup>2</sup>	5.98	5.27	0.71	11.87
<b>East Facing</b>				
Gross EUI <sup>1</sup>	16.31	16.33	-0.02	-0.12
Net EUI <sup>2</sup>	5.98	5.52	0.46	7.69
<b>South Facing</b>				
Gross EUI <sup>1</sup>	16.31	15.93	0.38	2.33
Net EUI <sup>2</sup>	5.98	5.12	0.86	14.38
<b>West Facing</b>				
Gross EUI <sup>1</sup>	16.31	16.41	-0.1	-0.61
Net EUI <sup>2</sup>	5.98	5.51	0.37	6.19

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

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft <sup>2</sup> )	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Anaheim PRADU - 3-Bedroom Plan B	1199	1	3	1	1	1

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft <sup>2</sup> )	Avg. Ceiling Height	Water Heating System 1	Status
ADU 3-Bedroom B	Conditioned	Ductless Mini-Split1	1199	9	DHW Sys 1	New

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft <sup>2</sup> )	Window and Door Area (ft <sup>2</sup> )	Tilt (deg)
Front Wall	ADU 3-Bedroom B	_WALL: 2x4 Exterior	0	Front	258.8	133	90
Front Wall 2	ADU 3-Bedroom B	_WALL: 2x4 Exterior Stone	0	Front	180	42	90
Left Wall	ADU 3-Bedroom B	_WALL: 2x4 Exterior	90	Left	72	0	90
Left Wall 2	ADU 3-Bedroom B	_WALL: 2x4 Exterior Stone	90	Left	180	18	90
Rear Wall	ADU 3-Bedroom B	_WALL: 2x4 Exterior	180	Back	258.8	28	90
Rear Wall 2	ADU 3-Bedroom B	_WALL: 2x4 Exterior Stone	180	Back	180	38	90
Right Wall	ADU 3-Bedroom B	_WALL: 2x4 Exterior	270	Right	216	144	90
Right Wall 2	ADU 3-Bedroom B	_WALL: 2x4 Exterior Stone	270	Right	36	0	90
Roof 2	ADU 3-Bedroom B	_ROOF: CLG.	n/a	n/a	260	n/a	n/a

REQUIRED PV SYSTEMS											
01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
2.3	NA	Premium (~18-20%)	Fixed	Microinverters	false	180	Degrees	22	4.85	96	100

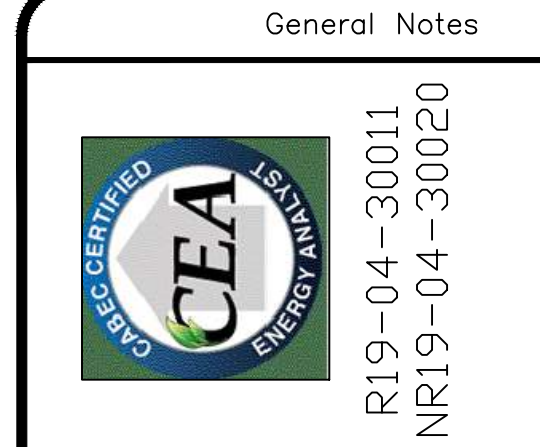
REQUIRED SPECIAL FEATURES
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
<ul style="list-style-type: none"> <li>PV module type: Premium</li> <li>PV power electronics: Microinverters</li> <li>Whole house fan</li> <li>Ceiling has high level of insulation</li> <li>Exposed slab floor in conditioned zone</li> <li>Variable capacity heat pump compliance option (verification details from VCHP Staff report, Appendix B, and RA3)</li> <li>Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater: specific brand/model, or equivalent, must be installed</li> </ul>

HERS FEATURE SUMMARY
The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry
<ul style="list-style-type: none"> <li>Indoor air quality ventilation</li> <li>Kitchen range hood</li> <li>Whole house fan airflow and fan efficacy</li> <li>Verified EER/EER2</li> <li>Verified SEER/SER2</li> <li>Verified Refrigerant Charge</li> <li>Airflow in habitable rooms (SC3.1.4.1.7)</li> <li>Verified HSPF2</li> <li>Verified heat pump rated heating capacity</li> <li>Wall-mounted thermostat in zones greater than 150 ft<sup>2</sup> (SC3.4.5)</li> <li>Ductless indoor units located entirely in conditioned space (SC3.1.4.1.8)</li> <li>Pipe Insulation, All Lines</li> </ul>

OPAQUE SURFACES - CATHEDRAL CEILINGS										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Area (ft <sup>2</sup> )	Skylight Area (ft <sup>2</sup> )	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof	ADU 3-Bedroom B	_ROOF: SLPD. CLG.	0	Front	939	0	0.3	0.1	0.85	No

ATTIC							
01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic ADU 3-Bedroom B	Attic Roof/ADU 3-Bedroom B	Ventilated	4	0.1	0.85	Yes	No

FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft <sup>2</sup> )	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
w1	Window	Front Wall	Front	0			1	45	0.58	NFRC	0.65	NFRC	Bug Screen
d1	Window	Front Wall	Front	0			1	24	0.53	NFRC	0.65	NFRC	Bug Screen
d3	Window	Front Wall	Front	0			1	64	0.53	NFRC	0.5	NFRC	Bug Screen
w2	Window	Front Wall 2	Front	0			1	30	0.58	NFRC	0.65	NFRC	Bug Screen
w3	Window	Front Wall 2	Front	0			1	12	0.58	NFRC	0.65	NFRC	Bug Screen
w4	Window	Left Wall 2	Left	90			1	18	0.58	NFRC	0.65	NFRC	Bug Screen
w5	Window	Rear Wall	Back	180			1	8	0.58	NFRC	0.65	NFRC	Bug Screen
w6	Window	Rear Wall	Back	180			1	20	0.58	NFRC	0.65	NFRC	Bug Screen
w2 2	Window	Rear Wall 2	Back	180			1	30	0.58	NFRC	0.65	NFRC	Bug Screen



R19-04-30011  
 NR19-04-30020

TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

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Project Name and Address  
 ANAHEIM PRADU - 3 BEDROOM PLAN B  
 3 BEDROOM A STREET  
 ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-3BB.1-03	T-02
Date	01/24/2023
Scale	

**CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD** CF1R-PRF-01-E

Project Name: Anaheim PRADU - 3-Bedroom Plan B Calculation Date/Time: 2023-01-19T14:20:20-08:00

Calculation Description: Title 24 Analysis Input File Name: 23Q1019-3BB.1-03.rbd22x

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
w5.2	Window	Rear Wall 2	Back	180			1	8	0.58	NFRC	0.65	NFRC	Bug Screen
d2	Window	Right Wall	Right	270			1	144	0.5	NFRC	0.5	NFRC	Bug Screen

01	02	03	04	05	06	07	08
Name	Zone	Area (ft²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab On Grade	ADU 3-Bedroom B	1199	153	none	0	0%	No

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
_WALL: 2x4 Exterior	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: All Other Siding
_WALL: 2x4 Exterior Stone	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: All Other Siding
_ROOF: SLPD. CLG.	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in. O. C.	R-30	None / None	0.037	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-30 / 2x10 Inside Finish: Gypsum Board

Registration Number: 223-P010009284A-000-000-0000000-0000 Registration Date/Time: 2023-01-23 10:20:19

CA Building Energy Efficiency Standards - 2022 Residential Compliance Report Version: 2022.0.000

HERS Provider: CalCERTS inc.

Report Generated: 2023-01-19 14:21:10

Schema Version: rev 20220901

**CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD** CF1R-PRF-01-E

Project Name: Anaheim PRADU - 3-Bedroom Plan B Calculation Date/Time: 2023-01-19T14:20:20-08:00

Calculation Description: Title 24 Analysis Input File Name: 23Q1019-3BB.1-03.rbd22x

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

01	02	03	04	05	06	07	08	09
Name	System Type	Heating Unit Name	Heating Equipment Count	Cooling Unit Name	Cooling Equipment Count	Fan Name	Distribution Name	Required Thermostat Type
Ductless Mini-Split1	Heat pump heating cooling	Heat Pump System 1	2	Heat Pump System 1	2	n/a	n/a	Setback

01	02	03	04	05	06	07	08	09	10	11	12	13
Name	System Type	Number of Units	Heating			Cooling			Zonally Controlled	Compressor Type	HERS Verification	
			Efficiency Type	HSPF / HSPF2 / COP	Cap 47	Cap 17	Efficiency Type	SEER / SEER2				EER / EER / CEER
Heat Pump System 1	VCHP-ductless	2	HSPF2	12.2	25000	15000	EER2SEER2	21.5	11.9	Zonally Controlled	Multi-speed	Heat Pump System 1-hers-htpump

01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER/EER2	Verified SEER/SEER2	Verified Refrigerant Charge	Verified HSPF/HSPF2	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Not Required	0	Not Required	Not Required	Yes	No	Yes	Yes

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Calculation Description: Title 24 Analysis Input File Name: 23Q1019-3BB.1-03.rbd22x

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
Attic RoofADU 3-Bedroom B	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / 0	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
_ROOF: CLG.	Ceilings (below attic)	Wood Framed Ceiling	2x6 @ 16 in. O. C.	R-38	None / None	0.026	Over Ceiling Joists: R-23.7 insul. Cavity / Frame: R-14.3 / 2x6 Inside Finish: Gypsum Board

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

01	02	03	04	05	06	07	08	09
Name	System Type	Distribution Type	Water Heater Name	Number of Units	Solar Heating System	Compact Distribution	HERS Verification	Water Heater Name (#)
DHW Sys 1	Domestic Hot Water (DHW)	HERS Verified Pipe Insulation credit	DHW Heater 1	1	n/a	None	DHW Sys 1-hers-dhw	DHW Heater 1 (1)

01	02	03	04	05	06	07	08
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source
DHW Heater 1	1	50	AOSmith	AOSmithFFTUS0	ADU 3-Bedroom B	ADU 3-Bedroom B	ADU 3-Bedroom B

Registration Number: 223-P010009284A-000-000-0000000-0000 Registration Date/Time: 2023-01-23 10:20:19

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Project Name: Anaheim PRADU - 3-Bedroom Plan B Calculation Date/Time: 2023-01-19T14:20:20-08:00

Calculation Description: Title 24 Analysis Input File Name: 23Q1019-3BB.1-03.rbd22x

01	02	03	04	05	06	07	08	09	10
Name	Certified Low-Static VCHP System	Airflow to Habitable Rooms	Ductless Units in Conditioned Space	Wall Mount Thermostat	Air Filter Sizing & Pressure Drop Rating	Low Leakage Ducts in Conditioned Space	Minimum Airflow per RA3.3 and SC3.3.3.4.1	Certified non-continuous Fan	Indoor Fan not Running Continuously
Heat Pump System 1	Not required	Required	Required	Required	Not required	Not required	Not required	Not required	Not required

01	02	03	04	05	06	07	08	09
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE	Includes Fault Indicator Display?	HERS Verification	Status
Sfam IAQVentRpt	65	0.35	Exhaust	No	n/a	No	Yes	

01	02	03	04	05	06	07	08	09
Name	Airflow Rate (CFM/ft2)	Cooling Vent CFM	Cooling Vent Watts/CFM	Total Watts	Number of Fans	CFVCS Type	Exhausts to	HERS Verification
WH Fan 1	0.04	42	0.0238	1	1	Not a CFVCS	Outside	Required

**PROJECT NOTES**

Registration Number: 223-P010009284A-000-000-0000000-0000 Registration Date/Time: 2023-01-23 10:20:19

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General Notes



R19-04-30011  
NR19-04-30020

TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

No.	Revision/Issue	Date

Firm Name and Address

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http://www.beartechconsulting.com

Project Name and Address

ANAHEIM PRADU - 3 BEDROOM PLAN B  
3 BEDROOM A STREET  
ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-3BB.1-03	T-03
Date	01/24/2023
Scale	

**CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD**

CF1R-PRF-01-E

Project Name: Anaheim PRADU - 3-Bedroom Plan B

Calculation Date/Time: 2023-01-19T14:20:08:00

(Page 13 of 14)

Calculation Description: Title 24 Analysis

Input File Name: 23Q1019-3BB.1-03.rbd22x

\*\*\*\*\*  
This report is based on the drawings received on 01/03/2023.  
\*\*\*\*\*

SCOPE OF WORK: Construct a ADU - 3-Bedroom (B Elevation).

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 mechanical 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.



Registration Number: 223-P010009264A-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time: 2023-01-23 10:20:19  
Report Version: 2022.0.000  
Schema Version: rev 20220901

HERS Provider: CalCERTS inc.  
Report Generated: 2023-01-19 14:21:10

**CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD**

CF1R-PRF-01-E

Project Name: Anaheim PRADU - 3-Bedroom Plan B

Calculation Date/Time: 2023-01-19T14:20:08:00

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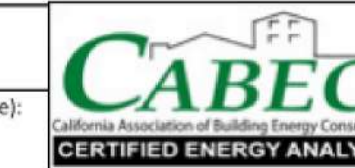
Calculation Description: Title 24 Analysis

Input File Name: 23Q1019-3BB.1-03.rbd22x

**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**

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

Documentation Author Name: <b>Wayne Seward</b>	Documentation Author Signature: <i>Wayne Seward</i>
Company: <b>Bear Technologies Consulting Inc.</b>	Signature Date: 2023-01-23 09:57:09
Address: 3431 Don Arturo Drive Carlsbad, CA 92010	CFA/HERS Certification Identification (if applicable): R19-04-30011
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:

- 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.
- 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.
- 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: <b>Bart M Smith</b>	Responsible Designer Signature: <i>Bart M Smith</i>
Company: <b>DZN Partners</b>	Date Signed: 2023-01-23 10:20:19
Address: 682 2nd Street Encinitas, CA 92024	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.



Registration Number: 223-P010009264A-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time: 2023-01-23 10:20:19  
Report Version: 2022.0.000  
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General Notes



R19-04-30011  
NR19-04-30020

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Project Name and Address  
ANAHEIM PRADU- 3 BEDROOM PLAN B  
3 BEDROOM A STREET  
ANAHEIM, CALIFORNIA 92805

Project 23Q1019-3BB.1-03	Sheet T-04
Date 01/24/2023	
Scale	



R19-04-30011  
NR19-04-30020

TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

**2022 Single-Family Residential Mandatory Requirements Summary**

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

**Building Envelope:**

§ 110.6W(1) **Air Leakage.** Manufactured fenestration, exterior doors, and exterior pit doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC 600, ASTM E283, or ANA/WMMA/CSA 1011.5.24440-2011.

§ 110.6W(2) **Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10.111(a).

§ 110.6W(3) **Field fabricated exterior doors and fenestration products** must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6.A, 110.6.B, or J4.4.5 for exterior doors. They must be caulked and/or weather-stripped.

§ 110.7 **Air Leakage.** All public ventilations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather-stripped.

§ 110.8(a) **Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHSGS).

§ 110.8(a) **Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).

§ 110.8(b) **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(f) and be labeled per § 10.1-13 when the installation of a cool roof is specified on the CRIS.

§ 110.8(j) **Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.

§ 150.0(4) **Roof Deck, Ceiling and Rafter Roof Insulation.** Roof decks in newly constructed attics in climate zones 4 and R-16 area-weighted average U-factor not exceeding U-0.164. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling, or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. All attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a roof or ceiling which is sealed to limit infiltration and exfiltration, as specified in § 10.7, including but not limited to placing insulation either above or below the roof deck or on top of a crawl-space.

§ 150.0(5) **Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.

§ 150.0(6) **Wall Insulation.** Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.192 or less, R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opposite non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1.A, B, & C.

§ 150.0(7) **Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.

§ 150.0(8) **Slab Edge Insulation.** Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).

§ 150.0(9) **Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(9).

§ 150.0(10) **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 exterior walls, and exterior walls must be sealed to prevent air leakage.

§ 150.0(11) **Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45, or area-weighted average U-factor of all fenestration must not exceed 0.43.

**Refrigerators, Decorative Gas Appliances, and Gas Log:**

§ 110.5(a) **Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.

§ 150.0(a)(1) **Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.

§ 150.0(a)(2) **Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device.

§ 150.0(a)(3) **Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.

**Space Conditioning, Water Heating, and Plumbing Systems:**

§ 110.0-§ 110.3 **Certification.** Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.

§ 110.2(a) **HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-C.

§ 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-off temperature for supplementary heating; and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.

§ 110.2(c) **Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.

§ 110.3(a) **Insulation.** Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.

§ 110.3(b) **Isolation Valves.** Instantaneous water heaters with an input rating greater than 8.8 MBtu per hour (2.4 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for shutting the water heater when the valves are closed.

§ 110.3(c) **Isolation Valves.** Instantaneous water heaters with an input rating greater than 8.8 MBtu per hour (2.4 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for shutting the water heater when the valves are closed.

5/6/22

**2022 Single-Family Residential Mandatory Requirements Summary**

§ 110.5 **Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas, fan-type central furnaces, household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters.

§ 150.0(1) **Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume, the SMACNA Residential Control System Installation Standards Manual, or the ACCA Manual J using design conditions specified in § 150.0(2).

§ 150.0(3) **Clearance.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.

§ 150.0(3)(A) **Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.

§ 150.0(4) **Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be installed as specified in § 609.11 of the California Plumbing Code.

§ 150.0(5) **Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by § 120.3(b). Insulation equipment to weather must be water resistant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.

§ 150.0(6) **Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2' higher than the base of the water heater.

§ 150.0(7) **Solar Water-heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the executive director.

**Ducts and Fans:**

§ 110.6(c) **Ducts.** Installed in an existing space-conditioning duct must comply with § 604.4 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(1) **CMC Compliance.** All air-distribution system ducts and plenums must meet CMC §§ 601.6.055.0 and ANSISMACNA-006-2006 HVAC Duct Construction Standards-Metal and Flexible for Edition. Portions of supply air and return air ducts and plenums must be insulated to R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (FRAS 1.4.3.8) do not require insulation. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-sealing system that meets the applicable UL requirements, or sealed with a UL 723. The combination of mastic and other mesh or tape must be used to seal openings greater than 1/4". If mastic or tape is used, building cavities, air handler support platforms, and plenums designed or constructed with materials other than sheet metal, duct board, or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts; ducts installed in these spaces must not be compressed.

§ 150.0(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 duck-back rubber adhesive tape unless such tape is used in combination with mastic and draw bands.

§ 150.0(3) **Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-resistance testing, mastic, sealants, and other requirements specified for duct construction.

§ 150.0(4) **Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.

§ 150.0(5) **Gravity Ventilation Systems.** Gravity ventilation systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outdoor air openings and elevator shaft vents.

§ 150.0(6) **Protection of Insulation.** Insulation must be protected from damage due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (i.e., protected by aluminum, sheet metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water retardant and solar radiation-resistant coating.

§ 150.0(10) **Porous Inner Core Flex Duct.** Porous inner cores of flex ducts must have a non-porous layer or air barrier between the inner core and outer cover layer.

§ 150.0(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 a duct leakage test, as confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.1.

§ 150.0(12) **Air Filtration.** Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filter racks for space conditioning systems must have a two inch depth or can be one inch in size per Equation 150.0-A. Clean filter pressure drop and labeling must meet the requirements in § 150.0(12). Filter racks must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters to and prevent air from bypassing the filter.

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**2022 Single-Family Residential Mandatory Requirements Summary**

§ 150.0(13) **Space Conditioning System Airflow Rate and Fan Efficiency.** Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 200 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficiency ≥ 0.45 watts per CFM for gas furnace air handlers and ≥ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficiency ≥ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.

**Ventilation and Indoor Air Quality:**

§ 150.0(1) **Requirements for Ventilation and Indoor Air Quality.** All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(1).

§ 150.0(1)(B) **Central Fan Integrated (CFI) Ventilation Systems.** Continuous operation of CFI air handlers is not allowed to provide the whole-dwelling unit ventilation airflow required per § 150.0(1)(C). A motorized damper(s) must be installed on the ventilation duct(s) that prevents all airflow through the space conditioning duct system when the damper(s) is closed and controlled per § 150.0(1)(B)(a). CFI ventilation systems must have controls that track outdoor air ventilation run time, and either open or close the motorized damper(s) for compliance with § 150.0(1)(C).

§ 150.0(1)(C) **Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and Townhouses.** Single-family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(1)(C-1).

§ 150.0(1)(D) **Local Mechanical Exhaust.** Kitchens and bathrooms must have local mechanical exhaust; nonexhausted kitchens must have demand-controlled exhaust system meeting requirements of § 150.0(1)(G) (all enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting § 150.0(1)(G) (iv). Airflow must be measured by the installer per § 150.0(1)(G), and rated for sound per § 150.0(1)(H).

§ 150.0(1)(H) **Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems.** The airflow required per § 150.0(1)(C) must be measured by using a flow hood, flow grid, or other airflow measuring device at the fan's inlet or outlet terminals/grilles per Reference Residential Appendix RA3.1. Whole-dwelling unit ventilation systems must be rated for sound per ASHRAE 62.2 § 7.2 at no less than the minimum airflow rate specified by § 150.0(1)(C).

§ 150.0(2) **Field Verification and Diagnostic Testing.** Whole-Dwelling Unit Ventilation airflow, vented range hood airflow and sound rating, and HVAC fan efficiency testing must be performed in accordance with Reference Residential Appendix RA3.1. Ventilation systems must be verified per Reference Residential Appendix RA3.7.4 to confirm if it is rated by HV or AHAM to comply with the airflow rates and sound requirements per § 150.0(1)(C).

**Pool and Spa Systems and Equipment:**

§ 110.4(a) **Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: compliance with the Appliance Efficiency Regulations and listing in IMADEX; 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 not use electric resistance heating.

§ 110.4(b)(1) **Piping.** Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated valves 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 shut 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(9) **Pool Systems and Equipment Installation.** Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, fans, and valves.

**Lighting:**

§ 110.5 **Lighting Controls and Components.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.5.

§ 150.0(1)(A) **Luminaire Efficacy.** All installed luminaires must meet the requirements in Table 150.0-A, except lighting integral to exhaust fans, kitchen range hoods, bath vanity mirrors, and garage door openers, navigation lighting less than 5 watts, and lighting normal to drawers, cabinets, and linen closets with an efficacy of at least 65 lumens per watt.

§ 150.0(1)(B) **Screen based luminaires.** Screen based luminaires must contain lamps that comply with Reference Residential Appendix JAS.

§ 150.0(1)(C) **Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must not contain surface based sockets, must be airtight, and must be sealed with a gasket or caulking. California Electrical Code § 410.118 must also be met.

§ 150.0(1)(D) **Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JAS elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.

§ 150.0(1)(E) **Blank Electrical Boxes.** The number of electrical boxes that are more than ten feet above the finished floor and do not contain a luminaire or other device shall be no more than the number of bedrooms. These boxes must be served by a dimmer, vacancy sensor control, low voltage wiring, or trip speed control.

§ 150.0(1)(F) **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(1).

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Exceptions may apply.

**2022 Single-Family Residential Mandatory Requirements Summary**

§ 150.0(1)(G) **Screen based luminaires.** Screen based luminaires must contain lamps that comply with Reference Residential Appendix JAS.

§ 150.0(1)(H) **Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JAS elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.

§ 150.0(1)(I) **Light Sources in Drawers, Cabinets, and Linen Closets.** Light sources internal to drawers, cabinets or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.

§ 150.0(2)(A) **Interior Switches and Controls.** All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.

§ 150.0(2)(B) **Interior Switches and Controls.** Exhaust fans must be controlled separately from lighting systems.

§ 150.0(2)(C) **Accessible Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off.

§ 150.0(2)(D) **Multiple Controls.** Controls must not bypass a dimmer, occupancy sensor, or vacancy sensor function if the dimmer or sensor is installed to comply with § 150.0(2).

§ 150.0(2)(E) **Mandatory Requirements.** Lighting controls must comply with the applicable requirements of § 110.9.

§ 150.0(2)(F) **Energy Management Control Systems.** An energy management control system (EMCS) may be used to comply with dimming, occupancy, and control requirements if it provides the functionality of the specified control per § 110.9 and the physical controls specified in § 150.0(2)(F).

§ 150.0(2)(G) **Automatic Shutoff Controls.** In bathrooms, garages, laundry rooms, utility rooms and walk-in closets, at least one installed luminaire must be controlled by an occupancy or vacancy sensor providing automatic off functionality. Lighting inside drawers and cabinets with opaque fronts or doors must have controls that turn the light off when the drawer or door is closed.

§ 150.0(2)(H) **Dimmers.** Lighting in habitable spaces (e.g., living rooms, dining rooms, kitchens, and bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. Forward phase cut dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.

§ 150.0(2)(I) **Independent controls.** Integrated lighting of exhaust fans shall be controlled independently from the fans. Lighting under cabinets or shelves, lighting in display cabinets, and switched outlets must be controlled separately from ceiling-installed lighting.

§ 150.0(3)(A) **Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must have a manual on/off switch and either a photo-cell and motion sensor or automatic time switch control) or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.

§ 150.0(3)(B) **Internally Illuminated Address Signs.** Internally illuminated address signs must either comply with § 140.8 or consume no more than 5 watts of power.

§ 150.0(3)(C) **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, 140.3, and 141.0.

**Solar Readiness:**

§ 110.10(a)(1) **Single-Family Residences.** Single-family residences located in subdivisions with 15 or more single-family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(a)(1).

§ 110.10(a)(2) **Minimum Solar Zone Area.** The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Table 24, Part 6, Section 110.10(a)(2) 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 overlying the building and have a total area no less than 200 square feet.

§ 110.10(a)(3) **Acrothym.** All sections of the solar zone located on steep-sloped roofs must have an azimuth between 90-300° of true north.

§ 110.10(a)(4) **Shading.** The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof-mounted equipment.

§ 110.10(a)(5) **Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the horizontal distance of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.

§ 110.10(a)(6) **Structural Design Loads on Construction Documents.** For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.

§ 110.10(a)(7) **Interconnection Pathways.** The construction documents must indicate a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single-family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system.

§ 110.10(a)(8) **Documentation.** A copy of the construction documents, or a comparable document indicating the information from § 110.10(a)(7)-(8) must be provided to the occupant.

§ 110.10(a)(9) **Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.

§ 110.10(a)(10) **Main Electrical Service Panel.** The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric."

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**2022 Single-Family Residential Mandatory Requirements Summary**

§ 150.0(a) **Energy Storage System (ESS) Ready.** A single-family residence must meet all of the following: Either ESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, or a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(a); at least four branch circuits must be identified and have their source calculated at a single panelboard suitable to be supplied by the ESS, with one circuit supplying the refrigerator, one lighting circuit near the primary exit, and one circuit supplying a sleeping room receptacle outlet; main panelboard must have a minimum busbar rating of 225 amps; sufficient space must be reserved to allow future installation of a system isolation equipment/transfer switch within 3' of the main panelboard, with necessary isolation between the panelboard and the switch location to allow the connection of backup power source.

§ 150.0(b) **Heat Pump Space Heater Ready.** Systems using gas or propane furnaces to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the furnace with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready," and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."

§ 150.0(c) **Electric Cooktop Ready.** Systems using gas or propane cooking to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the cooktop with circuit conductors rated at least 50 amps with the blank cover identified as "240V ready," and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."

§ 150.0(d) **Electric Clothes Dryer Ready.** Clothes dryer locations with gas or propane plumbing to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the dryer location with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready," and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."

No.	Revision/Issue	Date

Firm Name and Address

BEAR TECHNOLOGIES CONSULTING, INC.  
3431 DDN ARTURO DRIVE,  
CARLSBAD, CALIFORNIA 92010  
(760) 635-2327  
wayne@beartechconsulting.com  
http://www.beartechconsulting.com

Project Name and Address

ANAHEIM PRADU- 3 BEDROOM PLAN B  
3 BEDROOM A STREET  
ANAHEIM, CALIFORNIA 92805

Project	23Q1019-3BB-1-03	Sheet	T-05
Date	01/24/2023		
Scale			



CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - 3-Bedroom Plan C  
Calculation Description: Title 24 Analysis

Calculation Date/Time: 2023-01-17T12:39:07-08:00  
Input File Name: 23Q1019-3BC.1-03.rbd22x

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GENERAL INFORMATION					
01	Project Name	Anaheim PRADU - 3-Bedroom Plan C			
02	Run Title	Title 24 Analysis			
03	Project Location	Anaheim PRADU Street			
04	City	Anaheim	05	Standards Version	2022
06	Zip code	92805	07	Software Version	EnergyPro 9.0
08	Climate Zone	7	09	Front Orientation (deg/ Cardinal)	All orientations
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed	13	Number of Bedrooms	3
14	Addition Cond. Floor Area (ft <sup>2</sup> )	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft <sup>2</sup> )	n/a	17	Fenestration Average U-factor	0.53
18	Total Cond. Floor Area (ft <sup>2</sup> )	1199	19	Glazing Percentage (%)	33.60%
20	ADU Bedroom Count	n/a			

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

Registration Number: 229-P010009267A-000-000-0000000-0000  
CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time: 2023-01-23 10:20:19  
Report Version: 2022.0.000  
Schema Version: rev 20220901

HERS Provider: CalCERTS inc.  
Report Generated: 2023-01-17 12:39:48

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

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ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft <sup>2</sup> -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft <sup>2</sup> -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0.46	3.18	1.12	7.86	-0.66	-4.68
Space Cooling	0.3	7.63	0.25	6.02	0.05	1.61
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.04	1.3	15.31	0.49	4.73
Self Utilization/Flexibility Credit				0		0
<b>North Facing Efficiency Compliance Total</b>	<b>2.97</b>	<b>35.36</b>	<b>3.09</b>	<b>33.7</b>	<b>-0.12</b>	<b>1.66</b>
Space Heating	0.46	3.18	1.14	7.9	-0.68	-4.72
Space Cooling	0.3	7.63	0.23	6.23	0.07	1.4
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.04	1.3	15.28	0.49	4.76
Self Utilization/Flexibility Credit				0		0
<b>East Facing Efficiency Compliance Total</b>	<b>2.97</b>	<b>35.36</b>	<b>3.09</b>	<b>33.92</b>	<b>-0.12</b>	<b>1.44</b>

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	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency <sup>1</sup> EDR (EDR2efficiency)	Total <sup>2</sup> EDR (EDR2total)	Source Energy (EDR1)	Efficiency <sup>1</sup> EDR (EDR2efficiency)	Total <sup>2</sup> EDR (EDR2total)
Standard Design	36	30.2	30.6			
Proposed Design						
North Facing	36	28.7	29	0	1.5	1.6
East Facing	36	28.9	29	0	1.3	1.6
South Facing	33.9	25.5	27.5	2.1	4.7	3.1
West Facing	34.9	28.8	29	1.1	1.4	1.6
<b>RESULT: PASS</b>						
<sup>1</sup> Efficiency EDR includes improvements like a better building envelope and more efficient equipment <sup>2</sup> Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries <sup>3</sup> Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded						
<ul style="list-style-type: none"> <li>Standard Design PV Capacity: 2.30 kWdc</li> </ul>						

Registration Number: 229-P010009267A-000-000-0000000-0000  
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ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft <sup>2</sup> -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft <sup>2</sup> -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0.46	3.18	0.49	3.38	-0.03	-0.2
Space Cooling	0.3	7.63	0.21	6.99	0.09	0.64
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.04	1.28	15.06	0.51	4.98
Self Utilization/Flexibility Credit				0		0
<b>South Facing Efficiency Compliance Total</b>	<b>2.97</b>	<b>35.36</b>	<b>2.4</b>	<b>29.94</b>	<b>0.57</b>	<b>5.42</b>
Space Heating	0.46	3.18	0.59	4.1	-0.13	-0.92
Space Cooling	0.3	7.63	0.41	10.07	-0.11	-2.44
IAQ Ventilation	0.42	4.51	0.42	4.51	0	0
Water Heating	1.79	20.04	1.28	15.07	0.51	4.97
Self Utilization/Flexibility Credit				0		0
<b>West Facing Efficiency Compliance Total</b>	<b>2.97</b>	<b>35.36</b>	<b>2.7</b>	<b>33.75</b>	<b>0.27</b>	<b>1.61</b>

Registration Number: 229-P010009267A-000-000-0000000-0000  
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General Notes



R19-04-30011  
NR19-04-30020

TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

No.	Revision/Issue	Date

Firm Name and Address  
  
 BEAR TECHNOLOGIES CONSULTING, INC.  
 3431 DON ARTURO DRIVE,  
 CARLSBAD, CALIFORNIA 92010  
 (760) 635-2327  
 wayne@beartechconsulting.com  
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Project Name and Address  
 ANAHEIM PRADU- 3 BEDROOM PLAN C  
 3 BEDROOM A STREET  
 ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-3BC.1-03	T-01
Date	01/24/2023
Scale	

**CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD**

Project Name: Anaheim PRADU - 3-Bedroom Plan C  
Calculation Description: Title 24 Analysis

Calculation Date/Time: 2023-01-17T12:39:07-08:00  
Input File Name: 23Q1019-3BC.1-03.rbd22x

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ENERGY USE INTENSITY				
	Standard Design (kBtu/ft <sup>2</sup> - yr)	Proposed Design (kBtu/ft <sup>2</sup> - yr)	Compliance Margin (kBtu/ft <sup>2</sup> - yr)	Margin Percentage
<b>North Facing</b>				
Gross EUI <sup>1</sup>	16.86	16.67	0.19	1.13
Net EUI <sup>2</sup>	6.53	5.86	0.67	10.26
<b>East Facing</b>				
Gross EUI <sup>1</sup>	16.86	16.77	0.09	0.53
Net EUI <sup>2</sup>	6.53	5.97	0.56	8.58
<b>South Facing</b>				
Gross EUI <sup>1</sup>	16.86	16.39	0.47	2.79
Net EUI <sup>2</sup>	6.53	5.59	0.94	14.4
<b>West Facing</b>				
Gross EUI <sup>1</sup>	16.86	16.74	0.12	0.71
Net EUI <sup>2</sup>	6.53	5.94	0.59	9.04

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

Registration Number: 223-P010009267A-000-000-0000000-0000  
CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time: 2023-01-23 10:20:19  
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Schema Version: rev 20220901

HERS Provider: CalCERTS inc.  
Report Generated: 2023-01-17 12:39:48

**CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD**

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REQUIRED PV SYSTEMS											
01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
2.3	NA	Premium (~18-20%)	Fixed	Microinverters	false	180	Degrees	22	4.85	96	100

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

- PV module type: Premium
- PV power electronics: Microinverters
- Whole house fan
- Exposed slab floor in conditioned zone
- Variable capacity heat pump compliance option (verification details from VCHP Staff report, Appendix B, and RA3)
- Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater, specific brand/model, or equivalent, must be installed.

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

- Indoor air quality ventilation
- Kitchen range hood
- Whole house fan airflow and fan efficacy
- Verified EER/SEER2
- Verified SEER/SEER2
- Verified Refrigerant Charge
- Airflow in habitable rooms (SC3.1.4.1.7)
- Verified HSPF2
- Verified heat pump rated heating capacity
- Wall-mounted thermostat in zones greater than 150 ft2 (SC3.4.5)
- Ductless indoor units located entirely in conditioned space (SC3.1.4.1.8)
- Pipe Insulation, All Lines

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BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft <sup>2</sup> )	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Anaheim PRADU - 3-Bedroom Plan C	1199	1	3	1	1	1

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft <sup>2</sup> )	Avg. Ceiling Height	Water Heating System 1	Status
ADU 3-Bedroom C	Conditioned	Ductless Mini-Split1	1199	9	DHW Sys 1	New

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft <sup>2</sup> )	Window and Door Area (ft <sup>2</sup> )	Tilt (deg)
Front Wall	ADU 3-Bedroom C	_WALL: 2x4 Exterior	0	Front	438.8	175	90
Left Wall	ADU 3-Bedroom C	_WALL: 2x4 Exterior	90	Left	252	18	90
Rear Wall	ADU 3-Bedroom C	_WALL: 2x4 Exterior	180	Back	438.8	66	90
Right Wall	ADU 3-Bedroom C	_WALL: 2x4 Exterior	270	Right	252	144	90

OPAQUE SURFACES - CATHEDRAL CEILINGS										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Area (ft <sup>2</sup> )	Skylight Area (ft <sup>2</sup> )	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof	ADU 3-Bedroom C	_ROOF: SLPD. CLG.	0	Front	358	0	3	0.1	0.85	No
Roof 2	ADU 3-Bedroom C	_ROOF: SLPD. CLG.	0	Front	841	0	3	0.1	0.85	No

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FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft <sup>2</sup> )	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
w1	Window	Front Wall	Front	0			1	45	0.58	NFRC	0.5	NFRC	Bug Screen
d1	Window	Front Wall	Front	0			1	24	0.5	NFRC	0.5	NFRC	Bug Screen
w2	Window	Front Wall	Front	0			1	30	0.58	NFRC	0.5	NFRC	Bug Screen
w3	Window	Front Wall	Front	0			1	12	0.58	NFRC	0.5	NFRC	Bug Screen
d3	Window	Front Wall	Front	0			1	64	0.5	NFRC	0.5	NFRC	Bug Screen
w4	Window	Left Wall	Left	90			1	18	0.58	NFRC	0.5	NFRC	Bug Screen
w5	Window	Rear Wall	Back	180			1	8	0.58	NFRC	0.5	NFRC	Bug Screen
w2 2	Window	Rear Wall	Back	180			1	30	0.58	NFRC	0.5	NFRC	Bug Screen
w5 2	Window	Rear Wall	Back	180			1	8	0.58	NFRC	0.5	NFRC	Bug Screen
w6	Window	Rear Wall	Back	180			1	20	0.58	NFRC	0.5	NFRC	Bug Screen
d2	Window	Right Wall	Right	270			1	144	0.5	NFRC	0.5	NFRC	Bug Screen

SLAB FLOORS							
01	02	03	04	05	06	07	08
Name	Zone	Area (ft <sup>2</sup> )	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab On Grade	ADU 3-Bedroom C	1199	153	none	0	0%	No

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Project Name and Address  
ANAHEIM PRADU - 3 BEDROOM PLAN C  
3 BEDROOM A STREET  
ANAHEIM, CALIFORNIA 92805

Project: 23Q1019-3BC.1-03  
Date: 01/24/2023  
Scale: T-02

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

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01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
_WALL: 2x4 Exterior	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: All Other Siding
_ROOF: SLPD. CLG.	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in. O. C.	R-30	None / None	0.037	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/Sheathing/Decking Cavity / Frame: R-30 / 2x10 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

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

WATER HEATING SYSTEMS

01	02	03	04	05	06	07	08	09
Name	System Type	Distribution Type	Water Heater Name	Number of Units	Solar Heating System	Compact Distribution	HERS Verification	Water Heater Name (#)
DHW Sys 1	Domestic Hot Water (DHW)	HERS Verified Pipe Insulation credit	DHW Heater 1	1	n/a	None	DHW Sys 1-hers-dhw	DHW Heater 1 (1)

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01	02	03	04	05	06	07	08
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source
DHW Heater 1	1	50	AOSmith	AOSmithPPTU50	ADU 3-Bedroom C	ADU 3-Bedroom C	ADU 3-Bedroom C

WATER HEATING - HERS VERIFICATION

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

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09
Name	System Type	Heating Unit Name	Heating Equipment Count	Cooling Unit Name	Cooling Equipment Count	Fan Name	Distribution Name	Required Thermostat Type
Ductless Mini-Split1	Heat pump heating/cooling	Heat Pump System 1	2	Heat Pump System 1	2	n/a	n/a	Setback

HVAC - HEAT PUMPS

01	02	03	04	05	06	07	08	09	10	11	12	13
Name	System Type	Number of Units	Heating			Cooling			Zonally Controlled	Compressor Type	HERS Verification	
			Efficiency Type	HSPF / HSPF2 / COP	Cap 47	Cap 17	Efficiency Type	SEER / SEER2				EER / EER / CEER
Heat Pump System 1	VCHP-ductless	2	HSPF2	12.2	26000	15600	EER2SEER2	21.5	11.9	Zonally Controlled	Multi-speed	Heat Pump System 1-hers-htpump

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01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER/EER2	Verified SEER/SEER2	Verified Refrigerant Charge	Verified HSPF/HSPF2	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Not Required	0	Not Required	Not Required	Yes	No	Yes	Yes

VARIABLE CAPACITY HEAT PUMP COMPLIANCE OPTION - HERS VERIFICATION

01	02	03	04	05	06	07	08	09	10
Name	Certified Low-Static VCHP System	Airflow to Habitable Rooms	Ductless Units in Conditioned Space	Wall Mount Thermostat	Air Filter Sizing & Pressure Drop Rating	Low Leakage Ducts in Conditioned Space	Minimum Airflow per RA3.3 and SC3.3.3.4.1	Certified non-continuous Fan	Indoor Fan not Running Continuously
Heat Pump System 1	Not required	Required	Required	Required	Not required	Not required	Not required	Not required	Not required

INDOOR AIR QUALITY (IAQ) FANS

01	02	03	04	05	06	07	08	09
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE	Includes Fault Indicator Display?	HERS Verification	Status
Sfam IAQVentRpt	65	0.35	Exhaust	No	n/a	No	Yes	

COOLING VENTILATION

01	02	03	04	05	06	07	08	09
Name	Airflow Rate (CFM/ft2)	Cooling Vent CFM	Cooling Vent Watts/CFM	Total Watts	Number of Fans	CFVCS Type	Exhausts to	HERS Verification
WH Fan 1	0.04	42	0.0238	1	1	Not a CFVCS	Outside	Required

PROJECT NOTES

Registration Number: 223-P010009267A-000-000-0000000-0000  
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\*\*\*\*\*  
 This report is based on the drawings received on 01/03/2023.  
 \*\*\*\*\*  
 SCOPE OF WORK: Construct a ADU - 3-Bedroom (C Elevation).  
 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 mechanical 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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Project Name and Address  
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 3 BEDROOM A STREET  
 ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-3BC.1-03	T-03
Date	01/24/2023
Scale	



HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY									
Project Name PRADU - 3-Bedroom Plan C								Date 1/23/2023	
System Name Ductless Mini-Split								Floor Area 1,199	
<b>ENGINEERING CHECKS</b>		<b>SYSTEM LOAD</b>							
Number of Systems		2		<b>COIL COOLING PEAK</b>			<b>COIL HTG. PEAK</b>		
Heating System				CFM	Sensible	Latent	CFM	Sensible	
Output per System		28,000		1,869	21,632	4,220	420	18,098	
Total Output (Btuh)		52,000		Total Room Loads					
Output (Btuh/sqft)		43.4		Return Vented Lighting			0		
Cooling System				Return Air Ducts			0		
Output per System		16,000		Return Fan			0		
Total Output (Btuh)		32,000		Ventilation			600 5,816 -1,848 600 22,619		
Total Output (Tons)		2.7		Supply Fan			1,191 -1,191		
Total Output (Btuh/sqft)		26.7		Supply Air Ducts			0		
Total Output (sqft/Ton)		449.6		<b>TOTAL SYSTEM LOAD</b>			28,640 2,372 39,527		
Air System		<b>HVAC EQUIPMENT SELECTION</b>							
CFM per System		1,000		Ductless Mini-Split		30,150 2,903		40,713	
Airflow (cfm)		2,000							
Airflow (cfm/sqft)		1.67							
Airflow (cfm/Ton)		750.0							
Outside Air (%)		30.0%		Total Adjusted System Output		30,150 2,903		40,713	
Outside Air (cfm/sqft)		0.50		(Adjusted for Peak Design conditions)					
Note: values above given at ARI conditions									
				<b>TIME OF SYSTEM PEAK</b>		Aug 3 PM		Jan 1 AM	
<b>HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)</b>									
<b>COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)</b>									

**c**

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY									
Project Name PRADU - 3-Bedroom Plan B								Date 1/23/2023	
System Name Ductless Mini-Split								Floor Area 1,199	
<b>ENGINEERING CHECKS</b>		<b>SYSTEM LOAD</b>							
Number of Systems		2		<b>COIL COOLING PEAK</b>			<b>COIL HTG. PEAK</b>		
Heating System				CFM	Sensible	Latent	CFM	Sensible	
Output per System		25,000		1,978	22,884	4,220	420	18,118	
Total Output (Btuh)		50,000		Total Room Loads					
Output (Btuh/sqft)		41.7		Return Vented Lighting			0		
Cooling System				Return Air Ducts			0		
Output per System		16,000		Return Fan			0		
Total Output (Btuh)		32,000		Ventilation			600 5,816 -1,848 600 22,619		
Total Output (Tons)		2.7		Supply Fan			1,191 -1,191		
Total Output (Btuh/sqft)		26.7		Supply Air Ducts			0		
Total Output (sqft/Ton)		449.6		<b>TOTAL SYSTEM LOAD</b>			29,892 2,372 39,546		
Air System		<b>HVAC EQUIPMENT SELECTION</b>							
CFM per System		1,000		Ductless Mini-Split		30,150 2,903		39,147	
Airflow (cfm)		2,000							
Airflow (cfm/sqft)		1.67							
Airflow (cfm/Ton)		750.0							
Outside Air (%)		30.0%		Total Adjusted System Output		30,150 2,903		39,147	
Outside Air (cfm/sqft)		0.50		(Adjusted for Peak Design conditions)					
Note: values above given at ARI conditions									
				<b>TIME OF SYSTEM PEAK</b>		Aug 3 PM		Jan 1 AM	
<b>HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)</b>									
<b>COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)</b>									

**b**

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY									
Project Name PRADU - 3-Bedroom Plan A								Date 1/23/2023	
System Name Ductless Mini-Split								Floor Area 1,199	
<b>ENGINEERING CHECKS</b>		<b>SYSTEM LOAD</b>							
Number of Systems		2		<b>COIL COOLING PEAK</b>			<b>COIL HTG. PEAK</b>		
Heating System				CFM	Sensible	Latent	CFM	Sensible	
Output per System		26,000		1,974	22,841	4,220	417	17,995	
Total Output (Btuh)		52,000		Total Room Loads					
Output (Btuh/sqft)		43.4		Return Vented Lighting			0		
Cooling System				Return Air Ducts			0		
Output per System		16,000		Return Fan			0		
Total Output (Btuh)		32,000		Ventilation			600 5,816 -1,848 600 22,619		
Total Output (Tons)		2.7		Supply Fan			1,191 -1,191		
Total Output (Btuh/sqft)		26.7		Supply Air Ducts			0		
Total Output (sqft/Ton)		449.6		<b>TOTAL SYSTEM LOAD</b>			29,848 2,372 39,423		
Air System		<b>HVAC EQUIPMENT SELECTION</b>							
CFM per System		1,000		Ductless Mini-Split		30,150 2,903		40,713	
Airflow (cfm)		2,000							
Airflow (cfm/sqft)		1.67							
Airflow (cfm/Ton)		750.0							
Outside Air (%)		30.0%		Total Adjusted System Output		30,150 2,903		40,713	
Outside Air (cfm/sqft)		0.50		(Adjusted for Peak Design conditions)					
Note: values above given at ARI conditions									
				<b>TIME OF SYSTEM PEAK</b>		Aug 3 PM		Jan 1 AM	
<b>HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)</b>									
<b>COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)</b>									

**a**

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

**3 BEDROOM PRADU**

CITY: ANAHEIM

JOB: 202409R

**HVAC SYSTEM SUMMARIES**

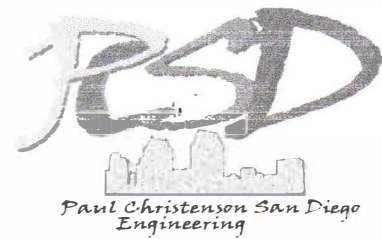
**T-05**

**PCSD Engineering Corp**

3529 Coastview Court

Carlsbad, CA 92010

Ph: 760-207-1885



## **Structural Design Calculations**

Accessory Dwelling Unit - 3 Bedroom

Client

### **DZN Partners**

682 Second Street  
Encinitas, CA 92024

Project

### **PRADU-3 Bedroom**

Anaheim, CA



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Paul S. Christenson  
RCE C57182, exp. 12/31/23

**February 3, 2023**

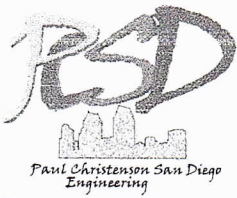
**PCSD File #: 19-018-3**

# Paul Christenson San Diego Engineering

3529 Coastview Ct - Carlsbad, CA 92010

Telephone (760) 207-1885 - Email: paul.pcsd@gmail.com

<b>1.0 Design Criteria:</b>	PRADU-3 Bedrm 22-404-3
Code:	2019 California Building Code - ASCE 7-16
Timber:	Douglas Fir-Larch (DF-L), WWPA or WCLIB 2x Wall Framing: DF-L #2 (unless noted otherwise) 2x Rafters & Joists: DF-L #2 " " Posts & Beams: DF-L #1 " "
Glue-Lam Beams:	Simple Span: Grade 24F-V4 (DF/DF) Cantilevers: Grade 24F-V8 (DF/DF)
Sheathing:	Min. APA-Rated Sheathing, Exposure 1, Plywood or OSB (U.N.O.)
Engineered Framing	Wood I-Joists: TJI 110,210,230,360,560 ICC ESR-1153 LVL, PSL 1.9E Microllam, 2.0E Parallam ICBO ER-4979
Concrete:	Compressive Strength @ 28 days per ASTM C39-96: Footings: f'c = 2500 psi Grade Beams: f'c = 3000 psi
Concrete Block:	Grade N-I per ASTM C90-95, f'm = 1500 psi per ASTM E447-92
Mortar:	Type S Mortar Cement per ASTM C270-95, Min. f'm = 1800 psi @ 28 days.
Grout:	Coarse Grout w/ 3/8" Max. Aggregate per ASTM C476-91, Min. f'm = 2000 psi @ 28 days.
Reinforcing Steel:	#4 & Larger: ASTM A615-60 (Fy = 60 ksi) #3 & Smaller: ASTM A615-40 (Fy = 40 ksi)
Structural Steel:	'W' Shapes: ASTM A992, Fy= 50-65 ksi Plates, Angles, Channels ASTM A36, Fy = 36 ksi Tube Shapes: ASTM A500, Grade B, Fy= 46 ksi Pipe Shapes: ASTM A53, Grade B, Fy=35 ksi
Welding Electrodes:	Structural Steel: E70-T6 A615-60 Rebar: E90 Series
Bolts:	Sill Plate Anchor Bolts & Threaded Rods: A307 Quality Minimum Steel Moment & Braced Frames: A325 (Bearing, U.N.O.)
Soils:	1500 psf Bearing Pressure
References:	



*Paul Christenson San Diego*  
**Engineering**

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Telephone (760) 207-1885 - Email: paul.pcsd@gmail.com

JOB \_\_\_\_\_ 22-404-3  
SHEET NO 2 OF \_\_\_\_\_  
CALCULATED BY PSC DATE 8/19/22  
CHECK BY \_\_\_\_\_ DATE \_\_\_\_\_  
SCALE \_\_\_\_\_

## 2.0 LOAD LIST

### 2.1 Roof (Vaulted)

Roofing	9.0 psf
15/32" Sheathing	1.5 psf
Roof Framing	2.8 psf
5/8" Gyp. Bd.	2.8 psf
Insulation and Misc.	<u>4.9 psf</u>
$\Sigma_{DL} =$	21.0 psf
$\Sigma_{LL} =$	<u>20.0 psf</u>
<b>Total Load =</b>	<b>41.0 psf</b>

### 2.2 Roof (w/ ceiling)

Roofing	9.0 psf
15/32" Sheathing	1.5 psf
Roof Framing	2.8 psf
Insulation and Misc.	<u>1.7 psf</u>
$\Sigma_{DL} =$	15.0 psf
$\Sigma_{LL} =$	<u>20.0 psf</u>
<b>Total Load =</b>	<b>35.0 psf</b>

### 2.3 Ceiling

Ceiling Joists	1.3 psf
5/8" Gyp. Bd.	2.8 psf
Insulation and Misc.	<u>1.9 psf</u>
$\Sigma_{DL} =$	6.0 psf
$\Sigma_{LL} =$	<u>10.0 psf</u>
<b>Total Load =</b>	<b>16.0 psf</b>

### 2.4 Walls

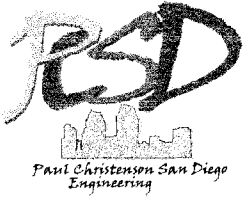
#### Exterior Wall

7/8" Stucco	9.0 psf
15/32" Sheathing	1.5 psf
2x4 Studs @ 16" o.c.	1.1 psf
5/8" Gypsum Bd.	2.8 psf
Misc.	<u>0.6 psf</u>
$\Sigma_{DL} =$	15.0 psf

#### Interior Wall

1/2" Gyp. Bd. (2 Sides)	4.6 psf
2x4 Studs @ 16" o.c.	1.1 psf
Misc.	<u>2.3 psf</u>
$\Sigma_{DL} =$	8.0 psf





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JOB 22-404-S  
SHEET NO 3 OF         
CALCULATED BY PSC DATE 8/8/22  
CHECK BY        DATE         
SCALE       

**2.0 LOAD LIST (CONTIN)**

**2.5 Floor**

Floor Cover	5.5 psf
Sheathing	2.3 psf
2x F.J.	3.1 psf
5/8" Gyp. Bd.	2.8 psf
Insulation and Misc.	1.3 psf
$\Sigma_{DL}$	<u>15.0 psf</u>
$\Sigma_{LL}$	<u>40.0 psf</u>
<b>Total Load</b>	<b>55.0 psf</b>

**WIND PARAMETERS**

Basic Wind Speed = 110 mph Exposure Cat = B

**2.6 Wind**

$P_s = \lambda K_{zt} I P_{s30}$  (ASCE 7 - Equation 6-1)  
 $P = 26.6 \text{ psf}$   
 $P = 16.0 \text{ psf}$  (\*0.6 ASD)

$\lambda = 1.00$  (fig. 6-3)  $P_{s30} = 26.6 \text{ psf}$  (fig. 6-3)  
 $K_{zt} = 1.00$  (fig. 6-4)  $I = 1.0$  (table 11.5-1)

**2.7 Seismic**

$S_{MS} = F_a S_s$   
 $S_{MS} = 1.79$   
 $S_{DS} = (2/3) S_{MS}$  (11.4-3)  
 $S_{DS} = 1.194$   
 $C_s = \frac{S_{DS}}{(R/I)}$   
 $C_s = 0.184$

**USGS APPLICATION**

$S_s = 1.492$   $S_1 = 0.503$   
 $F_a = 1.20$   $F_v = 0.00$   
 $R = 6.5$   $I = 1.00$   
 $h_n = 15.00$   
Occupancy Category: 2  
Site Class: D

**SEISMIC DESIGN CATEGORY**

$S_{1 < 0.75}$  (11.6 ASCE 7-05)  
 $S_{1 > 0.04}$  (11.4.1 ASCE 7-05)  
 $S_{S > 0.15}$

USE:

$V = C_s W_{DL}$

$V = 0.184 W_{DL}$

**ASD BASE SHEAR**

$V_{ASD} = \frac{C_s W_{DL}}{1.4}$

$V_{ASD} = 0.131 W_{DL}$

$T_a = C_t * (h_n)^{0.75} = 0.152$  Eqn. 12.8-1 Not Ol  
 $T_s = S_{D1}/S_{DS} = 0$   
 $k = 1.0$   $T_a < 0.5$

Seismic Design Category: D



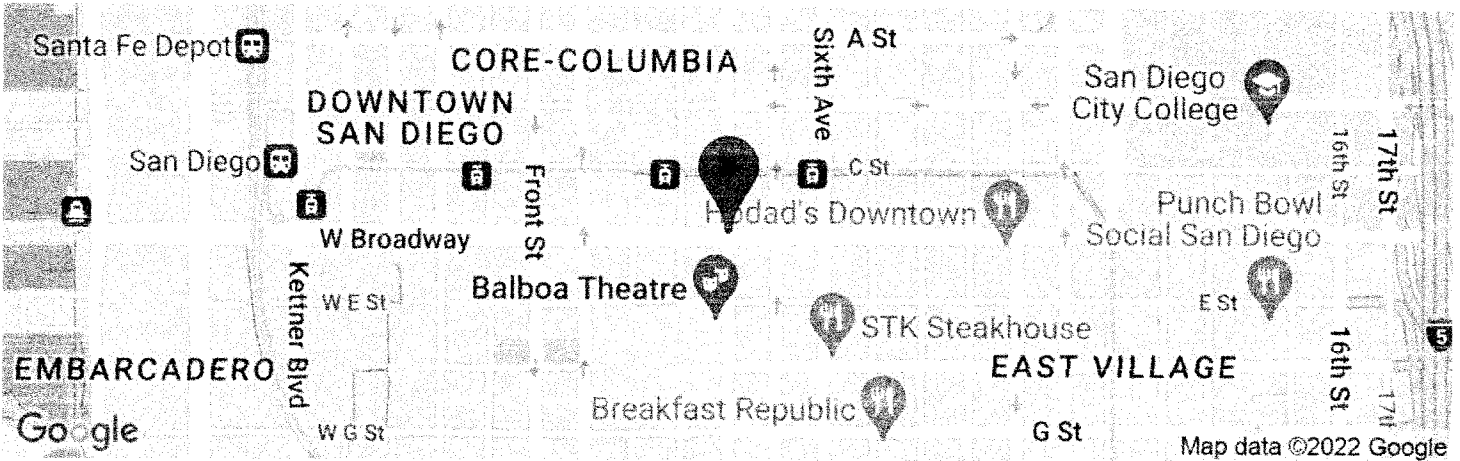
OSHPD

3A/

# Berwin

## San Diego, CA, USA

Latitude, Longitude: 32.715738, -117.1610838



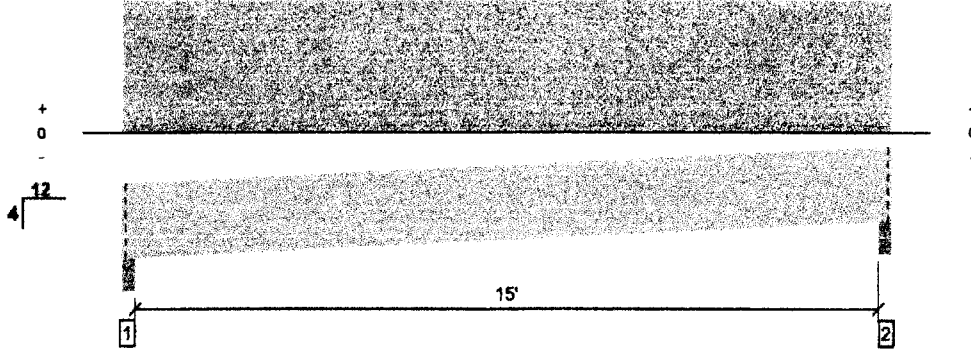
<b>Date</b>	8/9/2022, 3:45:54 PM
<b>Design Code Reference Document</b>	ASCE7-16
<b>Risk Category</b>	II
<b>Site Class</b>	D - Default (See Section 11.4.3)

Type	Value	Description
S <sub>S</sub>	1.492	MCE <sub>R</sub> ground motion. (for 0.2 second period)
S <sub>1</sub>	0.503	MCE <sub>R</sub> ground motion. (for 1.0s period)
S <sub>MS</sub>	1.79	Site-modified spectral acceleration value
S <sub>M1</sub>	null -See Section 11.4.8	Site-modified spectral acceleration value
S <sub>DS</sub>	1.193	Numeric seismic design value at 0.2 second SA
S <sub>D1</sub>	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F <sub>a</sub>	1.2	Site amplification factor at 0.2 second
F <sub>v</sub>	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.678	MCE <sub>G</sub> peak ground acceleration
F <sub>PGA</sub>	1.2	Site amplification factor at PGA
PGA <sub>M</sub>	0.814	Site modified peak ground acceleration
T <sub>L</sub>	8	Long-period transition period in seconds
SsRT	1.492	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.728	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	2.269	Factored deterministic acceleration value. (0.2 second)
S1RT	0.503	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.574	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.799	Factored deterministic acceleration value. (1.0 second)
PGA <sub>d</sub>	0.941	Factored deterministic acceleration value. (Peak Ground Acceleration)
PGA <sub>UH</sub>	0.678	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration

4/

Overall Sloped Length: 16' 8 3/16"



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load Combination (Pattern)
Member Reaction (lbs)	607 @ 2 1/2"	2231 (3.50")	Passed (27%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	528 @ 1' 1/4"	2081	Passed (25%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	2241 @ 7' 9 1/2"	2537	Passed (88%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.334 @ 7' 9 1/2"	0.533	Passed (L/574)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.651 @ 7' 9 1/2"	0.799	Passed (L/295)	--	1.0 D + 1.0 Lr (All Spans)

System : Roof  
 Member Type : Joist  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD  
 Member Pitch : 4/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Top Edge Bracing (Lu): Top compression edge must be braced at 4' 4" o/c unless detailed otherwise.
- Bottom Edge Bracing (Lu): Bottom compression edge must be braced at 16' 5" o/c unless detailed otherwise.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Roof Live	Total	
1 - Beveled Plate - SPF	3.50"	3.50"	1.50"	296	312	608	Blocking
2 - Beveled Plate - SPF	3.50"	3.50"	1.50"	296	312	608	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Loads	Location (ft)	Spacing	Dead (0.50)	Roof Live (non-snow: 2.25)	Comments
1 - Uniform (PSF)	0 to 15' 7"	24"	18.0	20.0	Roof

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The product application, input design loads, dimensions and support information have been provided by Forte Software Operator

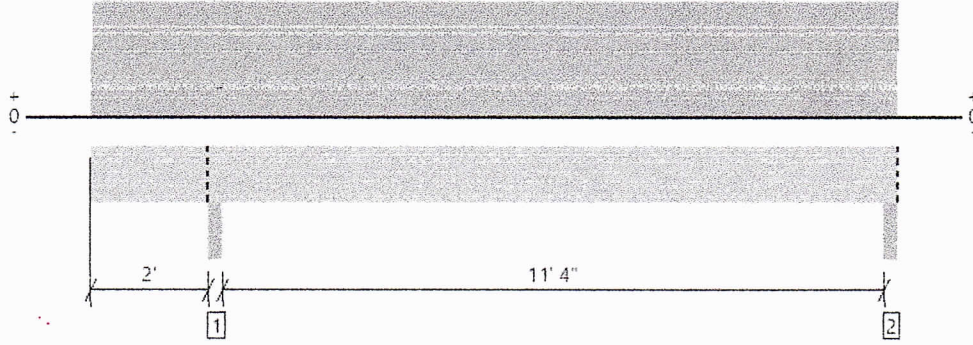


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Roof Framing, (RB-1) Ridge Bm  
**1 piece(s) 4 x 12 DF No.2**

5/

Overall Length: 13' 11"



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3048 @ 2' 1 3/4"	7656 (3.50")	Passed (40%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	1840 @ 3' 2 3/4"	5906	Passed (31%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	5981 @ 8' 1 1/8"	7614	Passed (79%)	1.25	1.0 D + 1.0 Lr (Alt Spans)
Live Load Defl. (in)	0.113 @ 7' 11 3/4"	0.580	Passed (L/999+)	--	1.0 D + 1.0 Lr (Alt Spans)
Total Load Defl. (in)	0.216 @ 7' 11 15/16"	0.774	Passed (L/646)	--	1.0 D + 1.0 Lr (Alt Spans)

System : Roof  
 Member Type : Drop Beam  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD  
 Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Roof Live	Factored	
1 - Column - DF	3.50"	3.50"	1.50"	1486	1561	3048	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	1053	1125	2178	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	13' 11" o/c	
Bottom Edge (Lu)	13' 11" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Roof Live (non-snow: 1.25)	Comments
0 - Self Weight (PLF)	0 to 13' 11"	N/A	10.0	--	
1 - Uniform (PSF)	0 to 13' 11" (Front)	9' 7"	18.0	20.0	Default Load

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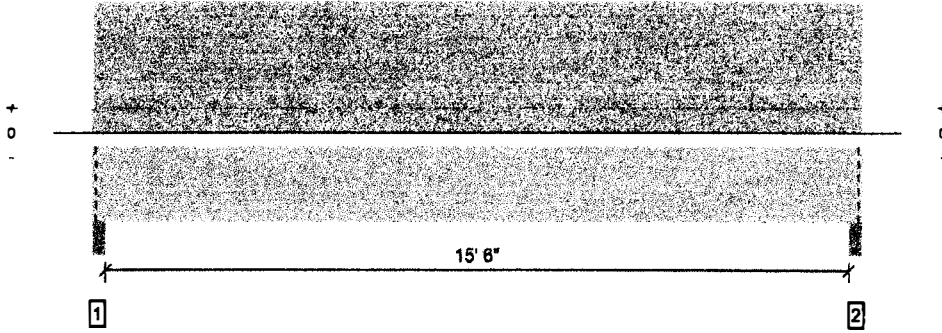
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Paul Christenson PCSD Engineering (760) 207-1885 paul.pcsd@gmail.com	



6/

Overall Length: 16' 1"



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Result	Actual @ Location	Allowed	Result	LDF	Load Combination (Pattern)
Member Reaction (lbs)	3719 @ 2"	12031 (3.50")	Passed (31%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	3141 @ 1' 3"	8960	Passed (35%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	14342 @ 8' 1/2"	17048	Passed (84%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.324 @ 8' 1/2"	0.525	Passed (L/583)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.638 @ 8' 1/2"	0.788	Passed (L/296)	--	1.0 D + 1.0 Lr (All Spans)

System : Roof  
 Member Type : Drop Beam  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD  
 Member Pitch: 0/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Top Edge Bracing (Lu): Top compression edge must be braced at 16' 1" o/c unless detailed otherwise.
- Bottom Edge Bracing (Lu): Bottom compression edge must be braced at 16' 1" o/c unless detailed otherwise.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Assumptions
	Total	Available	Required	Dead	Roof Live	Total	
1 - Column - DF	3.50"	3.50"	1.50"	1830	1890	3720	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	1830	1890	3720	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Loads	Location (Side)	Tertiary Width	Dead (k/ft)	Roof Live (non-snow) (k/ft)	Comments
0 - Self Weight (PLF)	0 to 16' 1"	N/A	16.0		
1 - Uniform (PSF)	0 to 16' 1" (Front)	11' 9"	18.0	20.0	Roof

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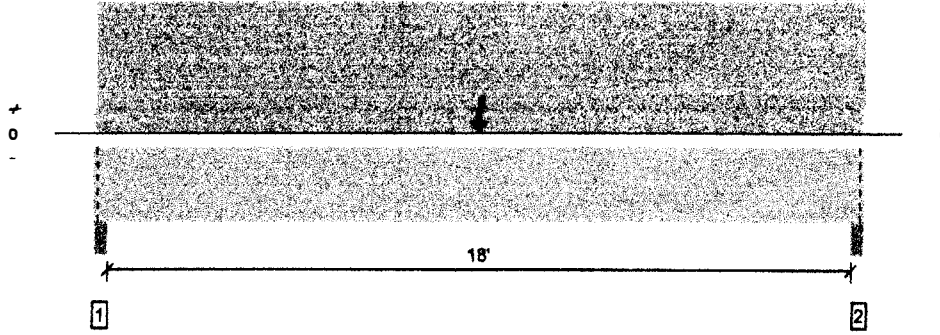
The product application, input design loads, dimensions and support information have been provided by Forte Software Operator



Forte Software Operator	Job Notes
Paul Christenson PCSD Engineering (760) 207-1885 paul.pcsd@gmail.com	

7/

Overall Length: 18' 7"



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	UDF	Loads Combination (Pattern)
Member Reaction (lbs)	3165 @ 18' 5"	11484 (3.50")	Passed (28%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	2985 @ 1' 3 3/8"	15066	Passed (20%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	22822 @ 9' 3 1/2"	37317	Passed (61%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.369 @ 9' 3 1/2"	0.608	Passed (L/593)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.837 @ 9' 3 1/2"	0.913	Passed (L/262)	--	1.0 D + 1.0 Lr (All Spans)

System : Roof  
 Member Type : Drop Beam  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD  
 Member Pitch: 0/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Top Edge Bracing (Lu): Top compression edge must be braced at 18' 7" o/c unless detailed otherwise.
- Bottom Edge Bracing (Lu): Bottom compression edge must be braced at 18' 7" o/c unless detailed otherwise.

Supports	Bearing Length			Loads to Supports (lbs)			Acceleration
	Total	Available	Required	Dead	Roof Live	Total	
1 - Column - DF	3.50"	3.50"	1.50"	1849	1317	3166	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	1849	1317	3166	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Loads	Location (ft)	Tributary Width	Dead (lb/ft)	Roof Live (maximum Lr)	Comments
0 - Self Weight (PLF)	0 to 18' 7"	N/A	19.5		
1 - Uniform (PSF)	0 to 18' 7" (Front)	2'	18.0	20.0	Roof
2 - Uniform (PLF)	0 to 18' 7" (Front)	N/A	45.0	-	
3 - Point (lb)	9' 3 1/2" (Front)	N/A	1830	1890	

**Weyerhaeuser Notes**

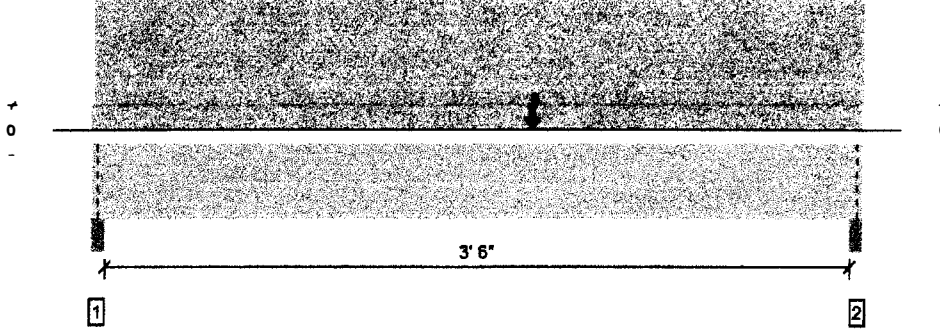
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The product application, input design loads, dimensions and support information have been provided by Forte Software Operator



Forta Software Operator	Jobb Notes
Paul Christenson PCSD Engineering (760) 207-1885 paul.pcsd@gmail.com	

Overall Length: 4' 1"



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	L/D	Load Combination (Pattern)
Member Reaction (lbs)	2694 @ 3' 11"	7656 (3.50")	Passed (35%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	2394 @ 2' 10 1/4"	5906	Passed (41%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	3895 @ 2' 4"	7614	Passed (51%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.006 @ 2' 13/16"	0.125	Passed (L/999+)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.012 @ 2' 13/16"	0.188	Passed (L/999+)	--	1.0 D + 1.0 Lr (All Spans)

System : Roof  
 Member Type : Drop Beam  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD  
 Member Pitch: 0/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Top Edge Bracing (Lu): Top compression edge must be braced at 4' 1" o/c unless detailed otherwise.
- Bottom Edge Bracing (Lu): Bottom compression edge must be braced at 4' 1" o/c unless detailed otherwise.
- Applicable calculations are based on NDS.

Supports	Spanning Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Live	Total	
1 - Column - DF	3.50"	3.50"	1.50"	1034	1069	2103	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	1314	1380	2694	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Loads	Location (Side)	Tributary Width	Dead (k/ft)	Roof Live (min-max) (k/ft)	Comments
0 - Self Weight (PLF)	0 to 4' 1"	N/A	10.0		
1 - Uniform (PSF)	0 to 4' 1" (Front)	5' 6"	18.0	20.0	Roof
2 - Uniform (PLF)	0 to 4' 1" (Front)	N/A	25.0	-	Roof
3 - Point (lb)	2' 4" (Front)	N/A	1800	2000	

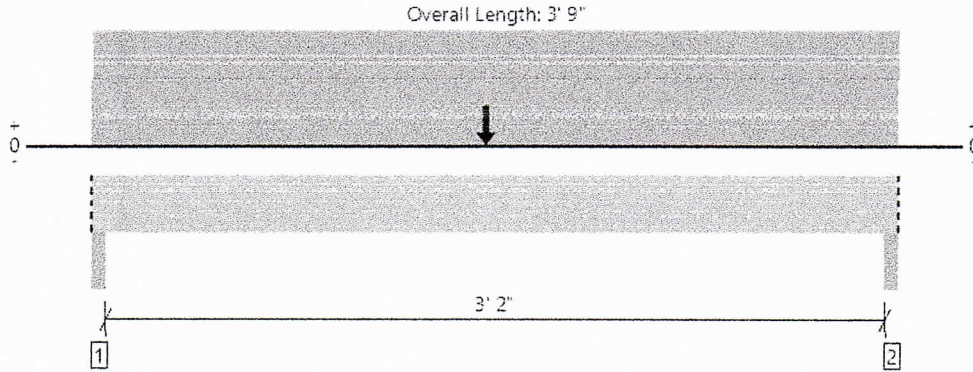
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 The product application, input design loads, dimensions and support information have been provided by Forte Software Operator



Forte Software Operator	Job Notes
Paul Christenson PCSD Engineering (760) 207-1885 paul.pcsd@gmail.com	

Roof Framing, (RB-5) Hdr Bm  
**1 piece(s) 4 x 10 DF No.2**

10/



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1795 @ 2"	7656 (3.50")	Passed (23%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	1706 @ 1' 3/4"	4856	Passed (35%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	2852 @ 1' 10"	5615	Passed (51%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.007 @ 1' 10 7/16"	0.171	Passed (L/999+)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.013 @ 1' 10 7/16"	0.228	Passed (L/999+)	--	1.0 D + 1.0 Lr (All Spans)

System : Roof  
 Member Type : Drop Beam  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD  
 Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Roof Live	Factored	
1 - Column - DF	3.50"	3.50"	1.50"	858	937	1795	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	821	896	1717	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 9" o/c	
Bottom Edge (Lu)	3' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Roof Live (non-snow: 1.25)	Comments
0 - Self Weight (PLF)	0 to 3' 9"	N/A	8.2	--	
1 - Uniform (PSF)	0 to 3' 9" (Front)	2'	18.0	20.0	Default Load
2 - Point (lb)	1' 10" (Front)	N/A	1514	1683	Default Load

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 The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

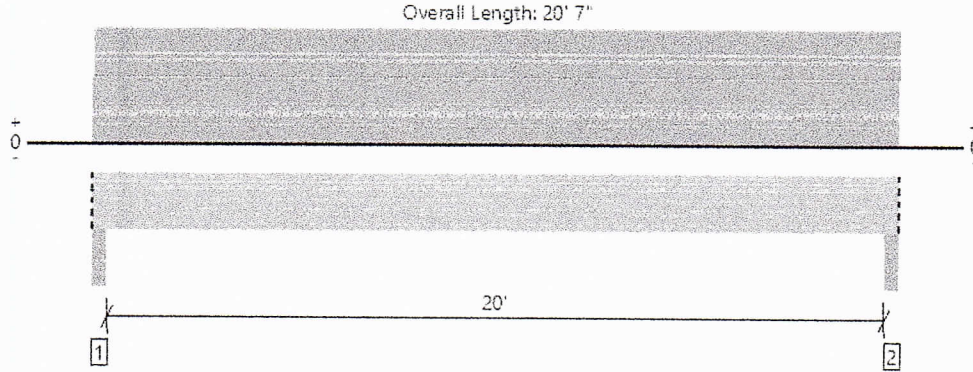
ForteWEB Software Operator	Job Notes
Paul Christenson PCSD Engineering (760) 207-1885 paul.pcsd@gmail.com	





Roof Framing, (RB-6) Hdr Bm  
**1 piece(s) 8 x 12 DF No.1**

W



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2077 @ 2"	16406 (3.50")	Passed (13%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	1825 @ 1' 3"	12219	Passed (15%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	10346 @ 10' 3 1/2"	23247	Passed (45%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.299 @ 10' 3 1/2"	1.013	Passed (L/814)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.502 @ 10' 3 1/2"	1.350	Passed (L/484)	--	1.0 D + 1.0 Lr (All Spans)

System : Roof  
 Member Type : Drop Beam  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD  
 Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Lumber grading provisions must be extended over the length of the member per NDS 4.2.5.5.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Roof Live	Factored	
1 - Column - DF	3.50"	3.50"	1.50"	842	1235	2077	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	842	1235	2077	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	20' 7" o/c	
Bottom Edge (Lu)	20' 7" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Roof Live (non-snow: 1.25)	Comments
0 - Self Weight (PLF)	0 to 20' 7"	N/A	21.9	--	
1 - Uniform (PSF)	0 to 20' 7" (Front)	6'	10.0	20.0	Default Load

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

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**5.0 Lateral Design & Analysis - 3 Bedroom**

**Wind:  $P = \lambda Kzt I ps30$**  (ASCE 7 - Equation 6-1)

$\lambda = 1.00$  (fig 6-3)  
 $Kzt = 1.0$  (fig 6-4)  
 $PS30 = 26.6 \text{ psf}$  (fig 6-3)  
 $I = 1.0$  (table 11.5-1)

$P = 16.0 \text{ psf}$

**Seismic:  $V = C_s W_{DL}$**  (IBC Equation 12.8-1)

$S_s = 1.492$        $S_1 = 0.503$   
 $F_a = 1.2$        $F_v = 0.0$   
 $R = 6.50$        $I = 1.00$   
 $V = 0.131 * W_t * \rho$  ( $\rho$  - Redundancy)

Criteria	1st Story	2nd Story
Each Story Resists > 35% Base Shear:	not satisfied	satisfied
Any Shear Wall w/ (h/l)>1.0 is < 33% Story Force:	satisfied	satisfied
$\rho =$	1	1

**Wind Loads**

$P = 16.0 \text{ psf} \times \text{Trib Area}$

Roof Level

Direction: N/S =  $16.0 \text{ psf} \times 259 \text{ sq. ft.} = \underline{4134 \text{ lbs.}}$   
Direction: E/W =  $16.0 \text{ psf} \times 445 \text{ sq. ft.} = \underline{\underline{7102 \text{ lbs.}}}$

**Roof Weight**

Roof Wt. =  $15.0 \text{ psf} \times 1440 \text{ sq. ft.} = 21600 \text{ lbs.}$   
Exterior Wall Wt =  $15.0 \text{ psf} \times 555 \text{ sq. ft.} = 8325 \text{ lbs.}$   
Interior Wall Wt =  $8.0 \text{ psf} \times 499 \text{ sq. ft.} = 3992 \text{ lbs.}$   
Ceiling Wt =  $4.0 \text{ psf} \times 1199 \text{ sq. ft.} = 4796 \text{ lbs.}$   
Total Trib.  $W_R = \underline{\underline{38713 \text{ lbs.}}}$

**Total Seismic Dead Load:**  $W_t = 38713 \text{ lbs.}$   
**ASD Base Shear:**  $V = 0.131 * W_t = \underline{\underline{5078 \text{ lbs.}}}$



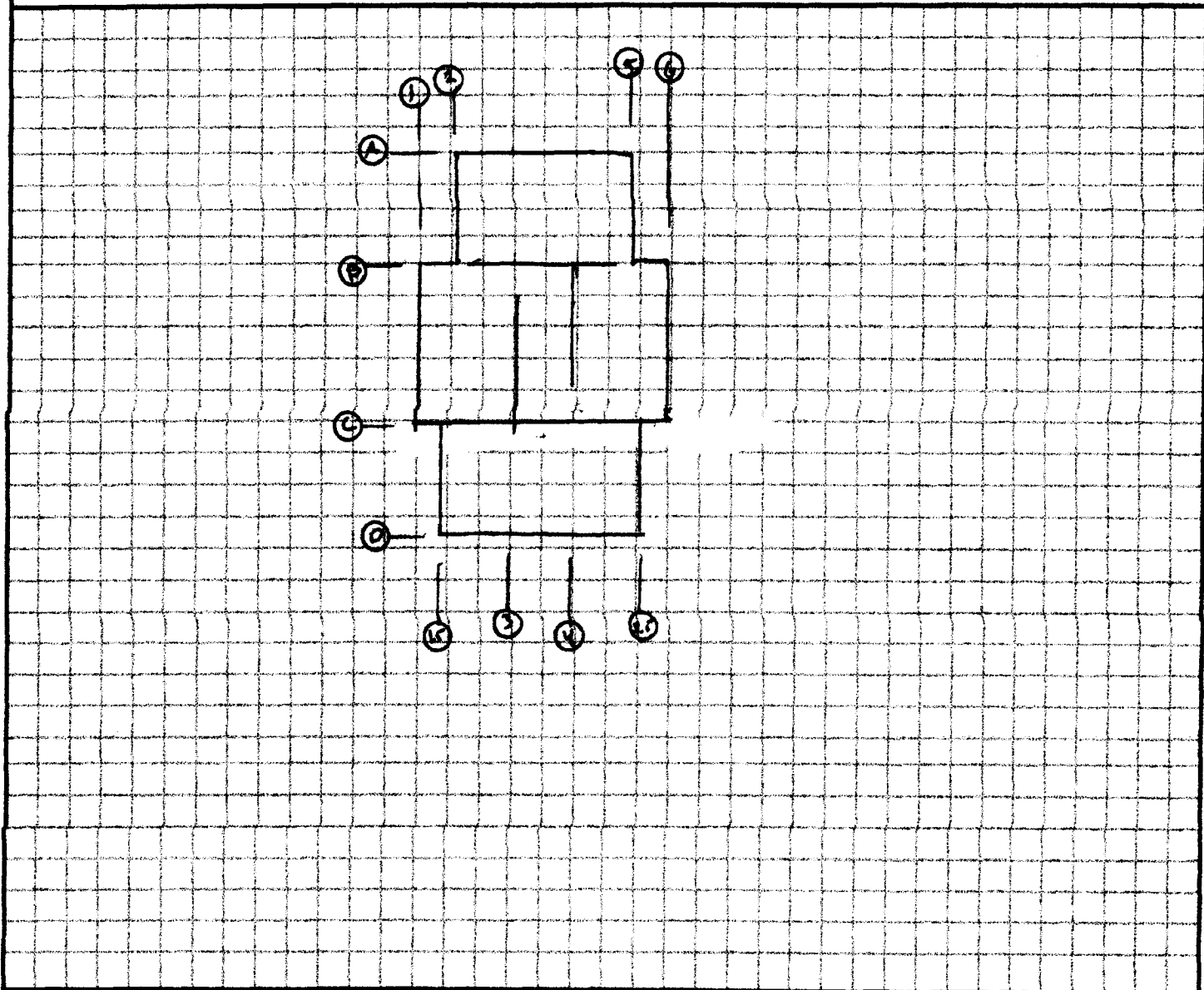
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**5.1 Lateral Design & Analysis - 2nd Story Shear Walls**

N/S					E/W						
Gridline	Length of Shearwalls		Total	Wall Ht.	Type	Gridline	Length of Shearwalls		Total	Wall Ht.	Type
1	6	3	9.0	9	A	A	11		11	9	Δ
1.5	2		2.0	9	WSWHB	B	12	11	23	9	Δ
2	3	3	5.2	9		C	12	13	24.5	9	Δ
3	9		9.0	9	Δ	D	3	3	6	9	Δ
4	9		8.5	9	Δ			0			Δ
5,5.5	8	6	6	19.5	9			0			#DIV/0!
6	6	3	9.0	9	A			0			#DIV/0!
			0.0		Δ			0			#DIV/0!
			0.0		Δ			0			#DIV/0!
			0.0		Δ			0			#DIV/0!





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**5.1 Lateral Design & Analysis (cont.)**

Gridline 1 , 9 % ( 5078 x 0.09 = 457 # )

$v = \frac{457 \text{ lbs.}}{9 \text{ ft.}} = 51 \text{ plf} \times \left(\frac{9'}{2 \times 3'}\right) = 77 \text{ RF}$

OTF = 432 lbs.



HDU2

Gridline 1.5 7 % ( 5078 x 0.07 = 355 # )

$v = \frac{355 \text{ lbs}}{1.5 \text{ ft.}} = 237 \text{ plf}$



WSWH18x9  
(Pcs 21-23)

Gridline 2 6 % ( 5078 x 0.06 = 305 # )

$v = \frac{305 \text{ lbs}}{5.2 \text{ ft.}} = 59 \text{ plf} \times \left(\frac{9'}{2 \times 2'}\right) = 106 \text{ RF}$

OTF = 527 lbs.



HDU2

Gridline 3 31 % ( 5078 x 0.31 = 1574 # )

$v = \frac{1574 \text{ lbs.}}{9 \text{ ft.}} = 175 \text{ plf}$

OTF = 1574 lbs.



HDU2

Gridline 4 29 % ( 5078 x 0.29 = 1473 # )

$v = \frac{1473 \text{ lbs.}}{8.5 \text{ ft.}} = 173 \text{ plf}$

OTF = 1559 lbs.



HDU2

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 www.strongtie.com



**Job Name:** PrADU3  
**Wall Name:** Wall Line 1.5  
**Application:** Standard Wall on Concrete

**Design Criteria:**

- \* 2021 International Bldg Code
- \* Seismic R=6.5
- \* 2500 psi concrete
- \* ASD Design Shear = 355 lbs
- \* Nominal wall height = 9 ft

**Selected Strong-Wall® Panel Solution:**

Model	Type	W (in)	H (in)	T (in)	Sill Anchor	End Anchor Bolts	Total Axial Load (lbs)	Actual Uplift (lbs)
WSWH18x9	Wood	18	105.25	3.5	N/A	2 - 1"	1500	2239 lb

**Actual Shear & Drift Distribution:**

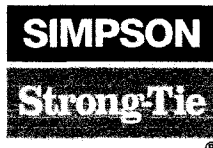
Model	Actual Shear (lbs)	Allowable Shear (lbs)	Actual / Allow Shear	Actual Drift (in)	Drift Limit (in)
WSWH18x9	355	≤ 2575 OK	0.14	0.06	0.47

**Notes:**

1. Strong-Wall High-Strength Wood Shearwalls have been evaluated to the 2021 IBC/IRC. See www.strongtie.com for additional design and installation information.
2. Anchor templates are recommended for proper anchor bolt placement, and are required in some jurisdictions.
3. The applied vertical load shall be a concentric point load or a uniformly distributed load not exceeding the allowable vertical load. Alternatively, the load may be applied anywhere along the width of the panel if imposed by a continuous bearing vertical load transfer element such as a rimboard or beam. For eccentric axial loads applied directly to the panel, the allowable vertical load shall be divided by two.
4. Panels may be trimmed to a minimum height of 74½".

**Disclaimer:**

It is the Designer's responsibility to verify product suitability under applicable building codes. In order to verify code listed applications please refer to the appropriate product code reports at www.strongtie.com or contact Simpson Strong-Tie Company Inc. at 1-800-999-5099.



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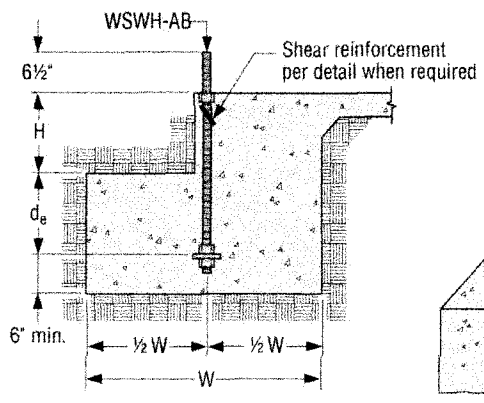
**Job Name:** PrADU3  
**Wall Name:** Wall Line 1.5  
**Application:** Standard Wall on Concrete

**Design Criteria:**

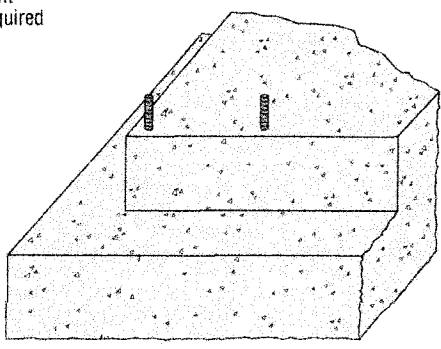
- \* Slab on grade - Slab edge
- \* 2021 International Bldg Code
- \* Seismic R=6.5
- \* 2500 psi concrete

**Anchor Solution Details:**

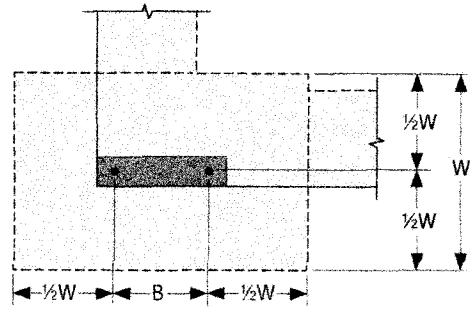
**Slab-on-Grade Installation**



Slab-on-Grade Section View



Perspective View



Footing Plan

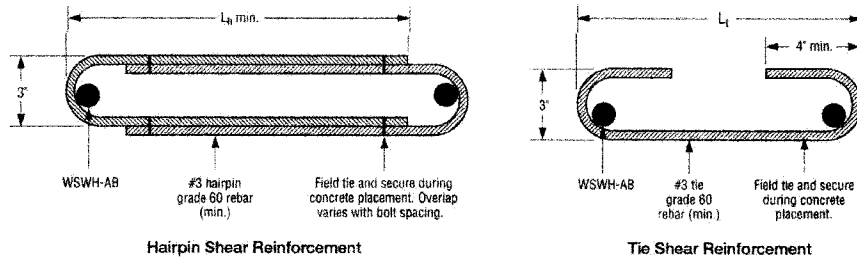
**Anchor Solution Assuming Cracked Concrete Design:**

Model	W	d <sub>e</sub>	B	Anchor Bolt	Strength
WSWH18x9	33	11	14	WSWH-AB	Standard

**Anchor Solution Assuming Uncracked Concrete Design:**

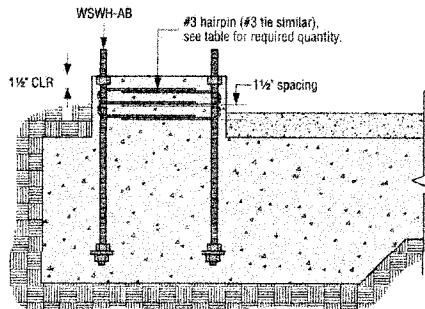
Model	W	d <sub>e</sub>	B	Anchor Bolt	Strength
WSWH18x9	28	10	14	WSWH-AB	Standard

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Hairpin Shear Reinforcement

Tie Shear Reinforcement



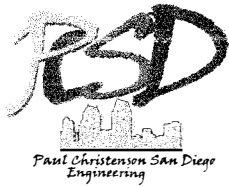
Hairpin Installation  
 (Garage curb shown, other footing types similar)

Shear Anchorage Solutions

Strong-Wall High-Strength Wood Shearwall Model No.	L <sub>1</sub> or L <sub>2</sub> (in.)	Seismic <sup>1</sup>			Wind <sup>4</sup>		ASD Allowable Shear Load, V (lb.) <sup>7</sup>	
		Shear Reinforcement	Minimum Curb/ Stemwall Width (in.)	Shear Reinforcement	Minimum Curb/ Stemwall Width (in.)	Uncracked	Cracked	
WSWH12	10 1/4	(1) #3 Tie	6	See Note 7	6	1,080	770	
WSWH18	15	(2) #3 hairpins <sup>5</sup> *	6	(1) #3 hairpin	6	Hairpin reinforcement achieves maximum allowable shear load of the Strong-Wall® WSWH		
WSWH24	19	(2) #3 hairpins <sup>5</sup>	6	(2) #3 hairpins <sup>5</sup>	6			

1. Shear anchorage designs conform to ACI 318-14 Chapter 17 and ACI 318-11 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 one- and two-family dwellings in SDC C may use wind anchorage solutions. Seismic shear reinforcement designs conform to ACI 318-14, section 17.2.3.5.3 and ACI 318-11 section D.3.3.5.
4. Wind includes seismic design category A and B and detached one- and two-family dwellings in SDC C.
5. Additional ties may be required at garage curb or stemwall installations below anchor reinforcement per designer.
6. Use (1) #3 hairpin for WSWH18 when standard strength anchor is used.
7. Use (1) #3 tie for WSWH12 when panel design shear force exceeds tabulated anchorage allowable shear load.
8. No. 4 grade 40 shear reinforcement may be substituted for WSWH shear anchorage solutions.
9. Concrete edge distance for anchors must comply with ACI 318-14 section 17.7.2 and ACI 318-11 section D.8.2.
10. The designer may specify alternate shear anchorage.

**STRONG-WALL® WSWH SHEAR ANCHORAGE SCHEDULE AND DETAILS**



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**5.1 Lateral Design & Analysis (cont.)**

Gridline (5,5.3) , 11 % ( 5078 x 0.11 = 559 # )

$$v = \frac{559 \text{ lbs.}}{19.5 \text{ ft.}} = 29 \text{ plf}$$

OTF = 258 lbs.



HDU2

Gridline (6) 7 % ( 5078 x 0.07 = 355 # )

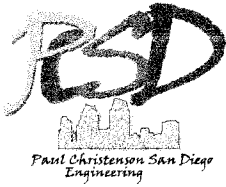
$$v = \frac{355 \text{ lbs.}}{9 \text{ ft.}} = 39 \text{ plf} \quad \left( \frac{7'}{23'} \right) = 59 \text{ plf}$$

OTF = 355 lbs.



HDU2





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**5.1 Lateral Design & Analysis (cont.)**

Gridline (A) , 13 % ( 7102 x 0.13 = 923 # )

$v = \frac{923 \text{ lbs.}}{13.8 \text{ ft.}} = 67 \text{ plf} \times \left(\frac{9'}{22'}\right) = 105 \text{ PF}$

OTF = 602.1 lbs.



' HDU2

Gridline (B) 33 % ( 7102 x 0.33 = 2344 # )

$v = \frac{2344 \text{ lbs.}}{22.5 \text{ ft.}} = 104 \text{ plf}$

OTF = 937.5 lbs.



' HDU2

Gridline (C) 36 % ( 7102 x 0.36 = 2557 # )

$v = \frac{2557 \text{ lbs.}}{24.5 \text{ ft.}} = 104 \text{ plf}$

OTF = 939 lbs.



HDU2

Gridline (D) 18 % ( 7102 x 0.18 = 1278 # )

$v = \frac{1278 \text{ lbs.}}{6 \text{ ft.}} = \frac{213}{12} \text{ plf} \times \left(\frac{9'}{2'}\right) = 266 \text{ PF}$   
 $\uparrow$  WIND

OTF = 1918 lbs.



HDU2



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JOB 22-409-3  
SHEET NO 26 OF 26  
CALCULATED BY PSC DATE 8/21/20  
CHECK BY \_\_\_\_\_ DATE \_\_\_\_\_  
SCALE \_\_\_\_\_

**6.0 FOUNDATION DESIGN**

**6.1 CONTINUOUS FOOTING**

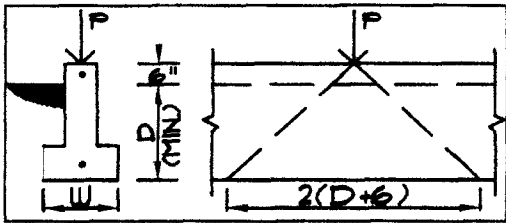
$w = 1125 \text{ plf}$

ASBP = 1500 psf

$\text{width} = \frac{1125 \text{ plf}}{1500 \text{ psf}} = 0.75 \text{ ft (MIN.)} \Rightarrow 9 \text{ INCHES (MIN.)}$

USE 12 " WIDE CONTIN. FTG W/  
2 - # 4 TOP AND BOTTOM & EMBED.  
12 " INTO UNDISTURBED SOIL (MIN.)

**6.2 MAX POINT LOAD ON FOOTING**



$P_{all} = 1500 * \frac{12}{12} * \frac{36}{12}$

$P_{all} = 4500 \text{ lbs}$

**6.3 PAD DESIGN**

PAD

SIZE

LOAD

P1

24 " SQUARE x 12 " THK  
W/ 3 -# 4 EACH WAY

$P_{max} = 1500 * 2^2$   
 $P_{max} = 6000 \text{ lbs}$