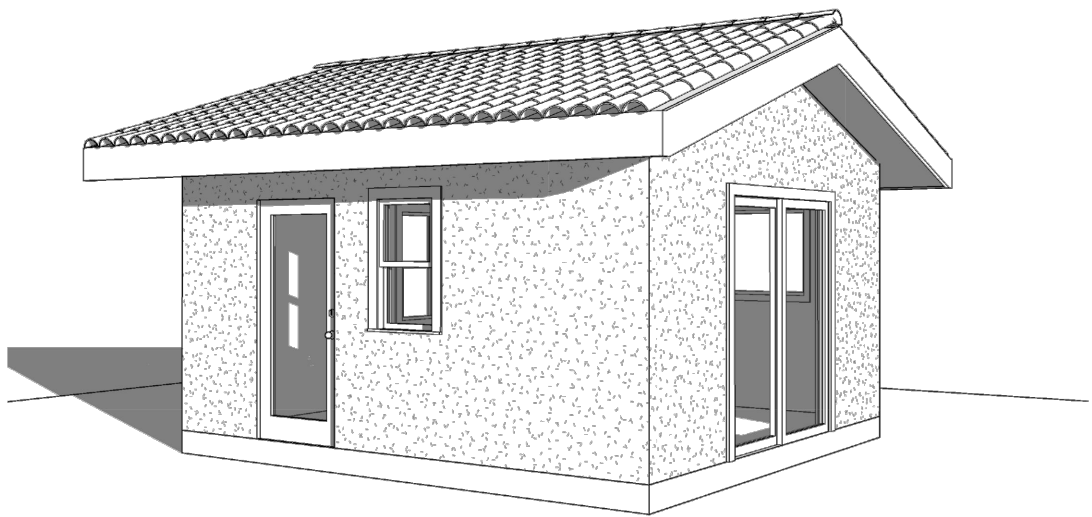


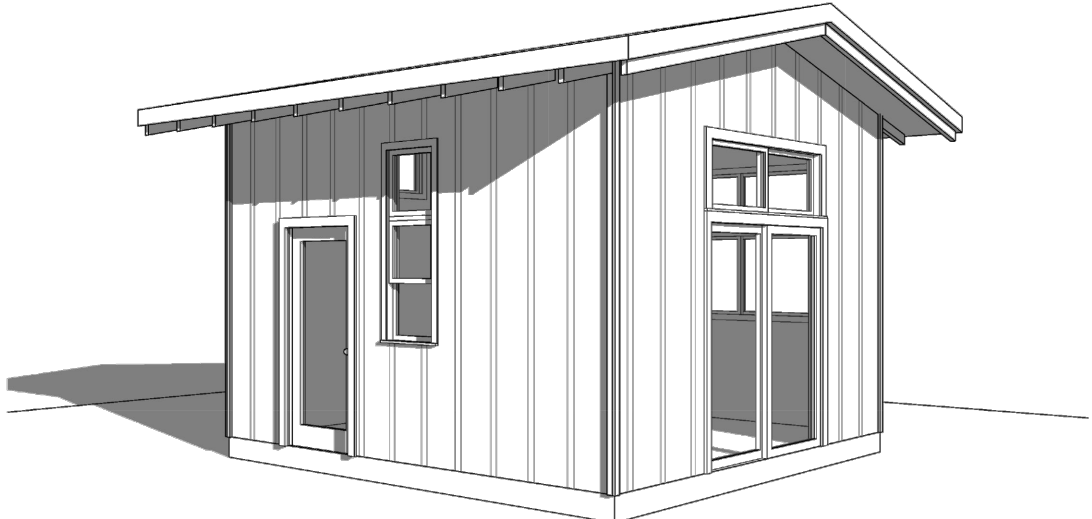
anaheim pradu studio

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.

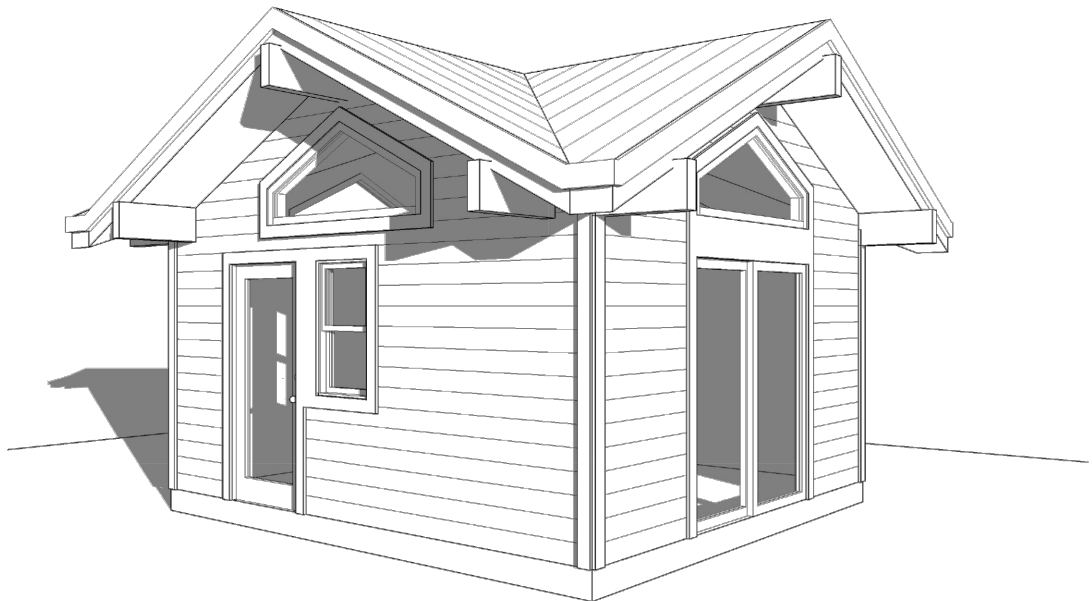
a



b



c



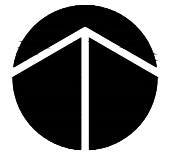
construction codes:

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 & PLAN SHEETS WITH PROJECT LOCATION & OWNER
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:
 - 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 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 SEER/SEER2
 - VERIFIED REFRIGERANT CHARGE
 - AIRFLOW IN HABITABLE ROOMS(SC3.1.4.1.7)
 - HEATING SYSTEM VERIFICATIONS:
 - VERIFIED HSPF (C ELEV ONLY)
 - 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)
 - 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 AGREEING 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 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 STUDIO ACCESSORY DWELLING UNIT (ADU)
PLAN CHECK NUMBER	=	

area calculations:

LOT AREAS			
GROSS LOT AREA	=	SF	
NET LOT AREA	=	SF	
(DEDUCTIONS PER CODE)	=	(SF)	
BUILDING AREAS			
PROPOSED			
PROPOSED ADU	=	224 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 PLANS
a2.0	UTILITY PLAN
a3.0	ROOF PLANS
a4.0	A ELEVATIONS + SECTIONS
a4.1	B ELEVATIONS + SECTIONS
a4.2	C ELEVATIONS + SECTIONS
a0.0	STRUCTURAL NOTES
s1.0	FOUNDATION PLANS
s2.0	ROOF FRAMING PLANS
s2.1	REVERSE ROOF FRAMING PLANS
d0.0	DETAILS
d0.1	DETAILS
d0.2	DETAILS
d0.3	DETAILS
d0.4	DETAILS
T-01 to T-04	STUDIO A ENERGY REQUIREMENTS
T-01 to T-04	STUDIO B ENERGY REQUIREMENTS
T-01 to T-04	STUDIO 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	=	
GENERAL PLAN DESIGNATION	=	RESIDENTIAL _____
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	=			
EXISTING ACCESSORY STRUCTURE	=			
PROPOSED ADU	=	1		

grading:

CUT	=	YD ³
FILL	=	YD ³
IMPORT	=	YD ³
EXPORT	=	YD ³
OVEREXCAVATION & RECOMPACTION	=	YD ³
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		FIRM	DZN PARTNERS
		ADDRESS	662 2ND ST
		CITY, STATE, ZIP	ENCINITAS, CA 92024
		PHONE	(760) 753-2464
ENERGY CONSULTANT		EMAIL	B.SMITH@DZNPARTNERS.COM
		CONTACT	BART SMITH, AIA, LEED AP
		FIRM	BEAR TECHNOLOGYS CONSULTANTING, INC
		ADDRESS	3431 DON ARTURO DR
ENGINEER		CITY, STATE, ZIP	CARLSBAD, CA 92010
		PHONE	(760) 635-2327
		EMAIL	WAYNE@BEARTECHCONSULTING.COM
		CONTACT	WAYNE SEWARD
		FIRM	PCSD ENGINEERING
		ADDRESS	3529 COASTVIEW COURT
		CITY, STATE, ZIP	CARLSBAD, CA 92010
		PHONE	(760) 207-1885
		EMAIL	PAUL.PCSD@GMAIL.COM
		CONTACT	PAUL CHRISTENSON

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.



6 8 2 S E C O N D S T
E N C I N I T A S , C A
(7 6 0) 7 5 3 2 4 6 4
DZNPARTNERS.COM

STUDIO PRADU

CITY: ANAHEIM

JOB: 202409R

PROJECT DATA

a0.0

a b b r e v i a t i o n s

&	AND	EP	ELECTRICAL PANEL	POC	PRECAST CONCRETE
@	AT	EQ	EQUAL	PKT	POCKET
°	DEGREES	EQUIP	EQUIPMENT	PL	PLATE
Ø	DIAMETER	EW	EACH WAY	PIL	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 EXSTINGUISHER	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	FN	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	REINF	REINFORCE
AHS	ALUMINUM HORIZONTAL SLIDING	FP	FIREPLACE	REQD	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	GLU-LAM 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	HFV	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 PLUMP	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
CIP	CAST IN PLACE	HW	HOT WATER	SYSB	SIDE YARD SETBACK
CJ	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	U/C	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
DIM	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	W/O	WITHOUT
DR	DOOR	MW	MICROWAVE OVEN	WC	WATER CLOSET
DS	DOWNSPOUT	N	NORTH	WD	WOOD
DTP	DOUBLE TOP PLATE	NIA	NOT APPLICABLE	WDW	WINDOW
DV	DRYER VENT	NAT	NATURAL	WDWR	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	WMH	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
EMER	EMERGENCY	OPG	OPENING	WWM	WELDED WIRE MESH
EN	EDGE NAIL	OZ	OUNCE	YD	YARD
ENCL	ENCLOSURE	P	POLE		

door schedule - elevation a

DOOR #	WIDTH	HEIGHT	THICK	TYPE	OPERATION	CORE OR GLAZING	MATERIAL	FRAME	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	3'-0"	6'-8"	1-3/4"	FRENCH	SWING	DG, TG	WOOD	WOOD	OPTIONAL	0.58	0.65	1	ENTRY
2	6'-0"	6'-8"	1-3/4"	FRENCH	SLIDING	DG, TG	VINYL	VINYL	YES	0.58	0.65	1	
3	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	PRIVACY
4	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	

window schedule - elevation a

WINDOW #	WIDTH	HEIGHT	TYPE	MATERIAL	GLAZING	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	2'-0"	3'-6"	VERTICAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	
2	2'-0"	4'-0"	VERTICAL SLIDER	VINYL	DG	YES	0.58	0.65	1	OPAQUE
3	6'-0"	3'-0"	HORIZONTAL SLIDER	VINYL	DG	YES	0.58	0.65	1	

door schedule - elevation b

DOOR #	WIDTH	HEIGHT	THICK	TYPE	OPERATION	CORE OR GLAZING	MATERIAL	FRAME	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	3'-0"	6'-8"	1-3/4"	FRENCH	SWING	DG, TG	WOOD	WOOD	OPTIONAL	0.58	0.65	1	ENTRY
2	6'-0"	6'-8"	1-3/4"	FRENCH	SLIDING	DG, TG	VINYL	VINYL	YES	0.58	0.65	1	
3	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	PRIVACY
4	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	

window schedule - elevation b

WINDOW #	WIDTH	HEIGHT	TYPE	MATERIAL	GLAZING	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	2'-0"	3'-6"	VERTICAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	
2	2'-0"	4'-0"	VERTICAL SLIDER	VINYL	DG	YES	0.58	0.65	1	OPAQUE
3	6'-0"	3'-0"	HORIZONTAL SLIDER	VINYL	DG	YES	0.58	0.65	1	
4	6'-0"	2'-0"	FIXED	VINYL	DG	NO	0.58	0.67	2	TRANSOM OVER DOOR 2 & WINDOW 3
5	2'-0"	2'-0"	FIXED	VINYL	DG	NO	0.58	0.67	1	TRANSOM OVER WDW 1
6	2'-0"	2'-0"	AWNING	VINYL	DG	YES	0.58	0.65	1	STORAGE LOFT

door schedule - elevation c

DOOR #	WIDTH	HEIGHT	THICK	TYPE	OPERATION	CORE OR GLAZING	MATERIAL	FRAME	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	3'-0"	6'-8"	1-3/4"	FRENCH	SWING	DG, TG	WOOD	WOOD	OPTIONAL	0.58	0.65	1	ENTRY
2	6'-0"	6'-8"	1-3/4"	FRENCH	SLIDING	DG, TG	VINYL	VINYL	YES	0.58	0.65	1	
3	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	PRIVACY
4	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	

window schedule - elevation c

WINDOW #	WIDTH	HEIGHT	TYPE	MATERIAL	GLAZING	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	2'-0"	3'-6"	VERTICAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	
2	2'-0"	4'-0"	VERTICAL SLIDER	VINYL	DG	YES	0.58	0.65	1	OPAQUE
3	3'-0"	5'-0"	VERTICAL SLIDER	VINYL	DG	YES	0.58	0.65	1	
4	6'-0"	2'-6"	FIXED	VINYL	DG	NO	0.58	0.67	4	HIGH PENTAGON TRANSOM EACH SIDE

appliance schedule - studio 0

APPLIANCE	OPERATION	MANUFACTURER	MODEL	QUANTITY	NOTES
SPLIT SYSTEM HEAT PUMP	ELECTRICITY	PANASONIC	CU-XE, CS-XE -15WKUA	1	OR EQUAL
HEAT PUMP TANK WATER HEATER	ELECTRICITY	RHEEM	PROPH40 T2 RH375-SO	1	OR EQUAL
REFRIGERATOR	ELECTRICITY	BY OWNER	BY OWNER	1	30" WIDE, COUNTER DEPTH
RANGE	ELECTRICITY	BY OWNER	BY OWNER	1	30" WIDE
MICROWAVE HOOD	ELECTRICITY	BY OWNER	BY OWNER	1	30" WIDE
GARBAGE DISPOSAL	ELECTRICITY	BY OWNER	BY OWNER	1	AIR SWITCH

fixture schedule - studio 0

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	1	
LAVATORY FAUCET	BATH	BY OWNER	BY OWNER	1	
TOILET	BATH	BY OWNER	BY OWNER	1	
BATHTUB	BATH	BY OWNER	BY OWNER	1	30"x60" CAST IRON, OR EQUAL
BATH FILLER + SHOWER HEAD	BATH	BY OWNER	BY OWNER	1	

material schedule - studio 0

LOCATION	FLOOR	BASE	CASE	COUNTER	CABINET	WALL	CEILING	NOTES
GREAT ROOM	1	4	4	3	2	1	5	OR EQUAL
BATH	2	2	4	4	1	2	2	OR EQUAL
	1-CONCRETE	1-NONE	1-NONE	1-CONCRETE	1-PAINTED	1-FLAT PAINT	1-FLAT PAINT	
	2-TILE	2-TILE	2-TILE	2-TILE	WOOD	O/ GB	O/ GB	
	3-VINYL	3-VINYL	3-VINYL	3-STONE	2-STAINED	2-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 ORANGE 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.

studio 0 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:

#1	#2	MATERIAL
<input type="checkbox"/>	<input type="checkbox"/>	CEMENT PLASTER

very high fire hazard severity zone

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 & NOTES ON SHEET #0-1 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 650 4.1.
- NEW SPECIFIED BUILDINGS AND MISCELLANEOUS STRUCTURES ASSESSOR IN SECTION 710A SHALL COMPLY ONLY WITH THE REQUIREMENTS OF THAT SECTION.
- ADDITIONS TO AND REMODELS OF 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 72 LB (32 7 KG) CAP 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 & RIDGE CAPS SHALL BE MUDDO IN TO PREVENT INTRUSION OF FIRE OR EMBERS.
EXCEPTION: CAP 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 COVERING THE ROOF DECK IS 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 MUDDO IN TO PREVENT INTRUSION OF FIRE OR EMBERS.
- 705A.3 ROOF VALLEYS** WHERE VALLEY FLASHING IS INSTALLED, THE FLASHING SHALL BE NOT LESS THAN 0.016 INCH (0.408 MM) NO. 26 GAGE 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 CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS, UNDER FLOOR VENTILATION, FOUNDATIONS AND CRACK 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 AN EMBER FLAME AND EMBER RESISTANT VENTS APPROVED AND LISTED BY THE CALIFORNIA STATE FIRE MARSHAL, OR UJI WENTS 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 IGNITION 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 VENTS** 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 1/16-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 THAT HAS BEEN TESTED IN ACCORDANCE WITH THE TEST PROCEDURES FOR A 10-MINUTE DIRECT FLAME CONTACT EXPOSURE TEST SET FORTH IN ASTM E2707 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, EXCEPT 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 SFM STANDARD 12-7A-3. EXCEPT TO SECTION 707A.6. THE FOLLOWING MATERIALS DO NOT REQUIRE PROTECTION: FASCIA & OTHER ARCHITECTURAL TRIM BOARDS.

PORCH CEILINGS

- 707A.7 EXTERIOR PORCH CEILINGS** THE EXPOSED UNDERSIDE OF EXTERIOR PORCH CEILINGS 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 ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN ASTM E2907.
 - 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. EXCEPT 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 E2907.
 - 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.
 - 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-1.
 - 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.
 - 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 E2907.
 - 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. EXCEPT 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 E2907.
 - 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. EXCEPT 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.1 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.
 - VENTS.
- 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 19-INCH (483 MM).
- 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.
 - 3.2 PANELS SHALL NOT BE LESS THAN 1 1/4 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 262.
 - THE EXTERIOR SURFACE OR CLADDING SHALL BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SECTION 707A.3.1 WHEN TESTED IN ACCORDANCE WITH ASTM E2707.
 - 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 SIDES & 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:
 - MATERIAL THAT COMPLIES WITH THE PERFORMANCE REQUIREMENTS OF SECTION 709A.4 WHEN TESTED IN ACCORDANCE WITH BOTH ASTM E2632 AND ASTM E2726.
 - IGNITION-RESISTANT MATERIAL. THE IGNITION-RESISTANT MATERIAL SHALL BE LABELED FOR EXTERIOR USE AND SHALL MEET THE PERFORMANCE REQUIREMENTS OF SECTION 704A.3.
 - MATERIAL THAT COMPLIES WITH THE PERFORMANCE REQUIREMENTS OF BOTH SFM STANDARD 12-7A-4 AND SECTION 704A.3.
 - EXTERIOR FIRE-RETARDANT-TREATED WOOD.
 - NONCOMBUSTIBLE MATERIAL.
 - ANY MATERIAL THAT COMPLIES WITH THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-4A WHEN ATTACHED EXTERIOR WALL COVERING IS ALSO COMPOSED OF NONCOMBUSTIBLE OR IGNITION-RESISTANT MATERIAL.
 - EXCEPTION: WALL MATERIAL SHALL BE PERMITTED TO BE OF ANY MATERIAL THAT OTHERWISE COMPLIES WITH THIS CHAPTER WHEN THE DECKING SURFACE MATERIAL COMPLIES WITH THE PERFORMANCE REQUIREMENTS ASTM E84 WITH A CLASS B FLAME SPREAD INDEX.

door schedule - elevation a

DOOR #	WIDTH	HEIGHT	THICK	TYPE	OPERATION	CORE OR GLAZING	MATERIAL	FRAME	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	3'-0"	6'-8"	1-3/4"	FRENCH	SWING	DG, TG	WOOD	WOOD	OPTIONAL	0.58	0.65	1	ENTRY
2	6'-0"	6'-8"	1-3/4"	FRENCH	SLIDING	DG, TG	VINYL	VINYL	YES	0.58	0.65	1	
3	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	PRIVACY
4	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	

window schedule - elevation a

WINDOW #	WIDTH	HEIGHT	TYPE	MATERIAL	GLAZING	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	2'-0"	3'-6"	VERTICAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	
2	2'-0"	4'-0"	VERTICAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	OPAQUE
3	6'-0"	3'-0"	HORIZONTAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	

door schedule - elevation b

DOOR #	WIDTH	HEIGHT	THICK	TYPE	OPERATION	CORE OR GLAZING	MATERIAL	FRAME	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	3'-0"	6'-8"	1-3/4"	FRENCH	SWING	DG, TG	WOOD	WOOD	OPTIONAL	0.58	0.65	1	ENTRY
2	6'-0"	6'-8"	1-3/4"	FRENCH	SLIDING	DG, TG	VINYL	VINYL	YES	0.58	0.65	1	
3	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	PRIVACY
4	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	

window schedule - elevation b

WINDOW #	WIDTH	HEIGHT	TYPE	MATERIAL	GLAZING	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	2'-0"	3'-6"	VERTICAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	
2	2'-0"	4'-0"	VERTICAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	OPAQUE
3	6'-0"	3'-0"	HORIZONTAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	
4	6'-0"	2'-0"	FIXED	VINYL	DG, TG	NO	0.58	0.67	2	TRANSOM OVER DOOR 2 & WINDOW 3
5	2'-0"	2'-0"	FIXED	VINYL	DG, TG	NO	0.58	0.67	1	TRANSOM OVER WDW 1
6	2'-0"	2'-0"	AWNING	VINYL	DG, TG	YES	0.58	0.65	1	STORAGE LOFT

door schedule - elevation c

DOOR #	WIDTH	HEIGHT	THICK	TYPE	OPERATION	CORE OR GLAZING	MATERIAL	FRAME	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	3'-0"	6'-8"	1-3/4"	FRENCH	SWING	DG, TG	WOOD	WOOD	OPTIONAL	0.58	0.65	1	ENTRY
2	6'-0"	6'-8"	1-3/4"	FRENCH	SLIDING	DG, TG	VINYL	VINYL	YES	0.58	0.65	1	
3	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	PRIVACY
4	2'-0"	6'-8"	1-1/2"	INTERIOR	SWING	SOLID	WOOD	WOOD	NO	N/A	N/A	1	

window schedule - elevation c

WINDOW #	WIDTH	HEIGHT	TYPE	MATERIAL	GLAZING	SCREEN	U FACTOR	SHGC	QUANTITY	NOTES
1	2'-0"	3'-6"	VERTICAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	
2	2'-0"	4'-0"	VERTICAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	OPAQUE
3	3'-0"	5'-0"	VERTICAL SLIDER	VINYL	DG, TG	YES	0.58	0.65	1	
4	6'-0"	2'-6"	FIXED	VINYL	DG, TG	NO	0.58	0.67	4	HIGH PENTAGON TRANSOM EACH SIDE

schedule notes:

- ALL GLAZING IN EXTERIOR DOORS SHALL BE TEMPERED IN THE VHFSZ.
- ALL GLAZING IN WINDOWS SHALL BE TEMPERED IN THE VHFSZ.
- THE PROPERTY THAT WILL CONTAIN THE ADU IS IN THE VERY HIGH FIRE HAZARD SEVERITY ZONE. SEE NOTES ON SHEET #0-1F 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.

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 VHFSZ.
- 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) AND FEET FROM STRUCTURE & COMPOSITION SHALL BE DETERMINED BY THE FIRE DEPARTMENT & SHOWN ON THE IMPROVEMENT/GRADING PLANS, FINAL MAP & BUILDING PLANS.

PREPARER SIGNATURE

FOR CITY STAMPS



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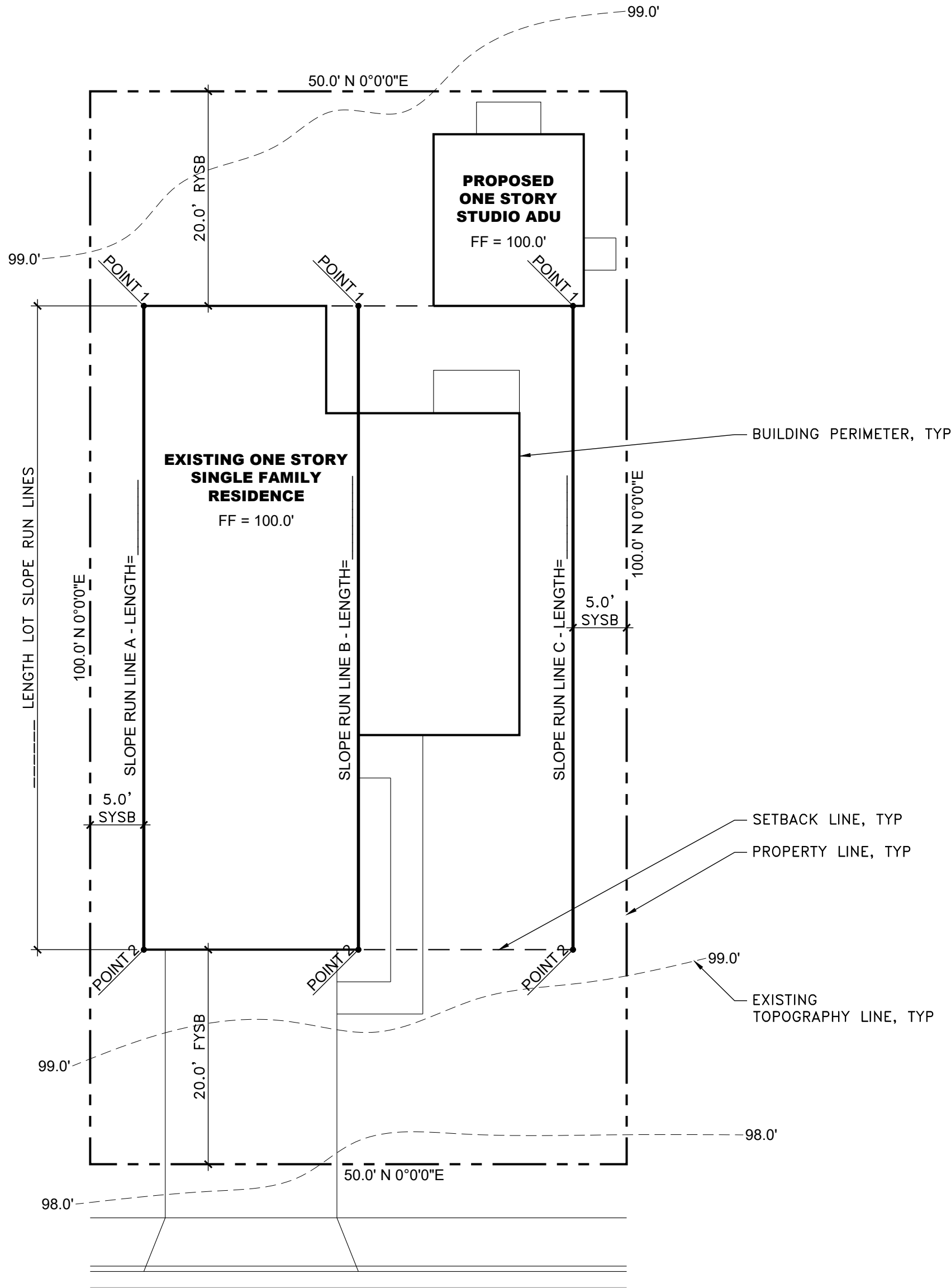
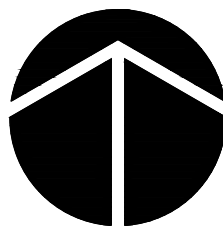
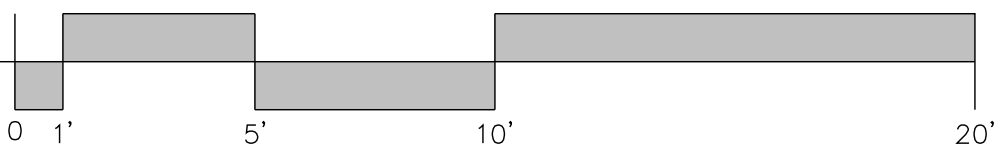
STUDIO PRADU

CITY: ANAHEIM

1

sample average lot slope diagram

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

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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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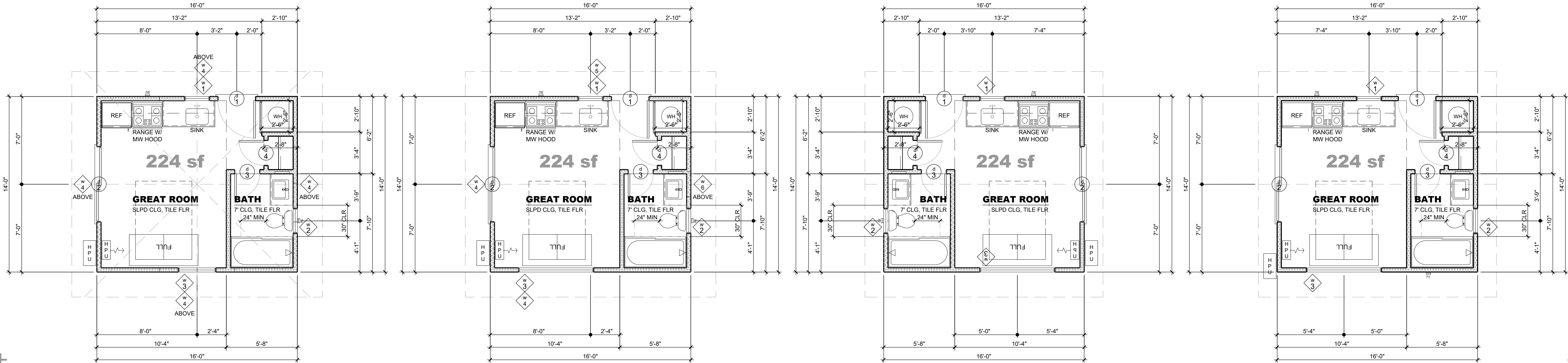
STUDIO PRADU

CITY: ANAHEIM

JOB: 202409R

AVERAGE LOT
SLOPE DIAGRAM

a0.5



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

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

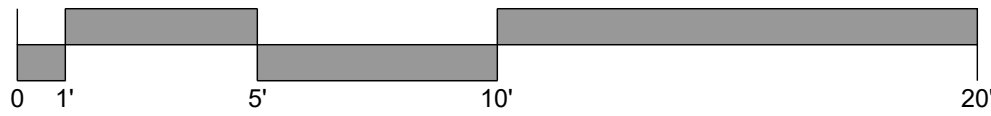
3 reverse floor plan a
SCALE: 1/4" = 1'-0"

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

drawing:			drawing:			drawing:			drawing:		
SYMBOL	=	DESCRIPTION	SYMBOL	=	DESCRIPTION	SYMBOL	=	DESCRIPTION	SYMBOL	=	DESCRIPTION
(N)	=	NEW		=	EXISTING FOOTING		=	BUILDING SECTION LETTER SHEET NUMBER		=	SHEAR PANEL LETTER SHEAR PANEL LENGTH
(E)	=	EXISTING		=	NEW FOOTING		=	WALL SECTION LETTER SHEET NUMBER		=	TRUSS NUMBER
	=	EXISTING WALL REMOVED		=	NORTH ARROW		=	DETAIL NUMBER SHEET NUMBER		=	STRUCTURAL GRID LINE
	=	EXISTING WALL TO REMAIN		=	NEW POINT ELEVATION		=	INTERIOR ELEVATION		=	SHEAR DRAG LINE
	=	NEW 4" WALL		=	EXISTING POINT ELEVATION		=	LEVEL CHANGE		=	PAD FOOTING
	=	NEW 6" WALL		=	NEW CONTOUR		=	ROOM OR SPACE NUMBER		=	POST
	=	NEW 8" WALL		=	EXISTING CONTOUR		=	ROOM NAME CEILING HEIGHT, FLOORING		=	HOLD DOWN
	=	NEW 8" CMU WALL		=	PROPERTY LINE		=	WINDOW NUMBER		=	FACTORY BUILT SHEAR PANEL
	=	NEW DWELLING UNIT SEPARATION WALL		=	CENTER LINE		=	DOOR NUMBER		=	FLOOR JOISTS
	=	BEARING WALL		=	SET BACK LINE		=	REVISION NUMBER		=	CEILING JOISTS
	=	NON-BEARING WALL AT FRAMING PLANS		=	FLOOR MATERIAL CHANGE		=	KEYNOTE NUMBER		=	RAFTER OR TRUSS

floor plan notes:

- SEE LEGENDS TO THE LEFT FOR SYMBOLS RELATING TO THE FLOOR PLAN.
- SEE SHEET #0.1 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 MIRRORRED MEDICINE CABINET AT THE SIDE WHEN DEPICTED WITH A RECTANGLE IN THE WALL.
 - TOILETS:
 - SHALL BE FLUSH TANK.
 - SHALL BE PLACED IN A SPACE WITH 30" CLEAR WIDTH.
 - SHALL HAVE 24" CLEAR IN FRONT OF THE FIXTURE.
 - BATHTUB/SHOWER COMBINATIONS
 - BATHTUB SHALL BE PORCELAIN OVER CAST IRON.
 - PROVIDE FULL HEIGHT TILE WAINSCOT ON WALLS WITHIN TUB AREA.
 - PROVIDE SLIDING CLEAR TEMPERED GLASS TUB/SHOWER ENCLOSURE OR EQUAL.
 - SHOWERS
 - FLOOR TO BE TILE OVER ASPHALTIC WATERPROOF MEMBRANE LINER, TYPICAL.
 - DRAIN TO BE LINEAR OR ROUND AS DEPICTED ON THE FLOOR PLAN.
 - ENTRY CURB SHALL BE 4" WIDE AND TALL WITH TILE FINISH, TYP.
 - SHALL HAVE A CLEAR TEMPERED GLASS SHOWER ENCLOSURE WITH OPENING AS SHOWN ON THE FLOOR PLAN OR EQUAL.
 - WALLS IN SHOWER AREA WILL HAVE A FULL HEIGHT TILE WAINSCOT.
 - SEATS SHOWN IN SHOWERS SHALL BE 16" HIGH AND WILL BE TILED TO MATCH THE WALLS.
 - EACH SHOWER SHALL HAVE A 12" WIDE X 16" HIGH NICHE FOR SOAP AND SHAMPOO BOTTLES IN A WAINSCOT WALL.
- CLOSETS SHALL HAVE A SHELF AND POLE AS SHOWN ON THE FLOOR PLAN.



STUDIO PRADU

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FLOOR PLANS

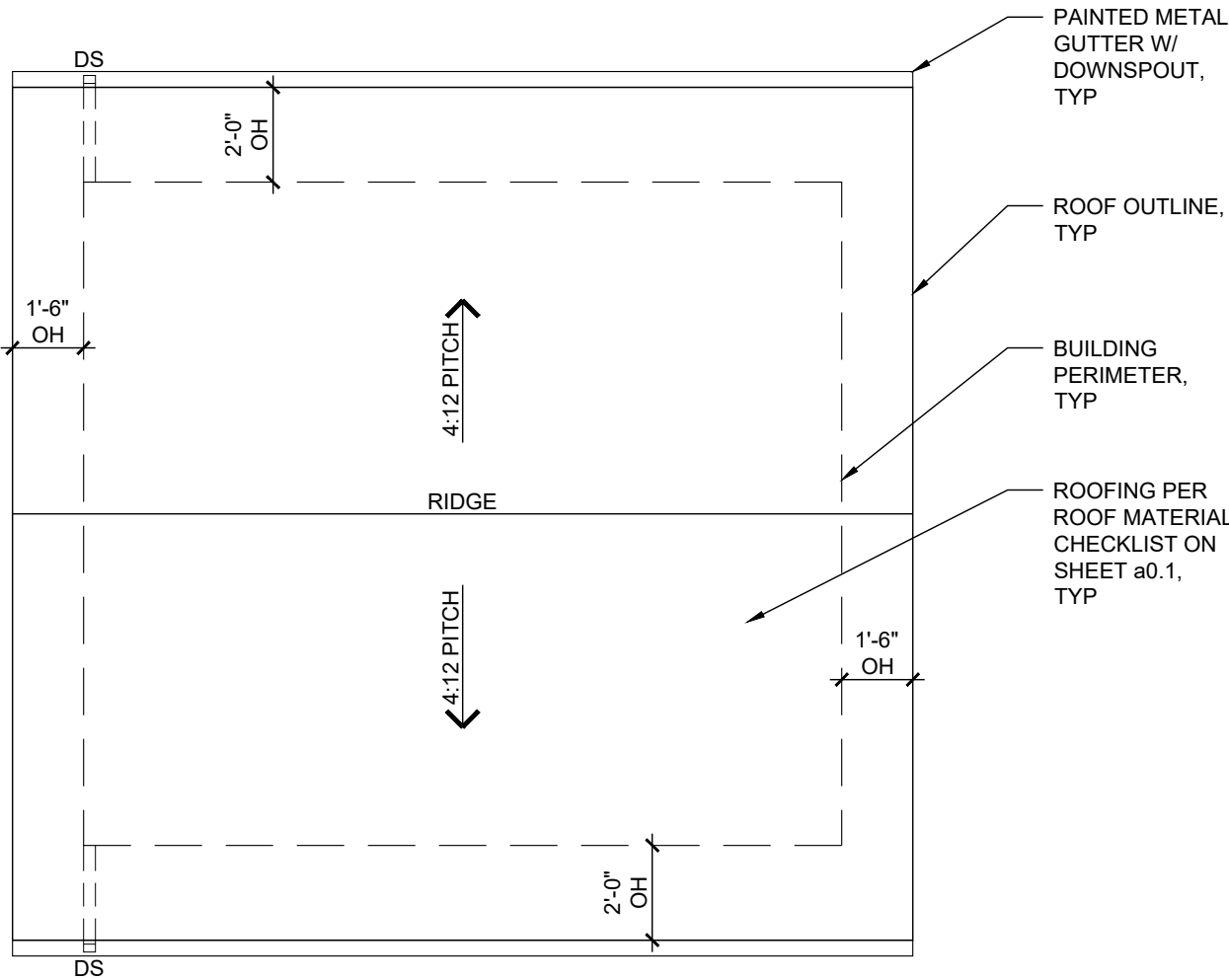
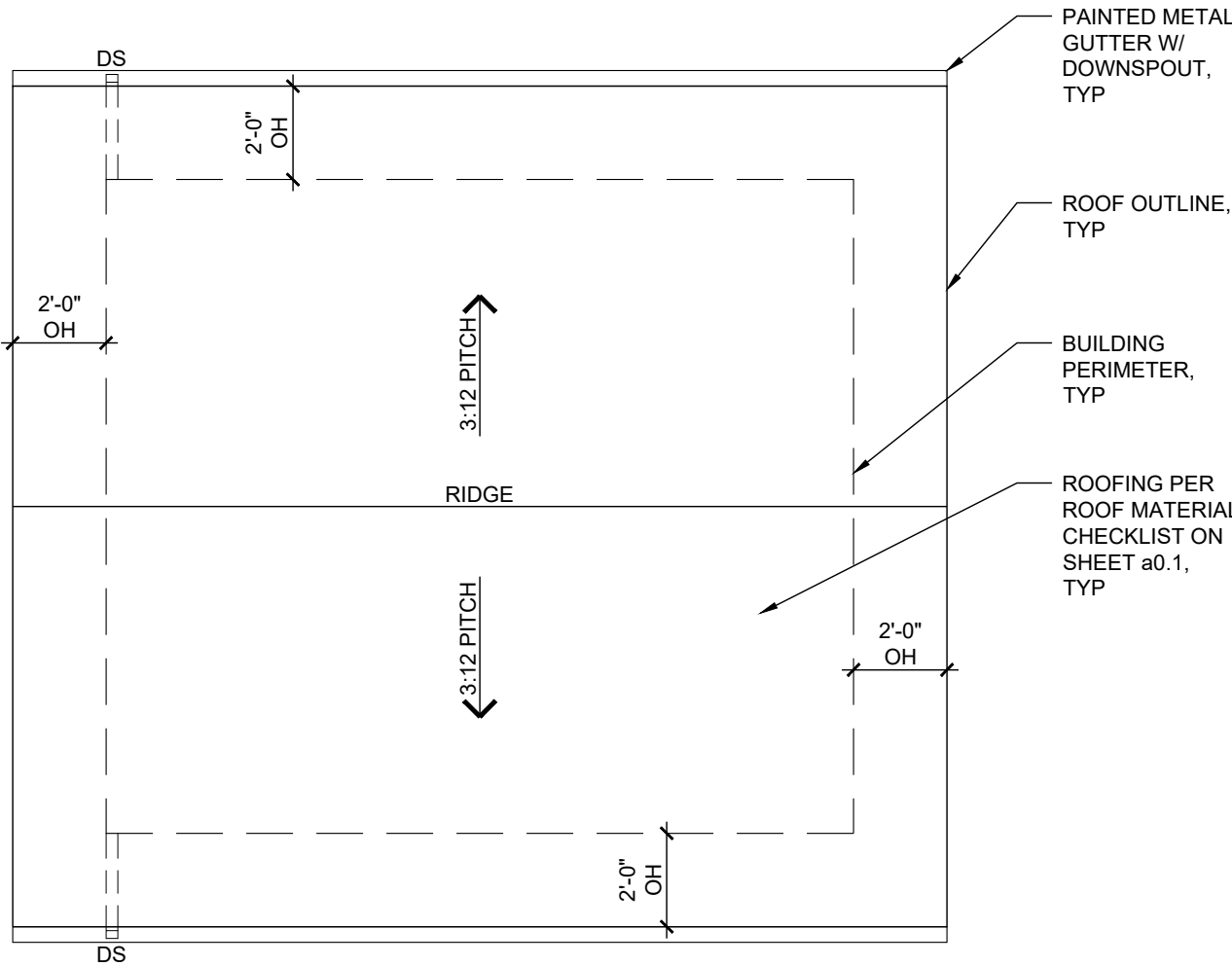
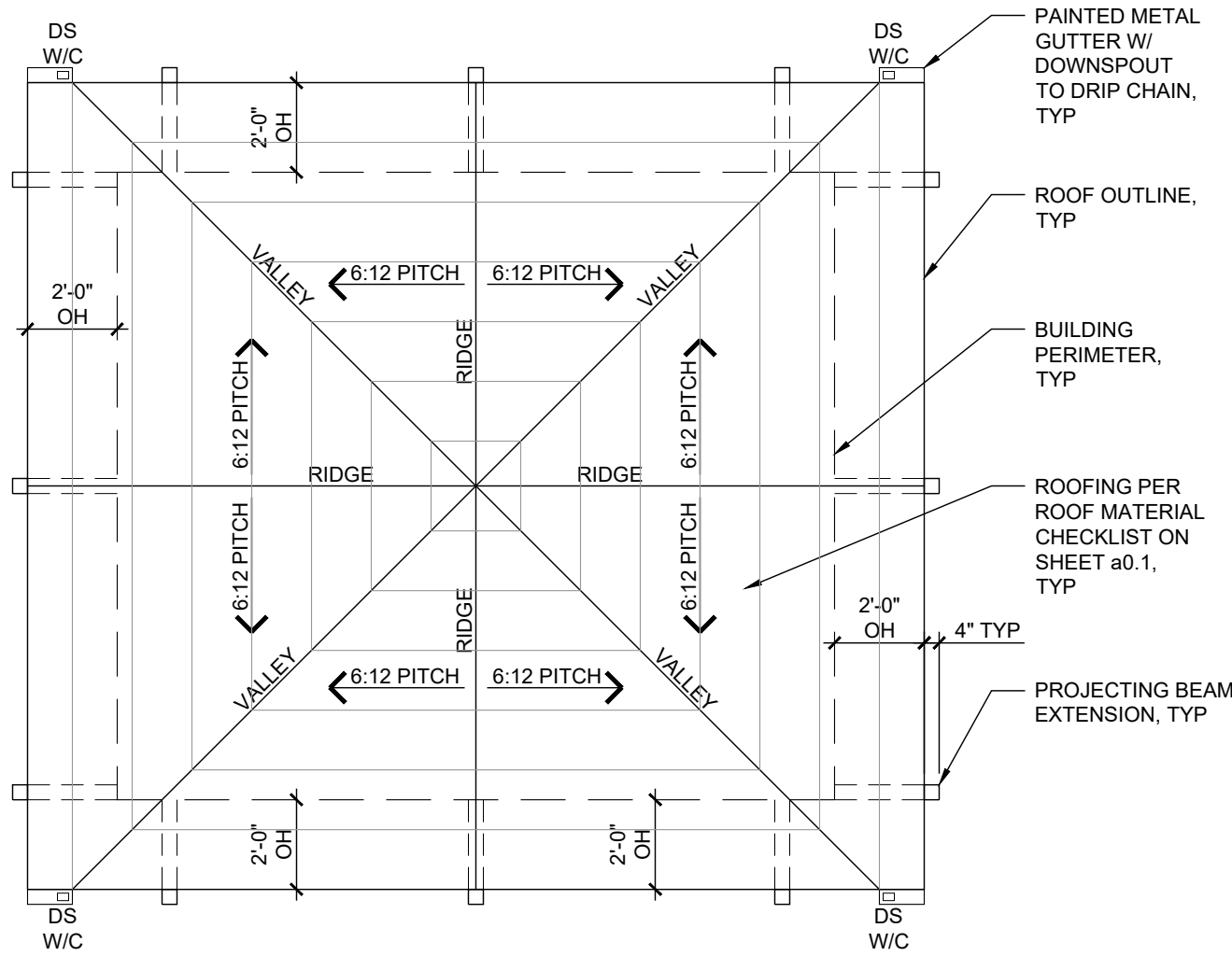
a1.0



roof plan notes:

- ALL ROOFING SHALL BE CLASS A RATED.
- ROOFING SELECTION PER ROOF MATERIAL CHECKLIST ON SHEET a0.1.
- NO ATTICS PROPOSED, ATTIC VENTING NOT REQUIRED.
DETAILS 86, 87 & 88/d0.4 PROVIDE INSULATION ALTERNATIVES.

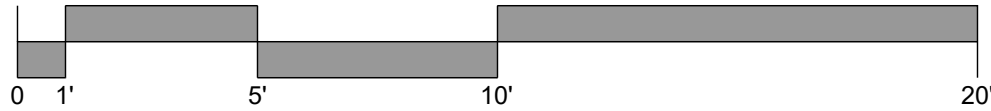
FOR CITY STAMPS



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

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

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



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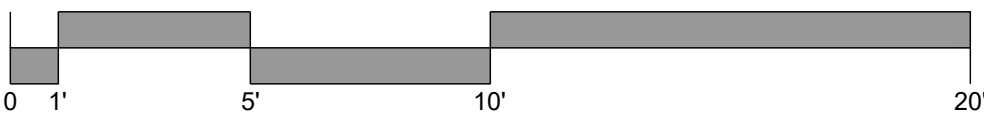
JOB: 202409R

ROOF PLANS

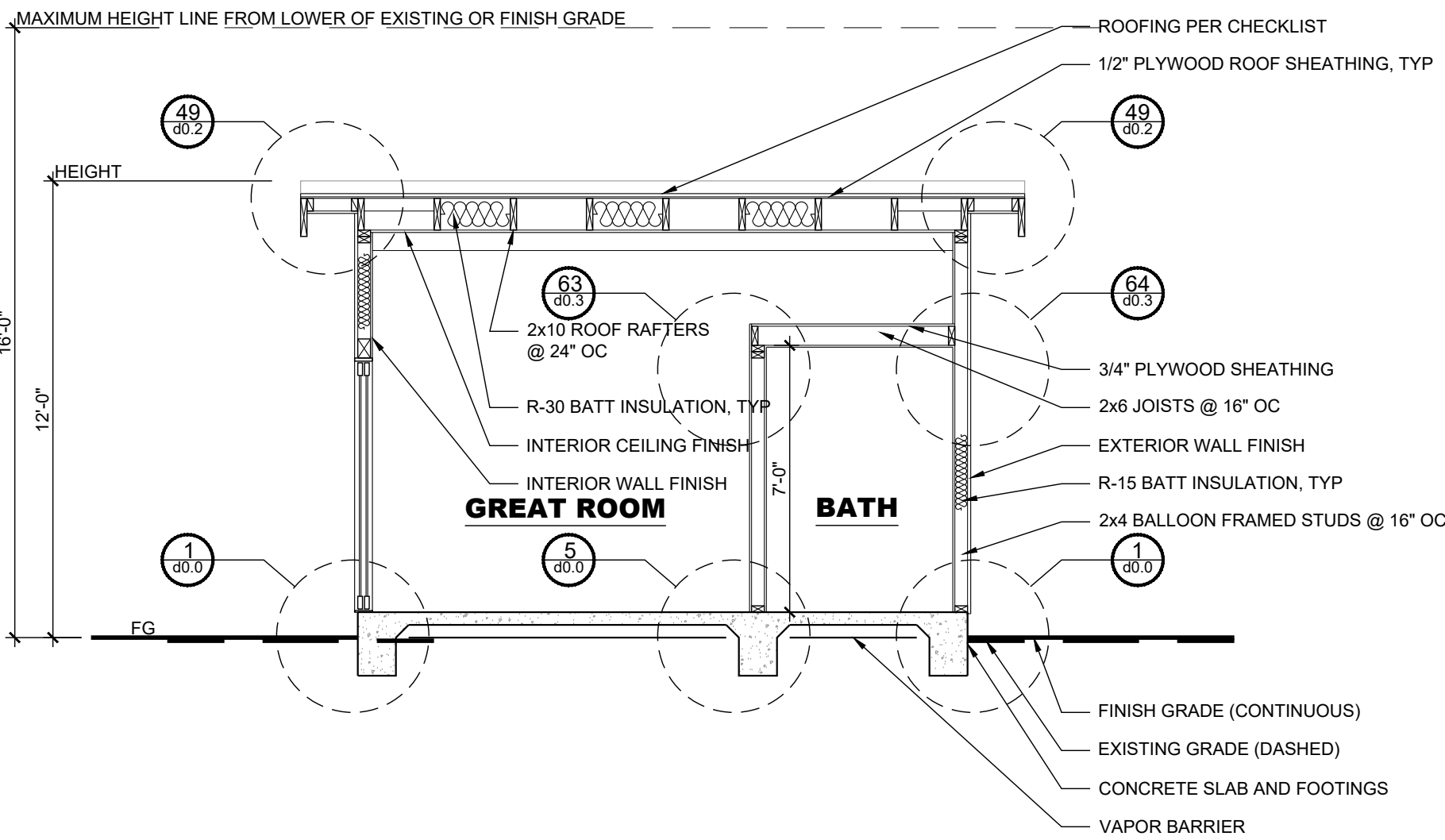
a3.0

elevation + section notes:

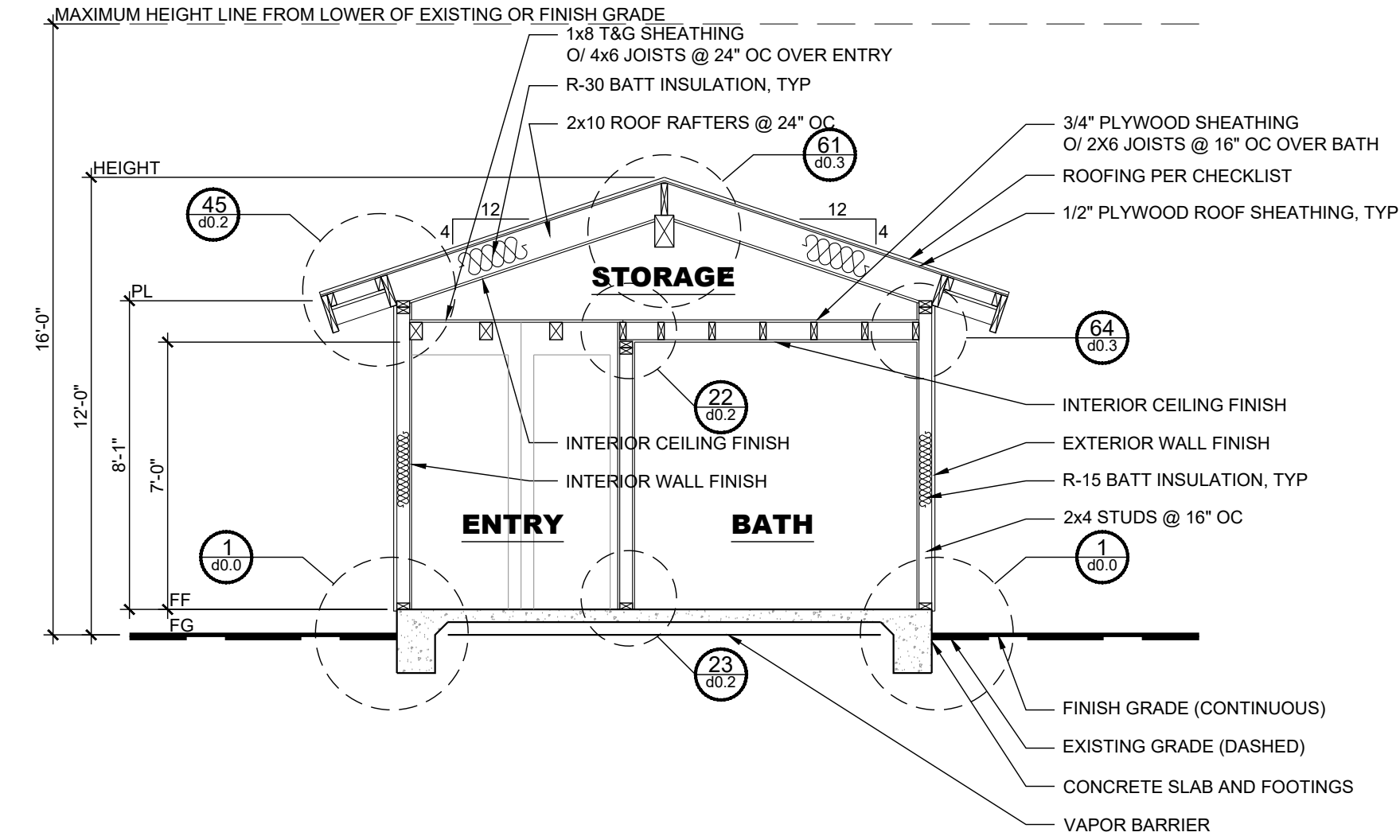
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3. ELEVATIONS & SECTIONS SHALL SHOW BOTH FINISH (CONTINUOUS) & EXISTING (DASHED) GRADE AND THE CORRESPONDING HEIGHT LIMITATION LINE FROM THE LOWER OF THE FINISH OR EXISTING GRADE.
4. IF THE AVERAGE LOT SLOPE EXCEEDS 10% (NOT INCLUDING RR ZONED LOTS) THAN THE ADDITIONAL SLOPED LOT HEIGHT LIMITATION LINES SHALL BE SHOWN AS WELL.



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



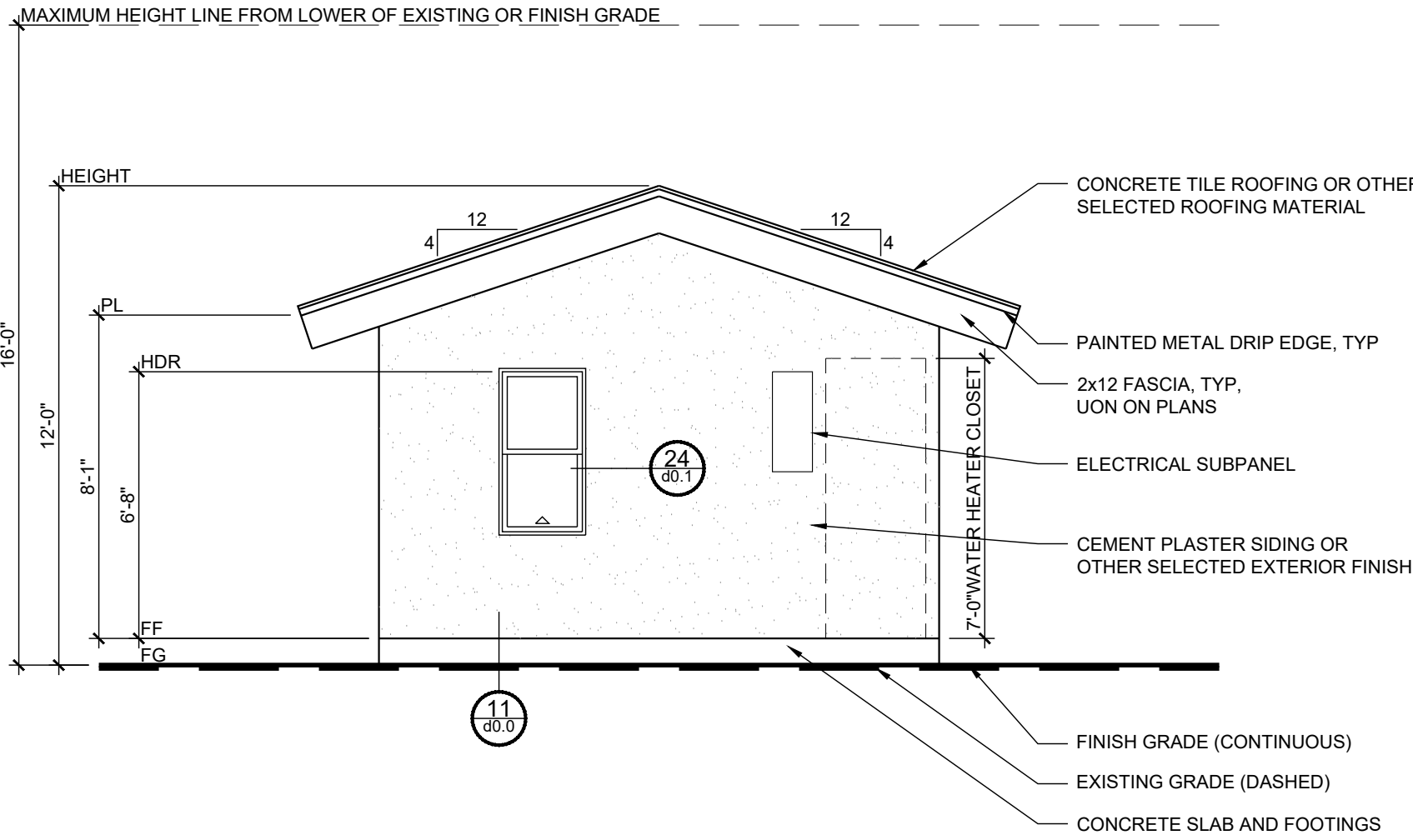
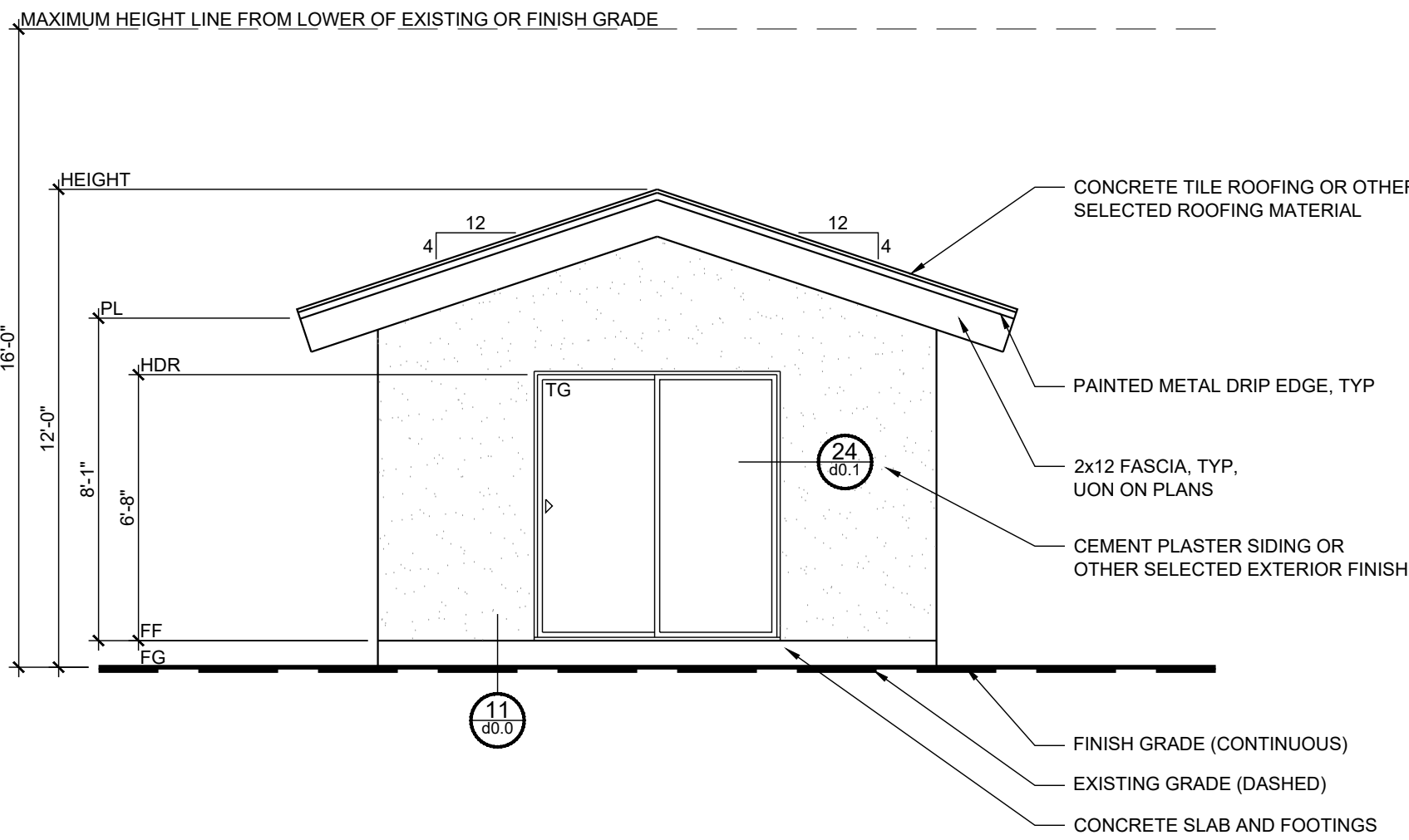
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SCALE: 1/4" = 1'-0"



3 section g
SCALE: 1/4" = 1'-0"



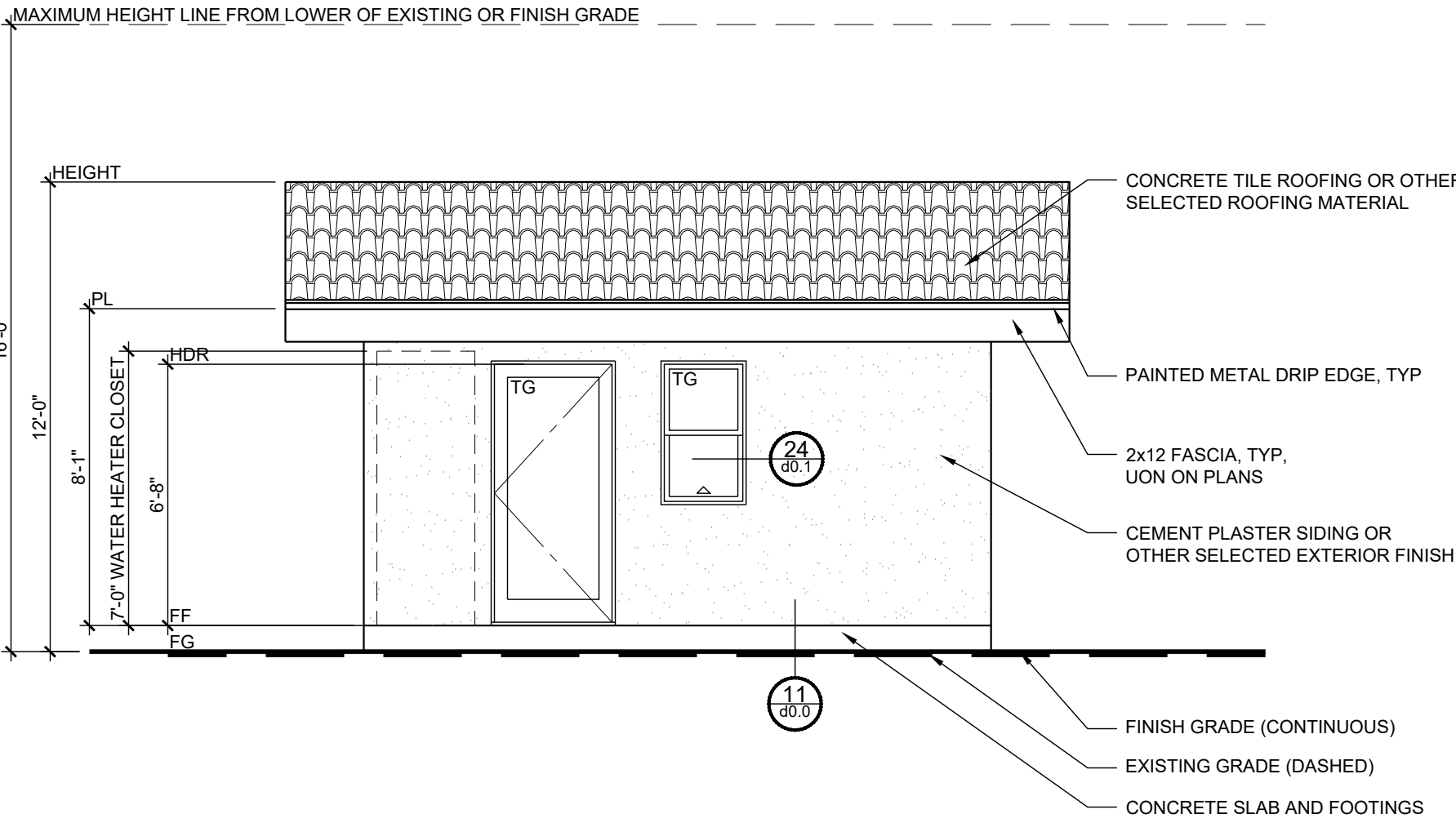
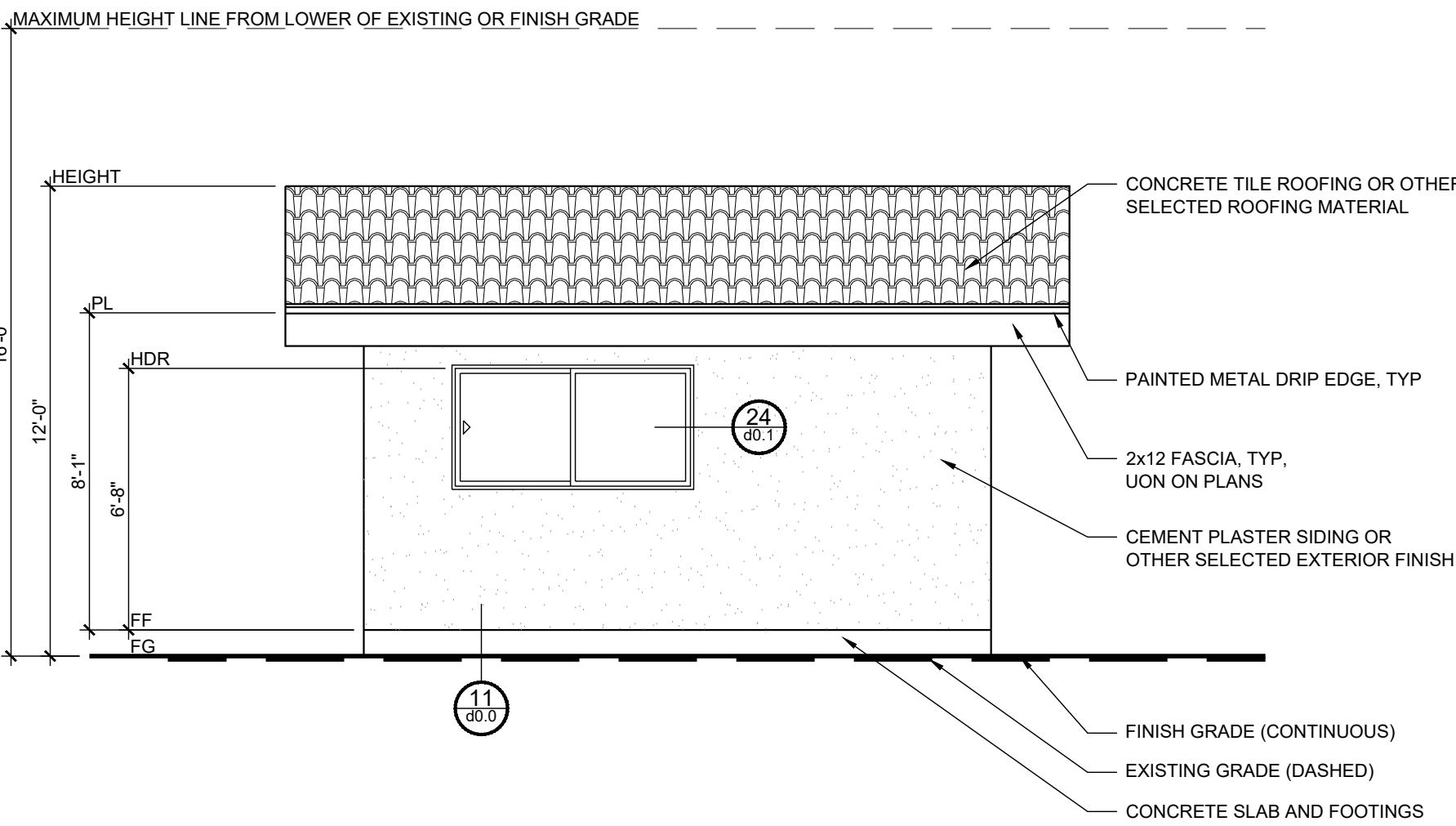
4 right elevation a
SCALE: 1/4" = 1'-0"



5 left elevation a
SCALE: 1/4" = 1'-0"



6 rear elevation a
SCALE: 1/4" = 1'-0"



7 front elevation a
SCALE: 1/4" = 1'-0"



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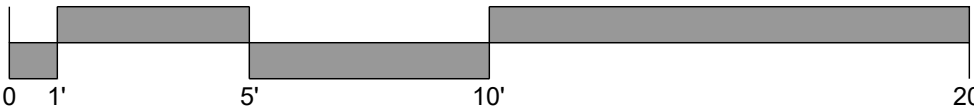
JOB: 202409R

A ELEVATIONS + SECTIONS

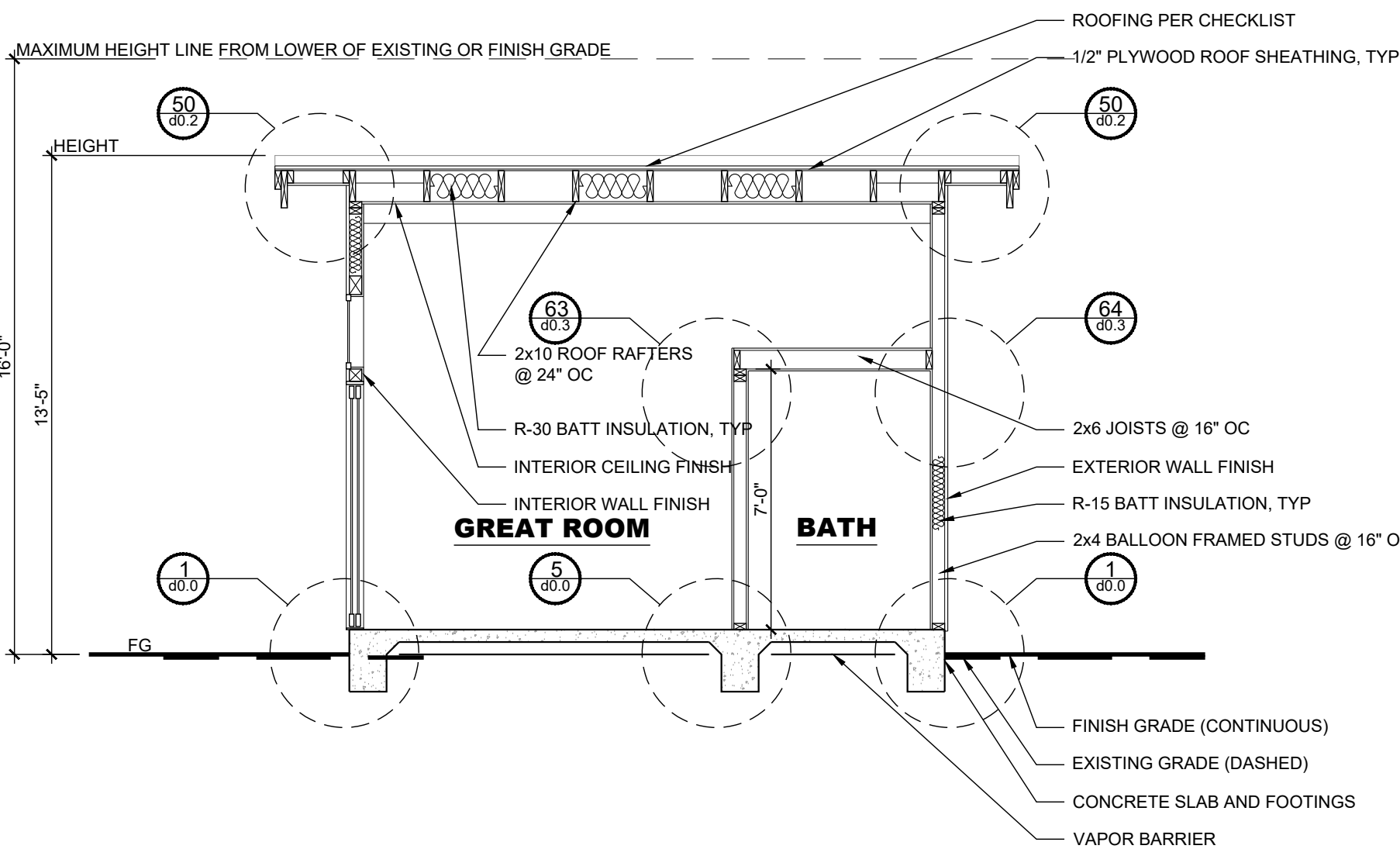
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elevation + section notes:

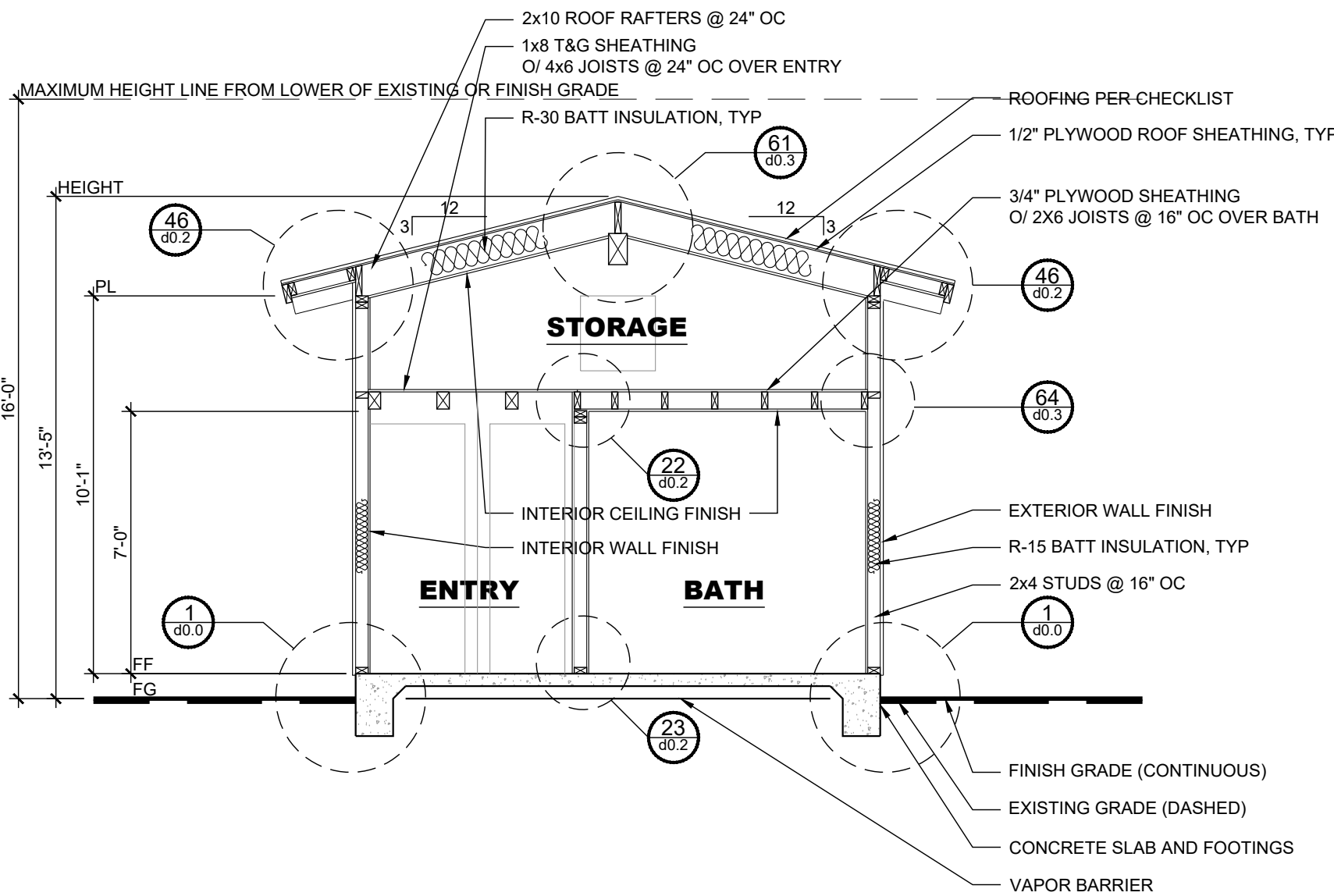
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1 section c
SCALE: 1/4" = 1'-0"

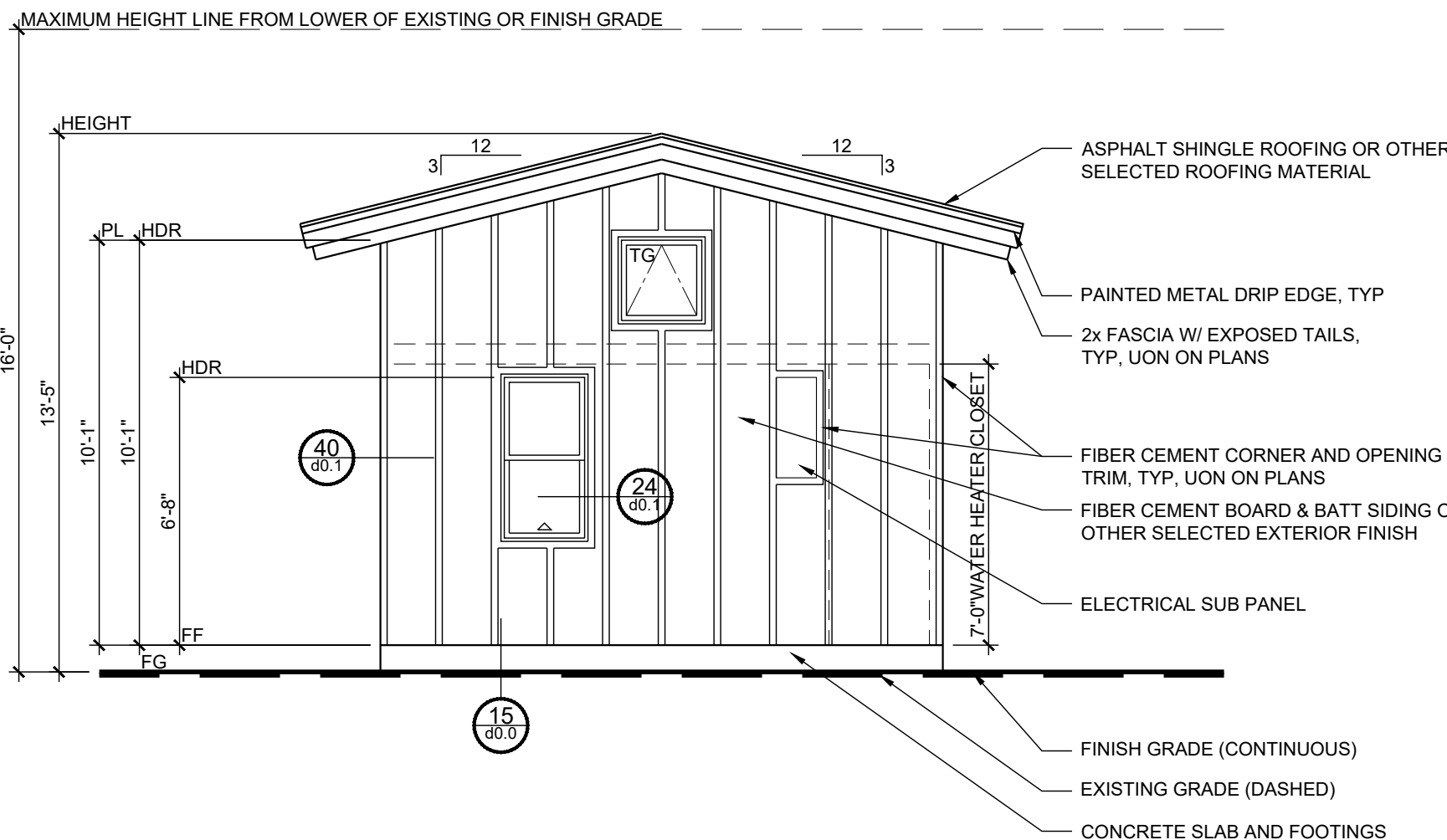


2 section d
SCALE: 1/4" = 1'-0"



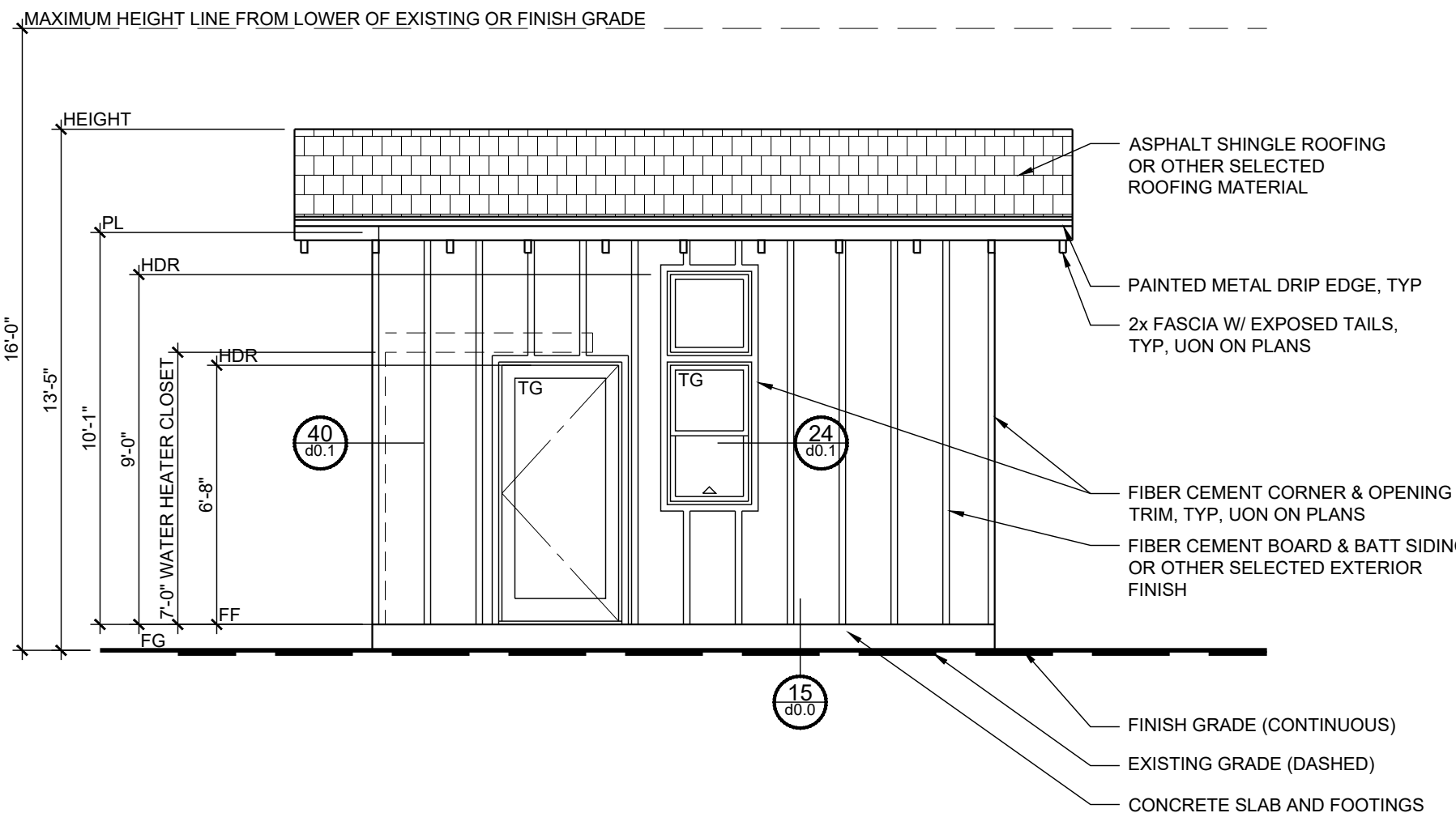
3 section h
SCALE: 1/4" = 1'-0"

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



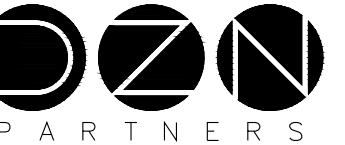
5 left elevation b
SCALE: 1/4" = 1'-0"

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



7 front elevation b
SCALE: 1/4" = 1'-0"

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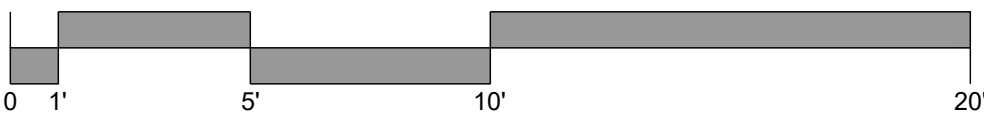
JOB: 202409R

B ELEVATIONS + SECTIONS

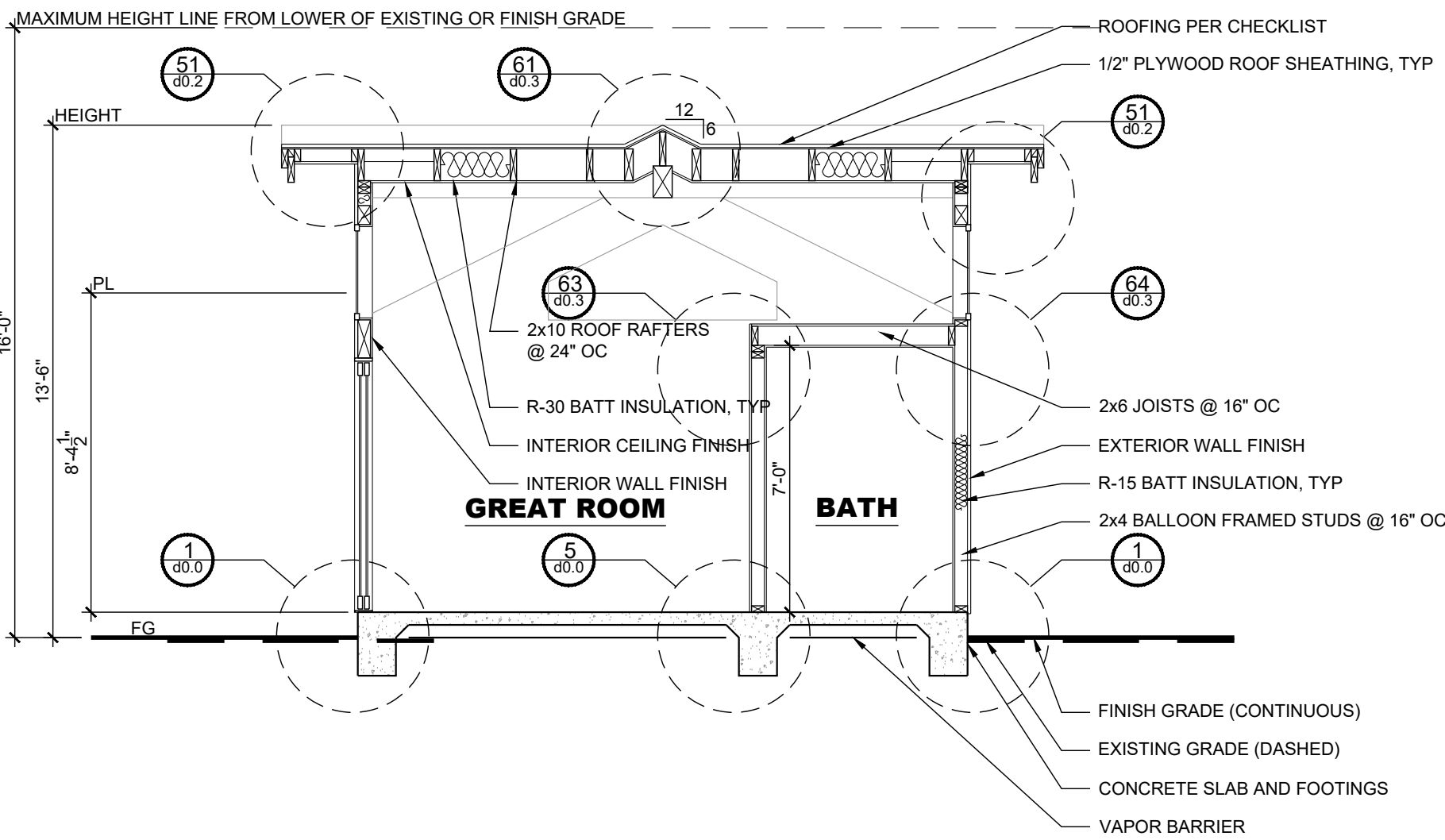
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elevation + section notes:

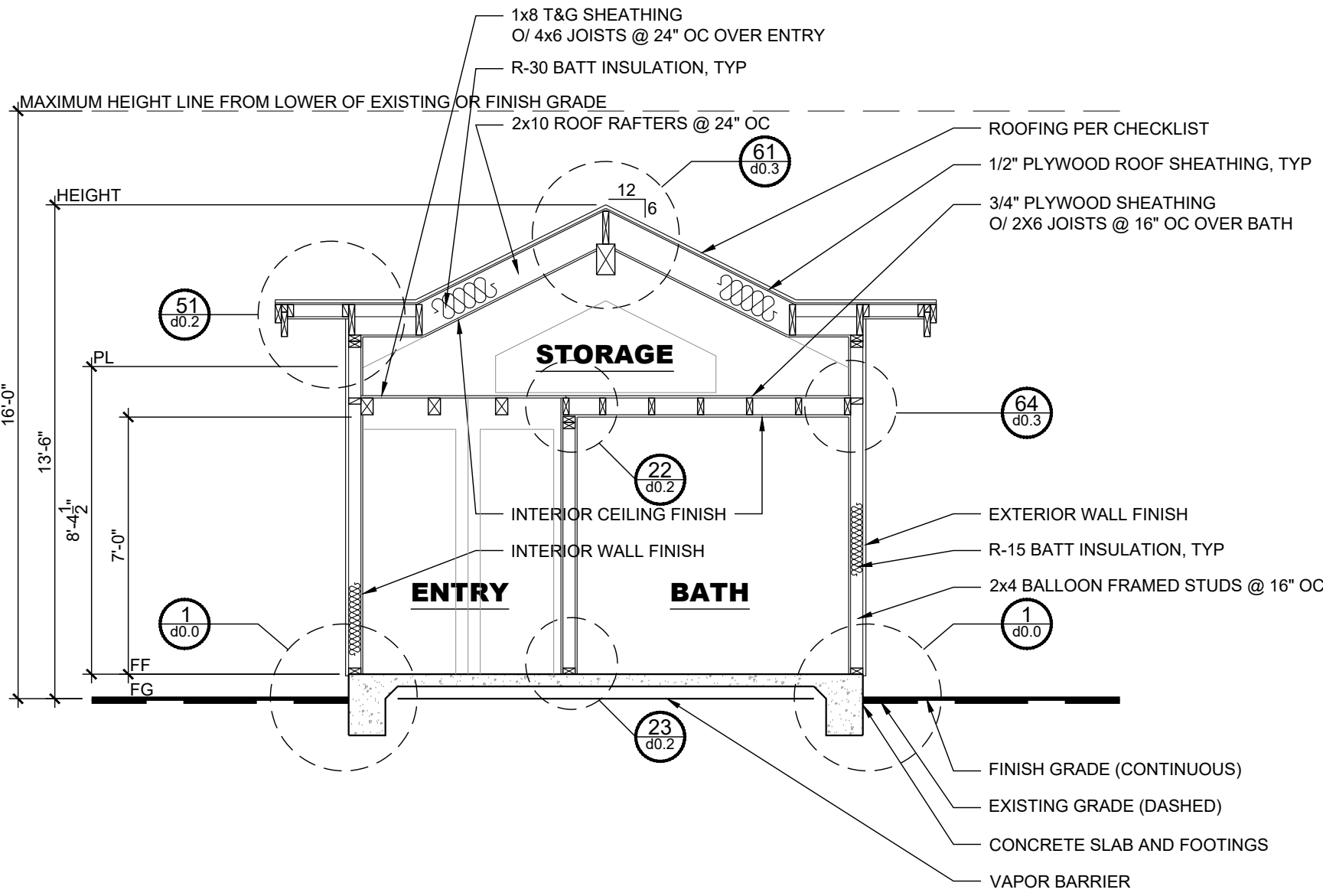
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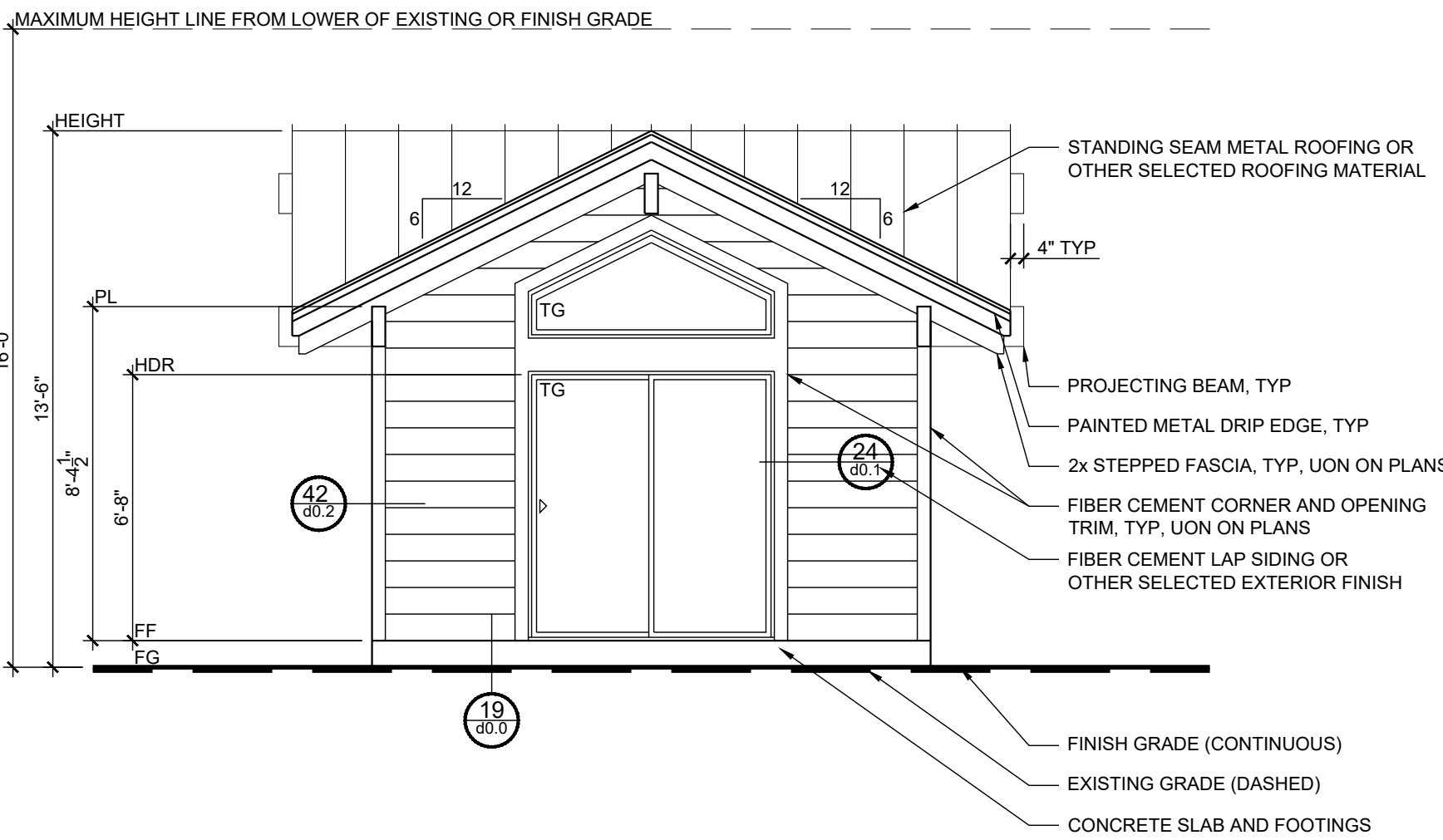
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SCALE: 1/4" = 1'-0"



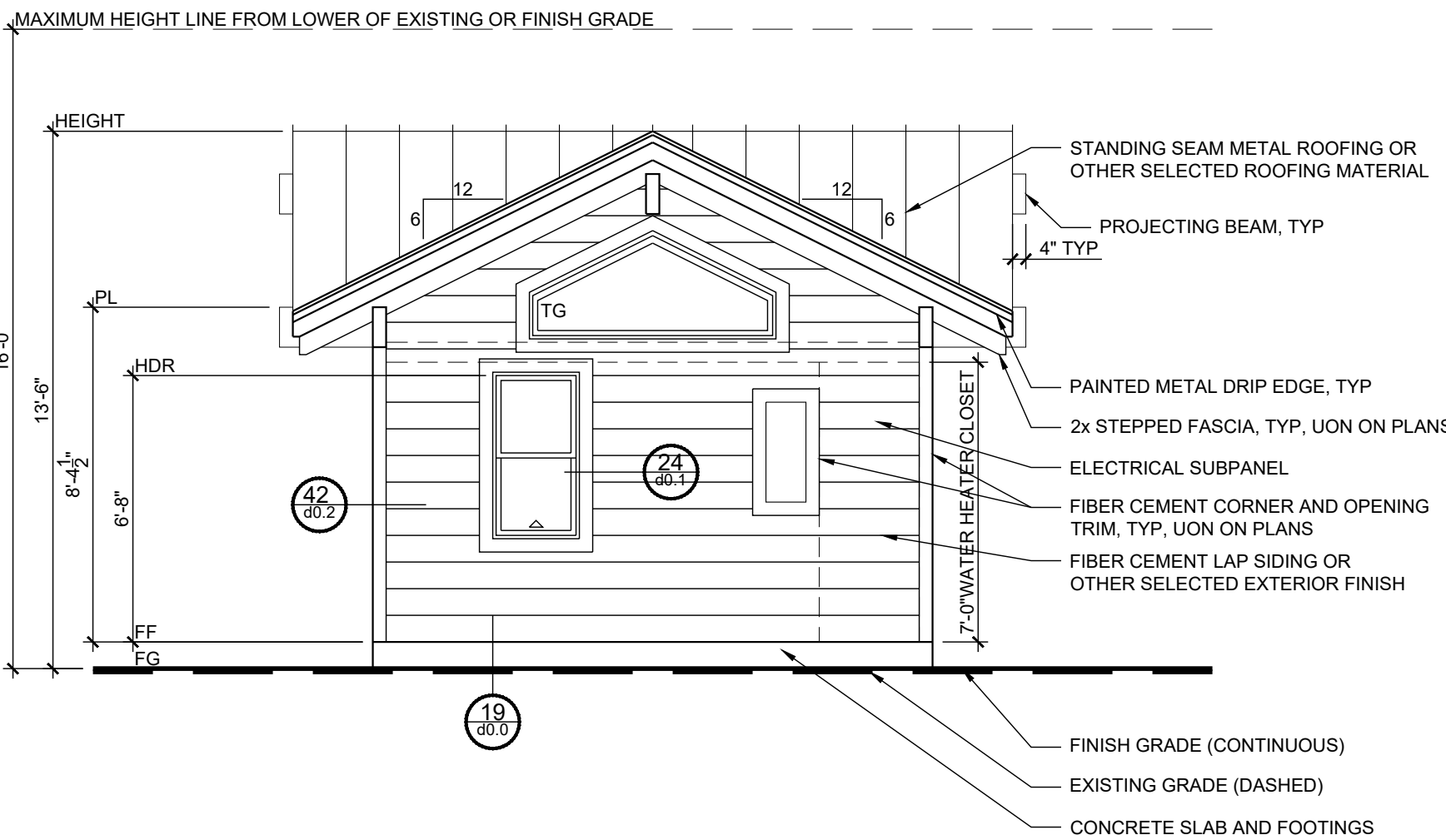
2 section f
SCALE: 1/4" = 1'-0"



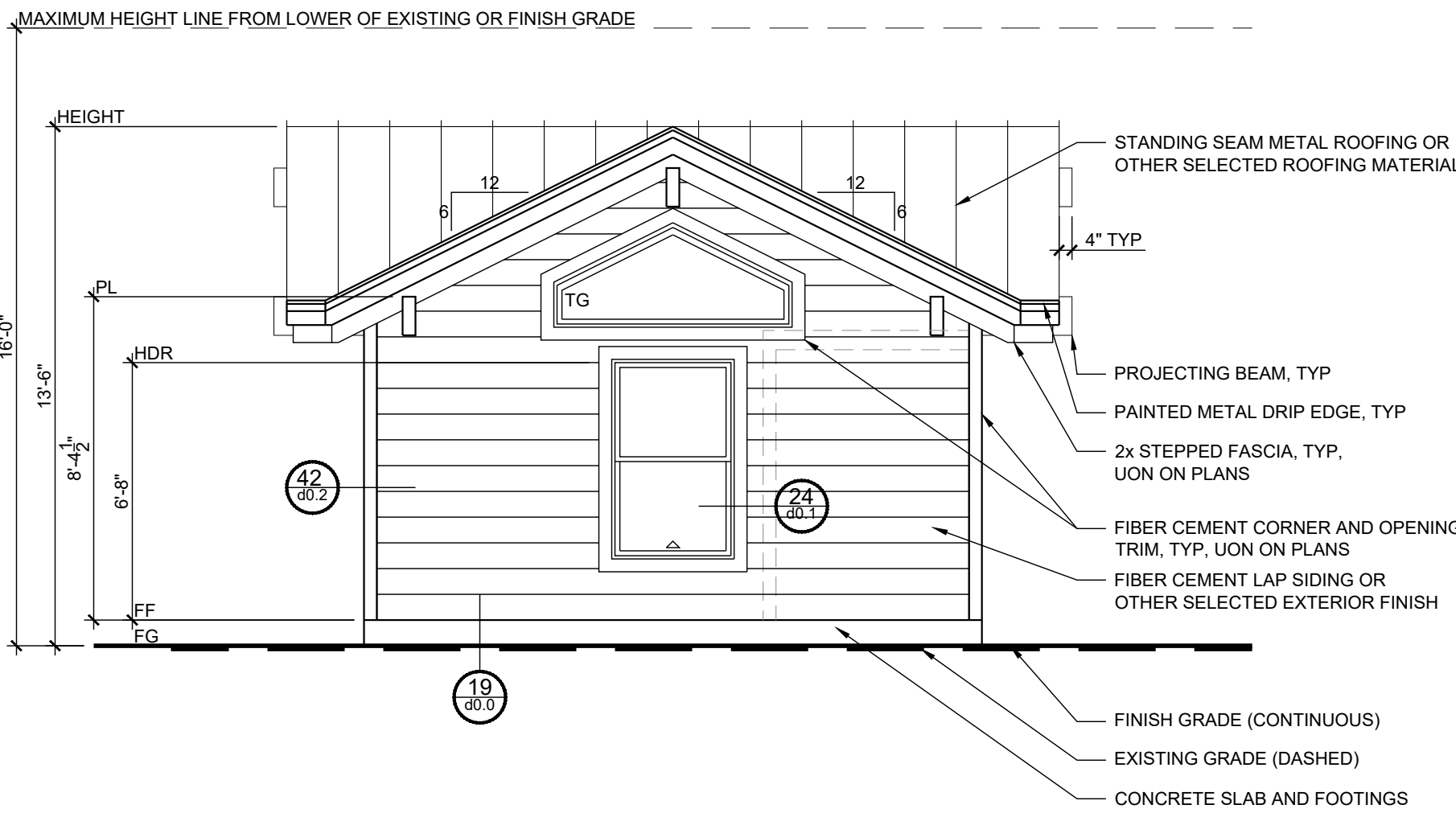
3 section i
SCALE: 1/4" = 1'-0"



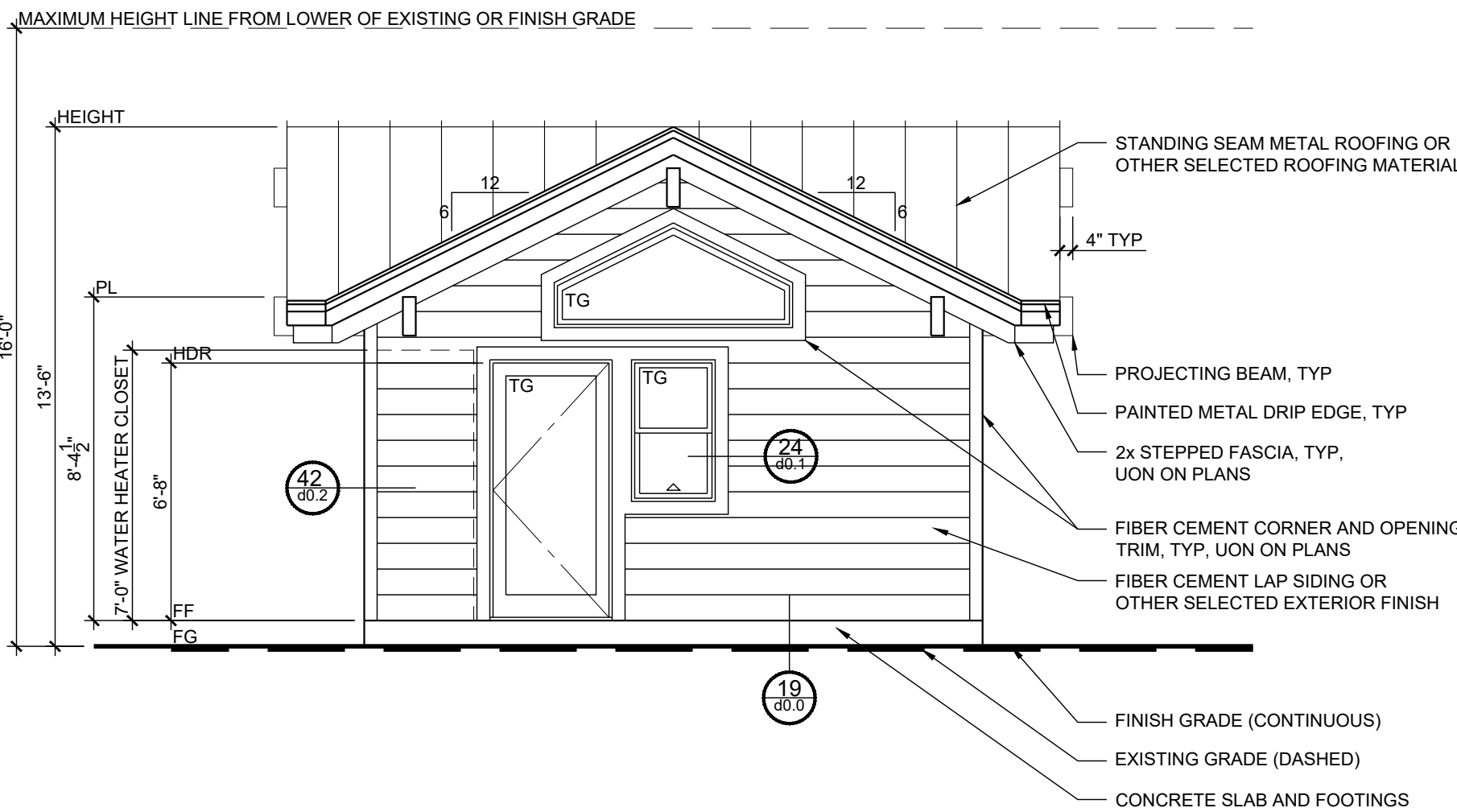
4 right elevation c
SCALE: 1/4" = 1'-0"



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



6 rear elevation c
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C ELEVATIONS + SECTIONS

a4.2

safety glazing notes:

2406.4	HAZARDOUS LOCATIONS.
	• THE LOCATIONS SPECIFIED IN SECTIONS 2406.4.1 THROUGH 2406.4.7 SHALL BE CONSIDERED SPECIFIC HAZARDOUS LOCATIONS REQUIRING SAFETY GLAZING MATERIALS.
2406.4.1	GLAZING IN DOORS.
	• GLAZING IN ALL FIXED & OPERABLE PANELS OF SWINGING, SLIDING, & BIFOLD DOORS SHALL BE CONSIDERED A HAZARDOUS LOCATION.
	EXCEPTIONS:
	1. GLAZED OPENINGS OF A SIZE THROUGH WHICH A 3" Ø SPHERE IS UNABLE TO PASS.
	2. DECORATIVE GLAZING.
	3. GLAZING MATERIALS USED AS CURVED GLAZED PANELS IN REVOLVING DOORS.
	4. COMMERCIAL REFRIGERATED CABINET GLAZED DOORS.
2406.4.2	GLAZING ADJACENT TO DOORS.
	• GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR WHERE THE NEAREST VERTICAL EDGE OF THE GLAZING IS WITHIN A 24" ARC OF EITHER VERTICAL EDGE OF THE DOOR IN A CLOSED POSITION & WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60" ABOVE THE WALKING SURFACE SHALL BE CONSIDERED A HAZARDOUS LOCATION.
	EXCEPTIONS:
	1. DECORATIVE GLAZING.
	2. WHERE THERE IS AN INTERVENING WALL OR OTHER PERMANENT BARRIER BETWEEN THE DOOR & GLAZING.
	3. WHERE ACCESS THROUGH THE DOOR IS TO A CLOSET OR STORAGE AREA 3 FEET (914 MM) OR LESS IN DEPTH. GLAZING IN THIS APPLICATION SHALL COMPLY WITH SECTION 2406.4.3.
	4. GLAZING IN WALLS ON THE LATCH SIDE OF & PERPENDICULAR TO THE PLANE OF THE DOOR IN A CLOSED POSITION IN ONE- & TWO-FAMILY DWELLINGS OR WITHIN DWELLINGS UNITS IN GROUP R-2.
2406.4.3	GLAZING IN WINDOWS.
	GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL THAT MEETS ALL OF THE FOLLOWING CONDITIONS SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION:
	1. THE EXPOSED AREA OF AN INDIVIDUAL PANE IS GREATER THAN 9 SQUARE FEET.
	2. THE BOTTOM EDGE OF THE GLAZING IS LESS THAN 18" ABOVE THE FLOOR.
	3. THE TOP EDGE OF THE GLAZING IS GREATER THAN 36" ABOVE THE FLOOR.
	4. ONE OR MORE WALKING SURFACE(S) ARE WITHIN 36", MEASURED HORIZONTALLY & IN A STRAIGHT LINE, OF THE PLANE OF THE GLAZING.
	EXCEPTIONS:
	1. DECORATIVE GLAZING.
	2. WHERE A HORIZONTAL RAIL IS INSTALLED ON THE ACCESSIBLE SIDE(S) OF THE GLAZING 34" TO 38" ABOVE THE WALKING SURFACE. THE RAIL SHALL BE CAPABLE OF WITHSTANDING A HORIZONTAL LOAD OF 50 POUNDS PER LINEAR FOOT WITHOUT CONTACTING THE GLASS & BE NOT LESS THAN 11/2" IN CROSS-SECTIONAL HEIGHT.
	3. OUTBOARD PANES IN INSULATING GLASS UNITS OR MULTIPLE GLAZING WHERE THE BOTTOM EXPOSED EDGE OF THE GLASS IS 25'-0" OR MORE ABOVE ANY GRADE, ROOF, WALKING SURFACE OR OTHER HORIZONTAL OR SLOPED (WITHIN 45° OF HORIZONTAL) SURFACE ADJACENT TO THE GLASS EXTERIOR.
2406.4.4	GLAZING IN GUARDS AND RAILINGS.
	• GLAZING IN GUARDS & RAILINGS, INCLUDING STRUCTURAL BALUSTER PANELS & NONSTRUCTURAL IN-FILL PANELS, REGARDLESS OF AREA OR HEIGHT ABOVE A WALKING SURFACE SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION.
2406.4.5	GLAZING AND WET SURFACES
	• GLAZING IN WALLS, ENCLOSURES OR FENCES CONTAINING OR FACING HOT TUBS, SPAS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS, SHOWERS & INDOOR OR OUTDOOR SWIMMING POOLS WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60" MEASURED VERTICALLY ABOVE ANY STANDING OR WALKING SURFACE SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION. THIS SHALL APPLY TO SINGLE GLAZING AND ALL PANES IN MULTIPLE GLAZING.
	EXCEPTION:
	1. GLAZING THAT IS MORE THAN 60", MEASURED HORIZONTALLY & IN A STRAIGHT LINE, FROM THE WATER'S EDGE OF A BATHTUB, HOT TUB, SPA, WHIRLPOOL OR SWIMMING POOL.
2406.4.6	GLAZING ADJACENT TO STAIRWAYS AND RAMPS
	• GLAZING WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60" ABOVE THE PLANE OF THE ADJACENT WALKING SURFACE OF STAIRWAYS, LANDINGS BETWEEN FLIGHTS OF STAIRS & RAMPS SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION.
	EXCEPTIONS:
	1. THE SIDE OF A STAIRWAY, LANDING OR RAMP THAT HAS A GUARD COMPLYING WITH THE PROVISIONS OF SECTIONS 1015 AND 1607.9, AND THE PLANE OF THE GLASS IS GREATER THAN 18" FROM THE RAILING.
	2. GLAZING 36" OR MORE MEASURED HORIZONTALLY FROM THE WALKING SURFACE.
2406.4.7	GLAZING ADJACENT TO THE BOTTOM STAIRWAY LANDING
	• GLAZING ADJACENT TO THE LANDING AT THE BOTTOM OF A STAIRWAY WHERE THE GLAZING IS LESS THAN 60" ABOVE THE LANDING & WITHIN A 60" HORIZONTAL ARC THAT IS LESS THAN 180" FROM THE BOTTOM TREAD NOSING SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION.
	EXCEPTION:
	1. GLAZING THAT IS PROTECTED BY A GUARD COMPLYING WITH CBC SECTIONS 1015 AND 1607.9 WHERE THE PLANE OF THE GLASS IS GREATER THAN 18" FROM THE GUARD.

structural design basis:

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

2022 cbc/crc shear panel schedule:

SHEAR PANEL DESIGNATION	STRUCTURAL 1 APA-RATED WOOD STRUCTURAL PANEL	COMMON NAIL SPACING @ BOUNDARIES & EDGES (BN &EN) FIELD NAILING (FN) @ 12" OC	ALLOWABLE SHEAR/F' W/ WOOD STUDS @ 16" OC	SLIDING ANCHOR SYSTEM ⁴			
				5/8" Ø ANCHOR BOLT SPACING ² 2x SILL - V=1184# 3x SILL - V=1520#	FRAMING CLIP SPACING V=450# - SIMPSON CO A35, OAE	16d COMMON NAIL SPACING ³ 2x SOLE PLATE ONLY V=121#	1/2"Ø LAG SCREW SPACING ⁵ 2x SOLE PLATE ONLY V=880#
				THICKNESS	OC (INCH)	#/FT	OC (INCH)
A	3/8"	8d@6	280	48	18	5	23
B ¹	15/32"	8d@4	430	42	12	3	15
C ¹	15/32"	8d@3	550	32	9	2	12
D ¹	15/32"	8d@2	730	24	7	→	9
E ¹	15/32"	8d@2	870	20	6	→	6
SW	SIMPSON CO. STRONGWALL (SEE ATTACHED DETAIL SHEETS IF SPECIFIED FOR PROJECT)						
WSW	SIMPSON CO. WOOD STRONGWALL (SEE ATTACHED DETAIL SHEETS IF SPECIFIED FOR PROJECT)						
SSW	SIMPSON CO. STEEL STRONGWALL (SEE ATTACHED DETAIL SHEETS IF SPECIFIED FOR PROJECT)						
HF	HARDY FRAME (SEE ATTACHED DETAIL SHEETS IF SPECIFIED FOR PROJECT)						
FOOTNOTES:							
1. FRAMING AT FOUNDATION SILL PLATES AND ADJOINING PANEL EDGE STUDS SHALL BE A SINGLE 3x NOMINAL MEMBER, AND ALL NAILS SHALL BE STAGGERED W/ 1/2" EDGE DISTANCE. 2x NOMINAL SOLE PLATE MAY BE USED AT RAISED FLOOR AND UPPER LEVELS.							
2. SIMPSON CO BP 5/8 BEARING PLATES (LARR 25293), OR EQUAL, SHALL BE USED WITH ALL 5/8"Ø ANCHORS. 5/8"Ø SIMPSON WEDGE-ALL WEDGE ANCHORS (ICBO ER-3631) MAY BE USED IN LIEU OF 5/8"Ø ANCHOR BOLTS AT EXISTING FOOTINGS WITH SAME SPACING PER TABLE ABOVE.							
3. ALL SILL NAILING SHALL BE STAGGERED A 1/2" MINIMUM, TYPICAL.							
4. WHEN A SHEAR PANEL IS SPECIFIED ON BOTH SIDES OF A WALL, ALL SLIDING ANCHOR CONNECTORS SHALL BE ATTACHED WITH SPACINGS FROM THE TABLE ABOVE TO BE REDUCED BY HALF.							
5. MINIMUM 4" PENETRATION INTO 4x MATERIAL.							

2022 CBC TABLE 2304.10.2 FASTENING SCHEDULE

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER ¹	SPACING AND LOCATION
ROOF		
1. BLOCKING BETWEEN CEILING JOISTS, RAFTERS OR TRUSSES TO TOP PLATE OR OTHER FRAMING BELOW	4-8d BOX (3-1/2"x0.131") OR 3-8d COMMON (2-1/2"x0.131") OR 3-10d BOX (3"x0.128") OR 3-3"x0.131" NAILS OR 2-8d COMMON (2-1/2"x0.131") OR 2-3" 14 GAGE STAPLES 7/16" CROWN	EACH END, TOENAIL
BLOCKING BETWEEN RAFTERS OR TRUSS NOT AT THE WALL, TOP PLATE, TO RAFTER OR TRUSS	2-3" 14 GAGE STAPLES 7/16" CROWN OR 3-3"x0.131" NAILS OR 3-3"x0.131" NAILS OR 2-8d COMMON (2-1/2"x0.128") OR 2-3" 14 GAGE STAPLES 7/16" CROWN	EACH END, TOENAIL
FLAT BLOCKING TO TRUSS AND WEB FILLER	16d COMMON (3-1/2"x0.162") @ 8" OC OR 3"x14 GAGE STAPLES @ 8" OC OR 3"x0.131" NAILS OR 3-10d BOX (3"x0.128") OR 3-3"x14 GAGE STAPLES 7/16" CROWN	FACE NAIL
2. CEILING JOISTS TO TOP PLATE	3"x0.131" NAILS OR 3-3"x14 GAGE STAPLES 7/16" CROWN	EACH JOIST, TOENAIL
3. CEILING JOIST NOT ATTACHED TO PARALLEL RAFTER, LAP OVER PARTITIONS (NO THURST) (SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1)	3-10d BOX (3-1/2"x0.135") OR 4-10d BOX (3"x0.128") OR 4-3" 14 GAGE STAPLES 7/16" CROWN	FACE NAIL
4. CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOINT) (SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1)	PER TABLE 2308.7.3.1	FACE NAIL
5. COLLAR TIE TO RAFTER	3-10d COMMON (3"x0.148") OR 4-10d BOX (3"x0.128") OR 4-3"x0.131" NAILS OR 4-3"x14 GAGE STAPLES 7/16" CROWN	FACE NAIL
6. RAFTER OR TRUSS TO TOP PLATE (SEE SECTION 2308.7.5, TABLE 2308.7.5)	3-16d BOX (3-1/2"x0.135") OR 4-10d BOX (3"x0.128") OR 4-3"x0.131" NAILS OR 4-3" 14 GAGE STAPLES 7/16" CROWN	2 TOENAILS ON ONE SIDE AND 1 TOENAIL ON OPPOSITE SIDE OF RAFTER OR TRUSS ²
7. ROOF RAFTERS TO RIDGE, VALLEY OR HIP RAFTERS, OR ROOF RAFTER TO 2-INCH RIDGE BEAM	2-16d COMMON (3-1/2"x0.162") OR 3-16d BOX (3-1/2"x0.135") OR 3-10d BOX (3"x0.128") OR 3-3" 14 GAGE STAPLES 7/16" CROWN OR 3-16d BOX (3-1/2"x0.135") OR 4-10d BOX (3"x0.128") OR 4-3"x0.131" NAILS OR 4-3" 14 GAGE STAPLES 7/16" CROWN	END NAIL
WALL		
8. STUD TO STUD (NOT AT BRACED WALL PANELS)	16d COMMON (3-1/2"x0.162") OR 16d BOX (3"x0.128") OR 3" 14 GAGE STAPLES 7/16" CROWN	24" OC, FACE NAIL
9. STUD TO STUD AND BUTTING STUDS AT INTERSECTING WALL CORNERS (AT BRACED WALL PANELS)	16d COMMON (3-1/2"x0.162") OR 16d BOX (3-1/2"x0.135") OR 3" 14 GAGE STAPLES 7/16" CROWN	16" OC, FACE NAIL
10. BUILT-UP HEADER (2" TO 2" HEADER)	16d COMMON (3-1/2"x0.131") OR 4-10d BOX (3"x0.128") OR 4-3"x0.131" NAILS OR 4-3" 14 GAGE STAPLES 7/16" CROWN	12" OC, FACE NAIL
11. CONTINUOUS HEADER TO STUD	16d COMMON (3-1/2"x0.162") OR 16d BOX (3"x0.128") OR 3" 14 GAGE STAPLES 7/16" CROWN	16" OC, FACE NAIL
12. TOP PLATE TO TOP PLATE	3"x0.131" NAILS OR 3" 14 GAGE STAPLES 7/16" CROWN	12" OC, FACE NAIL
13. TOP PLATE TO TOP PLATE, AT END JOINTS	3-16d COMMON (3-1/2"x0.162") OR 12-10d BOX (3"x0.128") OR 3-10d BOX (3"x0.128") OR 12-3" 14 GAGE STAPLES 7/16" CROWN	EA SIDE OF END JOINT, FACE NAIL (MINIMUM 24" LAP SPLICE LENGTH EACH SIDE OF END JOINT)
14. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING (NOT AT BRACED WALL PANELS)	16d COMMON (3-1/2"x0.162") OR 16d BOX (3"x0.128") OR 3" 14 GAGE STAPLES 7/16" CROWN	16" OC, FACE NAIL
15. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING AT BRACED WALL PANELS	3-16d COMMON (3-1/2"x0.162") OR 3-16d BOX (3"x0.135") OR 3-3" 14 GAGE STAPLES 7/16" CROWN	16" OC, FACE NAIL
16. STUD TO TOP OR BOTTOM PLATE	3-16d COMMON (3-1/2"x0.162") OR 3-16d BOX (3"x0.128") OR 3-3" 14 GAGE STAPLES 7/16" CROWN OR 3-16d BOX (3-1/2"x0.135") OR 3-10d BOX (3"x0.128") OR 4-3"x0.131" NAILS OR 4-3" 14 GAGE STAPLES 7/16" CROWN	TOENAIL
17. TOP PLATES, LAP AT CORNERS AND INTERSECTIONS	3-16d COMMON (3-1/2"x0.162") OR 3-16d BOX (3"x0.128") OR 3-3" 14 GAGE STAPLES 7/16" CROWN	END NAIL
18. 1" BRACE TO EACH STUD AND PLATE	3-16d COMMON (3-1/2"x0.162") OR 3-16d BOX (3"x0.128") OR 3-3" 14 GAGE STAPLES 7/16" CROWN	FACE NAIL
19. 1"x6" SHEATHING TO EACH BEARING	3-16d COMMON (3-1/2"x0.162") OR 3-16d BOX (3"x0.128") OR 3-3" 14 GAGE STAPLES 7/16" CROWN	FACE NAIL
20. 1"x8" AND WIDER SHEATHING TO BEARING	3-16d COMMON (3-1/2"x0.162") OR 3-16d BOX (3"x0.128") OR 3-3" 14 GAGE STAPLES 7/16" CROWN	FACE NAIL
FLOOR		
21. JOIST TO SILL, TOP PLATE OR GIRDER	4-8d BOX (3-1/2"x0.131") OR 3-8d COMMON (2-1/2"x0.131") OR 3-10d BOX (3"x0.128") OR 3-3"x0.131" NAILS OR 3-3"x14 GAGE STAPLES 7/16" CROWN	TOENAIL
22. RIM JOIST, BAND JOIST, OR BLOCKING TO TOP PLATE, SILL OR OTHER FRAMING BELOW	8d COMMON (2-1/2"x0.131") OR 3"x0.131" NAILS OR 3" 14 GAGE STAPLES 7/16" CROWN	4" OC, TOENAIL
23. 1"x6" SUBFLOOR OR LESS TO EACH JOIST	3-8d BOX (3-1/2"x0.131") OR 3-8d COMMON (2-1/2"x0.131") OR 3-10d BOX (3"x0.128") OR 3-3" 14 GAGE STAPLES 7/16" CROWN	FACE NAIL
24. 2" SUBFLOOR TO JOIST OR GIRDER	3-16d BOX (3-1/2"x0.135") OR 3-16d COMMON (3-1/2"x0.162")	BLIND & FACE NAIL
25. 2" PLANKS (PLANK & BEAM - FLOOR & ROOF)	3-16d BOX (3-1/2"x0.135") OR 3-16d COMMON (3-1/2"x0.162")	EACH BEARING, FACE NAIL
26. COMMON (4"x0.192")	32" OC, FACE NAIL AT TOP & BOTTOM STAGGERED ON OPPOSITE SIDES	
28. BUILT-UP GIRDERS AND BEAMS, 2" LUMBER LAYERS	16d BOX (3"x0.128") OR 3"x0.131" NAILS OR 3" 14 GAGE STAPLES 7/16" CROWN	BOTTOM STAGGERED ON OPPOSITE SIDES
27. LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	2-20d COMMON (4"x0.192") OR 3-10d BOX (3"x0.128") OR 3-3"x0.131" NAILS OR 3-3" 14 GAGE STAPLES 7/16" CROWN	ENDS AND AT EACH SPLICE, FACE NAIL
28. JOIST TO BAND JOIST OR RIM JOIST	3-16d COMMON (3-1/2"x0.162") OR 4-16d BOX (3-1/2"x0.135") OR 4-10d BOX (3"x0.128") OR 4-3"x0.131" NAILS OR 4-3" 14 GAGE STAPLES 7/16" CROWN	EACH JOIST OR RAFTER, FACE NAIL
29. BRIDGING OR BLOCKING TO JOIST, RAFTER OR TRUSS	3-16d COMMON (3-1/2"x0.162") OR 3-16d BOX (3"x0.128") OR 3-3" 14 GAGE STAPLES 7/16" CROWN	EACH END, TOE NAIL
WOOD STRUCTURAL PANELS (WSP), SUBFLOOR, ROOF AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLE BOARD WALL SHEATHING TO FRAMING ⁴		
FIELD = INTERMEDIATE SUPPORTS (EDGES = FIELD) (INCHES)		
16d COMMON OR DEFORMED (2" x 0.113") OR 2-38" x 0.113" NAIL (SUBFLOOR & WALL) OR 8d COMMON OR DEFORMED (2-1/2" x 0.131" x 0.281" HEAD) (ROOF) OR 3-34" x 0.099" GALV. STEEL 1/2" NAIL (ROOF)		8'-12'
30. 3/8" - 1/2"		8'-6"
3-34" x 0.099" GALV. STEEL 1/2" NAIL (ROOF) OR 3-34" x 0.099" GALV. STEEL 1/2" NAIL (ROOF) OR 3-34" x 0.099" GALV. STEEL 1/2" NAIL (ROOF) OR 3-34" x 0.099" GALV. STEEL 1/2" NAIL (ROOF)		4'-8"
31. 19/32" - 3/4"		3'-3"
3-34" x 0.099" GALV. STEEL 1/2" NAIL (ROOF) OR 3-34" x 0.099" GALV. STEEL 1/2" NAIL (ROOF) OR 3-34" x 0.099" GALV. STEEL 1/2" NAIL (ROOF) OR 3-34" x 0.099" GALV. STEEL 1/2" NAIL (ROOF)		3'-3"
32. 7/8" - 1-1/4"		8'-12'
33. 1/2" FIBERBOARD SHEATHING ⁵		3'-6"
34. 5/8" FIBERBOARD SHEATHING ⁵		3'-6"
WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING		
35. 3/4" AND LESS		6'-12"
36. 7/8" - 1"		6'-12"
37. 1- 1/8" - 1- 1/4"		6'-12"
PANEL SIDING TO FRAMING		
38. 1/2" OR LESS		6'-12"
39. 5/8"		6'-12"
INTERIOR PANELING		
40. 1/4"		6'-12"
41. 3/8"		6'-12"

PREPARER SIGNATURE

FOR CITY STAMPS

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6 8 2 S E C O N D S T

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D Z N P A R T N E R S . C O M

STUDIO PRADU

CITY: ANAHEIM

JOB: 202409R

STRUCTURAL NOTES

s0.0

foundation plan notes:

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

raised floor plan notes:

- EXPANSIVE SOIL LOCATIONS SHALL PROVIDE FOOTING DIMENSIONS SPECIFIED IN DETAILS 3, 4, 7, 8 & 12/ d0.0 FOR EXPANSIVE SOILS.
- ROOF FRAMING PLAN FOR OTHER ELEVATIONS 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. 224/150 = 1.5 SQ. FT. SIX[6] 3"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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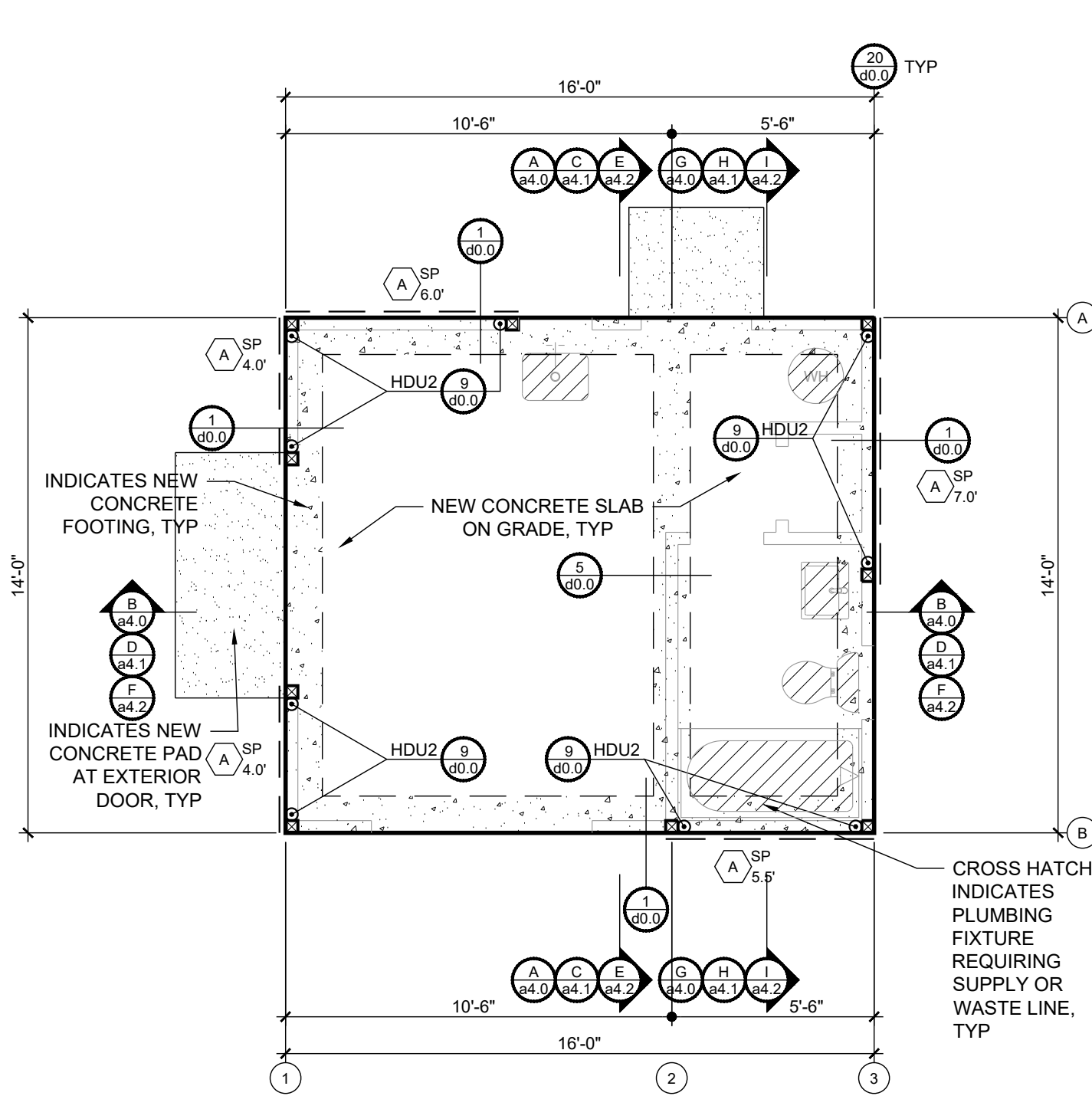
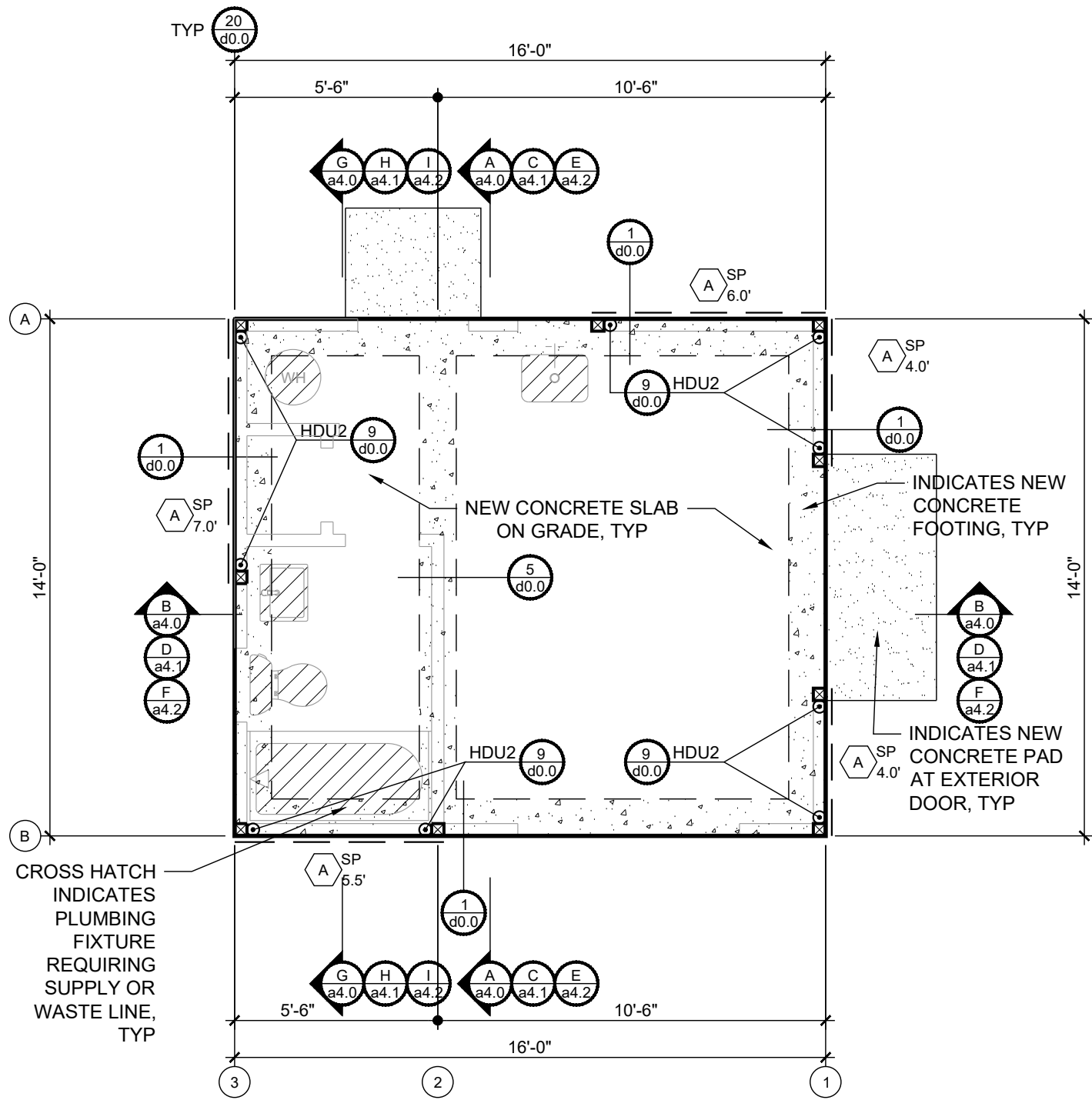
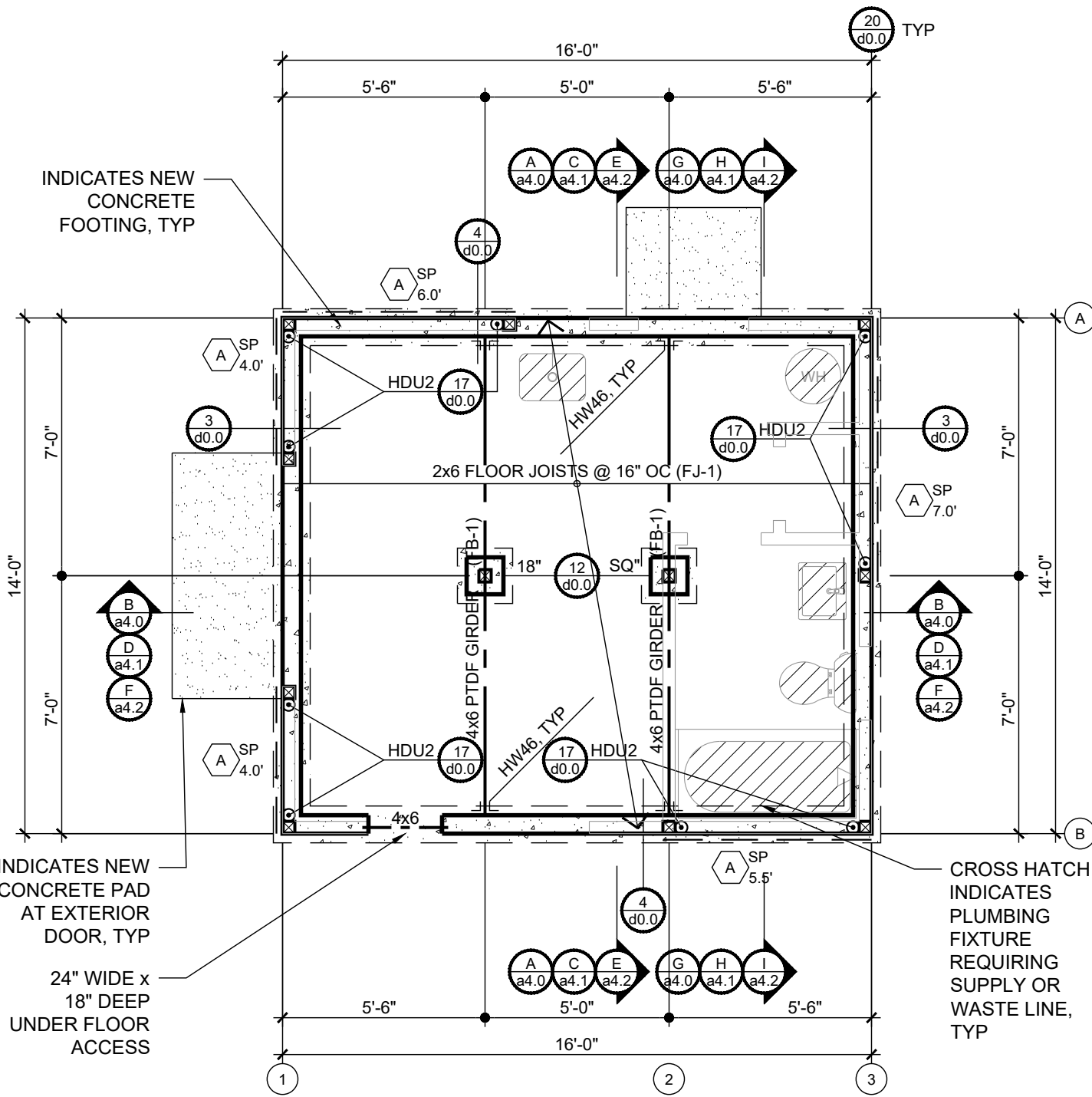
STUDIO PRADU

CITY: ANAHEIM

JOB: 202409R

FOUNDATION
PLANS

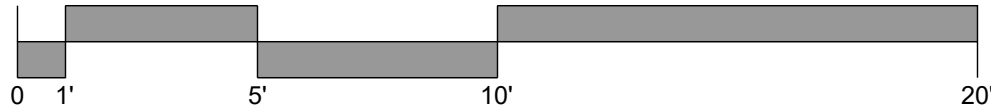
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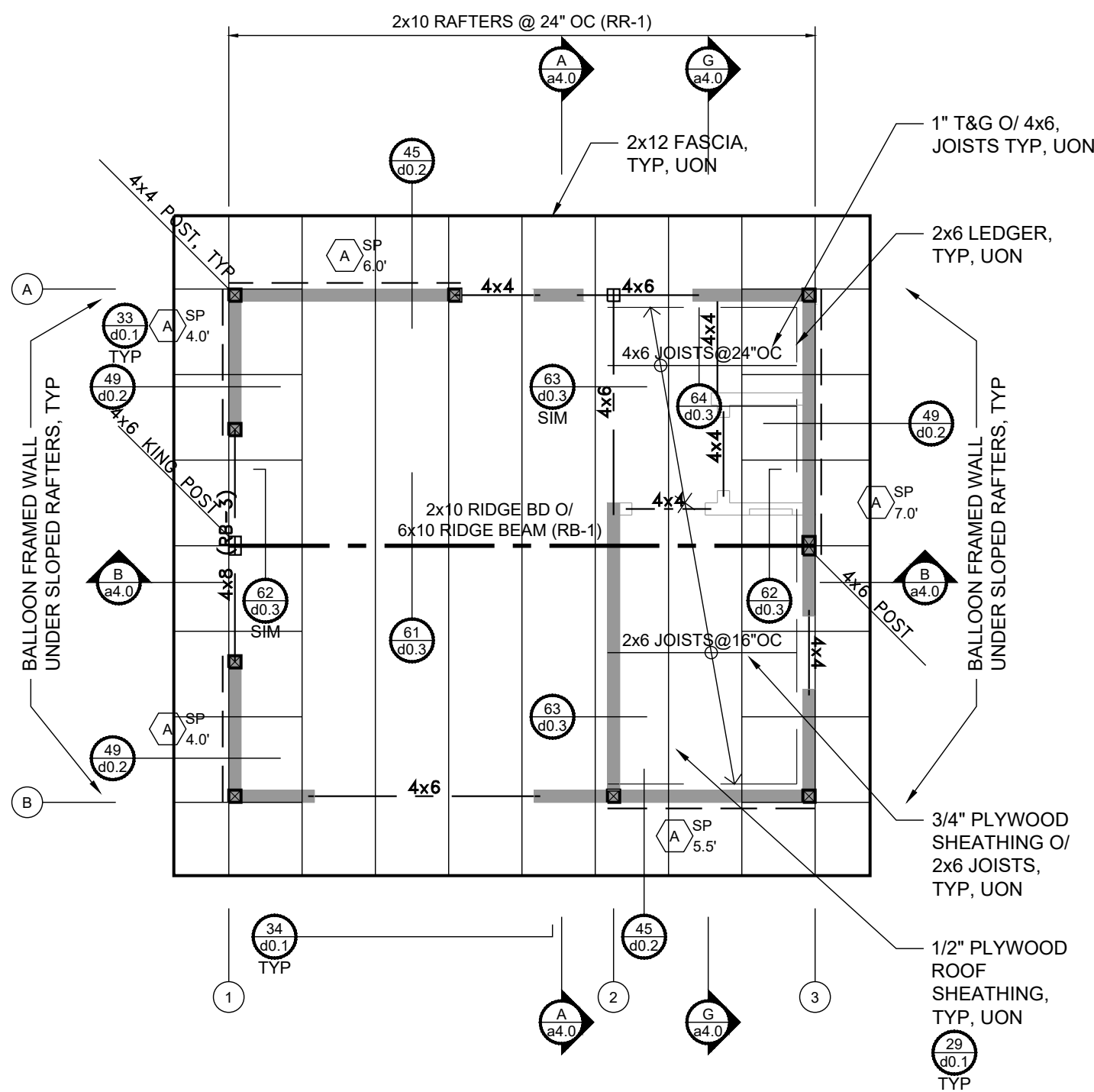
1 raised floor a
SCALE: 1/4" = 1'-0"

2 reverse foundation plan a
SCALE: 1/4" = 1'-0"

3 foundation plan a
SCALE: 1/4" = 1'-0"



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 & 88/40.1 PROVIDE MORE INFORMATION ABOUT THESE ROOF INSULATION ALTERNATIVES.
2. FLOOR DIAPHRAGM SHALL BE 2x3/32" APA STURD-I-FLOOR, EXPOSURE 1, 40/20 TONGUE & GROOVE WITH 104 COMMON NAILS @ 6" OC AT BOUNDARY (BN) & PANEL EDGE NAILING (EN) AND 12" OC AT INTERMEDIATE FRAMING MEMBERS (FN).
3. ROOF DIAPHRAGM SHALL BE 15/32" APA RATED SHEATHING (MIN), EXPOSURE 1, 24 MAXIMUM SPAN RATING WITH 6d COMMON NAILS @ 6" OC AT BOUNDARY (BN) & PANEL EDGE NAILING (EN) AND 12" OC AT INTERMEDIATE FRAMING MEMBERS (FN).
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



STUDIO PRADU

CITY: ANAHEIM

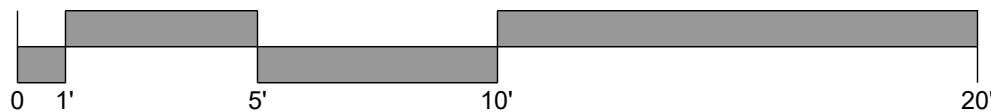
JOB:	202409R
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ROOF FRAMING PLANS

s2.0

3 roof framing plan a

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.
- 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).
- 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).
- 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

PREPARER SIGNATURE

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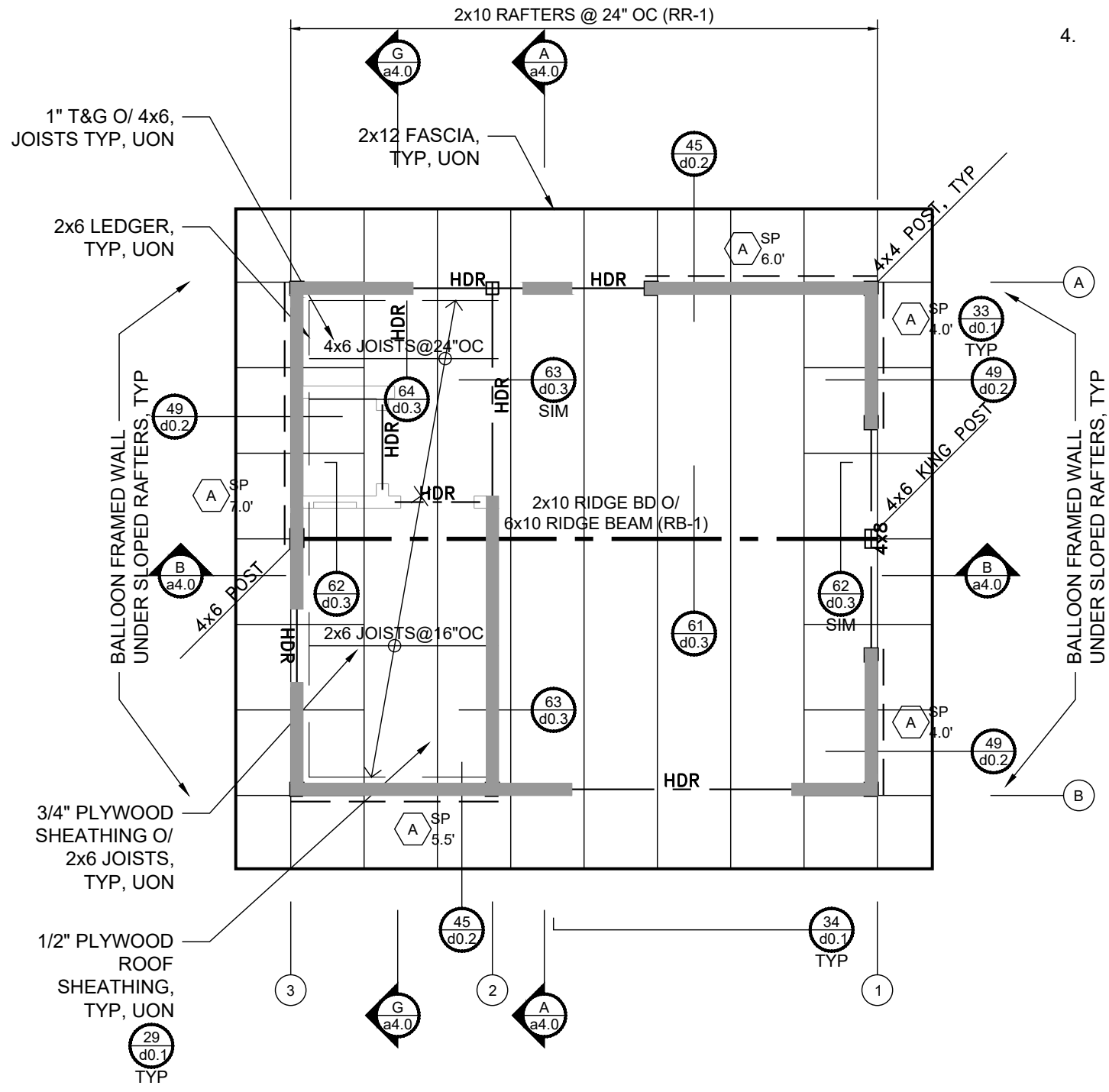
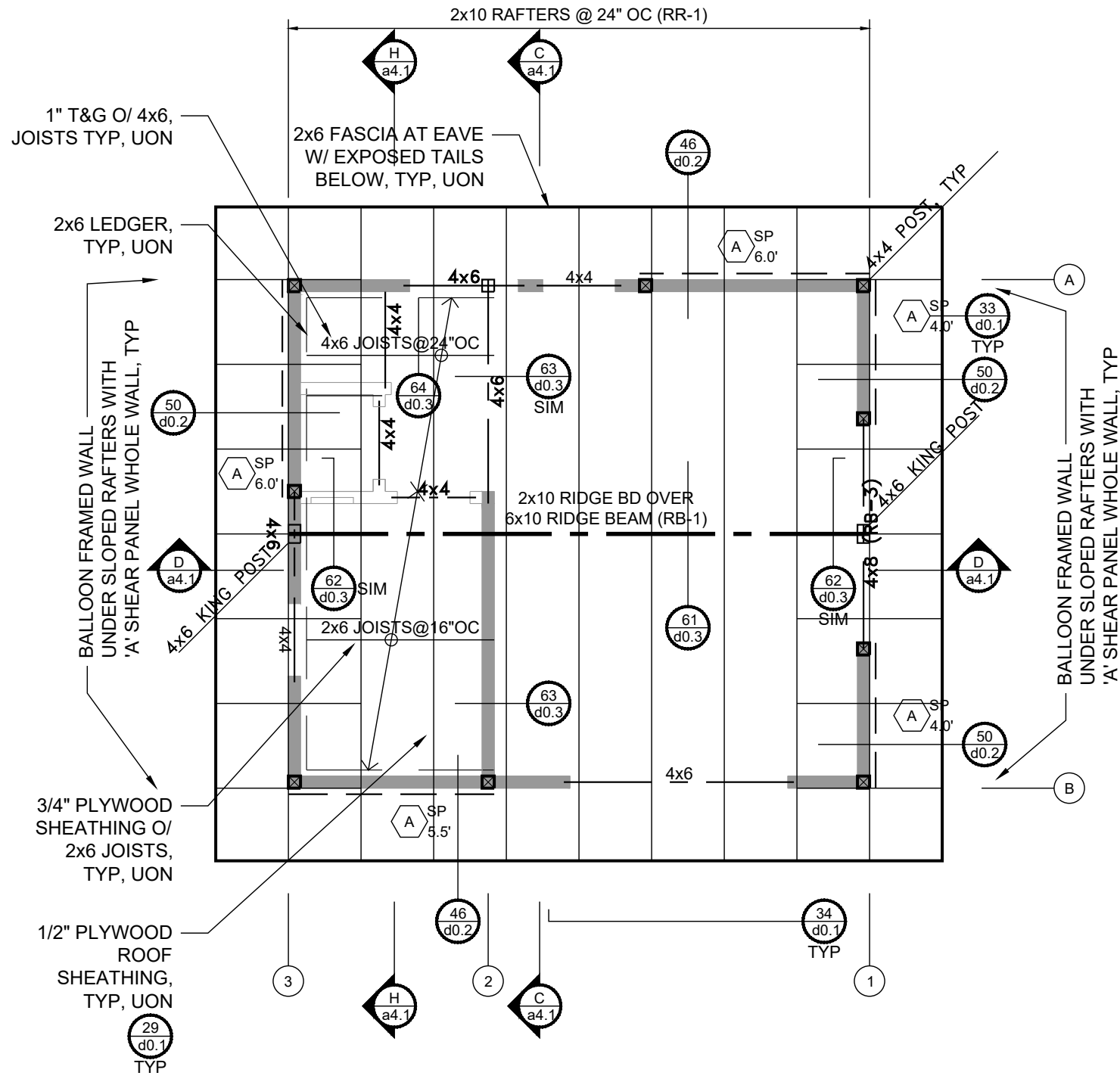
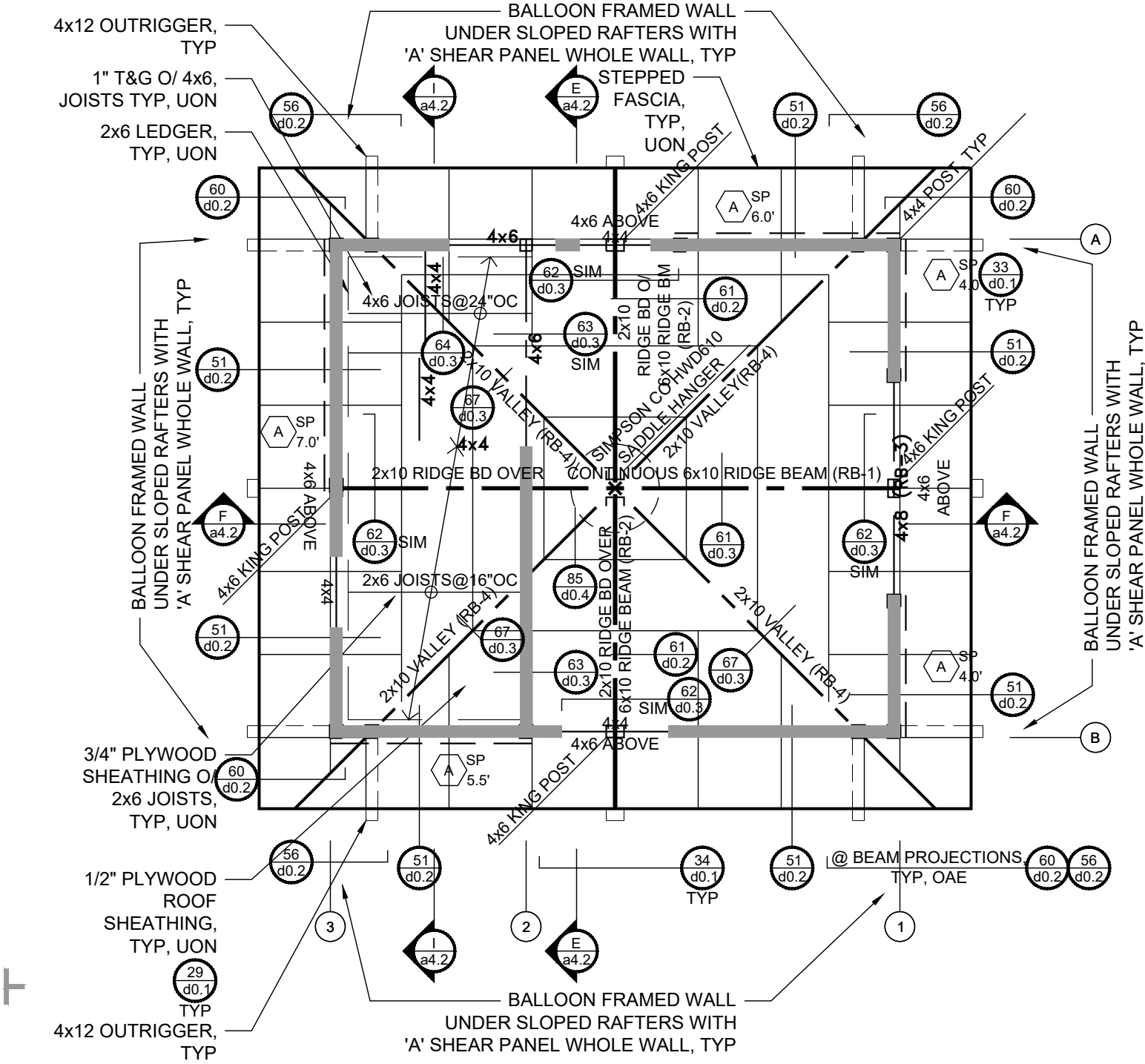
STUDIO PRADU

CITY: ANAHEIM

JOB: 202409R

REVERSE ROOF
FRAMING PLANS

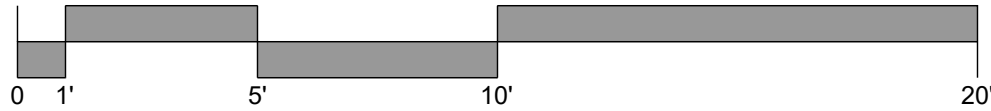
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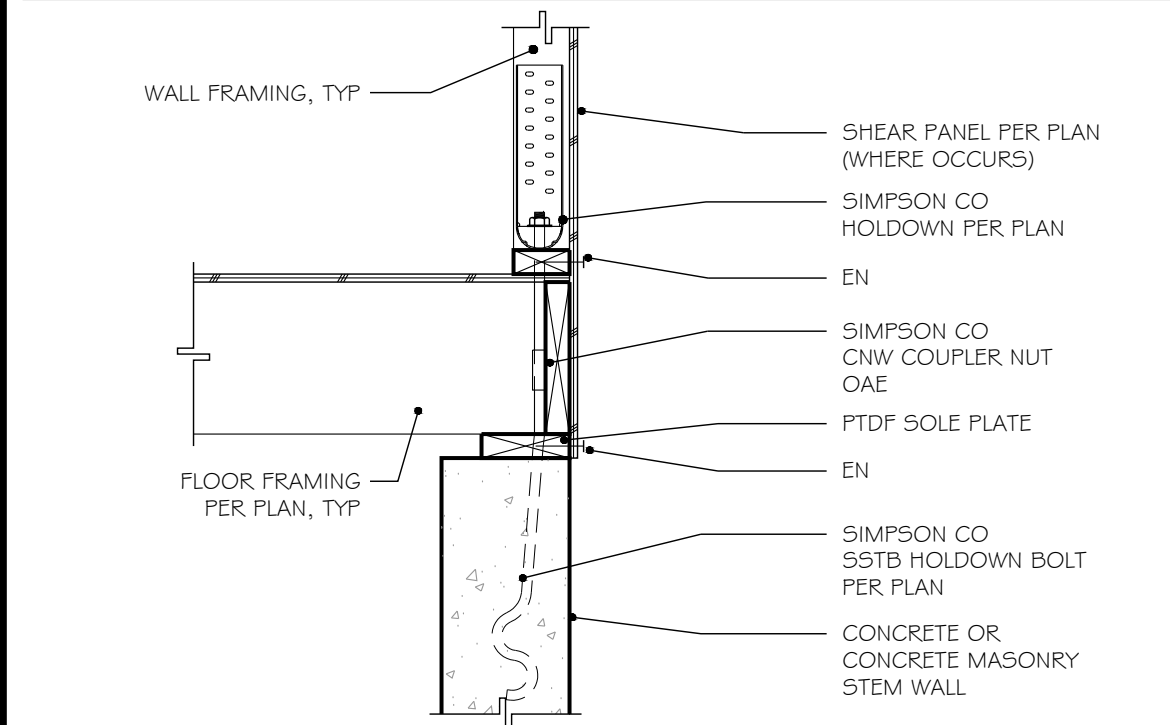
4 reverse roof framing plan c
SCALE: 1/4" = 1'-0"

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

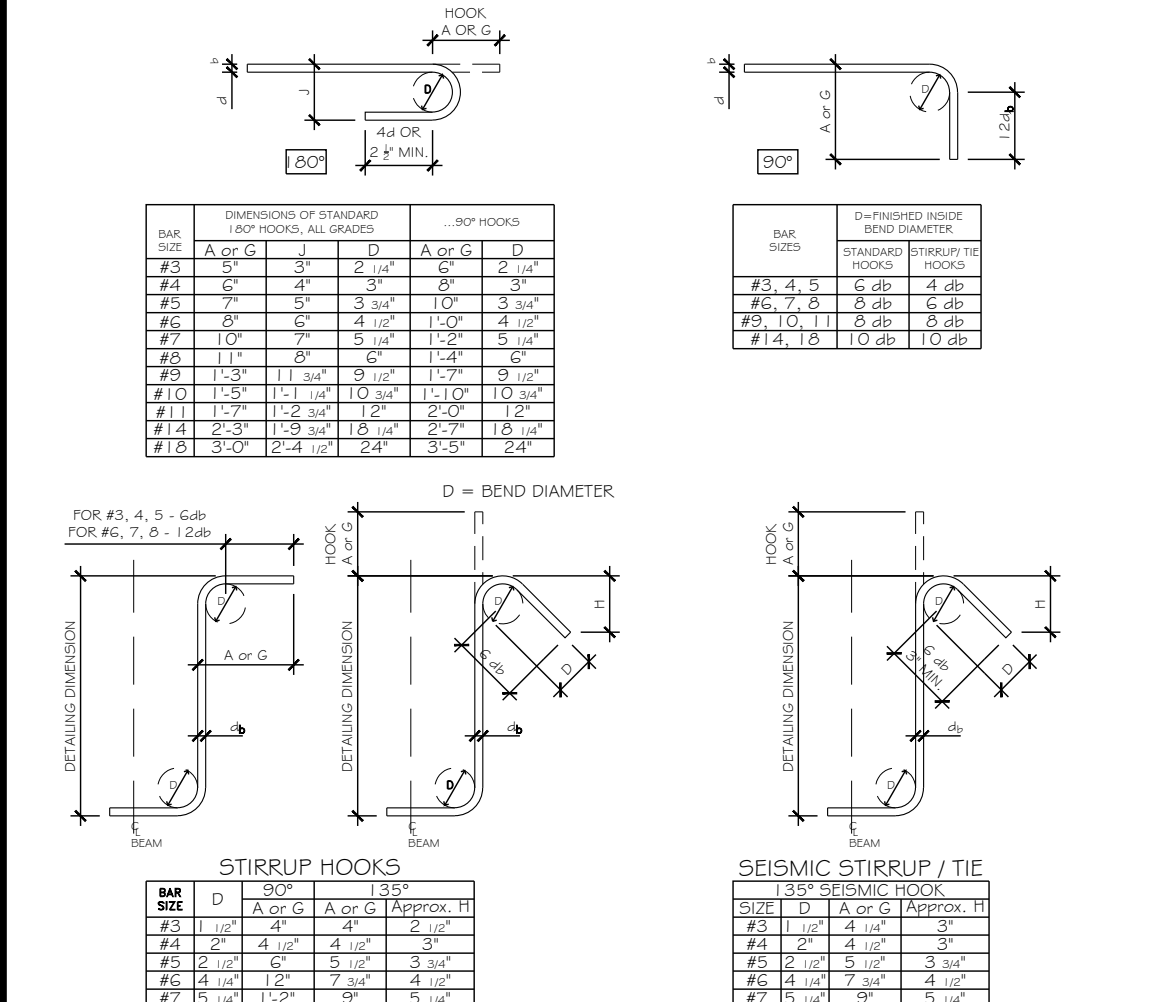
6 reverse roof framing plan a
SCALE: 1/4" = 1'-0"



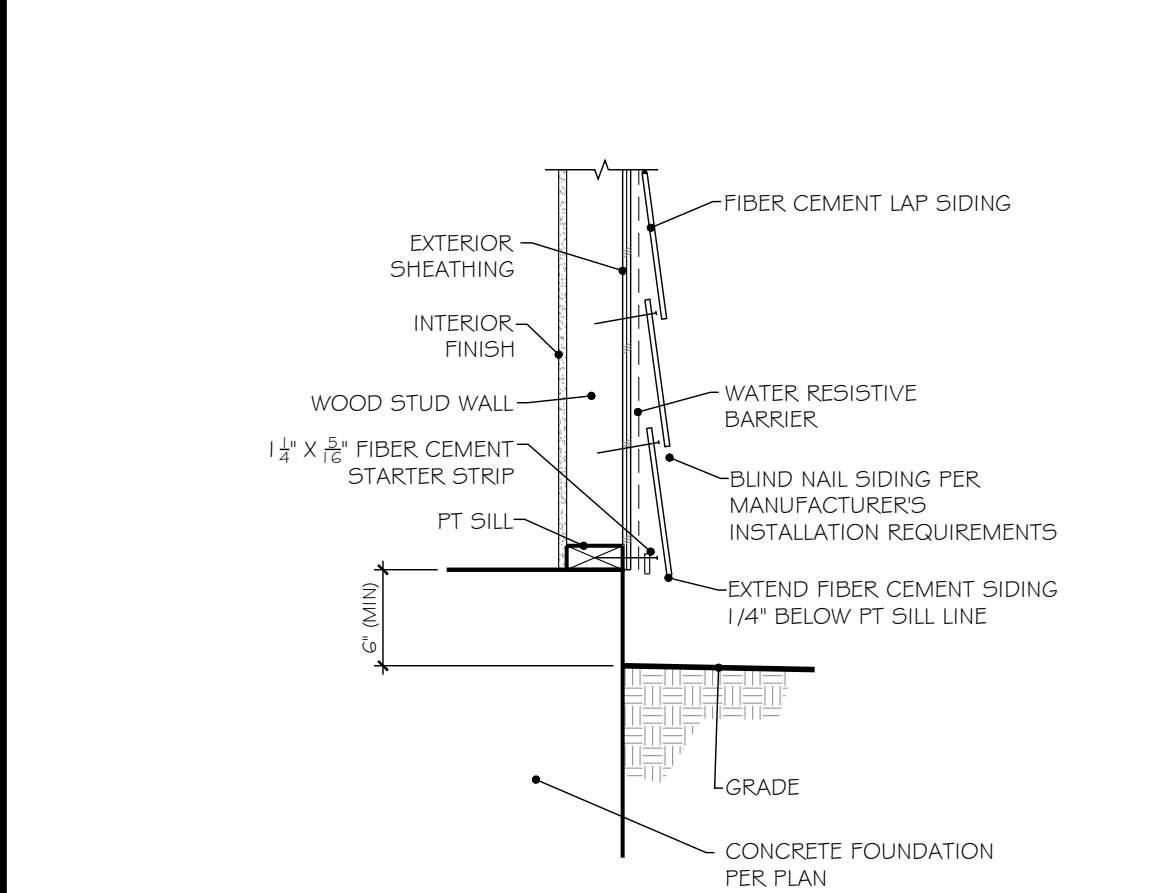
MODEL NO.	ANCHOR BOLT	CONNECTION TO POST	EMBEDMENT	EDGE DISTANCE	MIN WD MEMBER THICKNESS
HDU2	5/8" (SSTB16)	6-SDS 1/2"x2 1/2"	12 3/4"	1 3/4"	3"
HDU4	5/8" (SSTB20)	10-SDS 1/2"x2 1/2"	16 3/4"	1 3/4"	3"
HDU5	5/8" (SSTB24)	14-SDS 1/2"x2 1/2"	20 3/4"	1 3/4"	3"
HDU8	5/8" (SSTB28)	20-SDS 1/2"x2 1/2"	24 3/4"	1 3/4"	3"
HDU11	1" (SB1X30)	30-SDS 1/2"x2 1/2"	24"	1 3/4"	5 1/2"
HDU14	1" (SB1X30)	36-SDS 1/2"x2 1/2"	24"	1 3/4"	7 1/4"



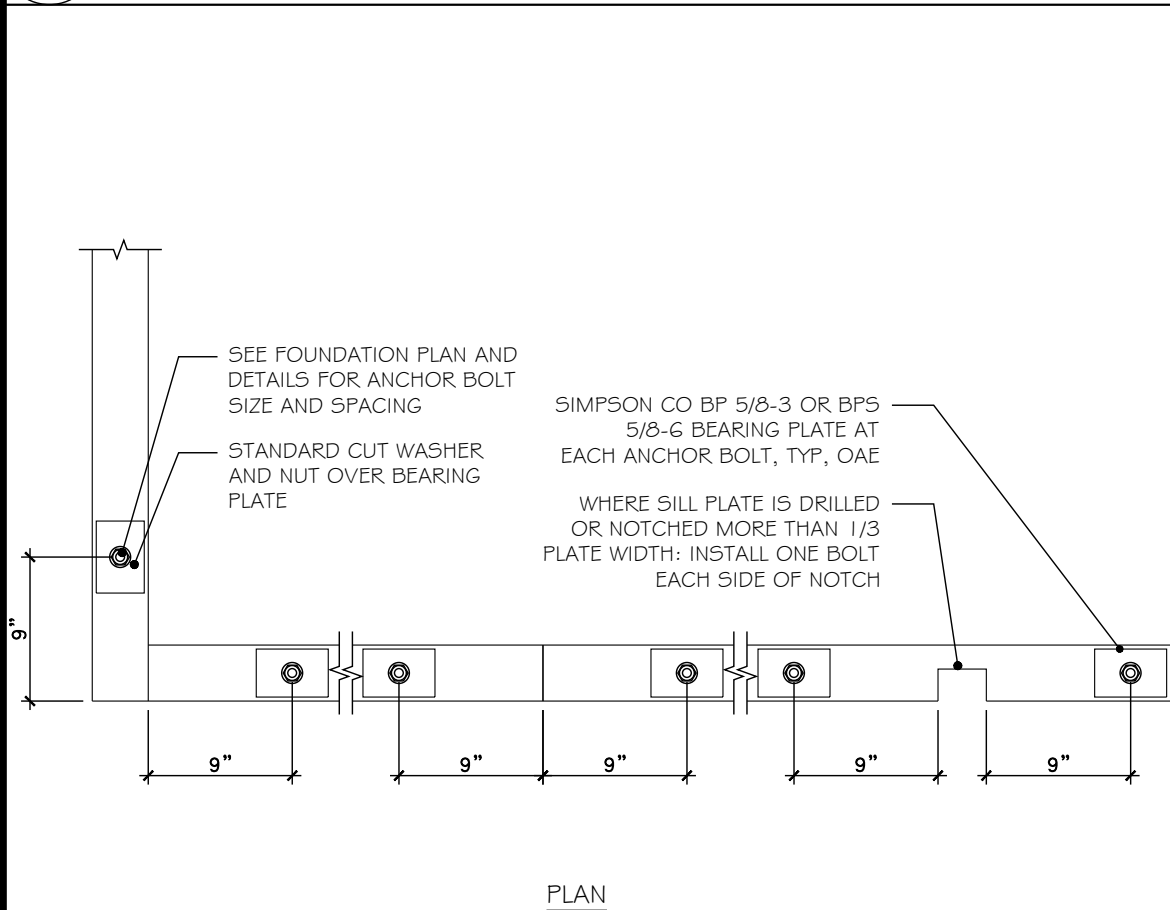
17 HOLDOWN AT STEM WALL FOOTING
SCALE: 1" = 1'-0"
A-DT-FDN-SW-0096



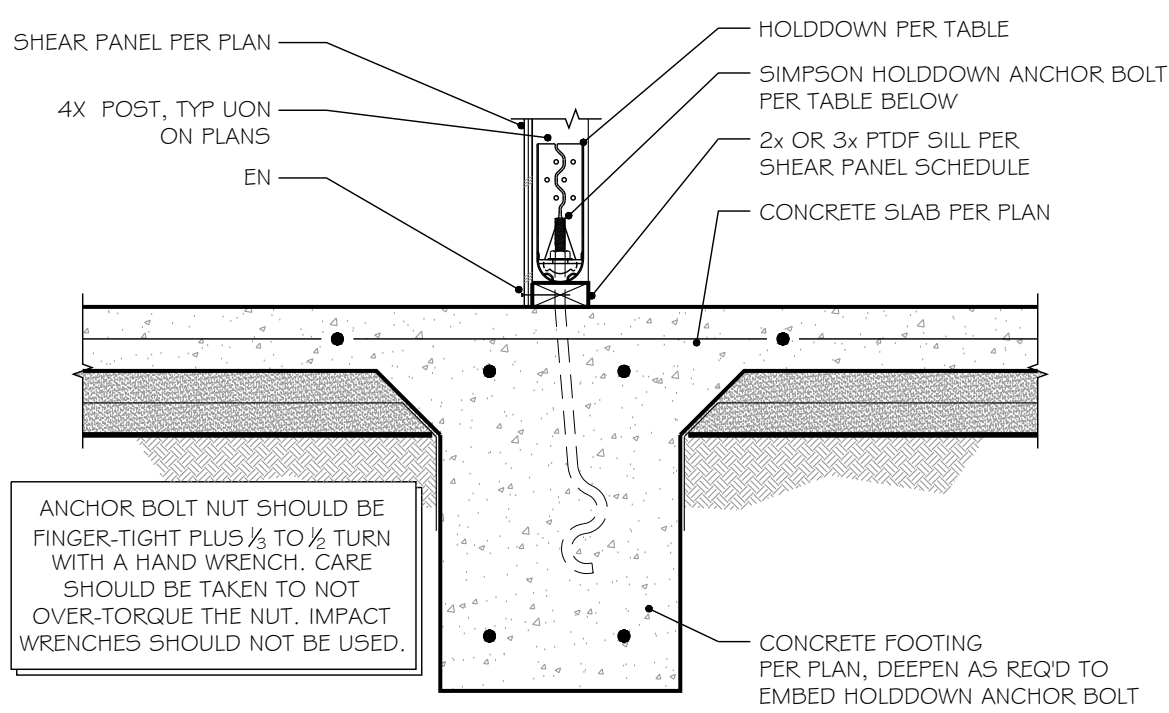
18 STANDARD HOOK DETAILS
SCALE = N.T.S.
A-DT-FDN-SG-0041



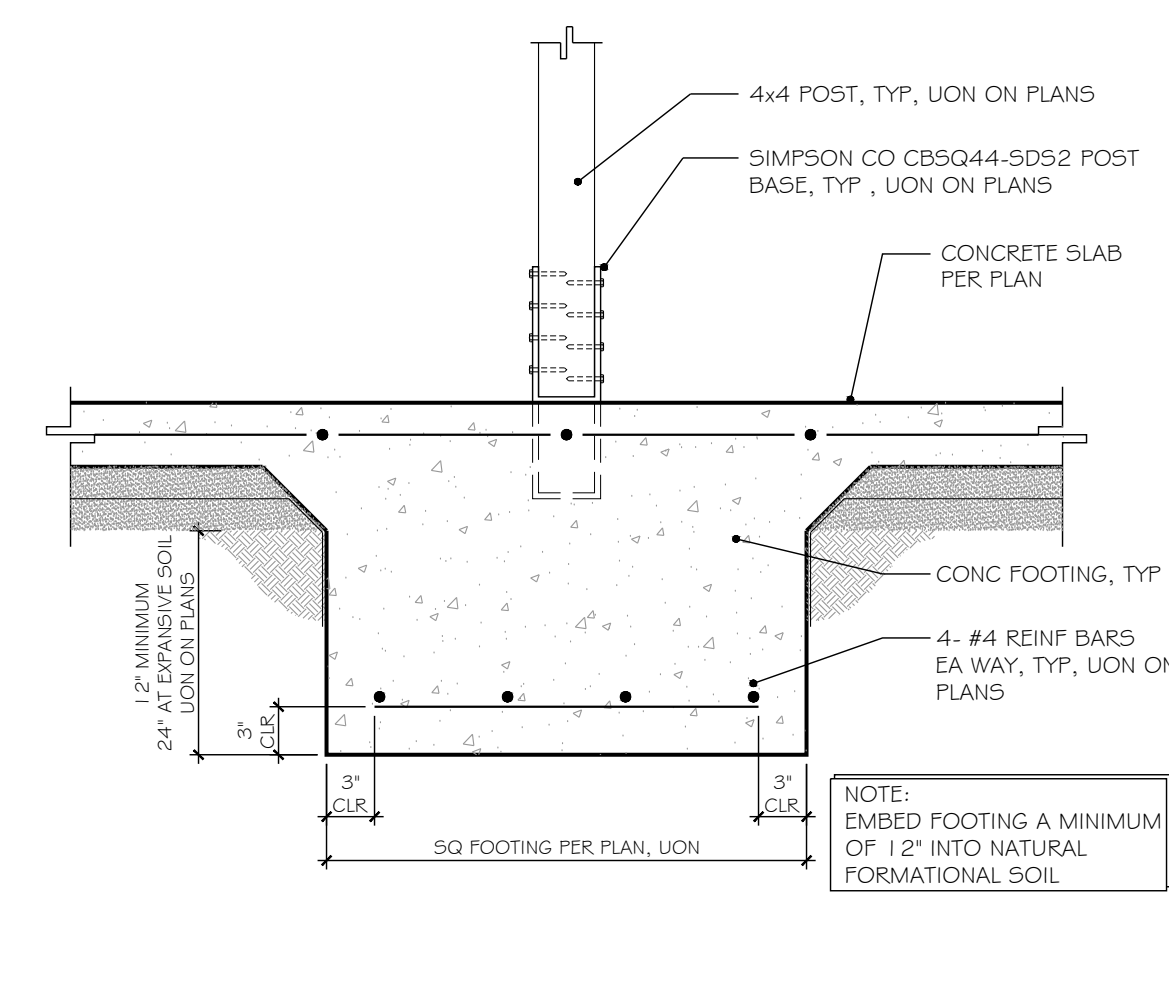
19 LAP SIDING AT FOUNDATION
SCALE: 1" = 1'-0"
A-DT-FIN-PC5-L5-0001



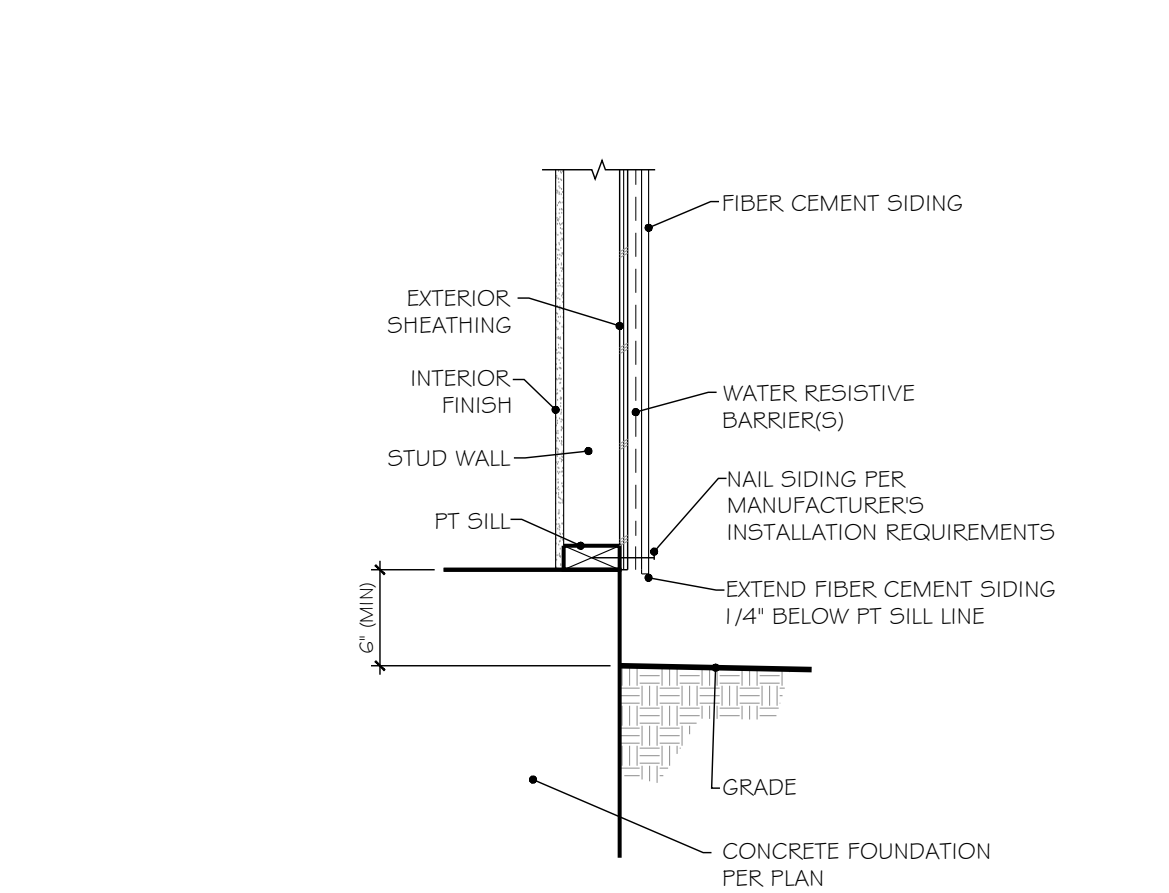
20 SILL PLATE ANCHOR BOLTING
SCALE: 1" = 1'-0"
A-DT-FDN-SG-ANC-002



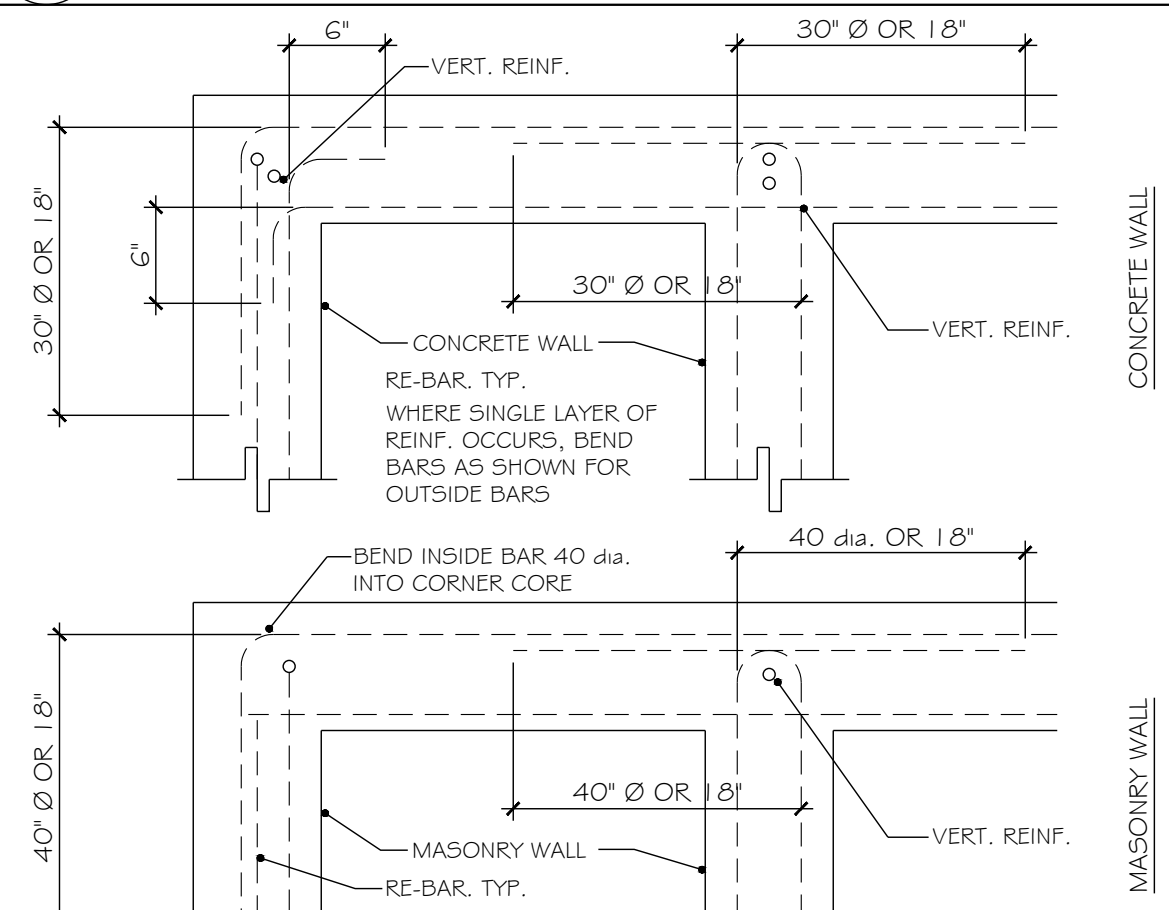
13 HOLDOWN - INTERIOR FOOTING
SCALE: 1" = 1'-0"
A-DT-FDN-SG-ANC-017



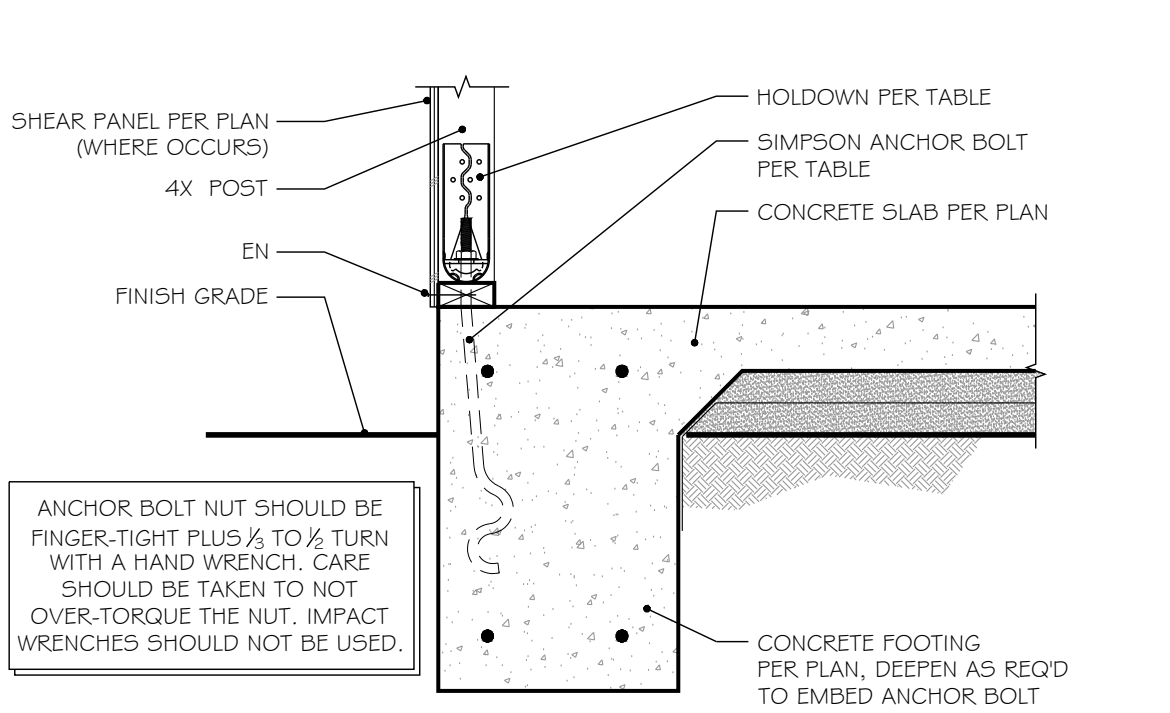
14 POST FOOTING WITHIN SLAB
SCALE: 1" = 1'-0"
A-DT-FDN-CP-0020



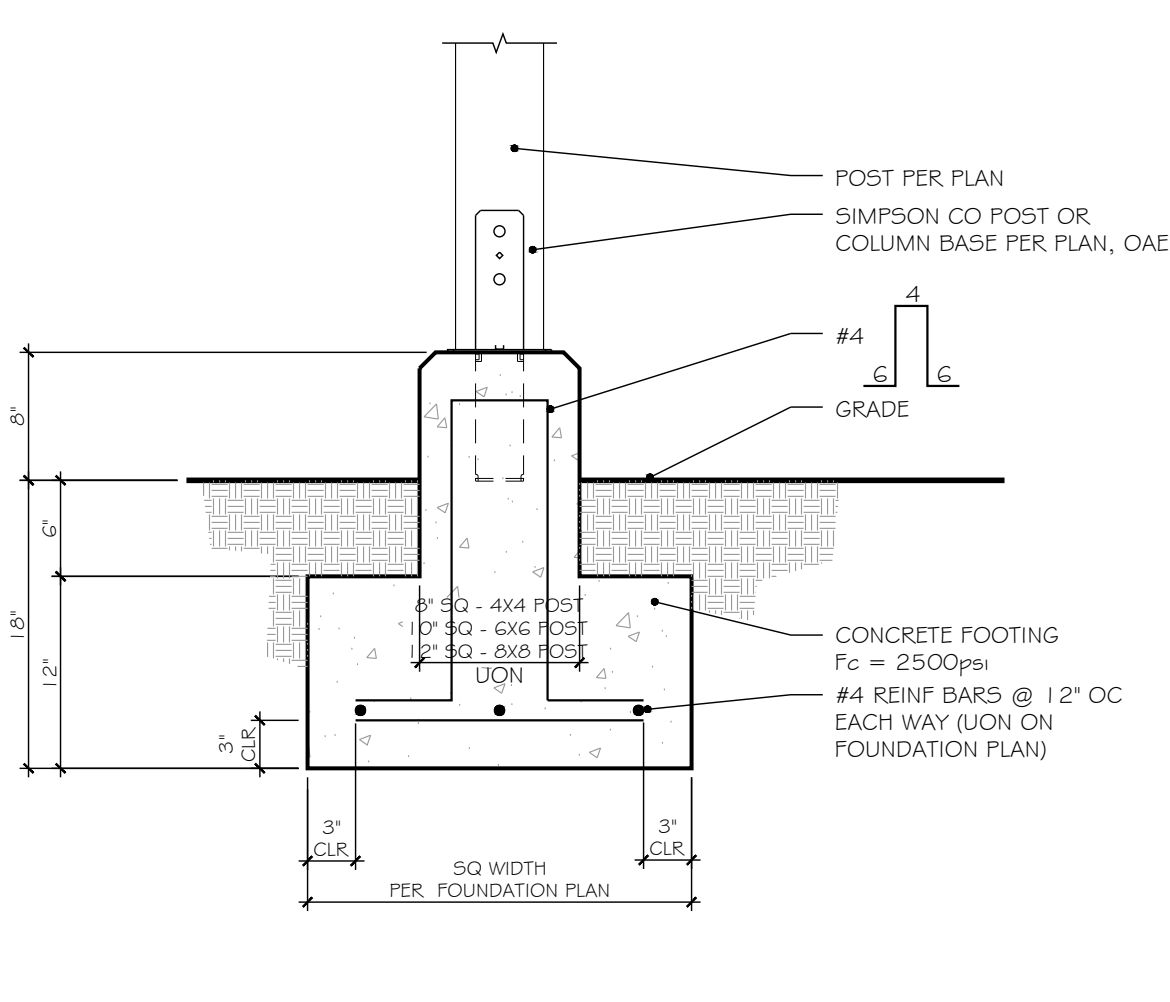
15 BOARD AND BATT SIDING AT FOUNDATION
SCALE: 1" = 1'-0"
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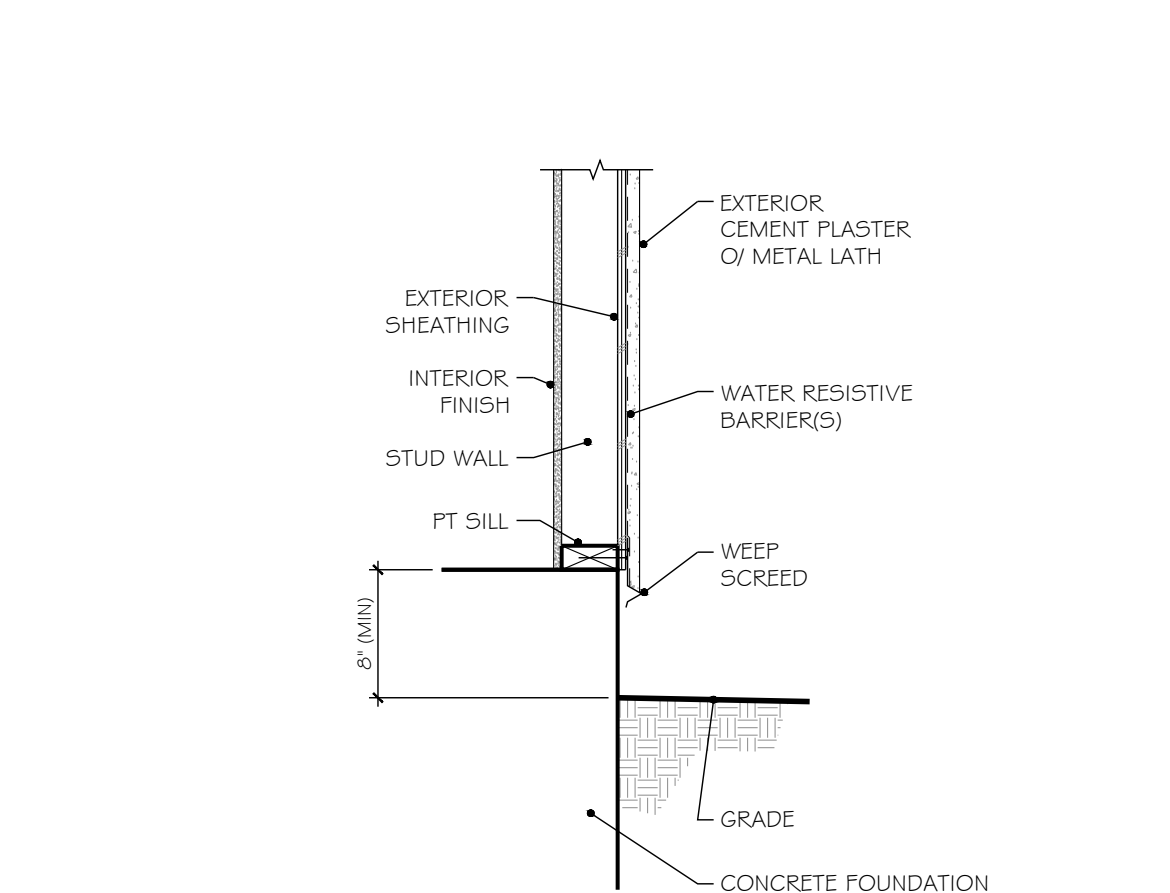
16 TYPICAL CONCRETE / MASONRY WALL REINFORCEMENT
SCALE: 1" = 1'-0"
A-DT-FDN-SW-0021



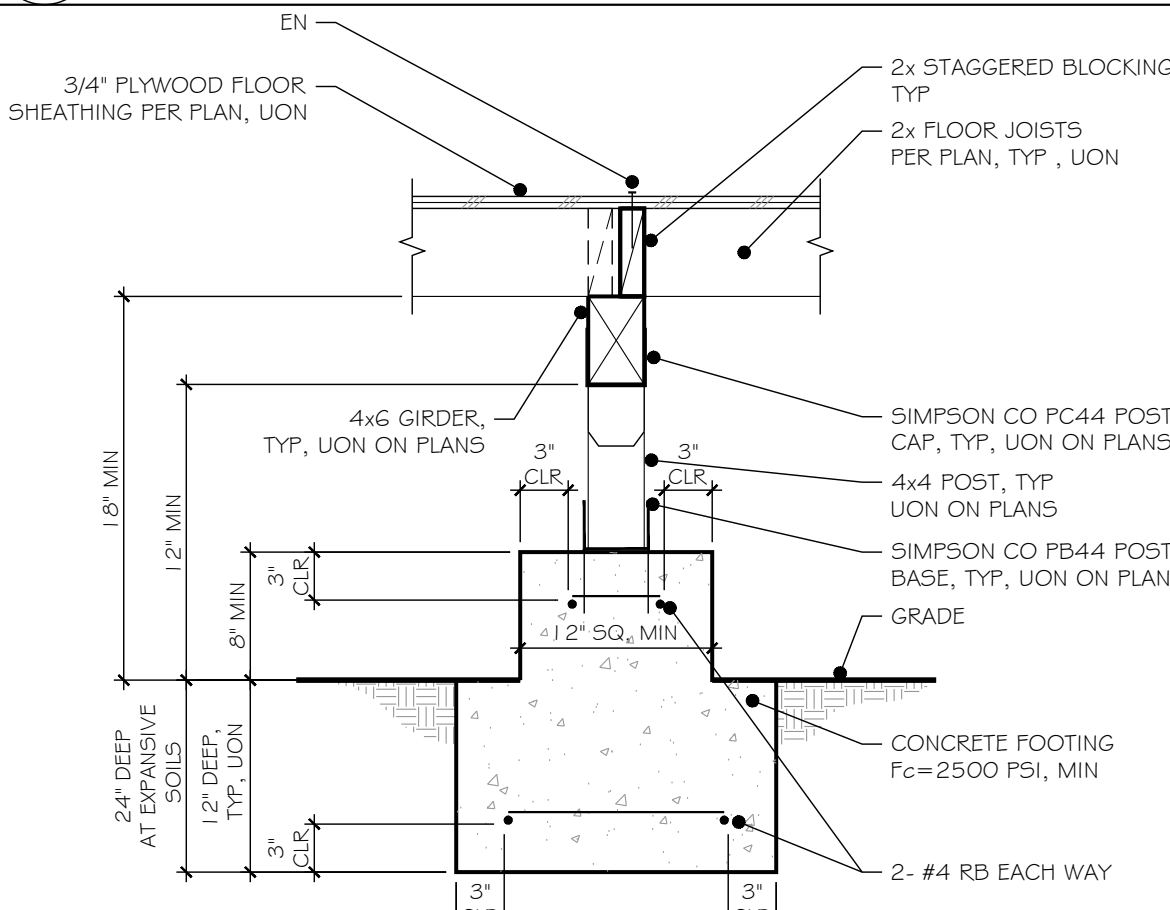
9 HOLDOWN - PERIMETER FOOTING
SCALE: 1" = 1'-0"
A-DT-FDN-SG-ANC-013



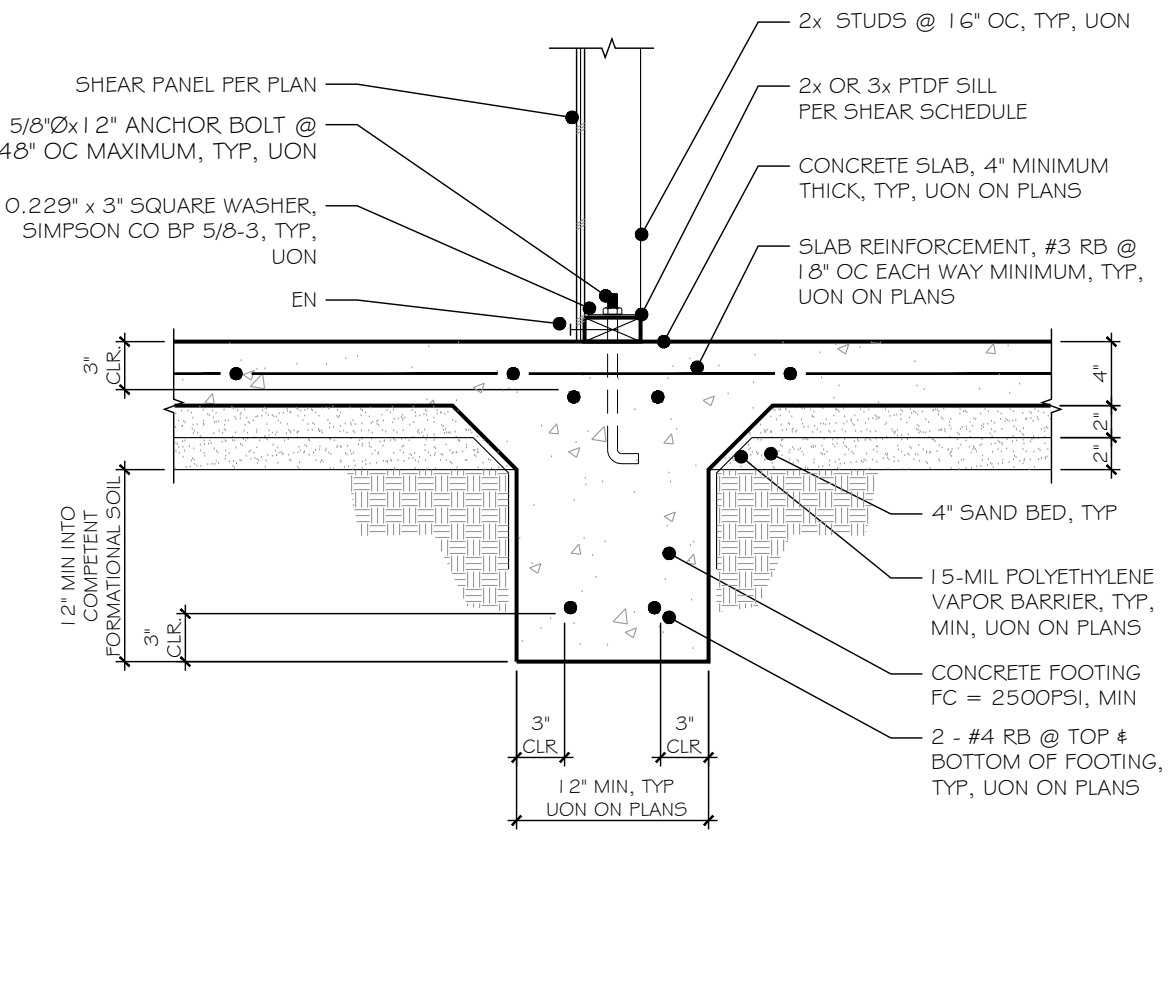
10 TYPICAL POST FOOTING
SCALE: 1" = 1'-0"
A-DT-FDN-CP-0003



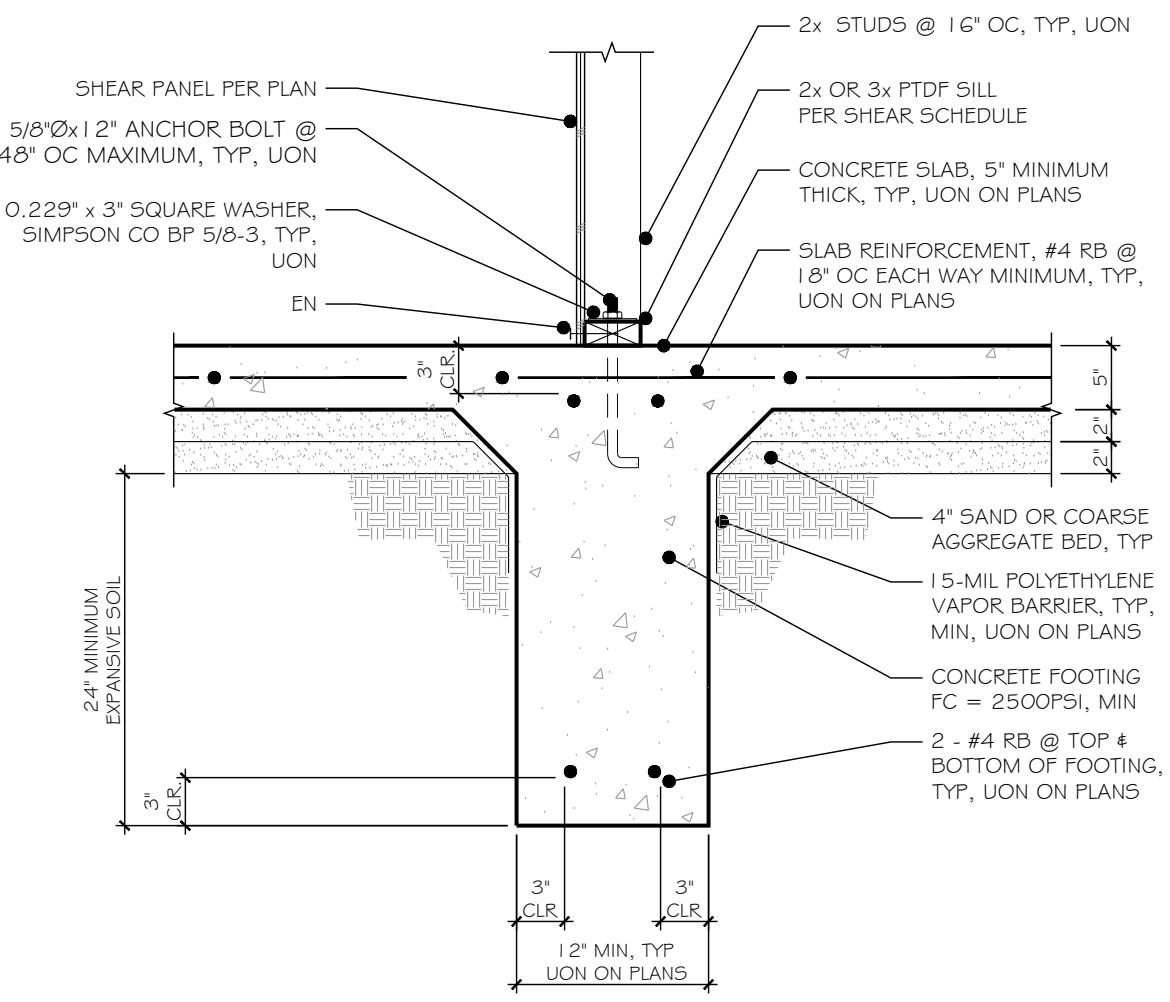
11 CEMENT PLASTER WEEP SCREED AT FOUNDATION
SCALE: 1" = 1'-0"
A-DT-FIN-PL-0001



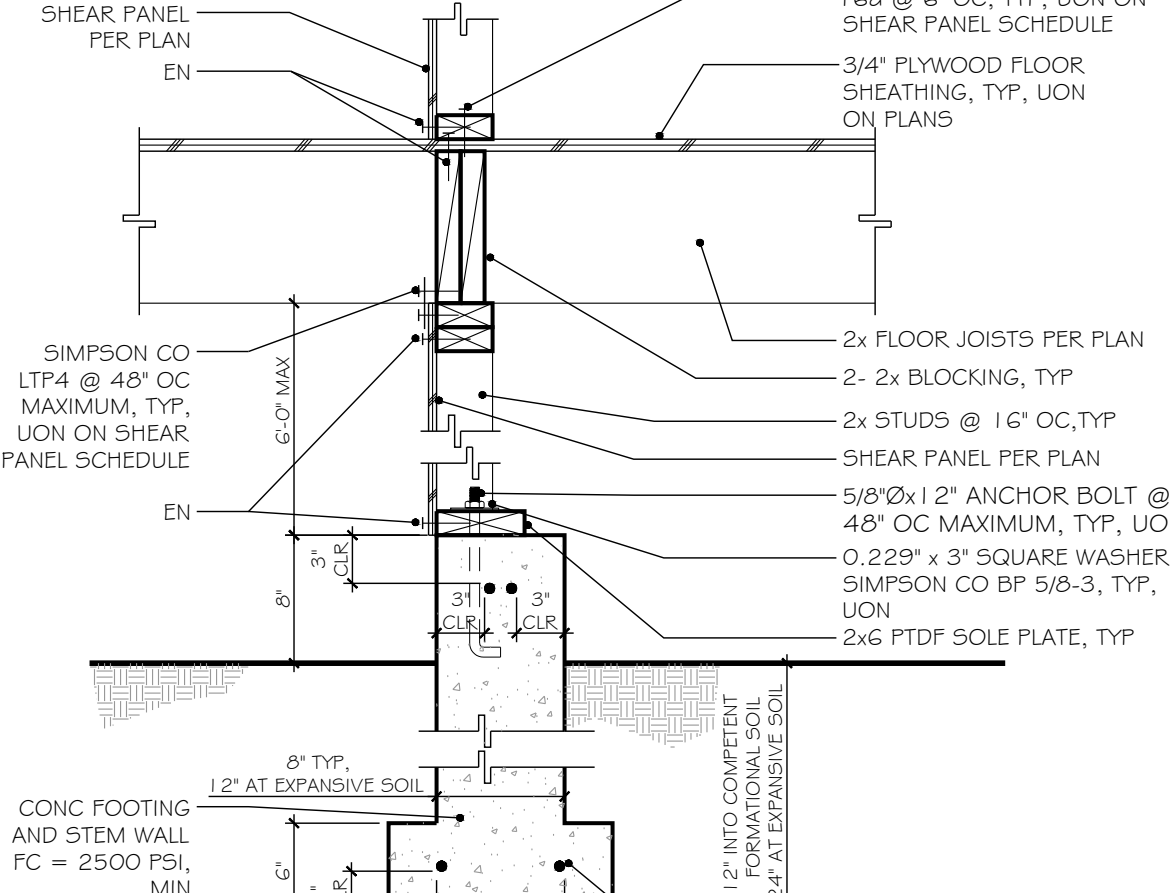
12 FLOOR JOIST AND GIRDER BEAMS AT PAD FOOTING
SCALE: 1" = 1'-0"
A-DT-FDN-SW-0133



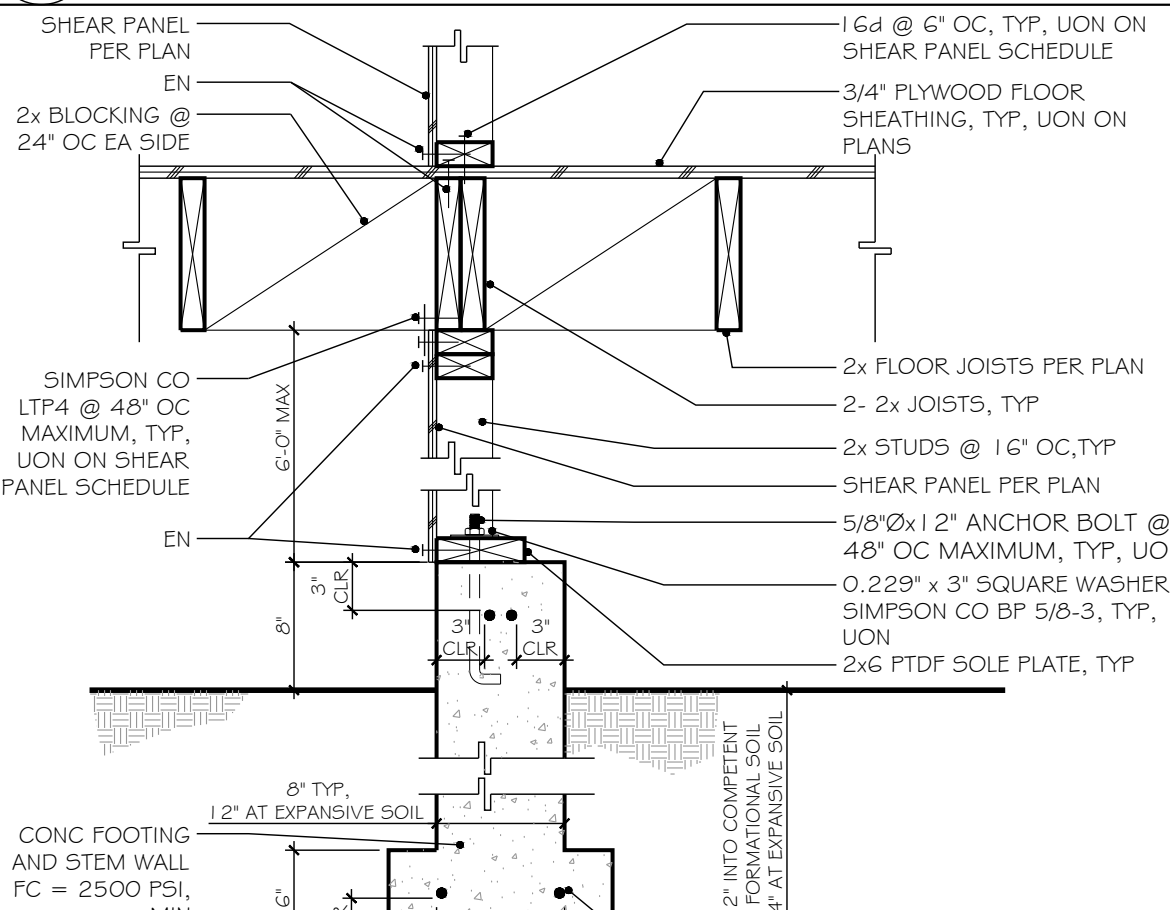
5 SLAB ON GRADE ONE STORY INTERIOR FOOTING
SCALE: 1" = 1'-0"
A-DT-FDN-SG-INT-014



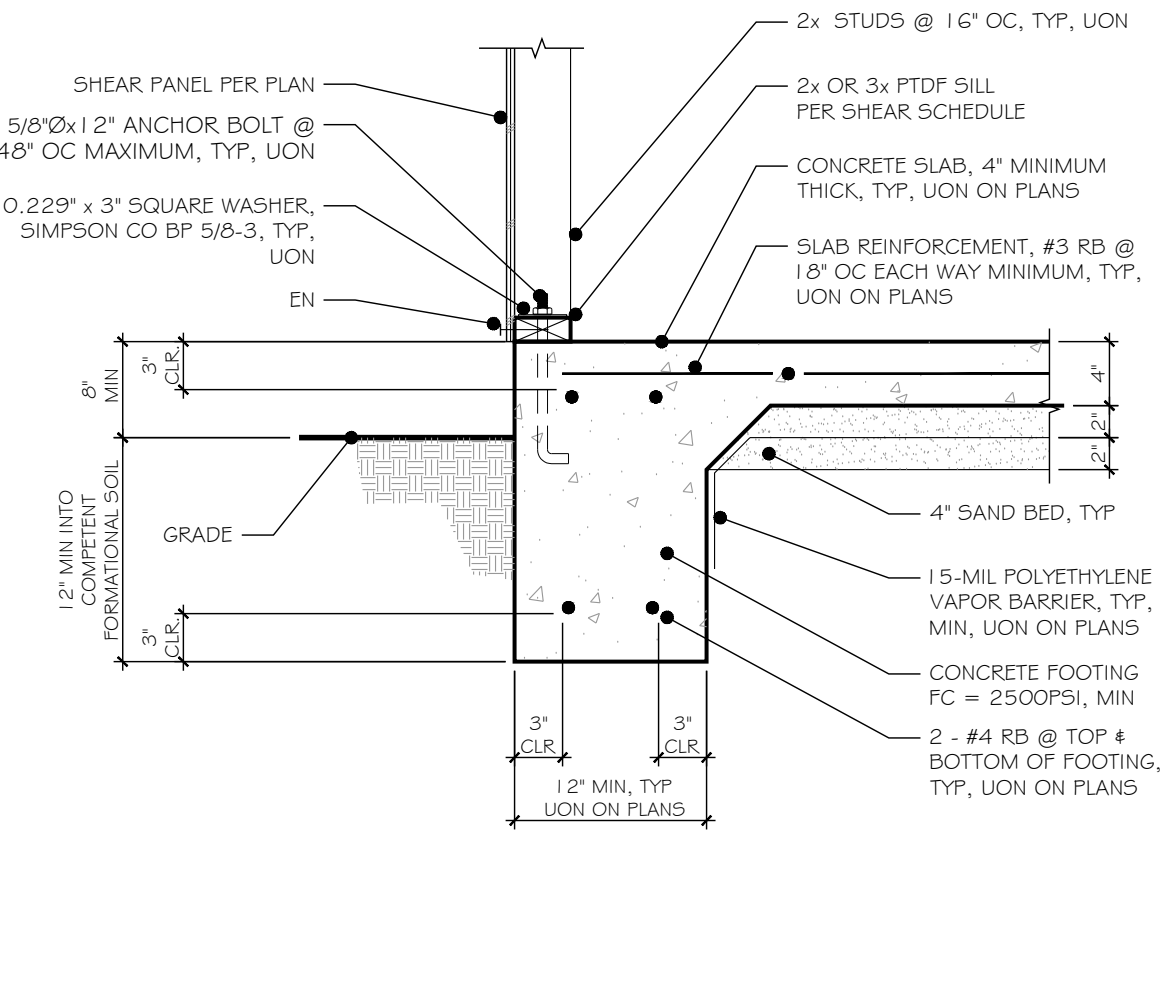
6 ONE STORY INTERIOR EXPANSIVE SOIL FOOTING
SCALE: 1" = 1'-0"
A-DT-FDN-SG-INT-015



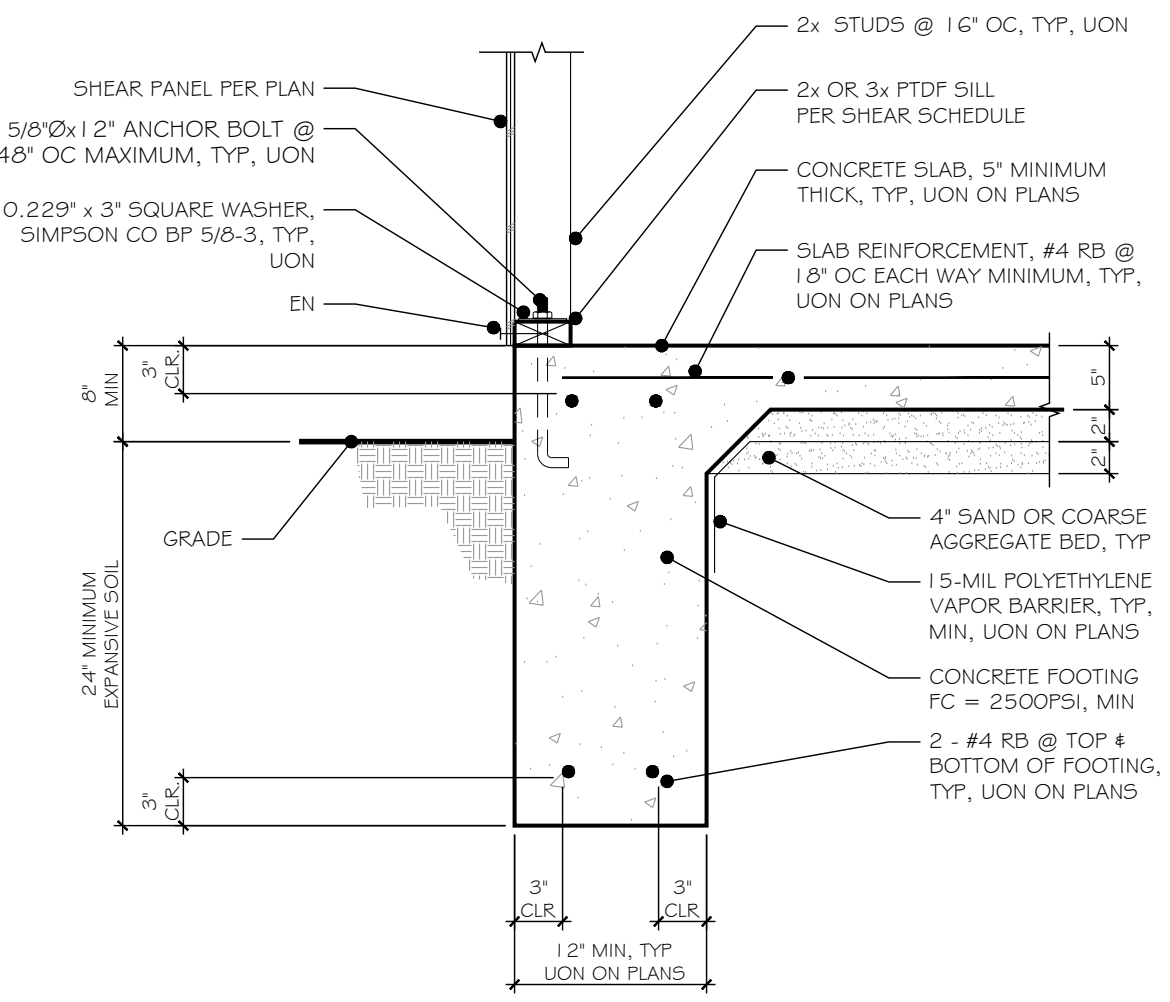
7 ONE-STOREY INTERIOR STEM WALL FOOTING - PERPENDICULAR
SCALE: 1" = 1'-0"
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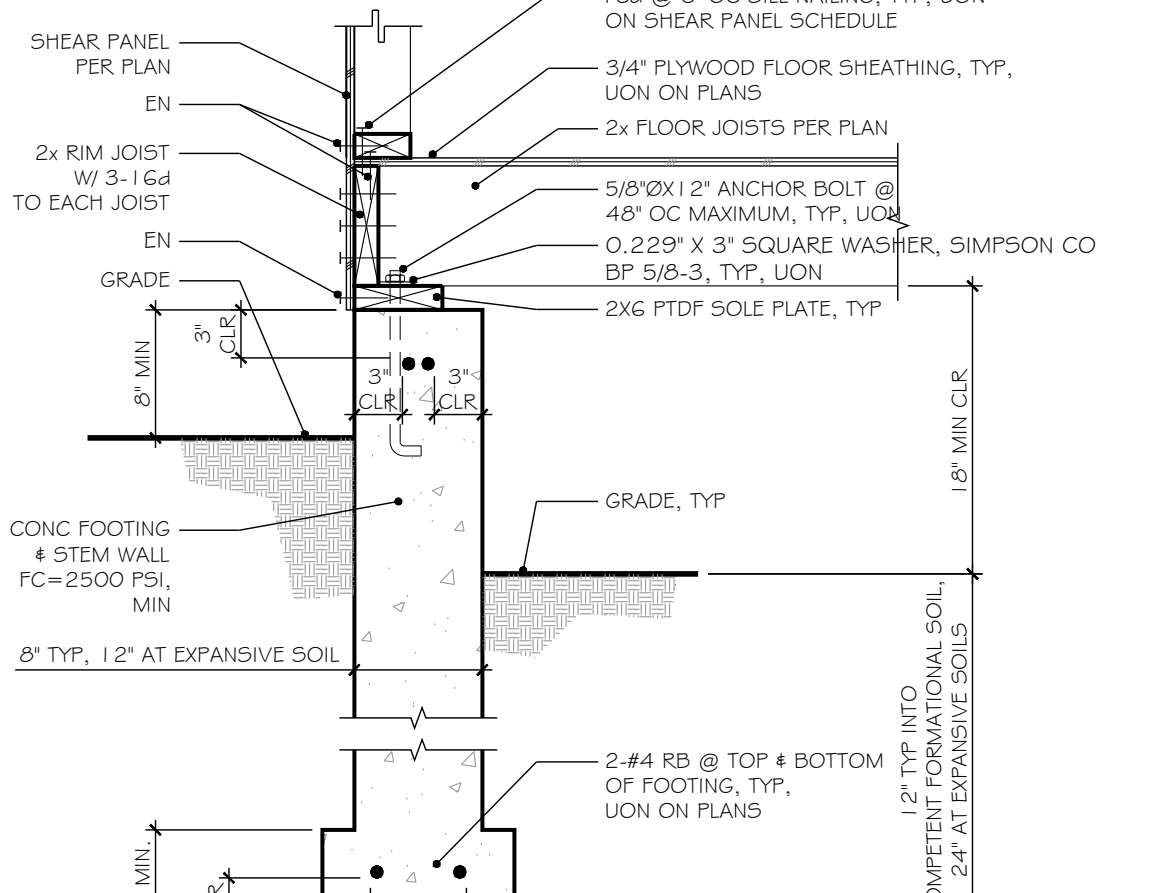
8 ONE-STOREY INTERIOR STEM WALL FOOTING - PARALLEL
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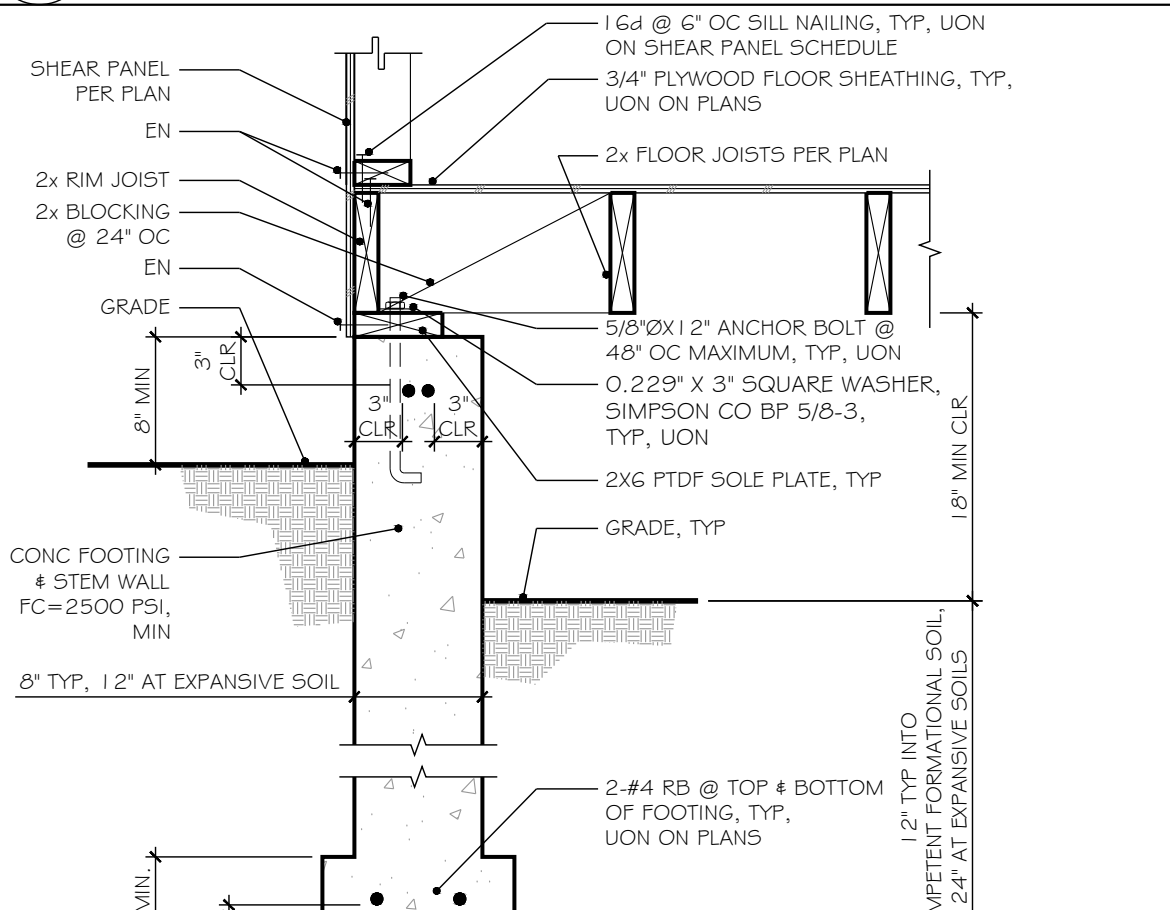
1 SLAB ON GRADE ONE STORY PERIMETER FOOTING
SCALE: 1" = 1'-0"
A-DT-FDN-SG-PTR-025



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



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



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

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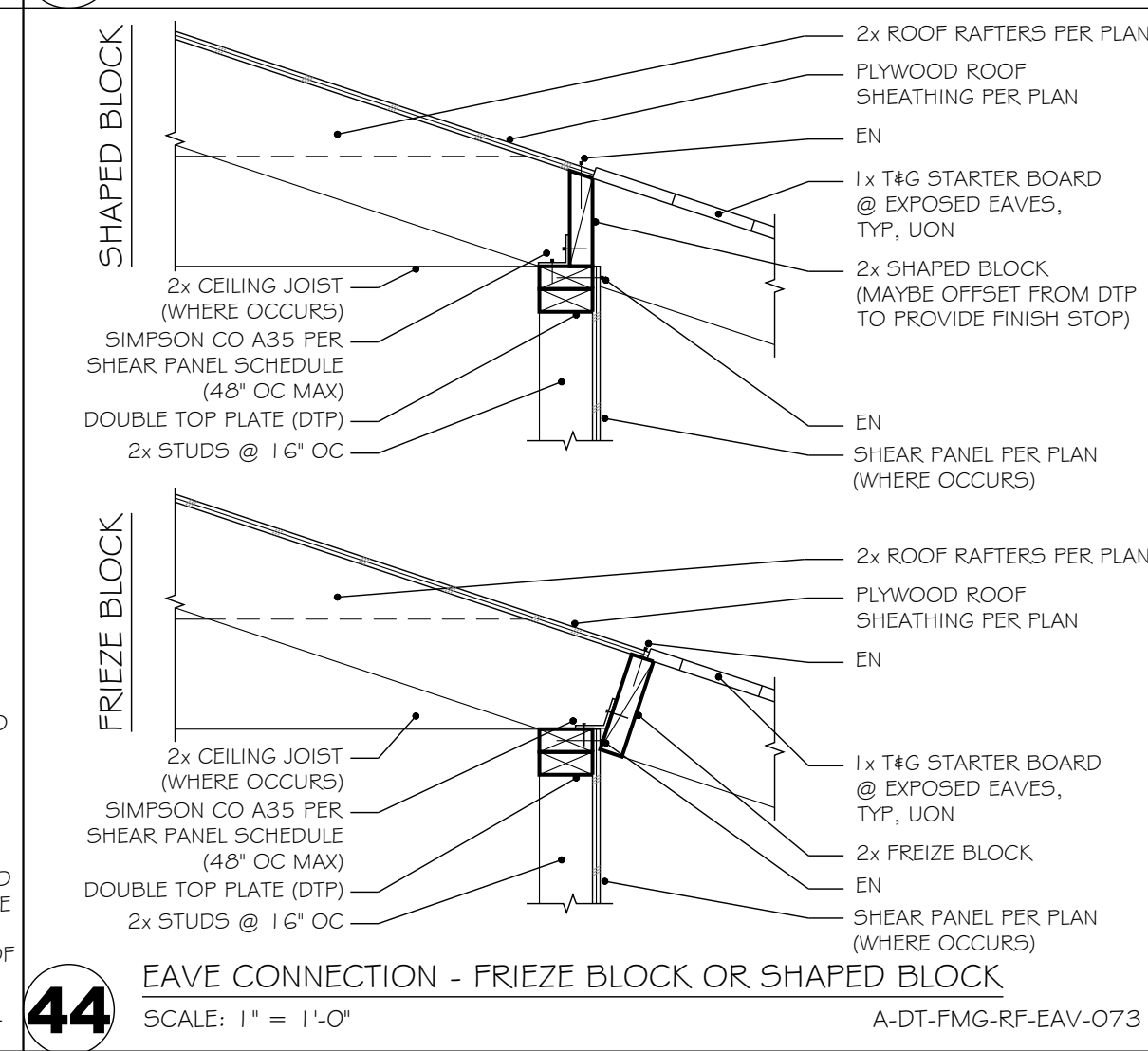
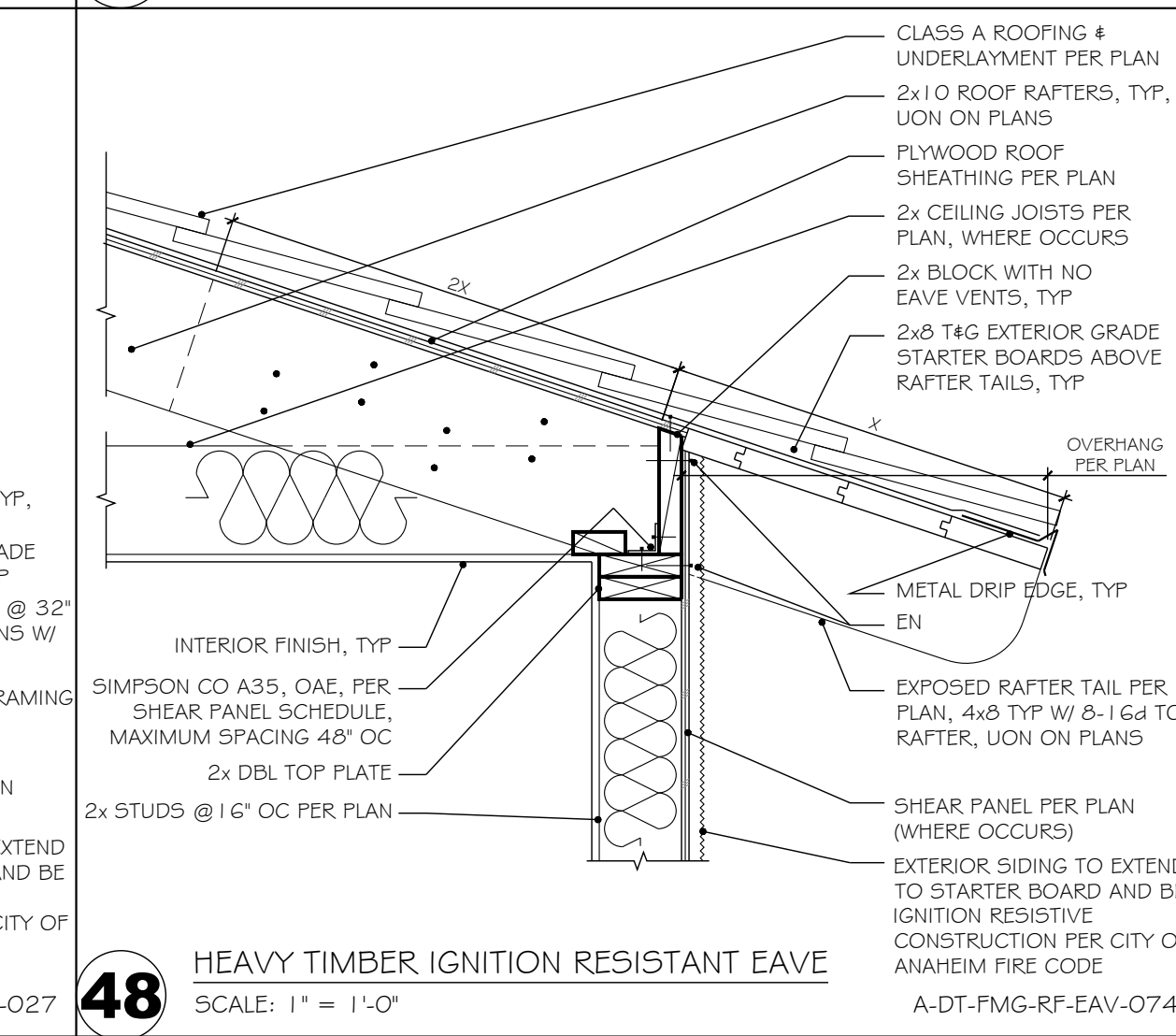
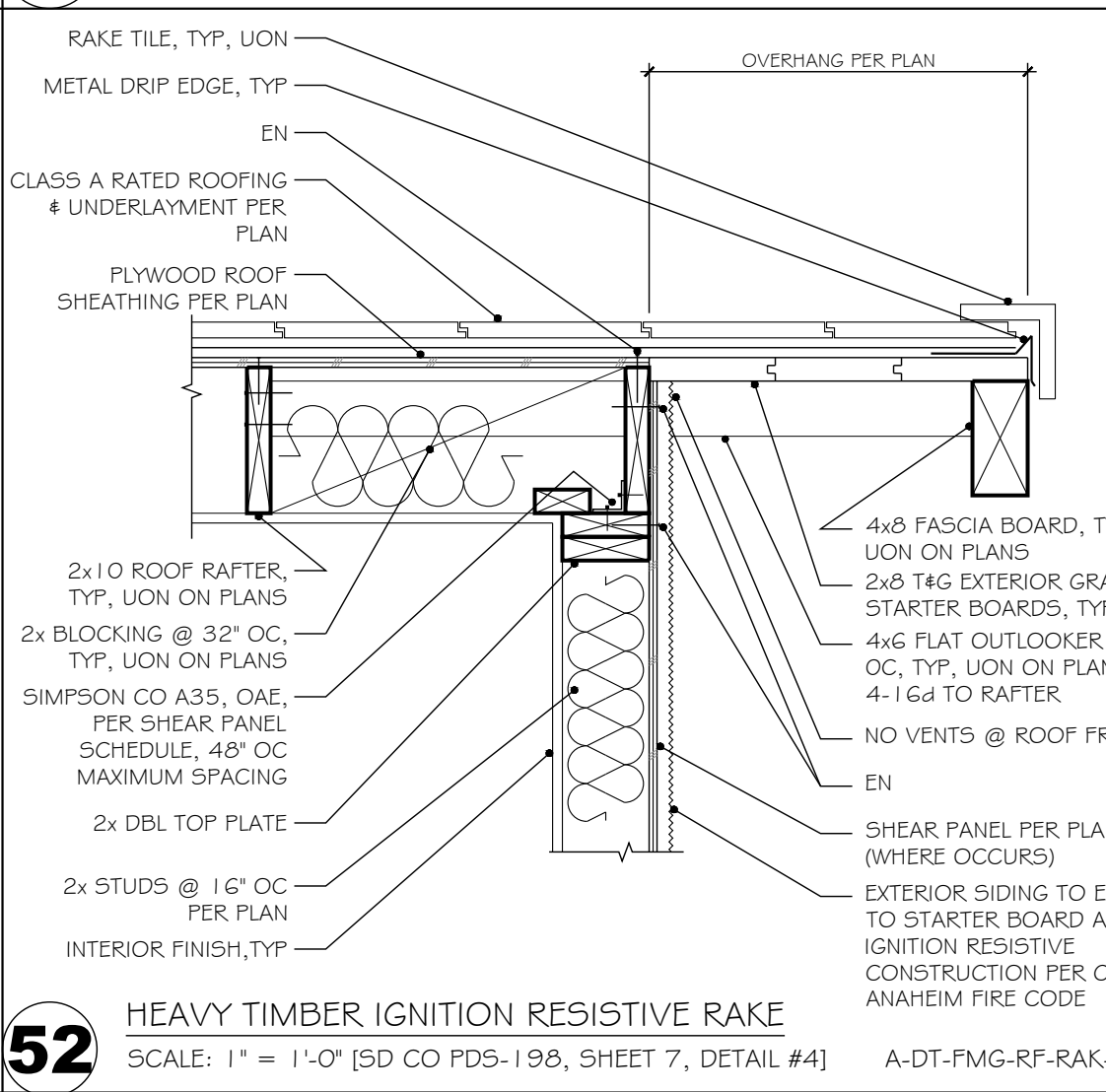
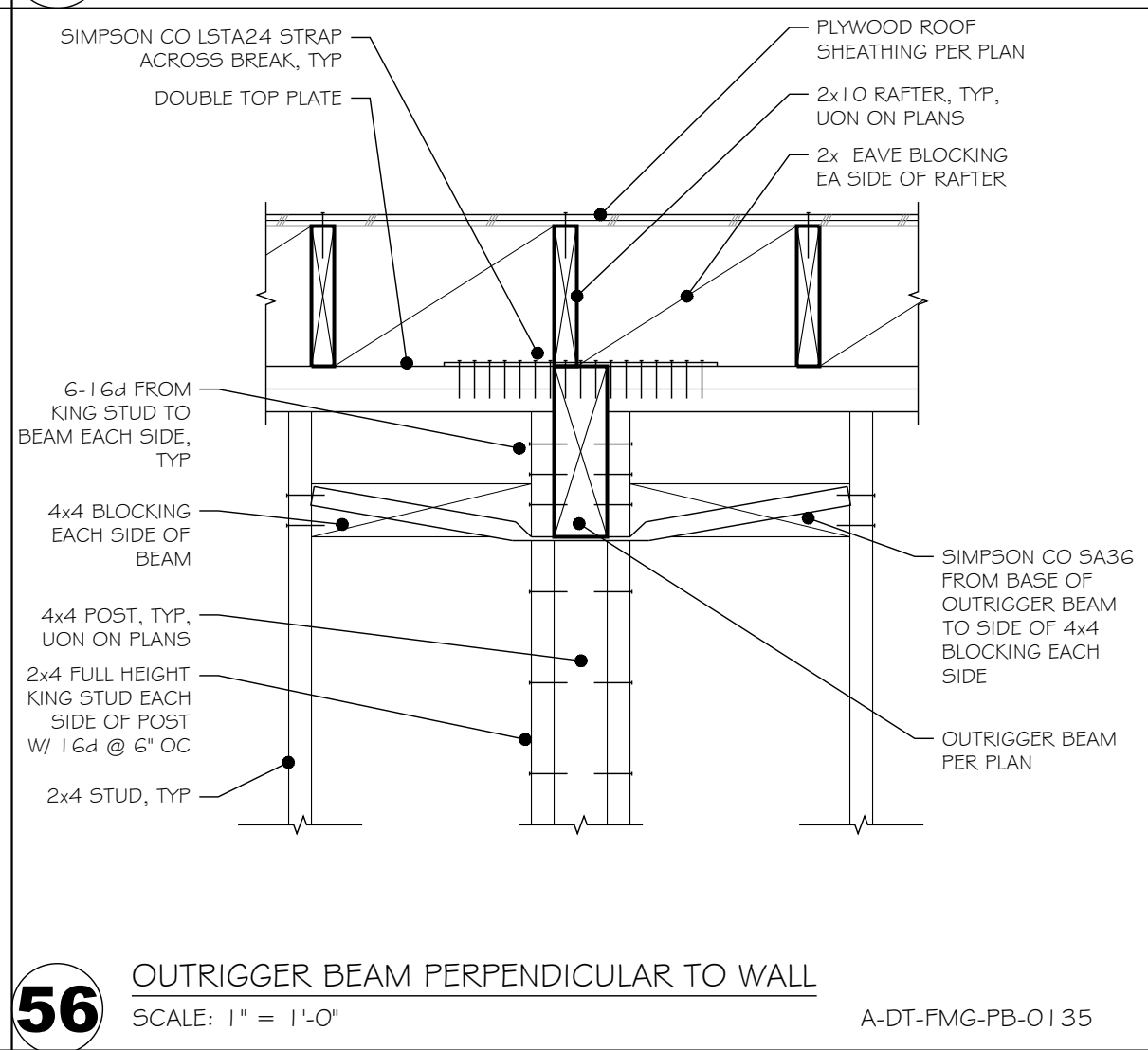
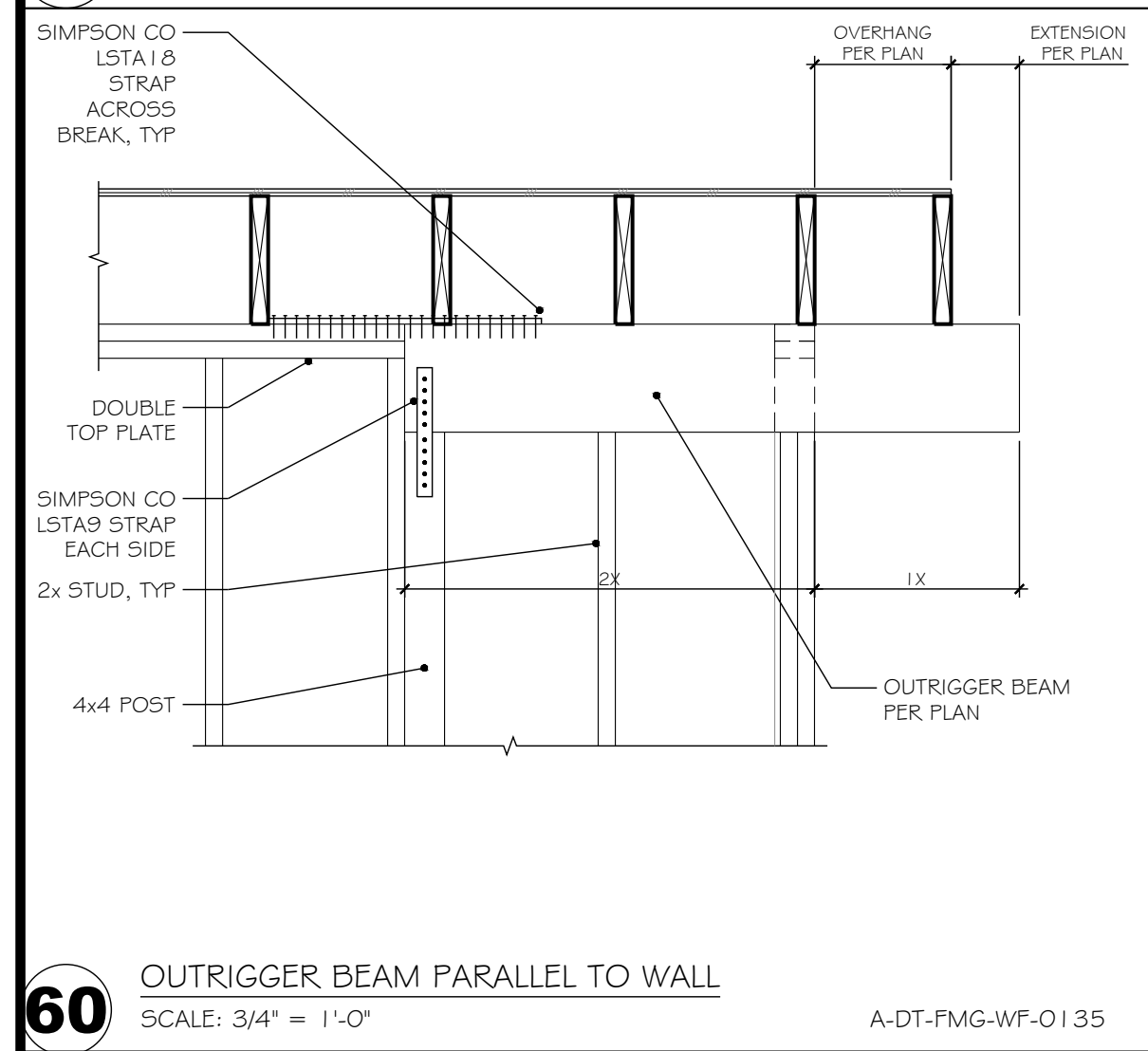
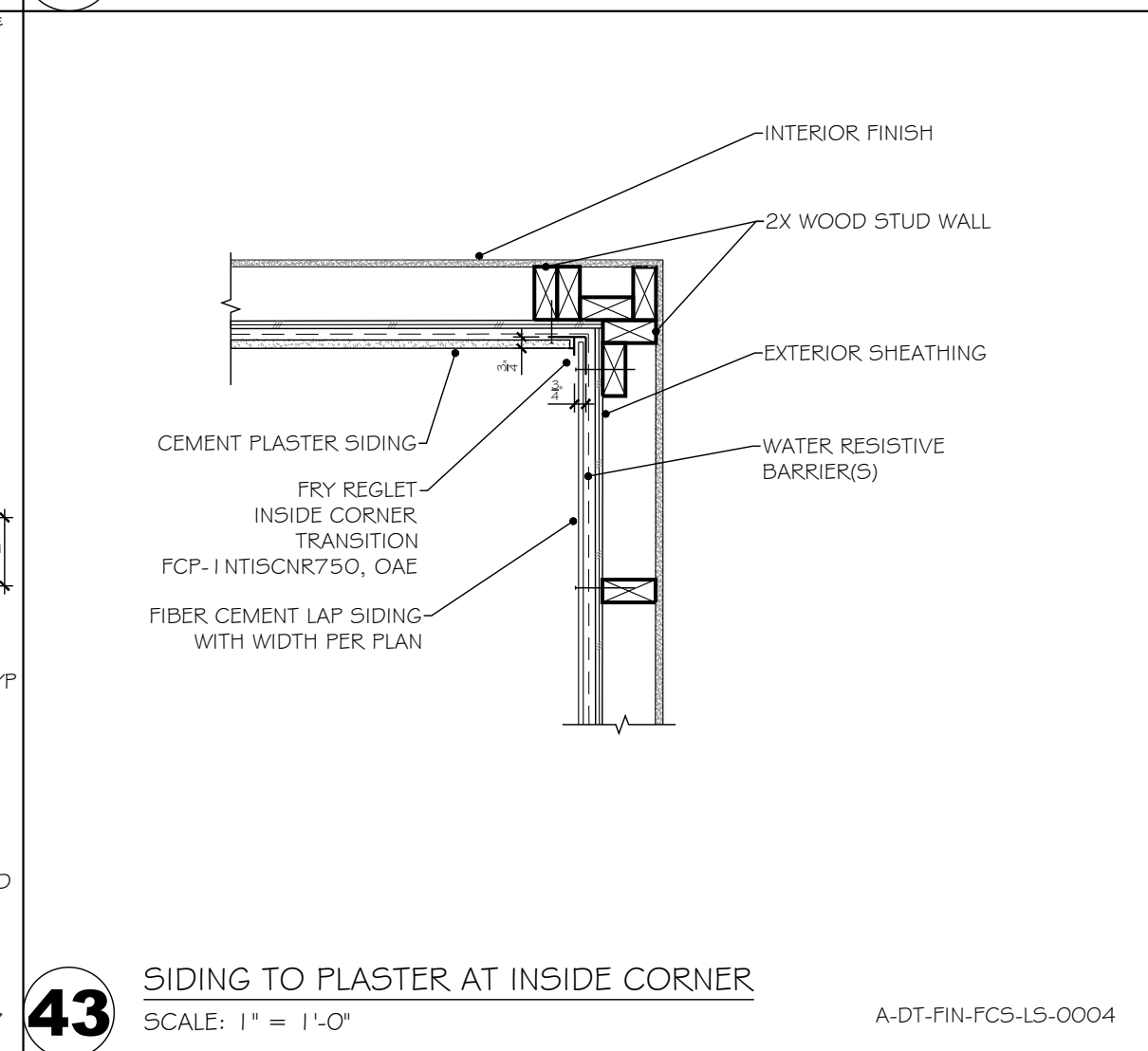
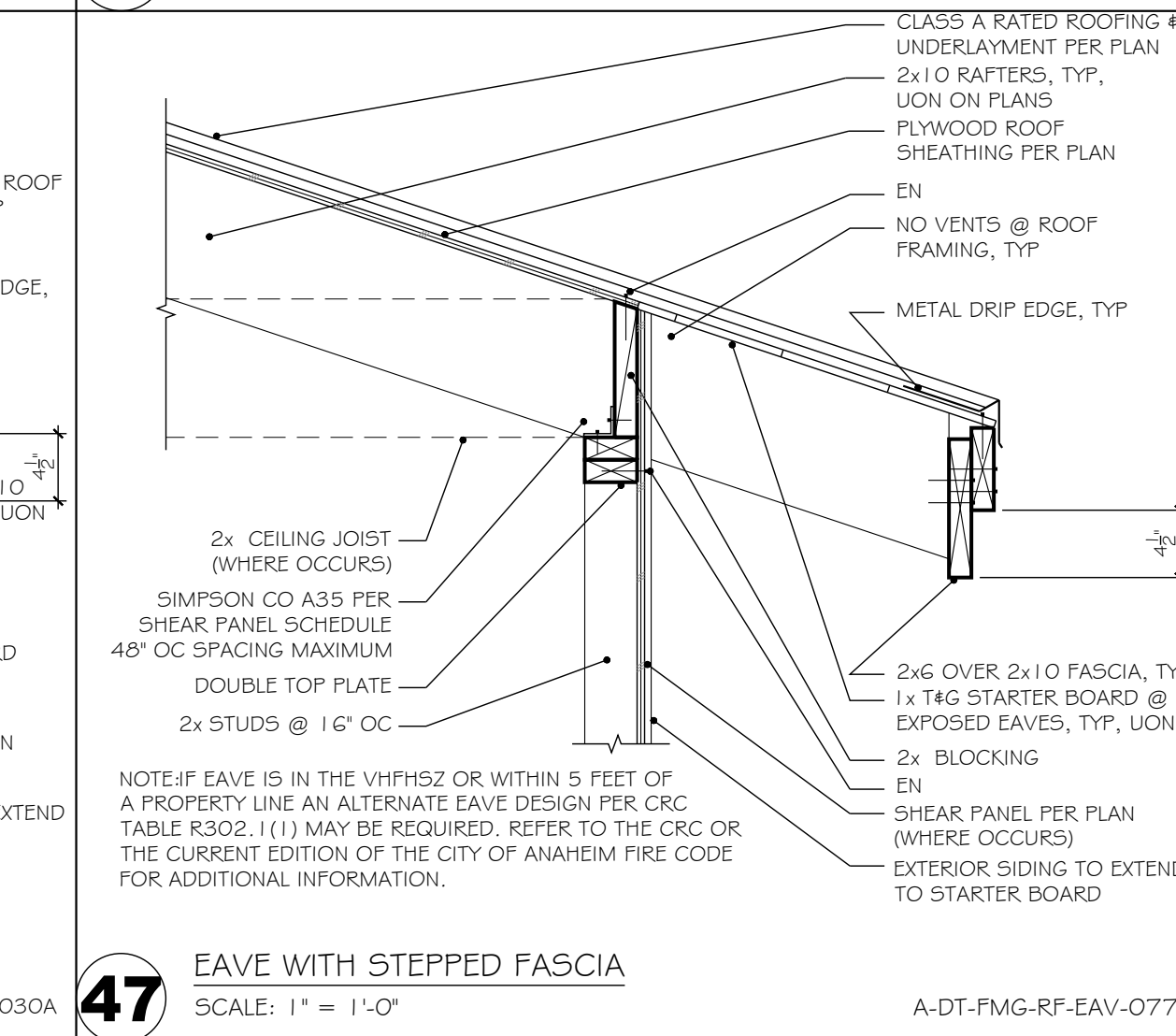
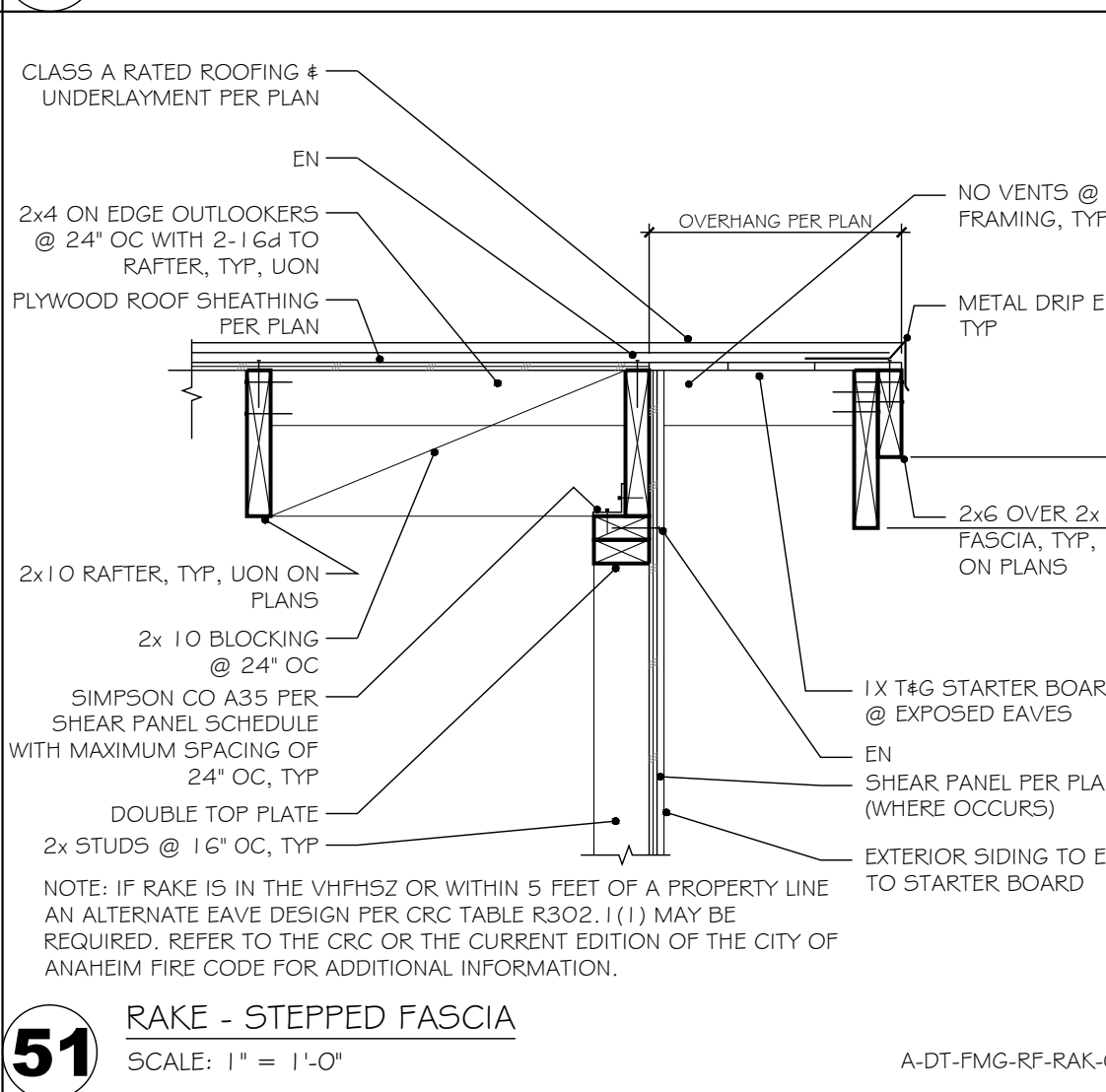
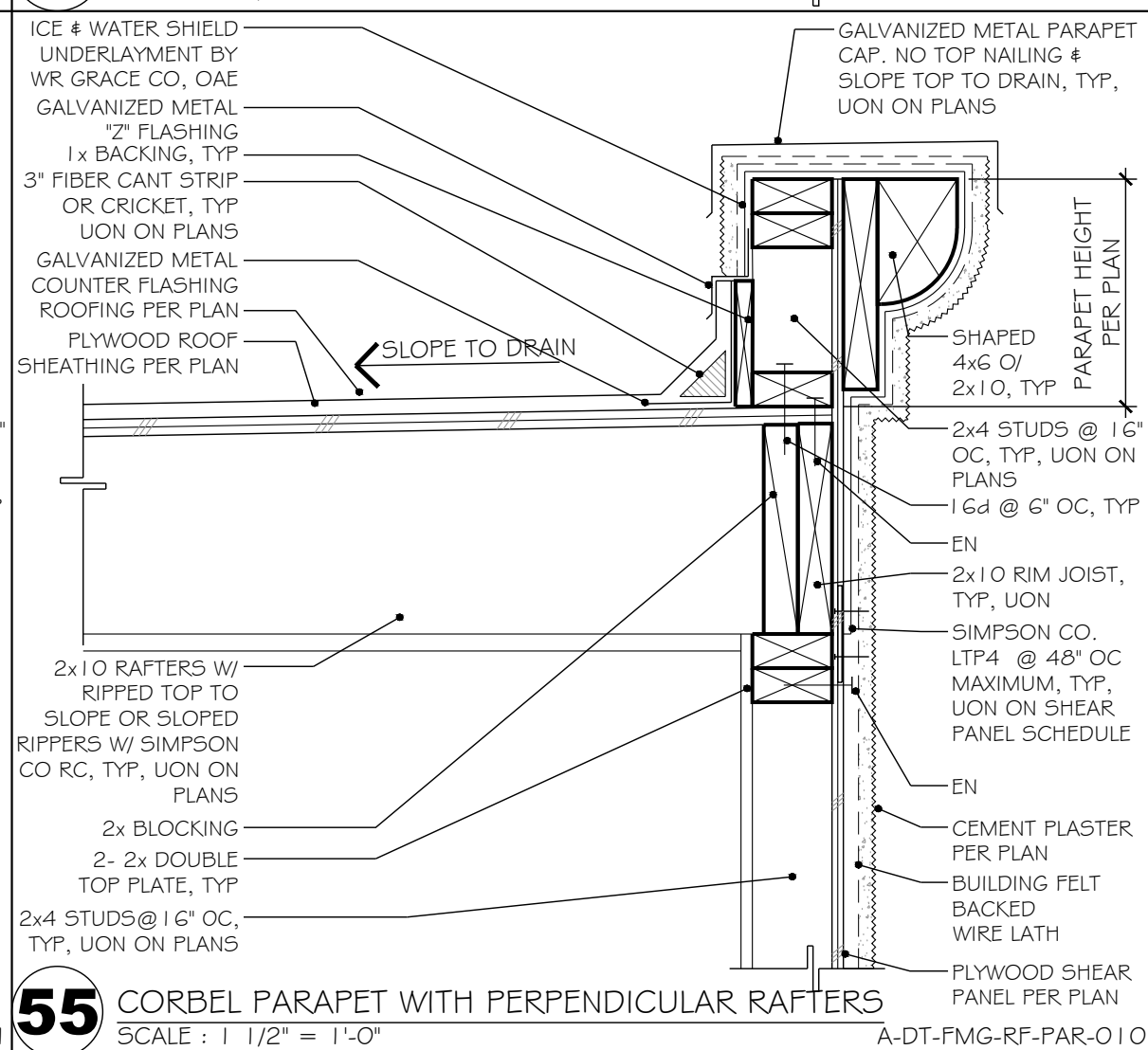
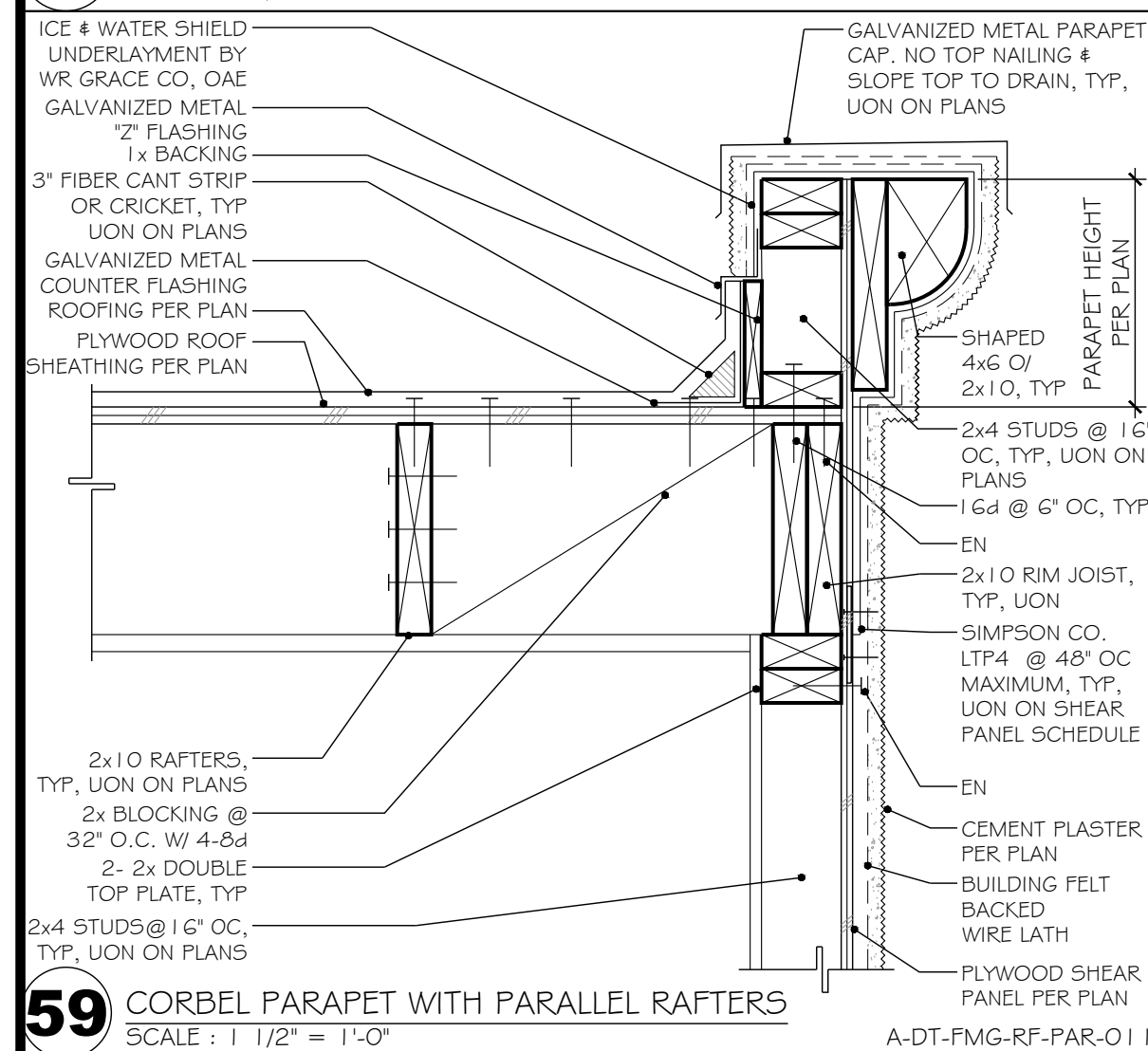
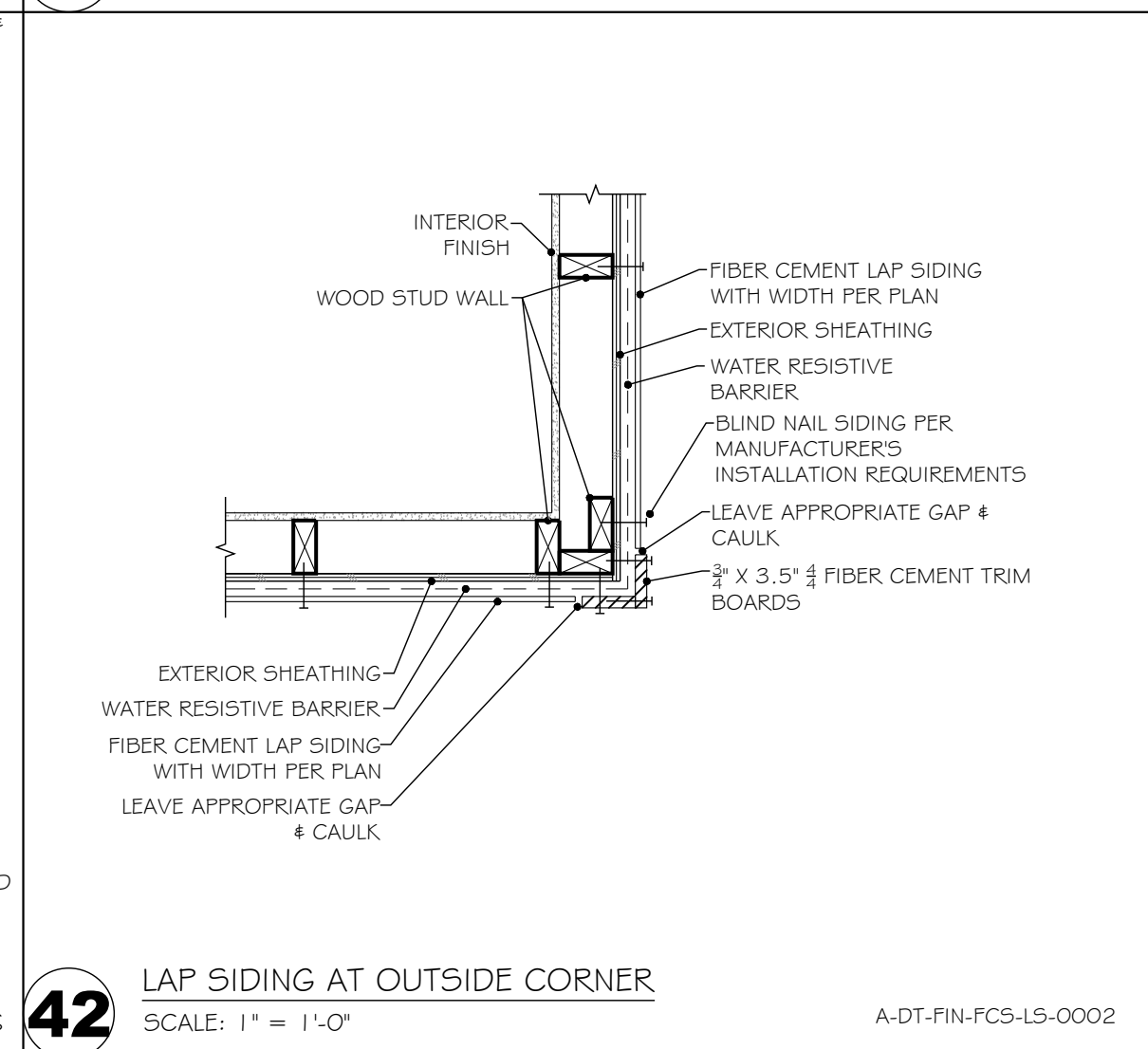
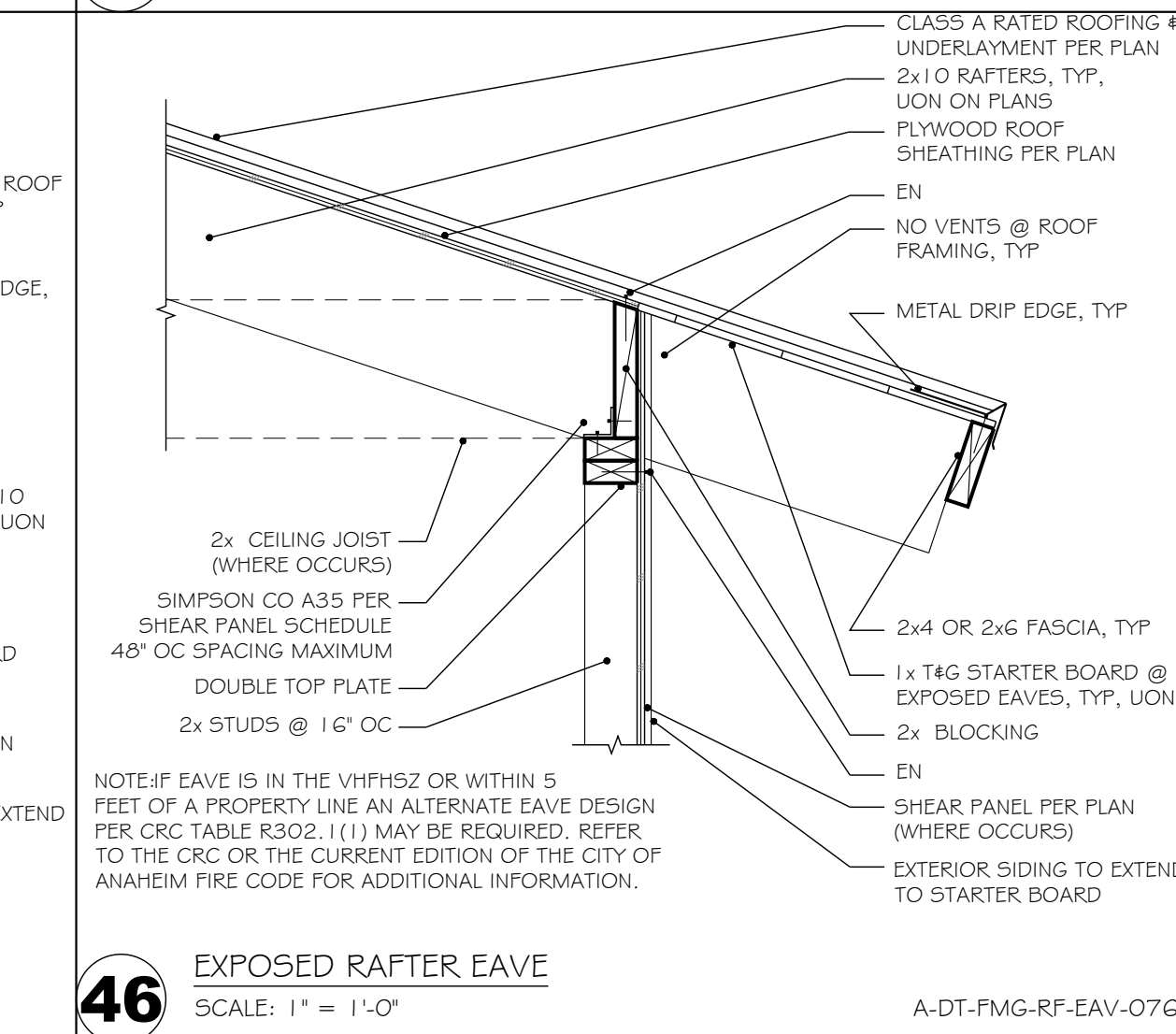
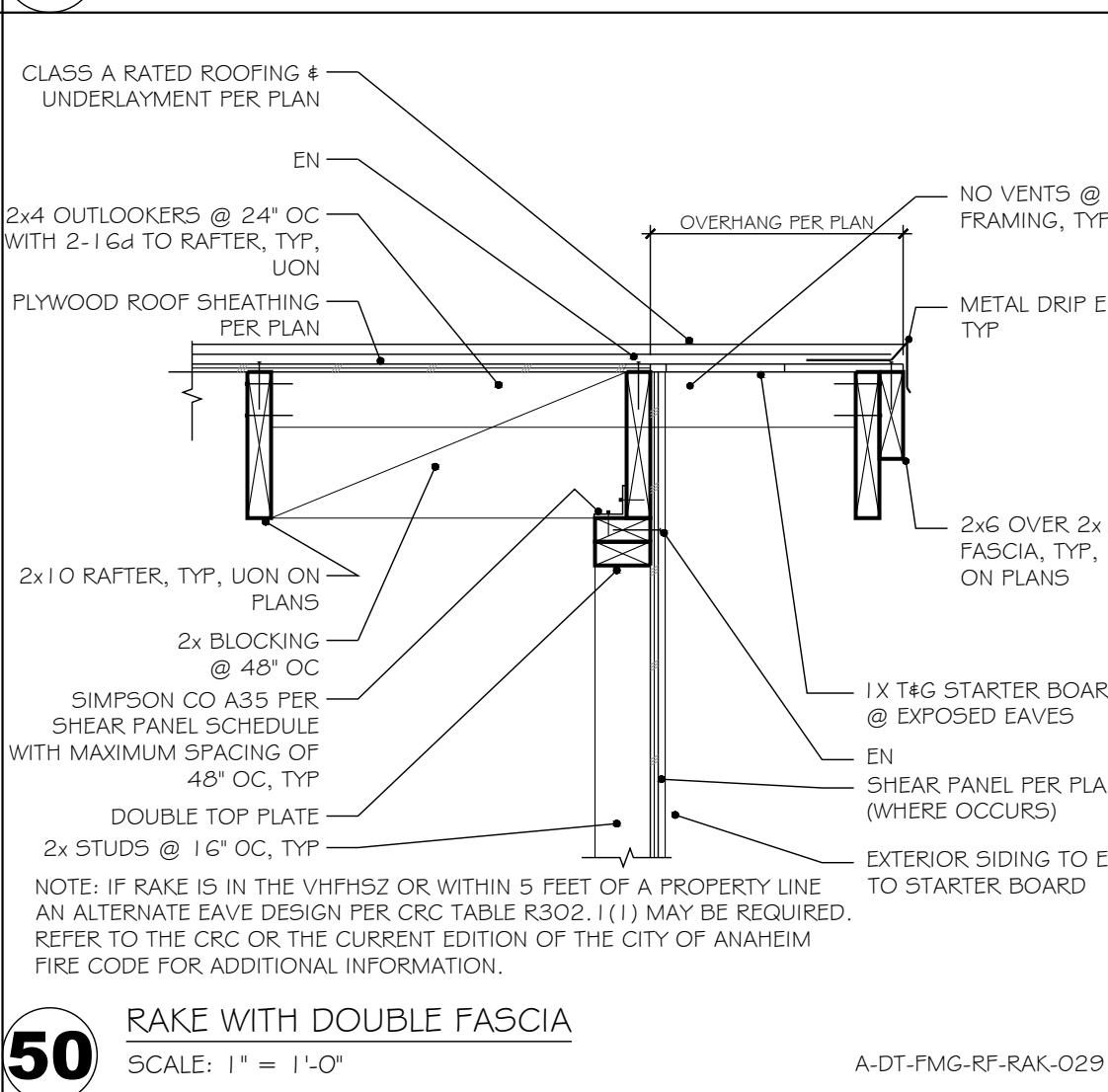
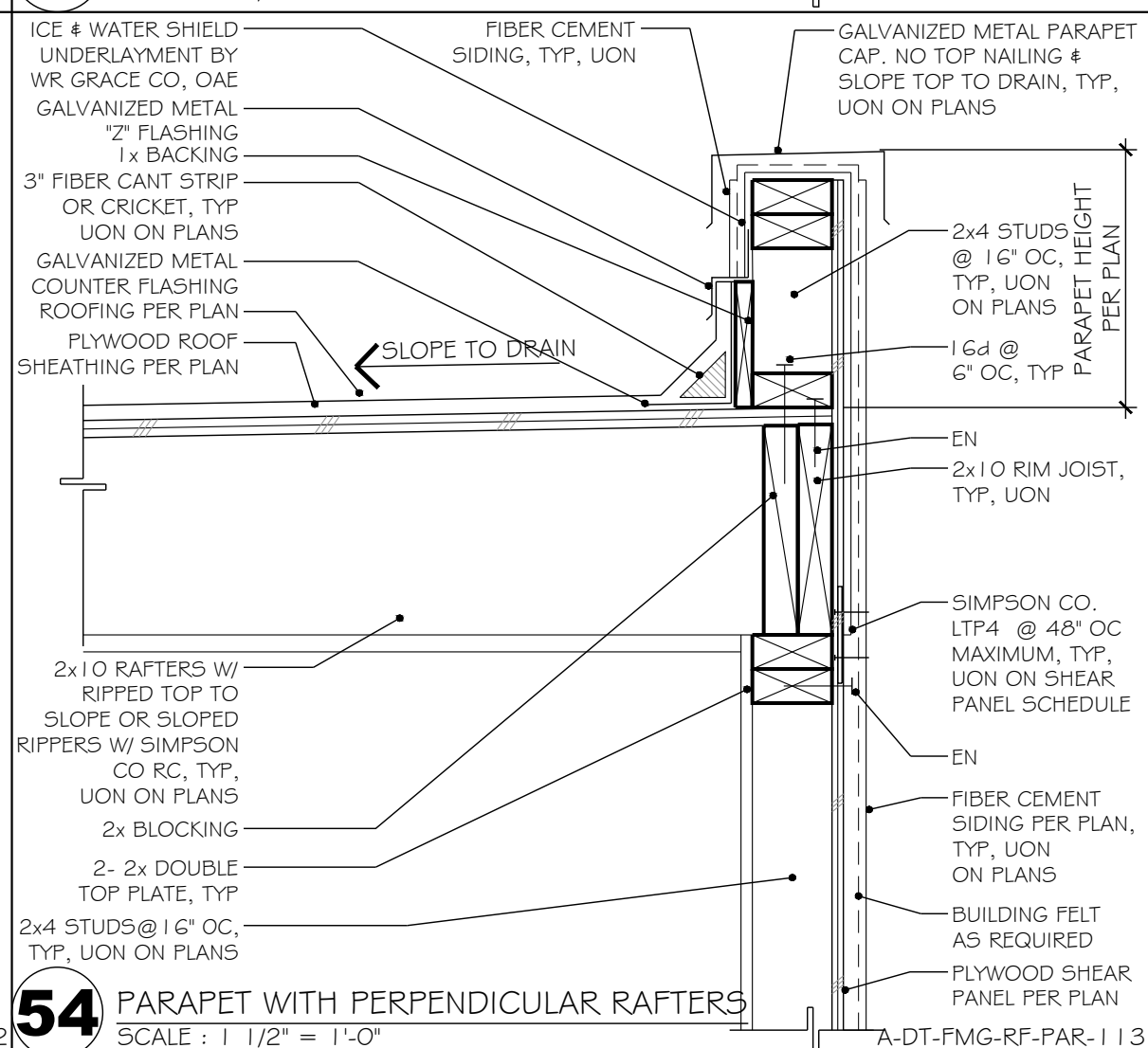
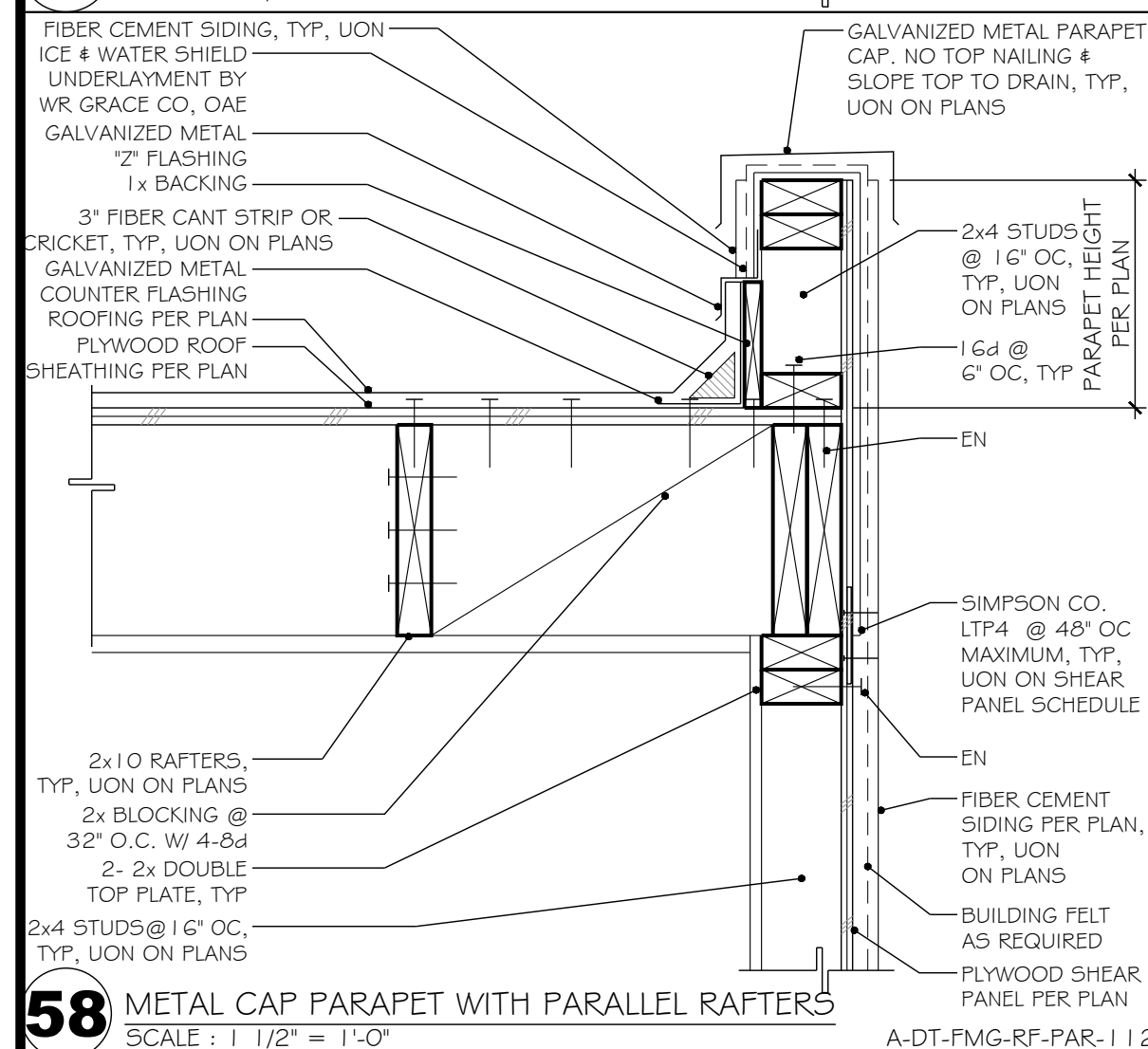
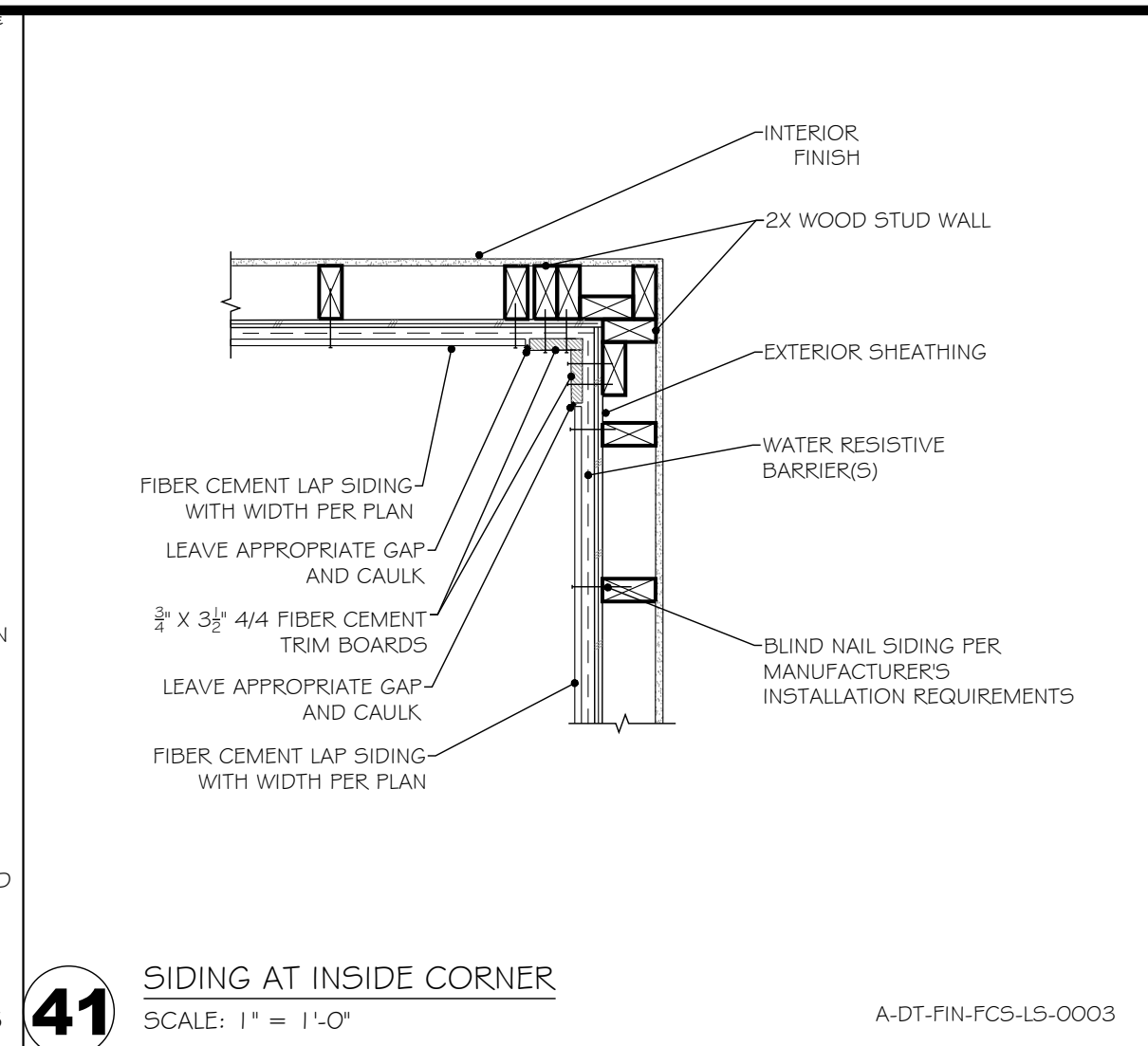
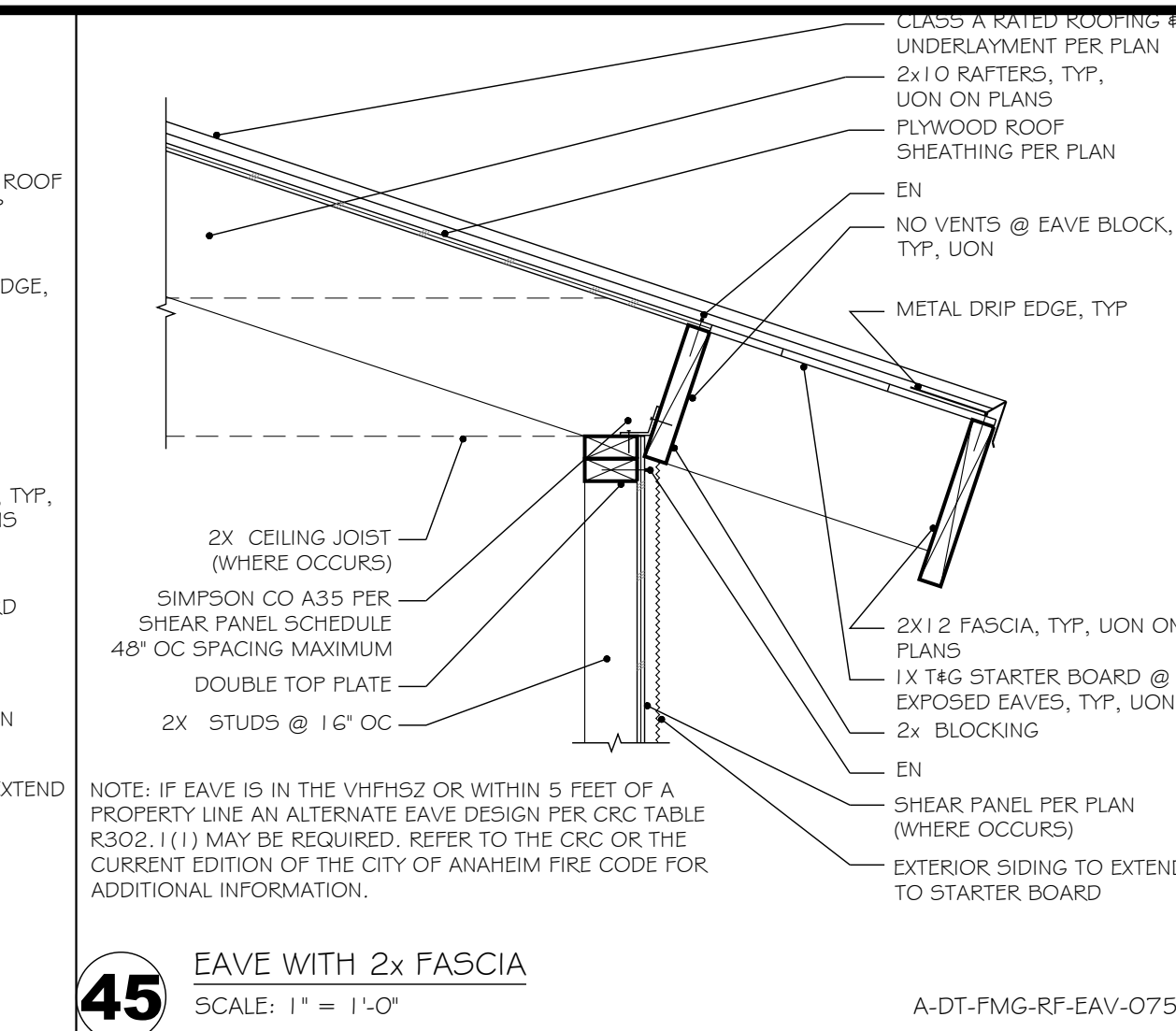
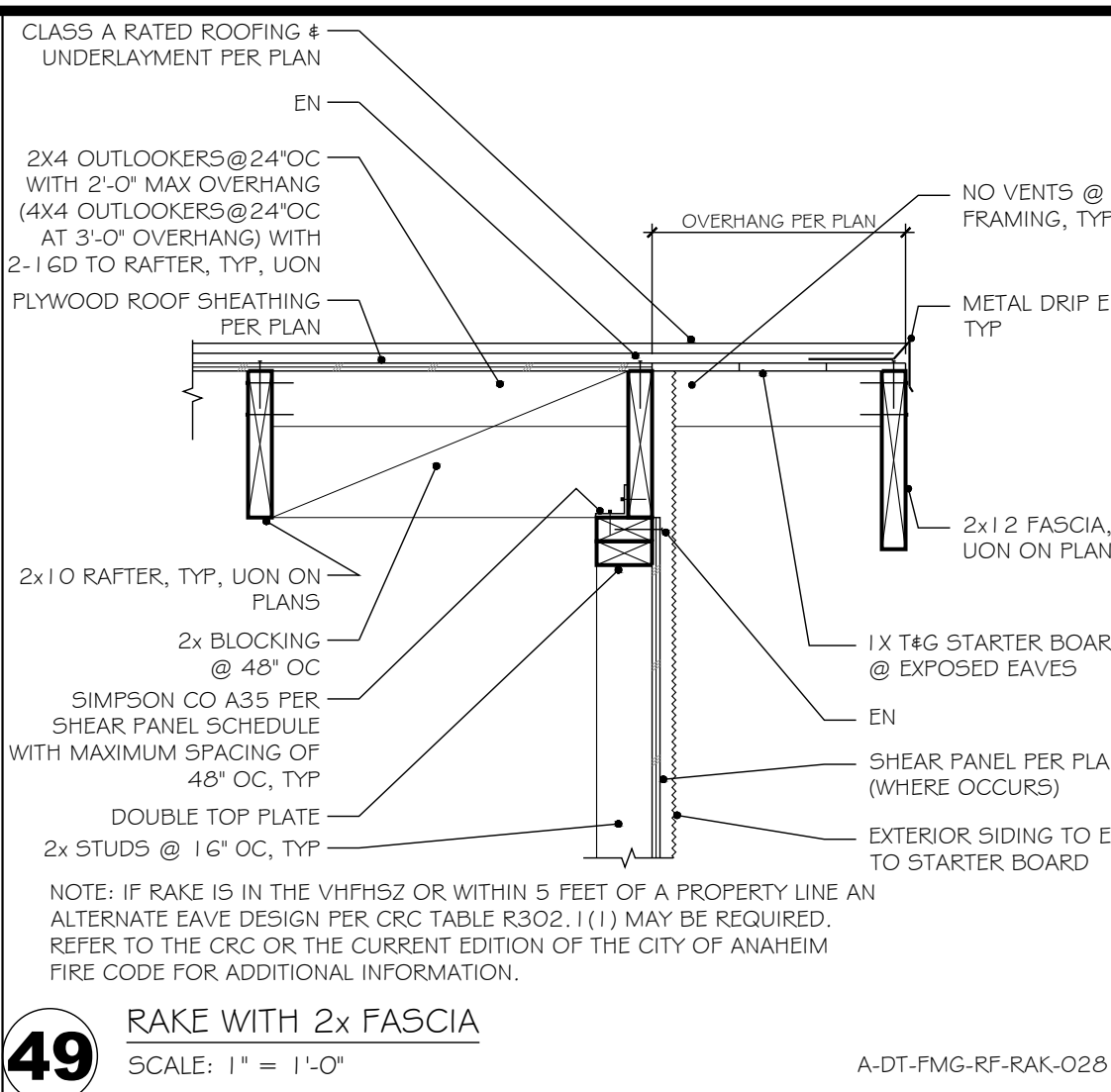
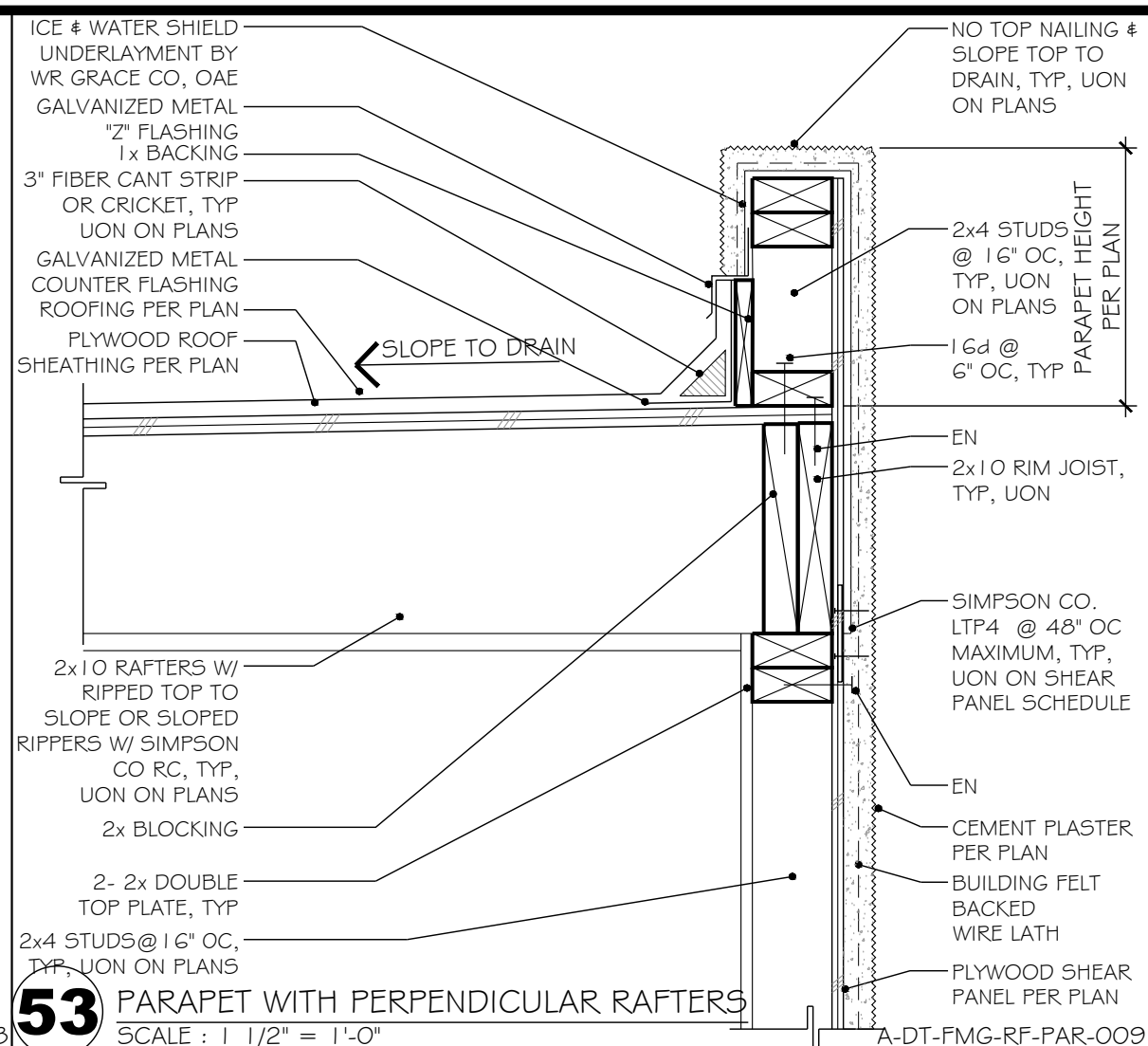
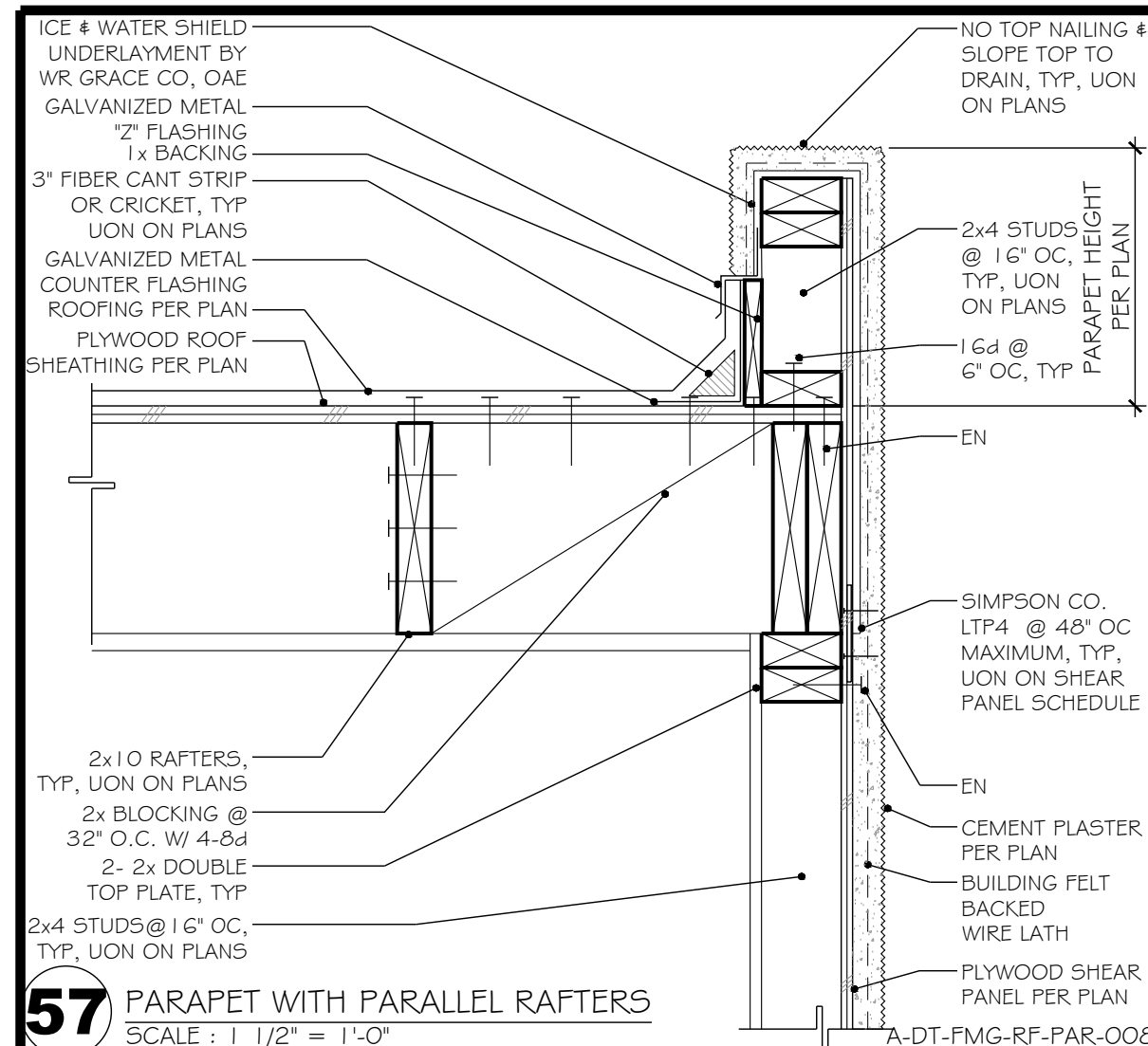
ANAHEIM PRADU

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JOB: 202409R

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ANAHEIM PRADU

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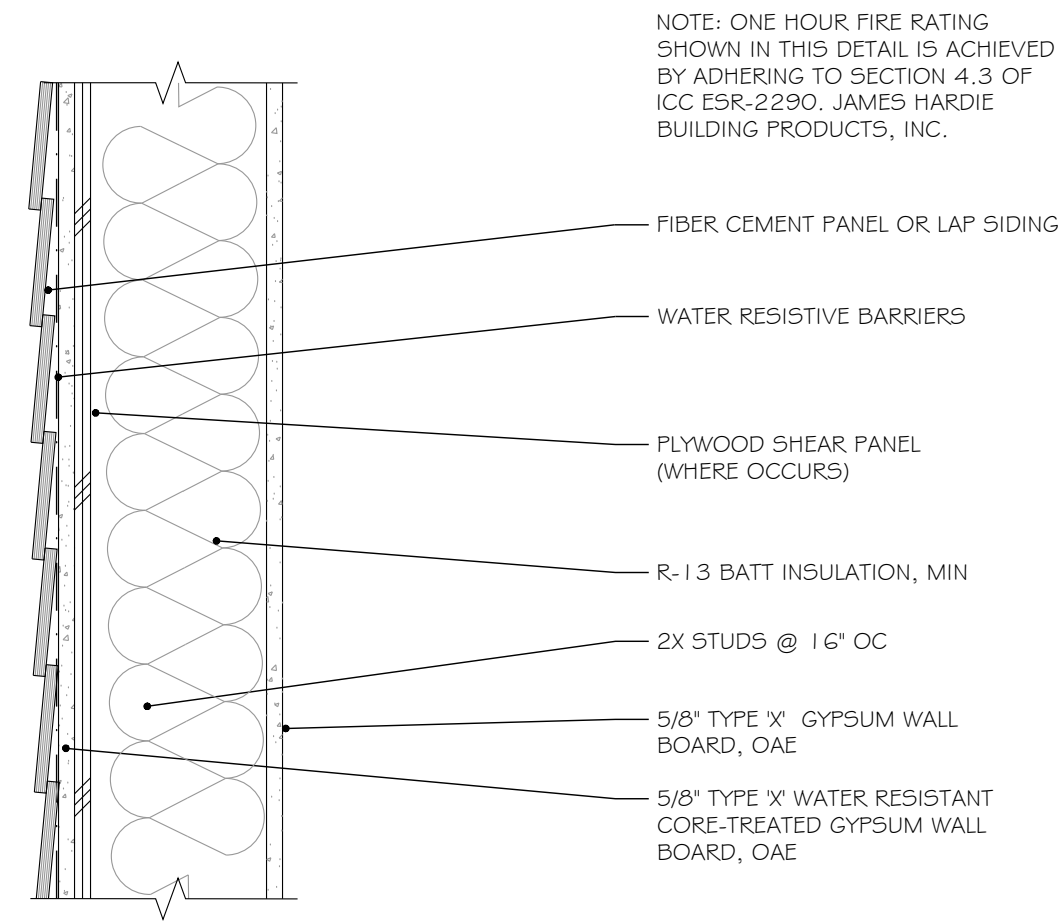
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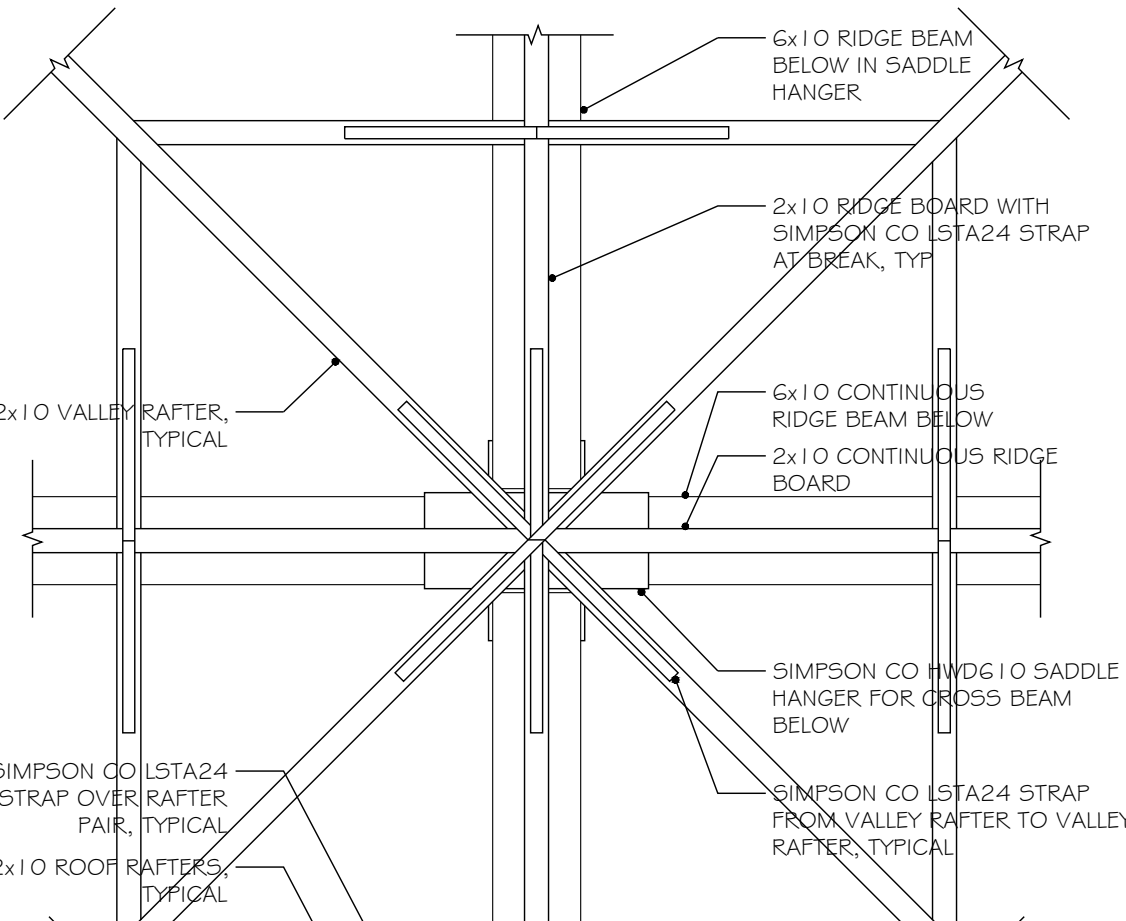
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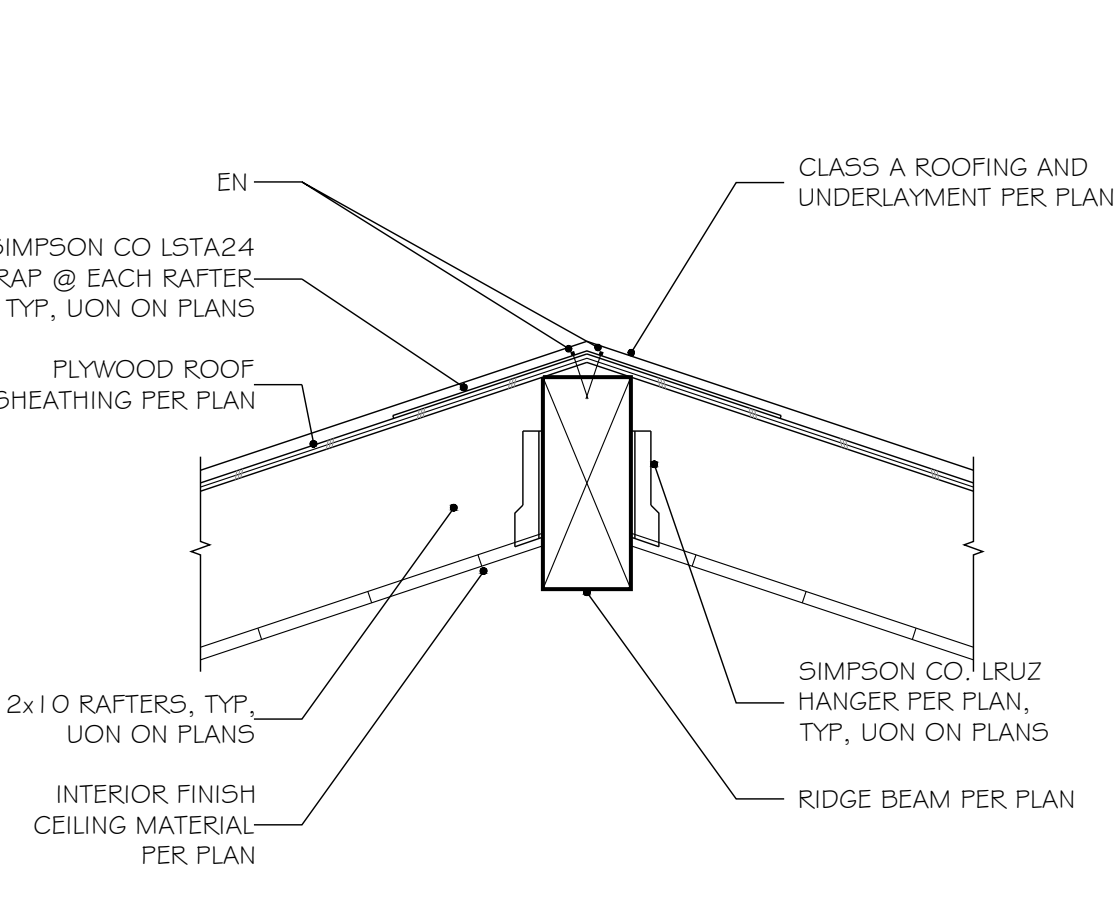
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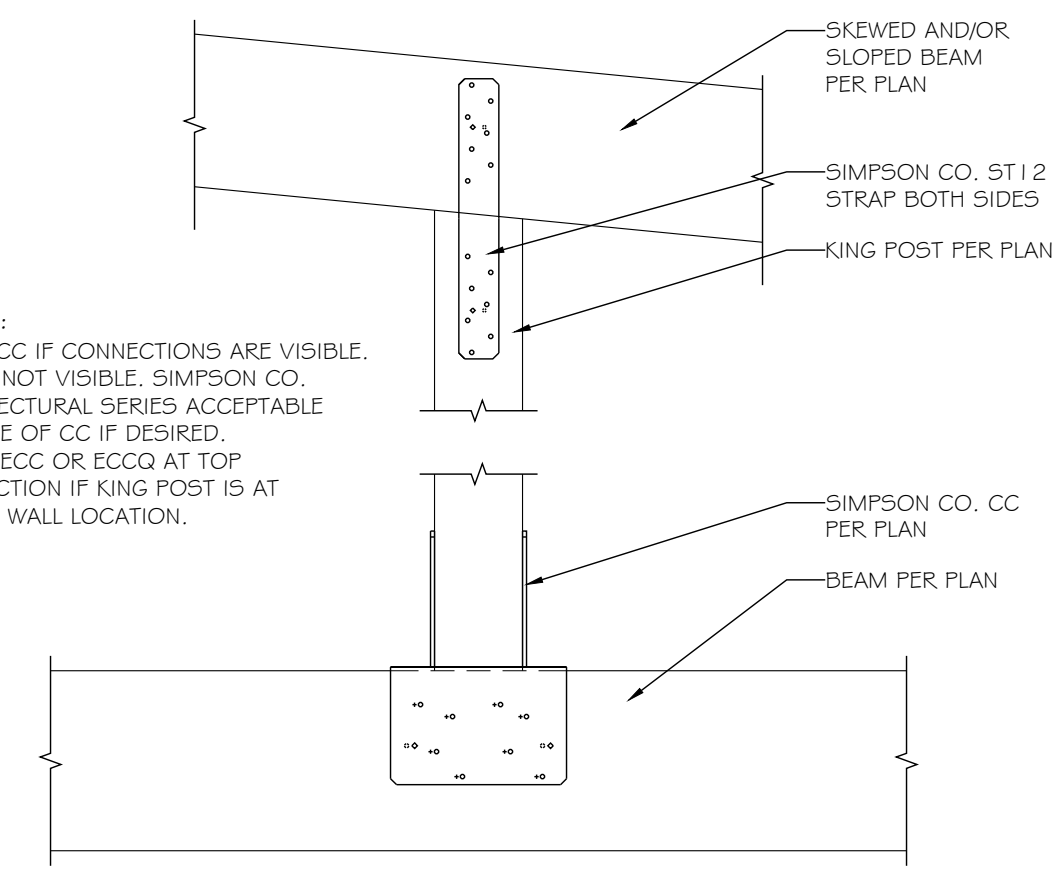
89 EXTERIOR ONE HOUR WALL - FIBER CEMENT SIDING EXTERIOR
SCALE: 2' = 1'-0"



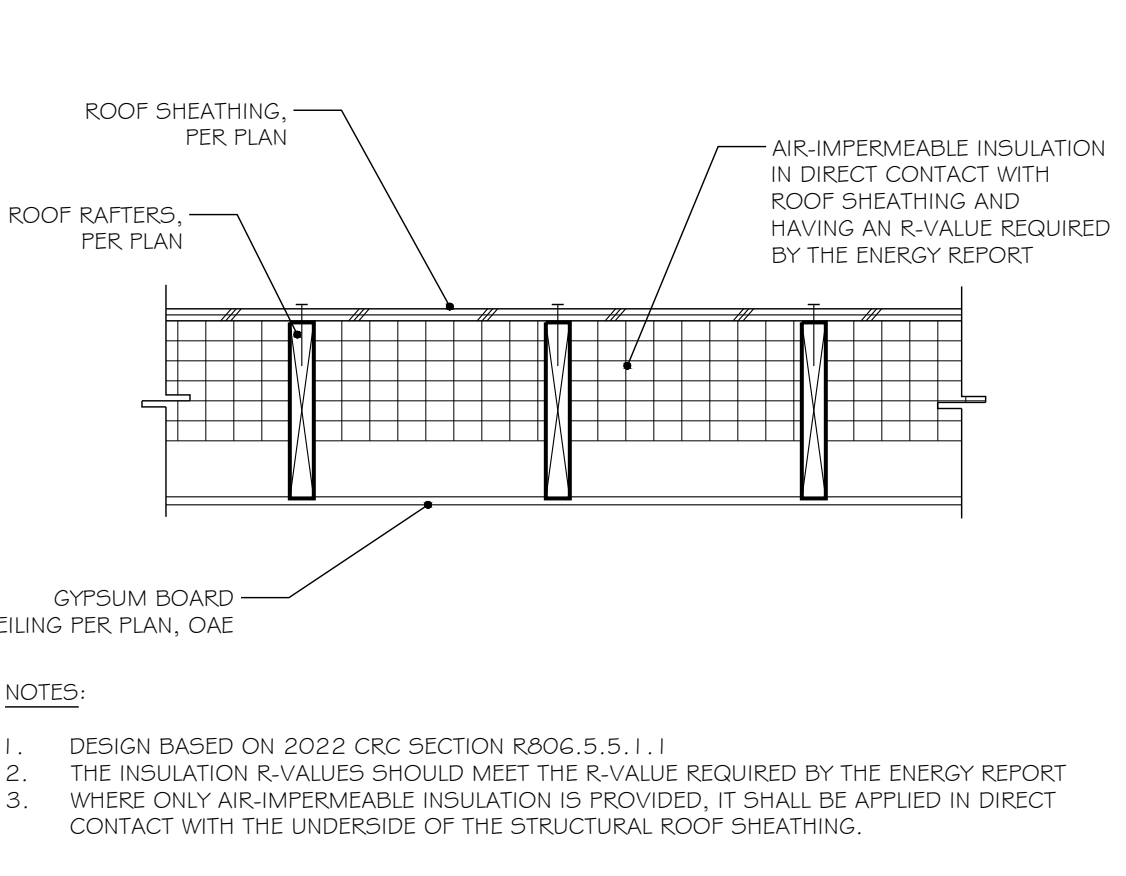
85 RIDGE BEAM INTERSECTION WITH VALLEY RAFTERS ABOVE
SCALE: 1' = 1'-0"



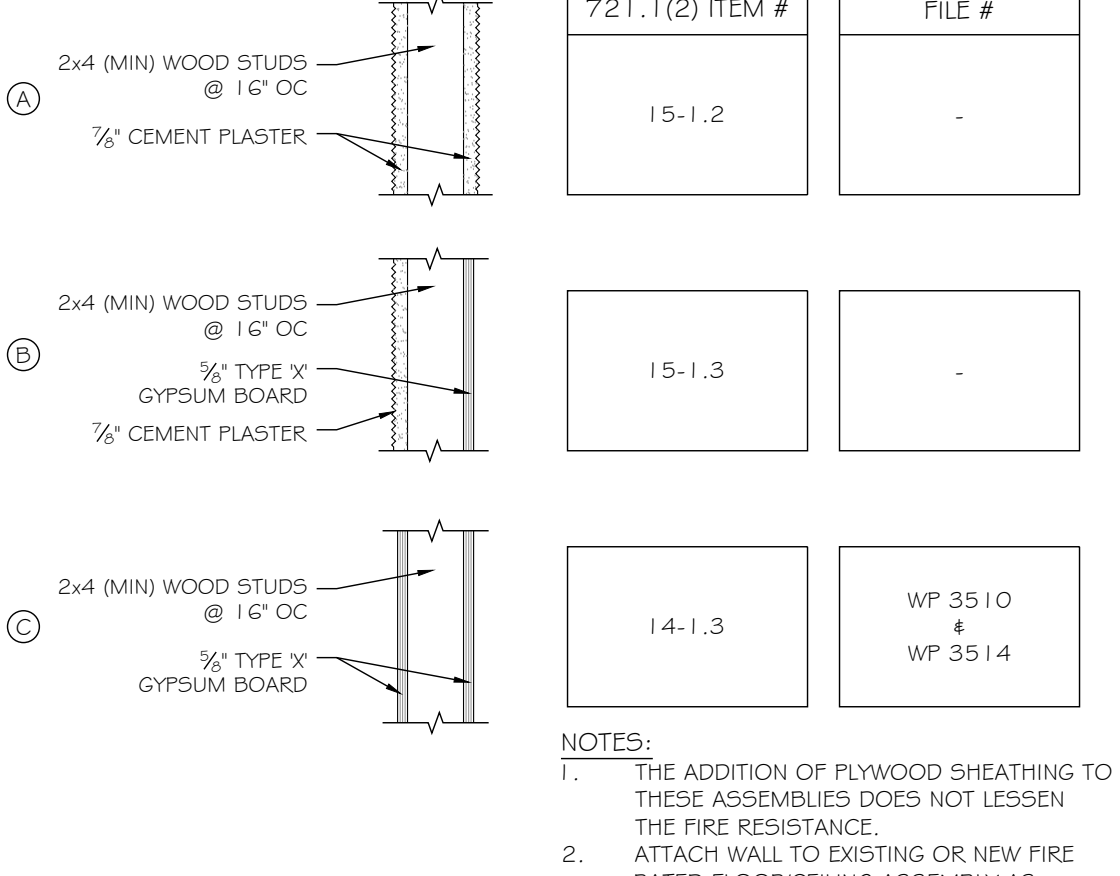
81 RAFTERS TO RIDGE BEAM
SCALE: 1' = 1'-0"



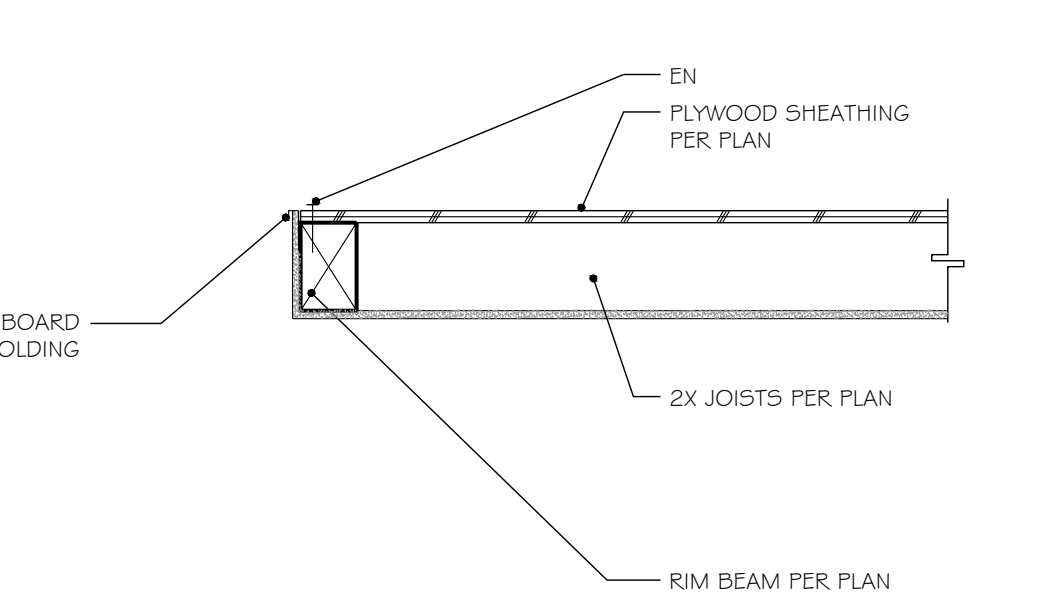
90 KING POST WITH SLOPED AND/OR SKEWED TOP BEAM
SCALE: 1' = 1'-0"



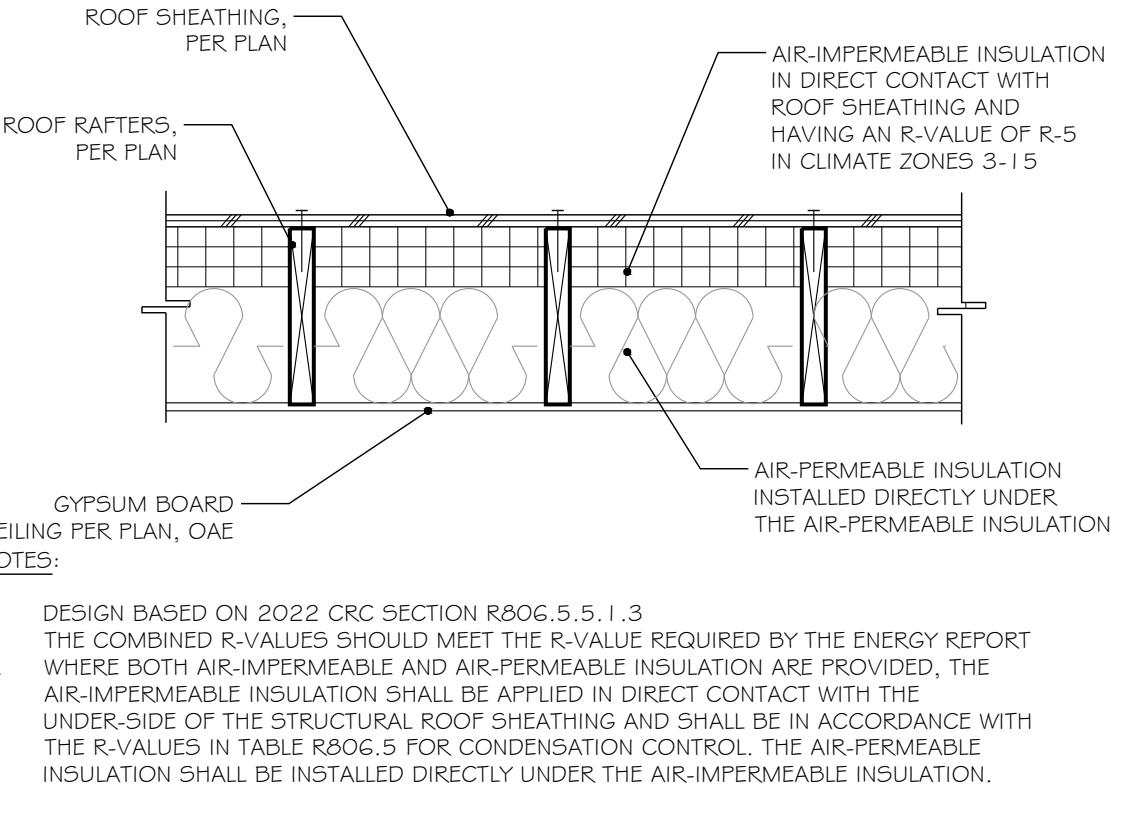
86 INSULATION AT UNVENTED ROOF ASSEMBLY - IMPERMEABLE ONLY
SCALE: 1' = 1'-0"



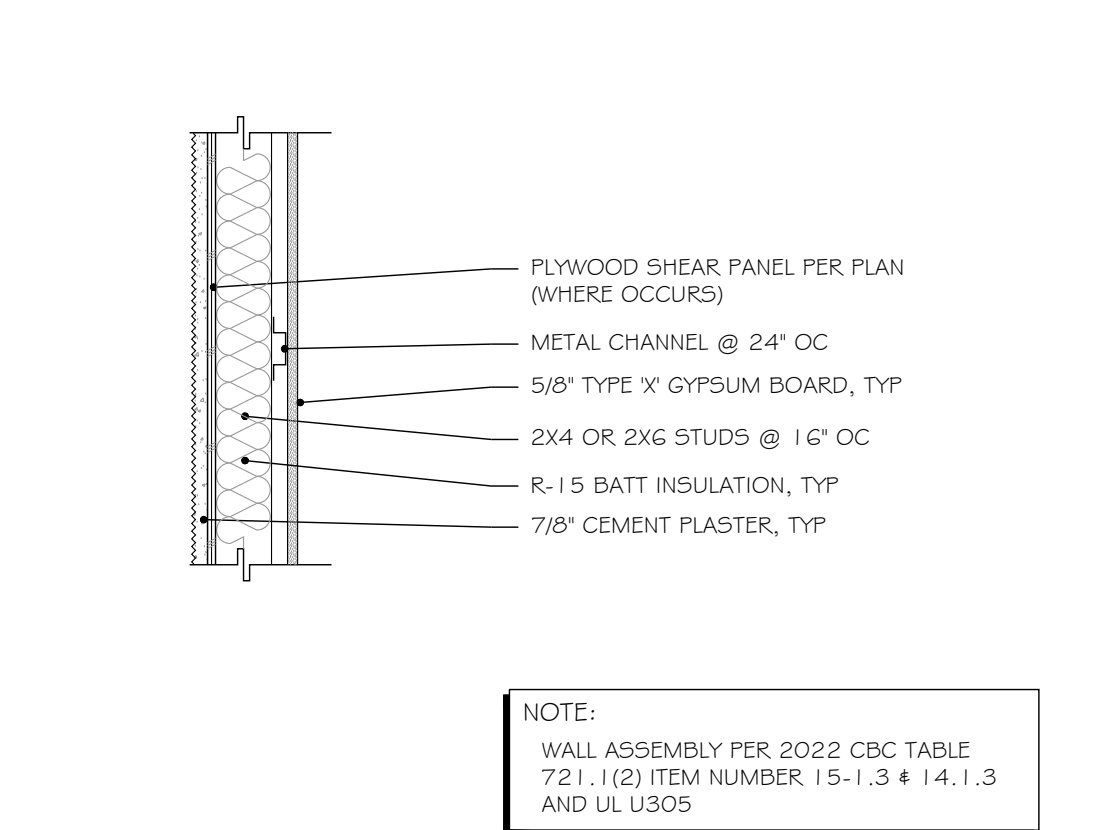
82 FIRE RESISTANCE - ONE HOUR WOOD FRAMED WALLS
SCALE: 1' = 1'-0"



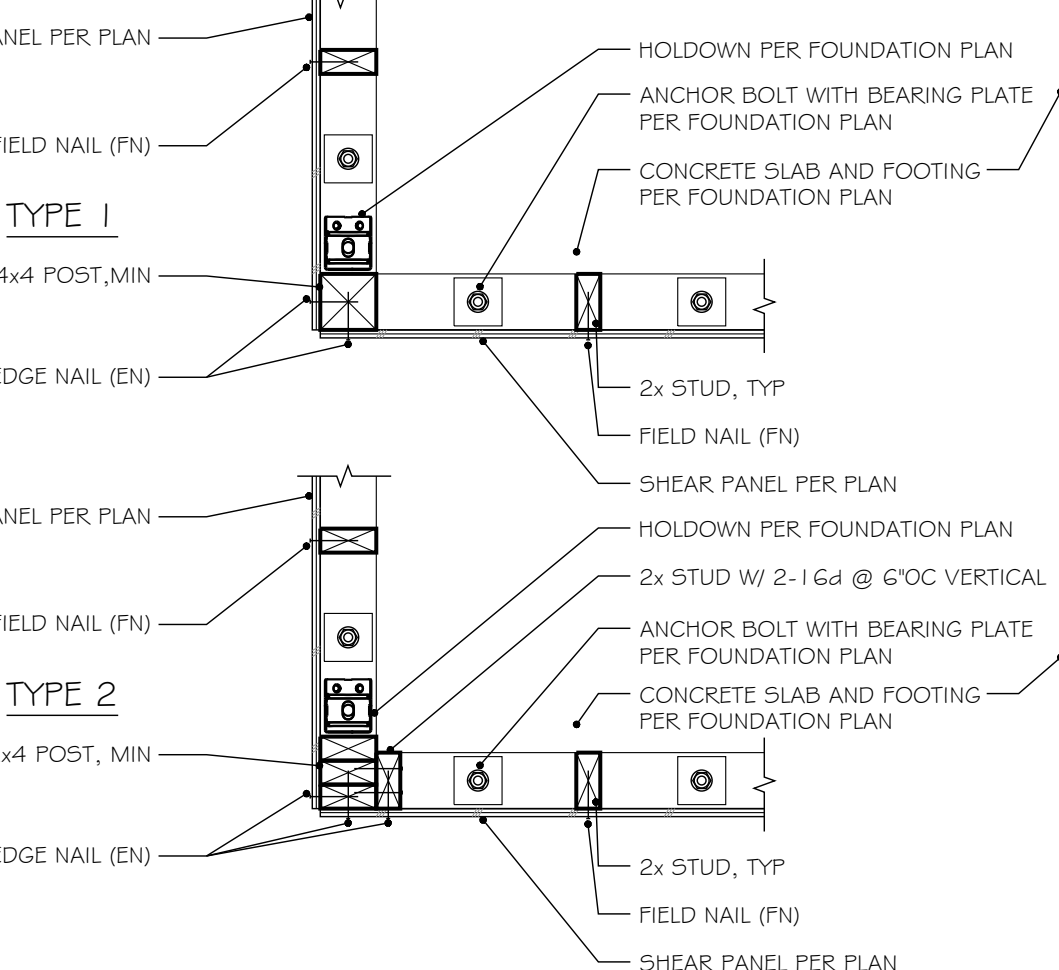
91 PERPENDICULAR JOISTS AT EDGE
SCALE: 1' = 1'-0"



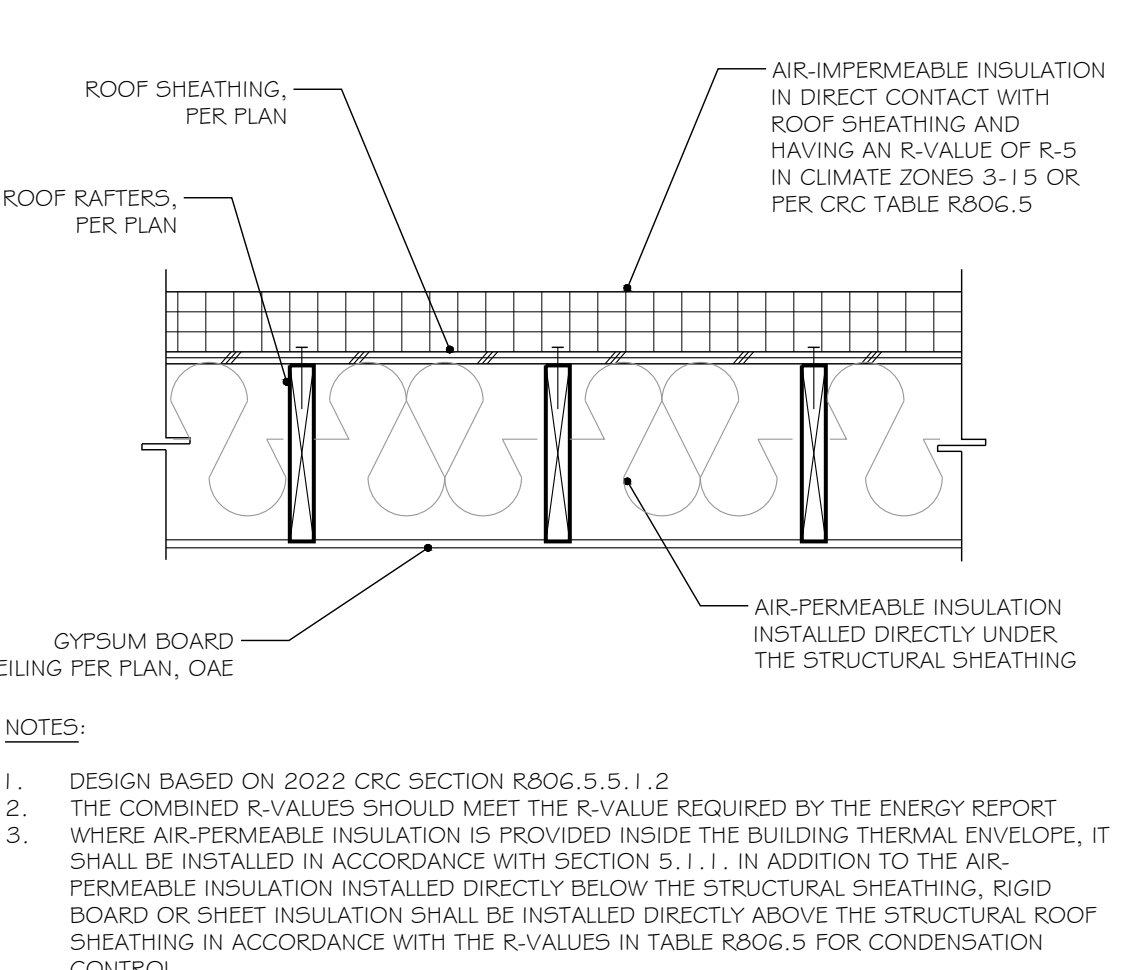
87 INSULATION AT UNVENTED ROOF ASSEMBLY - BOTH TYPES
SCALE: 1' = 1'-0"



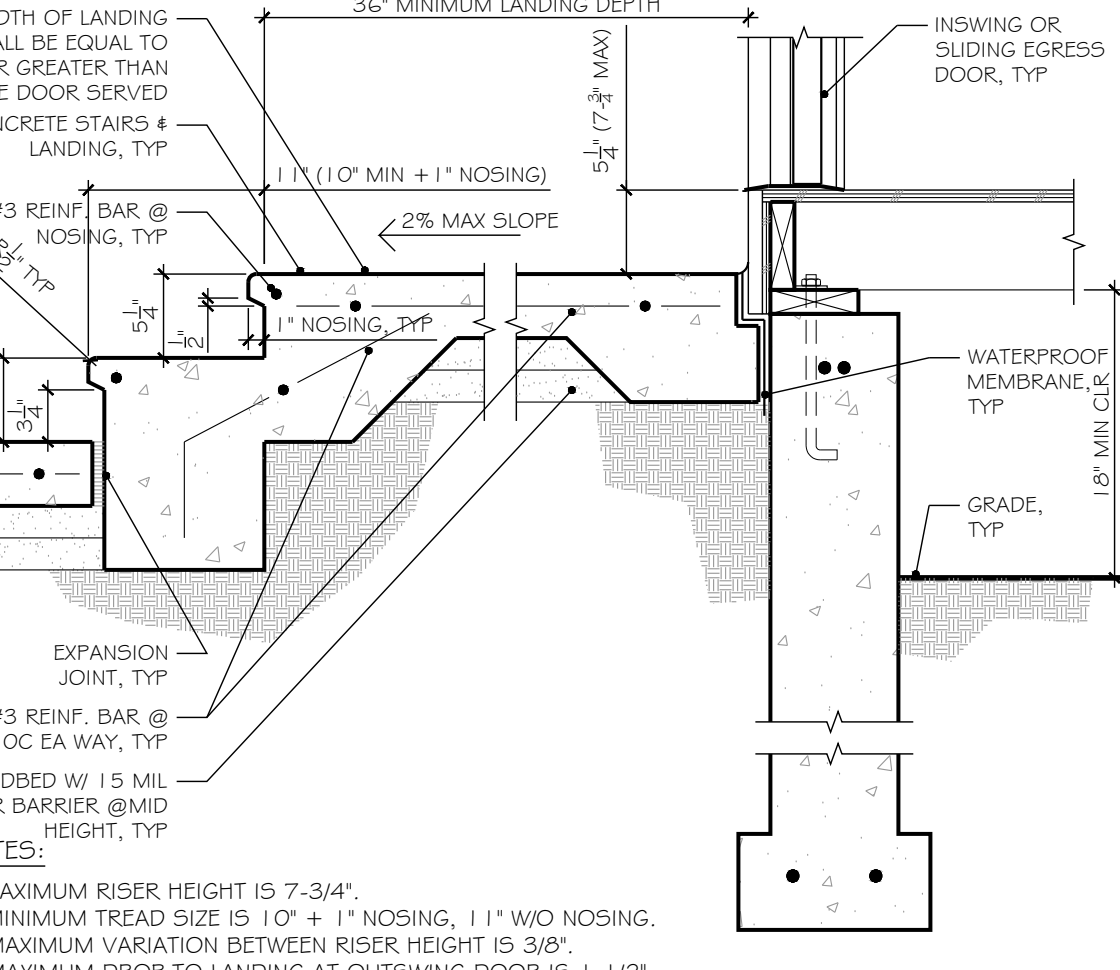
83 FIRE RESISTANCE: 1 HR EXTERIOR WALL, SOUND: STC 51
SCALE: 1' = 1'-0"



92 HOLD DOWN AT SHEAR WALL INTERSECTION
SCALE: 1' = 1'-0"



88 INSULATION AT UNVENTED ROOF ASSEMBLY - OVER/UNDER
SCALE: 1' = 1'-0"



84 EXTERIOR STAIRS AT STEM WALL FOOTING
SCALE: 1' = 1'-0"

PREPARER SIGNATURE

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CITY: ANAHEIM

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio A

Calculation Description: Title 24 Analysis

Calculation Date/Time: 2023-01-11T08:41:58-08:00

Input File Name: 23Q1019-SA.1-03.ribd22x

(Page 1 of 12)

GENERAL INFORMATION						
01	Project Name	Anaheim PRADU - Studio A				
02	Run Title	Title 24 Analysis				
03	Project Location	Studio A 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	1	
14	Addition Cond. Floor Area (ft ²)	0	15	Number of Stories	1	
16	Existing Cond. Floor Area (ft ²)	n/a	17	Fenestration Average U-factor	0.58	
18	Total Cond. Floor Area (ft ²)	224	19	Glazing Percentage (%)	41.50%	
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-P010003960A-000-000-00000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time: 2023-01-11 10:42:50

Report Version: 2022.0.000

Schema Version: rev 20220901

HERS Provider:

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Report Generated: 2023-01-11 08:42:28

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio A

Calculation Description: Title 24 Analysis

Calculation Date/Time: 2023-01-11T08:41:58-08:00

Input File Name: 23Q1019-SA.1-03.ribd22x

(Page 3 of 12)

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft² -yr)	Standard Design TDV Energy (EDR2) (KTDV/ft² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft² -yr)	Proposed Design TDV Energy (EDR2) (KTDV/ft² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0	0	0.81	5.88	-0.81	-5.88
Space Cooling	3.55	57.55	1.26	27.99	2.29	29.56
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.59	77.44	4.71	58.22	1.88	19.22
Self Utilization/Flexibility Credit				0		0
North Facing Efficiency Compliance Total	10.89	143.01	7.53	100.11	3.36	42.9
Space Heating	0	0	0.94	6.78	-0.94	-6.78
Space Cooling	3.55	57.55	0.99	23.45	2.56	34.1
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.59	77.44	4.77	58.59	1.82	18.85
Self Utilization/Flexibility Credit				0		0
East Facing Efficiency Compliance Total	10.89	143.01	7.45	96.84	3.44	46.17

Registration Number: 223-P010003960A-000-000-00000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

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ENERGY DESIGN RATINGS						
	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency ¹ EDR (EDR2efficiency)	Total ² EDR (EDR2total)	Source Energy (EDR1)	Efficiency ¹ EDR (EDR2efficiency)	Total ² EDR (EDR2total)
Standard Design	34.6	49.9	35.2			
Proposed Design						
North Facing	30.6	34.9	28.3	4	15	6.9
East Facing	30.5	33.8	27.7	4.1	16.1	7.5
South Facing	30.1	33.7	27.7	4.5	16.2	7.5
West Facing	30.4	35.2	28.4	4.2	14.7	6.8
RESULT: PASS						
¹ Efficiency EDR includes improvements like a better building envelope and more efficient equipment ² Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries ³ 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"> Standard Design PV Capacity: 1.60 kWdc Proposed PV Capacity Scaling: North (1.60 kWdc) East (1.60 kWdc) South (1.60 kWdc) West (1.60 kWdc) 						

Registration Number: 223-P010003960A-000-000-00000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

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(Page 4 of 12)

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft² -yr)	Standard Design TDV Energy (EDR2) (KTDV/ft² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft² -yr)	Proposed Design TDV Energy (EDR2) (KTDV/ft² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0	0	0.56	3.93	-0.56	-3.93
Space Cooling	3.55	57.55	1.05	27.16	2.5	30.39
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.59	77.44	4.65	57.56	1.94	19.88
Self Utilization/Flexibility Credit				0		0
South Facing Efficiency Compliance Total	10.89	143.01	7.01	96.67	3.88	46.34
Space Heating	0	0	0.5	3.55	-0.5	-3.55
Space Cooling	3.55	57.55	1.36	31.95	2.19	25.6
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.59	77.44	4.61	57.34	1.98	20.1
Self Utilization/Flexibility Credit				0		0
West Facing Efficiency Compliance Total	10.89	143.01	7.22	100.86	3.67	42.15

Registration Number: 223-P010003960A-000-000-00000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

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Report Version: 2022.0.000

Schema Version: rev 20220901

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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 http://www.beartechconsulting.com

Project Name and Address
ANAHEIM PRADU - STUDIO A ADU STUDIO A STREET ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-SA.1-03	
Date	T-01
01/11/2023	
Scale	

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio A

Calculation Description: Title 24 Analysis

Calculation Date/Time: 2023-01-11T08:41:58-08:00

Input File Name: 23Q1019-SA.1-03.ribd22x

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ENERGY USE INTENSITY				
	Standard Design (kBtu/ft ² - yr)	Proposed Design (kBtu/ft ² - yr)	Compliance Margin (kBtu/ft ² - yr)	Margin Percentage
North Facing				
Gross EUI ¹	53.48	48.73	4.75	8.88
Net EUI ²	15.16	10.41	4.75	31.33
East Facing				
Gross EUI ¹	53.48	48.3	5.18	9.69
Net EUI ²	15.16	9.98	5.18	34.17
South Facing				
Gross EUI ¹	53.48	48.58	4.9	9.16
Net EUI ²	15.16	10.25	4.91	32.39
West Facing				
Gross EUI ¹	53.48	49.07	4.41	8.25
Net EUI ²	15.16	10.74	4.42	29.16
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-P010003960A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time:

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Report Version: 2022.0.000

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio A

Calculation Description: Title 24 Analysis

Calculation Date/Time: 2023-01-11T08:41:58-08:00

Input File Name: 23Q1019-SA.1-03.ribd22x

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ZONE INFORMATION													
01	02	03	04	05	06	07							
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft²)	Avg. Ceiling Height	Water Heating System 1	Status							
ADU Studio A	Conditioned	Ductless Mini-Split1	224	8	DHW Sys 1	New							
OPAQUE SURFACES													
01	02	03	04	05	06	07	08						
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window and Door Area (ft2)	Tilt (deg)						
Front Wall	ADU Studio A	_WALL: 2x4 Exterior	0	Front	128	27	90						
Left Wall	ADU Studio A	_WALL: 2x4 Exterior	90	Left	112	8	90						
Rear Wall	ADU Studio A	_WALL: 2x4 Exterior	180	Back	128	18	90						
Right Wall	ADU Studio A	_WALL: 2x4 Exterior	270	Right	112	40	90						
OPAQUE SURFACES - CATHEDRAL CEILINGS													
01	02	03	04	05	06	07	08	09	10	11			
Name	Zone	Construction	Azimuth	Orientation	Area (ft²)	Skylight Area (ft²)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof			
Roof	ADU Studio A	_ROOF: SLPD. CLG.	0	Front	224	0	4	0.1	0.85	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 (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
w1	Window	Front Wall	Front	0			1	7	0.58	NFRC	0.65	NFRC	Bug Screen
d1	Window	Front Wall	Front	0			1	20	0.58	NFRC	0.65	NFRC	Bug Screen
w2	Window	Left Wall	Left	90			1	8	0.58	NFRC	0.65	NFRC	Bug Screen

Registration Number:

223-P010003960A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

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Report Version: 2022.0.000

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

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Input File Name: 23Q1019-SA.1-03.ribd22x

(Page 6 of 12)

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 (%)
1.6	NA	Standard (14-17%)	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98

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">Whole house fanExposed slab floor in conditioned zoneVariable 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.											
<ul style="list-style-type: none">Indoor air quality ventilationKitchen range hoodWhole house fan airflow and fan efficacyVerified SEER/SEER2Verified Refrigerant ChargeAirflow in habitable rooms (SC3.1.4.1.7)Verified heat pump rated heating capacityWall-mounted thermostat in zones greater than 150 ft2 (SC3.4.5)Ductless indoor units located entirely in conditioned space (SC3.1.4.1.8)											

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft ²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Anaheim PRADU - Studio A	224	1	1	1	1	1

Registration Number:

223-P010003960A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time:

2023-01-11 10:42:50

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio A

Calculation Description: Title 24 Analysis

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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 ²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
w3	Window	Rear Wall	Back	180			1	18	0.58	NFRC	0.65	NFRC	Bug Screen
d2	Window	Right Wall	Right	270			1	40	0.58	NFRC	0.65	NFRC	Bug Screen
SLAB FLOORS													
01	02	03	04	05	06	07	08						
Name	Zone	Area (ft ²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated						
Slab On Grade	ADU Studio A	224	60	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: 3 Coat Stucco						
_ROOF: SLPD. CLG.	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 24 in. O. C.	R-30	None / None	0.035	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-30 / 2x10 Inside Finish: Gypsum Board						

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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 http://www.beartechconsulting.com

Project Name and Address
ANAHEIM PRADU - STUDIO A ADU STUDIO A STREET ANAHEIM, CALIFORNIA 92805

Project 23Q1019-SA.1-03	Sheet T-02
Date 01/11/2023	
Scale	

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio A

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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)	Standard	DHW Heater 1	1	n/a	None	n/a	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 Studio A	ADU Studio A	ADU Studio 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	Not Required	Not Required	Not Required	None	Not Required	Not Required

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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	22	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	0.08	17	0.0588	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 - Studio (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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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	1	Heat Pump System 1	1	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	1	HSPF	8.5	11800	7080	EERSEER	16.8	11.5	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/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	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

Registration Number: 223-P010003960A-000-000-0000000-0000

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Input File Name: 23Q1019-SA.1-03.ribd22x

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Wayne Seward	Documentation Author Signature: <i>Wayne Seward</i>
Company: Bear Technologies Consulting Inc.	Signature Date: 2023-01-11 09:10:06
Address: 3431 Don Arturo Drive	CEA/ 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: 1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance. 2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations. 3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.	
Responsible Designer Name: Bart M Smith	Responsible Designer Signature: <i>Bart M Smith</i>
Company: DZN Partners	Date Signed: 2023-01-11 10:42:50
Address: 682 2nd Street	License: C-22557
City/State/Zip: Encinitas, CA 92024	Phone: 760-753-2464



Digitally signed by CalCERTS. This digital signature is provided in order to secure the content of this registered document, and in no way implies

Registration Provider responsibility for the accuracy of the information.

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CA Building Energy Efficiency Standards - 2022 Residential Compliance

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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 http://www.beartechconsulting.com

Project Name and Address
ANAHEIM PRADU - STUDIO A ADU STUDIO A STREET ANAHEIM, CALIFORNIA 92805


Project	Sheet
23Q1019-SA.1-03	T-03
Date 01/11/2023	
Scale	

2022 Single-Family Residential Mandatory Requirements Summary	
 NOTE: Single-family residential buildings subject to the Energy Codes must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. (04/2022)	
Building Envelope:	
§ 110.6(a)1:	Air Leakage. Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283, or AAMA/WDMA/CSA 1011.5.2/A440-2011. *
§ 110.6(a)5:	Labeling. Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	Field fabricated exterior doors and fenestration products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-4, 110.6-5, or JAA.5 for exterior doors. They must be caulked and/or weather-stripped.
§ 110.7:	Air Leakage. All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	Insulation Certification by Manufacturers. Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	Insulation Requirements for Heated Slab Floors. Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	Roofing Products Solar Reflectance and Thermal Emittance. The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CFR.
§ 110.8(j):	Radiant Barrier. When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	Roof Deck, Ceiling and Rafter Roof Insulation. Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average U-factor not exceeding U-0.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a roof or ceiling which is sealed to limit infiltration and exfiltration, as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.
§ 150.0(b):	Loose-fill Insulation. Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	Wall Insulation. Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1-A or B. *
§ 150.0(d):	Raised-floor Insulation. Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor. *
§ 150.0(f):	Slab Edge Insulation. Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	Vapor Retarder. In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to §150.0(d).
§ 150.0(g)2:	Vapor Retarder. In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with a permeable insulation.
§ 150.0(i):	Fenestration Products. Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45. *
Fireplaces, Decorative Gas Appliances, and Gas Log:	
§ 110.5(e):	Pilot Light. Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	Closable Doors. Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	Combustion Intake. Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and light-fitting damper or combustion-air control device.
§ 150.0(e)3:	Flue Damper. Masonry or factory-built fireplaces must have a flue damper with a readily accessible control. *
Space Conditioning, Water Heating, and Plumbing System:	
§ 110.0-§ 110.3:	Certification. Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission. *
§ 110.2(a):	HVAC Efficiency. Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-N. *
§ 110.2(b):	Controls for Heat Pumps with Supplementary Electric Resistance Heaters. Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone, and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.
§ 110.2(c):	Thermostats. All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat. *
§ 110.3(c)3:	Insulation. Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
§ 110.3(c)6:	Isolation Valves. Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.


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(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 on § 150.0(h)2.
§ 150.0(h)3A:	Clearances. Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.
§ 150.0(h)3B:	Liquid Line Drier. Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(i)1:	Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation. All domestic hot water piping must be insulated as specified in § 609.11 of the California Plumbing Code. *
§ 150.0(i)2:	Insulation Protection. Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by §102.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(n)1:	Gas or Propane Water Heating Systems. Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2" higher than the base of the water heater.
§ 150.0(n)3:	Solar Water-heating Systems. Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the executive director.
Ducts and Fans:	
§ 110.8(d)3:	Ducts. Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	CMC Compliance. All air-distribution system ducts and plenums must meet CMC §§ 601.0-605.0 and ANSI/SMACNA-2006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable UL requirements, or aerosol sealant that meets UL 723. The combination of mastic and either mesh or tape must be used to seal openings greater than 1/2". If mastic or tape is used, Building cavities, air handler support platforms, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts; ducts installed in these spaces must not be compressed. *
§ 150.0(m)2:	Factory-Fabricated Duct Systems. Factory-fabricated duct systems must comply with applicable requirements for duct construction, connectors, and closures. Joints and seams of duct systems and their components must not be sealed with cloth backed rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	Field-Fabricated Duct Systems. Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	Backdraft Damper. Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	Gravity Ventilation Dampers. Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	Protection of Insulation. Insulation must be protected from damage due 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 canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water retardant and solar radiation-resistant coating.
§ 150.0(m)10:	Porous Inner Core Flex Duct. Porous inner cores of flex ducts must have a non-porous layer or air barrier between the inner core and outer vapor barrier.
§ 150.0(m)11:	Duct System Sealing and Leakage Test. When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.1. *
§ 150.0(m)12:	Air Filtration. Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if sized per Equation 150.0-A. Clean-filter pressure drop and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters to and prevents air from bypassing the filter. *


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 JAB. *
§ 150.0(k)1H:	Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JAB elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1:	Light Sources in Drawers, Cabinets, and Linen Closets. Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(k)2A:	Interior Switches and Controls. All forward phase out dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B:	Interior Switches and Controls. Exhaust fans must be controlled separately from lighting systems. *
§ 150.0(k)2A:	Accessible Controls. Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off. *
§ 150.0(k)2B:	Multiple Controls. Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the dimmer or sensor is installed to comply with § 150.0(k).
§ 150.0(k)2C:	Mandatory Requirements. Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2D:	Energy Management Control Systems. An energy management control system (EMCS) may be used to comply with dimming, occupancy, and control requirements if it provides the functionality of the specified control per § 110.9 and the physical controls specified in § 150.0(k)2A.
§ 150.0(k)2E:	Automatic Shutoff Controls. In bathrooms, garages, laundry rooms, utility rooms and walk-in closets, at least one installed 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)2F:	Dimmers. Lighting in habitable spaces (e.g., living rooms, dining rooms, kitchens, and bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. Forward phase out dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.
§ 150.0(k)2K:	Independent controls. Integrated lighting of exhaust fans shall be controlled independently from the fans. Lighting under cabinets or shelves, lighting in display cabinets, and switched outlets must be controlled separately from ceiling-installed lighting.
§ 150.0(k)3A:	Residential Outdoor Lighting. For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must have a manual on/off switch and either a photocell and motion sensor or automatic time switch control) or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.
§ 150.0(k)4:	Internally illuminated address signs. Internally illuminated address signs must either comply with § 140.8 or consume no more than 5 watts of power.
§ 150.0(k)5:	Residential Garages for Eight or More Vehicles. Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.
Solar Readiness:	
§ 110.10(a)1:	Single-family Residences. Single-family residences located in subdivisions with 10 or more single-family residences and where the application for a tenement subsides 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(p)-(q).
§ 110.10(b)1A:	Minimum Solar Zone Area. The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 60 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single-family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. *
§ 110.10(b)2:	Azimuth. All sections of the solar zone located on steep-sloped roofs must have an azimuth between 90-300° of true north.
§ 110.10(b)3A:	Shading. The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment.
§ 110.10(b)3B:	Shading. Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the horizontal distance of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.
§ 110.10(b)4:	Structural Design Loads on Construction Documents. For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.
§ 110.10(c):	Interconnection Pathways. The construction documents must indicate a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single-family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system.
§ 110.10(d):	Documentation. A copy of the construction documents or a comparable document indicating the information from § 110.10(b)-(c) must be provided to the occupant.
§ 110.10(e)1:	Main Electrical Service Panel. The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	Main Electrical Service Panel. The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric."
Electric and Energy Storage Ready:	

5/6/22

2022 Single-Family Residential Mandatory Requirements Summary	
	
§ 150.0(n)13:	Space Conditioning System Airflow Rate and Fan Efficacy. Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≥ 0.45 watts per CFM for gas furnace air handlers and ≥ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≥ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3. *
Ventilation and Indoor Air Quality:	
§ 150.0(o)1:	Requirements for Ventilation and Indoor Air Quality. All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1. *
§ 150.0(o)1B:	Central Fan Integrated (CFI) Ventilation Systems. Continuous operation of CFI air handlers is not allowed to provide the whole-dwelling unit ventilation airflow required per §150.0(o)1C. A motorized damper(s) must be installed on the ventilation duct(s) that prevents all airflow through the space conditioning duct system when the damper(s) is closed and controlled per §150.0(o)1Biliiv. CFI ventilation systems must have controls that track outdoor air ventilation run time, and either open or close the motorized damper(s) for compliance with §150.0(o)1C.
§ 150.0(o)1C:	Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and townhouses. Single-family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(o)1C-iii.
§ 150.0(o)1G:	Local Mechanical Exhaust. Kitchens and bathrooms must have local mechanical exhaust; nonenclosed kitchens must have demand-controlled exhaust system meeting requirements of §150.0(o)1Giii enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting §150.0(o)1Giii-iv. Airflow must be measured by the installer per §150.0(o)1Gvi, and rated for sound per §150.0(o)1Gvi. *
§ 150.0(o)1H&I:	Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems. The airflow required per § 150.0(o)1C must be measured by using a flow hood, flow grid, or other airflow measuring device at the fan's inlet or duct terminals/signles per Reference Residential Appendix RA3.7. Whole-Dwelling unit ventilation systems must be rated for sound per ASHRAE 62.2 §7.2 at no less than the minimum airflow rate required by §150.0(o)1C.
§ 150.0(o)2:	Field Verification and Diagnostic Testing. Whole-Dwelling Unit ventilation airflow, vented range hood airflow and sound rating, and HRV and ERV fan efficacy must be verified in accordance with Reference Residential Appendix RA3.7.4.3 to confirm if it is rated by HVI or AHAM to comply with the airflow rates and sound requirements per §150.0(o)1G.
Pool and Spa Systems and Equipment:	
§ 110.4(a):	Certification by Manufacturers. Any pool or spa heating system or equipment must be certified to have all of the following: compliance with the Appliance Efficiency Regulations and listing in 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 use electric resistance heating.
§ 110.4(b)1:	Piping. Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)2:	Covers. Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3:	Directional Inlets and Time Switches for Pools. Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5:	Pilot Light. Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(p):	Pool Systems and Equipment Installation. Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.
Lighting:	
§ 110.9:	Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9. *
§ 150.0(k)1A:	Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A, except lighting integral to exhaust fans, kitchen range hoods, built-in vanity mirrors, and garage door openers; navigation lighting less than 5 watts; and lighting internal to drawers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt.
§ 150.0(k)1B:	Screw based luminaires. Screw based luminaires must contain lamps that comply with Reference Joint Appendix JAB. *
§ 150.0(k)1C:	Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must not contain screw based sockets, must be airtight, and must be sealed with a gasket or caulk. California Electrical Code § 410.116 must also be met.
§ 150.0(k)1D:	Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JAB elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1E:	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device shall be no more than the number of bedrooms. These boxes must be served by a dimmer, vacancy sensor control, low voltage wiring, or fan speed control.
§ 150.0(k)1F:	Lighting Integral to Exhaust Fans. Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).

*Exceptions may apply.

2022 Single-Family Residential Mandatory Requirements Summary	
	
§ 150.0(s):	Energy Storage System (ESS) Ready. All single-family residences must meet all of the following: Either ESS-ready interconnection equipment with backup up capacity of 60 amps or more and four or more ESS supplied branch circuits, or a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(s); at least four branch circuits must be identified and have their source collocated at a single panelboard suitable to be supplied by the ESS, with one circuit supplying the refrigerator, one lighting circuit near the primary exit, and one circuit supplying a sleeping room receptacle outlet; main panelboard must have a minimum busbar rating of 225 amps; sufficient space must be reserved to allow future installation of a system isolation equipment/transfer switch within 3' of the main panelboard, with raceways installed between the panelboard and the switch location to allow the connection of backup power source.
§ 150.0(t):	Heat Pump Space Heater Ready. Systems using gas or propane furnaces to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the furnace with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(u):	Electric Cooktop Ready. Systems using gas or propane cooktop to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the cooktop with circuit conductors rated at least 50 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(v):	Electric Clothes Dryer Ready. Clothes dryer locations with gas or propane plumbing to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the dryer location with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."

*Exceptions may apply.

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 DDN ARTURO DRIVE, CARLSBAD, CALIFORNIA 92010 (760) 635-2327 wayne@beartechconsulting.com http://www.beartechconsulting.com		
Project Name and Address		
ANAHEIM PRADU - STUDIO A ADU STUDIO A STREET ANAHEIM, CALIFORNIA 92805		
Project 23Q1019-SA.1-03	Sheet	
Date 01/11/2023	T-04	
Scale		

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio B

Calculation Date/Time: 2023-01-09T11:17:14-08:00

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Calculation Description: Title 24 Analysis

Input File Name: 23Q1019-SB.1-03.ribd22x

GENERAL INFORMATION					
01	Project Name	Anaheim PRADU - Studio B			
02	Run Title	Title 24 Analysis			
03	Project Location	Studio A 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	1
14	Addition Cond. Floor Area (ft ²)	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft ²)	n/a	17	Fenestration Average U-factor	0.58
18	Total Cond. Floor Area (ft ²)	224	19	Glazing Percentage (%)	55.80%
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-P010003962A-000-000-00000000-0000

Registration Date/Time:

2023-01-11 10:42:50

HERS Provider:

CalCERTS inc.

CA Building Energy Efficiency Standards - 2022 Residential Compliance

Report Version: 2022.0.000

Schema Version: rev 20220901

Report Generated: 2023-01-09 11:17:51

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio B

Calculation Date/Time: 2023-01-09T11:17:14-08:00

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Calculation Description: Title 24 Analysis

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ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft ² -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft ² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft ² -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft ² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0	0	0.77	5.42	-0.77	-5.42
Space Cooling	3.56	57.68	1.41	33.35	2.15	24.33
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.59	77.45	4.68	57.94	1.91	19.51
Self Utilization/Flexibility Credit				0		0
North Facing Efficiency Compliance Total	10.9	143.15	7.61	104.73	3.29	38.42
Space Heating	0	0	1.04	7.39	-1.04	-7.39
Space Cooling	3.56	57.68	1.08	26.8	2.48	30.88
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.59	77.45	4.77	58.55	1.82	18.9
Self Utilization/Flexibility Credit				0		0
East Facing Efficiency Compliance Total	10.9	143.15	7.64	100.76	3.26	42.39

Registration Number:

223-P010003962A-000-000-00000000-0000

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

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Calculation Description: Title 24 Analysis

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ENERGY DESIGN RATINGS						
	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency ¹ EDR (EDR2efficiency)	Total ² EDR (EDR2total)	Source Energy (EDR1)	Efficiency ¹ EDR (EDR2efficiency)	Total ² EDR (EDR2total)
Standard Design	34.6	49.9	35.2			
Proposed Design						
North Facing	30.7	36.5	28.9	3.9	13.4	6.3
East Facing	30.7	35.1	28.2	3.9	14.8	7
South Facing	30.2	34.8	28.1	4.4	15.1	7.1
West Facing	30.5	36.9	29	4.1	13	6.2
RESULT ³ : PASS						
¹ Efficiency EDR includes improvements like a better building envelope and more efficient equipment						
² Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries						
³ 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: 1.60 kWdc						
• Proposed PV Capacity Scaling: North (1.60 kWdc) East (1.60 kWdc) South (1.60 kWdc) West (1.60 kWdc)						

Registration Number:

223-P010003962A-000-000-00000000-0000

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Calculation Description: Title 24 Analysis

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ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft ² -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft ² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft ² -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft ² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0	0	0.66	4.63	-0.66	-4.63
Space Cooling	3.56	57.68	1.06	29.46	2.5	28.22
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.59	77.45	4.68	57.8	1.91	19.65
Self Utilization/Flexibility Credit				0		0
South Facing Efficiency Compliance Total	10.9	143.15	7.15	99.91	3.75	43.24
Space Heating	0	0	0.55	3.83	-0.55	-3.83
Space Cooling	3.56	57.68	1.42	36.38	2.14	21.3
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.59	77.45	4.64	57.53	1.95	19.92
Self Utilization/Flexibility Credit				0		0
West Facing Efficiency Compliance Total	10.9	143.15	7.36	105.76	3.54	37.39

Registration Number:

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Registration Date/Time:

2023-01-11 10:42:50

HERS Provider:

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CA Building Energy Efficiency Standards - 2022 Residential Compliance

Report Version: 2022.0.000

Schema Version: rev 20220901

Report Generated: 2023-01-09 11:17:51

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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Project Name and Address

ANAHEIM PRADU - STUDIO B ADU
STUDIO A STREET
ANAHEIM, CALIFORNIA 92805

Project
23Q1019-SB.1-03

Date
01/11/2023

Scale

Sheet

T-01

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

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ENERGY USE INTENSITY				
	Standard Design (kBtu/ft ² - yr)	Proposed Design (kBtu/ft ² - yr)	Compliance Margin (kBtu/ft ² - yr)	Margin Percentage
North Facing				
Gross EUI ¹	53.5	49.66	3.84	7.18
Net EUI ²	15.17	11.34	3.83	25.25
East Facing				
Gross EUI ¹	53.5	49	4.5	8.41
Net EUI ²	15.17	10.68	4.49	29.6
South Facing				
Gross EUI ¹	53.5	49.23	4.27	7.98
Net EUI ²	15.17	10.91	4.26	28.08
West Facing				
Gross EUI ¹	53.5	50.06	3.44	6.43
Net EUI ²	15.17	11.73	3.44	22.68
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-P010003962A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

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ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft ²)	Avg. Ceiling Height	Water Heating System 1	Status
ADU Studio B	Conditioned	Ductless Mini-Split1	224	8	DHW Sys 1	New

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft ²)	Window and Door Area (ft2)	Tilt (deg)
Front Wall	ADU Studio B	_WALL: 2x4 Exterior	0	Front	128	31	90
Left Wall	ADU Studio B	_WALL: 2x4 Exterior	90	Left	112	12	90
Rear Wall	ADU Studio B	_WALL: 2x4 Exterior	180	Back	128	30	90
Right Wall	ADU Studio B	_WALL: 2x4 Exterior	270	Right	112	52	90

OPAQUE SURFACES - CATHEDRAL CEILINGS										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Area (ft ²)	Skylight Area (ft ²)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof	ADU Studio B	_ROOF: SLPD. CLG.	0	Front	224	0	3	0.1	0.85	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 ²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
w5	Window	Front Wall	Front	0			1	4	0.58	NFRC	0.65	NFRC	Bug Screen
w1	Window	Front Wall	Front	0			1	7	0.58	NFRC	0.65	NFRC	Bug Screen
d1	Window	Front Wall	Front	0			1	20	0.58	NFRC	0.65	NFRC	Bug Screen

Registration Number: 223-P010003962A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

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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 (%)
1.6	NA	Standard (14-17%)	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98

REQUIRED SPECIAL FEATURES

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

- 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 SEER/SEER2
- Verified Refrigerant Charge
- Airflow in habitable rooms (SC3.1.4.1.7)
- 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)

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft ²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Anaheim PRADU - Studio B	224	1	1	1	1	1

Registration Number: 223-P010003962A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio B

Calculation Description: Title 24 Analysis

Calculation Date/Time: 2023-01-09T11:17:14-08:00

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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 ²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
w6	Window	Left Wall	Left	90			1	4	0.58	NFRC	0.65	NFRC	Bug Screen
w2	Window	Left Wall	Left	90			1	8	0.58	NFRC	0.65	NFRC	Bug Screen
w3	Window	Rear Wall	Back	180			1	18	0.58	NFRC	0.65	NFRC	Bug Screen
w4	Window	Rear Wall	Back	180			1	12	0.58	NFRC	0.65	NFRC	Bug Screen
d2	Window	Right Wall	Right	270			1	40	0.58	NFRC	0.65	NFRC	Bug Screen
w4 2	Window	Right Wall	Right	270			1	12	0.58	NFRC	0.65	NFRC	Bug Screen

SLAB FLOORS

01	02	03	04	05	06	07	08
Name	Zone	Area (ft ²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab On Grade	ADU Studio B	224	60	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

Registration Number: 223-P010003962A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time: 2023-01-11 10:42:50

Report Version: 2022.0.000

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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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(760) 635-2327
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Project Name and Address

ANAHEIM PRADU - STUDIO B ADU
STUDIO A STREET
ANAHEIM, CALIFORNIA 92805

Project 23Q1019-SB.1-03	Sheet T-02
Date 01/11/2023	
Scale	

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

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Calculation Description: Title 24 Analysis

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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
_ROOF: SLPD. CLG.	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 24 in. O. C.	R-30	None / None	0.035	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)	Standard	DHW Heater 1	1	n/a	None	n/a	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 Studio B	ADU Studio B	ADU Studio B

Registration Number:

223-P010003962A-000-000-0000000-0000

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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	22	0.35	Exhaust	No	n/a	No	Yes	

COOLING VENTILATION

01	02	03	04	05	06	07	08	09
Name	Airflow Rate (CFM/R2)	Cooling Vent CFM	Cooling Vent Watts/CFM	Total Watts	Number of Fans	CFVCS Type	Exhausts to	HERS Verification
WH Fan 1	0.08	17	0.0588	1	1	Not a CFVCS	Outside	Required

PROJECT NOTES

Registration Number:

223-P010003962A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2022 Residential Compliance

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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	Not 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	1	Heat Pump System 1	1	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	Efficiency Type	HSPF / HSPF2 / COP	Cap 47	Cap 17	Efficiency Type	SEER / SEER2	EER / EER / CEER	Zonally Controlled	Compressor Type	HERS Verification
Heat Pump System 1	VCHP-ductless	1	HSPF	8.5	12000	7200	EERSEER	16.8	9.4	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/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	Required	Yes	No	Yes	Yes

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Calculation Description: Title 24 Analysis

Input File Name: 23Q1019-SB.1-03.ribd22x

***** This report is based on the drawings received on 01/03/2023. *****
SCOPE OF WORK: Construct a ADU - Studio (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.

General Notes



R19-04-30011
NR19-04-30020

TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

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Project Name and Address

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STUDIO A STREET
ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-SB.1-03	
Date	01/11/2023
Scale	T-03


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Project Name and Address

 ANAHEIM PRADU - STUDIO B ADU
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 ANAHEIM, CALIFORNIA 92805

Project 23Q1019-SB.1-03	Sheet T-04
Date 01/11/2023	
Scale	

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Calculation Description: Title 24 Analysis

Input File Name: 23Q1019-SB.1-03.rbd22x

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name:

Documentation Author Signature:

Wayne Seward

Wayne Seward

Company:
Bear Technologies Consulting Inc.

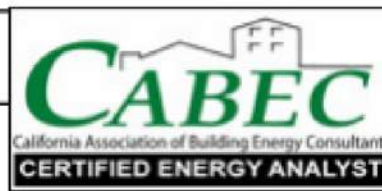
Signature Date:

2023-01-11 09:13:09

Address:

CEA/HERS Certification Identification (If applicable):

R19-04-30011



3431 Don Arturo Drive

City/State/Zip:

Phone:

Carlsbad, CA 92010

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:

Responsible Designer Signature:

Bart M Smith

Bart M Smith

Company:

Date Signed:

DZN Partners

2023-01-11 10:42:50

Address:

License:

682 2nd Street

C-22557

City/State/Zip:

Phone:

Encinitas, CA 92024

760-753-2464



Digitally signed by CaCERTS. 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:

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CA Building Energy Efficiency Standards - 2022 Residential Compliance

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*Exceptions may apply.

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 Envelopes	
§ 110.6(a)(1)	Air Leakage. Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-610, ASTM E283, or AIAA/EN1082-2:2011.
§ 110.6(a)(6)	Labeling. Fenestration products and exterior doors must have a label meeting the requirements of § 110.11(a).
§ 110.6(b)	Field fabricated exterior doors and fenestration products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6.A, 110.6.B, or 110.6.C for exterior doors. They must be caulked and/or weatherstripped.
§ 110.7	Air Leakage. All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, weatherstripped, or weatherstripped.
§ 110.8(a)(1)	Insulation Certification by Manufacturers. Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(a)(2)	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(i) and be labeled per § 110.11 when the installation of a cool roof is specified on the CDP.
§ 110.8(j)	Radiant Barrier. When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a)	Roof Deck, Ceiling and Rafter Roof Insulation. Roof decks in newly constructed attics in climate zones 4 and 6-16 area-weighted average U-factor not exceeding U-0.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling, or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a roof or ceiling which is sealed to limit infiltration and exfiltration, as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a gabled ceiling.
§ 150.0(b)	Loose-Fill Insulation. Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c)	Wall Insulation. Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Outside non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1.A or B.
§ 150.0(d)	Raised-Floor Insulation. Minimum R-19 insulation in raised wood framed floor or 0.037 minimum 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 toppings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perms per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(f)	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 § 110.6(b).
§ 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, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(h)	Fenestration Products. Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45, or area-weighted average U-factor of all fenestration must not exceed 0.45.
Fireplaces, Decorative Gas Appliances, and Gas Log	
§ 110.5(a)	Pilot Light. Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(a)(1)	Closeable Doors. Masonry or factory-built fireplaces must have a closeable 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 one square inch in area and is equipped with a readily accessible, operable, and light-tight damper or combustion-air control device.
§ 150.0(b)	Plus Damper. Masonry or factory-built fireplaces must have a Plus damper with a readily accessible control.
Space Conditioning, Water Heating, and Air Conditioning (HVAC) Equipment, Water Heaters, Faucets, and All Other Regulated Appliances must be certified by the manufacturer to the California Energy Commission.	
§ 110.6(g) 110.3	Certification. Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.
§ 110.2(a)	HVAC Efficiency. Equipment must meet the applicable efficiency requirements in Table 110.2.A through Table 110.2.N.
§ 110.2(b)	Controls for Heat Pumps with Supplementary Electric Resistance Heaters. Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the coil temperature for compression heating is higher for compression heating than the coil 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.
§ 110.2(d)	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(a)(6)	Isolation Valves. Insentaneous water heaters with an input rating greater than 6.6 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.

5/8/22

2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(a)(1)	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 damper. Airflow must be a 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficiency of 0.45 watts per CFM for gas furnace or furnaces and 0.58 watts per CFM for all others. Small duct CP velocity systems must provide an airflow of 200 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficiency of 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.1.
Ventilation and Indoor Air Quality	
§ 150.0(a)(1)	Requirements for Ventilation and Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(a)(1).
§ 150.0(a)(1B)	Central Fan Integrated (CFI) Ventilation Systems. Continuous operation of CFI air handlers is not allowed to provide the whole-dwelling ventilation airflow required per §150.0(a)(1C). A mechanical 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/or locked per §150.0(a)(1B)(ii). CFI ventilation systems must have controls that track outdoor air ventilation run time, and either open or close the indoorized damper(s) for compliance with §150.0(a)(1C).
§ 150.0(a)(1C)	Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and townhouses. Single-family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(a)(1C).
§ 150.0(a)(1G)	Local Mechanical Exhaust. Kitchens and bathrooms must have local mechanical exhaust; nonresidential kitchens must have demand-controlled exhaust system meeting requirements of §150.0(a)(1G). Attached kitchens and bathrooms can use demand-controlled or continuous exhaust meeting §150.0(a)(1G). Airflow must be measured by the installer per §150.0(a)(1G), and rated for sound per §150.0(a)(1G).
§ 150.0(a)(1H)	Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems. The airflow required per § 150.0(a)(1C) must be measured by using a flow hood, flow gill, or other airflow measuring device at the fan inlet or outlet terminals/perforations per Reference Residential Appendix RA3.7. Whole-Dwelling unit ventilation systems must be rated for sound per ASHRAE 62.2 § 7.2 at no less than the minimum airflow rate required per §150.0(a)(1C).
§ 150.0(a)(2)	Field Verification and Diagnostic Testing. Whole-Dwelling Unit ventilation airflow, vented range hood airflow and sound rating, and HRV and ERV fan efficiency must be verified in accordance with Reference Residential Appendix RA3.7. Vented range hood airflow must be verified per Reference Residential Appendix RA3.7.4.3 to confirm it is rated by ASHRAE 62.2 with the airflow rates and sound requirements per §150.0(a)(1G).

Pool and Spa Systems and Equipment

§ 110.4(a)	Certification by Manufacturers. Any pool or spa heating system or equipment must be certified to have all of the following: compliance with the Appliance Efficiency Regulations and listing in NAEES; 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 both, or both connected to a line 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 Intake and Time Switches for Pools. Pools must have directional intake that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5	Pilot Light. Natural gas pool and spa heaters must not have a continuously burning pilot light.

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(a)(1A)	Luminaire Efficiency. 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 for fire alarms, and lighting integral to showers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt.
§ 150.0(a)(1B)	Screw-based luminaires. Screw-based luminaires must contain lamps that comply with Reference Joint Appendix JA6.
§ 150.0(a)(1C)	Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must not contain screw-based sockets, must be airtight, and must be sealed with a gasket or caulk. California Electrical Code § 410.116 must also be met.
§ 150.0(a)(1D)	Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JAS elevated temperature requirements, including mercury vapor lamps, must not be installed in enclosed or recessed luminaires.
§ 150.0(a)(1E)	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other electrical device shall be no more than the number of boxes that are five feet or below the finished floor, except for a vacancy sensor, low voltage wiring, or fan speed control.
§ 150.0(a)(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(a).

5/8/22

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(a)(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 SHADNA Residential Comfort System Installation Standards Manual, or the ASHRAE Manual J using design conditions specified in § 110.0(a)(2).
§ 150.0(a)(3A)	Clearances. Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the bottom of any door.
§ 150.0(a)(3B)	Field Line Drive. 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(a)(1)	Water Piping, Solar Water-Heating System Piping, and Space Conditioning System Line Insulation. All domestic hot water piping must be insulated as specified in § 609.11 of the California Plumbing Code.
§ 150.0(a)(2)	Insulation Protection. Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by §150.3(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-combustible casing or sleeve.
§ 150.0(a)(1)	Gas or Propane Water Heating Systems. Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2'5" x 2'5" x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2" higher than the base of the water heater.
§ 150.0(a)(3)	Solar Water-Heating Systems. Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or a listing agency that is approved by the executive director.

Ducts and Fans

§ 110.8(a)(3)	Ducts. Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(a)(1)	CMC Compliance. All air-distribution system ducts and plenums must meet CMC § 601.6.08.2 AND SHADNA-CDS-2008 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation. Connections of mastic ducts and inner cores of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable UL requirements, or aerosol sealed that meets UL 723. The combination of mastic and 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 sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts; ducts installed in these spaces must not be compressed.
§ 150.0(a)(2)	Factory-Fabricated Duct Systems. Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tape unless such tape is used in combination with mastic and draw tape.
§ 150.0(a)(3)	Field-Fabricated Duct Systems. Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(a)(4)	Leak-Off Damper. Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(a)(5)	Gravily Ventilation Dampers. Gravily ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated controls in all openings to the outdoors, except combined heat and cold air openings and radiator draft stops.
§ 150.0(a)(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, steel, metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water resistant and solar radiation-resistant coating.
§ 150.0(a)(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 space barrier.
§ 150.0(a)(11)	Duct System Sealing and Leakage Test. When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.1.
§ 150.0(a)(12)	Air Filtration. Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a total depth or can be one inch in sized per Equation 150.0.A. Clean-air pressure drop and leakage must meet the requirements in §150.0(a)(12). Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters and to prevent air from bypassing the filter.

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2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(a)(1G)	Screw-based luminaires. Screw-based luminaires must contain lamps that comply with Reference Joint Appendix JA6.
§ 150.0(a)(1H)	Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JAS elevated temperature requirements, including mercury vapor lamps, must not be installed in enclosed or recessed luminaires.
§ 150.0(a)(1)	Light Sources in Drawers, Cabinets, and Linen Closets. Light sources installed in 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 on when the drawer, cabinet or linen closet is closed.
§ 150.0(a)(2A)	Interior Switches and Controls. All forward phase out dimmers used with LED light sources must comply with NEMA SS 7A.
§ 150.0(a)(2B)	Interior Switches and Controls. Exhaust fans must be controlled separately from lighting systems.
§ 150.0(a)(2C)	Accessible Controls. Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off.
§ 150.0(a)(2D)	Multiple Controls. Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the dimmer or sensor is installed to comply with § 150.0(a).
§ 150.0(a)(2E)	Mandatory Requirements. Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(a)(2F)	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(a)(2F).
§ 150.0(a)(2G)	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(a)(2H)	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 out dimmers controlling LED light sources in these spaces must comply with NEMA SS 7A.
§ 150.0(a)(2I)	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(a)(3A)	Residential Outdoor Lighting. For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must have a manual on/off switch and either a photocell and motion sensor or automatic time switch control) or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.
§ 150.0(a)(4)	Internally Illuminated Address Signs. Internally illuminated address signs must either comply with § 140.3 or consume no more than 5 watts of power.
§ 150.0(a)(5)	Nonidentical Storage for Eight or More Vehicles. Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.

Solar Readiness

§ 110.10(a)(1)	Single-Family Residences. Single-family residences located in subdivisions with 10 or more single-family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(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 9 or other parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 6 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet and no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single-family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet.
§ 110.10(a)(3)	Animals. All sections of the solar zone located on steep-sloped roofs must have an azimuth between 30-300° 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 rental water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system documentation. A copy of the construction documents or a comparable document indicating the information from § 110.10(a)(7) must be provided to the occupant.
§ 110.10(a)(8)	Main Electrical Service Panel. The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(a)(9)	Main Electrical Service Panel. The main electrical service panel must have a reserved space to allow for the installation of a double-pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric."

Electric and Energy Storage Ready:

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GENERAL INFORMATION							
01	Project Name		Anaheim PRADU - Studio C				
02	Run Title		Title 24 Analysis				
03	Project Location		Studio A 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		1
14	Addition Cond. Floor Area (ft²)		0	15	Number of Stories		1
16	Existing Cond. Floor Area (ft²)		n/a	17	Fenestration Average U-factor		0.58
18	Total Cond. Floor Area (ft²)		224	19	Glazing Percentage (%)		67.00%
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

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ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft² -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft² -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0	0	1.15	8.12	-1.15	-8.12
Space Cooling	3.36	55.93	1.43	35.29	1.93	20.64
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.61	77.65	4.75	58.41	1.86	19.24
Self Utilization/Flexibility Credit				0		0
North Facing Efficiency Compliance Total	10.72	141.6	8.08	109.84	2.64	31.76
Space Heating	0	0	1.2	8.48	-1.2	-8.48
Space Cooling	3.36	55.93	1.13	30.44	2.23	25.49
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.61	77.65	4.77	58.51	1.84	19.14
Self Utilization/Flexibility Credit				0		0
East Facing Efficiency Compliance Total	10.72	141.6	7.85	105.45	2.87	36.15

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ENERGY DESIGN RATINGS						
	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency ¹ EDR (EDR2efficiency)	Total ² EDR (EDR2total)	Source Energy (EDR1)	Efficiency ¹ EDR (EDR2efficiency)	Total ² EDR (EDR2total)
Standard Design	34.3	49.2	35.1			
Proposed Design						
North Facing	31.2	38.2	29.7	3.1	11	5.4
East Facing	30.9	36.7	29	3.4	12.5	6.1
South Facing	30.7	37.5	29.4	3.6	11.7	5.7
West Facing	30.9	38.9	30	3.4	10.3	5.1
RESULT ³ : PASS						
¹ Efficiency EDR includes improvements like a better building envelope and more efficient equipment ² Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries ³ 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: 1.59 kWdc • Proposed PV Capacity Scaling: North (1.59 kWdc) East (1.59 kWdc) South (1.59 kWdc) West (1.59 kWdc)						

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ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft² -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft² -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0	0	0.86	5.99	-0.86	-5.99
Space Cooling	3.36	55.93	1.29	36.02	2.07	19.91
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.61	77.65	4.71	57.91	1.9	19.74
Self Utilization/Flexibility Credit				0		0
South Facing Efficiency Compliance Total	10.72	141.6	7.61	107.94	3.11	33.66
Space Heating	0	0	0.83	5.82	-0.83	-5.82
Space Cooling	3.36	55.93	1.56	40.19	1.8	15.74
IAQ Ventilation	0.75	8.02	0.75	8.02	0	0
Water Heating	6.61	77.65	4.69	57.84	1.92	19.81
Self Utilization/Flexibility Credit				0		0
West Facing Efficiency Compliance Total	10.72	141.6	7.83	111.87	2.89	29.73

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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
http://www.beartechconsulting.com

Project Name and Address
ANAHEIM PRADU - STUDIO C ADU
STUDIO A STREET
ANAHEIM, CALIFORNIA 92805

Project 23Q1019-SC.1-03	Sheet T-01
Date 01/11/2023	
Scale	

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ENERGY USE INTENSITY				
	Standard Design (kBtu/ft ² - yr)	Proposed Design (kBtu/ft ² - yr)	Compliance Margin (kBtu/ft ² - yr)	Margin Percentage
North Facing				
Gross EUI ¹	53.24	50.31	2.93	5.5
Net EUI ²	15.16	12.23	2.93	19.33
East Facing				
Gross EUI ¹	53.24	49.78	3.46	6.5
Net EUI ²	15.16	11.7	3.46	22.82
South Facing				
Gross EUI ¹	53.24	50.41	2.83	5.32
Net EUI ²	15.16	12.33	2.83	18.67
West Facing				
Gross EUI ¹	53.24	50.83	2.41	4.53
Net EUI ²	15.16	12.75	2.41	15.9
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.				

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ZONE INFORMATION							
01	02	03	04	05	06	07	
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft ²)	Avg. Ceiling Height	Water Heating System 1	Status	
ADU Studio C	Conditioned	Ductless Mini-Split1	224	8	DHW Sys 1	New	
OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft ²)	Window and Door Area (ft2)	Tilt (deg)
Front Wall	ADU Studio C	_WALL: 2x4 Exterior	0	Front	158	42	90
Left Wall	ADU Studio C	_WALL: 2x4 Exterior	90	Left	141	23	90
Rear Wall	ADU Studio C	_WALL: 2x4 Exterior	180	Back	158	30	90
Right Wall	ADU Studio C	_WALL: 2x4 Exterior	270	Right	141	55	90
OPAQUE SURFACES - CATHEDRAL CEILINGS							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Area (ft ²)	Skylight Area (ft ²)	Roof Rise (x in 12)
Roof	ADU Studio C	_ROOF: SLPD. CLG.	0	Front	224	0	6
FENESTRATION / GLAZING							
01	02	03	04	05	06	07	08
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.
w4	Window	Front Wall	Front	0			1
w1	Window	Front Wall	Front	0			1
d1	Window	Front Wall	Front	0			1

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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 (%)
1.59	NA	Standard (14-17%)	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98
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">Whole house fanExposed slab floor in conditioned zoneVariable 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.											
<ul style="list-style-type: none">Indoor air quality ventilationKitchen range hoodWhole house fan airflow and fan efficacyVerified SEER/SEER2Verified Refrigerant ChargeAirflow in habitable rooms (SC3.1.4.1.7)Verified HSPFVerified heat pump rated heating capacityWall-mounted thermostat in zones greater than 150 ft2 (SC3.4.5)Ductless indoor units located entirely in conditioned space (SC3.1.4.1.8)											
BUILDING - FEATURES INFORMATION											
01	02	03	04	05	06	07					
Project Name	Conditioned Floor Area (ft ²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems					
Anaheim PRADU - Studio C	224	1	1	1	1	1					

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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 ²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
w4 2	Window	Left Wall	Left	90			1	15	0.58	NFRC	0.65	NFRC	Bug Screen
w2	Window	Left Wall	Left	90			1	8	0.58	NFRC	0.65	NFRC	Bug Screen
w3	Window	Rear Wall	Back	180			1	15	0.58	NFRC	0.65	NFRC	Bug Screen
w4 3	Window	Rear Wall	Back	180			1	15	0.58	NFRC	0.65	NFRC	Bug Screen
d2	Window	Right Wall	Right	270			1	40	0.58	NFRC	0.65	NFRC	Bug Screen
w4 4	Window	Right Wall	Right	270			1	15	0.58	NFRC	0.65	NFRC	Bug Screen
SLAB FLOORS													
01	02	03	04	05	06	07	08						
Name	Zone	Area (ft ²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated						
Slab On Grade	ADU Studio C	224	60	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						

Registration Number: 223-P010003966A-000-000-00000000-0000
CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time: 2023-01-11 10:42:50
Report Version: 2022.0.000
Schema Version: rev 20220901

HERS Provider: CalCERTS Inc.
Report Generated: 2023-01-09 09:50:58

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 - STUDIO C ADU
STUDIO A STREET
ANAHEIM, CALIFORNIA 92805

Project 23Q1019-SC.1-03	Sheet T-02
Date 01/11/2023	
Scale	

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio C

Calculation Date/Time: 2023-01-09T09:50:18-08:00

(Page 9 of 13)

Calculation Description: Title 24 Analysis

Input File Name: 23Q1019-SC.1-03.ribd22x

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
_ROOF: SLPD. CLG.	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 24 in. O. C.	R-30	None / None	0.035	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)	Standard	DHW Heater 1	1	n/a	None	n/a	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 Studio C	ADU Studio C	ADU Studio C

Registration Number:

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Project Name: Anaheim PRADU - Studio C

Calculation Date/Time: 2023-01-09T09:50:18-08:00

(Page 11 of 13)

Calculation Description: Title 24 Analysis

Input File Name: 23Q1019-SC.1-03.ribd22x

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
SFan IAQVentRpt	22	0.35	Exhaust	No	n/a	No	Yes	

COOLING VENTILATION

01	02	03	04	05	06	07	08	09
Name	Airflow Rate (CFM/t2)	Cooling Vent CFM	Cooling Vent Watts/CFM	Total Watts	Number of Fans	CFVCS Type	Exhausts to	HERS Verification
WH Fan 1	0.08	17	0.0588	1	1	Not a CFVCS	Outside	Required

PROJECT NOTES

Registration Number:

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CA Building Energy Efficiency Standards - 2022 Residential Compliance

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Calculation Date/Time: 2023-01-09T09:50:18-08:00

(Page 10 of 13)

Calculation Description: Title 24 Analysis

Input File Name: 23Q1019-SC.1-03.ribd22x

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	Not 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	1	Heat Pump System 1	1	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 Efficiency Type	HSPF / HSPF2 / COP	Cap 47	Cap 17	Cooling Efficiency Type	SEER / SEER2	EER / EER / CEER	Zonally Controlled	Compressor Type	HERS Verification
Heat Pump System 1	VCHP-ductless	1	HSPF	9.9	14500	8700	EERSEER	16.8	9.4	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/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	Required	Yes	Yes	Yes	Yes

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: Anaheim PRADU - Studio C

Calculation Date/Time: 2023-01-09T09:50:18-08:00

(Page 12 of 13)

Calculation Description: Title 24 Analysis

Input File Name: 23Q1019-SC.1-03.ribd22x

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

SCOPE OF WORK: Construct a ADU - Studio (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.

Registration Number:

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CA Building Energy Efficiency Standards - 2022 Residential Compliance

Registration Date/Time:

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General Notes



R19-04-30011
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TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

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Firm Name and Address

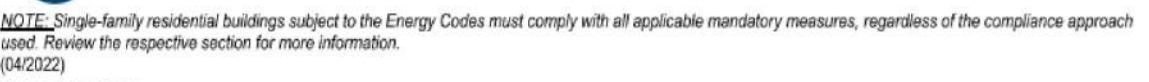


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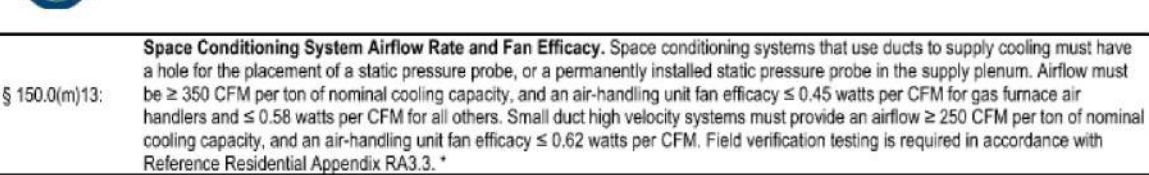
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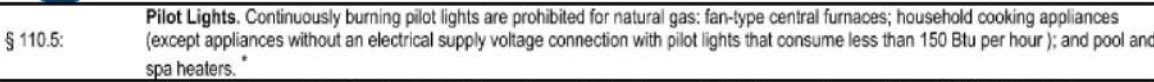
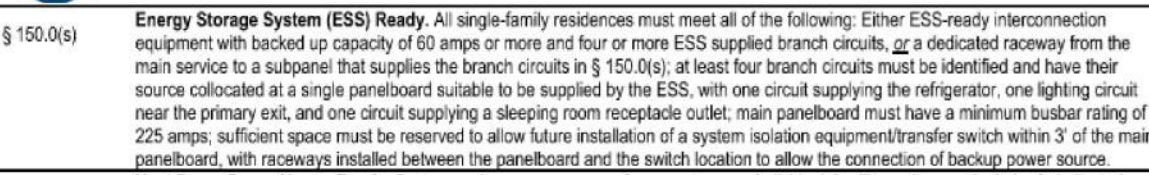
ANAHEIM PRADU - STUDIO C ADU
STUDIO A STREET
ANAHEIM, CALIFORNIA 92805

Project	Sheet
23Q1019-SC.1-03	T-03
Date	01/11/2023
Scale	



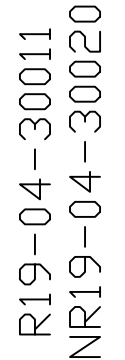
Building Envelope

5/6/22

5/6/225/6/22

\$ 150.00)

*Exceptions may apply



TITLE 24, PART 6 ENERGY COMPLIANCE DOCUMENTATION

Project Name: Anaheim PRADII - Studio C

Calculation Description: Title 24 Analysis

Calculation Date/Time: 2023-01-09T09:50:18-08:00

(Page 13 of 13)

Input File Name: 23Q1019-SC.1-03.ribd22x

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

Digitally signed by CalCERTS. This digital signature is provided in order to secure the content of this registered document, and in no way implies

Registration Provider responsibility for the accuracy of the information.

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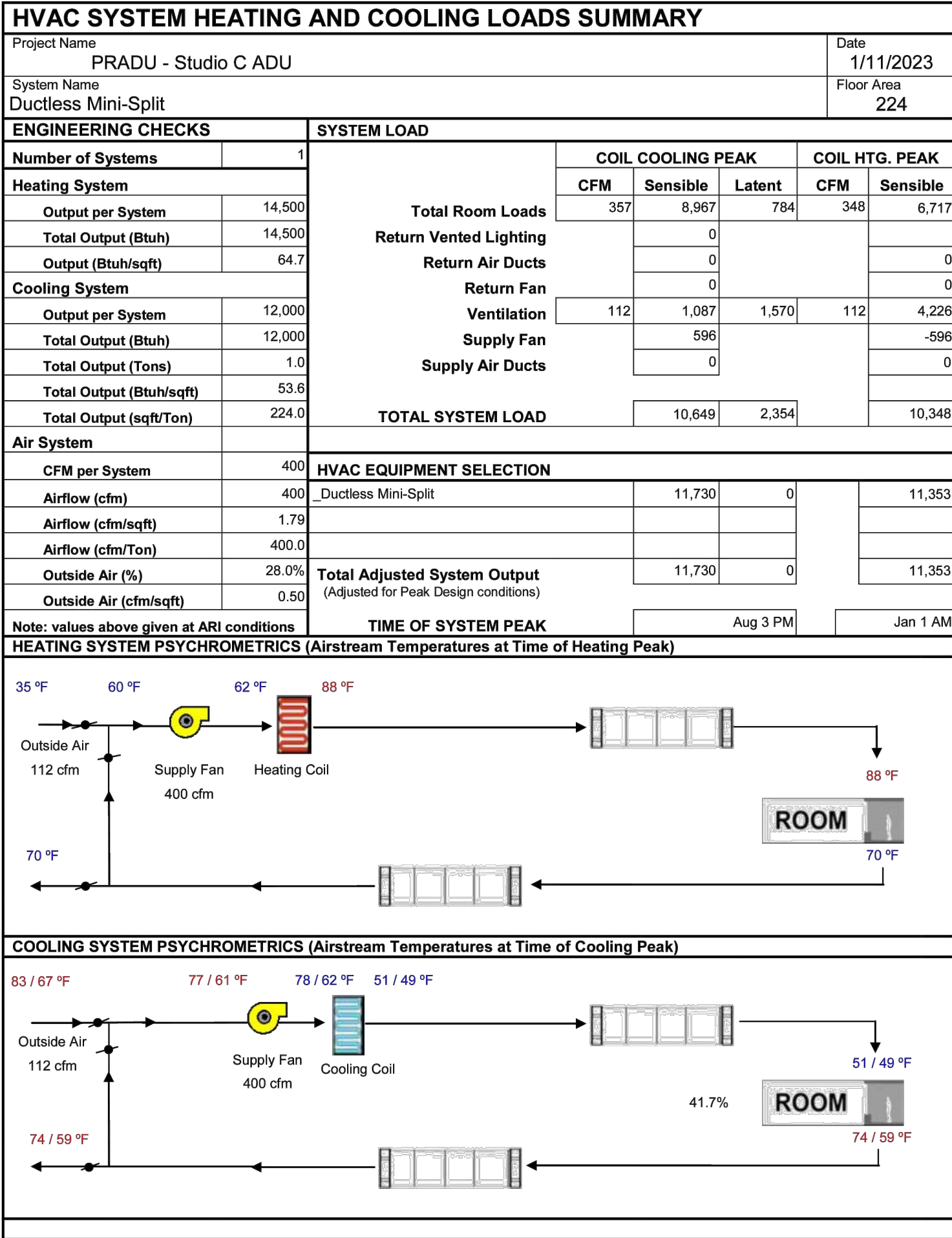
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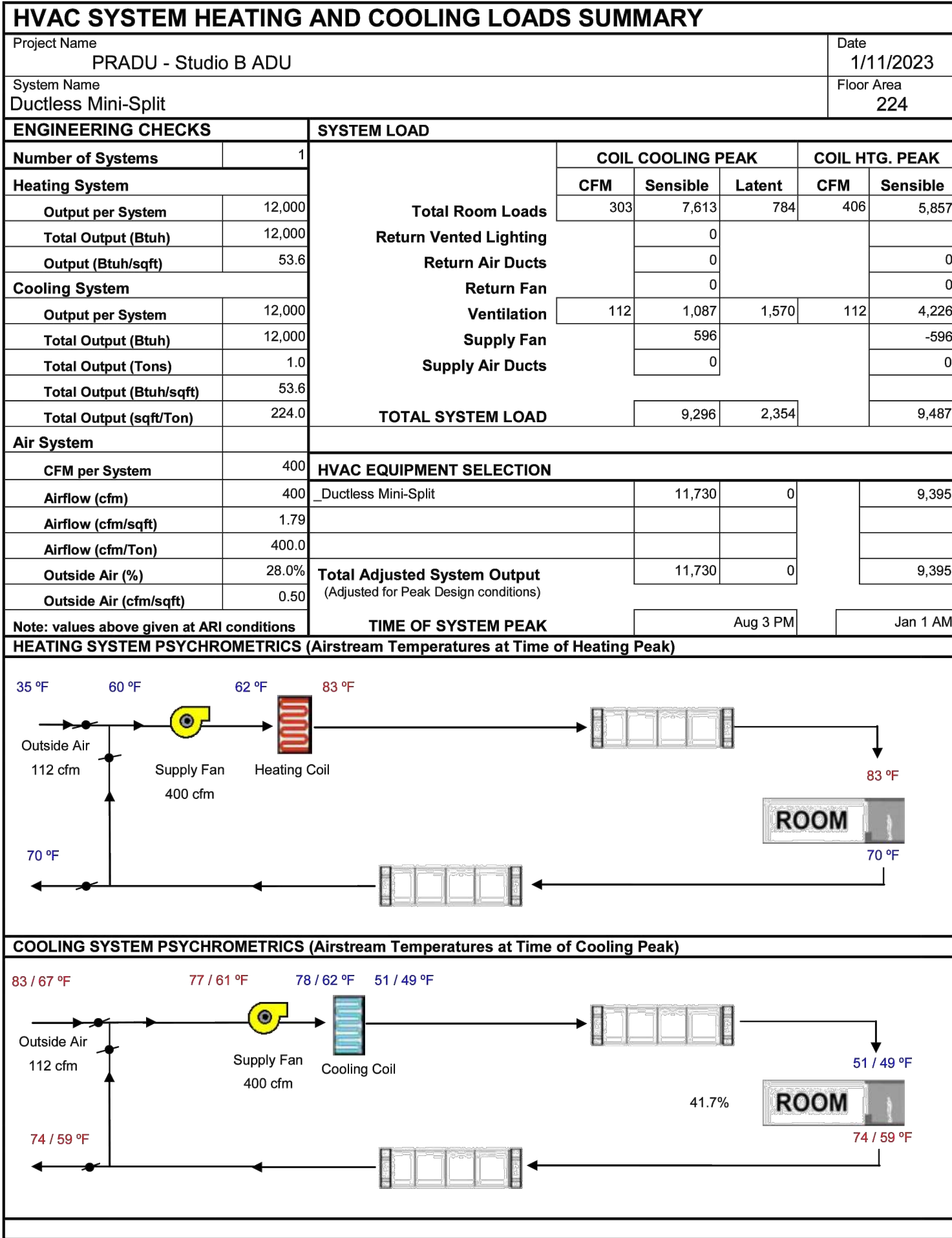
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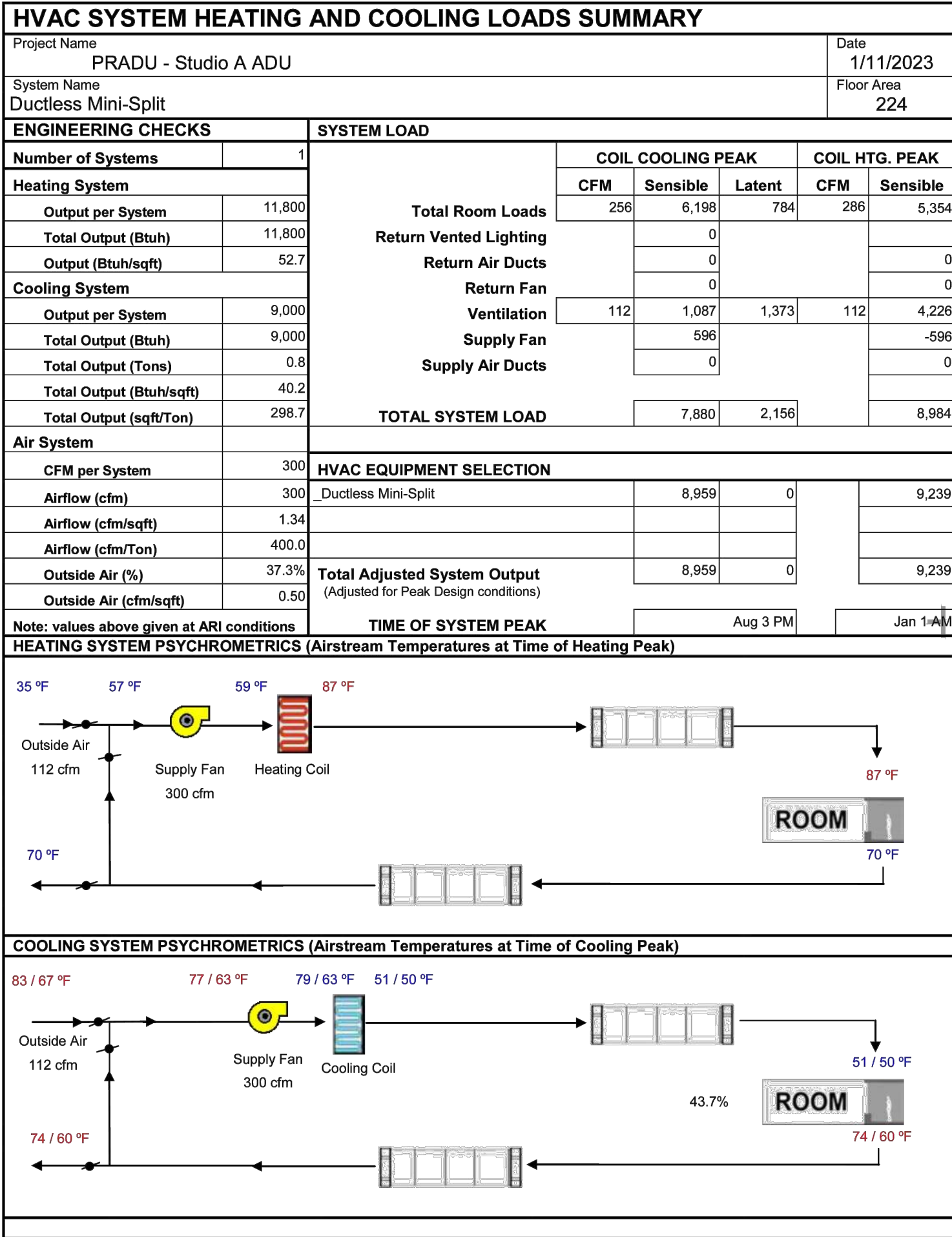
T-04



c



b



a

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

STUDIO PRADU

CITY: ANAHEIM

JOB: 202409R

HVAC SYSTEM SUMMARIES

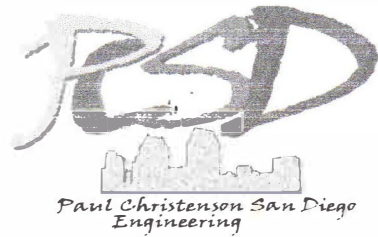
T-05

PCSD Engineering Corp

3529 Coastview Court

Carlsbad, CA 92010

Ph: 760-207-1885



Structural Design Calculations

Accessory Dwelling Unit - Studio

Client

DZN Partners

682 Second Street
Encinitas, CA 92024

Project

PRADU-Studio

Anaheim, CA



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

February 3, 2023

PCSD File #: 19-018-S

Paul Christenson San Diego Engineering

3529 Coastview Ct - Carlsbad, CA 92010

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

1/

1.0 Design Criteria:

PRADU-Studio
22-404-S

Code: 2022 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:



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Engineering

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

JOB 22-404-S
SHEET NO 2 OF
CALCULATED BY PSC DATE 8/8/22
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 PV Sys	4.9 psf
$\Sigma_{DL} =$	21.0 psf
$\Sigma_{LL} =$	20.0 psf
Total Load =	41.0 psf

2.2 Roof (w/ ceiling)

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

2.3 Ceiling

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

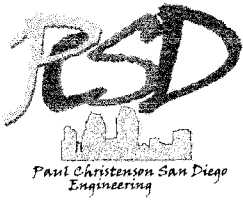
2.4 Walls

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.	0.6 psf
$\Sigma_{DL} =$	15.0 psf

Interior Wall

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



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JOB 22-404-S
SHEET NO 3 OF
CALCULATED BY PSC DATE 8/8/22
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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
Σ_{DL}	= 15.0 psf
Σ_{LL}	= 40.0 psf
Total Load	= 55.0 psf

WIND PARAMETERS

2.6 Wind

Basic Wind Speed = 110 mph Exposure Cat = B

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

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

2.7 Seismic

$$S_{MS} = F_a S_s$$

$$S_{MS} = 1.79$$

$$S_{DS} = (2/3) S_{MS} \quad (11.4-3)$$

$$S_{DS} = 1.194$$

$$C_s = \frac{S_{DS}}{(R/I)}$$

$$C_s = 0.184$$

USE:

$$V = C_s W_{DL}$$

$$V = 0.184 W_{DL}$$

ASD BASE SHEAR

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

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

USGS APPLICATION

$$S_s = 1.492 \quad S_1 = 0.503$$

$$F_a = 1.20 \quad F_v = 0.00$$

$$R = 6.5 \quad I = 1.00$$

$$h_n = 15.00$$

$$\text{Occupancy Category: } 2$$

$$\text{Site Class: } D$$

SEISMIC DESIGN CATEGORY

$$S_1 < 0.75 \quad (11.6 \text{ ASCE 7-05})$$

$$S_1 > 0.04 \quad (11.4.1 \text{ ASCE 7-05})$$

$$S_s > 0.15$$

$$T_a = C_t * (h_n)^{0.75} = 0.152$$

$$T_s = S_{D1}/S_{DS} = 0 \quad \text{Eqn. 12.8-1 Not OK}$$

$$k = 1.0 \quad T_a < 0.5$$

Seismic Design Category: D



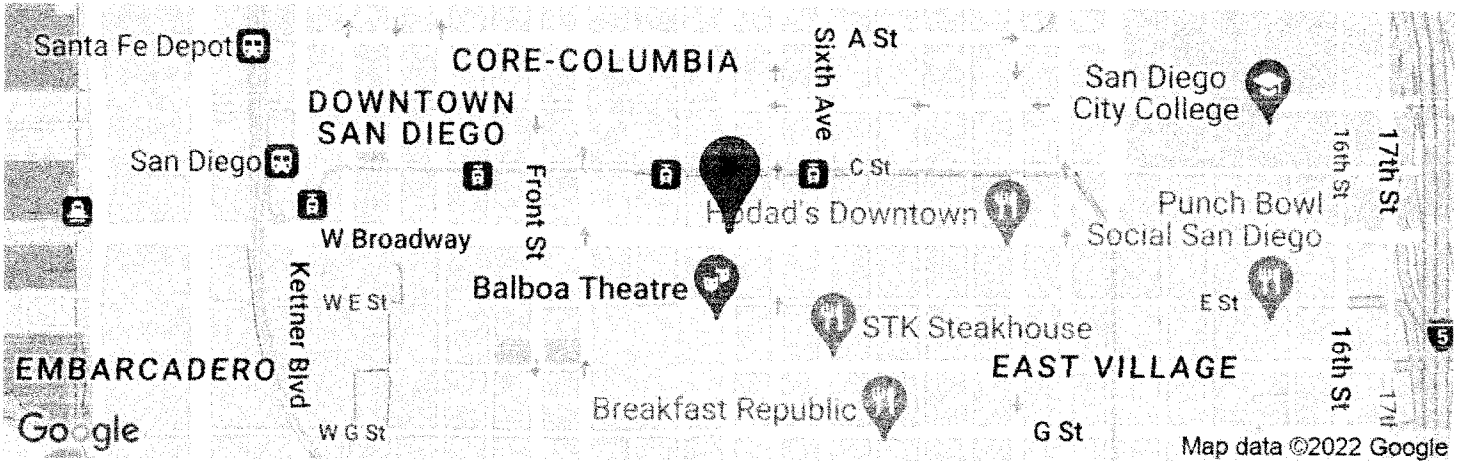
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Berwin

San Diego, CA, USA

Latitude, Longitude: 32.715738, -117.1610838



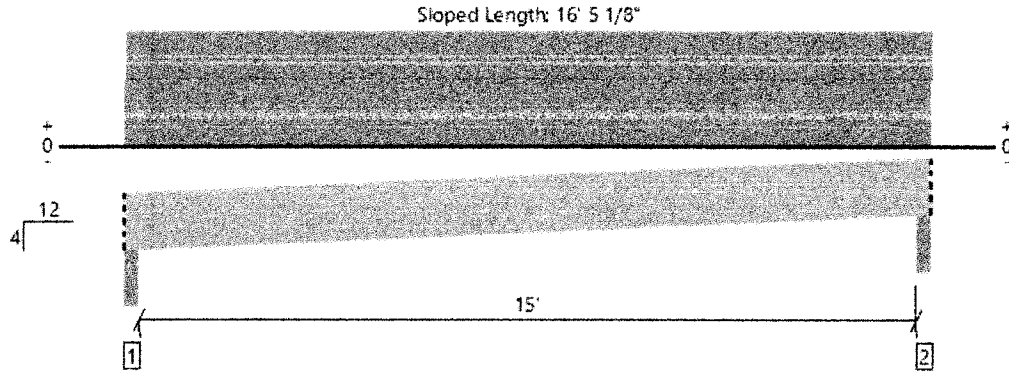
Date	8/9/2022, 3:45:54 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	1.492	MCE_R ground motion. (for 0.2 second period)
S_1	0.503	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.79	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.193	Numeric seismic design value at 0.2 second SA
S_{D1}	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_a	1.2	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.678	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.814	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
S_{sRT}	1.492	Probabilistic risk-targeted ground motion. (0.2 second)
S_{sUH}	1.728	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
S_{sD}	2.269	Factored deterministic acceleration value. (0.2 second)
S_{1RT}	0.503	Probabilistic risk-targeted ground motion. (1.0 second)
S_{1UH}	0.574	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S_{1D}	0.799	Factored deterministic acceleration value. (1.0 second)
PGA_d	0.941	Factored deterministic acceleration value. (Peak Ground Acceleration)
PGA_{UH}	0.678	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration

Roof Framing, (RR-1) Rafters
1 piece(s) 2 x 10 DF No.2 @ 24" OC

4/



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

Member Length : 16' 8 3/16"

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	607 @ 2 1/2"	3281 (3.50")	Passed (19%)	--	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"	0.799	Passed (L/574)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.651 @ 7' 9 1/2"	1.066	Passed (L/295)	--	1.0 D + 1.0 Lr (All Spans)

- Deflection criteria: LL (L/240) and TL (L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.

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

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Roof Live	Factored	
1 - Beveled Plate - DF	3.50"	3.50"	1.50"	296	312	607	Blocking
2 - Beveled Plate - DF	3.50"	3.50"	1.50"	296	312	607	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' 11" o/c	
Bottom Edge (Lu)	16' 5" o/c	

- Maximum allowable bracing intervals based on applied load.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Roof Live (non-snow: 1.25)	Comments
1 - Uniform (PSF)	0 to 15' 7"	24"	18.0	20.0	Default Load

Weyerhaeuser Notes

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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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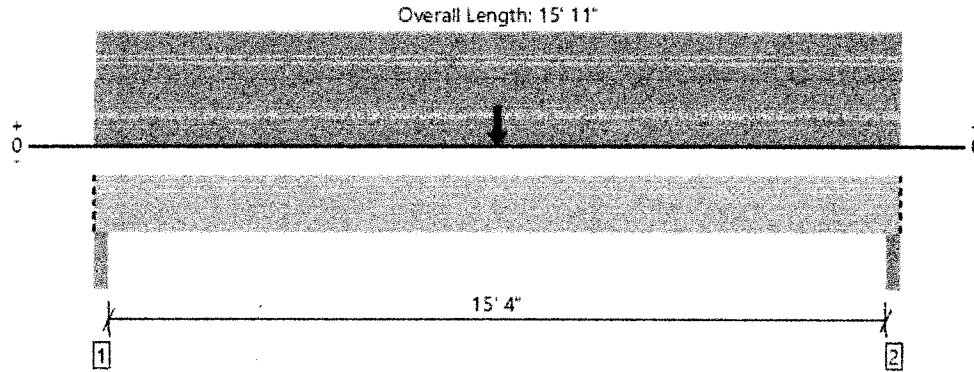
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Roof Framing, (RB-1) Ridge Bm
1 piece(s) 6 x 10 DF No.1

5/



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)	2588 @ 2"	12031 (3.50")	Passed (22%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	2300 @ 1' 1"	7402	Passed (31%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	11730 @ 7' 11 1/2"	11634	Passed (101%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.419 @ 7' 11 1/2"	0.779	Passed (L/447)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.765 @ 7' 11 1/2"	1.039	Passed (L/244)	--	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"	1211	1378	2588	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	1211	1378	2588	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)	6' o/c	
Bottom Edge (Lu)	15' 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 15' 11"	N/A	13.2	--	
1 - Uniform (PSF)	0 to 15' 11" (Front)	6' 8"	18.0	20.0	Default Load
2 - Point (lb)	7' 11 1/2" (Front)	N/A	301	633	Default Load

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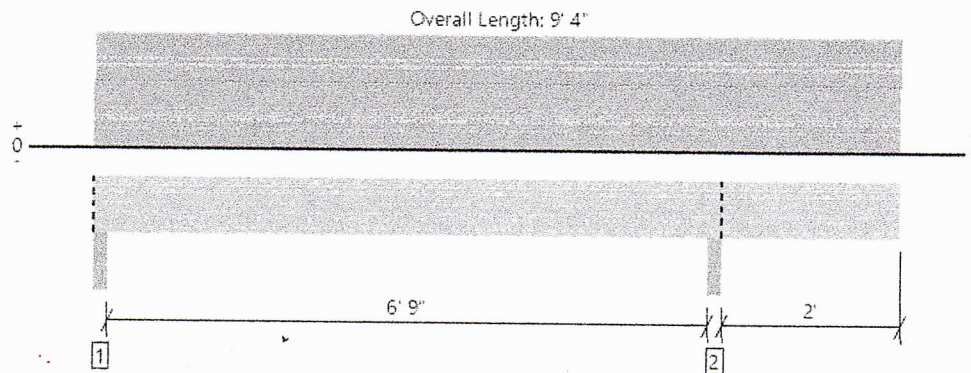
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Roof Framing, (RB-2) Ridge Bm
1 piece(s) 6 x 10 DF No.2

61



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)	1981 @ 7' 2 1/4"	12031 (3.50")	Passed (16%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	Ø60 @ 6' 3"	7402	Passed (13%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	1758 @ 3' 5 1/8"	7540	Passed (23%)	1.25	1.0 D + 1.0 Lr (Alt Spans)
Live Load Defl. (in)	0.015 @ 3' 7 1/2"	0.351	Passed (L/999+)	--	1.0 D + 1.0 Lr (Alt Spans)
Total Load Defl. (in)	0.029 @ 3' 7 1/16"	0.468	Passed (L/999+)	--	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.
- 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"	589	545	1134	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	1053	928	1981	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)	9' 4" o/c	
Bottom Edge (Lu)	9' 4" 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 9' 4"	N/A	13.2	--	
1 - Uniform (PSF)	0 to 9' 4" (Front)	7' 9"	21.0	20.0	Default Load

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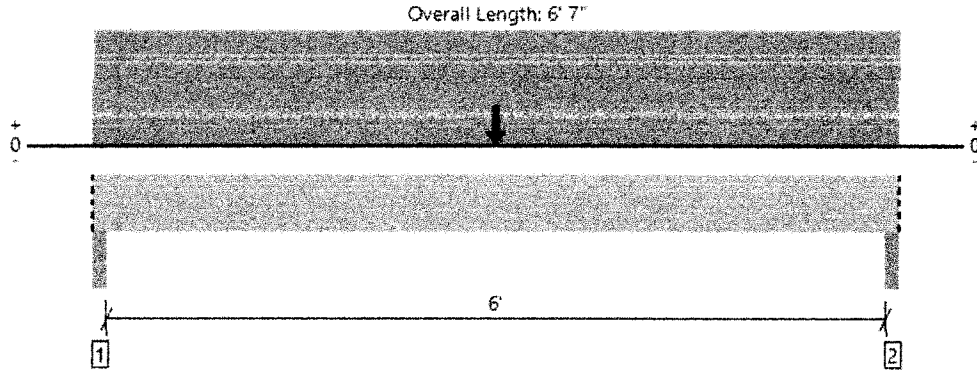
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Roof Framing, (RB-3) Hdr Bm
1 piece(s) 4 x 8 DF No.1

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	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1422 @ 2"	7656 (3.50")	Passed (19%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	1348 @ 10 3/4"	3806	Passed (35%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	3999 @ 3' 3 1/2"	4152	Passed (96%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.060 @ 3' 3 1/2"	0.313	Passed (L/999+)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.122 @ 3' 3 1/2"	0.417	Passed (L/614)	--	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"	719	703	1422	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	719	703	1422	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)	6' 7" o/c	
Bottom Edge (Lu)	6' 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 6' 7"	N/A	6.4	--	
1 - Uniform (PSF)	0 to 6' 7" (Front)	2'	18.0	20.0	Default Load
2 - Point (lb)	3' 3 1/2" (Front)	N/A	1159	1143	Default Load

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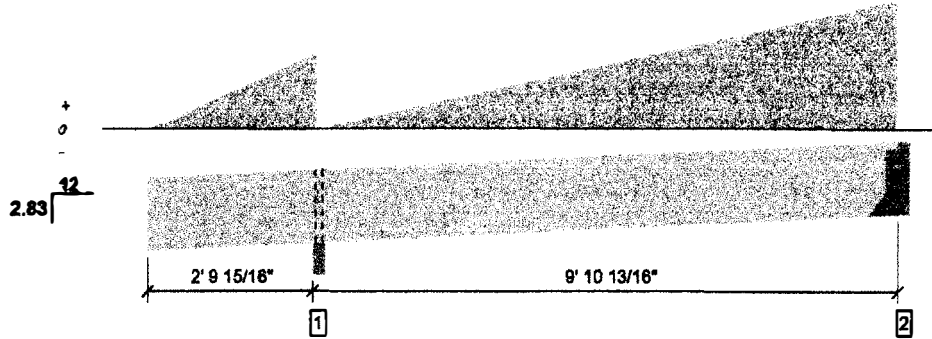


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Overall Sloped Length: 13' 6 11/16"



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	LOF	Limit Combination (Pattern)
Member Reaction (lbs)	564 @ 12' 8 3/4"	1406 (1.50")	Passed (40%)	--	1.0 D + 1.0 Lr (Alt Spans)
Shear (lbs)	438 @ 11' 11 3/4"	2081	Passed (21%)	1.25	1.0 D + 1.0 Lr (Alt Spans)
Moment (Ft-lbs)	1045 @ 8' 8 1/4"	2206	Passed (47%)	1.25	1.0 D + 1.0 Lr (Alt Spans)
Live Load Defl. (in)	0.065 @ 8' 13/16"	0.334	Passed (L/999+)	--	1.0 D + 1.0 Lr (Alt Spans)
Total Load Defl. (in)	0.114 @ 8' 1"	0.501	Passed (L/999+)	--	1.0 D + 1.0 Lr (Alt Spans)

System : Roof

Member Type : Flush Beam

Building Use : Residential

Building Code : IBC 2018

Design Methodology : ASD

Member Pitch: 2.83/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Overhang deflection criteria: LL (2L/360) and TL (2L/240).
- Top Edge Bracing (Lw): Top compression edge must be braced at 13' 1" o/c unless detailed otherwise.
- Bottom Edge Bracing (Lw): Bottom compression edge must be braced at 13' 1" o/c unless detailed otherwise.
- 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"	221	255	476	Blocking
2 - Hanger on 9 1/4" SPF beam	3.50"	Hanger ¹	1.50"	244	320	564	See note ¹

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- ¹ See Connector grid below for additional information and/or requirements.

Connection Simpson Strong-Tie Connectors						
Support	Model	End Length	Top Nails	Face Nails	Member Nails	Accessories
2 - Face Mount Hanger	Connector not found	N/A	N/A	N/A	N/A	

Loads	Location (Side)	Tributary Width	Dead (0.10)	Roof Live (new snow: 1.25)	Comments
0 - Self Weight (PLF)	0 to 12' 8 3/4"	N/A	3.5		
1 - Tapered (PLF)	0 to 2' 9 15/16"	N/A	0.0 to 43.5	0.0 to 56.6	Generated from Roof Geometry
2 - Tapered (PLF)	2' 9 15/16" to 12' 8 3/4"	N/A	0.0 to 70.0	0.0 to 99.0	Generated from Roof Geometry

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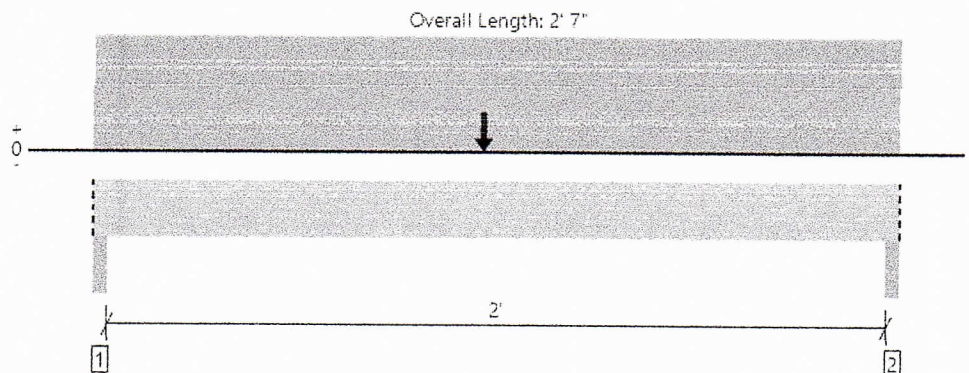
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Roof Framing, (RB-5) Hdr Bm
1 piece(s) 4 x 6 DF No.2

91



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)	1132 @ 2"	7656 (3.50")	Passed (15%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	1071 @ 9"	2888	Passed (37%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	1164 @ 1' 3"	2151	Passed (54%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.005 @ 1' 3 7/16"	0.112	Passed (L/999+)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.011 @ 1' 3 7/16"	0.150	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"	599	533	1132	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	560	498	1058	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)	2' 7" o/c	
Bottom Edge (Lu)	2' 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 2' 7"	N/A	4.9	--	
1 - Uniform (PSF)	0 to 2' 7" (Front)	2'	18.0	20.0	Default Load
2 - Point (lb)	1' 3" (Front)	N/A	1053	928	Default Load

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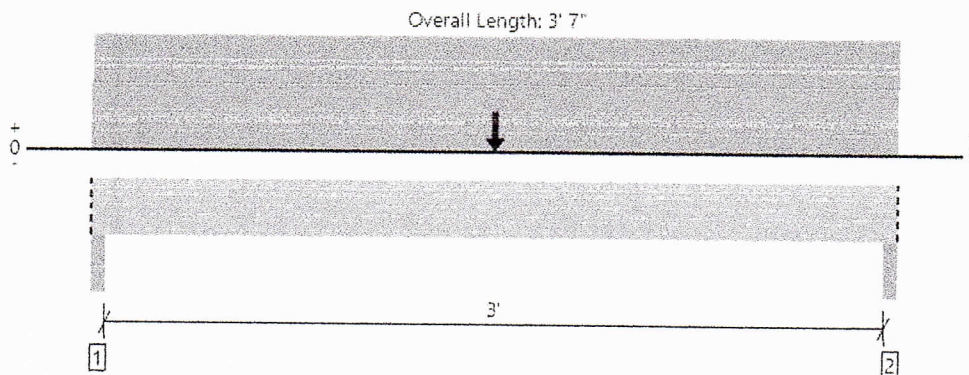


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Roof Framing, (RB-6) Hdr Bm
1 piece(s) 4 x 6 DF No.2

9x1



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)	1199 @ 2"	7656 (3.50")	Passed (16%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	1139 @ 9"	2888	Passed (39%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	1820 @ 1' 9 1/2"	2151	Passed (85%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.019 @ 1' 9 1/2"	0.162	Passed (L/999+)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.036 @ 1' 9 1/2"	0.217	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"	556	643	1199	Blocking
2 - Column - DF	3.50"	3.50"	1.50"	556	643	1199	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' 7" o/c	
Bottom Edge (Lu)	3' 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 3' 7"	N/A	4.9	--	
1 - Uniform (PSF)	0 to 3' 7" (Front)	2'	18.0	20.0	Default Load
2 - Point (lb)	1' 9 1/2" (Front)	N/A	966	1143	Default Load

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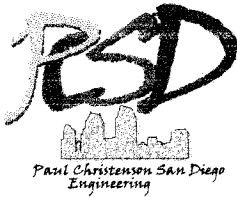
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JOB 22-404-S
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5.0 Lateral Design & Analysis - Studio

Wind: $P = \lambda K_z t I \text{ ps30}$ (ASCE 7 - Equation 6-1)

$\lambda = 1.00$ (fig. 6-3)
 $K_z t = 1.0$ (fig. 6-4)
 $\text{PS30} = 26.6 \text{ psf}$ (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)

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

Wind Loads

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

Roof Level

Direction: N / S = $16.0 \text{ psf} \times 144 \text{ sq. ft.} = \underline{\underline{2298 \text{ lbs.}}}$
Direction: E / W = $16.0 \text{ psf} \times 131 \text{ sq. ft.} = \underline{\underline{2091 \text{ lbs.}}}$

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	not satisfied
$\rho =$	1.3	+

Roof Weight

Roof Wt. = $21.0 \text{ psf} \times 360 \text{ sq. ft.} = 7560 \text{ lbs.}$
Exterior Wall Wt = $15.0 \text{ psf} \times 214 \text{ sq. ft.} = 3210 \text{ lbs.}$
Interior Wall Wt = $8.0 \text{ psf} \times 83 \text{ sq. ft.} = 664 \text{ lbs.}$
Ceiling Wt = $3.0 \text{ psf} \times 224 \text{ sq. ft.} = 672 \text{ lbs.}$
Total Trib. $W_R = \underline{\underline{12106 \text{ lbs.}}}$

Total Seismic Dead Load: $W_t = 12106 \text{ lbs.}$
ASD Base Shear: $V = 0.131 * 1.3 W_t = \underline{\underline{2064 \text{ lbs.}}}$



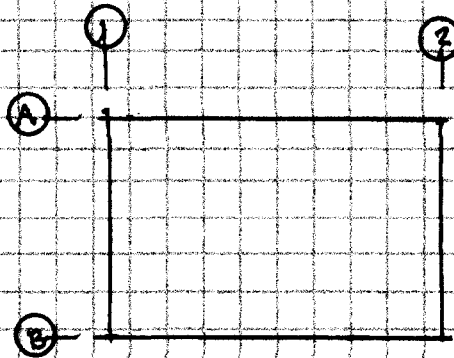
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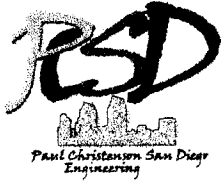
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5.1 Lateral Design & Analysis - 2nd Story Shear Walls

N / S							E / W										
Gridline	Length of Shearwalls					Total	Wall Ht.	Type	Gridline	Length of Shearwalls					Total	Wall Ht.	Type
1	4	4				8.0	8.4	A	A	6					6	8.4	A
2	6					6.0	8.4	A	B	6					5.5	8.4	A
						0.0		2							0		0
						0.0		0							0		0
						0.0		FALSE							0		#DIV/0!
						0.0		FALSE							0		#DIV/0!
						0.0		FALSE							0		#DIV/0!
						0.0		FALSE							0		#DIV/0!
						0.0		FALSE							0		#DIV/0!
						0.0		FALSE							0		#DIV/0!





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5.1 Lateral Design & Analysis (cont.)

Gridline 1 , 15 % (2298 x 0.15 = 345 #)

$$v = \frac{345 \text{ lbs.}}{8 \text{ ft.}} = 43 \text{ plf}$$

$$\text{OTF} = 362 \text{ lbs.}$$



HDU2

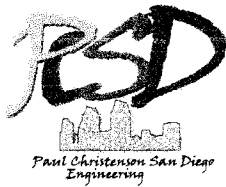
Gridline 2 25 % (2298 x 0.25 = 575 #)

$$v = \frac{575 \text{ lbs}}{6 \text{ ft.}} = 96 \text{ plf}$$

$$\text{OTF} = 804.4 \text{ lbs.}$$



HDU2



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5.1 Lateral Design & Analysis (cont.)

Gridline (A), 50 % (2091 x 0.50 = 1045 #)

$$v = \frac{1045 \text{ lbs.}}{7 \text{ ft.}} = 149 \text{ plf}$$

OTF = 1254 lbs.



/ HDU2

Gridline (B) 50 % (2091 x 0.50 = 1045 #)

$$v = \frac{1045 \text{ lbs.}}{10 \text{ ft.}} = 105 \text{ plf}$$

OTF = 878.1 lbs.



HDU2



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6.0 FOUNDATION DESIGN

6.1 CONTINUOUS FOOTING

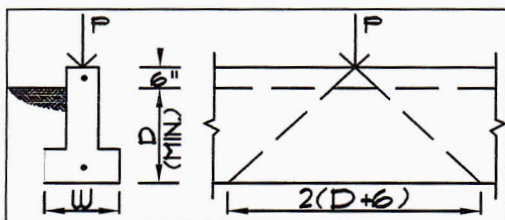
$$w = 1125 \text{ plf}$$

$$\text{ASBP} = 1500 \text{ psf}$$

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

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

6.2 MAX POINT LOAD ON FOOTING



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

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