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NORTH AVENUE HALF-PLEXES

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET
06/02/2022

ELLIS
ARCHITECTS
4132 C Street
Sacramento, CA 95819
Phone: 916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSESIAN ELLIS
C-29460
REN. 07-31-25
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES
DARREN BROWN
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

1	CYC2	02.22.2023

SHEET TITLE
COVER SHEET

SHEET NO.
G0.11

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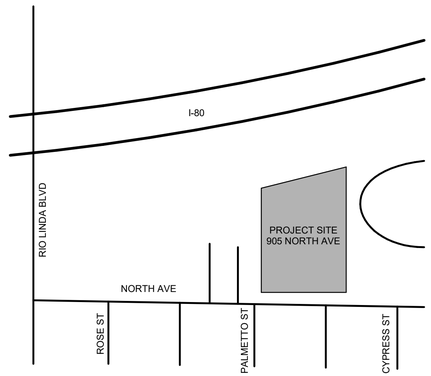
ABBREVIATIONS

&	AND
@	AT
Ø	DIAMETER
#	NUMBER
A/C UNIT	AIR CONDITIONING UNIT
A.C.	ASPHALTIC CONCRETE
A.D.	AREA DRAIN
ADD'L.	ADDITIONAL
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
A.H.U.	AIR HANDLING UNIT
ALUM.	ALUMINUM
ARCH.	ARCHITECTURAL
BD.	BOARD
BKG.	BACKING
BLDG.	BUILDING
BOT.	BOTTOM
BTWN.	BETWEEN
CAB.	CABINET
CEM.	CEMENT
CEM. PLAS.	CEMENT PLASTER
C.J.	CONSTRUCTION JOINT
CLG.	CEILING
CLR.	CLEAR
CL.	CLOSET
C.M.U.	CONCRETE MASONRY UNIT
CONC.	CONCRETE
CPT.	CARPET
CSWK.	CASEWORK
CTR.	CENTER
DBL.	DOUBLE
DET.	DETAIL
D.F.	DRINKING FOUNTAIN
DIA.	DIAMETER
DIM.	DIMENSION
DS.	DOWNSPOUT
DWG.	DRAWING
(E)	EXISTING
EA.	EACH
E.J.	EXPANSION JOINT
ELECT.	ELECTRIC
ELEV.	ELEVATOR
EQ.	EQUAL
EQUIP.	EQUIPMENT
E.W.	EACH WAY
EXP.	EXPANSION
EXT.	EXTERIOR
F.D.	FLOOR DRAIN
F.E.	FIRE EXTINGUISHER
F.E.C.	FIRE EXTINGUISHER CABINET
FIN.	FINISH
FLG.	FLOORING
FLR.	FLOOR
F.O.C.	FACE OF CONCRETE
F.O.F.	FACE OF FINISH
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUD
F.O.W.	FACE OF WALL
FP.	FIREPROOF
F.R.P.	FIBERGLASS REINFORCED PANEL
FT.	FOOT OR FEET
FTG.	FOOTING
G.	GAS
GA.	GAGE
GALV.	GALVANIZED
GLU. LAM.	GLUED LAMINATED WOOD
GYP.	GYPSUM
H.B.	HOSE BIBB
H.C.	HOLLOW CORE
HDWD.	HARDWOOD
HDW.	HARDWARE
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
HT.	HEIGHT
INSUL.	INSULATION
INT.	INTERIOR
KIT.	KITCHEN
LAB.	LABORATORY
LAV.	LAVATORY
MAX.	MAXIMUM
MECH.	MECHANICAL
MEMB.	MEMBRANE
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTD.	MOUNTED
MTL.	METAL
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
N.T.S.	NOT TO SCALE
O/	OVER
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
O.F.C.I.	OWNER FURNISHED CONTRACTOR INSTALLED
OPP.H.	OPPOSITE HAND
OPNG.	OPENING
OPP.	OPPOSITE
P.L.	PROPERTY LINE
P.LAM.	PLASTIC LAMINATE
PLUMB.	PLUMBING
PLYWD.	PLYWOOD
PNT.	PAINT
PROP.	PROPERTY
P.S.F.	POUNDS PER SQUARE FOOT
P.S.I.	POUNDS PER SQUARE INCH
R.	RADIUS
R.	RISER
R.	REFRIGERATOR
R.D.	ROOF DRAIN
REBAR.	REINFORCING STEEL BAR
REF.	REFERENCE
REINF.	REINFORCED
REQ'D.	REQUIRED
RM.	ROOM
R.O.	ROUGH OPENING
R.W.L.	RAIN WATER LEADER
S.C.	SOLID CORE
SCHED.	SCHEDULE
S.D.	STORM DRAIN
SDST	SELF DRIVING SELF TAPPING
SEC.	SECURITY
SHT.	SHEET
SHTHG.	SHEATHING
SIM.	SIMILAR
S.M.	SHEET METAL
SPEC.	SPECIFICATION
SQ.	SQUARE
S.S.	SANITARY SEWER
S.ST.	STAINLESS STEEL
STL.	STEEL
ST.	STORAGE
STRUCT.	STRUCTURAL
SUSP.	SUSPENDED
SUSP. CLG.	SUSPENDED CEILING
SYS.	SYSTEM
T	TREAD
T&G	TONGUE & GROOVE
T.B.R.	TO BE REMOVED
THK.	THICK(NESS)
T.O.	TOP OF
T.O.C.	TOP OF CURB
T.O.P.	TOP OF PARAPET
T.O.P.	TOP OF PLATE
TOPO.	TOPOGRAPHY
T.O.S.	TOP OF STEEL
T.O.W.	TOP OF WALL
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
W.C.	WATER CLOSET
WD.	WOOD
W.I.C.	WALK IN CLOSET
W.H.	WATER HEATER
WT.	WEIGHT
WTR.	WATER

VICINITY MAP



DRAFTING SYMBOLS

PROJECT DESCRIPTION

SCOPE OF WORK: SUBDIVISION OF (3) EXISTING PARCELS INTO (8) SINGLE FAMILY LOTS. CONSTRUCTION OF (6) STRUCTURALLY INDEPENDENT HALF-PLEX UNITS AND (1) SINGLE FAMILY UNIT. ONSITE AND OFFSITE IMPROVEMENTS UNDER SEPARATE APPLICATION.

CONSTRUCTION TYPE: TYPE VB

OCCUPANCY TYPE: R-3/U [SINGLE FAMILY RESIDENTIAL (R-3) / GARAGE (U)]

ZONING: R-2A

UNIT TYPE 1 (SINGLE FAMILY HOME)

LIVING - GROUND FLOOR:	1,310 S.F.
GARAGE:	271 S.F.
ROOF AREA:	1,906 S.F.
PORCH AREA:	127 S.F.
TOTAL CONDITIONED HOUSE AREA:	1,310 S.F.

UNIT TYPE 2A.1/2A.2 (HALF-PLEX)

LIVING - GROUND FLOOR:	721 S.F.
LIVING - SECOND FLOOR:	1,043 S.F.
GARAGE:	426 S.F.
ROOF AREA:	1,490 S.F.
PORCH AREA:	177 S.F.
TOTAL CONDITIONED HOUSE AREA:	1,764 S.F.

UNIT TYPE 2B (HALF-PLEX)

LIVING - GROUND FLOOR:	795 S.F.
LIVING - SECOND FLOOR:	1,061 S.F.
GARAGE:	426 S.F.
ROOF AREA:	1,621 S.F.
PORCH AREA:	208 S.F.
TOTAL CONDITIONED HOUSE AREA:	1,856 S.F.

LOT COVERAGE - LOT 1 (EXISTING HOUSE)

COVERED AREA:	1,624 S.F.
TOTAL LOT COVERAGE:	1,624 S.F.
TOTAL LOT SIZE:	5,607 S.F.
PERCENTAGE LOT COVERAGE:	1,624 / 5,607 = 28.9%
28.9% < 50% = OK	

LOT COVERAGE - 905 NORTH AVE #2 - LOT 2 - UNIT TYPE 1

RESIDENCE:	1,581 S.F.
COVERED PORCH AREA:	127 S.F.
TOTAL LOT COVERAGE:	1,708 S.F.
TOTAL LOT SIZE:	4,866 S.F.
PERCENTAGE LOT COVERAGE:	1,708 / 4,866 = 35.1%
35.1% < 50% = OK	

LOT COVERAGE - 4929 NERRADS CT - LOT 3 - UNIT TYPE 2A.2

RESIDENCE:	1,147 S.F.
COVERED PORCH AREA:	177 S.F.
TOTAL LOT COVERAGE:	1,324 S.F.
TOTAL LOT SIZE:	5,761 S.F.
PERCENTAGE LOT COVERAGE:	1,324 / 5,761 = 23%
23% < 50% = OK	

LOT COVERAGE - 4930 NERRADS CT - LOT 4 - UNIT TYPE 2A.1

RESIDENCE:	1,147 S.F.
COVERED PORCH AREA:	127 S.F.
TOTAL LOT COVERAGE:	1,324 S.F.
TOTAL LOT SIZE:	5,276 S.F.
PERCENTAGE LOT COVERAGE:	1,324 / 5,267 = 25.1%
25.1% < 50% = OK	

LOT COVERAGE - 4920 NERRADS CT - LOT 5 - UNIT TYPE 2A.1

RESIDENCE:	1,147 S.F.
COVERED PORCH AREA:	127 S.F.
TOTAL LOT COVERAGE:	1,324 S.F.
TOTAL LOT SIZE:	12,108 S.F.
PERCENTAGE LOT COVERAGE:	1,324 / 12,108 = 10.9%
10.9% < 50% = OK	

LOT COVERAGE - 4919 NERRADS CT - LOT 6 - UNIT TYPE 2A.2

RESIDENCE:	1,147 S.F.
COVERED PORCH AREA:	127 S.F.
TOTAL LOT COVERAGE:	1,324 S.F.
TOTAL LOT SIZE:	10,435 S.F.
PERCENTAGE LOT COVERAGE:	1,324 / 10,435 = 12.7%
12.7% < 50% = OK	

LOT COVERAGE - 4909 NERRADS CT - LOT 7 - UNIT TYPE 2B

RESIDENCE:	1,147 S.F.
COVERED PORCH AREA:	127 S.F.
TOTAL LOT COVERAGE:	1,324 S.F.
TOTAL LOT SIZE:	7,006 S.F.
PERCENTAGE LOT COVERAGE:	1,324 / 7,006 = 18.9%
18.9% < 50% = OK	

LOT COVERAGE - 911 NORTH AVE - LOT 8 - UNIT TYPE 2B

RESIDENCE:	1,221 S.F.
COVERED PORCH AREA:	208 S.F.
TOTAL LOT COVERAGE:	1,429 S.F.
TOTAL LOT SIZE:	10,346 S.F.
PERCENTAGE LOT COVERAGE:	1,429 / 10,346 = 13.8%
13.8% < 50% = OK	

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A1.15	LOT 5 SITE PLAN
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A1.17	LOT 7 SITE PLAN
A1.18	LOT 8 SITE PLAN
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A2.13	UNIT TYPE 1 ELEVATIONS
A2.14	UNIT TYPE 1 ELEVATIONS
A2.15	UNIT TYPE 1 BUILDING SECTIONS
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A8.22	DETAILS - RATED
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A8.24	ROOF DETAILS - COMP SHINGLES
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A8.34	WINDOW & DOOR FLASHING DETAILS
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STRUCTURAL

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S2.4	UNIT 2A 2ND FLR. FRAMING PLAN
S2.5	UNIT 2A ROOF FRAMING PLAN
S2.6	UNIT 2B FOUNDATION PLAN
S2.7	UNIT 2B 2ND FLR. FRAMING PLAN
S2.8	UNIT 2B ROOF FRAMING PLAN
S3.1	DETAILS
S3.2	DETAILS
S3.3	DETAILS
WSWH1	SIMPSON STRONG-WALL
WSWH2	SIMPSON STRONG-WALL
WSWH4	SIMPSON STRONG-WALL

FIRE PROTECTION

FP1	FIRE SITE PLAN
FP2	FIRE SPRINKLER PLAN

SOLAR - LOT 2

1(LOT 2)	LOT 2 TITLE PAGE
2(LOT 2)	LOT 2 SITE PLAN
2.1(LOT 2)	LOT 2 MOUNTING DETAIL
3(LOT 2)	LOT 2 SINGLE LINE DIAGRAM
8.1 (LOT 2)	AS-BUILT
10 (LOT 2)	ENGINEERING

SOLAR - LOT 3

1(LOT 3)	LOT 3 TITLE PAGE
2(LOT 3)	LOT 3 SITE PLAN
2.1(LOT 3)	LOT 3 MOUNTING DETAIL
3(LOT 3)	LOT 3 SINGLE LINE DRAWING
8.1 (LOT 3)	LABELS DIRECTORY
10 (LOT 3)	AS-BUILT

SOLAR - LOT 4

1(LOT 4)	LOT 4 TITLE PAGE
2(LOT 4)	LOT 4 SITE PLAN
2.1(LOT 4)	LOT 4 MOUNTING DETAIL
3(LOT 4)	LOT 4 SINGLE LINE DRAWING
8.1 (LOT 4)	LABELS DIRECTORY
10 (LOT 4)	AS-BUILT

SOLAR - LOT 5

1 (LOT 5)	LOT 5 TITLE PAGE
2 (LOT 5)	LOT 5 SITE PLAN
2.1(LOT 5)	LOT 5 MOUNTING DETAIL
3(LOT 5)	LOT 5 SINGLE LINE DIAGRAM
8.1 (LOT 5)	LABELS DIRECTORY
10 (LOT 5)	AS-BUILT

SOLAR - LOT 6

1(LOT 6)	LOT 6 TITLE PAGE
2(LOT 6)	LOT 6 SITE PLAN
2.1(LOT 6)	LOT 6 MOUNTING DETAIL
3(LOT 6)	LOT 6 SINGLE LINE DIAGRAM
8.1 (LOT 6)	LABELS DIRECTORY
10 (LOT 6)	AS-BUILT

SOLAR - LOT 7

1(LOT 7)	LOT 7 TITLE PAGE
2(LOT 7)	LOT 7 SITE PLAN
2.1(LOT 7)	LOT 7 MOUNTING DETAIL
3(LOT 7)	LOT 7 SINGLE LINE DIAGRAM
8.1 (LOT 7)	LABELS DIRECTORY
10 (LOT 7)	AS-BUILT

SOLAR - LOT 8

1(LOT 8)	LOT 8 TITLE PAGE
2(LOT 8)	LOT 8 SITE PLAN
2.1(LOT 8)	LOT 8 MOUNTING DETAIL
3(LOT 8)	LOT 8 SINGLE LINE DIAGRAM
8.1 (LOT 8)	LABELS DIRECTORY
10 (LOT 8)	AS-BUILT

SOLAR

4	MODULE
4.1	MODULE GROUNDING
5	INVERTER APS MICRO-INVERTER
6	MOUNTING TYPE
6.1	RACKING TYPE
7	ENGINEERING
7.1	ENGINEERING
8	LABELS
9	AC DISCONNECT

ENERGY

EN-1	UNIT 1 ENERGY FORMS
EN-2.0	UNIT 2A ENERGY FORMS
EN-2.1	UNIT 2B ENERGY FORMS

SHEET COUNT: 123

GENERAL NOTES

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL NOTES AND DETAILS IN THIS SET OF DRAWINGS AND INCORPORATE IN THE CONSTRUCTION OF STRUCTURE(S).
2. CONSTRUCTION MUST CONFORM TO THE DESIGN APPROVED BY THE PLANNING DEPARTMENT IN THE CONDITIONS OF APPROVAL.
3. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT CALIFORNIA CODE OF REGULATIONS AND ALL LOCAL CODES AND AUTHORITIES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURATE PLACEMENT OF THE BUILDINGS ON THE SITE.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK.
6. SHOULD ANY CONDITION ARISE WHERE THE INTENT OF THE DRAWINGS IS IN DOUBT, OR WHERE THERE IS A DISCREPENCY BETWEEN THE CONSTRUCTION DOCUMENTS AND THE FIELD CONDITIONS, THE ARCHITECT SHALL BE NOTIFIED AS SOON AS POSSIBLE FOR INSTRUCTIONS ON HOW TO PROCEED.
7. SEE CIVIL ENGINEERING DRAWINGS FOR ADDITIONAL SITE WORK, AND IMPROVEMENTS WITHIN THE RIGHT OF WAY.
8. PROVIDE AND INSTALL DI-ELECTRIC FITTINGS ON PIPING
9. WHERE DISSIMILAR MATERIALS ARE JOINED, ALL FLASHINGS ARE TO BE INSTALLED PER SMACNA STANDARDS.
10. PREPARE THE SITE IN ACCORDANCE WITH THE SOILS REPORT RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
11. PRIOR TO EXCAVATION, THE CONTRACTOR SHALL VERIFY THE TYPE, EXTENT, AND LOCATION OF ALL UTILITY LINES ALREADY INSTALLED.
12. IF ARTIFACTS OR SKELETAL REMAINS ARE ENCOUNTERED DURING CONSTRUCTION, ALL WORK IS TO BE STOPPED AND THE LOCAL COMMUNITY DEVELOPMENT DEPARTMENT SHALL BE NOTIFIED IN ORDER THAT THE FIND MAY BE ASSESSED.
13. NO PORTION OF THE WORK REQUIRING A SHOP DRAWING OR SAMPLE SUBMITTAL SHALL COMMENCE UNTIL THE SUBMITTAL HAS BEEN REVIEWED BY THE ARCHITECT.
14. NOTED DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
15. SUBSTITUTIONS SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM BOTH THE ARCHITECT AND THE OWNER, CONSIDERATION WILL BE GIVEN TO LIFE SAFETY, FIRE RATING, ACOUSTICS, WATERPROOFING, STRUCTURAL INTEGRITY, ACCESSIBILITY, AND AESTHETICS WHEN ASSESSING PROPOSED SUBSTITUTIONS.
16. DIMENSIONS ARE TO FACE OF STUD OR CENTERLINE UNLESS OTHERWISE NOTED.
17. ALL EXTERIOR METAL SHALL BE PRIMED AND PAINTED, U.N.O.
18. THE CONTRACTOR SHALL PROTECT FROM DAMAGE DUE TO CONSTRUCTION INCLUDING ADJACENT PROPERTIES, ON- AND OFF-SITE WORK.

APPLICABLE CODES

ALL WORK SHALL COMPLY WITH THE LOCAL ORDINANCES AND THE BUILDING CODES AS ADOPTED BY THE CITY OF SACRAMENTO.

2019 CRC (CALIFORNIA RESIDENTIAL CODE)
2019 CBC (CALIFORNIA BUILDING CODE)
2019 CPC (CALIFORNIA PLUMBING CODE)
2019 CMC (CALIFORNIA MECHANICAL CODE)
2019 CEC (CALIFORNIA ELECTRICAL CODE)
2019 CAL GREEN (CALIFORNIA GREEN BUILDING STANDARDS CODE)
2019 CALIFORNIA ENERGY CODE

PROJECT DIRECTORY

OWNER:

CONTACT: DARREN BROWN
4010 FOOTHILLS BLVD, STE. 103
ROSEVILLE, CA 95747
PH: 916.300.7962
EMAIL: darrenbrown@comcast.net

CIVIL ENGINEER:

CWE
CONTACT: BOB EYNCK
2260 DOUGLAS BLVD, STE. 160
ROSEVILLE, CA 95661
PH: 916.772.7800
EMAIL: reynck@cwecorp.com

ARCHITECT:

ELLIS ARCHITECTS, INC.
CONTACT: SARAH ELLIS
4132 C STREET
SACRAMENTO, CA 95819
PH 916-440-6765
EMAIL sarah@ellis-architects.com

STRUCTURAL ENGINEER:

CORNERSTONE STRUCTURAL CONSULTANTS
CONTACT: CHAD GUPTIL
9005 ELK GROVE BLVD, STE. 6
ELK GROVE, CA 95624
PH: 916.897.9649
EMAIL: chadg@cornerstonestructural.net

FIRE PROTECTION:

SACRAMENTO ENGINEERING CONSULTANTS
CONTACT: RICKERT HENRIKSEN
10555 OLD PLACERVILLE RD
SACRAMENTO, CA 95827
PH: 916.368.4490
EMAIL: rh@saceng.com

SOLAR ENGINEER:

EV ENERGY
CONTACT: NICK ATTARDI
10417 FAIR OAKS BLVD
FAIR OAKS, CA 95628
PH: 916.342.1395
EMAIL: nick@evenergy.com

ENERGY ANALYSIS:

QUALITY BUILT
CONTACT: LESLIE HOYT
336 WEST MAIN ST
RIPON, CA 95366
PH: 209.593.5858
EMAIL: lesliehoyt@qualitybuilt.com

ABBREVIATIONS

A.C.	ASPHALTIC CONCRETE	(E)	EXISTING	INSUL.	INSULATION	R.D.	ROOF DRAIN
A.F.C.I.	ARC-FAULT CIRCUIT INTERRUPTER	EA.	EACH	INT.	INTERIOR	REQ'D	REQUIRED
		ELECT.	ELECTRICAL			R.O.	ROUGH OPENING
A.F.F.	ABOVE FINISH FLOOR	EQ.	EQUAL	M.H.	MANHOLE		
ALUM.	ALUMINUM	E.J.	EXPANSION JOINT	M.O.	MASONRY OPENING	SIM.	SIMILAR
ADJ.	ADJUSTABLE	EXP.	EXPOSED	MAX.	MAXIMUM	SQ.	SQUARE
		EXT.	EXTERIOR	MECH.	MECHANICAL		
BD.	BOARD			MTR.	METER		
BLK.	BLOCK	F.D.	FLOOR DRAIN	MTL.	METAL	T.O.C.	TOP OF CONCRETE
BLDG.	BUILDING	F.G.	FINISH GRADE	MIN.	MINIMUM	T.O.P.	TOP OF PLATE
C.B.	CATCH BASIN	FIN.	FINISH			T.O.W.	TOP OF WALL
C.J.	CONTROL JOINT	FLR.	FLOOR	N.I.C.	NOT IN CONTRACT	TYP.	TYPICAL
C.L.	CENTER LINE	F.O.C.	FACE OF CONCRETE	N.T.S.	NOT TO SCALE		
CLG.	CEILING	F.O.F.	FACE OF FINISH			U.N.O.	UNLESS NOTED OTHERWISE
CLR.	CLEAR	F.O.M.	FACE OF MASONRY	O/.	OVER		
COL.	COLUMN	F.O.S.	FACE OF STUD	O.C.	ON CENTER	V.I.F.	VERIFY IN FIELD
CONC.	CONCRETE	F.S.	FINISH SURFACE	OPP.	OPPOSITE		
CONT.	CONTINUOUS					W/.	WITH
C.T.	CERAMIC TILES	G.S.M.	GALVANIZED SHEET METAL	P.L.	PROPERTY LINE	W.H.	WATER HEATER
		GYP.	GYPSUM	P.O.C.	POINT OF CONNECTION	WD.	WOOD
DS.	DOWNSPOUT			PLUMB.	PLUMBING		
DBL.	DOUBLE	HT.	HEIGHT	PLWD.	PLYWOOD		

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
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GENERAL INFORMATION

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G0.21

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City of SACRAMENTO
Community Development

300 Richards Blvd., 3rd Floor
Sacramento, CA 95811

Help Line: 916-264-5011
CityofSacramento.org/dsd

Residential Code Requirements

2019 Adopted Codes effective January 1st, 2020

The code requirements in this document are excerpts only, not a comprehensive list of all requirements that may apply to your project. These sheets, when attached to a set of plans, become part of those plans and must remain attached thereto. The approval of these plans and specifications shall not be held to permit or approve the violation of any City ordinance or State or Federal law.

Building Code Requirements

B-1 **In dwelling units, smoke alarms shall be installed** on the wall or ceiling of the area immediately outside each separate sleeping area, in each room used for sleeping purposes, and on each story within the dwelling unit. In dwellings with basements, an alarm shall be installed on each story and in the basement. In dwelling units where a story or basement is split into two or more levels and does not have an intervening door between the adjacent levels, a smoke alarm need only be installed on the upper level, except that when the lower level is less than one full story below the upper level, an alarm shall be installed on each level. Where the ceiling height of a room that opens onto a hallway serving a bedroom exceeds the height of the hallway by 24 inches, smoke alarms shall be installed in the hallway and in the adjacent room. In new construction, the required smoke alarms shall receive their primary power from a commercial source and have a battery backup. When more than one smoke alarm is being provided the alarms shall be interconnected. 2019 CRC, Section R314.

B-2 When interior **alterations, repairs, or additions having a value in excess of $1,000** are made, provide approved **smoke alarms** as required for new buildings. The alarm may be battery operated. 2019 CRC, Section R314.6.2.

B-3 **For new construction, and alteration, repairs and additions, an approved carbon monoxide alarm shall be installed** in dwelling units and in sleeping units within which fuel-burning appliances including fireplaces are installed and in dwelling units that have attached garages. 2019 CRC, Section R315.1.

B-4 **Sprinklers shall be installed** to protect all areas of a new dwelling unit. Fire sprinklers shall be designed and installed per 2019 CRC, Section R313.2.1.

B-5 **Basements, habitable attics, and every sleeping room in dwelling units** shall have not less than one operable emergency escape and rescue opening approved for **emergency escape or rescue** that shall open directly into a public way, yard, or court that opens to a public way. Escape or rescue windows shall have a minimum net clear opening area of not less than 5.7 square feet, except that when escape and rescue windows are on the grade-floor they can have a minimum net clear opening area of 5 square feet. All emergency escape and rescue windows shall have the bottom of the clear opening not greater than 44 inches measured from the floor. The minimum net clear opening height shall be 24 inches. The minimum net clear opening width shall be 20 inches. Storm shelters and basements that are less than 200 square feet and are only used to house mechanical equipment are exempt from this requirement. 2019 CRC, Section R310.1. **See Exception 2** Where the dwelling or townhouse is equipped with an automatic sprinkler system installed in accordance with Section P2904, sleeping rooms in basements shall not be required to have emergency escape and rescue openings provided that the basement has one of the following: 2.1 One means of egress complying with Section R311 and one emergency escape and rescue opening. 2.2 Two means of egress complying with Section R311.

B-6 **Private garages shall be separated from a dwelling unit and its attic space** by minimum ½ inch gypsum board applied on the garage side. Private garages located beneath habitable spaces shall be separated from the habitable space by means of minimum 5/8 inch gypsum board. A garage shall not open directly into a room used for sleeping purposes. Door openings between a private garage and a dwelling unit are required to be self-closing and self-latching. When not protected by fire sprinklers, the door shall be constructed of solid wood, solid material, or honey comb core steel and must be 1-3/8 inch thick or have a 20 minute fire rating. 2019 CRC, Sections R302.5 & R302.6.

B-7 **Ducts may pass through the walls or a ceiling separating a private garage from a dwelling unit** provided the ducts within the garage are constructed of steel having a thickness of not less than 26 gauge galvanized sheet steel and the duct has no openings into the garage. 2019 CRC, Section R302.5.2.

B-8 Provide **readily accessible natural ventilation directly to the outdoors** for all habitable rooms within a dwelling unit equal to 4 percent of the floor area ventilated. 2019 CRC, Section R303.1.

B-9 Provide **natural or artificial light** to all habitable rooms within a dwelling unit. Natural light shall be equal to 8 percent of the floor area served. Artificial light shall have an average illumination of 6 foot-candles at a height of 30 inches above the floor level. 2019 CRC, Section R303.1.

B-10 **Rooms containing bathtubs, showers, spas, and similar bathing fixtures** shall be provided with an aggregate glazing area of not less than 3 square feet of which at least one half must be openable or be mechanically ventilated with the exhaust air going directly to the outside. 2019 CRC, Section R303.3.

B-11 Provide **safety glazing** for all glazing in locations specified as hazardous in the 2019 CRC, Section R308.4.

B-12 **Shower compartments and walls above bathtubs with installed shower heads** shall be finished with a smooth, nonabsorbent surface to a height of not less than 6 feet above the floor. 2019 CRC, Section R307.2.

B-13 Provide an approved **attic access** in a readily accessible location sized 22 inches by 30 inches with minimum 30 inch vertical headroom. 2019 CRC, Section R807.1. **If mechanical equipment** is installed in the attic space the access must be sized so that the largest piece of equipment can be removed, but in no case smaller than 22 inch by 30 inch with 30 inch vertical headroom clearance per 2019 CMC, section 304.4.

B-14 **Enclosed usable space under interior stairways** in dwelling units shall have the walls and soffits protected on the enclosed side with ½ inch gypsum board. 2019 CRC, Section R302.7.

B-15 **Private stairways** shall be constructed with a 7.75 inch maximum rise, a 10 inch minimum run, and a 36 inch minimum width. A nosing not less than ¾ inch but not more than 1-1/4 inch shall be provided on stairways with solid risers where the tread depth is less than 11 inches. The largest tread run and the greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. Maintain a continuous 6 foot 8 inch headroom clearance above the stairway. 2019 CRC, Section R311.7.

B-16 A minimum of **one handrail is required on all stairway runs with four or more risers** that serve dwelling units. The top of handrails shall be placed not less than 34 inches nor more than 38 inches above the nosing of the treads except for at the lowest riser, landing transitions, and the start of the flight where they may be allowed to be higher. A clear space of 1-1/2 inches is required between the handrail and the wall. The maximum projection of the handrail into the required stairway width shall be 4-1/2 inches. Openings in open **guards on stairways** shall be sized such that a 4-3/8 inch sphere will not pass through. The triangular openings formed by the riser, tread and bottom rail at the open side of a stairway shall be of a maximum size such that a sphere of 6 inches in diameter cannot pass through the opening. 2019 CRC, Section R311.7.8 and R312.1.3.

B-17 **Circular handrails** shall have a minimum diameter of 1-1/4 inches and a maximum diameter of 2 inches. **Non-circular handrails** shall have a minimum perimeter dimension of 4 inches, a maximum perimeter dimension of 6-1/4 inches, and a maximum cross-section of 2-1/4 inches. **Handrails with a perimeter greater than 6-1/4 inches** shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the widest part of the profile. The required depth shall continue for at least 1-3/4 inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1-1/4 inches to a maximum of 2-3/4 inches. 2019 CRC, Section R311.7.8.5.

B-18 **Guards** are required where open-sided walking surfaces including stairs, ramps, and landings are located more than 30 inches above the floor below. These guards shall be a minimum of 42 inches in height. Openings in open guards for these areas shall be sized such that a 4 inch diameter sphere cannot pass through any opening. 2019 CRC, Section R312.1.

B-19 **On stairways, guards whose top rail also serves as a handrail** shall have a height not less than 34 inches and not more than 38 inches measured vertically from a line connecting the leading edge of the treads. 2019 CRC, Section 312.1.2 exception #2.

B-20 **Interior spaces intended for human occupancy shall be provided with heating facilities** capable of maintaining a room temperature of 68 degrees Fahrenheit at a point 3 feet above the floor and 2 feet from exterior walls in all habitable rooms. 2019 CRC, Section R303.10.

B-21 **Ceiling heights** for habitable space, hallways and portions of basements containing these spaces shall have a ceiling height of not less than 7 feet. Bathrooms, toilet rooms and laundry rooms shall have a ceiling height not less than 6 feet 8 inches. 2019 CRC, Section R305.1.

B-22 **Factory built chimneys and factory built fireplaces** shall be listed and installed in accordance with the terms of their listing and the manufacturer's instructions. 2019 CRC, Sections R1004.1 & R1005.1.

B-23 **Braced wall lines** shall consist of braced wall panels that meet the requirements for location, size, spacing and type of bracing as shown in 2019 CRC, Sections R602.10.1.1, Tables R602.10.1.2(2) & R602.10.1.2(3), R602.10.1.4.1, and R602.10.3. Brace wall lines shall be in line or offset from each other by not more than 4 feet. All braced wall panels shall be clearly indicated on the plans.

B-24 Any braced wall panel may be replaced by an **alternate braced wall panel** constructed in accordance with 2019 CRC, Section R602.10.6.1 and Table R602.10.6.1.

B-25 **Cripple walls having a stud height exceeding 14 inches** shall be framed of studs not less in size than the studs above. Cripple walls exceeding 4 feet in height shall be framed with studs sized as required for an additional story. Cripple walls with studs less than 14 inches high shall be framed of solid blocking or shall be sheathed on at least one side with a wood structural panel that is fastened to both the top and bottom plate. All cripple walls shall be supported on a continuous foundation. 2019 CRC, Section R602.9.

B-26 **Stud size, height, and spacing** shall conform to 2019 CRC, Table R602.3(5).

B-27 **Provide access to all under-floor spaces**. Access provided through the floor shall be a minimum size of 18 inches by 24 inches. Access provide through the wall shall be a minimum of 16 inches by 24 inches and shall not be located under a door to the residence. 2019 CRC, Section 408.4.

B-28 **Provide adequate ventilation at all under-floor spaces**. 2019 CRC, Section 408.1.

B-29 **Wood framing members** and wood-based products must be foundation grade redwood or treated and marked by an approved agency when required by 2019 CRC, section R317.

B-30 **Foundation plates or sills shall be bolted or anchored to the foundation** with not less than ½ inch diameter steel bolts or approved anchors spaced a minimum of 6 feet on center for one and two story dwellings and a minimum of 4 feet on center for three of more story dwellings. There shall be at least two bolts per plate that start within 12 inches or 7 bolt diameters of the end of the plate. All foundation bolts shall be embedded a minimum of 7 inches into the concrete or masonry. Each bolt shall have a properly sized nut and washer. 2019 CRC, Sections R403.1.6 & R403.1.6.1. **The washers** must be a minimum 3 x 3 inches square and .229 inches thick. A diagonal slot is allowed of a width 3/16 inch larger than the bolt diameter and a maximum 1-3/4 in length, provided a standard cut washer is used between the nut and plate washer. 2019 CRC, Section R602.11.1.

B-31 **Cutting and notching** of exterior walls and bearing partitions shall not be greater than 25 percent of the stud width. Cutting or notching of studs to a depth not greater than 40 percent of the width of the stud is permitted in nonbearing partitions supporting no loads other than the weight of the partition. 2019 CRC, Section 602.6 #1.

B-32 **A drilled or bored hole** not greater in diameter than 60 percent of the stud width is permitted in a non-bearing partition or in a wall where the bored stud is doubled provided not more than two such successive studs are bored. A minimum 5/8 inch of wood is required between the bored hole and the edge of the wood. Bored holes cannot be located in the same vicinity as a cut or a notch. 2019 CRC, Section 602.6 #2.

B-33 **Footings** shall be designed so that the allowable bearing capacity of the soil is not exceeded per Table R401.4.1. Where a specific design is not provided, the size of concrete footings supporting walls of light-frame construction shall conform to the requirements of 2019 CRC, Table R403.1. The minimum depth of footings shall be 12 inches below undisturbed ground. 2019 CRC, Section R403.1.4.

B-34 Where **post and beam or girder construction** is used, a **positive connection** shall be provided to ensure against uplift and lateral displacement. 2019 CRC, Section R502.9.

B-35 Where rafters are not parallel with the ceiling joist, rafters shall be tied to an equivalent **rafter tie** that is connected per Table 802.5.2. The rafter ties shall be a minimum of 2 inch by 4 inch. 2019 CRC, Section R802.5.2. Where ceiling joists or rafter ties are not provided, the ridge formed by these rafters shall be supported by a wall or girder designed in accordance with accepted engineering practice.

B-36 Provide adequate **ventilation to all attic spaces**. 2019 CRC, Section R806.1

B-37 Provide **fire blocking and draft stopping** in concealed locations of combustible construction in accordance with the 2019 CRC, Sections R302.11 & R302.12.

B-38 **All gypsum board, stucco, plaster, and lath** shall be installed as per 2019 CRC, Chapter 7.
Note: When lath is applied over wood base sheathing, include two layers of grade D paper. 2019 CRC, Section R703.6.3.

B-39 Provide **weather protection** on all exterior walls located above grade that are not constructed of concrete or masonry. 2019 CRC, Section R703.1.

B-40 On graded sites, **the top of any exterior foundation** shall extend above the elevation of the street gutter at point of discharge or the inlet of an approved drainage device a minimum of 12 inches plus 2 percent per foot (1/4 inch per linear foot measured from the gutter to the edge of the footing). Where a gutter is not present, the measurement shall be taken from the crown of road. 2019 CRC, Section R403.1.7.3.

Electrical Code Requirements

E-1 Provide a **grounding electrode** as per 2019 CEC 250.50

E-2 **Grounding conductors** to be provided where installing a branch circuit or feeder supplying a separate building or structure. 2019 CEC 250.32(B).

E-3 Contact **SMUD's Customer Service Department** for service location. Phone 1-888-456-SMUD (7683) or 916-732-6630

E-4 At least **one wall switch-controlled lighting outlet** shall be installed in every habitable room, in bathrooms, hallways, stairways, attached garages, detached garages with electrical power, Attics, under floor spaces, utility rooms, basements used for storage or having equipment that requires servicing, and at outdoor entrances or exits. 2019 CEC 210.70.

E-5 Dwellings with direct grade level access shall have at least one **receptacle outlet at grade level at the front and back of the dwelling**. All 125 volt, 15 and 20 amp, receptacles installed outdoors with direct grade level access shall be GFCI protected. All receptacles installed outdoors in wet or damp locations shall be in a weatherproof enclosure as per 2019 CEC 210.52(E), 210.8(A)(3), & 406.9.

E-6 At least one receptacle outlet, in addition to any provided for specific equipment, shall be installed **in each basement, in each attached garage**, and in each detached garage or accessory building with electric power. These outlets are to be GFCI protected. 2019 CEC 210.52(G).

E-7 **Provide GFCI protection to all 125 volt, 15 amp and 20 amp receptacles installed in bathrooms, garages**, outdoors, crawlspaces at or below grade, unfinished basements, receptacles to serve counter top surfaces installed in kitchens, and receptacles within 6 feet of a sink, or shower/tub and laundry areas. 2019 CEC 210.8(A).

E-8 ***ARC*–fault circuit interrupter** protection is required in dwellings for all 120 volt single phase 15 and 20 amp branch circuits specified in 2019 CEC 210.12.

E-9 **Receptacle outlets shall be spaced not more than** 12 feet apart and a maximum of 6 feet from the ends of walls or openings. Receptacle outlets are also required in walls 2 feet or greater. 2019 CEC 210.52(A).

E-10 **Provide two or more 20 amp small appliance branch circuits** evenly proportioned in the kitchen, pantry, breakfast room, dining room, or similar area. Such circuits shall have no other outlets. 2019 CEC 210.52(B).
Note: One additional 20 amp branch circuit shall be provided to supply the laundry receptacle outlet(s). This circuit shall have no other outlets. 2019 CEC 210.11(C)(2).

E-11 **Provide fuses or approved circuit breakers** at air conditioning units and heat pumps as per 2019 CEC 440. (Do not exceed maximum fuse requirements or minimum on equipment specification plate).

E-12 An **equipment grounding conductor** is required with all branch circuits and feeders supplying a separate building or structure. 2019 CEC 250.32(B).

E-13 Provide an **intersystem bonding termination means** that includes provisions for connecting three grounding or bonding conductors for communications systems using a #6 copper conductor. 2019 CEC 250.94,

E-14 **Equipment grounding conductors** to be provided for grounding means and effective ground-fault path by performing both grounding and bonding functions. 2019 CEC 250.118

E-15 **Equipment bonding jumpers** that connect grounding terminals of receptacles to a grounded metal box must be sized according to Table 250.122 using the rating of the overcurrent device, fuse, or circuit breaker for the circuit. 2019 CEC 250.146.

E-16 **Device or equipment fill in a junction box** to be calculated using twice the wire size volume if the device is wider than 2 inches. 2019 CEC 314.16(B)(4).

E-17 **Lighting junction boxes** to be designed for the purpose and listed with the capacity of holding 50 pounds. It must be marked for the purpose of holding luminaries. 2019 CEC 314.27(A).

E-18 **Armored clad cable (AC)** is acceptable for branch circuits and feeders. 2019 CEC 320.10(1).

E-19 **Metal clad cable (MC) is permitted for wet locations** if meeting the conditions of 2019 CEC 330.10(A)(11).

E-20 **Flexible metal conduit** isn't permitted for use in wet locations, regardless of any conditions. 2019 CEC 348.12(1).

E-21 **Flexible metal conduit and liquid tight flexible metal conduit** may be fished within walls or concealed spaces without the need for support. 2019 CEC 348.30(A).

E-22 An **equipment disconnecting means that isn't within sight of the equipment** it serves is required to be capable of being locked open (off position) and have a means for adding a lock that must remain with the equipment whether the lock is installed or not. This is a special device that connects to the breaker. 2019 CEC 110.25.

E-23 **Receptacles in wet locations.** 120 volt and 250 volt are required to be listed weather-resistant type. 2019 CEC 406.9(A) & (B).

E-24 **Tamper-resistant receptacles** in dwelling to be installed in areas specified by 210.52 shall be listed tamper-resistant type. 2019 CEC 406.12.

E-25 All **luminaires and lamp holders shall be listed**. 2019 CEC 410.6.

E-26 **Those luminaries allowed in clothes closets** by 2019 CEC 410.16(A) shall be installed per the requirements of 2019 CEC 410.16(C)

E-27 The **disconnecting means for pool and spa or hot tub** shall simultaneously open all ungrounded conductors. It shall be further than 5 feet from the water's edge. 2019 CEC 680.12.

E-28 **Receptacles shall be greater than 6 feet from the water edge of the pool,** fountain, spa or similar installation. It shall be GFCI protected. 2019 CEC 680.22, 680.34, and 680.43.

E-30 **GFCI protection is required for all pool pump motors** for either 125 volt or 240 volt. 2019 CEC 680.21(C).

E-31 **Equipotential bonding** will be required around pool areas. A conductor sized at a minimum of #8 copper shall be used. 2019 CEC 680.26.

E-32 **Pumps for portable pools** shall have an integral GFCI protected cord within 12 inches of the attachment plug. All 125 volt, 15- and 20-amp receptacles within 20 feet of a pool shall be GFCI protected. 2019 CEC 680.31 & 680.32.

E-33 **Hydro massage bathtubs** and their associated equipment must be supplied by at least one separate individual circuit. 2019 CEC 680.71.

Plumbing Code Requirements

P-1 Provide an **approved dishwasher air gap fitting** as per 2019 CPC, Section 807.3.

P-2 Potable water outlets with hose attachments, other then water heater drains, boiler drains, and clothes washer connectors, shall be protected by a listed non-removable hose bib type backflow preventor or a listed atmospheric vacuum breaker as per 2019 CPC, Section 603.5.7.

P-3 **Joints.** Where a fixture comes in contact with the wall or floor, the joint between the fixture and the wall or floor shall be made watertight. 2019 CPC, Section 402.2

P-4 No **underfloor cleanout** shall be located more than 5 feet from an access door, trap door, or crawl hole. 2019 CPC, Section 707.9.

P-5 **Gas Water heaters located in residential garages or adjacent spaces** open to the garage that are not part of the living space shall be installed so that the pilots, burners, and burner-igniter devices are at least 18 inches above the floor unless listed as flammable vapor ignition resistant. 2019 CPC, Section 507.13.

P-6 **Fuel burning water heaters** shall be installed per 2019 CPC, Section 506.0, for combustion air.

P-7 **Water heaters that depend on the combustion** of fuel for heat shall not be installed in bedrooms or bathrooms unless installed in an approved closet or direct vent type per 2019 CPC, Section 504.1.

P-8 **Listed water heaters shall be installed in** accordance with their listing and the manufactures' instructions. **Unlisted water heaters** shall be installed with a clearance of 12" on all sides and rear. 2019 CPC, Section 504.3.1 & 504.3.2.

P-9 Any water system containing **storage water heating equipment** shall be provided with an approved, listed, and adequately sized combination pressure and temperature relief valve. 2019 CPC, Section 608.3.

P-10 **Relief valves located inside a building** shall be provided with a drain of galvanized steel, hard drawn copper piping and fittings, CPVC, or listed valve drain. The drain shall extend from the valve to the outside of the building with the end of the pipe not more than 2 feet nor less than 6 inches above the ground and pointing downward. 2019 CPC, Section 608.5.
Note: No part of such drainpipe shall be trapped, and the terminal end of the drainpipe shall not be threaded.

P-11 **Water heaters shall be anchored or strapped** to resist horizontal displacement due to earthquake motion. Strapping shall be at points within the upper one-third and lower one-third of its vertical dimensions. At the lower point, a minimum distance of 4 inches shall be maintained above the controls with the strapping. 2019 CPC, Section 507.2.

P-12 **Gas utilization equipment** connected to a piping system shall have an accessible approved **manual shut off valve** with a non-displaceable valve member, or a listed gas convenience outlet installed within 6' of the equipment it serves. Shut off valves serving decorative gas appliances shall be permitted to be installed in fireplaces if listed for such use. 2019 CPC, Section 1212.6.

P-13 **Showers and tub-shower combinations** in all buildings shall be provided with individual control valves of the pressure balance or the thermostatic mixing valve type. 2019 CPC, Section 408.3.

Mechanical Code Requirements

M-1 **Domestic clothes dryer moisture exhaust ducts** shall terminate on the outside of the building and shall be equipped with a back-draft damper. Sheet metal screws or other fasteners that will obstruct the flow shall not be used. Unless otherwise permitted or required by the dryer manufacturer's installation instructions and by the building official, domestic dryer moisture exhaust ducts shall not exceed a total combined horizontal and vertical length of 14 feet including two 90° elbows. Two feet shall be deducted for each 90° elbow in excess of two. 2019 CMC, Section 504.4.

M-2 **Make up air.** When a closet is designed for the installation of a clothes dryer, a minimum opening of 100 square inches for makeup air shall be provided in the door or by other approved means. 2019 CMC, Section 504.4.1.

M-3 **Installation of a Listed Cooking Appliance or Microwave Oven above a Listed Cooking Appliance.** The installation of a listed cooking appliance or microwave oven over a listed cooking appliance shall conform to the conditions of the upper appliance's listing and the manufacturers' installation instructions. 2019 CMC, Section 921.4

M-4 **Domestic range vents.** Ducts for domestic kitchen downdraft grill-range ventilation shall be installed as per 2019 CMC, Section 504.2.

M-5 **Fuel burning equipment** shall be assured a sufficient supply of combustion air as per Chapter 7, 2019 CMC.

M-6 **Warm air furnaces shall not be installed** in a room used or designed to be used as a bedroom or bathroom unless direct vent type or installed in an approved closet enclosure per 2019 CMC, Section 904.1.

M-7 **Attic furnace.** The distance from the passageway access to the furnace shall not exceed 20 feet measured along the center line of the passageway. The passageway shall be unobstructed and shall have continuous solid flooring not less than 24 inches wide from the entrance opening to the furnace. A level working platform not less than 30 inches in depth and width shall be provided in front of the entire fire box side of the warm air furnace. If the furnace temperature limit control, air filter, fuel control valve, vent collar, or air handling unit is not serviceable from the fire box side of the furnace, a continuous floor not less than 24 inches in width shall be provided from the platform in front of the fire box side of the furnace to and in front of this equipment. A permanent electric outlet and lighting fixture controlled by a switch located at the required passageway opening shall be provided at or near the furnace. 2019 CMC, Section 304.4.

M-8 **Vent termination**. Gas vents with listed vent caps 12 inches in size or smaller shall be permitted to be terminated in accordance with Table 802.6.2, provided they are located at least 8 feet from the vertical wall or similar obstruction. All other gas vents shall terminate not less than 2 feet above the highest point where they pass through the roof and at least 2 feet higher than any portion of a building within 10 feet. 2019 CMC, Section 802.6.2.
Note: Single wall metal pipe shall not originate in an unoccupied attic or concealed space and shall not pass through any attic, inside wall, concealed space or floor. 2019 CMC, Section 802.7.3.2.

M-9 **Approval of Equipment.** Listed and unlisted equipment shall comply with the 2019 CMC, Section 301.2.

M-10 **Ignition source.** Heating and cooling equipment located in a garage that generates a glow, spark, or flame capable of igniting flammable vapors shall be installed with sources of ignition at least 18 inches above the floor level. 2019 CMC, Section 305.

City of SACRAMENTO
Community Development

300 Richards Blvd., 3rd Floor
Sacramento, CA 95811

Help Line: 916-264-5011
CityofSacramento.org/dsd

Mandatory Requirements 2019 California Green Building Standard Code for Residential Building Permits

Project Address: _____ Date: _____

ITEM#	CODE SECTION	REQUIREMENTS	MEASURE SUMMARY
		PLANNING AND DESIGN	
1	4.106.2	Storm Water Drainage and Retention	Prevention of Erosion and Runoff on Site
2	4.106.3	Grading and Paving	Prevention of Water from Entering Buildings
		WATER EFFICIENCY & CONSERVATION	
3	4.106.4	Electric Vehicle (EV) charging station (New Dwellings Only)	Facilitate Future EV Charging Station
4	4.303	Indoor Water Use Reduction Fixture Schedules	CA Plumbing Code
5	4.304.1	Landscape areas all Residential developments	MWELO Landscape Budget Required
		MATERIAL CONSERVATION & RESOURCE EFFICIENCY	
6	4.406.1	Rodent Proofing	Seal Plates with Mortar, Concrete or Other
7	4.408	Construction Waste Reduction, Disposal & Recycling	Recycle/Reuse 65% of nonhazardous Demolition Materials, Waste Management Plan
8	4.410.1	Operation and Maintenance Manual	Owner Manual for Measures Used
		ENVIRONMENTAL QUALITY	
9	4.503.1	Fireplaces and Woodstoves	Gas Direct Vent, Wood EPA Phase II
10	4.504.1	Covering of Duct Opening/Protection of Equipment	Plastic, Sheet-Metal, Tape or Other
11	4.504.2	Finish Material Pollutant Control	Adhesives, Sealants, State VOC Limits
12	4.504.2.4	Verification/Certification of Compliance	City Form CDD-0179 Required at Final Inspection
13	4.504.3	Carpet Systems	Carpet and Rug Institutes' Green Label, Scientific Certifications System Indoor Advantage Gold
14	4.504.3.1	Carpet Cushion	
15	4.504.4	Resilient Flooring Systems	80% of Flooring VOC Limits
16	4.504.5	Composite Wood Products	Formaldehyde Limits Table 4.504.5
17	4.505.2.1	Capillary Break	Under Slab Vapor Barrier, No Sand
18	4.505.3	Moisture Content of Building Materials	Building Materials 19% Max.
19	4.506.1	Bathroom Exhaust Fans ≤50 % to Max 80 %	Humidity Control
20	4.507.2	Heating and Air-Conditioning System Design	ACCA Manuals J (heat load), D (duct sizing) And S (equipment sizing)

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-25
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CA
APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
2019 BUILDING CODE REQUIREMENTS

SHEET NO.
G3.11

Title-24 Compliance Summary - v1

DuctTesters

Ellis Architetects
North Avenue Half-Plexes
Sacramento, CA
Climate Zone: 12
Status: Approved
Created By: S.Carter

Program Participation
☐ GreenPoint Rated ☐ CAHP/CMFNH ☐ Energy Star
☐ LEED ☐ TCAC ☐ DOE ZNE Ready

Appliances
☐ Gas Dryer
☐ Gas Cooktop

7/18/2023
CBECC Res 2019 v2.0

Approved

2019 Code Minimum Compliance Requirements			
Plan Name	**Unit 1 v1**	**Unit 2A v1**	**Unit 2B v1**
Number of Stories	1	2	2
Square Footage	1310	1764	1856
Glazing %	15.3%	15.3%	17.7%
Energy Design Ratings			
EDR of Standard Design	52.4	53.7	52.4
EDR of Proposed Design South	51.3	51.6	51.0
Worst Case EDR Margin	1.1	0.6	0.0
Minimum Envelope Requirements			
Roofing Type	Asphalt	Asphalt	Asphalt
Roof Pitch	4:12	4:12	4:12
Cool Roof Credit (Aged Refl. / Emiss.)	0.21 / 0.93	0.21 / 0.93	0.21 / 0.93
Attic Type	Vented	Vented	Vented
Above Roof Deck Insulation	--	--	--
Below Roof Deck Insulation	R-19	R-19	R-19
Ceiling Insulation	R-49	R-49	R-49
Under FAU Platform	--	--	--
Radiant Barrier	--	--	--
Exterior Wall Finish	Siding	Siding	Siding
Continuous Wall Insulation	--	--	--
Wall Cavity Insulation - 2x4	--	--	--
Wall Cavity Insulation - 2x6	R-21	R-21	R-21
Floor Over Garage/Exterior	R-44	R-44	R-44
Raised Subfloor Insulation / Crawlspace	--	--	--
Slab Edge Insulation	--	--	--
Minimum HVAC Efficiency Requirements			
Number of Systems	1	1	1
Heating Type	Heat Pump	Heat Pump	Heat Pump
Heating Efficiency Rating	8.50	8.50	8.50
SEER Rating	16.0	16.0	16.0
EER Rating	13.0	13.0	13.0
Duct Insulation	R-6	R-6	R-6
Zonally Controlled	--	Yes	Yes
Bypass Ducts	--	--	--
Whole House Fan (cfm/sf watts/cfm)	--	--	--
Photovoltaic + Battery			
CFI Azimuth	CFI-1	CFI-1	CFI-1
Min PV System Size kW	3.15	3.14	3.16
Min Battery System Size kW	--	--	--
Min Required Production kWh	--	--	--
HERS Verification Requirements - Third Party Field Verifications by a Certified HERS Rater			
Duct Leakage (cfm)	5%	5%	5%
System Airflow (cfm/ton)	350	275	275
Fan Watt Draw (watts/cfm)	0.58	0.58	0.58
IAQ System Type	Exhaust	Exhaust	Exhaust
IAQ ASHRAE 62.2 Ventilation (cfm)	61	87	90
Kitchen Hood HVI Certification	Yes	Yes	Yes
Refrigerant Charge	Yes	Yes	Yes
SEER Rating	Yes	Yes	Yes
EER Rating	Yes	Yes	Yes
Air Infiltration Rate (ACH50)	--	--	--
Quality Insulation Installation	Yes	Yes	Yes
Low Leakage Airhandler	--	--	--
Ducts In Conditioned Space	--	--	--
Duct Surface Area	--	--	--
Buried Ducts	--	--	--
Whole House Fan	--	--	--
Hot Water System	--	--	--
Domestic Hot Water Heating Requirements			
Energy Source	Heat Pump	Heat Pump	Heat Pump
Uniform Energy Factor (UEF)	PROH50 T2 RH37515	PROH50 T2 RH37515	PROH50 T2 RH37515
Tank Capacity	50 Gal	50 Gal	50 Gal
Distribution Type	Standard	Standard	Standard
Window Efficiency Requirements			
	U-Factor / SHGC	**U-Factor / SHGC**	**U-Factor / SHGC**
Operable	0.30 / 0.23	0.30 / 0.23	0.30 / 0.23
Fixed	0.30 / 0.23	0.30 / 0.23	0.30 / 0.23
Sliding Door	0.30 / 0.23	0.30 / 0.23	0.30 / 0.23
Revisions Log			

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4

3

CALIFORNIA GREEN BUILDING STANDARDS CODE – MATRIX ADOPTION TABLE CHAPTER 4 – RESIDENTIAL MANDATORY MEASURES

(Matrix Adoption Tables are nonregulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting agency	BSC	BSC-CG	SFM	HCD 1	HCD 2	HCD 1/AC	DSA AC	DSA SS	OSHPD 1	OSHPD 1R	OSHPD 2	OSHPD 3	OSHPD 4	OSHPD 5	BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
Adopt entire CA chapter				X																		
Adopt entire chapter as amended (amended sections listed below)																						
Adopt only those sections that are listed below																						
Chapter/Section																						
4.2				†																		

The state agency does not adopt sections identified by the following symbol: †.

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

Division 4.1 – PLANNING AND DESIGN

SECTION 4.101 GENERAL

4.101.1 Scope. The provisions of this division outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore and enhance the environmental quality of the site and respect the integrity of adjacent properties.

SECTION 4.102 DEFINITIONS

4.102.1 Definitions. The following terms are defined in Chapter 2.

FRENCH DRAIN.

WATTLES.

SECTION 4.103 SITE SELECTION (Reserved)

SECTION 4.104 SITE PRESERVATION (Reserved)

SECTION 4.105 DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES (Reserved)

SECTION 4.106 SITE DEVELOPMENT

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

4.106.2 Storm water drainage and retention during construction. Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.

1. Retention basins of sufficient size shall be utilized to retain storm water on the site.
2. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the enforcing agency.

3. Compliance with a lawfully enacted storm water management ordinance.

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

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

4.106.3 Grading and paving. Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales
2. Water collection and disposal systems
3. French drains
4. Water retention gardens
5. Other water measures which keep surface water away from buildings and aid in groundwater recharge.

Exception: Additions and alterations not altering the drainage path.

4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Section 4.106.4.1, 4.106.4.2, or 4.106.4.3, to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the *California Electrical Code,* Article 625.

Exceptions:

1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions:
   1.1. Where there is no commercial power supply.
   1.2. Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than $400.00 per dwelling unit.
2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities.

4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages. For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

4.106.4.1.1 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".

4.106.4.2 New multifamily dwellings. If residential parking is available, ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. <

Notes:

1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.
2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

4.106.4.2.1 Electric vehicle charging space (EV space) locations. Construction documents shall indicate the location of proposed EV spaces. Where common use parking is provided at least one EV space shall be located in the common use parking area and shall be available for use by all residents.

4.106.4.2.1.1 Electric vehicle charging stations (EVCS). When EV chargers are installed, EV spaces required by Section 4.106.4.2.2, Item 3, shall comply with at least one of the following options:

1. The EV space shall be located adjacent to an accessible parking space meeting the requirements of the *California Building Code*, Chapter 11A, to allow use of the EV charger from the accessible parking space.
2. The EV space shall be located on an accessible route, as defined in the *California Building Code,* Chapter 2, to the building.

Exception: Electric vehicle charging stations designed and constructed in compliance with the *California Building Code*, Chapter 11B, are not required to comply with Section 4.106.4.2.1.1 and Section 4.106.4.2.2, Item 3.

Note: Electric vehicle charging stations serving public housing are required to comply with the *California Building Code*, Chapter 11 B.

4.106.4.2.2 Electric vehicle charging space (EV space) dimensions. The EV spaces shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet (5486 mm).

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CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

Division 4.2 – ENERGY EFFICIENCY

SECTION 4.201 GENERAL

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

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2. The minimum width of each EV space shall be 9 feet (2743 mm).
3. One in every 25 EV spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm).
   a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

4.106.4.2.3 Single EV space required. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV space. Construction documents shall identify the raceway termination point. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

4.106.4.2.4 Multiple EV spaces required. Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

4.106.4.2.5 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the *California Electrical Code*.

> **4.106.4.3 New hotels and motels.** All newly constructed hotels and motels shall provide EV spaces capable of supporting future installation of EVSE. The construction documents shall identify the location of the EV spaces.

Notes:

1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.
2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

4.106.4.3.1 Number of required EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table 4.106.4.3.1. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

TABLE 4.106.4.3.1

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EV SPACES
0–9	0
10–25	1
26–50	2
51–75	4
76–100	5
101–150	7
151–200	10
201 and over	6 percent of total

4.106.4.3.2 Electric vehicle charging space (EV space) dimensions. The EV spaces shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet (5486 mm).
2. The minimum width of each EV space shall be 9 feet (2743 mm).

4.106.4.3.3 Single EV space required. When a single EV space is required, the EV space shall be designed in accordance with Section 4.106.4.2.3.

4.106.4.3.4 Multiple EV spaces required. When multiple EV spaces are required, the EV spaces shall be designed in accordance with Section 4.106.4.2.4.

4.106.4.3.5 Identification. The service panels or subpanels shall be identified in accordance with Section 4.106.4.2.5.

4.106.4.3.6 Accessible EV spaces. In addition to the requirements in Section 4.106.4.3, EV spaces for hotels/motels and all EVSE, when installed, shall comply with the accessibility provisions for EV charging stations in the *California Building Code*, Chapter 11B. <

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CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

Division 4.3 – WATER EFFICIENCY AND CONSERVATION

SECTION 4.301 GENERAL

4.301.1 Scope. The provisions of this chapter shall establish the means of conserving water used indoors, outdoors and in wastewater conveyance.

SECTION 4.302 DEFINITIONS

4.302.1 Definitions. Reserved.

SECTION 4.303 INDOOR WATER USE

4.303.1 Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with Sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.1.4.

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

4.303.1.1 Water closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets.

Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

4.303.1.2 Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush.

4.303.1.3 Showerheads.

4.303.1.3.1 Single showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

4.303.1.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.

Note: A hand-held shower shall be considered a showerhead.

4.303.1.4 Faucets.

4.303.1.4.1 Residential lavatory faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi.

4.303.1.4.2 Lavatory faucets in common and public use areas. The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gallons per minute at 60 psi.

4.303.1.4.3 Metering faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.2 gallons per cycle.

4.303.1.4.4 Kitchen faucets. The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

4.303.2 Standards for plumbing fixtures and fittings. Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1701.1 of the *California Plumbing Code*.

SECTION 4.304 OUTDOOR WATER USE

4.304.1 Outdoor potable water use in landscape areas. Residential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.

Notes:

1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the *California Code of Regulations*, Title 23, Chapter 2.7, Division 2.

MWELO and supporting documents, including a water budget calculator, are available at: https://www.water.ca.gov/

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES
DARREN BROWN
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

3	CYC4	07.07.2023
4	CYC5	07.24.2023

SHEET TITLE
CAL GREEN CODE - RESIDENTIAL 2019

SHEET NO.
G4.11

CHAPTER 4

RESIDENTIAL MANDATORY MEASURES

Division 4.4 – MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 4.401 GENERAL

4.401.1 Scope. The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through protection of buildings from exterior moisture; construction waste diversion; employment of techniques to reduce pollution through recycling of materials; and building commissioning or testing, adjusting and balancing.

SECTION 4.402 DEFINITIONS

4.402.1 Definitions. Reserved.

SECTION 4.403 FOUNDATION SYSTEMS (Reserved)

SECTION 4.404 EFFICIENT FRAMING TECHNIQUES (Reserved)

SECTION 4.405 MATERIAL SOURCES (Reserved)

SECTION 4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE

4.406.1 Rodent proofing. Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.

SECTION 4.407 WATER RESISTANCE AND MOISTURE MANAGEMENT (Reserved)

SECTION 4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

4.408.1 Construction waste management. Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4, or meet a more stringent local construction and demolition waste management ordinance.

Exceptions:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.
3. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.

4.408.2 Construction waste management plan. Submit a construction waste management plan in conformance with Items 1 through 5. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency.

1. Identify the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.
2. Specify if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream).
3. Identify diversion facilities where the construction and demolition waste material will be taken.
4. Identify construction methods employed to reduce the amount of construction and demolition waste generated.
5. Specify that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.

4.408.3 Waste management company. Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with Section 4.408.1.

Note: The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste management company.

4.408.4 Waste stream reduction alternative [LR]. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 3.4 pounds per square foot of the building area shall meet the minimum 65 percent construction waste reduction requirement in Section 4.408.1.

4.408.4.1 Waste stream reduction alternative. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 2 pounds per square foot of the building area, shall meet the minimum 65 percent construction waste reduction requirement in Section 4.408.1.

4.408.5 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, Items 1 through 5, Section 4.408.3 or Section 4.408.4.

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at http://www.hcd.ca.gov/building-standards/calgreen/cal-green-form.shtml may be used to assist in documenting compliance with this section.
2. Mixed construction and demolition debris (C&D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

SECTION 4.409 LIFE CYCLE ASSESSMENT (Reserved)

SECTION 4.410 BUILDING MAINTENANCE AND OPERATION

4.410.1 Operation and maintenance manual. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which includes all of the following shall be placed in the building:

1. Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.
2. Operation and maintenance instructions for the following:
   a. Equipment and appliances, including water-saving devices and systems, HVAC systems, photovoltaic systems, electric vehicle chargers, water-heating systems and other major appliances and equipment.
   b. Roof and yard drainage, including gutters and downspouts.
   c. Space conditioning systems, including condensers and air filters.
   d. Landscape irrigation systems.
   e. Water reuse systems.
3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.
4. Public transportation and/or carpool options available in the area.
5. Educational material on the positive impacts of an interior relative humidity between 30–60 percent and what methods an occupant may use to maintain the relative humidity level in that range.
6. Information about water-conserving landscape and irrigation design and controllers which conserve water.
7. Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.
8. Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.
9. Information about state solar energy and incentive programs available.
10. A copy of all special inspection verifications required by the enforcing agency or this code.

4.410.2 Recycling by occupants. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the depositing, storage and collection of nonhazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive.

Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section 42649.82 (a)(2)(A) et seq. are not required to comply with the organic waste portion of this section.

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CHAPTER 4

RESIDENTIAL MANDATORY MEASURES

Division 4.5 – ENVIRONMENTAL QUALITY

SECTION 4.501 GENERAL

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

SECTION 4.502 DEFINITIONS

4.502.1 Definitions. The following terms are defined in Chapter 2.

AGRIFIBER PRODUCTS.

COMPOSITE WOOD PRODUCTS.

DIRECT-VENT APPLIANCE.

MAXIMUM INCREMENTAL REACTIVITY (MIR).

MOISTURE CONTENT.

PRODUCT-WEIGHTED MIR (PWMIR).

REACTIVE ORGANIC COMPOUND (ROC).

VOC.

SECTION 4.503 FIREPLACES

4.503.1 General. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

SECTION 4.504 POLLUTANT CONTROL

4.504.1 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of water, dust and debris, which may enter the system.

4.504.2 Finish material pollutant control. Finish materials shall comply with this section.

4.504.2.1 Adhesives, sealants and caulks. Adhesives, sealants and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products, as specified in Subsection 2 below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with Section 94507.

4.504.2.2 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-high Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-high Gloss VOC limit in Table 4.504.3 shall apply.

4.504.2.3 Aerosol paints and coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.

4.504.2.4 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification.
2. Field verification of on-site product containers.

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TABLE 4.504.1
ADHESIVE VOC LIMIT[1,2]
Less Water and Less Exempt Compounds in Grams per Liter

ARCHITECTURAL APPLICATIONS	VOC LIMIT
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Drywall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single-ply roof membrane adhesives	250
Other adhesives not specifically listed	50
SPECIALTY APPLICATIONS	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Contact adhesive	80
Special purpose contact adhesive	250
Structural wood member adhesive	140
Top and trim adhesive	250
SUBSTRATE SPECIFIC APPLICATIONS	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

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

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

SEALANTS	VOC LIMIT
Architectural	250
Marine deck	760
Nonmembrane roof	300
Roadway	250
Single-ply roof membrane	450
Other	420
SEALANT PRIMERS	
Architectural Nonporous Porous	 250 775
Modified bituminous	500
Marine deck	760
Other	750

TABLE 4.504.3
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2,3]
Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds

COATING CATEGORY	VOC LIMIT
Flat coatings	50
Nonflat coatings	100
Nonflat-high gloss coatings	150
SPECIALTY COATINGS	
Aluminum roof coatings	400
Basement specialty coatings	400
Bituminous roof coatings	50
Bituminous roof primers	350
Bond breakers	350
Concrete curing compounds	350
Concrete/masonry sealers	100
Driveway sealers	50
Dry fog coatings	150
Faux finishing coatings	350
Fire resistive coatings	350
Floor coatings	100
Form-release compounds	250
Graphic arts coatings (sign paints)	500
High temperature coatings	420
Industrial maintenance coatings	250
Low solids coatings[1]	120
Magnesite cement coatings	450
Mastic texture coatings	100
Metallic pigmented coatings	500
Multicolor coatings	250
Pretreatment wash primers	420
Primers, sealers, and undercoaters	100
Reactive penetrating sealers	350
Recycled coatings	250
Roof coatings	50
Rust preventative coatings	250
Shellacs Clear Opaque	 730 550
Specialty primers, sealers and undercoaters	100
Stains	250
Stone consolidants	450
Swimming pool coatings	340
Traffic marking coatings	100
Tub and tile refinish coatings	420
Waterproofing membranes	250
Wood coatings	275
Wood preservatives	350
Zinc-rich primers	340

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

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4.504.3 Carpet systems. All carpet installed in the building interior shall meet the testing and product requirements of one of the following:

1. Carpet and Rug Institute's Green Label Plus Program.
2. California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350.)
3. NSF/ANSI 140 at the Gold level.
4. Scientific Certifications Systems Indoor Advantage™ Gold.

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program.

4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.

4.504.4 Resilient flooring systems. Where resilient flooring is installed, at least 80 percent of floor area receiving resilient flooring shall comply with one or more of the following:

1. Products compliant with the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350), certified as a CHPS Low-Emitting Material in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.
2. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools program).
3. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
4. Meet the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350).

4.504.5 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 4.504.5.

4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

1. Product certifications and specifications.
2. Chain of custody certifications.
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, *et seq.*).
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European 636 3S, and Canadian CSA O121, CSA O151, CSA O153 and CSA O325 standards.
5. Other methods acceptable to the enforcing agency.

TABLE 4.504.5
FORMALDEHYDE LIMITS[1]
Maximum Formaldehyde Emissions in Parts per Million

PRODUCT	CURRENT LIMIT
Hardwood plywood veneer core	0.05
Hardwood plywood composite core	0.05
Particleboard	0.09
Medium density fiberboard	0.11
Thin medium density fiberboard[2]	0.13

1. Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E1333. For additional information, see *California Code of Regulations*, Title 17, Sections 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness of $^5/_{16}$ inch (8 mm).

SECTION 4.505 INTERIOR MOISTURE CONTROL

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

4.505.2 Concrete slab foundations. Concrete slab foundations required to have a vapor retarder by the *California Building Code*, Chapter 19 or concrete slab-on-ground floors required to have a vapor retarder by the *California Residential Code*, Chapter 5, shall also comply with this section.

4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:

1. A 4-inch-thick (101.6 mm) base of $^1/_2$ inch (12.7 mm) or larger clean aggregate shall be provided with a vapor retarder in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.
2. Other equivalent methods approved by the enforcing agency.
3. A slab design specified by a licensed design professional.

4.505.3 Moisture content of building materials. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:

1. Moisture content shall be determined with either a probe-type or contact-type moisture meter. Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements found in Section 101.8 of this code.

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2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece to be verified.
3. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.

Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

SECTION 4.506 INDOOR AIR QUALITY AND EXHAUST

4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:

1. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.
   a. Humidity controls shall be capable of adjustment between a relative humidity range of ≤ 50 percent to a maximum of 80 percent. A humidity control may utilize manual or automatic means of adjustment.
   b. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in).

Notes:

1. For the purposes of this section, a bathroom is a room which contains a bathtub, shower, or tub/shower combination.
2. Lighting integral to bathroom exhaust fans shall comply with the *California Energy Code*.

SECTION 4.507 ENVIRONMENTAL COMFORT

4.507.1 Reserved.

4.507.2 Heating and air-conditioning system design. Heating and air-conditioning systems shall be sized, designed and have their equipment selected using the following methods:

1. The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J—2016 (*Residential Load Calculation*), ASHRAE handbooks or other equivalent design software or methods.
2. Duct systems are sized according to ANSI/ACCA 1 Manual D—2016 (*Residential Duct Systems*), ASHRAE handbooks or other equivalent design software or methods.
3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S—2014 (*Residential Equipment Selection*) or other equivalent design software or methods.

Exception: Use of alternate design temperatures necessary to ensure the systems function are acceptable.

SECTION 4.508 OUTDOOR AIR QUALITY (Reserved)

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ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE: 06/02/2022

REVISIONS:

SHEET TITLE: CAL GREEN CODE - RESIDENTIAL 2019

SHEET NO. G4.12

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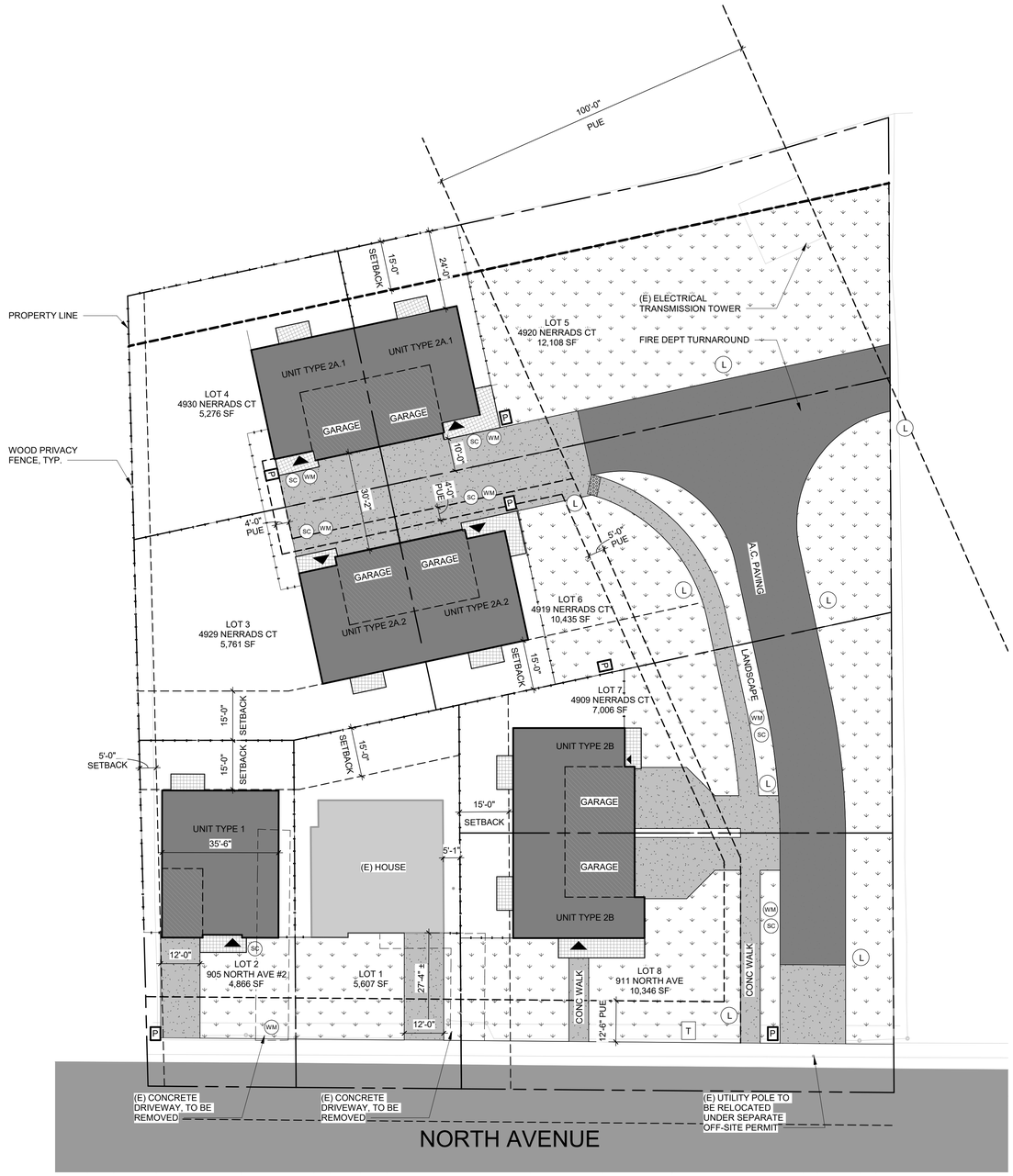

1 SITE PLAN
1" = 20'-0"

PROJECT DATA

ADDRESS:	905 NORTH AVE
APN #:	237-0020-092
FPM#:	FPM22-0037
ZONING:	R-2A MULTI-FAMILY RESIDENTIAL
LAND USE & URBAN FORM DESIGNATION:	TRADTL NEIGHBORHOOD MEDIUM DENSITY
AREA OF PARCEL:	1.41 ACRES (61,420 SF)
MAX DWELLING UNITS / ACRE	17
MAXIMUM # OF DWELLING UNITS:	23
PROPOSED USE:	SINGLE FAMILY
# OF DWELLING UNITS PROPOSED:	7
MAX FLOOR AREA RATIO:	N/A
ALLOWABLE FLOOR AREA:	N/A
MAX BUILDING HEIGHT:	35'-0"
PROPOSED HEIGHT:	24'-3 1/2"
MAX NUMBER OF STORIES:	3
PROPOSED NUMBER OF STORIES:	2
PARKING DISTRICT:	TRADITIONAL
REQUIRED # OF ONSITE PARKING SPACES:	7
PROVIDED # OF ONSITE PARKING SPACES:	13
ONSTREET PARKING SPACES:	0

△3

SITE PLAN GEN. NOTES

1. PROJECT HAS RECEIVED DESIGN REVIEW APPROVAL FROM THE CITY OF SACRAMENTO. ROD#P19-036, DATED 07/09/2020.
2. GRADE SITE AS INDICATED ON CIVIL PLANS. GRADE TO AVOID ON-SITE WATER RETENTION AND DRAINAGE ONTO ADJACENT SITE. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
3. GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN 5% FOR A MINIMUM DISTANCE OF 10'-0" MEASURED PERPENDICULAR TO THE FACE OF THE WALL. IF OBSTACLE OR LOT LINE PROHIBIT 10'-0" HORIZONTAL DISTANCE, A 5% SLOPE SHALL BE PROVIDED TO AN APPROVED ALTERNATIVE METHOD OF DIVERTING WATER AWAY FROM THE FOUNDATION. IMPERVIOUS SURFACES WITHIN 10'-0" OF THE BUILDING FOUNDATION SHALL BE SLOPED A MINIMUM OF 2% AWAY FROM THE BUILDING. (CBC 1804.4, CRC R401.3)
4. ANY SURVEY MONUMENT WITHIN THE AREAS OF CONSTRUCTION SHALL BE PRESERVED OR RESET BY A REGISTERED CIVIL ENGINEER OR LICENSED LAND SURVEYOR.
5. VERIFY, LOCATE, AND INDICATE ALL PROPERTY CORNERS, SETBACKS, EASEMENTS, AND BUILDING LOCATION CORNERS PRIOR TO FOUNDATION INSPECTION.
6. ALL FOOTINGS SHALL REST ON FIRM NATURAL SOIL OR COMPACTED FILL.
7. VERIFY MINIMUM REQUIRED 'WATER' PIPE SIZE OF 1.5" AND MINIMUM REQUIRED 'WASTE' PIPE SIZE OF 4". NOTIFY CITY INSPECTOR OF ANY DISCREPANCY.
8. MAINTAIN SAFETY CLEARANCE AT (E) POWER LINES PER CAL OSHA AND CALIFORNIA PUBLIC UTILITY COMMISSION GENERAL ORDER 95.
9. SEE CIVIL DRAWINGS UNDER SEPARATE PERMIT (COM-2307306) FOR ADDITIONAL INFORMATION.
10. AT LOTS 3 & 6, THERE WILL BE NO REAR COVERED PORCH

SITE PLAN LEGEND

- LANDSCAPE AREA
- CONCRETE PORCH
- CONCRETE WALK / DRIVEWAY
- DETECTABLE WARNING, TRUNCATED DOMES
- 6' H. WOOD PRIVACY FENCE
- PRIMARY ENTRANCE LOCATION
- TRASH / RECYCLING CAN
- P — PROPOSED PULL BOX LOCATION, REFER TO JOINT TRENCH DRAWINGS UNDER SEPARATE APPLICATION
- WM — APPROXIMATE WATER METER LOCATION, REFER TO CIVIL DRAWINGS (UNDER SEPARATE APPLICATION) FOR MORE INFORMATION
- △3 SC — APPROXIMATE SEWER CLEANOUT LOCATION, REFER TO CIVIL DRAWINGS (UNDER SEPARATE APPLICATION) FOR MORE INFORMATION
- L — APPROXIMATE LOCATION OF POLE MOUNTED LIGHTING, REFER TO ONSITE CIVIL PLANS FOR ADDITIONAL INFORMATION
- T — APPROXIMATE LOCATION OF TRANSFORMER

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
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DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

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SHEET TITLE
OVERALL SITE PLAN

SHEET NO.
A1.11

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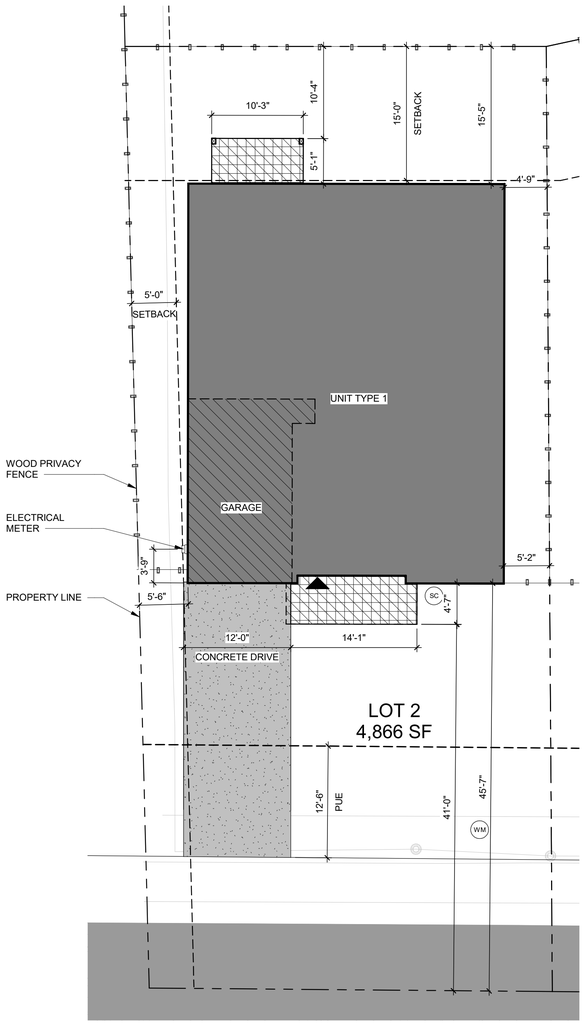

1 LOT 2 SITE PLAN
1/8" = 1'-0"

SITE PLAN GEN. NOTES

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4. ANY SURVEY MONUMENT WITHIN THE AREAS OF CONSTRUCTION SHALL BE PRESERVED OR RESET BY A REGISTERED CIVIL ENGINEER OR LICENSED LAND SURVEYOR.
5. VERIFY, LOCATE, AND INDICATE ALL PROPERTY CORNERS, SETBACKS, EASEMENTS, AND BUILDING LOCATION CORNERS PRIOR TO FOUNDATION INSPECTION.
6. ALL FOOTINGS SHALL REST ON FIRM NATURAL SOIL OR COMPACTED FILL.
7. VERIFY MINIMUM REQUIRED 'WATER' PIPE SIZE OF 1.5" AND MINIMUM REQUIRED 'WASTE' PIPE SIZE OF 4". NOTIFY CITY INSPECTOR OF ANY DISCREPANCY.
3. 8. MAINTAIN SAFETY CLEARANCE AT (E) POWER LINES PER CAL OSHA AND CALIFORNIA PUBLIC UTILITY COMMISSION GENERAL ORDER 95.
9. SEE CIVIL DRAWINGS UNDER SEPARATE PERMIT (COM-2307306) FOR ADDITIONAL INFORMATION.
10. AT LOTS 3 & 6, THERE WILL BE NO REAR COVERED PORCH

SITE PLAN LEGEND

- LANDSCAPE AREA
- CONCRETE PORCH
- CONCRETE WALK / DRIVEWAY
- DETECTABLE WARNING, TRUNCATED DOMES
- 6' H. WOOD PRIVACY FENCE
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ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
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ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

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APN # 237-0020-092

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SHEET TITLE: LOT 2 SITE PLAN

SHEET NO. A1.12

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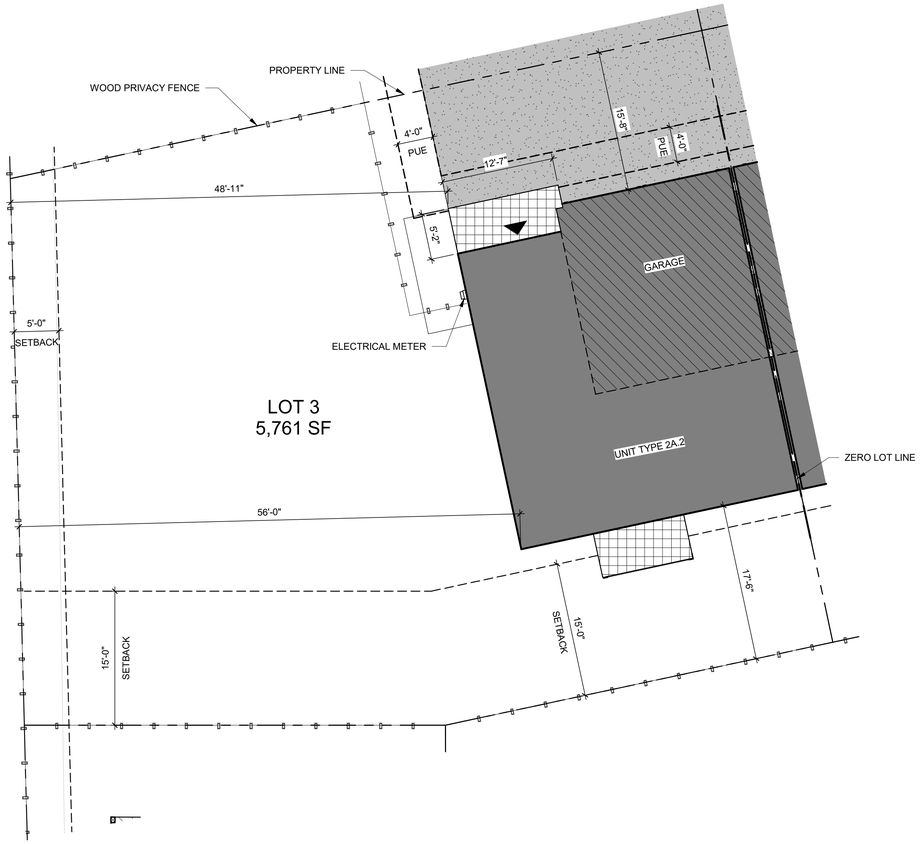

1 LOT 3 SITE PLAN
1/8" = 1'-0"

SITE PLAN GEN. NOTES

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5. VERIFY, LOCATE, AND INDICATE ALL PROPERTY CORNERS, SETBACKS, EASEMENTS, AND BUILDING LOCATION CORNERS PRIOR TO FOUNDATION INSPECTION.
6. ALL FOOTINGS SHALL REST ON FIRM NATURAL SOIL OR COMPACTED FILL.
7. VERIFY MINIMUM REQUIRED 'WATER' PIPE SIZE OF 1.5" AND MINIMUM REQUIRED 'WASTE' PIPE SIZE OF 4". NOTIFY CITY INSPECTOR OF ANY DISCREPANCY.
8. MAINTAIN SAFETY CLEARANCE AT (E) POWER LINES PER CAL OSHA AND CALIFORNIA PUBLIC UTILITY COMMISSION GENERAL ORDER 95.
9. SEE CIVIL DRAWINGS UNDER SEPARATE PERMIT (COM-2307306) FOR ADDITIONAL INFORMATION.
10. AT LOTS 3 & 6, THERE WILL BE NO REAR COVERED PORCH

SITE PLAN LEGEND

- LANDSCAPE AREA
- CONCRETE PORCH
- CONCRETE WALK / DRIVEWAY
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SARAH NERSES IAN ELLIS
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NORTH AVENUE HALF-PLEXES
DARREN BROWN
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
LOT 3 SITE PLAN

SHEET NO.
A1.13

1 LOT 4 SITE PLAN
1/8" = 1'-0"

SITE PLAN GEN. NOTES

1. PROJECT HAS RECEIVED DESIGN REVIEW APPROVAL FROM THE CITY OF SACRAMENTO. ROD#P19-036, DATED 07/09/2020.
2. GRADE SITE AS INDICATED ON CIVIL PLANS. GRADE TO AVOID ON-SITE WATER RETENTION AND DRAINAGE ONTO ADJACENT SITE. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
3. GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN 5% FOR A MINIMUM DISTANCE OF 10'-0" MEASURED PERPENDICULAR TO THE FACE OF THE WALL. IF OBSTACLE OR LOT LINE PROHIBIT 10'-0" HORIZONTAL DISTANCE, A 5% SLOPE SHALL BE PROVIDED TO AN APPROVED ALTERNATIVE METHOD OF DIVERTING WATER AWAY FROM THE FOUNDATION. IMPERVIOUS SURFACES WITHIN 10'-0" OF THE BUILDING FOUNDATION SHALL BE SLOPED A MINIMUM OF 2% AWAY FROM THE BUILDING. (CBC 1804.4, CRC R401.3)
4. ANY SURVEY MONUMENT WITHIN THE AREAS OF CONSTRUCTION SHALL BE PRESERVED OR RESET BY A REGISTERED CIVIL ENGINEER OR LICENSED LAND SURVEYOR.
5. VERIFY, LOCATE, AND INDICATE ALL PROPERTY CORNERS, SETBACKS. EASEMENTS, AND BUILDING LOCATION CORNERS PRIOR TO FOUNDATION INSPECTION.
6. ALL FOOTINGS SHALL REST ON FIRM NATURAL SOIL OR COMPACTED FILL.
7. VERIFY MINIMUM REQUIRED 'WATER' PIPE SIZE OF 1.5" AND MINIMUM REQUIRED 'WASTE' PIPE SIZE OF 4". NOTIFY CITY INSPECTOR OF ANY DISCREPANCY.
8. MAINTAIN SAFETY CLEARANCE AT (E) POWER LINES PER CAL OSHA AND CALIFORNIA PUBLIC UTILITY COMMISSION GENERAL ORDER 95.
9. SEE CIVIL DRAWINGS UNDER SEPARATE PERMIT (COM-2307306) FOR ADDITIONAL INFORMATION.
10. AT LOTS 3 & 6, THERE WILL BE NO REAR COVERED PORCH

SITE PLAN LEGEND

- LANDSCAPE AREA
- CONCRETE PORCH
- CONCRETE WALK / DRIVEWAY
- DETECTABLE WARNING, TRUNCATED DOMES
- 6' H. WOOD PRIVACY FENCE
- PRIMARY ENTRANCE LOCATION
- TRASH / RECYCLING CAN
- P — PROPOSED PULL BOX LOCATION, REFER TO JOINT TRENCH DRAWINGS UNDER SEPARATE APPLICATION
- WM — APPROXIMATE WATER METER LOCATION, REFER TO CIVIL DRAWINGS (UNDER SEPARATE APPLICATION) FOR MORE INFORMATION
- SC — APPROXIMATE SEWER CLEANOUT LOCATION, REFER TO CIVIL DRAWINGS (UNDER SEPARATE APPLICATION) FOR MORE INFORMATION
- L — APPROXIMATE LOCATION OF POLE MOUNTED LIGHTING, REFER TO ONSITE CIVIL PLANS FOR ADDITIONAL INFORMATION
- T — APPROXIMATE LOCATION OF TRANSFORMER

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
LOT 4 SITE PLAN

SHEET NO.
A1.14

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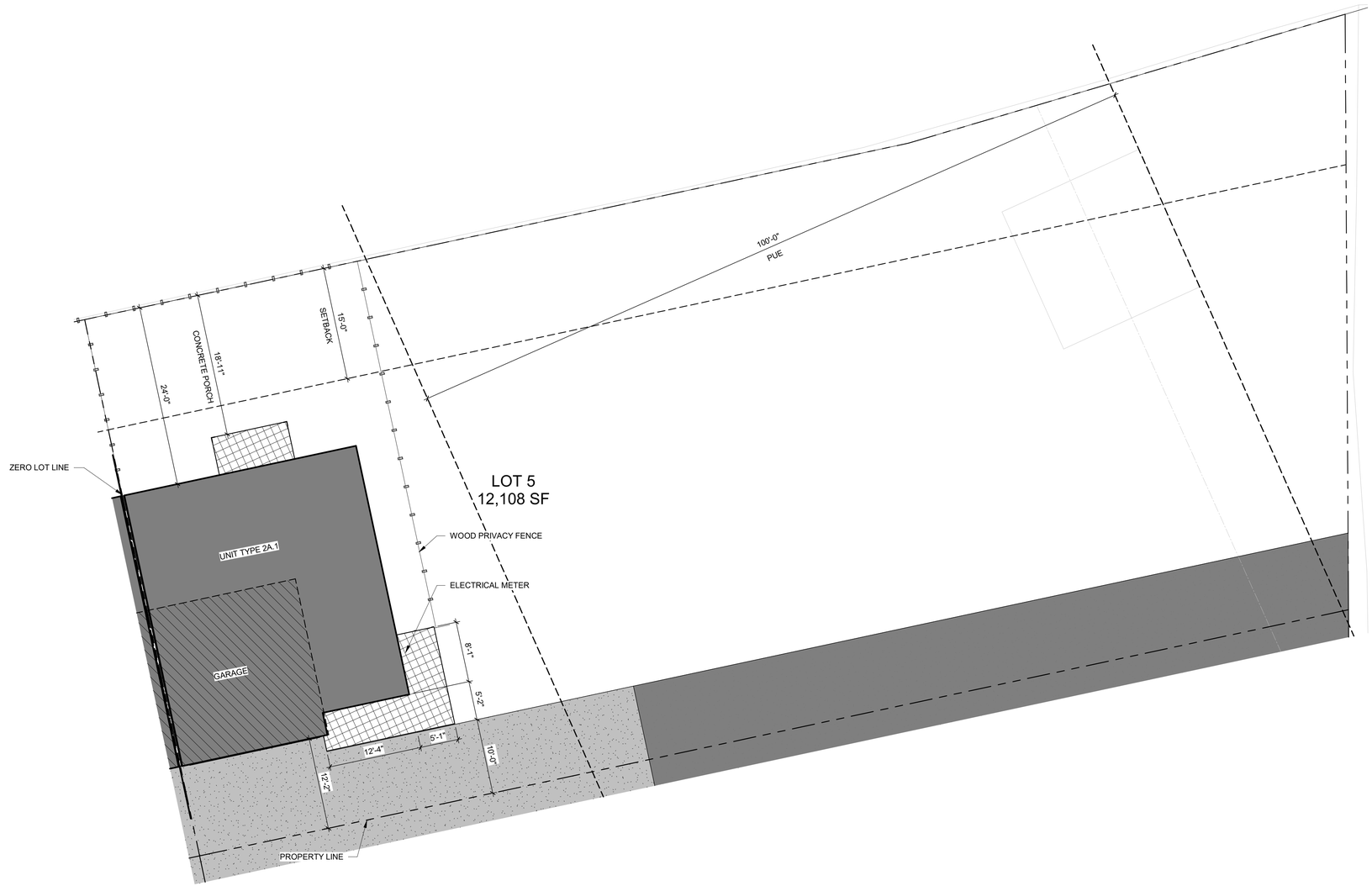

1 LOT 5 SITE PLAN
1/8" = 1'-0"

SITE PLAN GEN. NOTES

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9. SEE CIVIL DRAWINGS UNDER SEPARATE PERMIT (COM-2307306) FOR ADDITIONAL INFORMATION.
10. AT LOTS 3 & 6, THERE WILL BE NO REAR COVERED PORCH

SITE PLAN LEGEND

- LANDSCAPE AREA
- CONCRETE PORCH
- CONCRETE WALK / DRIVEWAY
- DETECTABLE WARNING, TRUNCATED DOMES
- 6' H. WOOD PRIVACY FENCE
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APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
LOT 5 SITE PLAN

SHEET NO.
A1.15

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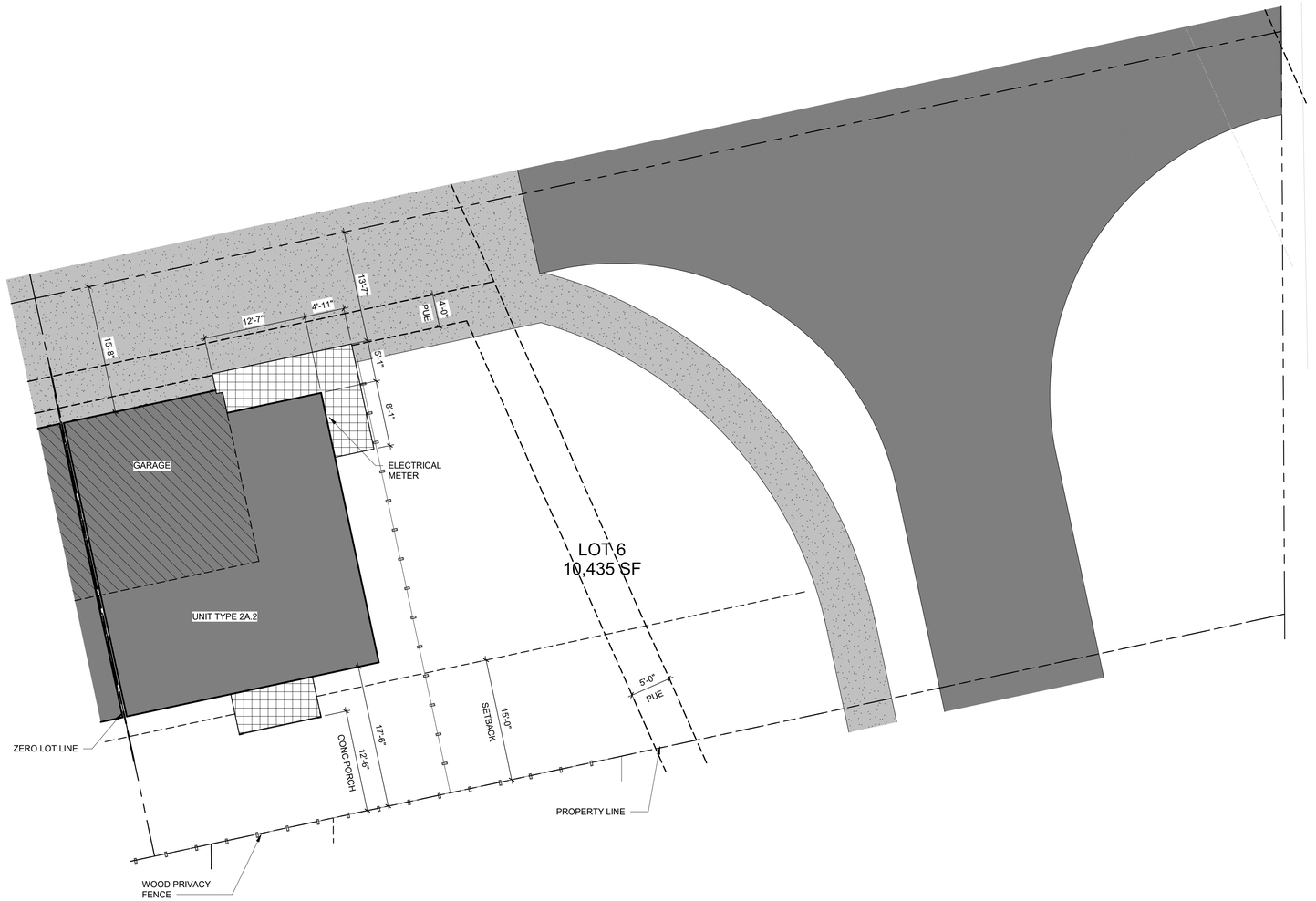

1 LOT 6 SITE PLAN
1/8" = 1'-0"

SITE PLAN GEN. NOTES

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9. SEE CIVIL DRAWINGS UNDER SEPARATE PERMIT (COM-2307306) FOR ADDITIONAL INFORMATION.
10. AT LOTS 3 & 6, THERE WILL BE NO REAR COVERED PORCH

SITE PLAN LEGEND

- LANDSCAPE AREA
- CONCRETE PORCH
- CONCRETE WALK / DRIVEWAY
- DETECTABLE WARNING, TRUNCATED DOMES
- 6' H. WOOD PRIVACY FENCE
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DARREN BROWN

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APN # 237-0020-092

PLAN CHECK SET

DATE: 06/02/2022

REVISIONS:

SHEET TITLE: LOT 6 SITE PLAN

SHEET NO. A1.16

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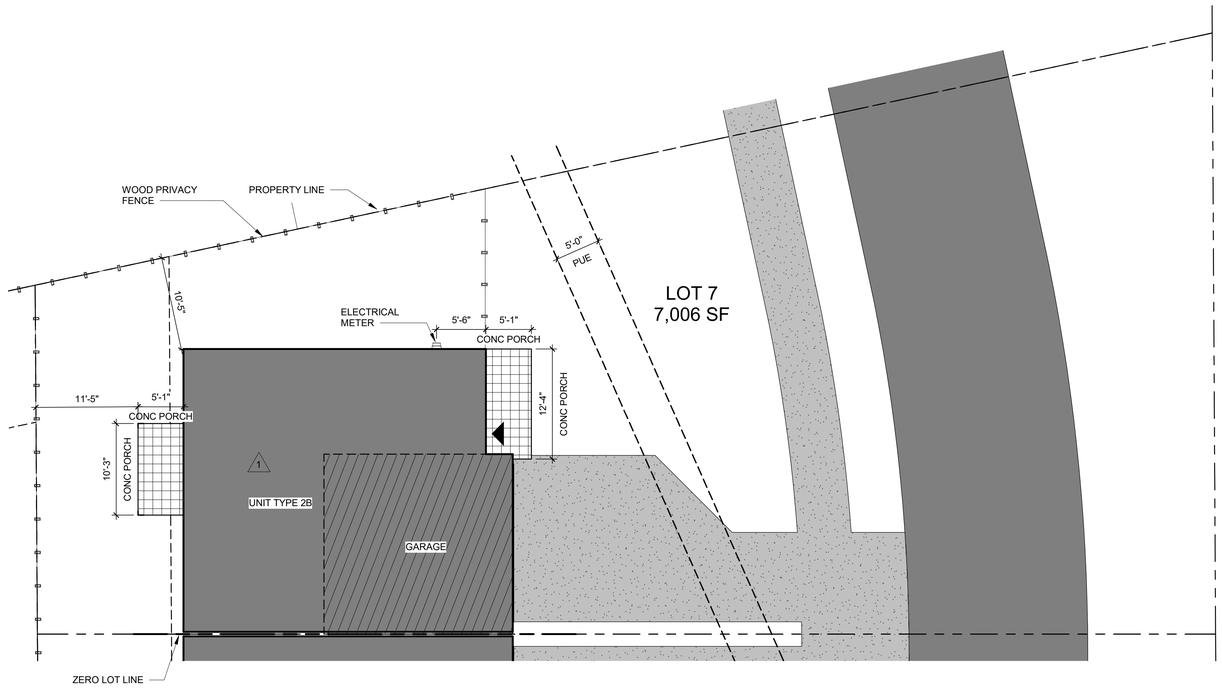

1 LOT 7 SITE PLAN
1/8" = 1'-0"

SITE PLAN GEN. NOTES

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SITE PLAN LEGEND

- LANDSCAPE AREA
- CONCRETE PORCH
- CONCRETE WALK / DRIVEWAY
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APN # 237-0020-092

PLAN CHECK SET

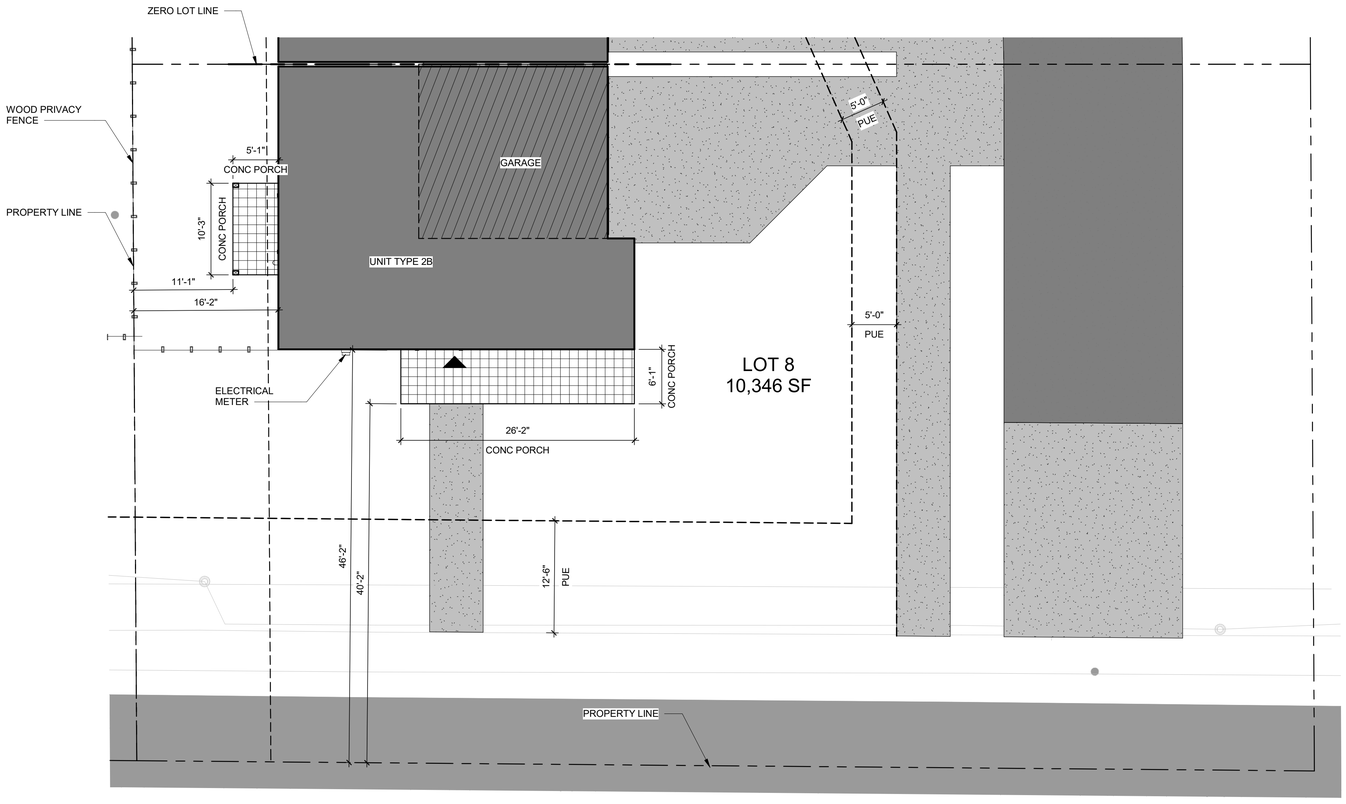
DATE:
06/02/2022

REVISIONS:

1	CYC2	02.22.2023

SHEET TITLE
LOT 7 SITE PLAN

SHEET NO.
A1.17



1 LOT 8 SITE PLAN
1/8" = 1'-0"

SITE PLAN GEN. NOTES

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SITE PLAN LEGEND

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- CONCRETE PORCH
- CONCRETE WALK / DRIVEWAY
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APN # 237-0020-092

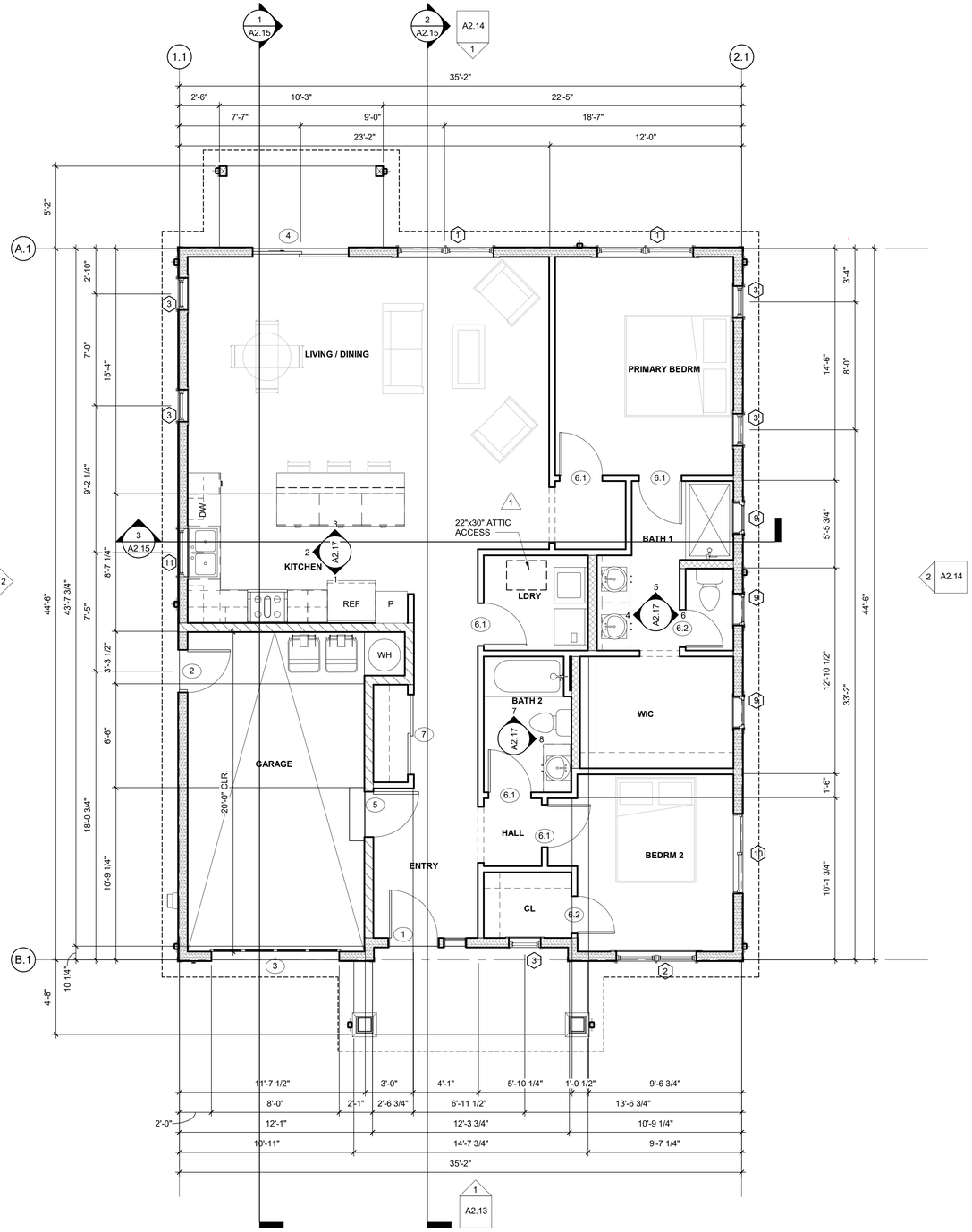
PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
LOT 8 SITE PLAN

SHEET NO.
A1.18



1 UNIT 1 - FLOOR PLAN
1/4" = 1'-0"

RES. FLOOR PLAN NOTES

1. STEPS AT INTERIOR DOORS:
   - THE DROP OF THE FLOOR OR LANDING ON EACH SIDE OF THE DOOR SHALL NOT BE MORE THAN 1 1/2" FROM THE TOP OF THE THRESHOLD OF THE DOORWAY.
2. EMERGENCY ESCAPE WINDOWS FOR SLEEPING ROOMS PER CRC R310.2:
   A. MINIMUM NET CLEAR OPERABLE AREA: 5.7 SQ. FT.
   B. MINIMUM NET CLEAR OPERABLE WIDTH: 20 INCHES
   C. MINIMUM NET CLEAR OPERABLE HEIGHT: 24 INCHES
   D. MAXIMUM SILL HEIGHT ABOVE FLOOR: 44 INCHES
3. EXTERIOR DOORS PER CRC R311.3:
   A. CONCRETE LANDINGS TO BE 36" DEEP x FULL WIDTH OF DOOR OPENING.
   B. PROVIDE WEATHER STRIPPING ALL AROUND DOORS.
   C. PROVIDE METAL THRESHOLDS.
   D. LANDINGS OR FLOORS AT THE REQUIRED EGRESS DOOR SHALL NOT BE MORE THAN 1 1/2" (38mm) LOWER THAN THE TOP OF THE THRESHOLD.
   E. THE LANDING OR FLOOR ON THE EXTERIOR SIDE SHALL NOT BE MORE THAN 7 3/4 INCHES (196mm) BELOW THE TOP OF THE THRESHOLD, PROVIDED THE DOOR DOES NOT SWING OVER THE LANDING OR FLOOR.
4. CEILING HEIGHTS PER CRC R305:
   A. MINIMUM CEILING HEIGHT SHALL BE 7'-0" IN ALL HABITABLE SPACES.
   B. MINIMUM CEILING HEIGHT IN BATHROOMS, TOILET ROOMS AND LAUNDRY ROOMS IS 6'-8".
   C. FOR ROOMS W/ SLOPED OPENINGS, THE CODE REQUIRES THAT THE PRESCRIBED HEIGHT BE MAINTAINED IN ONE-HALF THE REQUIRED FLOOR AREA OF THE ROOM, AND NO PORTION OF THE REQUIRED FLOOR AREA MAY HAVE A CEILING HEIGHT OF LESS THAN 5'.
5. PROVIDE MECHANICAL VENTILATION SYSTEM (EXHAUST FAN) CONTROLLED BY A HUMIDITY CONTROL (CRC R303.1)
   A. VENTILATION RATES MUST HAVE EXHAUST RATES OF 50 CFM INTERMITTENT AND 20 CFM CONTINUOUS.
   B. POINT OF EXHAUST VENT SHALL BE AT LEAST 3'-0" FROM A PROPERTY LINE OR OPENINGS INTO THE BUILDNG SUCH AS DOORS, WINDOWS, OPENING SKYLIGHTS, ATTIC VENTS & 10'-0" FROM A FORCED AIR INLET.
6. TUBS/SHOWERS:
   A. SHOWER & TUB WALLS SHALL HAVE A SMOOTH, HARD, NON-ABSORBENT SURFACE OVER A MOISTURE RESISTANT UNDERLAYMENT TO A HEIGHT OF 72 INCHES (UNLESS NOTES FULL HEIGHT) ABOVE THE FLOOR. (CRC R307.2)
   B. SHOWERS & SHOWER/TUB COMBINATIONS:
      - SHOWER FLOORS: PROVIDE CERAMIC TILE W/ WATERPROOF MEMBRANE
      - WALLS: SET TILE IN MORTAR BED W/METAL LATH O/ WATER RESISTANT TILE BACKER BOARD.
   C. PROVIDE WATER RESISTANT GYPSUM BOARD 12" MIN. BEYOND TUB OR SHOWER. PAINT AND TEXTURE.
7. SHOWER VALVES:
   A. SHOWERS AND TUB-SHOWER COMBINATIONS SHALL BE PROVIDED WITH INDIVIDUAL PRESSURE BALANCE OR THERMOSTATIC MIXING CONTROL VALVES. (CPC 408.3)
   B. THE MAXIMUM MIXED WATER SETTING SHALL BE 120 DEGREES FAHRENHEIT.
   C. WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED AS SUITABLE FOR MEETING THIS REQUIREMENT.
8. WATER CLOSET:
   A. EACH WATER CLOSET STOOL SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH AND HAVE A CLEAR SPACE IN FRONT OF THE WATER CLOSET STOOL OF NOT LESS THAN 24".
   B. WATER CLOSETS ARE TO BE 1.28 GALLONS PER FLUSH, MAX. (UPC 402.0)
9. PROVIDE SHEET METAL PAN & DRAIN UNDER WASHERS LOCATED ON WOOD SUBFLOORS.
10. PROVIDE FIRE BLOCKING PER CRC 302.11.
11. PROVIDE HEAVY DUTY SHELF AND ROD AT ALL CLOSETS, UNO
12. ALL WALLS SEPARATING CONDITIONED FROM NON-CONDITIONED SPACE ARE TO BE INSULATED FULL DEPTH OF WALL, SEE TITLE 24 REPORT.

FLOOR PLAN GEN. NOTES

1. FOR SYMBOL LEGEND NOT INDICATED ON THIS SHEET, SEE SHEET G0.21.
2. REFER TO STRUCTURAL DRAWINGS FOR BEARING & SHEAR WALL INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF STUD OR GRIDLINES, U.N.O.
4. WINDOWS ARE CENTERED IN ROOM, U.N.O.
5. LOCATE DOOR JAMBS 3" AWAY FROM ADJACENT WALL UNLESS DIMENSIONED OR NOTED OTHERWISE.
6. PROVIDE ALL INSULATION PER TITLE 24 REPORT.
7. ALL INTERIOR WALLS TO RECEIVE FULL DEPTH ACOUSTICAL BATT INSULATION, U.N.O.
8. NOTED WALL TYPES SHALL EXTEND FROM CORNER TO CORNER, FULL LENGTH OF WALL, U.N.O.
9. ALL GYP. BD. AND PLASTER SHALL BE INSTALLED PER CBC CHAPTER 25.
10. PROVIDE CONTINUOUS 5/8" TYPE 'X' GYP. BD. AT ALL RATED WALLS WITHOUT GAPS OR BREAKS, TYP. PROVIDE MOISTURE RESISTANT TYPE 'X' GYP. BD. AT ALL HIGH MOISTURE LOCATIONS.
11. PRETREAT FRAMING AT FOUNDATION AND 24" UP ON THE STUDS AND EXTERIOR SHEATHING WITH BORA-CARE TERMITICIDE (OR EQUAL.
12. CONCRETE SUBFLOORS TO RECEIVE RESILIENT FLOORING MUST BE PREPARED ACCORDING TO ALL MANUFACTURER'S REQUIREMENTS, SEE
13. SEE SHEET A3.11 FOR WINDOW SCHEDULE
14. SEE SHEET A3.11 FOR DOOR SCHEDULE
15. FURNITURE SHOWN FOR REFERENCE ONLY AND IS NOT A PART OF THIS APPLICATION
16. REFER TO WINDOW SCHEDULE SHEET A3.11 FOR LOCATIONS WHERE TEMPERED GLAZING IS REQUIRED

1

FLOOR PLAN LEGEND

- 2x6 1-HR RATED GARAGE SEPARATION WALL
- 2x6 EXTERIOR WALL
- 2x4 INTERIOR WALL
- 2x6 PLUMBING WALL
- 2x4 PARTIAL HEIGHT WALL
- STEP OR LEVEL CHANGE
- TRASH / RECYCLING BIN
- DS — GSM DOWNSPOUT, PAINT. ROUTE TO PAVED SURFACE OR PROVIDE PRECAST CONCRETE SPLASH BLOCK AT LANDSCAPE AREAS.

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DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

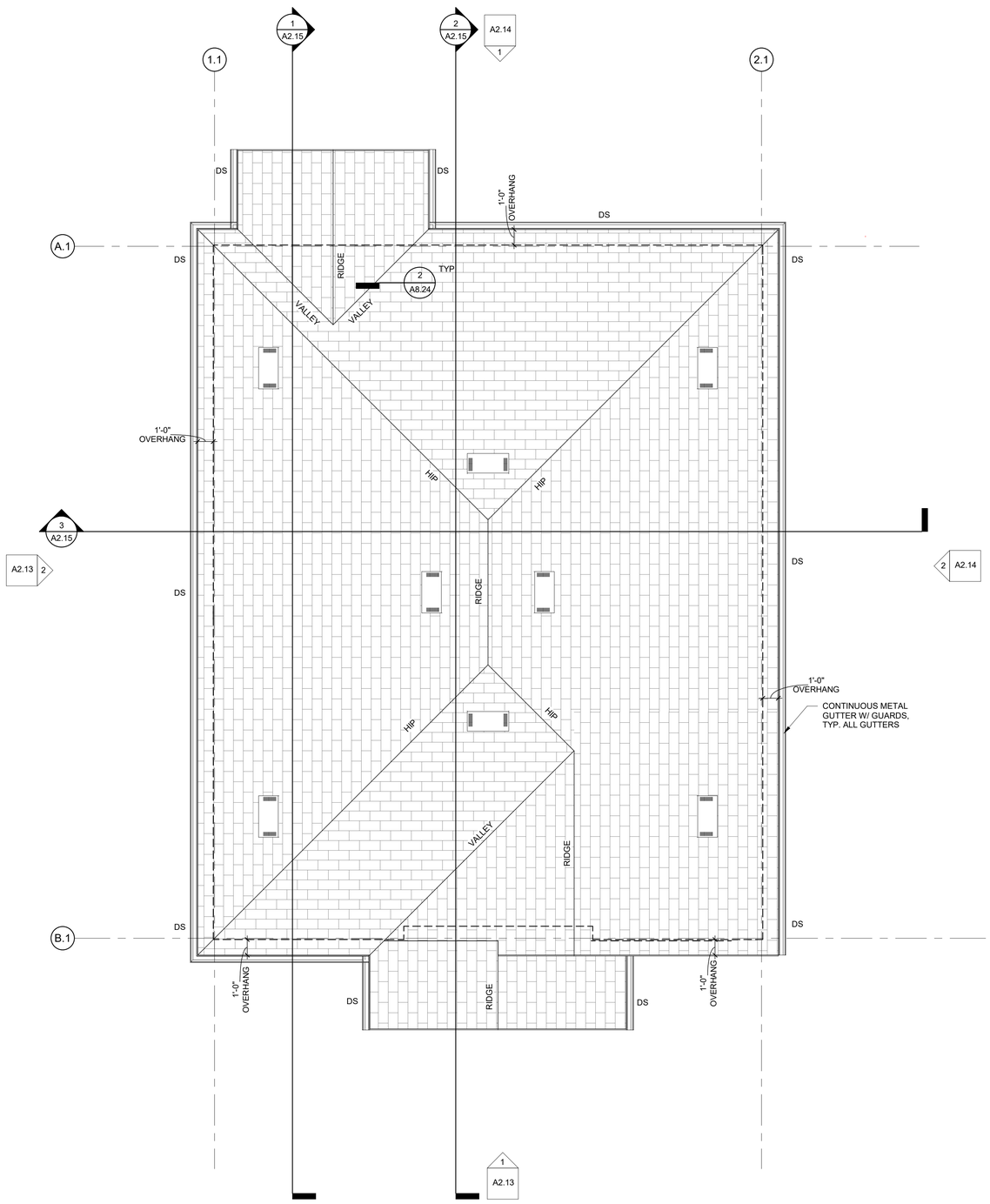
DATE: 06/02/2022

REVISIONS:

1	CYC2	02.22.2023

SHEET TITLE: UNIT TYPE 1 PLANS

SHEET NO. A2.11



1 UNIT 1 - ROOF PLAN
1/4" = 1'-0"

ROOF PLAN NOTES

ASPHALT SHINGLE ROOFING SYSTEM

1. ROOFING TO MEET UL CLASS A RATING AND CRRC COOL ROOF REQUIREMENTS - COLOR AS SELECTED BY ARCHITECT.
2. INSTALLATION:
   - A. INSTALL USING METHODS RECOMMENDED BY MANUFACTURER AND IN ACCORDANCE WITH CBC CHAPTER 15. WHEN CBC REQUIREMENTS AND APPLICATION INSTRUCTIONS ARE IN CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL TAKE PRECEDENCE.
   - B. EAVES AND RAKES:
     - a. INSTALL EAVES EDGE METAL FLASHING TIGHT WITH FASCIA BOARDS; LAP JOINTS 2 INCHES AND SEAL WITH PLASTIC CEMENT OR HIGH QUALITY URETHANE SEALANT; NAIL AT THE TOP OF THE FLANGE.
     - b. INSTALL BITUMINOUS LEAK BARRIER CONTINUOUS ALONG EAVES AND RAKES A FULL 36 INCHES WIDE. LAP ENDS 6 INCHES AND BOND.
   - C. RIDGES AND VALLEYS: INSTALL LEAK BARRIER CONTINUOUS ALONG RIDGES AND VALLEYS A FULL 36 INCHES WIDE. LAP ENDS 6 INCHES AND BOND. PROVIDE METAL VALLEY FLASHING AT ALL VALLEYS - COLOR TO MATCH ROOFING.
   - D. INSTALL TWO LAYERS OF TYPE 30 PREMIUM, WATER REPELLANT NON-ASPHALTIC UNDERLAYMENT THAT MEETS OR EXCEEDS ASTM D226.
   - E. PROVIDE ELBOW & SHEET METAL SPLASH AT ASPHALT SHINGLE ROOFS WHERE DOWNSPOUTS LAND AT LOWER ROOF SURFACES.

GENERAL ROOFING NOTES

1. DOWNSPOUTS SHALL BE 3" DIAMETER SCHEDULE 40, ROUND GALVANIZED DOWNSPOUTS UNLESS OTHERWISE NOTED. GSM DOWNPOUTS CAN BE SUBSTITUTED UPON OWNERS APPROVAL. PAINT TO MATCH ADJACENT SURFACES. SEE ELEVATIONS FOR ADDITIONAL DOWNSPOUT INFORMATION.
2. MAJOR PENETRATIONS TO BE 24" FROM EACH OTHER AND PARAPET WALLS
3. PROVIDE AND INSTALL EAVE VENTS PER ATTIC VENT CALCULATIONS - COORDINATE LOCATIONS WITH ARCHITECT
4. PROVIDE AND INSTALL ROOF VENTS PER ATTIC VENT CALCULATIONS - COORDINATE LOCATION WITH ARCHITECT.
5. SEE ROOF DETAIL SHEETS FOR ADDITIONAL INFORMATION
6. AREAS INDICATED TO RECEIVE FIRE RETARDANT TREATED PLYWOOD SHALL HAVE NO OPENINGS OR PENETRATIONS.

ROOF PLAN LEGEND

DS	GSM DOWNSPOUT, PAINT. ROUTE TO PAVED SURFACE OR PROVIDE PRECAST CONCRETE SPLASH BLOCK AT LANDSCAPE AREAS.
	LINE OF WALL BELOW
	ROOF ATTIC VENT

ATTIC VENT. CALCS.

TOTAL ATTIC AREA = ***1582*** S.F. MAIN ROOF

REQUIRED FREE VENT AREA (1/300) = ***1582*** S.F./300 = ***5.27*** S.F.
(PURSUANT TO SECTION R806.2, EXCEPTION 2)

5.27 S.F. x ***144*** = ***758.9*** SQ. IN.

ROOF ATTIC VENTS = ***64.8*** SQ. IN. x ***8 = 518.4*** SQ. IN.

GABLE VENT = ***254*** SQ. IN. x ***1*** = ***254*** SQ. IN.

TOTAL FREE VENT AREA = ***772.4*** SQ. IN. > ***758.9*** SQ. IN. = OK

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
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NORTH AVENUE HALF-PLEXES

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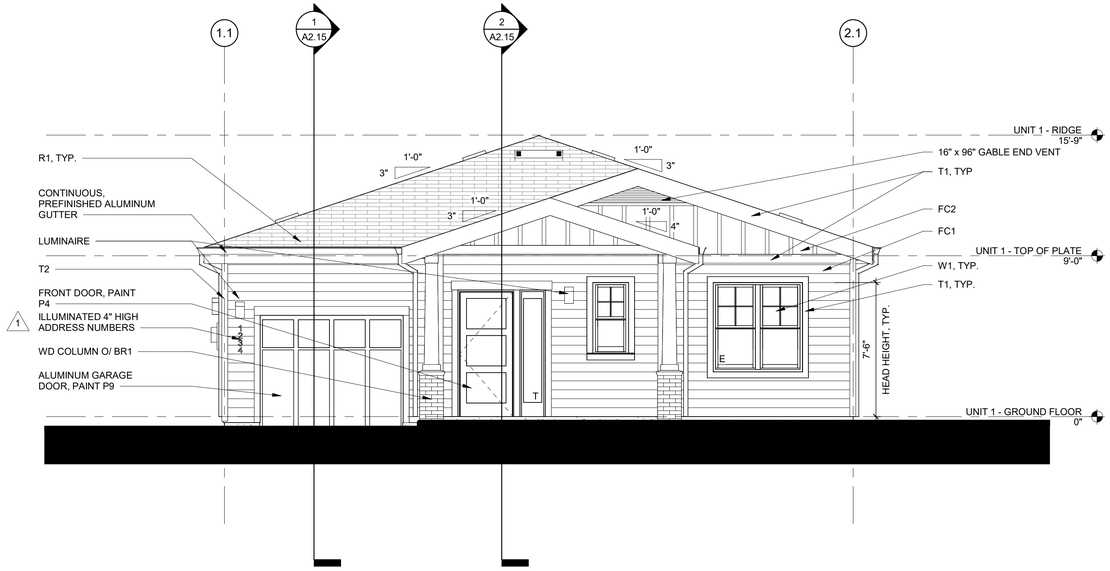
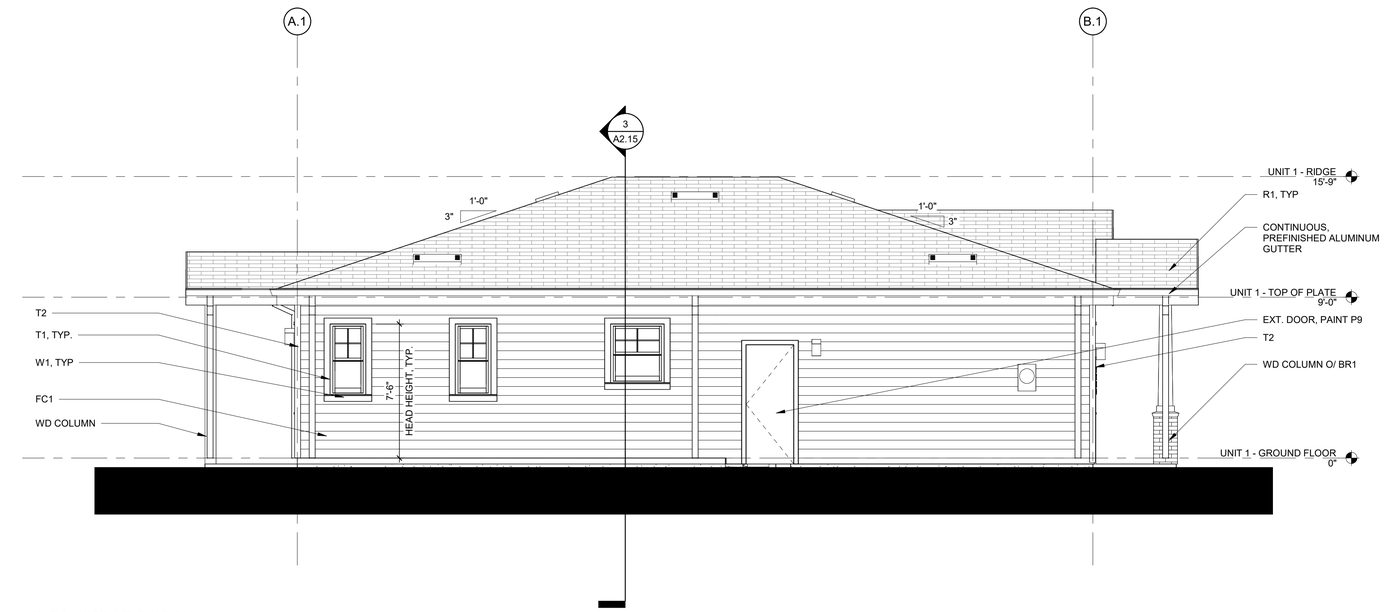
SHEET TITLE
UNIT TYPE 1 PLANS

SHEET NO.
A2.12

IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY



1 UNIT 1 - FRONT ELEVATION
1/4" = 1'-0"



2 UNIT 1 - SIDE 1 ELEVATION
1/4" = 1'-0"

EXT. ELEVATION NOTES

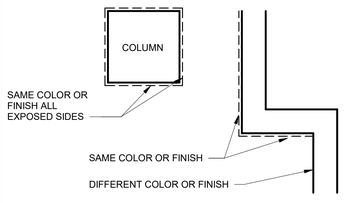
1. ARCHITECT MUST REVIEW ALL COLORS AND MATERIALS BEFORE INSTALLATION.
2. WINDOWS MARKED WITH 'E' SHALL BE EMERGENCY ESCAPE AND RESCUE OPENINGS. SEE WINDOW SCHEDULE FOR ADDITIONAL INFORMATION.
3. ALL WALLS SEPARATING CONDITIONED FROM NON-CONDITIONED SPACE ARE TO BE INSULATED PER TITLE-24 REPORT.
4. GUTTERS AND DOWNSPOUTS TO BE PAINTED TO MATCH ADJACENT FINISH.
5. ALL EXTERIOR EXPOSED CONCRETE AND BRICK MASONRY WALLS SHALL HAVE ANTI-GRAFFITI COATING APPLIED TO ALL EXPOSED SURFACES.
6. PROVIDE 'QUICKFLASH' OR EQUIVALENT PRODUCTS AT ALL ELECTRICAL, MECHANICAL AND PLUMBING PENETRATIONS.
7. DUCT EXHAUST SHALL TERMINATE NOT LESS THAN 3'-0" FROM PROPERTY LINE, 10'-0" FROM FORCED AIR INLET AND 3'-0" FROM OPENING INTO THE BUILDING. EXHAUST DUCTS SHALL NOT DISCHARGE ONTO A PUBLIC WAY
8. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL BE A MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF ½ INCH. NUMBERS SHALL NOT BE SPELLED OUT. THESE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESSING SHALL BE ILLUMINATED AT NIGHT IN ALL NEW BUILDINGS. ADDRESS SIGNS SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED. WHEN THE LUMINANCE OR THE FACE OF A SIGN IS FROM AN EXTERNAL SOURCE, IT SHALL HAVE AN INTENSITY OF NOT LESS THAN 5.0 FOOT-CANDLES. INTERNALLY ILLUMINATED SIGNS SHALL PROVIDE EQUIVALENT LUMINANCE

EXT. FINISH SCHEDULE

NOTES:
- CONSTRUCTION MUST CONFORM TO THE DESIGN APPROVED BY THE PLANNING DEPARTMENT IN THE CONDITIONS OF APPROVAL.
- ARCHITECT MUST REVIEW ALL COLORS AND MATERIALS BEFORE INSTALLATION.

MAT.#	DESCRIPTION	LEGEND
FC1	FIBER CEMENT LAP SIDING - 7" EXPOSURE **MFR:** "JAMES HARDIE - HARDIEPLANK" SELECT CEDAR MILL **COLOR:** ARCTIC WHITE	
FC2	FIBER CEMENT BOARD AND BATTEN SIDING **MFR:** "JAMES HARDIE - PANEL VERTICAL SIDING" SELECT CEDAR MILL **COLOR:** ARCTIC WHITE	
FC3	FIBER CEMENT SHINGLE SIDING **MFR:** "JAMES HARDIE - SHINGLE SIDING" STRAIGHT EDGE PANEL **COLOR:** ARCTIC WHITE	
FC4	FIBER CEMENT SIDING **MFR:** "JAMES HARDIE - FLAT PANEL" **COLOR:** ARCTIC WHITE	
BR1	THIN BRICK **MFR:** HC MUDDOX **PRODUCT:** THIN BRICK **COLOR:** EBONY	
T1	FIBER CEMENT TRIM **MFR:** "JAMES HARDIE - HARDIETRIM" 4/4 SMOOTH GRAIN, 3.5" WIDTH **COLOR:** SW2844, ROYCROFT MIST GRAY	
T2	FIBER CEMENT CORNER TRIM **MFR:** "JAMES HARDIE - HARDIETRIM" 4/4 SMOOTH GRAIN, 4" WIDTH **COLOR:** SW2844, ROYCROFT MIST GRAY	
R1	COMPOSITION SHINGLE ROOFING **MFR:** OWENS CORNING **PRODUCT:** DURATION COOL PLUS **COLOR:** MYSTIC GRAY **SRI:** 0.21 **CRRC PRODUCT ID:** 0890-0032	
W1	VINYL WINDOW **MFR:** TBD **COLOR:** BRONZE	
P4	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6432, GARDEN SPOT	
P5	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6943, INTENSE TEAL	
P6	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6615, PEPPERY	
P7	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW9149, INKY BLUE	
P9	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6167, GARDEN GATE	

TYP. COLOR/FINISH TERM.



NOTE:
ALL PAINT COLORS AND FINISHES SHALL TERMINATE AT AN INSIDE CORNER, CONTROL JOINT, ETC, U.O.N.

PLAN OR SECTION

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
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ellis-architects.com

LICENSED ARCHITECT
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C-29460
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1	CYC2	02.22.2023
2	CYC3	05.19.2023

SHEET TITLE
UNIT TYPE 1 ELEVATIONS

SHEET NO.
A2.13

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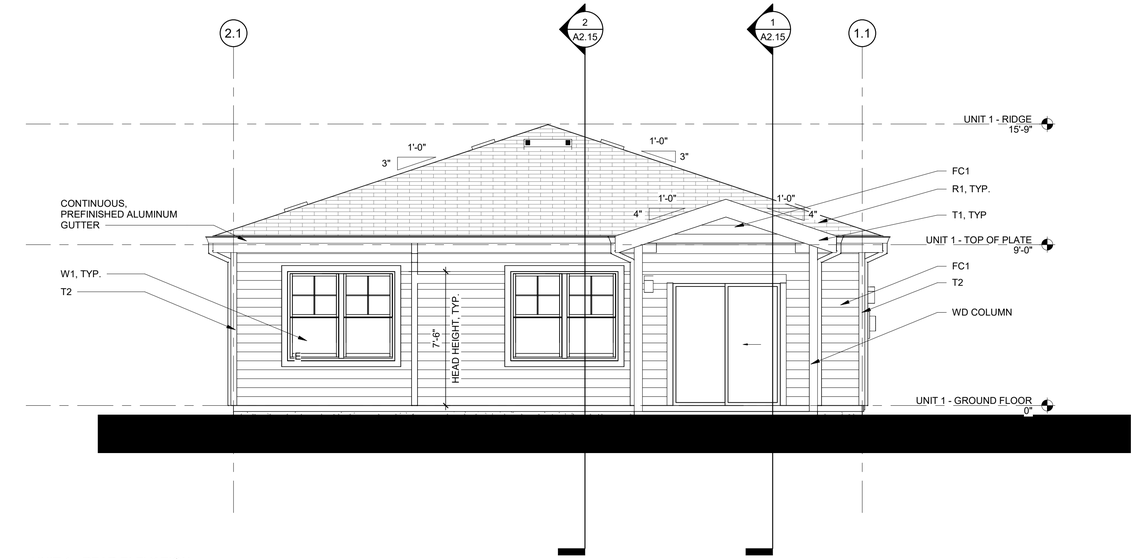
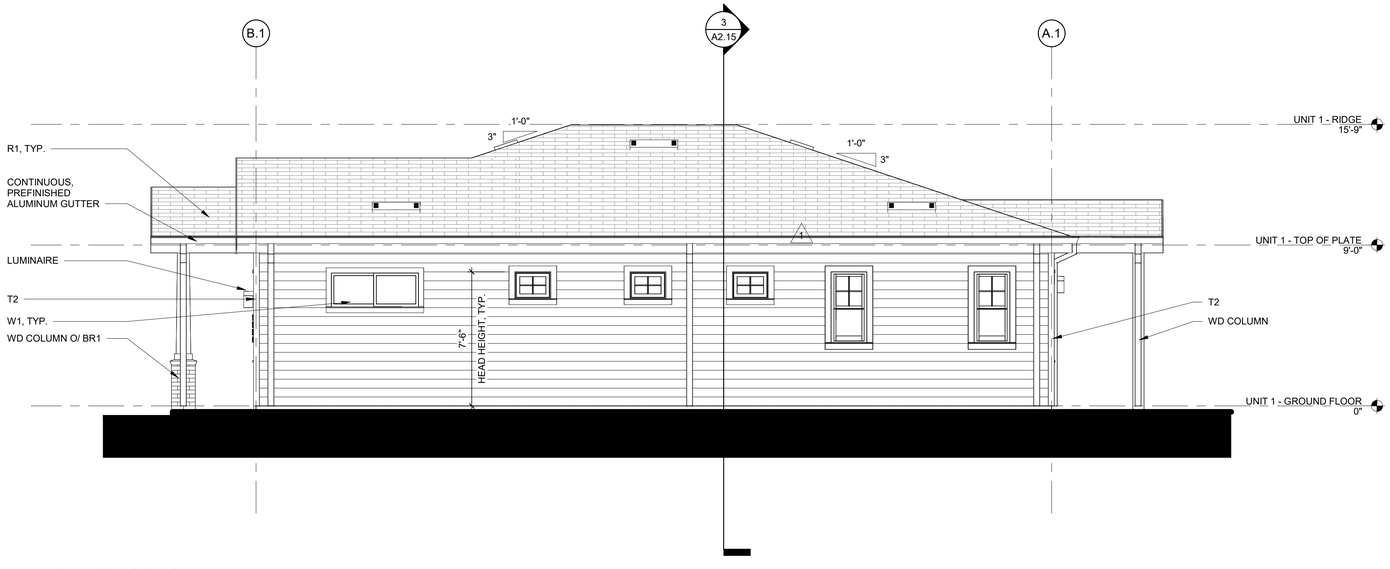


1 UNIT 1 - REAR ELEVATION
1/4" = 1'-0"



2 UNIT 1 - SIDE 2 ELEVATION
1/4" = 1'-0"

EXT. ELEVATION NOTES

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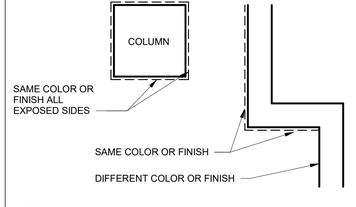
TYP. COLOR/FINISH TERM.



NOTE:
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PLAN OR SECTION

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
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NORTH AVENUE HALF-PLEXES

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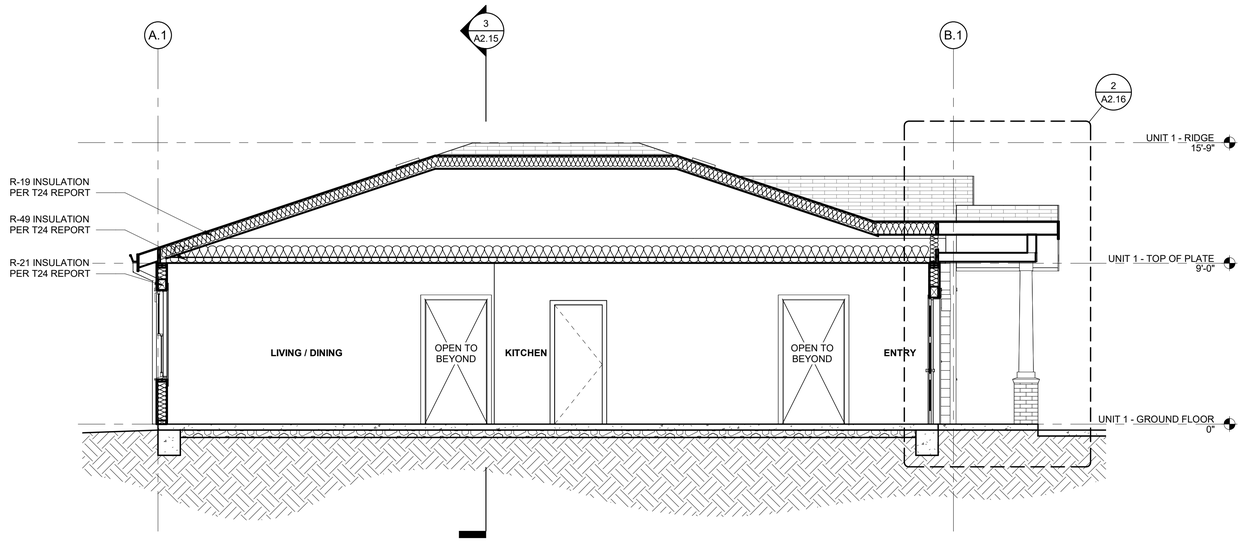
REVISIONS:

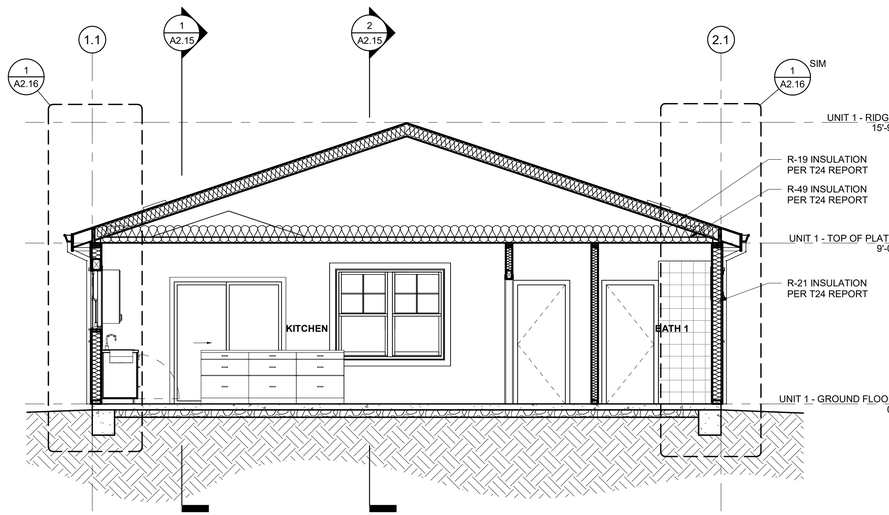
1	CYC2	02.22.2023
2	CYC3	05.19.2023

SHEET TITLE
UNIT TYPE 1 ELEVATIONS

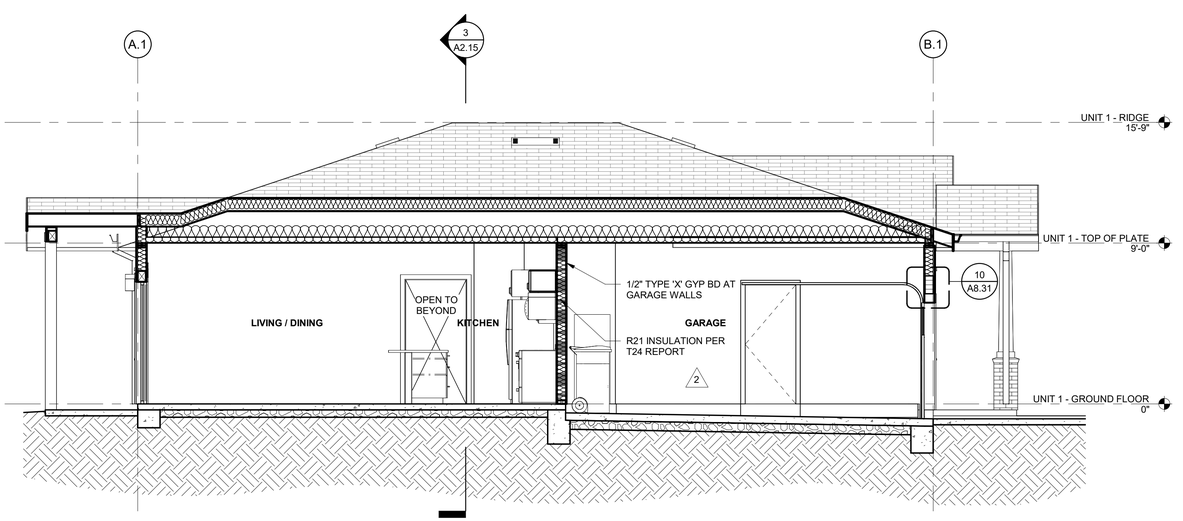
SHEET NO.
A2.14



2 UNIT TYPE 1 - SECTION 2
1/4" = 1'-0"



3 UNIT TYPE 1 - SECTION 1
1/4" = 1'-0"



1 UNIT TYPE 1 - SECTION 3
1/4" = 1'-0"

ELLIS
ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

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DATE:

06/02/2022

REVISIONS:

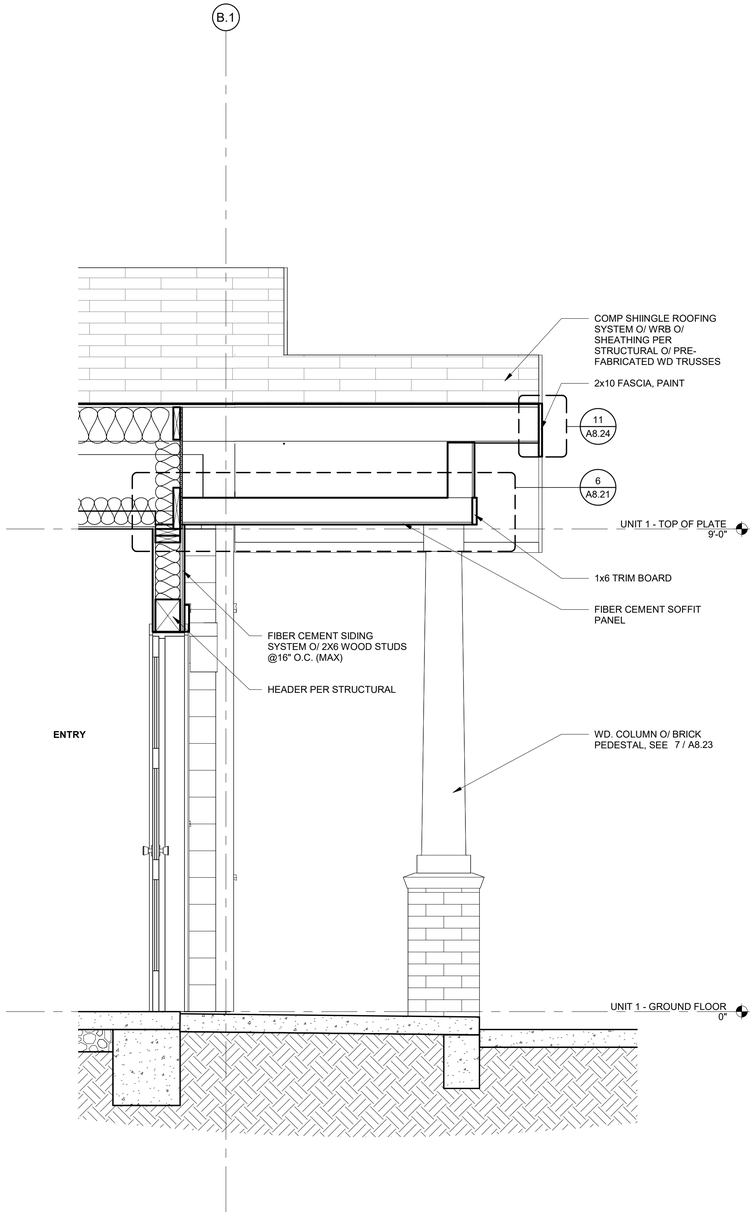
2	CYC3	05.19.2023

SHEET TITLE

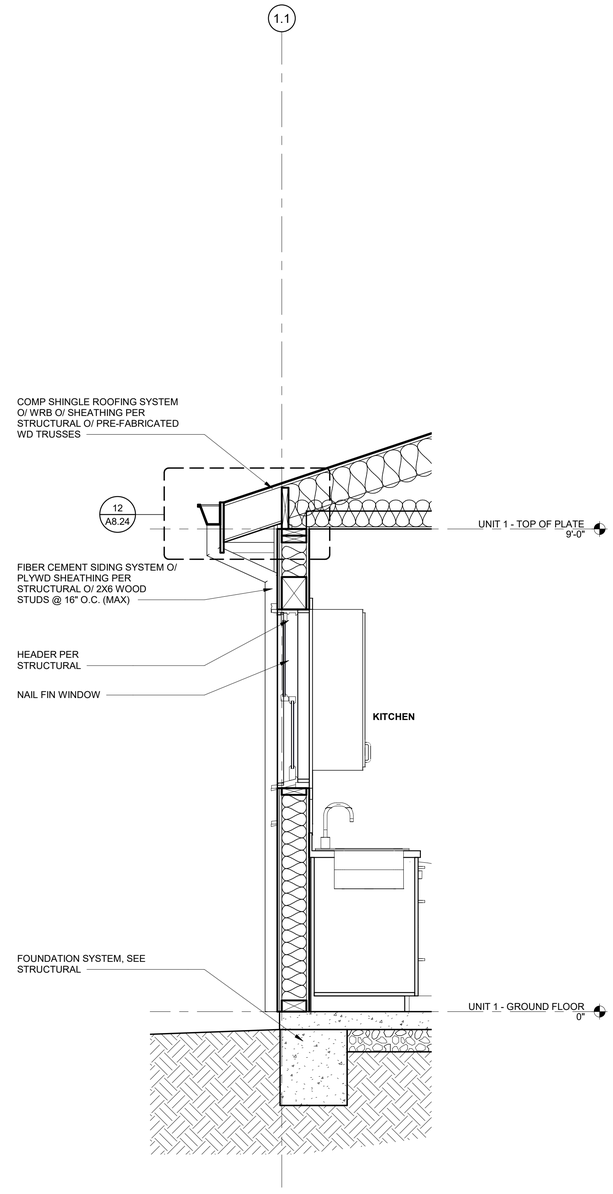
UNIT TYPE 1
BUILDING
SECTIONS

SHEET NO.

A2.15



2 UNIT TYPE 1 - WALL SECTION 2
3/4" = 1'-0"



1 UNIT TYPE 1 - WALL SECTION 1
3/4" = 1'-0"

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4132 C Street
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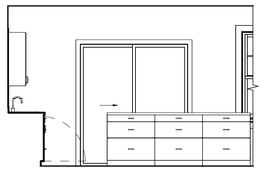
SHEET TITLE
UNIT TYPE 1 WALL SECTIONS

SHEET NO.
A2.16

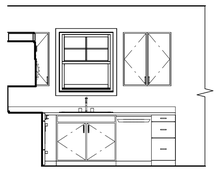
IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY

INT. ELEVATION NOTES

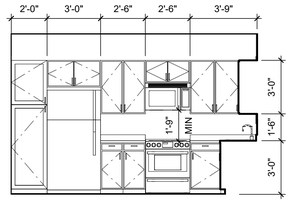
1. EXTEND MOISTURE RESISTANT GYP. BD. 12" BEYOND SHOWER OR TUB ENCLOSURE.



3 UNIT 1 - KITCHEN ELEVATION 3
1/4" = 1'-0"



2 UNIT 1 - KITCHEN ELEVATION 2
1/4" = 1'-0"



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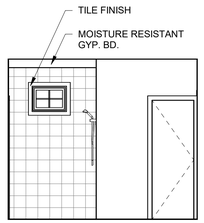
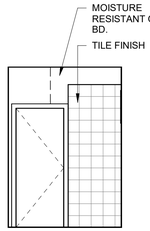
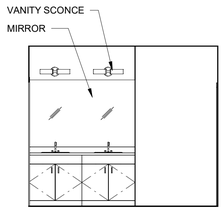


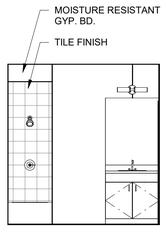
6 UNIT 1 - BATH 1 ELEVATION 3
1/4" = 1'-0"



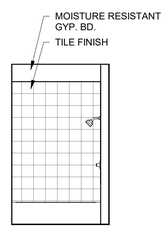
5 UNIT 1 - BATH 1 ELEVATION 2
1/4" = 1'-0"



4 UNIT 1 - BATH 1 ELEVATION 1
1/4" = 1'-0"



8 UNIT 1 - BATH 2 ELEVATION 2
1/4" = 1'-0"



7 UNIT 1 - BATH 2 ELEVATION 1
1/4" = 1'-0"

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PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
UNIT TYPE 1 INTERIOR ELEVATIONS

SHEET NO.
A2.17

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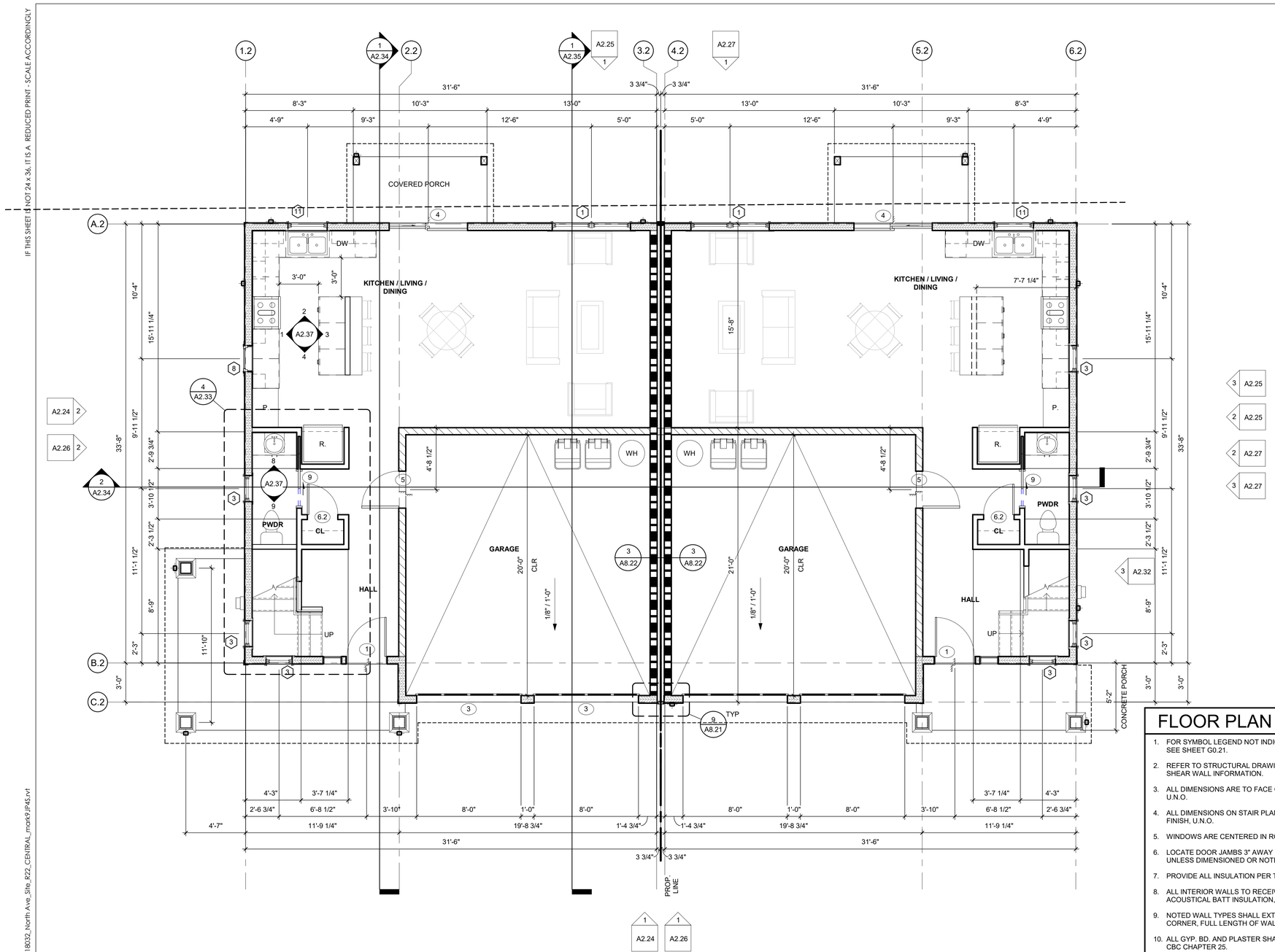
7/25/2023 14:54:17

IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY



1 UNIT 2A - GROUND FLOOR PLAN (UNIT 2A.1 & 2A.2 SIM.)
1/4" = 1'-0"

RES. FLOOR PLAN NOTES

1. STEPS AT INTERIOR DOORS:
   - THE DROP OF THE FLOOR OR LANDING ON EACH SIDE OF THE DOOR SHALL NOT BE MORE THAN 1 1/2" FROM THE TOP OF THE THRESHOLD OF THE DOORWAY.
2. EMERGENCY ESCAPE WINDOWS FOR SLEEPING ROOMS PER CRC R310.2:
   A. MINIMUM NET CLEAR OPERABLE AREA: 5.7 SQ. FT.
   B. MINIMUM NET CLEAR OPERABLE WIDTH: 20 INCHES
   C. MINIMUM NET CLEAR OPERABLE HEIGHT: 24 INCHES
   D. MAXIMUM SILL HEIGHT ABOVE FLOOR: 44 INCHES
3. EXTERIOR DOORS PER CRC R311.3:
   A. CONCRETE LANDINGS TO BE 36" DEEP x FULL WIDTH OF DOOR OPENING.
   B. PROVIDE WEATHER STRIPPING ALL AROUND DOORS.
   C. PROVIDE METAL THRESHOLDS.
   D. LANDINGS OR FLOORS AT THE REQUIRED EGRESS DOOR SHALL NOT BE MORE THAN 1 1/2" (38mm) LOWER THAN THE TOP OF THE THRESHOLD.
   E. THE LANDING OR FLOOR ON THE EXTERIOR SIDE SHALL NOT BE MORE THAN 7 3/4 INCHES (196mm) BELOW THE TOP OF THE THRESHOLD, PROVIDED THE DOOR DOES NOT SWING OVER THE LANDING OR FLOOR.
4. CEILING HEIGHTS PER CRC R305:
   A. MINIMUM CEILING HEIGHT SHALL BE 7'-0" IN ALL HABITABLE SPACES.
   B. MINIMUM CEILING HEIGHT IN BATHROOMS, TOILET ROOMS AND LAUNDRY ROOMS IS 6'-8".
   C. FOR ROOMS W/ SLOPED OPENINGS, THE CODE REQUIRES THAT THE PRESCRIBED HEIGHT BE MAINTAINED IN ONE-HALF THE REQUIRED FLOOR AREA OF THE ROOM, AND NO PORTION OF THE REQUIRED FLOOR AREA MAY HAVE A CEILING HEIGHT OF LESS THAN 5'.
5. ENCLOSED ACCESSIBLE SPACE UNDER STAIR SHALL HAVE WALLS, UNDER-STAIR SURFACE AND ANY SOFFITS PROTECTED ON THE ENCLOSED SIDE WITH 1/2" GYPSUM BOARD. (CRC R302.7)
6. PROVIDE MECHANICAL VENTILATION SYSTEM (EXHAUST FAN) CONTROLLED BY A HUMIDITY CONTROL (CRC R303.1)
   A. VENTILATION RATES MUST HAVE EXHAUST RATES OF 50 CFM INTERMITTENT AND 20 CFM CONTINUOUS.
   B. POINT OF EXHAUST VENT SHALL BE AT LEAST 3'-0" FROM A PROPERTY LINE OR OPENINGS INTO THE BUILDNG SUCH AS DOORS, WINDOWS, OPENING SKYLIGHTS, ATTIC VENTS & 10'-0" FROM A FORCED AIR INLET.
7. TUBS/SHOWERS:
   A. SHOWER & TUB WALLS SHALL HAVE A SMOOTH, HARD, NON-ABSORBENT SURFACE OVER A MOISTURE RESISTANT UNDERLAYMENT TO A HEIGHT OF 72 INCHES (UNLESS NOTES FULL HEIGHT) ABOVE THE FLOOR. (CRC R307.2)
   B. SHOWERS & SHOWER/TUB COMBINATIONS:
      - SHOWER FLOORS: PROVIDE CERAMIC TILE W/ WATERPROOF MEMBRANE
      - WALLS: SET TILE IN MORTAR BED W/METAL LATH O/ WATER RESISTANT TILE BACKER BOARD.
   C. PROVIDE WATER RESISTANT GYPSUM BOARD 12" MIN. BEYOND TUB OR SHOWER. PAINT AND TEXTURE.
8. SHOWER VALVES:
   A. SHOWERS AND TUB-SHOWER COMBINATIONS SHALL BE PROVIDED WITH INDIVIDUAL PRESSURE BALANCE OR THERMOSTATIC MIXING CONTROL VALVES. (CPC 408.3)
   B. THE MAXIMUM MIXED WATER SETTING SHALL BE 120 DEGREES FAHRENHEIT.
   C. WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED AS SUITABLE FOR MEETING THIS REQUIREMENT.
9. WATER CLOSET:
   A. EACH WATER CLOSET STOOL SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH AND HAVE A CLEAR SPACE IN FRONT OF THE WATER CLOSET STOOL OF NOT LESS THAN 24".
   B. WATER CLOSETS ARE TO BE 1.28 GALLONS PER FLUSH, MAX. (UPC 402.0)
10. PROVIDE SHEET METAL PAN & DRAIN UNDER WASHERS LOCATED ON WOOD SUBFLOORS.
11. PROVIDE FIRE BLOCKING PER CRC 302.11.
12. PROVIDE HEAVY DUTY SHELF AND ROD AT ALL CLOSETS, UNO
13. ALL WALLS SEPARATING CONDITIONED FROM NON-CONDITIONED SPACE ARE TO BE INSULATED FULL DEPTH OF WALL, SEE TITLE 24 REPORT.
14. AT LOTS 3 AND 6 , THERE WILL BE NO REAR COVERED PORCH

FLOOR PLAN GEN. NOTES

1. FOR SYMBOL LEGEND NOT INDICATED ON THIS SHEET, SEE SHEET G0.21.
2. REFER TO STRUCTURAL DRAWINGS FOR BEARING & SHEAR WALL INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF STUD OR GRIDLINES, U.N.O.
4. ALL DIMENSIONS ON STAIR PLANS ARE TO FACE OF FINISH, U.N.O.
5. WINDOWS ARE CENTERED IN ROOM, U.N.O.
6. LOCATE DOOR JAMBS 3" AWAY FROM ADJACENT WALL UNLESS DIMENSIONED OR NOTED OTHERWISE.
7. PROVIDE ALL INSULATION PER TITLE 24 REPORT.
8. ALL INTERIOR WALLS TO RECEIVE FULL DEPTH ACOUSTICAL BATT INSULATION, U.N.O.
9. NOTED WALL TYPES SHALL EXTEND FROM CORNER TO CORNER, FULL LENGTH OF WALL, U.N.O.
10. ALL GYP. BD. AND PLASTER SHALL BE INSTALLED PER CBC CHAPTER 25.
11. PROVIDE CONTINUOUS 5/8" TYPE 'X' GYP. BD. AT ALL RATED WALLS WITHOUT GAPS OR BREAKS, TYP. PROVIDE MOISTURE RESISTANT TYPE 'X' GYP. BD. AT ALL HIGH MOISTURE LOCATIONS.
12. PRETREAT FRAMING AT FOUNDATION AND 24" UP ON THE STUDS AND EXTERIOR SHEATHING WITH BORA-CARE TERMITICIDE (OR EQUAL.
13. CONCRETE SUBFLOORS TO RECEIVE RESILIENT FLOORING MUST BE PREPARED ACCORDING TO ALL MANUFACTURER'S REQUIREMENTS, SEE
14. SEE SHEET A3.11 FOR WINDOW SCHEDULE
15. SEE SHEET A3.11 FOR DOOR SCHEDULE
16. FURNITURE SHOWN FOR REFERENCE ONLY AND IS NOT A PART OF THIS APPLICATION
17. REFER TO WINDOW SCHEDULE SHEET FOR LOCATIONS WHERE TEMPERED GLAZING IS REQUIRED

FLOOR PLAN LEGEND

- 2x6 1-HR RATED UNIT SEPARATION WALL
- 2x6 1-HR RATED GARAGE SEPARATION WALL
- 2x6 EXTERIOR WALL
- 2x4 INTERIOR WALL
- 2x6 PLUMBING WALL
- 2x4 PARTIAL HEIGHT WALL
- STEP OR LEVEL CHANGE
- TRASH / RECYCLING BIN
- DS — GSM DOWNSPOUT, PAINT. ROUTE TO PAVED SURFACE OR PROVIDE PRECAST CONCRETE SPLASH BLOCK AT LANDSCAPE AREAS.

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE: 06/02/2022

REVISIONS:

SHEET TITLE: UNIT TYPE 2A PLANS

SHEET NO. A2.21

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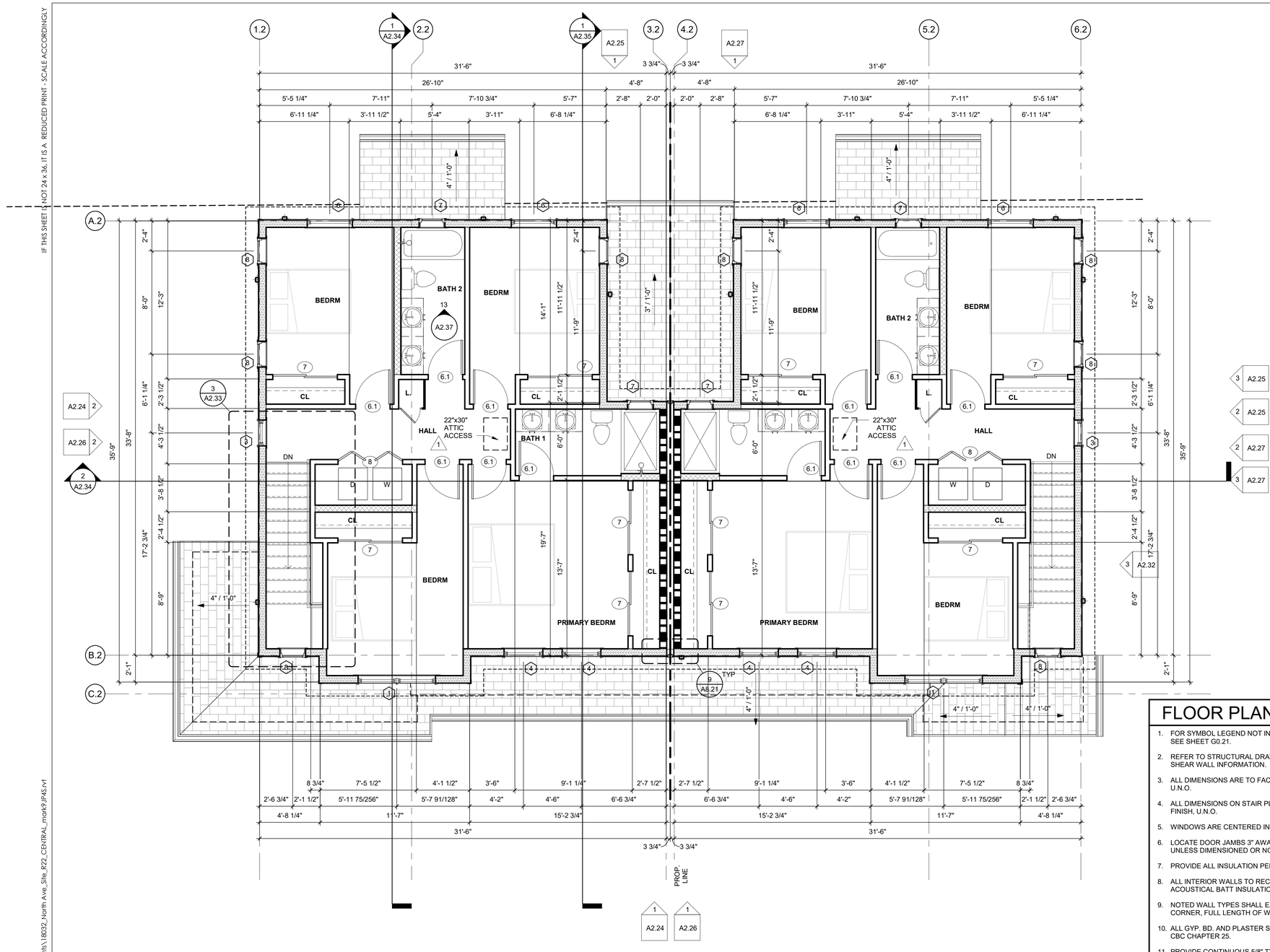

1 UNIT 2A - SECOND FLOOR PLAN (UNIT 2A.1 & 2A.2 SIM.)
1/4" = 1'-0"

RES. FLOOR PLAN NOTES

1. STEPS AT INTERIOR DOORS:
   - THE DROP OF THE FLOOR OR LANDING ON EACH SIDE OF THE DOOR SHALL NOT BE MORE THAN 1 1/2" FROM THE TOP OF THE THRESHOLD OF THE DOORWAY.
2. EMERGENCY ESCAPE WINDOWS FOR SLEEPING ROOMS PER CRC R310.2:
   A. MINIMUM NET CLEAR OPERABLE AREA: 5.7 SQ. FT.
   B. MINIMUM NET CLEAR OPERABLE WIDTH: 20 INCHES
   C. MINIMUM NET CLEAR OPERABLE HEIGHT: 24 INCHES
   D. MAXIMUM SILL HEIGHT ABOVE FLOOR: 44 INCHES
3. EXTERIOR DOORS PER CRC R311.3:
   A. CONCRETE LANDINGS TO BE 36" DEEP x FULL WIDTH OF DOOR OPENING.
   B. PROVIDE WEATHER STRIPPING ALL AROUND DOORS.
   C. PROVIDE METAL THRESHOLDS.
   D. LANDINGS OR FLOORS AT THE REQUIRED EGRESS DOOR SHALL NOT BE MORE THAN 1 1/2" (38mm) LOWER THAN THE TOP OF THE THRESHOLD.
   E. THE LANDING OR FLOOR ON THE EXTERIOR SIDE SHALL NOT BE MORE THAN 7 3/4 INCHES (196mm) BELOW THE TOP OF THE THRESHOLD, PROVIDED THE DOOR DOES NOT SWING OVER THE LANDING OR FLOOR.
4. CEILING HEIGHTS PER CRC R305:
   A. MINIMUM CEILING HEIGHT SHALL BE 7'-0" IN ALL HABITABLE SPACES.
   B. MINIMUM CEILING HEIGHT IN BATHROOMS, TOILET ROOMS AND LAUNDRY ROOMS IS 6'-8".
   C. FOR ROOMS W/ SLOPED OPENINGS, THE CODE REQUIRES THAT THE PRESCRIBED HEIGHT BE MAINTAINED IN ONE-HALF THE REQUIRED FLOOR AREA OF THE ROOM, AND NO PORTION OF THE REQUIRED FLOOR AREA MAY HAVE A CEILING HEIGHT OF LESS THAN 5'.
5. ENCLOSED ACCESSIBLE SPACE UNDER STAIR SHALL HAVE WALLS, UNDER-STAIR SURFACE AND ANY SOFFITS PROTECTED ON THE ENCLOSED SIDE WITH 1/2" GYPSUM BOARD. (CRC R302.7)
6. PROVIDE MECHANICAL VENTILATION SYSTEM (EXHAUST FAN) CONTROLLED BY A HUMIDITY CONTROL (CRC R303.1)
   A. VENTILATION RATES MUST HAVE EXHAUST RATES OF 50 CFM INTERMITTENT AND 20 CFM CONTINUOUS.
   B. POINT OF EXHAUST VENT SHALL BE AT LEAST 3'-0" FROM A PROPERTY LINE OR OPENINGS INTO THE BUILDNG SUCH AS DOORS, WINDOWS, OPENING SKYLIGHTS, ATTIC VENTS & 10'-0" FROM A FORCED AIR INLET.
7. TUBS/SHOWERS:
   A. SHOWER & TUB WALLS SHALL HAVE A SMOOTH, HARD, NON-ABSORBENT SURFACE OVER A MOISTURE RESISTANT UNDERLAYMENT TO A HEIGHT OF 72 INCHES (UNLESS NOTES FULL HEIGHT) ABOVE THE FLOOR. (CRC R307.2)
   B. SHOWERS & SHOWER/TUB COMBINATIONS:
      - SHOWER FLOORS: PROVIDE CERAMIC TILE W/ WATERPROOF MEMBRANE
      - WALLS: SET TILE IN MORTAR BED W/METAL LATH O/ WATER RESISTANT TILE BACKER BOARD
   C. PROVIDE WATER RESISTANT GYPSUM BOARD 12" MIN. BEYOND TUB OR SHOWER. PAINT AND TEXTURE.
8. SHOWER VALVES:
   A. SHOWERS AND TUB-SHOWER COMBINATIONS SHALL BE PROVIDED WITH INDIVIDUAL PRESSURE BALANCE OR THERMOSTATIC MIXING CONTROL VALVES. (CPC 408.3)
   B. THE MAXIMUM MIXED WATER SETTING SHALL BE 120 DEGREES FAHRENHEIT.
   C. WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED AS SUITABLE FOR MEETING THIS REQUIREMENT.
9. WATER CLOSET:
   A. EACH WATER CLOSET STOOL SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH AND HAVE A CLEAR SPACE IN FRONT OF THE WATER CLOSET STOOL OF NOT LESS THAN 24".
   B. WATER CLOSETS ARE TO BE 1.28 GALLONS PER FLUSH, MAX. (UPC 402.0)
10. PROVIDE SHEET METAL PAN & DRAIN UNDER WASHERS LOCATED ON WOOD SUBFLOORS.
11. PROVIDE FIRE BLOCKING PER CRC 302.11.
12. PROVIDE HEAVY DUTY SHELF AND ROD AT ALL CLOSETS, UNO
13. ALL WALLS SEPARATING CONDITIONED FROM NON-CONDITIONED SPACE ARE TO BE INSULATED FULL DEPTH OF WALL, SEE TITLE 24 REPORT.
14. AT LOTS 3 AND 6 , THERE WILL BE NO REAR COVERED PORCH

FLOOR PLAN GEN. NOTES

1. FOR SYMBOL LEGEND NOT INDICATED ON THIS SHEET, SEE SHEET G0.21.
2. REFER TO STRUCTURAL DRAWINGS FOR BEARING & SHEAR WALL INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF STUD OR GRIDLINES, U.N.O.
4. ALL DIMENSIONS ON STAIR PLANS ARE TO FACE OF FINISH, U.N.O.
5. WINDOWS ARE CENTERED IN ROOM, U.N.O.
6. LOCATE DOOR JAMBS 3" AWAY FROM ADJACENT WALL UNLESS DIMENSIONED OR NOTED OTHERWISE.
7. PROVIDE ALL INSULATION PER TITLE 24 REPORT.
8. ALL INTERIOR WALLS TO RECEIVE FULL DEPTH ACOUSTICAL BATT INSULATION, U.N.O.
9. NOTED WALL TYPES SHALL EXTEND FROM CORNER TO CORNER, FULL LENGTH OF WALL, U.N.O.
10. ALL GYP. BD. AND PLASTER SHALL BE INSTALLED PER CBC CHAPTER 25.
11. PROVIDE CONTINUOUS 5/8" TYPE 'X' GYP. BD. AT ALL RATED WALLS WITHOUT GAPS OR BREAKS, TYP. PROVIDE MOISTURE RESISTANT TYPE 'X' GYP. BD. AT ALL HIGH MOISTURE LOCATIONS.
12. PRETREAT FRAMING AT FOUNDATION AND 24" UP ON THE STUDS AND EXTERIOR SHEATHING WITH BORA-CARE TERMITICIDE (OR EQUAL.
13. CONCRETE SUBFLOORS TO RECEIVE RESILIENT FLOORING MUST BE PREPARED ACCORDING TO ALL MANUFACTURER'S REQUIREMENTS, SEE
14. SEE SHEET A3.11 FOR WINDOW SCHEDULE
15. SEE SHEET A3.11 FOR DOOR SCHEDULE
16. FURNITURE SHOWN FOR REFERENCE ONLY AND IS NOT A PART OF THIS APPLICATION
17. REFER TO WINDOW SCHEDULE SHEET FOR LOCATIONS WHERE TEMPERED GLAZING IS REQUIRED

FLOOR PLAN LEGEND

- 2x6 1-HR RATED UNIT SEPARATION WALL
- 2x6 1-HR RATED GARAGE SEPARATION WALL
- 2x6 EXTERIOR WALL
- 2x4 INTERIOR WALL
- 2x6 PLUMBING WALL
- 2x4 PARTIAL HEIGHT WALL
- STEP OR LEVEL CHANGE
- TRASH / RECYCLING BIN
- DS — GSM DOWNSPOUT, PAINT. ROUTE TO PAVED SURFACE OR PROVIDE PRECAST CONCRETE SPLASH BLOCK AT LANDSCAPE AREAS.

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT — SARAH HERSES IAN ELLIS — C-29460 — REN. 07-31-25 — STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES
DARREN BROWN
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN # 237-0020-092

PLAN CHECK SET

DATE: 06/02/2022

REVISIONS:

1	CYC2	02.22.2023

SHEET TITLE: UNIT TYPE 2A PLANS

SHEET NO. A2.22

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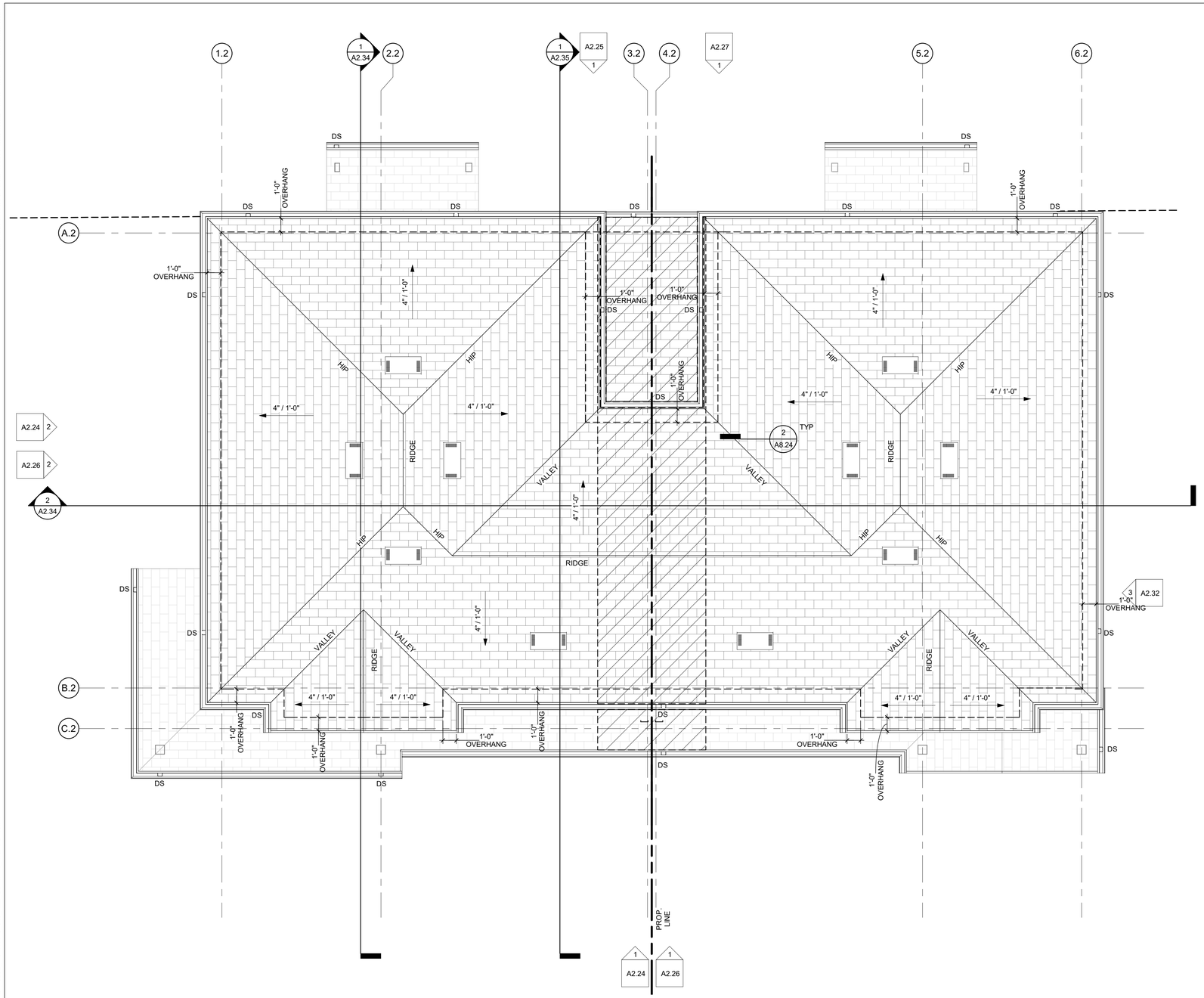


1 UNIT 2A - ROOF PLAN (UNIT 2A.1 & 2A.2 SIM.)
1/4" = 1'-0"

ROOF PLAN NOTES

ASPHALT SHINGLE ROOFING SYSTEM

1. ROOFING TO MEET UL CLASS A RATING AND CRRC COOL ROOF REQUIREMENTS - COLOR AS SELECTED BY ARCHITECT.
2. INSTALLATION:
   - A. INSTALL USING METHODS RECOMMENDED BY MANUFACTURER AND IN ACCORDANCE WITH CBC CHAPTER 15. WHEN CBC REQUIREMENTS AND APPLICATION INSTRUCTIONS ARE IN CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL TAKE PRECEDENCE.
   - B. EAVES AND RAKES:
     - a. INSTALL EAVES EDGE METAL FLASHING TIGHT WITH FASCIA BOARDS; LAP JOINTS 2 INCHES AND SEAL WITH PLASTIC CEMENT OR HIGH QUALITY URETHANE SEALANT; NAIL AT THE TOP OF THE FLANGE.
     - b. INSTALL BITUMINOUS LEAK BARRIER CONTINUOUS ALONG EAVES AND RAKES A FULL 36 INCHES WIDE. LAP ENDS 6 INCHES AND BOND.
   - C. RIDGES AND VALLEYS: INSTALL LEAK BARRIER CONTINUOUS ALONG RIDGES AND VALLEYS A FULL 36 INCHES WIDE. LAP ENDS 6 INCHES AND BOND. PROVIDE METAL VALLEY FLASHING AT ALL VALLEYS - COLOR TO MATCH ROOFING.
   - D. INSTALL TWO LAYERS OF TYPE 30 PREMIUM, WATER REPELLANT NON-ASPHALTIC UNDERLAYMENT THAT MEETS OR EXCEEDS ASTM D226.
   - E. PROVIDE ELBOW & SHEET METAL SPLASH AT ASPHALT SHINGLE ROOFS WHERE DOWNSPOUTS LAND AT LOWER ROOF SURFACES.

GENERAL ROOFING NOTES

1. DOWNSPOUTS SHALL BE 3" DIAMETER SCHEDULE 40, ROUND GALVANIZED DOWNSPOUTS UNLESS OTHERWISE NOTED. GSM DOWNPOUTS CAN BE SUBSTITUTED UPON OWNERS APPROVAL. PAINT TO MATCH ADJACENT SURFACES. SEE ELEVATIONS FOR ADDITIONAL DOWNSPOUT INFORMATION.
2. MAJOR PENETRATIONS TO BE 24" FROM EACH OTHER AND PARAPET WALLS
3. PROVIDE AND INSTALL EAVE VENTS PER ATTIC VENT CALCULATIONS - COORDINATE LOCATIONS WITH ARCHITECT
4. PROVIDE AND INSTALL ROOF VENTS PER ATTIC VENT CALCULATIONS - COORDINATE LOCATION WITH ARCHITECT.
5. SEE ROOF DETAIL SHEETS FOR ADDITIONAL INFORMATION
6. AREAS INDICATED TO RECEIVE FIRE RETARDANT TREATED PLYWOOD SHALL HAVE NO OPENINGS OR PENETRATIONS.

ROOF PLAN LEGEND

- DS — GSM DOWNSPOUT, PAINT. ROUTE TO PAVED SURFACE OR PROVIDE PRECAST CONCRETE SPLASH BLOCK AT LANDSCAPE AREAS.
- LINE OF WALL BELOW
- ROOF DECKING OR SHEATHING IS OF NONCOMBUSTIBLE MATERIAL OR APPROVED FIRE-RETARDANT-TREATED WOOD FOR A DISTANCE OF 4'-0" ON EACH SIDE OF THE WALL OR WALLS, OR (1) LAYER OF 5/8" TYPE 'X' GYP. BD. IS INSTALLED DIRECTLY BENEATH THE ROOF DECKING OR SHEATHING FOR A DISTANCE OF NOT LESS THAN 4'-0" ON EACH SIDE OF THE WALL OR WALLS AND ANY OPENING OR PENETRATIONS IN THE ROOF ARE NOT WITHIN 4'-0" **(CRC 302.2.2 ITEM 2 EXCEPTION)**

ATTIC VENT. CALCS.

TOTAL ATTIC AREA = ***2222*** S.F. MAIN ROOF

REQUIRED FREE VENT AREA (1/300) = ***2222*** S.F./300 = ***7.41*** S.F.
(PURSUANT TO SECTION R806.2, EXCEPTION 2)

7.41 S.F. x ***144*** = ***1067*** SQ. IN.

ROOF VENTS = ***64.8*** SQ. IN. x ***9 = 583.2*** SQ. IN.

GABLE VENT = ***254*** SQ. IN. x **2** = ***508*** SQ. IN.

TOTAL FREE VENT AREA = ***1091.2*** SQ. IN. > **1067** SQ. IN. = OK

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-25
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

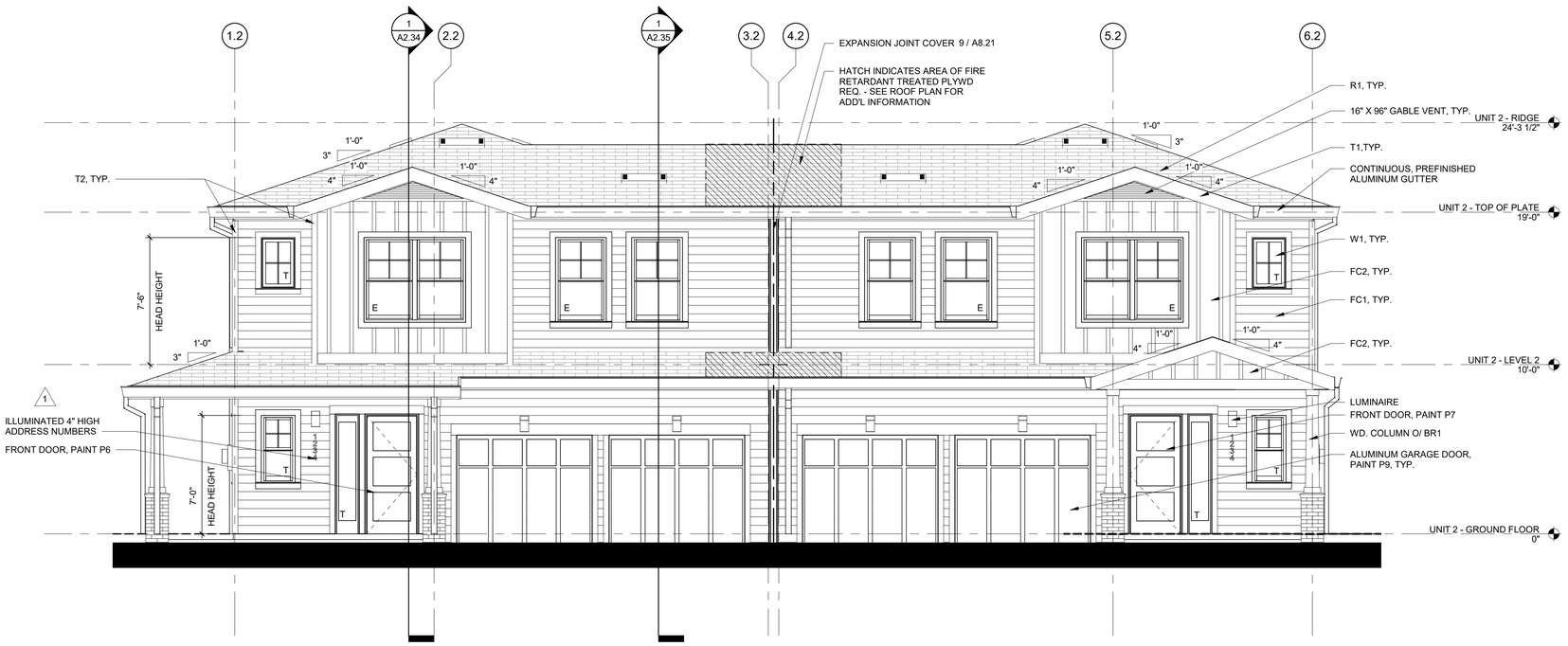
PLAN CHECK SET

DATE:
06/02/2022

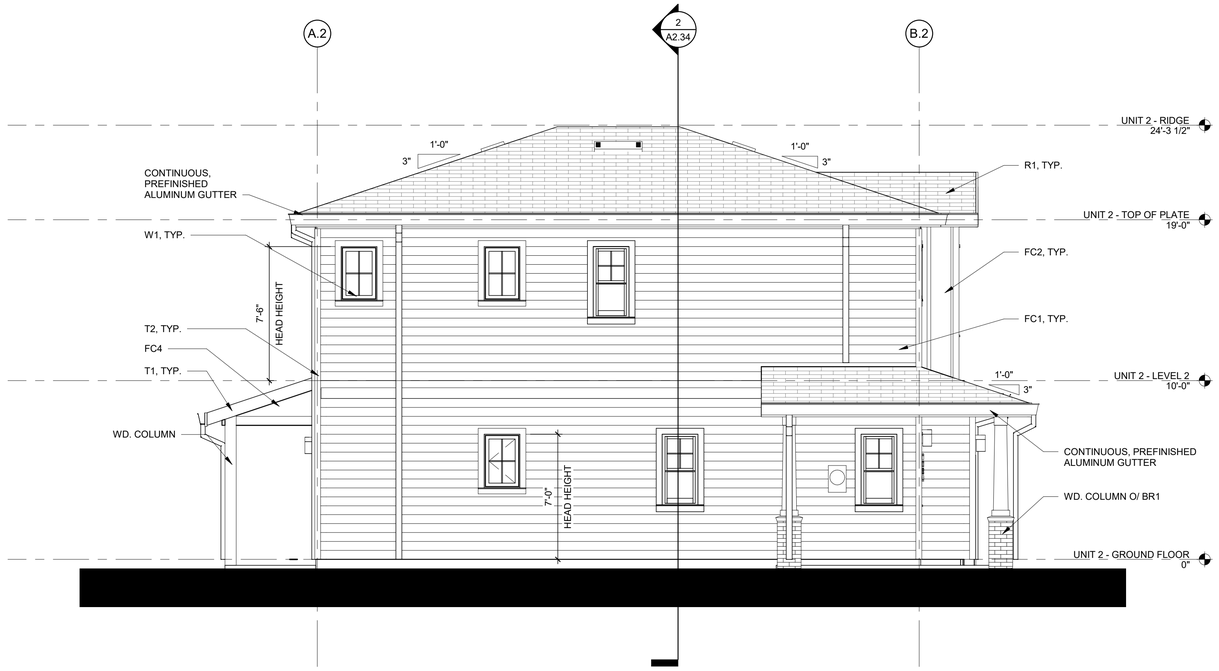
REVISIONS:

SHEET TITLE
UNIT TYPE 2A PLANS

SHEET NO.
A2.23



1 UNIT 2A.1 - FRONT ELEVATION
1/4" = 1'-0"



2 UNIT 2A.1 - LEFT SIDE ELEVATION
1/4" = 1'-0"

EXT. ELEVATION NOTES

1. ARCHITECT MUST REVIEW ALL COLORS AND MATERIALS BEFORE INSTALLATION.
2. WINDOWS MARKED WITH 'E' SHALL BE EMERGENCY ESCAPE AND RESCUE OPENINGS. SEE WINDOW SCHEDULE FOR ADDITIONAL INFORMATION.
3. ALL WALLS SEPARATING CONDITIONED FROM NON-CONDITIONED SPACE ARE TO BE INSULATED PER TITLE-24 REPORT.
4. GUTTERS AND DOWNSPOUTS TO BE PAINTED TO MATCH ADJACENT FINISH.
5. ALL EXTERIOR EXPOSED CONCRETE AND BRICK MASONRY WALLS SHALL HAVE ANTI-GRAFFITI COATING APPLIED TO ALL EXPOSED SURFACES.
6. PROVIDE 'QUICKFLASH' OR EQUIVALENT PRODUCTS AT ALL ELECTRICAL, MECHANICAL AND PLUMBING PENETRATIONS.
7. DUCT EXHAUST SHALL TERMINATE NOT LESS THAN 3'-0" FROM PROPERTY LINE, 10'-0" FROM FORCED AIR INLET AND 3'-0" FROM OPENING INTO THE BUILDING. EXHAUST DUCTS SHALL NOT DISCHARGE ONTO A PUBLIC WAY
8. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL BE A MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF ½ INCH. NUMBERS SHALL NOT BE SPELLED OUT. THESE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESSING SHALL BE ILLUMINATED AT NIGHT IN ALL NEW BUILDINGS. ADDRESS SIGNS SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED. WHEN THE LUMINANCE OR THE FACE OF A SIGN IS FROM AN EXTERNAL SOURCE, IT SHALL HAVE AN INTENSITY OF NOT LESS THAN 5.0 FOOT-CANDLES. INTERNALLY ILLUMINATED SIGNS SHALL PROVIDE EQUIVALENT LUMINANCE

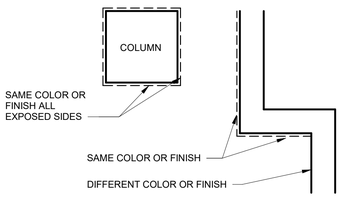
EXT. FINISH SCHEDULE

NOTES:
- CONSTRUCTION MUST CONFORM TO THE DESIGN APPROVED BY THE PLANNING DEPARTMENT IN THE CONDITIONS OF APPROVAL.
- ARCHITECT MUST REVIEW ALL COLORS AND MATERIALS BEFORE INSTALLATION.

MAT.#	DESCRIPTION	LEGEND
FC1	FIBER CEMENT LAP SIDING - 7" EXPOSURE **MFR:** "JAMES HARDIE - HARDIEPLANK" SELECT CEDAR MILL **COLOR:** ARCTIC WHITE	
FC2	FIBER CEMENT BOARD AND BATTEN SIDING **MFR:** "JAMES HARDIE - PANEL VERTICAL SIDING" SELECT CEDAR MILL **COLOR:** ARCTIC WHITE	
FC3	FIBER CEMENT SHINGLE SIDING **MFR:** "JAMES HARDIE - SHINGLE SIDING" STRAIGHT EDGE PANEL **COLOR:** ARCTIC WHITE	
FC4	FIBER CEMENT SIDING **MFR:** "JAMES HARDIE - FLAT PANEL" **COLOR:** ARCTIC WHITE	
BR1	THIN BRICK **MFR:** HC MUDDOX **PRODUCT:** THIN BRICK **COLOR:** EBONY	
T1	FIBER CEMENT TRIM **MFR:** "JAMES HARDIE - HARDIETRIM" 4/4 SMOOTH GRAIN, 3.5" WIDTH **COLOR:** SW2844, ROYCROFT MIST GRAY	
T2	FIBER CEMENT CORNER TRIM **MFR:** "JAMES HARDIE - HARDIETRIM" 4/4 SMOOTH GRAIN, 4" WIDTH **COLOR:** SW2844, ROYCROFT MIST GRAY	
R1	COMPOSITION SHINGLE ROOFING **MFR:** OWENS CORNING **PRODUCT:** DURATION COOL PLUS **COLOR:** MYSTIC GRAY **SRI:** 0.21 **CRRC PRODUCT ID:** 0890-0032	
W1	VINYL WINDOW **MFR:** TBD **COLOR:** BRONZE	
P4	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6432, GARDEN SPOT	
P5	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6943, INTENSE TEAL	
P6	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6615, PEPPERY	
P7	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW9149, INKY BLUE	
P9	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6167, GARDEN GATE	

2

TYP. COLOR/FINISH TERM.



NOTE:
ALL PAINT COLORS AND FINISHES SHALL TERMINATE AT AN INSIDE CORNER, CONTROL JOINT, ETC, U.O.N.

PLAN OR SECTION

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
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APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

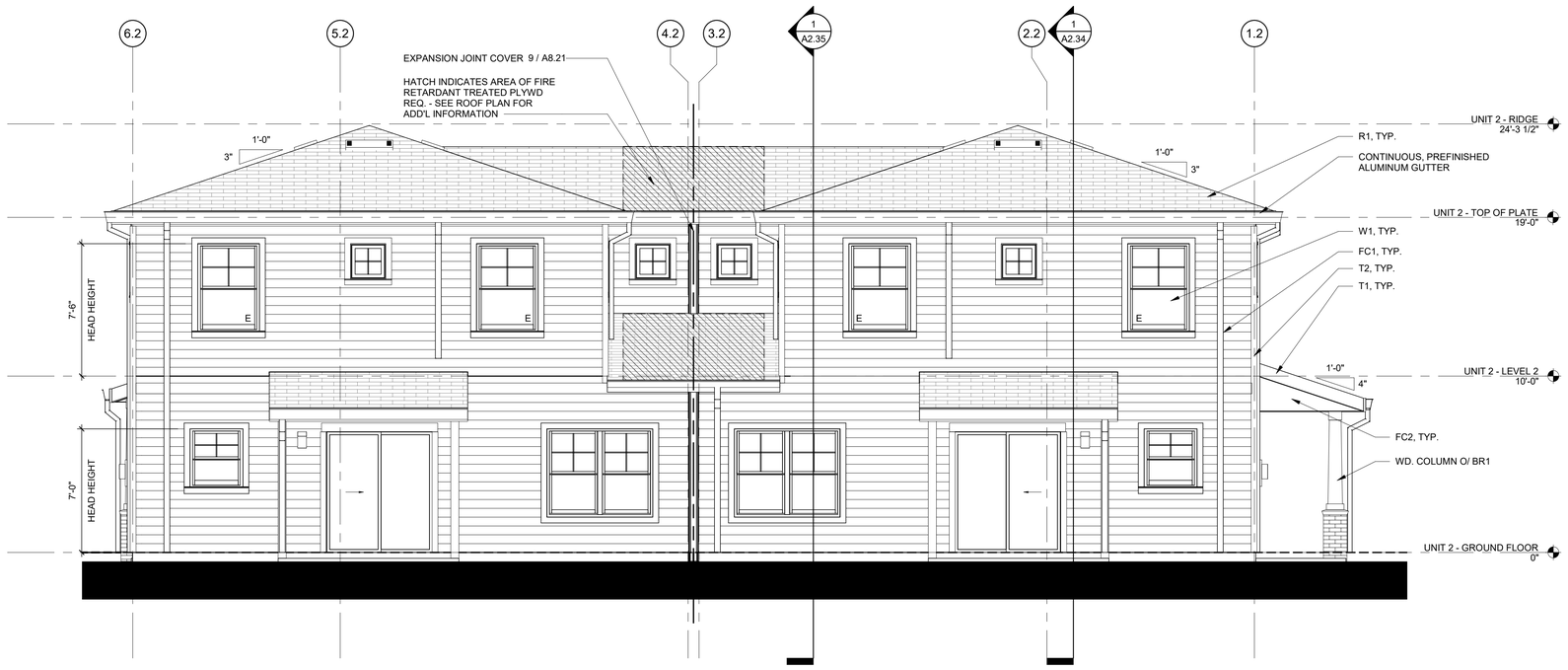
REVISIONS:

1	CYC2	02.22.2023
2	CYC3	05.19.2023

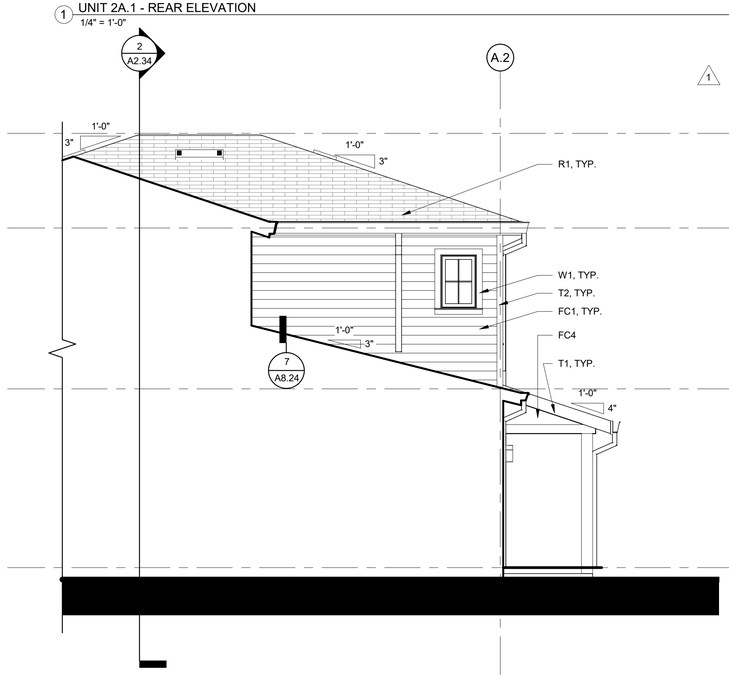
SHEET TITLE
UNIT TYPE 2A.1 ELEVATIONS

SHEET NO.
A2.24

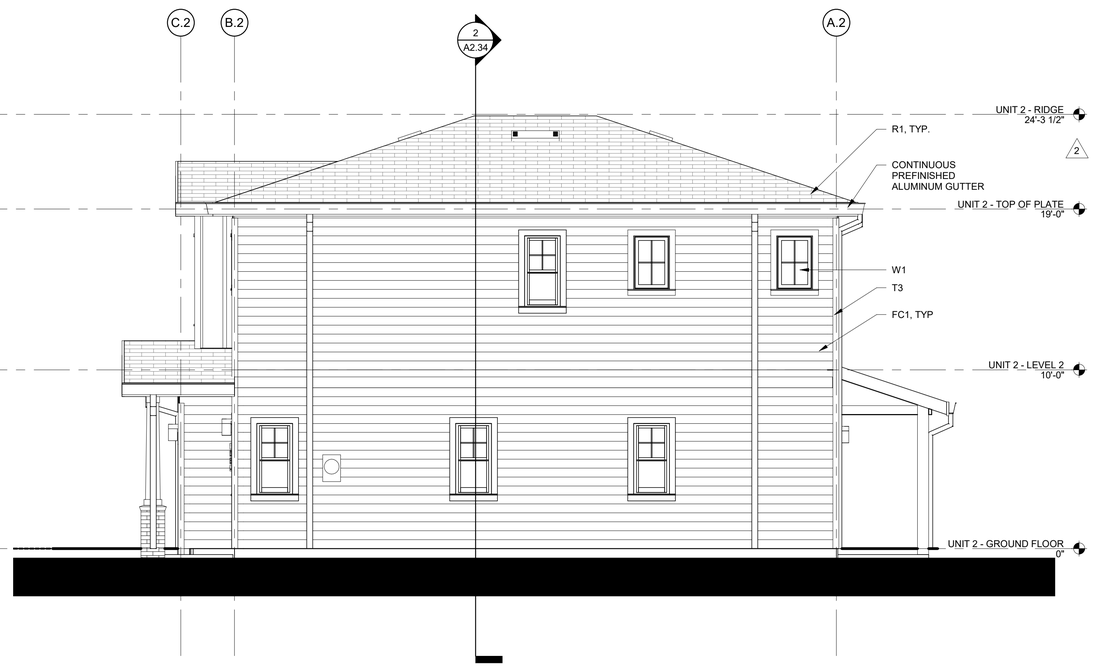
IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY



1 UNIT 2A.1 - REAR ELEVATION
1/4" = 1'-0"



2 UNIT 2A.1 - PARTIAL ADJOINED SIDE ELEVATION
1/4" = 1'-0"



3 UNIT 2A.1 - RIGHT SIDE ELEVATION
1/4" = 1'-0"

EXT. ELEVATION NOTES

1. ARCHITECT MUST REVIEW ALL COLORS AND MATERIALS BEFORE INSTALLATION.
2. WINDOWS MARKED WITH 'E' SHALL BE EMERGENCY ESCAPE AND RESCUE OPENINGS. SEE WINDOW SCHEDULE FOR ADDITIONAL INFORMATION.
3. ALL WALLS SEPARATING CONDITIONED FROM NON-CONDITIONED SPACE ARE TO BE INSULATED PER TITLE-24 REPORT.
4. GUTTERS AND DOWNSPOUTS TO BE PAINTED TO MATCH ADJACENT FINISH.
5. ALL EXTERIOR EXPOSED CONCRETE AND BRICK MASONRY WALLS SHALL HAVE ANTI-GRAFFITI COATING APPLIED TO ALL EXPOSED SURFACES.
6. PROVIDE 'QUICKFLASH' OR EQUIVALENT PRODUCTS AT ALL ELECTRICAL, MECHANICAL AND PLUMBING PENETRATIONS.
7. DUCT EXHAUST SHALL TERMINATE NOT LESS THAN 3'-0" FROM PROPERTY LINE, 10'-0" FROM FORCED AIR INLET AND 3'-0" FROM OPENING INTO THE BUILDING. EXHAUST DUCTS SHALL NOT DISCHARGE ONTO A PUBLIC WAY
8. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL BE A MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF ½ INCH. NUMBERS SHALL NOT BE SPELLED OUT. THESE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESSING SHALL BE ILLUMINATED AT NIGHT IN ALL NEW BUILDINGS. ADDRESS SIGNS SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED. WHEN THE LUMINANCE OR THE FACE OF A SIGN IS FROM AN EXTERNAL SOURCE, IT SHALL HAVE AN INTENSITY OF NOT LESS THAN 5.0 FOOT-CANDLES. INTERNALLY ILLUMINATED SIGNS SHALL PROVIDE EQUIVALENT LUMINANCE

EXT. FINISH SCHEDULE

NOTES:
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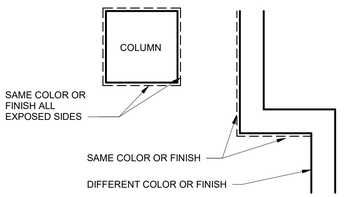
- ARCHITECT MUST REVIEW ALL COLORS AND MATERIALS BEFORE INSTALLATION.

MAT.#	DESCRIPTION	LEGEND
FC1	FIBER CEMENT LAP SIDING - 7" EXPOSURE **MFR:** "JAMES HARDIE - HARDIEPLANK" SELECT CEDAR MILL **COLOR:** ARCTIC WHITE	
FC2	FIBER CEMENT BOARD AND BATTEN SIDING **MFR:** "JAMES HARDIE - PANEL VERTICAL SIDING" SELECT CEDAR MILL **COLOR:** ARCTIC WHITE	
FC3	FIBER CEMENT SHINGLE SIDING **MFR:** "JAMES HARDIE - SHINGLE SIDING" STRAIGHT EDGE PANEL **COLOR:** ARCTIC WHITE	
FC4	FIBER CEMENT SIDING **MFR:** "JAMES HARDIE - FLAT PANEL" **COLOR:** ARCTIC WHITE	
BR1	THIN BRICK **MFR:** HC MUDDOX **PRODUCT:** THIN BRICK **COLOR:** EBONY	
T1	FIBER CEMENT TRIM **MFR:** "JAMES HARDIE - HARDIETRIM" 4/4 SMOOTH GRAIN, 3.5" WIDTH **COLOR:** SW2844, ROYCROFT MIST GRAY	
T2	FIBER CEMENT CORNER TRIM **MFR:** "JAMES HARDIE - HARDIETRIM" 4/4 SMOOTH GRAIN, 4" WIDTH **COLOR:** SW2844, ROYCROFT MIST GRAY	
R1	COMPOSITION SHINGLE ROOFING **MFR:** OWENS CORNING **PRODUCT:** DURATION COOL PLUS **COLOR:** MYSTIC GRAY **SRI:** 0.21 **CRRC PRODUCT ID:** 0890-0032	
W1	VINYL WINDOW **MFR:** TBD **COLOR:** BRONZE	
P4	EXTERIOR PAINT **MFR**: SHERWIN WILLIAMS **COLOR**: SW6432, GARDEN SPOT	
P5	EXTERIOR PAINT **MFR**: SHERWIN WILLIAMS **COLOR**: SW6943, INTENSE TEAL	
P6	EXTERIOR PAINT **MFR**: SHERWIN WILLIAMS **COLOR**: SW6615, PEPPERY	
P7	EXTERIOR PAINT **MFR**: SHERWIN WILLIAMS **COLOR**: SW9149, INKY BLUE	
P9	EXTERIOR PAINT **MFR**: SHERWIN WILLIAMS **COLOR**: SW6167, GARDEN GATE	

TYP. COLOR/FINISH TERM.



NOTE:
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PLAN OR SECTION

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-25
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:

06/02/2022

REVISIONS:

1	CYC2	02.22.2023
2	CYC3	05.19.2023

SHEET TITLE

UNIT TYPE 2A.1 ELEVATIONS

SHEET NO.

A2.25

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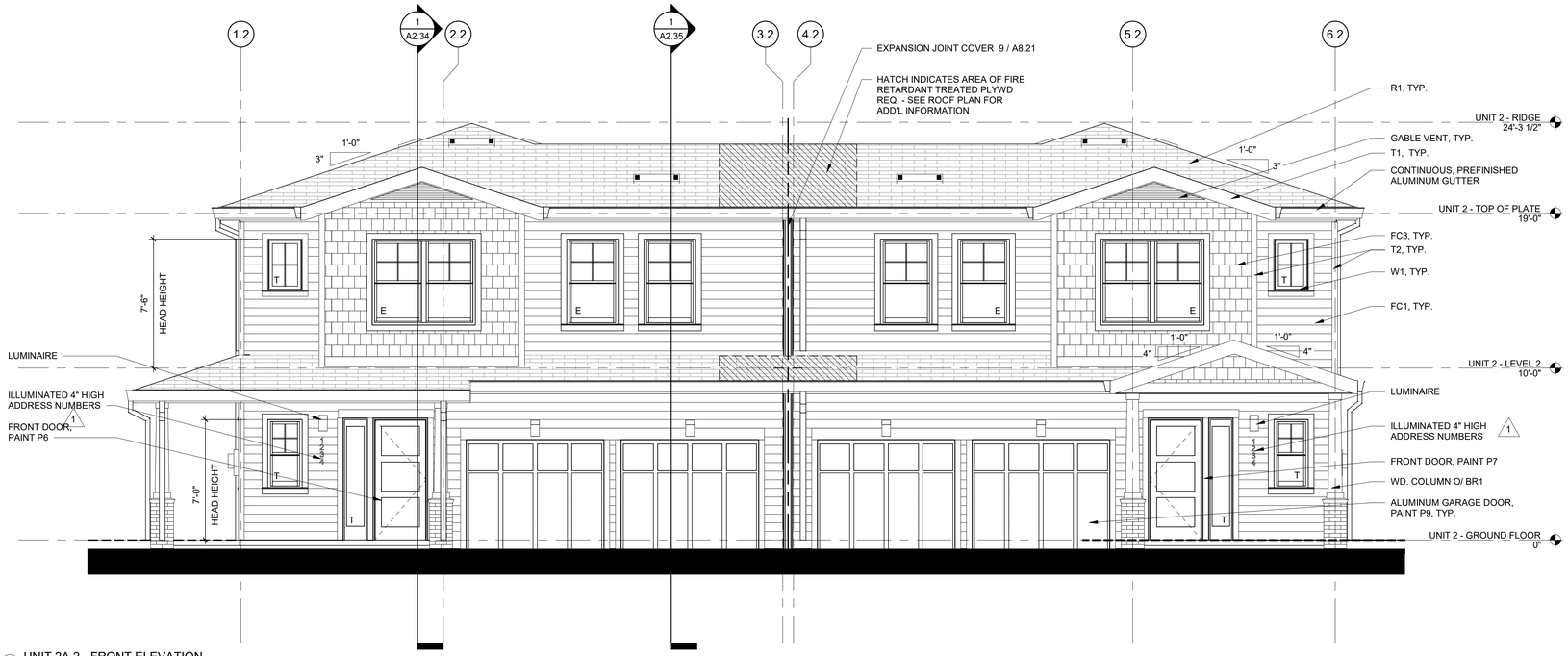
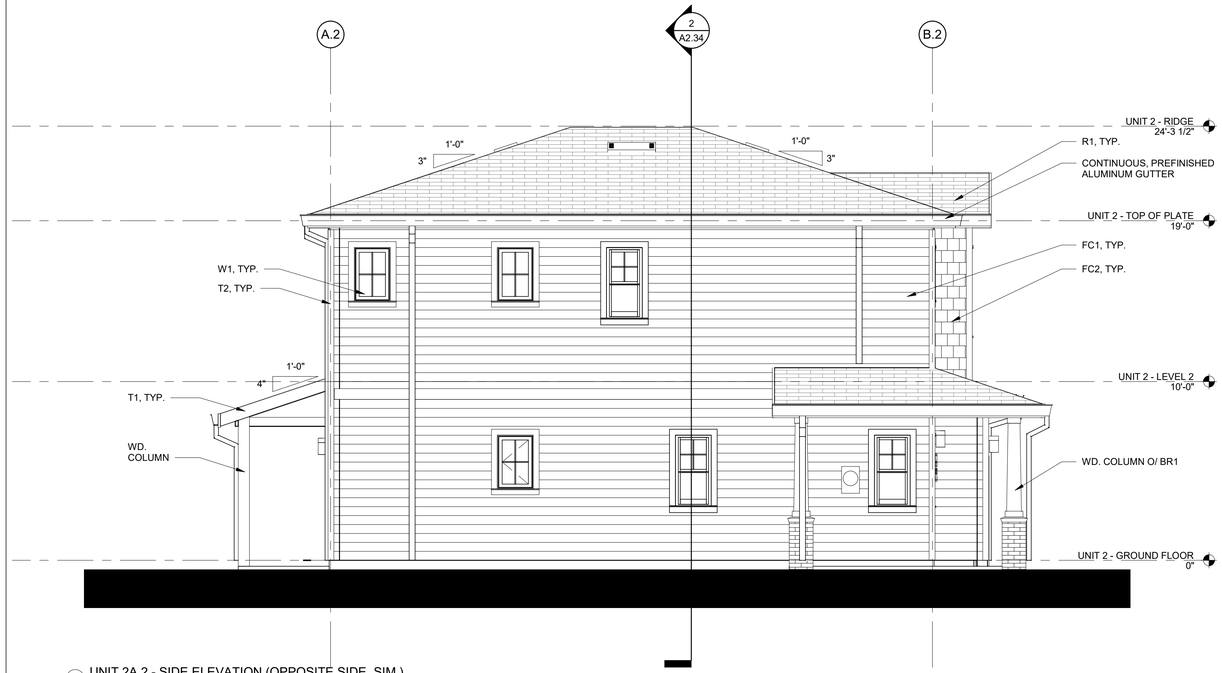


1 UNIT 2A.2 - FRONT ELEVATION
1/4" = 1'-0"



2 UNIT 2A.2 - SIDE ELEVATION (OPPOSITE SIDE, SIM.)
1/4" = 1'-0"

EXT. ELEVATION NOTES

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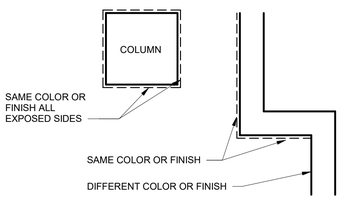
2

TYP. COLOR/FINISH TERM.



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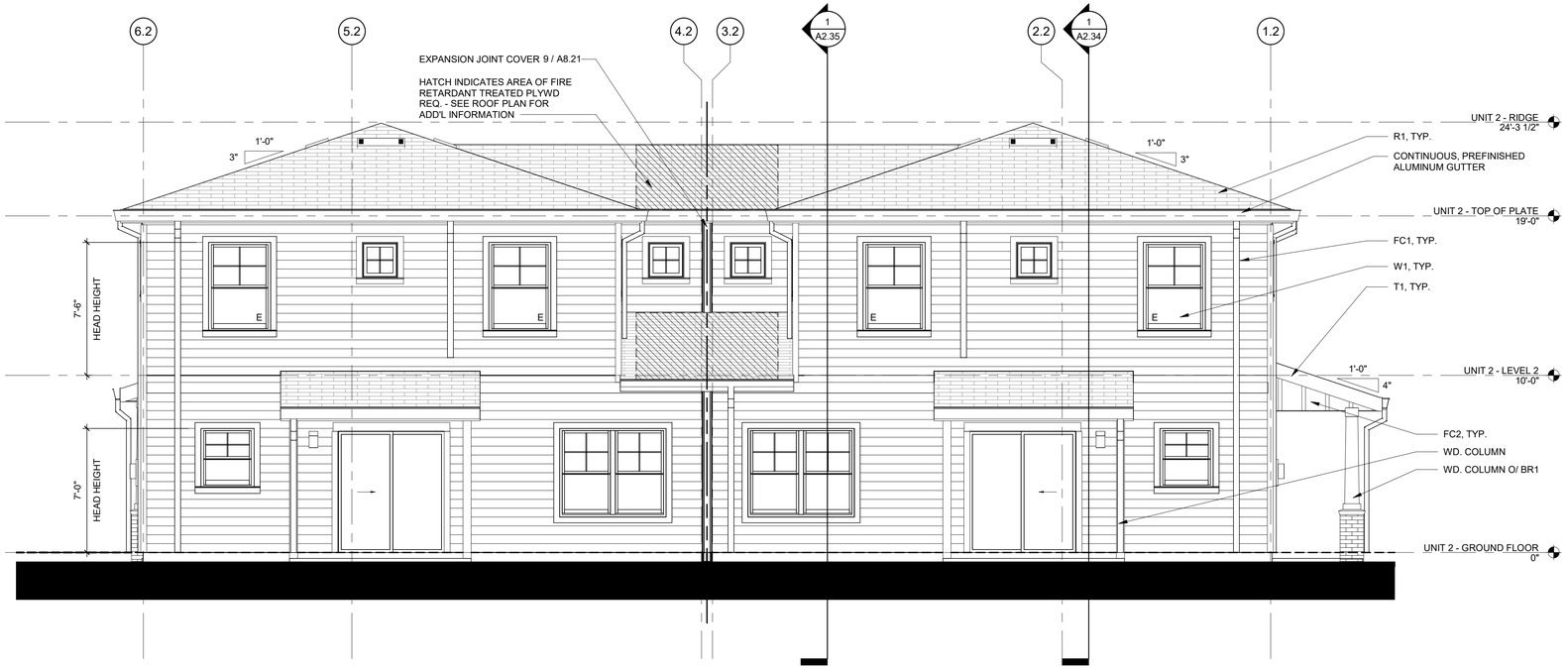
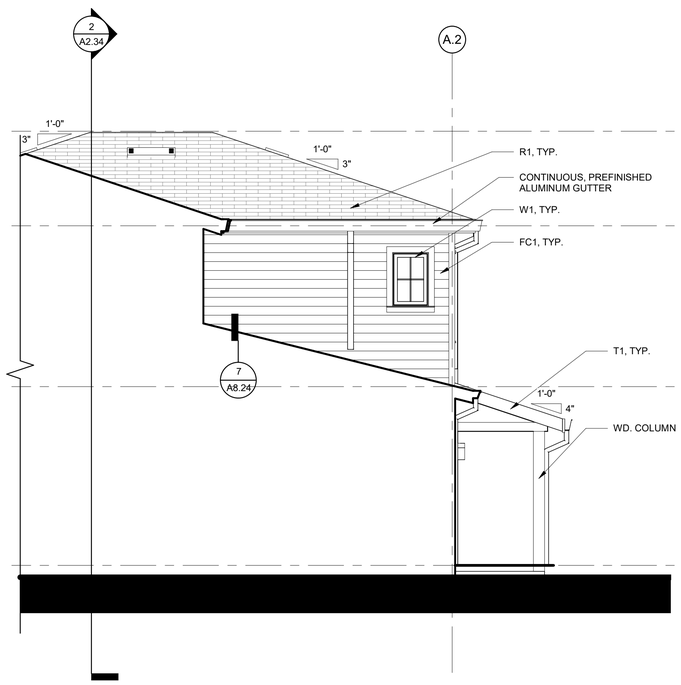
1	CYC2	02.22.2023
2	CYC3	05.19.2023

SHEET TITLE
UNIT TYPE 2A.2 ELEVATIONS

SHEET NO.
A2.26



1 UNIT 2A.2 - REAR ELEVATION
1/4" = 1'-0"



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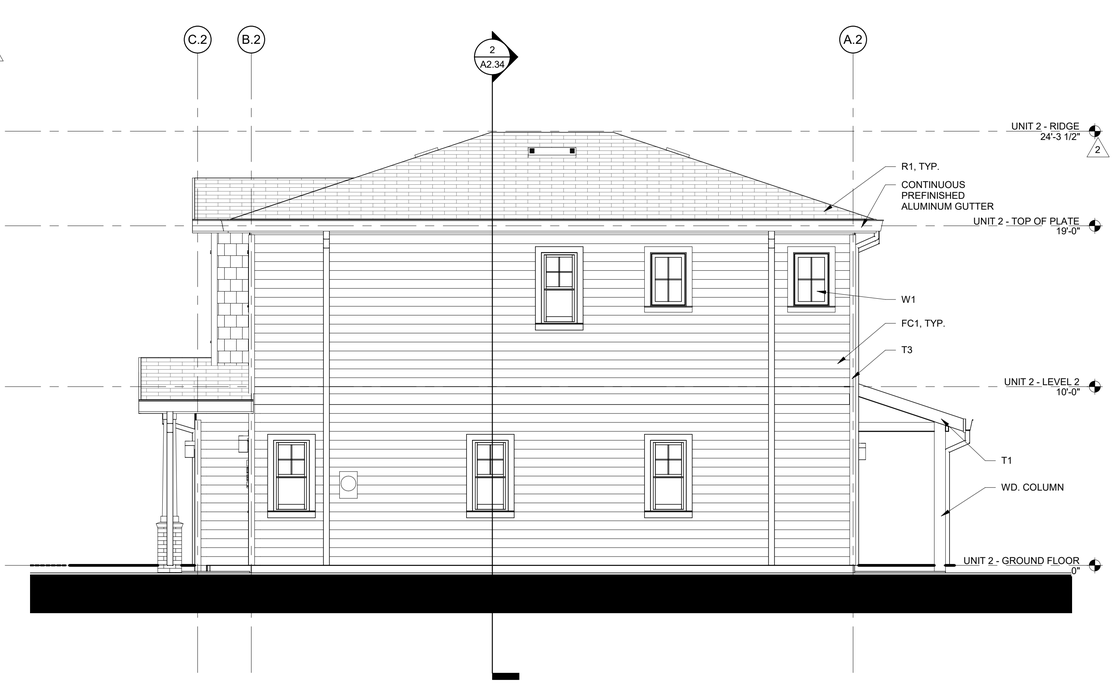

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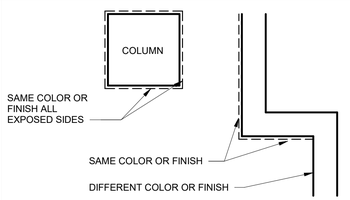

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SHEET TITLE
UNIT TYPE 2A.2 ELEVATIONS

SHEET NO.
A2.27

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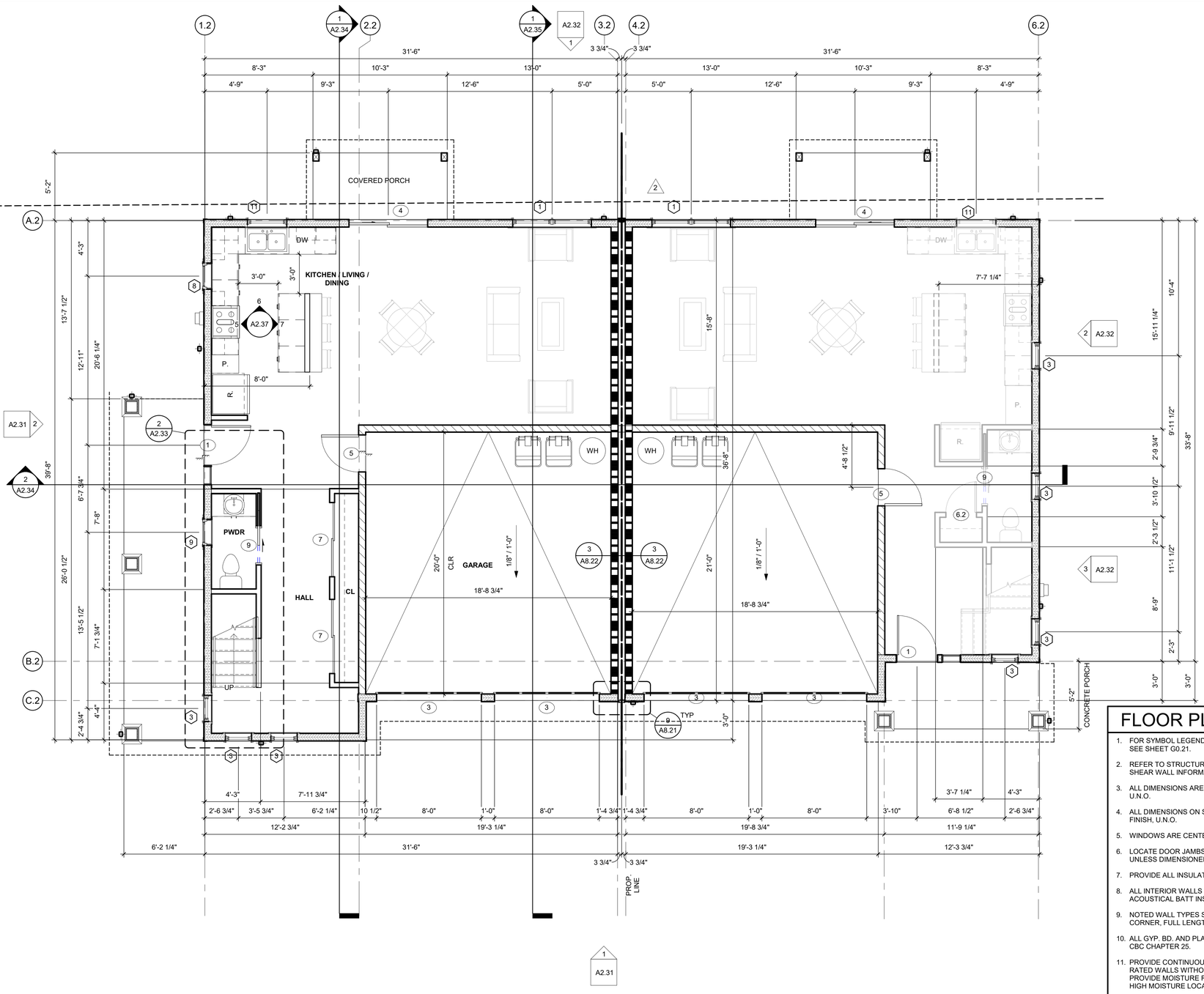

1 UNIT 2B - GROUND FLOOR PLAN
1/4" = 1'-0"

RES. FLOOR PLAN NOTES

1. STEPS AT INTERIOR DOORS:
   - THE DROP OF THE FLOOR OR LANDING ON EACH SIDE OF THE DOOR SHALL NOT BE MORE THAN 1 1/2" FROM THE TOP OF THE THRESHOLD OF THE DOORWAY.
2. EMERGENCY ESCAPE WINDOWS FOR SLEEPING ROOMS PER CRC R310.2:
   A. MINIMUM NET CLEAR OPERABLE AREA: 5.7 SQ. FT.
   B. MINIMUM NET CLEAR OPERABLE WIDTH: 20 INCHES
   C. MINIMUM NET CLEAR OPERABLE HEIGHT: 24 INCHES
   D. MAXIMUM SILL HEIGHT ABOVE FLOOR: 44 INCHES
3. EXTERIOR DOORS PER CRC R311.3:
   A. CONCRETE LANDINGS TO BE 36" DEEP x FULL WIDTH OF DOOR OPENING.
   B. PROVIDE WEATHER STRIPPING ALL AROUND DOORS.
   C. PROVIDE METAL THRESHOLDS.
   D. LANDINGS OR FLOORS AT THE REQUIRED EGRESS DOOR SHALL NOT BE MORE THAN 1 1/2" (38mm) LOWER THAN THE TOP OF THE THRESHOLD.
   E. THE LANDING OR FLOOR ON THE EXTERIOR SIDE SHALL NOT BE MORE THAN 7 3/4 INCHES (196mm) BELOW THE TOP OF THE THRESHOLD, PROVIDED THE DOOR DOES NOT SWING OVER THE LANDING OR FLOOR.
4. CEILING HEIGHTS PER CRC R305:
   A. MINIMUM CEILING HEIGHT SHALL BE 7'-0" IN ALL HABITABLE SPACES.
   B. MINIMUM CEILING HEIGHT IN BATHROOMS, TOILET ROOMS AND LAUNDRY ROOMS IS 6'-8".
   C. FOR ROOMS W/ SLOPED OPENINGS, THE CODE REQUIRES THAT THE PRESCRIBED HEIGHT BE MAINTAINED IN ONE-HALF THE REQUIRED FLOOR AREA OF THE ROOM, AND NO PORTION OF THE REQUIRED FLOOR AREA MAY HAVE A CEILING HEIGHT OF LESS THAN 5'.
5. ENCLOSED ACCESSIBLE SPACE UNDER STAIR SHALL HAVE WALLS, UNDER-STAIR SURFACE AND ANY SOFFITS PROTECTED ON THE ENCLOSED SIDE WITH 1/2" GYPSUM BOARD. (CRC R302.7)
6. PROVIDE MECHANICAL VENTILATION SYSTEM (EXHAUST FAN) CONTROLLED BY A HUMIDITY CONTROL (CRC R303.1)
   A. VENTILATION RATES MUST HAVE EXHAUST RATES OF 50 CFM INTERMITTENT AND 20 CFM CONTINUOUS.
   B. POINT OF EXHAUST VENT SHALL BE AT LEAST 3'-0" FROM A PROPERTY LINE OR OPENINGS INTO THE BUILDNG SUCH AS DOORS, WINDOWS, OPENING SKYLIGHTS, ATTIC VENTS & 10'-0" FROM A FORCED AIR INLET.
7. TUBS/SHOWERS:
   A. SHOWER & TUB WALLS SHALL HAVE A SMOOTH, HARD, NON-ABSORBENT SURFACE OVER A MOISTURE RESISTANT UNDERLAYMENT TO A HEIGHT OF 72 INCHES (UNLESS NOTES FULL HEIGHT) ABOVE THE FLOOR. (CRC R307.2)
   B. SHOWERS & SHOWER/TUB COMBINATIONS:
      - SHOWER FLOORS: PROVIDE CERAMIC TILE W/ WATERPROOF MEMBRANE
      - WALLS: SET TILE IN MORTAR BED W/METAL LATH O/ WATER RESISTANT TILE BACKER BOARD
   C. PROVIDE WATER RESISTANT GYPSUM BOARD 12" MIN. BEYOND TUB OR SHOWER. PAINT AND TEXTURE.
8. SHOWER VALVES:
   A. SHOWERS AND TUB-SHOWER COMBINATIONS SHALL BE PROVIDED WITH INDIVIDUAL PRESSURE BALANCE OR THERMOSTATIC MIXING CONTROL VALVES. (CPC 408.3)
   B. THE MAXIMUM MIXED WATER SETTING SHALL BE 120 DEGREES FAHRENHEIT.
   C. WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED AS SUITABLE FOR MEETING THIS REQUIREMENT.
9. WATER CLOSET:
   A. EACH WATER CLOSET STOOL SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH AND HAVE A CLEAR SPACE IN FRONT OF THE WATER CLOSET STOOL OF NOT LESS THAN 24".
   B. WATER CLOSETS ARE TO BE 1.28 GALLONS PER FLUSH, MAX. (UPC 402.0)
10. PROVIDE SHEET METAL PAN & DRAIN UNDER WASHERS LOCATED ON WOOD SUBFLOORS.
11. PROVIDE FIRE BLOCKING PER CRC 302.11.
12. PROVIDE HEAVY DUTY SHELF AND ROD AT ALL CLOSETS, UNO
13. ALL WALLS SEPARATING CONDITIONED FROM NON-CONDITIONED SPACE ARE TO BE INSULATED FULL DEPTH OF WALL, SEE TITLE 24 REPORT.
14. AT LOTS 3 AND 6 , THERE WILL BE NO REAR COVERED PORCH

FLOOR PLAN GEN. NOTES

1. FOR SYMBOL LEGEND NOT INDICATED ON THIS SHEET, SEE SHEET G0.21.
2. REFER TO STRUCTURAL DRAWINGS FOR BEARING & SHEAR WALL INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF STUD OR GRIDLINES, U.N.O.
4. ALL DIMENSIONS ON STAIR PLANS ARE TO FACE OF FINISH, U.N.O.
5. WINDOWS ARE CENTERED IN ROOM, U.N.O.
6. LOCATE DOOR JAMBS 3" AWAY FROM ADJACENT WALL UNLESS DIMENSIONED OR NOTED OTHERWISE.
7. PROVIDE ALL INSULATION PER TITLE 24 REPORT.
8. ALL INTERIOR WALLS TO RECEIVE FULL DEPTH ACOUSTICAL BATT INSULATION, U.N.O.
9. NOTED WALL TYPES SHALL EXTEND FROM CORNER TO CORNER, FULL LENGTH OF WALL, U.N.O.
10. ALL GYP. BD. AND PLASTER SHALL BE INSTALLED PER CBC CHAPTER 25.
11. PROVIDE CONTINUOUS 5/8" TYPE 'X' GYP. BD. AT ALL RATED WALLS WITHOUT GAPS OR BREAKS, TYP. PROVIDE MOISTURE RESISTANT TYPE 'X' GYP. BD. AT ALL HIGH MOISTURE LOCATIONS.
12. PRETREAT FRAMING AT FOUNDATION AND 24" UP ON THE STUDS AND EXTERIOR SHEATHING WITH BORA-CARE TERMITICIDE (OR EQUAL.
13. CONCRETE SUBFLOORS TO RECEIVE RESILIENT FLOORING MUST BE PREPARED ACCORDING TO ALL MANUFACTURER'S REQUIREMENTS, SEE
14. SEE SHEET A3.11 FOR WINDOW SCHEDULE
15. SEE SHEET A3.11 FOR DOOR SCHEDULE
16. FURNITURE SHOWN FOR REFERENCE ONLY AND IS NOT A PART OF THIS APPLICATION
17. REFER TO WINDOW SCHEDULE SHEET FOR LOCATIONS WHERE TEMPERED GLAZING IS REQUIRED

FLOOR PLAN LEGEND

- 2x6 1-HR RATED UNIT SEPARATION WALL
- 2x6 1-HR RATED GARAGE SEPARATION WALL
- 2x6 EXTERIOR WALL
- 2x4 INTERIOR WALL
- 2x6 PLUMBING WALL
- 2x4 PARTIAL HEIGHT WALL
- STEP OR LEVEL CHANGE
- TRASH / RECYCLING BIN
- DS — GSM DOWNSPOUT, PAINT. ROUTE TO PAVED SURFACE OR PROVIDE PRECAST CONCRETE SPLASH BLOCK AT LANDSCAPE AREAS.

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT — SARAH NERSES IAN ELLIS — C-29460 — REN. 07-31-25 — STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE: 06/02/2022

REVISIONS:

2	CYC3	05.19.2023

SHEET TITLE: UNIT TYPE 2B PLANS

SHEET NO. A2.28

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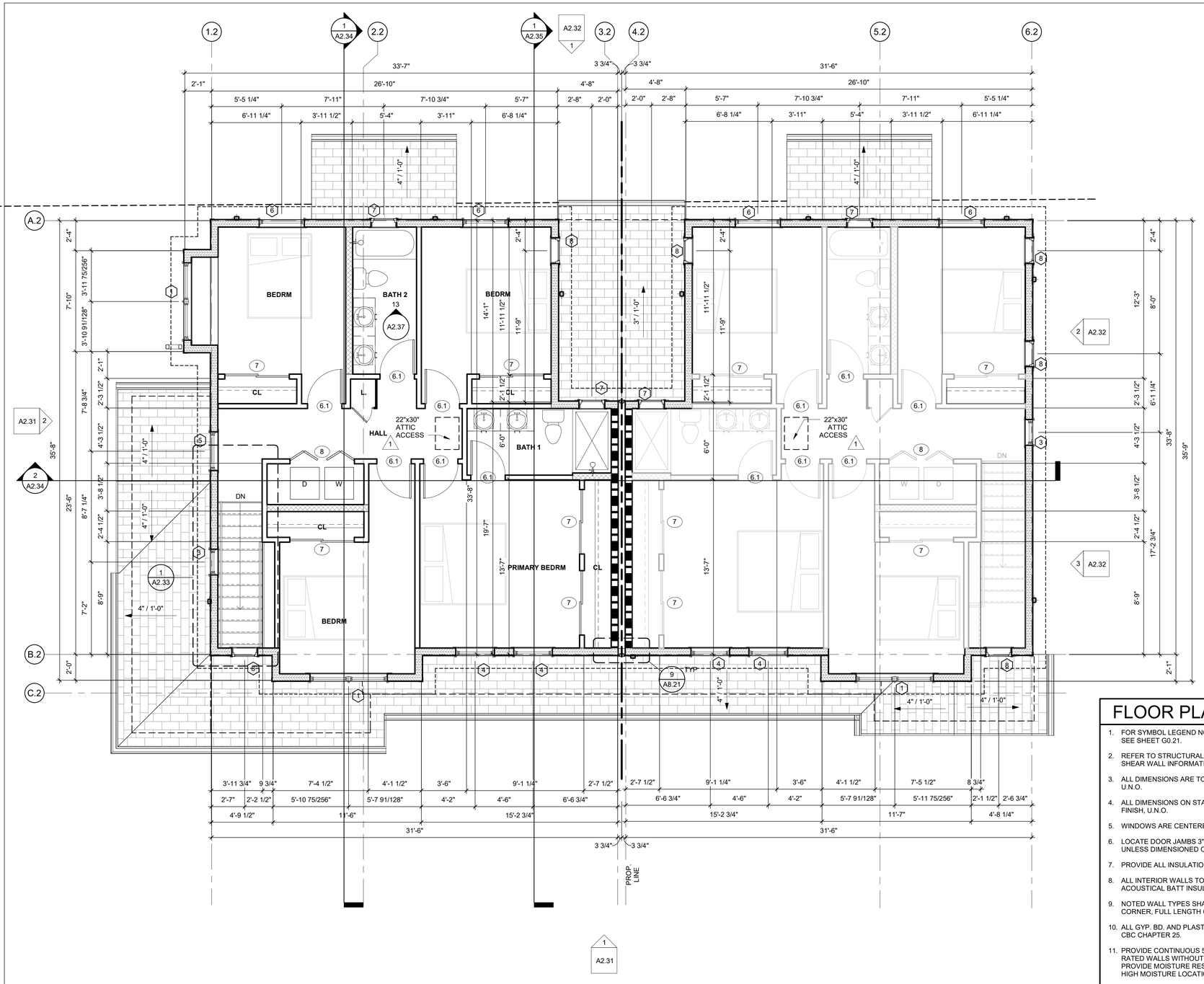

1 UNIT 2B - SECOND FLOOR PLAN
1/4" = 1'-0"

RES. FLOOR PLAN NOTES

1. STEPS AT INTERIOR DOORS:
   - THE DROP OF THE FLOOR OR LANDING ON EACH SIDE OF THE DOOR SHALL NOT BE MORE THAN 1 1/2" FROM THE TOP OF THE THRESHOLD OF THE DOORWAY.
2. EMERGENCY ESCAPE WINDOWS FOR SLEEPING ROOMS PER CRC R310.2:
   A. MINIMUM NET CLEAR OPERABLE AREA: 5.7 SQ. FT.
   B. MINIMUM NET CLEAR OPERABLE WIDTH: 20 INCHES
   C. MINIMUM NET CLEAR OPERABLE HEIGHT: 24 INCHES
   D. MAXIMUM SILL HEIGHT ABOVE FLOOR: 44 INCHES
3. EXTERIOR DOORS PER CRC R311.3:
   A. CONCRETE LANDINGS TO BE 36" DEEP x FULL WIDTH OF DOOR OPENING.
   B. PROVIDE WEATHER STRIPPING ALL AROUND DOORS.
   C. PROVIDE METAL THRESHOLDS.
   D. LANDINGS OR FLOORS AT THE REQUIRED EGRESS DOOR SHALL NOT BE MORE THAN 1 1/2" (38mm) LOWER THAN THE TOP OF THE THRESHOLD.
   E. THE LANDING OR FLOOR ON THE EXTERIOR SIDE SHALL NOT BE MORE THAN 7 3/4 INCHES (196mm) BELOW THE TOP OF THE THRESHOLD, PROVIDED THE DOOR DOES NOT SWING OVER THE LANDING OR FLOOR.
4. CEILING HEIGHTS PER CRC R305:
   A. MINIMUM CEILING HEIGHT SHALL BE 7'-0" IN ALL HABITABLE SPACES.
   B. MINIMUM CEILING HEIGHT IN BATHROOMS, TOILET ROOMS AND LAUNDRY ROOMS IS 6'-8".
   C. FOR ROOMS W/ SLOPED OPENINGS, THE CODE REQUIRES THAT THE PRESCRIBED HEIGHT BE MAINTAINED IN ONE-HALF THE REQUIRED FLOOR AREA OF THE ROOM, AND NO PORTION OF THE REQUIRED FLOOR AREA MAY HAVE A CEILING HEIGHT OF LESS THAN 5'.
5. ENCLOSED ACCESSIBLE SPACE UNDER STAIR SHALL HAVE WALLS, UNDER-STAIR SURFACE AND ANY SOFFITS PROTECTED ON THE ENCLOSED SIDE WITH 1/2" GYPSUM BOARD. (CRC R302.7)
6. PROVIDE MECHANICAL VENTILATION SYSTEM (EXHAUST FAN) CONTROLLED BY A HUMIDITY CONTROL (CRC R303.1)
   A. VENTILATION RATES MUST HAVE EXHAUST RATES OF 50 CFM INTERMITTENT AND 20 CFM CONTINUOUS.
   B. POINT OF EXHAUST VENT SHALL BE AT LEAST 3'-0" FROM A PROPERTY LINE OR OPENINGS INTO THE BUILDNG SUCH AS DOORS, WINDOWS, OPENING SKYLIGHTS, ATTIC VENTS & 10'-0" FROM A FORCED AIR INLET.
7. TUBS/SHOWERS:
   A. SHOWER & TUB WALLS SHALL HAVE A SMOOTH, HARD, NON-ABSORBENT SURFACE OVER A MOISTURE RESISTANT UNDERLAYMENT TO A HEIGHT OF 72 INCHES (UNLESS NOTES FULL HEIGHT) ABOVE THE FLOOR. (CRC R307.2)
   B. SHOWERS & SHOWER/TUB COMBINATIONS:
      - SHOWER FLOORS: PROVIDE CERAMIC TILE W/ WATERPROOF MEMBRANE
      - WALLS: SET TILE IN MORTAR BED W/METAL LATH O/ WATER RESISTANT TILE BACKER BOARD
   C. PROVIDE WATER RESISTANT GYPSUM BOARD 12" MIN. BEYOND TUB OR SHOWER. PAINT AND TEXTURE.
8. SHOWER VALVES:
   A. SHOWERS AND TUB-SHOWER COMBINATIONS SHALL BE PROVIDED WITH INDIVIDUAL PRESSURE BALANCE OR THERMOSTATIC MIXING CONTROL VALVES. (CPC 408.3)
   B. THE MAXIMUM MIXED WATER SETTING SHALL BE 120 DEGREES FAHRENHEIT.
   C. WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED AS SUITABLE FOR MEETING THIS REQUIREMENT.
9. WATER CLOSET:
   A. EACH WATER CLOSET STOOL SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH AND HAVE A CLEAR SPACE IN FRONT OF THE WATER CLOSET STOOL OF NOT LESS THAN 24".
   B. WATER CLOSETS ARE TO BE 1.28 GALLONS PER FLUSH, MAX. (UPC 402.0)
10. PROVIDE SHEET METAL PAN & DRAIN UNDER WASHERS LOCATED ON WOOD SUBFLOORS.
11. PROVIDE FIRE BLOCKING PER CRC 302.11.
12. PROVIDE HEAVY DUTY SHELF AND ROD AT ALL CLOSETS, UNO
13. ALL WALLS SEPARATING CONDITIONED FROM NON-CONDITIONED SPACE ARE TO BE INSULATED FULL DEPTH OF WALL, SEE TITLE 24 REPORT.
14. AT LOTS 3 AND 6 , THERE WILL BE NO REAR COVERED PORCH

FLOOR PLAN GEN. NOTES

1. FOR SYMBOL LEGEND NOT INDICATED ON THIS SHEET, SEE SHEET G0.21.
2. REFER TO STRUCTURAL DRAWINGS FOR BEARING & SHEAR WALL INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF STUD OR GRIDLINES, U.N.O.
4. ALL DIMENSIONS ON STAIR PLANS ARE TO FACE OF FINISH, U.N.O.
5. WINDOWS ARE CENTERED IN ROOM, U.N.O.
6. LOCATE DOOR JAMBS 3" AWAY FROM ADJACENT WALL UNLESS DIMENSIONED OR NOTED OTHERWISE.
7. PROVIDE ALL INSULATION PER TITLE 24 REPORT.
8. ALL INTERIOR WALLS TO RECEIVE FULL DEPTH ACOUSTICAL BATT INSULATION, U.N.O.
9. NOTED WALL TYPES SHALL EXTEND FROM CORNER TO CORNER, FULL LENGTH OF WALL, U.N.O.
10. ALL GYP. BD. AND PLASTER SHALL BE INSTALLED PER CBC CHAPTER 25.
11. PROVIDE CONTINUOUS 5/8" TYPE 'X' GYP. BD. AT ALL RATED WALLS WITHOUT GAPS OR BREAKS, TYP. PROVIDE MOISTURE RESISTANT TYPE 'X' GYP. BD. AT ALL HIGH MOISTURE LOCATIONS.
12. PRETREAT FRAMING AT FOUNDATION AND 24" UP ON THE STUDS AND EXTERIOR SHEATHING WITH BORA-CARE TERMITICIDE (OR EQUAL.
13. CONCRETE SUBFLOORS TO RECEIVE RESILIENT FLOORING MUST BE PREPARED ACCORDING TO ALL MANUFACTURER'S REQUIREMENTS, SEE
14. SEE SHEET A3.11 FOR WINDOW SCHEDULE
15. SEE SHEET A3.11 FOR DOOR SCHEDULE
16. FURNITURE SHOWN FOR REFERENCE ONLY AND IS NOT A PART OF THIS APPLICATION
17. REFER TO WINDOW SCHEDULE SHEET FOR LOCATIONS WHERE TEMPERED GLAZING IS REQUIRED

FLOOR PLAN LEGEND

- 2x6 1-HR RATED UNIT SEPARATION WALL
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REVISIONS:

1	CYC2	02.22.2023

SHEET TITLE: UNIT TYPE 2B PLANS

SHEET NO. A2.29

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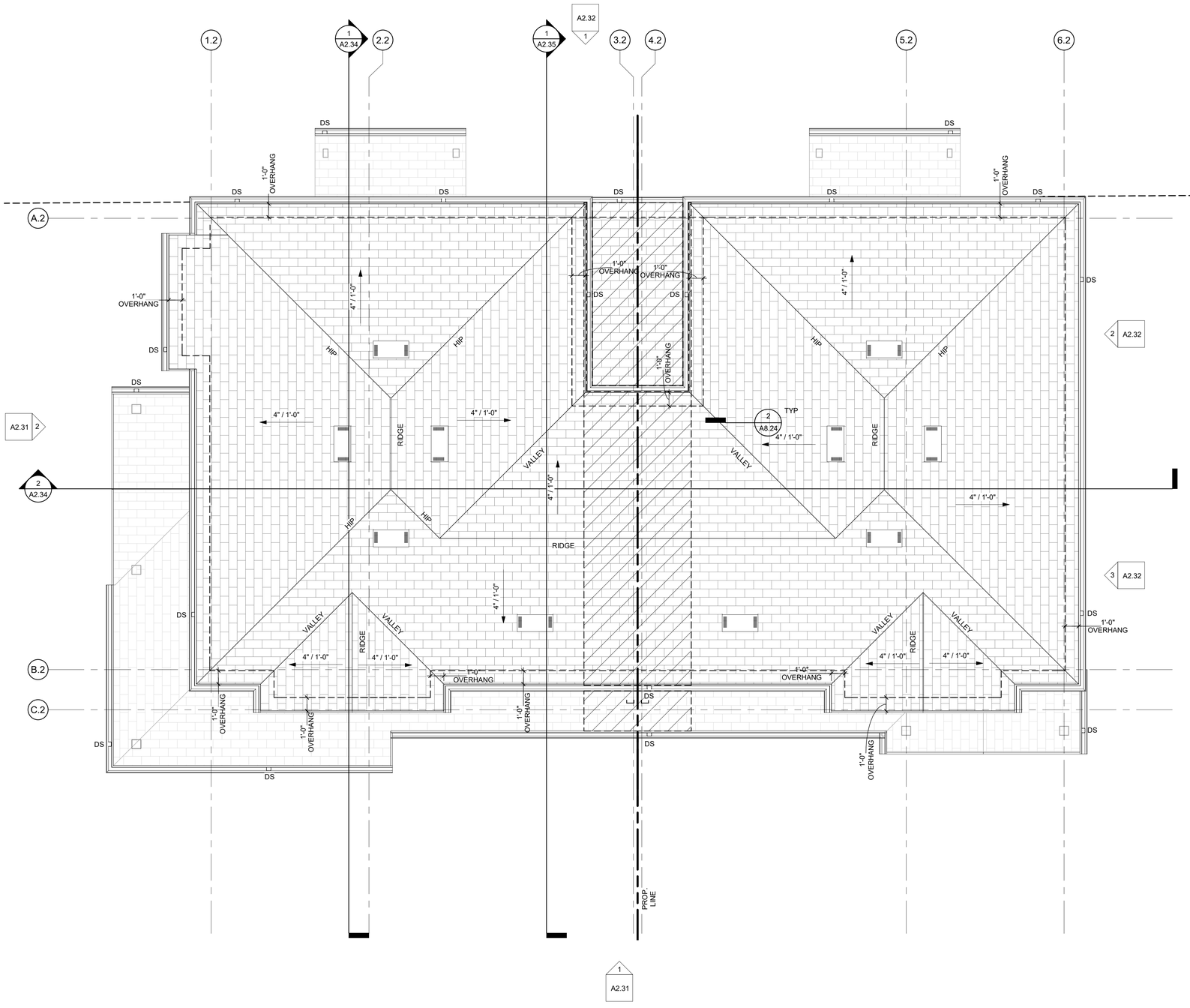

1 UNIT 2B - ROOF PLAN
1/4" = 1'-0"

ROOF PLAN NOTES

ASPHALT SHINGLE ROOFING SYSTEM

1. ROOFING TO MEET UL CLASS A RATING AND CRRC COOL ROOF REQUIREMENTS - COLOR AS SELECTED BY ARCHITECT.
2. INSTALLATION:
   - A. INSTALL USING METHODS RECOMMENDED BY MANUFACTURER AND IN ACCORDANCE WITH CBC CHAPTER 15. WHEN CBC REQUIREMENTS AND APPLICATION INSTRUCTIONS ARE IN CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL TAKE PRECEDENCE.
   - B. EAVES AND RAKES:
     - a. INSTALL EAVES EDGE METAL FLASHING TIGHT WITH FASCIA BOARDS; LAP JOINTS 2 INCHES AND SEAL WITH PLASTIC CEMENT OR HIGH QUALITY URETHANE SEALANT; NAIL AT THE TOP OF THE FLANGE.
     - b. INSTALL BITUMINOUS LEAK BARRIER CONTINUOUS ALONG EAVES AND RAKES A FULL 36 INCHES WIDE. LAP ENDS 6 INCHES AND BOND.
   - C. RIDGES AND VALLEYS: INSTALL LEAK BARRIER CONTINUOUS ALONG RIDGES AND VALLEYS A FULL 36 INCHES WIDE. LAP ENDS 6 INCHES AND BOND. PROVIDE METAL VALLEY FLASHING AT ALL VALLEYS - COLOR TO MATCH ROOFING.
   - D. INSTALL TWO LAYERS OF TYPE 30 PREMIUM, WATER REPELLANT NON-ASPHALTIC UNDERLAYMENT THAT MEETS OR EXCEEDS ASTM D226.
   - E. PROVIDE ELBOW & SHEET METAL SPLASH AT ASPHALT SHINGLE ROOFS WHERE DOWNSPOUTS LAND AT LOWER ROOF SURFACES.

GENERAL ROOFING NOTES

1. DOWNSPOUTS SHALL BE 3" DIAMETER SCHEDULE 40, ROUND GALVANIZED DOWNSPOUTS UNLESS OTHERWISE NOTED. GSM DOWNPOUTS CAN BE SUBSTITUTED UPON OWNERS APPROVAL. PAINT TO MATCH ADJACENT SURFACES. SEE ELEVATIONS FOR ADDITIONAL DOWNSPOUT INFORMATION.
2. MAJOR PENETRATIONS TO BE 24" FROM EACH OTHER AND PARAPET WALLS
3. PROVIDE AND INSTALL EAVE VENTS PER ATTIC VENT CALCULATIONS - COORDINATE LOCATIONS WITH ARCHITECT
4. PROVIDE AND INSTALL ROOF VENTS PER ATTIC VENT CALCULATIONS - COORDINATE LOCATION WITH ARCHITECT.
5. SEE ROOF DETAIL SHEETS FOR ADDITIONAL INFORMATION
6. AREAS INDICATED TO RECEIVE FIRE RETARDANT TREATED PLYWOOD SHALL HAVE NO OPENINGS OR PENETRATIONS.

ROOF PLAN LEGEND

⊡ DS	GSM DOWNSPOUT, PAINT. ROUTE TO PAVED SURFACE OR PROVIDE PRECAST CONCRETE SPLASH BLOCK AT LANDSCAPE AREAS.
- - - - -	LINE OF WALL BELOW
	ROOF DECKING OR SHEATHING IS OF NONCOMBUSTIBLE MATERIAL OR APPROVED FIRE-RETARDANT-TREATED WOOD FOR A DISTANCE OF 4'-0" ON EACH SIDE OF THE WALL OR WALLS, OR (1) LAYER OF 5/8" TYPE 'X' GYP. BD. IS INSTALLED DIRECTLY BENEATH THE ROOF DECKING OR SHEATHING FOR A DISTANCE OF NOT LESS THAN 4'-0" ON EACH SIDE OF THE WALL OR WALLS AND ANY OPENING OR PENETRATIONS IN THE ROOF ARE NOT WITHIN 4'-0" **(CRC 302.2.2 ITEM 2 EXCEPTION)**

ATTIC VENT. CALCS.

TOTAL ATTIC AREA = ***2240*** S.F. MAIN ROOF

REQUIRED FREE VENT AREA (1/300) = ***2240*** S.F./300 = ***7.47*** S.F.
(PURSUANT TO SECTION R806.2, EXCEPTION 2)

7.47 S.F. x ***144*** = ***1075.8*** SQ. IN.

ROOF VENTS = ***64.8*** SQ. IN. x ***9 = 583.2*** SQ. IN.

GABLE VENT = ***254*** SQ. IN. x **2** = ***508*** SQ. IN.

TOTAL FREE VENT AREA = ***1091.2*** SQ. IN. > **1075.8** SQ. IN. = OK

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Sacramento, CA 95819
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APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
UNIT TYPE 2B PLANS

SHEET NO.
A2.30

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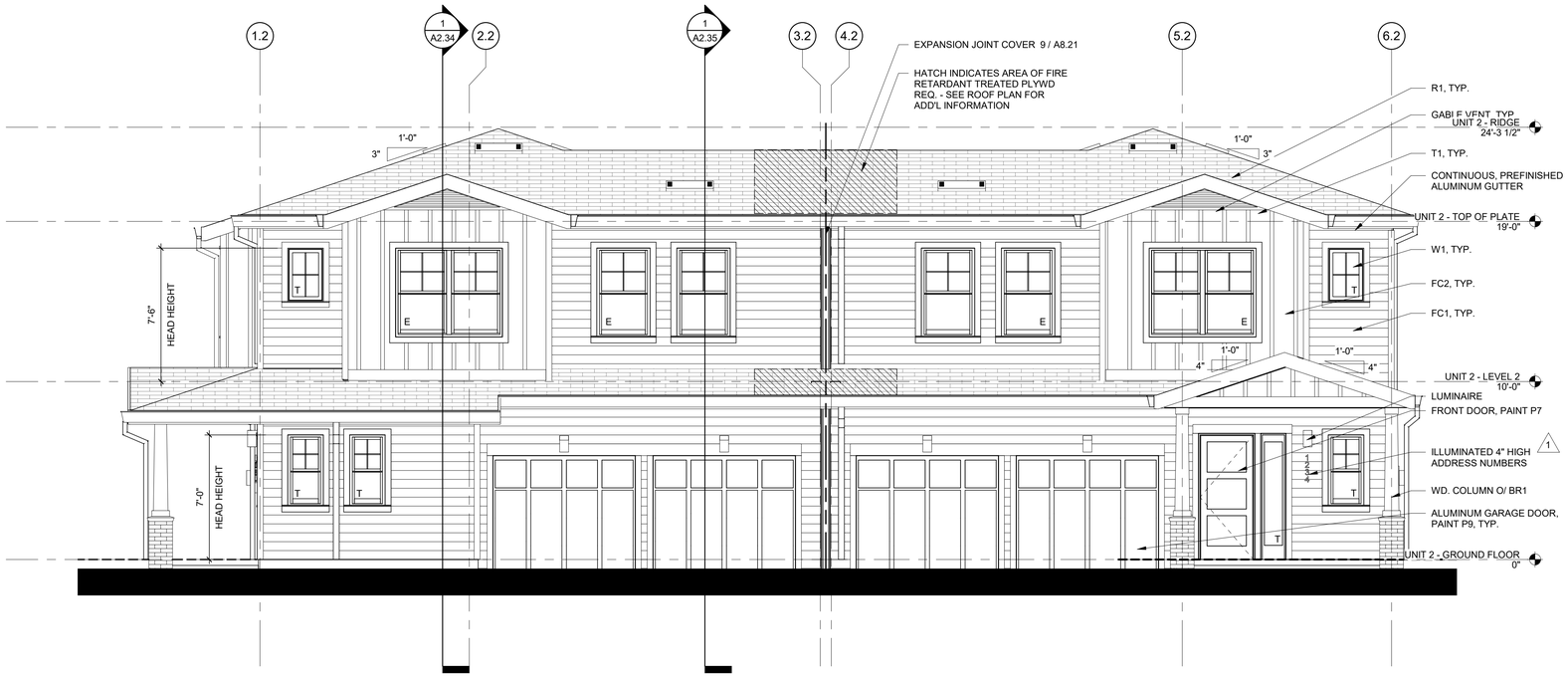


1 UNIT 2B - FRONT ELEVATION
1/4" = 1'-0"

2 UNIT 2B - LEFT SIDE ELEVATION
1/4" = 1'-0"

EXT. ELEVATION NOTES

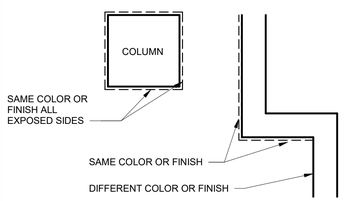
1. ARCHITECT MUST REVIEW ALL COLORS AND MATERIALS BEFORE INSTALLATION.
2. WINDOWS MARKED WITH 'E' SHALL BE EMERGENCY ESCAPE AND RESCUE OPENINGS. SEE WINDOW SCHEDULE FOR ADDITIONAL INFORMATION.
3. ALL WALLS SEPARATING CONDITIONED FROM NON-CONDITIONED SPACE ARE TO BE INSULATED PER TITLE-24 REPORT.
4. GUTTERS AND DOWNSPOUTS TO BE PAINTED TO MATCH ADJACENT FINISH.
5. ALL EXTERIOR EXPOSED CONCRETE AND BRICK MASONRY WALLS SHALL HAVE ANTI-GRAFFITI COATING APPLIED TO ALL EXPOSED SURFACES.
6. PROVIDE 'QUICKFLASH' OR EQUIVALENT PRODUCTS AT ALL ELECTRICAL, MECHANICAL AND PLUMBING PENETRATIONS.
7. DUCT EXHAUST SHALL TERMINATE NOT LESS THAN 3'-0" FROM PROPERTY LINE, 10'-0" FROM FORCED AIR INLET AND 3'-0" FROM OPENING INTO THE BUILDING. EXHAUST DUCTS SHALL NOT DISCHARGE ONTO A PUBLIC WAY
8. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL BE A MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF ½ INCH. NUMBERS SHALL NOT BE SPELLED OUT. THESE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESSING SHALL BE ILLUMINATED AT NIGHT IN ALL NEW BUILDINGS. ADDRESS SIGNS SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED. WHEN THE LUMINANCE OR THE FACE OF A SIGN IS FROM AN EXTERNAL SOURCE, IT SHALL HAVE AN INTENSITY OF NOT LESS THAN 5.0 FOOT-CANDLES. INTERNALLY ILLUMINATED SIGNS SHALL PROVIDE EQUIVALENT LUMINANCE

EXT. FINISH SCHEDULE

NOTES:
- CONSTRUCTION MUST CONFORM TO THE DESIGN APPROVED BY THE PLANNING DEPARTMENT IN THE CONDITIONS OF APPROVAL.
- ARCHITECT MUST REVIEW ALL COLORS AND MATERIALS BEFORE INSTALLATION.

MAT.#	DESCRIPTION	LEGEND
FC1	FIBER CEMENT LAP SIDING - 7" EXPOSURE **MFR:** "JAMES HARDIE - HARDIEPLANK" SELECT CEDAR MILL **COLOR:** ARCTIC WHITE	
FC2	FIBER CEMENT BOARD AND BATTEN SIDING **MFR:** "JAMES HARDIE - PANEL VERTICAL SIDING" SELECT CEDAR MILL **COLOR:** ARCTIC WHITE	
FC3	FIBER CEMENT SHINGLE SIDING **MFR:** "JAMES HARDIE - SHINGLE SIDING" STRAIGHT EDGE PANEL **COLOR:** ARCTIC WHITE	
FC4	FIBER CEMENT SIDING **MFR:** "JAMES HARDIE - FLAT PANEL" **COLOR:** ARCTIC WHITE	
BR1	THIN BRICK **MFR:** HC MUDDOX **PRODUCT:** THIN BRICK **COLOR:** EBONY	
T1	FIBER CEMENT TRIM **MFR:** "JAMES HARDIE - HARDIETRIM" 4/4 SMOOTH GRAIN, 3.5" WIDTH **COLOR:** SW2844, ROYCROFT MIST GRAY	
T2	FIBER CEMENT CORNER TRIM **MFR:** "JAMES HARDIE - HARDIETRIM" 4/4 SMOOTH GRAIN, 4" WIDTH **COLOR:** SW2844, ROYCROFT MIST GRAY	
R1	COMPOSITION SHINGLE ROOFING **MFR:** OWENS CORNING **PRODUCT:** DURATION COOL PLUS **COLOR:** MYSTIC GRAY **SRI:** 0.21 **CRRC PRODUCT ID:** 0890-0032	
W1	VINYL WINDOW **MFR:** TBD **COLOR:** BRONZE	
P4	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6432, GARDEN SPOT	
P5	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6943, INTENSE TEAL	
P6	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6615, PEPPERY	
P7	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW9149, INKY BLUE	
P9	EXTERIOR PAINT **MFR:** SHERWIN WILLIAMS **COLOR:** SW6167, GARDEN GATE	

TYP. COLOR/FINISH TERM.



NOTE:
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SHEET TITLE
UNIT TYPE 2B ELEVATIONS

SHEET NO.
A2.31

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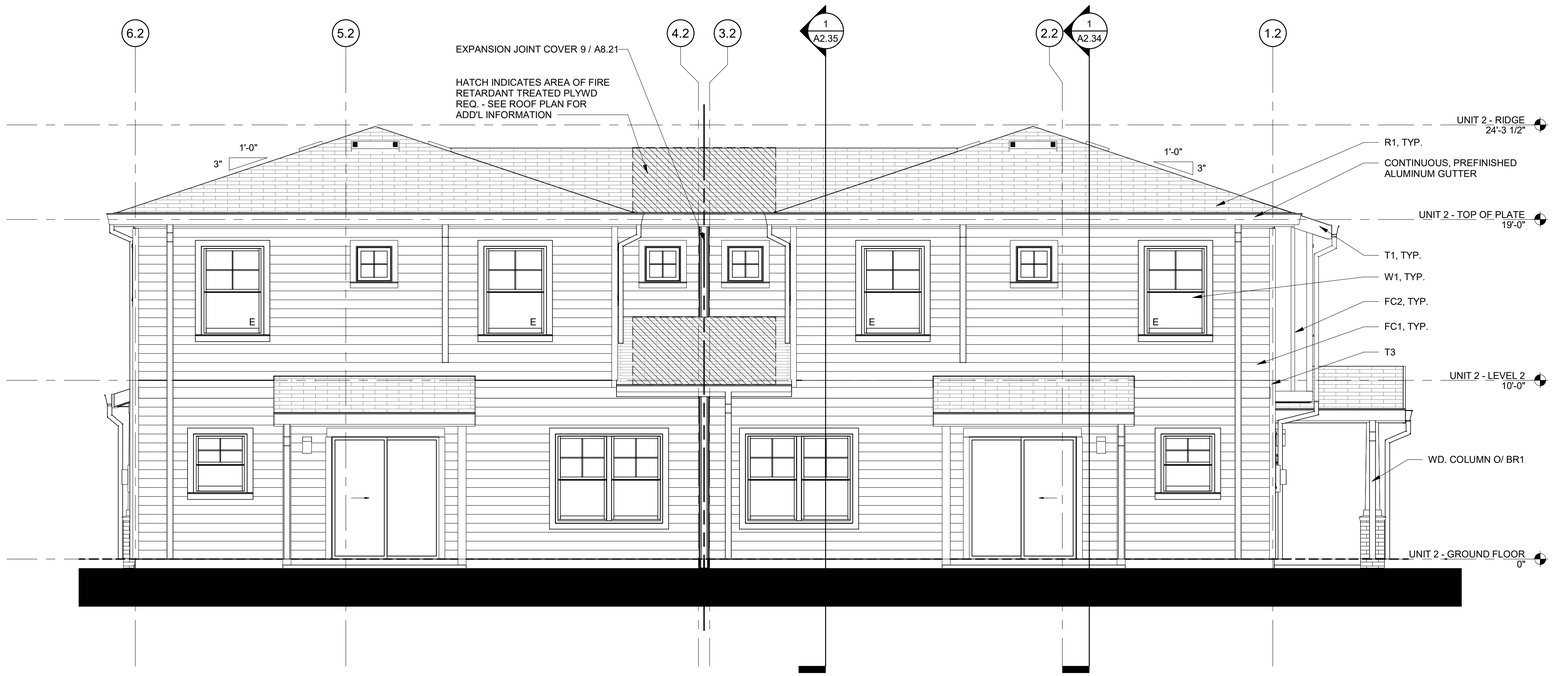
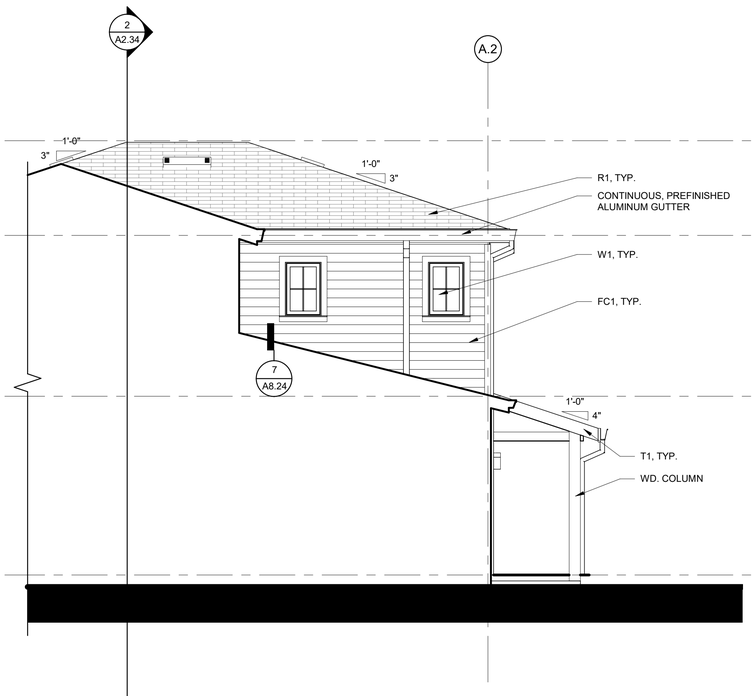
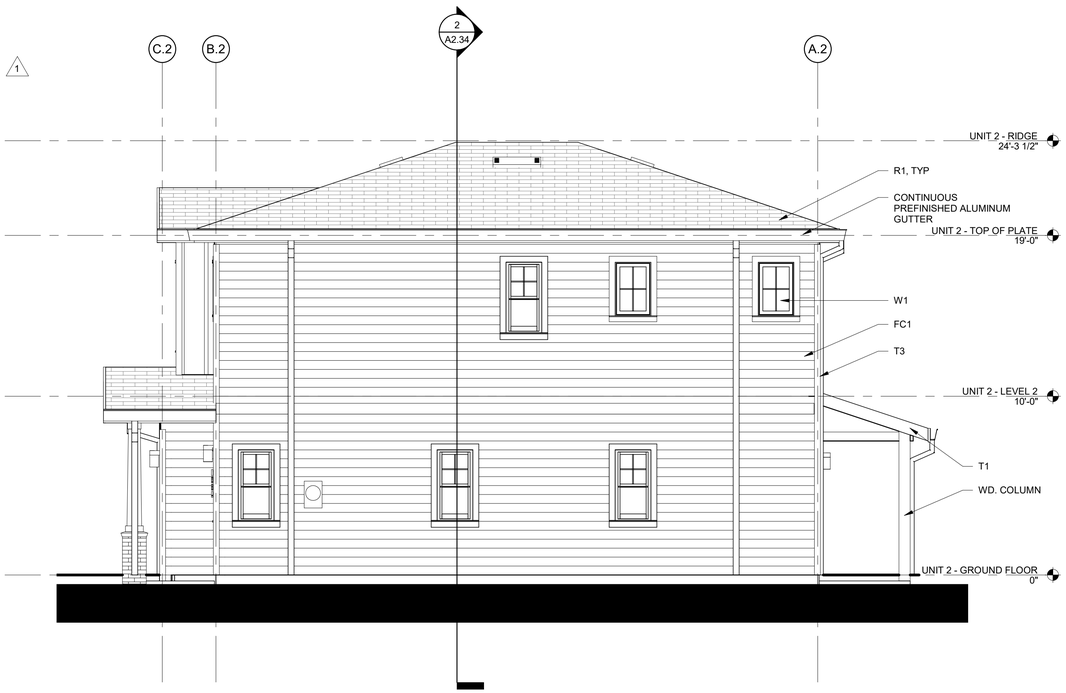


1 UNIT 2B - REAR ELEVATION
1/4" = 1'-0"



2 UNIT 2B - PARTIAL ADJOINED SIDE ELEVATION
1/4" = 1'-0"



3 UNIT 2B - RIGHT SIDE ELEVATION
1/4" = 1'-0"

EXT. ELEVATION NOTES

1. ARCHITECT MUST REVIEW ALL COLORS AND MATERIALS BEFORE INSTALLATION.
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4. GUTTERS AND DOWNSPOUTS TO BE PAINTED TO MATCH ADJACENT FINISH.
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6. PROVIDE 'QUICKFLASH' OR EQUIVALENT PRODUCTS AT ALL ELECTRICAL, MECHANICAL AND PLUMBING PENETRATIONS.
7. DUCT EXHAUST SHALL TERMINATE NOT LESS THAN 3'-0" FROM PROPERTY LINE, 10'-0" FROM FORCED AIR INLET AND 3'-0" FROM OPENING INTO THE BUILDING. EXHAUST DUCTS SHALL NOT DISCHARGE ONTO A PUBLIC WAY
8. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL BE A MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF ½ INCH. NUMBERS SHALL NOT BE SPELLED OUT. THESE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESSING SHALL BE ILLUMINATED AT NIGHT IN ALL NEW BUILDINGS. ADDRESS SIGNS SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED. WHEN THE LUMINANCE OR THE FACE OF A SIGN IS FROM AN EXTERNAL SOURCE, IT SHALL HAVE AN INTENSITY OF NOT LESS THAN 5.0 FOOT-CANDLES. INTERNALLY ILLUMINATED SIGNS SHALL PROVIDE EQUIVALENT LUMINANCE

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FC3	FIBER CEMENT SHINGLE SIDING **MFR:** "JAMES HARDIE - SHINGLE SIDING" STRAIGHT EDGE PANEL **COLOR:** ARCTIC WHITE	
FC4	FIBER CEMENT SIDING **MFR:** "JAMES HARDIE - FLAT PANEL" **COLOR:** ARCTIC WHITE	
BR1	THIN BRICK **MFR:** HC MUDDOX **PRODUCT:** THIN BRICK **COLOR:** EBONY	
T1	FIBER CEMENT TRIM **MFR:** "JAMES HARDIE - HARDIETRIM" 4/4 SMOOTH GRAIN, 3.5" WIDTH **COLOR:** SW2844, ROYCROFT MIST GRAY	
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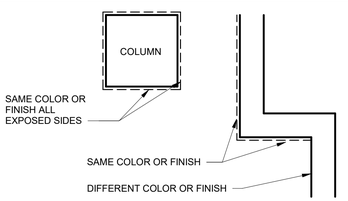

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06/02/2022

REVISIONS:

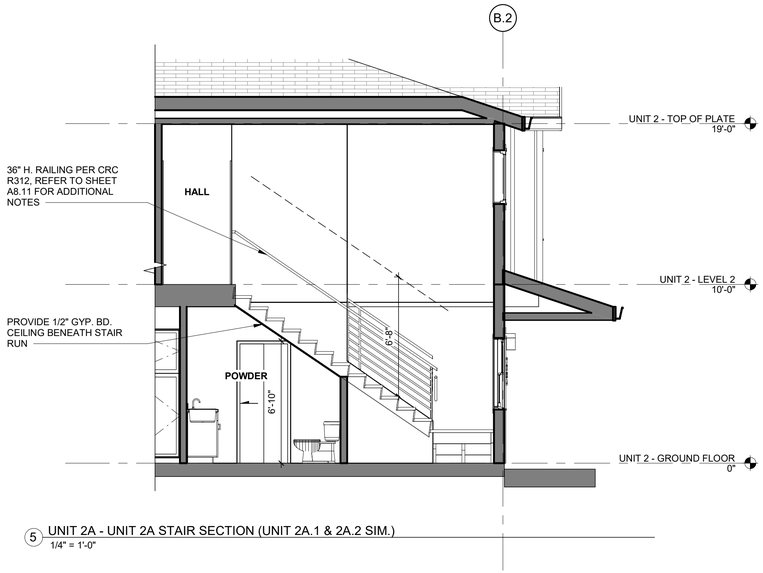
1	CYC2	02.22.2023

SHEET TITLE
UNIT TYPE 2B ELEVATIONS

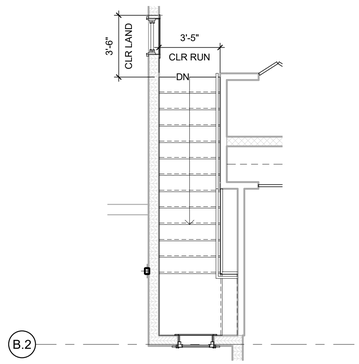
SHEET NO.
A2.32

STAIR PLAN GEN. NOTES

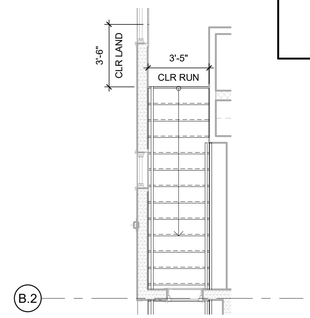
1. REFER TO SHEET A8.11 FOR STAIR AND RAILING NOTES



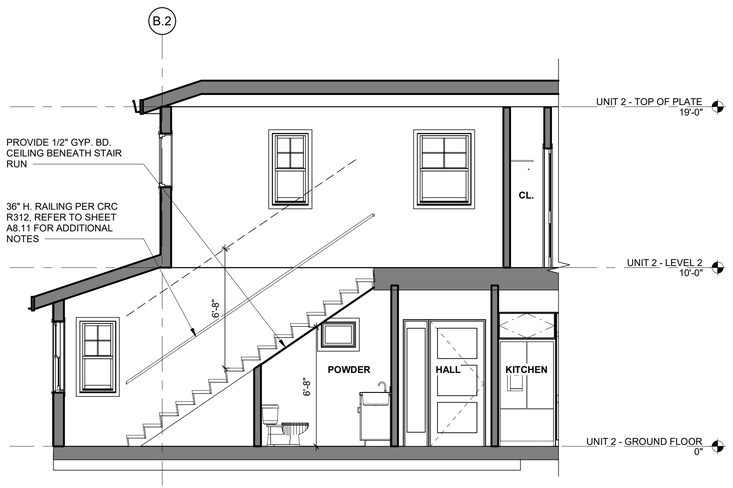
5 UNIT 2A - UNIT 2A STAIR SECTION (UNIT 2A.1 & 2A.2 SIM.)
1/4" = 1'-0"



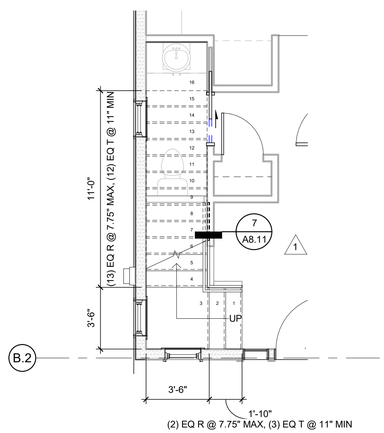
3 UNIT 2A - SECOND FLOOR STAIR PLAN (UNIT 2A.1 & 2A.2 SIM.)
1/4" = 1'-0"



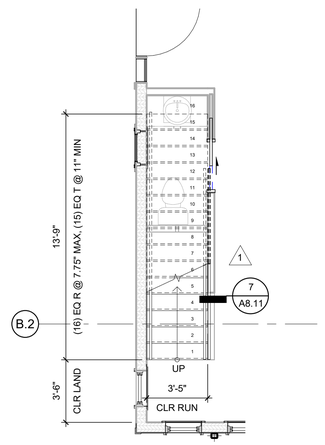
1 UNIT 2B - SECOND FLOOR STAIR PLAN
1/4" = 1'-0"



6 UNIT 2B STAIR SECTION
1/4" = 1'-0"



4 UNIT 2A - GROUND FLOOR STAIR PLAN (UNIT 2A.1 & 2A.2 SIM.)
1/4" = 1'-0"



2 UNIT 2B - GROUND FLOOR STAIR PLAN
1/4" = 1'-0"

ELLIS
ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:

06/02/2022

REVISIONS:

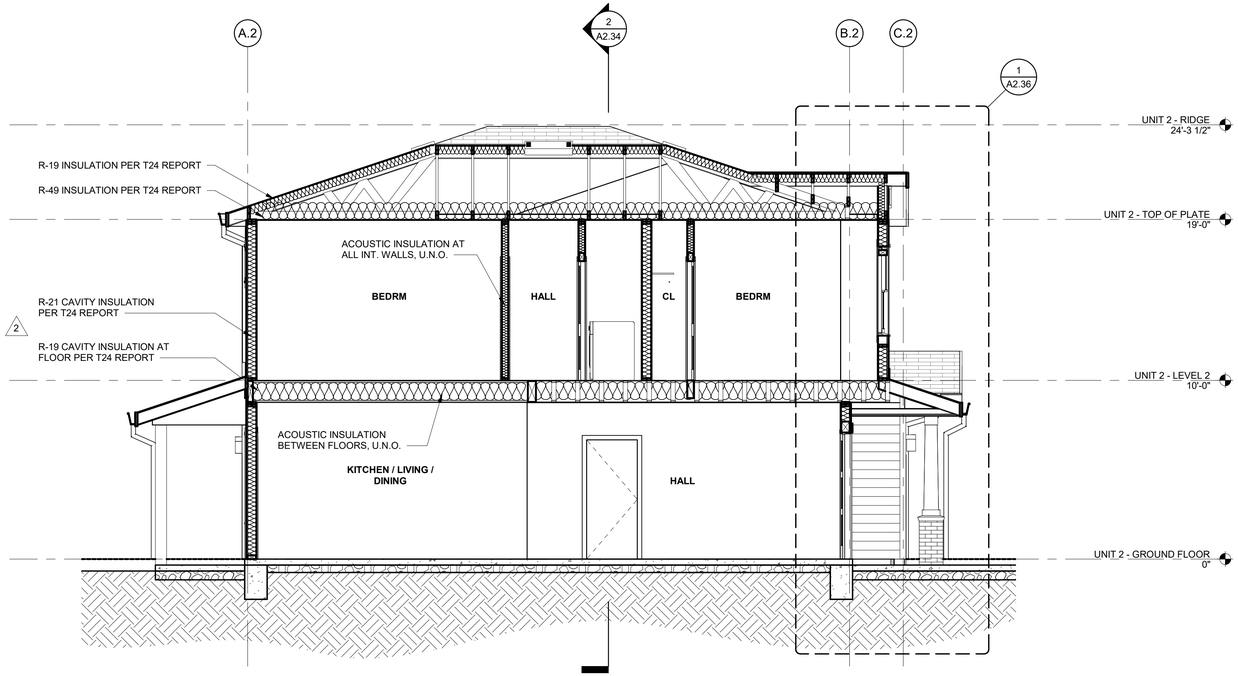
1	CYC2	02.22.2023

SHEET TITLE

UNIT STAIR PLANS

SHEET NO.

A2.33



1 UNIT TYPE 2 - SECTION 1
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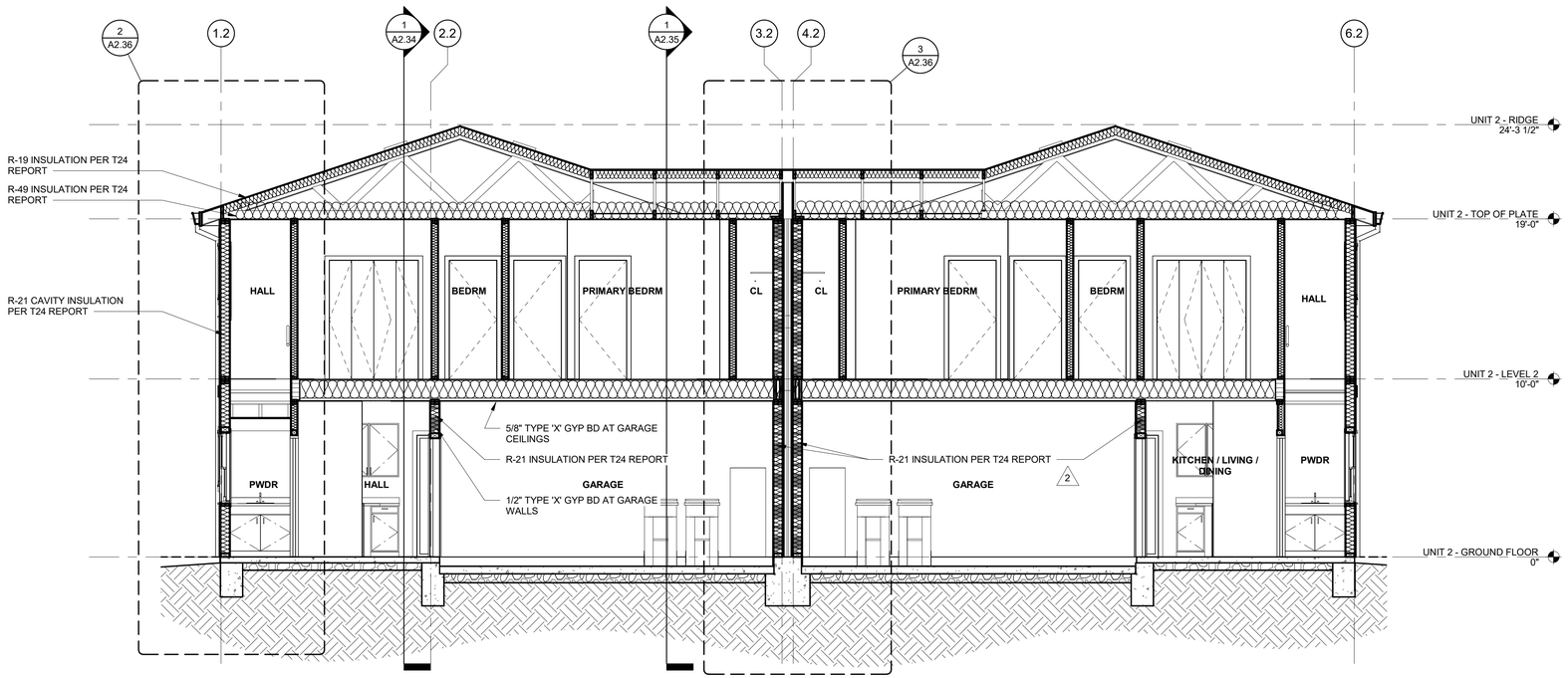

2 UNIT TYPE 2 - SECTION 2
1/4" = 1'-0"

ELLIS
ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

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DATE:

06/02/2022

REVISIONS:

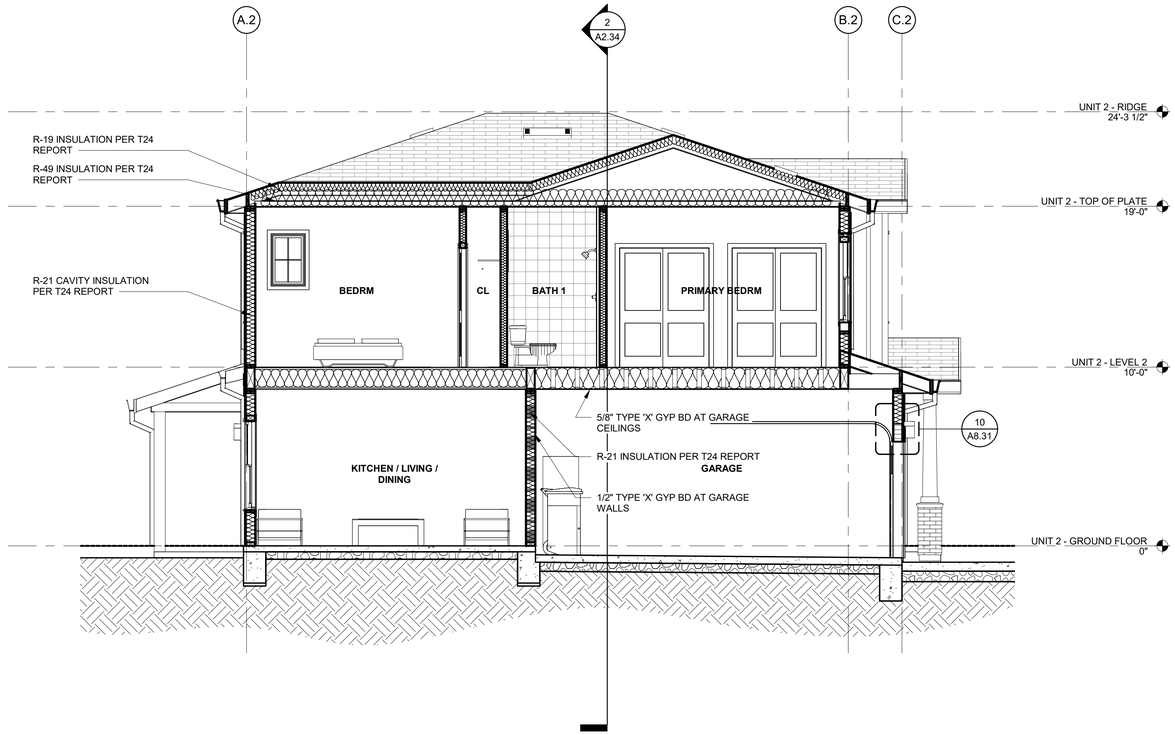
2	CYC3	05.19.2023

SHEET TITLE

UNIT TYPE 2
BUILDING
SECTIONS

SHEET NO.

A2.34



1 UNIT TYPE 2 - SECTION 3
1/4" = 1'-0"

ELLIS
ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

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DATE:
06/02/2022

REVISIONS:

SHEET TITLE
UNIT TYPE 2 BUILDING SECTIONS

SHEET NO.
A2.35

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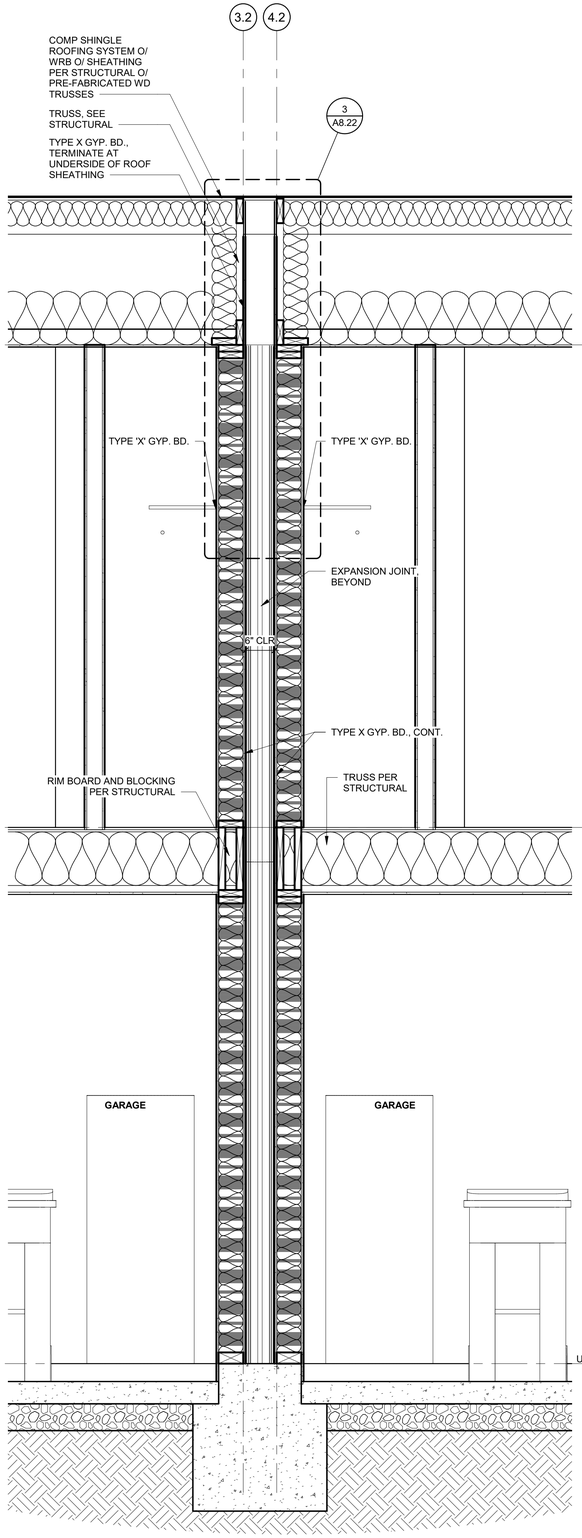
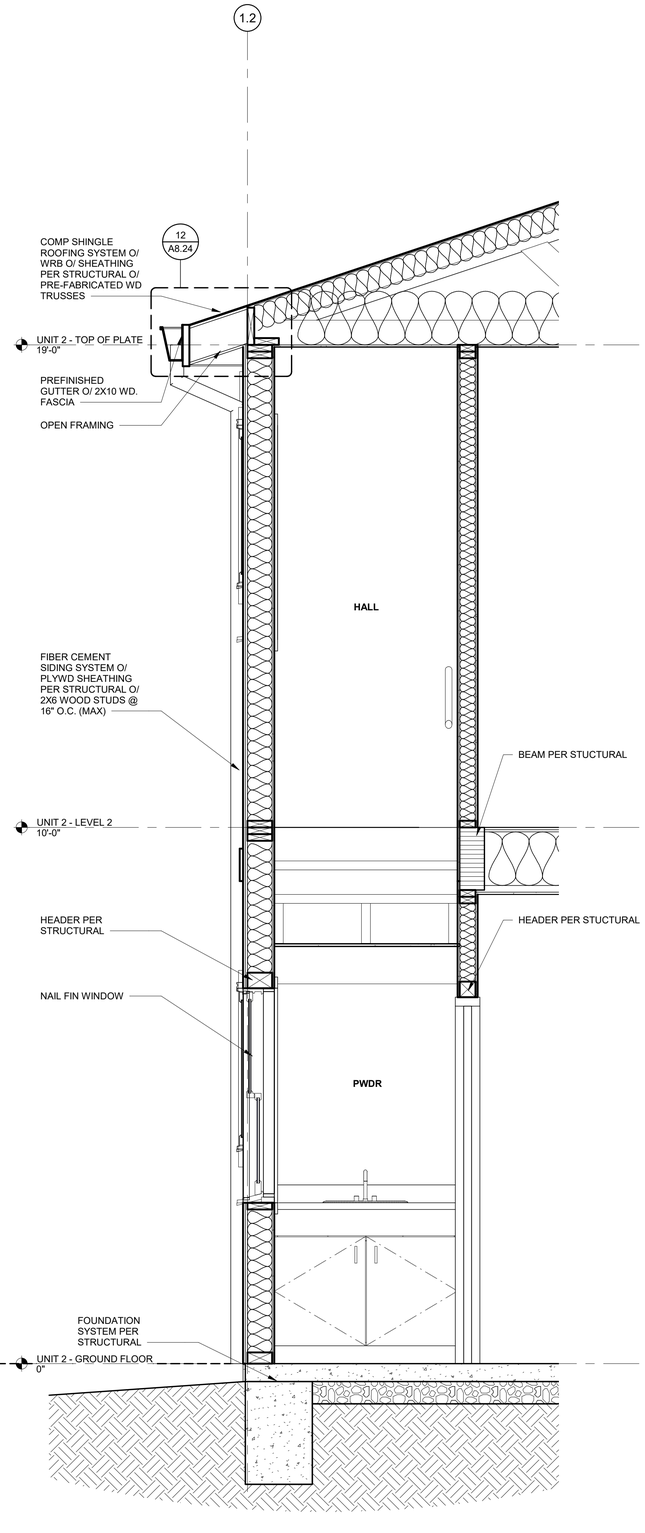


3 UNIT TYPE 2 - WALL SECTION 3
3/4" = 1'-0"



2 UNIT TYPE 2 - WALL SECTION 2
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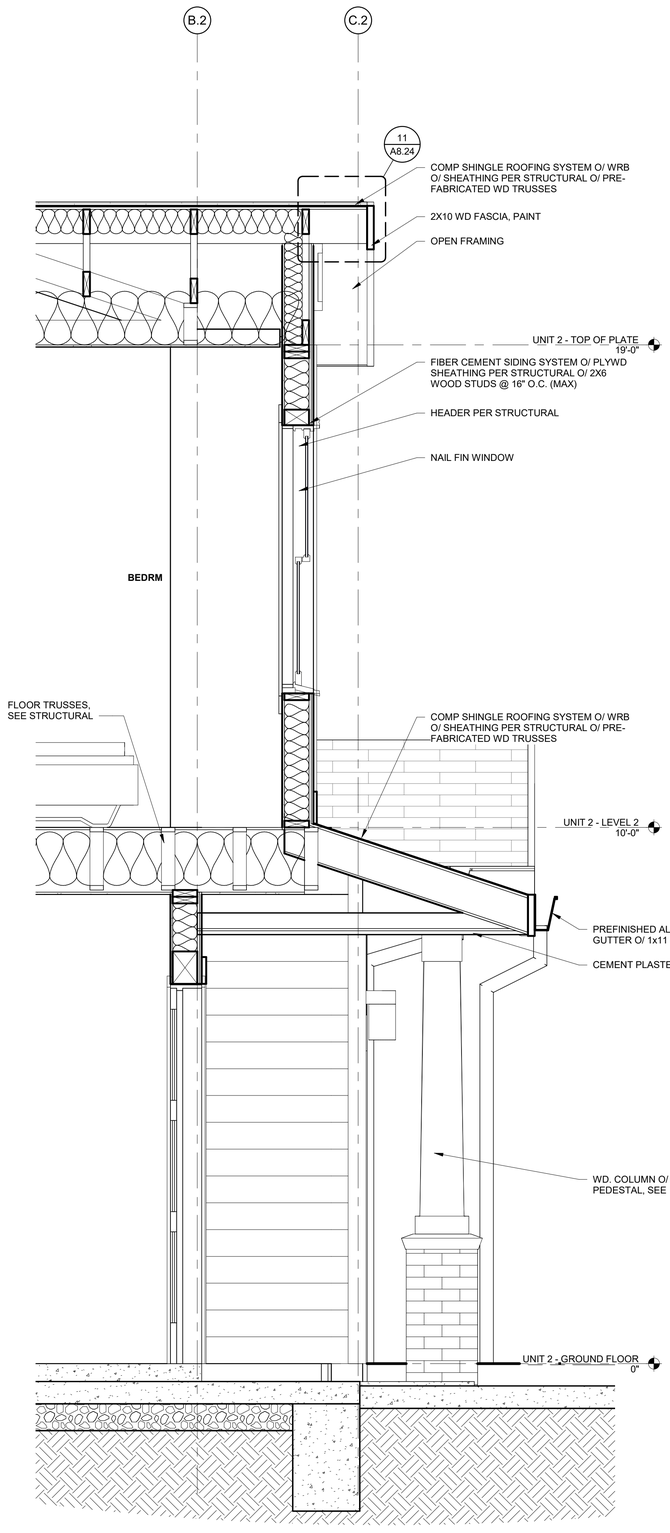

1 UNIT TYPE 2 - WALL SECTION 1
3/4" = 1'-0"

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

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PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
UNIT TYPE 2 WALL SECTIONS

SHEET NO.
A2.36

C:\Users\mark\Documents\18032_North Ave_Site_R22_CENTRAL_mark9.IP45.rvt

7/25/2023 1:45:39 PM

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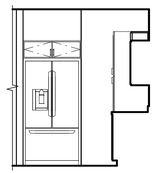
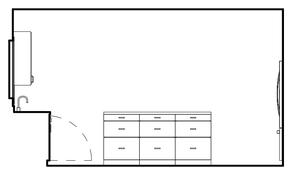
INT. ELEVATION NOTES

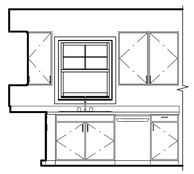
1. EXTEND MOISTURE RESISTANT GYP. BD. 12" BEYOND SHOWER OR TUB ENCLOSURE.



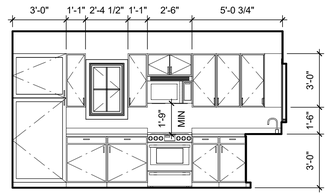
4 UNIT 2A - KITCHEN ELEVATION 4
1/4" = 1'-0"



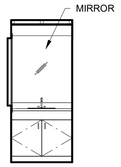
3 UNIT 2A - KITCHEN ELEVATION 3
1/4" = 1'-0"



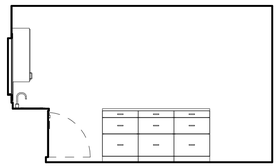
2 UNIT 2A - KITCHEN ELEVATION 2
1/4" = 1'-0"



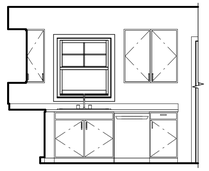
1 UNIT 2A - KITCHEN ELEVATION 1
1/4" = 1'-0"



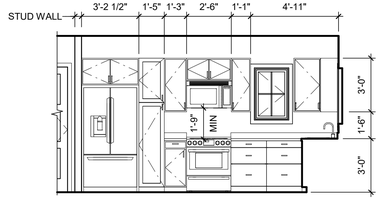
8 UNIT 2 - POWDER ELEVATION 1 (UNIT 2B SIM.)
1/4" = 1'-0"



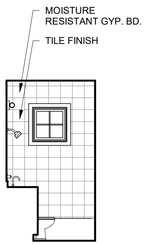
7 UNIT 2B - KITCHEN ELEVATION 3
1/4" = 1'-0"



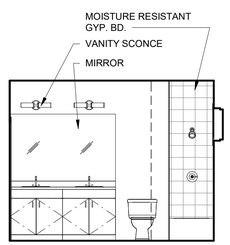
6 UNIT 2B - KITCHEN ELEVATION 2
1/4" = 1'-0"



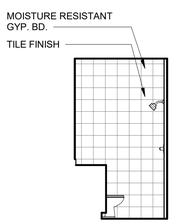
5 UNIT 2B - KITCHEN ELEVATION 1
1/4" = 1'-0"



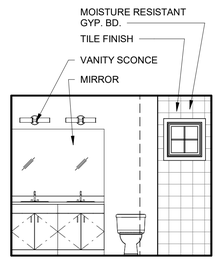
13 UNIT 2 - BATH 2 ELEVATION 2
1/4" = 1'-0"



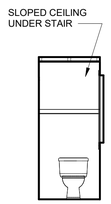
12 UNIT 2 - BATH 2 ELEVATION 1
1/4" = 1'-0"



11 UNIT 2 - BATH 1 ELEVATION 2
1/4" = 1'-0"



10 UNIT 2 - BATH 1 ELEVATION 1
1/4" = 1'-0"



9 UNIT 2 - POWDER ELEVATION 2 (UNIT 2B SIM.)
1/4" = 1'-0"

ELLIS
ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

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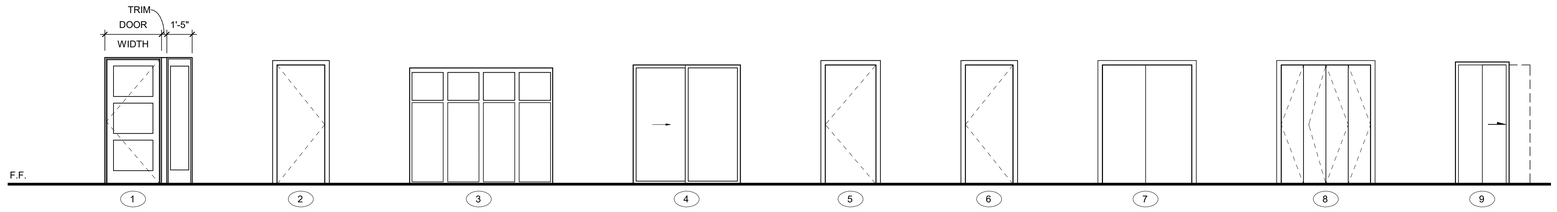
DATE:
06/02/2022

REVISIONS:

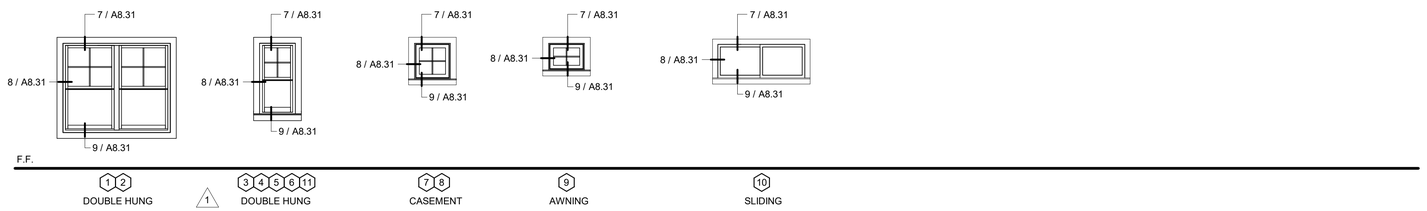
SHEET TITLE
UNIT TYPE 2
INTERIOR
ELEVATIONS

SHEET NO.
A2.37



DOOR SCHEDULE

TYPE MARK	DOOR WIDTH	DOOR HEIGHT	DOOR FUNCTION	DOOR FINISH	FRAME MATERIAL	FRAME FINISH	FIRE RATING	COMMENTS
1	3'-0"	7'-0"	EXT	PNT	FG	PNT	-	S.L., PROVIDE PEEPHOLE
2	2'-8"	6'-8"	EXT	PNT	FG	PNT	-	
3	8'-0"	6'-6"	OH	PNT	MTL	PNT	-	INSULATED
4	6'-0"	6'-10"	SLD	FF	FG	FF	-	TEMPERED GLASS
5	2'-10"	6'-8"	INT	PNT	WD	PNT	20 MIN	SOLID CORE, TIGHT FITTING W/ CLOSER
6.1	2'-8"	6'-8"	INT	PNT	WD	PNT	-	
6.2	2'-4"	6'-8"	INT	PNT	WD	PNT	-	
7	5'-0"	6'-8"	SLD	PNT	WD	PNT	-	
8	5'-0"	6'-8"	BFLD	PNT	WD	PNT	-	100 SQ. IN. TRANSFER VENT PER CMC 504.4.1
9	2'-8"	6'-8"	PKT	PNT	WD	PNT	-	



WINDOW SCHEDULE

TYPE MARK	R.O. WIDTH	R.O. HEIGHT	OPERATION	MATERIAL	FINISH	HEAD HEIGHT	SILL HEIGHT	SHGC	U-VALUE	COMMENTS
1	6'-0"	5'-0"	DH	VINYL	FF	VARIES	VARIES	0.23	0.3000	
2	5'-0"	5'-0"	DH	VINYL	FF	7'-6"	2'-6"	0.23	0.3000	
3	2'-0"	4'-0"	DH	VINYL	FF	VARIES	VARIES	0.23	0.3000	
4	3'-0"	5'-0"	DH	VINYL	FF	7'-6"	2'-6"	0.23	0.3000	
5	3'-0"	4'-0"	DH	VINYL	FF	7'-6"	3'-6"	0.23	0.3000	
6	3'-6"	5'-0"	DH	VINYL	FF	7'-6"	2'-6"	0.23	0.3000	
7	2'-0"	2'-0"	CS	VINYL	FF	7'-6"	5'-6"	0.23	0.3000	
8	2'-0"	3'-0"	CS	VINYL	FF	VARIES	VARIES	0.23	0.3000	
9	2'-0"	1'-6"	CS	VINYL	FF	7'-6"	6'-0"	0.23	0.3000	
10	5'-0"	2'-0"	SLD	VINYL	FF	7'-6"	5'-6"	0.23	0.3000	
11	3'-0"	3'-4"	DH	VINYL	FF	VARIES	VARIES	0.23	0.3000	

DOOR NOTES

1. ALL SIZES INDICATED ON THE SCHEDULE ARE NOMINAL ONLY. REFER TO DETAILS AND FIELD CONDITIONS TO DETERMINE EXACT SIZE.
2. ALL WINDOWS SHALL BE DUAL GLAZED WITH WEATHER-STRIPPED OR LOW INFILTRATION FRAMES MEETING ANSI AIR FILTRATION STANDARDS.
3. SAFETY GLAZING SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS PER **CRC 308.4.**
   - GLAZING IN INGRESS/EGRESS DOORS.
   - GLAZING IN SLIDING GLASS DOORS INCLUDING THE FIXED PANEL.
   - GLAZING WITHIN 24" ARC OF THE VERTICAL EDGE OF THE DOOR AND LESS THAN 60" ABOVE WALKING SURFACE.
   - GLAZING IN A WALL, ENCLOSED TUB AND/OR SHOWER LESS THAN 60" ABOVE THE STANDING SURFACE AND DRAIN OUTLET.
   - GLAZING IN EXCESS OF 9 SQ. FT. WITH THE BOTTOM EDGE LESS THAN 18" ABOVE THE FLOOR AND THE TOP EDGE GREATER THAN 36" ABOVE THE FLOOR AND THE WALKING SURFACE WITHIN 36" HORIZONTALLY OF THE PLANE OF GLAZING.
4. VERIFY WALL THICKNESS WHERE DOOR IS TO BE INSTALLED.
5. DOORS SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY, SPECIAL KNOWLEDGE OR EFFORT. FLUSH BOLTS OR SURFACE BOLTS ARE PROHIBITED.
6. HAND-ACTIVATED DOOR OPENING HARDWARE IS TO BE CENTERED BETWEEN 34" AND 44" ABOVE THE FLOOR. LATCHING AND LOCKING DOORS THAT ARE HAND-ACTIVATED AND WHICH ARE IN A PATH OF TRAVEL SHALL BE OPERABLE WITH A SINGLE EFFORT BY LEVER-TYPE HARDWARE, PANIC BARS, PUSH-PULL ACTIVATING BARS OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING THE ABILITY TO GRASP THE OPENING HARDWARE.
7. RATED DOORS SHALL BE POSITIVE LATCHING AND SELF CLOSING.
8. FIRE RATED DOOR AND GLASS SHALL HAVE AN APPROVED LABEL OR LISTING MARK INDICATING THE FIRE PROTECTION RATING WHICH IS PERMANENTLY AFFIXED AT THE FACTORY WHERE FABRICATION AND ASSEMBLY OCCUR.
9. PROVIDE FLASHING AT DOORS PER TYPICAL DOOR FLASHING DETAIL.
10. THERMAL/ACOUSTIC LOW-EXPANSION URETHANE FOAM INSULATION IS TO BE INSTALLED AROUND ALL DOOR FRAME VOIDS AND AT ROUGH OPENINGS BETWEEN SHIMS.
11. DOOR HARDWARE TO COMPLY WITH REGULATORY REQUIREMENTS:
    A. FIRE RATED DOORS: COMPLY WITH REQUIREMENTS OF NFPA 80 AND APPLICABLE CODES FOR FIRE RATED DOOR HARDWARE; PROVIDE HARDWARE BEARING UNDERWRITERS LABORATORY (UL) LABELS.
12. DOOR INSTALLATION TO COMPLY WITH NATIONAL STANDARDS AAMA 2400 AND ASTM 2112.

ABBREVIATIONS

ALUM.	= ALUMINUM	BFLD.	= BIFOLD
ANO.	= ANNODIZED	SLD.	= SLIDING
AWN.	= AWNING	S.C.	= SOLID CORE DOOR
CS.	= CASEMENT	SF.	= ALUM STOREFRONT
DH.	= DOUBLE HUNG	S.H.	= SINGLE HUNG
F.F.	= FACTORY FINISH	S.L.	= SIDE LIGHT
FG.	= FIBERGLASS	STL.	= STEEL
FX.	= FIXED	STN.	= STAIN
H.C.	= HOLLOW CORE DOOR	T	= TEMPERED GLASS
H.M.	= HOLLOW METAL	WD.	= WOOD
MTL.	= METAL		
PKT.	= POCKET		
PNT.	= PAINT		
PR.	= PAIR		

WINDOW GENERAL NOTES

1. ALL SIZES INDICATED ON THE SCHEDULE ARE NOMINAL ONLY. REFER TO DETAILS AND FIELD CONDITIONS TO DETERMINE EXACT SIZE.
2. ALL WINDOWS SHALL BE DUAL GLAZED WITH WEATHER-STRIPPED OR LOW INFILTRATION FRAMES MEETING ANSI AIR FILTRATION STANDARDS.
3. SAFETY GLAZING SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS PER **CRC R308.4**;
   - GLAZING IN INGRESS/EGRESS DOORS
   - GLAZING IN SLIDING GLASS DOORS INCLUDING THE FIXED PANEL
   - GLAZING WITH IN 24" ARC OF THE VERTICAL EDGE OF THE DOOR AND LESS THAN 60" ABOVE WALKING SURFACE
   - GLAZING IN A WALL, ENCLOSED TUB AND/OR SHOWER LESS THAN 60" ABOVE THE STANDING SURFACE AND DRAIN OUTLET
   - GLAZING IN EXCESS OF 9 SQ. FT. WITH THE BOTTOM EDGE LESS THAN 18" ABOVE THE FLOOR AND THE TOP EDGE GREATER THAN 36" ABOVE THE FLOOR AND THE WALKING SURFACE WITHIN 36" HORIZONTALLY OF THE PLANE OF GLAZING.
   - GLAZING WITH A BOTTOM EDGE 36" OR LESS ABOVE STAIRS AND LANDINGS. THIS PROTECTED ZONE EXTENDS 5' FROM THE BOTTOM LANDING OF THE STAIRWAY.

   (1)
4. PROVIDE FLASHING AT NON-FLANGED WINDOWS PER TYPICAL NON-FLANGED WINDOW FLASHING DETAIL.
5. PROVIDE FLASHING AT FLANGED WINDOWS PER TYPICAL FLANGED WINDOW FLASHING DETAIL.
6. DO NOT BLOCK WINDOW SILL WEEP HOLES WITH PAINT, SEALANT, PLASTER OR OTHER FOREIGN MATERIALS.
7. WINDOW INSTALLATION TO COMPLY WITH NATIONAL STANDARDS AAMA 2400 AND ASTM 2112.
8. THERMAL/ACOUSTIC LOW-EXPANSION URETHANE FOAM INSULATION IS TO BE INSTALLED AROUND ALL DOOR FRAME VOIDS AND AT ROUGH OPENINGS BETWEEN SHIMS.
9. WINDOW OPENING CONTROL DEVICES COMPLYING WITH ASTM F2090 SHALL BE INSTALLED AT WINDOWS THAT ARE LESS THAN 36" A.F.F. AND MORE THAN 72" ABOVE FINISHED GRADE AT THE WINDOW OPENING IN QUESTION. WINDOW OPENING CONTROL DEVICES SHALL NOT REDUCE THE NET CLEAR OPENING AREA OF THE WINDOW TO LESS THAN REQUIRED CRC 310.2.1 (5.7 S.F. / 20" W x 24" H).

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-25
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES
DARREN BROWN
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN # 237-0020-092

PLAN CHECK SET

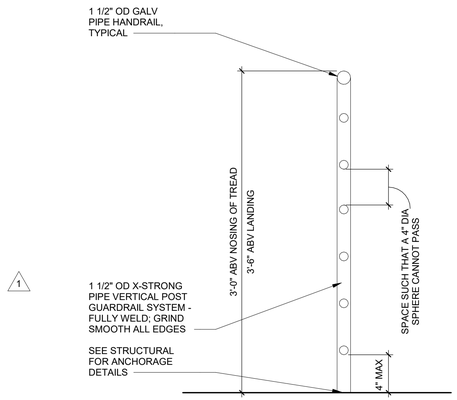
DATE:
06/02/2022

REVISIONS:

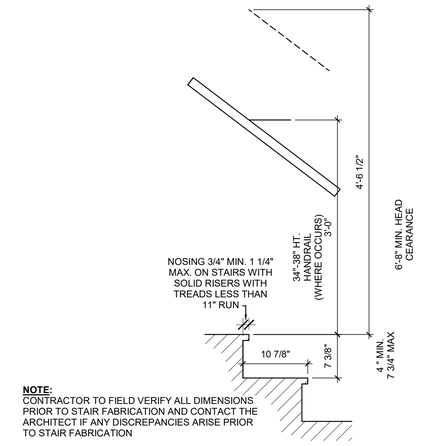
1	CYC2	02.22.2023

SHEET TITLE
DOOR AND WINDOW SCHEDULE

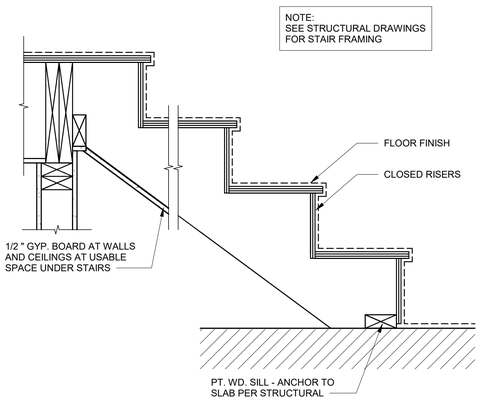
SHEET NO.
A3.11



7 GUARDRAIL SECTION - HORIZONTAL PIPE
1 1/2" = 1'-0"



8 RESIDENTIAL STAIR COMPLIANCE
1" = 1'-0"



9 WOOD STAIR1
1 1/2" = 1'-0"

HANDRAIL NOTES

(EXCERPTS FROM 2019 CALIFORNIA RESIDENTIAL CODE)

R311.7.8 HANDRAILS. HANDRAILS SHALL BE PROVIDED ON NOT LESS THAN ONE SIDE OF EACH CONTINUOUS RUN OF TREADS OR FLIGHT WITH FOUR OR MORE RISERS.

R311.7.8.1 HEIGHT. HANDRAIL HEIGHT, MEASURED VERTICALLY FROM THE SLOPED PLANE ADJOINING THE TREAD NOSING, OR FINISH SURFACE OF RAMP SLOPE, SHALL BE NOT LESS THAN 34 INCHES (864 MM) AND NOT MORE THAN 38 INCHES (965 MM).

EXCEPTIONS:
1. THE USE OF A VOLUTE, TURNOUT OR STARTING EASING SHALL BE ALLOWED OVER THE LOWEST TREAD.

2. WHERE HANDRAIL FITTINGS OR BENDINGS ARE USED TO PROVIDE CONTINUOUS TRANSITION BETWEEN FLIGHTS, TRANSITIONS AT WINDER TREADS, THE TRANSITION FROM HANDRAIL TO GUARD, OR USED AT THE START OF A FLIGHT, THE HANDRAIL HEIGHT AT THE FITTINGS OR BENDINGS SHALL BE PERMITTED TO EXCEED 38 INCHES.

R311.7.8.2 CONTINUITY. HANDRAILS FOR STAIRWAYS SHALL BE CONTINUOUS FOR THE FULL LENGTH OF THE FLIGHT, FROM A POINT DIRECTLY ABOVE THE TOP RISER OF THE FLIGHT TO A POINT DIRECTLY ABOVE THE LOWEST RISER OF THE FLIGHT. HANDRAIL ENDS SHALL BE RETURNED OR SHALL TERMINATE IN NEWEL POSTS OR SAFETY TERMINALS. HANDRAILS ADJACENT TO A WALL SHALL HAVE A SPACE OF NOT LESS THAN 1 1/2 INCHES (38 MM) BETWEEN THE WALL AND THE HANDRAILS.

EXCEPTIONS:
1. HANDRAILS SHALL BE PERMITTED TO BE INTERRUPTED BY A NEWEL POST AT THE TURN.

2. THE USE OF A VOLUTE, TURNOUT, STARTING EASING OR STARTING NEWEL SHALL BE ALLOWED OVER THE LOWEST TREAD.

R311.7.8.3 GRIP-SIZE. REQUIRED HANDRAILS SHALL BE OF ONE OF THE FOLLOWING TYPES OR PROVIDE EQUIVALENT GRASPABILITY.

1. **TYPE I.** HANDRAILS WITH A CIRCULAR CROSS SECTION SHALL HAVE AN OUTSIDE DIAMETER OF NOT LESS THAN 1 1/4 INCHES (32 MM) AND NOT GREATER THAN 2 INCH (51 MM). IF THE HANDRAIL IS NOT CIRCULAR, IT SHALL HAVE A PERIMETER DIMENSION OF NOT LESS THAN 4 INCHES (102 MM) AND NOT GREATER THAN 6 1/4 INCHES (160 MM WITH A CROSS SECTION OF DIMENSION OF NOT MORE THAN 2 1/4 INCHES (57 MM). EDGES SHALL HAVE A RADIUS OF NOT LESS THAN 0.01 INCH (0.25 MM).

2. **TYPE II.** HANDRAILS WITH A PERIMETER GREATER THAN 6 1/4 INCHES (160 MM) SHALL HAVE A GRASPABLE FINGER RECESS AREA ON BOTH SIDES OF THE PROFILE. THE FINGER RECESS SHALL BEGIN WITHIN A DISTANCE OF 3/4 INCH (19 MM) MEASURED VERTICALLY FROM THE TALLEST PORTION OF THE PROFILE AND ACHIEVE A DEPTH OF NOT LESS THAN 5/16 INCH (8 MM) WITHIN 7/8 INCH (22 MM) BELOW THE WIDEST PORTION OF THE PROFILE. THIS REQUIRED DEPTH SHALL CONTINUE FOR NOT LESS THAN 3/8 INCH (10 MM) TO A LEVEL THAT IS NOT LESS THAN 1 3/4 INCHES (45 MM) BELOW THE TALLEST PORTION OF THE PROFILE. THE WIDTH OF THE HANDRAIL ABOVE THE RECESS SHALL BE NOT LESS THAN 1 1/4 INCHES (32 MM) AND NOT MORE THAN 2 3/4 INCHES (70 MM). EDGES SHALL HAVE A RADIUS OF NOT LESS THAN 0.01 INCH (0.25 MM).

R311.7.8.4 EXTERIOR WOOD/PLASTIC COMPOSITE HANDRAILS.
WOOD/PLASTIC COMPOSITE HANDRAILS SHALL COMPLY WITH THE PROVISIONS OF SECTION R507.3.

1

R311.7.8.3
HANDRAILS ADJACENT TO THE WALL SHALL HAVE A SPACE OF NOT LESS THAN 1 ½" BETWEEN THE WALL AND HANDRAILS

GUARDRAIL NOTES

(EXCERPTS FROM 2019 CALIFORNIA RESIDENTIAL CODE)

R312.1 GUARDS. GUARDS SHALL BE PROVIDED IN ACCORDANCE WITH SECTIONS R312.1.1 THROUGH R312.1.4.

R312.1.1 WHERE REQUIRED. GUARDS SHALL BE LOCATED ALONG OPEN-SIDED WALKING SURFACES, INCLUDING STAIRS, RAMPS AND LANDINGS, THAT ARE LOCATED MORE THAN 30 INCHES (762 MM) MEASURED VERTICALLY TO THE FLOOR OR GRADE BELOW AT ANY POINT WITHIN 36 INCHES (914 MM) HORIZONTALLY TO THE EDGE OF THE OPEN SIDE. INSECT SCREENING SHALL NOT BE CONSIDERED AS A GUARD.

R312.1.2 HEIGHT. REQUIRED GUARDS AT OPEN-SIDED WALKING SURFACES, INCLUDING STAIRS, PORCHES, BALCONIES OR LANDINGS, SHALL BE NOT LESS THAN 42 INCHES (1067 MM) HIGH MEASURED VERTICALLY ABOVE THE ADJACENT WALKING SURFACE. ADJACENT FIXED SEATING OR THE LINE CONNECTING THE LEADING EDGES OF THE TREADS.

EXCEPTIONS:
1. GUARDS ON THE OPEN SIDES OF STAIRS SHALL HAVE A HEIGHT NOT LESS THAN 34 INCHES (864 MM) MEASURED VERTICALLY FROM A LINE CONNECTING THE LEADING EDGES OF THE TREADS.

2. WHERE THE TOP OF THE GUARD ALSO SERVES AS A HANDRAIL ON THE OPEN SIDES OF STAIRS, THE TOP OF THE GUARD SHALL NOT BE NOT LESS THAN 34 INCHES (864 MM) AND NOT MORE THAN 38 INCHES (965 MM) MEASURED VERTICALLY FROM A LINE CONNECTING THE LEADING EDGES OF THE TREADS.

R312.1.3 OPENING LIMITATIONS. REQUIRED GUARDS SHALL NOT HAVE OPENINGS FROM THE WALKING SURFACE TO THE REQUIRED GUARD HEIGHT WHICH ALLOW PASSAGE OF A SPHERE 4 INCHES (102 MM) IN DIAMETER.

EXCEPTIONS:
1. THE TRIANGULAR OPENINGS AT THE OPEN SIDE OF A STAIR, FORMED BY THE RISER, TREAD AND BOTTOM RAIL OF A GUARD, SHALL NOT ALLOW PASSAGE OF A SPHERE 6 INCHES (153 MM) IN DIAMETER.

2. GUARDS ON THE OPEN SIDES OF STAIRS SHALL NOT HAVE OPENINGS WHICH ALLOW PASSAGE OF A SPHERE 4 3/8 INCHES (111 MM) IN DIAMETER.

STAIR NOTES

(EXCERPTS FROM 2019 CALIFORNIA RESIDENTIAL CODE)

R311.7 STAIRWAYS.

R311.7.1 WIDTH. STAIRWAYS SHALL NOT BE LESS THAN 36 INCHES (914 MM) IN CLEAR WIDTH AT ALL POINTS ABOVE THE PERMITTED HANDRAIL HEIGHT AND BELOW THE REQUIRED HEADROOM HEIGHT. HANDRAILS SHALL NOT PROJECT MORE THAN 4.5 INCHES (114 MM) ON EITHER SIDE OF THE STAIRWAY AND THE MINIMUM CLEAR WIDTH OF THE STAIRWAY AT AND BELOW THE HANDRAIL HEIGHT, INCLUDING TREADS AND LANDINGS, SHALL NOT BE LESS THAN 31 1/2 INCHES (787 MM) WHERE A HANDRAIL IS INSTALLED ON ONE SIDE AND 27 INCHES (698 MM) WHERE HANDRAILS ARE PROVIDED ON BOTH SIDES.

EXCEPTION: THE WIDTH OF SPIRAL STAIRWAYS SHALL BE IN ACCORDANCE WITH SECTION R311.7.10.1

R311.7.2 HEADROOM. THE MINIMUM HEADROOM IN ALL PARTS OF THE STAIRWAY SHALL NOT BE LESS THAN 6 FEET 8 INCHES (2032 MM) MEASURED VERTICALLY FROM THE SLOPED LINE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OF THE LANDING OR PLATFORM ON THAT PORTION OF THE STAIRWAY.

EXCEPTION:
1. WHERE THE NOSINGS OF TREADS AT THE SIDE OF A FLIGHT EXTEND UNDER THE EDGE OF A FLOOR OPENING THROUGH WHICH THE STAIR PASSES, THE FLOOR OPENING SHALL BE ALLOWED TO PROJECT HORIZONTALLY INTO THE REQUIRED HEADROOM A MAXIMUM OF 4 3/4 INCHES (121 MM).
2. HEADROOM FOR SPIRAL STAIRWAYS SHALL BE IN ACCORDANCE WITH SECTION R311.7.10.1.

R311.7.3 VERTICAL RISE. A FLIGHT OF STAIRS SHALL NOT HAVE A VERTICAL RISE LARGER THAN 12'-3" BETWEEN FLOOR LEVELS OR LANDINGS.

R311.7.4 WALKLINE. THE WALKLINE ACROSS WINDER TREADS SHALL BE CONCENTRIC TO THE CURVED DIRECTION OF TRAVEL THROUGH THE TURN AND LOCATED 12 INCHES (305 MM) FROM THE SIDE WHERE THE WINDERS ARE NARROWER. THE 12-INCH (305 MM) DIMENSION SHALL BE MEASURED FROM THE WIDEST POINT OF THE CLEAR STAIR WIDTH AT THE WALKING SURFACE OF THE WINDER. IF WINDERS ARE ADJACENT WITHIN THE FLIGHT, THE POINT OF THE WIDEST CLEAR STAIR WIDTH OF THE ADJACENT WINDERS SHALL BE USED.

R311.7.5 STAIR TREADS AND RISERS. STAIR TREADS AND RISERS SHALL MEET THE REQUIREMENTS OF THIS SECTION. FOR THE PURPOSES OF THIS SECTION ALL DIMENSIONS AND DIMENSIONED SURFACES SHALL BE EXCLUSIVE OF CARPETS, RUGS OR RUNNERS.

R311.7.5.1 RISERS. THE MAXIMUM RISER HEIGHT SHALL BE 7 3/4 INCHES (196 MM). THE RISER SHALL BE MEASURED VERTICALLY BETWEEN LEADING EDGES OF THE ADJACENT TREADS. THE GREATEST RISER HEIGHT WITHIN ANY FLIGHT OF STAIRS SHALL NOT EXCEED THE SMALLEST BY MORE THAN 3/8 INCH (9.5 MM). RISERS SHALL BE VERTICAL OR SLOPED FROM THE UNDERSIDE OF THE NOSING OF THE TREAD ABOVE AT AN ANGLE NOT MORE THAN 30 DEGREES FROM THE VERTICAL. OPEN RISERS ARE PERMITTED PROVIDED THAT THE OPENINGS LOCATED MORE THAN 30", AS MEASURED VERTICALLY, TO THE FLOOR OR GRADE BELOW DOES NOT PERMIT THE PASSAGE OF A 4-INCH-DIAMETER SPHERE.

EXCEPTION:
1. THE OPENING BETWEEN ADJACENT TREADS IS NOT LIMITED ON SPIRAL STAIRWAYS.

2. THE RISER HEIGHT OF SPIRAL STAIRWAYS SHALL BE IN ACCORDANCE WITH SECTION R311.7.10.1.

R311. 7.5.2 TREADS. THE MINIMUM TREAD DEPTH SHALL BE 10 INCHES (254 MM). THE TREAD DEPTH SHALL BE MEASURED HORIZONTALLY BETWEEN THE VERTICAL PLANES OF THE FOREMOST PROJECTION OF ADJACENT TREADS AND AT A RIGHT ANGLE TO THE TREAD'S LEADING EDGE. THE GREATEST TREAD DEPTH WITHIN ANY FLIGHT OF STAIRS SHALL NOT EXCEED THE SMALLEST BY MORE THAN 3/8 INCH (9.5 MM).

R311. 7.5.2.1 WINDER TREADS. WINDER TREADS SHALL HAVE A MINIMUM TREAD DEPTH OF 10 INCHES (254 MM) MEASURED BETWEEN THE VERTICAL PLANES OF THE FOREMOST PROJECTION OF ADJACENT TREADS AT THE INTERSECTIONS WITH THE WALKLINE. WINDER TREADS SHALL HAVE A MINIMUM TREAD DEPTH OF 6 INCHES (152 MM) AT ANY POINT WITHIN THE CLEAR WIDTH OF THE STAIR. WITHIN ANY FLIGHT OF STAIRS, THE LARGEST WINDER TREAD DEPTH AT THE WALKLINE SHALL NOT EXCEED THE SMALLEST WINDER TREAD BY MORE THAN 3/8 INCH (9.5 MM). CONSISTENTLY SHAPED WINDERS AT THE WALKLINE SHALL BE ALLOWED WITHIN THE SAME FLIGHT OF STAIRS AS RECTANGULAR TREADS AND DO NOT HAVE TO BE WITHIN 3/8 INCH (9.5 MM) OF THE RECTANGULAR TREAD DEPTH.

EXCEPTION:
1. THE TREAD DEPTH AT SPIRAL STAIRWAYS SHALL BE IN ACCORDANCE WITH SECTION R311.7.10.1.

R311.7.5.3 NOSINGS. THE RADIUS OF CURVATURE AT THE NOSING SHALL BE NO GREATER THAN 9/16 INCH (14 MM). A NOSING NOT LESS THAN 3/4 INCH (19 MM) BUT NOT MORE THAN 1 1/4 INCHES (32 MM) SHALL BE PROVIDED ON STAIRWAYS WITH SOLID RISERS. THE GREATEST NOSING PROJECTION SHALL NOT EXCEED THE SMALLEST NOSING PROJECTION BY MORE THAN 3/8 INCH (9.5 MM) BETWEEN TWO STORIES, INCLUDING THE NOSING AT THE LEVEL OF FLOORS AND LANDINGS. BEVELING OF NOSINGS SHALL NOT EXCEED 1/2 INCH (12.7 MM).

EXCEPTION: A NOSING IS NOT REQUIRED WHERE A TREAD DEPTH IS A MINIMUM OF 11".

R311.7.5.4 EXTERIOR WOOD/PLASTIC COMPOSITE STAIR TREADS. WOOD/PLASTIC COMPOSITE STAIR TREADS SHALL COMPLY WITH THE PROVISIONS OF THIS SECTION AND SECTION R507.3.

R311.7.6 LANDINGS FOR STAIRWAYS. THERE SHALL BE A FLOOR OR LANDING AT THE TOP AND BOTTOM OF EACH STAIRWAY. THE MINIMUM WIDTH PERPENDICULAR TO THE DIRECTION OF TRAVEL SHALL BE NO LESS THAN THE WIDTH OF THE FLIGHT SERVED. LANDING OF SHAPES OTHER THAN SQUARE OR RECTANGULAR SHALL BE PERMITTED PROVIDED THE DEPTH AT THE WALK LINE AND THE TOTAL AREA IS NOT LESS THAN THAT OF A QUARTER CIRCLE WITH A RADIUS EQUAL TO THE REQUIRED LANDING WIDTH. WHERE THE STAIRWAY HAS A STRAIGHT RUN, THE MINIMUM DEPTH IN THE DIRECTION OF TRAVEL SHALL NOT BE LESS THAN 36".

EXCEPTION: A FLOOR OR LANDING IS NOT REQUIRED AT THE TOP OF AN INTERIOR FLIGHT OF STAIRS, INCLUDING STAIRS IN AN ENCLOSED GARAGE, PROVIDED A DOOR DOES NOT SWING OVER THE STAIRS.

R311.7.7 STAIRWAY WALKING SURFACE. THE WALKING SURFACE OF TREADS AND LANDINGS OF STAIRWAYS SHALL BE SLOPED NO STEEPER THAN ONE UNIT VERTICAL IN 48 INCHES HORIZONTAL (2-PERCENT SLOPE)

R311.7.9 ILLUMINATION. ALL STAIRS SHALL BE PROVIDED WITH ILLUMINATION IN ACCORDANCE WITH SECTION R303.6.

R311.7.10 SPECIAL STAIRWAYS. SPIRAL STAIRWAYS AND BULKHEAD ENCLOSURE STAIRWAYS SHALL COMPLY WITH ALL REQUIREMENTS OF SECTION R311. 7 EXCEPT AS SPECIFIED BELOW.

R311.7.10.1 SPIRAL STAIRWAYS. SPIRAL STAIRWAYS ARE PERMITTED, PROVIDED THE MINIMUM CLEAR WIDTH AT AND BELOW THE HANDRAIL SHALL BE 26 INCHES (660 MM) WITH EACH TREAD HAVING A 71/2-INCH (190 MM) MINIMUM TREAD DEPTH AT 12 INCHES (914 MM) FROM THE NARROWER EDGE. ALL TREADS SHALL BE IDENTICAL, AND THE RISE SHALL BE NO MORE THAN 9 1/2 INCHES (241 MM). A MINIMUM HEADROOM OF 6 FEET 6 INCHES (1982 MM) SHALL BE PROVIDED.

R311.7.10.2 BULKHEAD ENCLOSURE STAIRWAYS. STAIRWAYS SERVING BULKHEAD ENCLOSURES, NOT PART OF THE REQUIRED BUILDING EGRESS, PROVIDING ACCESS FROM THE OUTSIDE GRADE LEVEL TO THE BASEMENT SHALL BE EXEMPT FROM THE REQUIREMENTS OF SECTIONS 311.3 AND 311.7 WHERE THE HEIGHT FROM THE BASEMENT FINISHED FLOOR LEVEL TO GRADE ADJACENT TO THE STAIRWAY IS NOT MORE THAN 8 FEET (2438 MM) AND THE GRADE LEVEL OPENING TO THE STAIRWAY IS COVERED BY A BULKHEAD ENCLOSURE WITH HINGED DOORS OR OTHER APPROVED MEANS.

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSESIAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:
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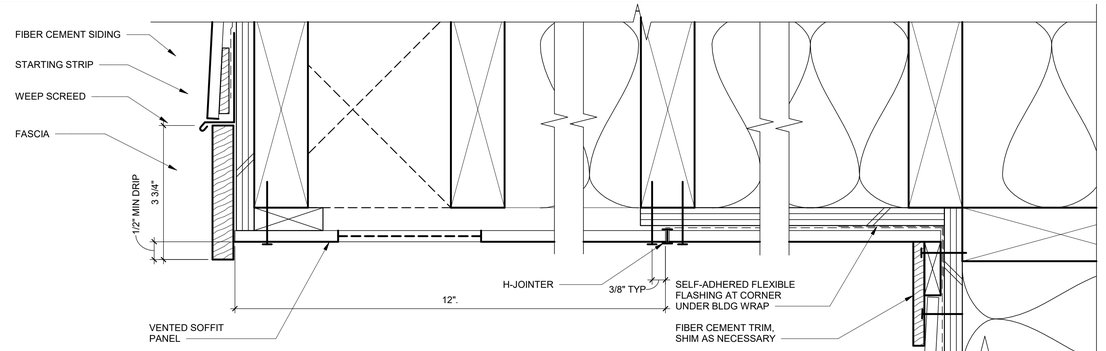
1	CYC2	02.22.2023

SHEET TITLE
STAIR AND RAILING DETAILS

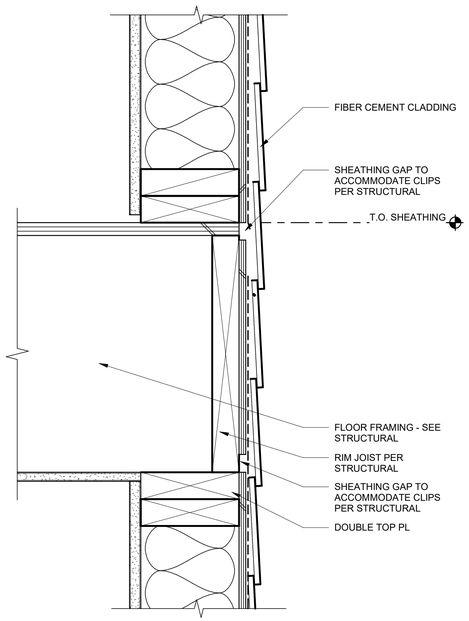
SHEET NO.
A8.11



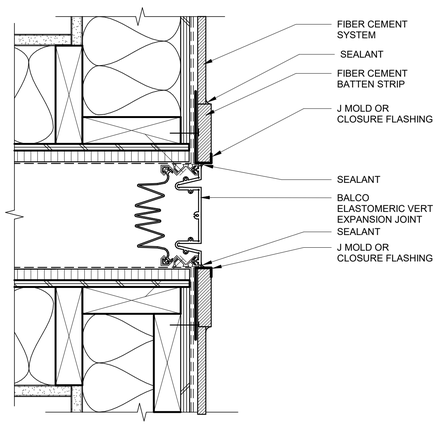
A OUTSIDE SOFFIT CORNER
VERTICAL SECTION

B SOFFIT PANEL CONNECTION
VERTICAL SECTION

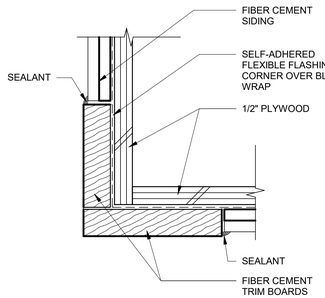
C VERTICAL CORNERS
VERTICAL SECTION



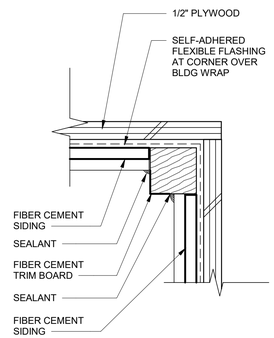
1 EXTERIOR FLOOR / WALL / CEILING - FIBER CEMENT
3" = 1'-0"



9 SEISMIC COVER AT EXTERIOR WALL SYSTEM
3" = 1'-0"

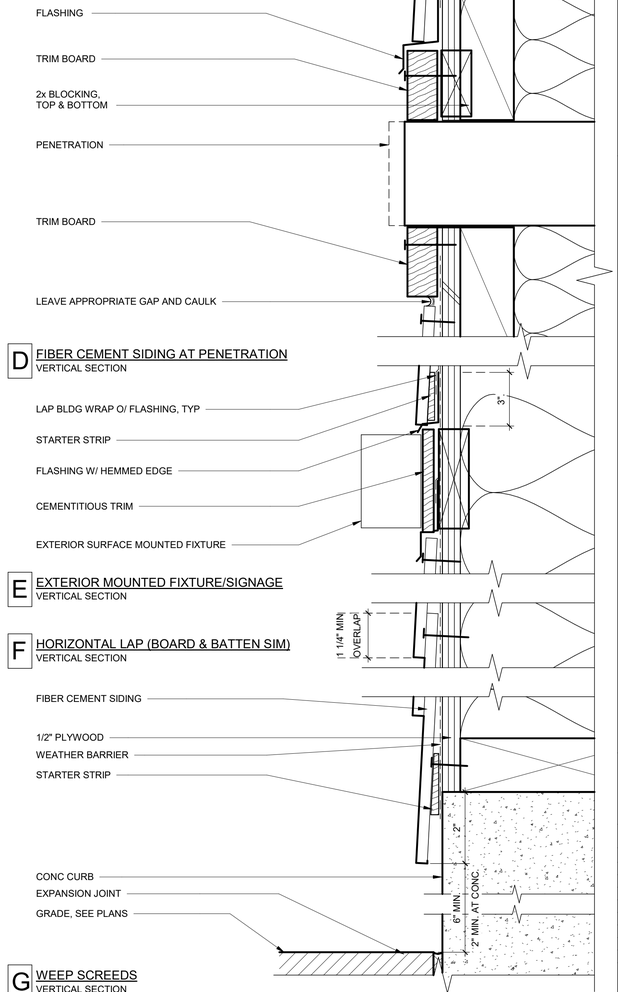


H OUTSIDE CORNERS
PLAN SECTION



J INSIDE CORNER
HORIZONTAL SECTION

6 FIBER CEMENT SIDING O/ WOOD STUDS
6" = 1'-0"



D FIBER CEMENT SIDING AT PENETRATION
VERTICAL SECTION

E EXTERIOR MOUNTED FIXTURE/SIGNAGE
VERTICAL SECTION

F HORIZONTAL LAP (BOARD & BATTEN SIM)
VERTICAL SECTION

G WEEP SCREEDS
VERTICAL SECTION

NOTE:
FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR FIBER CEMENT SIDING
SEE JAMES HARDIE SIDING TECHNICAL BULLETIN #19 FOR INSTALLING FIBER CEMENT SIDING OVER 1" RIGID INSULATION

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
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NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

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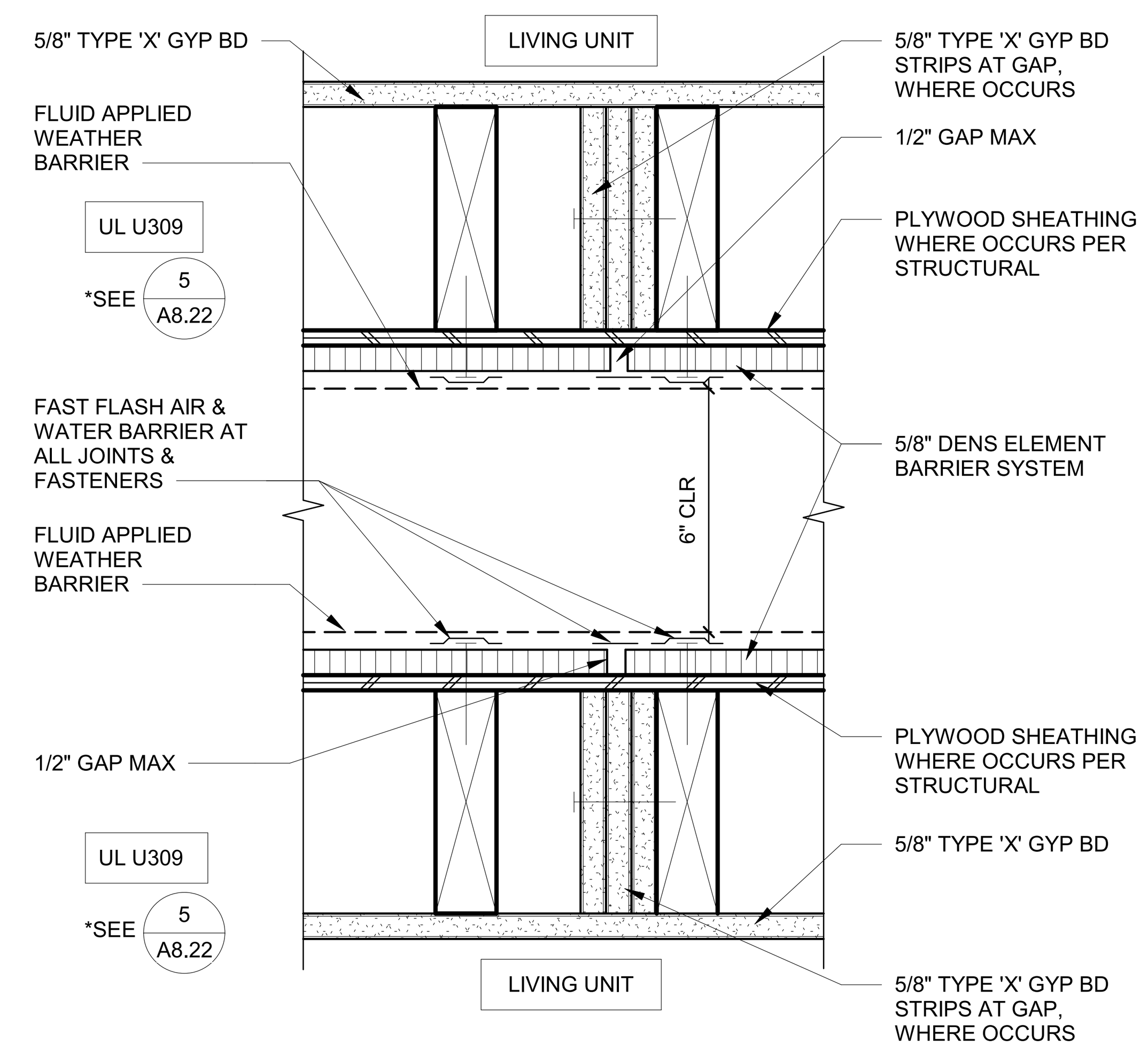
REVISIONS:

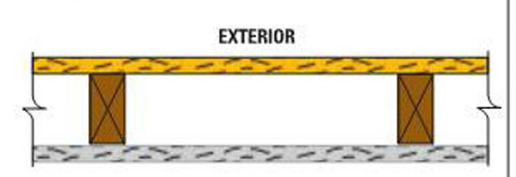
SHEET TITLE
EXTERIOR DETAILS - FIBER CEMENT

SHEET NO.
A8.21

IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY



4 1-HR SEPARATION WALL2
3" = 1'-0"

1-Hour Fire Rating	35-39 STC Sound Trans.
Design Reference: UL U309, cUL U309, GA WP 3510	Test Reference: NGC 35-39
	Wall Thickness: 4-7/8" (124 mm) Weight per Sq. Ft.: 7.5 (37 Kg/m²) Exterior: 5/8" (15.9 mm) DensGlass Fireguard Sheathing applied vertically or horizontally to 2 x 4 wood studs spaced 24" (610 mm) o.c. with 1-7/8" (48 mm) galvanized roofing nails 7" (178 mm) o.c. Interior: 5/8" (15.9 mm) DensArmor Plus Fireguard or 5/8" (15.9 mm) ToughRock® Fireguard X™ to framing with 1-7/8" (48 mm) 6d coated nails 7" (178 mm) o.c.

ONLINE CERTIFICATIONS DIRECTORY

Design No. U309
BXUV.U309
Fire Resistance Ratings - ANSI/UL 263

Page Bottom

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

Design No. U309

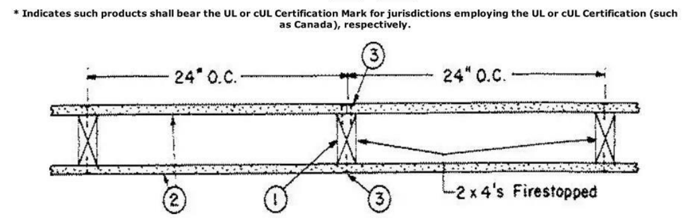
July 14, 2016

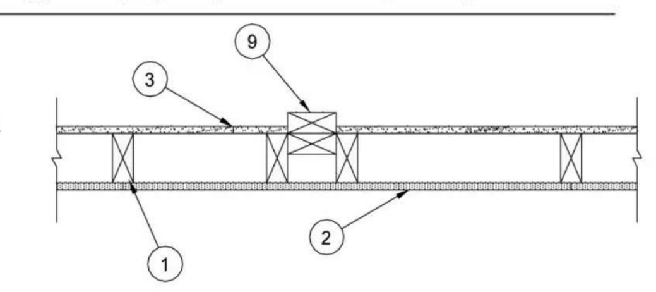
Bearing Wall Rating — 1 Hr.

Finish Rating — See Items 2, 2A and 2B

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**





1. **Wood Studs —** Nom 2 by 4 in., spaced 24 in. OC effectively firestopped.

2. **Gypsum Board* —** 5/8 in. thick, 4 ft wide, applied either horizontally or vertically, nailed to studs and bearing plates with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads spaced 7 in. OC. Finish Rating 27 Min. When used in widths other than 48 in., gypsum board to be installed horizontally.

When **Steel Framing Members*** (Items 5, 5A, or 5B) are used, wallboard attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

When Item 6, resilient channels are used, 5/8 in. thick, 4 ft wide applied vertically. Screw attached furring channels with 1 in. long, self-drilling, self-tapping Type S or S-12 steel screws spaced 8 in. OC, vertical joints located midway between studs.

ACADIA DRYWALL SUPPLIES LTD — Type X, 5/8 Type X, Type Blueglass Exterior Sheathing

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1

CERTAINTEED GYPSUM INC — Type X, Type X-1, Types EGRG, GlasRoc, or Type C

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC6A, LGFC2A, LGFC-C/A, LGCF-WD, LGLLX

GEORGIA-PACIFIC GYPSUM L L C — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6, LS (finish rating 23 min), Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, TG-C, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW, Sheathing Type- DGLW, Soffit-Type DGLW, Type LW2X, Veneer Plaster Base - Type LW2X, Water Rated - Type LW2X, Sheathing - Type LW2X, Soffit - Type LW2X, Type DGL2W, Water Rated - Type DGL2W, Sheathing - Type DGL2W

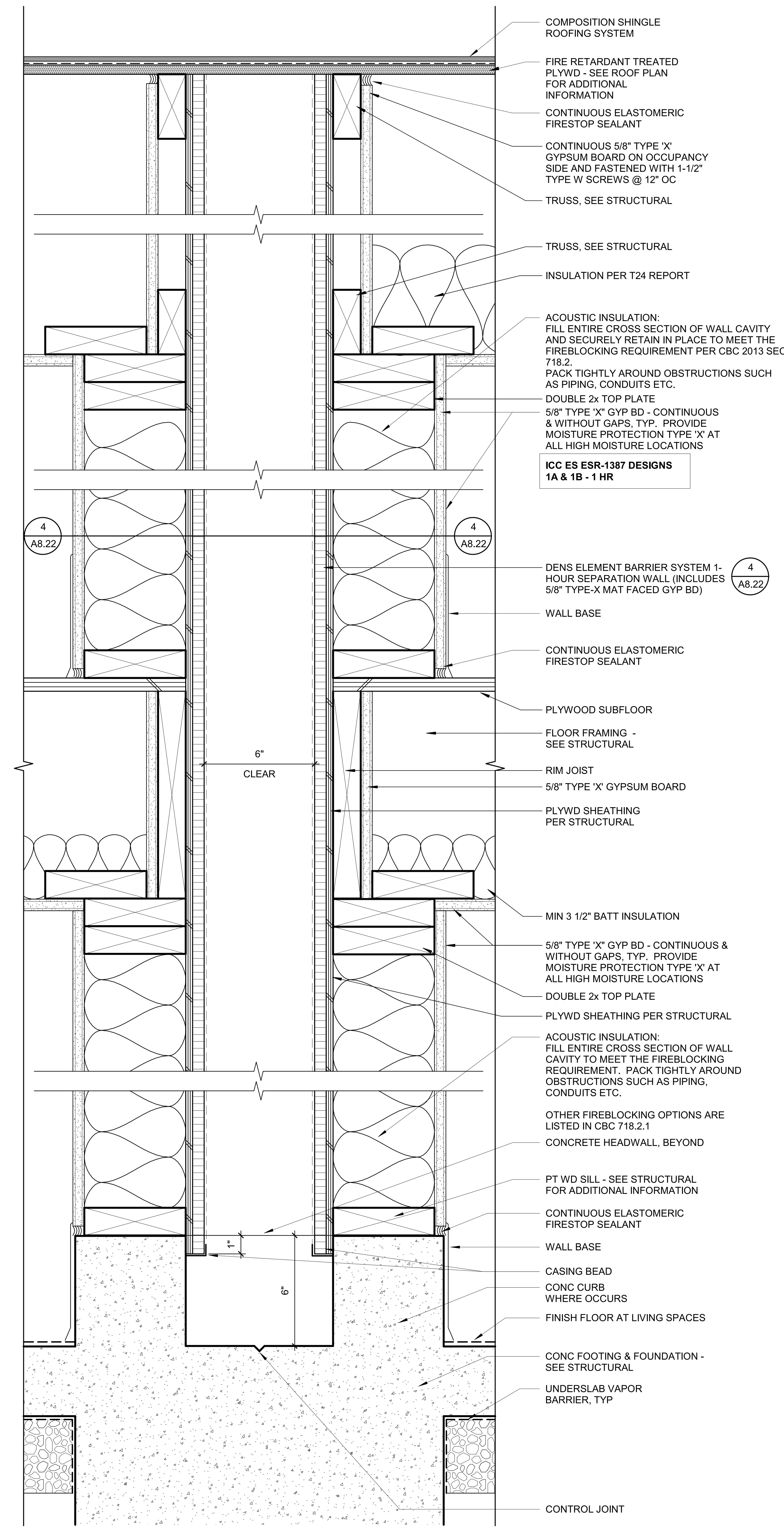
NATIONAL GYPSUM CO — Types -eXP-C, FSK, FSK-C, FSW, FSW-3, FSW-5, FSW-C, FSW-G, FSMR-C, FSW-6 (finish rating 20 min), FSL, FSW-8

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type C, PG-9, PG-11, PG-C, PGS-WRS

PANEL REY S A — Types GREX, PRC, PRC2, PRX, RHX, MDX, ETX

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1

5 1 HR WALL - UL U309
1/4" = 1'-0"



3 FLOOR / CEILING / WALL RATED ASSEMBLY BETWEEN UNITS
3" = 1'-0"

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ellis-architects.com

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NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
DETAILS - RATED

SHEET NO.
A8.22

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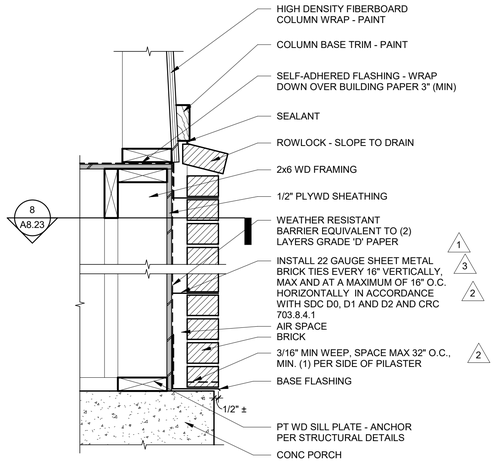
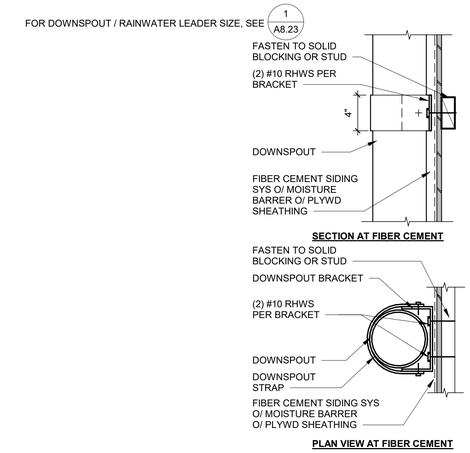
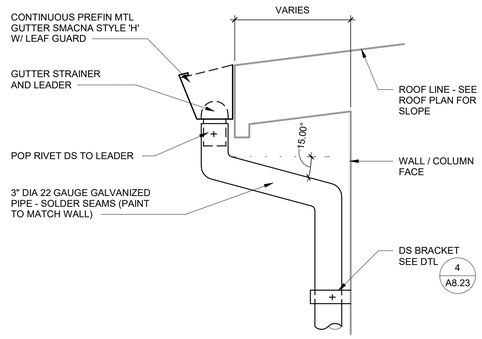


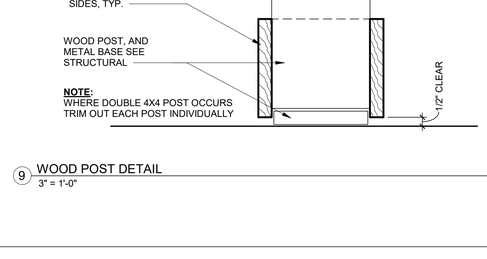
7 BRICK PILASTER SECTION
1 1/2" = 1'-0"



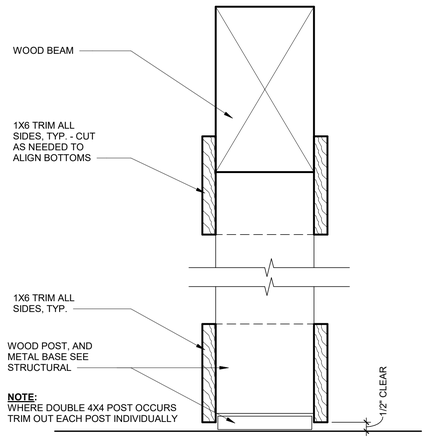
4 DOWNSPOUT / RAINWATER LEADER BRACKET
1 1/2" = 1'-0"



1 DOWNSPOUT DETAIL
1 1/2" = 1'-0"



8 PLAN SECTION AT BRICK PILASTER
1 1/2" = 1'-0"



9 WOOD POST DETAIL
3" = 1'-0"

CONCRETE SLABS TO RECEIVE RESILIENT FLOORING, CARPET, CARPET TILES, OR WOOD FLOORING MUST BE PREPARED ACCORDING TO 'ASTM F 710 - PREPARATION OF CONCRETE SLABS TO RECEIVE RESILIENT FLOORING' INCLUDING THE FOLLOWING:

• SLABS SHALL BE DRY, CLEAN, SMOOTH, AND STRUCTURALLY SOUND

• SLABS SHALL BE FREE OF DUST, SOLVENT, PAINT, WAX, OIL, GREASE, RESIDUAL ADHESIVE, ADHESIVE REMOVERS; CURING, SEALING, HARDENING, OR PARTING COMPOUNDS; ALKALINE SALTS, EXCESSIVE CARBONATION OR LAITANCE, MOLD, MILDEW, AND OTHER FOREIGN MATERIALS THAT MIGHT PREVENT ADHESIVE BOND.

• **CALCIUM CHLORIDE MOISTURE TESTS** (ASTM F1869); RESULTS SHALL BE 3 POUNDS PER 1000 SQUARE FEET OR LESS OR PER RESILIENT FLOORING MANUFACTURER'S RECOMMENDATIONS

• **RH PROBE TEST** 75% OR LESS OR RESILIENT FLOORING MANUFACTURER'S RECOMMENDATIONS. PROVIDE DIGITAL RH METER BY ONE OF THE FOLLOWING OR ACCEPTED EQUAL:

1. RAPID RH 4.0 EASY READER WITH SMART SENSORS BY WAGNER ELECTRONICS, ROGUE RIVER, OR; 800-634-9961, WWW.WAGNERMETERS.COM.
2. HYGROMASTER WITH HYGROSTIK BY GE SENSING, GOLETA, CA; 800-472-6075, WWW.GESENSING.COM
3. TOTALCHECK RH TESTER BY DELMHORST INSTRUMENT CO., TOWACO, NJ; 973-334-2557, WWW.DELMHORST.COM.
4. DIGITAL RH METER: RELATIVE HUMIDITY METER WITH PROBES AND SLEEVES BY AMERICAN MOISTURE TEST, TUSTIN, CA; 866-670-9700, AMERICANMOISTURETEST.COM.

• **ALKALINITY TESTING**; MAXIMUM PH OF 9. PROVIDE DIGITAL PH METER BY ONE OF THE FOLLOWING OR ACCEPTED EQUAL:

1. MODEL PH100 EXSTIK® PH METER BY EXTECH INSTRUMENTS CORPORATION, WALTHAM, MA; 781-890-7440, WWW.EXTECH.COM.
2. MODEL #PH100 BY TAYLOR TOOLS, DENVER, CO; 303-371-7667, WWW.TAYLORTOOLS.COM.
3. AMT CONCRETE DIGITAL ALKALINITY-PH METER BY AMERICAN MOISTURE TEST, TUSTIN, CA; 866-670-9700, AMERICANMOISTURETEST.COM.

• DON'T USE ADHESIVE REMOVERS

• RADIANT HEATED FLOORS: SURFACE TEMPERATURE SHOULD NOT EXCEED 85 DEGREES F (29 DEGREES C)

• FLATNESS REQUIREMENTS: +3/16" IN 10 FEET (FF32)

• DRYING TIME FOR SLAB: MINIMUM OF 60 - 90 DAYS

• WATER/CEMENT RATIO: 0.040 TO 0.45

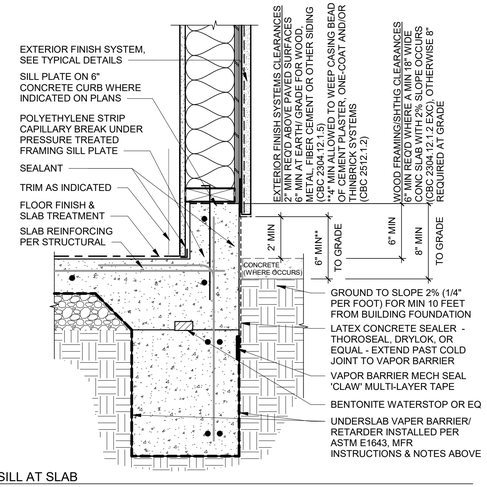
• **VAPOR EMISSION CONTROL SYSTEMS** ARE RECOMMENDED UNDER ALL ON- AND BELOW-GRADE CONCRETE FLOORS. SUGGESTED PRODUCTS INCLUDE:

1. KOSTER AMERICAN CORPORATION, VIRGINIA BEACH, VA; PHONE: 757-425-1206; WWW.KOSTERUSA.COM. PRODUCTS: VAP 1® 2000, VAP 1 LEVEL PRO SELF LEVELING UNDERLAYMENT, VAP 1 LEVEL PRO FINISH, VAP 06 PRIMER.
2. ARDEX ENGINEERED CEMENTS, ALIQUIPPA, PA; PHONE: 724-203-5000; WWW.ARDEX.COM. PRODUCTS: MC ULTRA, ARDEX CEMENTITIOUS UNDERLAYMENT PRODUCTS AS REQUIRED.

6 CONCRETE SLAB PREPARATION FOR FLOORING
1/4" = 1'-0"

UNDERSLAB VAPOR BARRIER/ RETARDER INSTALLATION

1. UNDERSLAB VAPOR BARRIER/RETARDER, PLASTIC: PERFORMANCE SHALL EXCEED ASTM E1745, CLASS A REQUIREMENTS, AS MODIFIED BELOW. MATERIAL PROPERTIES SHALL MATCH ONE OF THE ACCEPTABLE PRODUCTS LISTED BELOW.
   - THICKNESS: MINIMUM 15 MILS (ACI 302.2R, AS APPLICABLE).
   - WATER VAPOR PERMEANCE (AS TESTED BEFORE AND AFTER ASTM E1745 MANDATORY CONDITIONING): MAXIMUM 0.01 PERMS (BASED ON TEST METHOD ASTM E1745).
   - TENSILE STRENGTH: MINIMUM 70 LBF/IN (ASTM D882).
   - PUNCTURE RESISTANCE: MINIMUM 2270 G (ASTM D1709, METHOD B).
   - ACCEPTABLE PRODUCTS:
     - VIPER VAPORCHECK II 15 MIL BY INSULATION SOLUTIONS, INC.
     - VAPORBLOCK VB15 BY RAVEN INDUSTRIES.
     - GRIFFOLYN® 15 MIL GREEN BY REEF INDUSTRIES, INC.
     - 15 MIL VAPOR BARRIER BY STEGO INDUSTRIES, LLC.
     - PERMINATOR 15 MIL BY W.R. MEADOWS, INC.
2. UNDERSLAB VAPOR RETARDER INSTALLATION: INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, ASTM E1643, AND AS INDICATED BELOW:
   - LAY UNDERSLAB VAPOR RETARDER AT INTERIOR ON-GROUND CONCRETE WORK AND AS INDICATED ON DETAILS
   - APPLY UNDERSLAB VAPOR RETARDER DIRECTLY ON UNDERLYING SUBGRADE. BASE COURSE, OR CAPILLARY WATER BARRIER, UNLESS IT CONSISTS OF CRUSHED MATERIAL OR LARGE GRANULAR MATERIALS WHICH COULD PUNCTURE THE UNDERSLAB VAPOR RETARDER. IN THIS CASE, CHOKE THE SURFACE WITH A BEDDING LAYER OF APPROXIMATELY 1/2 INCH FINE-GRADED MATERIAL ROLLED OR COMPACTED OVER THE FILL BEFORE PLACING THE UNDERSLAB VAPOR RETARDER.
   - UNROLL VAPOR RETARDER WITH LONGEST DIMENSION PARALLEL WITH DIRECTION OF CONCRETE PLACEMENT.
   - LAY VAPOR RETARDER USING THE GREATEST WIDTHS AND LENGTHS PRACTICABLE TO ELIMINATE JOINTS WHEREVER POSSIBLE. LAP OVER FOOTINGS AND SEAL TO FOUNDATION WALLS.
   - OVERLAP JOINTS 6 INCHES AND SEAL WITH COMPATIBLE SEAL TAPE PER MANUFACTURER'S WRITTEN RECOMMENDATIONS.
   - SEAL ALL PENETRATIONS PER MANUFACTURER'S WRITTEN INSTRUCTIONS USING MASTIC AND SEAL TAPE. NO PENETRATION OF UNDERSLAB VAPOR RETARDER IS PERMITTED EXCEPT FOR REINFORCING STEEL AND PERMANENT UTILITIES.
   - REPLACE TORN, PUNCTURED, AND DAMAGED UNDERSLAB VAPOR RETARDER MATERIAL PRIOR TO PLACING CONCRETE.
   - MINOR REPAIRS MAY BE MADE BY PATCHES OF UNDERSLAB VAPOR RETARDER OVERLAPPING EDGES 6 INCHES AND SEALING ALL FOUR SIDES WITH TAPE.
   - CONTROL CONCRETE PLACEMENT SO AS TO PREVENT DAMAGE TO UNDERSLAB VAPOR RETARDER. SCREED PINS AND SIMILAR IMPLEMENTS THAT WILL PUNCTURE UNDERSLAB VAPOR RETARDER ARE NOT PERMISSIBLE.



3 SILL AT SLAB
1 1/2" = 1'-0"

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT SARAH NERSESIAN ELLIS C-29460 REN. 07-31-25 STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

1	CYC2	02.22.2023
2	CYC3	05.19.2023
3	CYC4	07.07.2023

SHEET TITLE
EXTERIOR DETAILS

SHEET NO.
A8.23

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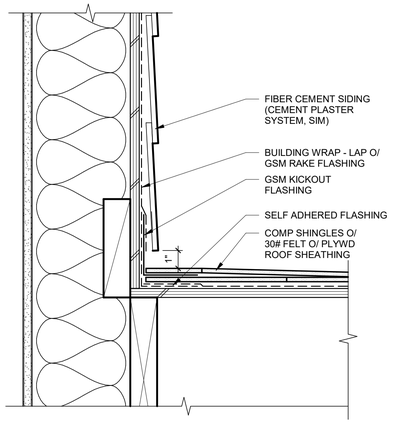
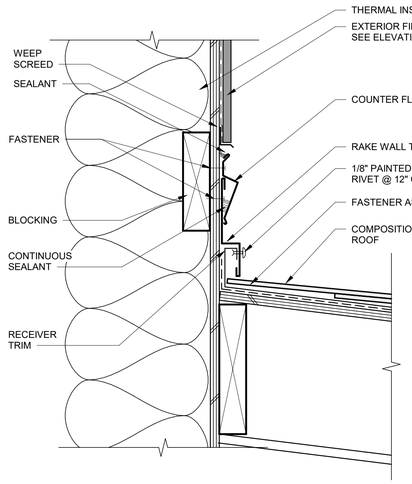
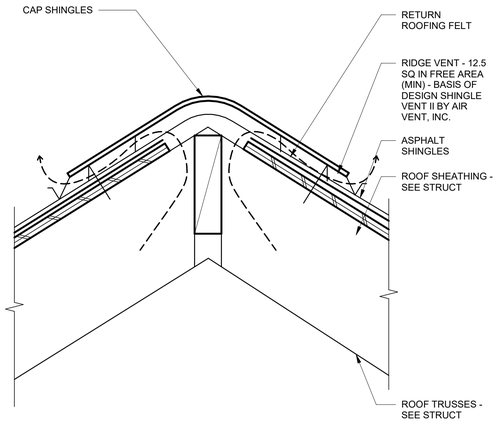


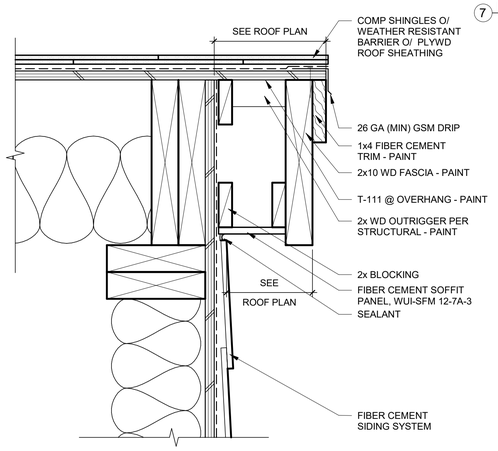
7 ROOF TO WALL
3" = 1'-0"



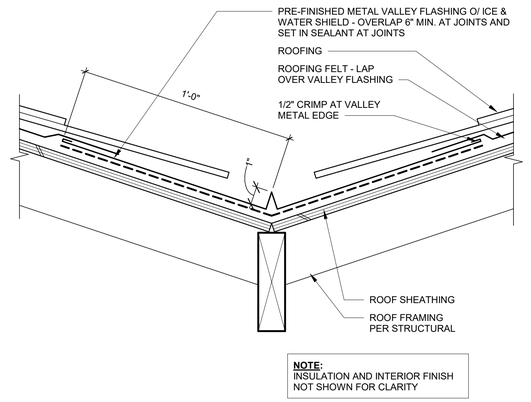
4 COMPOSITION SHINGLE - TRANSITION
3" = 1'-0"



1 RIDGE VENT
3" = 1'-0"

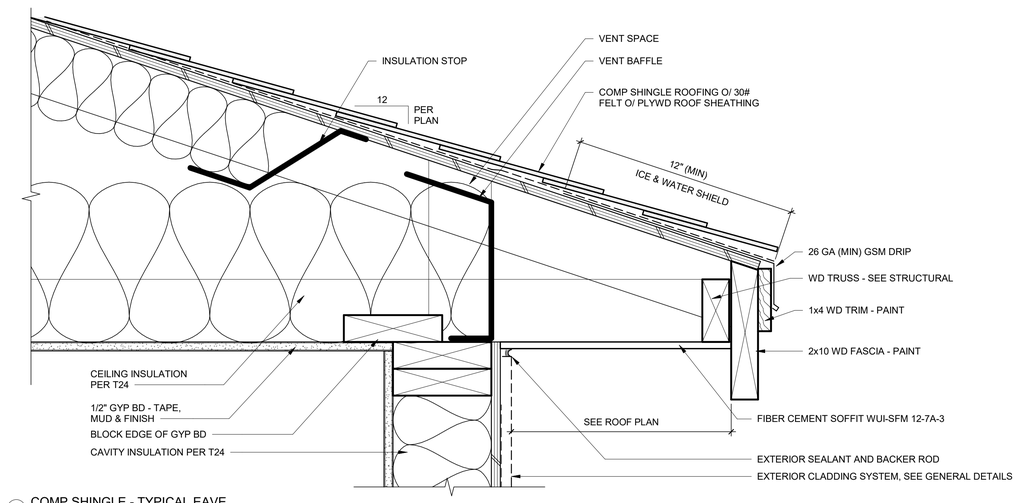


11 ROOF RAKE AT FIBER CEMENT
3" = 1'-0"

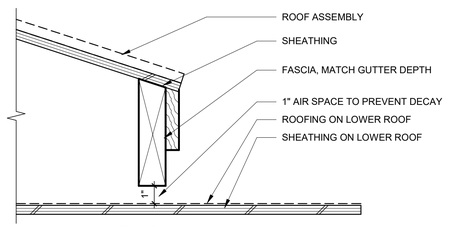


NOTE:
INSULATION AND INTERIOR FINISH NOT SHOWN FOR CLARITY

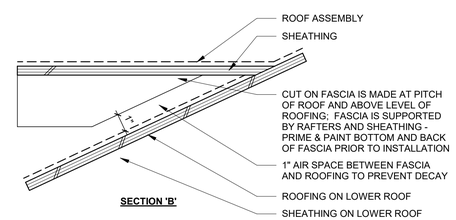
2 METAL VALLEY FLASHING
3" = 1'-0"



12 COMP SHINGLE - TYPICAL EAVE
3" = 1'-0"



SECTION 'A'



SECTION 'B'

3 FASCIA AT ROOF
3" = 1'-0"

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4132 C Street
Sacramento, CA 95819
916.440.6765
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LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
ROOF DETAILS - COMP SHINGLES

SHEET NO.
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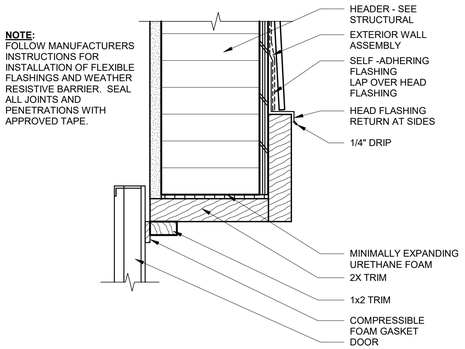
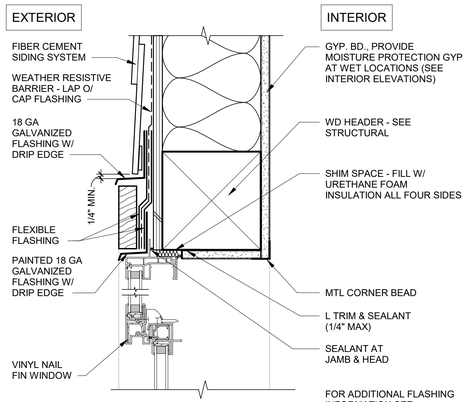
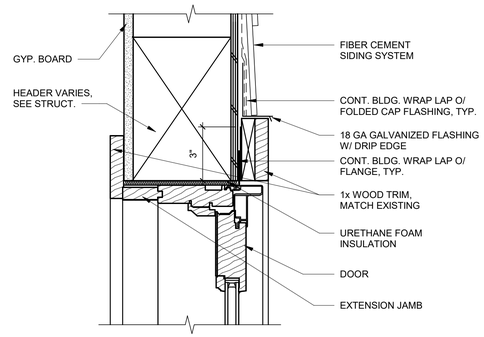


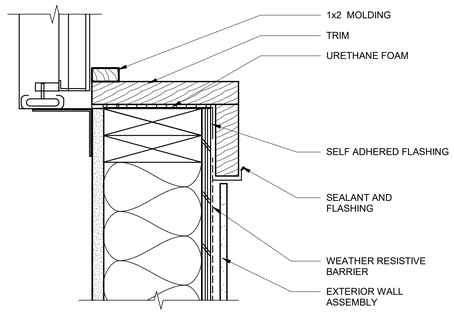
NOTE:
FOLLOW MANUFACTURERS INSTRUCTIONS FOR INSTALLATION OF FLEXIBLE FLASHINGS AND WEATHER RESISTIVE BARRIER. SEAL ALL JOINTS AND PENETRATIONS WITH APPROVED TAPE.





NOTE:
FOLLOW MANUFACTURERS INSTRUCTIONS FOR INSTALLATION OF FLEXIBLE FLASHINGS AND WEATHER RESISTIVE BARRIER. SEAL ALL JOINTS AND PENETRATIONS WITH APPROVED TAPE.

10 GARAGE DOOR HEAD AT FIBER CEMENT
3" = 1'-0"



NOTE:
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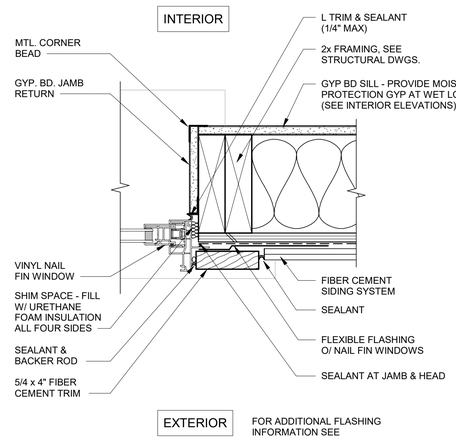
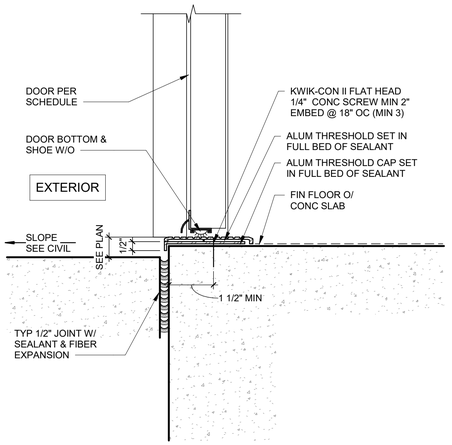
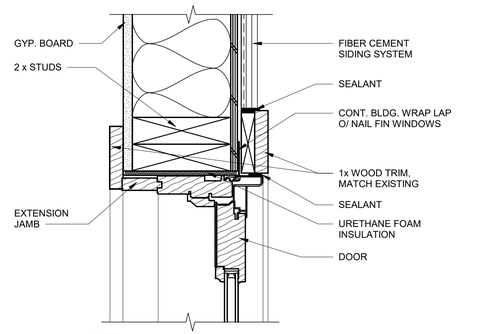
7 WINDOW HEAD VINYL AT FIBER CEMENT
3" = 1'-0"





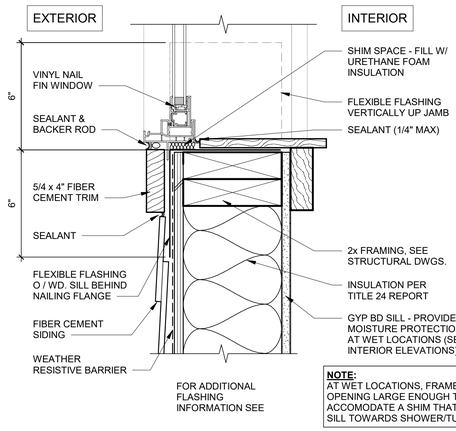
1 EXT. DOOR HEAD
3" = 1'-0"



NOTE:
FOLLOW MANUFACTURERS INSTRUCTIONS FOR INSTALLATION OF FLEXIBLE FLASHINGS AND WEATHER RESISTIVE BARRIER. SEAL ALL JOINTS AND PENETRATIONS WITH APPROVED TAPE.

11 GARAGE DOOR JAMB AT FIBER CEMENT
3" = 1'-0"

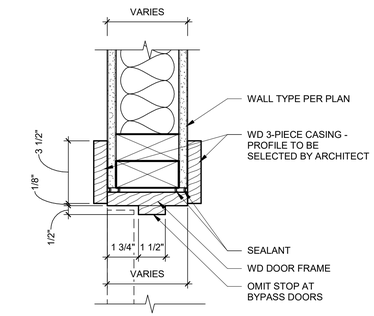
8 WINDOW JAMB AT FIBER CEMENT
3" = 1'-0"



NOTE:
AT WET LOCATIONS, FRAME OPENING LARGE ENOUGH TO ACCOMODATE A SHIM THAT SLOPES SILL TOWARDS SHOWER/TUB

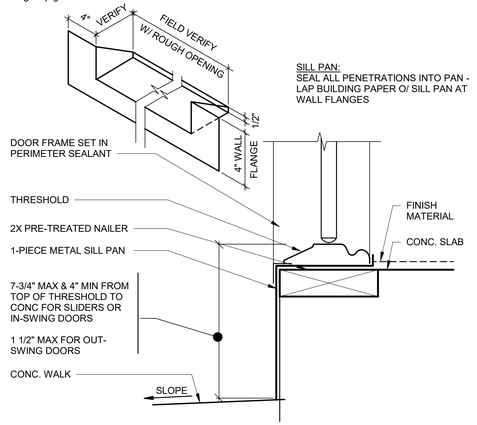
9 WINDOW SILL AT FIBER CEMENT
3" = 1'-0"

5 EXTERIOR DOOR THRESHOLD - STEP
3" = 1'-0"



6 TYPICAL INTERIOR WOOD DOOR FRAME (HEAD SIM)
3" = 1'-0"

2 EXT. DOOR JAMB
3" = 1'-0"



3 PATIO DOOR THRESHOLD
3" = 1'-0"

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4132 C Street
Sacramento, CA 95819
916.440.6765
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DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
DOOR & WINDOW DETAILS

SHEET NO.
A8.31

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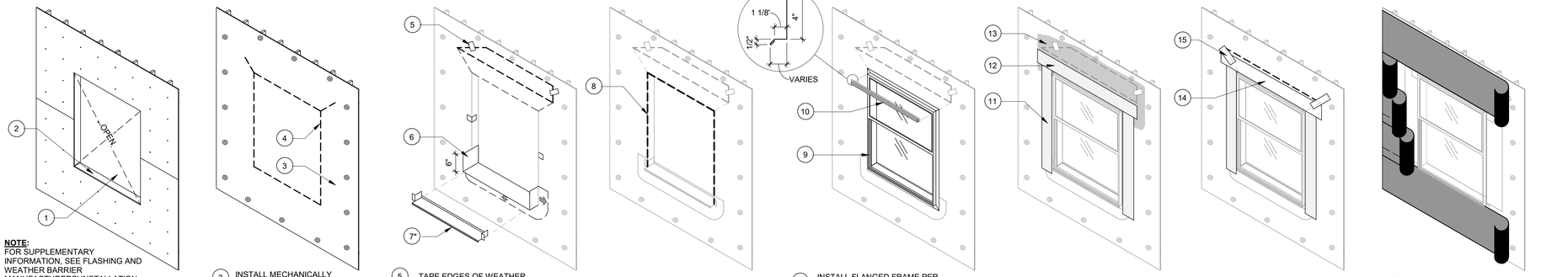


NOTE:
FOR SUPPLEMENTARY INFORMATION, SEE FLASHING AND WEATHER BARRIER MANUFACTURERS' INSTALLATION INSTRUCTIONS AND SPECIFICATIONS.

1. FRAMED ROUGH OPENING, COORDINATE DIMENSIONS WITH FRAME MFR, AND DRAWINGS.
2. AT WET LOCATIONS, FRAME OPENING LARGE ENOUGH TO ACCOMODATE A SHIM THAT SLOPES SILL TOWARDS SHOWER/TUB.
3. INSTALL MECHANICALLY FASTENED WEATHER RESISTIVE BARRIER (WRB) PER MFR INSTRUCTIONS. VERTICAL LAPS IN WEATHER RESISTIVE BARRIER ARE PROHIBITED ABOVE AND BELOW OPENINGS AND WITHIN 16" OF JAMBS.
4. CUT WEATHER BARRIER AT ROUGH OPENINGS AS SHOWN.
5. TAPE EDGES OF WEATHER BARRIER AS SHOWN.
6. INSTALL FLEXIBLE FLASHING. FOLD DOWN AND SECURE CORNERS.
7*. OPTIONAL: INSTALL METAL SILL PAN FLASHING WITH DRIP EDGE IN FULL BED OF SEALANT.
8. APPLY CONT. BEAD OF SEALANT ON JAMB AND HEAD FOR FLANGE WINDOW TO SET INTO. DO NOT SEAL WINDOW SILL FLANGE.

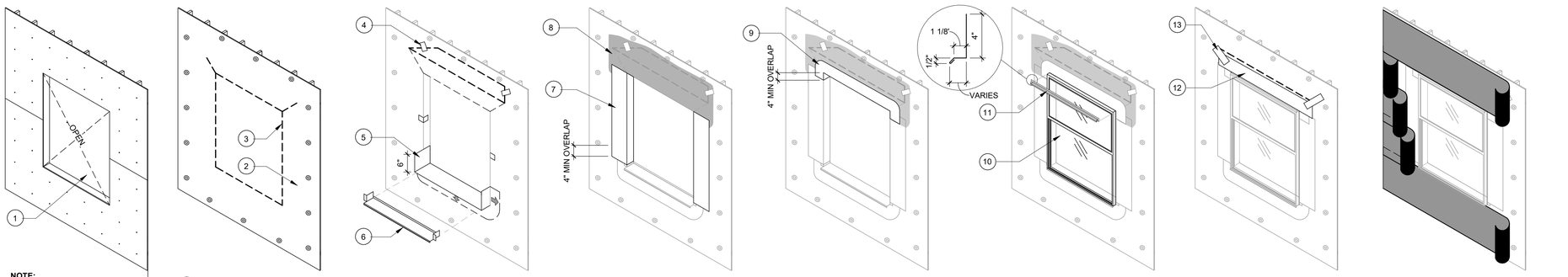
NOTE: VERTICAL LAPS IN WEATHER-RESISTIVE BARRIER ABOVE AND BELOW WINDOWS AND DOORS, AND WITHIN 16" OF JAMBS ARE PROHIBITED.

9. INSTALL FLANGED FRAME PER MANUFACTURERS INSTRUCTIONS.
   - ALL FASTENERS SHOULD BE NAILED THROUGH WINDOW FIN NO CLOSER THAN 3" TO CORNERS OR FURTHER THAN 10" FROM CORNERS.
   - NAILS SHALL BE NO MORE THAN 16" O.C.
   - NO NAILS SHALL BE BENT OVER THE NAILING FIN TO SECURE WINDOW.
10. INSTALL DRIP FLASHING AT HEAD SET IN SEALANT.
11. INSTALL FLEXIBLE FLASHING AT JAMBS OVER WINDOW FLANGES.
12. INSTALL FLEXIBLE FLASHING AT HEAD. OVERLAP DRIP FLASHING AND JAMB FLASHING.
13. APPLY ADHESIVE AT HEAD AS SHOWN.
14. FOLD DOWN TAPED WEATHER BARRIER AND APPLY SELF ADHERED FLASHING OVER WEATHER BARRIER AND DRIP FLANGE.
15. TAPE EXPOSED CORNERS OF CUT WEATHER BARRIER.

NOTE:
FOR CEMENT PLASTER (AND SURFACE BONDED BRICK MASONRY) SYSTEMS ONLY: INSTALL 2ND LAYER OF WEATHER RESISTANT BARRIER PER MFR INSTRUCTIONS. LAP MIN 6".

IF FRAMES TO BE INSTALLED BEFORE WEATHER BARRIER, SEE 23/A8.34 Sim

29 FLANGED OPENING FLASHING SEQUENCE2
1/2" = 1'-0"



NOTE:
FOR SUPPLEMENTARY INFORMATION, SEE FLASHING AND WEATHER RESISTIVE BARRIER (WRB) MANUFACTURERS' INSTALLATION INSTRUCTIONS AND SPECIFICATIONS

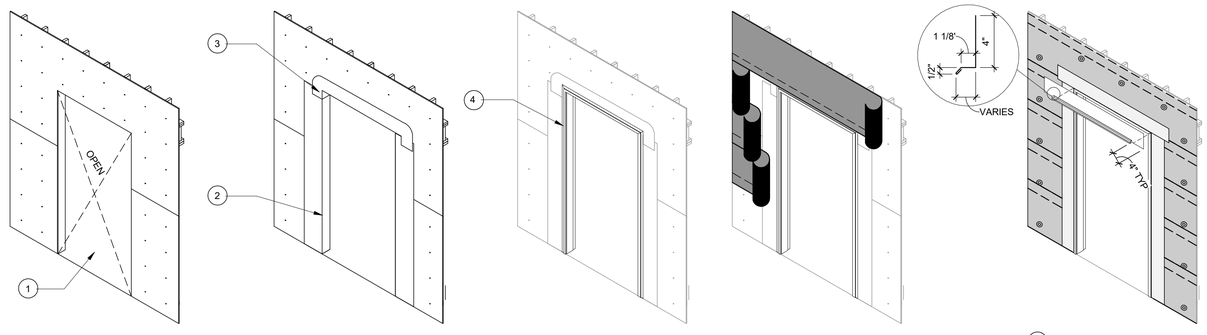
1. FRAMED ROUGH OPENING, COORDINATE DIMENSIONS WITH FRAME MFR, AND DRAWINGS.
2. INSTALL MECHANICALLY FASTENED WEATHER RESISTIVE BARRIER (WRB) PER MFR INSTRUCTIONS. VERTICAL LAPS IN WEATHER RESISTIVE BARRIER ARE PROHIBITED ABOVE AND BELOW OPENINGS AND WITHIN 16" OF JAMBS
3. CUT WEATHER RESISTIVE BARRIER AT ROUGH OPENINGS AS SHOWN
4. TAPE EDGES OF WEATHER RESISTIVE BARRIER AS SHOWN
5. INSTALL FLEXIBLE FLASHING. FOLD DOWN OVER WRB AND SECURE CORNERS
6. INSTALL METAL SILL PAN FLASHING WITH DRIP EDGE IN FULL BED OF SEALANT
7. INSTALL FLEXIBLE FLASHING FULL HEIGHT OF JAMB AT OPENING
8. APPLY ADHESIVE AT HEAD AS SHOWN
9. INSTALL FLEXIBLE FLASHING AT HEAD USING SAME TECHNIQUE AS STEP 5

NOTES:
1. VERIFY COMPATIBILITY OF FLEXIBLE FLASHINGS AND SELF ADHERED FLASHINGS WITH WEATHER RESISTIVE BARRIER
2. VERTICAL LAPS IN WEATHER-RESISTIVE BARRIER ABOVE AND BELOW WINDOWS AND DOORS, AND WITHIN 16" OF JAMBS ARE PROHIBITED.

10. INSTALL WINDOW / OPERABLE WALLS SYSTEM / LOUVER PER MFR INSTALLATION INSTRUCTIONS
11. INSTALL DRIP FLASHING AT HEAD SET IN SEALANT
11A. SEAL STOREFRONT SYSTEM TO WEATHER RESISTIVE BARRIER
12. FOLD DOWN TAPED WEATHER RESISTIVE BARRIER AND APPLY SELF ADHERED FLASHING OVER WEATHER RESISTIVE BARRIER AND DRIP FLANGE
13. TAPE EXPOSED CORNERS OF CUT WEATHER RESISTIVE BARRIER

NOTE:
FOR CEMENT PLASTER OR THIN BRICK ONLY: INSTALL 2ND LAYER OF WEATHER RESISTIVE BARRIER PER MFR INSTRUCTIONS. LAP MIN 6"

5 TYPICAL NON FLANGED OPENING FLASHING
1/2" = 1'-0"



1. FRAMED ROUGH OPENING, COORDINATE DIMENSIONS WITH FRAME MFR, AND DRAWINGS.
2. INSTALL SELF ADHERED FLASHING AT JAMBS OF OPENING
3. INSTALL FLEXIBLE FLASHING AT HEAD
4. INSTALL FRAME PER MFR

NOTE: FOR WINDOW SILL FLASHING, SEE INSTALLATION INSTRUCTIONS FOR FLEXIBLE SILL FLASHING.

5. INSTALL WEATHER RESISTIVE BARRIER PER MFR INSTRUCTIONS. LAP OVER FLANGE OF DOOR FRAME. VERTICAL LAPS IN WEATHER RESISTIVE BARRIER ARE PROHIBITED ABOVE AND BELOW OPENINGS AND WITHIN 16" OF JAMBS
6. INSTALL SELF ADHERED FLASHING OVER WEATHER RESISTIVE BARRIER AND FLANGE OF DOOR FRAME
7. FOR A CEMENT PLASTER BASED WALL SYSTEM INSTALL A SECONDARY WEATHER RESISTIVE BARRIER. SEE
8. FOR A CEMENT PLASTER BASED WALL SYSTEM INSTALL DRIP FLASHING AND WEEP SCREED; EXTEND DRIP FLASHING BEYOND ROUGH OPENING TO FULL WIDTH OF DOOR FRAME

NOTE: VERTICAL LAPS IN WEATHER-RESISTIVE BARRIER ABOVE AND BELOW WINDOWS AND DOORS, AND WITHIN 16" OF JAMBS ARE PROHIBITED.

23 TYPICAL DOOR FLASHING2
1/2" = 1'-0"

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSESIAN ELLIS
C-29460
REN. 07-31-23
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

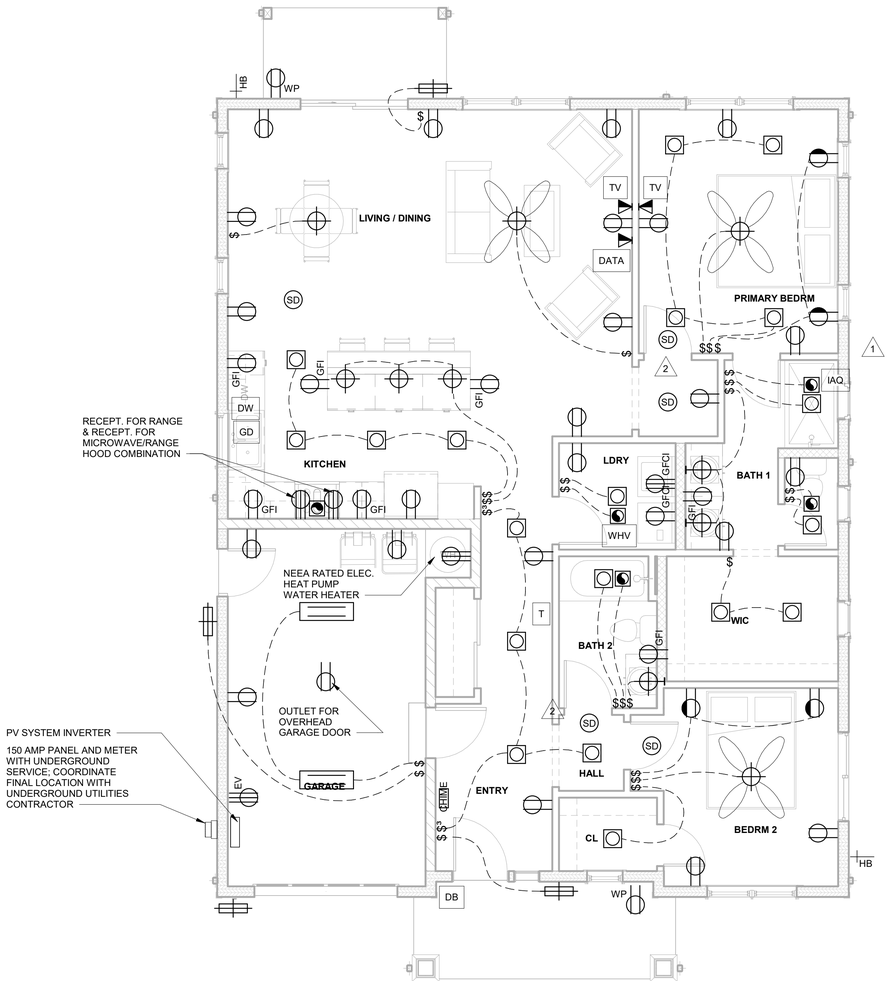
DATE:
06/02/2022

REVISIONS:

SHEET TITLE
WINDOW & DOOR FLASHING DETAILS

SHEET NO.
A8.34

IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY



1 UNIT 1 - GROUND FLOOR ELECTRICAL PLAN
1/4" = 1'-0"

WHOLE BLDG. VENT. SUM.

WHOLE-BUILDING VENTILATION (WHV) RATE SUMMARY
Qfan = 0.01Afloor + 7.5 (Nbr +1) = [0.01 X (AREA IN SF OF NEW AND (E) CONDITIONED SPACE)] + [7.5 X (NUMBER OF BEDROOMS + 1)] = CFM

0.01 x 1310 + 7.5 x 3 = 13.1 + 22.5 = 35.6 CFM

CONTINUOUS FAN FLOW (CFW) = CFM TOTAL AS MIN.

DUCT SIZE (IN) = 4" DIA MIN ***(REFER TO TABLE 7.1 FROM ASHRAE 62.2 FOR PRESCRIPTIVE DUCT SIZING REQUIREMENTS)***.

MAXIMUM ALLOWABLE DUCT LENGTH (FT) = 70' ***(REFER TO TABLE 7.1 FROM ASHRAE 62.2 FOR PRESCRIPTIVE DUCT SIZING REQUIREMENTS)***.

ELECT GENERAL NOTES

1. EXACT LOCATIONS OF ALL ELECTRICAL OUTLETS, SWITCHES, TELEPHONES, TV OUTLETS, AND OTHER DEVICES TO BE VERIFIED WITH THE ARCHITECT PRIOR TO INSTALLATION.
2. LIGHT FIXTURES TO BE CENTERED ON THE WINDOWS U.N.O.
3. WALL MOUNTED LIGHT FIXTURES:
   - EXTERIOR: REFER TO EXTERIOR ELEVATIONS FOR LOCATION AND VERIFY IN FIELD WITH ARCHITECT FOR EXACT LOCATION.
   - INTERIOR: CENTER OVER PLUMBING FIXTURES/ CASEWORK/ MIRRORS. REFER TO INTERIOR ELEVATIONS FOR LOCATION AND VERIFY IN FIELD WITH ARCHITECT FOR EXACT LOCATION.
4. PROVIDE A MINIMUM OF 1-20 AMP CIRCUIT FOR BATHROOM OUTLET(S). SUCH CIRCUIT SHALL HAVE NO OTHER OUTLETS. THIS CIRCUIT MAY SERVE MORE THAN 1 BATHROOM (CEC 210-23(a)).
5. PROVIDE A MINIMUM OF 2-20 AMP SMALL APPLIANCE CIRCUITS FOR THE KITCHEN COUNTERTOPS. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS. LOADS SHALL BE BALANCED (CEC 210-52(B) (2)).
6. BATHROOM EXHAUST FAN TO BE MINIMUM 50 CFM INTERMITTENT OR 20 CFM CONTINUOUS.
7. KITCHEN RANGE HOOD TO BE MINIMUM 100 CFM RATED AND MAXIMUM SOUND RATING OF 3 SONE.
8. ALL EXTERIOR RECEPTACLES TO BE WEATHER RESISTANT TYPE.
9. ARC FAULT BREAKER PROTECTION ON ALL CIRCUITS THAT SUPPLY POWER TO LIGHTING, RECEPTACLES, AND SMOKE/CARBON MONOXIDE DETECTORS INCLUDING KITCHENS.
10. AT LEAST ONE LUMINAIRE IN BATHROOMS TO BE CONTROLLED BY A VACANCY SENSORY WITH DIMMER.
11. ALL OUTDOOR LIGHTING TO BE CONTROLLED BY MANUAL ON AND OFF SWITCH AND ONE OF THE FOLLOWING: PHOTOCELL AND MOTION SENSOR, PHOTOCONTROL, ASTRONOMICAL TIME CLOCK, OR AN ENERGY MANAGEMENT CONTROL SYSTEM.
12. PROVIDE WP ELECTRICAL OUTLETS AT EAVES FOR SEASONAL DECORATIVE LIGHTING.
13. PROVIDE A QUICK DISCONNECT AT MECHANICAL EQUIPMENT.
14. LIGHT FIXTURES IN THE TUB AND/OR SHOWER ENCLOSURES SHALL HAVE "SUITABLE FOR DAMP LOCATION" LABEL (NEC 410-4(a)).
15. ON SLOPED CEILINGS PROVIDE ADJUSTABLE HEADS FOR RECESSED LIGHTING.
16. INSTALL 1" SOLAR CONDUIT FROM FUTURE INVERTER LOCATION TO ROOF SOLAR READY AREA.
17. MEMBRANE PENETRATIONS IN RATED WALL NOT TO EXCEED 16 SQ. INCHES, NOT EXCEED 100 SQ. INCHES PER 100 SQ. FEET OF WALL AND MUST BE SEPARATED BY A MIN. DISTANCE OF 24" WHEN ON OPPOSITE SIDES OF THE WALL PER **CRC R302.4.2**.
18. ALL NEW 15A OR 20A, 120V BRANCH CIRCUITS IN DWELLING UNITS SUPPLYING OUTLETS OR DEVICES IN KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE ARC-FAULT CIRCUIT-INTERRUPTER PROTECTED IN ACCORDANCE WITH 2019 CEC ART. 210.12 (A).
19. ALL NEW 15- AND 20-AMP RECEPTACLE OUTLETS IN DWELLING UNITS SHALL BE "TAMPER RESISTANT RECEPTACLES", PER 2019 CEC ART. 406.12.
20. GFCI PROTECTION IS REQUIRED FOR ALL 15A AND 20A, 125V RECEPTACLES INSTALLED IN THE FOLLOWING LOCATIONS:
    - **SINKS**: GFCI PROTECTION FOR RECEPTACLES IS REQUIRED WITHIN AN ARC MEASUREMENT OF 6 FT. FROM THE OUTSIDE EDGE OF A SINK.
    - **BATH TUBS OR SHOWER STALLS:** GFCI PROTECTION IS REQUIRED FOR RECEPTACLES LOCATED WITHIN 6 FT. OF THE OUTSIDE EDGE OF A BATHTUB OR SHOWER STALL.
    - **LAUNDRY AREAS:** RECEPTACLES INSTALLED IN LAUNDRY AREAS OF A DWELLING UNIT SHALL BE GFCI PROTECTED.
    - **DWELLING UNIT DISHWASHERS:** OUTLETS (NOT REQUIRED FOR A HARDWIRED APPLIANCE) SUPPLYING DISHWASHERS IN A DWELLING UNIT MUST BE GFCI PROTECTED PER 2019 CEC ART. CEC210.8.
21. 2019 CALIFORNIA ENERGY CODE MANDATORY MEASURES:
    - ALL PERMANENTLY INSTALLED LUMINAIRES IN DWELLING UNITS SHALL BE HIGH EFFICACY AND HAVE MANUAL ON/OFF CONTROLS AND VACANCY SENSORS OR DIMMERS EXCEPT FOR HALLWAYS & CLOSETS LESS THAN 70 SQ. FT.
    - EXHAUST FANS MUST BE SWITCHED SEPARATE FROM LIGHTING OR UTILIZE A DEVICE WHERE LIGHTING CAN BE TURNED OFF WHILE THE FAN IS RUNNING. EXCLUDES KITCHEN EXHAUST HOODS.
    - UNDER CABINET LIGHTING MUST BE SWITCHED SEPARATE FROM ALL OTHER LIGHTING.
    - PERMANENTLY INSTALLED LIGHTING IN CABINETS MUST BE HIGH EFFICACY.
    - LIGHTING IN BATHROOMS, GARAGES, LAUNDRY ROOMS & UTILITY ROOMS MUST HAVE AT LEAST ONE LUMINAIRE CONTROLLED BY VACANCY SENSORS.
22. SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN AS REQUIRED FOR OVERCURRENT PROTECTION. **[R314.6]** CARBON MONOXIDE ALARMS MUST ALSO RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING. **[R315.6]**
23. WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. THE ALARM SHALL BE CLEARLY AUDIBLE IN ALL BEDROOMS OVER BACKGROUND NOISE LEVELS WITH ALL INTERVENING DOORS CLOSED. **[R314.4]** CARBON MONOXIDE ALARMS MUST ALSO BE INTERCONNECTED. **[R315.5]**
24. THE KITCHEN RANGE HOOD MUST BE HVI RATED, LIMITED TO 3 SONE, AND WITH A MINIMUM AIRFLOW AS SPECIFIED IN ASHRAE 62.2. PER RCM 4.6.4.7, VENTED RANGE HOODS INCLUDING APPLIANCE-RANGE HOODS MUST BE 100 CFM, WHILE ALL OTHER HOOD TYPES INCLUDING DOWNDRAFT MUST BE 300 CFM. [CENC 150.0(o)2B]

ELECTRICAL LEGEND

	220V OUTLET
EV	OUTLET INSTALLED FOR FUTURE EV CHARGER - IT SHALL ORIGINATE AT MAIN SERVICE OR SUBPANEL. THE SERVICE PANEL SHALL PROVIDE CAPACITY TO INSTALL 40-AMPERE MIN. DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF A BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE. **(CAL GREEN 4.106.4.1)**
	110V DUPLEX A.F.C.I. PROTECTED OUTLET, +15" U.N.O. TAMPER RESISTANT
WP	WATERPROOF OUTLET AT +18" ABOVE FLOOR U.N.O.
GFCI	110V DUPLEX W/ GROUND FAULT INTERRUPTER
	DUPLEX 110 HALF SWITCHED, A.F.C.I. PROTECTED, TAMPER RESISTANT
	DUPLEX 110 HALF SWITCHED, A.F.C.I. PROTECTED FLOOR RECEPTACLE
	DATA/TELEPHONE
GD	GARBAGE DISPOSAL OUTLET, +15" U.N.O
DW	DISHWASHER OUTLET, +15" UNO
TV	PROVIDE RECESSED CABLE AND POWER OUTLET IN WALL; PROVIDE IN-WALL CABLE PATHWAY (2" DIA. PLASTIC CONDUIT TUBING) FROM BOX TO A/V CABINET COORDINATE LOCATION IN FIELD.
T	THERMOSTAT + 60" U.N.O.
DB	DOORBELL, PUSH BUTTON STATION, +42" WP LOW VOLTAGE LED LIGHT U.N.O.
$	SINGLE POLE SWITCH, +48"
$3	THREE WAY SWITCH, +48"
J	JUNCTION BOX
SD	COMBINATION SMOKE DETECTOR AND CARBON MONOXIDE DETECTOR CEILING MOUNTED PER R314.3.3 AND R315.3
S	CEILING MOUNTED SPEAKER
	CEILING MOUNTED LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE, +6'-8" U.N.O.
	WALL MOUNTED LIGHT FIXTURE EXTERIOR, +6'-8" MIN., VERIFY IN FIELD
	EXHAUST FAN
WHV	WHOLE HOUSE VENTILATION FAN - 105 CFM MIN. - (SEE CALCULATION) RATED (1) SONE MAX. PROVIDE 6" FLEX DUCT WITH MAX. 70' DUCT LENGTH TO EXTERIOR. PROVIDE ON/OFF SWITCH LABELED "VENTILATION CONTROL."
IAQ	EXHAUST FAN TO OPERATE CONTINUOUSLY AT 61 CFM OR GREATER FOR INDOOR AIR QUALITY. SWITCH TO BE LABELED "THIS SWITCH CONTROLS THE INDOOR AIR QUALITY OF THE HOME. LEAVE IT ON UNLESS INDOOR AIR QUALITY IS VERY POOR."
	RECESSED LED
	LOW VOLTAGE MINI 2" RECESSED LED
	2-TUBE LED FIXTURE CONTROLLED BY OCCUPANCY SENSOR
CHIME	DOORBELL CHIME, +6'-8"
8'-0"	CEILING HEIGHT TAG
	WHOLE HOUSE FAN WITH TIMER SWITCH
	CEILING FAN W/ LIGHT. WIRE FOR FAN AND LIGHT TO BE SWITCHED INDEPENDENTLY. ELECTRICAL BOX TO BE UL RATED AND MARKED FOR USE WITH CEILING FANS, AND SHALL INCLUDE MAXIMUM WEIGHT TO BE SUPPORTED
	EXTERIOR HVAC CONDENSING UNIT ON PRECAST CONCRETE PAD - PROVIDE DISCONNECT WITHIN 4' OF UNIT AND CLEARANCES PER MANUFACTURER'S RECOMMENDATION.
	DUCTLESS MINI-SPLIT HVAC, WALL MOUNTED UNIT
HB	HOSE BIBB
	MINI-SPLIT HVAC CEILING RECESSED
	ELECTRICAL SERVICE PANEL SHALL HAVE A MINIMUM OF 30" WIDE AND 36" DEEP WORKING SPACE. THIS SPACE IS NOT TO ENCROACH OVER THE PROPERTY LINE.

- INSTALL A LISTED RACEWAY TO ACCOMMODATE A DEDICATED 208/240-VOLT BRANCH CIRCUIT. THE RACEWAY SHALL NOT BE LESS THAN TRADE SIZE 1 (NOMINAL 1-INCH INSIDE DIAMETER). THE RACEWAY SHALL ORIGINATE AT THE MAIN SERVICE OR SUBPANEL AND SHALL TERMINATE INTO A LISTED CABINET, BOX OR OTHER ENCLOSURE IN CLOSE PROXIMITY TO THE PROPOSED LOCATION OF AN EV CHARGER. RACEWAYS ARE REQUIRED TO BE CONTINUOUS AT ENCLOSED, INACCESSIBLE OR CONCEALED AREAS AND SPACES. THE SERVICE PANEL AND/OR SUBPANEL SHALL PROVIDE CAPACITY TO INSTALL A 40-AMPERE MIN. DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF A BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE. **(CAL GREEN 4.106.4.1)**
- THE SERVICE PANEL OR SUBPANEL CIRCUIT DIRECTORY SHALL IDENTIFY THE OVERCURRENT PROTECTIVE DEVICE SPACE(S) RESERVED FOR FUTURE EV CHARGING AS "EV CAPABLE." THE RACEWAY TERMINATION LOCATION SHALL BE PERMANENTLY AND VISIBLY MARKED AS "EV CAPABLE." **(CAL GREEN 4.106.4.1.1)**

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-25
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:

06/02/2022

REVISIONS:

1	CYC2	02.22.2023
2	CYC3	05.19.2023

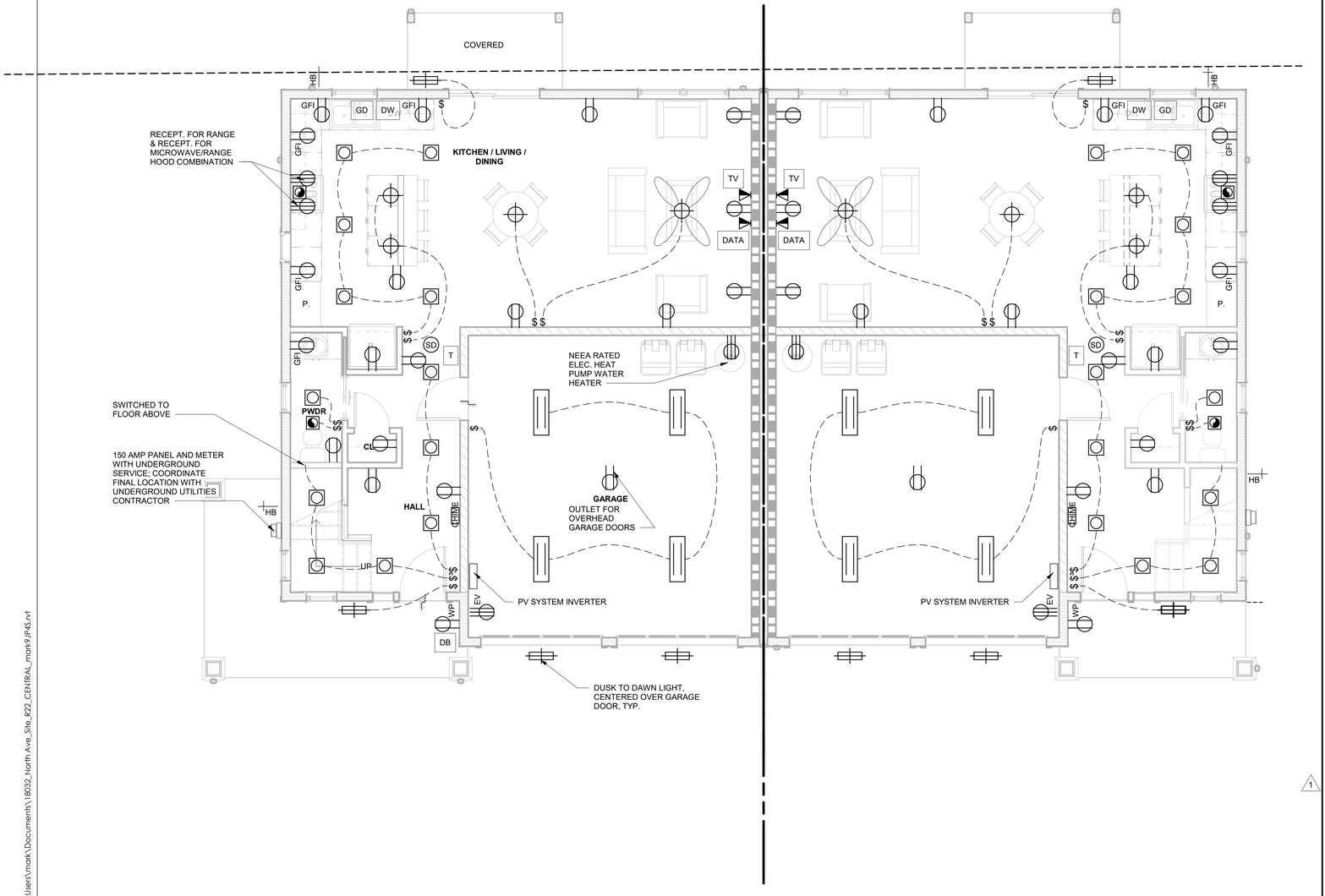
SHEET TITLE

UNIT TYPE 1 SCHEMATIC ELECTRICAL PLAN

SHEET NO.

A9.11

IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY



1 UNIT 2A - GROUND FLOOR ELECTRICAL PLAN (UNIT 2A.1 & 2A.2 SIM.)
1/4" = 1'-0"

WHOLE BLDG. VENT. SUM.

WHOLE-BUILDING VENTILATION (WHV) RATE SUMMARY
Qfan = 0.01Afloor + 7.5 (Nbr +1) = [0.01 X (AREA IN SF OF NEW AND (E) CONDITIONED SPACE)] + [7.5 X (NUMBER OF BEDROOMS + 1)] = CFM

0.01 x 1765 + 7.5 x 5 = 17.65 + 37.5 = 55.15 CFM

CONTINUOUS FAN FLOW (CFW) = CFM TOTAL AS MIN.

DUCT SIZE (IN) =5" DIA MIN ***(REFER TO TABLE 7.1 FROM ASHRAE 62.2 FOR PRESCRIPTIVE DUCT SIZING REQUIREMENTS)***.

MAXIMUM ALLOWABLE DUCT LENGTH (FT) = 70' ***(REFER TO TABLE 7.1 FROM ASHRAE 62.2 FOR PRESCRIPTIVE DUCT SIZING REQUIREMENTS)***.

ELECT GENERAL NOTES

1. EXACT LOCATIONS OF ALL ELECTRICAL OUTLETS, SWITCHES, TELEPHONES, TV OUTLETS, AND OTHER DEVICES TO BE VERIFIED WITH THE ARCHITECT PRIOR TO INSTALLATION.
2. LIGHT FIXTURES TO BE CENTERED ON THE WINDOWS U.N.O.
3. WALL MOUNTED LIGHT FIXTURES:
   - EXTERIOR: REFER TO EXTERIOR ELEVATIONS FOR LOCATION AND VERIFY IN FIELD WITH ARCHITECT FOR EXACT LOCATION.
   - INTERIOR: CENTER OVER PLUMBING FIXTURES/ CASEWORK/ MIRRORS. REFER TO INTERIOR ELEVATIONS FOR LOCATION AND VERIFY IN FIELD WITH ARCHITECT FOR EXACT LOCATION.
4. PROVIDE A MINIMUM OF 1-20 AMP CIRCUIT FOR BATHROOM OUTLET(S). SUCH CIRCUIT SHALL HAVE NO OTHER OUTLETS. THIS CIRCUIT MAY SERVE MORE THAN 1 BATHROOM (CEC 210-23(a)).
5. PROVIDE A MINIMUM OF 2-20 AMP SMALL APPLIANCE CIRCUITS FOR THE KITCHEN COUNTERTOPS. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS. LOADS SHALL BE BALANCED (CEC 210-52(B) (2)).
6. BATHROOM EXHAUST FAN TO BE MINIMUM 50 CFM INTERMITTENT OR 20 CFM CONTINUOUS.
7. KITCHEN RANGE HOOD TO BE MINIMUM 100 CFM RATED AND MAXIMUM SOUND RATING OF 3 SONE.
8. ALL EXTERIOR RECEPTACLES TO BE WEATHER RESISTANT TYPE.
9. ARC FAULT BREAKER PROTECTION ON ALL CIRCUITS THAT SUPPLY POWER TO LIGHTING, RECEPTACLES, AND SMOKE/CARBON MONOXIDE DETECTORS INCLUDING KITCHENS.
10. AT LEAST ONE LUMINAIRE IN BATHROOMS TO BE CONTROLLED BY A VACANCY SENSORY WITH DIMMER.
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12. PROVIDE WP ELECTRICAL OUTLETS AT EAVES FOR SEASONAL DECORATIVE LIGHTING.
13. PROVIDE A QUICK DISCONNECT AT MECHANICAL EQUIPMENT.
14. LIGHT FIXTURES IN THE TUB AND/OR SHOWER ENCLOSURES SHALL HAVE "SUITABLE FOR DAMP LOCATION" LABEL (NEC 410-4(a)).
15. ON SLOPED CEILINGS PROVIDE ADJUSTABLE HEADS FOR RECESSED LIGHTING.
16. INSTALL 1" SOLAR CONDUIT FROM FUTURE INVERTER LOCATION TO ROOF SOLAR READY AREA.
17. MEMBRANE PENETRATIONS IN RATED WALL NOT TO EXCEED 16 SQ. INCHES, NOT EXCEED 100 SQ. INCHES PER 100 SQ. FEET OF WALL AND MUST BE SEPARATED BY A MIN. DISTANCE OF 24" WHEN ON OPPOSITE SIDES OF THE WALL PER **CRC R302.4.2**.
18. ALL NEW 15A OR 20A, 120V BRANCH CIRCUITS IN DWELLING UNITS SUPPLYING OUTLETS OR DEVICES IN KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE ARC-FAULT CIRCUIT-INTERRUPTER PROTECTED IN ACCORDANCE WITH 2019 CEC ART. 210.12 (A).
19. ALL NEW 15- AND 20-AMP RECEPTACLE OUTLETS IN DWELLING UNITS SHALL BE "TAMPER RESISTANT RECEPTACLES", PER 2019 CEC ART. 406.12.
20. GFCI PROTECTION IS REQUIRED FOR ALL 15A AND 20A, 125V RECEPTACLES INSTALLED IN THE FOLLOWING LOCATIONS:
    - **SINKS**: GFCI PROTECTION FOR RECEPTACLES IS REQUIRED WITHIN AN ARC MEASUREMENT OF 6 FT. FROM THE OUTSIDE EDGE OF A SINK.
    - **BATH TUBS OR SHOWER STALLS:** GFCI PROTECTION IS REQUIRED FOR RECEPTACLES LOCATED WITHIN 6 FT. OF THE OUTSIDE EDGE OF A BATHTUB OR SHOWER STALL.
    - **LAUNDRY AREAS:** RECEPTACLES INSTALLED IN LAUNDRY AREAS OF A DWELLING UNIT SHALL BE GFCI PROTECTED.
    - **DWELLING UNIT DISHWASHERS:** OUTLETS (NOT REQUIRED FOR A HARDWIRED APPLIANCE) SUPPLYING DISHWASHERS IN A DWELLING UNIT MUST BE GFCI PROTECTED PER 2019 CEC ART. CEC210.8.
21. 2019 CALIFORNIA ENERGY CODE MANDATORY MEASURES:
    - ALL PERMANENTLY INSTALLED LUMINAIRES IN DWELLING UNITS SHALL BE HIGH EFFICACY AND HAVE MANUAL ON/OFF CONTROLS AND VACANCY SENSORS OR DIMMERS EXCEPT FOR HALLWAYS & CLOSETS LESS THAN 70 SQ. FT.
    - EXHAUST FANS MUST BE SWITCHED SEPARATE FROM LIGHTING OR UTILIZE A DEVICE WHERE LIGHTING CAN BE TURNED OFF WHILE THE FAN IS RUNNING. EXCLUDES KITCHEN EXHAUST HOODS.
    - UNDER CABINET LIGHTING MUST BE SWITCHED SEPARATE FROM ALL OTHER LIGHTING.
    - PERMANENTLY INSTALLED LIGHTING IN CABINETS MUST BE HIGH EFFICACY.
    - LIGHTING IN BATHROOMS, GARAGES, LAUNDRY ROOMS & UTILITY ROOMS MUST HAVE AT LEAST ONE LUMINAIRE CONTROLLED BY VACANCY SENSORS.
22. SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN AS REQUIRED FOR OVERCURRENT PROTECTION. **[R314.6]** CARBON MONOXIDE ALARMS MUST ALSO RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING. **[R315.6]**
23. WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. THE ALARM SHALL BE CLEARLY AUDIBLE IN ALL BEDROOMS OVER BACKGROUND NOISE LEVELS WITH ALL INTERVENING DOORS CLOSED. **[R314.4]** CARBON MONOXIDE ALARMS MUST ALSO BE INTERCONNECTED. **[R315.5]**
24. THE KITCHEN RANGE HOOD MUST BE HVI RATED, LIMITED TO 3 SONE, AND WITH A MINIMUM AIRFLOW AS SPECIFIED IN ASHRAE 62.2. PER RCM 4.6.4.7, VENTED RANGE HOODS INCLUDING APPLIANCE-RANGE HOODS MUST BE 100 CFM, WHILE ALL OTHER HOOD TYPES INCLUDING DOWNDRAFT MUST BE 300 CFM. [CENC 150.0(o)2B]

1

ELECTRICAL LEGEND

	220V OUTLET
EV	OUTLET INSTALLED FOR FUTURE EV CHARGER - IT SHALL ORIGINATE AT MAIN SERVICE OR SUBPANEL. THE SERVICE PANEL SHALL PROVIDE CAPACITY TO INSTALL 40-AMPERE MIN. DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF A BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE. **(CAL GREEN 4.106.4.1)**
	110V DUPLEX A.F.C.I. PROTECTED OUTLET, +15" U.N.O. TAMPER RESISTANT
WP	WATERPROOF OUTLET AT +18" ABOVE FLOOR U.N.O.
GFCI	110V DUPLEX W/ GROUND FAULT INTERRUPTER
	DUPLEX 110 HALF SWITCHED, A.F.C.I. PROTECTED, TAMPER RESISTANT
	DUPLEX 110 HALF SWITCHED, A.F.C.I. PROTECTED FLOOR RECEPTACLE
	DATA/TELEPHONE
GD	GARBAGE DISPOSAL OUTLET, +15" U.N.O
DW	DISHWASHER OUTLET, +15" UNO
TV	PROVIDE RECESSED CABLE AND POWER OUTLET IN WALL; PROVIDE IN-WALL CABLE PATHWAY (2" DIA. PLASTIC CONDUIT TUBING) FROM BOX TO A/V CABINET COORDINATE LOCATION IN FIELD.
T	THERMOSTAT + 60" U.N.O.
DB	DOORBELL, PUSH BUTTON STATION, +42" WP LOW VOLTAGE LED LIGHT U.N.O.
$	SINGLE POLE SWITCH, +48"
$3	THREE WAY SWITCH, +48"
J	JUNCTION BOX
SD	COMBINATION SMOKE DETECTOR AND CARBON MONOXIDE DETECTOR CEILING MOUNTED PER R314.3.3 AND R315.3
S	CEILING MOUNTED SPEAKER
	CEILING MOUNTED LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE, +6'-8" U.N.O.
	WALL MOUNTED LIGHT FIXTURE EXTERIOR, +6'-8" MIN., VERIFY IN FIELD
	EXHAUST FAN
WHV	WHOLE HOUSE VENTILATION FAN - 105 CFM MIN. - (SEE CALCULATION) RATED (1) SONE MAX. PROVIDE 5" FLEX DUCT WITH MAX. 70' DUCT LENGTH TO EXTERIOR. PROVIDE ON/OFF SWITCH LABELED "VENTILATION CONTROL."
IAQ	EXHAUST FAN TO OPERATE CONTINUOUSLY AT 90 CFM OR GREATER FOR INDOOR AIR QUALITY. SWITCH TO BE LABELED "THIS SWITCH CONTROLS THE INDOOR AIR QUALITY OF THE HOME. LEAVE IT ON UNLESS INDOOR AIR QUALITY IS VERY POOR."
	RECESSED LED
	LOW VOLTAGE MINI 2" RECESSED LED
	2-TUBE LED FIXTURE CONTROLLED BY OCCUPANCY SENSOR
CHIME	DOORBELL CHIME, +6'-8"
8'-0"	CEILING HEIGHT TAG
	WHOLE HOUSE FAN WITH TIMER SWITCH
	CEILING FAN W/ LIGHT. WIRE FOR FAN AND LIGHT TO BE SWITCHED INDEPENDENTLY. ELECTRICAL BOX TO BE UL RATED AND MARKED FOR USE WITH CEILING FANS, AND SHALL INCLUDE MAXIMUM WEIGHT TO BE SUPPORTED
	EXTERIOR HVAC CONDENSING UNIT ON PRECAST CONCRETE PAD - PROVIDE DISCONNECT WITHIN 4' OF UNIT AND CLEARANCES PER MANUFACTURER'S RECOMMENDATION.
	DUCTLESS MINI-SPLIT HVAC, WALL MOUNTED UNIT
HB	HOSE BIBB
	MINI-SPLIT HVAC CEILING RECESSED
	ELECTRICAL SERVICE PANEL SHALL HAVE A MINIMUM OF 30" WIDE AND 36" DEEP WORKING SPACE. THIS SPACE IS NOT TO ENCROACH OVER THE PROPERTY LINE.

- INSTALL A LISTED RACEWAY TO ACCOMMODATE A DEDICATED 208/240-VOLT BRANCH CIRCUIT. THE RACEWAY SHALL NOT BE LESS THAN TRADE SIZE 1 (NOMINAL 1-INCH INSIDE DIAMETER). THE RACEWAY SHALL ORIGINATE AT THE MAIN SERVICE OR SUBPANEL AND SHALL TERMINATE INTO A LISTED CABINET, BOX OR OTHER ENCLOSURE IN CLOSE PROXIMITY TO THE PROPOSED LOCATION OF AN EV CHARGER. RACEWAYS ARE REQUIRED TO BE CONTINUOUS AT ENCLOSED, INACCESSIBLE OR CONCEALED AREAS AND SPACES. THE SERVICE PANEL AND/OR SUBPANEL SHALL PROVIDE CAPACITY TO INSTALL A 40-AMPERE MIN. DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF A BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE. **(CAL GREEN 4.106.4.1)**
- THE SERVICE PANEL OR SUBPANEL CIRCUIT DIRECTORY SHALL IDENTIFY THE OVERCURRENT PROTECTIVE DEVICE SPACE(S) RESERVED FOR FUTURE EV CHARGING AS "EV CAPABLE." THE RACEWAY TERMINATION LOCATION SHALL BE PERMANENTLY AND VISIBLY MARKED AS "EV CAPABLE." **(CAL GREEN 4.106.4.1.1)**

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-25
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:

06/02/2022

REVISIONS:

1	CYC2	02.22.2023

SHEET TITLE

UNIT TYPE 2A SCHEMATIC ELECTRICAL PLAN

SHEET NO.

A9.21

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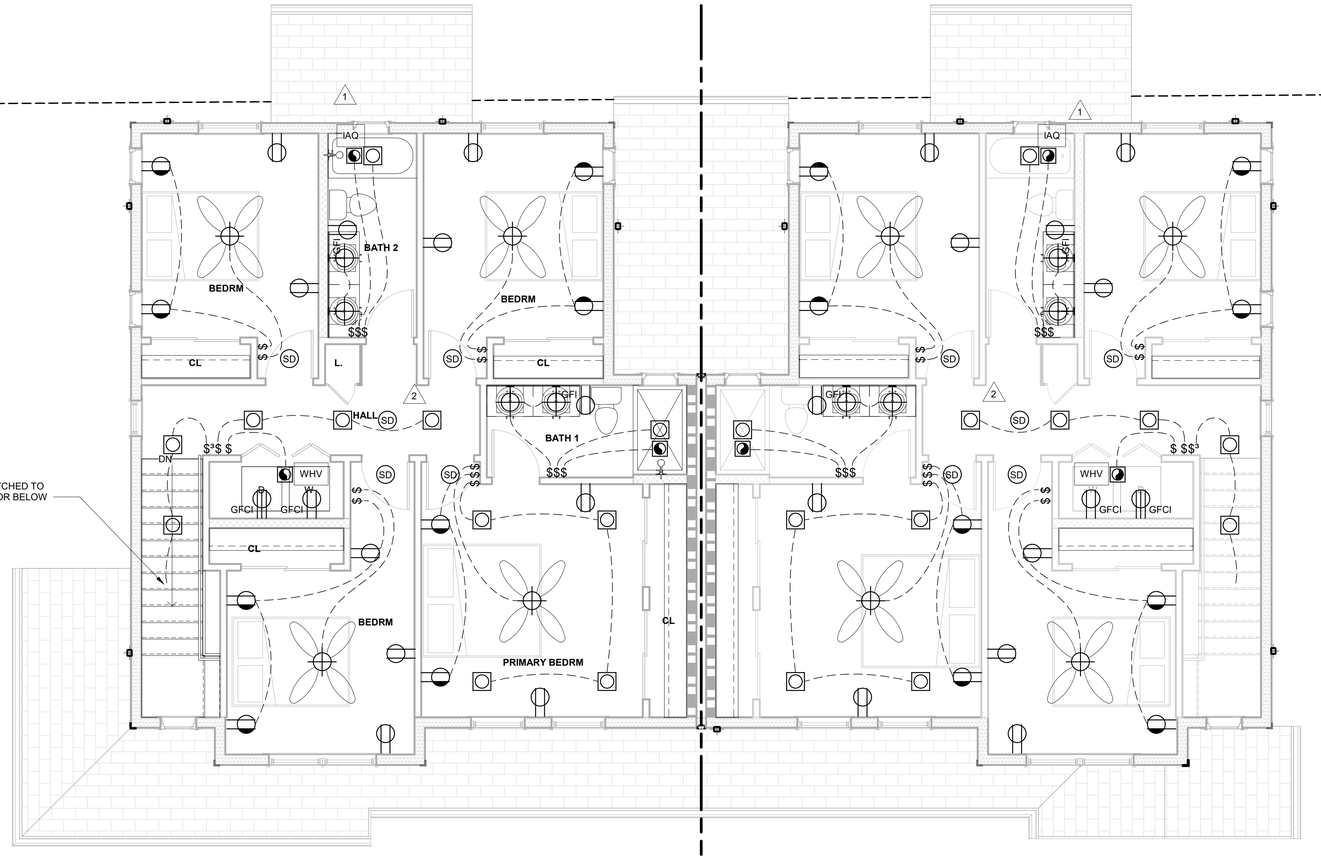
IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY



1 UNIT 2A - SECOND FLOOR ELECTRICAL PLAN (UNIT 2A.1 & 2A.2 SIM.)
1/4" = 1'-0"

ELECT GENERAL NOTES

1. EXACT LOCATIONS OF ALL ELECTRICAL OUTLETS, SWITCHES, TELEPHONES, TV OUTLETS, AND OTHER DEVICES TO BE VERIFIED WITH THE ARCHITECT PRIOR TO INSTALLATION.
2. LIGHT FIXTURES TO BE CENTERED ON THE WINDOWS U.N.O.
3. WALL MOUNTED LIGHT FIXTURES:
   - EXTERIOR: REFER TO EXTERIOR ELEVATIONS FOR LOCATION AND VERIFY IN FIELD WITH ARCHITECT FOR EXACT LOCATION.
   - INTERIOR: CENTER OVER PLUMBING FIXTURES/ CASEWORK/ MIRRORS. REFER TO INTERIOR ELEVATIONS FOR LOCATION AND VERIFY IN FIELD WITH ARCHITECT FOR EXACT LOCATION.
4. PROVIDE A MINIMUM OF 1-20 AMP CIRCUIT FOR BATHROOM OUTLET(S). SUCH CIRCUIT SHALL HAVE NO OTHER OUTLETS. THIS CIRCUIT MAY SERVE MORE THAN 1 BATHROOM (CEC 210-23(a)).
5. PROVIDE A MINIMUM OF 2-20 AMP SMALL APPLIANCE CIRCUITS FOR THE KITCHEN COUNTERTOPS. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS. LOADS SHALL BE BALANCED (CEC 210-52(B) (2)).
6. BATHROOM EXHAUST FAN TO BE MINIMUM 50 CFM INTERMITTENT OR 20 CFM CONTINUOUS.
7. KITCHEN RANGE HOOD TO BE MINIMUM 100 CFM RATED AND MAXIMUM SOUND RATING OF 3 SONE.
8. ALL EXTERIOR RECEPTACLES TO BE WEATHER RESISTANT TYPE.
9. ARC FAULT BREAKER PROTECTION ON ALL CIRCUITS THAT SUPPLY POWER TO LIGHTING, RECEPTACLES, AND SMOKE/CARBON MONOXIDE DETECTORS INCLUDING KITCHENS.
10. AT LEAST ONE LUMINAIRE IN BATHROOMS TO BE CONTROLLED BY A VACANCY SENSORY WITH DIMMER.
11. ALL OUTDOOR LIGHTING TO BE CONTROLLED BY MANUAL ON AND OFF SWITCH AND ONE OF THE FOLLOWING: PHOTOCELL AND MOTION SENSOR, PHOTOCONTROL, ASTRONOMICAL TIME CLOCK, OR AN ENERGY MANAGEMENT CONTROL SYSTEM.
12. PROVIDE WP ELECTRICAL OUTLETS AT EAVES FOR SEASONAL DECORATIVE LIGHTING.
13. PROVIDE A QUICK DISCONNECT AT MECHANICAL EQUIPMENT.
14. LIGHT FIXTURES IN THE TUB AND/OR SHOWER ENCLOSURES SHALL HAVE "SUITABLE FOR DAMP LOCATION" LABEL (NEC 410-4(a)).
15. ON SLOPED CEILINGS PROVIDE ADJUSTABLE HEADS FOR RECESSED LIGHTING.
16. INSTALL 1" SOLAR CONDUIT FROM FUTURE INVERTER LOCATION TO ROOF SOLAR READY AREA.
17. MEMBRANE PENETRATIONS IN RATED WALL NOT TO EXCEED 16 SQ. INCHES, NOT EXCEED 100 SQ. INCHES PER 100 SQ. FEET OF WALL AND MUST BE SEPARATED BY A MIN. DISTANCE OF 24" WHEN ON OPPOSITE SIDES OF THE WALL PER **CRC R302.4.2**.
18. ALL NEW 15A OR 20A, 120V BRANCH CIRCUITS IN DWELLING UNITS SUPPLYING OUTLETS OR DEVICES IN KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE ARC-FAULT CIRCUIT-INTERRUPTER PROTECTED IN ACCORDANCE WITH 2019 CEC ART. 210.12 (A).
19. ALL NEW 15- AND 20-AMP RECEPTACLE OUTLETS IN DWELLING UNITS SHALL BE "TAMPER RESISTANT RECEPTACLES", PER 2019 CEC ART. 406.12.
20. GFCI PROTECTION IS REQUIRED FOR ALL 15A AND 20A, 125V RECEPTACLES INSTALLED IN THE FOLLOWING LOCATIONS:
    - **SINKS**: GFCI PROTECTION FOR RECEPTACLES IS REQUIRED WITHIN AN ARC MEASUREMENT OF 6 FT. FROM THE OUTSIDE EDGE OF A SINK.
    - **BATH TUBS OR SHOWER STALLS:** GFCI PROTECTION IS REQUIRED FOR RECEPTACLES LOCATED WITHIN 6 FT. OF THE OUTSIDE EDGE OF A BATHTUB OR SHOWER STALL.
    - **LAUNDRY AREAS:** RECEPTACLES INSTALLED IN LAUNDRY AREAS OF A DWELLING UNIT SHALL BE GFCI PROTECTED.
    - **DWELLING UNIT DISHWASHERS:** OUTLETS (NOT REQUIRED FOR A HARDWIRED APPLIANCE) SUPPLYING DISHWASHERS IN A DWELLING UNIT MUST BE GFCI PROTECTED PER 2019 CEC ART. CEC210.8.
21. 2019 CALIFORNIA ENERGY CODE MANDATORY MEASURES:
    - ALL PERMANENTLY INSTALLED LUMINAIRES IN DWELLING UNITS SHALL BE HIGH EFFICACY AND HAVE MANUAL ON/OFF CONTROLS AND VACANCY SENSORS OR DIMMERS EXCEPT FOR HALLWAYS & CLOSETS LESS THAN 70 SQ. FT.
    - EXHAUST FANS MUST BE SWITCHED SEPARATE FROM LIGHTING OR UTILIZE A DEVICE WHERE LIGHTING CAN BE TURNED OFF WHILE THE FAN IS RUNNING. EXCLUDES KITCHEN EXHAUST HOODS.
    - UNDER CABINET LIGHTING MUST BE SWITCHED SEPARATE FROM ALL OTHER LIGHTING.
    - PERMANENTLY INSTALLED LIGHTING IN CABINETS MUST BE HIGH EFFICACY.
    - LIGHTING IN BATHROOMS, GARAGES, LAUNDRY ROOMS & UTILITY ROOMS MUST HAVE AT LEAST ONE LUMINAIRE CONTROLLED BY VACANCY SENSORS.
22. SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN AS REQUIRED FOR OVERCURRENT PROTECTION. **[R314.6]** CARBON MONOXIDE ALARMS MUST ALSO RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING. **[R315.6]**
23. WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. THE ALARM SHALL BE CLEARLY AUDIBLE IN ALL BEDROOMS OVER BACKGROUND NOISE LEVELS WITH ALL INTERVENING DOORS CLOSED. **[R314.4]** CARBON MONOXIDE ALARMS MUST ALSO BE INTERCONNECTED. **[R315.5]**
24. THE KITCHEN RANGE HOOD MUST BE HVI RATED, LIMITED TO 3 SONE, AND WITH A MINIMUM AIRFLOW AS SPECIFIED IN ASHRAE 62.2. PER RCM 4.6.4.7, VENTED RANGE HOODS INCLUDING APPLIANCE-RANGE HOODS MUST BE 100 CFM, WHILE ALL OTHER HOOD TYPES INCLUDING DOWNDRAFT MUST BE 300 CFM. [CENC 150.0(o)2B]

ELECTRICAL LEGEND

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TV	PROVIDE RECESSED CABLE AND POWER OUTLET IN WALL; PROVIDE IN-WALL CABLE PATHWAY (2" DIA. PLASTIC CONDUIT TUBING) FROM BOX TO A/V CABINET COORDINATE LOCATION IN FIELD.
T	THERMOSTAT + 60" U.N.O.
DB	DOORBELL, PUSH BUTTON STATION, +42" WP LOW VOLTAGE LED LIGHT U.N.O.
$	SINGLE POLE SWITCH, +48"
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S	CEILING MOUNTED SPEAKER
	CEILING MOUNTED LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE, +6'-8" U.N.O.
	WALL MOUNTED LIGHT FIXTURE EXTERIOR, +6'-8" MIN., VERIFY IN FIELD
	EXHAUST FAN
WHV	WHOLE HOUSE VENTILATION FAN - 105 CFM MIN. - (SEE CALCULATION) RATED (1) SONE MAX. PROVIDE 5" FLEX DUCT WITH MAX. 70' DUCT LENGTH TO EXTERIOR. PROVIDE ON/OFF SWITCH LABELED "VENTILATION CONTROL."
IAQ	EXHAUST FAN TO OPERATE CONTINUOUSLY AT 90 CFM OR GREATER FOR INDOOR AIR QUALITY. SWITCH TO BE LABELED "THIS SWITCH CONTROLS THE INDOOR AIR QUALITY OF THE HOME. LEAVE IT ON UNLESS INDOOR AIR QUALITY IS VERY POOR."
	RECESSED LED
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	2-TUBE LED FIXTURE CONTROLLED BY OCCUPANCY SENSOR
CHIME	DOORBELL CHIME, +6'-8"
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	WHOLE HOUSE FAN WITH TIMER SWITCH
	CEILING FAN W/ LIGHT. WIRE FOR FAN AND LIGHT TO BE SWITCHED INDEPENDENTLY. ELECTRICAL BOX TO BE UL RATED AND MARKED FOR USE WITH CEILING FANS, AND SHALL INCLUDE MAXIMUM WEIGHT TO BE SUPPORTED
	EXTERIOR HVAC CONDENSING UNIT ON PRECAST CONCRETE PAD - PROVIDE DISCONNECT WITHIN 4' OF UNIT AND CLEARANCES PER MANUFACTURER'S RECOMMENDATION.
	DUCTLESS MINI-SPLIT HVAC, WALL MOUNTED UNIT
HB	HOSE BIBB
	MINI-SPLIT HVAC CEILING RECESSED
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ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
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STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE: 06/02/2022

REVISIONS:

1	CYC2	02.22.2023
2	CYC3	05.19.2023

SHEET TITLE
UNIT TYPE 2A SCHEMATIC ELECTRICAL PLAN

SHEET NO.
A9.22

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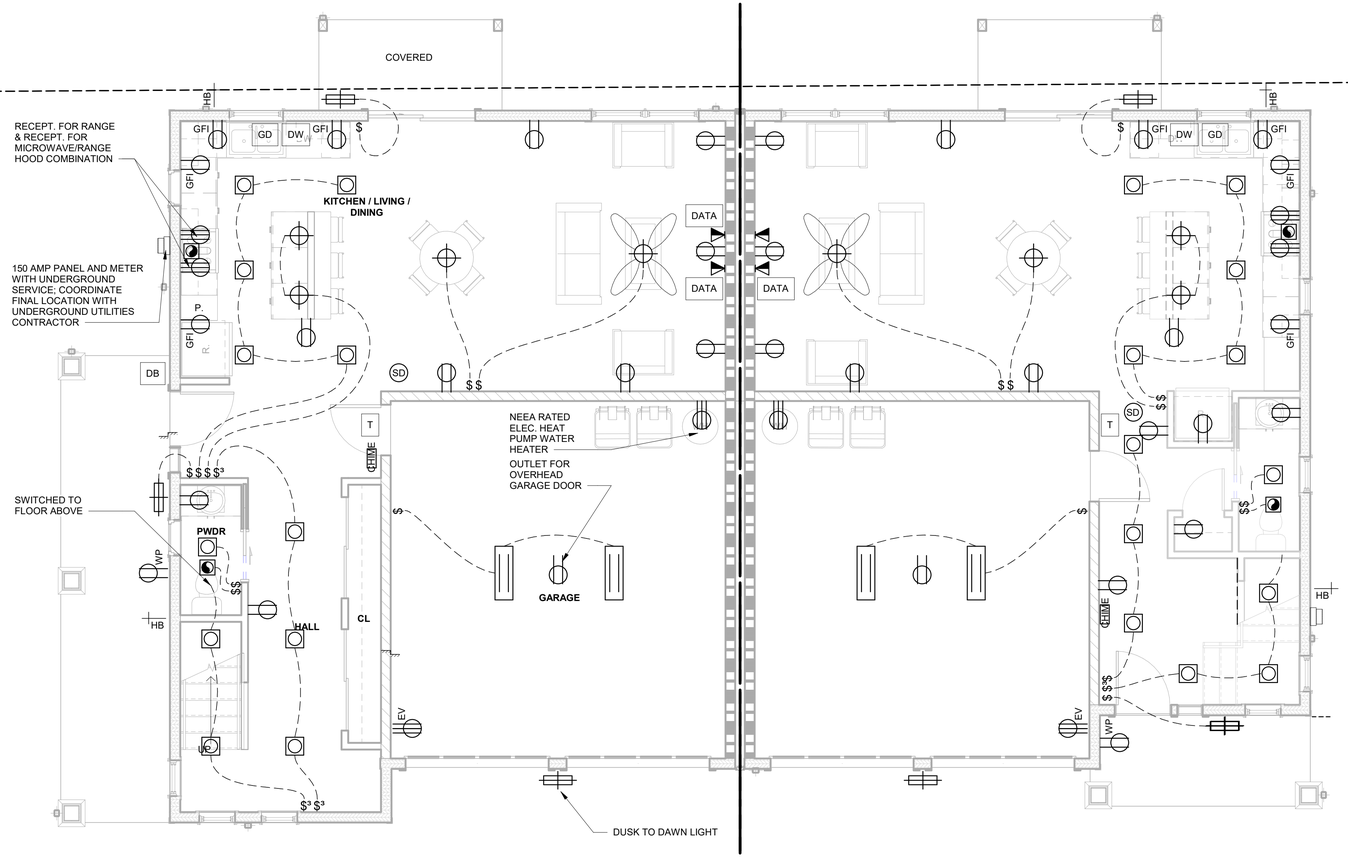

1 UNIT 2B - GROUND FLOOR ELECTRICAL PLAN
1/4" = 1'-0"

WHOLE BLDG. VENT. SUM.

WHOLE-BUILDING VENTILATION (WHV) RATE SUMMARY
Qfan = 0.01Afloor + 7.5 (Nbr +1) = [0.01 X (AREA IN SF OF NEW AND (E) CONDITIONED SPACE)] + [7.5 X (NUMBER OF BEDROOMS + 1)] = CFM

0.01 x 1856 + 7.5 x 5 = 18.56 + 37.5 = 56.06 CFM

CONTINUOUS FAN FLOW (CFW) = CFM TOTAL AS MIN.

DUCT SIZE (IN) = 5" DIA MIN ***(REFER TO TABLE 7.1 FROM ASHRAE 62.2 FOR PRESCRIPTIVE DUCT SIZING REQUIREMENTS)***.

MAXIMUM ALLOWABLE DUCT LENGTH (FT) = 70' ***(REFER TO TABLE 7.1 FROM ASHRAE 62.2 FOR PRESCRIPTIVE DUCT SIZING REQUIREMENTS)***.

ELECT GENERAL NOTES

1. EXACT LOCATIONS OF ALL ELECTRICAL OUTLETS, SWITCHES, TELEPHONES, TV OUTLETS, AND OTHER DEVICES TO BE VERIFIED WITH THE ARCHITECT PRIOR TO INSTALLATION.
2. LIGHT FIXTURES TO BE CENTERED ON THE WINDOWS U.N.O.
3. WALL MOUNTED LIGHT FIXTURES:
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4. PROVIDE A MINIMUM OF 1-20 AMP CIRCUIT FOR BATHROOM OUTLET(S). SUCH CIRCUIT SHALL HAVE NO OTHER OUTLETS. THIS CIRCUIT MAY SERVE MORE THAN 1 BATHROOM (CEC 210-23(a)).
5. PROVIDE A MINIMUM OF 2-20 AMP SMALL APPLIANCE CIRCUITS FOR THE KITCHEN COUNTERTOPS. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS. LOADS SHALL BE BALANCED (CEC 210-52(B) (2)).
6. BATHROOM EXHAUST FAN TO BE MINIMUM 50 CFM INTERMITTENT OR 20 CFM CONTINUOUS.
7. KITCHEN RANGE HOOD TO BE MINIMUM 100 CFM RATED AND MAXIMUM SOUND RATING OF 3 SONE.
8. ALL EXTERIOR RECEPTACLES TO BE WEATHER RESISTANT TYPE.
9. ARC FAULT BREAKER PROTECTION ON ALL CIRCUITS THAT SUPPLY POWER TO LIGHTING, RECEPTACLES, AND SMOKE/CARBON MONOXIDE DETECTORS INCLUDING KITCHENS.
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    - **LAUNDRY AREAS:** RECEPTACLES INSTALLED IN LAUNDRY AREAS OF A DWELLING UNIT SHALL BE GFCI PROTECTED.
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    - EXHAUST FANS MUST BE SWITCHED SEPARATE FROM LIGHTING OR UTILIZE A DEVICE WHERE LIGHTING CAN BE TURNED OFF WHILE THE FAN IS RUNNING. EXCLUDES KITCHEN EXHAUST HOODS.
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24. THE KITCHEN RANGE HOOD MUST BE HVI RATED, LIMITED TO 3 SONE, AND WITH A MINIMUM AIRFLOW AS SPECIFIED IN ASHRAE 62.2. PER RCM 4.6.4.7, VENTED RANGE HOODS INCLUDING APPLIANCE-RANGE HOODS MUST BE 100 CFM, WHILE ALL OTHER HOOD TYPES INCLUDING DOWNDRAFT MUST BE 300 CFM. [CENC 150.0(o)2B]

1

ELECTRICAL LEGEND

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	DATA/TELEPHONE
GD	GARBAGE DISPOSAL OUTLET, +15" U.N.O
DW	DISHWASHER OUTLET, +15" UNO
TV	PROVIDE RECESSED CABLE AND POWER OUTLET IN WALL; PROVIDE IN-WALL CABLE PATHWAY (2" DIA. PLASTIC CONDUIT TUBING) FROM BOX TO A/V CABINET COORDINATE LOCATION IN FIELD.
T	THERMOSTAT + 60" U.N.O.
DB	DOORBELL, PUSH BUTTON STATION, +42" WP LOW VOLTAGE LED LIGHT U.N.O.
$	SINGLE POLE SWITCH, +48"
$³	THREE WAY SWITCH, +48"
J	JUNCTION BOX
SD	COMBINATION SMOKE DETECTOR AND CARBON MONOXIDE DETECTOR CEILING MOUNTED PER R314.3.3 AND R315.3
S	CEILING MOUNTED SPEAKER
	CEILING MOUNTED LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE, +6'-8" U.N.O.
	WALL MOUNTED LIGHT FIXTURE EXTERIOR, +6'-8" MIN., VERIFY IN FIELD
	EXHAUST FAN
WHV	WHOLE HOUSE VENTILATION FAN - 105 CFM MIN. - (SEE CALCULATION) RATED (1) SONE MAX. PROVIDE 5" FLEX DUCT WITH MAX. 70' DUCT LENGTH TO EXTERIOR. PROVIDE ON/OFF SWITCH LABELED "VENTILATION CONTROL."
IAQ	EXHAUST FAN TO OPERATE CONTINUOUSLY AT 90 CFM OR GREATER FOR INDOOR AIR QUALITY. SWITCH TO BE LABELED "THIS SWITCH CONTROLS THE INDOOR AIR QUALITY OF THE HOME. LEAVE IT ON UNLESS INDOOR AIR QUALITY IS VERY POOR."
	RECESSED LED
	LOW VOLTAGE MINI 2" RECESSED LED
	2-TUBE LED FIXTURE CONTROLLED BY OCCUPANCY SENSOR
CHIME	DOORBELL CHIME, +6'-8"
8'-0"	CEILING HEIGHT TAG
	WHOLE HOUSE FAN WITH TIMER SWITCH
	CEILING FAN W/ LIGHT. WIRE FOR FAN AND LIGHT TO BE SWITCHED INDEPENDENTLY. ELECTRICAL BOX TO BE UL RATED AND MARKED FOR USE WITH CEILING FANS, AND SHALL INCLUDE MAXIMUM WEIGHT TO BE SUPPORTED
	EXTERIOR HVAC CONDENSING UNIT ON PRECAST CONCRETE PAD - PROVIDE DISCONNECT WITHIN 4' OF UNIT AND CLEARANCES PER MANUFACTURER'S RECOMMENDATION.
	DUCTLESS MINI-SPLIT HVAC, WALL MOUNTED UNIT
HB	HOSE BIBB
	MINI-SPLIT HVAC CEILING RECESSED
	ELECTRICAL SERVICE PANEL SHALL HAVE A MINIMUM OF 30" WIDE AND 36" DEEP WORKING SPACE. THIS SPACE IS NOT TO ENCROACH OVER THE PROPERTY LINE.

- INSTALL A LISTED RACEWAY TO ACCOMMODATE A DEDICATED 208/240-VOLT BRANCH CIRCUIT. THE RACEWAY SHALL NOT BE LESS THAN TRADE SIZE 1 (NOMINAL 1-INCH INSIDE DIAMETER). THE RACEWAY SHALL ORIGINATE AT THE MAIN SERVICE OR SUBPANEL AND SHALL TERMINATE INTO A LISTED CABINET, BOX OR OTHER ENCLOSURE IN CLOSE PROXIMITY TO THE PROPOSED LOCATION OF AN EV CHARGER. RACEWAYS ARE REQUIRED TO BE CONTINUOUS AT ENCLOSED, INACCESSIBLE OR CONCEALED AREAS AND SPACES. THE SERVICE PANEL AND/OR SUBPANEL SHALL PROVIDE CAPACITY TO INSTALL A 40-AMPERE MIN. DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF A BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE. **(CAL GREEN 4.106.4.1)**
- THE SERVICE PANEL OR SUBPANEL CIRCUIT DIRECTORY SHALL IDENTIFY THE OVERCURRENT PROTECTIVE DEVICE SPACE(S) RESERVED FOR FUTURE EV CHARGING AS "EV CAPABLE." THE RACEWAY TERMINATION LOCATION SHALL BE PERMANENTLY AND VISIBLY MARKED AS "EV CAPABLE." **(CAL GREEN 4.106.4.1.1)**

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-25
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

1	CYC2	02.22.2023

SHEET TITLE
UNIT TYPE 2B SCHEMATIC ELECTRICAL PLAN

SHEET NO.
A9.23

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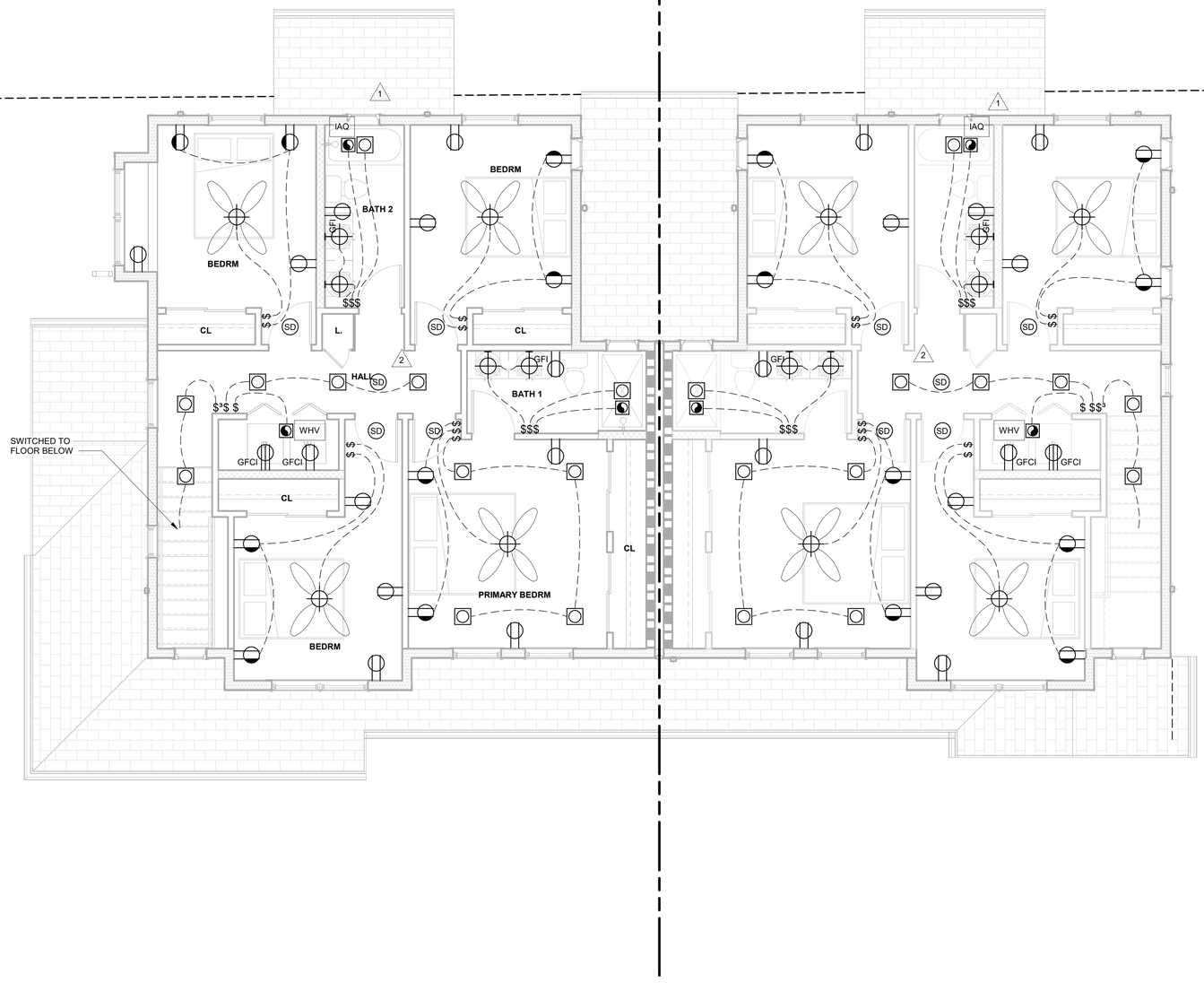

1 UNIT 2B - SECOND FLOOR ELECTRICAL PLAN
1/4" = 1'-0"

ELECT GENERAL NOTES

1. EXACT LOCATIONS OF ALL ELECTRICAL OUTLETS, SWITCHES, TELEPHONES, TV OUTLETS, AND OTHER DEVICES TO BE VERIFIED WITH THE ARCHITECT PRIOR TO INSTALLATION.
2. LIGHT FIXTURES TO BE CENTERED ON THE WINDOWS U.N.O.
3. WALL MOUNTED LIGHT FIXTURES:
   - EXTERIOR: REFER TO EXTERIOR ELEVATIONS FOR LOCATION AND VERIFY IN FIELD WITH ARCHITECT FOR EXACT LOCATION.
   - INTERIOR: CENTER OVER PLUMBING FIXTURES/ CASEWORK/ MIRRORS. REFER TO INTERIOR ELEVATIONS FOR LOCATION AND VERIFY IN FIELD WITH ARCHITECT FOR EXACT LOCATION.
4. PROVIDE A MINIMUM OF 1-20 AMP CIRCUIT FOR BATHROOM OUTLET(S). SUCH CIRCUIT SHALL HAVE NO OTHER OUTLETS. THIS CIRCUIT MAY SERVE MORE THAN 1 BATHROOM (CEC 210-23(a)).
5. PROVIDE A MINIMUM OF 2-20 AMP SMALL APPLIANCE CIRCUITS FOR THE KITCHEN COUNTERTOPS. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS. LOADS SHALL BE BALANCED (CEC 210-52(B) (2)).
6. BATHROOM EXHAUST FAN TO BE MINIMUM 50 CFM INTERMITTENT OR 20 CFM CONTINUOUS.
7. KITCHEN RANGE HOOD TO BE MINIMUM 100 CFM RATED AND MAXIMUM SOUND RATING OF 3 SONE.
8. ALL EXTERIOR RECEPTACLES TO BE WEATHER RESISTANT TYPE.
9. ARC FAULT BREAKER PROTECTION ON ALL CIRCUITS THAT SUPPLY POWER TO LIGHTING, RECEPTACLES, AND SMOKE/CARBON MONOXIDE DETECTORS INCLUDING KITCHENS.
10. AT LEAST ONE LUMINAIRE IN BATHROOMS TO BE CONTROLLED BY A VACANCY SENSORY WITH DIMMER.
11. ALL OUTDOOR LIGHTING TO BE CONTROLLED BY MANUAL ON AND OFF SWITCH AND ONE OF THE FOLLOWING: PHOTOCELL AND MOTION SENSOR, PHOTOCONTROL, ASTRONOMICAL TIME CLOCK, OR AN ENERGY MANAGEMENT CONTROL SYSTEM.
12. PROVIDE WP ELECTRICAL OUTLETS AT EAVES FOR SEASONAL DECORATIVE LIGHTING.
13. PROVIDE A QUICK DISCONNECT AT MECHANICAL EQUIPMENT.
14. LIGHT FIXTURES IN THE TUB AND/OR SHOWER ENCLOSURES SHALL HAVE "SUITABLE FOR DAMP LOCATION" LABEL (NEC 410-4(a)).
15. ON SLOPED CEILINGS PROVIDE ADJUSTABLE HEADS FOR RECESSED LIGHTING.
16. INSTALL 1" SOLAR CONDUIT FROM FUTURE INVERTER LOCATION TO ROOF SOLAR READY AREA.
17. MEMBRANE PENETRATIONS IN RATED WALL NOT TO EXCEED 16 SQ. INCHES, NOT EXCEED 100 SQ. INCHES PER 100 SQ. FEET OF WALL AND MUST BE SEPARATED BY A MIN. DISTANCE OF 24" WHEN ON OPPOSITE SIDES OF THE WALL PER **CRC R302.4.2**.
18. ALL NEW 15A OR 20A, 120V BRANCH CIRCUITS IN DWELLING UNITS SUPPLYING OUTLETS OR DEVICES IN KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE ARC-FAULT CIRCUIT-INTERRUPTER PROTECTED IN ACCORDANCE WITH 2019 CEC ART. 210.12 (A).
19. ALL NEW 15- AND 20-AMP RECEPTACLE OUTLETS IN DWELLING UNITS SHALL BE "TAMPER RESISTANT RECEPTACLES", PER 2019 CEC ART. 406.12.
20. GFCI PROTECTION IS REQUIRED FOR ALL 15A AND 20A, 125V RECEPTACLES INSTALLED IN THE FOLLOWING LOCATIONS:
    - **SINKS**: GFCI PROTECTION FOR RECEPTACLES IS REQUIRED WITHIN AN ARC MEASUREMENT OF 6 FT. FROM THE OUTSIDE EDGE OF A SINK.
    - **BATH TUBS OR SHOWER STALLS:** GFCI PROTECTION IS REQUIRED FOR RECEPTACLES LOCATED WITHIN 6 FT. OF THE OUTSIDE EDGE OF A BATHTUB OR SHOWER STALL.
    - **LAUNDRY AREAS:** RECEPTACLES INSTALLED IN LAUNDRY AREAS OF A DWELLING UNIT SHALL BE GFCI PROTECTED.
    - **DWELLING UNIT DISHWASHERS:** OUTLETS (NOT REQUIRED FOR A HARDWIRED APPLIANCE) SUPPLYING DISHWASHERS IN A DWELLING UNIT MUST BE GFCI PROTECTED PER 2019 CEC ART. CEC210.8.
21. 2019 CALIFORNIA ENERGY CODE MANDATORY MEASURES:
    - ALL PERMANENTLY INSTALLED LUMINAIRES IN DWELLING UNITS SHALL BE HIGH EFFICACY AND HAVE MANUAL ON/OFF CONTROLS AND VACANCY SENSORS OR DIMMERS EXCEPT FOR HALLWAYS & CLOSETS LESS THAN 70 SQ. FT.
    - EXHAUST FANS MUST BE SWITCHED SEPARATE FROM LIGHTING OR UTILIZE A DEVICE WHERE LIGHTING CAN BE TURNED OFF WHILE THE FAN IS RUNNING. EXCLUDES KITCHEN EXHAUST HOODS.
    - UNDER CABINET LIGHTING MUST BE SWITCHED SEPARATE FROM ALL OTHER LIGHTING.
    - PERMANENTLY INSTALLED LIGHTING IN CABINETS MUST BE HIGH EFFICACY.
    - LIGHTING IN BATHROOMS, GARAGES, LAUNDRY ROOMS & UTILITY ROOMS MUST HAVE AT LEAST ONE LUMINAIRE CONTROLLED BY VACANCY SENSORS.
22. SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN AS REQUIRED FOR OVERCURRENT PROTECTION. **[R314.6]** CARBON MONOXIDE ALARMS MUST ALSO RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING. **[R315.6]**
23. WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. THE ALARM SHALL BE CLEARLY AUDIBLE IN ALL BEDROOMS OVER BACKGROUND NOISE LEVELS WITH ALL INTERVENING DOORS CLOSED. **[R314.4]** CARBON MONOXIDE ALARMS MUST ALSO BE INTERCONNECTED. **[R315.5]**
24. THE KITCHEN RANGE HOOD MUST BE HVI RATED, LIMITED TO 3 SONE, AND WITH A MINIMUM AIRFLOW AS SPECIFIED IN ASHRAE 62.2. PER RCM 4.6.4.7, VENTED RANGE HOODS INCLUDING APPLIANCE-RANGE HOODS MUST BE 100 CFM, WHILE ALL OTHER HOOD TYPES INCLUDING DOWNDRAFT MUST BE 300 CFM. [CENC 150.0(o)2B]

ELECTRICAL LEGEND

	220V OUTLET
EV	OUTLET INSTALLED FOR FUTURE EV CHARGER - IT SHALL ORIGINATE AT MAIN SERVICE OR SUBPANEL. THE SERVICE PANEL SHALL PROVIDE CAPACITY TO INSTALL 40-AMPERE MIN. DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF A BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE. **(CAL GREEN 4.106.4.1)**
	110V DUPLEX A.F.C.I. PROTECTED OUTLET, +15" U.N.O. TAMPER RESISTANT
WP	WATERPROOF OUTLET AT +18" ABOVE FLOOR U.N.O.
GFCI	110V DUPLEX W/ GROUND FAULT INTERRUPTER
	DUPLEX 110 HALF SWITCHED, A.F.C.I. PROTECTED, TAMPER RESISTANT
	DUPLEX 110 HALF SWITCHED, A.F.C.I. PROTECTED FLOOR RECEPTACLE
	DATA/TELEPHONE
GD	GARBAGE DISPOSAL OUTLET, +15" U.N.O
DW	DISHWASHER OUTLET, +15" UNO
TV	PROVIDE RECESSED CABLE AND POWER OUTLET IN WALL; PROVIDE IN-WALL CABLE PATHWAY (2" DIA. PLASTIC CONDUIT TUBING) FROM BOX TO A/V CABINET COORDINATE LOCATION IN FIELD.
T	THERMOSTAT + 60" U.N.O.
DB	DOORBELL, PUSH BUTTON STATION, +42" WP LOW VOLTAGE LED LIGHT U.N.O.
$	SINGLE POLE SWITCH, +48"
$³	THREE WAY SWITCH, +48"
J	JUNCTION BOX
SD	COMBINATION SMOKE DETECTOR AND CARBON MONOXIDE DETECTOR CEILING MOUNTED PER R314.3.3 AND R315.3
S	CEILING MOUNTED SPEAKER
	CEILING MOUNTED LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE, +6'-8" U.N.O.
	WALL MOUNTED LIGHT FIXTURE EXTERIOR, +6'-8" MIN., VERIFY IN FIELD
	EXHAUST FAN
WHV	WHOLE HOUSE VENTILATION FAN - 105 CFM MIN. - (SEE CALCULATION) RATED (1) SONE MAX. PROVIDE 5" FLEX DUCT WITH MAX. 70' DUCT LENGTH TO EXTERIOR. PROVIDE ON/OFF SWITCH LABELED "VENTILATION CONTROL."
IAQ	EXHAUST FAN TO OPERATE CONTINUOUSLY AT 90 CFM OR GREATER FOR INDOOR AIR QUALITY. SWITCH TO BE LABELED "THIS SWITCH CONTROLS THE INDOOR AIR QUALITY OF THE HOME. LEAVE IT ON UNLESS INDOOR AIR QUALITY IS VERY POOR."
	RECESSED LED
	LOW VOLTAGE MINI 2" RECESSED LED
	2-TUBE LED FIXTURE CONTROLLED BY OCCUPANCY SENSOR
CHIME	DOORBELL CHIME, +6'-8"
8'-0"	CEILING HEIGHT TAG
	WHOLE HOUSE FAN WITH TIMER SWITCH
	CEILING FAN W/ LIGHT. WIRE FOR FAN AND LIGHT TO BE SWITCHED INDEPENDENTLY. ELECTRICAL BOX TO BE UL RATED AND MARKED FOR USE WITH CEILING FANS, AND SHALL INCLUDE MAXIMUM WEIGHT TO BE SUPPORTED
	EXTERIOR HVAC CONDENSING UNIT ON PRECAST CONCRETE PAD - PROVIDE DISCONNECT WITHIN 4' OF UNIT AND CLEARANCES PER MANUFACTURER'S RECOMMENDATION.
	DUCTLESS MINI-SPLIT HVAC, WALL MOUNTED UNIT
HB	HOSE BIBB
	MINI-SPLIT HVAC CEILING RECESSED
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ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

LICENSED ARCHITECT
SARAH NERSES IAN ELLIS
C-29460
REN. 07-31-25
STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE: 06/02/2022

REVISIONS:

1	CYC2	02.22.2023
2	CYC3	05.19.2023

SHEET TITLE
UNIT TYPE 2B SCHEMATIC ELECTRICAL PLAN

SHEET NO.
A9.24

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MINIMUM NAILING SCHEDULE (U.N.O.):

CONNECTION	NAILING[1]
1. JOIST TO SILL OR GIRDER, TOENAIL	3-8d COMMON
2. BRIDGING TO JOIST, TOENAIL EACH END	2-8d COMMON
3. 1"X6" SUB FLOOR OR LESS TO EACH JOIST, FACE NAIL	2-8d COMMON
4. WIDER THAN 1"X6" SUB FLOOR TO EACH JOIST, FACE NAIL	3-8d COMMON
5. 2" SUB FLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL	2-16d COMMON
6. SOLE PLATE TO JOIST OR BLOCKING, TYPICAL FACE NAIL	16d AT 16" O.C.
SOLE PLATE TO JOIST OR BLOCKING, AT BRACED WALL PANELS	3-16d PER 16"
7. TOP PLATE TO STUD, END NAIL	2-16d COMMON
8. STUD TO SOLE PLATE	4-8d COMMON, TOENAIL OR 2-16d COMMON, END NAIL
9. DOUBLE STUDS, FACE NAIL	16d AT 24" O.C.
10. DOUBLE TOP PLATES, TYPICAL FACE NAIL	16d AT 16" O.C.
DOUBLE TOP PLATES, LAP SPLICE	8-16d COMMON
11. BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE, TOENAIL	3-8d COMMON
12. RIM JOIST TO TOP PLATE, TOENAIL	8d AT 6" O.C.
13. TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL	2-16d COMMON
14. CONTINUOUS HEADER, TWO PIECES	16d COMMON AT 16" O.C. ALONG EACH EDGE
15. CEILING JOISTS TO PLATE, TOENAIL	3-8d COMMON
16. CONTINUOUS HEADER TO STUD, TOENAIL	4-8d COMMON
17. CEILING JOISTS, LAPS OVER PARTITIONS, FACE NAIL	3-16d COMMON
18. CEILING JOISTS TO PARALLEL RAFTERS, FACE NAIL	3-16d COMMON
19. RAFTER TO PLATE, TOENAIL	3-8d COMMON
20. 1" DIAGONAL BRACE TO EACH STUD AND PLATE, FACE NAIL	2-8d COMMON
21. 1"X8" SHEATHING TO EACH BEARING, FACE NAIL	3-8d COMMON
22. WIDER THAN 1"X8" SHEATHING TO EACH BEARING, FACE NAIL	3-8d COMMON
23. BUILT-UP CORNER STUDS	16d COMMON AT 24" O.C.
24. BUILT-UP GIRDER AND BEAMS, FACE NAIL	20d COMMON AT 32" O.C. AT TOP & BOTTOM. STAGGERED ON OPP. SIDES 2-20d AT ENDS AND AT EACH SPLICE
25. 2" PLANKS	16d COMMON AT EACH BEARING
26. WOOD STRUCTURAL PANELS AND PARTICLEBOARD:[2]	
SUBFLOOR, ROOF AND WALL SHEATHING (TO FRAMING):[2]	
1/2" AND LESS	6d[3,12]
19/32" - 3/4"	8d[4] OR 6d[5]
7/8" - 1"	8d[3]
1 1/8" - 1 1/4"	10d[4] OR 8d[5]
SINGLE FLOOR (COMBINATION SUBFLOOR-UNDERLAYMENT TO FRAMING):[2]	
3/4" AND LESS	6d[5]
7/8" - 1"	8d[5]
1 1/8" - 1 1/4"	10d[4] OR 8d[5]
27. PANEL SIDING (TO FRAMING):	
1/2" OR LESS	6d[6]
5/8"	8d[6]
28. FIBERBOARD SHEATHING:[7]	
1/2"	NO. 11 ga.[8] 6d[4] NO. 16 ga. STAPLE[9]
25/32"	NO. 11 ga.[8] 8d[4] NO. 16 ga. STAPLE[9]
29. INTERIOR PANELING	
1/4"	4d[10]
3/8"	6d[11]

1. COMMON OR BOX NAILS MAY BE USED EXCEPT WHERE OTHERWISE STATED
2. NAILS SPACED AT 6 INCHES ON CENTER AT EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS EXCEPT 6 INCHES AT ALL SUPPORTS WHERE SPANS ARE 48 INCHES OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLEBOARD DIAPHRAGMS AND SHEAR WALLS, REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX OR CASING.
3. COMMON OR DEFORMED SHANK
4. COMMON
5. DEFORMED SHANK
6. CORROSION-RESISTANT SIDING OR CASING NAIL.
7. FASTENERS SPACED AT 3 INCHES ON CENTER AT EXTERIOR EDGES AND 6 INCHES ON CENTER AT INTERMEDIATE SUPPORTS. SPACING SHALL BE 6 INCHES ON CENTER ON THE EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS FOR NONSTRUCTURAL APPLICATIONS.
8. CORROSION-RESISTANT ROOFING NAILS WITH 7/16 INCH-DIAMETER HEAD AND 1 1/2 INCH LENGTH FOR 1/2 INCH SHEATHING AND 1 3/4 INCH LENGTH FOR 25/32 INCH SHEATHING.
9. CORROSION-RESISTANT STAPLES WITH NOMINAL 7/16 INCH CROWN & 1 1/8 INCH LENGTH FOR 1/2 INCH SHEATHING AND 1 1/2 INCH LENGTH FOR 25/32 INCH SHEATHING. PANEL SUPPORTS AT 16 INCHES (20 INCHES IF STERENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED).
10. CASING OR FINISH NAILS SPACED AT 6 INCHES ON PANEL EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS.
11. PANEL SUPPORTS AT 24 INCHES. CASING OR FINISH NAILS SPACED AT 6 INCHES ON PANEL EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS
12. FOR ROOF SHEATHING APPLICATIONS, 8d NAILS (2 ½"x0.113") ARE THE MINIMUM REQUIRED FOR WOOD STRUCTURAL PANELS.

STRUCTURAL NAILS

NAIL SIZE	SHANK DIA.	HEAD DIA.	LENGTH
8d COMMON	.131 IN.	.281 IN.	2 1/2 IN.
10d COMMON	.148 IN.	.312 IN.	3 IN.
16d COMMON	.162 IN.	.344 IN.	3 1/2 IN.
20d COMMON	.192 IN.	.406 IN.	4 IN.

SHOP DRAWINGS:

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOP DRAWING PRODUCT DATA SAMPLES-PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW:

1. DETAILS ON THE SHOP DRAWINGS THAT DEVIATE FROM THE CONTRACT DOCUMENTS SHALL BE CLEARLY MARKED WITH THE NOTE "THIS IS A NOTED CHANGE".
2. ACAD FILES OF APPROVED STRUCTURAL DRAWINGS WILL NOT BE PROVIDED TO THE CONTRACTOR FOR THEIR PREPARATION OF SHOP DRAWINGS.THE CONTRACTOR AGREES THAT SHOP DRAWING SUBMITTALS ARE NOT CHANGE ORDERS.
3. CONTRACTOR FULLY AGREES THAT THE PURPOSE OF SHOP DRAWING SUBMITTALS IS TO DEMONSTRATE THAT THE CONTRACTOR FULLY UNDERSTANDS THE DESIGN INTENT OF THE PROJECT AND COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS BY INDICATING WHICH MATERIAL THE CONTRACTOR INTENDS TO FURNISH AND INSTALL AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS THE CONTRACTOR INTENDS TO USE.
4. CONTRACTORS ARE RESPONSIBLE FOR ALL MATERIAL QUANTITIES ON THE SHOP DRAWINGS.

TRUSS GENERAL NOTES:

1. TRUSS DESIGNS SHALL BE PROVIDED BY TRUSS MANUFACTURER IF APPLICABLE. DEFERRED SUBMITTALS, INCLUDING ROOF TRUSS CALCULATIONS SHALL BE SUBMITTED TO ENGINEER OF RECORD PRIOR TO THE START OF CONSTRUCTION.
2. ALL FABRICATION SHALL BE PERFORMED IN AN APPROVED FABRICATORS SHOP IN ACCORDANCE WITH THE CBC.
3. DUE TO THE HEIGHT OF SOME TRUSSES, PIGGY BACK TRUSS DESIGNS MAY BE NEEDED FOR SHIPMENT. SEE ENGINEERING FOR PROPER CONNECTIONS OF THESE TRUSSES.
4. DO NOT CUT ANY LOAD BEARING TRUSS. ANY CHANGES TO TRUSS DESIGNS MUST BE VERIFIED AND DESIGNED BY TRUSS ENGINEER.
5. TRUSSES SHALL BE STORED AND INSTALLED PER MANUFACTURERS INSTRUCTIONS. PROPER CARE SHALL BE TAKEN TO ENSURE THEIR PROTECTION FROM DAMAGE OF LUMBER AND PLATES. SEE THE TRUSS PLATE INSTITUTE (TPI) COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING AND BRACING METAL PLATE CONNECTED WOOD TRUSSES. CONTACT TPI AT 583 D'ONOFRIO DR. STE. 200, MADISON, WISCONSIN 53719.
6. TRUSS MANUFACTURER TO PROVIDE ALL HANGER INFORMATION FOR TRUSS TO TRUSS, TRUSS TO GIRDER, AND TRUSS TO BEAM CONNECTIONS. SEE TRUSS MANUFACTURERS FRAMING SHEET FOR THIS INFORMATION. ALL HARDWARE LISTED SHALL BE "SIMPSON STRONG-TIE". AN APPROVED EQUAL MANUFACTURERS PRODUCT MAY BE USED.
7. ROOF FRAMING NOTES ABOVE SHALL BE USED WHERE APPLICABLE TO THE TRUSS ROOF FRAMING.
8. ALL TRUSSES SHALL BE DESIGNED FOR THE DEAD, LIVE, SNOW, WIND, AND SEISMIC CONDITIONS AS REQUIRED BY THE 2019 CALIFORNIA BUILDING CODE.
9. TRUSS DESIGNER/MANUFACTURER SHALL BE RESPONSIBLE FOR CONTACTING LOCAL JURISDICTIONS FOR APPROPRIATE LIVE LOADS AND ANY SPECIAL LOADING CONDITIONS.
10. TRUSSES SHALL BE DESIGNED FOR ALL DRIFTING LOADS AS SET FORTH BY THE 2016 CALIFORNIA BUILDING CODE AND ANY LOCAL JURISDICTIONAL REQUIREMENTS.
11. TRUSSES SHALL BE STAMPED AND SIGNED BY A REGISTERED CIVIL ENGINEER OR STRUCTURAL ENGINEER FROM THE STATE OF CALIFORNIA.

ABBREVIATIONS:

AB	ANCHOR BOLT
BTWN	BETWEEN
CJ	CONSTRUCTION JOINT
CLR	CLEAR
CONC	CONCRETE
CONTIN	CONTINUOUS
CJP	COMPLETE JOINT PENETRATION
CP	COMPLETE PENETRATION
CSK	COUNTERSINK
CTJ	CONTROL JOINT
DF	DOUGLAS FIR
DL	DEAD LOAD
DO	DITTO
(E)	EXISTING
EJ	EXPANSION JOINT
EN	EDGE NAILING
FB	FACE OF BLOCK
FC	FRAMING CLIP
FF	FINISH FLOOR
FLR	FLOOR
FOC	FACE OF CONCRETE
FOS	FACE OF STUD
FTG	FOOTING
GA	GAUGE
GLB	GLUED-LAMINATED BEAM
HDR	HEADER
HSB	HIGH STRENGTH BOLT (A-325)
HT	HEIGHT
JH	JOIST HANGER (SIMPSON)
LL	LIVE LOAD
LS	LAG SCREW
LT WT	LIGHT WEIGHT
LVL	LAMINATED VENEER LUMBER
MFR	MANUFACTURER
MI	MALLEABLE IRON
(N)	NEW
NTS	NOT TO SCALE
OC	ON CENTER
OH	OPPOSITE HAND
PC	PIECE
PJP	PARTIAL JOINT PENETRATION
PP	PARTIAL PENETRATION
PTDF	PRESSURE TREATED DOUGLAS FIR
RDWD	REDWOOD
SAD	SEE ARCHITECTURAL DRAWINGS
SC	SHEAR CONNECTOR
SDSTS	SELF DRILLING, SELF TAPPING SCREW
SPEN	STRUCTURAL PLYWOOD EDGE NAILING
SPS	STRUCTURAL PLYWOOD SHEATHING
STFNR	STIFFENER
STGGRD	STAGGERED
T & B	TOP & BOTTOM
T & G	TONGUE & GROOVE
TN	TOE NAIL
TOF	TOP OF FRAMING
TOS	TOP OF STEEL
UNO	UNLESS NOTED OTHERWISE
w/	WITH
w/o	WITHOUT
WS	WOOD SCREW
WP	WORK POINT
WWF	WELDED WIRE FABRIC
℄	CENTERLINE
PL	PLATE
#	NUMBER OR POUNDS
□	SQUARE
ø	ROUND OR DIAMETER
⊠	CONTINUOUS WOOD IN SECTION
⧄	WOOD BLOCKING IN SECTION
▨	END OF WOOD PIECE

STRUCTURAL COMPOSITE LUMBER:

1. GLUED-LAMINATED BEAMS SHALL BE MANUFACTURED FROM VISUALLY GRADED WESTERN SPECIES AND SHALL CONFORM TO THE FOLLOWING COMBINATIONS:
   SIMPLE SPAN MEMBERS: 24F-V4
   CANTILEVER & CONTINUOUS MEMBERS: 24F-V8
2. VERSALAM BEAMS SHALL BE EXTERIOR GRADE, MANUFACTURED FROM WESTERN SPECIES AND SHALL CONFORM TO THE FOLLOWING DESIGN STRESSES:
   E = 2,000,000 PSI
   Fb = 3100 PSI
   Fc = 750 PSI
   Fc = 3000 PSI
   Fv = 285 PSI
3. MICROLAM BEAMS SHALL BE EXTERIOR GRADE, MANUFACTURED FROM WESTERN SPECIES AND SHALL CONFORM TO THE FOLLOWING DESIGN STRESSES:
   E = 1,900,000 PSI
   Fb = 2600 PSI
   Fc = 750 PSI (PERPENDICULAR) ⊥
   Fc = 2510 PSI (PARALLEL) ||
   Fv = 285 PSI
4. CAMBER ALL BEAMS ON 2000 FT. RADIUS BETWEEN SUPPORTS (NO CAMBER AT CANTILEVERS), TYPICAL UNLESS NOTED OTHERWISE.
5. EACH STRUCTURAL COMPOSITE LUMBER BEAM SHALL BE STAMPED WITH THE AITC QUALITY CONTROL MARK.
6. EACH STRUCTURAL COMPOSITE LUMBER BEAM SHALL BE FABRICATED WITH EXTERIOR GLUE AND SHALL BE ASSUMED TO BE FOR EXTERIOR USE.
7. STRUCTURAL COMPOSITE LUMBER SHALL CONFORM TO STANDARD SPECIFICATION FOR STRUCTURAL GLUE-LAMINATED TIMBER AITC 117 LATEST EDITION. SUBMIT SHOP DRAWINGS TO FIELD INSPECTOR PRIOR TO FABRICATION.

SPECIAL INSPECTIONS:

1. IN ADDITION TO THE INSPECTION ITEMS REQUIRED BY CHAPTER 17 OF THE 2019 CBC, SPECIAL INSPECTION SHALL BE PERFORMED ON THE FOLLOWING ITEMS:
   A. OBSERVATION OF SUBGRADE PREPARATION AND FOUNDATION CONSTRUCTION OPERATIONS BY THE GEOTECHNICAL ENGINEER PER CBC 1705.6
   B. EPOXY DOWELLING OF HOLDOWNS
   C . OBSERVATION OF ELEMENTS OF THE LATERAL FORCE RESISTING SYSTEM ALONG LINES WHERE THE SHEARWALL NAILING IS 4" OC. OR CLOSER. ELEMENTS OF THE SPECIAL INSPECTION SHALL INCLUDE NAILING, BOLTING, ANCHORING, AND OTHER FASTENING WITHIN THE SEISMIC FORCE RESISTING SYSTEM, INCLUDING WOOD SHEARWALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, SHEAR PANELS, AND HOLDOWNS PER SECTION 1705.11.1

CONCRETE NOTES:

1. STRUCTURAL CONCRETE SHALL ATTAIN 28 DAY COMPRESSIVE STRENGTH, f'c = 2,500 PSI.
2. CONCRETE MIX DESIGN SHALL BE PREPARED BY AN INDEPENDENT LABORATORY APPROVED BY THE STRUCTURAL ENGINEER. SELECTION OF CONCRETE MIX PROPORTIONS SHALL BE PER CBC SECTION 1905.3 OR 1905.4.
3. CEMENT SHALL CONFORM TO ASTM C-150 TYPE I OR II.
4. CONCRETE AGGREGATES SHALL CONFORM TO ASTM C-33. AGGREGATES FOR LIGHTWEIGHT CONC. SHALL CONFORM TO ASTM C-330.
5. REINFORCING STEEL SHALL CONFORM TO ASTM A615 - GRADE 60. REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A706.
6. ALL PREHEATING & WELDING OF REINFORCING BARS SHALL BE DONE IN ACCORDANCE WITH AWS D1.4 LATEST EDITION AND SHALL BE CONTINUOUSLY INSPECTED BY A QUALIFIED LABORATORY. CONTRACTOR SHALL FURNISH TO THE LABORATORY, REBAR MILL CERTIFICATES.
7. REINFORCING STEEL SHALL BE FABRICATED ACCORDING TO "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION."
8. WIRE FABRIC SHALL CONFORM TO ASTM A-185.
9. DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO THE FACE OF MAIN BARS AND DENOTE CLEAR COVERAGE. CONCRETE COVERAGE SHALL BE AS FOLLOWS: CONCRETE DEPOSITED AGAINST GROUND (EXCEPT SLABS) - 3". CONCRETE EXPOSED TO GROUND BUT PLACED IN FORMS - 2". SLABS (ON GROUND) - 2" CLEAR FROM TOP UNO.
10. SPLICES IN CONTINUOUS REINFORCEMENT SHALL BE 48 BAR DIAMETERS & SPLICES IN ADJACENT BARS SHALL BE NOT LESS THAN 5'-0" APPART. SPLICE CONTINUOUS BARS IN SPANDRELS, GRADE BEAMS, ETC., AS FOLLOWS: TOP BARS AT MID-SPAN; BOTTOM BARS AT CENTERLINE AT SUPPORT, UNLESS NOTED OTHERWISE. SPLICES IN WWF SHALL BE 1-1/2" MESHES WIDE.
11. CONSTRUCTION JOINTS SHALL BE MADE ROUGH AND ALL LAITANCE REMOVED FROM THE SURFACE. CONCRETE MAY BE ROUGHENED BY CHIPPING THE ENTIRE SURFACE, SAND BLASTING OR RAKING THE SURFACE TO PRODUCE 1/4" DEEP DEFORMATION
12. REMOVE ALL DEBRIS FROM FORMS BEFORE CASTING ANY CONCRETE.
13. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC., TO BE EMBEDDED IN CONCRETE SHALL BE TIED SECURELY IN POSITION BEFORE PLACING CONCRETE.
14. MAXIMUM FREE FALL OF CONCRETE SHALL BE 8'-0".
15. NO WOOD SPREADERS ALLOWED. NO WOOD STAKES ALLOWED IN AREAS TO BE CONCRETED.
16. CONSOLIDATE CONCRETE PLACED IN FORMS BY MECHANICAL VIBRATING EQUIPMENT SUPPLEMENTED BY HAND-SPADING, RODDING OR TAMPING. USE EQUIPMENT AND PROCEDURES FOR CONSOLIDATION OF CONCRETE IN ACCORDANCE WITH THE RECOMMENDED PRACTICES OF ACI 309 TO SUIT THE TYPE OF CONCRETE AND PROJECT CONDITIONS.
17. ALL SAW CUTTING SHALL BE DONE AFTER INITIAL SET HAS OCCURRED TO AVOID TEARING OR DAMAGE BY THE SAW BLADE, BUT BEFORE INITIAL SHRINKAGE HAS OCCURRED.
18. DRILL THROUGH STEEL COLUMNS, BEAMS AND PLATES TO PASS CONTINUOUS REINFORCING.
19. ADDITIONAL REINFORCING IN PRECAST OR TILT-UP PANELS REQUIRED FOR LIFTING STRESSES SHALL BE SUPPLIED BY THE CONTRACTOR.
20. PROVIDE 2-#4X4'-0" DIAGONAL REINFORCING AT MID-DEPTH OF SLAB AT ALL RE-ENTRANT CORNERS TYPICAL.

WOOD NOTES:

1. ALL STRUCTURAL WOOD SHALL CONFORM WITH THE FOLLOWING SPECIFICATION: DOUGLAS FIR - COAST REGION - WCLIB GRADING RULES #17 DF #1, EXCEPT 2X4 AND 2X6 WALL STUDS, PLATES, AND BLOCKING MAY BE DF #2. REDWOOD - CALIFORNIA REDWOOD ASSOCIATION GRADING RULES, LATEST EDITION. GLUED LAMINATED BEAMS - STANDARD SPEC. FOR STRUCTURAL GLUED LAMINATED TIMBER AITC 117 LATEST EDITION. SUBMIT SHOP DRAWINGS PRIOR TO FABRICATION OF GLUED-LAMINATED MEMBERS. PLYWOOD - U.S. PRODUCT STANDARD P.S. 2-92 FOR SOFT PLYWOOD STRUCT I @ WALLS; CDX @ FLOORS AND ROOF - U.N.O. PRESSURE TREATED DOUGLAS FIR - 2019 CBC STANDARD NO. 2303.1-3.
2. ALL WOOD IN DIRECT CONTACT WITH EARTH, CONCRETE, OR MASONRY SHALL BE PRESSURE TREATED.
3. BEARING & SHEAR WALLS SHALL HAVE DOUBLE TOP PLATES, LAPPED @ WALL & PARTITION INTERSECTION w/ 3-16D NAILS. SPLICE UPPER & LOWER PLATES AS IN DETAIL 1 ON TYP. DETAIL SHEET.
4. PROVIDE SOLID BLCK'G. BTWN. JOISTS & RAFTERS AT ALL SUPPORTS.
5. PROVIDE BLOCKING AT ALL CEILING LEVELS.
6. JOISTS UNDER AND PARALLEL TO PARTITIONS SHALL BE DOUBLED AND NAILED TOGETHER. PROVIDE JOIST DIRECTLY UNDER PARTITIONS AND WALLS THAT ARE PARALLEL TO JOIST FRAMING, OR PROVIDE PERPENDICULAR 2X BLKG AT 24" OC
7. HOLES FOR BOLTS IN WOOD SHALL BE BORED WITH A BIT OF THE SAME NOMINAL DIAMETER AS THE BOLT PLUS 1/16".
8. HOLES FOR LAG SCREWS SHALL BE FIRST BORED TO THE SAME DIAMETER AND DEPTH AS THE SHANK AND THE REST NO LARGER THAN THE ROOT OF THE THREAD.
9. LAG SCREWS & WOOD SCREWS SHALL BE SCREWED & NOT DRIVEN INTO PLACE. SOAP MAY BE USED TO LUBRICATE THE SCREWS.
10. ALL BOLTS & LAG SCREWS SHALL BE PROVIDED w/ METAL WASHERS UNDER HEADS & NUTS WHICH BEAR ON WOOD. APPLIES ALSO TO INSERTED EXPANDING FASTENERS, RED HEAD, ETC.

BOLT DIAM.	MI WASHER	STEEL WASHER
1/2"	2" dia x 1/4"	2"x2"x 3/16"
5/8"	3" dia x 1/4"	3"x3"x 1/4"
3/4"	3 1/2" dia x 5/16"	3 1/2"x3 1/2"x 1/4"
1"	4" dia x 5/16"	3 1/2"x3 1/2"x 1/4"

11. ALL BOLTS AND LAG SCREWS SHALL BE TIGHTENED ON INSTALLATION AND RETIGHTENED BEFORE CLOSING IN OR AT COMPLETION OF JOB.
12. LAY ALL STRUCTURAL PLYWOOD ON ROOF AND FLOORS WITH FACE GRAIN PERPENDICULAR TO SUPPORT UNLESS NOTED OTHERWISE.
13. BLOCK SP JOINTS WITH 2X4 FLAT BLOCKING WHERE NOTED ON ROOF OR FLOOR FRAMING PLANS AND WITH BLOCKING SAME AS STUDS AT WALLS UNLESS NOTED OTHERWISE IN SHEARWALL SCHEDULE. USE PLYCLIPS AT MIDSPAN OF UNSUPPORTED PLYWOOD EDGES.
14. CONNECTOR HARDWARE MODEL NUMBER ARE THOSE FOR SIMPSON STRONG-TIE COMPANY. EQUIVALENT CONNECTORS WITH ICC ACCEPTANCE MAY BE SUBSTITUTED. ALL HARDWARE SHALL BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.
15. NOTIFY STRUCTURAL ENGINEER AFTER WALL, FLOOR, AND ROOF SP NAILING HAS BEEN COMPLETED AND A MINIMUM OF 48 HOURS PRIOR TO CONCEALING SP.
16. CUTTING AND NOTCHING OF EXTERIOR WALLS AND BEARING PARTITIONS SHALL NOT EXCEED 25 % OF THE STUD WIDTH
17. CUTTING AND NOTCHING OF NON-BEARING PARTITIONS SUPPORTING NO LOADS OTHER THAN THE WEIGHT OF THE PARTITION SHALL NOT EXCEED 40% OF THE STUD WIDTH.
18. A BORED HOLE NOT GREATER THAN 40 PERCENT OF THE STUD WIDTH MAY BE BORED IN ANY WOOD STUD.
19. BORED HOLES NOT GREATER THAN 60 PERCENT OF THE WIDTH OF THE STUD ARE PERMITTED IN NON-BEARING PARTITIONS AND IN ANY WALL WHERE EACH BORED STUD IS DOUBLED, PROVIDED NOT MORE THEN TWO SUCCESSIVE DOUBLE STUDS ARE SO BORED.
20. WHERE FRAMING HANGERS ARE REQUIRED AND ARE NOT SHOWN ON SECTIONS, DETAILS OR PLANS THE FOLLOWING SIMPSON HANGERS SHALL BE USED. SLOPE, SKEW, TURN IN FLANGES AND PROVIDE TOP FLANGE HANGERS AS REQUIRED.

2X & 3X MEMBERS	U HANGERS
4X MEMBERS	HU HANGERS
6X MEMBERS	HUTF HANGERS
I-JOIST MEMBERS	MIT HANGERS
GLU LAM MEMBERS	LEG HANGERS

21. PROVIDE PLYWOOD EDGE NAILING AROUND ALL OPENINGS AND BLOCK ALL UNSUPPORTED PLYWOOD EDGES.
22. UPSET THREADS ON SILL BOLTS ARE NOT ALLOWED.
23. ALL FRAMING LUMBER SHALL HAVE A MAXIMUM MOISTURE CONTENT OF 19% AT THE TIME OF INSTALLATION AND SHALL BE AT 19% MAXIMUM MOISTURE CONTENT (VERIFIED BY INSPECTOR OF RECORD) BEFORE BEING ENCLOSED BY INSULATION, GYPBOARD, OR OTHER SURROUNDING ARCHITECTURAL MATERIALS. THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PROVIDE LUMBER MEETING THESE CRITERIA.
24. BOLTS ARE NOT TO BE INSTALLED IN LUMBER OVER 19% MOISTURE CONTENT.
25. ALL METAL ANCHORS, FASTENERS, CONNECTORS, ETC. THAT WILL BE IN CONTACT WITH PRESSURE TREATED LUMBER MUST BE HOT DIPPED GALVANIZED OR OTHER APPROVED CORROSION APPROVED MATERIAL.

GENERAL NOTES:

1. NOTES AND DETAILS ON TYPICAL SHEETS SHALL APPLY UNLESS OTHERWISE SHOWN OR NOTED ON PLANS.
2. DETAILS OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME NATURE AS SHOWN FOR SIMILAR CONDITION.
3. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE 2019 CALIFORNIA CODE, CBC.
4. PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER ON ALL STRUCTURAL STEEL, REINFORCING STEEL, GLU- LAMINATED, CONCRETE MIX PROPORTIONS, TJI'S, OPEN WEB TRUSSES, MANUFACTURED JOIST.
   SHOP DRAWINGS:
   A. CONTRACTOR AGREES THAT SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS AND THAT THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT BY INDICATING WHICH MATERIAL HE INTENDS TO FURNISH AND INSTALL AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS HE INTENDS TO USE.
   B. SHOP DRAWINGS SHALL BE PREPARED FROM FRESH WORK. REPRODUCTIONS OF THE APPROVED DRAWINGS IS NOT PERMITTED.
   C. CAD FILES OF APPROVED DRAWINGS WILL NOT BE PROVIDED TO THE CONTRACTOR, SUBCONTRACTOR OR FABRICATOR FOR THE PREPARATION OF SHOP DRAWINGS.
   D. THE CONTRACTOR IS RESPONSIBLE FOR MATERIAL QUANTITIES ON THE SHOP DRAWINGS.
   E. CONTRACTOR IS TO REVIEW AND BE IN AGREEMENT WITH COMMENTS BY THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH FABRICATION.
   F. ANY DETAIL ON THE SHOP DRAWING THAT DEVIATES FROM THE CONTRACT DOCUMENTS SHALL BE CLEARLY MARKED WITH THE NOTE "THIS IS A CHANGE". SEE GENERAL NOTES FOR MATERIAL SUBSTITUTIONS.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
6. CONTRACTOR SHALL NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DRAWINGS OR DOCUMENTS. CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE BUILDING THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED w/AFFILIATED PARTIES.

SAFETY NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COMPLY w/THE PERTINENT SECTIONS OF THE "CONSTRUCTION SAFETY ORDERS" ISSUED BY THE STATE OF CALIFORNIA LATEST EDITION, AND ALL O.S.H.A. REQUIREMENTS AS THEY APPLY TO THE PROJECT. THE STRUCTURAL ENGINEER DOES NOT ACCEPT ANY RESPONSIBILITY FOR THE CONTRACTORS FAILURE TO COMPLY w/THESE REQUIREMENTS.
2. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING FOR VERTICAL AND/OR LATERAL LOADS, SHORING AND LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER WILL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.

DESIGN LOADS:

2019 CALIFORNIA BUILDING CODE (CBC)

LIVE LOADS
   FLOOR - 40 PSF (REDUCIBLE) TYP,   ROOF - 20 PSF (REDUCIBLE)

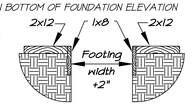
DEAD LOADS
   HIGH ROOF - 16 PSF + 5 PSF FOR SOLAR PANELS
   MAIN FLOOR LEVELS - 20.2 PSF

WIND
   EXP. B, Iw = 1.0
   ENCLOSED BLDG
   BASIC WIND SPEED = 110 MPH(ULTIMATE)
   ROOF 4:12 - USE SIMPLIFIED ANALYSIS
   INTERNAL PRESSURE COEFFICIENT (GCpi) = +/- 0.18 (enclosed bldg)

SEISMIC - 2019 CBC (ASCE 7-16)
   RISK CATEGORY II   Fa = 1.38
   Is = 1.0   Fv = 2.12
   SITE CLASS = D   R = 6.5 (Wood diaphragm)
   Ss = 0.523g (USGS Hazmap)
   S1 = 0.242g (USGS Hazmaps)
   Sds = 0.481g
   Sd1 = 0.341g   SDC - D
   Cs - 0.0741 Equivalent Lateral Force Procedure

FOUNDATION NOTES:

1. REFER TO GEOTECHNICAL REPORT # 05-22016G BY ALLERION CONSULTING GROUP, INC. DATED MARCH 23, 2022 FOR FTG, SLAB, WALLS, AND SITE DATA NOT INCLUDED HERE.
2. ALL FOUNDATION WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2019 CBC.
3. BOTTOMS OF ALL FOUNDATIONS SHALL BE LEVEL. CHANGES IN BOTTOM OF FOUNDATION ELEVATION SHALL BE MADE ACCORDING TO STEPPED FOOTING DETAIL 8.
4. ALL PILE CAPS, GRADE BEAMS, TIE BEAMS & OTHER FOOTINGS SHALL BE FORMED UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL DESIGNER. FOUNDATIONS MAY BE CAST IN NEAT EXCAVATIONS PROVIDED WRITTEN APPROVAL IS OBTAINED AND FOOTINGS ARE INCREASED 2" IN WIDTH. USE 2X12 PLANK AT EDGE OF EXCAVATION TO PROTECT AGAINST SLUFFING, AS REQUIRED.



5. CONTRACTOR SHALL NOTIFY CORNERSTONE STRUCTURAL CONSULTANTS 24 HRS IN ADVANCE OF ANY CONCRETE POUR TO ALLOW STRUCTURAL ENGINEER TIME TO VISIT SITE AND VERIFY REBAR AND FTG EXCAVATIONS

ELLIS
ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE
STRUCTURAL CONSULTANTS
9005 ELK GROVE BLVD., SUITE 6, ELK GROVE, CA 95624 T: 916-897-9649

CHAD A. GUPTILL
No. C60091
EXP. 06/30/24

THESE DRAWINGS ARE PRELIMINARY AND NOT FOR CONSTRUCTION UNLESS STAMPED & SIGNED BY THE ENGINEER OF RECORD.

NORTH AVENUE HALF-PLEXES
Owner
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN #

PLAN CHECK
SET

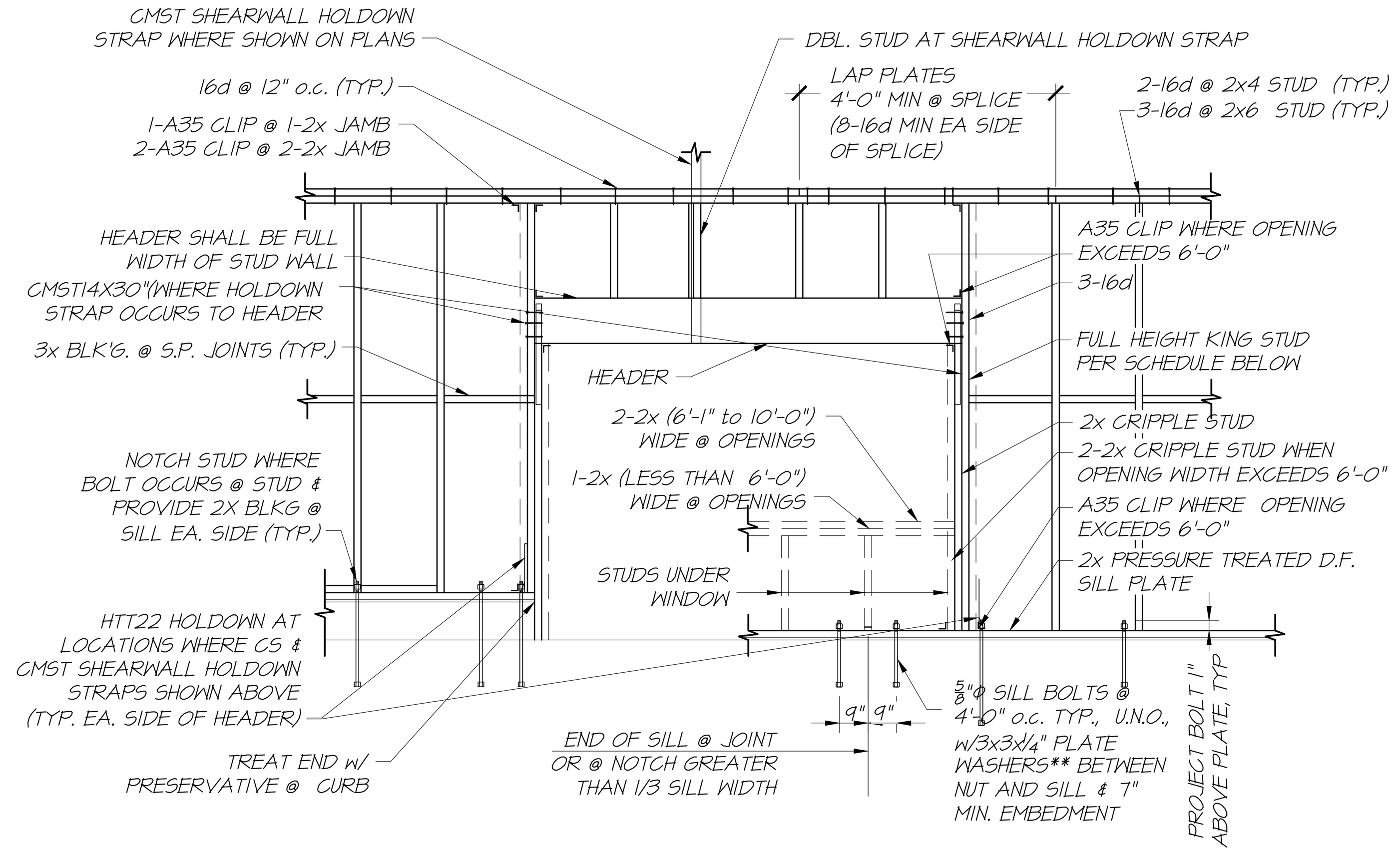
DATE:
5/31/2022

REVISIONS:

1	PCK COMMENT 2/21/23
2	PCK COMMENT 5/19/23

SHEET TITLE
GENERAL
NOTES

SHEET NO.
S1.0



HEADER SCHEDULE		
WIDTH OF OPENING	HEADER DEPTH "D"	
	BR'NG WALL	NON-BRNG
0 to 4'-0"	6"	4"
4'-1" to 8'-0"	8"	6"
8'-1" to 10'-0"	10"	8"
NOTE: TYPICAL UNLESS NOTED OTHERWISE		

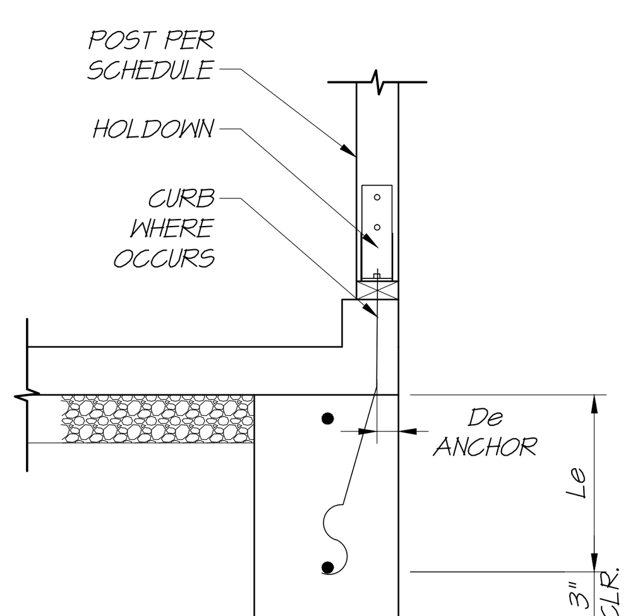
FULL HEIGHT KING STUD SCHEDULE	
WIDTH OF OPENING	# OF KING STUDS
0 to 4'-0"	1
4'-1" to 8'-0"	2
8'-1" to 10'-0"	3
NOTE: TYPICAL UNLESS NOTED OTHERWISE	

1 / S1.1 TYP. WALL STUD FRAMING

N.T.S.

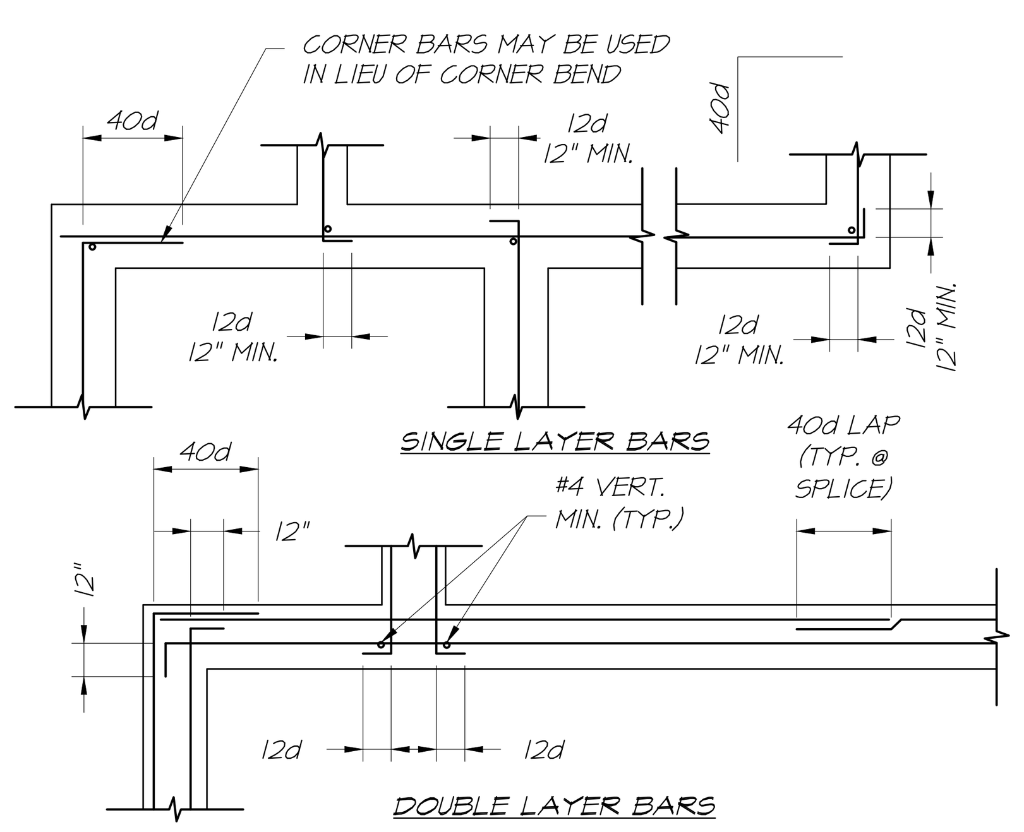
SIMPSON HOLDOWN	ANCHOR	EMBEDMENT L_e	D_e	ATTACHMENT TO POST	POST SIZE
LTT20B	SSTB20	13"	1 3/4"	10-10D x 1 1/2"	DBL. 2x
HDU4	SSTB20	17"	1 3/4"	10-1/4"x2 1/2" SDS	4X
HDU5	SSTB24	20 5/8"	1 3/4"	14-1/4"x2 1/2" SDS	4X
HDU8	SSTB28	25"	1 3/4"	20-1/4"x2 1/2" SDS	4x
HDU11	1"Φ A307	25"	1 3/4"	30-1/4"x2 1/2" SDS	6x
HDU14	1"Φ A307	25"	1 3/4"	36-1/4"x2 1/2" SDS	6x

NOTES:
1. ANCHOR BOLTS ARE BASED ON A TWO POUR FOUNDATION SYSTEM.
2. DEEPEN FOOTING TO ACCOMODATE EMBEDMENT DEPTH.
3. INCREASE FOOTING DEPTH AS REQUIRED TO ACCOMODATE 3" CLEAR.
4. ANCHOR BOLT SHALL BE INSTALLED PER MFR. RECOMMENDATION.



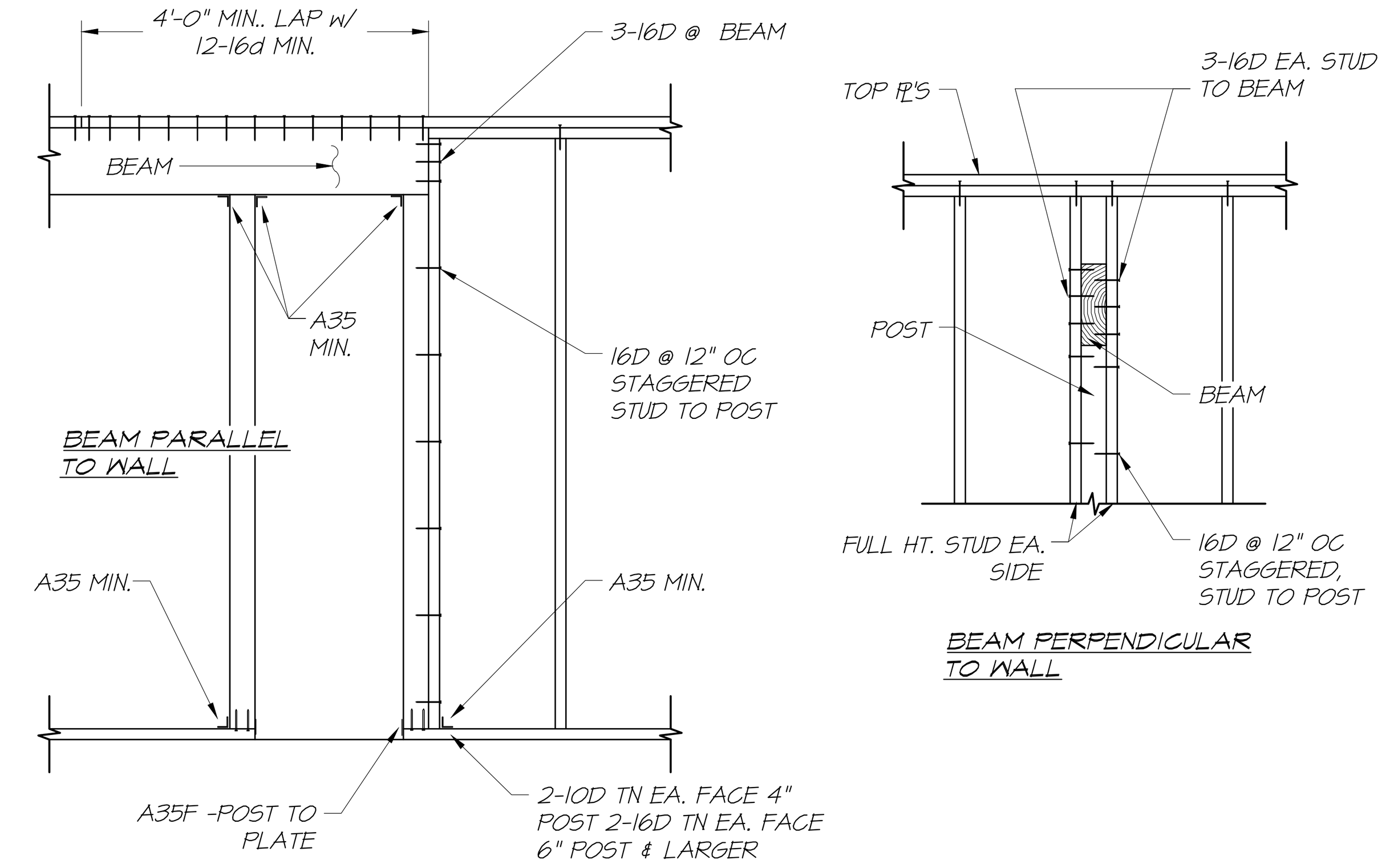
4 / S1.1 HOLDOWN DETAIL

N.T.S.



9 / S1.1 TYP. CORNER REINFORCING

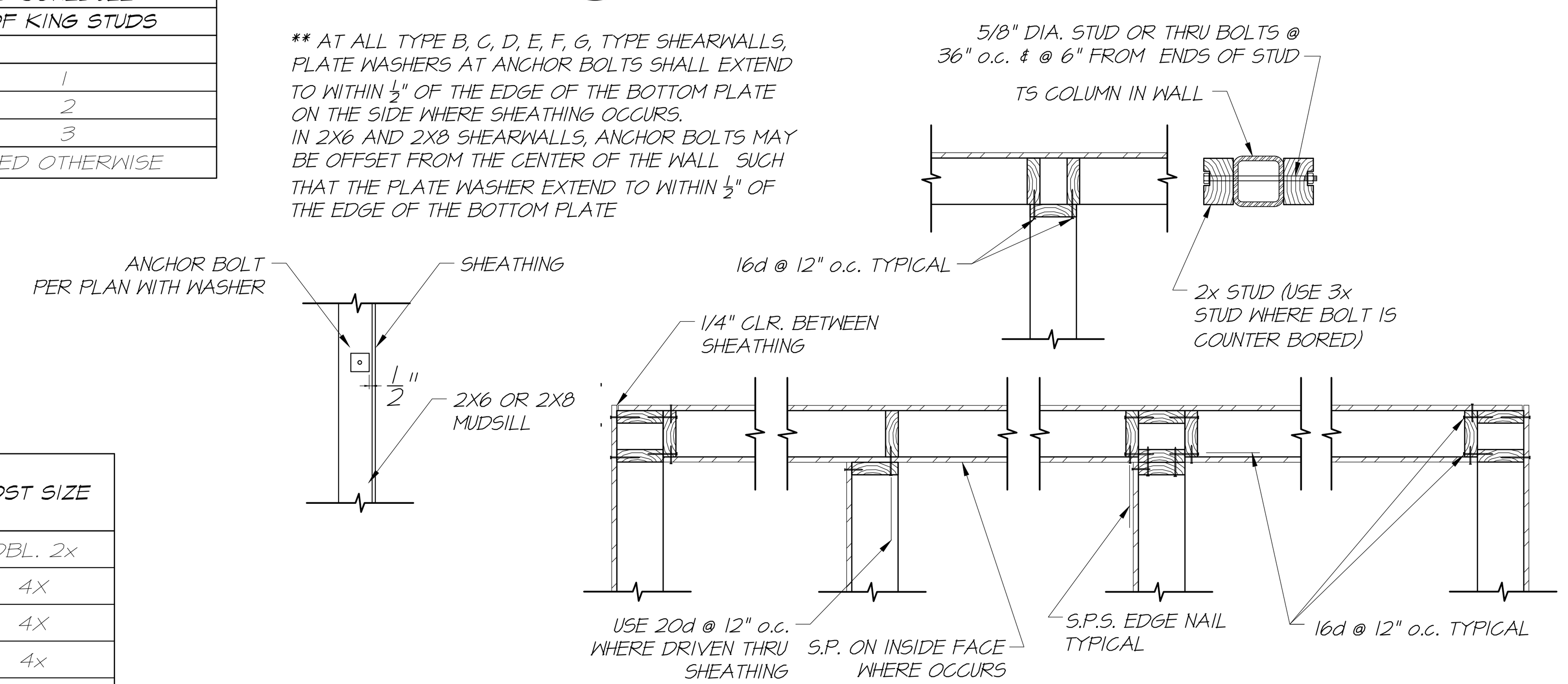
N.T.S.



2 / S1.1 POST & BEAM CONNECTIONS

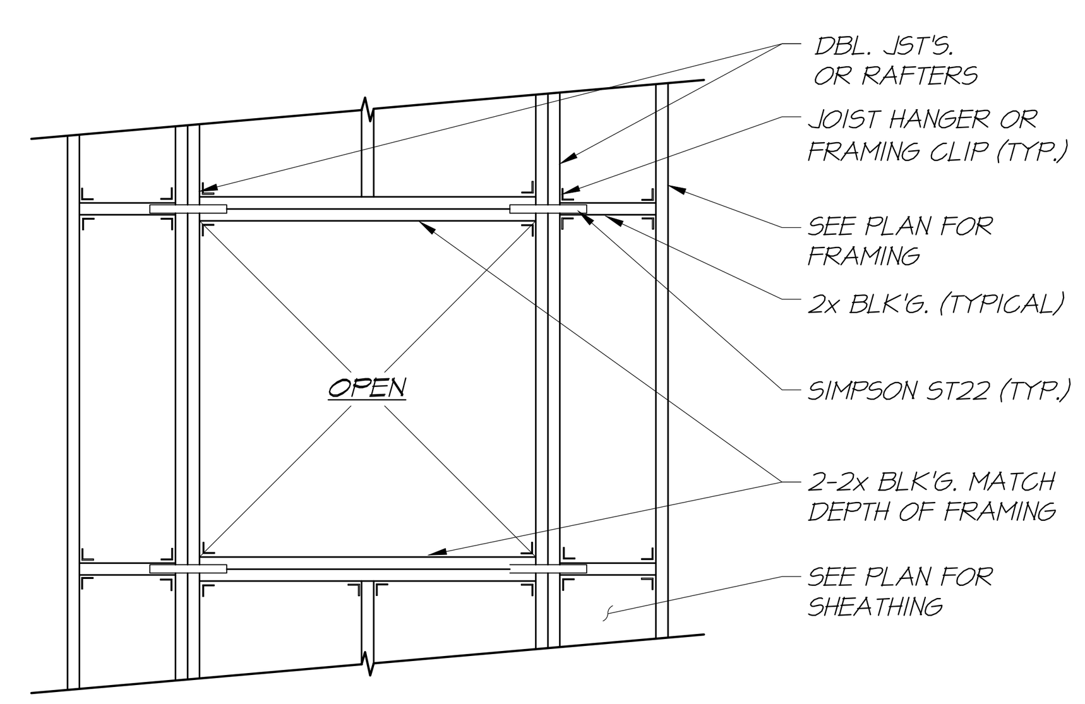
N.T.S.

** AT ALL TYPE B, C, D, E, F, G, TYPE SHEARWALLS, PLATE WASHERS AT ANCHOR BOLTS SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE ON THE SIDE WHERE SHEATHING OCCURS. IN 2X6 AND 2X8 SHEARWALLS, ANCHOR BOLTS MAY BE OFFSET FROM THE CENTER OF THE WALL SUCH THAT THE PLATE WASHER EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE



5 / S1.1 TYP. STUD FRM'G AT CORNERS

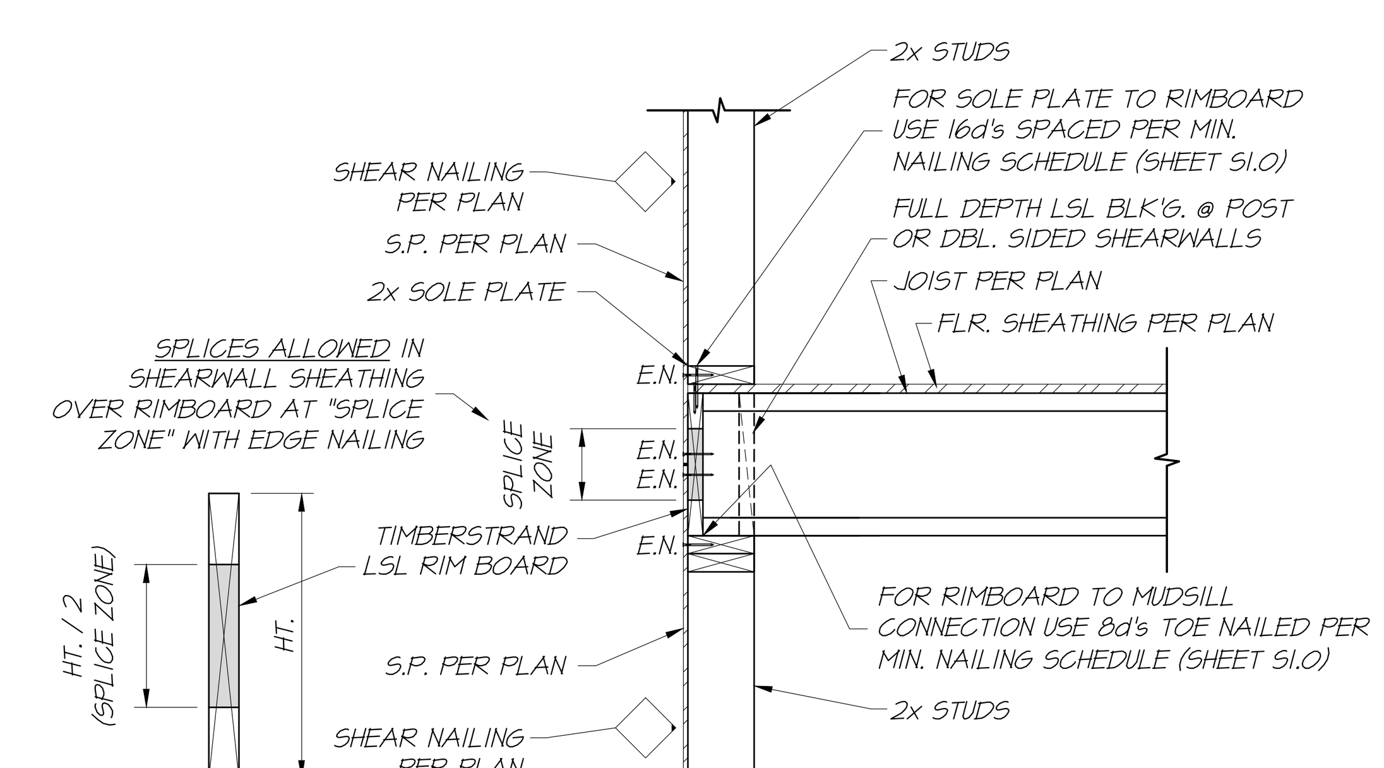
N.T.S.



NOTE: OPENINGS TO BE 4'-0" MAXIMUM.

7 / S1.1 DIAPHRAGM OPENING

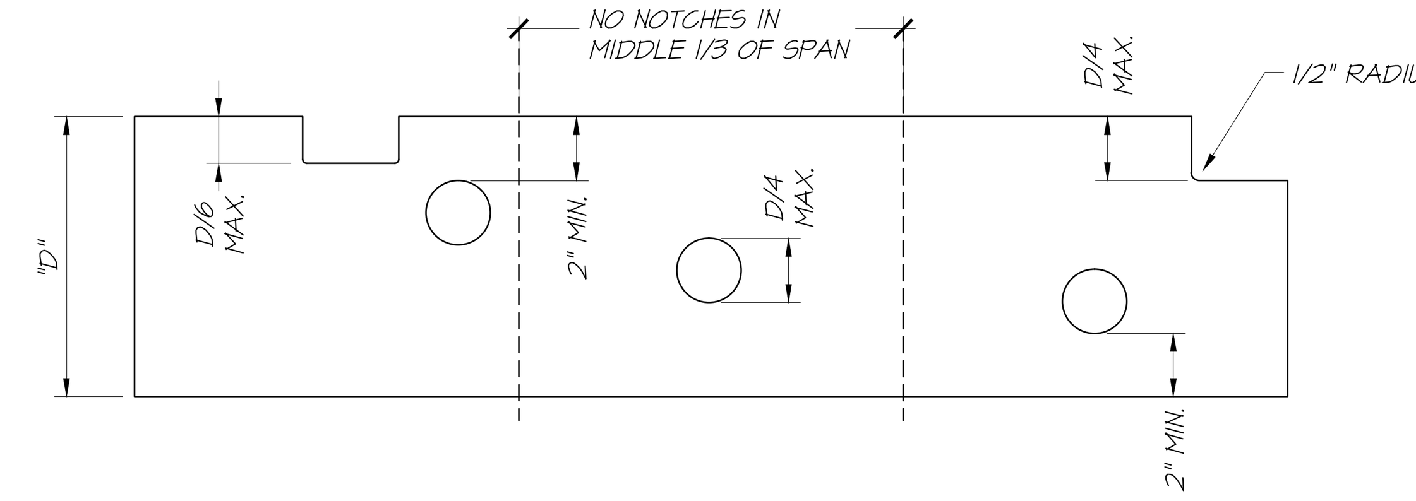
N.T.S.



AT SPLICED SHEATHING OVER RIMBOARD

10 / S1.1 TYP. FLOOR SHEAR TRANSFER

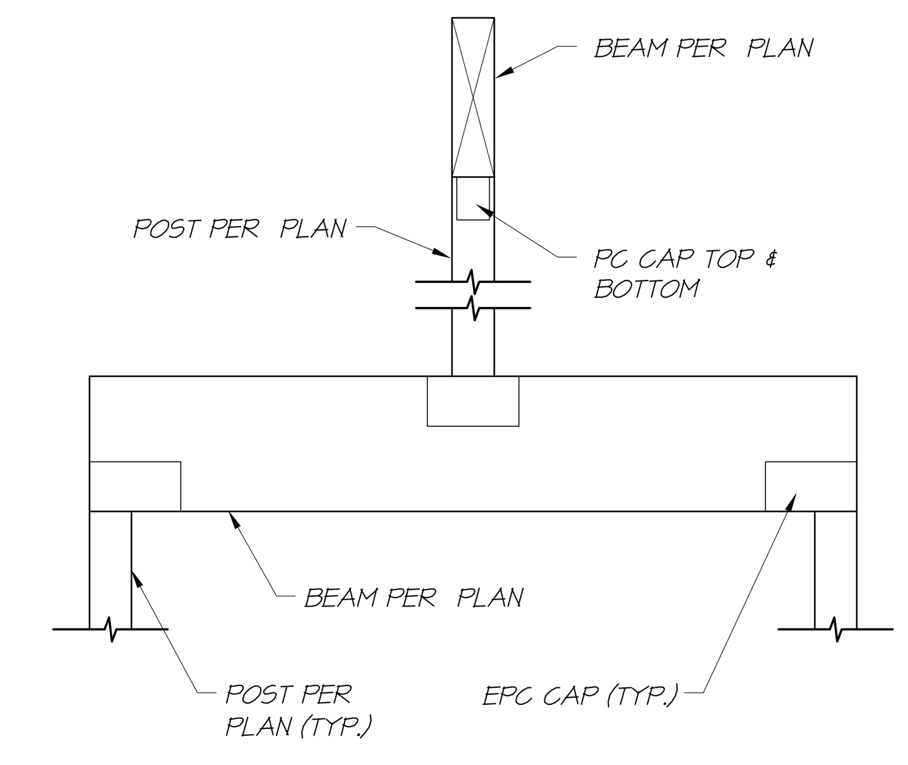
N.T.S.



NOTES:
1. PREDRILL CORNERS OF NOTCHES SO AS NOT TO OVER CUT.
2. NOTCHES ON THE ENDS OF JOISTS & HEADERS SHALL NOT EXCEED 1/4 THE JOIST DEPTH.
3. NOTCHES IN THE TOP OF JOISTS SHALL NOT EXCEED 1/6 THE DEPTH AND SHALL NOT BE LOCATED IN THE MIDDLE THIRD OF THE SPAN.
4. NOTCHES ON THE BOTTOM OF JOISTS ALLOWED ONLY WHERE SPECIFICALLY SHOWN ON DRAWINGS.
5. HOLES BORED IN JOISTS SHALL NOT BE WITHIN 2 INCHES OF THE TOP OR BOTTOM AND SHALL NOT HAVE A DIAMETER LARGER THAN 1/4 THE DEPTH OF THE JOIST.

3 / S1.1 TYPICAL BEAM NOTCHING

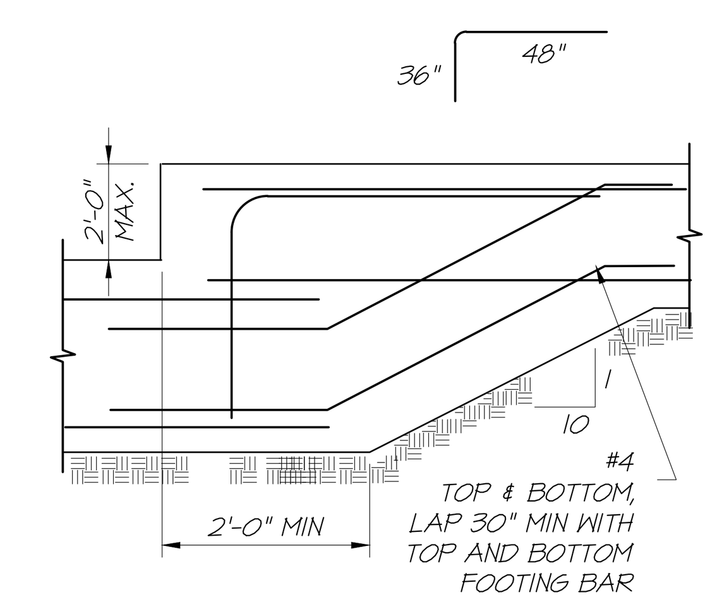
N.T.S.



NOTE: USE WHERE POST IS NOT WITHIN WALL U.N.O.

6 / S1.1 POST & BEAM DETAIL

N.T.S.



8 / S1.1 STEPPED FOOTING

N.T.S.

GENERAL NOTE:

SPECIFIC DETAILS AND NOTES ON OTHER SHEETS SHALL PREVAIL OVER TYPICAL DETAILS AND NOTES ON THIS SHEET

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS

REGISTERED PROFESSIONAL ENGINEER
No. C60091
EXP. 06/30/24
CIVIL
STATE OF CALIFORNIA

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NORTH AVENUE HALF-PLEXES

Owner

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN #

PLAN CHECK SET

DATE:
5/31/2022

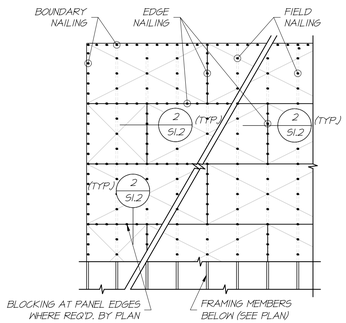
REVISIONS:
1 PCK COMMENT 2/21/23
2 PCK COMMENT 5/19/23

SHEET TITLE
TYPICAL DETAILS

SHEET NO.
S1.1

GENERAL NOTES

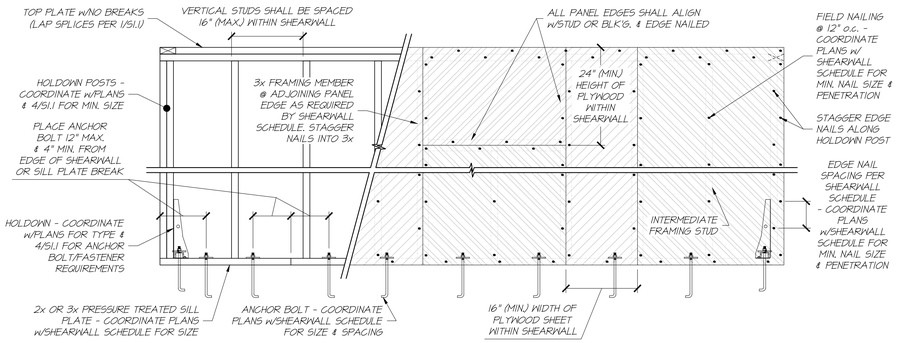
1. ROOF SHEATHING PANELS SHALL MEET THE FOLLOWING MINIMUM DIMENSIONS:
   A. 2 BAYS/SPANS (32") MIN.) IN THE DIRECTION PERPENDICULAR TO THE FRAMING, NO EXCEPTIONS.
   B. 2'-0" IN THE DIRECTION PARALLEL TO THE ROOF FRAMING. EXCEPTION: PANEL DIMENSION IN THIS DIRECTION MAY BE LESS THAN 2'-0" PROVIDED THAT EACH EDGE IS BLOCKED AND EDGE NAILED.
2. SEE PLAN FOR PLYWOOD THICKNESS AND NAILING.
3. LONG DIMENSION OF PANELS SHALL RUN ACROSS (PERPENDICULAR TO) FRAMING MEMBERS.
4. NAIL EDGE DISTANCE SHALL BE MIN. 3/8" AND SHALL NOT BE DRIVEN THROUGH THE OUTER PLY.
5. CONTINUOUS BLOCKED PANEL EDGES SHALL RECEIVE EDGE NAILING (BLOCKED SHT'G. ONLY).
6. STAGGER END JOINTS 2'-0" MIN. AS SHOWN.
7. ALL JOISTS AND RAFTERS SHALL BE LAID OUT IN A 4'-0" MODULE TO COINCIDE WITH PLYWOOD PATTERN.
8. NAILING SIZE AND SPACING AS NOTED ON PLANS.
9. USE TONGUE & GROOVE PLYWOOD AT FLOORS -SEE PLAN.
10. WHERE JOISTS OR RAFTER LAP SPLICE OCCURS AND PLYWOOD JOINT IS CONTINUOUS, FRAME JOISTS PER DETAIL 15/SN3.



SHEATHING LAYOUT

1 S1.2 ROOF/FLOOR DIAPHRAGM

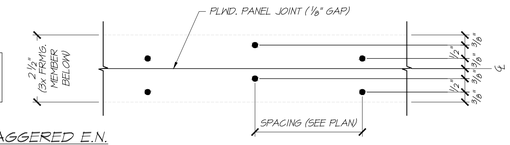
N.T.S.



3 S1.2 GENERAL SHEARWALL ELEVATION

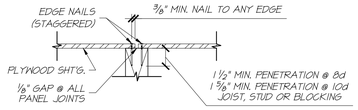
3/4" = 1'-0"

NOTE:
SEE PLAN FOR 3x FRAMING REQUIREMENTS AT ADJOINING PANEL EDGES



PLAN VIEW @ STAGGERED E.N.

NOTE:
SEE PLAN FOR 3x FRAMING REQUIREMENTS AT ADJOINING PANEL EDGES



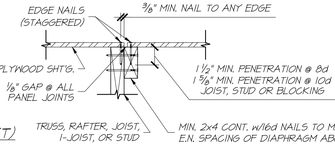
PARALLEL DIRECTION (IN-LINE)
(BLOCKED OR UNBLOCKED CONDITION)

(ROOFS/FLOORS/SHEARWALLS)

2 S1.2 ADJOINING PANEL EDGES

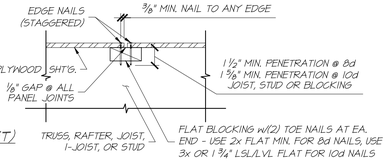
N.T.S.

NOTE:
SEE PLAN FOR 3x FRAMING REQUIREMENTS AT ADJOINING PANEL EDGES



PARALLEL DIRECTION (OFFSET)
(BLOCKED OR UNBLOCKED CONDITION)

NOTE:
SEE PLAN FOR 3x FRAMING REQUIREMENTS AT ADJOINING PANEL EDGES. 2x FLAT IS NOT SUFFICIENT FOR THIS REQUIREMENT



PARALLEL DIRECTION (OFFSET)
(BLOCKED CONDITION ONLY)

GENERAL NOTE:

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ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

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CORNERSTONE STRUCTURAL CONSULTANTS
1400 EXPOSITION BLVD., SUITE A, SACRAMENTO, CA 95815 T: 916.617.1640

REGISTERED PROFESSIONAL ENGINEER
CHAD A. GUPTA
No. C60081
EXP. 08/30/24
STATE OF CALIFORNIA

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NORTH AVENUE HALF-PLEXES

Owner

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN #

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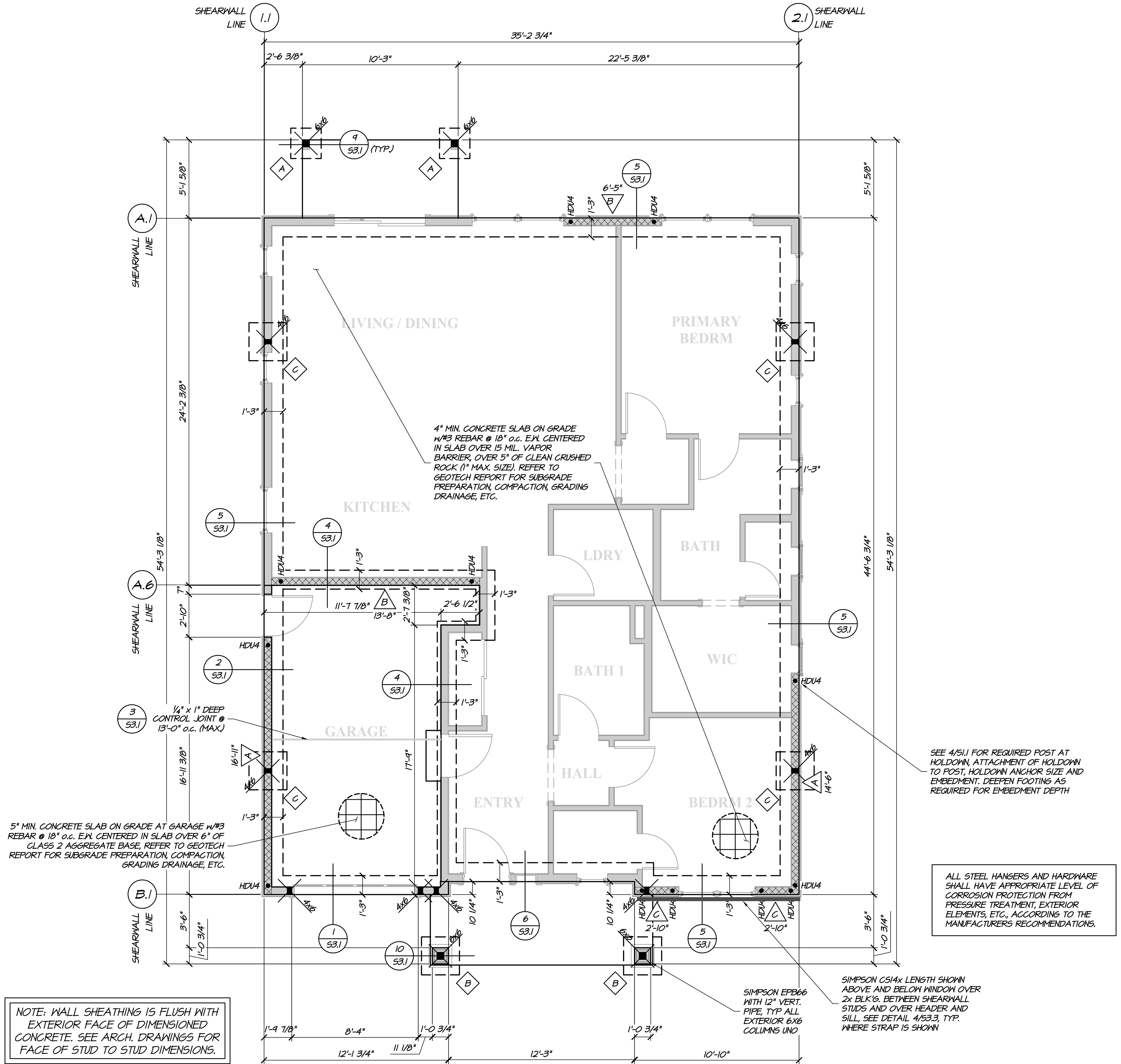
DATE:
5/31/2022

REVISIONS:

1	PCK COMMENT 2/21/23
2	PCK COMMENT 5/19/23

SHEET TITLE
TYPICAL DETAILS

SHEET NO.
S1.2



UNIT 1 FOUNDATION PLAN

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

FOOTING SCHEDULE

PLAN INDICATOR	SIZE	REINFORCEMENT
A	24" X 24"	3-#4 E.W. BOTTOM
B	30" X 30"	4-#4 E.W. BOTTOM
C	36" X 36"	5-#5 E.W. BOTTOM
D	42" X 42"	6-#5 E.W. BOTTOM
E	48" X 48"	7-#6 E.W. BOTTOM

NOTE: ALL FOOTINGS SHALL BE EMBEDDED 18" MINIMUM INTO UNDISTURBED GRADE. REINFORCEMENT SHALL BE 3" CLEAR FROM ALL EDGES & BTM. OF FOOTING. REFER TO SOILS REPORT WHEN AVAILABLE FOR INFO NOT SHOWN

FOUNDATION NOTES

1. ALL REINFORCEMENT SHALL BE GRADE 60 U.N.O.
2. ALL REINFORCEMENT SHALL BE PLACED IN CONFORMANCE w/ACI REQUIREMENTS.
3. PROVIDE 1-#4 REBAR TOP & BOTTOM OF ALL CONTINUOUS FOOTINGS, 2 BARS MINIMUM U.N.O.
4. USE 2500 PSI CONCRETE, 5 SACK MIX, 1 1/2" MAX. AGGREGATE SIZE.
5. AT NON-SHEARWALL LOCATIONS PROVIDE 5/8" DIA. ANCHOR BOLTS w/7" MINIMUM EMBEDMENT (U.N.O.) @ 4'-0"OC MAXIMUM AT ALL PERIMETER WALLS w/3"x3"x1/4" SQUARE PLATE WASHERS, U.N.O.. AT SHEARWALL LOCATIONS SEE SHEARWALL SCHEDULE.
6. ALL HOLDOWNS ARE TO BE FASTENED IN PLACE PRIOR INSPECTION.
7. ● REPRESENTS SIMPSON HOLDOWN PER PLAN. AT ALL HOLDOWNS, PROVIDE 4x POST OR 2-2x w/FULL HEIGHT S.P. EDGE NAILING U.N.O. NAIL STUD TO STUD w/8d @ 6" o.c. SEE DETAIL 4/S1.1
8. DEEPEN FOOTINGS AS REQUIRED AT HOLDOWNS, SEE DETAIL 4 SHEET S1.1.
9. REFER TO GEOTECHNICAL REPORT # 05-22016G BY ALLERION CONSULTING GROUP, INC. DATED MARCH 23, 2022 FOR GEOTECHNICAL RECOMMENDATIONS, ALLOWABLE DEAD PLUS LIVE SOIL BEARING PRESSURES
10. ALL HARDWARE SHALL BE SIMPSON STRONG-TIE AND SHALL BE IN PLACE PRIOR TO FOUNDATION INSPECTION. SEE DETAIL 4/S1.1 FOR HOLDOWN INSTALLATION DETAIL.
11. SHEATH ALL EXTERIOR WALLS w/ 3/8" OSB w/8d @ 6" o.c. EDGE AND 12" o.c. FIELD NAILING SEE SHEAR WALL AND BRACED WALL SCHEDULES FOR ADDITIONAL REQUIREMENTS.
12. SEE SHEARWALL SCHEDULE FOR SHEAR PANEL INFORMATION.
13. SEE S1 SERIES SHEETS FOR TYPICAL DETAILS AND GENERAL NOTES.
14. ALL FRAMING LUMBER IN DIRECT CONTACT w/CONCRETE SHALL BE PRESSURE TREATED DOUGLAS FIR LARCH.
15. ALL STEEL HARDWARE IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT DIPPED GALVANIZED. REFER TO SIMPSON CATALOG FOR CORROSION PROTECTION INFORMATION.
16. USE CBSQ POST BASE @ ALL POST CONNECTIONS OUTSIDE OF WALLS TO FOUNDATION U.N.O.
17. CONTRACTOR SHALL PROVIDE ADDITIONAL WIDTH TO THE SIDE OF THE CONCRETE FOOTING OR GRADE BEAM AS REQUIRED TO SUPPORT BRICK, STONE, OR ANY OTHER FINISH MATERIAL IF NOT NOTED ON THE STRUCTURAL DETAILS. NOTIFY CORNERSTONE STRUCTURAL CONSULTANTS PRIOR TO POURING CONCRETE IF ANY ADDITIONAL WIDTHS ARE TO BE ADDED. MINIMUM DEPTH OF ADDITIONAL CONCRETE SHALL BE 9" (VERTICALLY) BELOW THE FINISH.
18. THE GEOTECHNICAL ASPECTS OF THE CONSTRUCTION, INCLUDING FOUNDATION EXCAVATION, PREPARATION OF SUBGRADE AND BASEROCK COMPACTION BENEATH THE SLABS, PLACEMENT AND COMPACTION OF ENGINEERED FILL, AND INSTALLATION OF SURFACE DRAINAGE CONTROL SYSTEMS, EARTHWORK, SITE DRAINAGE, SHOULD BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY ALLERION CONSULTING GROUP, INC. DATED MARCH 23, 2022. ALLERION CONSULTING GROUP, INC. SHOULD BE PROVIDED AT LEAST 48 HOURS IN ADVANCE NOTIFICATION (916) 742-5096 OF ANY GEOTECHNICAL ASPECTS OF THE CONSTRUCTION AND SHOULD BE PRESENT TO OBSERVE AND TEST THE EARTHWORK, FOUNDATION, AND DRAINAGE INSTALLATION PHASES OF THE PROJECT. INSPECTION AND TESTING REPORTS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT

LEGEND:

1. INDICATES STRUCTURAL POST UP. SIZE, SPECIFICATIONS, ETC... AS INDICATED PER PLAN
2. INDICATES STRUCTURAL POST BELOW. SEE PLAN BELOW FOR SIZE, SPECIFICATIONS, ETC...
3. ● INDICATES HOLDOWN TO FOUNDATION. PROVIDE 4x POST (MIN., U.N.O.) w/S.P.S. EDGE NAILING FULL HT. TO POST.
4. SHEARWALL REFERENCE MARK; *'-**" LENGTH OF SHEARWALL (FT-IN)
5. INDICATES SHEARWALL PANEL FROM THIS LEVEL UP. SHEATHING TO BE PLACED ON SIDE OF REFERENCE MARK.
6. INDICATES A FLR. ELEVATION CHANGE

SHEAR WALL SCHEDULE

MK	SHEATHING	EDGE NAILING	ANCHOR BOLTS	PLY. JNT. STUD/ SILL PLATE (SEE #2 & #3 BLW.)	FLOOR TRANSFER CONNECTIONS [4]
A	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 6" o.c.	5/8"Φ @ 48" o.c.	2x 2x	(a) 16d @ 4" o.c., [5] (b) A35 @ 16" o.c.
B	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 4" o.c.	5/8"Φ @ 48" o.c.	3x 3x	(a) SDS25600 @6"o.c., [5] (b) 2-A35 @ 16" o.c.
C	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 3" o.c.	5/8"Φ @ 30" o.c.	3x 3x	(a) SDS25600 @6"o.c. [6,7] (b) 2-A35 @ 16" o.c.
D	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 2" o.c.	5/8"Φ @ 24" o.c.	3x 3x	(a) 2-LPT4@16" o.c., [6,8] (b) 2-A35 @ 16" o.c.
E	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 4" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 2-LPT4@16" o.c., [6,9] (b) 3-A35 @ 16" o.c.
F	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 3" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 2-LPT4@16" c.c., [6,9] (b) 3-A35 @ 16" o.c.
G	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 2" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 3-LPT4@16" o.c., [6,10] (b) 4-A35 @ 16" o.c.

NOTES:
1. SEE PLANS FOR LOCATION AND SHEAR TRANSFER DETAILS FOR APPLICATION.
2. TYPE "E", "F", "G" SHEAR WALL PANEL JOINTS EA. SIDE TO FALL ON DIFFERENT FRAMING MEMBERS OR 3x SILL AND STUDS PER NOTE 3.
3. PROVIDE 3X MIN. FOUNDATION SILL AND PANEL JOINT MEMBERS FOR SHEAR WALL TYPE "B", THRU "G".
4. STAGGER NAILS & SCREWS AS REQ'D. TO PREVENT SPLITTING OF RIMBOARD.
5. PROVIDE 1/2" MIN. EDGE NAILING DISTANCE TO ALL DBL. TOP PLATES, RIMBOARDS, STUDS, SOLE PLATES, MUDSILLS, AND ANY OTHER STRUCTURAL MEMBER.
6. PROVIDE 5/8" MIN. EDGE SCREWING DISTANCE TO ALL DBL. TOP PLATES, RIMBOARDS, STUDS, SOLE PLATES, MUDSILLS, AND ANY OTHER STRUCTURAL MEMBER.
7. CONTRACTORS OPTION TO USE ONE SIMPSON LPT4 TIE PLATE @ 16" o.c. FOR TYPE "a" CONNECTION.
8. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 6" o.c. FOR TYPE "a" CONNECTION.
9. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 4" o.c. FOR TYPE "a" CONNECTION.
10. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 3" o.c. FOR TYPE "a" CONNECTION.

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS
9005 ELK GROVE BLVD., SUITE 6, ELK GROVE, CA 95624 T: 916-897-9649

REGISTERED PROFESSIONAL ENGINEER CHAD A. GUPTILL No. C60001 EXP. 06/30/24 CIVIL STATE OF CALIFORNIA

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NORTH AVENUE HALF-PLEXES
Owner
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN #

PLAN CHECK SET

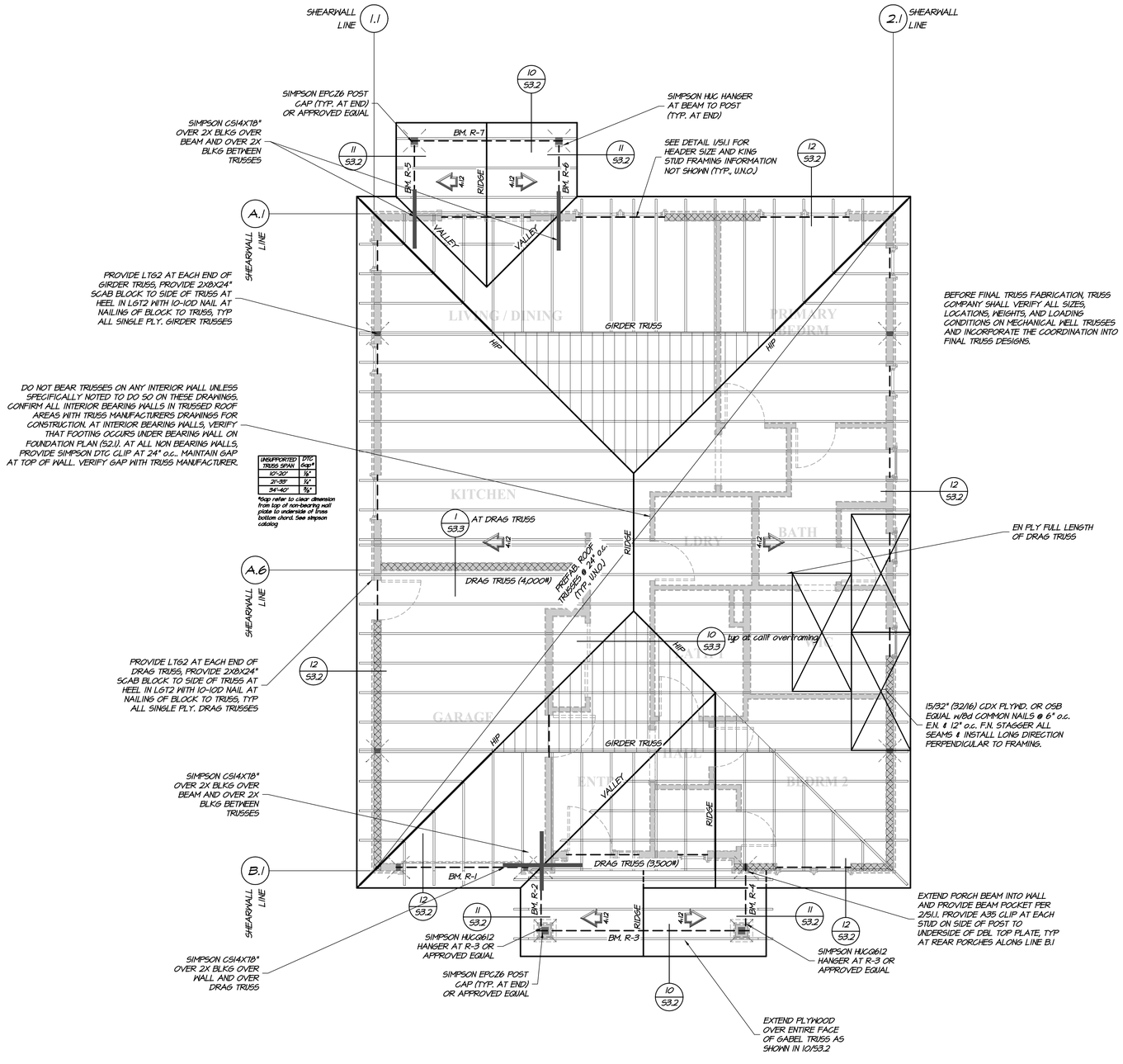
DATE: 5/31/2022

REVISIONS:

1	PCK COMMENT 2/21/23
2	PCK COMMENT 5/19/23

SHEET TITLE: UNIT 1 FOUNDATION PLAN

SHEET NO. S2.1



UNIT 1
ROOF FRAMING PLAN

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

FRAMING NOTES

1. ALL HARDWARE SHALL BE SIMPSON STRONG-TIE AND SHALL BE IN PLACE PRIOR TO INSPECTION.
2. TRUSS SPACING SHALL BE 24" o.c. MAX., U.N.O..
3. SHEATH ALL EXTERIOR WALLS w/ 3/8" OSB w/ 8d @ 6" o.c. EDGE AND 12" o.c. FIELD NAILING. SEE SHEAR WALL AND BRACED WALL SCHEDULES FOR ADDITIONAL REQUIREMENTS.
4. ALL FRAMING SHALL BE INSTALLED IN COMPLIANCE WITH 2019 CBC & CRC REQUIREMENTS.
5. ALL DOUBLE TOP PLATES OF BEARING WALLS SHALL BE #2 DF-L. FOR DESIGNATED SHEAR WALL LINES, LAP SPLICES SHALL BE 48" w/24-16d OR CS14x42" STRAP, U.O.N.
6. SEE DETAIL 1/S1.1 FOR TYPICAL BEARING WALL FRAMING INFORMATION.
7. ALL BEAMS AND HEADERS SHALL BE SUPPORTED WITH FULL BEARING. USE #2 DF-L SUPPORTS, U.N.O.
8. ALL POSTS ARE 4x4 D.F. #2, TYP. U.N.O.
9. ALL SOLID SAWN BEAMS ARE DOUGLAS FIR #2 U.N.O.
10. ALL POST CAPS ARE ECCQ/CCQ POST CAPS TYP. U.N.O.
11. SEE S1 SERIES SHEETS FOR TYPICAL DETAILS AND NOTES NOT SHOWN HERE
12. PROVIDE 4x POSTS UNDER ALL GIRDER TRUSSES U.N.O.
13. SLOPING HANGER TO BE USED AT ALL SLOPING MEMBERS U.N.O.

ROOF FRAMING BEAM SCHEDULE

MARK	SIZE	BEAM ELEVATION (a.f.f.)
R-1	6x8 df#1	-
R-2	6x12 df#1	-
R-3	6x12 df#1	-
R-4	6x12 df#1	-
R-5	6x10 df#1	-
R-6	6x10 df#1	-
R-7	6x10 df#1	-

LEGEND:

1. INDICATES STRUCTURAL POST UP. SIZE, SPECIFICATIONS, ETC... AS INDICATED PER PLAN
2. INDICATES STRUCTURAL POST BELOW. SEE PLAN BELOW FOR SIZE, SPECIFICATIONS, ETC...
3. INDICATES SHEARWALL PANEL BELOW. SEE PLAN LEVELS BELOW FOR MIN. LENGTH OF WALL & NAILING REQUIREMENTS.
4. INDICATES SECOND FLOOR WALLS BELOW
5. INDICATES FIRST FLOOR WALLS BELOW

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4132 C Street
Sacramento, CA 95819
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ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS

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RICHARD A. GUSTAFSON
No. C60081
EXP. 08/30/24
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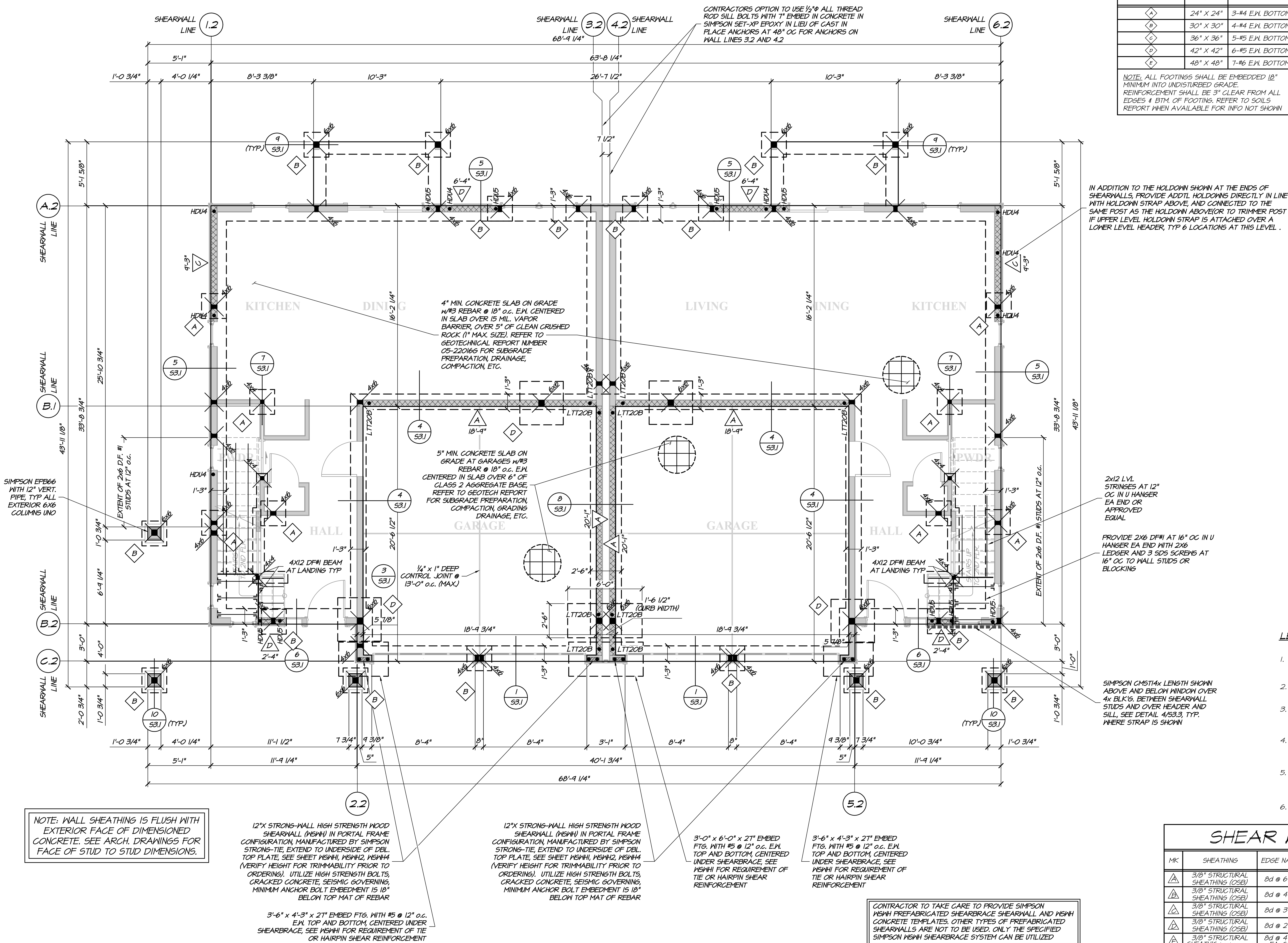
SHEET TITLE
UNIT 1 ROOF FRAMING PLAN

SHEET NO.
S2.2

IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY



UNIT 2A FOUNDATION PLAN

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

FOOTING SCHEDULE

PLAN INDICATOR	SIZE	REINFORCEMENT
A	24" X 24"	3-#4 E.W. BOTTOM
B	30" X 30"	4-#4 E.W. BOTTOM
C	36" X 36"	5-#5 E.W. BOTTOM
D	42" X 42"	6-#5 E.W. BOTTOM
E	48" X 48"	7-#6 E.W. BOTTOM

NOTE: ALL FOOTINGS SHALL BE EMBEDDED 18" MINIMUM INTO UNDISTURBED GRADE. REINFORCEMENT SHALL BE 3" CLEAR FROM ALL EDGES & BTM. OF FOOTING. REFER TO SOILS REPORT WHEN AVAILABLE FOR INFO NOT SHOWN

FOUNDATION NOTES

1. ALL REINFORCEMENT SHALL BE GRADE 60 U.N.O.
2. ALL REINFORCEMENT SHALL BE PLACED IN CONFORMANCE w/ACI REQUIREMENTS.
3. PROVIDE 1-#4 REBAR TOP & BOTTOM OF ALL CONTINUOUS FOOTINGS, 2 BARS MINIMUM U.N.O.
4. USE 2500 PSI CONCRETE, 5 SACK MIX, 1 1/2" MAX. AGGREGATE SIZE.
5. AT NON-SHEARWALL LOCATIONS PROVIDE 5/8" DIA. ANCHOR BOLTS w/7" MINIMUM EMBEDMENT (U.N.O.) @ 4'-0"OC MAXIMUM AT ALL PERIMETER WALLS w/3"x3"x1/4" SQUARE PLATE WASHERS, U.N.O.. AT SHEARWALL LOCATIONS SEE SHEARWALL SCHEDULE.
6. ALL HOLDOWNS ARE TO BE FASTENED IN PLACE PRIOR INSPECTION.
7. ● REPRESENTS SIMPSON HOLDOWN PER PLAN. AT ALL HOLDOWNS, PROVIDE 4x POST OR 2-2x w/FULL HEIGHT S.P. EDGE NAILING U.N.O. NAIL STUD TO STUD w/8d @ 6" o.c. SEE DETAIL 4/S1.1
8. DEEPEN FOOTINGS AS REQUIRED AT HOLDOWNS, SEE DETAIL 4 SHEET S1.1.
9. REFER TO GEOTECHNICAL REPORT # 05-22016G BY ALLERION CONSULTING GROUP, INC. DATED MARCH 23, 2022 FOR GEOTECHNICAL RECOMMENDATIONS, ALLOWABLE DEAD PLUS LIVE SOIL BEARING PRESSURES
10. ALL HARDWARE SHALL BE SIMPSON STRONG-TIE AND SHALL BE IN PLACE PRIOR TO FOUNDATION INSPECTION. SEE DETAIL 4/S1.1 FOR HOLDOWN INSTALLATION DETAIL.
11. SHEATH ALL EXTERIOR WALLS w/ 3/8" OSB w/8d @ 6" o.c. EDGE AND 12" o.c. FIELD NAILING SEE SHEAR WALL AND BRACED WALL SCHEDULES FOR ADDITIONAL REQUIREMENTS.
12. SEE SHEARWALL SCHEDULE FOR SHEAR PANEL INFORMATION.
13. SEE S1 SERIES SHEETS FOR TYPICAL DETAILS AND GENERAL NOTES.
14. ALL FRAMING LUMBER IN DIRECT CONTACT w/CONCRETE SHALL BE PRESSURE TREATED DOUGLAS FIR LARCH.
15. ALL STEEL HARDWARE IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT DIPPED GALVANIZED. REFER TO SIMPSON CATALOG FOR CORROSION PROTECTION INFORMATION.
16. USE CBSQ POST BASE @ ALL POST CONNECTIONS OUTSIDE OF WALLS TO FOUNDATION U.N.O.
17. CONTRACTOR SHALL PROVIDE ADDITIONAL WIDTH TO THE SIDE OF THE CONCRETE FOOTING OR GRADE BEAM AS REQUIRED TO SUPPORT BRICK, STONE, OR ANY OTHER FINISH MATERIAL IF NOT NOTED ON THE STRUCTURAL DETAILS. NOTIFY CORNERSTONE STRUCTURAL CONSULTANTS PRIOR TO POURING CONCRETE IF ANY ADDITIONAL WIDTHS ARE TO BE ADDED. MINIMUM DEPTH OF ADDITIONAL CONCRETE SHALL BE 9" (VERTICALLY) BELOW THE FINISH.
18. THE GEOTECHNICAL ASPECTS OF THE CONSTRUCTION, INCLUDING FOUNDATION EXCAVATION, PREPARATION OF SUBGRADE AND BASEROCK COMPACTION BENEATH THE SLABS, PLACEMENT AND COMPACTION OF ENGINEERED FILL, AND INSTALLATION OF SURFACE DRAINAGE CONTROL SYSTEMS, EARTHWORK, SITE DRAINAGE, SHOULD BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY ALLERION CONSULTING GROUP, INC. DATED MARCH 23, 2022. ALLERION CONSULTING GROUP, INC. SHOULD BE PROVIDED AT LEAST 48 HOURS IN ADVANCE NOTIFICATION (916) 742-5096 OF ANY GEOTECHNICAL ASPECTS OF THE CONSTRUCTION AND SHOULD BE PRESENT TO OBSERVE AND TEST THE EARTHWORK, FOUNDATION, AND DRAINAGE INSTALLATION PHASES OF THE PROJECT. INSPECTION AND TESTING REPORTS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT

LEGEND:

1. INDICATES STRUCTURAL POST UP. SIZE, SPECIFICATIONS, ETC... AS INDICATED PER PLAN
2. INDICATES STRUCTURAL POST BELOW. SEE PLAN BELOW FOR SIZE, SPECIFICATIONS, ETC...
3. ● INDICATES HOLDOWN TO FOUNDATION. PROVIDE 4x POST (MIN., U.N.O.) w/S.P.S. EDGE NAILING FULL HT. TO POST.
4. * — SHEARWALL REFERENCE MARK; *'-**" — LENGTH OF SHEARWALL (FT-IN)
5. INDICATES SHEARWALL PANEL FROM THIS LEVEL UP. SHEATHING TO BE PLACED ON SIDE OF REFERENCE MARK.
6. INDICATES A FLR. ELEVATION CHANGE

SHEAR WALL SCHEDULE

MK	SHEATHING	EDGE NAILING	ANCHOR BOLTS	PLY. JNT. STUD/ SILL PLATE (SEE #2 & #3 BLW.)	FLOOR TRANSFER CONNECTIONS [4]
A	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 6" o.c.	5/8"Φ @ 48" o.c.	2x 2x	(a) 16d @ 4" o.c., [5] (b) A35 @ 16" o.c.
B	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 4" o.c.	5/8"Φ @ 48" o.c.	3x 3x	(a) SDS25600 @6"o.c., [5] (b) 2-A35 @ 16" o.c.
C	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 3" o.c.	5/8"Φ @ 30" o.c.	3x 3x	(a) SDS25600 @6"o.c. [6,7] (b) 2-A35 @ 16" o.c.
D	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 2" o.c.	5/8"Φ @ 24" o.c.	3x 3x	(a) 2-LPT4@16" o.c., [6,8] (b) 2-A35 @ 16" o.c.
E	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 4" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 2-LPT4@16" o.c., [6,9] (b) 3-A35 @ 16" o.c.
F	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 3" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 2-LPT4@16" c.c., [6,9] (b) 3-A35 @ 16" o.c.
G	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 2" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 3-LPT4@16" o.c., [6,10] (b) 4-A35 @ 16" o.c.

NOTES:
1. SEE PLANS FOR LOCATION AND SHEAR TRANSFER DETAILS FOR APPLICATION.
2. TYPE "E", "F", "G" SHEAR WALL PANEL JOINTS EA. SIDE TO FALL ON DIFFERENT FRAMING MEMBERS OR 3x SILL AND STUDS PER NOTE 3.
3. PROVIDE 3X MIN. FOUNDATION SILL AND PANEL JOINT MEMBERS FOR SHEAR WALL TYPE "B", THRU "G".
4. STAGGER NAILS & SCREWS AS REQ'D. TO PREVENT SPLITTING OF RIMBOARD.
5. PROVIDE 1/2" MIN. EDGE NAILING DISTANCE TO ALL DBL. TOP PLATES, RIMBOARDS, STUDS, SOLE PLATES, MUDSILLS, AND ANY OTHER STRUCTURAL MEMBER.
6. PROVIDE 5/8" MIN. EDGE SCREWING DISTANCE TO ALL DBL. TOP PLATES, RIMBOARDS, STUDS, SOLE PLATES, MUDSILLS, AND ANY OTHER STRUCTURAL MEMBER.
7. CONTRACTORS OPTION TO USE ONE SIMPSON LPT4 TIE PLATE @ 16" o.c. FOR TYPE "a" CONNECTION.
8. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 6" o.c. FOR TYPE "a" CONNECTION.
9. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 4" o.c. FOR TYPE "a" CONNECTION.
10. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 3" o.c. FOR TYPE "a" CONNECTION.

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS
9005 ELK GROVE BLVD., SUITE 6, ELK GROVE, CA 95624 T: 916-897-9649

REGISTERED PROFESSIONAL ENGINEER CHAD A. GUPTILL No. C60001 EXP. 06/30/24 CIVIL STATE OF CALIFORNIA

NORTH AVENUE HALF-PLEXES

Owner

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN #

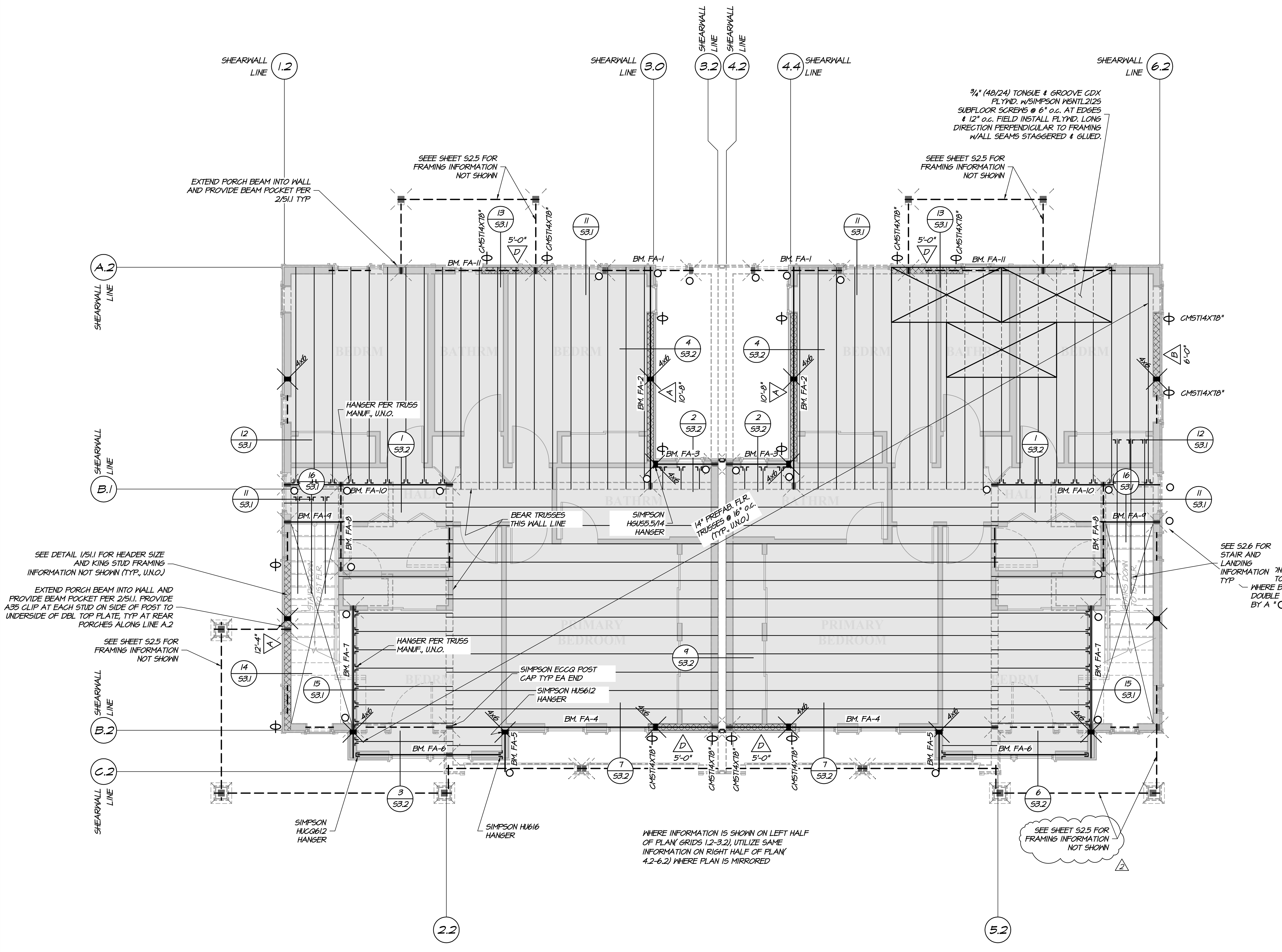
PLAN CHECK SET

DATE: 5/31/2022

REVISIONS:
1. PCK COMMENT 2/21/23
2. PCK COMMENT 5/19/23

SHEET TITLE: UNIT 2A FOUNDATION PLAN

SHEET NO. S2.3



UNIT 2A
SECOND FLOOR FRAMING PLAN

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

2ND FLR. FRAMING BEAM SCHEDULE

MARK	SIZE	BEAM ELEVATION (A.F.F.)
FA-1	5 1/4"x 11 1/4" versalam 3100, 2.0e	-
FA-2	7"x 14" versalam 3100, 2.0e	-
FA-3	5 1/4"x 14" versalam 3100, 2.0e	-
FA-4	7"x 14" versalam 1 3/4"x 14" microlam scab to side with 4 sds screws at 12" oc	-
FA-5	5 1/4"x 14" versalam 3100, 2.0e	-
FA-6	5 1/4"x 14" versalam 3100, 2.0e	-
FA-7	5 1/4"x 14" versalam 3100, 2.0e	-
FA-8	3 1/2"x 11 1/4" versalam 3100, 2.0e	-
FA-9	3 1/2"x 14" versalam 3100, 2.0e	-
FA-10	3 1/2"x 14" versalam 3100, 2.0e	-
FA-11	5 1/4"x 11 1/4" versalam 3100, 2.0e	-
-	-	-
-	-	-

FRAMING NOTES

1. ALL HARDWARE SHALL BE SIMPSON STRONG-TIE AND SHALL BE IN PLACE PRIOR TO INSPECTION.
2. JOISTS SPACING SHALL BE 16" o.c. MAX., U.N.O. SIZES AS NOTED ON PLAN.
3. SHEATH ALL EXTERIOR WALLS w/ 3/8" OSB w/ 8d @ 6" o.c. EDGE AND 12" o.c. FIELD NAILING. SEE SHEAR WALL AND BRACED WALL SCHEDULES FOR ADDITIONAL REQUIREMENTS.
4. ALL FRAMING SHALL BE INSTALLED IN COMPLIANCE WITH 2019 CBC & CRC REQUIREMENTS.
5. ALL DOUBLE TOP PLATES OF BEARING WALLS SHALL BE #2 DF-L. FOR DESIGNATED SHEAR WALL LINES, LAP SPLICES SHALL BE 48" w/24-16d OR CS14x42" STRAP, UON.
6. SEE DETAIL 1/S1.1 FOR TYPICAL BEARING WALL FRAMING INFORMATION.
7. ALL BEAMS AND HEADERS SHALL BE SUPPORTED WITH FULL BEARING. USE #2 DF-L SUPPORTS, U.N.O.
8. ALL POSTS ARE 4x4 D.F. #2, TYP. U.N.O.
9. ALL SOLID SAWN BEAMS ARE DOUGLAS FIR #2 U.N.O.
10. FULL DEPTH, 4x K.D.D.F. SQUASH BLOCKS SHALL BE USED UNDER ALL POSTS AT SECOND LEVEL AND SHALL BEAR TIGHT ON DOUBLE TOP PLATES, BEAMS, OR POSTS AT FIRST LEVEL.
11. FLOOR PLYWOOD SHALL BE GLUED TO THE TOP OF THE FLOOR JOISTS AND NAILED AS SHOWN U.N.O.
12. PROVIDE WEB STIFFENERS AT ALL END AND INTERMEDIATE JOIST BEARING LOCATIONS. REFER TO TJI RECOMMENDATIONS FOR ALL FRAMING STIFFENERS, HOLES, NAILING, ETC.
13. ALL POST CAPS ARE ECCQ/CCQ POST CAPS TYP. U.N.O.
14. SEE S1 SERIES SHEETS FOR TYPICAL DETAILS AND NOTES NOT SHOWN HERE
15. SLOPING HANGER TO BE USED AT ALL SLOPING MEMBERS U.N.O.
16. PROVIDE DBL. JOIST AND BLK'G. UNDER ALL FIREPLACE STONE, ROCK, OR BRICK FACED HEARTHS
17. PROVIDE 4x POSTS UNDER ALL GIRDER TRUSSES U.N.O.

LEGEND:

1. INDICATES STRUCTURAL POST UP. SIZE, SPECIFICATIONS, ETC... AS INDICATED PER PLAN
2. INDICATES STRUCTURAL POST BELOW. SEE PLAN BELOW FOR SIZE, SPECIFICATIONS, ETC...
3. INDICATES VERTICALLY ORIENTED CS14x78" HOLDOWN STRAP UNO. SEE DETAILS 5/S3.3 AND 6/S3.3. FILL ALL NAIL HOLES WITH 10d NAILS.
4. SHEARWALL REFERENCE MARK; *'-**" LENGTH OF SHEARWALL (FT-IN)
5. INDICATES SHEARWALL PANEL FROM THIS LEVEL UP. SHEATHING TO BE PLACED ON SIDE OF REFERENCE MARK.
6. INDICATES SECOND FLOOR WALLS ABOVE
7. INDICATES FIRST FLOOR WALLS BELOW

SHEAR WALL SCHEDULE

MK	SHEATHING	EDGE NAILING	ANCHOR BOLTS	PLY. JNT. STUD/ SILL PLATE (SEE #2 & #3 BLW.)	FLOOR TRANSFER CONNECTIONS [4]
A	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 6" o.c.	5/8"Φ @ 48" o.c.	2x 2x	(a) 16d @ 4" o.c., [5] (b) A35 @ 16" o.c.
B	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 4" o.c.	5/8"Φ @ 48" o.c.	3x 3x	(a) SDS25600 @6"o.c., [5] (b) 2-A35 @ 16" o.c.
C	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 3" o.c.	5/8"Φ @ 30" o.c.	3x 3x	(a) SDS25600 @6"o.c. [6, 7] (b) 2-A35 @ 16" o.c.
D	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 2" o.c.	5/8"Φ @ 24" o.c.	3x 3x	(a) 2-LPT4@16" o.c., [6, 8] (b) 2-A35 @ 16" o.c.
E	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 4" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 2-LPT4@16" o.c., [6, 9] (b) 3-A35 @ 16" o.c.
F	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 3" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 2-LPT4@16" c.c., [6, 9] (b) 3-A35 @ 16" o.c.
G	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 2" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 3-LPT4@16" o.c., [6, 10] (b) 4-A35 @ 16" o.c.

NOTES:
1. SEE PLANS FOR LOCATION AND SHEAR TRANSFER DETAILS FOR APPLICATION.
2. TYPE "E", "F", "G" SHEAR WALL PANEL JOINTS EA. SIDE TO FALL ON DIFFERENT FRAMING MEMBERS OR 3x SILL AND STUDS PER NOTE 3.
3. PROVIDE 3X MIN. FOUNDATION SILL AND PANEL JOINT MEMBERS FOR SHEAR WALL TYPE "B", THRU "G".
4. STAGGER NAILS & SCREWS AS REQ'D. TO PREVENT SPLITTING OF RIMBOARD.
5. PROVIDE 1/2" MIN. EDGE NAILING DISTANCE TO ALL DBL. TOP PLATES, RIMBOARDS, STUDS, SOLE PLATES, MUDSILLS, AND ANY OTHER STRUCTURAL MEMBER.
6. PROVIDE 5/8" MIN. EDGE SCREWING DISTANCE TO ALL DBL. TOP PLATES, RIMBOARDS, STUDS, SOLE PLATES, MUDSILLS, AND ANY OTHER STRUCTURAL MEMBER.
7. CONTRACTORS OPTION TO USE ONE SIMPSON LPT4 TIE PLATE @ 16" o.c. FOR TYPE "a" CONNECTION.
8. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 6" o.c. FOR TYPE "a" CONNECTION.
9. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 4" o.c. FOR TYPE "a" CONNECTION.
10. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 3" o.c. FOR TYPE "a" CONNECTION.

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS

No. C60061
EXP. 06/30/24

THESE DRAWINGS ARE PRELIMINARY AND NOT FOR CONSTRUCTION UNLESS STAMPED & SIGNED BY THE ENGINEER OF RECORD.

NORTH AVENUE HALF-PLEXES
Owner
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN #

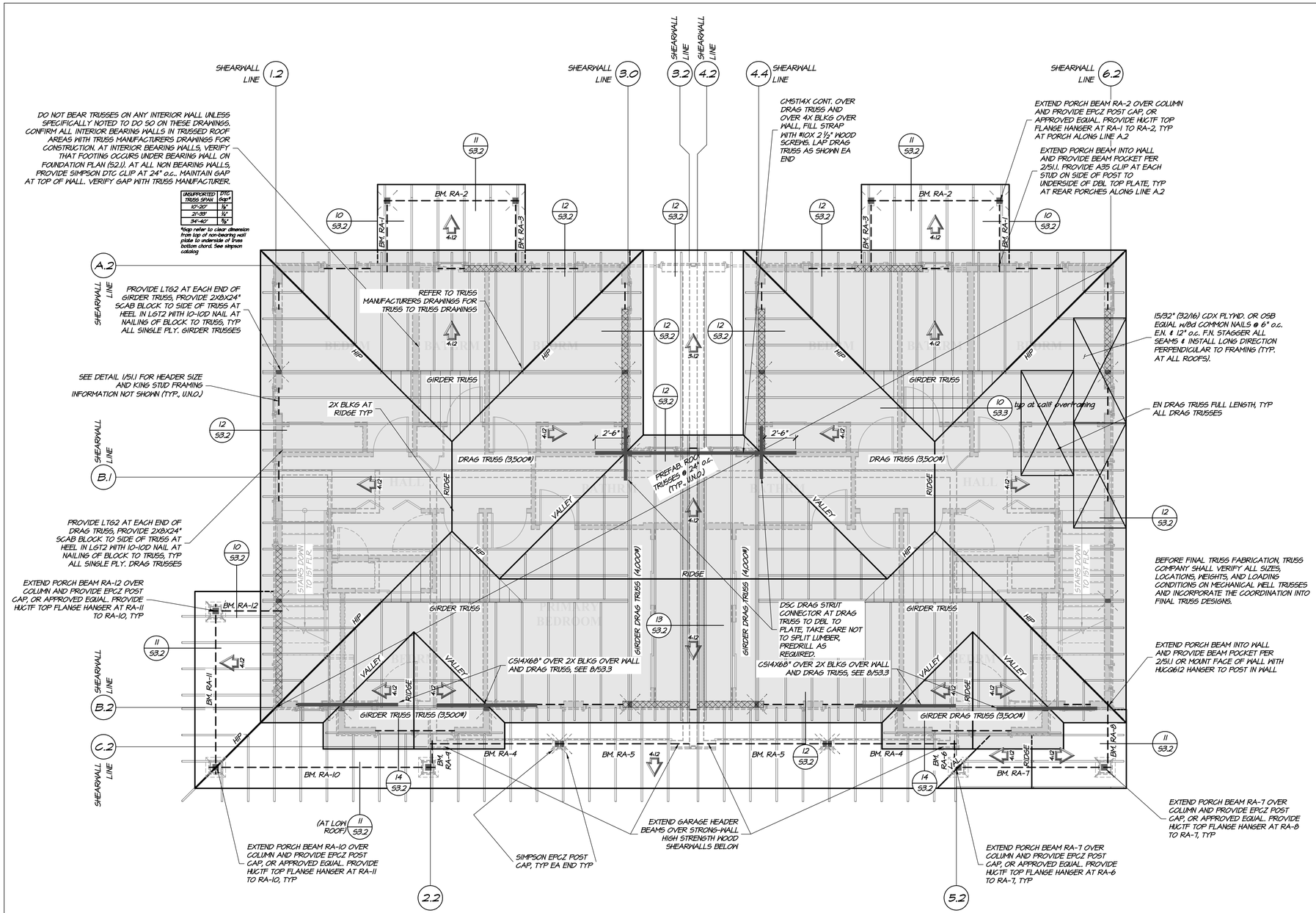
PLAN CHECK SET

DATE: 5/31/2022

REVISIONS:
1 PCK COMMENT 2/21/23
2 PCK COMMENT 5/19/23

SHEET TITLE: UNIT 2A 2ND FLR. FRAMING PLAN

SHEET NO. S2.4



UNIT 2A
ROOF FRAMING PLAN

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

FRAMING NOTES

1. ALL HARDWARE SHALL BE SIMPSON STRONG-TIE AND SHALL BE IN PLACE PRIOR TO INSPECTION.
2. TRUSS SPACING SHALL BE 24" o.c. MAX., U.N.O..
3. SHEATH ALL EXTERIOR WALLS w/ 3/8" OSB w/ 8d @ 6" o.c. EDGE AND 12" o.c. FIELD NAILING. SEE SHEAR WALL AND BRACED WALL SCHEDULES FOR ADDITIONAL REQUIREMENTS.
4. ALL FRAMING SHALL BE INSTALLED IN COMPLIANCE WITH 2019 CBC & CRC REQUIREMENTS.
5. ALL DOUBLE TOP PLATES OF BEARING WALLS SHALL BE #2 DF-L. FOR DESIGNATED SHEAR WALL LINES, LAP SPLICES SHALL BE 48" w/24-16d OR CS14x42" STRAP, U.O.N.
6. SEE DETAIL 1/S1.1 FOR TYPICAL BEARING WALL FRAMING INFORMATION.
7. ALL BEAMS AND HEADERS SHALL BE SUPPORTED WITH FULL BEARING. USE #2 DF-L SUPPORTS, U.N.O.
8. ALL POSTS ARE 4x4 D.F. #2, TYP. U.N.O.
9. ALL SOLID SAWN BEAMS ARE DOUGLAS FIR #2 U.N.O.
10. ALL POST CAPS ARE ECCQ/CCQ POST CAPS TYP. U.N.O.
11. SEE S1 SERIES SHEETS FOR TYPICAL DETAILS AND NOTES NOT SHOWN HERE
12. PROVIDE 4x POSTS UNDER ALL GIRDER TRUSSES U.N.O.
13. SLOPING HANGER TO BE USED AT ALL SLOPING MEMBERS U.N.O.

ROOF FRAMING BEAM SCHEDULE

MARK	SIZE	BEAM ELEVATION (A.F.F.)
RA-1	6x10 df#1	-
RA-2	6x10 df#1	-
RA-3	6x10 df#1	-
RA-4	5 1/4"x 11 1/4" versalam 3100, 2.0e	-
RA-5	5 1/4"x 11 1/4" versalam 3100, 2.0e	-
RA-6	6x12 df#1	-
RA-7	6x12 df#1	-
RA-8	6x12 df#1	-
RA-9	6x12 df#1	-
RA-10	6x12 df#1	-
RA-11	6x12 df#1	-
RA-12	6x12 df#1	-
-	-	-
-	-	-
-	-	-

LEGEND:

1. INDICATES STRUCTURAL POST UP. SIZE, SPECIFICATIONS, ETC... AS INDICATED PER PLAN
2. INDICATES STRUCTURAL POST BELOW. SEE PLAN BELOW FOR SIZE, SPECIFICATIONS, ETC...
3. INDICATES SHEARWALL PANEL BELOW. SEE PLAN LEVELS BELOW FOR MIN. LENGTH OF WALL & NAILING REQUIREMENTS.
4. INDICATES SECOND FLOOR WALLS BELOW
5. INDICATES FIRST FLOOR WALLS BELOW

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS

IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY

REGISTERED PROFESSIONAL ENGINEER
RICHARD A. GRIFFIN
No. C60081
EXP. 08/31/24
CIVIL
STATE OF CALIFORNIA

THESE DRAWINGS ARE PRELIMINARY AND NOT FOR CONSTRUCTION UNLESS STAMPED & SIGNED BY THE ENGINEER OF RECORD.

NORTH AVENUE HALF-PLEXES
Owner
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN #

PLAN CHECK SET

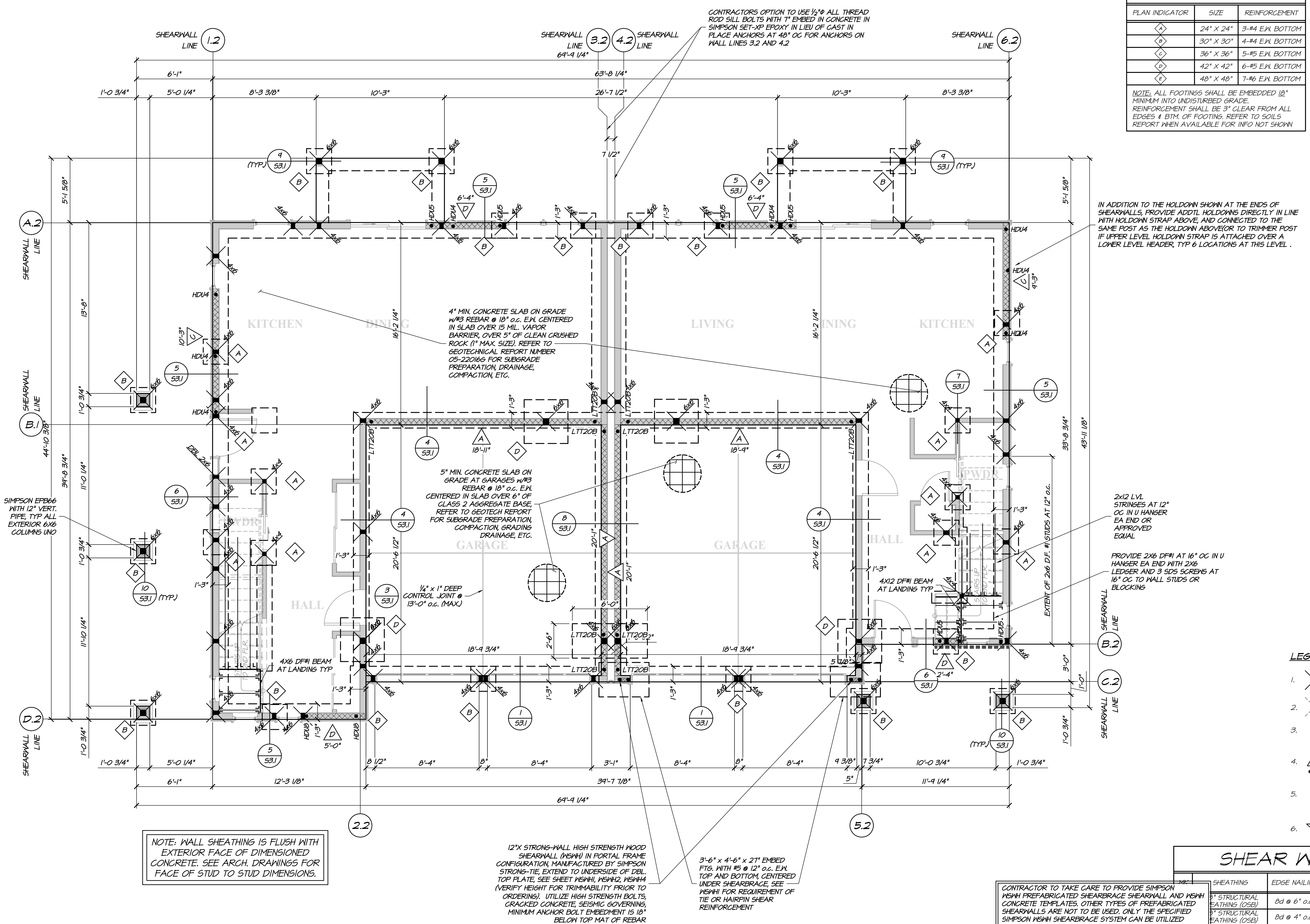
DATE:
5/31/2022

REVISIONS:

1	PCK. COMMENT 2/21/23
2	PCK. COMMENT 5/19/23

SHEET TITLE
UNIT 2A ROOF FRAMING PLAN

SHEET NO.
S2.5



NOTE: WALL SHEATHING IS FLUSH WITH EXTERIOR FACE OF DIMENSIONED CONCRETE. SEE ARCH. DRAWINGS FOR FACE OF STUD TO STUD DIMENSIONS.

CONTRACTOR TO TAKE CARE TO PROVIDE SIMPSON WSWH PREFABRICATED SHEARBRACE SHEARWALL AND WSWH CONCRETE TEMPLATES. OTHER TYPES OF PREFABRICATED SHEARWALLS ARE NOT TO BE USED. ONLY THE SPECIFIED SIMPSON WSWH SHEARBRACE SYSTEM CAN BE UTILIZED

UNIT 2B FOUNDATION PLAN

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

FOOTING SCHEDULE

PLAN INDICATOR	SIZE	REINFORCEMENT
A	24" X 24"	3-#4 E.W. BOTTOM
B	30" X 30"	4-#4 E.W. BOTTOM
C	36" X 36"	5-#5 E.W. BOTTOM
D	42" X 42"	6-#5 E.W. BOTTOM
E	48" X 48"	7-#6 E.W. BOTTOM

NOTE: ALL FOOTINGS SHALL BE EMBEDDED 18" MINIMUM INTO UNDISTURBED GRADE. REINFORCEMENT SHALL BE 3" CLEAR FROM ALL EDGES & BTM. OF FOOTING. REFER TO SOILS REPORT WHEN AVAILABLE FOR INFO NOT SHOWN

FOUNDATION NOTES

1. ALL REINFORCEMENT SHALL BE GRADE 60 U.N.O.
2. ALL REINFORCEMENT SHALL BE PLACED IN CONFORMANCE w/ACI REQUIREMENTS.
3. PROVIDE 1-#4 REBAR TOP & BOTTOM OF ALL CONTINUOUS FOOTINGS, 2 BARS MINIMUM U.N.O.
4. USE 2500 PSI CONCRETE, 5 SACK MIX, 1 ½" MAX. AGGREGATE SIZE.
5. AT NON-SHEARWALL LOCATIONS PROVIDE 5/8" DIA. ANCHOR BOLTS w/7" MINIMUM EMBEDMENT (U.N.O.) @ 4'-0"OC MAXIMUM AT ALL PERIMETER WALLS w/3"x3"x1/4" SQUARE PLATE WASHERS, U.N.O.. AT SHEARWALL LOCATIONS SEE SHEARWALL SCHEDULE.
6. ALL HOLDOWNS ARE TO BE FASTENED IN PLACE PRIOR INSPECTION.
7. ● REPRESENTS SIMPSON HOLDOWN PER PLAN. AT ALL HOLDOWNS, PROVIDE 4x POST OR 2-2x w/FULL HEIGHT S.P. EDGE NAILING U.N.O. NAIL STUD TO STUD w/8d @ 6" o.c. SEE DETAIL 4/S1.1
8. DEEPEN FOOTINGS AS REQUIRED AT HOLDOWNS, SEE DETAIL 4 SHEET S1.1.
9. REFER TO GEOTECHNICAL REPORT # 05-22016G BY ALLERION CONSULTING GROUP, INC. DATED MARCH 23, 2022 FOR GEOTECHNICAL RECOMMENDATIONS, ALLOWABLE DEAD PLUS LIVE SOIL BEARING PRESSURES
10. ALL HARDWARE SHALL BE SIMPSON STRONG-TIE AND SHALL BE IN PLACE PRIOR TO FOUNDATION INSPECTION. SEE DETAIL 4/S1.1 FOR HOLDOWN INSTALLATION DETAIL.
11. SHEATH ALL EXTERIOR WALLS w/ 3/8" OSB w/8d @ 6" o.c. EDGE AND 12" o.c. FIELD NAILING SEE SHEAR WALL AND BRACED WALL SCHEDULES FOR ADDITIONAL REQUIREMENTS.
12. SEE SHEARWALL SCHEDULE FOR SHEAR PANEL INFORMATION.
13. SEE S1 SERIES SHEETS FOR TYPICAL DETAILS AND GENERAL NOTES.
14. ALL FRAMING LUMBER IN DIRECT CONTACT w/CONCRETE SHALL BE PRESSURE TREATED DOUGLAS FIR LARCH.
15. ALL STEEL HARDWARE IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT DIPPED GALVANIZED. REFER TO SIMPSON CATALOG FOR CORROSION PROTECTION INFORMATION.
16. USE CBSQ POST BASE @ ALL POST CONNECTIONS OUTSIDE OF WALLS TO FOUNDATION U.N.O.
17. CONTRACTOR SHALL PROVIDE ADDITIONAL WIDTH TO THE SIDE OF THE CONCRETE FOOTING OR GRADE BEAM AS REQUIRED TO SUPPORT BRICK, STONE, OR ANY OTHER FINISH MATERIAL IF NOT NOTED ON THE STRUCTURAL DETAILS. NOTIFY CORNERSTONE STRUCTURAL CONSULTANTS PRIOR TO POURING CONCRETE IF ANY ADDITIONAL WIDTHS ARE TO BE ADDED. MINIMUM DEPTH OF ADDITIONAL CONCRETE SHALL BE 9" (VERTICALLY) BELOW THE FINISH.
18. THE GEOTECHNICAL ASPECTS OF THE CONSTRUCTION, INCLUDING FOUNDATION EXCAVATION, PREPARATION OF SUBGRADE AND BASEROCK COMPACTION BENEATH THE SLABS, PLACEMENT AND COMPACTION OF ENGINEERED FILL, AND INSTALLATION OF SURFACE DRAINAGE CONTROL SYSTEMS, EARTHWORK, SITE DRAINAGE, SHOULD BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY ALLERION CONSULTING GROUP, INC. DATED MARCH 23, 2022. ALLERION CONSULTING GROUP, INC. SHOULD BE PROVIDED AT LEAST 48 HOURS IN ADVANCE NOTIFICATION (916) 742-5096 OF ANY GEOTECHNICAL ASPECTS OF THE CONSTRUCTION AND SHOULD BE PRESENT TO OBSERVE AND TEST THE EARTHWORK, FOUNDATION, AND DRAINAGE INSTALLATION PHASES OF THE PROJECT. INSPECTION AND TESTING REPORTS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT

LEGEND:

1. INDICATES STRUCTURAL POST UP. SIZE, SPECIFICATIONS, ETC... AS INDICATED PER PLAN
2. INDICATES STRUCTURAL POST BELOW. SEE PLAN BELOW FOR SIZE, SPECIFICATIONS, ETC...
3. ● INDICATES HOLDOWN TO FOUNDATION. PROVIDE 4x POST (MIN, U.N.O.) w/S.P.S. EDGE NAILING FULL HT. TO POST.
4. SHEARWALL REFERENCE MARK; LENGTH OF SHEARWALL (FT-IN)
5. INDICATES SHEARWALL PANEL FROM THIS LEVEL UP. SHEATHING TO BE PLACED ON SIDE OF REFERENCE MARK.
6. INDICATES A FLR. ELEVATION CHANGE

SHEAR WALL SCHEDULE

MK	SHEATHING	EDGE NAILING	ANCHOR BOLTS	PLY. JNT. STUD/ SILL PLATE (SEE #2 & #3 BLW.)	FLOOR TRANSFER CONNECTIONS [4]
[illegible]	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 6" o.c.	5/8"Φ @ 48" o.c.	2x / 2x	(a) 16d @ 4" o.c.,[5] (b) A35 @ 16" o.c.
[illegible]	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 4" o.c.	5/8"Φ @ 48" o.c.	3x / 3x	(a) SDS25600 @6"o.c.,[5] (b) 2-A35 @ 16" o.c.
C	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 3" o.c.	5/8"Φ @ 30" o.c.	3x / 3x	(a) SDS25600 @6"o.c.[6,7] (b) 2-A35 @ 16" o.c.
D	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 2" o.c.	5/8"Φ @ 24" o.c.	3x / 3x	(a) 2-LPT4@16" o.c.,[6,8] (b) 2-A35 @ 16" o.c.
E	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 4" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x / 3x	(a) 2-LPT4@16" o.c.,[6,9] (b) 3-A35 @ 16" o.c.
F	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 3" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x / 3x	(a) 2-LPT4@16" c.c.,[6,9] (b) 3-A35 @ 16" o.c.
G	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 2" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x / 3x	(a) 3-LPT4@16" o.c.,[6,10] (b) 4-A35 @ 16" o.c.

NOTES:
1. SEE PLANS FOR LOCATION AND SHEAR TRANSFER DETAILS FOR APPLICATION.
2. TYPE "E", "F", "G" SHEAR WALL PANEL JOINTS EA. SIDE TO FALL ON DIFFERENT FRAMING MEMBERS OR 3x SILL AND STUDS PER NOTE 3.
3. PROVIDE 3X MIN. FOUNDATION SILL AND PANEL JOINT MEMBERS FOR SHEAR WALL TYPE "B", THRU "G".
4. STAGGER NAILS & SCREWS AS REQ'D. TO PREVENT SPLITTING OF RIMBOARD.
5. PROVIDE ½" MIN. EDGE NAILING DISTANCE TO ALL DBL. TOP PLATES, RIMBOARDS, STUDS, SOLE PLATES, MUDSILLS, AND ANY OTHER STRUCTURAL MEMBER.
6. PROVIDE ⅝" MIN. EDGE SCREWING DISTANCE TO ALL DBL. TOP PLATES, RIMBOARDS, STUDS, SOLE PLATES, MUDSILLS, AND ANY OTHER STRUCTURAL MEMBER.
7. CONTRACTORS OPTION TO USE ONE SIMPSON LPT4 TIE PLATE @ 16" o.c. FOR TYPE "a" CONNECTION.
8. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 6" o.c. FOR TYPE "a" CONNECTION.
9. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 4" o.c. FOR TYPE "a" CONNECTION.
10. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 3" o.c. FOR TYPE "a" CONNECTION.

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS

NORTH AVENUE HALF-PLEXES
Owner
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN #

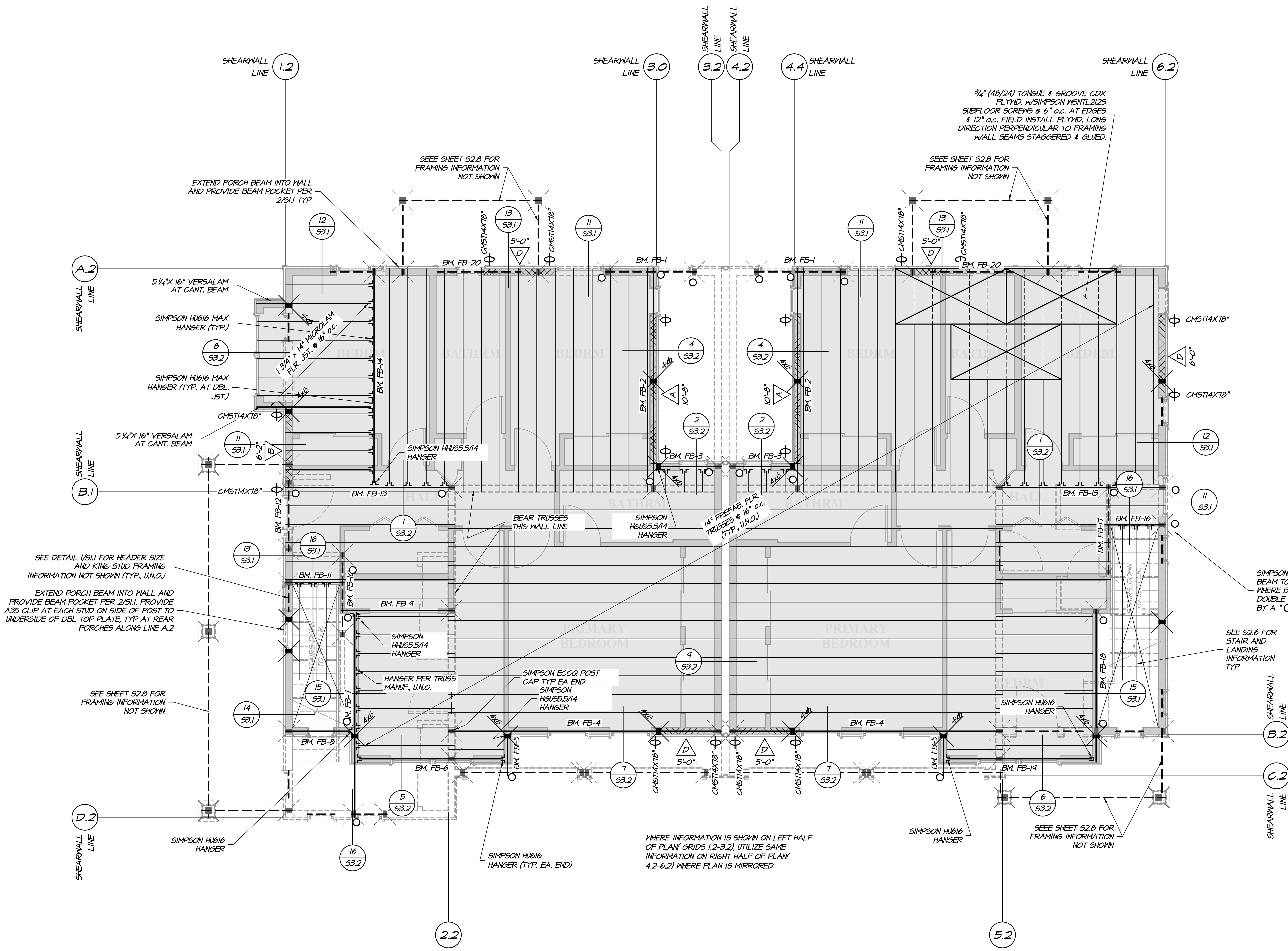
PLAN CHECK SET

DATE: 5/31/2022

REVISIONS:
1. PCK COMMENT 2/21/23
2. PCK COMMENT 5/19/23

SHEET TITLE: UNIT 2B FOUNDATION PLAN

SHEET NO. S2.6



UNIT 2B
SECOND FLOOR FRAMING PLAN

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

2ND FLR. FRAMING BEAM SCHEDULE

MARK	SIZE	BEAM ELEVATION (A.F.F.)
FB-1	5 1/4"x 11 1/4" versalam 3100, 2.0e	-
FB-2	7"x 14" versalam 3100, 2.0e	-
FB-3	5 1/4"x 14" versalam 3100, 2.0e	-
FB-4	7"x 14" versalam 1 3/4"x 14" microlam scab to side with 4 sds screws at 12" oc	-
FB-5	5 1/4"x 14" versalam 3100, 2.0e	-
FB-6	5 1/4"x 14" versalam 3100, 2.0e	-
FB-7	7"x 14" versalam 3100, 2.0e	-
FB-8	5 1/4"x 14" versalam 3100, 2.0e	-
FB-9	3 1/2"x 14" versalam 3100, 2.0e	-
FB-10	3 1/2"x 11 1/4" versalam 3100, 2.0e	-
FB-11	3 1/2"x 14" versalam 3100, 2.0e	-
FB-12	5 1/4"x 9 1/2" versalam 3100, 2.0e	-
FB-13	5 1/4"x 14" versalam 3100, 2.0e	-
FB-14	5 1/4"x 14" versalam 3100, 2.0e	-
FB-15	3 1/2"x 14" versalam 3100, 2.0e	-
FB-16	3 1/2"x 14" versalam 3100, 2.0e	-
FB-17	3 1/2"x 11 1/4" versalam 3100, 2.0e	-
FB-18	5 1/4"x 14" versalam 3100, 2.0e	-
FB-19	5 1/4"x 14" versalam 3100, 2.0e	-
FB-20	5 1/4"x 11 1/4" versalam 3100, 2.0e	-
-	-	-
-	-	-

FRAMING NOTES

1. ALL HARDWARE SHALL BE SIMPSON STRONG-TIE AND SHALL BE IN PLACE PRIOR TO INSPECTION.
2. JOISTS SPACING SHALL BE 16" o.c. MAX., U.N.O. SIZES AS NOTED ON PLAN.
3. SHEATH ALL EXTERIOR WALLS w/ 3/8" OSB w/ 8d @ 6" o.c. EDGE AND 12" o.c. FIELD NAILING. SEE SHEAR WALL AND BRACED WALL SCHEDULES FOR ADDITIONAL REQUIREMENTS.
4. ALL FRAMING SHALL BE INSTALLED IN COMPLIANCE WITH 2019 CBC & CRC REQUIREMENTS.
5. ALL DOUBLE TOP PLATES OF BEARING WALLS SHALL BE #2 DF-L. FOR DESIGNATED SHEAR WALL LINES, LAP SPLICES SHALL BE 48" w/24-16d OR CS14x42" STRAP, UON.
6. SEE DETAIL 1/S1.1 FOR TYPICAL BEARING WALL FRAMING INFORMATION.
7. ALL BEAMS AND HEADERS SHALL BE SUPPORTED WITH FULL BEARING. USE #2 DF-L SUPPORTS, U.N.O.
8. ALL POSTS ARE 4x4 D.F. #2, TYP. U.N.O.
9. ALL SOLID SAWN BEAMS ARE DOUGLAS FIR #2 U.N.O.
10. FULL DEPTH, 4x K.D.D.F. SQUASH BLOCKS SHALL BE USED UNDER ALL POSTS AT SECOND LEVEL AND SHALL BEAR TIGHT ON DOUBLE TOP PLATES, BEAMS, OR POSTS AT FIRST LEVEL.
11. FLOOR PLYWOOD SHALL BE GLUED TO THE TOP OF THE FLOOR JOISTS AND NAILED AS SHOWN U.N.O.
12. PROVIDE WEB STIFFENERS AT ALL END AND INTERMEDIATE JOIST BEARING LOCATIONS. REFER TO TJI RECOMMENDATIONS FOR ALL FRAMING STIFFENERS, HOLES, NAILING, ETC.
13. ALL POST CAPS ARE ECCQ/CCQ POST CAPS TYP. U.N.O.
14. SEE S1 SERIES SHEETS FOR TYPICAL DETAILS AND NOTES NOT SHOWN HERE
15. SLOPING HANGER TO BE USED AT ALL SLOPING MEMBERS U.N.O.
16. PROVIDE DBL. JOIST AND BLK'G. UNDER ALL FIREPLACE STONE, ROCK, OR BRICK FACED HEARTHS
17. PROVIDE 4x POSTS UNDER ALL GIRDER TRUSSES U.N.O.

LEGEND:

1. INDICATES STRUCTURAL POST UP. SIZE, SPECIFICATIONS, ETC... AS INDICATED PER PLAN
2. INDICATES STRUCTURAL POST BELOW. SEE PLAN BELOW FOR SIZE, SPECIFICATIONS, ETC...
3. INDICATES VERTICALLY ORIENTED CS14x78" HOLDOWN STRAP UNO. SEE DETAILS 5/S3.3 AND 6/S3.3. FILL ALL NAIL HOLES WITH 10d NAILS.
4. SHEARWALL REFERENCE MARK
   *'-**" LENGTH OF SHEARWALL (FT-IN)
5. INDICATES SHEARWALL PANEL FROM THIS LEVEL UP. SHEATHING TO BE PLACED ON SIDE OF REFERENCE MARK.
6. INDICATES SECOND FLOOR WALLS ABOVE
7. INDICATES FIRST FLOOR WALLS BELOW

SHEAR WALL SCHEDULE

MK	SHEATHING	EDGE NAILING	ANCHOR BOLTS	PLY. JNT. STUD/ SILL PLATE (SEE #2 & #3 BLW.)	FLOOR TRANSFER CONNECTIONS [4]
A	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 6" o.c.	5/8"Φ @ 48" o.c.	2x 2x	(a) 16d @ 4" o.c., [5] (b) A35 @ 16" o.c.
B	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 4" o.c.	5/8"Φ @ 48" o.c.	3x 3x	(a) SDS25600 @6"o.c., [5] (b) 2-A35 @ 16" o.c.
C	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 3" o.c.	5/8"Φ @ 30" o.c.	3x 3x	(a) SDS25600 @6"o.c. [6,7] (b) 2-A35 @ 16" o.c.
D	3/8" STRUCTURAL SHEATHING (OSB)	8d @ 2" o.c.	5/8"Φ @ 24" o.c.	3x 3x	(a) 2-LPT4@16" o.c., [6,8] (b) 2-A35 @ 16" o.c.
E	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 4" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 2-LPT4@16" o.c., [6,9] (b) 3-A35 @ 16" o.c.
F	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 3" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 2-LPT4@16" c.c., [6,9] (b) 3-A35 @ 16" o.c.
G	3/8" STRUCTURAL SHEATH'G (OSB) EA. FACE	8d @ 2" o.c. EA. SIDE	5/8"Φ @ 12" o.c.	3x 3x	(a) 3-LPT4@16" o.c., [6,10] (b) 4-A35 @ 16" o.c.

NOTES:
1. SEE PLANS FOR LOCATION AND SHEAR TRANSFER DETAILS FOR APPLICATION.
2. TYPE "E", "F", "G" SHEAR WALL PANEL JOINTS EA. SIDE TO FALL ON DIFFERENT FRAMING MEMBERS OR 3x SILL AND STUDS PER NOTE 3.
3. PROVIDE 3X MIN. FOUNDATION SILL AND PANEL JOINT MEMBERS FOR SHEAR WALL TYPE "B", THRU "G".
4. STAGGER NAILS & SCREWS AS REQ'D. TO PREVENT SPLITTING OF RIMBOARD.
5. PROVIDE 1/2" MIN. EDGE NAILING DISTANCE TO ALL DBL. TOP PLATES, RIMBOARDS, STUDS, SOLE PLATES, MUDSILLS, AND ANY OTHER STRUCTURAL MEMBER.
6. PROVIDE 5/8" MIN. EDGE SCREWING DISTANCE TO ALL DBL. TOP PLATES, RIMBOARDS, STUDS, SOLE PLATES, MUDSILLS, AND ANY OTHER STRUCTURAL MEMBER.
7. CONTRACTORS OPTION TO USE ONE SIMPSON LPT4 TIE PLATE @ 16" o.c. FOR TYPE "a" CONNECTION.
8. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 6" o.c. FOR TYPE "a" CONNECTION.
9. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 4" o.c. FOR TYPE "a" CONNECTION.
10. CONTRACTORS OPTION TO USE ONE SIMPSON SDS25500 SCREW @ 3" o.c. FOR TYPE "a" CONNECTION.

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS

REGISTERED PROFESSIONAL ENGINEER No. C60091 EXP. 06/30/24 STATE OF CALIFORNIA

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NORTH AVENUE HALF-PLEXES
Owner
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN #

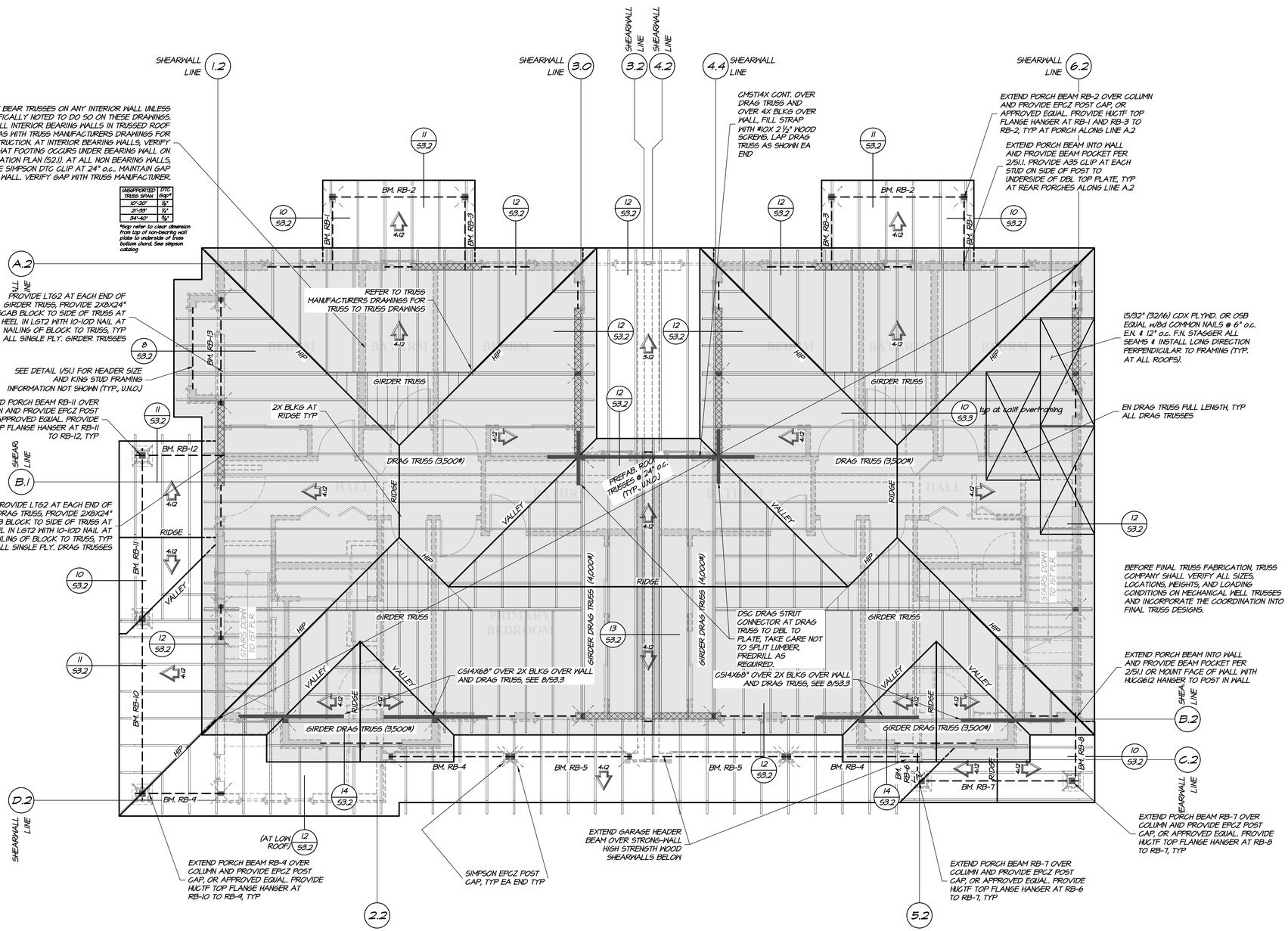
PLAN CHECK SET

DATE: 5/31/2022

REVISIONS:
1. PCK COMMENT 2/21/23
2. PCK COMMENT 5/19/23

SHEET TITLE: UNIT 2B 2ND FLR. FRAMING PLAN

SHEET NO. S2.7



UNIT 2B
ROOF FRAMING PLAN

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

FRAMING NOTES

1. ALL HARDWARE SHALL BE SIMPSON STRONG-TIE AND SHALL BE IN PLACE PRIOR TO INSPECTION.
2. TRUSS SPACING SHALL BE 24" o.c. MAX., U.N.O..
3. SHEATH ALL EXTERIOR WALLS w/ 3/8" OSB w/ 8d @ 6" o.c. EDGE AND 12" o.c. FIELD NAILING. SEE SHEAR WALL AND BRACED WALL SCHEDULES FOR ADDITIONAL REQUIREMENTS.
4. ALL FRAMING SHALL BE INSTALLED IN COMPLIANCE WITH 2019 CBC & CRC REQUIREMENTS.
5. ALL DOUBLE TOP PLATES OF BEARING WALLS SHALL BE #2 DF-L. FOR DESIGNATED SHEAR WALL LINES, LAP SPLICES SHALL BE 48" w/24-16d OR CS14x42" STRAP, U.O.N.
6. SEE DETAIL 1/S1.1 FOR TYPICAL BEARING WALL FRAMING INFORMATION.
7. ALL BEAMS AND HEADERS SHALL BE SUPPORTED WITH FULL BEARING. USE #2 DF-L SUPPORTS, U.N.O.
8. ALL POSTS ARE 4x4 D.F. #2, TYP. U.N.O.
9. ALL SOLID SAWN BEAMS ARE DOUGLAS FIR #2 U.N.O.
10. ALL POST CAPS ARE ECCQ/CCQ POST CAPS TYP. U.N.O.
11. SEE S1 SERIES SHEETS FOR TYPICAL DETAILS AND NOTES NOT SHOWN HERE
12. PROVIDE 4x POSTS UNDER ALL GIRDER TRUSSES U.N.O.
13. SLOPING HANGER TO BE USED AT ALL SLOPING MEMBERS U.N.O.

ROOF FRAMING BEAM SCHEDULE

MARK	SIZE	BEAM ELEVATION (A.F.F.)
RB-1	6x10..df#1	-
RB-2	6x10..df#1	-
RB-3	6x10..df#1	-
RB-4	5 1/4"x 11 7/8" versalam 3100, 2.0e	-
RB-5	5 1/4"x 11 7/8" versalam 3100, 2.0e	-
RB-6	6x12..df#1	-
RB-7	6x12 df#1	-
RB-8	6x12 df#1	-
RB-9	6x12..df#1	-
RB-10	6x12..df#1	-
RB-11	6x12..df#1	-
RB-12	6x12..df#1	-
RB-13	7"x 7 1/2"versalam 3100, 2.0e	-
-	-	-
-	-	-
-	-	-

LEGEND:

1. INDICATES STRUCTURAL POST UP. SIZE, SPECIFICATIONS, ETC... AS INDICATED PER PLAN
2. INDICATES STRUCTURAL POST BELOW. SEE PLAN BELOW FOR SIZE, SPECIFICATIONS, ETC...
3. INDICATES SHEARWALL PANEL BELOW. SEE PLAN LEVELS BELOW FOR MIN. LENGTH OF WALL & NAILING REQUIREMENTS.
4. INDICATES SECOND FLOOR WALLS BELOW
5. INDICATES FIRST FLOOR WALLS BELOW

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS

IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY

REGISTERED PROFESSIONAL ENGINEER
RICHARD A. GRIFFITH
No. C60081
EXP. 06/30/24
CIVIL
STATE OF CALIFORNIA

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NORTH AVENUE HALF-PLEXES
Owner
905 NORTH AVENUE, SACRAMENTO, CALIFORNIA
APN #

PLAN CHECK SET

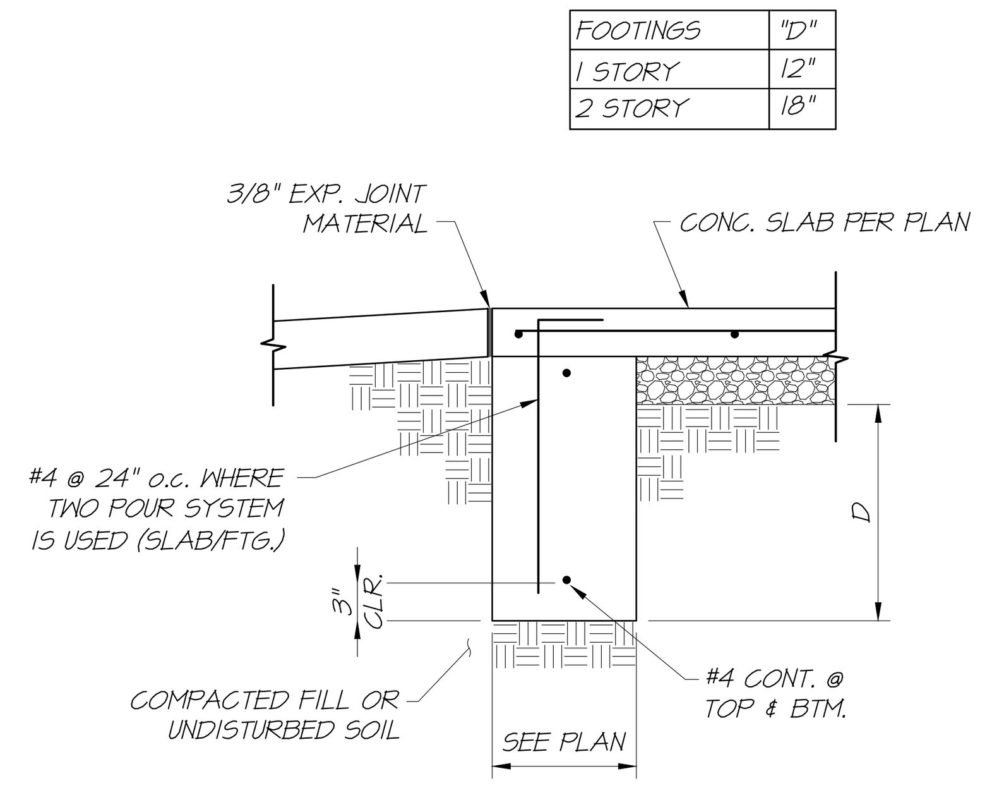
DATE:
5/31/2022

REVISIONS:

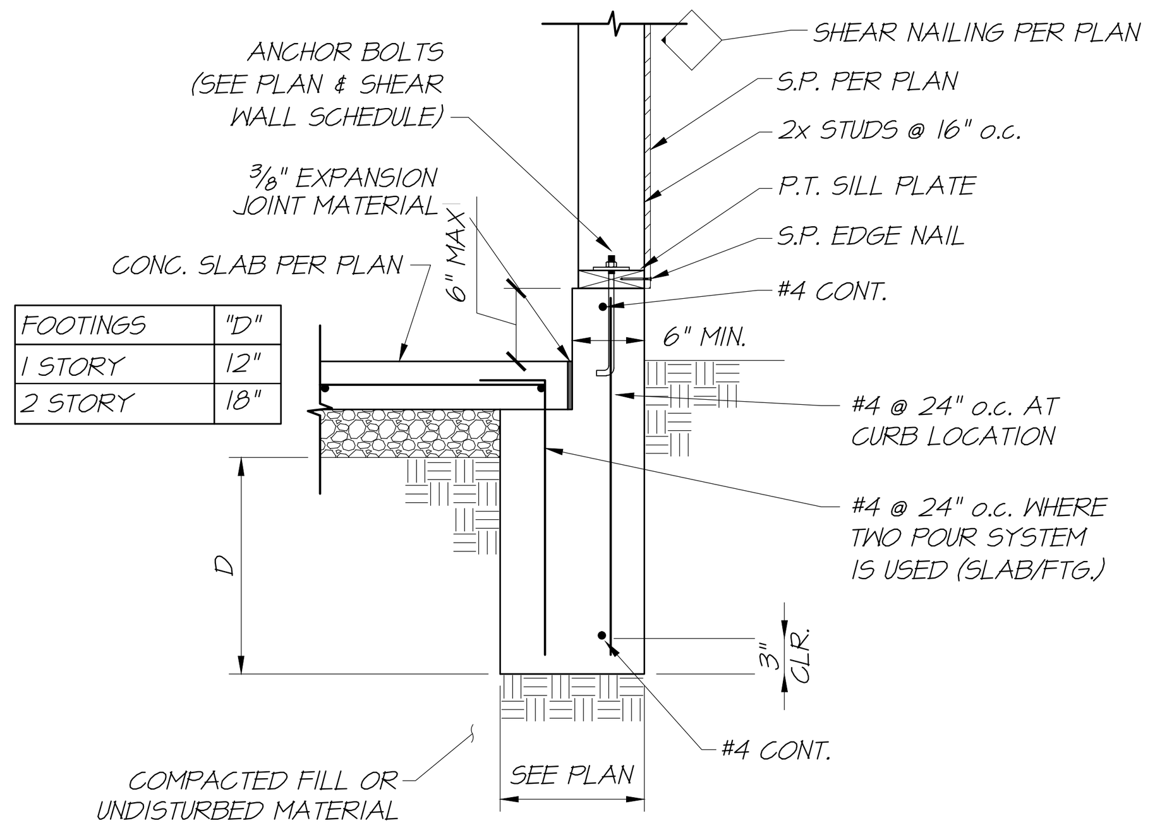
1	PCK COMMENT 2/21/23
2	PCK COMMENT 5/19/23

SHEET TITLE
UNIT 2B ROOF FRAMING PLAN

SHEET NO.
S2.8



1 DETAIL S3.1 3/4" = 1'-0"



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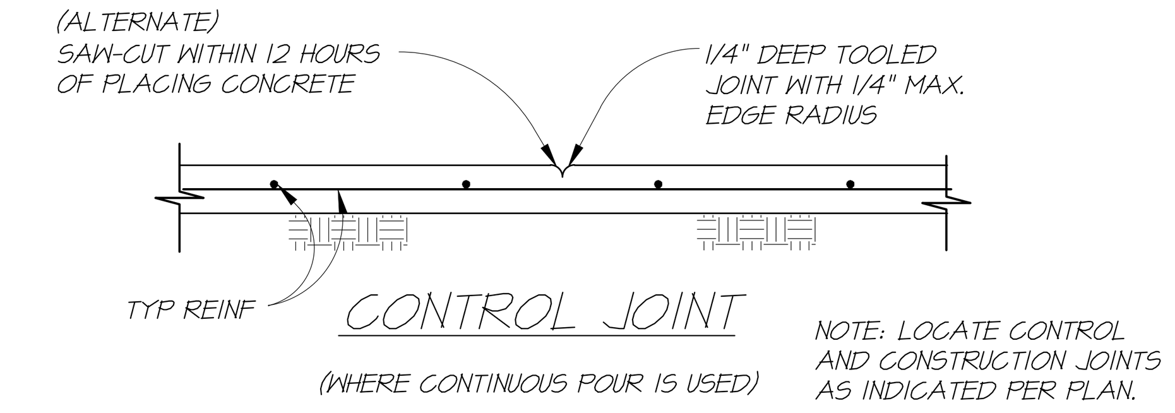

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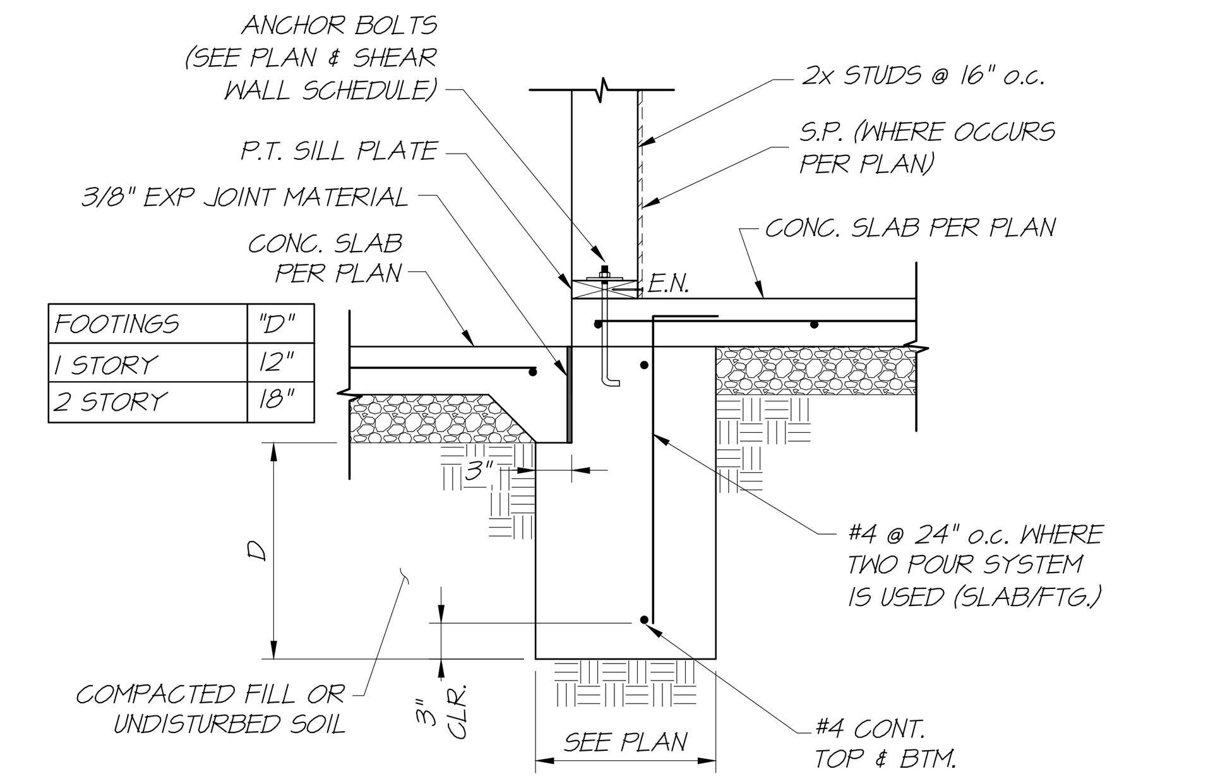

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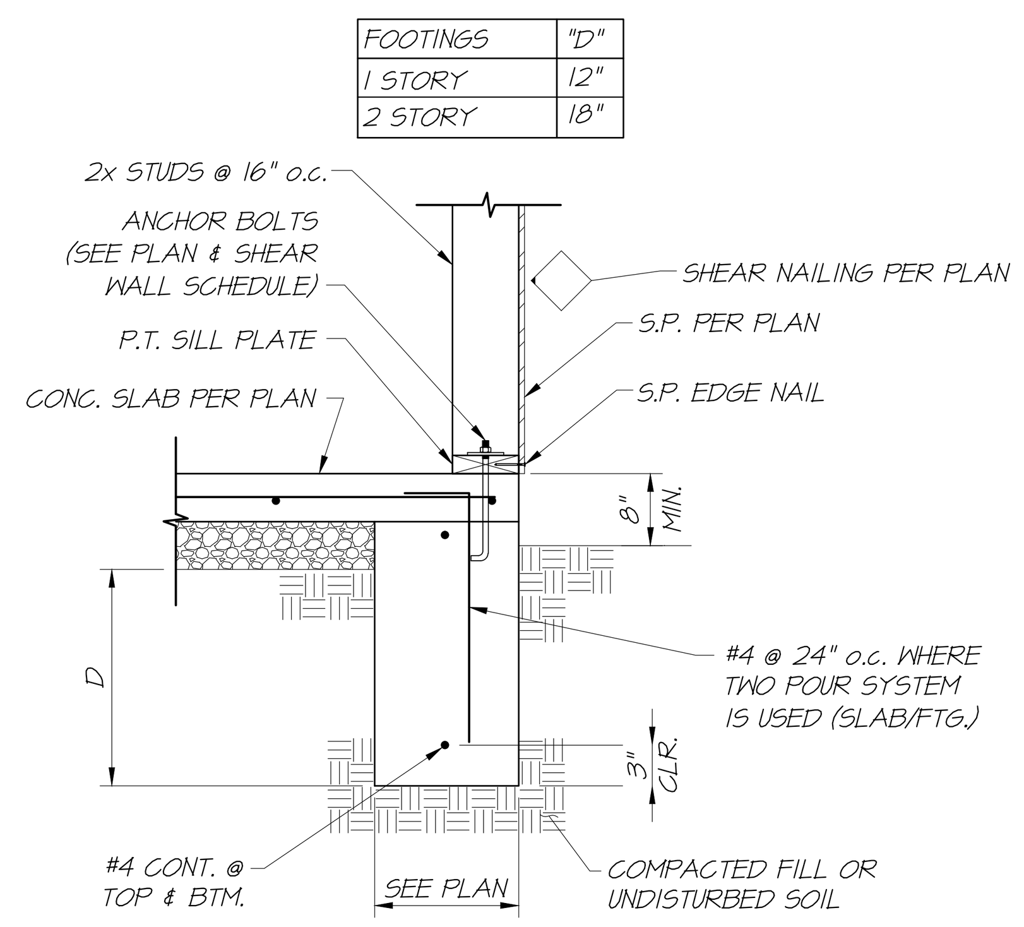
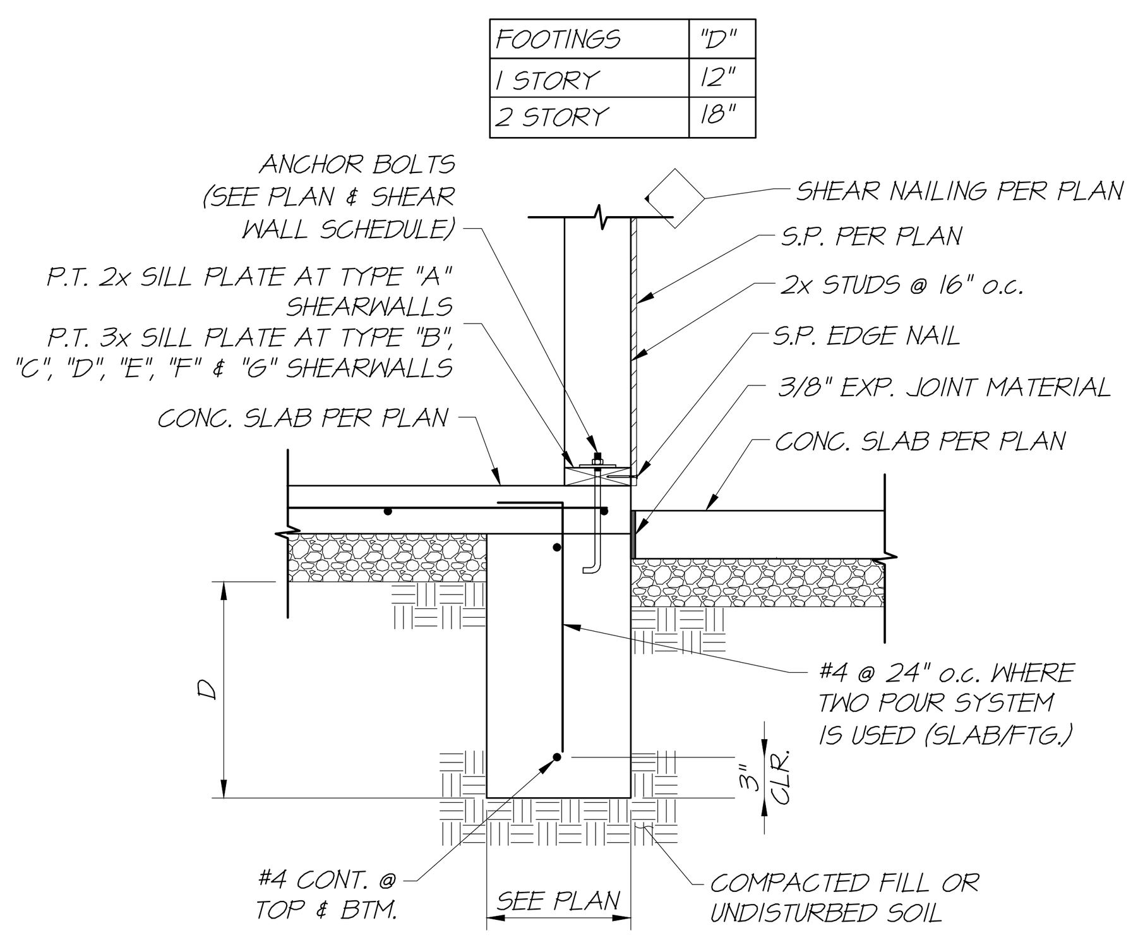


5 DETAIL S3.1 3/4" = 1'-0"



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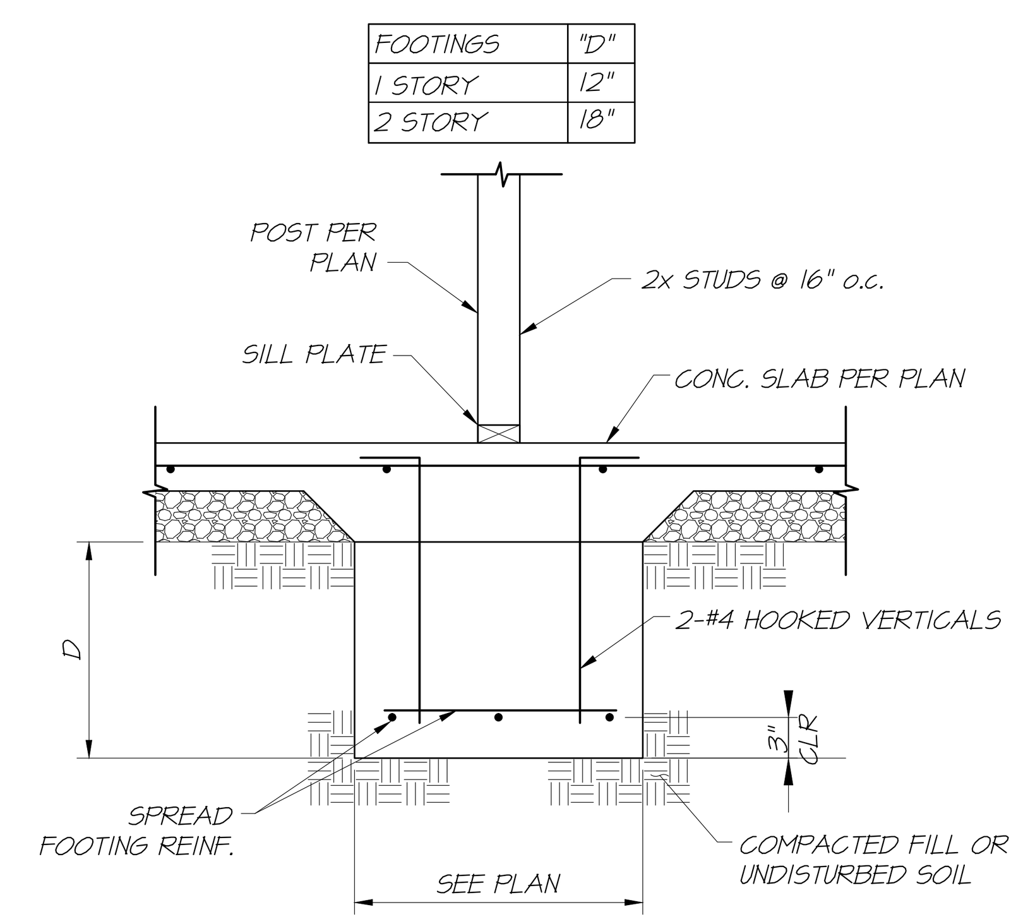

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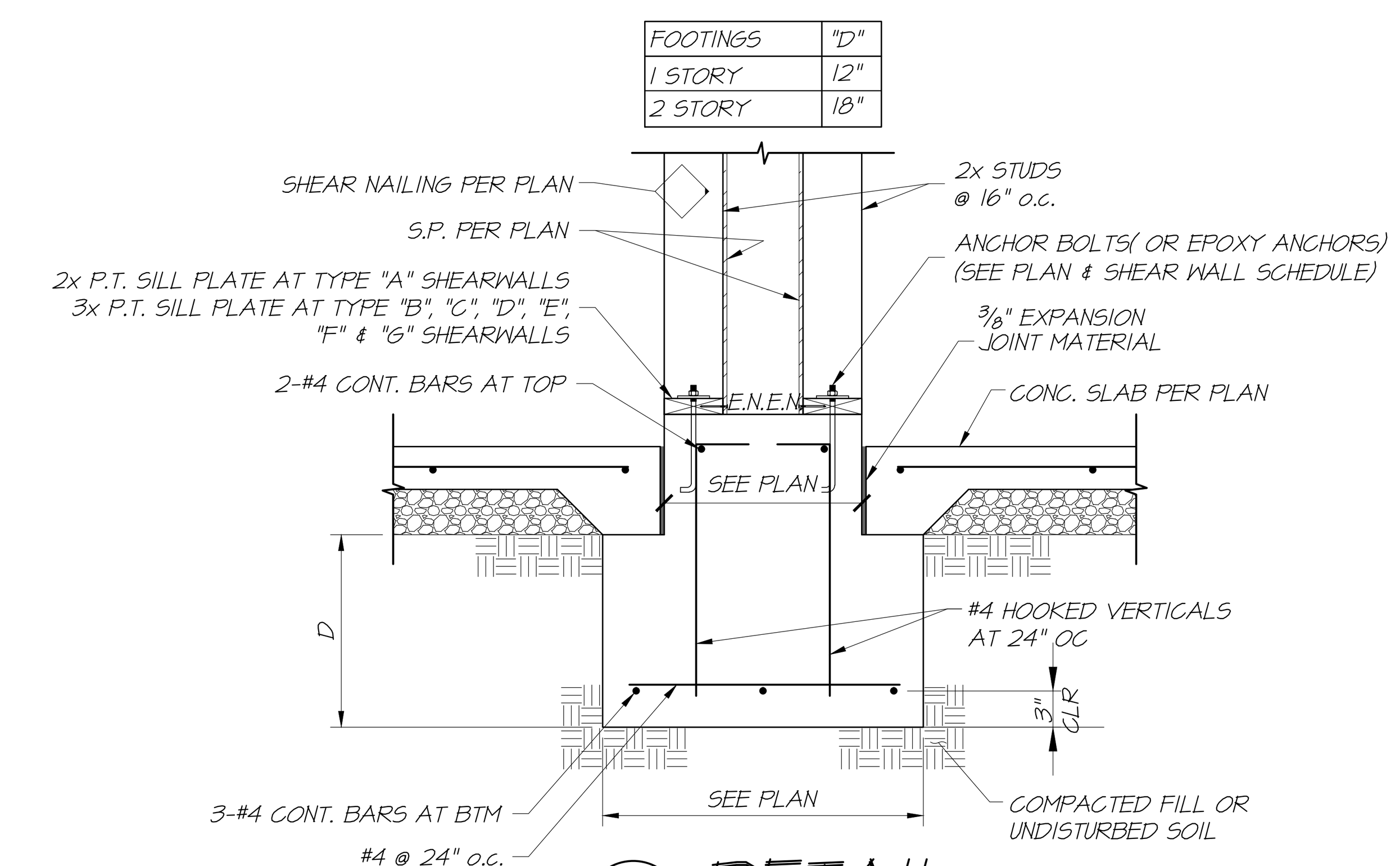

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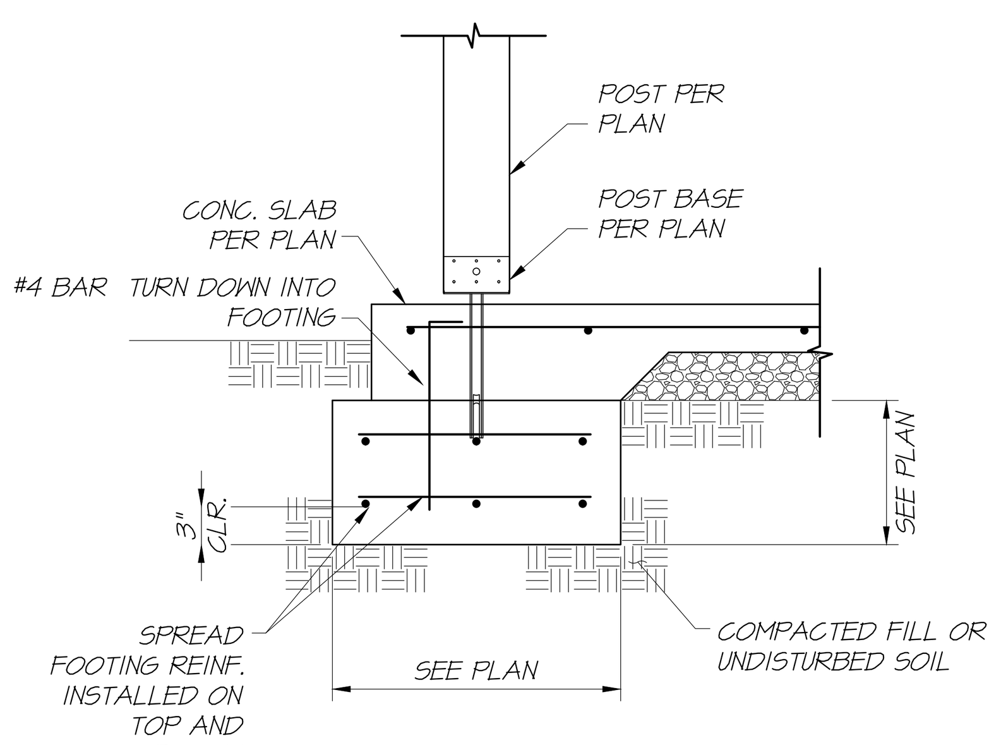
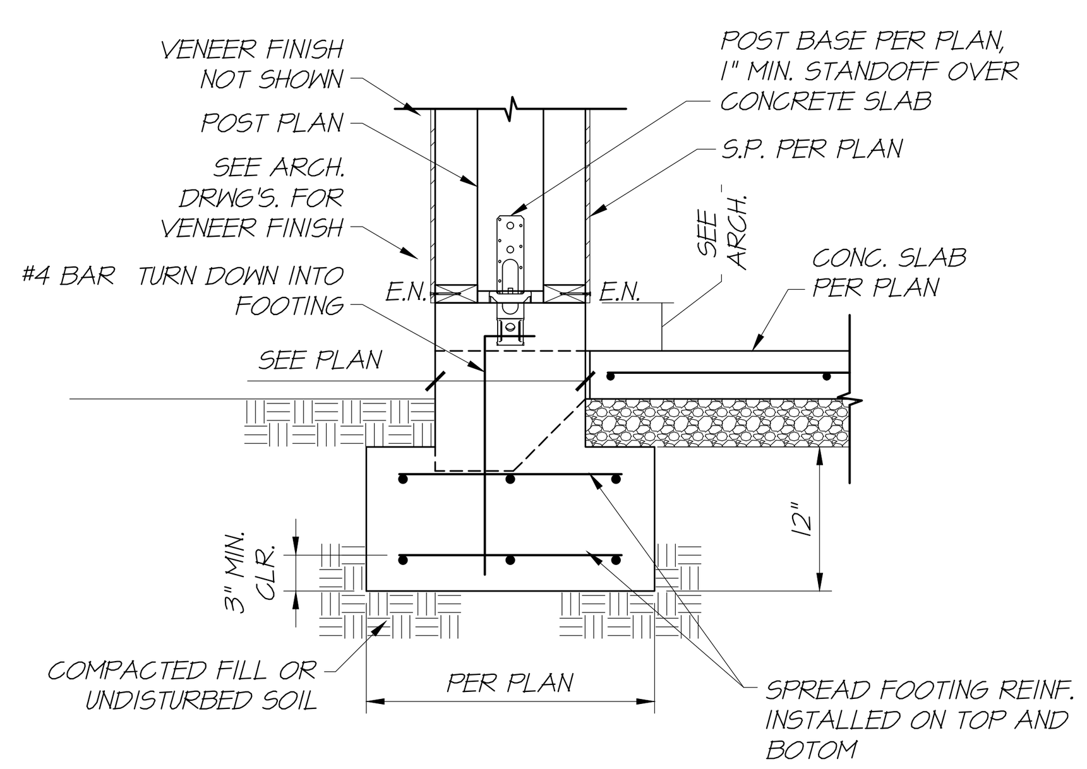
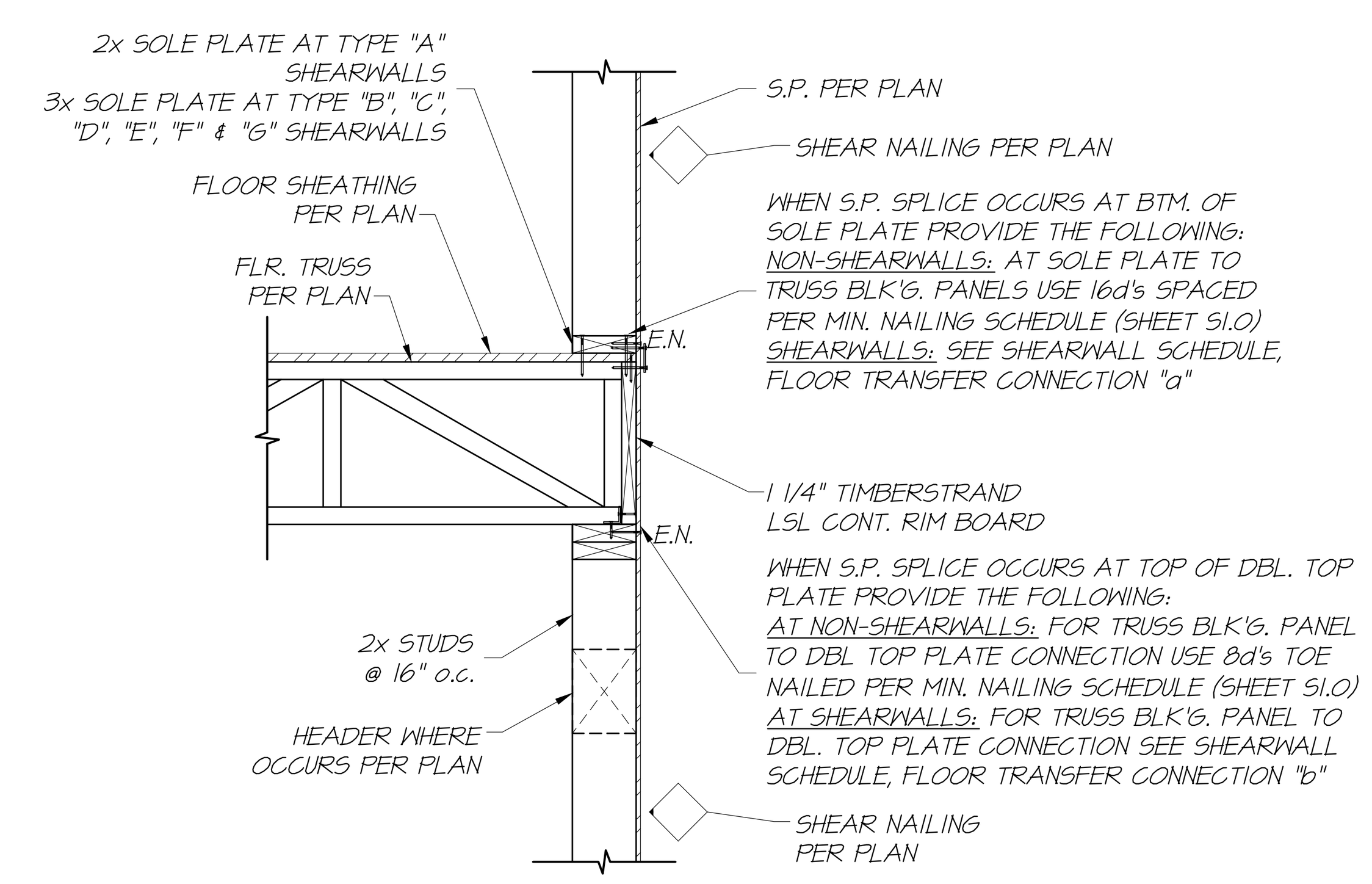


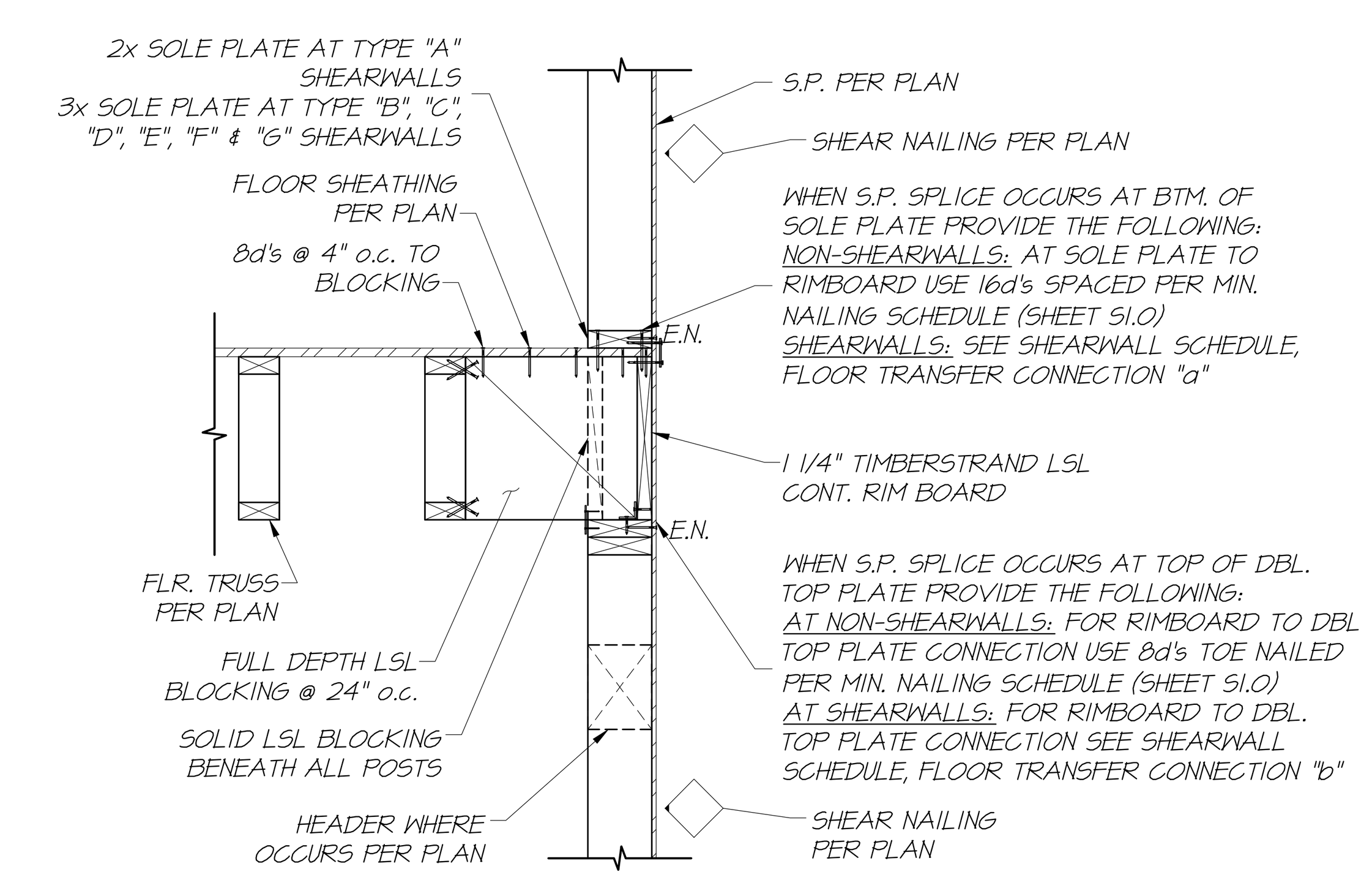
9 DETAIL S3.1 3/4" = 1'-0"



10 DETAIL S3.1 3/4" = 1'-0"



11 DETAIL S3.1 3/4" = 1'-0"



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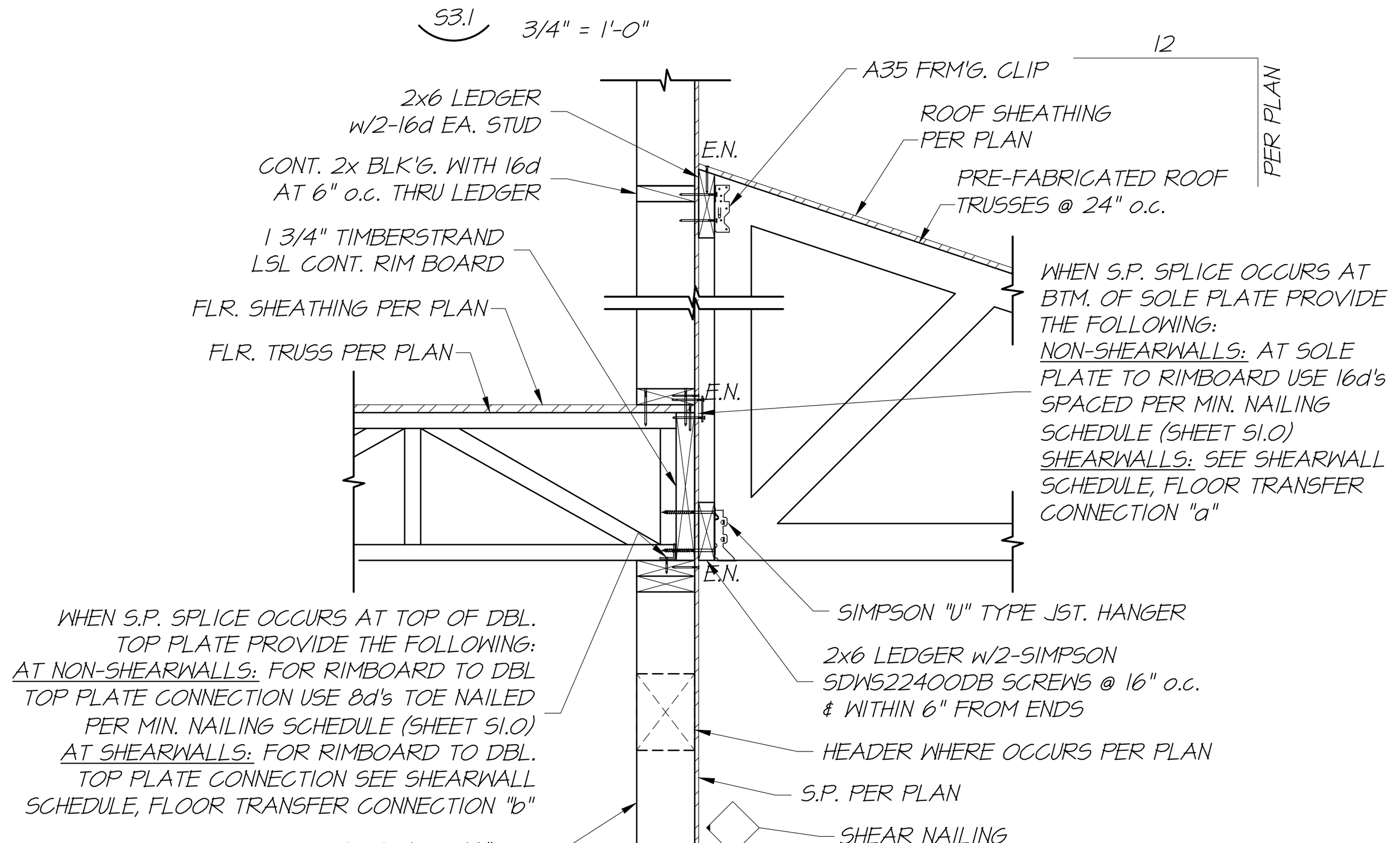

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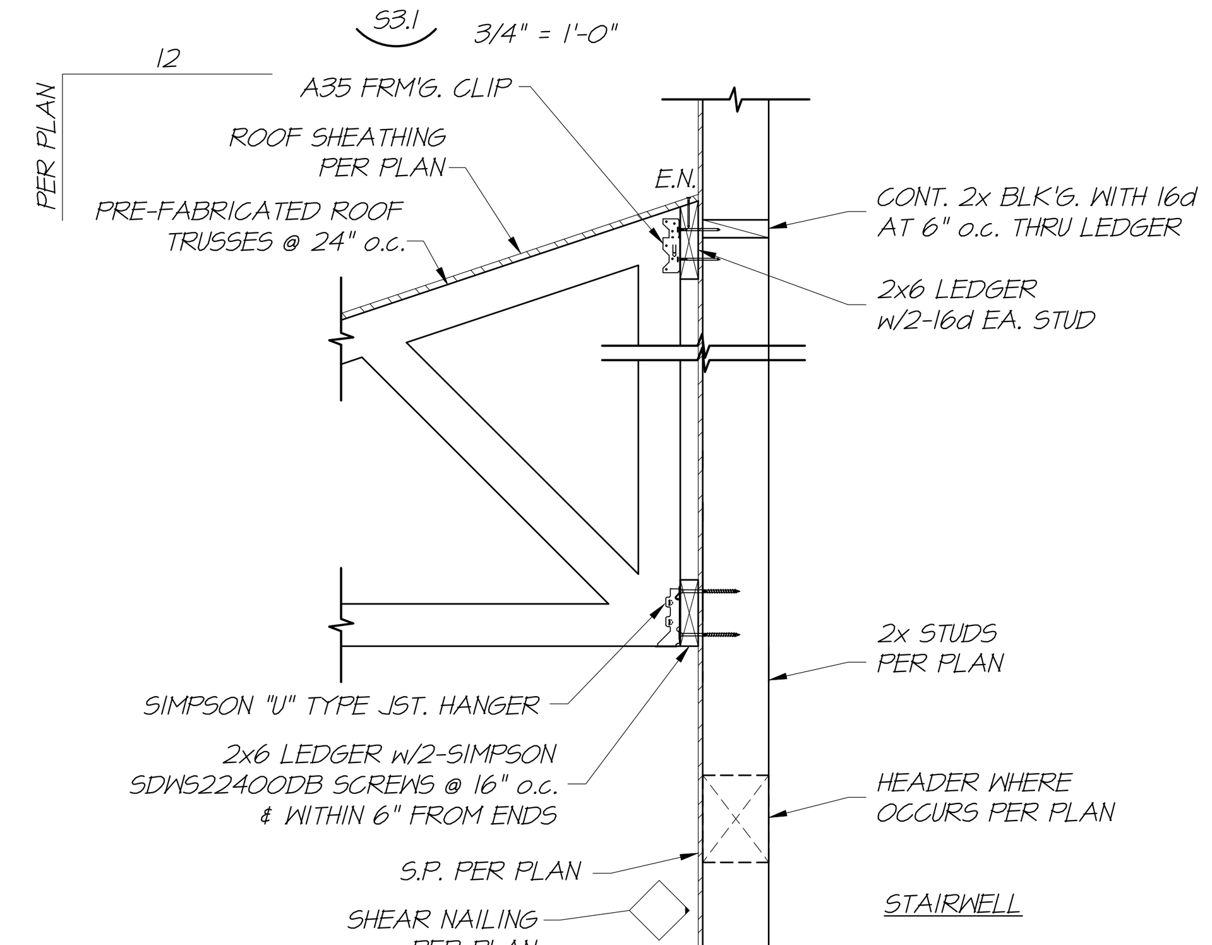

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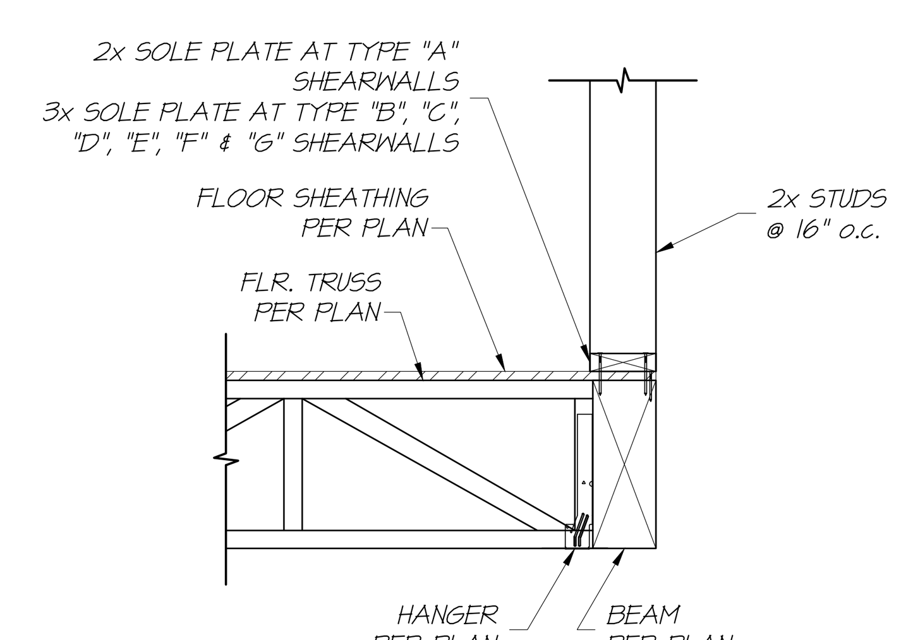

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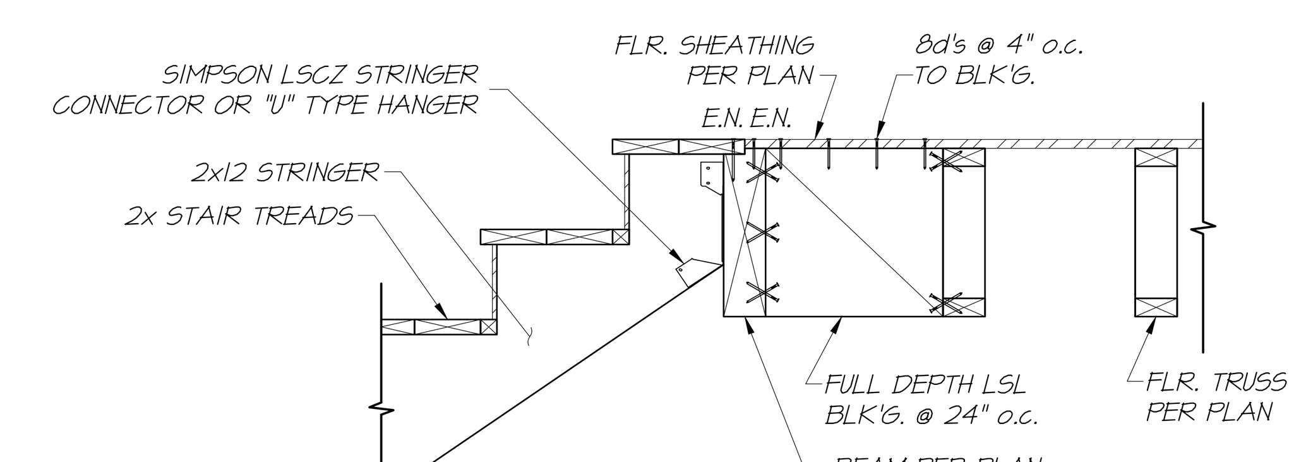

16 DETAIL S3.1 3/4" = 1'-0"

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS

REGISTERED PROFESSIONAL ENGINEER — No. C60041 — EXP. 06/30/24 — STATE OF CALIFORNIA

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NORTH AVENUE HALF-PLEXES

Owner

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN #

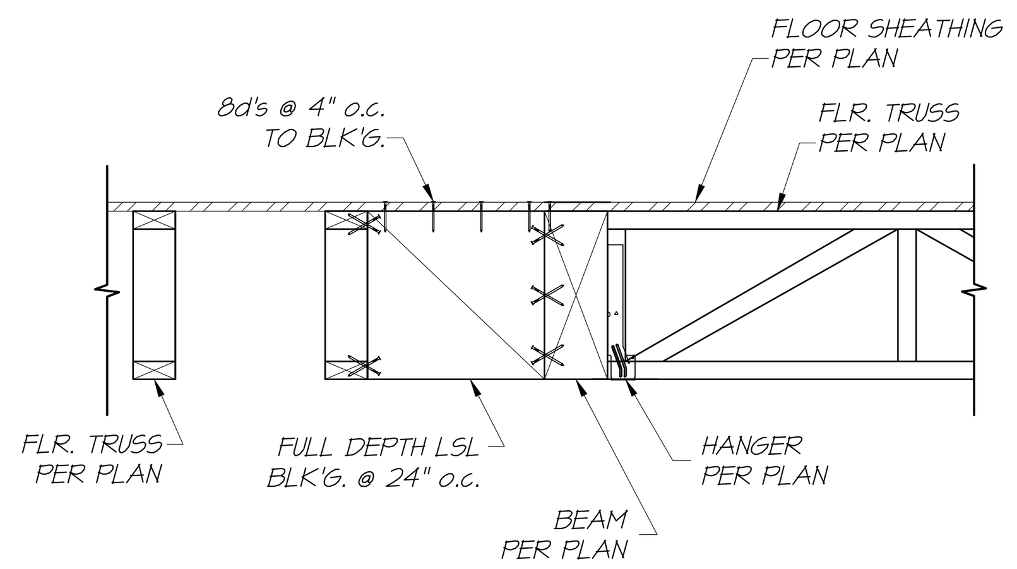
PLAN CHECK SET

DATE: 5/31/2022

REVISIONS:
1 PCK COMMENT 2/21/23
2 PCK COMMENT 5/19/23

SHEET TITLE: DETAILS

SHEET NO. S3.1



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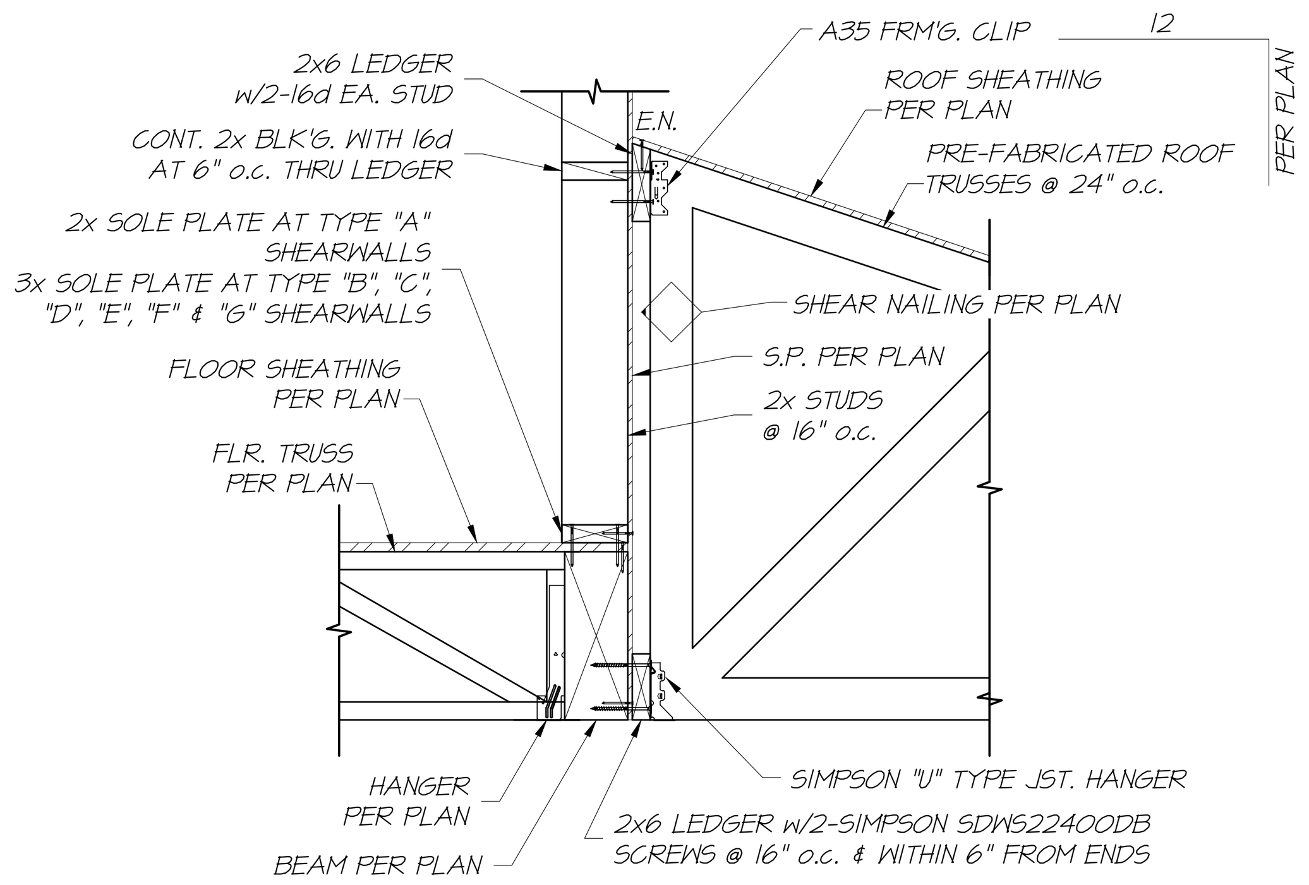

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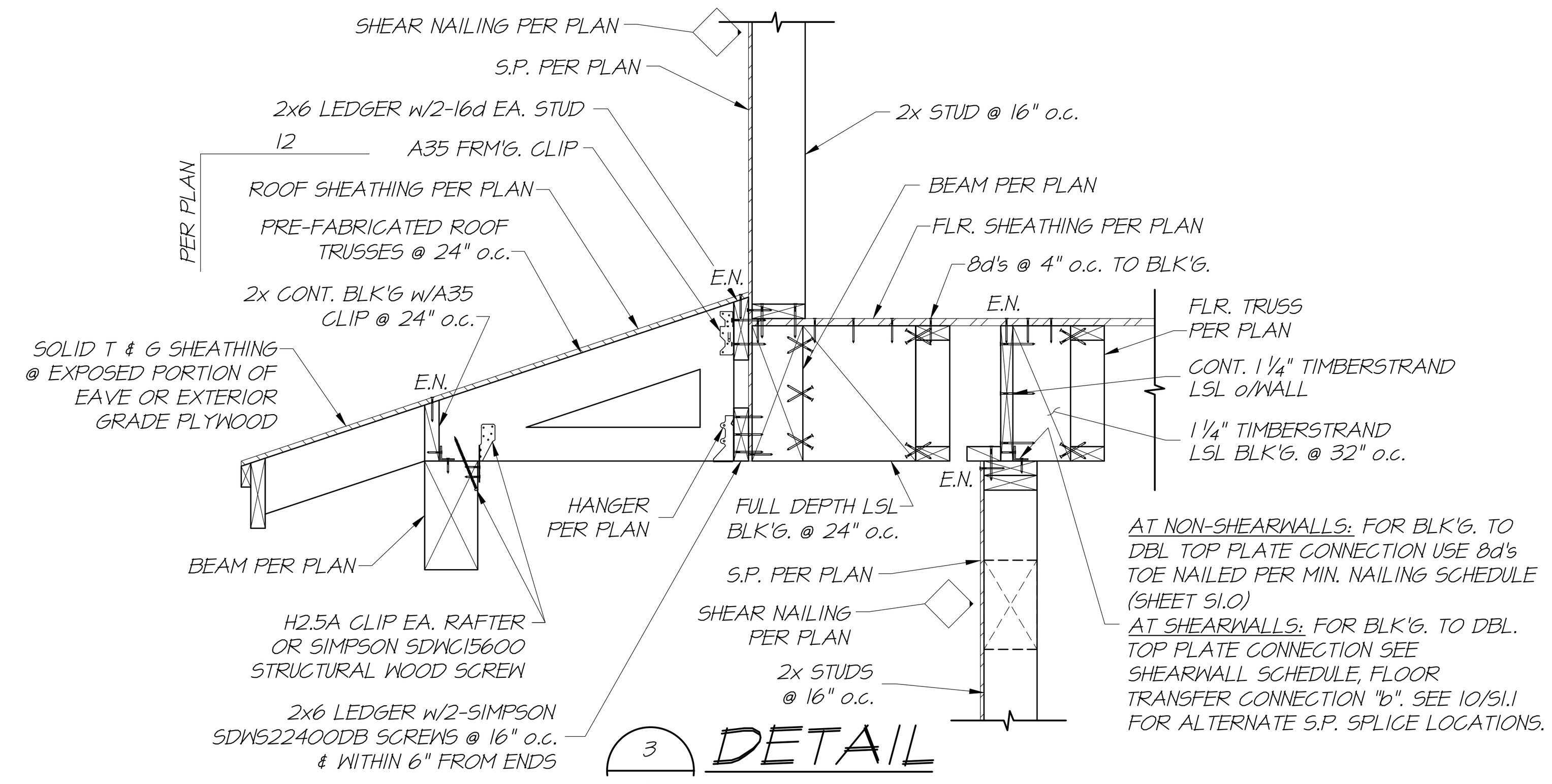

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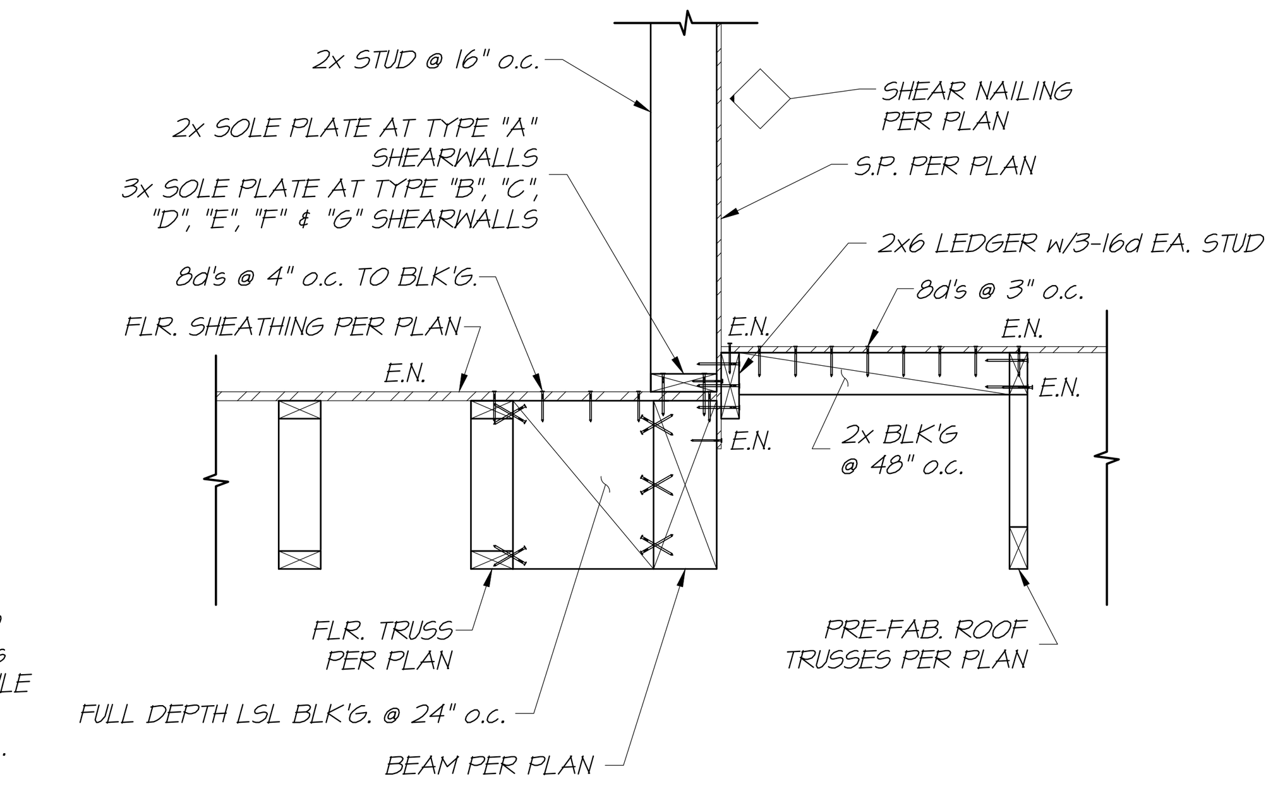

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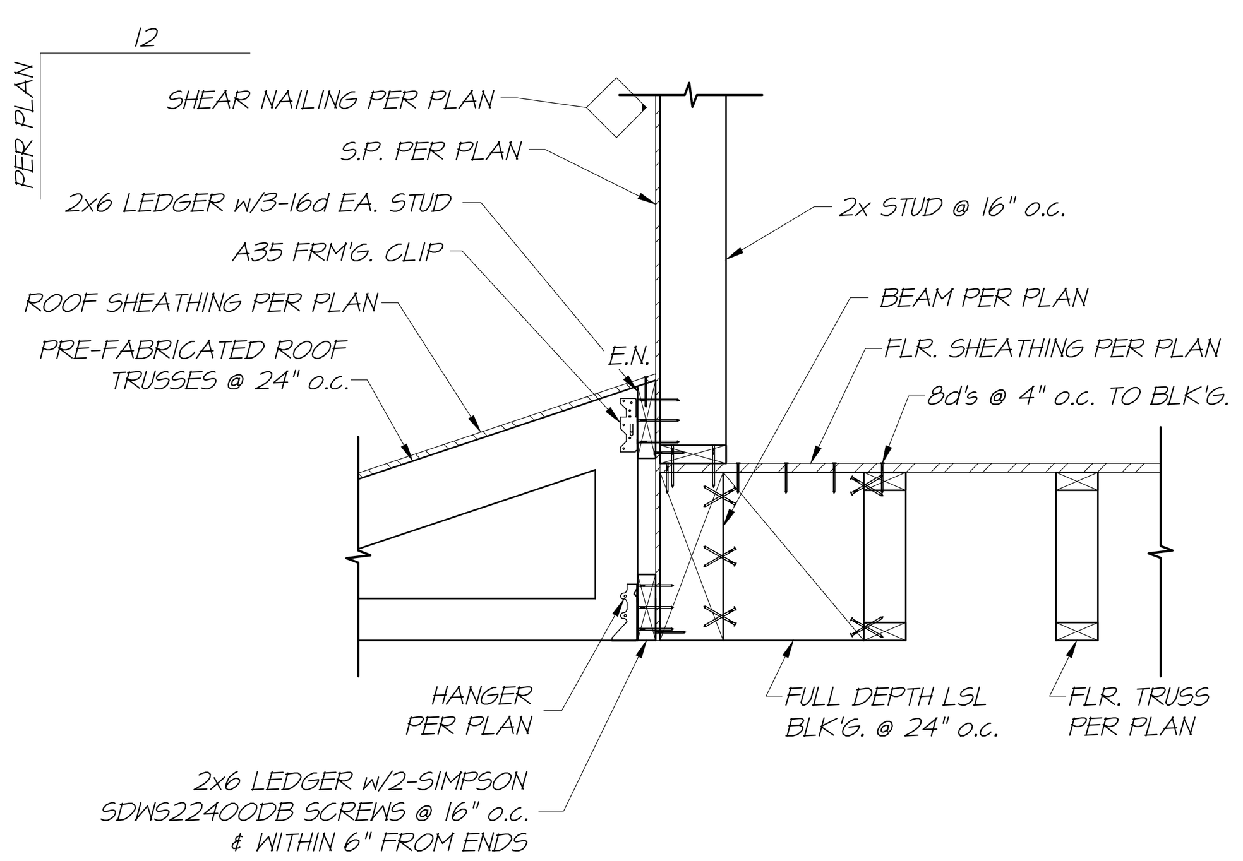
3/4" = 1'-0"



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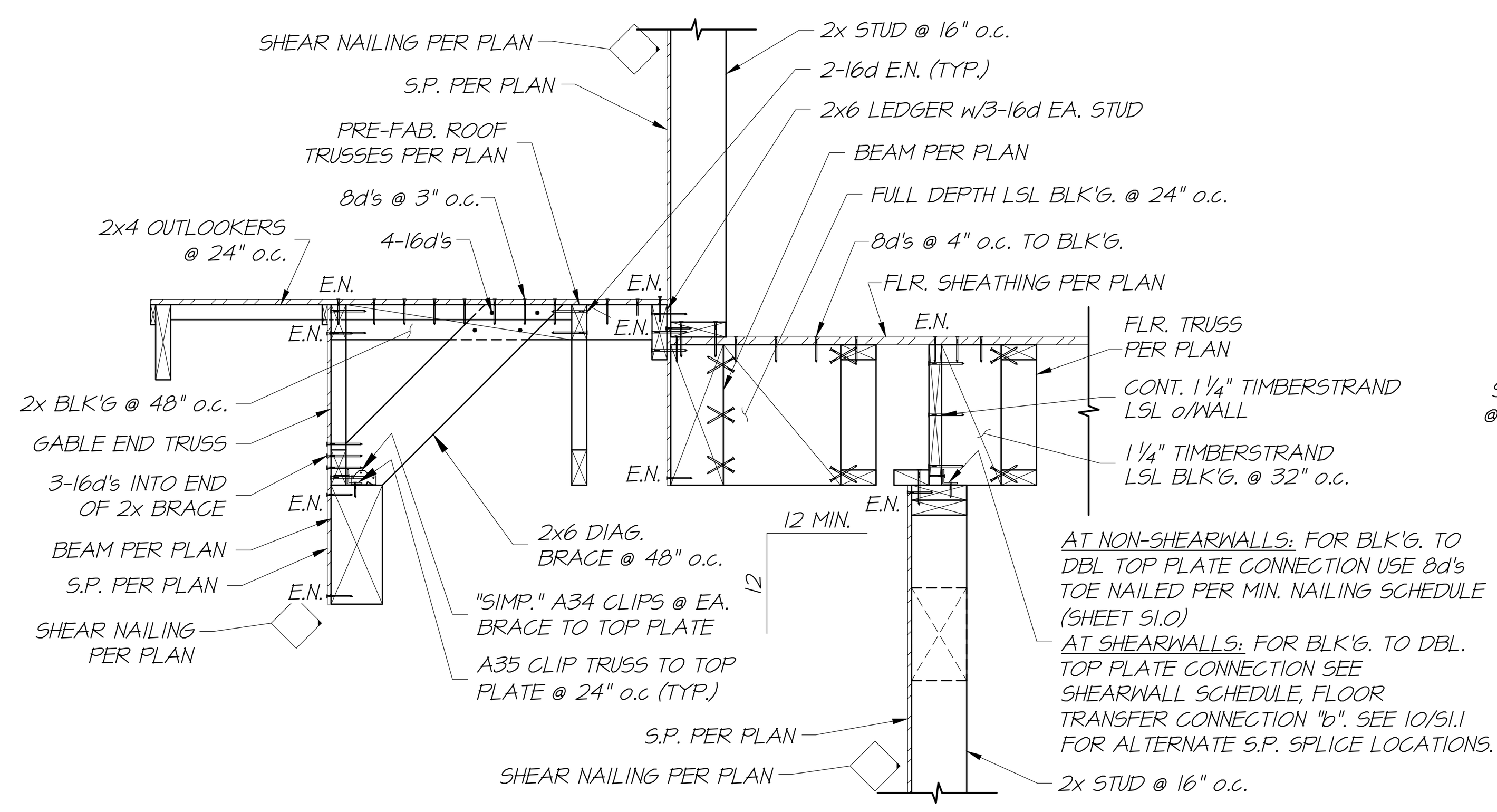
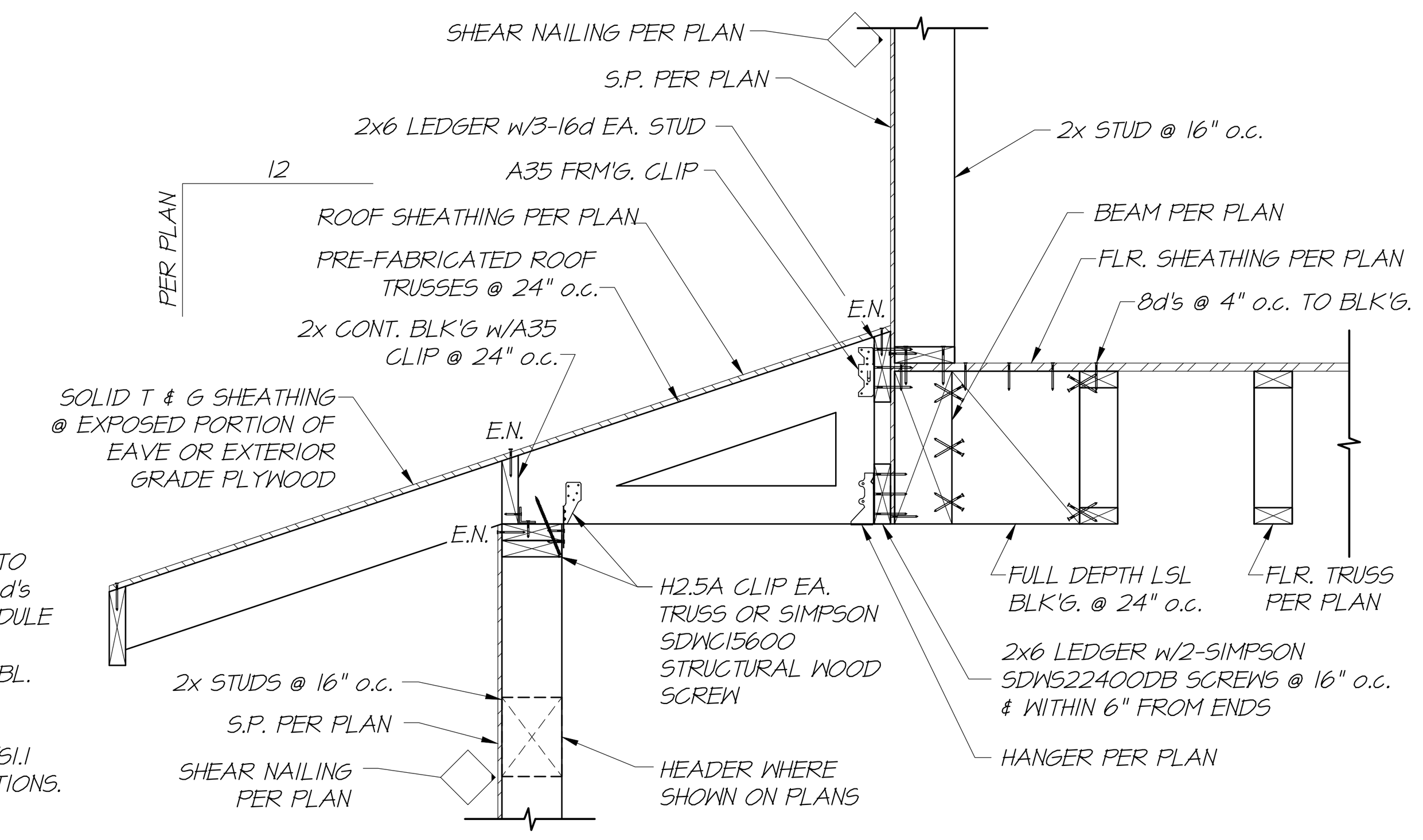


6 S3.2 DETAIL
3/4" = 1'-0"



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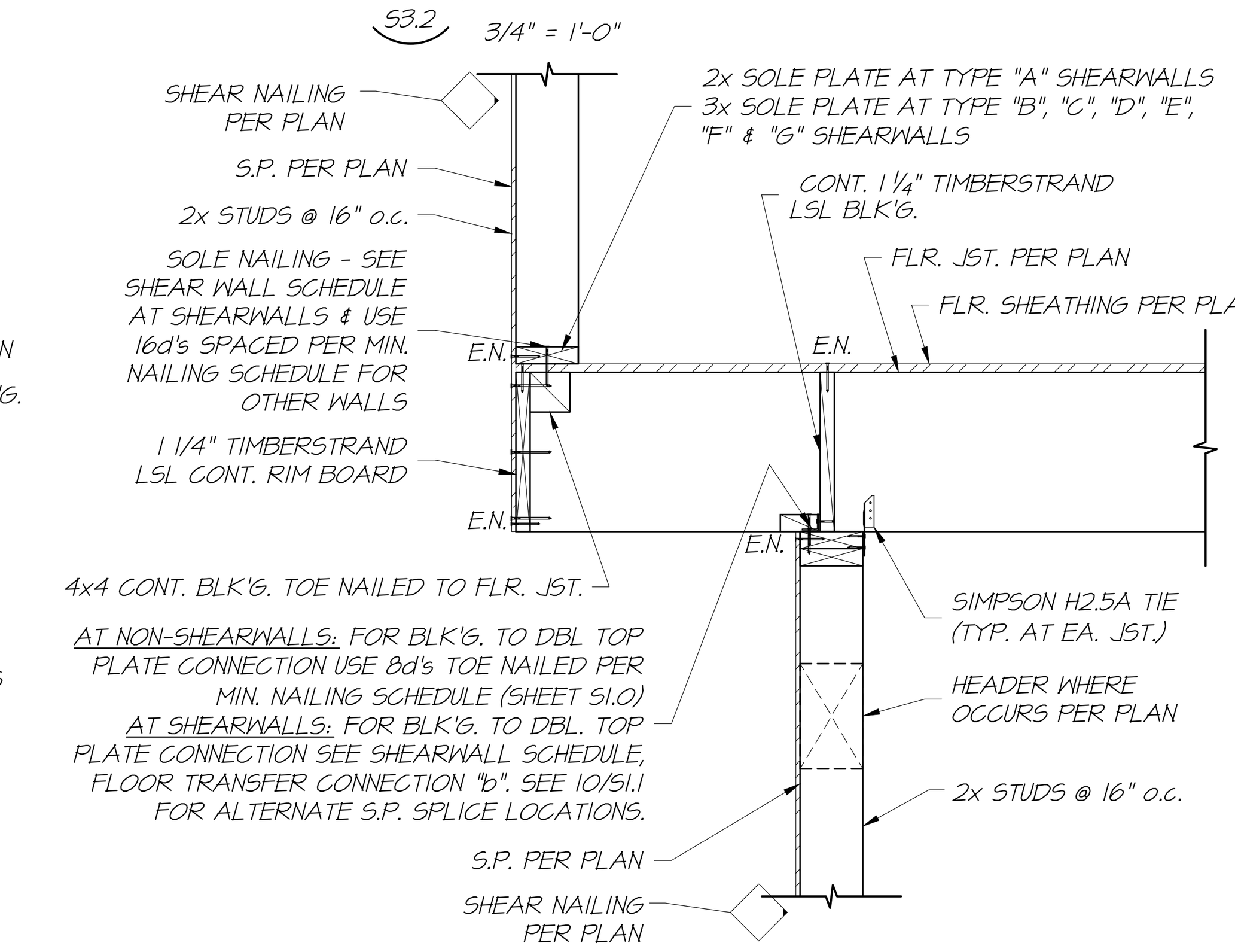

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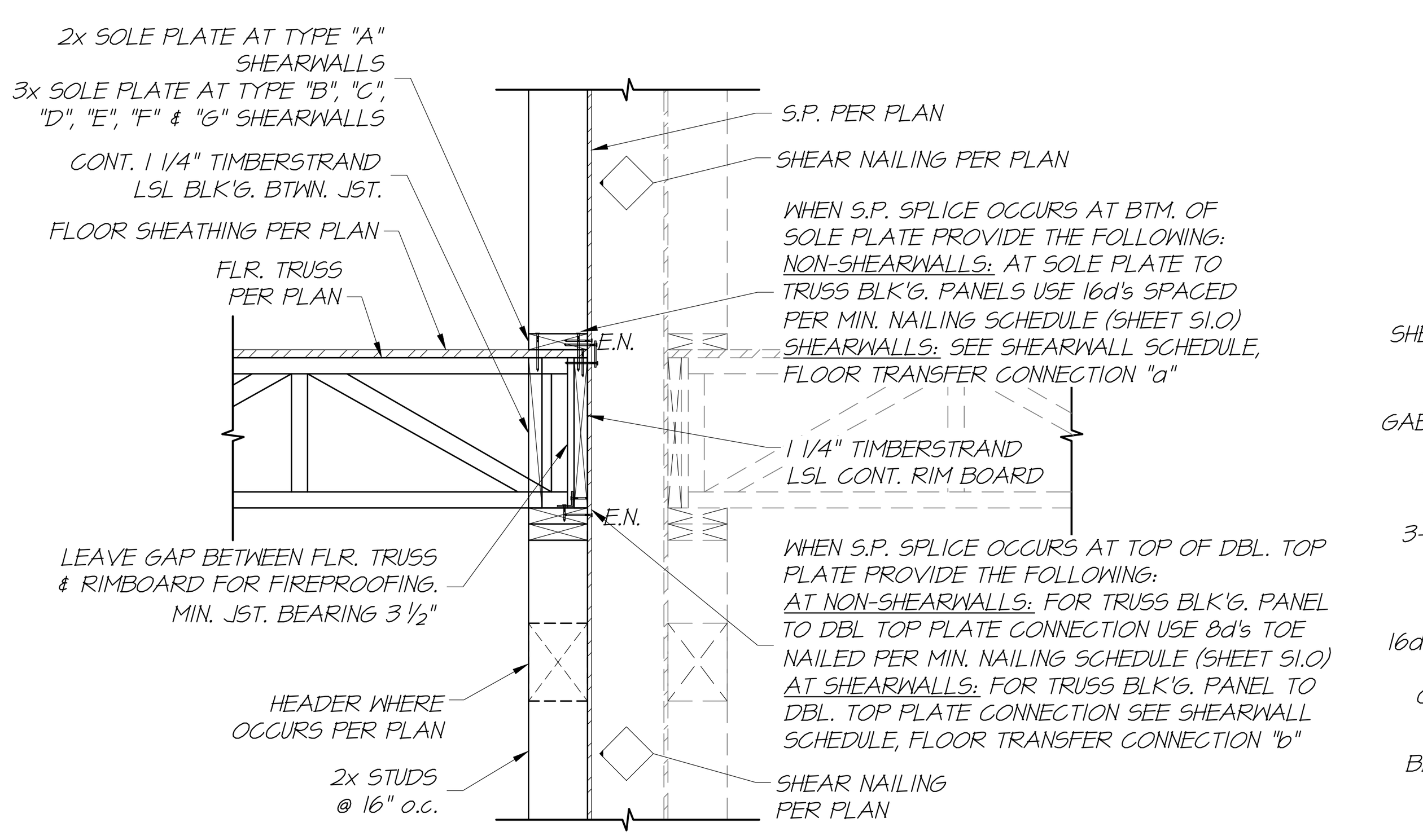
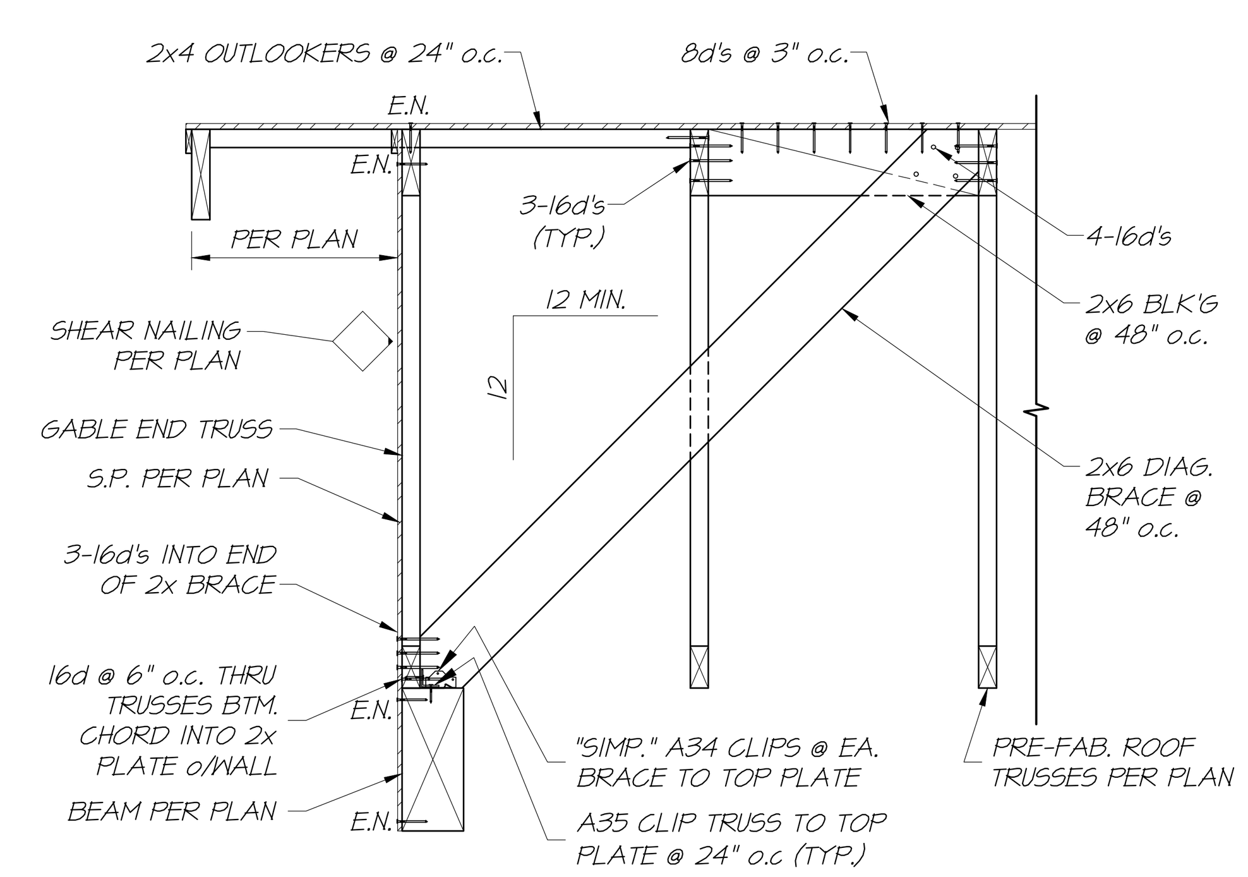
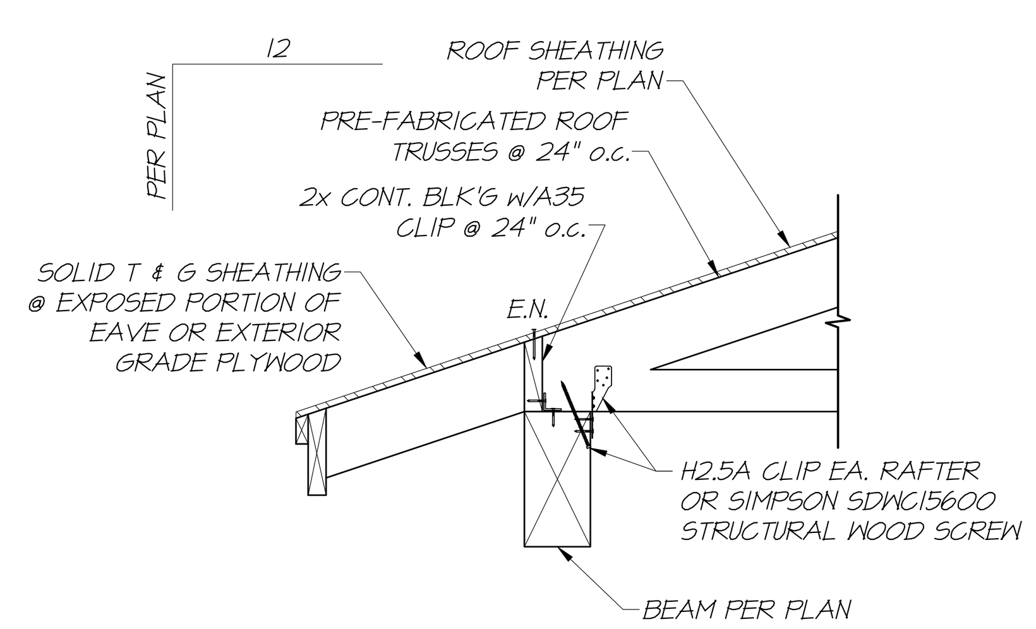
3/4" = 1'-0"



9 S3.2 DETAIL
3/4" = 1'-0"



10 S3.2 DETAIL
3/4" = 1'-0"



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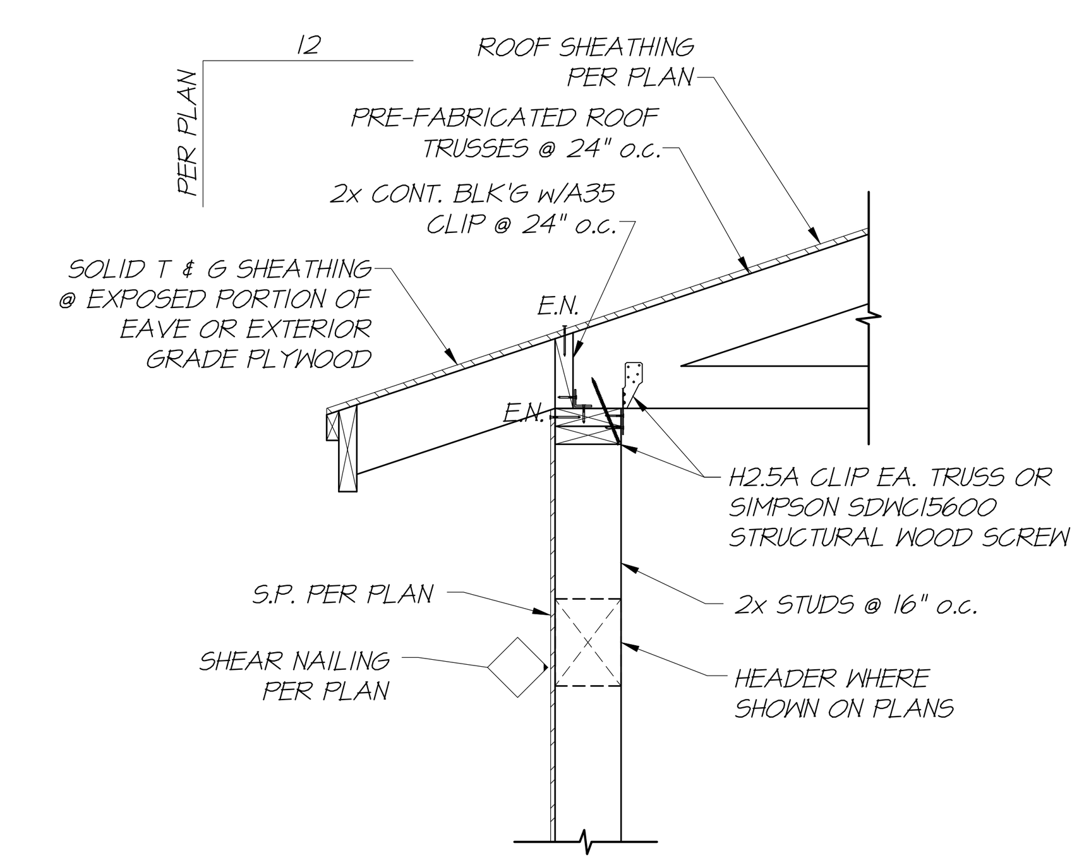

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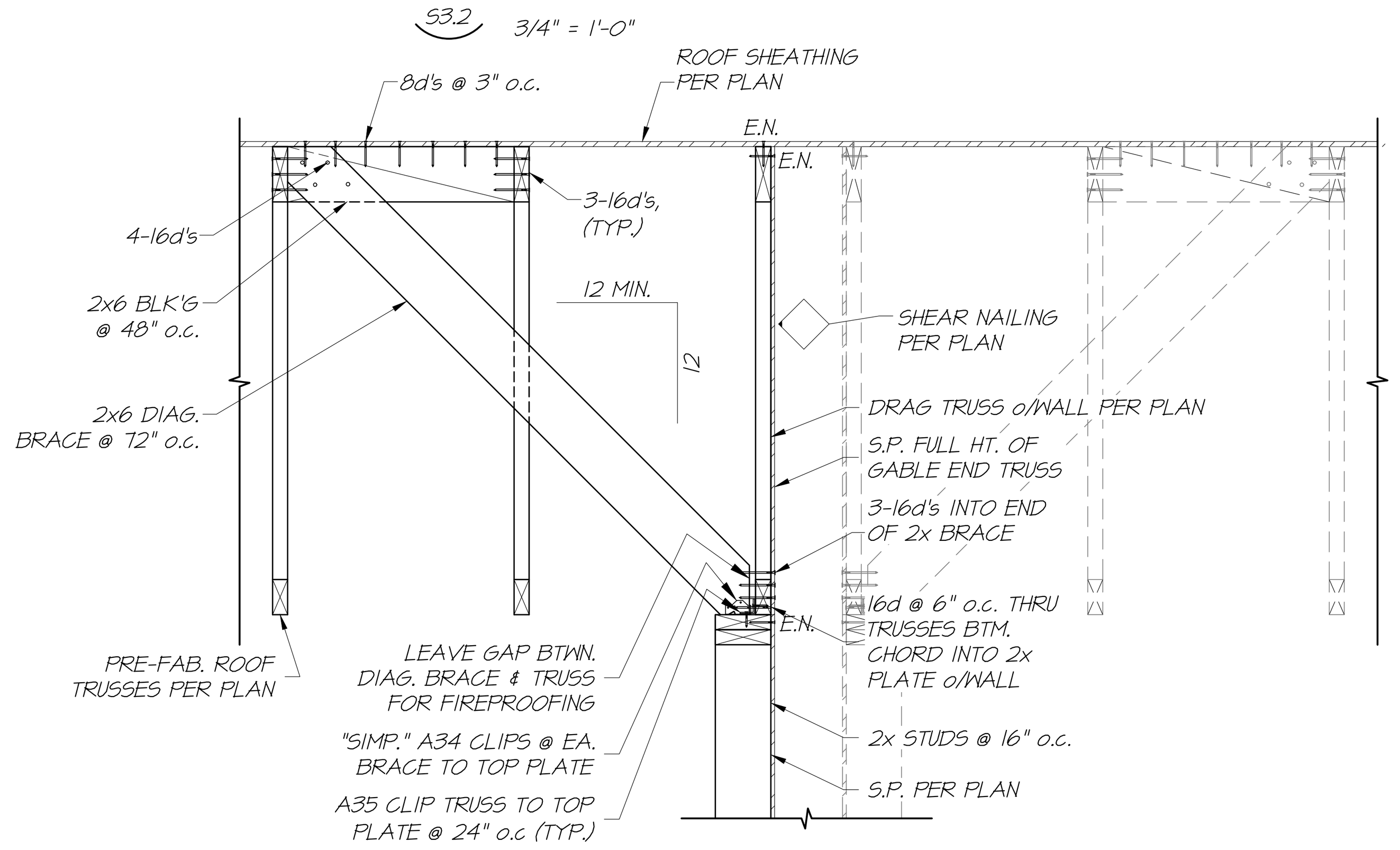

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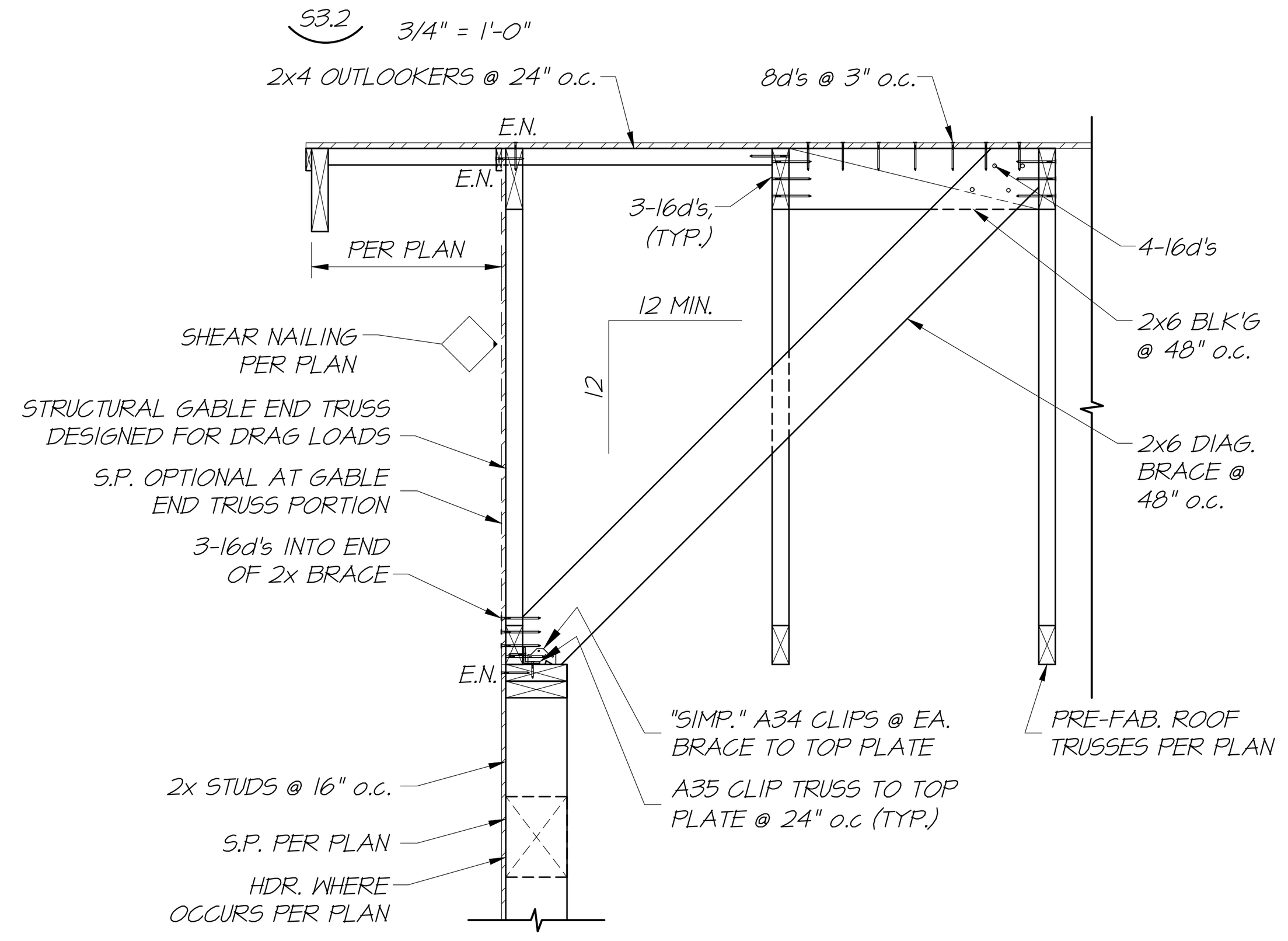

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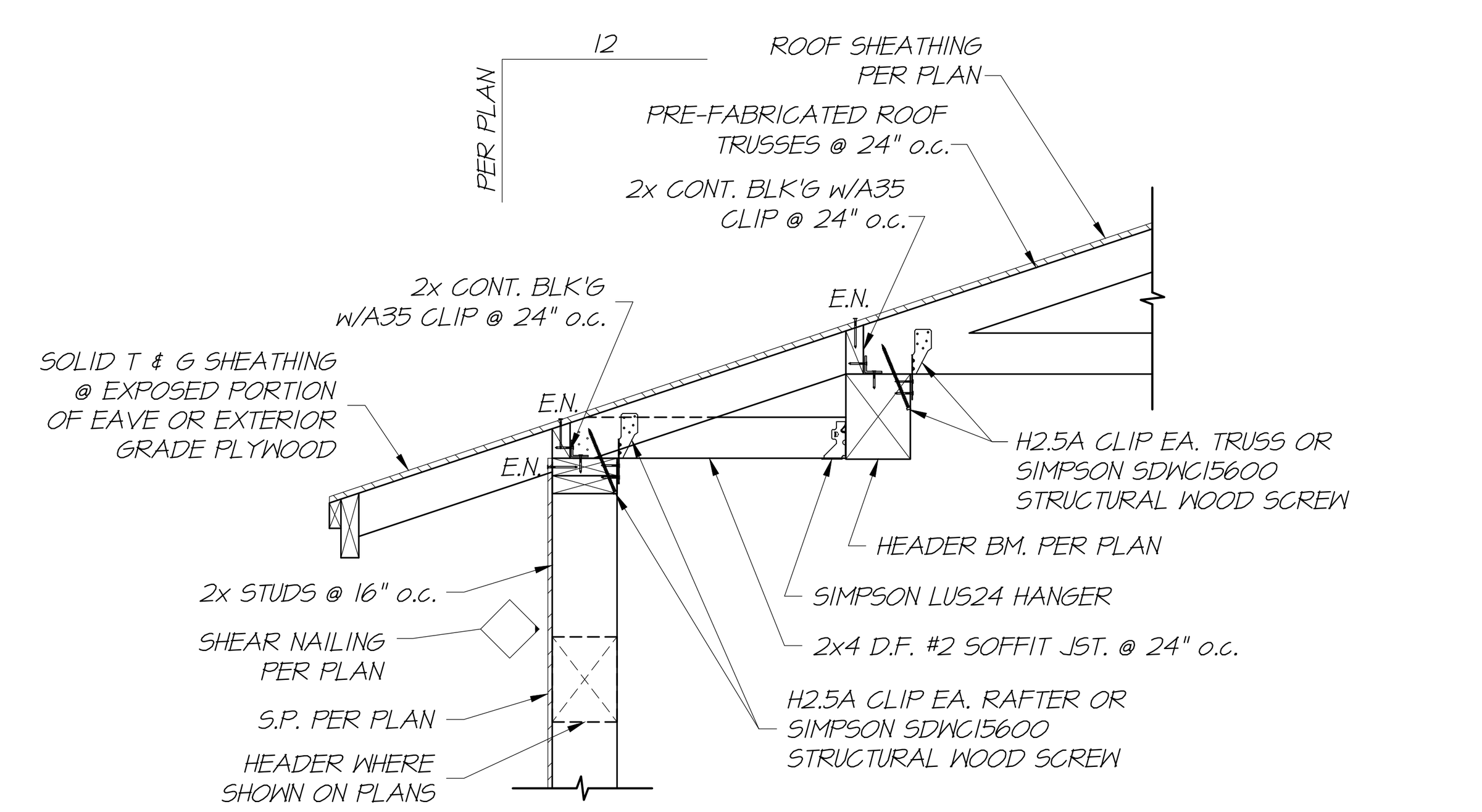

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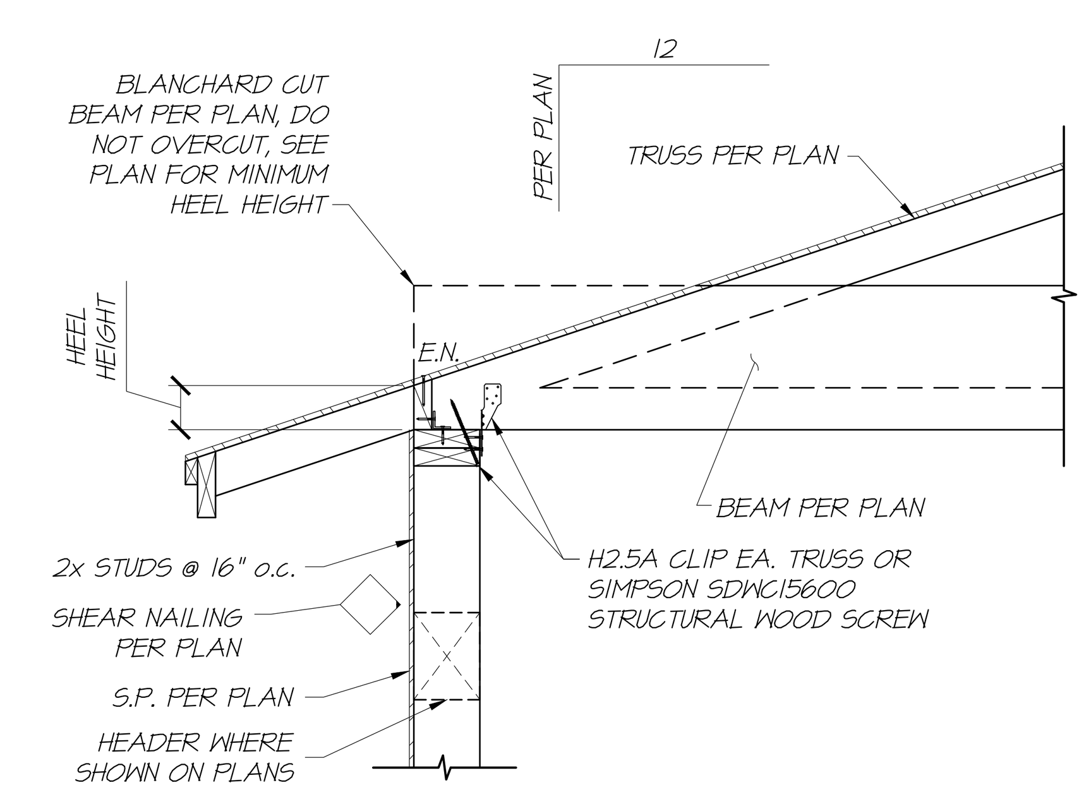

16 S3.2 DETAIL
3/4" = 1'-0"

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA 95819
916.440.6765
ellis-architects.com

CORNERSTONE STRUCTURAL CONSULTANTS

REGISTERED PROFESSIONAL ENGINEER
No. C60091
EXP. 06/30/24
STATE OF CALIFORNIA

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NORTH AVENUE HALF-PLEXES

Owner

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN #

PLAN CHECK SET

DATE:

5/31/2022

REVISIONS:

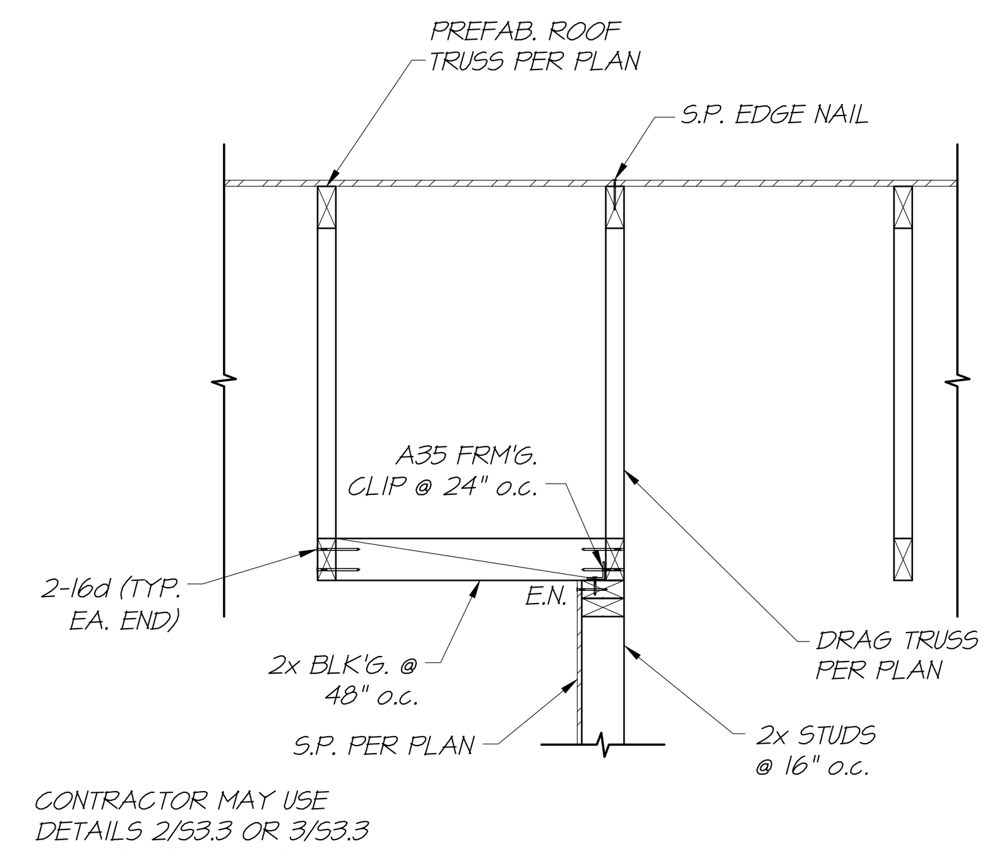
1 PCK COMMENT 2/21/23
2 PCK COMMENT 5/19/23

SHEET TITLE

DETAILS

SHEET NO.

S3.2



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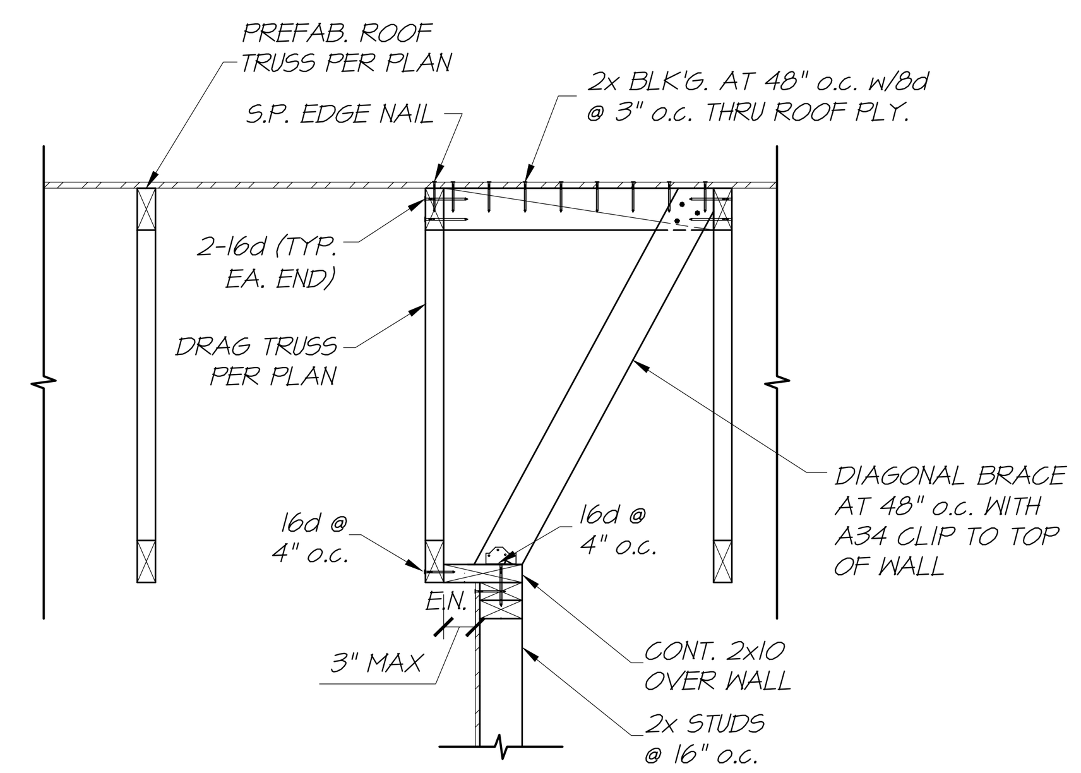

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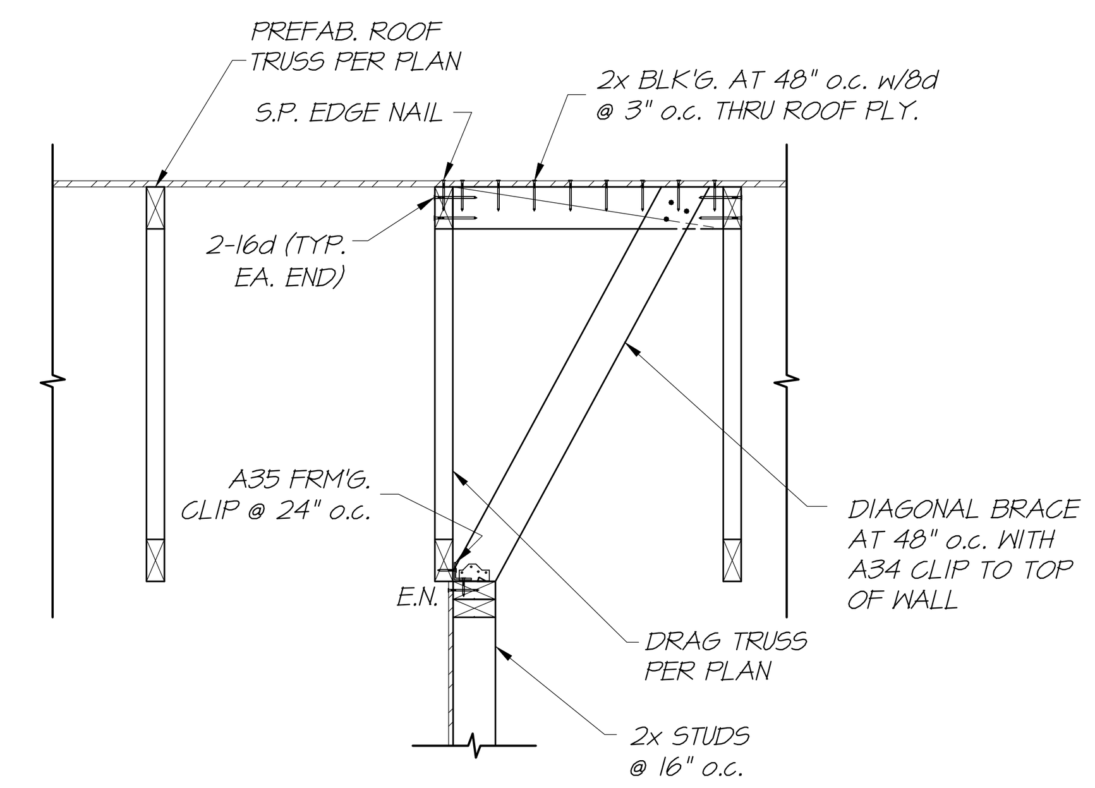

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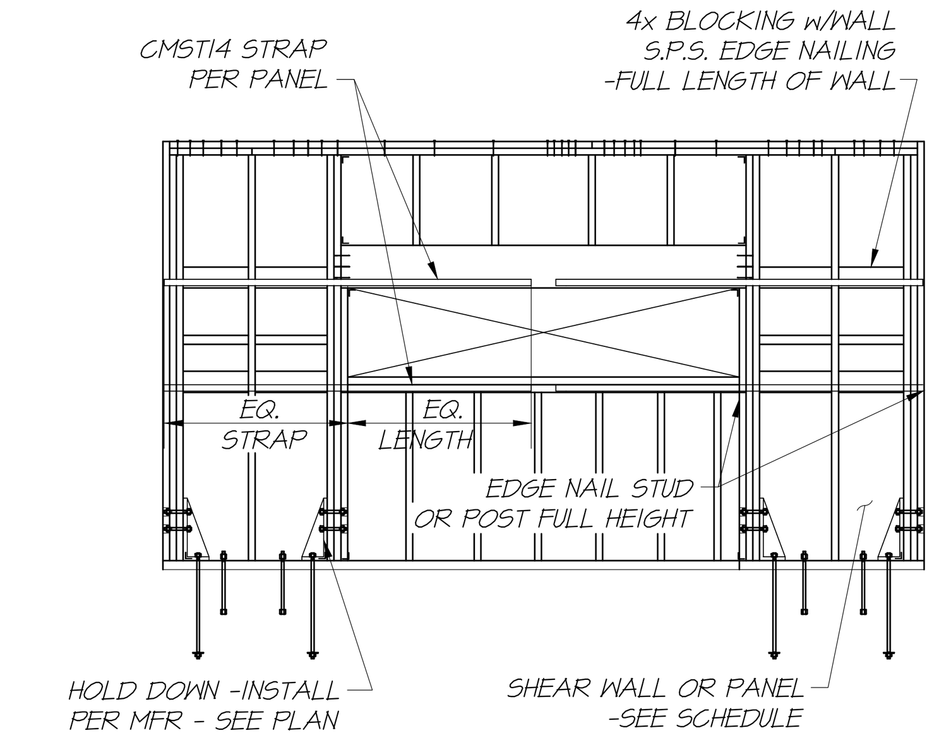

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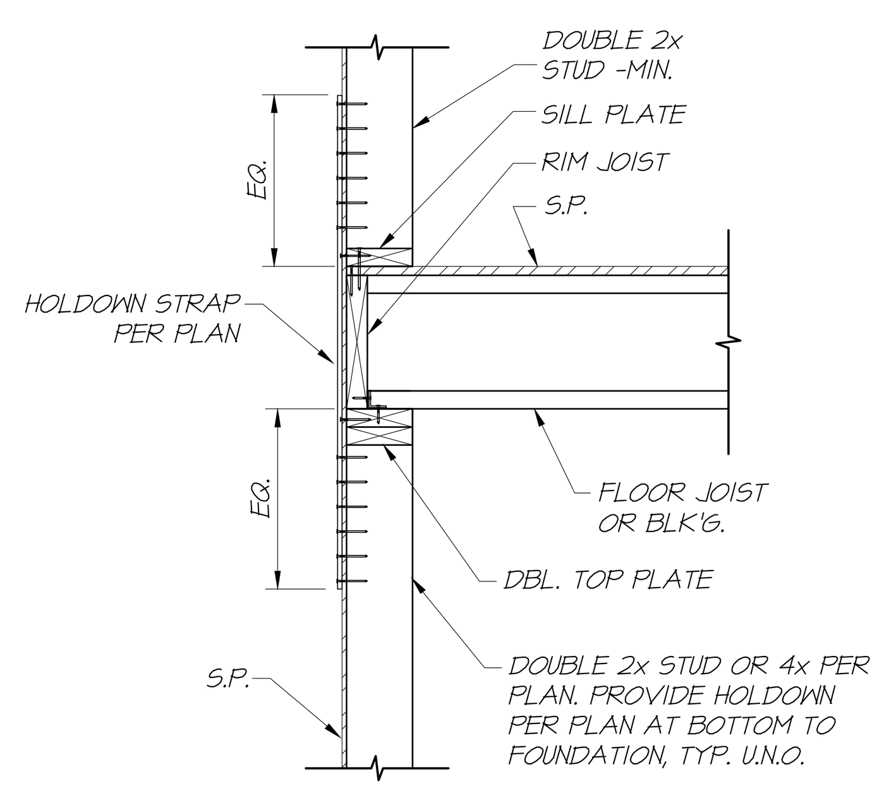

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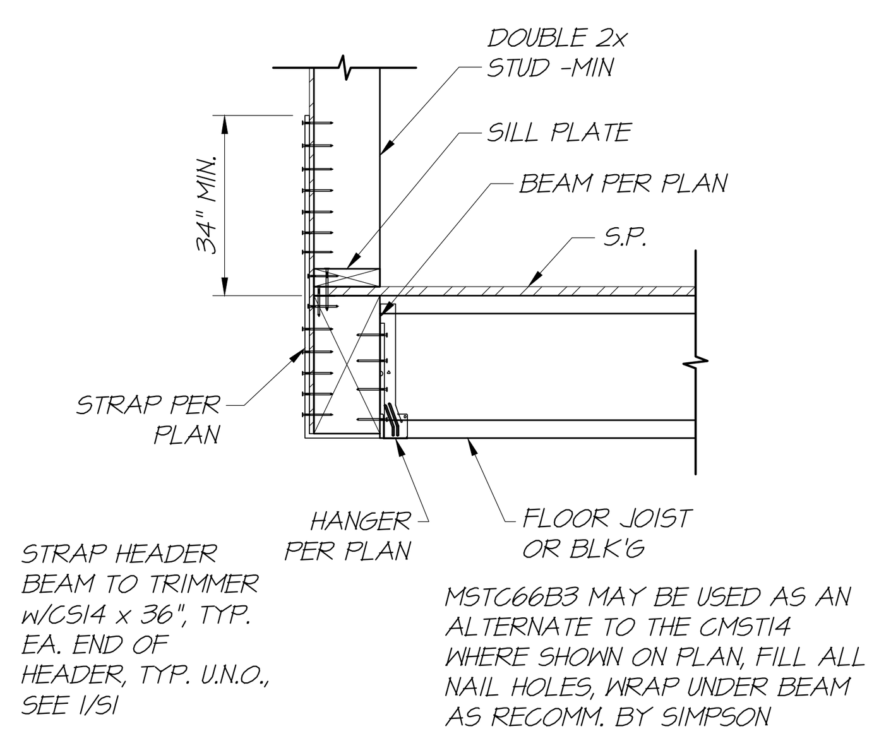

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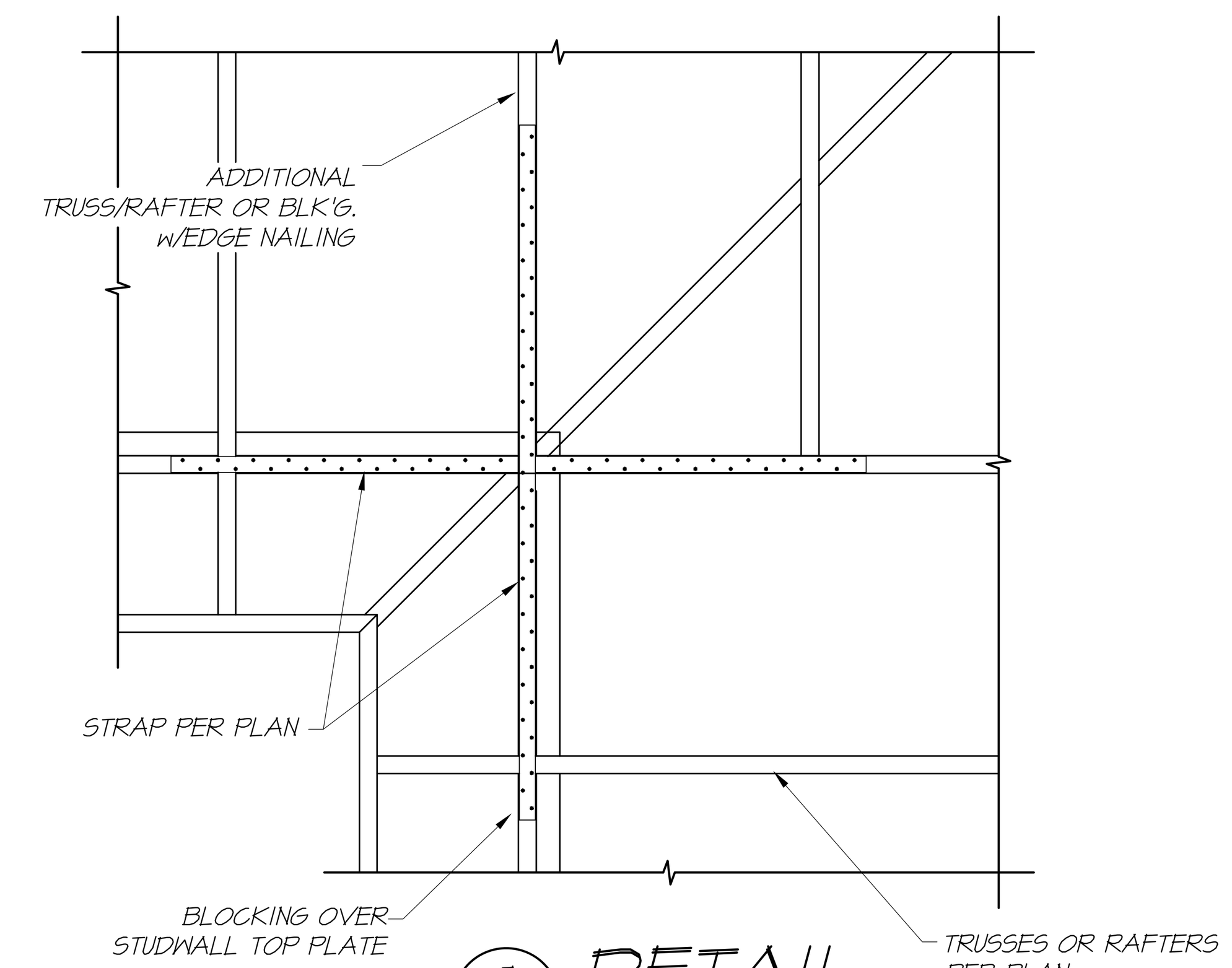

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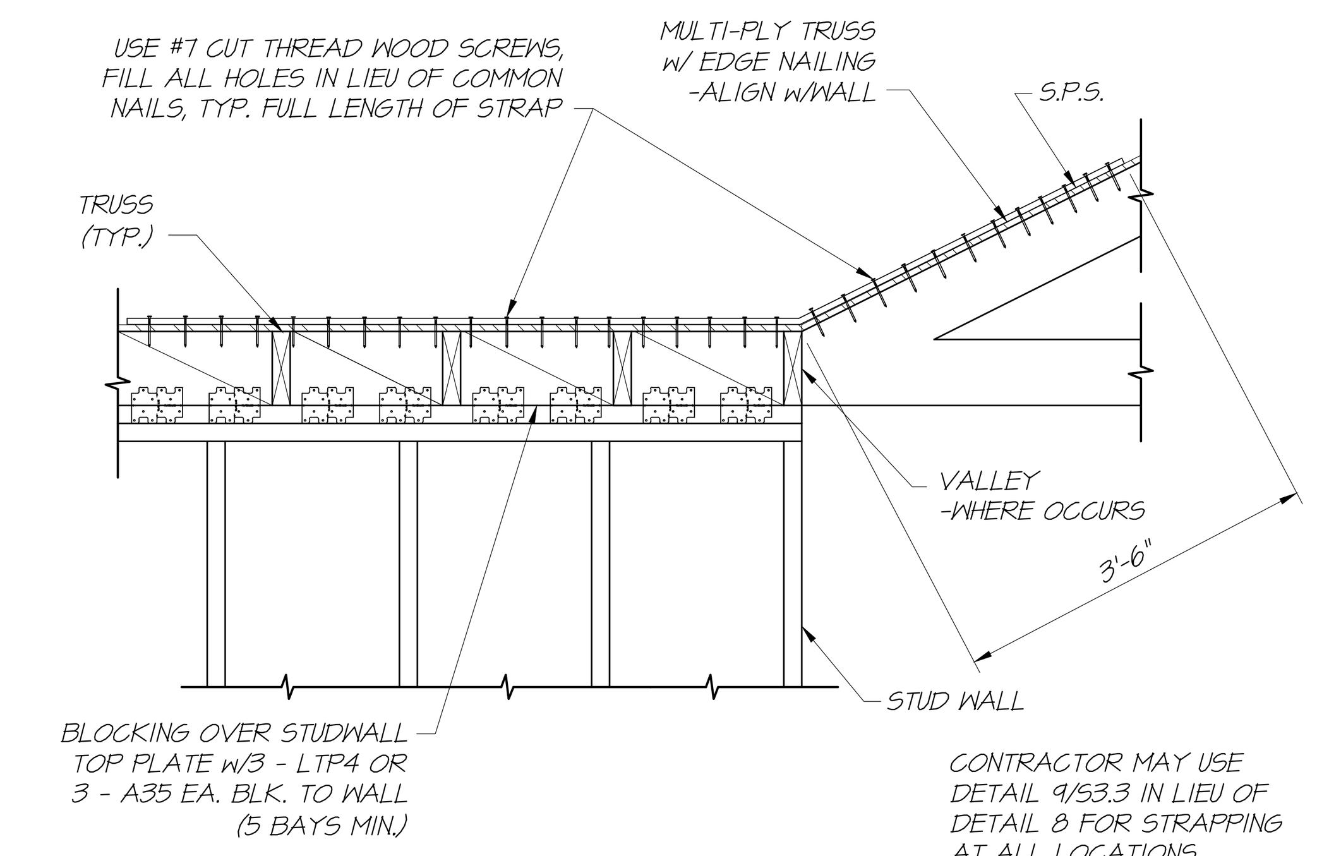

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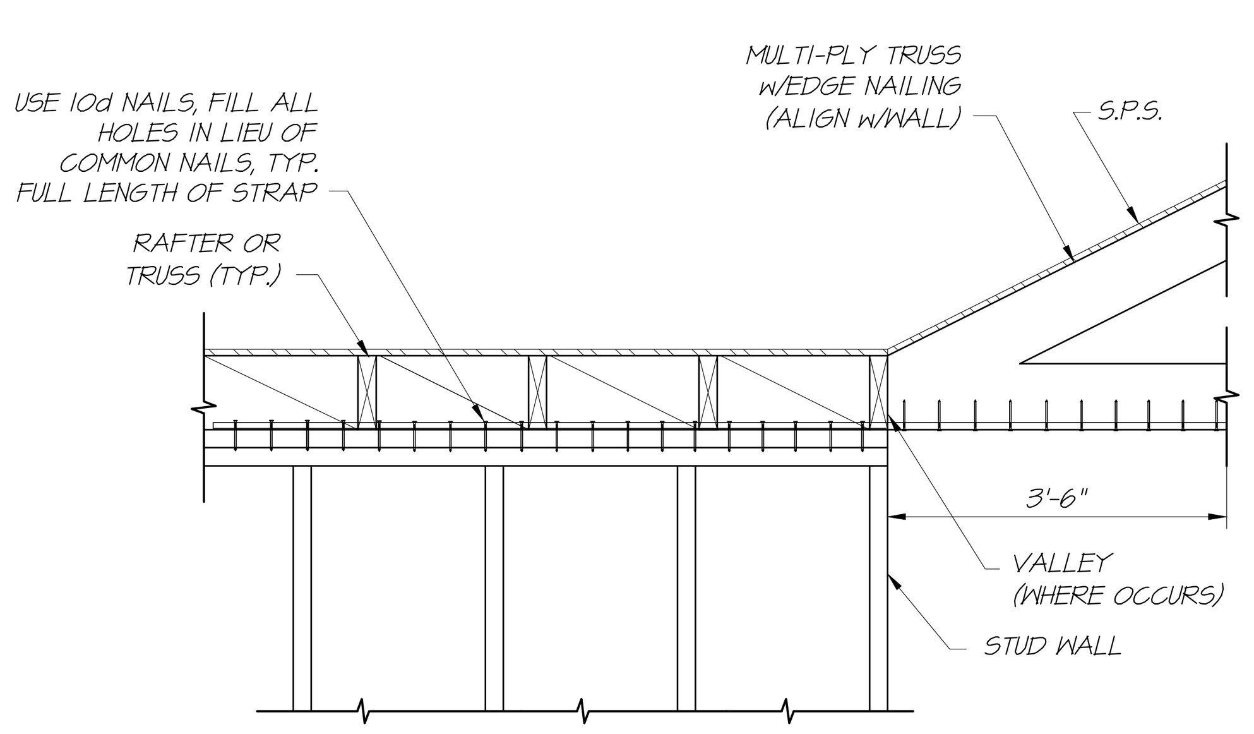

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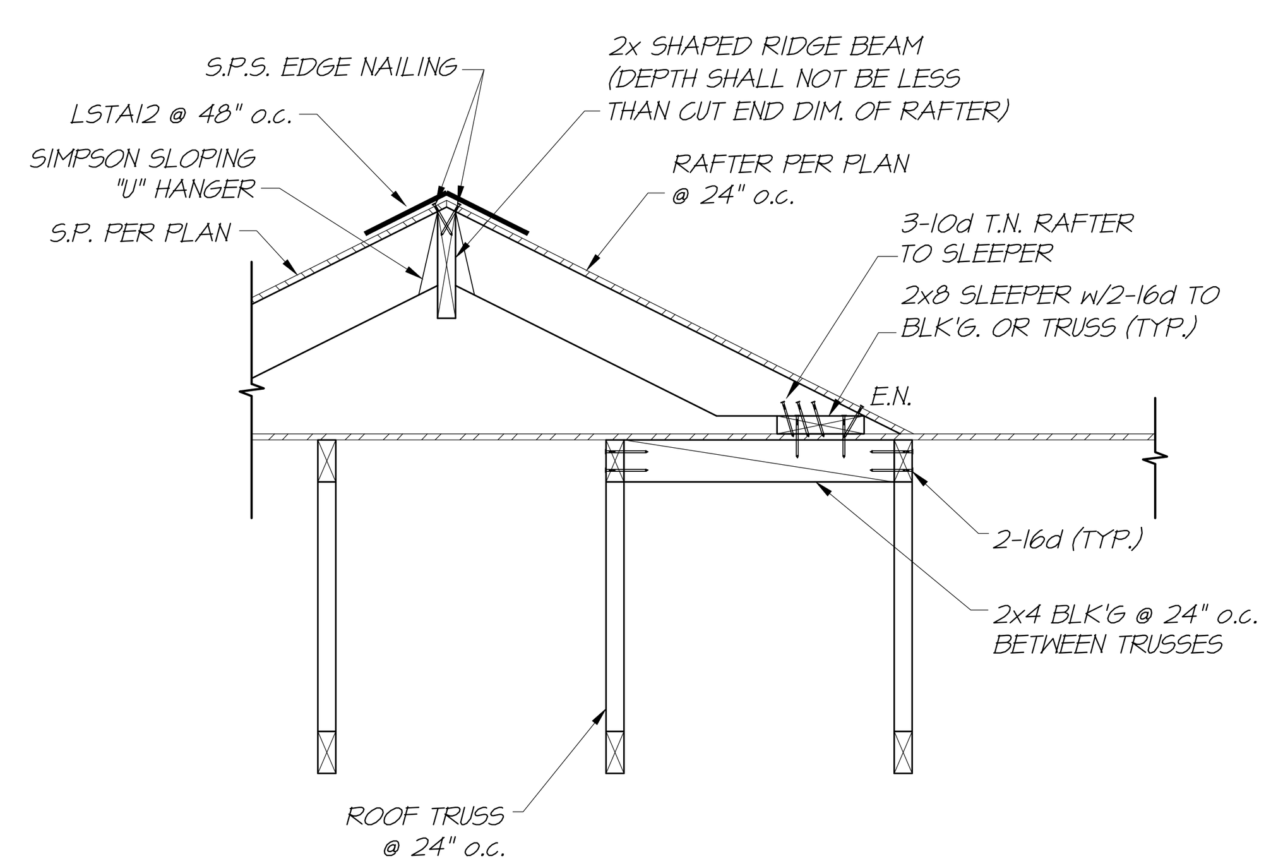

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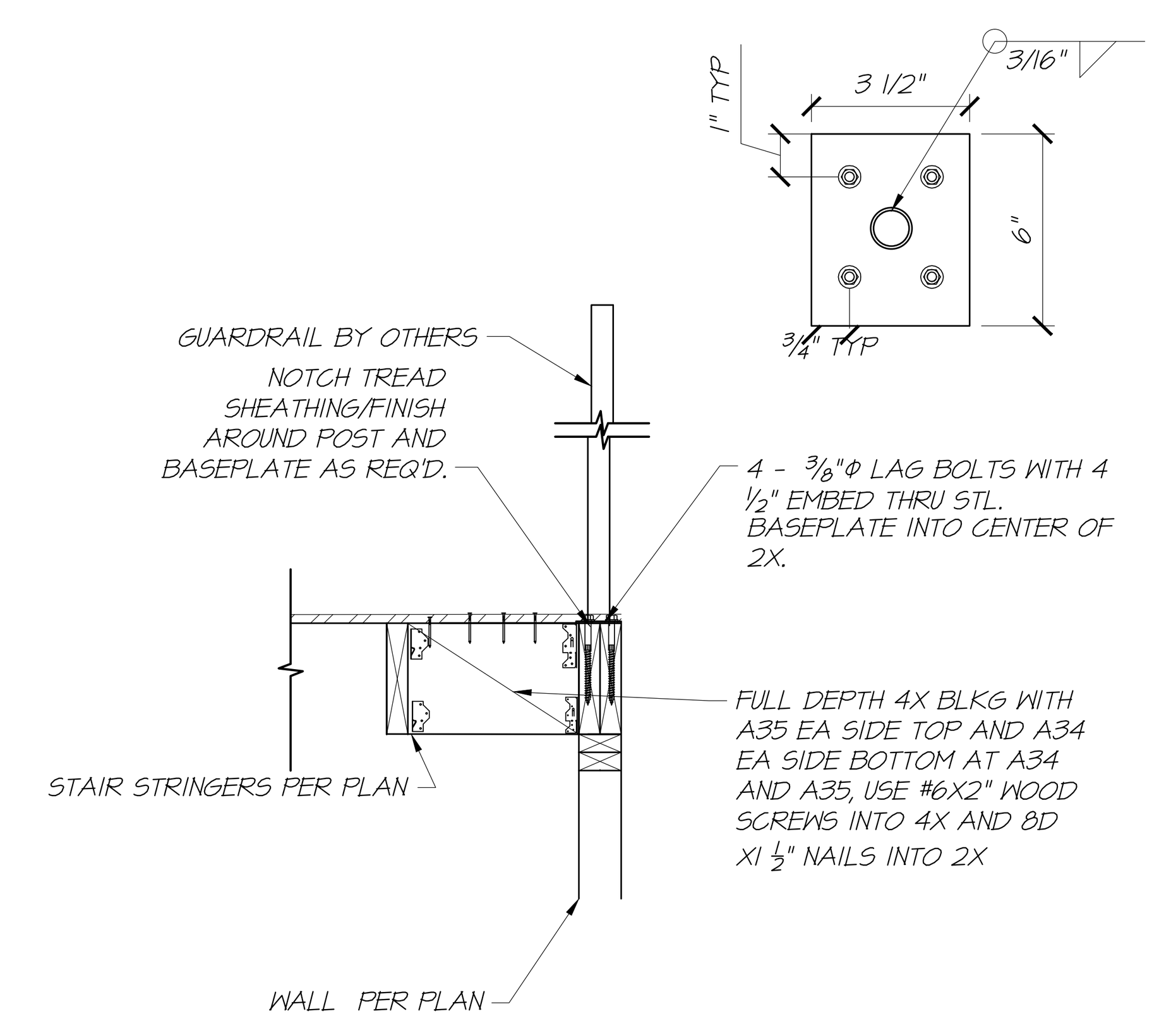

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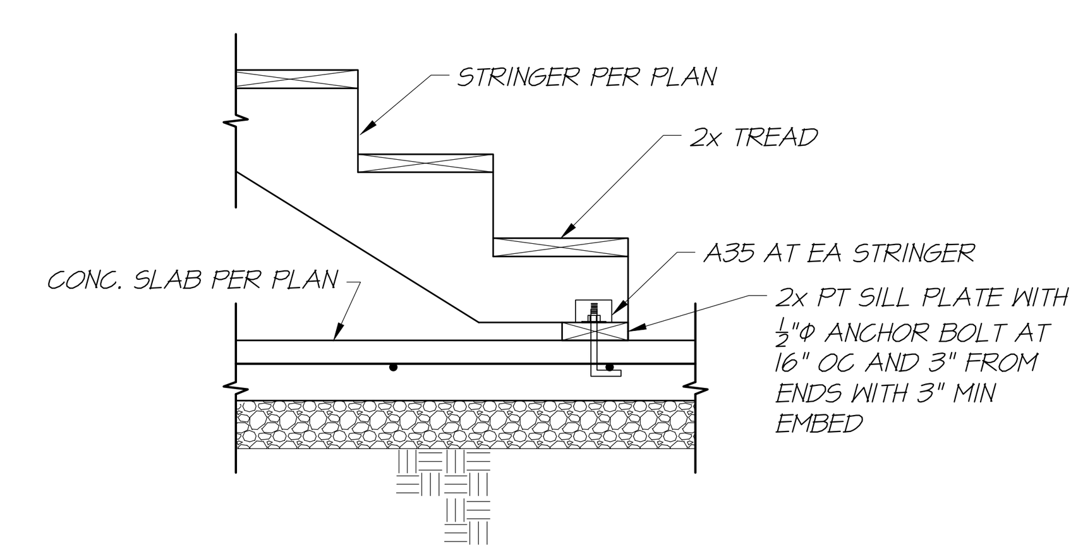

NOTIFY CORNERSTONE IF ALTERNATE METHOD OF STRINGER TO SLAB CONNECTION IS DESIRED.

12 DETAIL
S3.3 3/4" = 1'-0"

13 DETAIL
S3.3 3/4" = 1'-0"

14 DETAIL
S3.3 3/4" = 1'-0"

15 DETAIL
S3.3 3/4" = 1'-0"

16 DETAIL
S3.3 3/4" = 1'-0"

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NORTH AVENUE HALF-PLEXES
Owner
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APN #

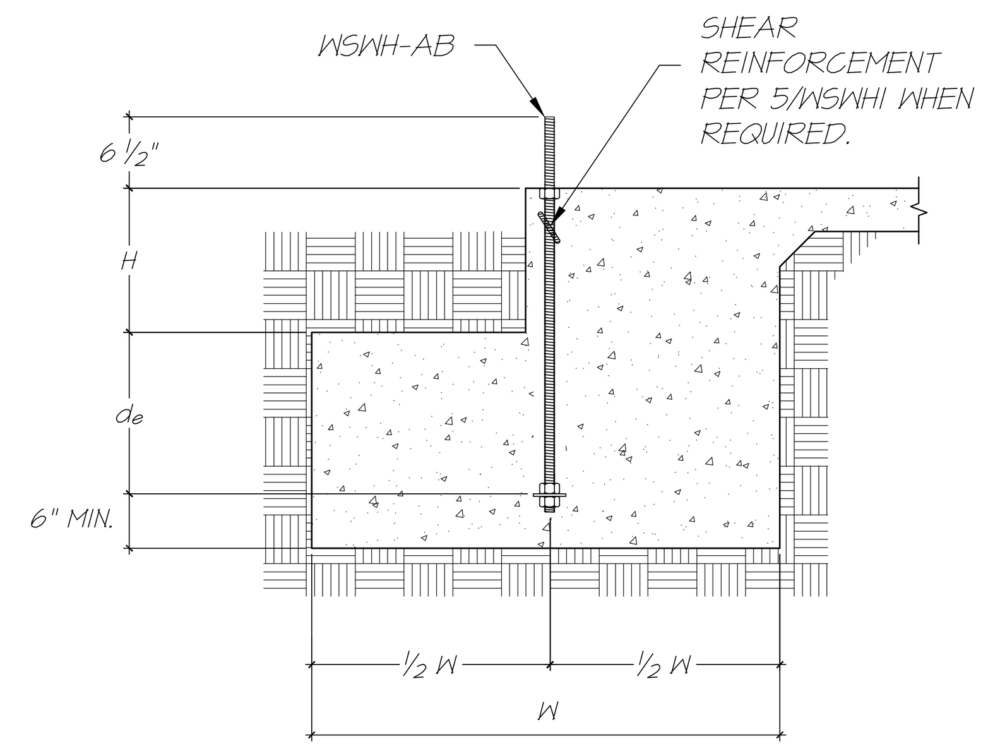
PLAN CHECK SET

DATE:
5/31/2022

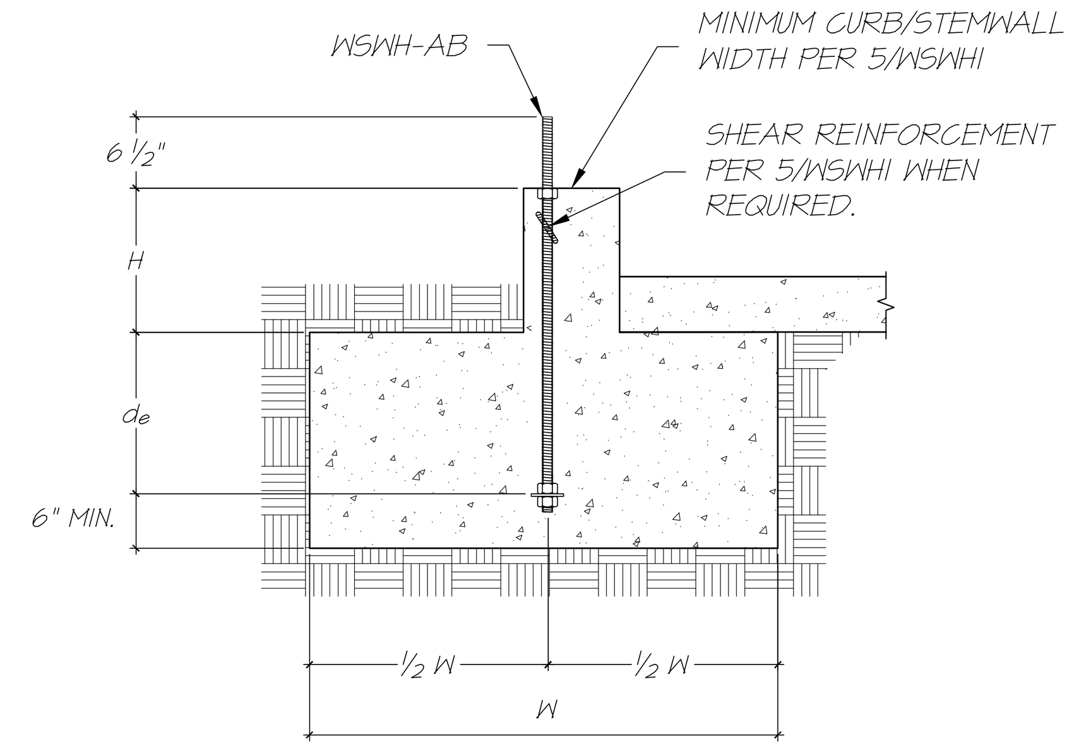
REVISIONS:
1 PCK COMMENT 2/21/23
2 PCK COMMENT 5/19/23

SHEET TITLE
DETAILS

SHEET NO.
S3.3



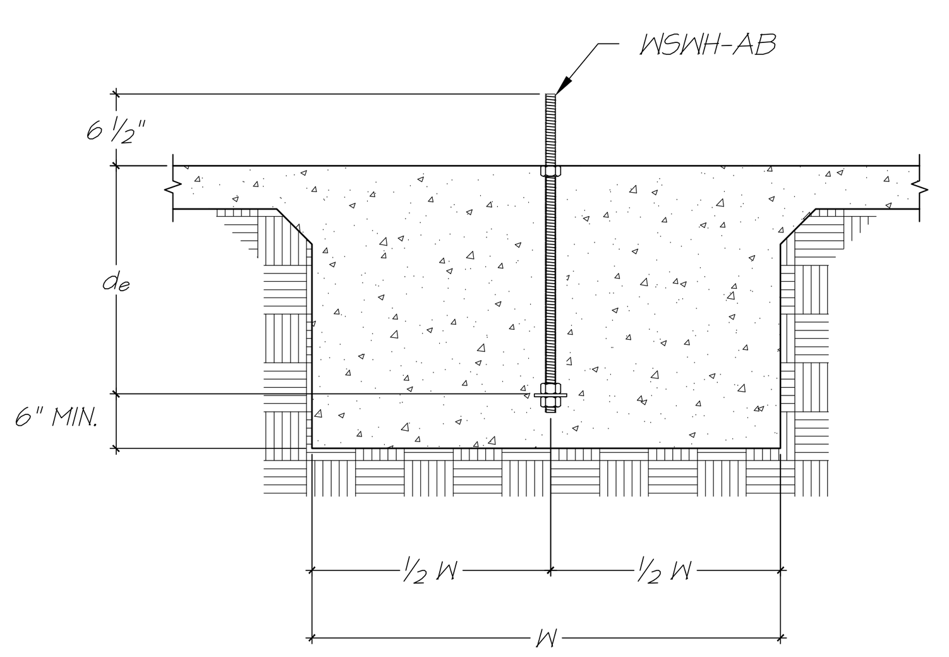
SLAB ON GRADE FOUNDATION



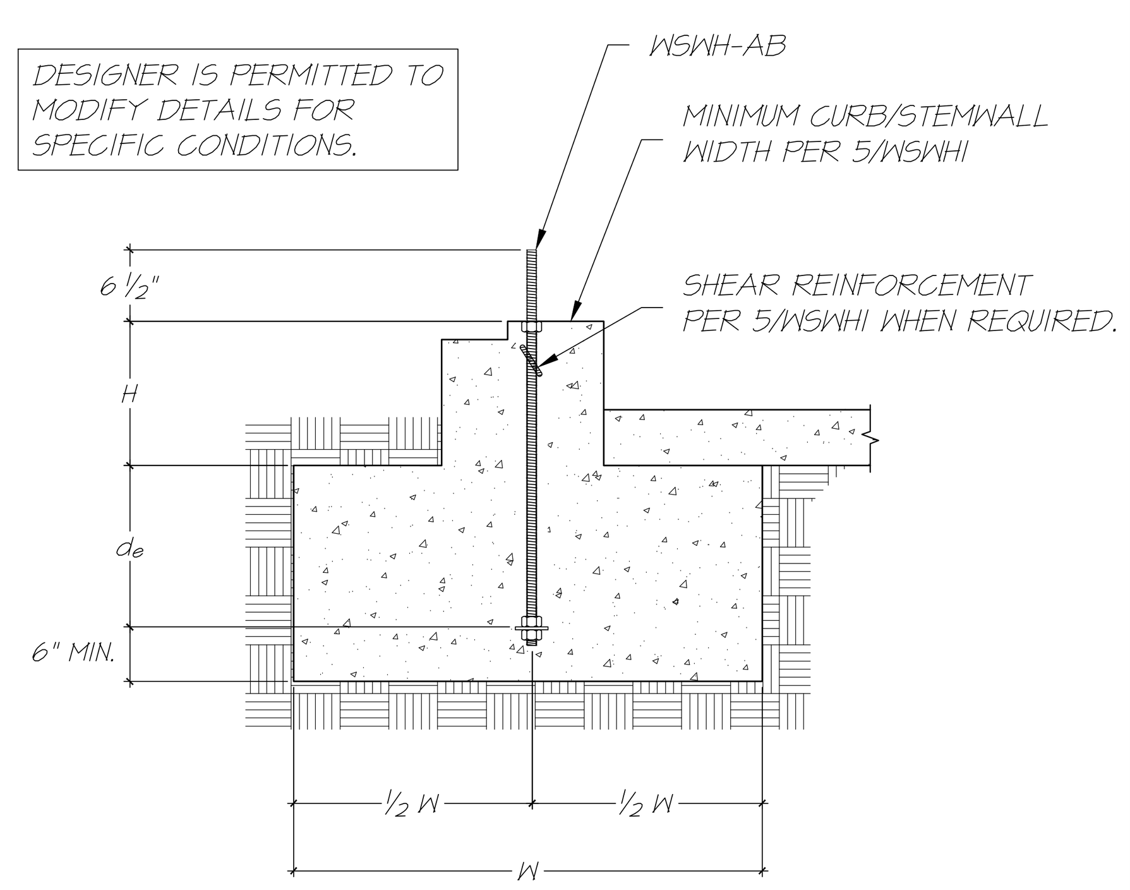
CURB OR STEMWALL FOUNDATION

NOTES :
1. SEE 2/WSWH1 FOR DIMENSIONS AND ADDITIONAL NOTES.
2. SEE 5/WSWH1 FOR SHEAR REINFORCEMENT WHEN REQUIRED.
3. MAXIMUM H = l_e-d_e. SEE 3/WSWH1 AND 4/WSWH1 FOR l_e.

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

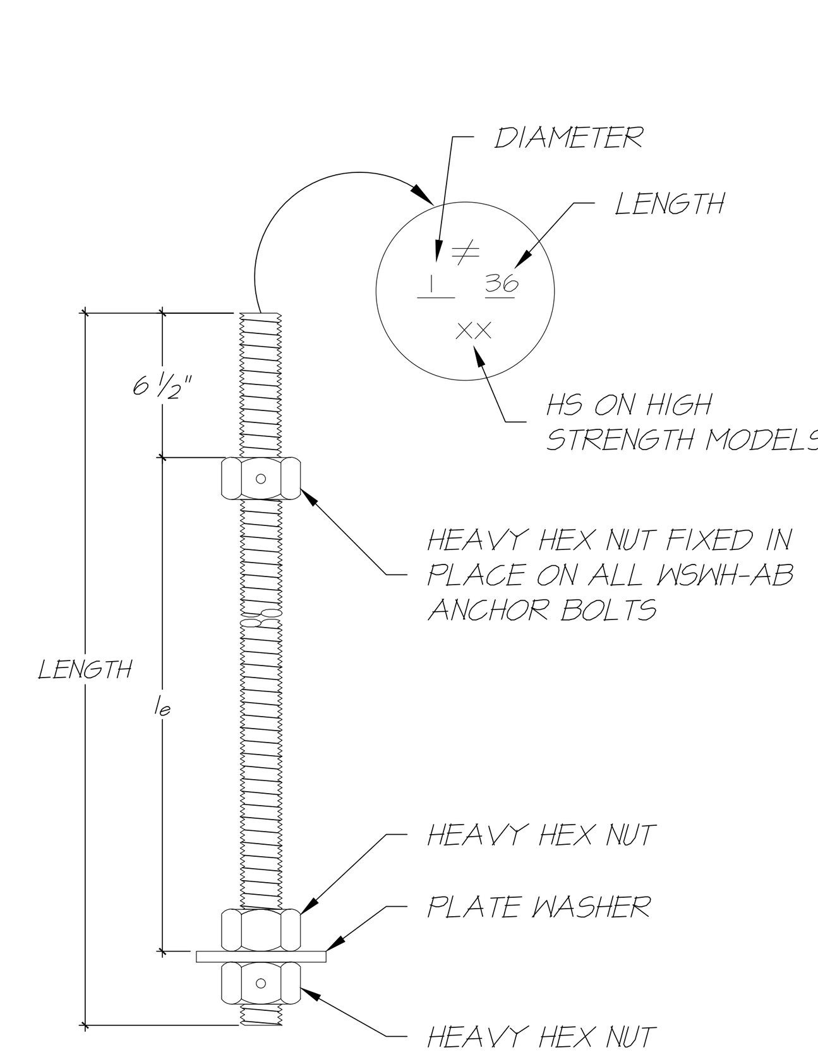


INTERIOR FOUNDATION



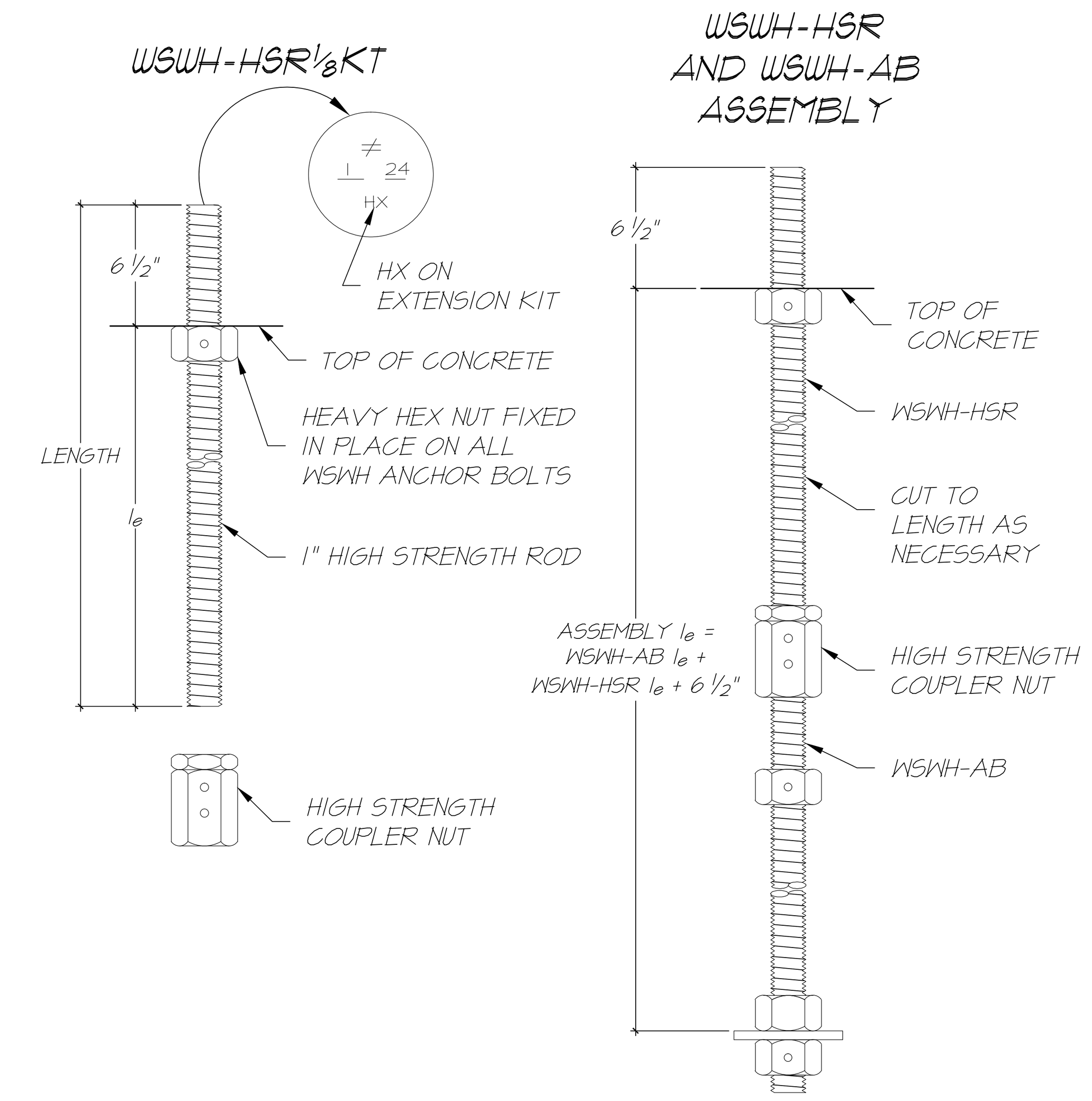
BRICK LEDGE FOUNDATION

STRONG-WALL® WSWH ANCHORAGE - TYPICAL SECTIONS | 1



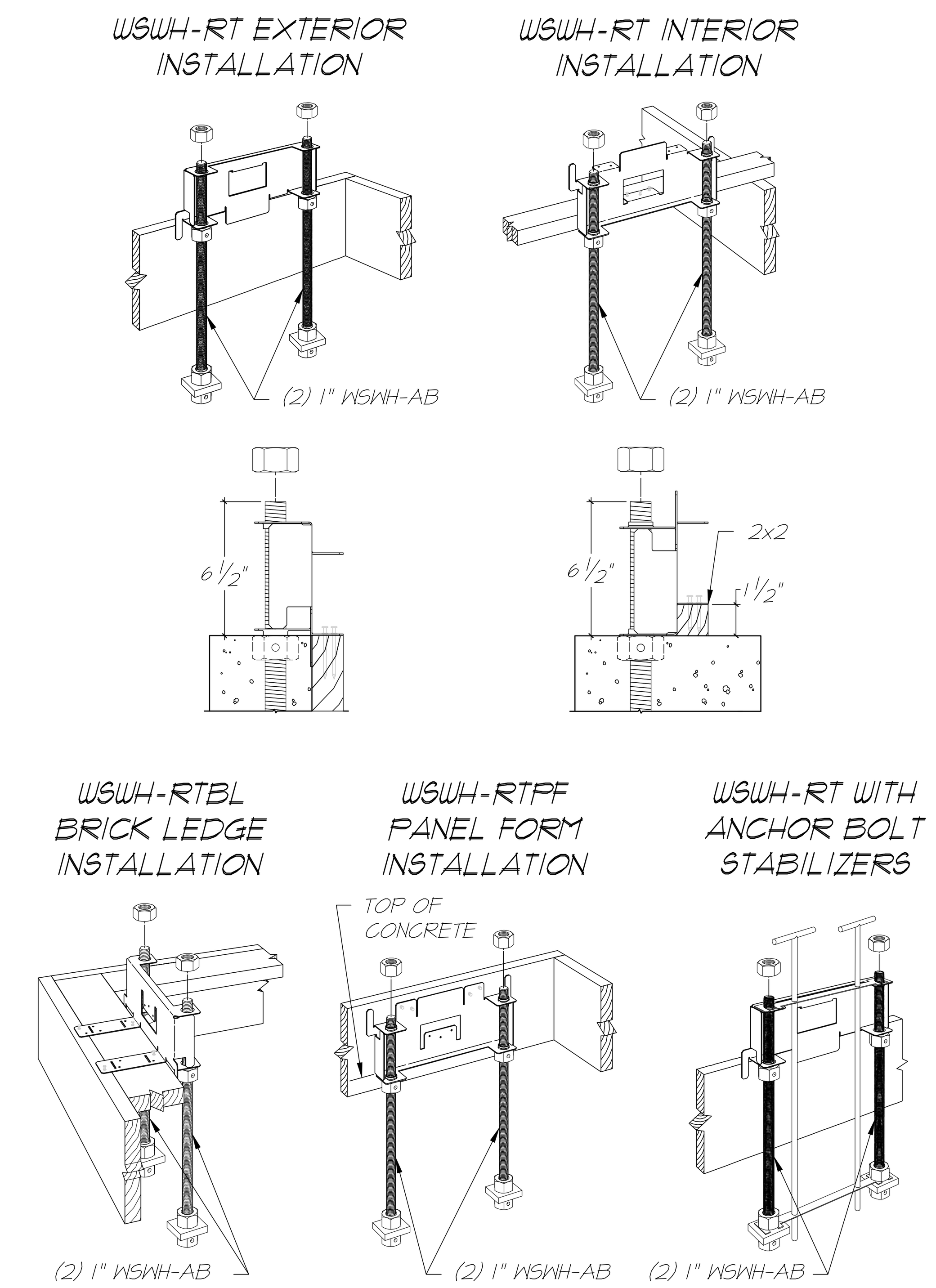
WSWH PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l_e
WSWH12, WSWH18 AND WSWH24	WSWH-AB1x24	1"	24"	15 ½"
	WSWH-AB1x24HS	1"	24"	15 ½"
	WSWH-AB1x30	1"	30"	21 ½"
	WSWH-AB1x30HS	1"	30"	21 ½"
	WSWH-AB1x36	1"	36"	27 ½"
	WSWH-AB1x36HS	1"	36"	27 ½"

WSWH ANCHOR BOLTS | 3

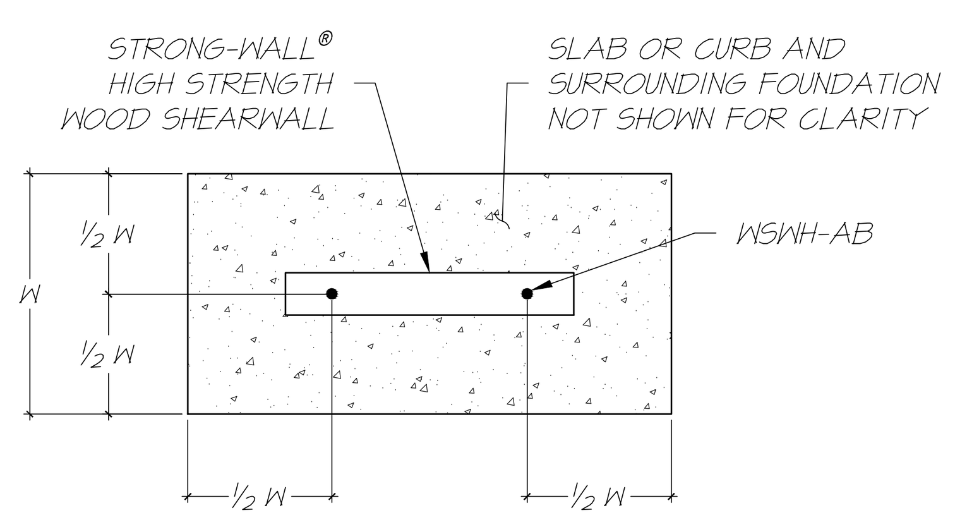


WSWH PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l_e
WSWH12, WSWH18 AND WSWH24	WSWH-HSR1x24KT	1"	24"	17 ½"
	WSWH-HSR1x36KT	1"	36"	29 ½"

WSWH ANCHOR BOLT EXTENSION | 4



WSWH ANCHOR BOLT TEMPLATES | 6



FOUNDATION PLAN VIEW

NOTES :
1. ANCHORAGE DESIGNS CONFORM TO ACI 318-11 APPENDIX D, ACI 318-14 CHAPTER 17 AND ACI 318-19 CHAPTER 17 WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF WSWH-AB ANCHOR BOLT. STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A193 GRADE B7).
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C-F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC ANCHORAGE DESIGNS CONFORM TO ACI 318-11 SECTION D.3.3.4.3, ACI 318-14 SECTION 17.2.3.4.3 AND ACI 318-19 SECTION 17.10.5.3.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C.
5. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. FOUNDATION DESIGN (SIZE AND REINFORCEMENT) BY OTHERS. THE DESIGNER MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
6. REFER TO 1/WSWH1 FOR d_e.

WSWH ANCHORAGE SOLUTIONS FOR 2500 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH-AB1 ANCHOR BOLT: ASD ALLOWABLE UPLIFT (lbs)	W (in)	d_e (in)
SEISMIC	CRACKED	STANDARD	16,000	33	11
			17,100	35	12
		HIGH STRENGTH	34,100	52	18
			36,800	55	19
	UNCRACKED	STANDARD	15,700	28	10
			17,100	30	10
		HIGH STRENGTH	33,500	45	15
			36,800	48	16
WIND	CRACKED	STANDARD	6,200	16	6
			11,400	24	8
			17,100	32	11
		HIGH STRENGTH	21,100	36	12
			27,300	42	14
			34,100	48	16
			36,800	51	17
	UNCRACKED	STANDARD	6,400	14	6
			12,500	22	8
			17,100	28	10
		HIGH STRENGTH	22,900	33	11
			26,400	36	12
			34,200	42	14
			36,800	44	15

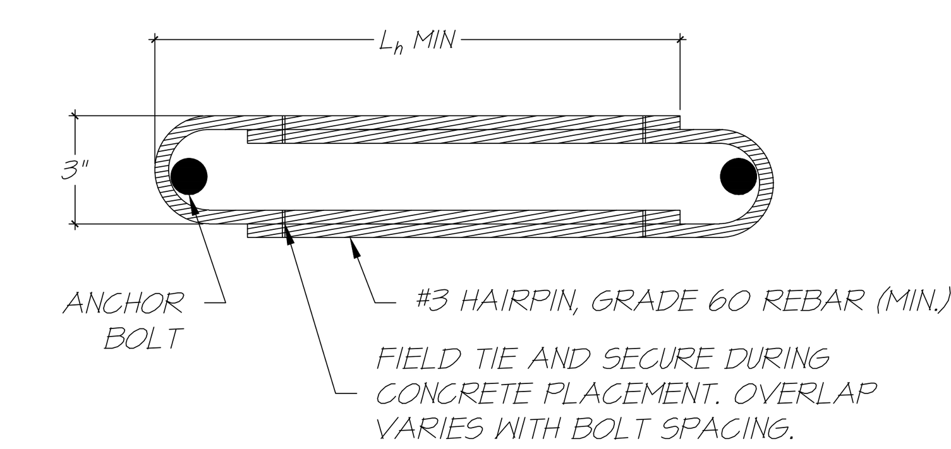
WSWH ANCHORAGE SOLUTIONS FOR 3000 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH-AB1 ANCHOR BOLT: ASD ALLOWABLE UPLIFT (lbs)	W (in)	d_e (in)
SEISMIC	CRACKED	STANDARD	16,000	31	11
			17,100	33	11
		HIGH STRENGTH	33,900	49	17
			36,800	52	18
	UNCRACKED	STANDARD	16,300	27	9
			17,100	28	10
		HIGH STRENGTH	34,000	43	15
			36,800	46	16
WIND	CRACKED	STANDARD	5,600	14	6
			10,200	21	7
			17,100	30	10
		HIGH STRENGTH	20,000	33	11
			26,500	39	13
			33,600	45	15
			36,800	48	16
	UNCRACKED	STANDARD	6,200	13	6
			12,800	21	7
			17,100	26	9
		HIGH STRENGTH	21,800	30	10
			28,900	36	12
			33,100	39	13
			36,800	42	14

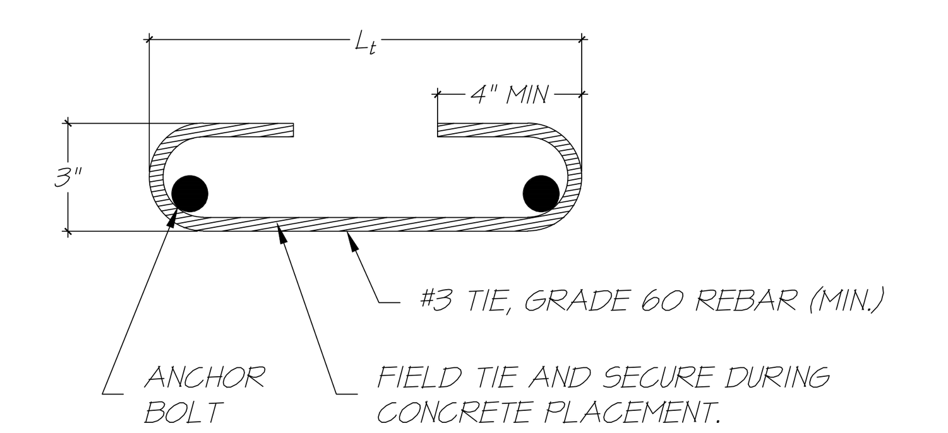
WSWH ANCHORAGE SOLUTIONS FOR 4500 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH-AB1 ANCHOR BOLT: ASD ALLOWABLE UPLIFT (lbs)	W (in)	d_e (in)
SEISMIC	CRACKED	STANDARD	16,000	27	9
			17,100	29	10
		HIGH STRENGTH	34,700	44	15
			36,800	46	16
	UNCRACKED	STANDARD	15,700	23	8
			17,100	25	9
		HIGH STRENGTH	33,900	38	13
			36,800	40	14
WIND	CRACKED	STANDARD	6,800	14	6
			11,600	20	7
			17,100	26	9
		HIGH STRENGTH	21,400	30	10
			28,400	36	12
			32,400	39	13
			36,800	43	15
	UNCRACKED	STANDARD	6,800	12	6
			12,400	18	6
			17,100	23	8
		HIGH STRENGTH	22,800	27	9
			26,700	30	10
			30,700	33	11
			36,800	37	13

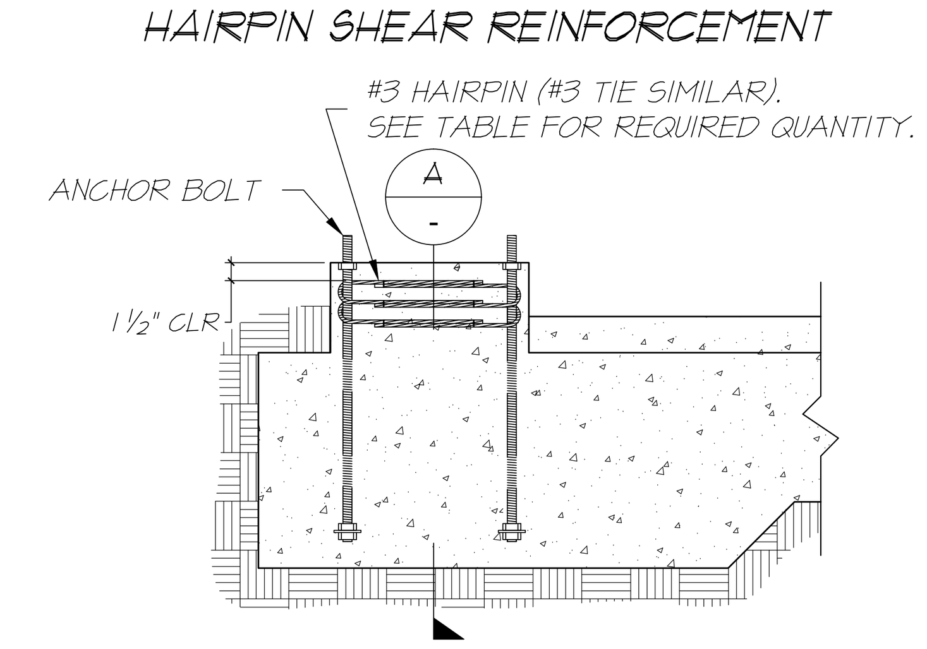
STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL TENSION ANCHORAGE SCHEDULE 2,500, 3,000 AND 4,500 PSI | 2



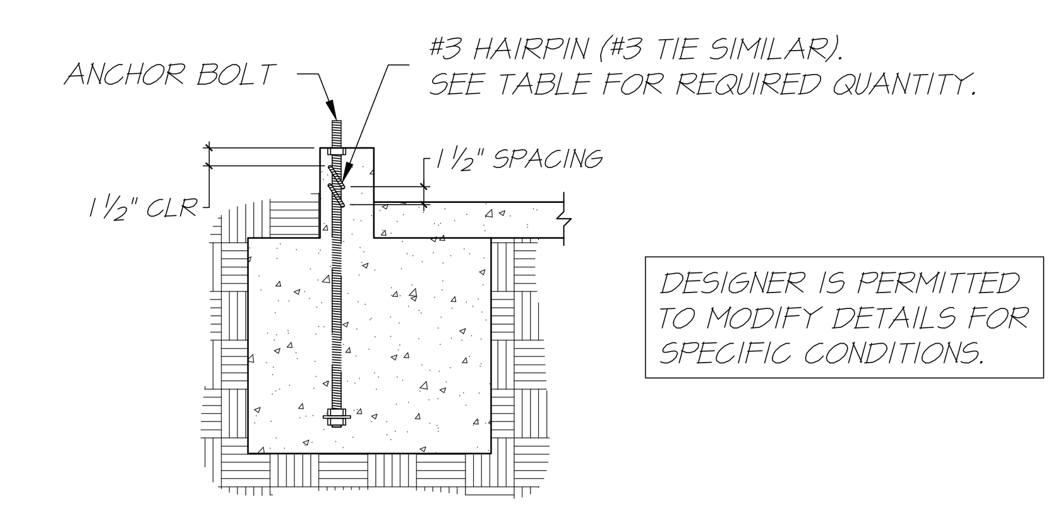
HAIRPIN SHEAR REINFORCEMENT



TIE SHEAR REINFORCEMENT



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



SECTION A

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL SHEAR ANCHORAGE

MODEL	SEISMIC[3]: L_t OR L_h (in.)	SEISMIC[3]: SHEAR REINFORCEMENT	SEISMIC[3]: MIN. CURB/ STEMWALL WIDTH (in.)	WIND[4]: SHEAR REINFORCEMENT	WIND[4]: MIN. CURB/ STEMWALL WIDTH (in.)	WIND[4]: ASD ALLOWABLE SHEAR LOAD, V (lb.): UNCRACKED	WIND[4]: ASD ALLOWABLE SHEAR LOAD, V (lb.): CRACKED
WSWH12	10 ¼	(1) #3 TIE	6	SEE NOTE 7	6	1,080	770
WSWH18	15	(2) #3 HAIRPINS [5,6]	6	(1) #3 HAIRPIN	6	HAIRPIN REINF. ACHIEVES MAX. ALLOW SHEAR LOAD OF THE WSWH	
WSWH24	19	(2) #3 HAIRPINS [5]	6	(2) #3 HAIRPINS[5]	6		

NOTES :
1. SHEAR ANCHORAGE DESIGNS CONFORM TO ACI 318-19, ACI 318-11 AND ACI 318-14 AND ASSUME MINIMUM 2,500 PSI CONCRETE.
2. SHEAR REINFORCEMENT IS NOT REQUIRED FOR INTERIOR FOUNDATION APPLICATIONS (PANEL INSTALLED AWAY FROM EDGE OF CONCRETE), OR BRACED WALL PANEL APPLICATIONS.
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC SHEAR REINFORCEMENT DESIGNS CONFORM TO ACI 318-19, SECTION 17.10.6.3, ACI 318-14, SECTION 17.2.3.5.3
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B.
5. ADDITIONAL TIES MAY BE REQUIRED AT GARAGE CURB OR STEMWALL INSTALLATIONS BELOW ANCHOR REINFORCEMENT PER DESIGNER.
6. USE (1) #3 HAIRPIN FOR WSWH18 WHEN STANDARD STRENGTH ANCHOR IS USED.
7. USE (1) #3 TIE FOR WSWH12 WHEN PANEL DESIGN SHEAR FORCE EXCEEDS TABULATED ANCHORAGE ALLOWABLE SHEAR LOAD.
8. #4 GRADE 40 SHEAR REINFORCEMENT MAY BE SUBSTITUTED FOR WSWH SHEAR ANCHORAGE SOLUTIONS.
9. CONCRETE EDGE DISTANCE FOR ANCHORS MUST COMPLY WITH ACI 318-19 SECTION 17.9.2, ACI 318-14 SECTION 17.7.2 AND ACI 318-11 SECTION D.8.2.
10. THE DESIGNER MAY SPECIFY ALTERNATE SHEAR ANCHORAGE.

STRONG-WALL® WSWH SHEAR ANCHORAGE SCHEDULE AND DETAILS | 5

NO.	DATE	REVISIONS
0	02-26-2021	FIRST RELEASE - 2018 IBC
1	03-16-2021	2021 IBC REVISIONS

SIMPSON Strong-Tie Co. Inc.
5956 W. Las Positas Blvd.
Pleasanton, CA 94588
Tel: (800) 999-5099
Website: www.strongtie.com

SIMPSON Strong-Tie® THERE IS NO EQUAL

STRONG-WALL® WSWH
ANCHORAGE DETAILS
ENGINEERED DESIGNS

SIMPSON Strong-Tie® THERE IS NO EQUAL

NAME
DATE 03-16-2021
SCALE N.T.S.
CHECKED
SHEET WSWH1
OF SHEETS
JOB NO.

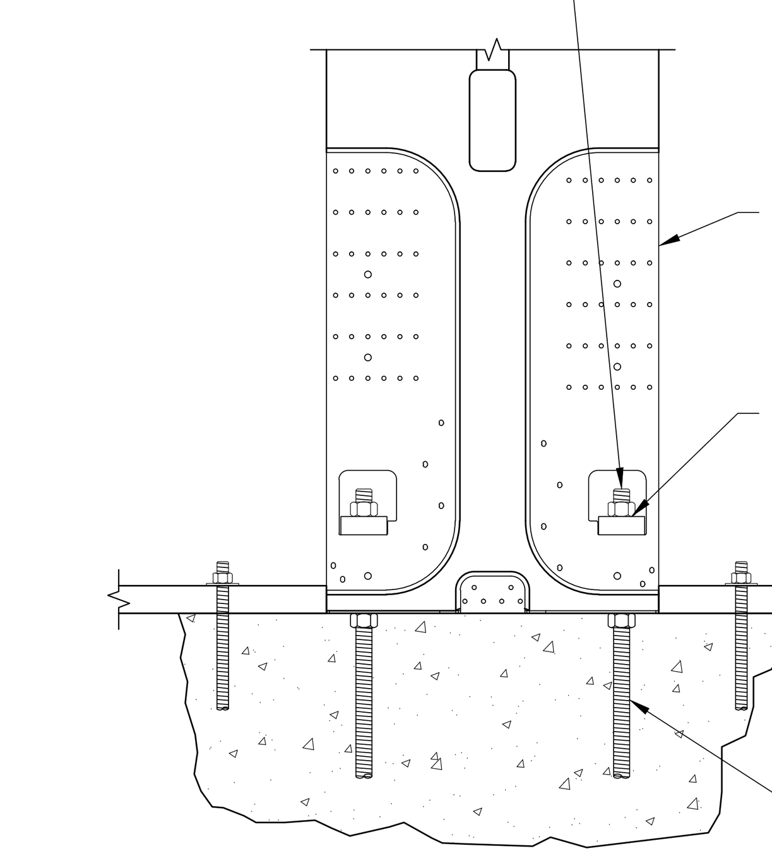
STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL MODELS

MODEL NO.	W (in.)	H (in.)	ANCHOR BOLTS		TOTAL WALL WEIGHT (lb.)
			QUANTITY	DIA. (in.)	
WSWH12x7	12	84	2	1	105
WSWH18x7	18	84	2	1	155
WSWH12x8	12	96	2	1	120
WSWH18x8	18	96	2	1	175
WSWH24x8	24	96	2	1	225
WSWH12x9	12	108	2	1	130
WSWH18x9	18	108	2	1	195
WSWH24x9	24	108	2	1	250
WSWH12x10	12	120	2	1	145
WSWH18x10	18	120	2	1	210
WSWH24x10	24	120	2	1	275
WSWH12x12	12	144	2	1	165
WSWH18x12	18	144	2	1	245
WSWH24x12	24	144	2	1	325
WSWH18x14	18	168	2	1	285
WSWH24x14	24	168	2	1	370
WSWH24x16	24	192	2	1	420
WSWH18x20	18	240	2	1	390
WSWH24x20	24	240	2	1	520

NOTES :
1. FOR HEIGHTS NOT LISTED, ORDER THE NEXT TALLEST PANEL AND TRIM TO FIT. MINIMUM TRIMMED HEIGHT FOR ALL PANELS IS 74 ½".
2. ALL PANELS COME WITH PRE-ATTACHED HOLDOWNS, TWO HEAVY HEX NUTS, TWO HEAVY BEARING PLATES, ONE WSWH-TP TOP CONNECTION PLATE WITH REQUIRED FASTENERS AND INSTALLATION INSTRUCTIONS.
3. ALL PANELS ARE 3½" THICK.

STRONG-WALL® WSWH MODELS — 1

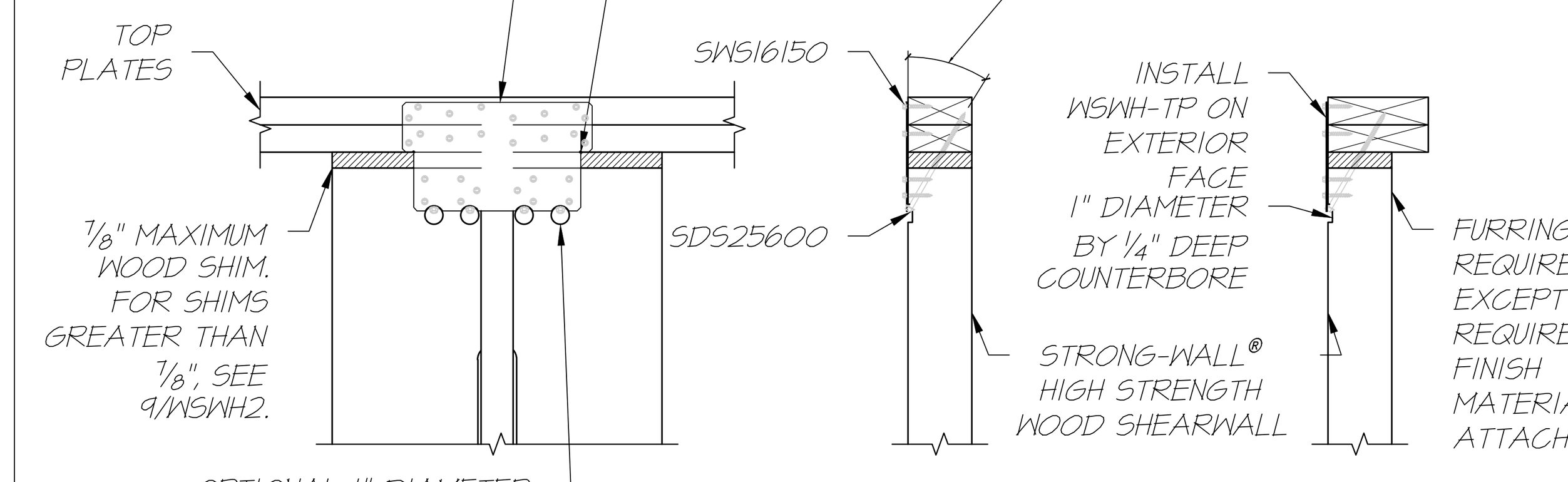
DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



STANDARD INSTALLATION BASE CONNECTION — 4

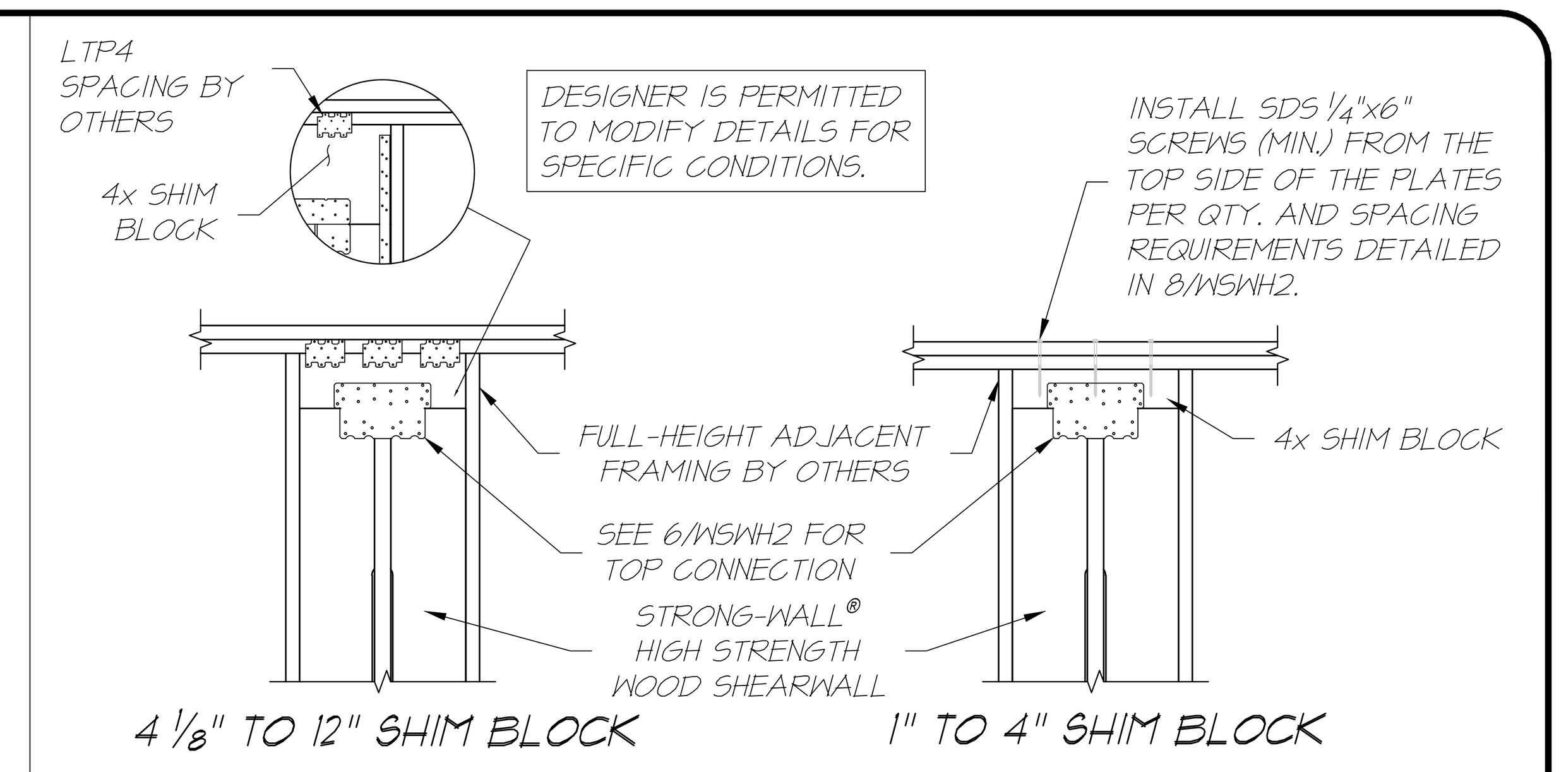
WSWH-TP CONNECTION		
MODEL NO.	FASTENER QUANTITY	
	SWS16150	SDS25600
WSWH-TP12	14	2
WSWH-TP18	26	4
WSWH-TP24	46	8

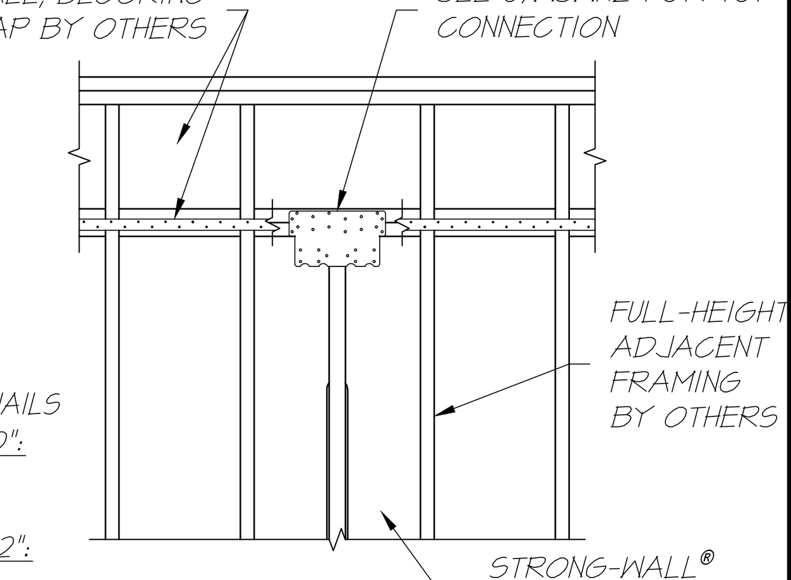
DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



TOP CONNECTION — 6

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.





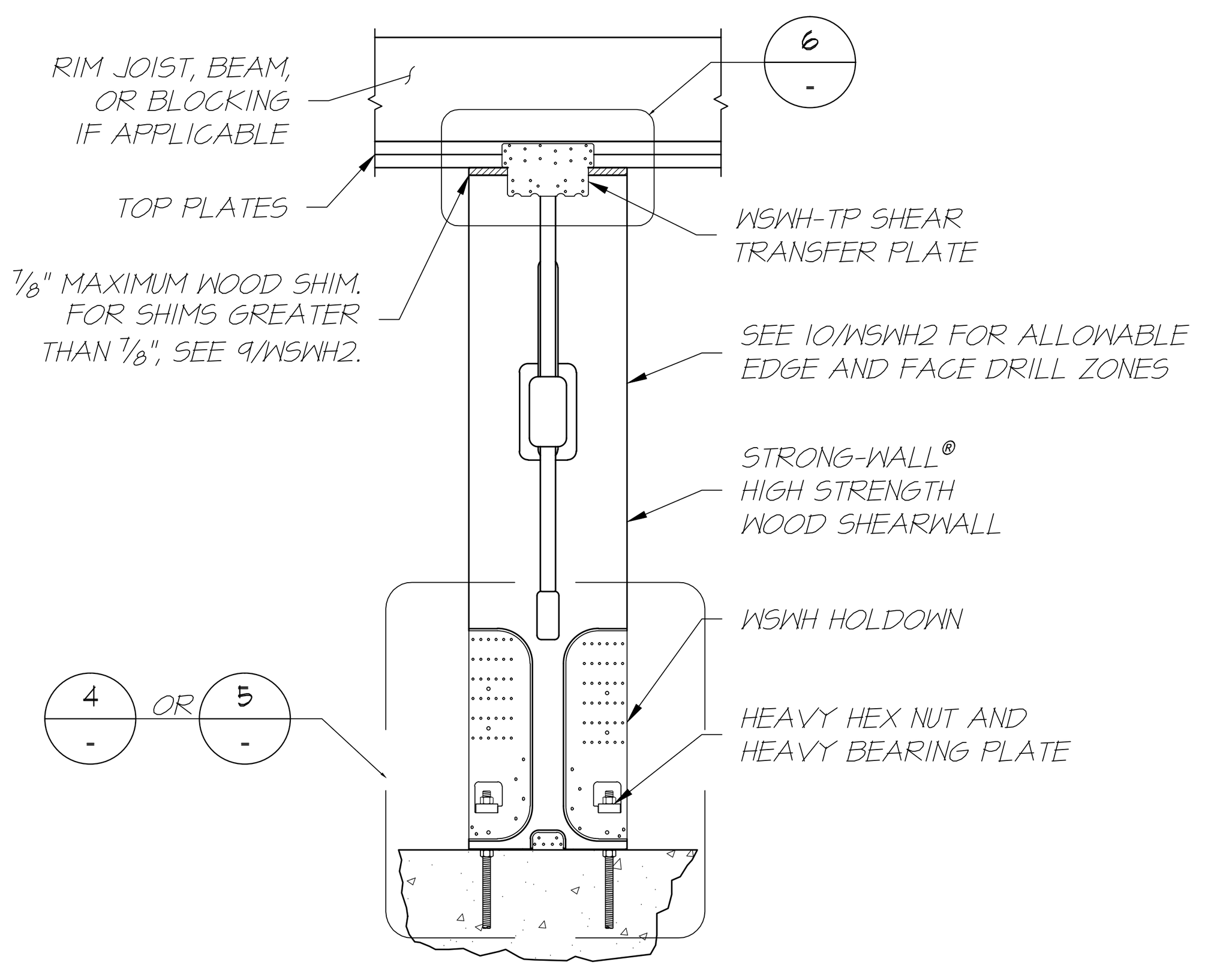
DESIGNER SHALL DESIGN AND DETAIL FOR:
1. SHEAR TRANSFER
2. OUT-OF-PLANE LOADING EFFECT
3. INCREASED OVERTURNING AND DRIFT DUE TO ADDITIONAL HEIGHT

FOR 8" TO 12" BLOCK DEPTHS:
ATTACH SIMPSON STRONG-TIE® CS16 STRAPS AT EDGE OF WSWH PANEL (EACH SIDE) USING 10dx1 ½" NAILS

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

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

TOP OF WALL HEIGHT ADJUSTMENTS — 9

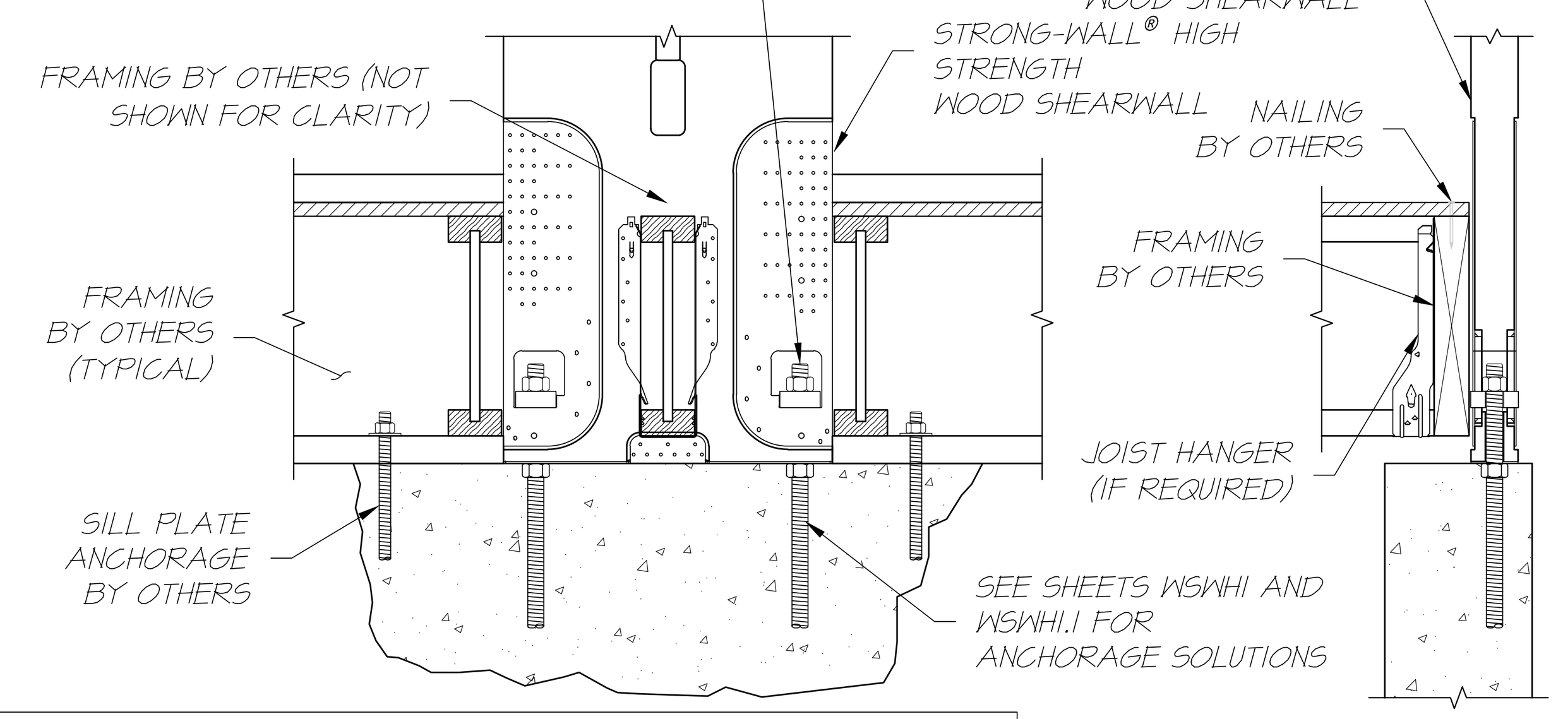


DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

ENSURE CONCRETE IS LEVEL AND SMOOTH BENEATH PANEL. GRIND OR FILL AS NECESSARY.

SINGLE STORY WSWH ON CONCRETE — 2

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

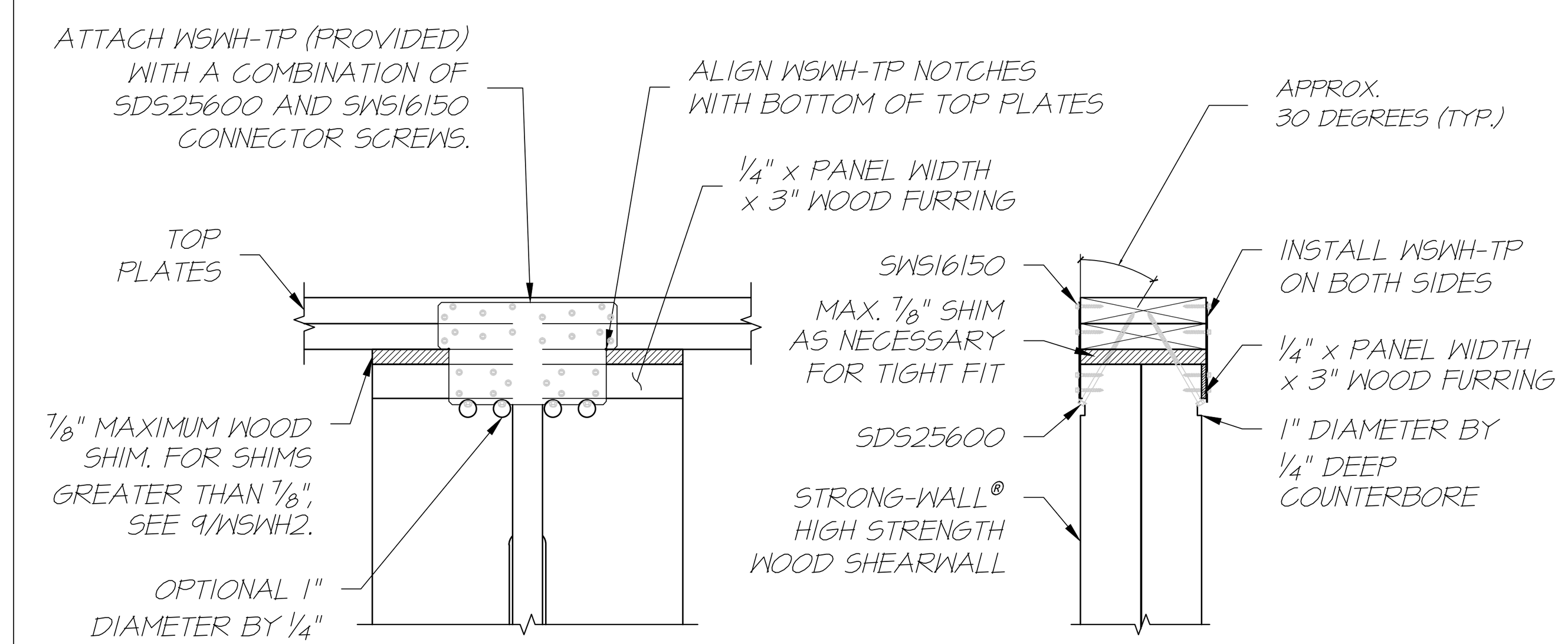


STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL HEIGHT TO INCLUDE THE DEPTH OF THE FLOOR SYSTEM AND SHALL BE INSTALLED DIRECTLY ON THE FOUNDATION. SPECIFY PANEL HEIGHT FROM TOP OF FOUNDATION TO UNDERSIDE OF TOP PLATES OR BEAM.

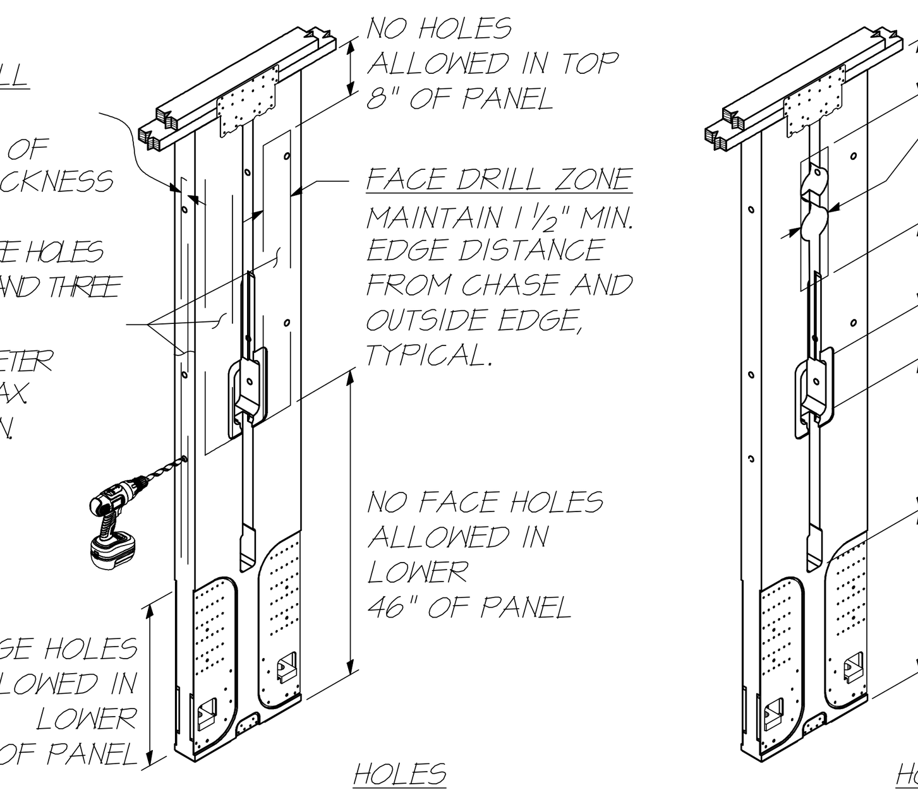
WOOD FLOOR SYSTEM BASE CONNECTION — 5

WSWH-TP CONNECTION		
MODEL NO.	FASTENER QUANTITY	
	SWS16150	SDS25600
WSWH-TP12	28	4
WSWH-TP18	52	8
WSWH-TP24	92	16

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



BACK-TO-BACK TOP CONNECTION — 7



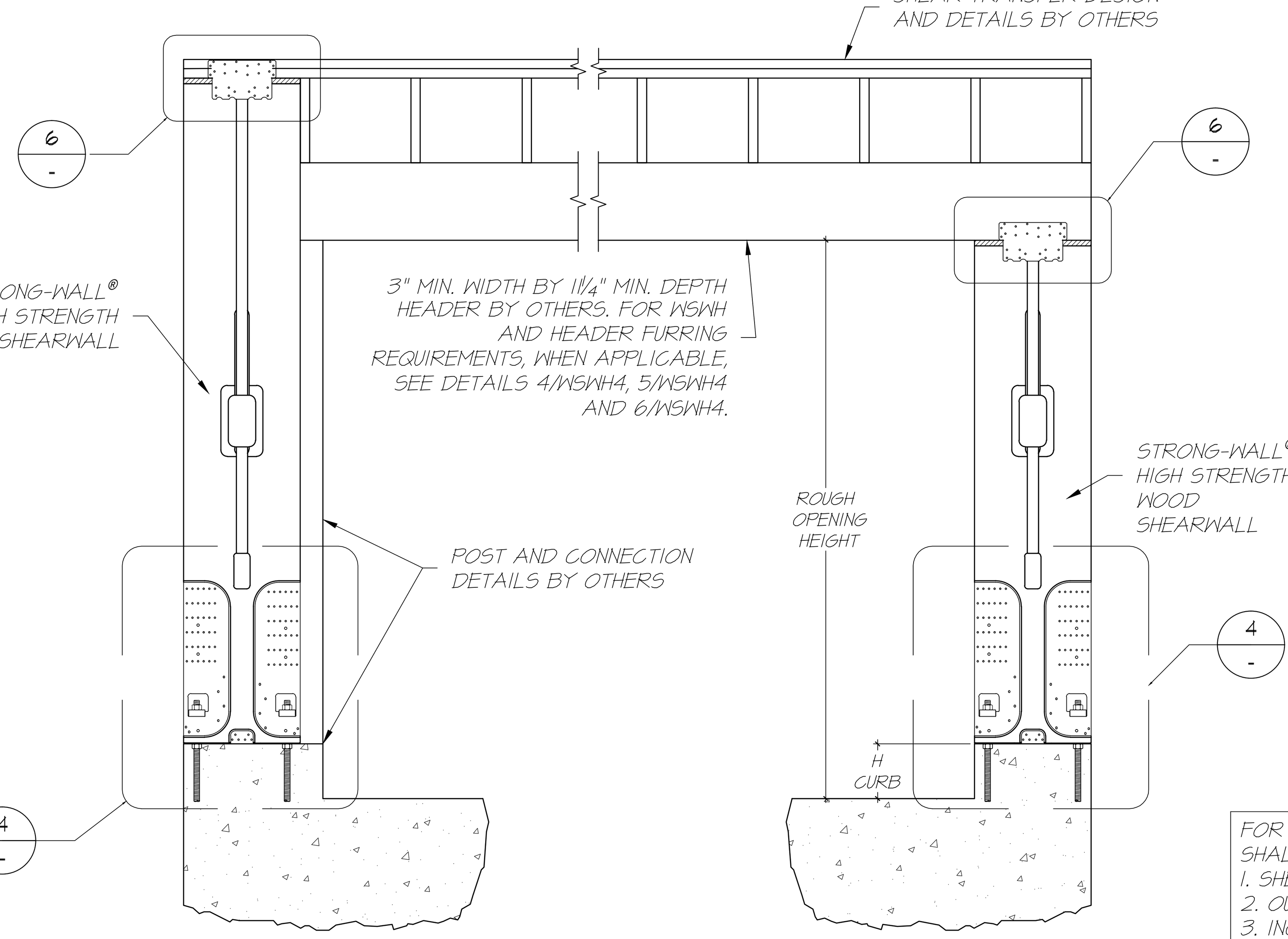
HOLES
- 4 ⅝"-DIA. HOLES, MAX.
- MAX. OF TWO 4 ⅝"-DIA. HOLES OR ONE 4 ¼"x12" HOLE.
- NO MINIMUM ON-CENTER SPACING REQUIRED.

HOLES FOR WSWH24X7 PANEL ONLY
- MAX. OF ONE 4 ⅝"x6" HOLE
- 8" FROM TOP OF PANEL, MIN.

ALLOWABLE SMALL HOLES FACE AND EDGE DRILL ZONES

ALLOWABLE LARGE HOLES IN ADDITION TO ALLOWABLE SMALL HOLES

TRIM ZONE AND ALLOWABLE HOLES — 10



DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

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

GARAGE HEADER ROUGH OPENING HEIGHT			
MODEL NO.	TRIMMED PANEL HEIGHT	H CURB	ROUGH OPENING HEIGHT
WSWH12x7 WSWH18x7 WSWH24x7	78"	5 ½"	6'-11 ½"
		6"	7'-0"
WSWH12x8 WSWH18x8 WSWH24x8	85 ½"	0"	7'-1 ½"
	93 ¼"	5 ½"	8'-2 ¾"
		6"	8'-3 ¼"

NOTES :
1. IF REQUIRED ROUGH OPENING HEIGHT EXCEEDS TABLE VALUE, SPECIFY NEXT TALLER PANEL AND TRIM AS NECESSARY. THE STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL MAY BE TRIMMED TO A MINIMUM HEIGHT OF 74 ½".
2. FURRING DOWN GARAGE HEADER MAY BE REQUIRED FOR CORRECT ROUGH OPENING HEIGHT.

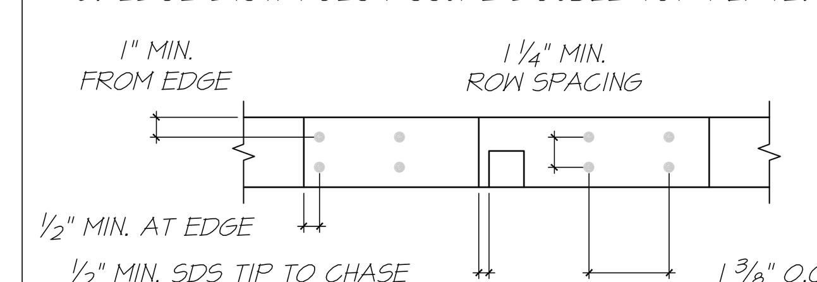
FOR GARAGE WALL OPTION 2, DESIGNER SHALL DESIGN AND DETAIL FOR:
1. SHEAR TRANSFER
2. OUT-OF-PLANE LOADING EFFECT
3. INCREASED OVERTURNING AND DRIFT DUE TO ADDITIONAL HEIGHT

ALTERNATE WSWH GARAGE FRONT OPTIONS — 3

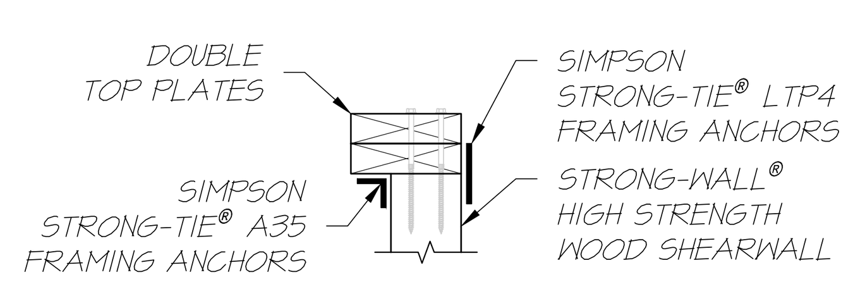
QTY. OF SDS¼"x6" SCREWS REQ'D.	
WSWH12	4
WSWH18	8
WSWH24	16

EDGE DISTANCE FOR SCREWS		
SLOPE	A (in.)	B (in.)
0:12-4:12	2	3
5:12-8:12	1 ½	4 ½
9:12-12:12	1 ½	5 ½

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

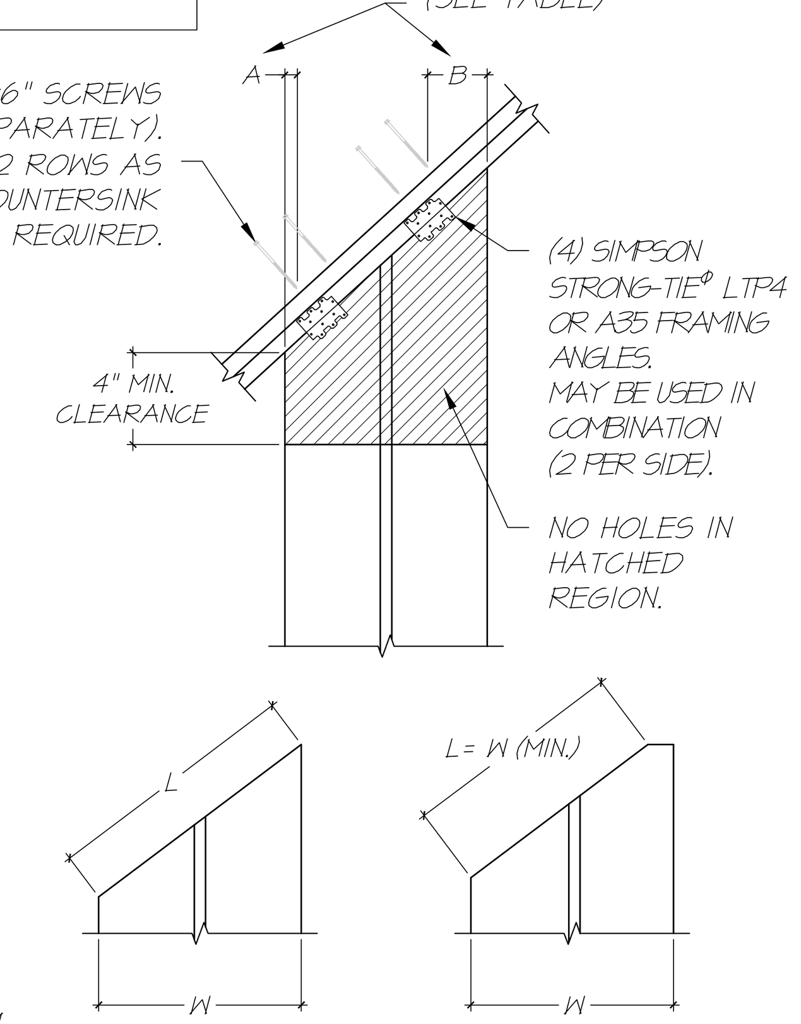


PLAN VIEW
SDS SCREW SPACING



SECTION VIEW
2X6 OR WIDER FRAMING

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



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

RAKE WALL — 8

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

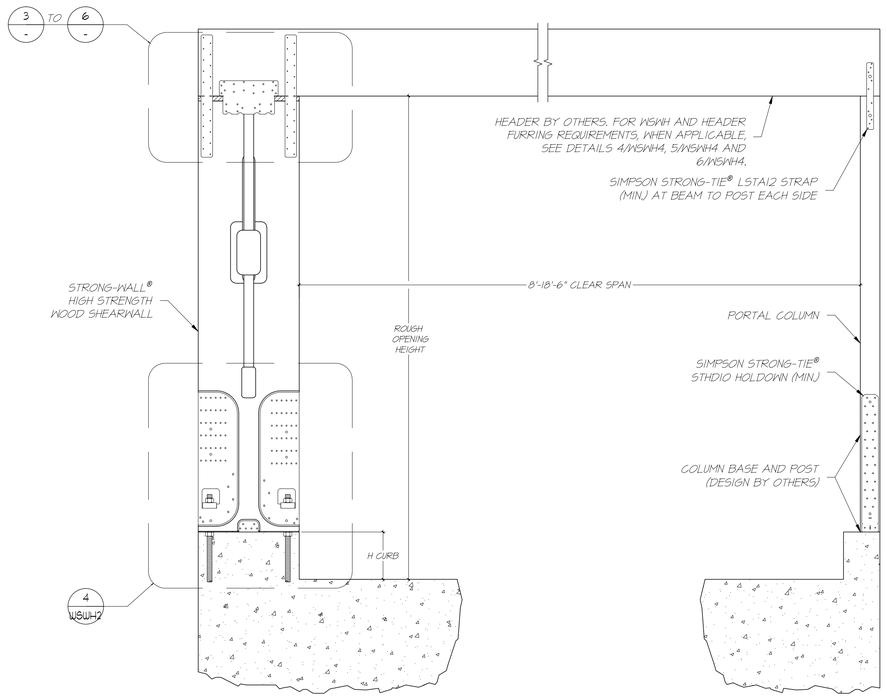
NOTES — 11

NO.	DATE	REVISIONS
0	11-20-2020	FIRST RELEASE - 2018 IBC
1	03-16-2021	2021 IBC REVISIONS

SIMPSON Strong-Tie, Co. Inc.
5956 W. Los Positas Blvd.
Pleasanton, CA 94588
Tel: (800) 999-5099
Website: www.strongtie.com

STRONG-WALL® WSWH
FRAMING DETAILS
ENGINEERED DESIGNS

NAME
DATE 03-16-2021
SCALE N.T.S.
CHECKED
SHEET WSWH2
OF SHEETS
JOB NO.



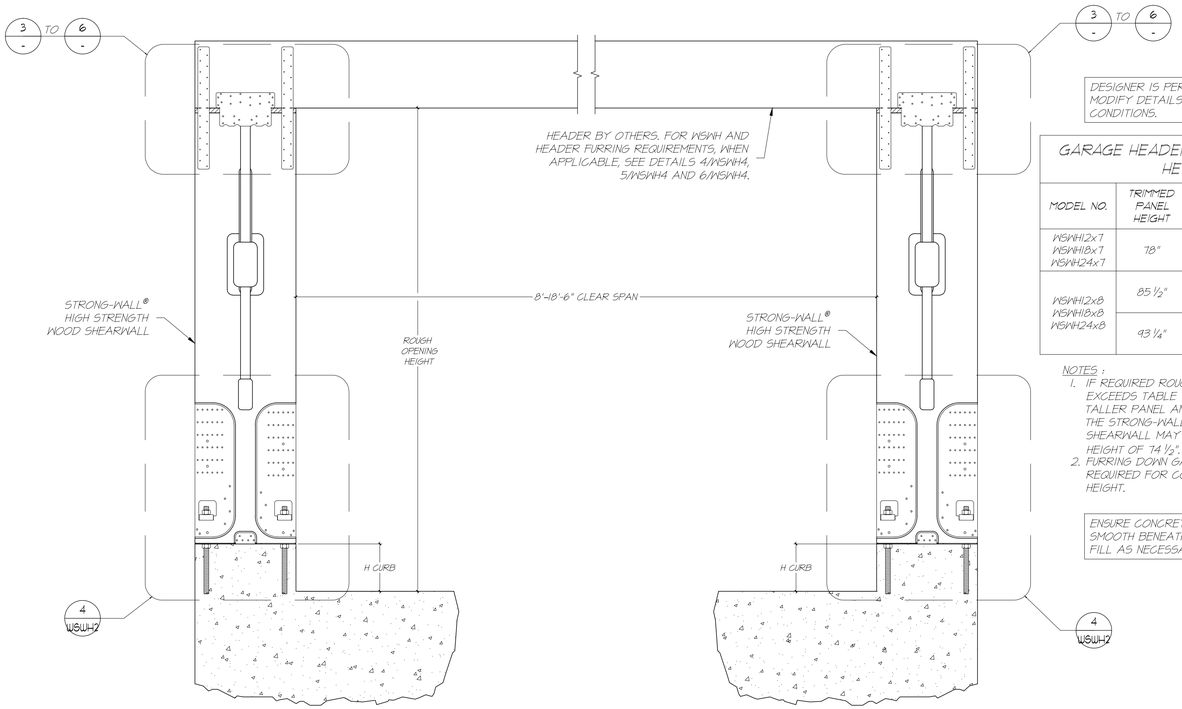
GARAGE HEADER ROUGH OPENING HEIGHT			
MODEL NO.	TRIMMED PANEL HEIGHT	H CURB	ROUGH OPENING HEIGHT
WSWH12x7 WSWH18x7 WSWH24x7	78"	5 ½"	6'-11 ½"
		6"	7'-0"
WSWH12x8 WSWH18x8 WSWH24x8	85 ½"	0"	7'-1 ½"
	93 ¼"	5 ½"	8'-2 ¾"
		6"	8'-3 ¼"

NOTES :
1. IF REQUIRED ROUGH OPENING HEIGHT EXCEEDS TABLE VALUE, SPECIFY NEXT TALLER PANEL AND TRIM AS NECESSARY. THE STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL MAY BE TRIMMED TO A MINIMUM HEIGHT OF 74 ½".
2. FURRING DOWN GARAGE HEADER MAY BE REQUIRED FOR CORRECT ROUGH OPENING HEIGHT.

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

ENSURE CONCRETE IS LEVEL AND SMOOTH BENEATH PANEL. GRIND OR FILL AS NECESSARY.

STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL SINGLE PORTAL ASSEMBLY | 1



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MODEL NO.	TRIMMED PANEL HEIGHT	H CURB	ROUGH OPENING HEIGHT
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WSWH12x8 WSWH18x8 WSWH24x8	85 ½"	0"	7'-1 ½"
	93 ¼"	5 ½"	8'-2 ¾"
		6"	8'-3 ¼"

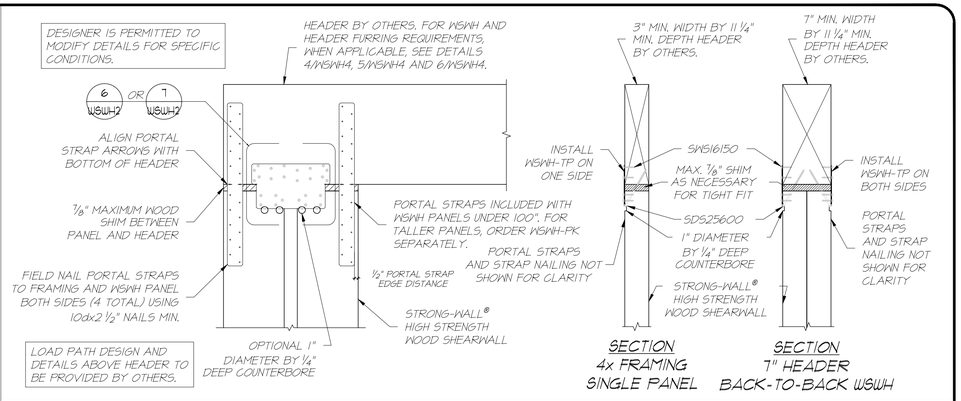
DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

NOTES :
1. IF REQUIRED ROUGH OPENING HEIGHT EXCEEDS TABLE VALUE, SPECIFY NEXT TALLER PANEL AND TRIM AS NECESSARY. THE STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL MAY BE TRIMMED TO A MINIMUM HEIGHT OF 74 ½".
2. FURRING DOWN GARAGE HEADER MAY BE REQUIRED FOR CORRECT ROUGH OPENING HEIGHT.

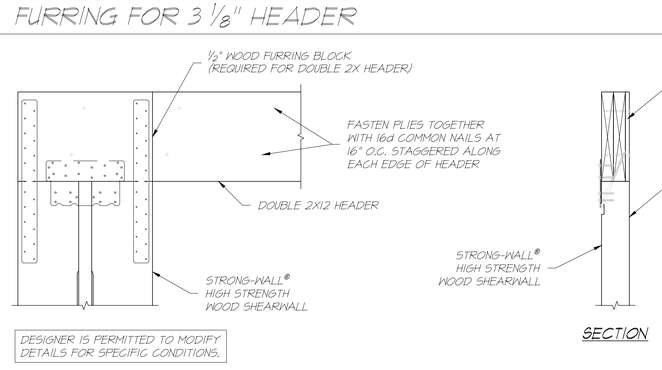
ENSURE CONCRETE IS LEVEL AND SMOOTH BENEATH PANEL. GRIND OR FILL AS NECESSARY.

STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL DOUBLE PORTAL ASSEMBLY | 2

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

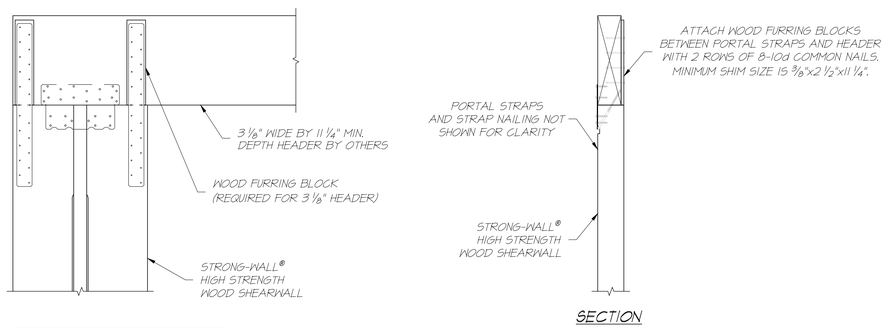


PORTAL TOP CONNECTION | 3



DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

FURRING FOR 5 ⅛" TO 5 ½" HEADER | 4



DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

FURRING FOR 3 ⅛" HEADER | 5

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

FURRING FOR DOUBLE 2X12 HEADERS | 6

NO.	DATE	REVISIONS
0	11-23-2020	FIRST RELEASE - 2018 IBC
1	03-16-2021	2021 IBC REVISIONS

REGISTERED PROFESSIONAL ENGINEER — STATE OF OHIO — No. 080001 — EXP. 06/30/24

SIMPSON Strong-Tie Co. Inc.
• 5956 W Las Positas Blvd.
Pleasanton, CA 94588
• Tel: (800) 999-5099
• Website: www.strongtie.com

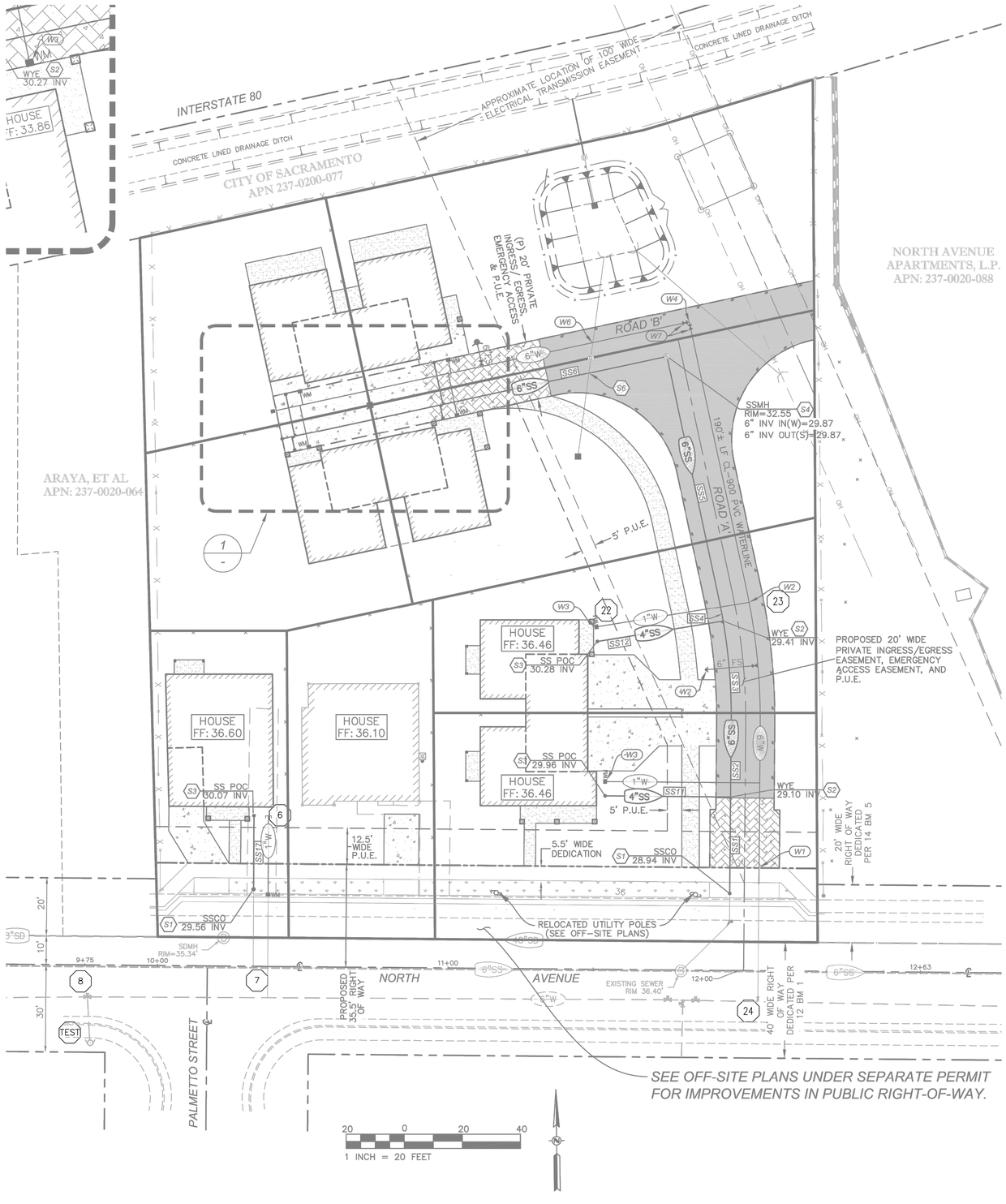
SIMPSON Strong-Tie® THERE IS NO EQUAL

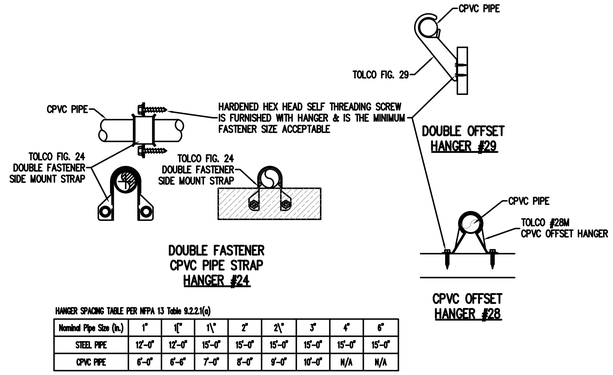
STRONG-WALL® WSWH
PORTAL SYSTEM
FRAMING DETAILS
ENGINEERED DESIGNS

SIMPSON Strong-Tie® THERE IS NO EQUAL

NAME	
DATE	03-16-2021
SCALE	N.T.S.
CHECKED	
SHEET	WSWH4
	OF SHEETS
JOB NO.	

IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY





HANGER SPACING TABLE PER NFPA 13 Table 9.2.2.1(a)

Nominal Pipe Size (in.)	1"	1¼"	1½"	2"	2½"	3"	4"	6"
STEEL PIPE	12'-0"	12'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"
CPVC PIPE	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"	10'-0"	N/A	N/A

NOTES

1. THE AUTOMATIC SPRINKLER SYSTEM SHALL CONFORM TO THE REQUIREMENTS OF THE 2016 EDITION OF NFPA 13D THE 2019 CALIFORNIA BUILDING CODE.
2. SPRINKLERS SHALL BE LOCATED AS REQUIRED BY NFPA 13D, CHAPTER 8.
3. PIPING SHALL BE ATTACHED TO THE CEILING FRAMING.
4. PIPING SHALL BE SCH. 40 STEEL IN EXPOSED AREAS, AND CPVC IN ABOVE CEILING SPACES.
5. ALL ELECTRICAL WORK TO BE PERFORMED BY OTHERS.

SPRINKLER SPACING NOTES – NFPA 13D

1. 8.2.5.2.1 PENDENT SPRINKLER SHALL BE LOCATED AT LEAST 3 FT AWAY FROM OBSTRUCTIONS SUCH AS CEILING FANS AND LIGHT FIXTURES, MEASURED FROM THE CENTER OF THE SPRINKLER TO THE CENTER OF THE OBSTRUCTION.
2. 8.2.5.2.3 WHERE THE SPRINKLER CANNOT BE LOCATED 3 FT AWAY FROM THE OBSTRUCTION, AN ADDITIONAL SPRINKLER SHALL BE LOCATED ON THE OTHER SIDE OF THE OBSTRUCTION.
3. 8.2.5.7 SHADOW AREAS SHALL BE PERMITTED IN THE PROTECTION AREA OF A SPRINKLER AS LONG AS THE CUMULATIVE DRY AREAS DO NOT EXCEED 15 FT² PER SPRINKLER.
4. 8.3.2 SPRINKLERS AR NOT REQUIRED IN BATHROOMS OF 55 FT² AND LESS.
5. 8.3.3 SPRINKLERS ARE NOT REQUIRED IN CLOSETS THAT DO NOT EXCEED 24 FT².
6. 8.3.9 SPRINKLERS SHALL BE INSTALLED IN ANY CLOSET USED FOR HEATING OR AIR-CONDITIONING EQUIPMENT, WASHERS, DRYERS OR WATER HEATERS.
7. 8.3.8 SPRINKLERS ARE NOT REQUIRED IN CLOSETS IN GARAGES AND EXTERIOR CLOSETS, REGARDLESS OF SIZE, LOCATED ON EXTERIOR BALCONIES, EXTERIOR BREEZEWAYS/CORRIDORS OR ACCESSED FROM OUTDOORS WHERE THE CLOSET DOES NOT HAVE DOORS OR UNPROTECTED PENETRATIONS DIRECTLY INTO THE DWELLING UNIT.
8. 8.3.4 SPRINKLERS ARE NOT REQUIRED IN ANY PORCHES, BALCONIES, CORRIDORS, CARPORTS, AND SIMILAR STRUCTURES.
9. 8.3.5 SPRINKLER ARE NOT REQUIRED IN ATTICS, PENTHOUSE EQUIPMENT ROOMS, ELEVATOR MACHINE ROOMS, CONCEALED SPACES DEDICATED EXCLUSIVELY TO AND CONTAINING ONLY DWELLING UNIT VENTILATION EQUIPMENT, CRAWL SPACES, FLOOR/CEILING SPACES, ELEVATOR SHAFTS AND OTHER CONCEALED SPACES NOT INTENDED FOR LIVING PURPOSES OR STORAGE.

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA
95819
Phone: 916.440.6765
ellis-architects.com

REGISTERED PROFESSIONAL ENGINEER – VINCENT C. HOWARD – No. FPE-1497 – EXP. 6-30-2023 – FIRE PROTECTION – STATE OF CALIFORNIA

Date Signed: June 1, 2022

SACRAMENTO ENGINEERING CONSULTANTS
10555 Old Placerville Road
Sacramento, CA 95827-2503
Phone: (916) 368-4488
www.saceng.com

REGISTERED IN ALL 50 STATES

Job No. 22274

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:

06/02/2022

REVISIONS:

SHEET TITLE

FIRE SITE PLAN

SHEET NO.

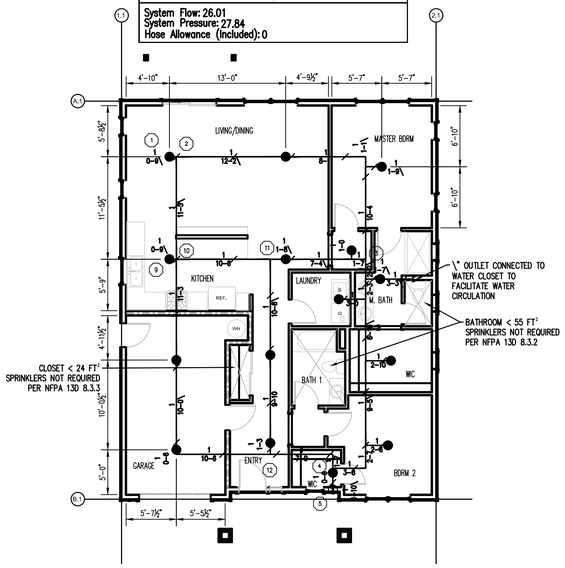
FP-1

File Path

01 January, 2000

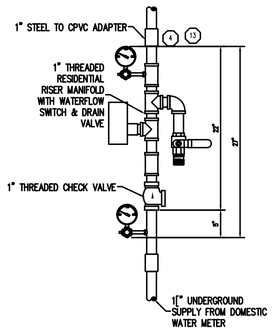
IF THIS SHEET IS NOT 24 x 36, IT IS A REDUCED PRINT - SCALE ACCORDINGLY

Hydraulic Calculation Data
Design Area Number: Unit 1 Design Area Location: Unit 1 Hazard/Occupancy: Residential Design Density: 0.05 Design Area: 2 heads Number of Sprinklers in Design Area: 2
System Flow: 26.01 System Pressure: 27.84 Hose Allowance (Included): 0



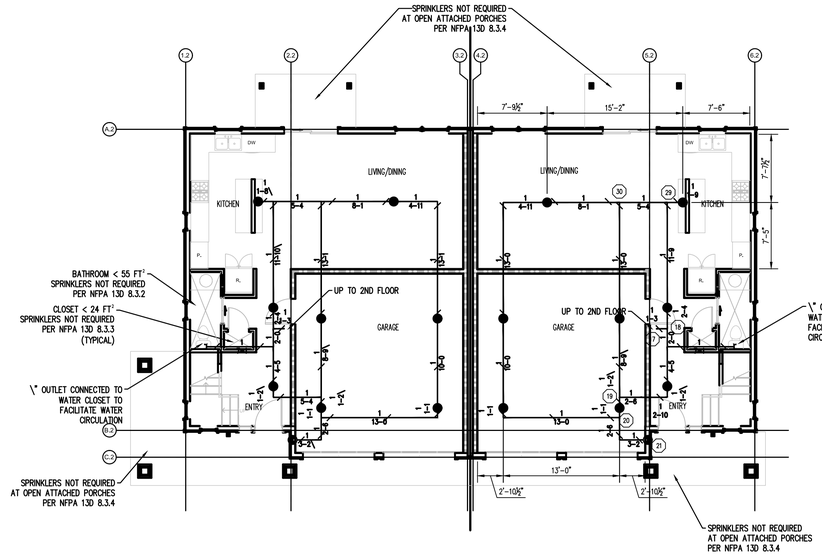
UNIT 1

Sprinkler Head Schedule					
Symbol	Count	Thread	K-Factor	Description	Note
●	15	1/2"	4.9	TY3596 7/16 FR 160 B CC	ON DROP
15 = Total Number of Heads Unit 1					

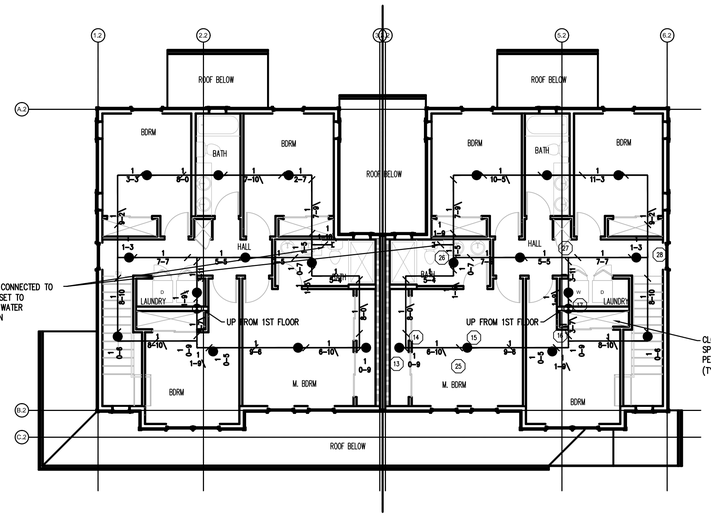


FIRE SPRINKLER RISER DETAIL
NTS

Hydraulic Calculation Data
Design Area Number: Unit 2 Design Area Location: 2nd Floor Hazard/Occupancy: Residential Design Density: 0.05 Design Area: 2 heads Number of Sprinklers in Design Area: 2
System Flow: 26.02 System Pressure: 29.96 Hose Allowance (Included): 0

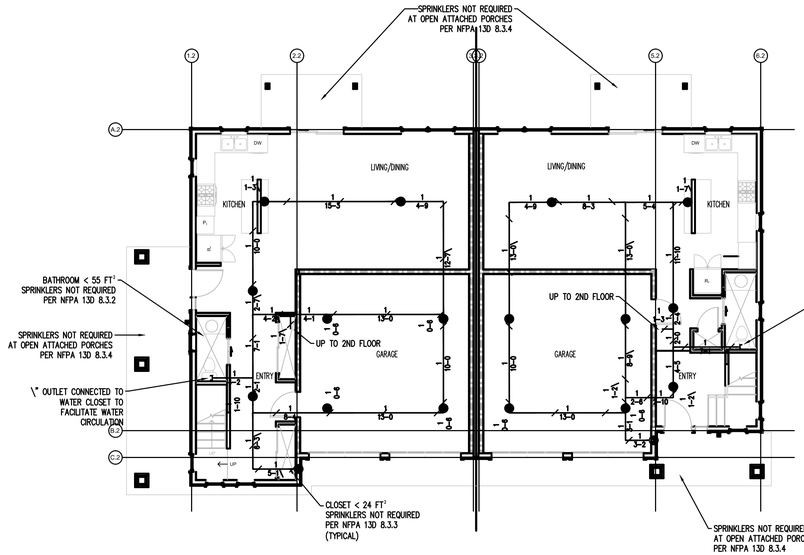


UNIT 2A 1ST FLOOR

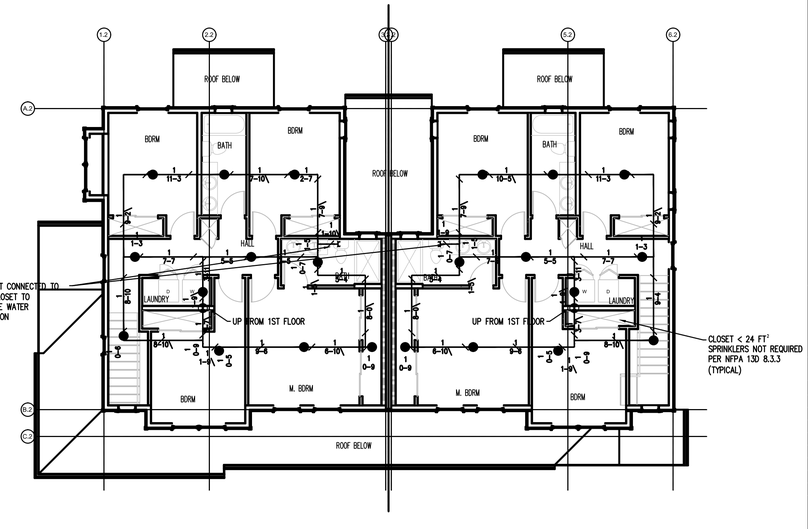


UNIT 2A 2ND FLOOR

Sprinkler Head Schedule					
Symbol	Count	Thread	K-Factor	Description	Note
●	38	1/2"	4.9	TY3596 7/16 FR 160 B CC	ON DROP
38 = Total Number of Heads Unit 2A					



UNIT 2B 1ST FLOOR



UNIT 2B 2ND FLOOR

Sprinkler Head Schedule					
Symbol	Count	Thread	K-Factor	Description	Note
●	37	1/2"	4.9	TY3596 7/16 FR 160 B CC	ON DROP
37 = Total Number of Heads Unit 2B					

ELLIS ARCHITECTS
4132 C Street
Sacramento, CA
95819
Phone: 916.440.6765
ellis-architects.com

REGISTERED PROFESSIONAL ENGINEER
ROBERT C. HENRY
C.E. No. FPE-1497
EXP. 6-30-2023
FIRE PROTECTION
STATE OF CALIFORNIA

Date Signed: June 1, 2022

SACRAMENTO ENGINEERING CONSULTANTS
10555 Old Placerville Road
Sacramento, CA 95827-2503
Phone: (916) 369-4458
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REGISTERED IN ALL 50 STATES

Job No. 22274

NORTH AVENUE HALF-PLEXES

DARREN BROWN

905 NORTH AVENUE, SACRAMENTO, CALIFORNIA

APN # 237-0020-092

PLAN CHECK SET

DATE:
06/02/2022

REVISIONS:

SHEET TITLE
FIRE SPRINKLER PLAN

SHEET NO.
FP-2

File Path

01 January, 2000

2/23/2023 6:11:39 PM

2.4 kW (DC) ROOF MOUNTED PV ARRAY FOR THE NORTH AVENUE HALF-PLEXES - LOT 2

ROOF INFO:
AZIMUTH: 270°
TILT: 14°
TYPE: COMP

CONTRACTOR:
EV Energy
10417 Fair Oaks Blvd
Fair Oaks , Ca 95628
Phone: 916-436-4289
LIC. #1016892

SCOPE OF WORK:

System composed of 1 string of 6 Hanwha Q.Peak Duo Blk 400ML-G-10.a+ Modules each 2 Modules connected to 1 APS DS3-S Micro-Inverter. 6 modules and 3 Micro-Inverters total.

Bill of Materials

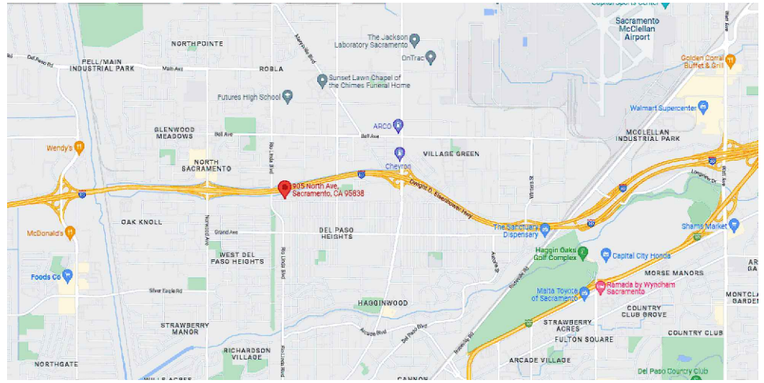
6 HANWHA Q.PEAK DUO BLK 400ML-G-10.A+
3 APS DS3-S Micro Inverters
1 Enphase Envoy-IQ Combiner
1 20AMP 2-Pole Circuit Breaker
1 30AMP AC Disconnect

MSP Requirements: NONE

GENERAL NOTES:

1. ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
2. THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE 2019 CEC AND 2019 CBC.
3. WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
4. A DC DISCONNECTING MEANS SHALL BE INSTALLED AT A READILY ACCESSIBLE LOCATION EITHER OUTSIDE OF THE BUILDING OR STRUCTURE OR INSIDE NEAREST POINT OF ENTRANCE OF THE SYSTEM CONDUCTORS AS PER SECTION 690.14 OF THE CEC.
5. HEIGHT OF THE INTEGRATED AC/DC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
6. A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER CEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
7. PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
8. PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING. MECHANICAL, OR BUILDING ROOF VENTS. THE SMOKE ALARMS SHALL BE INSTALLED OR VERIFY TO ENSURE THE SMOKE ALARMS ALREADY EXISTING WHEN ALTERATION OR REPAIR TO GROUP R-3 OCCUPANCY EXCEEDS $1,000 CRC R314.22.
   - 8.1. ON THE CEILING OR WALLS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS
   - 8.2. IN EACH ROOM USED FOR SLEEPING PURPOSES,
   - 8.3. IN EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS.
   - 8.4. ALL SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL217 AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS CODE AND THE HOUSEHOLD FIRE WARNING EQUIPMENT PROVISIONS OF NFPA 72. SYSTEMS AND COMPONENTS SHALL BE CALIFORNIA STATE FIRE MARSHAL LISTED AND APPROVED IN ACCORDANCE WITH CA CODE OF REGULATIONS, TITLE 19, DIVISION 1 FOR PURPOSE FOR WHICH THEY ARE INSTALLED.
9. CARBON MONOXIDE ALARMS IF NOT ALREADY EXISTING ARE REQUIRED TO BE INSTALLED WITHIN A RESIDENTIAL DWELLING WHEN THE VALUATION OF AN ADDITION, ALTERATION OR REPAIR TO GROUP R-3 OCCUPANCY EXCEEDS $1,000 CRC R315.22

CARBON MONOXIDE ALARMS ARE REQUIRED AT THE FOLLOWING LOCATIONS:
A. ON THE CEILING OR WALLS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS
B. ON EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS.
C. THE CARBON MONOXIDE ALARMS SHALL BE LISTED AS COMPLYING WITH THE REQUIREMENTS OF UL 2034. CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THIS CODE, THE CURRENT EDITION OF NFPA 720 "STANDARD FOR THE INSTALLATION OF CARBON MONOXIDE (CO) DETECTION AND WARNING EQUIPMENT" AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PER 2019 CRC SECTION R315.2.2.



Vicinity Map:

Designed By: Ryan Niedzwiecki-Pirtz

Sheet List Table	
Sheet Number	Sheet Title
1	Title Page
2	Site Plan
2.1	Mounting Detail
3	Single Line Drawing
4	Module
4.1	Module Grounding
5	Inverter APS Micro-Inverter
6	Mounting Type
6.1	Racking Type
7	Engineering
7.1	Engineering
8	Labels
8.1	Labels Directory
9	AC Disconnect
10	As-Built

EV Energy Inc. Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

6 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 6, ----, ----
Azimuth(s): 270°

NORTH AVENUE HALF-PLEXES - LOT 2

Lot 2
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022
Scale: None
Drawn By:

Title:
TITLE PAGE

Sheet: 1

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NOTES: (UNLESS OTHERWISE SPECIFIED)

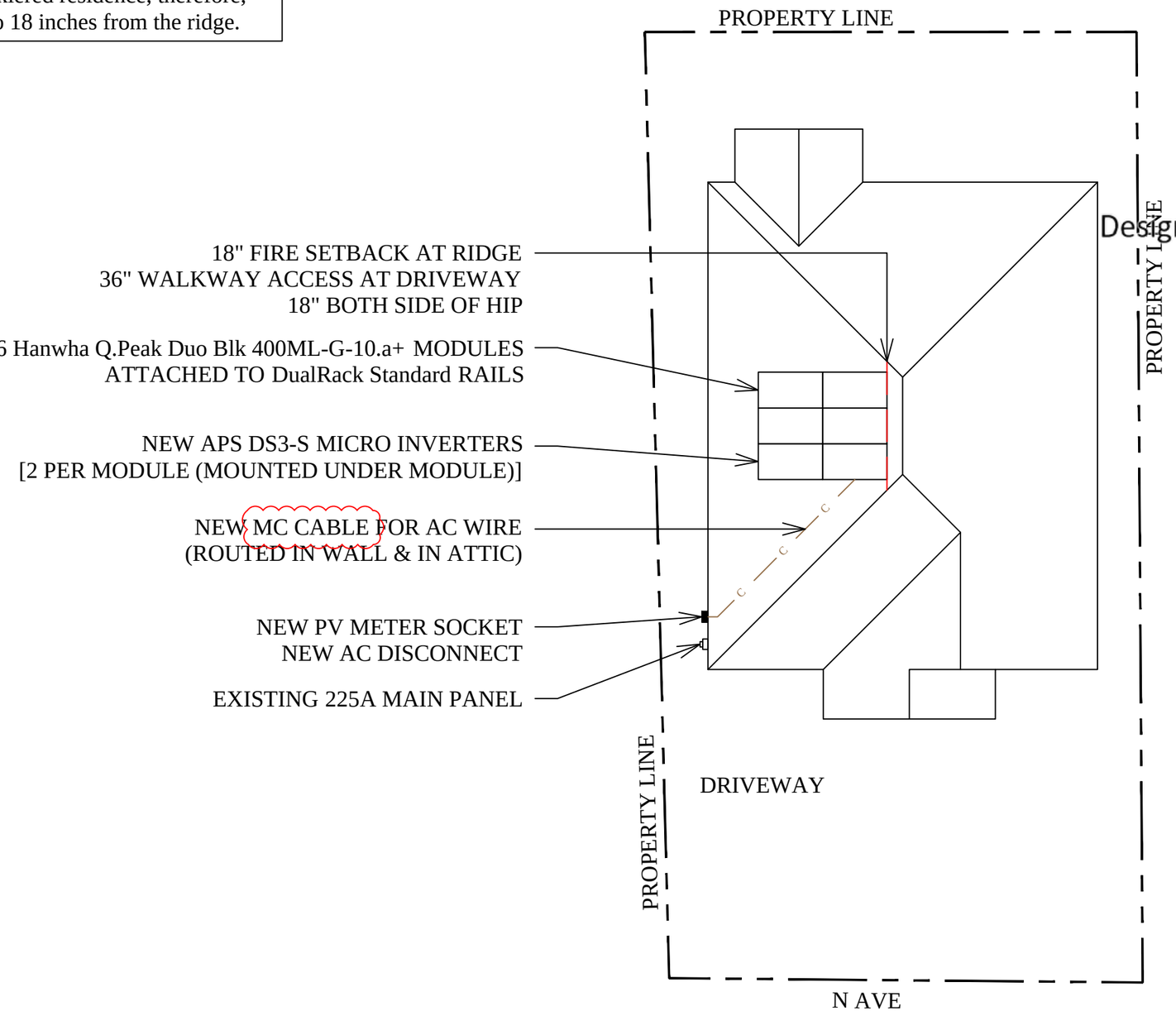
- Per CRC R324.6.1:
- Not less than (2) min 36" wide pathways on separate roof planes, lowest roof edge to ridge, shall be provided on all building. At least one pathway shall be provided on the street or driveway side of the roof.
- This systems take up less than 33% of total roof surface square footage on a non-sprinklered residence, therefore, the fire setbacks are relaxed to 18 inches from the ridge.

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. Equipment locations are not exact and are subject to field conditions.
2. Equipment locations may change due to home owner requests or location best practices.
3. Existing buildings, structures or equipment are represented as locations, not configurations.

Area Calculations:

Sprinklered:	NO
Roof Area sq.ft.:	1950
Array Area sq.ft.:	127
% of Covered Area:	6.5



EV Energy Inc.
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10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

6 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 6, ----, ----
Azimuth(s): 270°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE HALF-PLEXES - LOT 2

Lot 2
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: February 23, 2023
Scale: 1" = 12'
Drawn By:
Title: SITE PLAN
Sheet: 2

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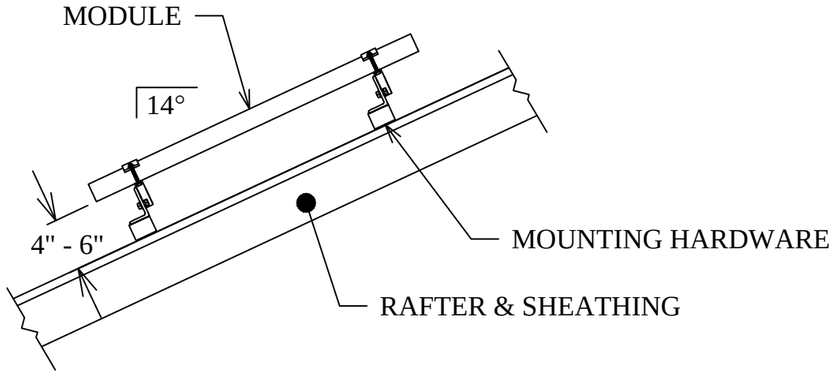
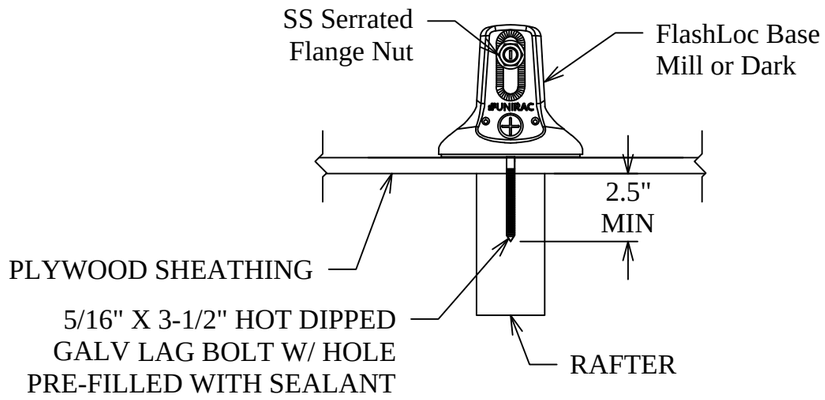
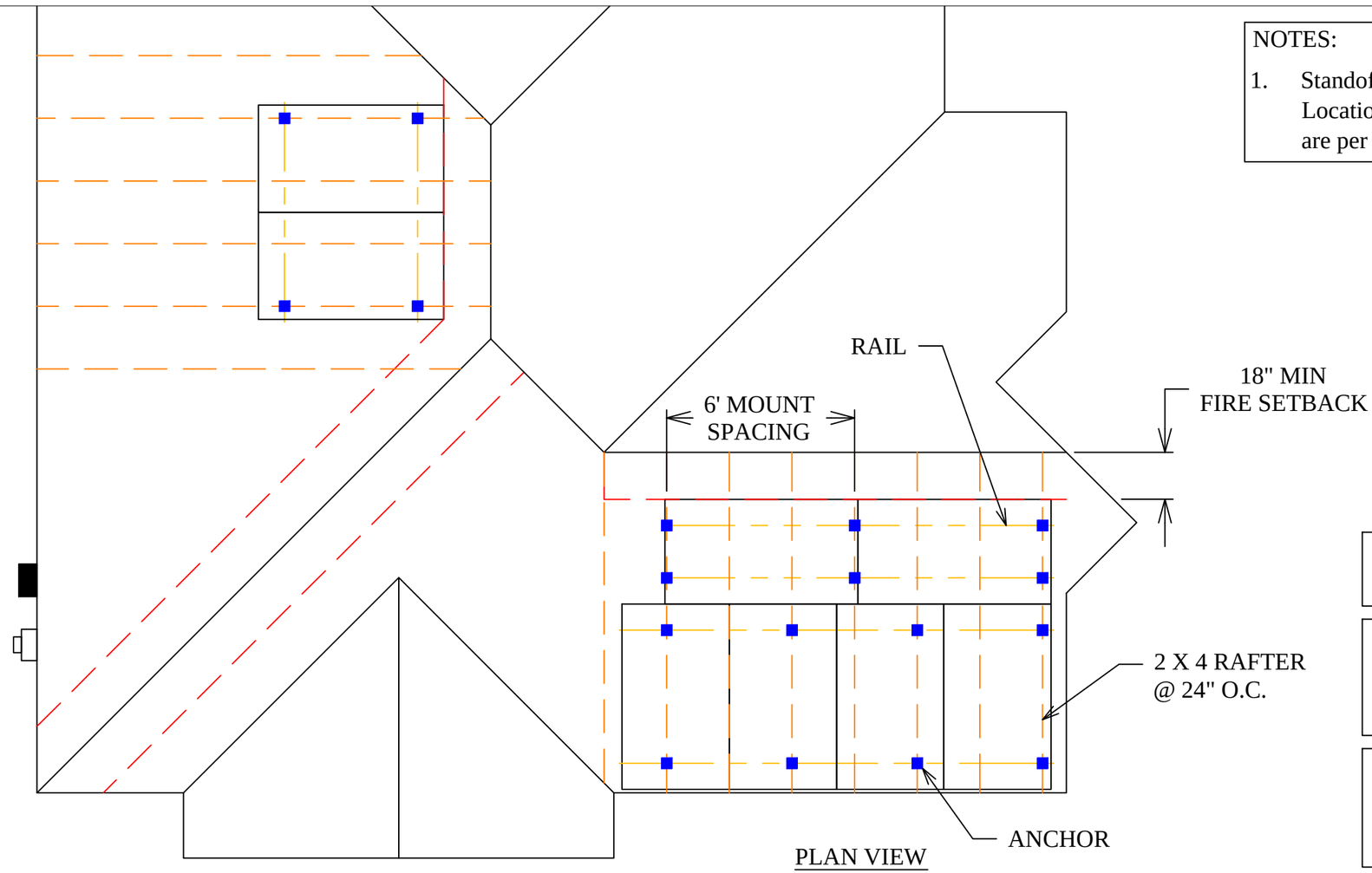


MODULE PROFILE
SCALE: NTS



MOUNTING DETAIL
SCALE: NTS

Designed By: Ryan Niedzwiecki-Pirtz



PLAN VIEW

NOTES:

1. Standoff locations on plans are not exact. Locations are subject to field verification and are per manufacturers specifications.

ROOF TYPE: 2-STORY,
COMPOSITION SHINGLE

TRUSS SYSTEM:
RAFTER SIZE: 2 X 4
RAFTER SPACING: 24" O.C.
UNSUPPORTED SPAN: 8'

FlashLoc SYSTEM:
ARRAY WEIGHT: 390 LBS.
LBS PER SQUARE FOOT: 2.77
LBS PER RACKING FOOT: 37.72

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Fair Oaks, Ca 95628
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PROJECT INFO

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400ML-G-10.a+
APS DS3-S
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NORTH AVENUE
HALF-PLEXES - LOT 2

Lot 2
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: NTS
Drawn By:

Title:
MOUNTING DETAIL

Sheet: 2.1

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CONDUCTOR & CONDUIT:

	CONDUIT TYPE:	CONDUIT SIZE:	CONDUCTOR TYPE:	CONDUCTOR SIZE:	# OF CONDUCTORS:	GROUNDING TYPE:	GROUNDING SIZE:
1	EMT	N/A	NM 12/2	#12	3	THHN/THWN-2	# 8 MIN (MEET NEC 690.47)
2	N/A	N/A	NM 12/2	#12	3	THHN/THWN-2	# 8 MIN (MEET NEC 690.47)
3	N/A	FREE AIR	AC Y3 Bus cable	#12	2	SOLID BARE	# 8 MIN (MEET NEC 690.47)

EQUIPMENT:

	MNFR:	MODEL:	MAX Power:	IMP:	ISC:	Buss Size:	MOCPD Size:	MAX Breaker:
1	SQUARE-D	N/A	N/A	N/A	N/A	225 A	200 A	20 A
2	Square-D	DU221RB	N/A	N/A	N/A	30 A	N/ A	N/A
3	APS	DS3-S	640 W	2.66 A	3.33 A	N/A	N/A	20 A / string

STRING INFORMATION

# OF MODULES IN STRING:	# OF MICRO-INVERTERS IN STRING:	IMP:	ISC:	MAX Breaker:
6	3	8 A	10 A	20 A

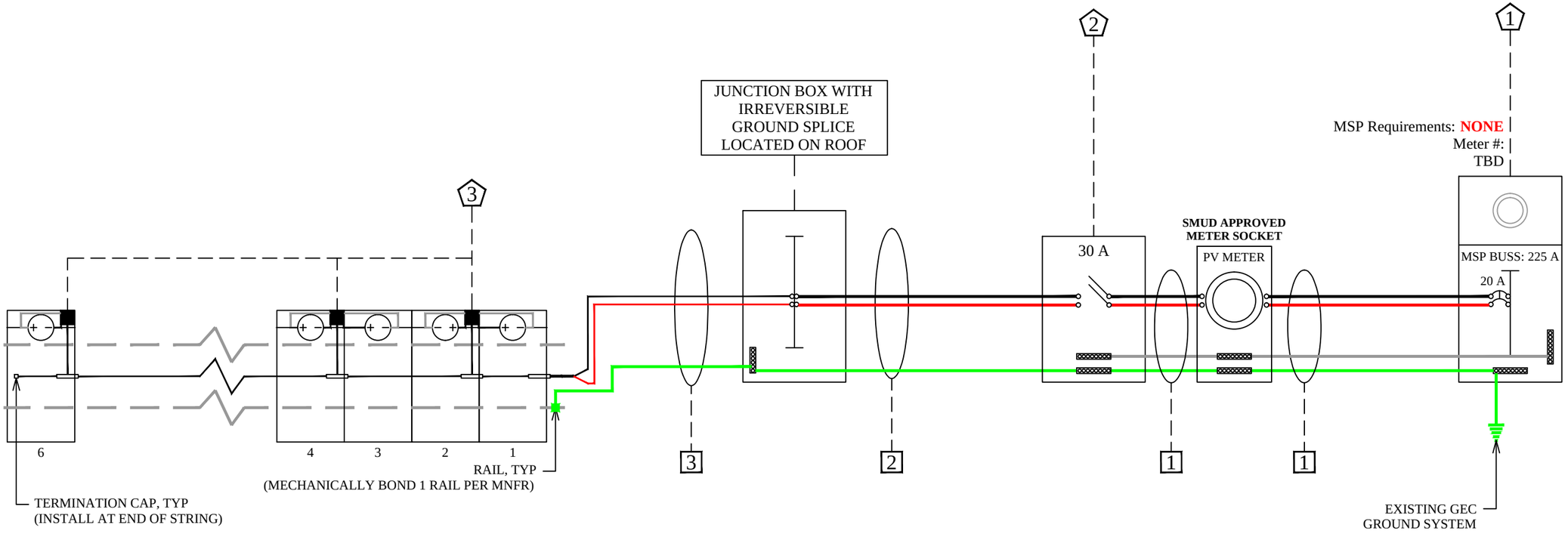
Temperature Rating of Conductors

Size AWG or kcmil	60°C	75°C	90°C	60°C	75°C	90°C	Size AWG or kcmil
	COPPER			ALUMINUM			
12	20	25	30	15	20	25	12
10	30	35	40	30	30	35	10
8	40	50	55	35	40	45	8
6	55	65	75	40	50	55	6
4	70	85	95	55	65	75	4
3	85	100	115	65	75	85	3
2	95	115	130	75	90	100	2

Notes:

1. This system meets the requirements of NEC 690.35 and is exempt from the system grounding requirements of NEC 690.41 System Grounding.
2. Photovoltaic system ground will be tied into existing ground at main service from DC Disconnect/Inverter as per NEC Sec. 250.166 (B). "The Grounding Electrode Conductor shall not be smaller then the largest conductor supplied by the system and not smaller than #8AWG."
3. The DC conductors are not bonded to ground and the micro-inverters (if applicable) do not require a GEC.
4. NEC 690.43(C) Structure as Equipment Grounding Conductor allows for equipment to be used as the EGC in a photovoltaic system.
5. The devices listed and identified for grounding the equipment may be stand-alone grounding components or UL-2703 listed mounting hardware. Microinverters (if applicable) and modules are bonded to the racking with listed and approved grounding components, the EGC provided to the Micro-Inverters through the Manufacture's Cable and is used to ground the other photovoltaic system components.
6. Equipment operating 150 volts or greater shall only be serviced or replaced by qualified personnel. Field protection may be in the form of conduit, closed cabinet or an enclosure which require use of tools to open.
7. Solar Photovoltaic System equipment will be installed in accordance with the requirements of Art. 690 of the 2019 NEC.
8. Local utility provider shall be notified prior to use and activation of any solar photovoltaic installation.
9. No sheet metal or tech screws shall be used to ground disconnect enclosure with tin-plated aluminum lugs; proper grounding/bar kits must be used.
10. All solar modules, equipment, and metallic components are to be grounded in accordance with code and the manufacturer's installation instructions.
11. PV modules cannot be installed over or block any attic vents, plumbing vents, furnace or water heater vents etc.
12. Wiring must be permanently and completely held off of the roof surface per NEC 110.2, 110.3(A), 110.3(B) & 300.4
13. **PV breaker shall be installed opposite end of the buss bar from the Main Breaker per NEC 705.12(D)(2).**
14. Per NEC 690.12, Solar Edge systems are equipped with rapid shutdown without any additional equipment. See technical brief supplemental document.
15. Enphase Micro-Inverters are smart inverter compliant per California rule 21.
16. Conductor size may vary based on Voltage Drop.
17. UNLESS OTHERWISE STATE, THE MOCPD IS LOCATED AT THE END OF THE BUSS BAR.

Designed By: Ryan Niedzwiecki-Pirtz



EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

6 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 6, ----, ----
Azimuth(s): 270°

NORTH AVENUE HALF-PLEXES - LOT 2

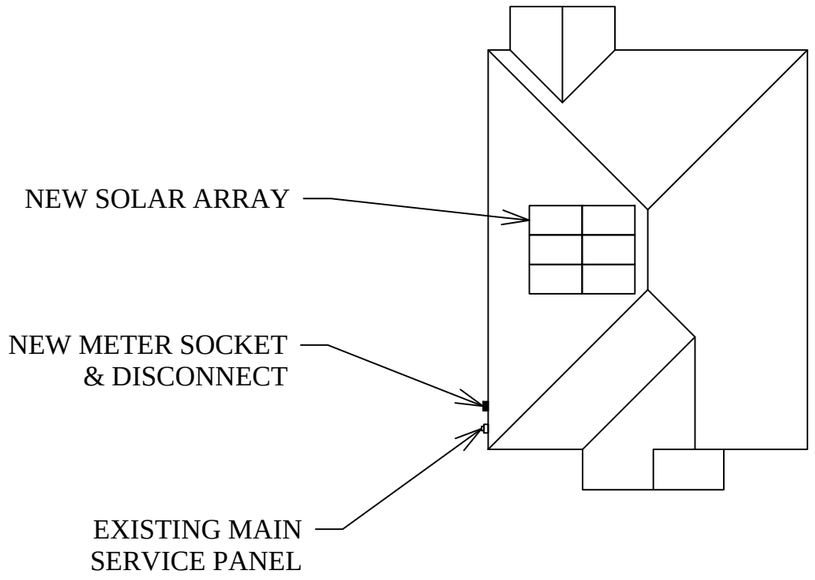
Lot 2
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022
Scale: NTS
Drawn By:
Title: SINGLE LINE DRAWING
Sheet: 3

CAUTION!

POWER TO THIS BUILDING IS ALSO
SUPPLIED FROM THE FOLLOWING
SOURCES WITH DISCONNECTS
LOCATED AS SHOW:



Designed By: Ryan Wadzwiecki-Pirtz

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Fair Oaks, Ca 95628
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400ML-G-10.a+
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NORTH AVENUE
HALF-PLEXES - LOT 2

Lot 2
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905 North Ave
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APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022
Scale: None
Drawn By:

Title:
LABELS DIRECTORY

Sheet:
8.1

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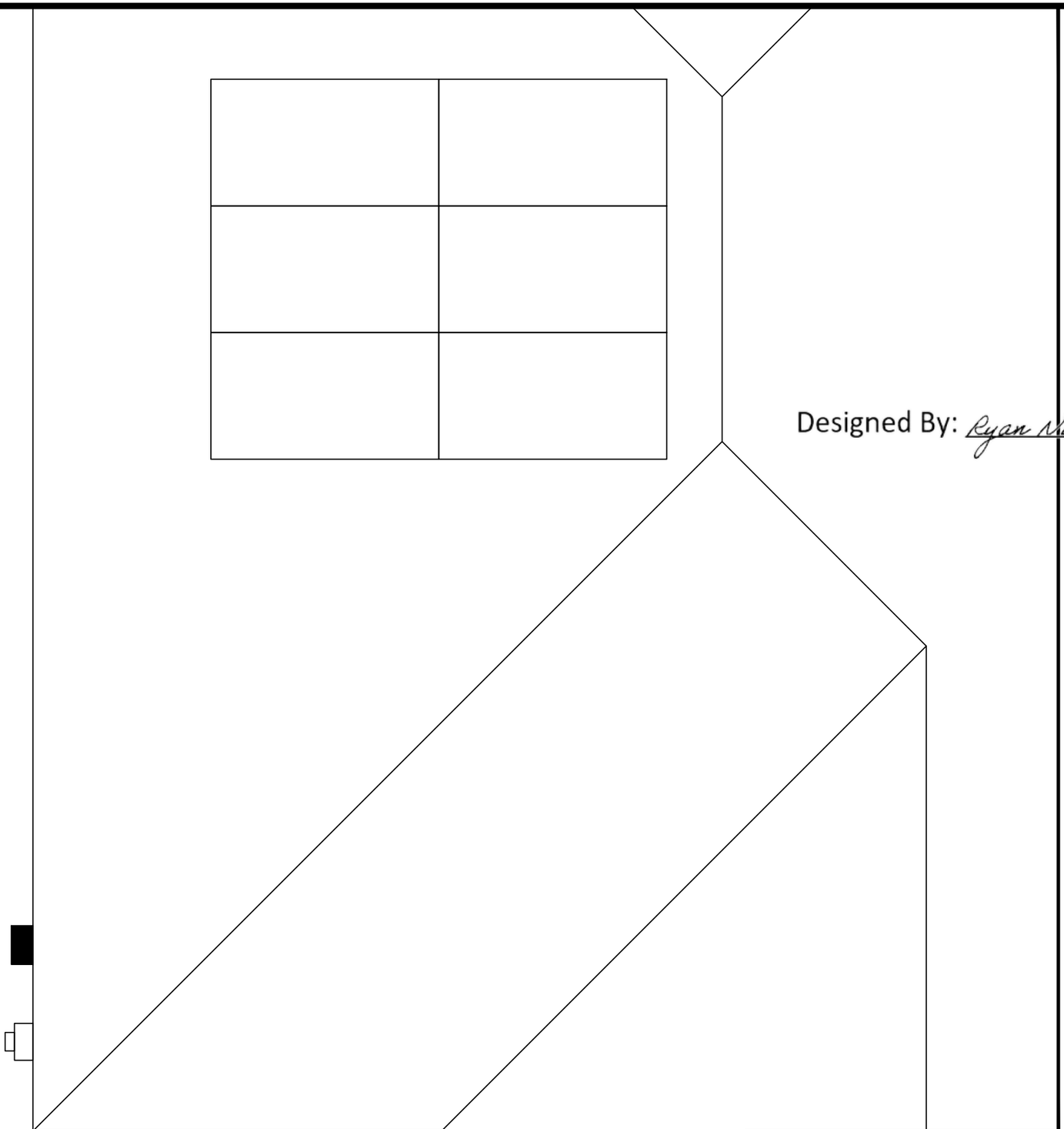

Designed By: Ryan Niedzwiecki-Pirtz

EV Energy Inc.
Plug Into The Future

10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
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NORTH AVENUE HALF-PLEXES - LOT 2

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Date: June 1, 2022

Scale: None

Drawn By:

Title:
AS-BUILT

Sheet:
10

Notes:
1. This page is not intended to be part of the permitting submission. It is intended for reference only as is for the sole purpose for system configuration, management & troubleshooting.

2/23/2023 2:35:54 PM

3.2 kW (DC) ROOF MOUNTED PV ARRAY FOR THE NORTH AVENUE HALF-PLEXES - LOT 3

ROOF INFO:
AZIMUTH: 175° & 265°
TILT: 14°
TYPE: COMP

CONTRACTOR:
EV Energy
10417 Fair Oaks Blvd
Fair Oaks , Ca 95628
Phone: 916-436-4289
LIC. #1016892

SCOPE OF WORK:

System composed of 1 string of 8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+ Modules each 2 Modules connected to 1 APS DS3-S Micro-Inverter. 8 modules and 4 Micro-Inverters total.

Bill of Materials

8 HANWHA Q.PEAK DUO BLK 400ML-G-10.A+
APS DS3-S Micro Inverters
1 Enphase Envoy-IQ Combiner
1 20AMP 2-Pole Circuit Breaker
1 30AMP AC Disconnect

MSP Requirements: NONE

GENERAL NOTES:

1. ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
2. THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE 2019 CEC AND 2019 CBC.
3. WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
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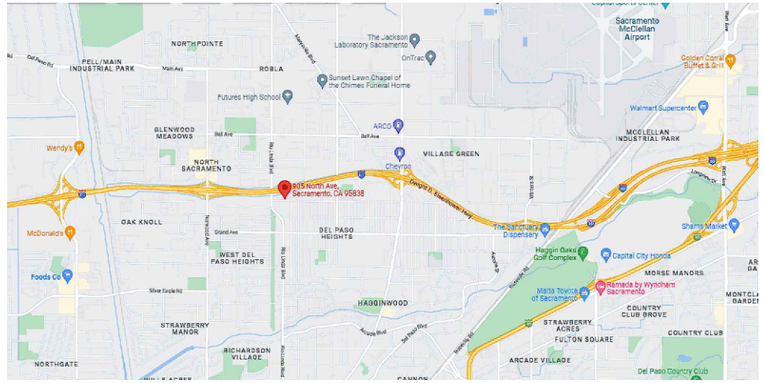

Vicinity Map:

Designed By: Ryan Niedzwiecki-Pirtz

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EV Energy Inc. Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 175° & 265°

NORTH AVENUE HALF-PLEXES - LOT 3

Lot 3
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:

Title:
TITLE PAGE

Sheet: 1

2/23/2023 2:35:58 PM

NOTES: (UNLESS OTHERWISE SPECIFIED)

- Per CRC R324.6.1:
- Not less than (2) min 36" wide pathways on separate roof planes, lowest roof edge to ridge, shall be provided on all building. At least one pathway shall be provided on the street or driveway side of the roof.
- This systems take up less than 33% of total roof surface square footage on a non-sprinklered residence, therefore, the fire setbacks are relaxed to 18 inches from the ridge.

NOTES: (UNLESS OTHERWISE SPECIFIED)

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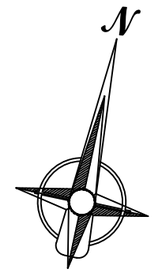
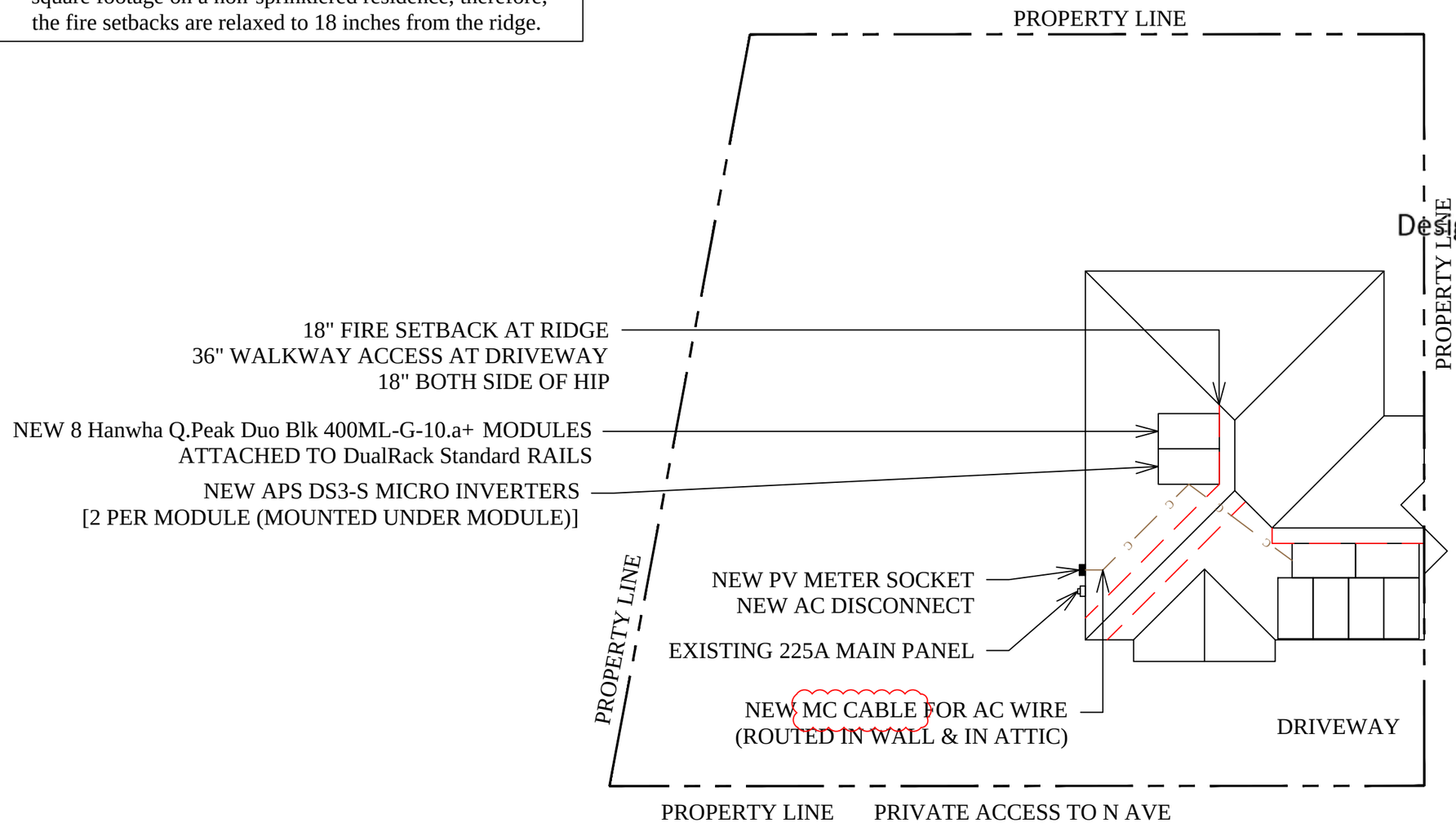
2. Equipment locations may change due to home owner requests or location best practices.
3. Existing buildings, structures or equipment are represented as locations, not configurations.

Area Calculations:

Sprinklered:	NO
Roof Area sq.ft.:	1250
Array Area sq.ft.:	169
% of Covered Area:	13.5





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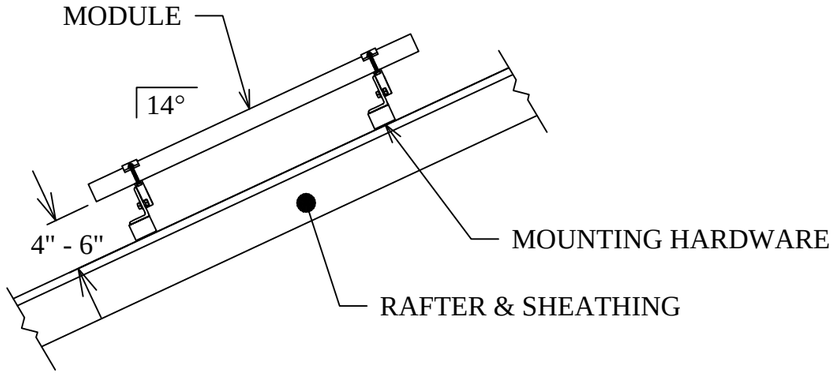
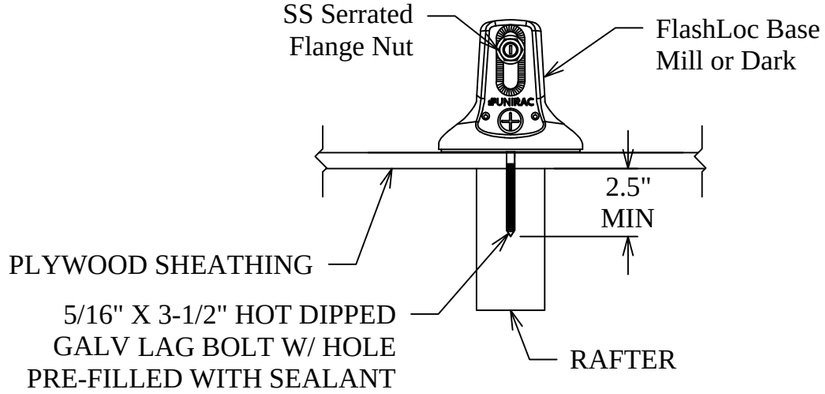
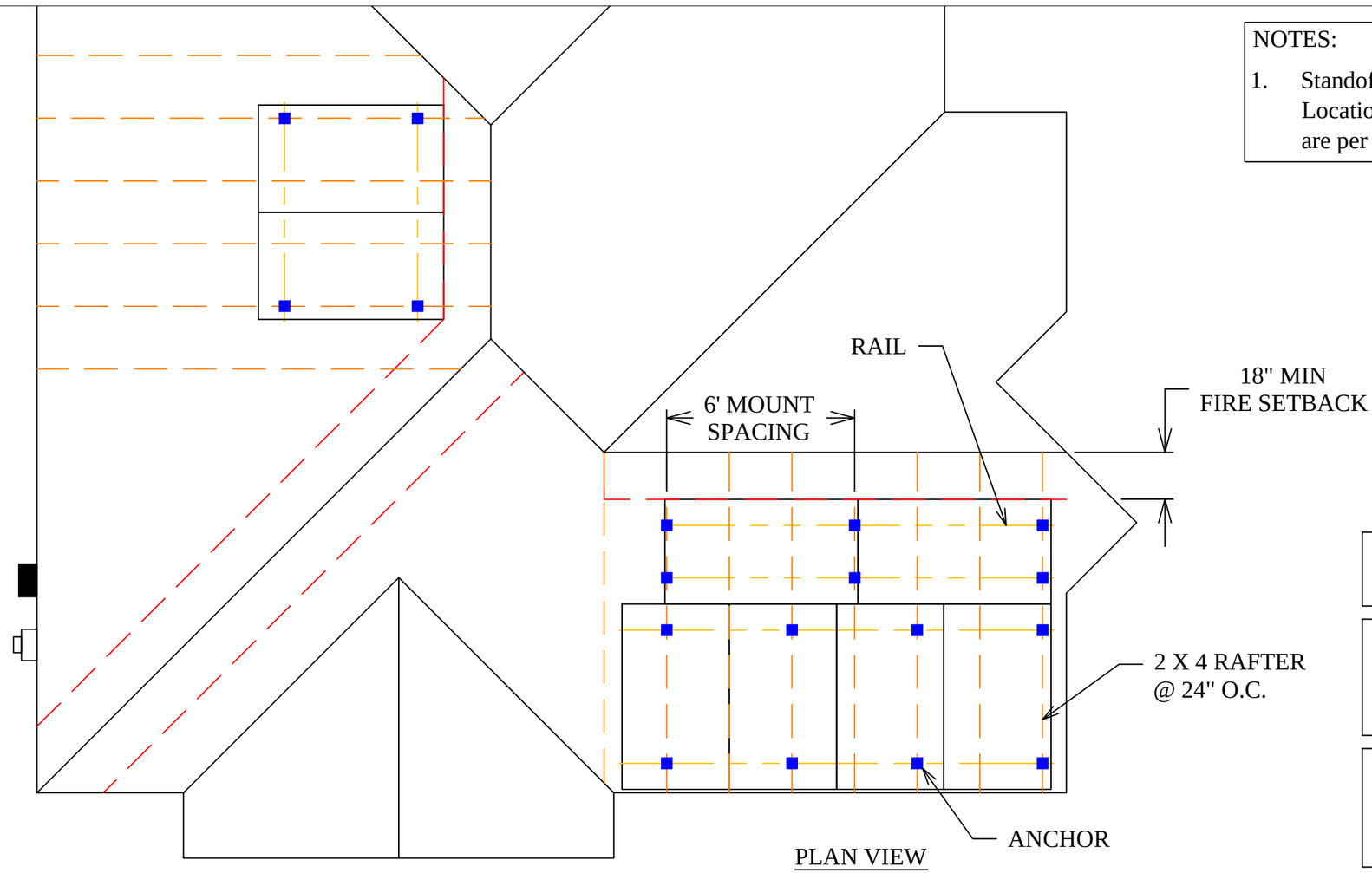


MODULE PROFILE
SCALE: NTS



MOUNTING DETAIL
SCALE: NTS

Designed By: Ryan Niedzwiecki-Pirtz



PLAN VIEW

NOTES:

1. Standoff locations on plans are not exact. Locations are subject to field verification and are per manufacturers specifications.

ROOF TYPE: 2-STORY,
COMPOSITION SHINGLE

TRUSS SYSTEM:
RAFTER SIZE: 2 X 4
RAFTER SPACING: 24" O.C.
UNSUPPORTED SPAN: 8'

FlashLoc SYSTEM:
ARRAY WEIGHT: 390 LBS.
LBS PER SQUARE FOOT: 2.77
LBS PER RACKING FOOT: 37.72

EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk
400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 175° & 265°

NORTH AVENUE
HALF-PLEXES - LOT 3

Lot 3
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: NTS
Drawn By:
Title: MOUNTING DETAIL
Sheet: 2.1

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CONDUCTOR & CONDUIT:

	CONDUIT TYPE:	CONDUIT SIZE:	CONDUCTOR TYPE:	CONDUCTOR SIZE:	# OF CONDUCTORS:	GROUNDING TYPE:	GROUNDING SIZE:
1	EMT	N/A	NM 12/2	#12	3	THHN/THWN-2	# 8 MIN (MEET NEC 690.47)
2	N/A	N/A	NM 12/2	#12	3	THHN/THWN-2	# 8 MIN (MEET NEC 690.47)
3	N/A	FREE AIR	AC Y3 Bus cable	#12	2	SOLID BARE	# 8 MIN (MEET NEC 690.47)

EQUIPMENT:

	MNFR:	MODEL:	MAX Power:	IMP:	ISC:	Buss Size:	MOCPD Size:	MAX Breaker:
1	SQUARE-D	N/A	N/A	N/A	N/A	225 A	200 A	20 A
2	Square-D	DU221RB	N/A	N/A	N/A	30 A	N/ A	N/A
3	APS	DS3-S	640 W	2.66 A	3.33 A	N/A	N/A	20 A / string

STRING INFORMATION

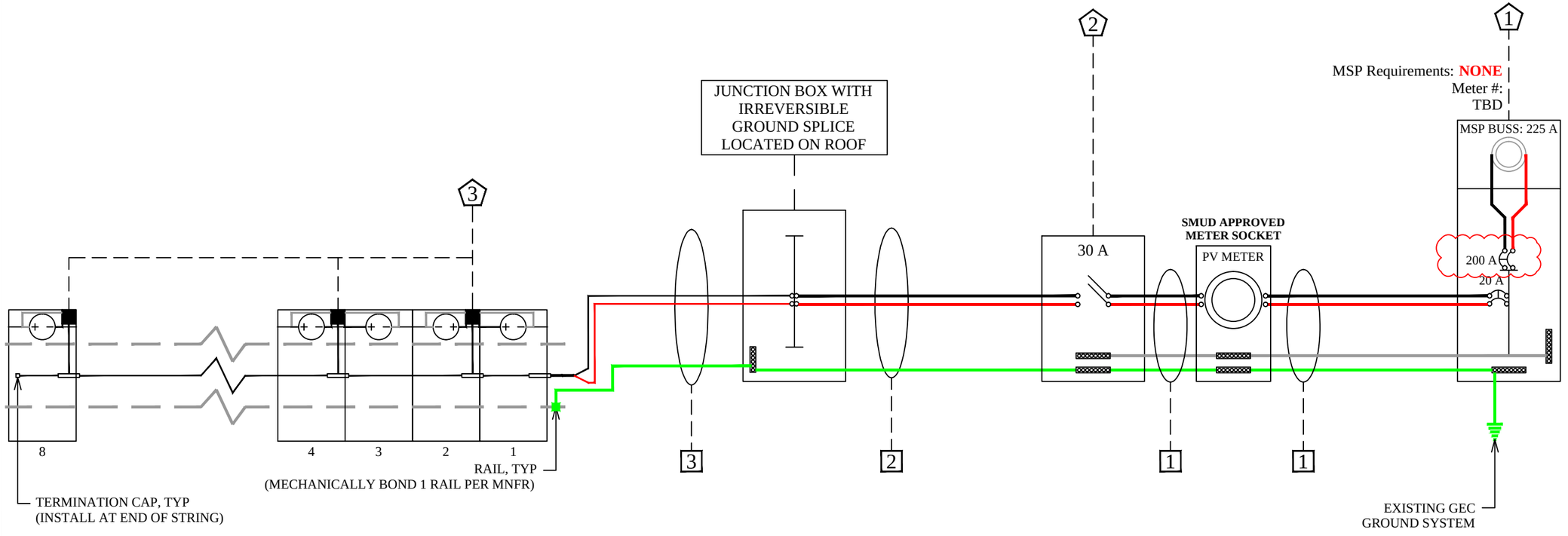
# OF MODULES IN STRING:	# OF MICRO-INVERTERS IN STRING:	IMP:	ISC:	MAX Breaker:
8	4	11 A	14 A	20 A

Temperature Rating of Conductors

Size AWG or kcmil	60°C	75°C	90°C	60°C	75°C	90°C	Size AWG or kcmil
	COPPER			ALUMINUM			
12	20	25	30	15	20	25	12
10	30	35	40	30	30	35	10
8	40	50	55	35	40	45	8
6	55	65	75	40	50	55	6
4	70	85	95	55	65	75	4
3	85	100	115	65	75	85	3
2	95	115	130	75	90	100	2

Notes:

1. This system meets the requirements of NEC 690.35 and is exempt from the system grounding requirements of NEC 690.41 System Grounding.
2. Photovoltaic system ground will be tied into existing ground at main service from DC Disconnect/Inverter as per NEC Sec. 250.166 (B). "The Grounding Electrode Conductor shall not be smaller then the largest conductor supplied by the system and not smaller than #8AWG."
3. The DC conductors are not bonded to ground and the micro-inverters (if applicable) do not require a GEC.
4. NEC 690.43(C) Structure as Equipment Grounding Conductor allows for equipment to be used as the EGC in a photovoltaic system.
5. The devices listed and identified for grounding the equipment may be stand-alone grounding components or UL-2703 listed mounting hardware. Microinverters (if applicable) and modules are bonded to the racking with listed and approved grounding components, the EGC provided to the Micro-Inverters through the Manufacture's Cable and is used to ground the other photovoltaic system components.
6. Equipment operating 150 volts or greater shall only be serviced or replaced by qualified personnel. Field protection may be in the form of conduit, closed cabinet or an enclosure which require use of tools to open.
7. Solar Photovoltaic System equipment will be installed in accordance with the requirements of Art. 690 of the 2019 NEC.
8. Local utility provider shall be notified prior to use and activation of any solar photovoltaic installation.
9. No sheet metal or tech screws shall be used to ground disconnect enclosure with tin-plated aluminum lugs; proper grounding/bar kits must be used.
10. All solar modules, equipment, and metallic components are to be grounded in accordance with code and the manufacturer's installation instructions.
11. PV modules cannot be installed over or block any attic vents, plumbing vents, furnace or water heater vents etc.
12. Wiring must be permanently and completely held off of the roof surface per NEC 110.2, 110.3(A), 110.3(B) & 300.4
13. **PV breaker shall be installed opposite end of the buss bar from the Main Breaker per NEC 705.12(D)(2).**
14. Per NEC 690.12, Solar Edge systems are equipped with rapid shutdown without any additional equipment. See technical brief supplemental document.
15. Enphase Micro-Inverters are smart inverter compliant per California rule 21.
16. Conductor size may vary based on Voltage Drop.
17. UNLESS OTHERWISE STATE, THE MOCPD IS LOCATED AT THE END OF THE BUSS BAR.



EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 175° & 265°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE HALF-PLEXES - LOT 3

Lot 3
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: December 6, 2022
Scale: NTS
Drawn By:

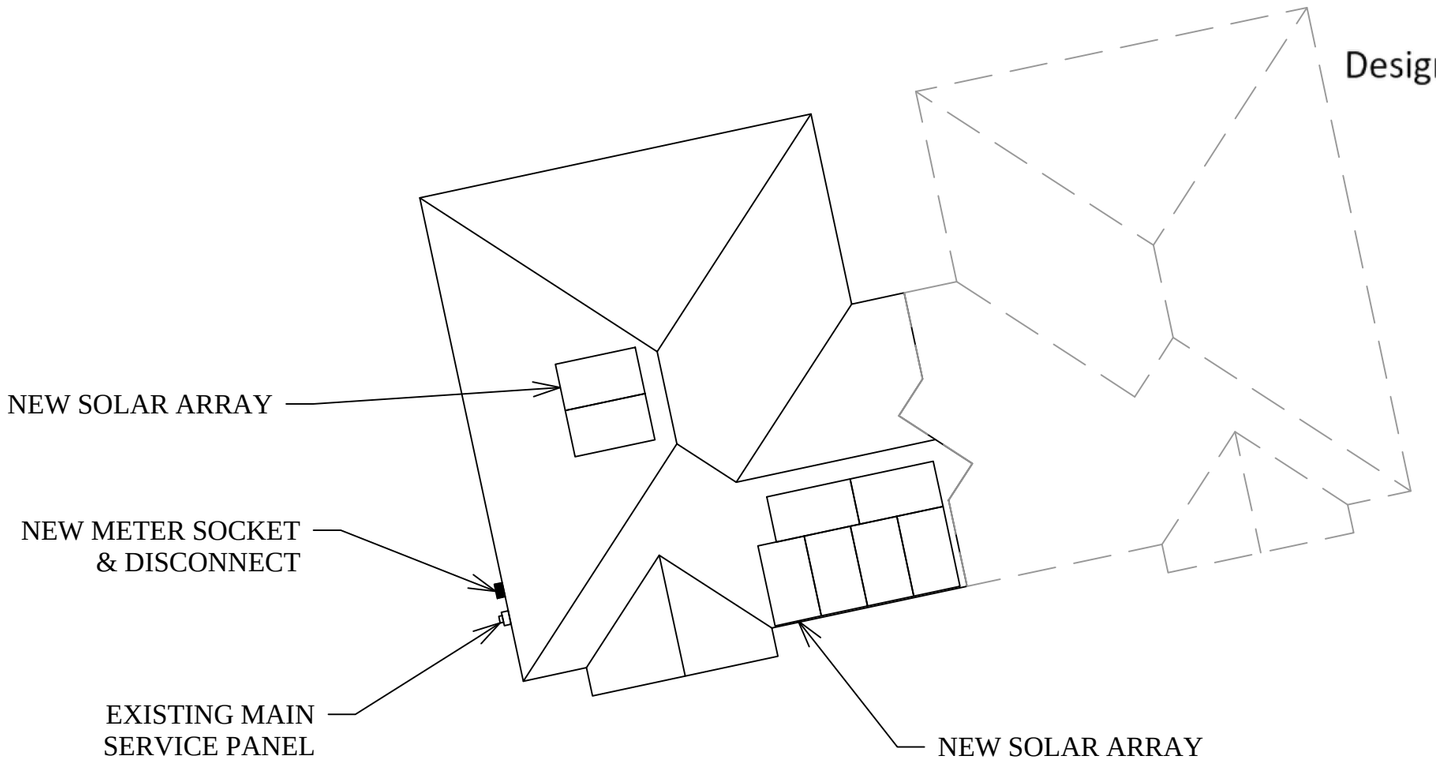
Title: SINGLE LINE DRAWING

Sheet: 3

2/23/2023 2:36:49 PM

CAUTION!

POWER TO THIS BUILDING IS ALSO
SUPPLIED FROM THE FOLLOWING
SOURCES WITH DISCONNECTS
LOCATED AS SHOW:



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400ML-G-10.a+
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NORTH AVENUE
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Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:

Title:
LABELS DIRECTORY

Sheet:
8.1

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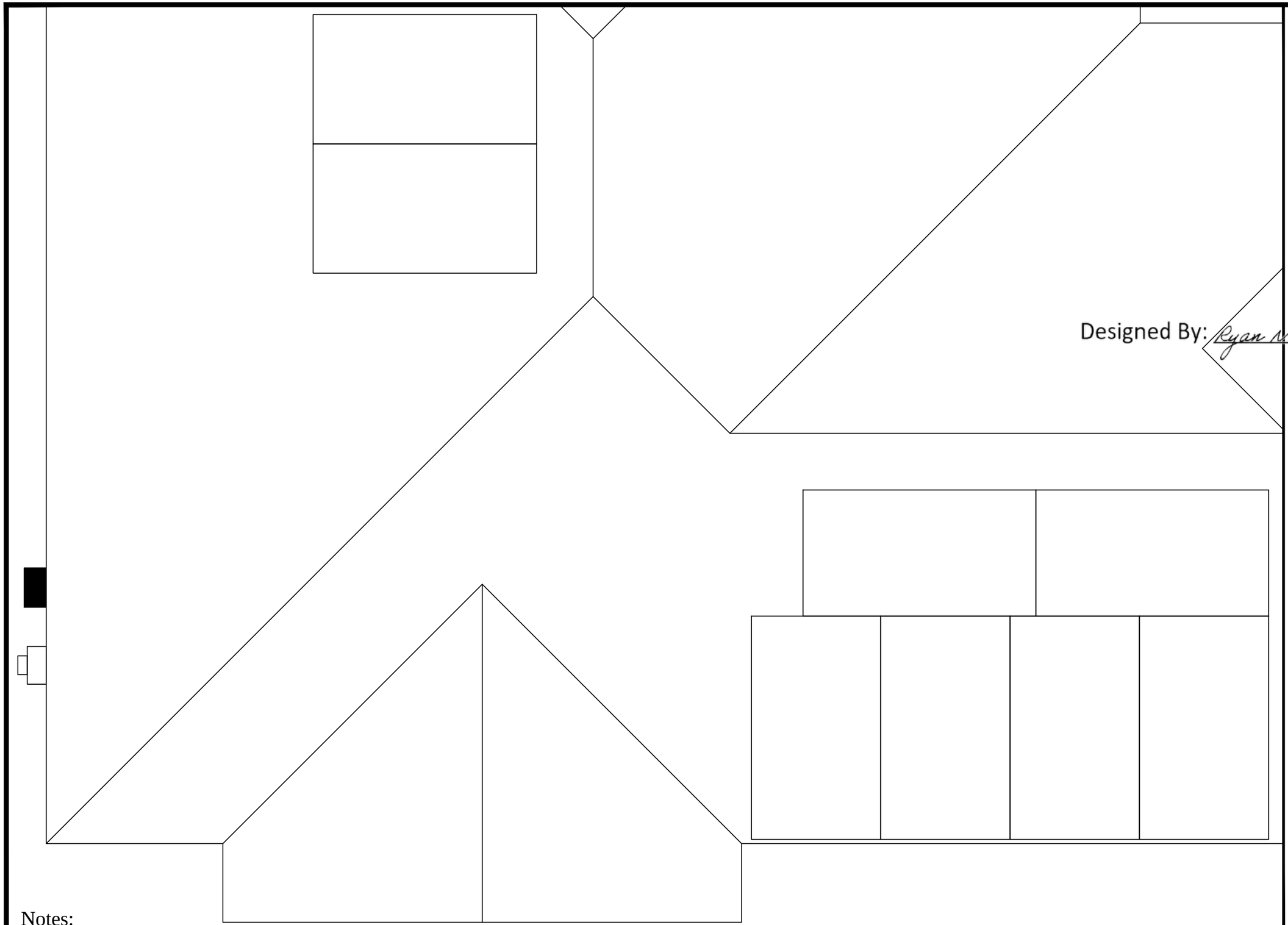

Designed By: Ryan Niedzwiecki-Pirtz

Notes:

1. This page is not intended to be part of the permitting submission. It is intended for reference only as is for the sole purpose for system configuration, management & troubleshooting.

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Date: May 31, 2022
Scale: None
Drawn By:

Title:
AS-BUILT

Sheet: 10

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3.2 kW (DC) ROOF MOUNTED PV ARRAY FOR THE NORTH AVENUE HALF-PLEXES - LOT 4

ROOF INFO:
AZIMUTH: 85° 175°
TILT: 14°
TYPE: COMP

CONTRACTOR:
EV Energy
10417 Fair Oaks Blvd
Fair Oaks , Ca 95628
Phone: 916-436-4289
LIC. #1016892

SCOPE OF WORK:

System composed of 1 string of 8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+ Modules each 2 Modules connected to 1 APS DS3-S Micro-Inverter. 8 modules and 4 Micro-Inverters total.

Bill of Materials

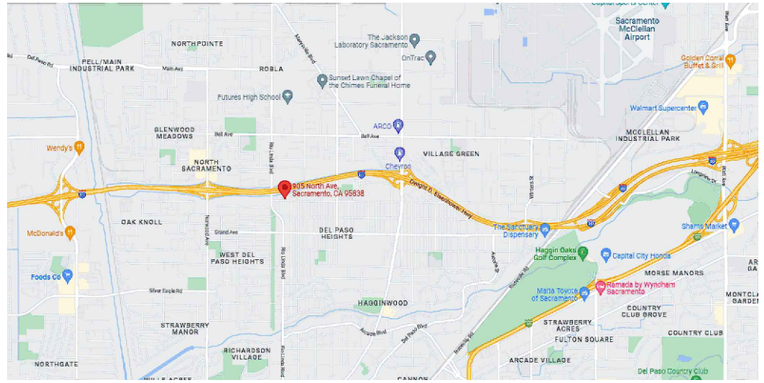
8 HANWHA Q.PEAK DUO BLK 400ML-G-10.A+
APS DS3-S Micro Inverters
1 Enphase Envoy-IQ Combiner
1 20AMP 2-Pole Circuit Breaker
1 30AMP AC Disconnect

MSP Requirements: NONE

GENERAL NOTES:

1. ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
2. THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE 2019 CEC AND 2019 CBC.
3. WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
4. A DC DISCONNECTING MEANS SHALL BE INSTALLED AT A READILY ACCESSIBLE LOCATION EITHER OUTSIDE OF THE BUILDING OR STRUCTURE OR INSIDE NEAREST POINT OF ENTRANCE OF THE SYSTEM CONDUCTORS AS PER SECTION 690.14 OF THE CEC.
5. HEIGHT OF THE INTEGRATED AC/DC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
6. A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER CEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
7. PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
8. PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING. MECHANICAL, OR BUILDING ROOF VENTS. THE SMOKE ALARMS SHALL BE INSTALLED OR VERIFY TO ENSURE THE SMOKE ALARMS ALREADY EXISTING WHEN ALTERATION OR REPAIR TO GROUP R-3 OCCUPANCY EXCEEDS $1,000 CRC R314.22.
   - 8.1. ON THE CEILING OR WALLS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS
   - 8.2. IN EACH ROOM USED FOR SLEEPING PURPOSES,
   - 8.3. IN EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS.
   - 8.4. ALL SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL217 AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS CODE AND THE HOUSEHOLD FIRE WARNING EQUIPMENT PROVISIONS OF NFPA 72. SYSTEMS AND COMPONENTS SHALL BE CALIFORNIA STATE FIRE MARSHAL LISTED AND APPROVED IN ACCORDANCE WITH CA CODE OF REGULATIONS, TITLE 19, DIVISION 1 FOR PURPOSE FOR WHICH THEY ARE INSTALLED.
9. CARBON MONOXIDE ALARMS IF NOT ALREADY EXISTING ARE REQUIRED TO BE INSTALLED WITHIN A RESIDENTIAL DWELLING WHEN THE VALUATION OF AN ADDITION, ALTERATION OR REPAIR TO GROUP R-3 OCCUPANCY EXCEEDS $1,000 CRC R315.22

CARBON MONOXIDE ALARMS ARE REQUIRED AT THE FOLLOWING LOCATIONS:
A. ON THE CEILING OR WALLS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS
B. ON EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS.
C. THE CARBON MONOXIDE ALARMS SHALL BE LISTED AS COMPLYING WITH THE REQUIREMENTS OF UL 2034. CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THIS CODE, THE CURRENT EDITION OF NFPA 720 "STANDARD FOR THE INSTALLATION OF CARBON MONOXIDE (CO) DETECTION AND WARNING EQUIPMENT" AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PER 2019 CRC SECTION R315.2.2.



Vicinity Map:

Designed By: Ryan Niedzwiecki-Pirtz

Sheet List Table	
Sheet Number	Sheet Title
1	Title Page
2	Site Plan
2.1	Mounting Detail
3	Single Line Drawing
4	Module
4.1	Module Grounding
5	Inverter APS Micro-Inverter
6	Mounting Type
6.1	Racking Type
7	Engineering
7.1	Engineering
8	Labels
8.1	Labels Directory
9	AC Disconnect
10	As-Built

EV Energy Inc. Plug Into The Future
10417 Fair Oaks Blvd
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LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 85° 175°

NORTH AVENUE HALF-PLEXES - LOT 4

Lot 4
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:

Title:
TITLE PAGE

Sheet: 1

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NOTES: (UNLESS OTHERWISE SPECIFIED)

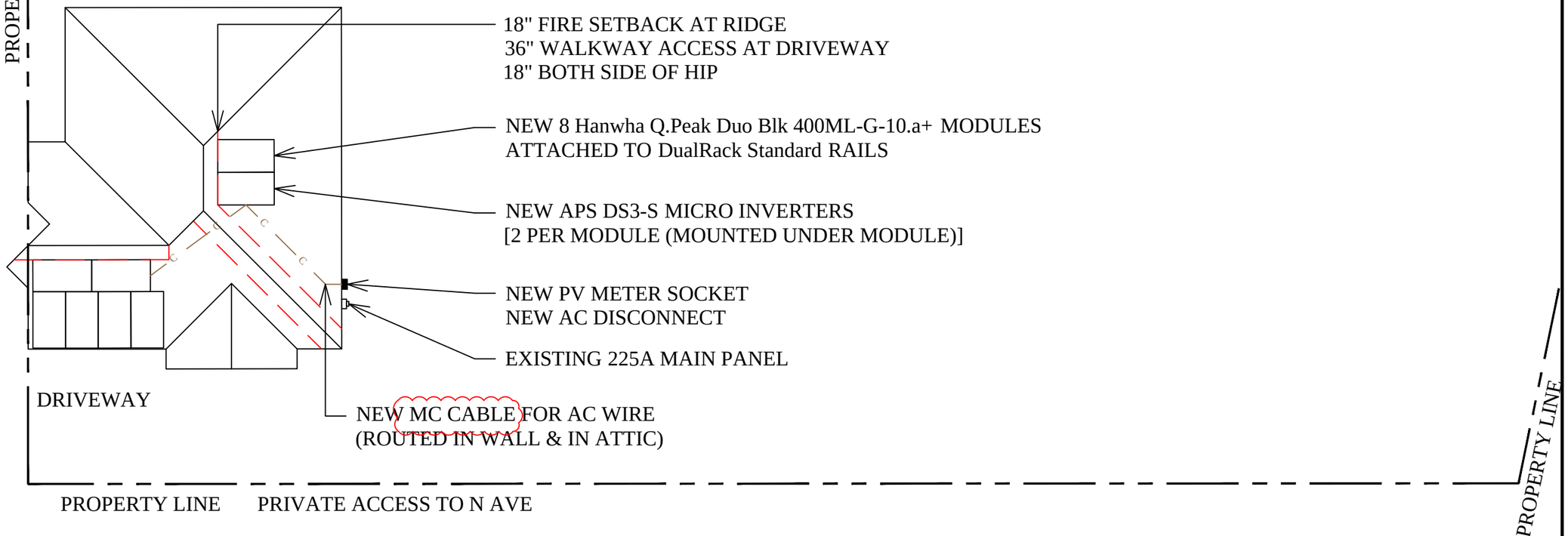
- Per CRC R324.6.1:
- Not less than (2) min 36" wide pathways on separate roof planes, lowest roof edge to ridge, shall be provided on all building. At least one pathway shall be provided on the street or driveway side of the roof.
- This systems take up less than 33% of total roof surface square footage on a non-sprinklered residence, therefore, the fire setbacks are relaxed to 18 inches from the ridge.

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. Equipment locations are not exact and are subject to field conditions.
2. Equipment locations may change due to home owner requests or location best practices.
3. Existing buildings, structures or equipment are represented as locations, not configurations.

Area Calculations:

Sprinklered:	NO
Roof Area sq.ft.:	1250
Array Area sq.ft.:	169
% of Covered Area:	13.5



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Lot 4
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905 North Ave
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No.	Revision/Issue	Date

Date: February 23, 2023
Scale: 1" = 12'
Drawn By:

Title: SITE PLAN

Sheet: 2

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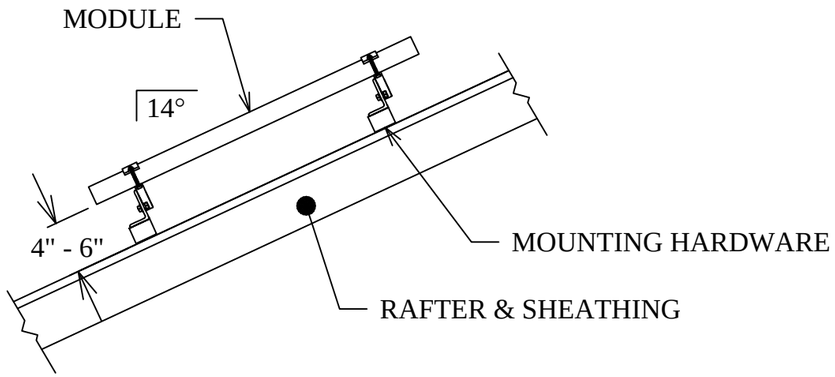
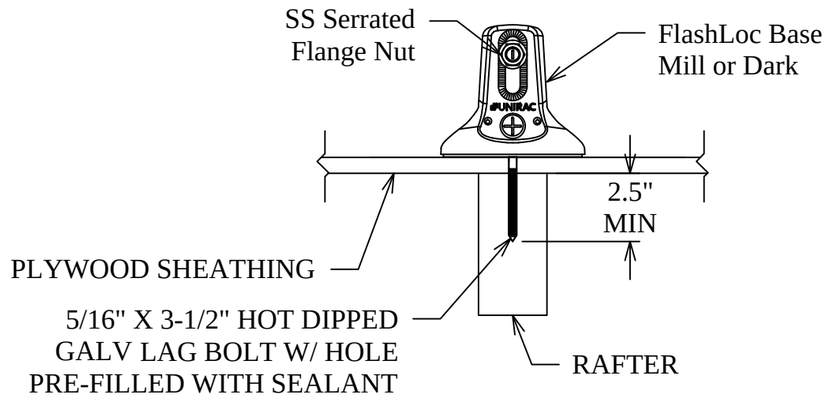


MODULE PROFILE
SCALE: NTS



MOUNTING DETAIL
SCALE: NTS

NOTES:

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ROOF TYPE: 2-STORY,
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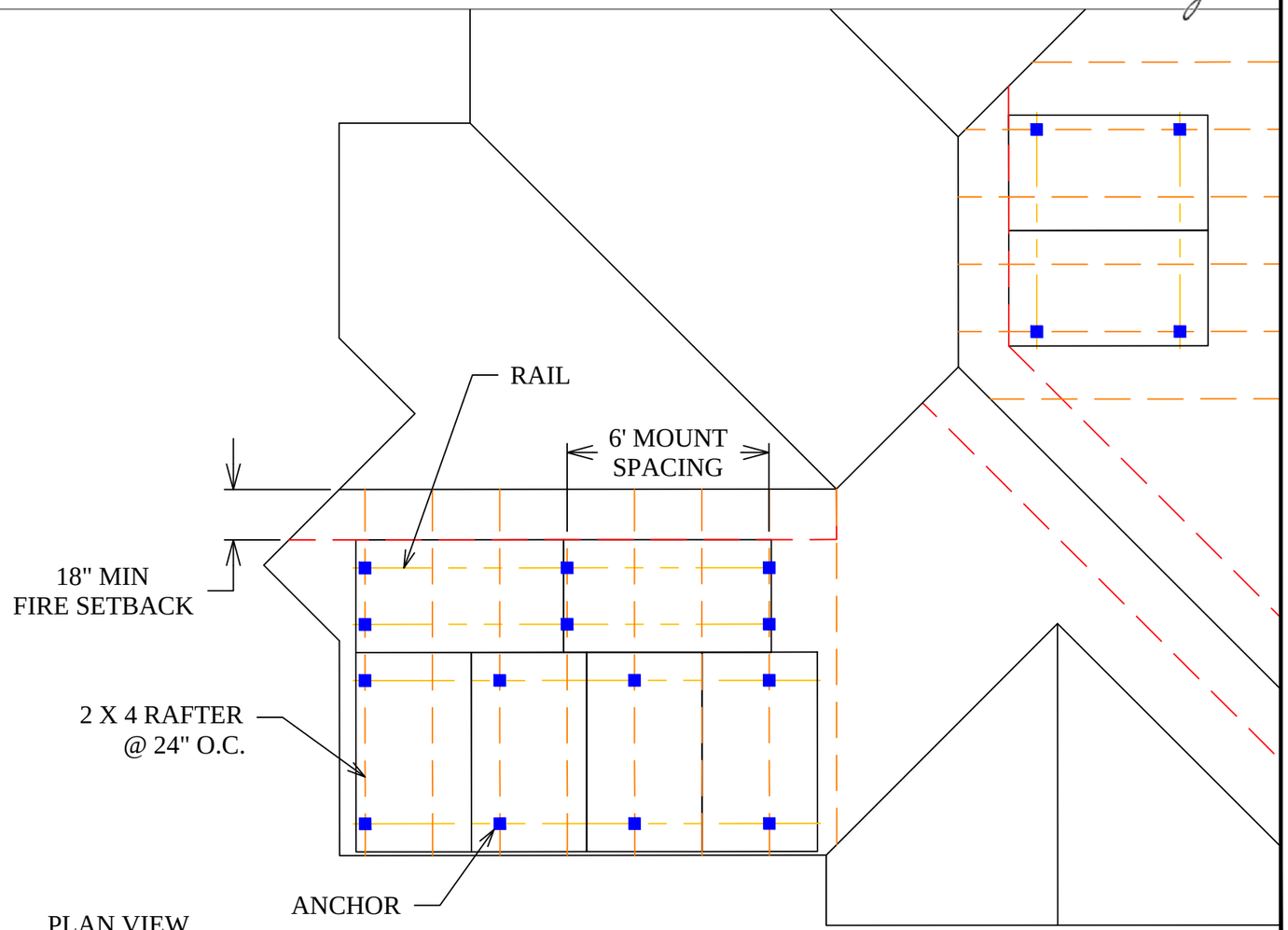

PLAN VIEW

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MOUNTING DETAIL

Sheet:
2.1

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CONDUCTOR & CONDUIT:

	CONDUIT TYPE:	CONDUIT SIZE:	CONDUCTOR TYPE:	CONDUCTOR SIZE:	# OF CONDUCTORS:	GROUNDING TYPE:	GROUNDING SIZE:
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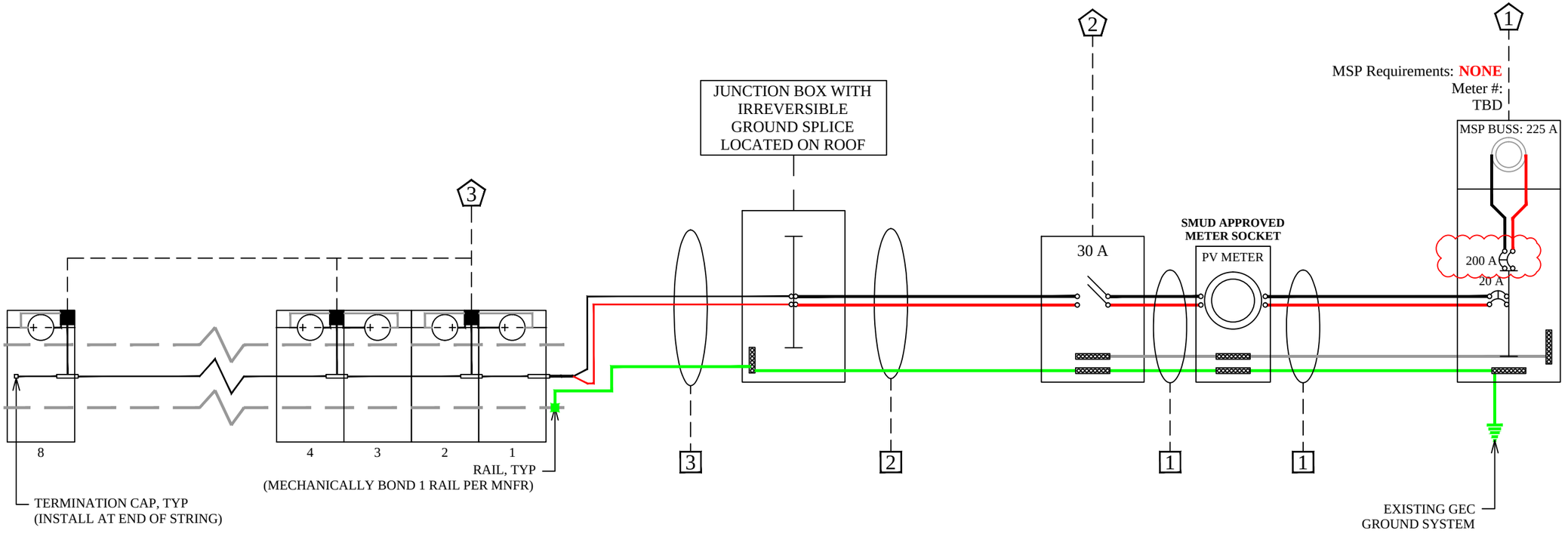

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APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 85° 175°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE HALF-PLEXES - LOT 4

Lot 4
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

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Date: December 6, 2022
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Drawn By:

Title: SINGLE LINE DRAWING

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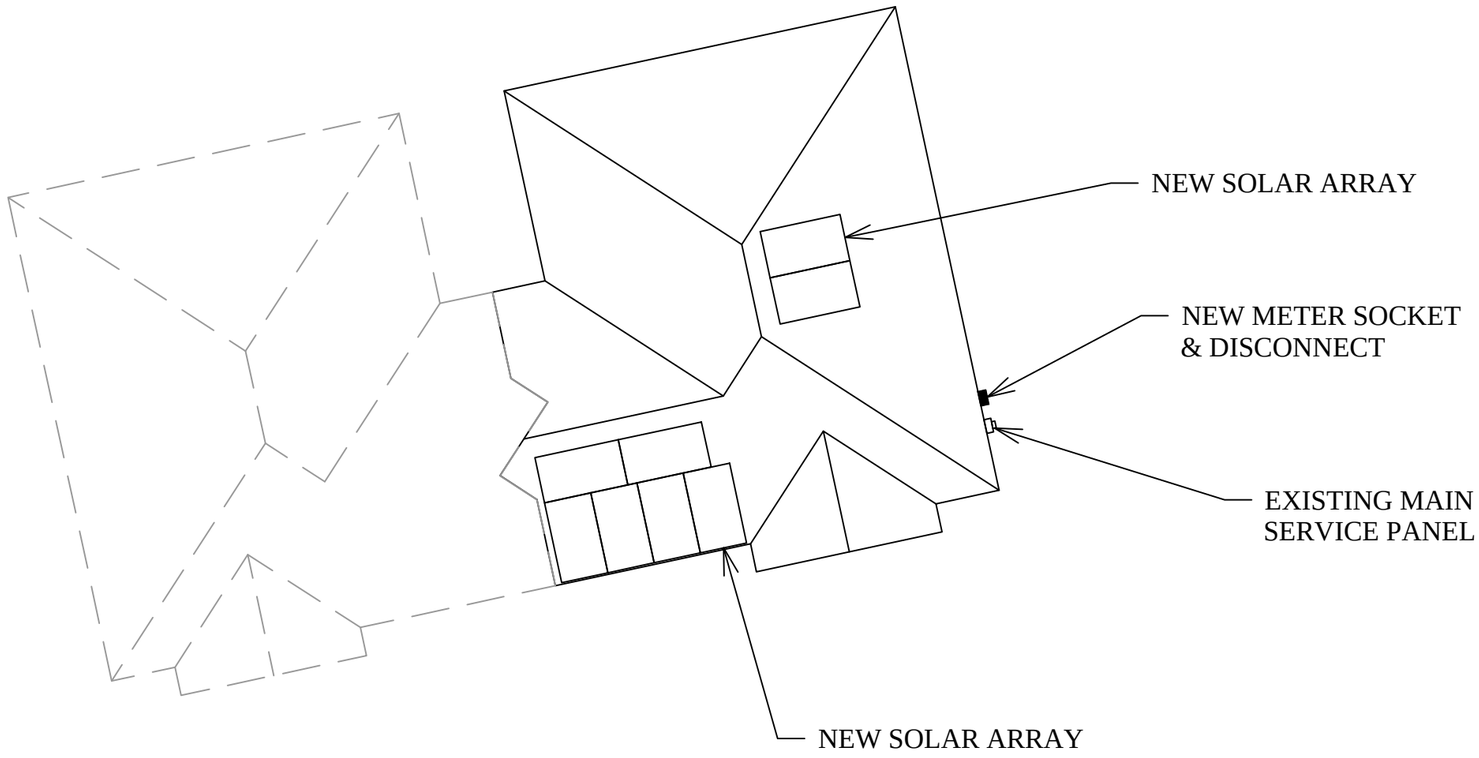

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Date: May 31, 2022

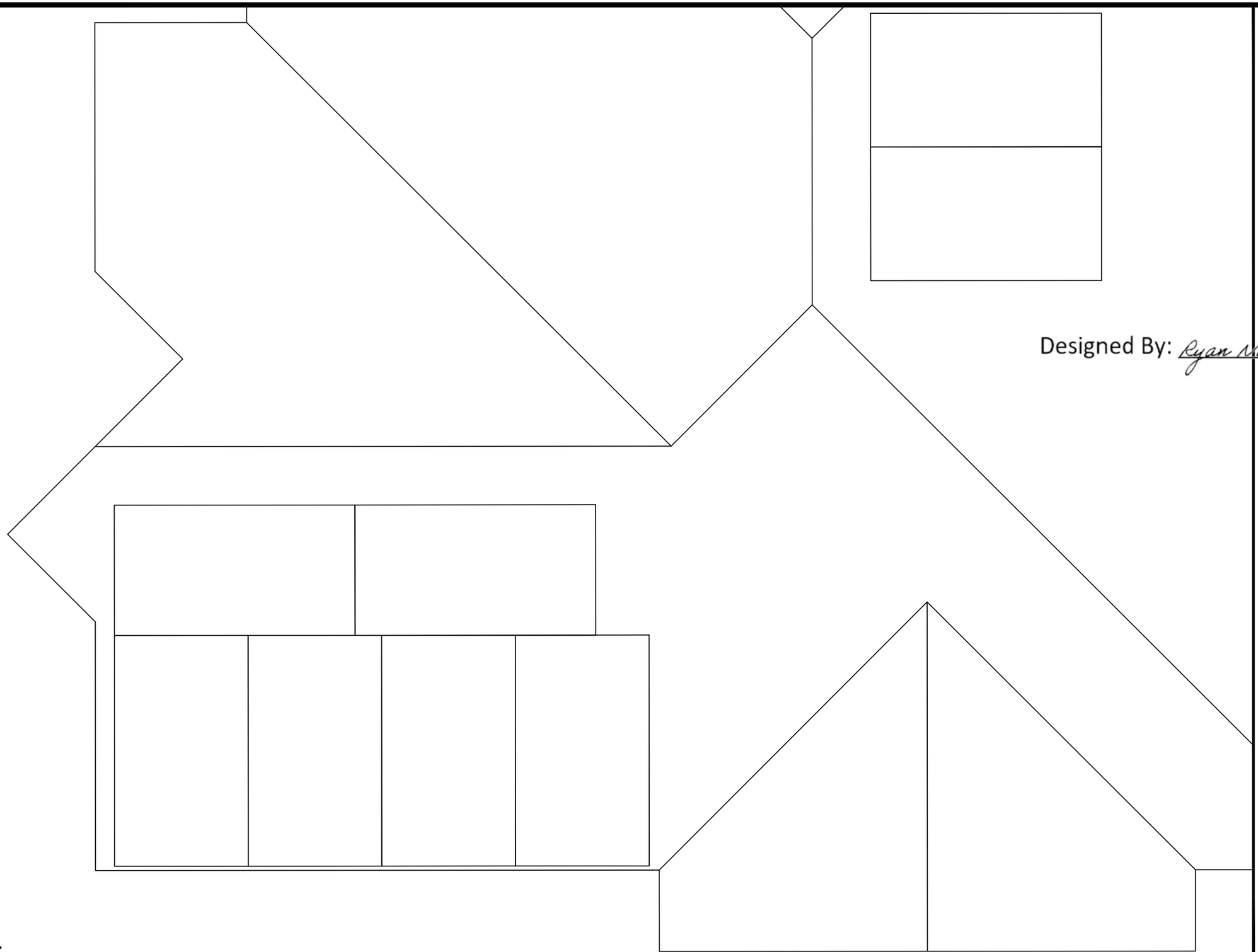
Scale: None

Drawn By:

Title:
LABELS DIRECTORY

Sheet:
8.1

2/23/2023 5:52:16 PM



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LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 85° 175°

NORTH AVENUE HALF-PLEXES - LOT 4

Lot 4
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:
Title: AS-BUILT
Sheet: 10

Notes:
1. This page is not intended to be part of the permitting submission. It is intended for reference only as is for the sole purpose for system configuration, management & troubleshooting.

2/23/2023 3:30:40 PM

3.2 kW (DC) ROOF MOUNTED PV ARRAY FOR THE NORTH AVENUE HALF-PLEXES - LOT 5

ROOF INFO:
AZIMUTH: 175° & 265°
TILT: 14°
TYPE: COMP

CONTRACTOR:
EV Energy
10417 Fair Oaks Blvd
Fair Oaks , Ca 95628
Phone: 916-436-4289
LIC. #1016892

SCOPE OF WORK:

System composed of 1 string of 8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+ Modules each 2 Modules connected to 1 APS DS3-S Micro-Inverter. 8 modules and 4 Micro-Inverters total.

Bill of Materials

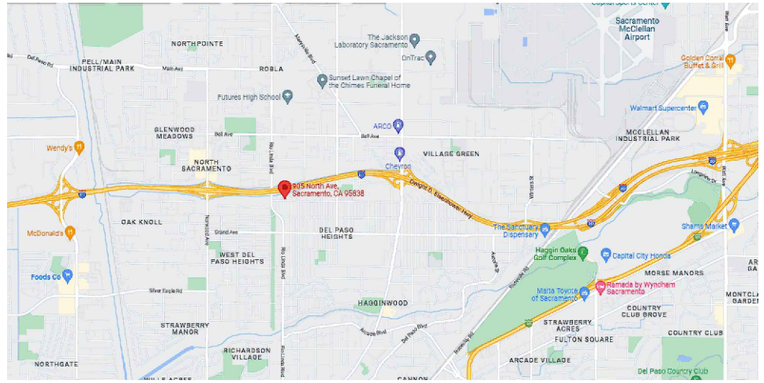
8 HANWHA Q.PEAK DUO BLK 400ML-G-10.A+
APS DS3-S Micro Inverters
1 Enphase Envoy-IQ Combiner
1 20AMP 2-Pole Circuit Breaker
1 30AMP AC Disconnect

MSP Requirements: NONE

GENERAL NOTES:

1. ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
2. THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE 2019 CEC AND 2019 CBC.
3. WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
4. A DC DISCONNECTING MEANS SHALL BE INSTALLED AT A READILY ACCESSIBLE LOCATION EITHER OUTSIDE OF THE BUILDING OR STRUCTURE OR INSIDE NEAREST POINT OF ENTRANCE OF THE SYSTEM CONDUCTORS AS PER SECTION 690.14 OF THE CEC.
5. HEIGHT OF THE INTEGRATED AC/DC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
6. A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER CEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
7. PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
8. PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING. MECHANICAL, OR BUILDING ROOF VENTS. THE SMOKE ALARMS SHALL BE INSTALLED OR VERIFY TO ENSURE THE SMOKE ALARMS ALREADY EXISTING WHEN ALTERATION OR REPAIR TO GROUP R-3 OCCUPANCY EXCEEDS $1,000 CRC R314.22.
   - 8.1. ON THE CEILING OR WALLS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS
   - 8.2. IN EACH ROOM USED FOR SLEEPING PURPOSES,
   - 8.3. IN EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS.
   - 8.4. ALL SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL217 AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS CODE AND THE HOUSEHOLD FIRE WARNING EQUIPMENT PROVISIONS OF NFPA 72. SYSTEMS AND COMPONENTS SHALL BE CALIFORNIA STATE FIRE MARSHAL LISTED AND APPROVED IN ACCORDANCE WITH CA CODE OF REGULATIONS, TITLE 19, DIVISION 1 FOR PURPOSE FOR WHICH THEY ARE INSTALLED.
9. CARBON MONOXIDE ALARMS IF NOT ALREADY EXISTING ARE REQUIRED TO BE INSTALLED WITHIN A RESIDENTIAL DWELLING WHEN THE VALUATION OF AN ADDITION, ALTERATION OR REPAIR TO GROUP R-3 OCCUPANCY EXCEEDS $1,000 CRC R315.22

CARBON MONOXIDE ALARMS ARE REQUIRED AT THE FOLLOWING LOCATIONS:
A. ON THE CEILING OR WALLS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS
B. ON EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS.
C. THE CARBON MONOXIDE ALARMS SHALL BE LISTED AS COMPLYING WITH THE REQUIREMENTS OF UL 2034. CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THIS CODE, THE CURRENT EDITION OF NFPA 720 "STANDARD FOR THE INSTALLATION OF CARBON MONOXIDE (CO) DETECTION AND WARNING EQUIPMENT" AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PER 2019 CRC SECTION R315.2.2.



Vicinity Map:

Designed By: Ryan Wadzwiecki-Pirtz

Sheet List Table	
Sheet Number	Sheet Title
1	Title Page
2	Site Plan
2.1	Mounting Detail
3	Single Line Drawing
4	Module
4.1	Module Grounding
5	Inverter APS Micro-Inverter
6	Mounting Type
6.1	Racking Type
7	Engineering
7.1	Engineering
8	Labels
8.1	Labels Directory
9	AC Disconnect
10	As-Built

EV Energy Inc. Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO
8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 175° & 265°

NORTH AVENUE HALF-PLEXES - LOT 5
Lot 5
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:
Title: TITLE PAGE
Sheet: 1

2/23/2023 3:30:44 PM

NOTES: (UNLESS OTHERWISE SPECIFIED)

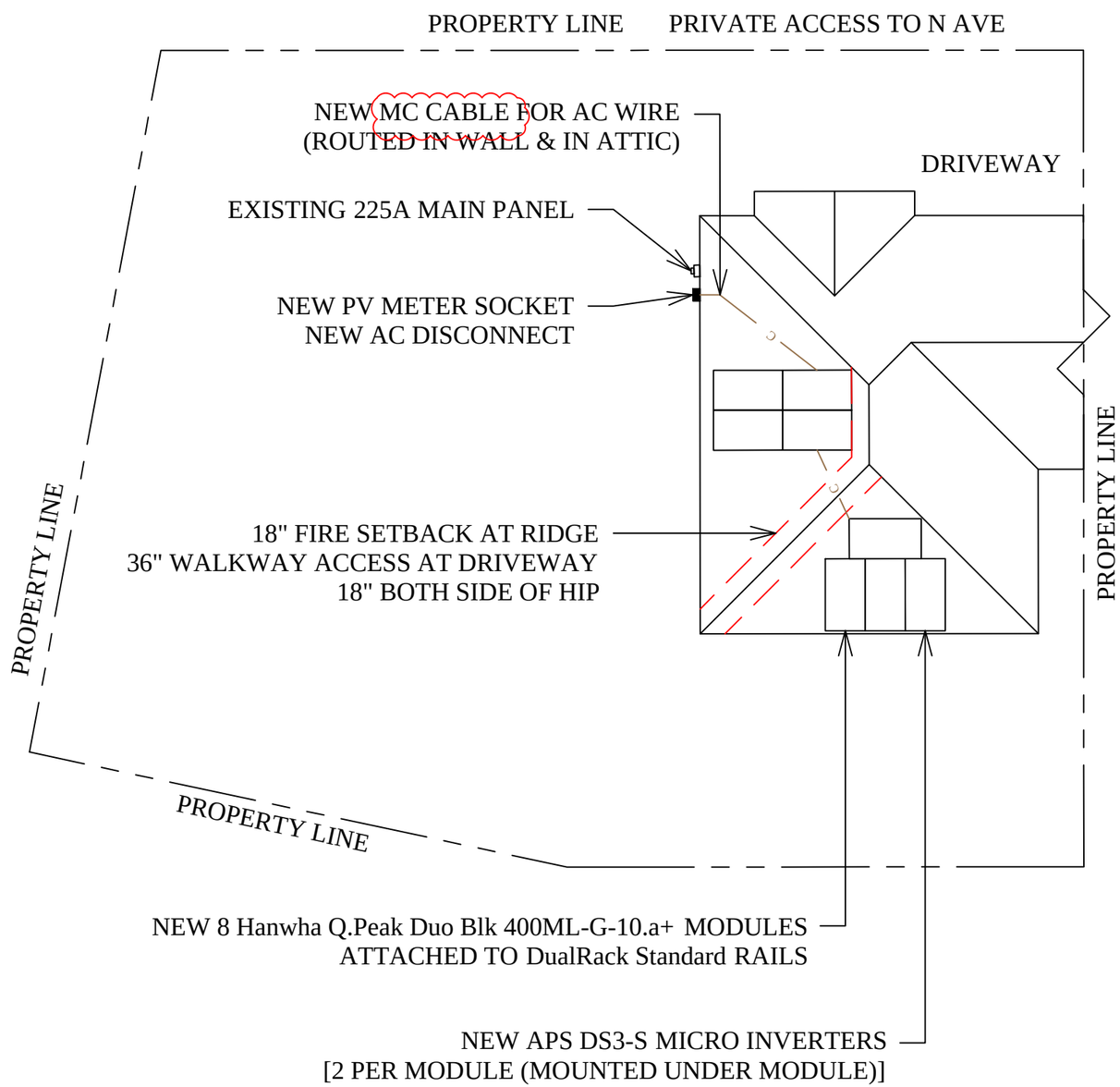
- Per CRC R324.6.1:
- Not less than (2) min 36" wide pathways on separate roof planes, lowest roof edge to ridge, shall be provided on all building. At least one pathway shall be provided on the street or driveway side of the roof.
- This systems take up less than 33% of total roof surface square footage on a non-sprinklered residence, therefore, the fire setbacks are relaxed to 18 inches from the ridge.

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. Equipment locations are not exact and are subject to field conditions.
2. Equipment locations may change due to home owner requests or location best practices.
3. Existing buildings, structures or equipment are represented as locations, not configurations.

Area Calculations:

Sprinklered:	NO
Roof Area sq.ft.:	1250
Array Area sq.ft.:	169
% of Covered Area:	13.5



Designed By: Ryan Niedzwiecki-Pirtz

EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 175° & 265°

NORTH AVENUE HALF-PLEXES - LOT 5

Lot 5
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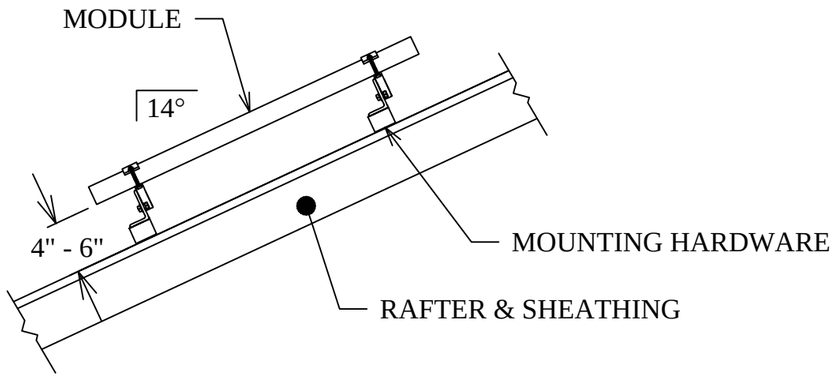
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

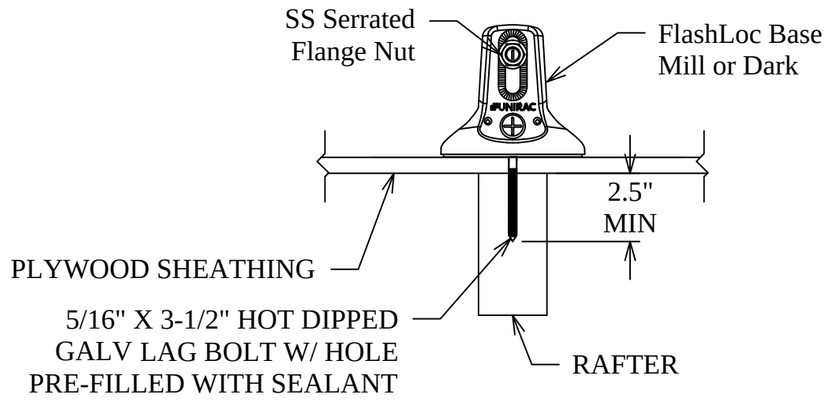
No.	Revision/Issue	Date

Date: February 23, 2023
Scale: 1" = 12'
Drawn By:
Title: SITE PLAN
Sheet: 2

2/23/2023 3:30:48 PM



MODULE PROFILE
SCALE: NTS

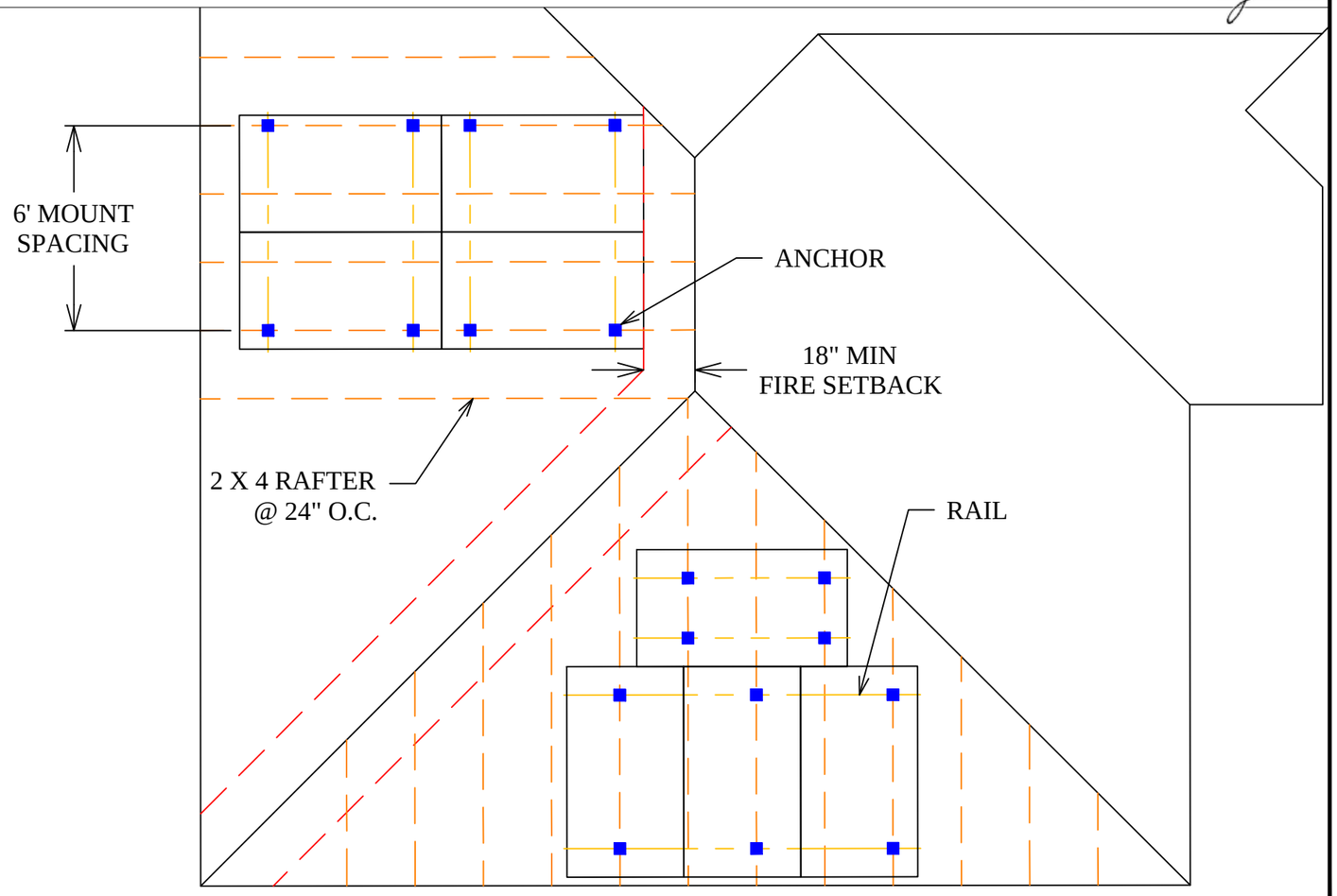


MOUNTING DETAIL
SCALE: NTS

Designed By: Ryan Niedzwiecki-Pirtz

NOTES:

1. Standoff locations on plans are not exact. Locations are subject to field verification and are per manufacturers specifications.



PLAN VIEW

ROOF TYPE: 2-STORY,
COMPOSITION SHINGLE

TRUSS SYSTEM:
RAFTER SIZE: 2 X 4
RAFTER SPACING: 24" O.C.
UNSUPPORTED SPAN: 8'

FlashLoc SYSTEM:
ARRAY WEIGHT: 390 LBS.
LBS PER SQUARE FOOT: 2.77
LBS PER RACKING FOOT: 37.72

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APS DS3-S
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Lot 5
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Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: NTS
Drawn By:

Title:
MOUNTING DETAIL

Sheet: 2.1

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CONDUCTOR & CONDUIT:

	CONDUIT TYPE:	CONDUIT SIZE:	CONDUCTOR TYPE:	CONDUCTOR SIZE:	# OF CONDUCTORS:	GROUNDING TYPE:	GROUNDING SIZE:
1	EMT	N/A	NM 12/2	#12	3	THHN/THWN-2	# 8 MIN (MEET NEC 690.47)
2	N/A	N/A	NM 12/2	#12	3	THHN/THWN-2	# 8 MIN (MEET NEC 690.47)
3	N/A	FREE AIR	AC Y3 Bus cable	#12	2	SOLID BARE	# 8 MIN (MEET NEC 690.47)

EQUIPMENT:

	MNFR:	MODEL:	MAX Power:	IMP:	ISC:	Buss Size:	MOCPD Size:	MAX Breaker:
1	SQUARE-D	N/A	N/A	N/A	N/A	225 A	200 A	20 A
2	Square-D	DU221RB	N/A	N/A	N/A	30 A	N/ A	N/A
3	APS	DS3-S	640 W	2.66 A	3.33 A	N/A	N/A	20 A / string

STRING INFORMATION

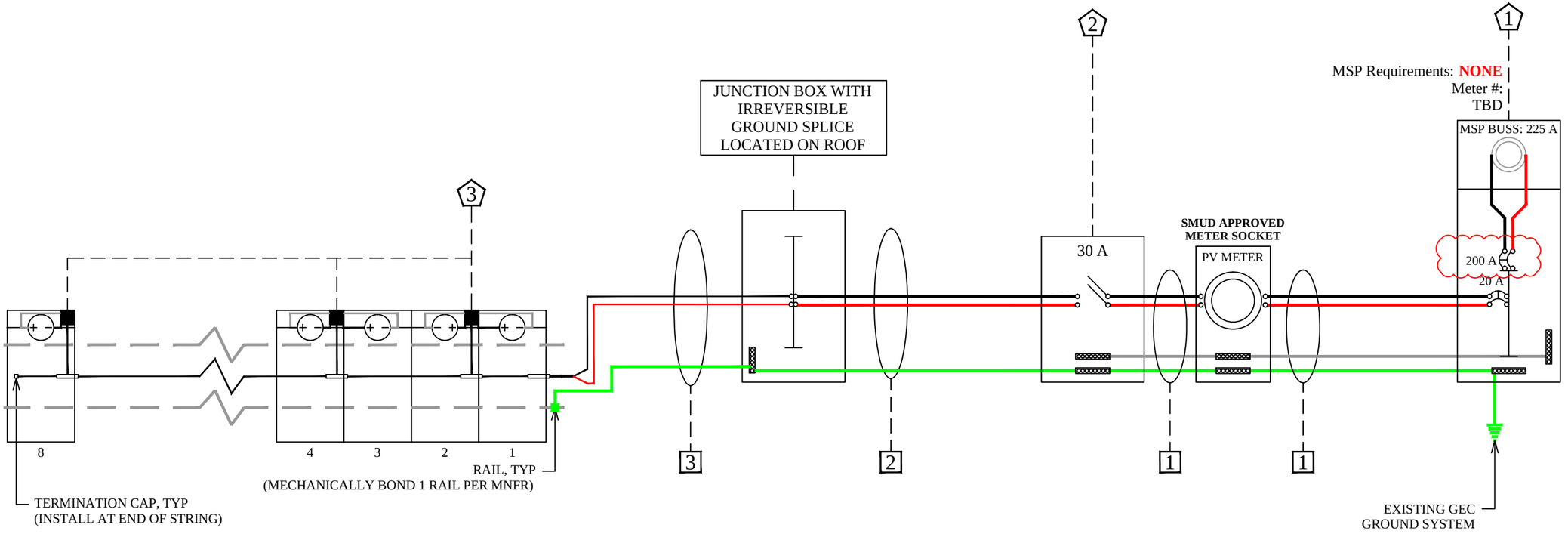
# OF MODULES IN STRING:	# OF MICRO-INVERTERS IN STRING:	IMP:	ISC:	MAX Breaker:
8	4	11 A	14 A	20 A

Temperature Rating of Conductors

Size AWG or kcmil	60°C	75°C	90°C	60°C	75°C	90°C	Size AWG or kcmil
	COPPER			ALUMINUM			
12	20	25	30	15	20	25	12
10	30	35	40	30	30	35	10
8	40	50	55	35	40	45	8
6	55	65	75	40	50	55	6
4	70	85	95	55	65	75	4
3	85	100	115	65	75	85	3
2	95	115	130	75	90	100	2

Notes:

1. This system meets the requirements of NEC 690.35 and is exempt from the system grounding requirements of NEC 690.41 System Grounding.
2. Photovoltaic system ground will be tied into existing ground at main service from DC Disconnect/Inverter as per NEC Sec. 250.166 (B). "The Grounding Electrode Conductor shall not be smaller then the largest conductor supplied by the system and not smaller than #8AWG."
3. The DC conductors are not bonded to ground and the micro-inverters (if applicable) do not require a GEC.
4. NEC 690.43(C) Structure as Equipment Grounding Conductor allows for equipment to be used as the EGC in a photovoltaic system.
5. The devices listed and identified for grounding the equipment may be stand-alone grounding components or UL-2703 listed mounting hardware. Microinverters (if applicable) and modules are bonded to the racking with listed and approved grounding components, the EGC provided to the Micro-Inverters through the Manufacture's Cable and is used to ground the other photovoltaic system components.
6. Equipment operating 150 volts or greater shall only be serviced or replaced by qualified personnel. Field protection may be in the form of conduit, closed cabinet or an enclosure which require use of tools to open.
7. Solar Photovoltaic System equipment will be installed in accordance with the requirements of Art. 690 of the 2019 NEC.
8. Local utility provider shall be notified prior to use and activation of any solar photovoltaic installation.
9. No sheet metal or tech screws shall be used to ground disconnect enclosure with tin-plated aluminum lugs; proper grounding/bar kits must be used.
10. All solar modules, equipment, and metallic components are to be grounded in accordance with code and the manufacturer's installation instructions.
11. PV modules cannot be installed over or block any attic vents, plumbing vents, furnace or water heater vents etc.
12. Wiring must be permanently and completely held off of the roof surface per NEC 110.2, 110.3(A), 110.3(B) & 300.4
13. **PV breaker shall be installed opposite end of the buss bar from the Main Breaker per NEC 705.12(D)(2).**
14. Per NEC 690.12, Solar Edge systems are equipped with rapid shutdown without any additional equipment. See technical brief supplemental document.
15. Enphase Micro-Inverters are smart inverter compliant per California rule 21.
16. Conductor size may vary based on Voltage Drop.
17. UNLESS OTHERWISE STATE, THE MOCPD IS LOCATED AT THE END OF THE BUSS BAR.



Designed By: Ryan Wadzwiecki-Pirtz

EV Energy Inc. Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 175° & 265°

NORTH AVENUE HALF-PLEXES - LOT 5

Lot 5
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

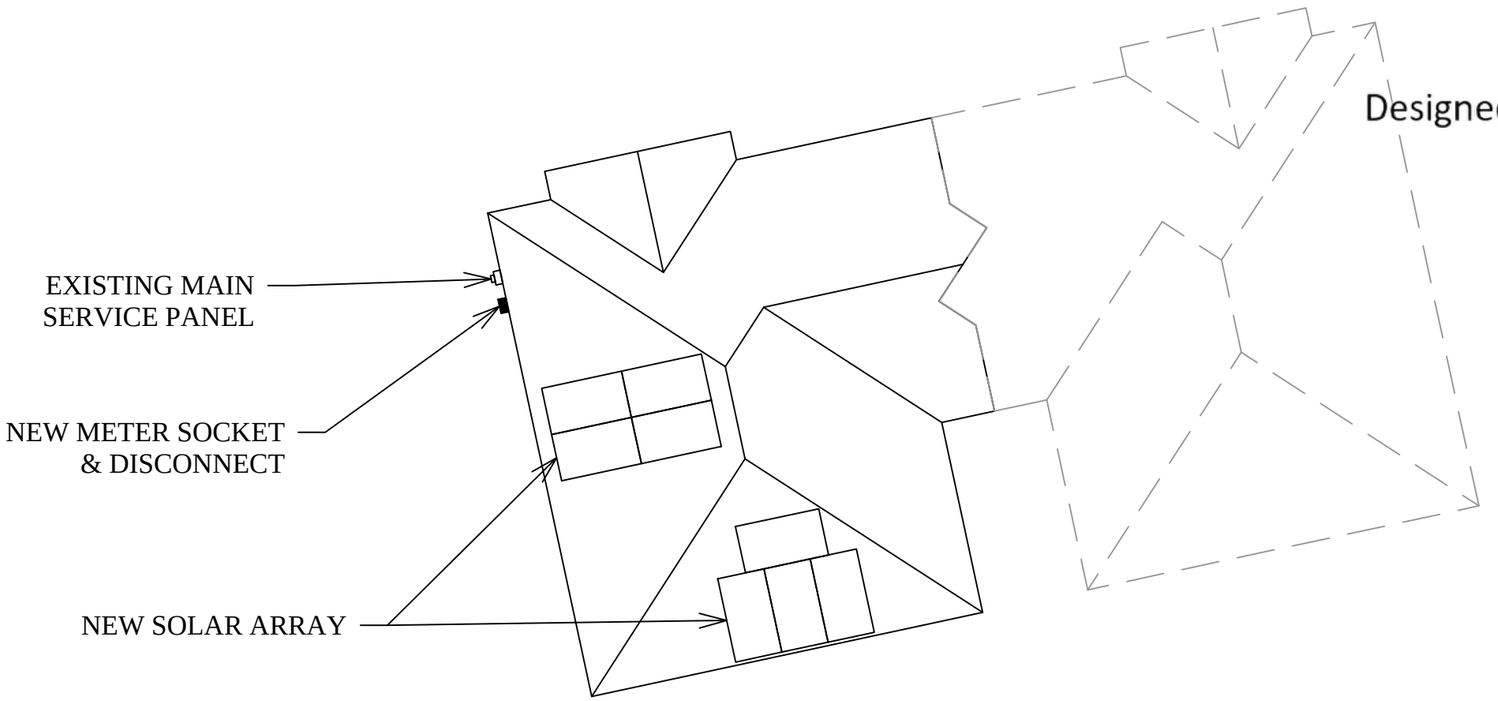
No.	Revision/Issue	Date

Date: December 6, 2022
Scale: NTS
Drawn By:
Title: SINGLE LINE DRAWING
Sheet: 3

2/23/2023 3:31:31 PM

CAUTION!

POWER TO THIS BUILDING IS ALSO
SUPPLIED FROM THE FOLLOWING
SOURCES WITH DISCONNECTS
LOCATED AS SHOW:



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NORTH AVENUE
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905 North Ave
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No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:

Title:
LABELS DIRECTORY

Sheet:
8.1

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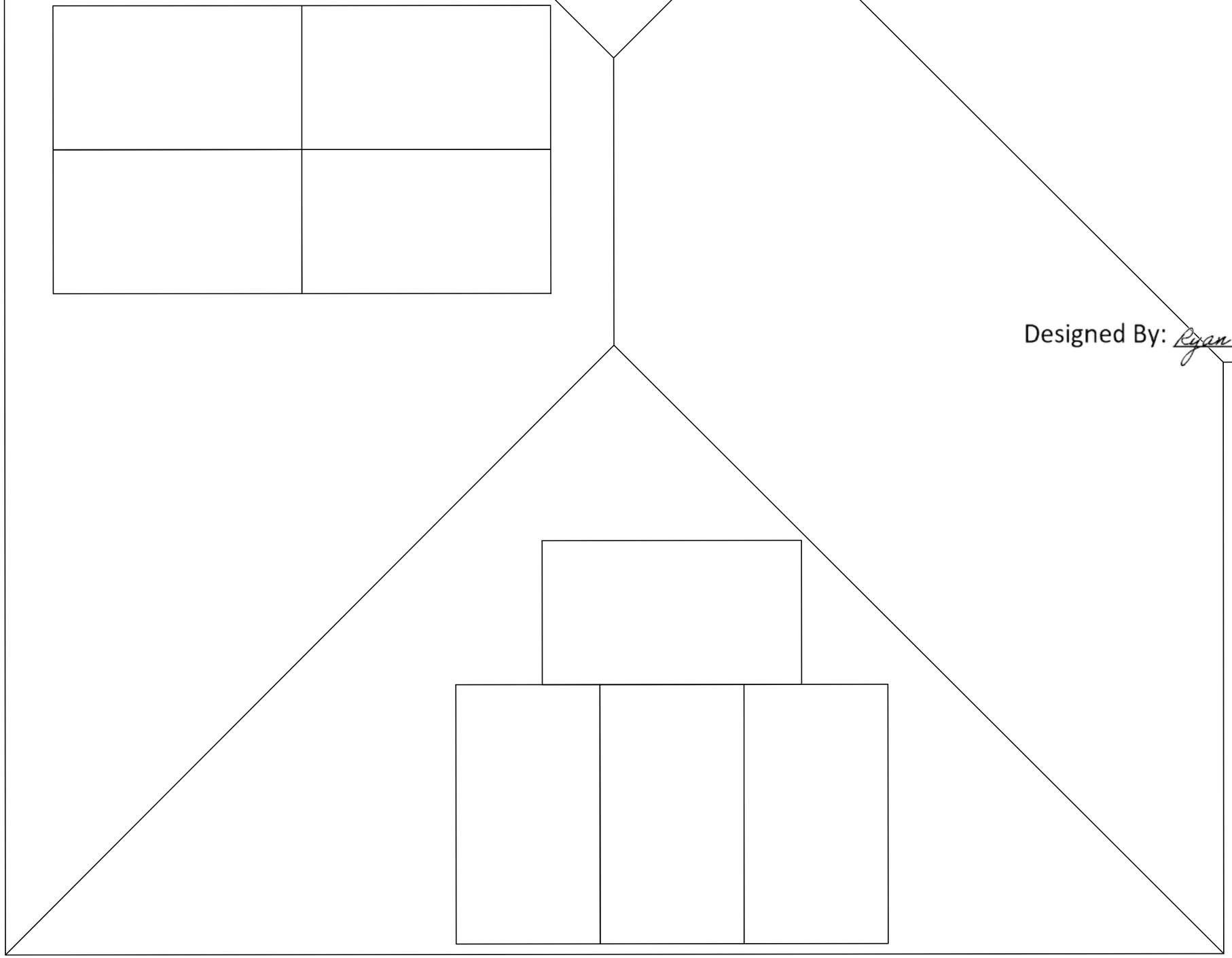

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Date: May 31, 2022
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Sheet: 10

2/23/2023 3:24:05 PM

3.2 kW (DC) ROOF MOUNTED PV ARRAY FOR THE NORTH AVENUE HALF-PLEXES - LOT 6

ROOF INFO:
AZIMUTH: 85° & 175°
TILT: 14°
TYPE: COMP

CONTRACTOR:
EV Energy
10417 Fair Oaks Blvd
Fair Oaks , Ca 95628
Phone: 916-436-4289
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SCOPE OF WORK:

System composed of 1 string of 8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+ Modules each 2 Modules connected to 1 APS DS3-S Micro-Inverter. 8 modules and 4 Micro-Inverters total.

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APS DS3-S Micro Inverters
1 Enphase Envoy-IQ Combiner
1 20AMP 2-Pole Circuit Breaker
1 30AMP AC Disconnect

MSP Requirements: NONE

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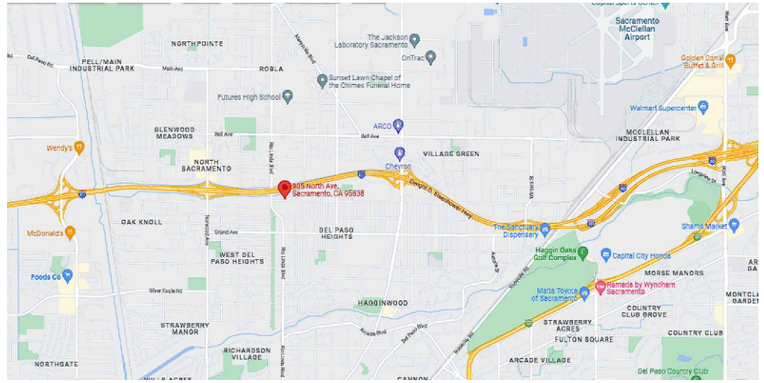

Vicinity Map:

Designed By: Ryan Niedzwiecki-Pirtz

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APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 85° & 175°

NORTH AVENUE HALF-PLEXES - LOT 6
Lot 6
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:
Title: TITLE PAGE
Sheet: 1

2/23/2023 3:24:09 PM

NOTES: (UNLESS OTHERWISE SPECIFIED)

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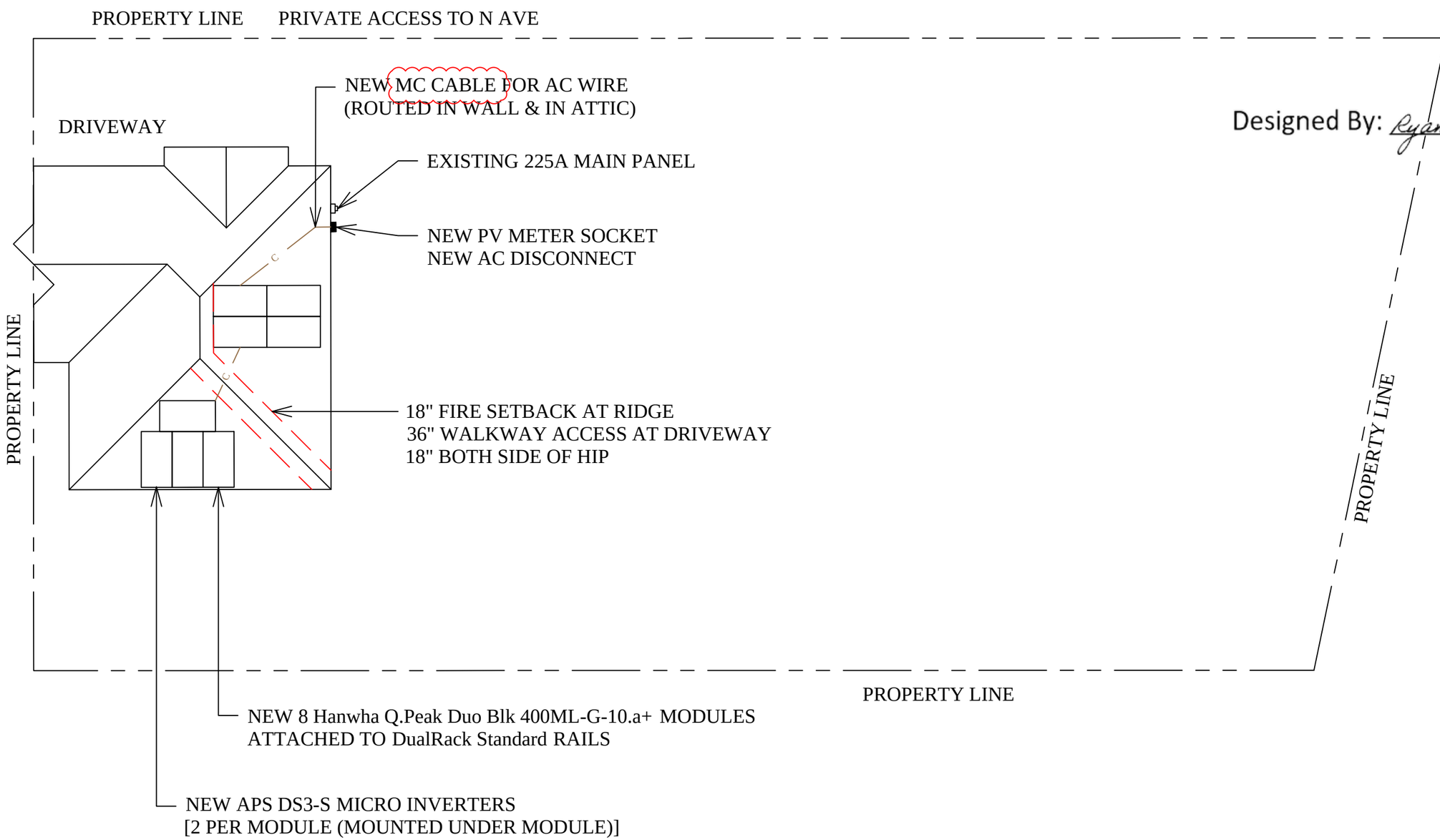

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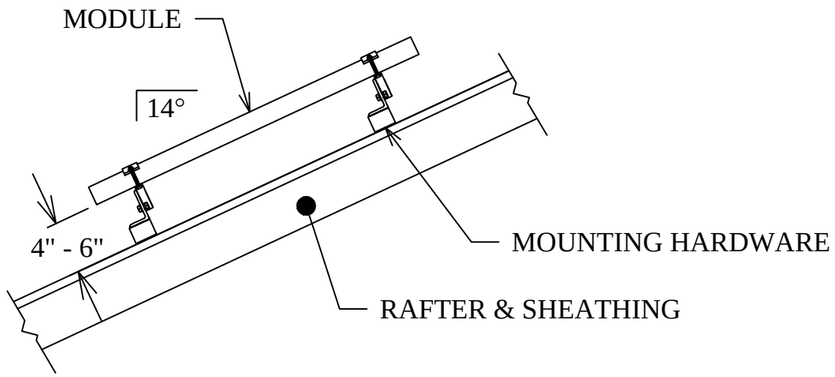
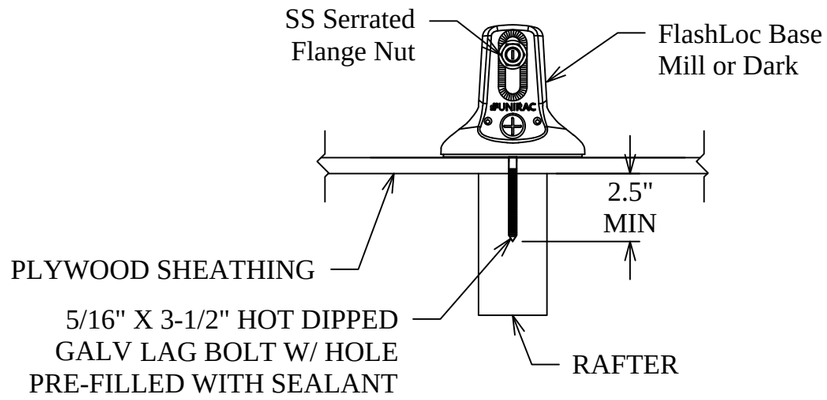
No.	Revision/Issue	Date

Date: February 23, 2023
Scale: 1" = 12'
Drawn By:
Title: SITE PLAN
Sheet: 2

2/23/2023 3:24:12 PM



MODULE PROFILE
SCALE: NTS

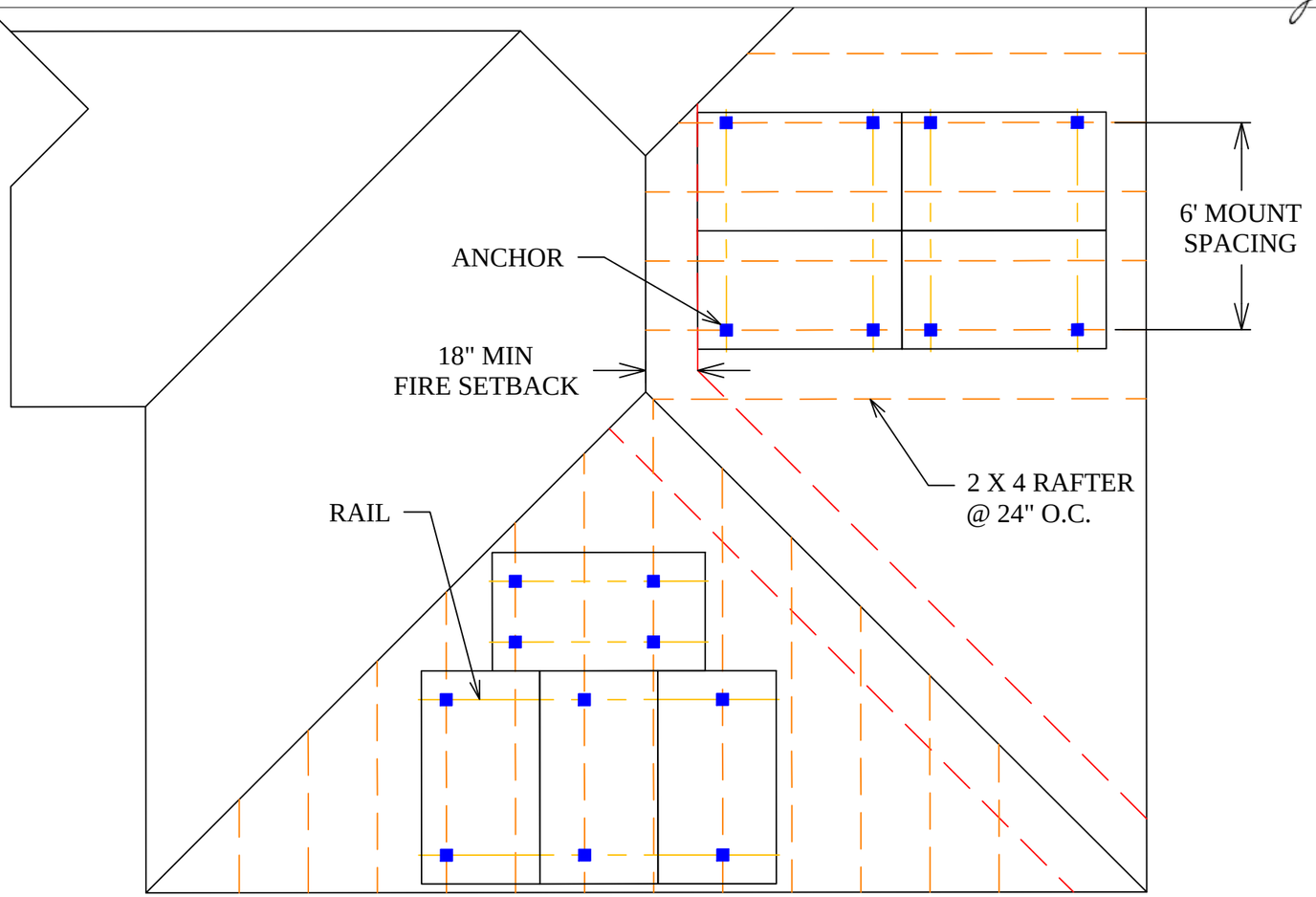


MOUNTING DETAIL
SCALE: NTS

Designed By: Ryan Wadzwiecki-Pirtz

NOTES:

1. Standoff locations on plans are not exact. Locations are subject to field verification and are per manufacturers specifications.



PLAN VIEW

ROOF TYPE: 2-STORY,
COMPOSITION SHINGLE

TRUSS SYSTEM:
RAFTER SIZE: 2 X 4
RAFTER SPACING: 24" O.C.
UNSUPPORTED SPAN: 8'

FlashLoc SYSTEM:
ARRAY WEIGHT: 390 LBS.
LBS PER SQUARE FOOT: 2.77
LBS PER RACKING FOOT: 37.72

EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk
400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 85° & 175°

NORTH AVENUE HALF-PLEXES - LOT 6

Lot 6
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: NTS
Drawn By:

Title:
MOUNTING DETAIL

Sheet:
2.1

2/23/2023 3:24:15 PM

CONDUCTOR & CONDUIT:

	CONDUIT TYPE:	CONDUIT SIZE:	CONDUCTOR TYPE:	CONDUCTOR SIZE:	# OF CONDUCTORS:	GROUNDING TYPE:	GROUNDING SIZE:
1	EMT	N/A	NM 12/2	#12	3	THHN/THWN-2	# 8 MIN (MEET NEC 690.47)
2	N/A	N/A	NM 12/2	#12	3	THHN/THWN-2	# 8 MIN (MEET NEC 690.47)
3	N/A	FREE AIR	AC Y3 Bus cable	#12	2	SOLID BARE	# 8 MIN (MEET NEC 690.47)

EQUIPMENT:

	MNFR:	MODEL:	MAX Power:	IMP:	ISC:	Buss Size:	MOCPD Size:	MAX Breaker:
1	SQUARE-D	N/A	N/A	N/A	N/A	225 A	200 A	20 A
2	Square-D	DU221RB	N/A	N/A	N/A	30 A	N/ A	N/A
3	APS	DS3-S	640 W	2.66 A	3.33 A	N/A	N/A	20 A / string

STRING INFORMATION

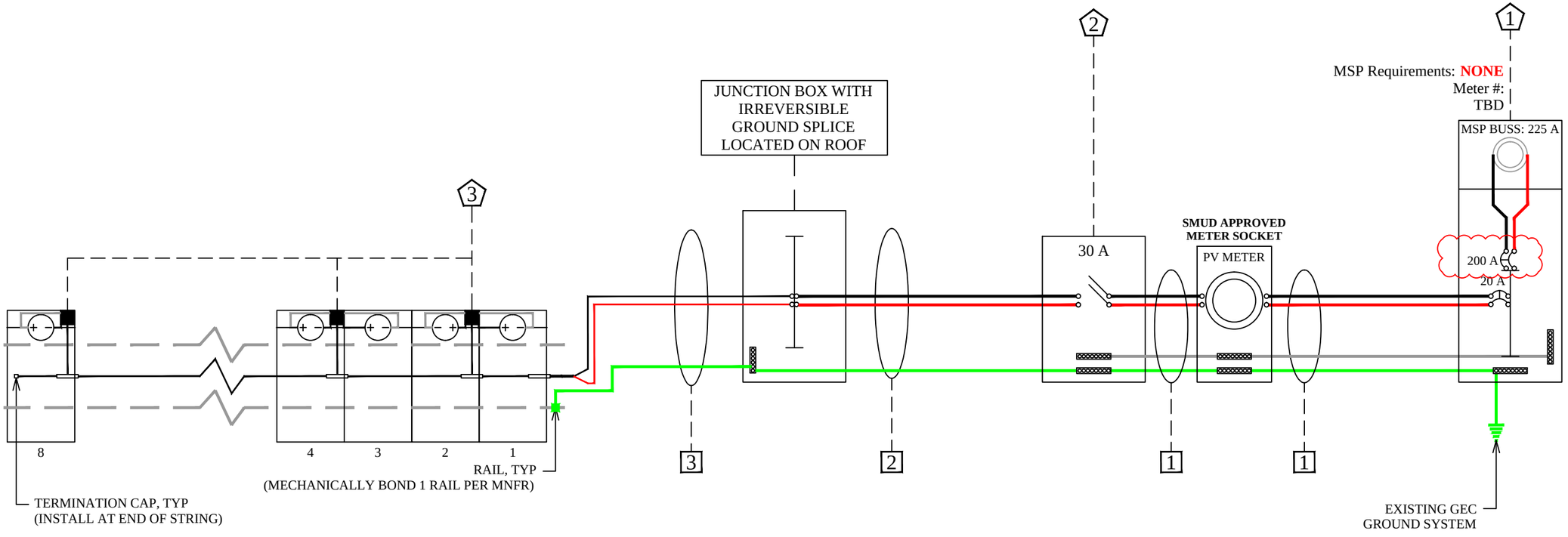
# OF MODULES IN STRING:	# OF MICRO-INVERTERS IN STRING:	IMP:	ISC:	MAX Breaker:
8	4	11 A	14 A	20 A

Temperature Rating of Conductors

Size AWG or kcmil	60°C	75°C	90°C	60°C	75°C	90°C	Size AWG or kcmil
	COPPER			ALUMINUM			
12	20	25	30	15	20	25	12
10	30	35	40	30	30	35	10
8	40	50	55	35	40	45	8
6	55	65	75	40	50	55	6
4	70	85	95	55	65	75	4
3	85	100	115	65	75	85	3
2	95	115	130	75	90	100	2

Notes:

1. This system meets the requirements of NEC 690.35 and is exempt from the system grounding requirements of NEC 690.41 System Grounding.
2. Photovoltaic system ground will be tied into existing ground at main service from DC Disconnect/Inverter as per NEC Sec. 250.166 (B). "The Grounding Electrode Conductor shall not be smaller then the largest conductor supplied by the system and not smaller than #8AWG."
3. The DC conductors are not bonded to ground and the micro-inverters (if applicable) do not require a GEC.
4. NEC 690.43(C) Structure as Equipment Grounding Conductor allows for equipment to be used as the EGC in a photovoltaic system.
5. The devices listed and identified for grounding the equipment may be stand-alone grounding components or UL-2703 listed mounting hardware. Microinverters (if applicable) and modules are bonded to the racking with listed and approved grounding components, the EGC provided to the Micro-Inverters through the Manufacture's Cable and is used to ground the other photovoltaic system components.
6. Equipment operating 150 volts or greater shall only be serviced or replaced by qualified personnel. Field protection may be in the form of conduit, closed cabinet or an enclosure which require use of tools to open.
7. Solar Photovoltaic System equipment will be installed in accordance with the requirements of Art. 690 of the 2019 NEC.
8. Local utility provider shall be notified prior to use and activation of any solar photovoltaic installation.
9. No sheet metal or tech screws shall be used to ground disconnect enclosure with tin-plated aluminum lugs; proper grounding/bar kits must be used.
10. All solar modules, equipment, and metallic components are to be grounded in accordance with code and the manufacturer's installation instructions.
11. PV modules cannot be installed over or block any attic vents, plumbing vents, furnace or water heater vents etc.
12. Wiring must be permanently and completely held off of the roof surface per NEC 110.2, 110.3(A), 110.3(B) & 300.4
13. **PV breaker shall be installed opposite end of the buss bar from the Main Breaker per NEC 705.12(D)(2).**
14. Per NEC 690.12, Solar Edge systems are equipped with rapid shutdown without any additional equipment. See technical brief supplemental document.
15. Enphase Micro-Inverters are smart inverter compliant per California rule 21.
16. Conductor size may vary based on Voltage Drop.
17. UNLESS OTHERWISE STATE, THE MOCPD IS LOCATED AT THE END OF THE BUSS BAR.



Designed By: Ryan Niedzwiecki-Pirtz

EV Energy Inc. Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 85° & 175°

NORTH AVENUE HALF-PLEXES - LOT 6

Lot 6
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: December 6, 2022
Scale: NTS
Drawn By:

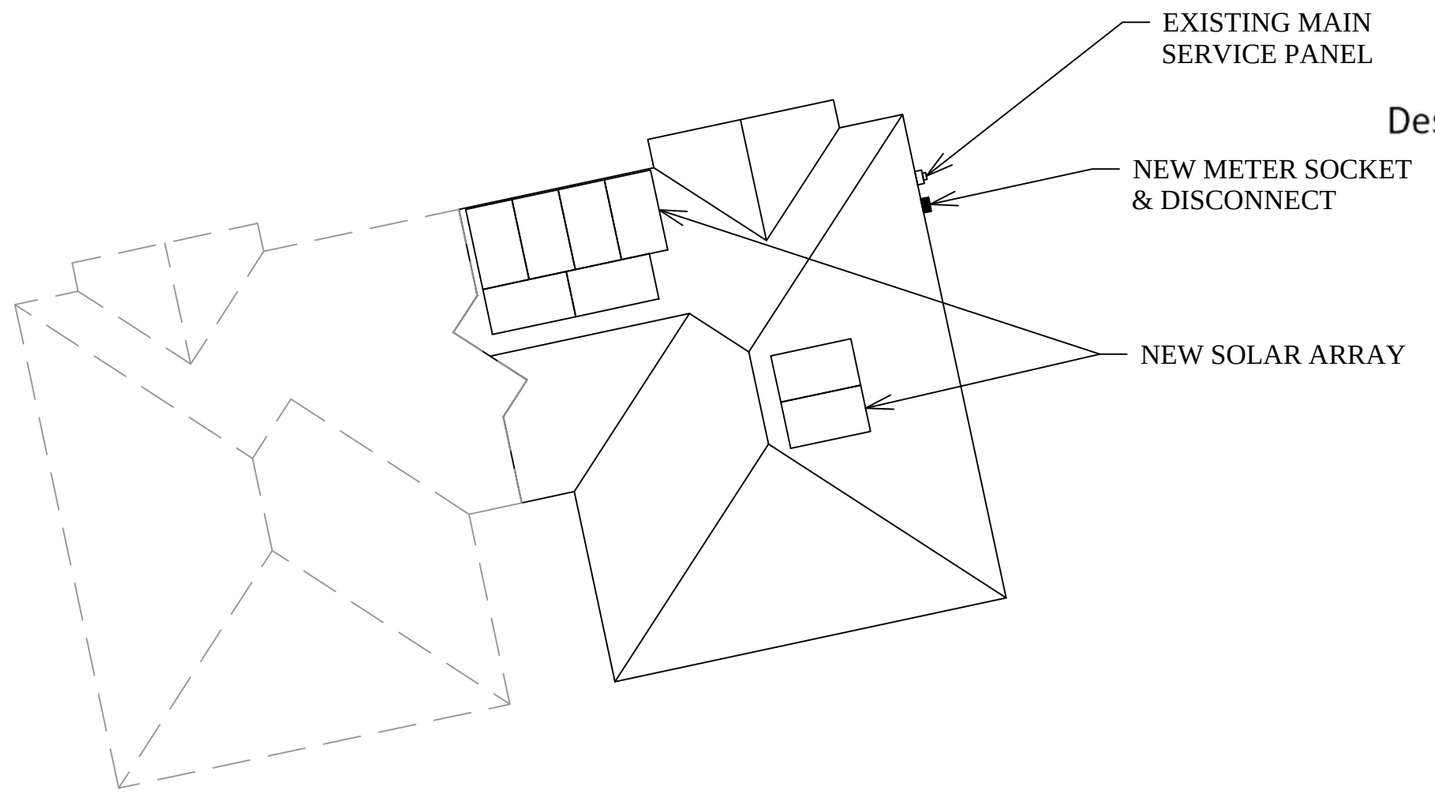
Title: SINGLE LINE DRAWING

Sheet: 3

2/23/2023 3:24:57 PM

CAUTION!

POWER TO THIS BUILDING IS ALSO
SUPPLIED FROM THE FOLLOWING
SOURCES WITH DISCONNECTS
LOCATED AS SHOW:



EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
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400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 85° & 175°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE
HALF-PLEXES - LOT 6

Lot 6
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022

Scale: None

Drawn By:

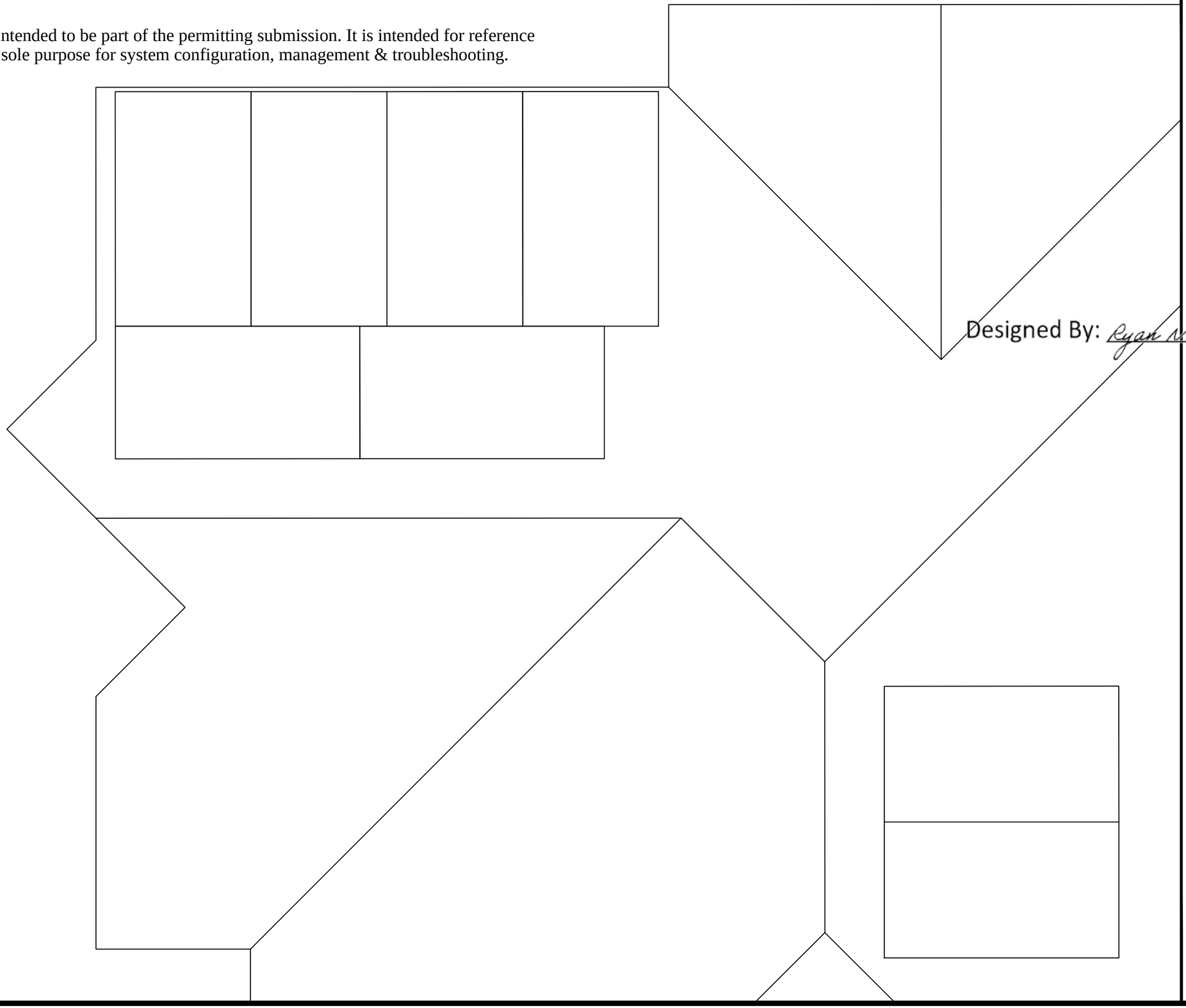
Title:
LABELS DIRECTORY

Sheet:
8.1

2/23/2023 3:25:04 PM

Notes:

1. This page is not intended to be part of the permitting submission. It is intended for reference only as is for the sole purpose for system configuration, management & troubleshooting.



Designed By: Ryan Niedzwiecki-Pirtz

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Azimuth(s): 85° & 175°

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Lot 6
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:
Title: AS-BUILT
Sheet: 10

2/23/2023 3:17:33 PM

2.4 kW (DC) ROOF MOUNTED PV ARRAY FOR THE NORTH AVENUE HALF-PLEXES - LOT 7

ROOF INFO:
AZIMUTH: 90° & 180°
TILT: 14°
TYPE: COMP

CONTRACTOR:
EV Energy
10417 Fair Oaks Blvd
Fair Oaks , Ca 95628
Phone: 916-436-4289
LIC. #1016892

SCOPE OF WORK:

System composed of 1 string of 8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+ Modules each 2 Modules connected to 1 APS DS3-S Micro-Inverter. 8 modules and 3 Micro-Inverters total.

Bill of Materials

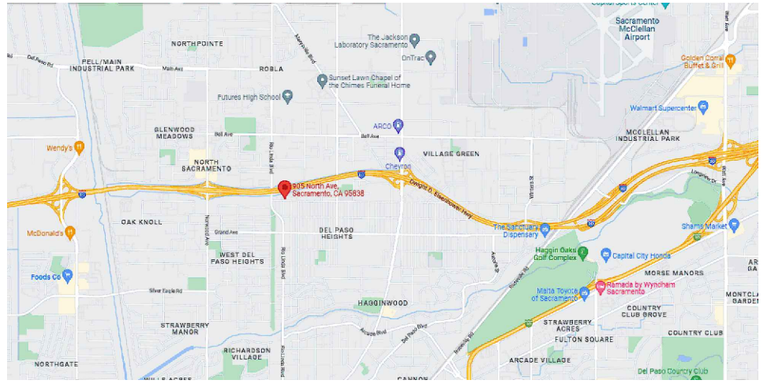
8 HANWHA Q.PEAK DUO BLK 400ML-G-10.A+
4 APS DS3-S Micro Inverters
1 Enphase Envoy-IQ Combiner
1 20AMP 2-Pole Circuit Breaker
1 30AMP AC Disconnect

MSP Requirements: NONE

GENERAL NOTES:

1. ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
2. THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE 2019 CEC AND 2019 CBC.
3. WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
4. A DC DISCONNECTING MEANS SHALL BE INSTALLED AT A READILY ACCESSIBLE LOCATION EITHER OUTSIDE OF THE BUILDING OR STRUCTURE OR INSIDE NEAREST POINT OF ENTRANCE OF THE SYSTEM CONDUCTORS AS PER SECTION 690.14 OF THE CEC.
5. HEIGHT OF THE INTEGRATED AC/DC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
6. A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER CEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
7. PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
8. PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING. MECHANICAL, OR BUILDING ROOF VENTS. THE SMOKE ALARMS SHALL BE INSTALLED OR VERIFY TO ENSURE THE SMOKE ALARMS ALREADY EXISTING WHEN ALTERATION OR REPAIR TO GROUP R-3 OCCUPANCY EXCEEDS $1,000 CRC R314.22.
   - 8.1. ON THE CEILING OR WALLS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS
   - 8.2. IN EACH ROOM USED FOR SLEEPING PURPOSES,
   - 8.3. IN EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS.
   - 8.4. ALL SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL217 AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS CODE AND THE HOUSEHOLD FIRE WARNING EQUIPMENT PROVISIONS OF NFPA 72. SYSTEMS AND COMPONENTS SHALL BE CALIFORNIA STATE FIRE MARSHAL LISTED AND APPROVED IN ACCORDANCE WITH CA CODE OF REGULATIONS, TITLE 19, DIVISION 1 FOR PURPOSE FOR WHICH THEY ARE INSTALLED.
9. CARBON MONOXIDE ALARMS IF NOT ALREADY EXISTING ARE REQUIRED TO BE INSTALLED WITHIN A RESIDENTIAL DWELLING WHEN THE VALUATION OF AN ADDITION, ALTERATION OR REPAIR TO GROUP R-3 OCCUPANCY EXCEEDS $1,000 CRC R315.22

CARBON MONOXIDE ALARMS ARE REQUIRED AT THE FOLLOWING LOCATIONS:
A. ON THE CEILING OR WALLS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS
B. ON EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS.
C. THE CARBON MONOXIDE ALARMS SHALL BE LISTED AS COMPLYING WITH THE REQUIREMENTS OF UL 2034. CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THIS CODE, THE CURRENT EDITION OF NFPA 720 "STANDARD FOR THE INSTALLATION OF CARBON MONOXIDE (CO) DETECTION AND WARNING EQUIPMENT" AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PER 2019 CRC SECTION R315.2.2.



Vicinity Map:

Designed By: Ryan Niedzwiecki-Pirtz

Sheet List Table	
Sheet Number	Sheet Title
1	Title Page
2	Site Plan
2.1	Mounting Detail
3	Single Line Drawing
4	Module
4.1	Module Grounding
5	Inverter APS Micro-Inverter
6	Mounting Type
6.1	Racking Type
7	Engineering
7.1	Engineering
8	Labels
8.1	Labels Directory
9	AC Disconnect
10	As-Built

EV Energy Inc. Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 90° & 180°

NORTH AVENUE HALF-PLEXES - LOT 7

Lot 7
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022
Scale: None
Drawn By:

Title:
TITLE PAGE

Sheet: 1

2/23/2023 3:17:37 PM

NOTES: (UNLESS OTHERWISE SPECIFIED)

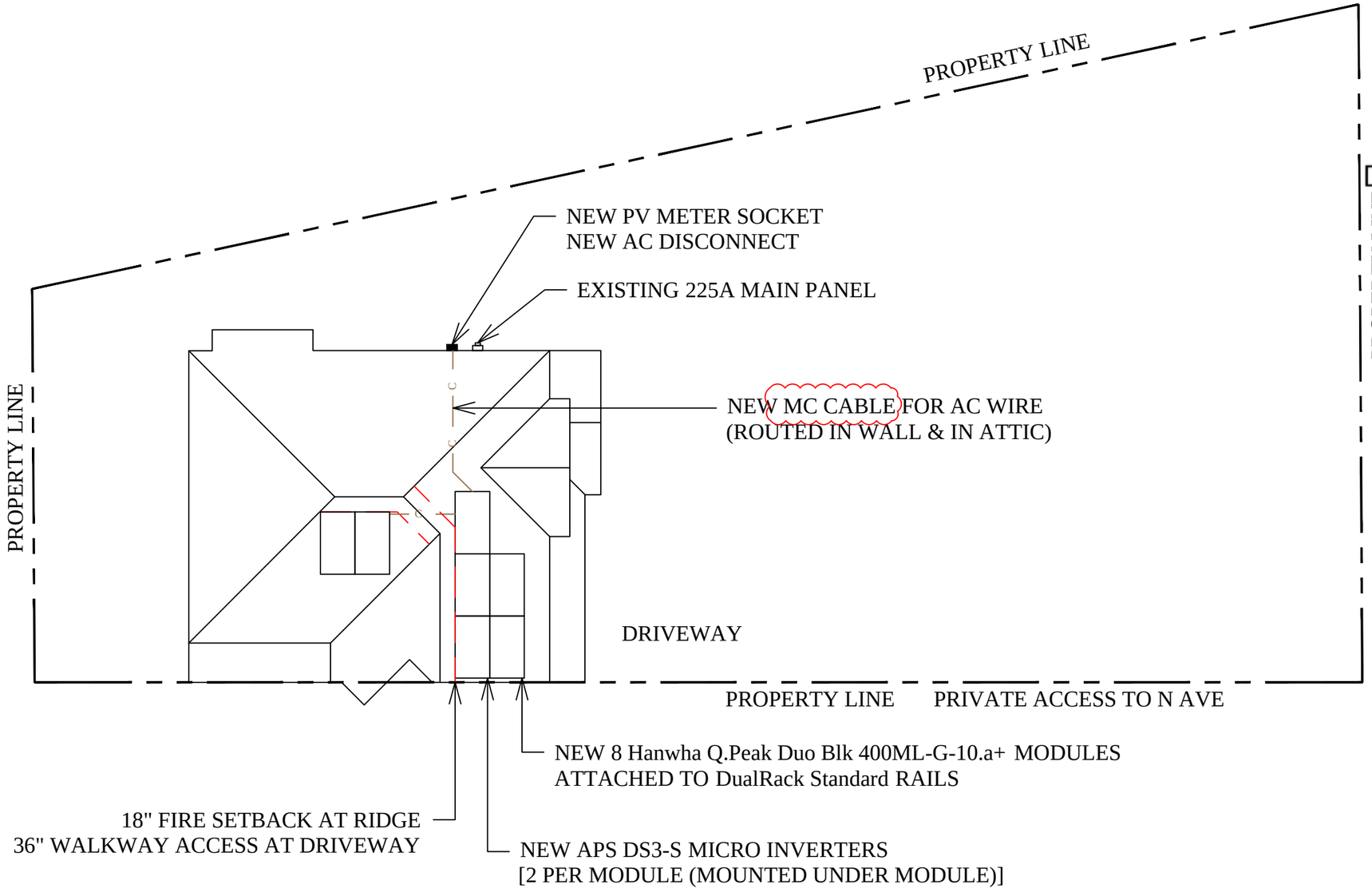
- Per CRC R324.6.1:
- Not less than (2) min 36" wide pathways on separate roof planes, lowest roof edge to ridge, shall be provided on all building. At least one pathway shall be provided on the street or driveway side of the roof.
- This systems take up less than 33% of total roof surface square footage on a non-sprinklered residence, therefore, the fire setbacks are relaxed to 18 inches from the ridge.

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. Equipment locations are not exact and are subject to field conditions.
2. Equipment locations may change due to home owner requests or location best practices.
3. Existing buildings, structures or equipment are represented as locations, not configurations.

Area Calculations:

Sprinklered:	NO
Roof Area sq.ft.:	1350
Array Area sq.ft.:	169
% of Covered Area:	12.5



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Designed By: Ryan Wisdzwiecki-Pirtz

NORTH AVENUE
HALF-PLEXES - LOT 7

Lot 7
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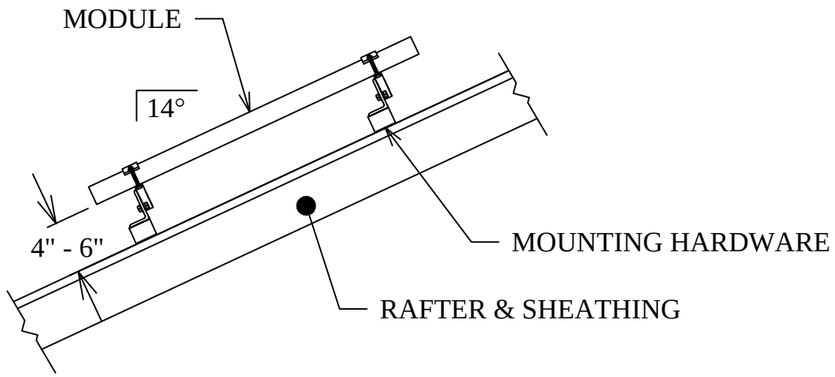
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

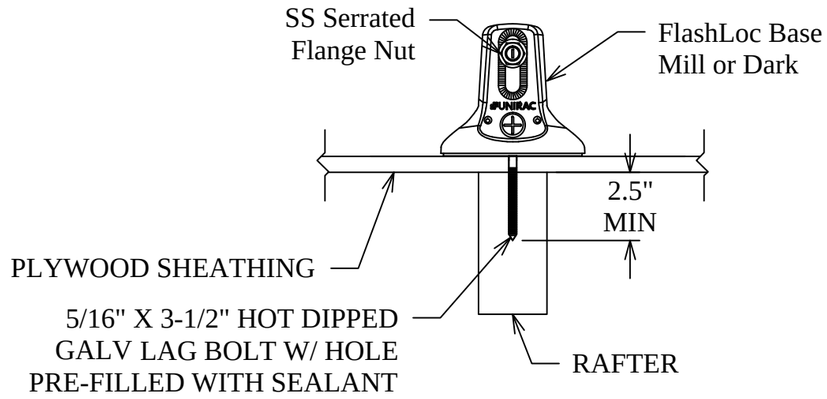
No.	Revision/Issue	Date

Date: February 23, 2023
Scale: 1" = 12'
Drawn By:
Title: SITE PLAN
Sheet: 2

2/23/2023 3:17:41 PM



MODULE PROFILE
SCALE: NTS



MOUNTING DETAIL
SCALE: NTS

Designed By: Ryan Niedzwiecki-Pirtz

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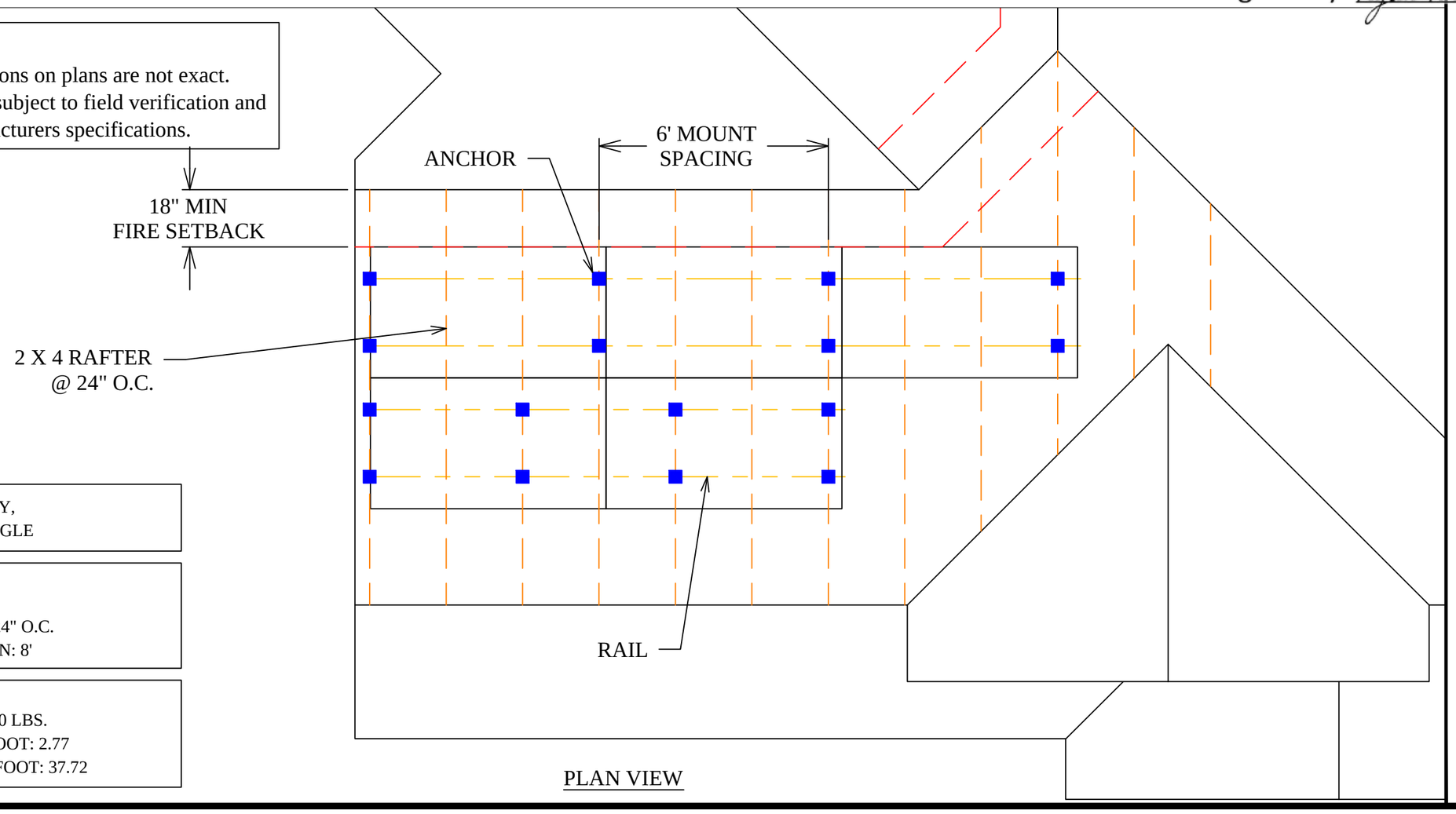

PLAN VIEW

ROOF TYPE: 2-STORY,
COMPOSITION SHINGLE

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RAFTER SIZE: 2 X 4
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Drawn By:
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Sheet: 2.1

2/23/2023 3:17:45 PM

CONDUCTOR & CONDUIT:

	CONDUIT TYPE:	CONDUIT SIZE:	CONDUCTOR TYPE:	CONDUCTOR SIZE:	# OF CONDUCTORS:	GROUNDING TYPE:	GROUNDING SIZE:
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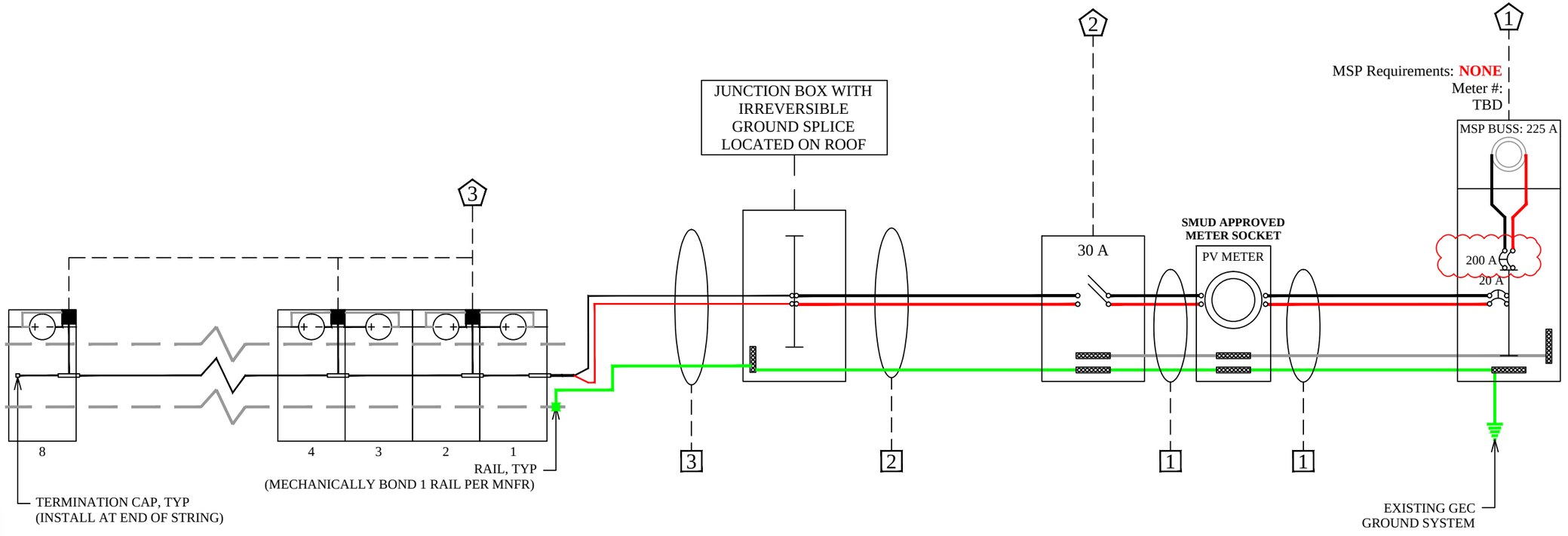

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Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 90° & 180°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE HALF-PLEXES - LOT 7

Lot 7
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: December 6, 2022
Scale: NTS
Drawn By:

Title: SINGLE LINE DRAWING

Sheet: 3

CAUTION!

POWER TO THIS BUILDING IS ALSO
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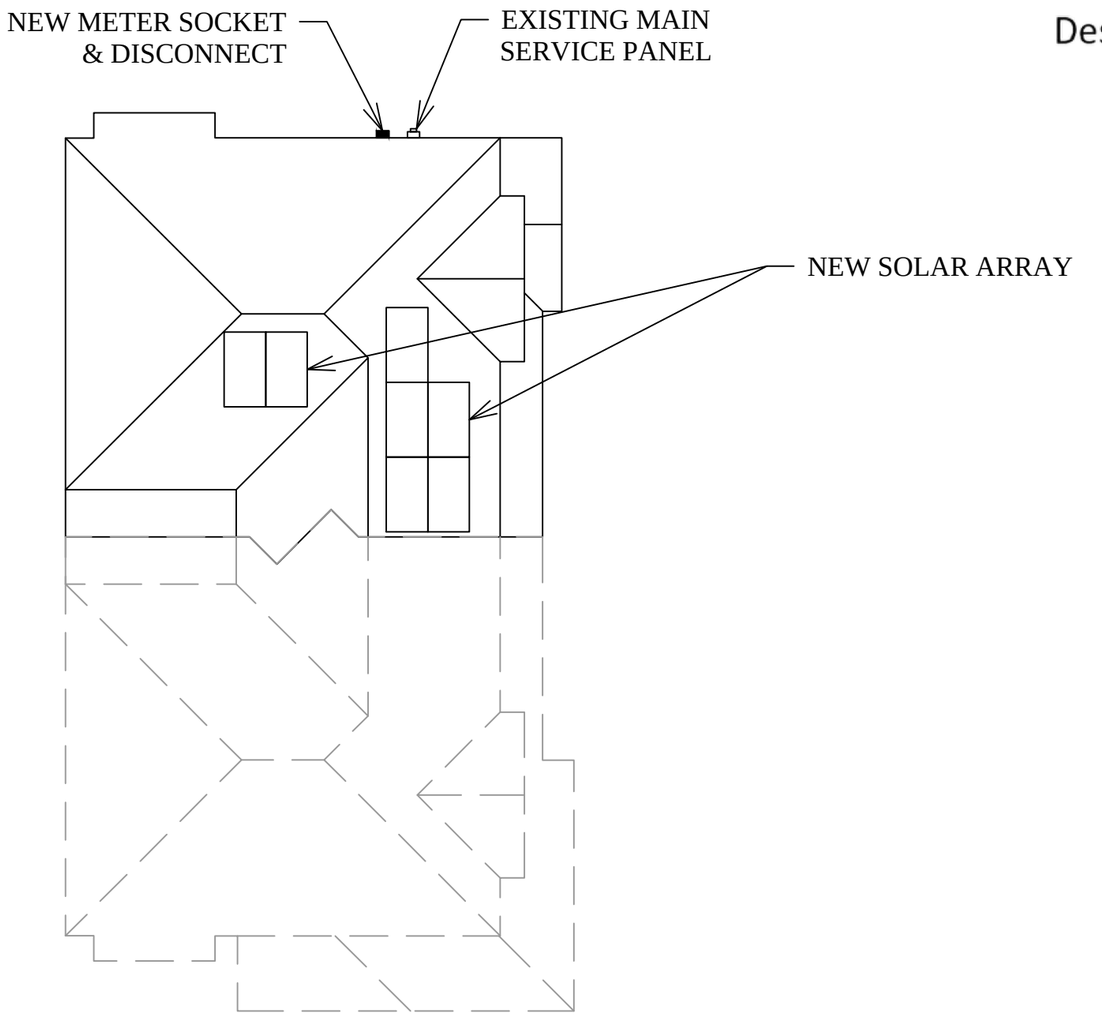
SOURCES WITH DISCONNECTS
LOCATED AS SHOW:



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Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022

Scale: None

Drawn By:

Title:
LABELS DIRECTORY

Sheet:
8.1

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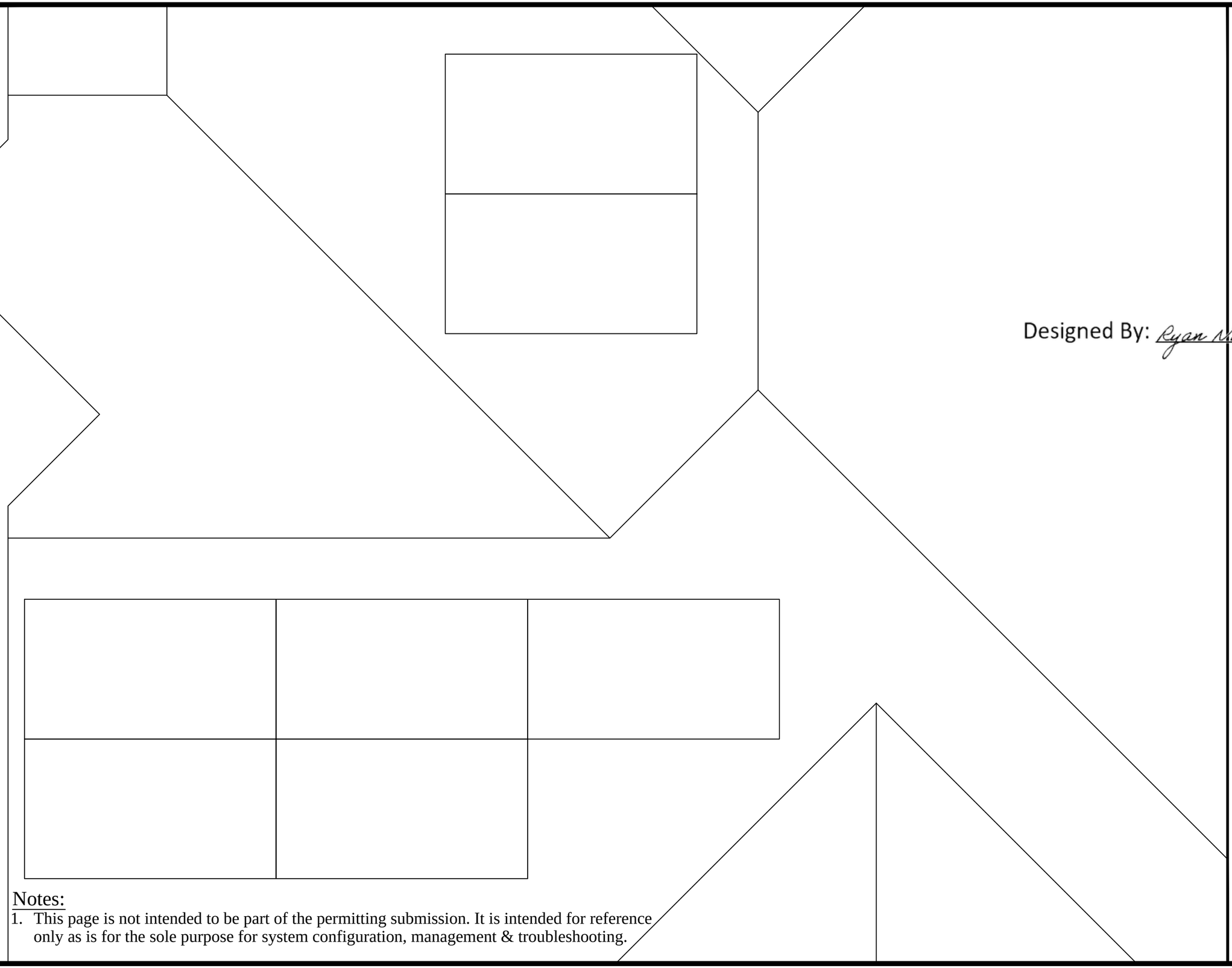

Designed By: Ryan Niedzwiecki-Pirtz

Notes:

1. This page is not intended to be part of the permitting submission. It is intended for reference only as is for the sole purpose for system configuration, management & troubleshooting.

EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk
400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 90° & 180°

NORTH AVENUE
HALF-PLEXES - LOT 7

Lot 7
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022
Scale: None
Drawn By:
Title: AS-BUILT
Sheet: 10

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3.2 kW (DC) ROOF MOUNTED PV ARRAY FOR THE NORTH AVENUE HALF-PLEXES - LOT 8

ROOF INFO:
AZIMUTH: 180°
TILT: 14°
TYPE: COMP

CONTRACTOR:
EV Energy
10417 Fair Oaks Blvd
Fair Oaks , Ca 95628
Phone: 916-436-4289
LIC. #1016892

SCOPE OF WORK:

System composed of 1 string of 8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+ Modules each 2 Modules connected to 1 APS DS3-S Micro-Inverter. 8 modules and 4 Micro-Inverters total.

Bill of Materials

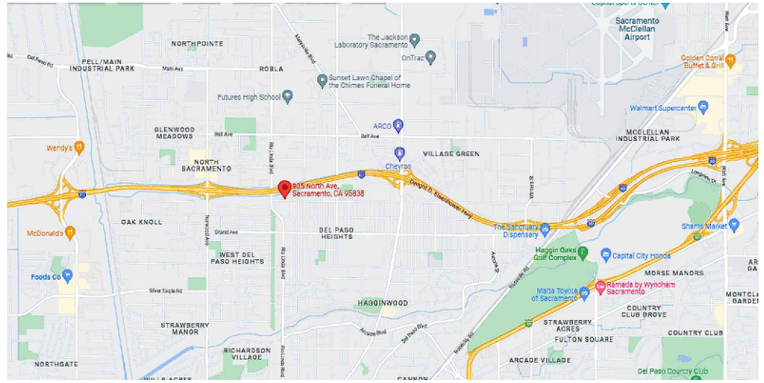
8 HANWHA Q.PEAK DUO BLK 400ML-G-10.A+
4 APS DS3-S Micro Inverters
1 Enphase Envoy-IQ Combiner
1 20AMP 2-Pole Circuit Breaker
1 30AMP AC Disconnect

MSP Requirements: NONE

GENERAL NOTES:

1. ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
2. THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE 2019 CEC AND 2019 CBC.
3. WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
4. A DC DISCONNECTING MEANS SHALL BE INSTALLED AT A READILY ACCESSIBLE LOCATION EITHER OUTSIDE OF THE BUILDING OR STRUCTURE OR INSIDE NEAREST POINT OF ENTRANCE OF THE SYSTEM CONDUCTORS AS PER SECTION 690.14 OF THE CEC.
5. HEIGHT OF THE INTEGRATED AC/DC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
6. A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER CEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
7. PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
8. PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING. MECHANICAL, OR BUILDING ROOF VENTS. THE SMOKE ALARMS SHALL BE INSTALLED OR VERIFY TO ENSURE THE SMOKE ALARMS ALREADY EXISTING WHEN ALTERATION OR REPAIR TO GROUP R-3 OCCUPANCY EXCEEDS $1,000 CRC R314.22.
   - 8.1. ON THE CEILING OR WALLS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS
   - 8.2. IN EACH ROOM USED FOR SLEEPING PURPOSES,
   - 8.3. IN EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS.
   - 8.4. ALL SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL217 AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS CODE AND THE HOUSEHOLD FIRE WARNING EQUIPMENT PROVISIONS OF NFPA 72. SYSTEMS AND COMPONENTS SHALL BE CALIFORNIA STATE FIRE MARSHAL LISTED AND APPROVED IN ACCORDANCE WITH CA CODE OF REGULATIONS, TITLE 19, DIVISION 1 FOR PURPOSE FOR WHICH THEY ARE INSTALLED.
9. CARBON MONOXIDE ALARMS IF NOT ALREADY EXISTING ARE REQUIRED TO BE INSTALLED WITHIN A RESIDENTIAL DWELLING WHEN THE VALUATION OF AN ADDITION, ALTERATION OR REPAIR TO GROUP R-3 OCCUPANCY EXCEEDS $1,000 CRC R315.22

CARBON MONOXIDE ALARMS ARE REQUIRED AT THE FOLLOWING LOCATIONS:
A. ON THE CEILING OR WALLS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS
B. ON EACH STORY WITHIN A DWELLING UNIT, INCLUDING BASEMENTS.
C. THE CARBON MONOXIDE ALARMS SHALL BE LISTED AS COMPLYING WITH THE REQUIREMENTS OF UL 2034. CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THIS CODE, THE CURRENT EDITION OF NFPA 720 "STANDARD FOR THE INSTALLATION OF CARBON MONOXIDE (CO) DETECTION AND WARNING EQUIPMENT" AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PER 2019 CRC SECTION R315.2.2.



Vicinity Map:

Designed By: Ryan Niedzwiecki-Pirtz

Sheet List Table	
Sheet Number	Sheet Title
1	Title Page
2	Site Plan
2.1	Mounting Detail
3	Single Line Drawing
4	Module
4.1	Module Grounding
5	Inverter APS Micro-Inverter
6	Mounting Type
6.1	Racking Type
7	Engineering
7.1	Engineering
8	Labels
8.1	Labels Directory
9	AC Disconnect
10	As-Built

EV Energy Inc. Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO
8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 180°

NORTH AVENUE HALF-PLEXES - LOT 8
Lot 8
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022
Scale: None
Drawn By:
Title: TITLE PAGE
Sheet: 1

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NOTES: (UNLESS OTHERWISE SPECIFIED)

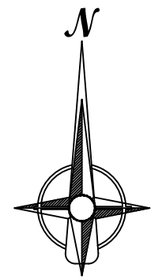
- Per CRC R324.6.1:
- Not less than (2) min 36" wide pathways on separate roof planes, lowest roof edge to ridge, shall be provided on all building. At least one pathway shall be provided on the street or driveway side of the roof.
- This systems take up less than 33% of total roof surface square footage on a non-sprinklered residence, therefore, the fire setbacks are relaxed to 18 inches from the ridge.

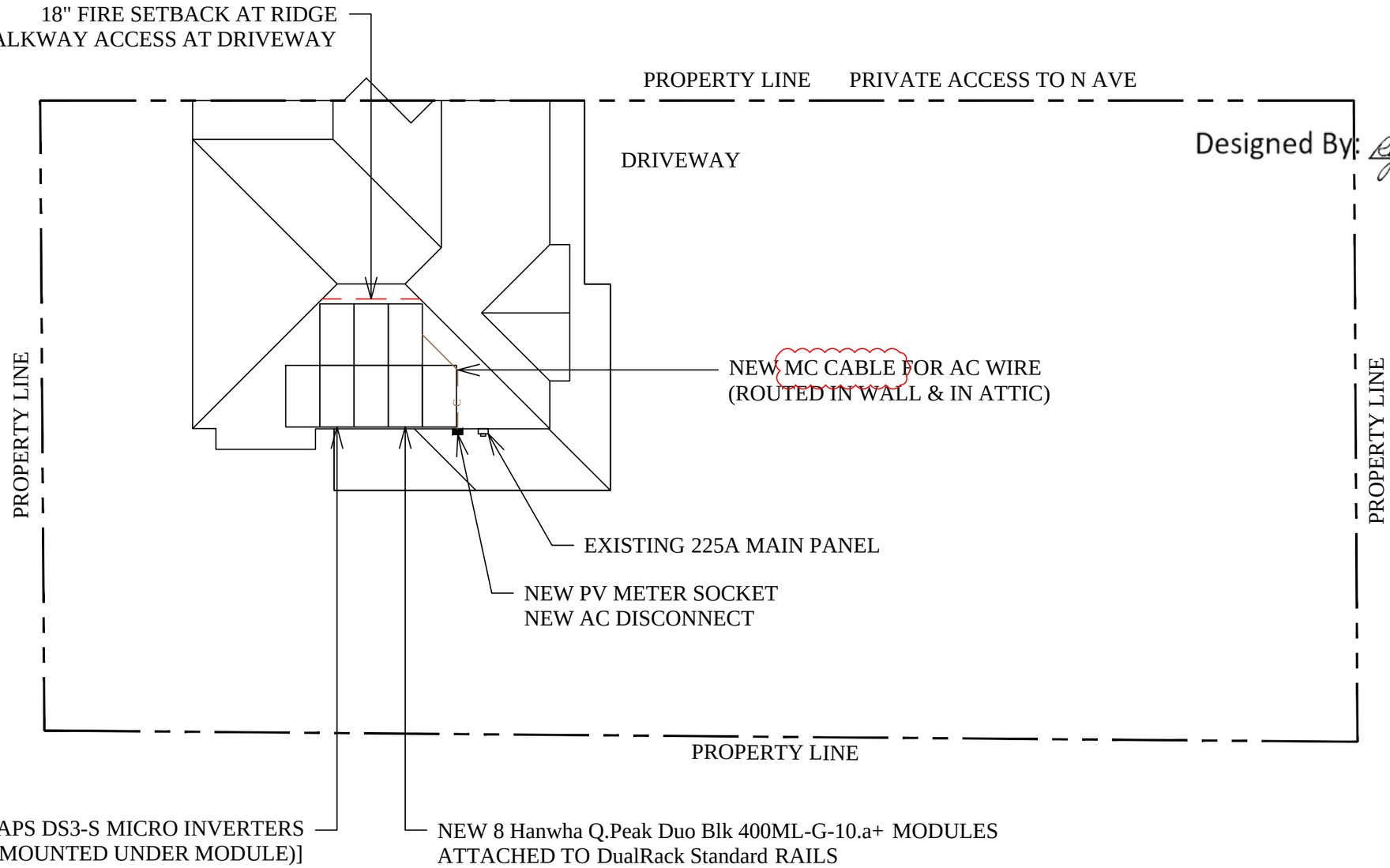
NOTES: (UNLESS OTHERWISE SPECIFIED)

1. Equipment locations are not exact and are subject to field conditions.
2. Equipment locations may change due to home owner requests or location best practices.
3. Existing buildings, structures or equipment are represented as locations, not configurations.

Area Calculations:

Sprinklered:	NO
Roof Area sq.ft.:	1350
Array Area sq.ft.:	169
% of Covered Area:	12.5





EV Energy Inc. Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk
400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 180°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE
HALF-PLEXES - LOT 8

Lot 8
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: February 23, 2023

Scale: 1" = 12'

Drawn By:

Title:
SITE PLAN

Sheet:
2

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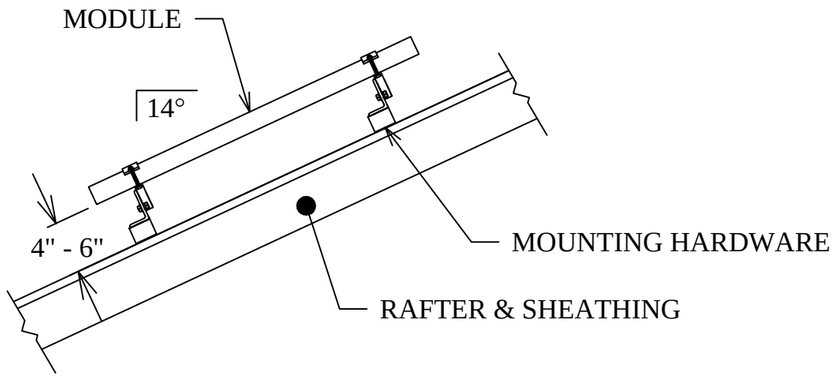
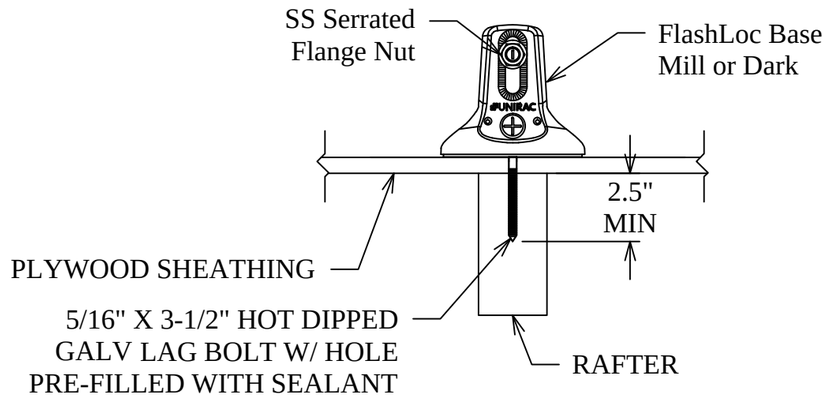


MODULE PROFILE
SCALE: NTS



MOUNTING DETAIL
SCALE: NTS

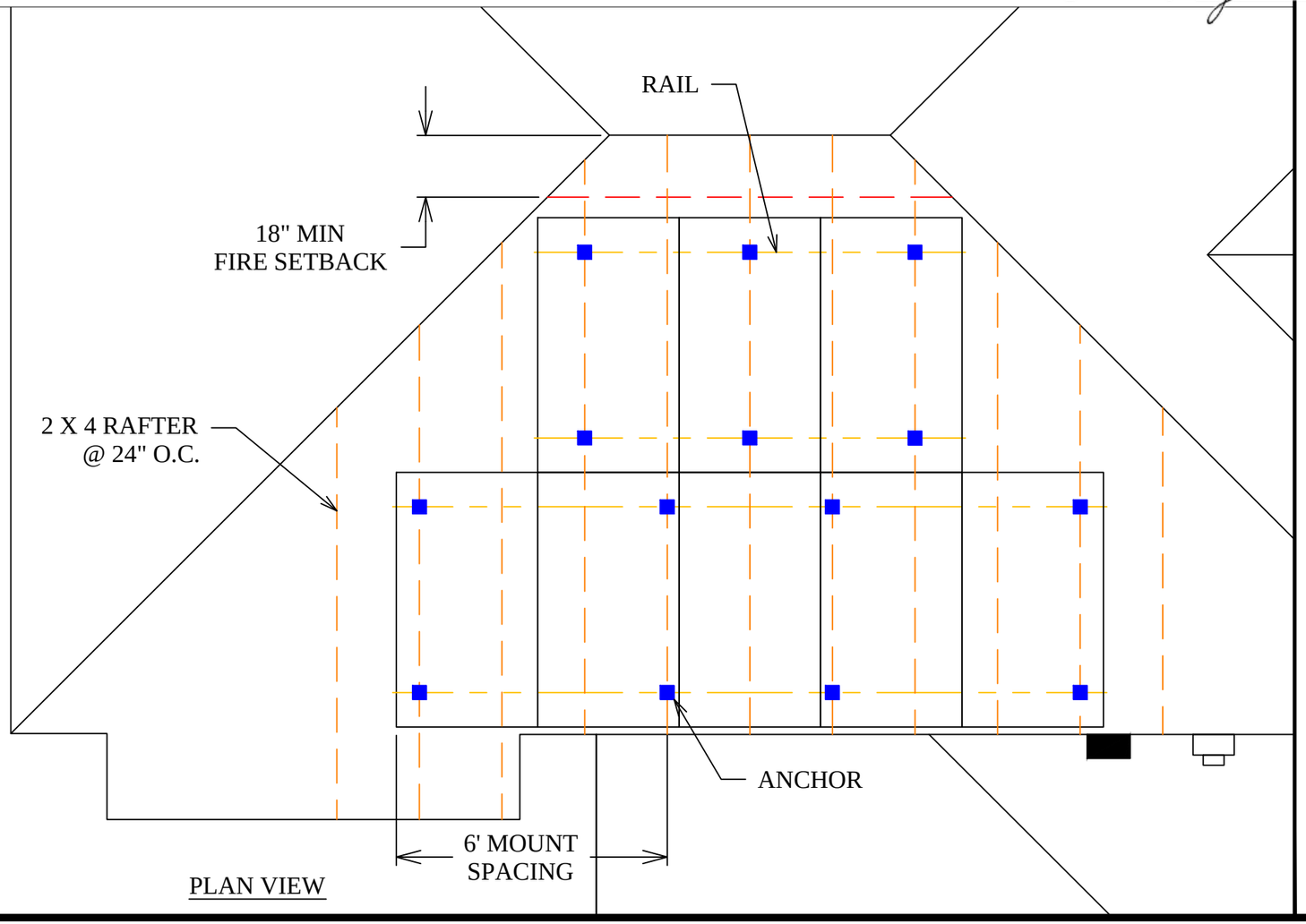
NOTES:

1. Standoff locations on plans are not exact. Locations are subject to field verification and are per manufacturers specifications.

ROOF TYPE: 2-STORY,
COMPOSITION SHINGLE

TRUSS SYSTEM:
RAFTER SIZE: 2 X 4
RAFTER SPACING: 24" O.C.
UNSUPPORTED SPAN: 8'

FlashLoc SYSTEM:
ARRAY WEIGHT: 390 LBS.
LBS PER SQUARE FOOT: 2.77
LBS PER RACKING FOOT: 37.72



PLAN VIEW

Designed By: Ryan Niedzwiecki-Pirtz

EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

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400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 180°

NORTH AVENUE
HALF-PLEXES - LOT 8

Lot 8
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022
Scale: NTS
Drawn By:

Title:
MOUNTING DETAIL

Sheet: 2.1

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CONDUCTOR & CONDUIT:

	CONDUIT TYPE:	CONDUIT SIZE:	CONDUCTOR TYPE:	CONDUCTOR SIZE:	# OF CONDUCTORS:	GROUNDING TYPE:	GROUNDING SIZE:
1	EMT	N/A	NM 12/2	#12	3	THHN/THWN-2	# 8 MIN (MEET NEC 690.47)
2	N/A	N/A	NM 12/2	#12	3	THHN/THWN-2	# 8 MIN (MEET NEC 690.47)
3	N/A	FREE AIR	AC Y3 Bus cable	#12	2	SOLID BARE	# 8 MIN (MEET NEC 690.47)

EQUIPMENT:

	MNFR:	MODEL:	MAX Power:	IMP:	ISC:	Buss Size:	MOCPD Size:	MAX Breaker:
1	SQUARE-D	N/A	N/A	N/A	N/A	225 A	200 A	20 A
2	Square-D	DU221RB	N/A	N/A	N/A	30 A	N/ A	N/A
3	APS	DS3-S	640 W	2.66 A	3.33 A	N/A	N/A	20 A / string

STRING INFORMATION

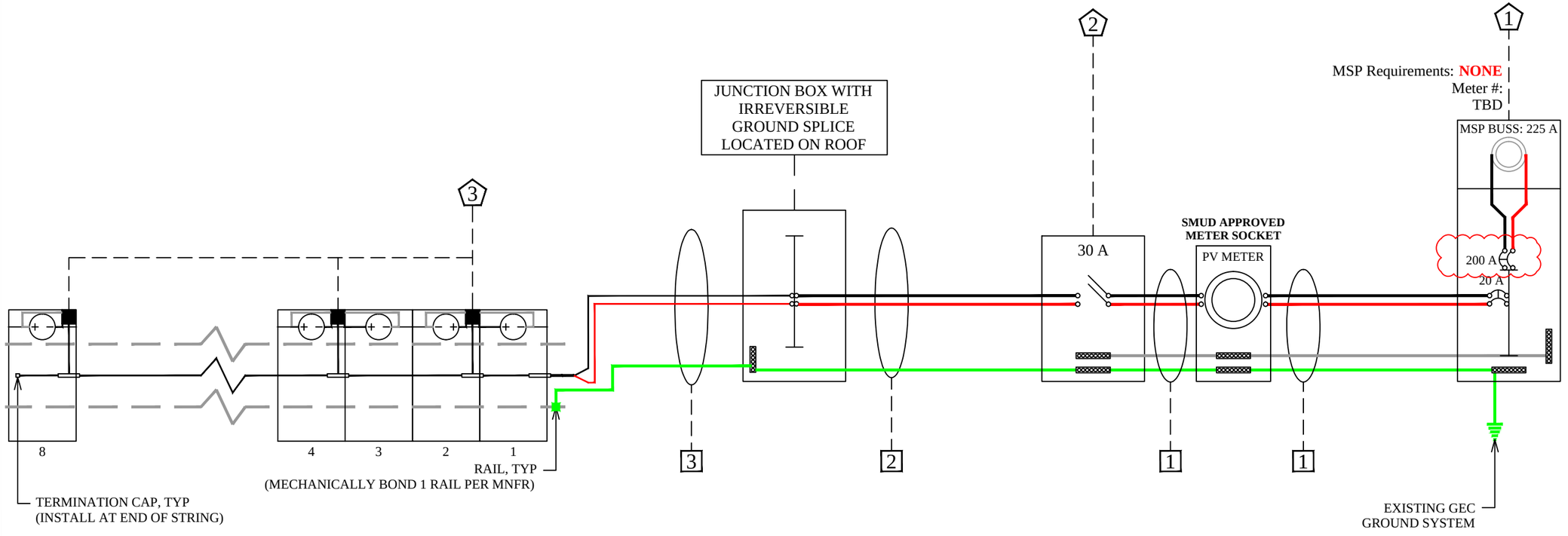
# OF MODULES IN STRING:	# OF MICRO-INVERTERS IN STRING:	IMP:	ISC:	MAX Breaker:
8	4	11 A	14 A	20 A

Temperature Rating of Conductors

Size AWG or kcmil	60°C	75°C	90°C	60°C	75°C	90°C	Size AWG or kcmil
	COPPER			ALUMINUM			
12	20	25	30	15	20	25	12
10	30	35	40	30	30	35	10
8	40	50	55	35	40	45	8
6	55	65	75	40	50	55	6
4	70	85	95	55	65	75	4
3	85	100	115	65	75	85	3
2	95	115	130	75	90	100	2

Notes:

1. This system meets the requirements of NEC 690.35 and is exempt from the system grounding requirements of NEC 690.41 System Grounding.
2. Photovoltaic system ground will be tied into existing ground at main service from DC Disconnect/Inverter as per NEC Sec. 250.166 (B). "The Grounding Electrode Conductor shall not be smaller then the largest conductor supplied by the system and not smaller than #8AWG."
3. The DC conductors are not bonded to ground and the micro-inverters (if applicable) do not require a GEC.
4. NEC 690.43(C) Structure as Equipment Grounding Conductor allows for equipment to be used as the EGC in a photovoltaic system.
5. The devices listed and identified for grounding the equipment may be stand-alone grounding components or UL-2703 listed mounting hardware. Microinverters (if applicable) and modules are bonded to the racking with listed and approved grounding components, the EGC provided to the Micro-Inverters through the Manufacture's Cable and is used to ground the other photovoltaic system components.
6. Equipment operating 150 volts or greater shall only be serviced or replaced by qualified personnel. Field protection may be in the form of conduit, closed cabinet or an enclosure which require use of tools to open.
7. Solar Photovoltaic System equipment will be installed in accordance with the requirements of Art. 690 of the 2019 NEC.
8. Local utility provider shall be notified prior to use and activation of any solar photovoltaic installation.
9. No sheet metal or tech screws shall be used to ground disconnect enclosure with tin-plated aluminum lugs; proper grounding/bar kits must be used.
10. All solar modules, equipment, and metallic components are to be grounded in accordance with code and the manufacturer's installation instructions.
11. PV modules cannot be installed over or block any attic vents, plumbing vents, furnace or water heater vents etc.
12. Wiring must be permanently and completely held off of the roof surface per NEC 110.2, 110.3(A), 110.3(B) & 300.4
13. **PV breaker shall be installed opposite end of the buss bar from the Main Breaker per NEC 705.12(D)(2).**
14. Per NEC 690.12, Solar Edge systems are equipped with rapid shutdown without any additional equipment. See technical brief supplemental document.
15. Enphase Micro-Inverters are smart inverter compliant per California rule 21.
16. Conductor size may vary based on Voltage Drop.
17. UNLESS OTHERWISE STATE, THE MOCPD IS LOCATED AT THE END OF THE BUSS BAR.



EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

8 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 8, ----, ----
Azimuth(s): 180°

Designed By: Ryan Nisdzwiecki-Pirtz

NORTH AVENUE HALF-PLEXES - LOT 8

Lot 8
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: December 6, 2022
Scale: NTS
Drawn By:

Title: SINGLE LINE DRAWING

Sheet: 3

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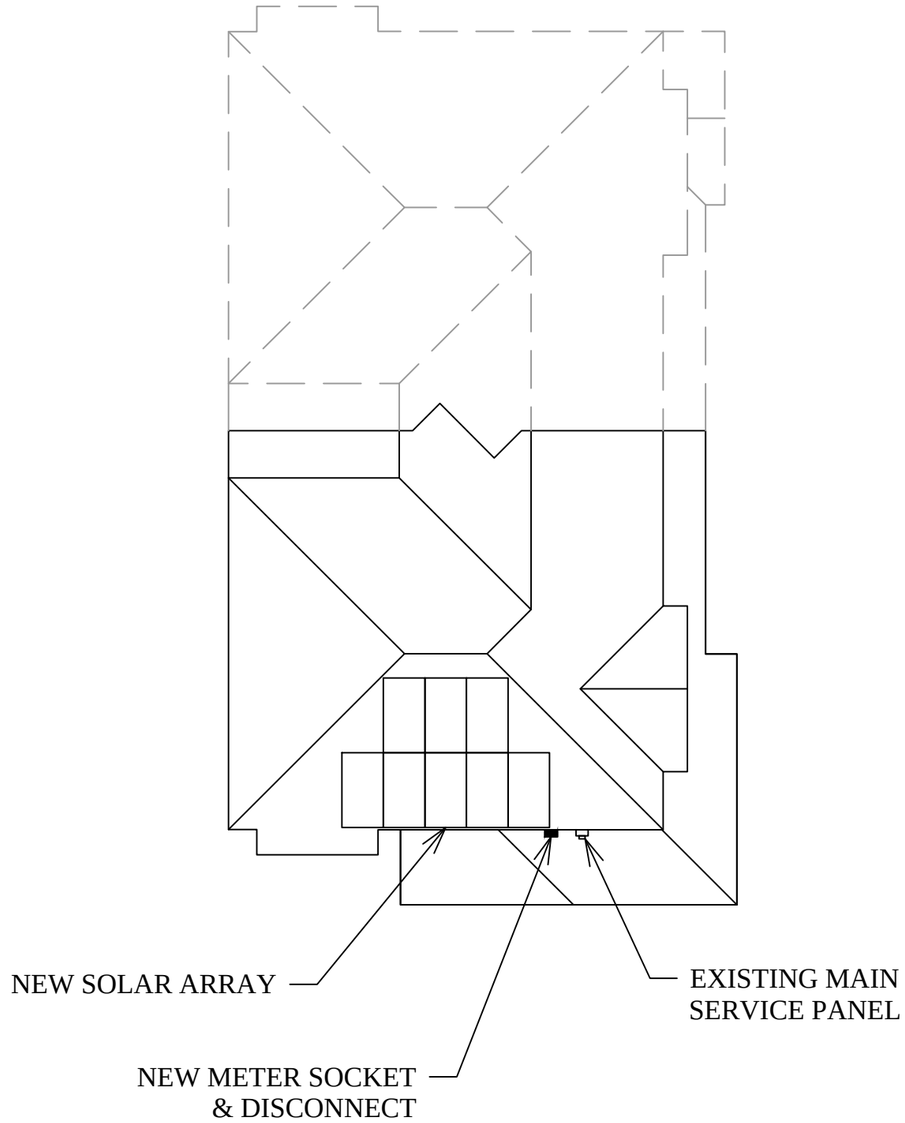
CAUTION!

POWER TO THIS BUILDING IS ALSO
SUPPLIED FROM THE FOLLOWING
SOURCES WITH DISCONNECTS
LOCATED AS SHOW:



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NORTH AVENUE
HALF-PLEXES - LOT 8

Lot 8
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022
Scale: None
Drawn By:

Title:
LABELS DIRECTORY

Sheet:
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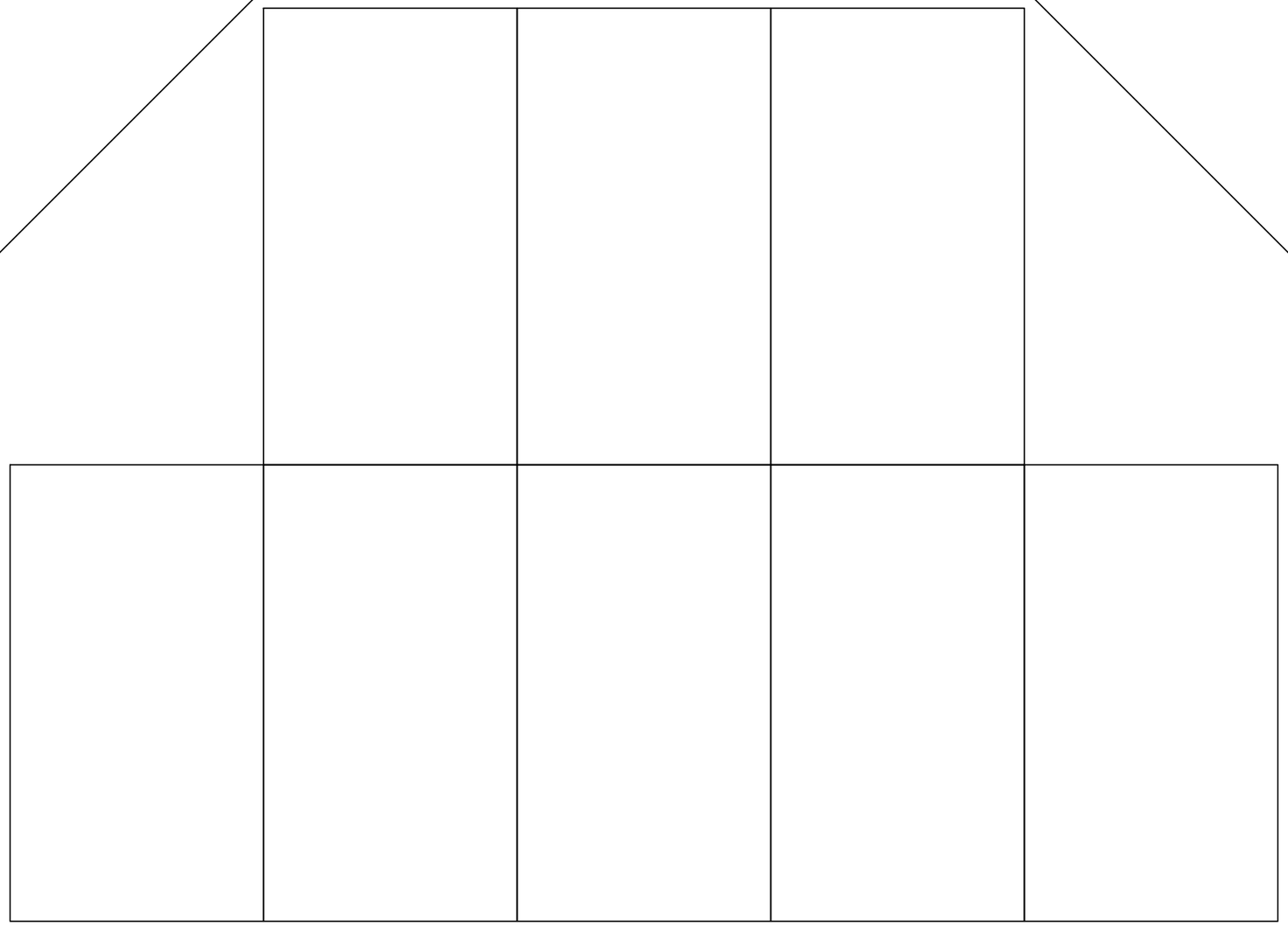

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Fair Oaks, Ca 95628
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PROJECT INFO

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APS DS3-S
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NORTH AVENUE HALF-PLEXES - LOT 8

Lot 8
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905 North Ave
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APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022
Scale: None
Drawn By:

Title:
AS-BUILT

Sheet: 10

Notes:
1. This page is not intended to be part of the permitting submission. It is intended for reference only as is for the sole purpose for system configuration, management & troubleshooting.

powered by Q.ANTUM DUO Z

Q.PEAK DUO ML-G10.a+

385-410

ENDURING HIGH PERFORMANCE

EUPD RESEARCH TOP BRAND PV MODULES AUSTRALIA 2017 2018 2019 2020 2021

25 YR Warranty
Product & Performance

Q CELLS
Yield Security

BREAKING THE 21% EFFICIENCY BARRIER
Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 21.1%.

THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY
Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behaviour.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID Technology, Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

A RELIABLE INVESTMENT
Inclusive 25-year product warranty and 25-year linear performance warranty[1].

[1] See data sheet on rear for further information.

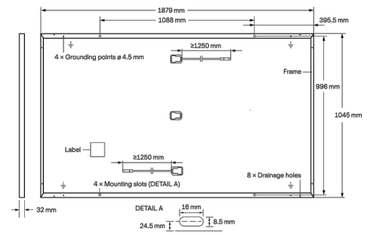
THE IDEAL SOLUTION FOR:
Rooftop arrays on residential buildings

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	1879 mm × 1045 mm × 32 mm (including frame)
Weight	22.0 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥1250 mm, (–) ≥1250 mm
Connector	Stäubli MC4; IP68

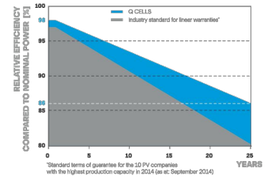


ELECTRICAL CHARACTERISTICS

POWER CLASS				385	390	395	400	405	410
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / –0 W)									
Minimum	Power at MPP[1]	P_{MPP}	[W]	385	390	395	400	405	410
	Short Circuit Current[1]	I_{SC}	[A]	11.07	11.10	11.13	11.16	11.19	11.22
	Open Circuit Voltage[1]	V_{OC}	[V]	44.96	44.99	45.03	45.06	45.09	45.13
	Current at MPP	I_{MPP}	[A]	10.47	10.53	10.58	10.64	10.70	10.76
	Voltage at MPP	V_{MPP}	[V]	36.78	37.05	37.32	37.59	37.85	38.11
	Efficiency[1]	η	[%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6	≥20.9
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]									
Minimum	Power at MPP	P_{MPP}	[W]	288.9	292.6	296.4	300.1	303.9	307.6
	Short Circuit Current	I_{SC}	[A]	8.92	8.95	8.97	8.99	9.02	9.04
	Open Circuit Voltage	V_{OC}	[V]	42.39	42.43	42.46	42.49	42.52	42.56
	Current at MPP	I_{MPP}	[A]	8.22	8.28	8.33	8.38	8.43	8.48
	Voltage at MPP	V_{MPP}	[V]	35.12	35.35	35.59	35.82	36.04	36.27

[1] Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25±2 °C, AM 1.5 according to IEC 60904-3 • [2] 800 W/m², NMOT, spectrum AM 1.5

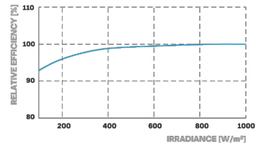
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	–0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	–0.34	Nominal Module Operating Temperature	NMOT	[°C]	43±3

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V_{SYS}	[V]	1000	PV module classification		Class II
Maximum Reverse Current	I_R	[A]	20	Fire Rating based on ANSI / UL 61730		C / TYPE 2
Max. Design Load, Push / Pull		[Pa]	3600 / 2660	Permitted Module Temperature on Continuous Duty		–40 °C - +85 °C
Max. Test Load, Push / Pull		[Pa]	5400 / 4000			

QUALIFICATIONS AND CERTIFICATES

Quality Controlled PV - TÜV Rheinland; IEC 61215:2016; IEC 61730:2016. This data sheet complies with DIN EN 50380. QCPV Certification ongoing. Certification holder: Hanwha Q CELLS GmbH

TÜVRheinland CERTIFIED www.tuv.com ID 1111202277

CE

PACKAGING INFORMATION

Horizontal packaging	1940 mm	1100 mm	1220 mm	751 kg	28 pallets	24 pallets	32 modules

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Made in Korea

Hanwha Q CELLS Australia Pty Ltd
Suite 1, Level 1, 15 Blue Street, North Sydney, NSW 2060, Australia | **TEL** +61 (0)2 9016 3033 | **FAX** +61 (0)2 9016 3032 | **EMAIL** q-cells-australia@q-cells.com | **WEB** www.q-cells.com/au

Engineered in Germany

Q CELLS

EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO

6 Hanwha Q.Peak Duo Blk 400ML-G-10.a+
APS DS3-S
Stringing: 6, ----, ----
Azimuth(s): 270°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE
HALF-PLEXES - LOT 2

Lot 2
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:

Title: MODULE

Sheet: 4

[3.7] P7 Dual Grounding Lug

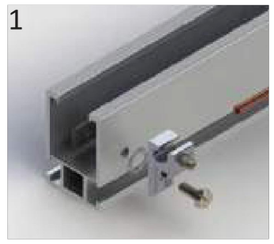
Grounding Rail Option - A

1. Slide the grounding lug through the rail groove.

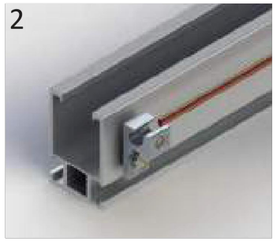
2.Tighten the grounding lug to (7 ft. lbs). Make sure the back plate teeth are biting the rail.

3. Push the grounding conductor (ground wire to be at minimum 10Ga)all the way to the back of the U-shaped slot and tighten the screw to (3 ft. lbs).

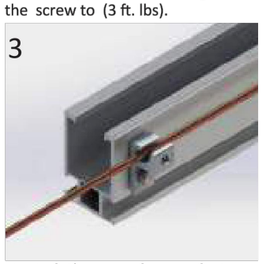
Grounding Rail Option - B



1. Drill a hole through the rail.



2. Tighten the grounding lug to (7 ft. lbs). Make sure the back plate teeth are biting the rail.

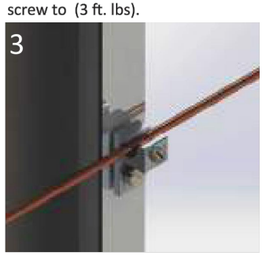


3. Push the grounding conductor (ground wire to be at minimum 10Ga)all the way to the back of the U shaped slot and tighten the screw to (3 ft. lbs).

Grounding Module

1. Slide the grounding lug through the module's grounding hole and attach to the back plate. (Tightening torque 7 ft. lbs). Make sure the back plate teeth are biting the module frame.

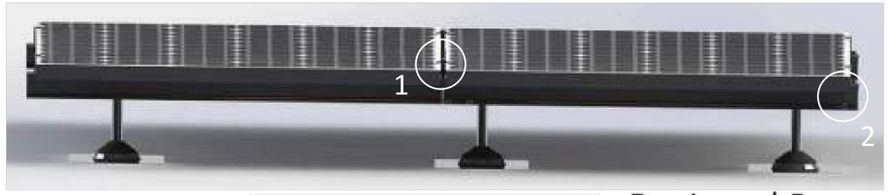
2. Insert the grounding conductor (ground wire to be at minimum 10Ga) and push it all the way to the back of the U shaped slot.

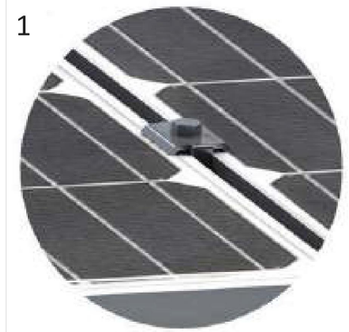


3. Tighten the screw to (3 ft. lbs).

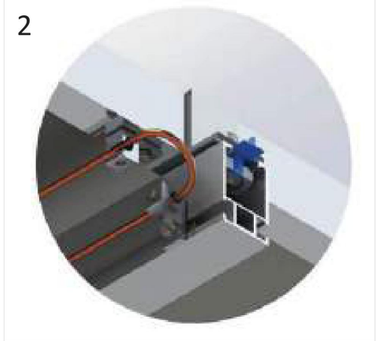
Dual Rack PV MOUNTING SYSTEMS ▪RESIDENTIAL ▪COMMERCIAL ▪UTILITY

[3.7.1] Grounding Using Grounding Mid Clam & P7 Grounding Lug





1. Grounding mid clamp electrically bonds the module's frames together. (Up to 44 modules per #6 bare copper wire.)



3. At the end of the string, bond both the last module and rail to the equipment grounding conductor, complying with electrical code.

EV Energy Inc. Plug Into The Future
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APS DS3-S
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Azimuth(s): 270°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE
HALF-PLEXES - LOT 2

Lot 2
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905 North Ave
Sacramento, CA 95838
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No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:

Title: MODULE GROUNDING

Sheet: 4.1

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APsystems
ALTENERGY POWER

Leading the Industry in
Solar Microinverter Technology

DS3 Series

The most powerful Dual Microinverter

- One microinverter connects to two solar modules
- Max output power reaching 640VA, 768VA or 880VA
- Two independent input channels (MPPT)
- CA Rule 21 (UL 1741 SA) compliant
- NEC 2020 690.12 Rapid Shutdown Compliant
- Encrypted Wireless ZigBee Communication
- Phase Monitored and Phase Balanced

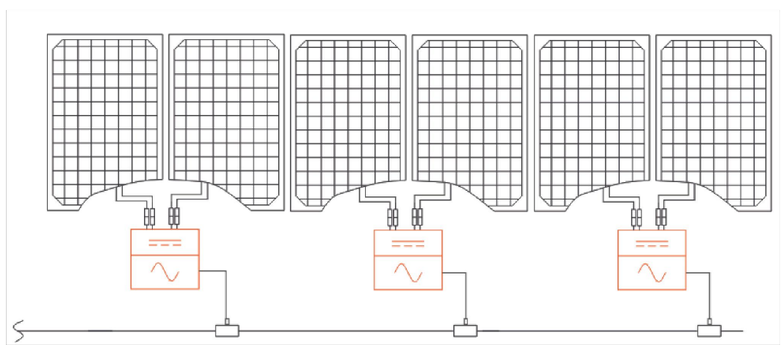
PRODUCT FEATURES

APsystems 3rd generation of dual microinverters are reaching unprecedented power outputs of 640VA or 768VA or 880VA to adapt to today's larger power module. With 2 independent MPPT, encrypted ZigBee signals, the DS3-S, DS3-L and DS3 benefit from an entirely new architecture and are fully backwards compatible with the QS1 and YC600 microinverters.

The innovative and compact design make the product lighter while maximizing power production. The components are encapsulated with silicone to reduce stress on the electronics, facilitate thermal dissipation, enhance waterproof properties, and ensure maximum reliability of the system via rigorous testing methods including accelerated life testing. A 24/7 energy access through Apps or web based portal facilitate remote diagnosis and maintenance.

The DS3 series is interactive with power grids through a feature referred to as RPC (Reactive Power Control) to better manage photovoltaic power spikes in the grid. With a performance and an efficiency of 97%, a unique integration with 20% less components, APsystems DS3-S, DS3-L and DS3 are a game changer to residential and commercial PV.

WIRING SCHEMATIC



10 YEAR ANNIVERSARY • 2010-2020 •

2022/02/15 Rev1.3

Datasheet | DS3 Microinverter Series

Model	DS3-S	DS3-L	DS3
Input Data (DC)			
Recommended PV Module Power (STC) Range	250Wp-480Wp+	265Wp-570Wp+	300Wp-660Wp+
Peak Power Tracking Voltage	22V-48V	25V-55V	32V-55V
Operating Voltage Range	16V-60V	16V-60V	26V-60V
Maximum Input Voltage		60V	
Maximum Input Current	16A x 2	18A x 2	20A x 2
Output Data (AC)			
Maximum Continuous Output Power	640VA	768VA	880VA
Nominal Output Voltage/Range①		240V / 211V-264V	
Nominal Output Current	2.66A	3.20A	3.7A
Nominal Output Frequency/ Range①		60Hz/50.3Hz-59.5Hz	
Power Factor(Default/Adjustable)		0.99/0.7 leading...0.7 lagging	
Maximum Units per 20A and 30A Branch②	6/9	5/7	4/6
AC Bus Cable		12AWG / 10AWG	
Efficiency			
Peak Efficiency		97%	
CEC Efficiency		96.5%	
Nominal MPPT Efficiency		99.5%	
Night Power Consumption		20mW	

Mechanical Data	
Operating Ambient Temperature Range	-40°F to +149°F (-40°C to +65°C)
Storage Temperature Range	-40°F to +185°F (-40°C to+85°C)
Dimensions (W x H x D)	10.3" × 8.6" × 1.6" (262mm X 218mm X41.2mm)
Weight	5.7lbs(2.6kg)
DC Connector Type	Stäubli MC4 PV-ADBP4-S2&ADSP4-S2
Cooling	Natural Convection - No Fans
Enclosure Environmental Rating	NEMA 6

Features	
Communication (Inverter To ECU)③	Encrypted ZigBee
Isolation Design	High Frequency Transformers, Galvanically Isolated
Energy Management	Energy Management Analysis (EMA) system
Warranty④	10 Years Standard ; 25 Years Optional

Compliance	
Safety and EMC Compliance	UL1741;CSA C22.2 No. 107.1-16;CA Rule 21 (UL 1741 SA); FCC Part15; ANSI C63.4; ICES-003; IEEE1547; NEC2014&NEC2017 Section 690.11 DC Arc-Fault circuit; Protection NEC2014&NEC2017 Section 690.12 Rapid Shutdown of PV systems on Buildings; NEC 2020

① Nominal voltage/frequency range can be extended beyond nominal if required by the utility.
② Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.
③ Recommend no more than 80 inverters register to one ECU for stable communication.
④ To be eligible for the warranty, APsystems microinverters need to be monitored via the EMA portal. Please refer to our warranty T&Cs available on usa.APsystems.com.

Specifications subject to change without notice please ensure you are using the most recent update found at web : usa.APsystems.com

APsystems
600 Ericksen Ave NE, Suite 200 Seattle, WA 98110
Tel : 844-666-7035
apsystems.com

Meets the standard requirements for Distributed Energy Resources (UL 1741) and identified with the CSA Listed Mark

EV Energy Inc.
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Scale: NTS
Drawn By:

Title:
INVERTER APS
MICRO-INVERTER

Sheet: 5

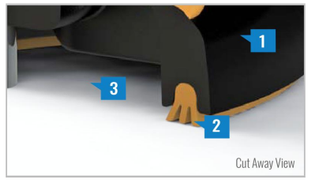
FLASH LOC

UNIRAC
BETTER SOLAR STARTS HERE

FLASHLOC is the ultimate attachment for composition shingle and rolled comp roofs. The all-in-one mount installs fast — no kneeling on hot roofs to install flashing, no prying or cutting shingles, no pulling nails. Simply drive the lag bolt and inject sealant into the base. **FLASH**LOC's patented TRIPLE SEAL technology preserves the roof and protects the penetration with a permanent pressure seal. Kitted with lag bolts, sealant, and hardware for maximum convenience. Don't just divert water, **LOC it out!**

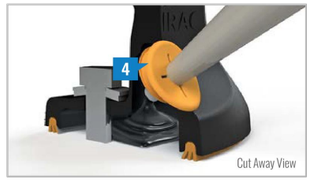
PROTECT THE ROOF

Install a high-strength waterproof attachment without lifting, prying or damaging shingles.



LOC OUT WATER

With an outer shield 1 contour-conforming gasket 2 and pressurized sealant chamber 3 the Triple-Loc Seal delivers a 100% waterproof connection.



HIGH-SPEED INSTALL

Simply drive lag bolt and inject sealant into the port 4 to create a permanent pressure seal.

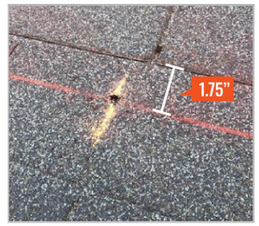
FASTER INSTALLATION. 25-YEAR WARRANTY.

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702

FLASH LOC

INSTALLATION GUIDE

UNIRAC
BETTER SOLAR STARTS HERE



PRE-INSTALL

Snap chalk lines for attachment rows. On shingle roofs, snap lines 1-3/4" below upslope edge of shingle course. Locate rafters and mark attachment locations.

At each location, drill a 7/32" pilot hole. Clean roof surface of dirt, debris, snow, and ice, then fill pilot hole with sealant.

NOTE: Space mounts per racking system install specifications. When down pressure is ≥34 psf, span may not exceed 2 ft.

STEP 1: SECURE

Place **FLASH**LOC over pilot hole with lag on down-slope side. Align indicator marks on sides of mount with chalk line. Pass included lag bolt and sealing washer through **FLASH**LOC into pilot hole. Drive lag bolt until mount is held firmly in place.

NOTE: The EPDM in the sealing washer will expand beyond the edge of the metal washer when proper torque is applied.

STEP 2: SEAL

Insert tip of UNIRAC provided sealant into port. Inject until sealant exits both vents.

Continue array installation, attaching rails to mounts with provided T-bolts.

NOTE: When **FLASH**LOC is installed over gap between shingle or tabs or vertical joints, fill gap/joint with sealant between mount and upslope edge of shingle course.

Use only provided sealant.

FASTER INSTALLATION. 25-YEAR WARRANTY.

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702

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Plug Into The Future
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APS DS3-S
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Azimuth(s): 270°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE
HALF-PLEXES - LOT 2

Lot 2
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

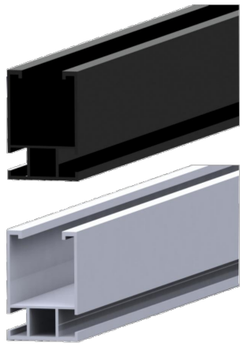
Date: May 31, 2022
Scale: None
Drawn By:

Title:
MOUNTING TYPE

Sheet:
6

DUAL Rack® Solar Mounting Solutions

www.DualRack.net



DUAL RACK RAIL-STANDARD

Our Dual Rack rails were designed to be customizable for solar PV arrays on residential and commercial projects. They are engineered for strength and durability and tested for spans up to six feet. Installers prefer Dual Rack rails because they are strong, reliable, time saving, and are available at the best price in the marketplace.

ADVANTAGES

- ✓ Advanced Dual Rack design
- ✓ PE Certified in 16 states
- ✓ No special training required
- ✓ Save time and money on installations
- ✓ Less parts, 2 ways to install
- ✓ 3 sizes available:12', 14', & 17'-in silver & black
- ✓ 10 year limited warranty

PRODUCT LINE

Item #	Product Name
DR-CR-01	DR 144" Rail- Clear
DR-CR-02	DR 168" Rail- Clear
DR-CR-03	DR 204" Rail- Clear
DR-BR-01	DR 144" Rail- Black
DR-BR-02	DR 168" Rail- Black
DR-BR-03	DR 204" Rail- Black

MATERIAL SPECIFICATIONS

Material Designation	6005-T5
Density (ρ)	167.62 lb/ft^3
Coefficient of Thermal expansion (α_t)	1.306E-05/°F(2.35E-05/°C)
Diffusivity (λ)	200.00 W/m-°K
Modulus of Elasticity (E)	10.152E06 Psi (7,000 kN/cm^2)
Shear Modulus (G)	3.916E06 Psi (2,700 kN/cm^2)

MECHANICAL PROPERTIES

Tensile Strength (f_{tu})	38.0 Ksi (26.0 kN/cm^2)
Tensile Yield Strength (f_{ty})	35.0 Ksi (24.0 kN/cm^2)
Profile Wall Thickness	(t ≤ 0.39 in/10 mm)

SECTION PROPERTIES

I_x	0.383 in^4
W_x	0.334 in^3
I_y	0.206 in^4
W_y	0.262 in^3
A	0.581 in^2
Weight	0.68 lb/ft

WARRANTY

10 year limited warranty

ORDERING SPECIFICS

Standard Packaging	6pc
Dimensions	144"/168"/204"
Weight	0.68 lb/ft

RAIL SPANS (ft^3)

EXP	Wind Speed (mph)	Zone 1 Snow Load (psf) 0.0	10.0	20.0	30.0	40.0	50.0
B	110	8.0	7.0	6.0	5.0	4.5	4.0
	120	8.0	7.0	6.0	5.0	4.5	4.0
	130	8.0	7.0	6.0	5.0	4.5	4.0
	140	8.0	7.0	6.0	5.0	4.5	4.0
	150	7.5	7.0	6.0	5.0	4.5	4.0
	160	7.0	7.0	6.0	5.0	4.5	4.0
	170	7.0	7.0	6.0	5.0	4.5	4.0
	180	6.5	6.5	5.5	5.0	4.5	4.0
C	110	8.0	7.0	6.0	5.0	4.5	4.0
	120	8.0	7.0	6.0	5.0	4.5	4.0
	130	7.5	7.0	6.0	5.0	4.5	4.0
	140	7.0	7.0	6.0	5.0	4.5	4.0
	150	6.5	6.5	5.5	5.0	4.5	4.0
	160	6.0	6.0	5.5	5.0	4.5	4.0
	170	5.5	5.5	5.5	5.0	4.5	4.0
	180	5.5	5.5	5.5	5.0	4.5	4.0

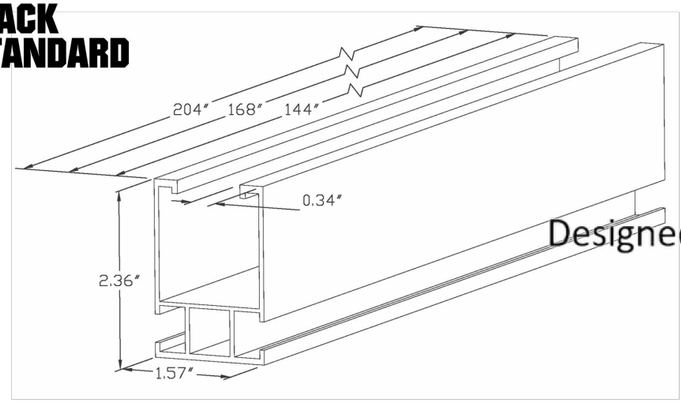
A. The table above ONLY includes Dual Rack rail capacity check. It does not include roof attachment or roof capacity check. B. Wind risk category II per ASCE7-10. C. Topographic factor, kzt is 1.0. D. Maximum mean roof height is 30 ft. E. Average parapet height is 0 ft. F. Roof pitch is between 7 degree and 27 degree. G. Maximum solar panel weight is 50 lbs. H. Height of solar panel is between 2" and 10" to roof.

Phone: 916-492-2797 - Fax: 916-492-2874

DUAL Rack® Solar Mounting Solutions

www.DualRack.net

DUAL RACK RAIL-STANDARD



Designed By: Ryan Niedzwiecki-Pirtz

INSTALLATION GUIDE

The Dual Rack is a robust, long-life photovoltaic (PV) module mounting system for both flat and pitched roofs. It consists of aluminum rails, roof attachments and all necessary small parts to ensure a safe installation. Dual Rack allows modules to be mounted in both landscape and portrait orientation.

- Dual Rack technology can be installed in two different ways: Top down attachment style and L-Foot style

Top Down

TOP DOWN
- Measure and mark location of each stand off to roof connection.
- Drill 3/8" hole through Dual Rack rail for each standoff location.
- Attach standoff to roof with 5/16" lag screw and attach Dual Rack rail to stand off with 3/8" bolt and washer.

L-Foot style

L-FOOT STYLE
- After locating and securely installing standoff to rafter, attach L-foot with 3/8" bolt and nut to Dual Rack rail at desired height.
- Dual Rack L-foot enable height adjustment up to 1.1 inches.

CONTACT INFO

Dual Rack Inc.
241 N 10th Street, Unit 4
Sacramento, CA 95811
info@DualRack.net www.DualRack.net

DISTRIBUTOR INFO

Phone: 916-492-2797 - Fax: 916-492-2874

Notes:
1. Rails shall be no more than 14" from the edge of the modules when in landscape.
2. Rails shall be no more than 16" from the edge of the modules when in portrait.

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PROJECT INFO

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400ML-G-10.a+
APS DS3-S
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NORTH AVENUE
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Lot 2
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905 North Ave
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No.	Revision/Issue	Date

Date: May 31, 2022
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Drawn By:

Title:
RACKING TYPE

Sheet: 6.1

Table 1.1: Project Design Parameters			
Gable Roofs - 7° to 20°, 20° to 27°, 27° to 45°			
Module Size =	**60 Cell Modules**	**Mean Roof Height =**	**45 ft. or less**
Wind Speed (mph) =	**110**	**Risk Category =**	**II**
Design SL (psf) =	**5**	**Panel orientation =**	**Portrait**
Location (State of) =	**California**	**Panel Angle =**	**Flush to roof**

Enclosed is a comprehensive structural analysis of the Dual Rack Solar PV Mounting System. When installed per the conditions and design criteria described herein, the Dual Rack PV rail system is compliant with the applicable sections of the design reference documents noted below.

Design Reference Documents:
2016 Triennial Edition of Title 24, California Code of Regulations
2016 Triennial Edition of Title 24, California Code of Regulations
ASCE/SEI 7-16 – *Minimum Design Loads for Buildings and Other Structures*
2015 Aluminum Design Manual, by the Aluminum Association
Section and materials data provided by Dual Rack Systems (Ref. Table 2.1)

Overview
The Dual Rack PV-panel rail system consists of extruded aluminum support rails spanning between points of attachment on an existing roof structure. This analysis is limited to capacity of the rail system only. Attachment of the Dual Rack rail mounting system to the existing roof structure shall be the responsibility of the installer and should be analyzed by a registered design professional where required by the local authority having jurisdiction.

Methods & Design Parameters
Applicable combinations of dead, wind, snow, and seismic loads were evaluated in accordance with current code requirements to determine allowable rail span lengths, based on assumptions of single-span conditions and allowable deflection of L/60, or 1.5" maximum (whichever controls).
Design wind pressures were determined using Components and Cladding calculations in Chapter 26-30 of ASCE 7-16, using the loading parameters listed above. Configurations not conforming to these parameters will require additional analysis. Seismic effects did not appear to govern the capacity of this system, applicable seismic detailing requirements should be satisfied when installed per the manufacturer instructions and additional installation notes

Design Results
The allowable span lengths of the system are principally controlled by applicable wind and snow loads to the structure. Refer to the Dual Rack span tables in the appendix to this document for recommended rail configurations based on combinations of these loading parameters. Note that reaction loads provided in the attached tables are only applicable when used with the corresponding span length recommendations provided therein. These reactions may be scaled linearly when shorter spans are used.
NOTE: RAIL SPANS EXCEEDING 96" IN LENGTH ARE ASSUMED TO BE USED IN GROUND MOUNT APPLICATIONS ONLY

Installation Notes
The following guidelines apply to all installations using the Dual Rack product line:
Tables assume two independent support rails per row with either panel orientation.
Maximum end cantilever of aluminum support rail shall not exceed one-third (1/3) of allowable span in the roof wind pressure zone of the cantilever
Rails shall be continuous (not spliced) over a minimum of two supports
Installation over roof overhangs or within 10" of any roof edge is not advised
Observe all local jurisdictional requirements regarding roof setback requirements

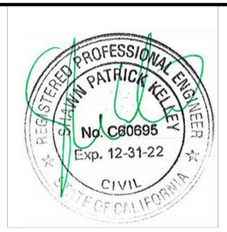
Summary
This assessment has provided design validation for code-compliant installations of the Dual Rack PV Mounting System for the design loading and configurations noted. The attached span tables represent maximum span lengths based on allowable stresses and deflection criteria. For all other configurations, refer to Dual Rack PV Mounting Systems for engineering support.

This report does not provide analysis of roof attachment hardware, nor of any existing structures, as may be required by the local authority having jurisdiction.

Table 2.1: Dual Rack Rail Section Properties				
Section Properties	**LTE**	**STD**	**HD**	**Unit**
Cross Sectional Area (A)	0.5530	0.8240	1.1480	in^2
Moments of Inertia:				
Vertical (Ix)	0.2000	0.4530	1.0980	in^4
Horizontal (Iy)	0.1590	0.2810	0.4480	in^4
Section Moduli:				
Vertical (Sx)	0.2290	0.3190	0.6130	in^3
Horizontal (Sy)	0.1580	0.3550	0.5530	in^3
Material:	6000 Series Aluminum Ultimate Tensile Strength: 37.7 ksi Yield Strength: 34.8 ksi			

Designed By: Ryan Niedzwiecki-Pirtz

The engineers seal on this document solely indicates that the specified components have been reviewed in accordance with the loading indicated on the attached calculations for the specified project as referenced herein. The building as a whole has not been evaluated and is the responsibility of others to verify that the deign loads indicated for the proposed solar array can be supported by the permanent building structure.



Expires: 12/31/22

Pages 1 to 8

EV Energy Inc.
Plug Into The Future
10417 Fair Oaks Blvd
Fair Oaks, Ca 95628
LIC. #1016892

PROJECT INFO
6 Hanwha Q.Peak Duo Blk
400ML-G-10.a+
APS DS3-S
Stringing: 6, ----, ----
Azimuth(s): 270°

NORTH AVENUE
HALF-PLEXES - LOT 2
Lot 2
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: February 22, 2023
Scale: None
Drawn By:

Title:
ENGINEERING

Sheet: 7

ASCE 7-16
60 Cell Modules
69.5" x 40"

Gable Roofs 20° to 27°

			Ultimate Wind Speed V (mph) = 110		Roof Snow Load (psf) = 5
Design	Exposure	Rail Type	Zone 1/2e	Zone 2n/2r/3e	Zone 3r
Maximum Span Length (in.)	B	HD	141	123	120
		STD	113	98	96
		LTE	92	80	79
	C	HD	130	113	111
		STD	104	91	89
		LTE	85	74	72
	D	HD	124	109	106
		STD	100	86	83
		LTE	81	71	70
Maximum Uplift (lbs.)	B	HD	-449	-684	-728
		STD	-360	-549	-583
		LTE	-294	-447	-476
	C	HD	-579	-873	-927
		STD	-464	-699	-743
		LTE	-378	-570	-606
	D	HD	-658	-987	-1048
		STD	-527	-782	-814
		LTE	-430	-645	-685
Maximum Downforce (lbs.)	B	HD	343	298	292
		STD	275	239	234
		LTE	224	195	191
	C	HD	357	311	305
		STD	286	249	244
		LTE	233	203	199
	D	HD	367	321	315
		STD	294	254	244
		LTE	240	210	206
Maximum Shear (lbs.)	B	HD	124	108	105
		STD	99	86	84
		LTE	81	70	69
	C	HD	114	99	97
		STD	91	79	78
		LTE	74	65	64
	D	HD	109	95	93
		STD	87	75	72
		LTE	71	62	61

Designed By: Ryan Niedzwiecki-Pirtz

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No.	Revision/Issue	Date

Date: February 22, 2023
Scale: None
Drawn By:

Title: ENGINEERING

Sheet: 7.1

2/23/2023 6:12:22 PM

! WARNING !
ELECTRIC SHOCK HAZARD.
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE UNGROUNDED
AND MAY BE ENERGIZED.

AT EACH JUNCTION, COMBINER, DISCONNECT AND DEVICE WHERE ENERGIZED UNGROUNDED CONDUCTORS MAY BE EXPOSED DURING SERVICE [NEC 690.35(F)]

! WARNING !
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS.
TERMINALS ON BOTH LINE AND LOAD SIDES
MAY BE ENERGIZED IN THE OPEN POSITION.

AT EACH DISCONNECTING MEANS FOR PHOTOVOLTAIC EQUIPMENT
[NEC 690.17]

PHOTOVOLTAIC AC DISCONNECT
OPERATING CURRENT: 8 A AC
OPERATING VOLTAGE: 240 V AC

AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS
[NEC 690.54]

WARNING: PHOTOVOLTAIC POWER SOURCE

AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10 FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS. [NEC 690.31(G)]
LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE [IFC 605.11.1.1]

! WARNING !
DUAL POWER SOURCES. SECOND SOURCE IS PV SYSTEM

AT POINT OF INTERCONNECTION
[NEC 705.12(D)(4)]

! CAUTION !
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

AT POINT OF INTERCONNECTION
[NEC 705.12(D)(4)]

INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED

AT UTILITY METER
[NEC 690.56(B)]

INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED PHOTOVOLTAIC SYSTEM DISCONNECT LOCATED EAST SIDE OF THE HOUSE

AT POINT OF INTERCONNECTION
[NEC 705.12(D)(4)]

PHOTOVOLTAIC AC DISCONNECT

AT EACH AC DISCONNECTING MEANS
[NEC 690.13(B)]

! WARNING !
INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

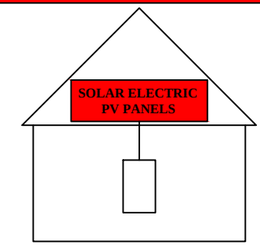
AT POINT OF INTERCONNECTION OVERCURRENT DEVICE
[NEC 705.12(D)(7)]

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

AT INVERTER
[NEC 690.56(C)(1)]

SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN.

SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN. TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM & REDUCE SHOCK HAZARD IN ARRAY



AT RAPID SHUTDOWN SWITCH [CEC 690.56(C)(a)].
LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE [IFC 605.11.1.1]

LABELING NOTES
1. LABELING REQUIREMENTS BASED ON THE 2014 NATIONAL ELECTRICAL CODE, INTERNATIONAL FIRE CODE 605.11, OSHA STANDARD 1910.145, ANSI Z535
2. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
3. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
4. LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.
5. ALERTING WORDS TO BE COLOR CODED. "DANGER" WILL HAVE RED BACKGROUND; "WARNING" WILL HAVE ORANGE BACKGROUND; "CAUTION" WILL HAVE YELLOW BACKGROUND. [ANSI Z535]
6. PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS IF NOT IN THE SAME LOCATION [NEC 690.56(B)]WHERE THE INVERTERS ARE REMOTELY LOCATED FROM EACH OTHER, A DIRECTORY IN ACCORDANCE WITH 705.10 SHALL BE INSTALLED AT EACH DC PV SYSTEM DISCONNECTING MEANS, AT EACH AC DISCONNECTING MEANS, AND AT THE MAIN SERVICE DISCONNECTING MEANS SHOWING THE LOCATION OF ALL AC AND DC PV SYSTEM DISCONNECTING MEANS IN THE BUILDING. [NEC 690.4(H)]

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APS DS3-S
Stringing: 6, ----, ----
Azimuth(s): 270°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE
HALF-PLEXES - LOT 2
Lot 2
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905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: June 1, 2022
Scale: None
Drawn By:
Title: LABELS
Sheet: 8


L221N

Light Duty—Visible Blades 10 kA Short Circuit Current Rating

The Square D light duty enclosed switch is ideal for home applications in disconnecting power to workshops, hobby rooms, furnaces, and garages. The light duty safety switch has visible blades and a ground lug as standard features.

Table 3.1: Fusible

System	Amperes	Fuse	NEMA Type 1 Indoor Cat. No.	Horsepower Ratings 120 Vac Std. 1Ø	120 Vac Max. 1Ø	240 Vac Std. 1Ø	240 Vac Max. 1Ø
2 Wire (1 Blades and Fuseholders, 1 Neutral)—120 Vac							
	30	Plug	L111N	—	—	—	—
3 Wire (2 Blades and Fuseholders, 1 Neutral)—120/240 Vac							
	30	Plug Cart	L211N L221N	1/2 1/2	2 2	1-1/2 1-1/2	3 3

General Duty—Up To 100 kA Short Circuit Current Rating

General duty safety switches are designed for residential and commercial applications where durability and economy are prime considerations. Typical loads are lighting, air conditioning, and appliances. They are suitable for use as service equipment when equipped with a factory or field-installed neutral assembly or a field-installed service grounding kit, (see page 3-5) as applicable.

General duty safety switches are UL Listed, File E2875, and meet or exceed the NEMA Standard KS1.


D223N

240 Volt—Single Throw Fusible Switches

Table 3.2: Fusible

System	Amperes	Fuse	NEMA Type 1 Indoor Cat. No.	NEMA Type 3R [1] Rainproof Cat. No.	Class R Fuse Kits [2] Cat. No.	Horsepower Ratings Std. (Fast Acting One-Time Fuses) 1Ø	Std. (Fast Acting One-Time Fuses) 3Ø	Max. (Dual Element Time-Delay Fuses) 1Ø	Max. (Dual Element Time-Delay Fuses) 3Ø
2 Wire (1 Blade and Fuseholder, 1 Neutral)—120 Vac									
	30	Plug	Use Light Duty Device for this Application (see above)			—	—	—	—
	30	Cart.	Use three-wire devices for this application.			—	—	—	—
3 Wire (2 Blades and Fuseholders, 1 Neutral)—120/240 Vac (Plug), 240 Vac (Cart.) Maximum									
	30	Plug	D211N	D211NRB	—	1-1/2	—	3	—
	30	Cart.	D221N	D221NRB	DRK30	1-1/2	3[3]	3	7-1/2 [3]
	60	Cart.	D222N	D222NRB	RFK03H	3	7-1/2[3]	10	15[3]
	100	Cart.	D223N	D223NRB	RFK10	7-1/2	15[3]	15	30[3]
	200	Cart.	D224N [4]	D224NRB [4]	HRK1020	15	25[3]	—	60[3]
	400	Cart.	D225N	D225NR	DRK40	—	—	—	—
	600 [5]	Cart.	D226N	D226NR	DRK600	—	—	—	—
4 Wire (3 Blades and Fuseholders, 1 Neutral)—240 Vac Maximum									
	30	Cart.	D321N	D321NRB	DRK30	1-1/2	3	3	7-1/2
	60	Cart.	D322N	D322NRB	RFK03H	3	7-1/2[6]	10	15[6]
	100	Cart.	D323N	D323NRB	RFK10	7-1/2	15[6]	15	30[6]
	200	Cart.	D324N [4]	D324NRB [4]	HRK1020	15	25[6]	—	60[6]
	400	Cart.	D325N	D325NR	DRK40	—	50	—	125
	400 [7]	Class T	D325NT	D325NTR	—	—	50	—	—
	600 [5]	Cart.	D326N	D326NR	DRK600	—	75	—	150
	600 [7]	Class T	D326NT	D326NTR	—	—	75	—	—
	800 [7]	Class T	T327N	T327NR	—	—	100	—	—

[1] Bolt-on hubs —Refer to Rainproof Bolt-On Hubs, Table 1.27, page 3-14.
[2] When properly installed, the Class R Fuse Kit rejects all but Class R fuses.
[3] For corner grounded delta systems only. Use switching poles for ungrounded conductors. See data bulletin 2700DB0202 for additional information.
[4] For 200% neutral, order (1) additional neutral kit SN20A and (1) neutral jumper kit SN20NI.
[5] Order Class J Fuse Kit GDJK600 if using Class J fuses.
[6] If corner grounded delta, use outer switching poles for ungrounded conductors.
[7] D325NT, D325NTR, D326NT, D326NTR, T327N and T327NR accept only 300Vac Class T fuses.

General Duty—Up to 100 kA Short Circuit Current Rating

240 Volt—Single Throw Non-Fusible Switches

Table 3.3: Non-Fusible

System	Amperes	NEMA Type 1 Indoor Cat. No.	NEMA Type 3R Rainproof [8] Cat. No.	Horsepower Ratings (Max.) 1Ø	3Ø
2 Wire (2 Blades)—240 Vac Maximum					
	30	—	DU221RB	3	—
	60	—	DU222RB	10	—
	60	QO260NATS [9] [10]	QO200TR [9] [10] [11]	10	—
	100	QO2000NS [9] [10]	QO2000NRB [9] [11]	20	—
	200	Use 3P Switch	Use 3P Switch	—	—
	400	Use 3P Switch	Use 3P Switch	—	—
	600	Use 3P Switch	Use 3P Switch	—	—
3 Wire (3 Blades)—240 Vac Maximum					
	30	DU321	DU321RB	3	7-1/2
	60	DU322	DU322RB	10	15
	100	DU323 [12]	DU323RB [12]	15	40
	200	DU324 [13]	DU324RB [13]	15	60
	400	DU325	—	—	125
	600	DU326 [14]	—	—	150

UL Listed Maximum Short Circuit Current Ratings — AC Only

Table 3.4: Fusible Safety Switch Short Circuit Current Rating

Fuse Class	UL Listed Short Circuit Rating
Plug	10 kA
H, K	10 kA
J [15], R	100 kA
T [16]	100 kA

Non-Fusible Safety Switches

Systems equal or less than 10 kAIR SCCR —Any brand of circuit breaker or fuse not exceeding the ampere rating of the switch may be used in conjunction with a non-fusible safety switch.

Systems above 10 kAIR SCCR—The UL Listed short circuit current rating for Square D non-fusible switches is based upon the switch being used in conjunction with fuses or Square D circuit breakers or Mag-Gard motor circuit protectors.

Table 3.5: Non-Fusible Safety Switch Short Circuit Current Rating

Fuse Class or Circuit Breaker Type [17]	UL Listed Short Circuit Rating
Any Brand Circuit Breaker	10 kA
H or J PowerPact Circuit Breaker	Up to 65 kA [18]
H, K	10 kA
J, R	100 kA [19]
T	100 kA [20]

[8] Bolt-on hubs—Refer to Hubs, page 3-14.
[9] Enclosed molded case switch—Refer to Section 1.
[10] Includes factory-installed grounding kit.
[11] Not service entrance rated—Refer to Table 3.34 for more information.
[12] If a neutral assembly is required, order and field install SN0610.
[13] If a neutral assembly is required, order and field install a SN20A Neutral Assembly Kit. For a 200% neutral application, order and field install (2) SN20A Neutral Assembly Kits and (1) SN20NI Neutral Jumper Kit.
[14] If a neutral assembly is required, order and field install D600SN.
[15] Only applicable to 200 A - 600 A except D325NT, D325NTR, D326NT and D326NTR.
[16] Only applicable to D325NT, D325NTR, D326NT, D326NTR, T327N and T327NR.
[17] Ampere rating of fuse or circuit breaker not to exceed switch ampere rating.
[18] Only applicable to DU324 and DU324RB. HD, JD = 25 kA maximum.
[19] SCCR = 50 kA, applicable to DU222RB, DU322 and DU322RB.
[20] Only applicable to DU323, DU323RB, DU325 and DU326.

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PROJECT INFO

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400ML-G-10.a+
APS DS3-S
Stringing: 6, ----, ----
Azimuth(s): 270°

Designed By: Ryan Niedzwiecki-Pirtz

NORTH AVENUE
HALF-PLEXES - LOT 2

Lot 2
---
905 North Ave
Sacramento, CA 95838
APN: 237-0200-092-0000

No.	Revision/Issue	Date

Date: May 31, 2022
Scale: None
Drawn By:

Title:
AC DISCONNECT

Sheet: 9

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**
Project Name: Unit 1 **Calculation Date/Time:** 2023-07-18T10:05:42-07:00 **(Page 1 of 11)**
Calculation Description: Unit 1 - v1 (revised) **Input File Name:** Unit 1 - v1.ribd19

GENERAL INFORMATION					
01	**Project Name**	Unit 1			
02	**Run Title**	Unit 1 - v1 (revised)			
03	**Project Location**	North Avenue Half-Plexes			
04	**City**	Sacramento, CA	05	**Standards Version**	2019
06	**Zip code**	95838	07	**Software Version**	CBECC-Res 2019.2.0
08	**Climate Zone**	12	09	**Front Orientation (deg/ Cardinal)**	180
10	**Building Type**	Single family	11	**Number of Dwelling Units**	1
12	**Project Scope**	NewConstruction	13	**Number of Bedrooms**	2
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**	0.3
18	**Total Cond. Floor Area (ft^2)**	1310	19	**Glazing Percentage (%)**	15.31%
20	**ADU Bedroom Count**	n/a	21	**ADU Conditioned Floor Area**	n/a
22	**Is Natural Gas Available?**	Yes			

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: 423-P010125271A-000-000-0000000-0000 Registration Date/Time: 07/18/2023 10:52 HERS Provider: CHEERS
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CA Building Energy Efficiency Standards - 2019 Residential Compliance Report Version: 2019.2.000 Report Generated: 2023-07-18 10:06:22
Schema Version: rev 20200901

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**
Project Name: Unit 1 **Calculation Date/Time:** 2023-07-18T10:05:42-07:00 **(Page 2 of 11)**
Calculation Description: Unit 1 - v1 (revised) **Input File Name:** Unit 1 - v1.ribd19

ENERGY DESIGN RATING

	Energy Design Ratings		**Compliance Margins**	
	Efficiency^1 (EDR)	**Total^2 (EDR)**	**Efficiency^1 (EDR)**	**Total^2 (EDR)**
Standard Design	52.4	30.8		
Proposed Design	51.3	29.7	1.1	1.1
RESULT: $^{3:}$ COMPLIES				

1: Efficiency EDR includes improvements to the building envelope and more efficient equipment
2: Total EDR includes efficiency and demand response measures such as photovoltaic (PV) systems and batteries
3: Building complies when efficiency and total compliance margins are greater than or equal to zero

- Standard Design PV Capacity: 2.29 kWdc
- PV System resized to 2.29 kWdc (a factor of 1.147) to achieve 'Standard Design PV' PV scaling

ENERGY USE SUMMARY

Energy Use (kTDV/ft^2-yr)	**Standard Design**	**Proposed Design**	**Compliance Margin**	**Percent Improvement**
Space Heating	25.76	28.26	-2.5	-9.7
Space Cooling	21.33	19.84	1.49	7
IAQ Ventilation	3.83	3.83	0	0
Water Heating	19.91	15.53	4.38	22
Self Utilization/Flexibility Credit	n/a	0	0	n/a
Compliance Energy Total	**70.83**	**67.46**	**3.37**	**4.8**

REQUIRED PV SYSTEMS - SIMPLIFIED

01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	**Exception**	**Module Type**	**Array Type**	**Power Electronics**	**CFI**	**Azimuth (deg)**	**Tilt Input**	**Array Angle (deg)**	**Tilt: (x in 12)**	**Inverter Eff. (%)**	**Annual Solar Access (%)**
2.29	NA	Standard	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98

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CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**
Project Name: Unit 1 **Calculation Date/Time:** 2023-07-18T10:05:42-07:00 **(Page 3 of 11)**
Calculation Description: Unit 1 - v1 (revised) **Input File Name:** Unit 1 - v1.ribd19

REQUIRED SPECIAL FEATURES

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

- PV System: 2.29 kWdc
- Cool roof
- Ceiling has high level of insulation
- Insulation below roof deck
- Window overhangs and/or fins
- 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

Building-level Verifications:
- Quality insulation installation (QII)
- Indoor air quality ventilation
- Kitchen range hood

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

Heating System Verifications:
- Verified HSPF
- Verified heat pump rated heating capacity

HVAC Distribution System Verifications:
- Duct leakage testing

Domestic Hot Water System Verifications:
- -- None --

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**
Unit 1	1310	1	2	1	0	1

Registration Number: 423-P010125271A-000-000-0000000-0000 Registration Date/Time: 07/18/2023 10:52 HERS Provider: CHEERS
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Schema Version: rev 20200901

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**
Project Name: Unit 1 **Calculation Date/Time:** 2023-07-18T10:05:42-07:00 **(Page 4 of 11)**
Calculation Description: Unit 1 - v1 (revised) **Input File Name:** Unit 1 - v1.ribd19

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	**Zone Type**	**HVAC System Name**	**Zone Floor Area (ft^2)**	**Avg. Ceiling Height**	**Water Heating System 1**	**Water Heating System 2**
Living Area	Conditioned	HVAC System 1	1310	9	DHW System 1	N/A

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)**
Back_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	0	Back	316.5	100.8	90
Front_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	180	Front	211.875	59.83	90
Left_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	270	Left	217.125	25.99	90
Right_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	90	Right	400.5	35	90
Left_2x6ToGarageWall	Living Area>>Garage	2x6 ToGarage Wall	n/a	n/a	175.688	18.9	n/a
Front_2x6ToGarageWall	Living Area>>Garage	2x6 ToGarage Wall	n/a	n/a	127.125	0	n/a
Back_2x6ToGarageWall	Living Area>>Garage	2x6 ToGarage Wall	n/a	n/a	22.5	0	n/a
CLG_Living	Living Area	Ceiling	n/a	n/a	1310	n/a	n/a
CLG_Garage	Garage	Ceiling at Garage	n/a	n/a	271	n/a	n/a
Front_GarExtWall-Siding	Garage	Gar Ext Wall -Siding	180	Front	104.625	52	90
Left_GarExtWall-Siding	Garage	Gar Ext Wall -Siding	270	Left	184.875	17.8	90

ATTIC

01	02	03	04	05	06	07	08
Name	**Construction**	**Type**	**Roof Rise (x in 12)**	**Roof Reflectance**	**Roof Emittance**	**Radiant Barrier**	**Cool Roof**
Attic_Living	Roof Deck	Ventilated	4	0.21	0.93	No	Yes
Attic_Garage	Roof Deck at Garage	Ventilated	4	0.21	0.93	No	No

Registration Number: 423-P010125271A-000-000-0000000-0000 Registration Date/Time: 07/18/2023 10:52 HERS Provider: CHEERS
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CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**
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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**
4 - 60610	Window	Back_2x6ExtWall-Siding	Back	0	6	6.8	1	40.8	0.3	NFRC	0.23	NFRC	Bug Screen
3 - 2040	Window	Front_2x6ExtWall-Siding	Front	180	2	4	1	8	0.3	NFRC	0.23	NFRC	Bug Screen
2 - 5050	Window	Front_2x6ExtWall-Siding	Front	180			1	25	0.3	NFRC	0.23	NFRC	Bug Screen
11 - 3034	Window	Left_2x6ExtWall-Siding	Left	270	3	3.33	1	9.99	0.3	NFRC	0.23	NFRC	Bug Screen
1 - 6050	Window	Back_2x6ExtWall-Siding	Back	0			1	30	0.3	NFRC	0.23	NFRC	Bug Screen
1 - 6050-2	Window	Back_2x6ExtWall-Siding	Back	0			1	30	0.3	NFRC	0.23	NFRC	Bug Screen
1 - 10510_Sidelite	Window	Front_2x6ExtWall-Siding	Front	180	1	5.83	1	5.83	0.3	NFRC	0.23	NFRC	Bug Screen
3 - 2040-2	Window	Left_2x6ExtWall-Siding	Left	270			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
3 - 2040-3	Window	Left_2x6ExtWall-Siding	Left	270			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
3 - 2040-3-2	Window	Right_2x6ExtWall-Siding	Right	90			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
3 - 2040-3-3	Window	Right_2x6ExtWall-Siding	Right	90			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
9 - 2016	Window	Right_2x6ExtWall-Siding	Right	90	2	1.5	1	3	0.3	NFRC	0.23	NFRC	Bug Screen
9 - 2016-2	Window	Right_2x6ExtWall-Siding	Right	90	2	1.5	1	3	0.3	NFRC	0.23	NFRC	Bug Screen
9 - 2016-3	Window	Right_2x6ExtWall-Siding	Right	90	2	1.5	1	3	0.3	NFRC	0.23	NFRC	Bug Screen
10 - 5020	Window	Right_2x6ExtWall-Siding	Right	90	5	2	1	10	0.3	NFRC	0.23	NFRC	Bug Screen

OPAQUE DOORS

01	02	03	04
Name	**Side of Building**	**Area (ft^2)**	**U-factor**
1 - 3070	Front_2x6ExtWall-Siding	21	0.2
5 - 210068	Left_2x6ToGarageWall	18.9	0.2
3 - 8066	Front_GarExtWall-Siding	52	1
2 - 28068	Left_GarExtWall-Siding	17.8	0.2

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OVERHANGS AND FINS

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Window	**Overhang**					**Left Fin**				**Right Fin**			
	Depth	**Dist Up**	**Left Extent**	**Right Extent**	**Flap Ht.**	**Depth**	**Top Up**	**Dist L**	**Bot Up**	**Depth**	**Top Up**	**Dist R**	**Bot Up**
4 - 60610	5	2.3	2.7	1.5	1	0	0	0	0	0	0	0	0
3 - 2040	5.5	2	9.5	5.5	1	0	0	0	0	0	0	0	0

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_Living	Living Area	1310	128.2	none	0	80%	No
slab_Garage	Garage	271	32.2	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**
2x6 Ext Wall -Siding	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.066	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Exterior Finish: Wood Siding/sheathing/decking
Gar Ext Wall -Siding	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-0	None / None	0.302	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Exterior Finish: Wood Siding/sheathing/decking

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OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	**Surface Type**	**Construction Type**	**Framing**	**Total Cavity R-value**	**Interior / Exterior Continuous R-value**	**U-factor**	**Assembly Layers**
2x6 ToGarage Wall	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
Roof Deck	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-19	None / None	0.052	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-13.0 / 2x4 Top Chrd Under Roof Joists: R-6.0 insul.
Roof Deck at Garage	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4 Top Chrd
Ceiling	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O. C.	R-49	None / None	0.02	Over Ceiling Joists: R-39.9 insul. Cavity / Frame: R-9.1 / 2x4 Btm Chrd Inside Finish: Gypsum Board
Ceiling at Garage	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O. C.	R-0	None / None	0.481	Cavity / Frame: no insul. / 2x4 Btm Chrd Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

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

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WATER HEATING SYSTEMS

01	02	03	04	05	06	07
Name	**System Type**	**Distribution Type**	**Water Heater Name (#)**	**Solar Heating System**	**Compact Distribution**	**HERS Verification**
DHW System 1	Domestic Hot Water (DHW)	Standard Distribution System	Water Heater 1 (1)	n/a	None	n/a

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	**Heating Element Type**	**Tank Type**	**# of Units**	**Tank Vol. (gal)**	**Energy Factor or Efficiency**	**Input Rating or Pilot**	**Tank Insulation R-value (Int/Ext)**	**Standby Loss or Recovery Eff**	**1st Hr. Rating or Flow Rate**	**NEEA Heat Pump Brand or Model**	**Tank Location or Ambient Condition**
Water Heater 1	Heat Pump	n/a	1	50	NEEA Rated	<= 12 kW	n/a	n/a	n/a	Rheem\PROPH50 T2 RH37515 (50 gal)	Garage

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	**Pipe Insulation**	**Parallel Piping**	**Compact Distribution**	**Compact Distribution Type**	**Recirculation Control**	**Central DHW Distribution**	**Shower Drain Water Heat Recovery**
DHW System 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11
Name	**System Type**	**Heating Unit Name**	**Cooling Unit Name**	**Fan Name**	**Distribution Name**	**Required Thermostat Type**	**Status**	**Verified Existing Condition**	**Heating Equipment Count**	**Cooling Equipment Count**
HVAC System 1	Heat pump heating cooling	Heat Pump System 1	Heat Pump System 1	HVAC Fan System 1	Distribution System 1	Setback	New	NA	1	1

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HVAC - HEAT PUMPS

01	02	03	04	05	06	07	08	09	10	11
Name	**System Type**	**Number of Units**	**Heating**			**Cooling**		**Zonally Controlled**	**Compressor Type**	**HERS Verification**
			HSPF/HSPF2 /COP	**Cap 47**	**Cap 17**	**SEER/SEER2**	**EER/EER2/CEER**			
Heat Pump System 1	Central split HP	1	8.5	36000	28080	16	13	Zonally Controlled	Single 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**	**Verified SEER**	**Verified Refrigerant Charge**	**Verified HSPF**	**Verified Heating Cap 47**	**Verified Heating Cap 17**
Heat Pump System 1-hers-htpump	Required	275	Required	Required	Yes	Yes	Yes	Yes

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
			Duct Ins. R-value		**Duct Location**		**Surface Area**				
Name	**Type**	**Design Type**	**Supply**	**Return**	**Supply**	**Return**	**Supply**	**Return**	**Bypass Duct**	**Duct Leakage**	**HERS Verification**
Distribution System 1	Unconditioned attic	Non-Verified	R-6	R-6	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	Distribution System 1-hers-dist

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HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	**Duct Leakage Verification**	**Duct Leakage Target (%)**	**Verified Duct Location**	**Verified Duct Design**	**Buried Ducts**	**Deeply Buried Ducts**	**Low-leakage Air Handler**	**Low Leakage Ducts Entirely in Conditioned Space**
Distribution System 1-hers-dist	Yes	5.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS

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

HVAC FAN SYSTEMS - HERS VERIFICATION

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

IAQ (INDOOR AIR QUALITY) FANS

01	02	03	04	05	06	07
Dwelling Unit	**IAQ CFM**	**IAQ Watts/CFM**	**IAQ Fan Type**	**IAQ Recovery Effectiveness - SRE**	**IAQ Recovery Effectiveness - ASRE**	**HERS Verification**
SFam IAQVentRpt	59	0.35	Exhaust	n/a	n/a	Yes

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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: Steffi Carter	Documentation Author Signature: Steffi Carter
Company: DuctTesters, Inc.	Signature Date: 07/18/2023
Address: 633 S. Andrews Avenue, Suite 204	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Fort Lauderdale, FL 33301	Phone: 209-579-5000

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: Steffi Carter	Responsible Designer Signature: Steffi Carter
Company: DuctTesters, Inc.	Date Signed: 07/18/2023
Address: 633 S. Andrews Avenue, Suite 204	License:
City/State/Zip: Fort Lauderdale, FL 33301	Phone: 209-579-5000

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

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2019 Low-Rise Residential Mandatory Measures Summary

Building Envelope Measures:	
§ 110.6(a)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 cfm per square foot or less when tested per NFRC-400, ASTM E283 or AAMA/WDMA/CSA 101/I.S.2/A440-2011.*
§ 110.6(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of Section 10-111(a).
§ 110.6(b):	**Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather stripped.*
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of Section 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Ceiling and Rafter Roof Insulation.** Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous roof or ceiling which is sealed to limit infiltration and exfiltration as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.*
§ 150.0(b):	**Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the 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, (R-19 in 2x6 or U-factor of 0.074 or less). Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102, equivalent to an installed value of R-13 in a wood framed assembly. Masonry walls must meet Table 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%; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	**Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(d).
§ 150.0(g)2:	**Vapor Retarder.** In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.*
Fireplaces, Decorative Gas Appliances, and Gas Log Measures:	
§ 110.5(e)	**Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	**Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device.*
§ 150.0(e)3:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.*
Space Conditioning, Water Heating, and Plumbing System Measures:	
§ 110.0-§ 110.3:	**Certification.** Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the Energy Commission.*
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-K.*
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Electric Resistance Heaters.** Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.*
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.*
§ 110.3(c)4:	**Water Heating Recirculation Loops Serving Multiple Dwelling Units.** Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)4.
§ 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.
§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu/hr are exempt); and pool and spa heaters.*
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.
§ 150.0(h)3A:	**Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least 5 feet from the outlet of any dryer vent.
§ 150.0(h)3B:	**Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(j)1:	**Storage Tank Insulation.** Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have a minimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.

No.	REVISION	DATE

Ellis Architects
4132 C Street
Sacramento, CA 95819
916-440-6765

North Avenue Half-Plexes
Sacramento, CA
Unit 1

ENERGY FORMS
TITLE-24 COMPLIANCE DOCUMENTS

336 W. Main Street
Ripon, CA 95366
(209) 579-5000
(209) 522-5001

DuctTesters

DATE CREATED
07/18/2023

SHEET
EN-1.0

GENERAL INFORMATION

01	Project Name	Unit 2A			
02	Run Title	Unit 2A - v1 (revised)			
03	Project Location	North Avenue Half-Plexes			
04	City	Sacramento, CA	05	Standards Version	2019
06	Zip code	95838	07	Software Version	CBECC-Res 2019.2.0
08	Climate Zone	12	09	Front Orientation (deg/ Cardinal)	AllOrientations
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	NewConstruction	13	Number of Bedrooms	4
14	Addition Cond. Floor Area (ft²)	0	15	Number of Stories	2
16	Existing Cond. Floor Area (ft²)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft²)	1764	19	Glazing Percentage (%)	15.31%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Is Natural Gas Available?	Yes			

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 DESIGN RATING

	Energy Design Ratings			
	Efficiency¹ (EDR)	Total² (EDR)	Efficiency¹ (EDR)	Total² (EDR)
Standard Design	53.7	30.6		
Proposed Designs				
North Facing	50.8	27.8	2.9	2.8
East Facing	53.1	30.1	0.6	0.5
South Facing	51.6	28.5	2.1	2.1
West Facing	53	29.9	0.7	0.7
RESULT: ³: COMPLIES				

¹ Efficiency EDR includes improvements to the building envelope and more efficient equipment
² Total EDR includes efficiency and demand response measures such as photovoltaic (PV) systems and batteries
³ Building complies when efficiency and total compliance margins are greater than or equal to zero

- Standard Design PV Capacity: 3.14 kWdc
- Proposed PV Capacity Scaling: North (3.14 kWdc) East (3.14 kWdc) South (3.14 kWdc) West (3.14 kWdc)

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ENERGY USE SUMMARY

Energy Use (kTDV/ft²-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	21.79	23.27	-1.48	-6.8
Space Cooling	24.94	19.49	5.45	21.9
IAQ Ventilation	4.19	4.19	0	0
Water Heating	18.43	14.56	3.87	21
Self Utilization Credit	n/a	0	0	n/a
North Facing Compliance Total	**69.35**	**61.51**	**7.84**	**11.3**
Space Heating	21.79	22.52	-0.73	-3.4
Space Cooling	24.94	26.82	-1.88	-7.5
IAQ Ventilation	4.19	4.19	0	0
Water Heating	18.43	14.11	4.32	23.4
Self Utilization Credit	n/a	0	0	n/a
East Facing Compliance Total	**69.35**	**67.64**	**1.71**	**2.5**
Space Heating	21.79	23.74	-1.95	-8.9
Space Cooling	24.94	21.42	3.52	14.1
IAQ Ventilation	4.19	4.19	0	0
Water Heating	18.43	14.02	4.41	23.9
Self Utilization Credit	n/a	0	0	n/a
South Facing Compliance Total	**69.35**	**63.37**	**5.98**	**8.6**
Space Heating	21.79	24.73	-2.94	-13.5
Space Cooling	24.94	24.28	0.66	2.6
IAQ Ventilation	4.19	4.19	0	0
Water Heating	18.43	14.26	4.17	22.6
Self Utilization Credit	n/a	0	0	n/a
West Facing Compliance Total	**69.35**	**67.46**	**1.89**	**2.7**

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REQUIRED PV SYSTEMS - SIMPLIFIED

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 (%)
3.14	NA	Standard	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.

- PV System: 3.14 kWdc
- Cool roof
- Ceiling has high level of insulation
- Floor has high level of insulation
- Insulation below roof deck
- Window overhangs and/or fins
- Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed

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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

Building-level Verifications:
- Quality insulation installation (QII)
- Indoor air quality ventilation
- Kitchen range hood

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

Heating System Verifications:
- Verified HSPF
- Verified heat pump rated heating capacity

HVAC Distribution System Verifications:
- Duct leakage testing

Domestic Hot Water System Verifications:
- -- None --

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Unit 2A	1764	1	4	1	0	1

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	Water Heating System 2
Living Area	Conditioned	HVAC System 1	1764	9	DHW System 1	N/A

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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)
Back_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	180	Back	567	125.8	90
Left_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	90	Left	624	48	90
Right_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	270	Right	144	6	90
Front_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	0	Front	395	111.33	90
Right_2x6ToGarageWall	Living Area>>Garage	2x6 ToGarage Wall	n/a	n/a	158	18.9	n/a
Front_2x6ToGarageWall	Living Area>>Garage	2x6 ToGarage Wall	n/a	n/a	172	0	n/a
Right_PartyWall	Living Area	Party Wall	n/a	n/a	322	0	n/a
CLG_Living	Living Area	Ceiling	n/a	n/a	1084	n/a	n/a
CLG_Garage	Garage	Ceiling at Garage	n/a	n/a	50	n/a	n/a
FloorToOutside	Living Area	Floor to Outside	n/a	n/a	359	n/a	n/a
Left_GarExtWall-Siding	Garage	Gar Ext Wall -Siding	90	Left	27	0	90
Front_GarExtWall-Siding	Garage	Gar Ext Wall -Siding	0	Front	173	104	90

ATTIC

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic_Living	Roof Deck	Ventilated	4	0.21	0.93	No	Yes
Attic_Garage	Roof Deck at Garage	Ventilated	4	0.21	0.93	No	No

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FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
6050_W23	Window	Back_2x6ExtWall-Siding	Back	180			1	30	0.3	NFRC	0.23	NFRC	Bug Screen
60610_W22	Window	Back_2x6ExtWall-Siding	Back	180	6	6.8	1	40.8	0.3	NFRC	0.23	NFRC	Bug Screen
4030_W18	Window	Back_2x6ExtWall-Siding	Back	180			1	12	0.3	NFRC	0.23	NFRC	Bug Screen
3650_W5	Window	Back_2x6ExtWall-Siding	Back	180			1	17.5	0.3	NFRC	0.23	NFRC	Bug Screen
2020_W4	Window	Back_2x6ExtWall-Siding	Back	180			1	4	0.3	NFRC	0.23	NFRC	Bug Screen
3650_W3	Window	Back_2x6ExtWall-Siding	Back	180			1	17.5	0.3	NFRC	0.23	NFRC	Bug Screen
2020_W2	Window	Back_2x6ExtWall-Siding	Back	180			1	4	0.3	NFRC	0.23	NFRC	Bug Screen
4020_W20	Window	Left_2x6ExtWall-Siding	Left	90			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
4020_W17	Window	Left_2x6ExtWall-Siding	Left	90			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
3040_W13	Window	Left_2x6ExtWall-Siding	Left	90			1	12	0.3	NFRC	0.23	NFRC	Bug Screen
4020_W12	Window	Left_2x6ExtWall-Siding	Left	90			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
2030_W10	Window	Left_2x6ExtWall-Siding	Left	90			1	6	0.3	NFRC	0.23	NFRC	Bug Screen
2030_W7	Window	Left_2x6ExtWall-Siding	Left	90			1	6	0.3	NFRC	0.23	NFRC	Bug Screen
3020_W1	Window	Right_2x6ExtWall-Siding	Right	270			1	6	0.3	NFRC	0.23	NFRC	Bug Screen
2030_W21	Window	Front_2x6ExtWall-Siding	Front	0			1	6	0.3	NFRC	0.23	NFRC	Bug Screen
5060_W19	Window	Front_2x6ExtWall-Siding	Front	0			1	30	0.3	NFRC	0.23	NFRC	Bug Screen
2040_W16	Window	Front_2x6ExtWall-Siding	Front	0	2	4	1	8	0.3	NFRC	0.23	NFRC	Bug Screen
1670_W15	Window	Front_2x6ExtWall-Siding	Front	0	1.5	7	1	10.5	0.3	NFRC	0.23	NFRC	Bug Screen
5030_W9	Window	Front_2x6ExtWall-Siding	Front	0			1	15	0.3	NFRC	0.23	NFRC	Bug Screen
5030_W6	Window	Front_2x6ExtWall-Siding	Front	0			1	15	0.3	NFRC	0.23	NFRC	Bug Screen
10510_Sidelite	Window	Front_2x6ExtWall-Siding	Front	0	1	5.83	1	5.83	0.3	NFRC	0.23	NFRC	Bug Screen

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OPAQUE DOORS

01	02	03	04
Name	Side of Building	Area (ft²)	U-factor
3070_D8	Front_2x6ExtWall-Siding	21	0.2
21068_D0	Right_2x6ToGarageWall	18.9	0.2
8066_D14	Front_GarExtWall-Siding	52	1
8066_D11	Front_GarExtWall-Siding	52	1

OVERHANGS AND FINS

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Window	Overhang					Left Fin				Right Fin			
	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
60610_W22	6	0.5	2	3.2	0	0	0	0	0	0	0	0	0
2040_W16	5	0.5	8.7	1.8	0	0	0	0	0	0	0	0	0
1670_W15	5	0.5	5	6	0	0	0	0	0	0	0	0	0

SLAB FLOORS

01	02	03	04	05	06	07	08
Name	Zone	Area (ft²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
slab_Living	Living Area	724	93	none	0	80%	No
slab_Garage	Garage	400	43	none	0	0%	No

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OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
2x6 Ext Wall -Siding	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.066	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Exterior Finish: Wood Siding/sheathing/decking
Gar Ext Wall -Siding	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-0	None / None	0.302	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Exterior Finish: Wood Siding/sheathing/decking
2x6 ToGarage Wall	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
Party Wall	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
Roof Deck	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-19	None / None	0.052	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-13.0 / 2x4 Top Chrd Under Roof Joists: R-6.0 insul.
Roof Deck at Garage	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4 Top Chrd
Ceiling	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O. C.	R-49	None / None	0.02	Over Ceiling Joists: R-39.9 insul. Cavity / Frame: R-9.1 / 2x4 Btm Chrd Inside Finish: Gypsum Board
Ceiling at Garage	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O. C.	R-0	None / None	0.481	Cavity / Frame: no insul. / 2x4 Btm Chrd Inside Finish: Gypsum Board

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OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
Floor to Outside	Exterior Floors	Wood Framed Floor	2x12 @ 16 in. O. C.	R-44	None / None	0.025	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-44 / 2x12 Exterior Finish: 3 Coat Stucco

BUILDING ENVELOPE - HERS VERIFICATION

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

WATER HEATING SYSTEMS

01	02	03	04	05	06	07
Name	System Type	Distribution Type	Water Heater Name (#)	Solar Heating System	Compact Distribution	HERS Verification
DHW System 1	Domestic Hot Water (DHW)	Standard Distribution System	Water Heater 1 (1)	n/a	None	n/a

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Energy Factor or Efficiency	Input Rating or Pilot	Tank Insulation R-value (Int/Ext)	Standby Loss or Recovery Eff	1st Hr. Rating or Flow Rate	NEEA Heat Pump Brand or Model	Tank Location or Ambient Condition
Water Heater 1	Heat Pump	n/a	1	50	NEEA Rated	<= 12 kW	n/a	n/a	n/a	Rheem\PROPH50 T2 RH37515 (50 gal)	Garage

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WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery
DHW System 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
HVAC System 1	Heat pump heating cooling	Heat Pump System 1	Heat Pump System 1	HVAC Fan System 1	Distribution System 1	Setback	New	NA	1	1

HVAC - HEAT PUMPS

01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Number of Units	Heating			Cooling		Zonally Controlled	Compressor Type	HERS Verification
			HSPF/HSPF2 /COP	Cap 47	Cap 17	SEER/SEER2	EER/EER2/CEER			
Heat Pump System 1	Central split HP	1	8.5	36000	28080	16	13	Zonally Controlled	Single 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	Verified SEER	Verified Refrigerant Charge	Verified HSPF	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Required	275	Required	Required	Yes	Yes	Yes	Yes

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HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
			Duct Ins. R-value		Duct Location		Surface Area				
Name	Type	Design Type	Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakage	HERS Verification
Distribution System 1	Unconditioned attic	Non-Verified	R-6	R-6	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
Distribution System 1-hers-dist	Yes	5.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS

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

HVAC FAN SYSTEMS - HERS VERIFICATION

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

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IAQ (INDOOR AIR QUALITY) FANS

01	02	03	04	05	06	07
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness - SRE	IAQ Recovery Effectiveness - ASRE	HERS Verification
SFam IAQVentRpt	87	0.35	Exhaust	n/a	n/a	Yes

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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: Steffi Carter	Documentation Author Signature: Steffi Carter
Company: DuctTesters, Inc.	Signature Date: 07/05/2023
Address: 633 S. Andrews Avenue, Suite 204	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Fort Lauderdale, FL 33301	Phone: 209-579-5000

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: Steffi Carter	Responsible Designer Signature: Steffi Carter
Company: DuctTesters, Inc.	Date Signed: 07/05/2023
Address: 633 S. Andrews Avenue, Suite 204	License:
City/State/Zip: Fort Lauderdale, FL 33301	Phone: 209-579-5000

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

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2019 Low-Rise Residential Mandatory Measures Summary

DATE	REVISION	No.

Ellis Architects
4132 C Street
Sacramento, CA 95819
916-440-6765

North Avenue Half-Plexes
Sacramento, CA
Unit 2A

ENERGY FORMS
TITLE-24 COMPLIANCE DOCUMENTS

336 W. Main Street
Ripon, CA 95366
(209) 579-5000
(209) 522-5001

DuctTesters

DATE CREATED
07/05/2023

SHEET
EN-2.0

CERTIFICATE OF COMPLIANCE

Project Name: Unit 2B

Calculation Description: Unit 2B - v1 (revised)

Calculation Date/Time: 2023-07-03T14:26:43-07:00

Input File Name: Unit 2B.ribd19

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GENERAL INFORMATION					
01	Project Name	Unit 2B			
02	Run Title	Unit 2B - v1 (revised)			
03	Project Location	North Avenue Half-Plexes			
04	City	Sacramento, CA	05	Standards Version	2019
06	Zip code	95838	07	Software Version	CBECC-Res 2019.2.0
08	Climate Zone	12	09	Front Orientation (deg/ Cardinal)	AllOrientations
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	NewConstruction	13	Number of Bedrooms	4
14	Addition Cond. Floor Area (ft^2)	0	15	Number of Stories	2
16	Existing Cond. Floor Area (ft^2)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	1856	19	Glazing Percentage (%)	17.73%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Is Natural Gas Available?	Yes			

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 DESIGN RATING

	Energy Design Ratings			
	Efficiency[1] (EDR)	Total[2] (EDR)	Efficiency[1] (EDR)	Total[2] (EDR)
Standard Design	52.4	30.2		
Proposed Designs				
North Facing	49.7	27.5	2.7	2.7
East Facing	52.4	30.1	0	0.1
South Facing	51	28.8	1.4	1.4
West Facing	51.9	29.7	0.5	0.5
RESULT: [3]: COMPLIES				

[1] Efficiency EDR includes improvements to the building envelope and more efficient equipment

[2] Total EDR includes efficiency and demand response measures such as photovoltaic (PV) systems and batteries

[3] Building complies when efficiency and total compliance margins are greater than or equal to zero

- Standard Design PV Capacity: 3.16 kWdc
- Proposed PV Capacity Scaling: North (3.16 kWdc) East (3.16 kWdc) South (3.16 kWdc) West (3.16 kWdc)

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ENERGY USE SUMMARY

Energy Use (kTDV/ft^2-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	22.34	23.73	-1.39	-6.2
Space Cooling	24.37	19.09	5.28	21.7
IAQ Ventilation	4.1	4.1	0	0
Water Heating	17.32	13.82	3.5	20.2
Self Utilization Credit	n/a	0	0	n/a
North Facing Compliance Total	**68.13**	**60.74**	**7.39**	**10.8**
Space Heating	22.34	23.14	-0.8	-3.6
Space Cooling	24.37	27.33	-2.96	-12.1
IAQ Ventilation	4.1	4.1	0	0
Water Heating	17.32	13.4	3.92	22.6
Self Utilization Credit	n/a	0	0	n/a
East Facing Compliance Total	**68.13**	**67.97**	**0.16**	**0.2**
Space Heating	22.34	24.84	-2.5	-11.2
Space Cooling	24.37	22.01	2.36	9.7
IAQ Ventilation	4.1	4.1	0	0
Water Heating	17.32	13.3	4.02	23.2
Self Utilization Credit	n/a	0	0	n/a
South Facing Compliance Total	**68.13**	**64.25**	**3.88**	**5.7**
Space Heating	22.34	25.84	-3.5	-15.7
Space Cooling	24.37	23.3	1.07	4.4
IAQ Ventilation	4.1	4.1	0	0
Water Heating	17.32	13.5	3.82	22.1
Self Utilization Credit	n/a	0	0	n/a
West Facing Compliance Total	**68.13**	**66.74**	**1.39**	**2**

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REQUIRED PV SYSTEMS - SIMPLIFIED

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 (%)
3.16	NA	Standard	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.

- PV System: 3.16 kWdc
- Cool roof
- Ceiling has high level of insulation
- Floor has high level of insulation
- Insulation below roof deck
- Window overhangs and/or fins
- Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed

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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

Building-level Verifications:
- Quality insulation installation (QII)
- Indoor air quality ventilation
- Kitchen range hood

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

Heating System Verifications:
- Verified HSPF
- Verified heat pump rated heating capacity

HVAC Distribution System Verifications:
- Duct leakage testing

Domestic Hot Water System Verifications:
- -- None --

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
Unit 2B	1856	1	4	1	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
Living Area	Conditioned	HVAC System 1	1856	9	DHW System 1	N/A

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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)
Back_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	180	Back	586	155.8	90
Front_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	0	Front	413	82	90
Left_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	90	Left	678	106.33	90
Right_2x6ExtWall-Siding	Living Area	2x6 Ext Wall -Siding	270	Right	171	6	90
Right_2x6ToGarageWall	Living Area>>Garage	2x6 ToGarage Wall	n/a	n/a	185	18.9	n/a
Right_PartyWall	Living Area	Party Wall	n/a	n/a	322	0	n/a
Front_2x6ToGarageWall	Living Area>>Garage	2x6 ToGarage Wall	n/a	n/a	172	0	n/a
CLG_Living	Living Area	Ceiling	n/a	n/a	1165	n/a	n/a
CLG_Garage	Garage	Ceiling at Garage	n/a	n/a	50	n/a	n/a
FloorToOutside	Living Area	Floor to Outside	n/a	n/a	17	n/a	n/a
FloorToGarage	Living Area	Floor to Garage	n/a	n/a	350	n/a	n/a
Front_GarExtWall-Siding	Garage	Gar Ext Wall -Siding	0	Front	173	104	90

ATTIC

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic_Living	Roof Deck	Ventilated	4	0.21	0.93	No	Yes
Attic_Garage	Roof Deck at Garage	Ventilated	4	0.21	0.93	No	No

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FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
2020_W24	Window	Back_2x6ExtWall-Siding	Back	180			1	4	0.3	NFRC	0.23	NFRC	Bug Screen
3040_W21	Window	Back_2x6ExtWall-Siding	Back	180			1	12	0.3	NFRC	0.23	NFRC	Bug Screen
60610_W11	Window	Back_2x6ExtWall-Siding	Back	180	6	6.8	1	40.8	0.3	NFRC	0.23	NFRC	Bug Screen
6050_W PC Revision	Window	Back_2x6ExtWall-Siding	Back	180			1	30	0.3	NFRC	0.23	NFRC	Bug Screen
2020_W8	Window	Back_2x6ExtWall-Siding	Back	180			1	4	0.3	NFRC	0.23	NFRC	Bug Screen
5036_W7	Window	Back_2x6ExtWall-Siding	Back	180			1	17.5	0.3	NFRC	0.23	NFRC	Bug Screen
5060_W4	Window	Back_2x6ExtWall-Siding	Back	180			1	30	0.3	NFRC	0.23	NFRC	Bug Screen
5036_W2	Window	Back_2x6ExtWall-Siding	Back	180			1	17.5	0.3	NFRC	0.23	NFRC	Bug Screen
2040_W17	Window	Front_2x6ExtWall-Siding	Front	0			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
2030_W13	Window	Front_2x6ExtWall-Siding	Front	0			1	6	0.3	NFRC	0.23	NFRC	Bug Screen
6050_W12	Window	Front_2x6ExtWall-Siding	Front	0			1	30	0.3	NFRC	0.23	NFRC	Bug Screen
2040_W9	Window	Front_2x6ExtWall-Siding	Front	0			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
3050_W6	Window	Front_2x6ExtWall-Siding	Front	0			1	15	0.3	NFRC	0.23	NFRC	Bug Screen
3050_W5	Window	Front_2x6ExtWall-Siding	Front	0			1	15	0.3	NFRC	0.23	NFRC	Bug Screen
1670_W19	Window	Left_2x6ExtWall-Siding	Left	90	1.5	7	1	10.5	0.3	NFRC	0.23	NFRC	Bug Screen
2040_W18	Window	Left_2x6ExtWall-Siding	Left	90			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
2040_W16	Window	Left_2x6ExtWall-Siding	Left	90			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
2016_W15	Window	Left_2x6ExtWall-Siding	Left	90	2	1.5	1	3	0.3	NFRC	0.23	NFRC	Bug Screen
2040_W14	Window	Left_2x6ExtWall-Siding	Left	90	2	4	1	8	0.3	NFRC	0.23	NFRC	Bug Screen
6050_W1	Window	Left_2x6ExtWall-Siding	Left	90			1	30	0.3	NFRC	0.23	NFRC	Bug Screen
3040_W0	Window	Left_2x6ExtWall-Siding	Left	90			1	12	0.3	NFRC	0.23	NFRC	Bug Screen
2030_W22	Window	Right_2x6ExtWall-Siding	Right	270			1	6	0.3	NFRC	0.23	NFRC	Bug Screen
10510_Sidelite	Window	Left_2x6ExtWall-Siding	Left	90	1	5.83	1	5.83	0.3	NFRC	0.23	NFRC	Bug Screen

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OPAQUE DOORS

01	02	03	04
Name	Side of Building	Area (ft^2)	U-factor
3070_D10	Left_2x6ExtWall-Siding	21	0.2
28068_D23	Right_2x6ToGarageWall	18.9	0.2
8066_D20	Front_GarExtWall-Siding	52	1
8066_D3	Front_GarExtWall-Siding	52	1

OVERHANGS AND FINS

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Window	Overhang					Left Fin				Right Fin			
	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
60610_W11	5	0.5	2.7	1.5	0	0	0	0	0	0	0	0	0
1670_W19	6	1	5.7	6.7	0	0	0	0	0	0	0	0	0
2016_W15	6	1	9	2	0	0	0	0	0	0	0	0	0
2040_W14	7	1	9	2.5	0	0	0	0	0	0	0	0	0

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_Living	Living Area	798	102	none	0	80%	No
slab_Garage	Garage	400	40	none	0	0%	No

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OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
2x6 Ext Wall -Siding	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.066	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Exterior Finish: Wood Siding/sheathing/decking
Gar Ext Wall -Siding	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-0	None / None	0.302	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Exterior Finish: Wood Siding/sheathing/decking
2x6 ToGarage Wall	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
Party Wall	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
Roof Deck	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-19	None / None	0.052	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-13.0 / 2x4 Top Chrd Under Roof Joists: R-6.0 insul.
Roof Deck at Garage	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4 Top Chrd
Ceiling	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O. C.	R-49	None / None	0.02	Over Ceiling Joists: R-39.9 insul. Cavity / Frame: R-9.1 / 2x4 Btm Chrd Inside Finish: Gypsum Board
Ceiling at Garage	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O. C.	R-0	None / None	0.481	Cavity / Frame: no insul. / 2x4 Btm Chrd Inside Finish: Gypsum Board

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OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
Floor to Outside	Exterior Floors	Wood Framed Floor	2x12 @ 16 in. O. C.	R-44	None / None	0.025	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-44 / 2x12 Exterior Finish: 3 Coat Stucco
Floor to Garage	Interior Floors	Wood Framed Floor	2x12 @ 16 in. O. C.	R-44	None / None	0.025	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-44 / 2x12 Ceiling Below Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

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

WATER HEATING SYSTEMS

01	02	03	04	05	06	07
Name	System Type	Distribution Type	Water Heater Name (#)	Solar Heating System	Compact Distribution	HERS Verification
DHW System 1	Domestic Hot Water (DHW)	Standard Distribution System	Water Heater 1 (1)	n/a	None	n/a

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Schema Version: rev 20200901

CERTIFICATE OF COMPLIANCE

Project Name: Unit 2B

Calculation Description: Unit 2B - v1 (revised)

Calculation Date/Time: 2023-07-03T14:26:43-07:00

Input File Name: Unit 2B.ribd19

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WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Energy Factor or Efficiency	Input Rating or Pilot	Tank Insulation R-value (Int/Ext)	Standby Loss or Recovery Eff	1st Hr. Rating or Flow Rate	NEEA Heat Pump Brand or Model	Tank Location or Ambient Condition
Water Heater 1	Heat Pump	n/a	1	50	NEEA Rated	<= 12 kW	n/a	n/a	n/a	Rheem\PROPH50 T2 RH37515 (50 gal)	Garage

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery
DHW System 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
HVAC System 1	Heat pump heating cooling	Heat Pump System 1	Heat Pump System 1	HVAC Fan System 1	Distribution System 1	Setback	New	NA	1	1

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01	02	03	04	05	06	07	08	09	10	11
HVAC - HEAT PUMPS										
Name	System Type	Number of Units	Heating			Cooling		Zonally Controlled	Compressor Type	HERS Verification
			HSPF/HSPF2 /COP	Cap 47	Cap 17	SEER/SEER2	EER/EER2/CEER			
Heat Pump System 1	Central split HP	1	8.5	36000	28080	16	13	Zonally Controlled	Single 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	Verified SEER	Verified Refrigerant Charge	Verified HSPF	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Required	275	Required	Required	Yes	Yes	Yes	Yes

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
			Duct Ins. R-value		Duct Location		Surface Area				
Name	Type	Design Type	Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakage	HERS Verification
Distribution System 1	Unconditioned attic	Non-Verified	R-6	R-6	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	Distribution System 1-hers-dist

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HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
Distribution System 1-hers-dist	Yes	5.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS

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

HVAC FAN SYSTEMS - HERS VERIFICATION

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

IAQ (INDOOR AIR QUALITY) FANS

01	02	03	04	05	06	07
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness - SRE	IAQ Recovery Effectiveness - ASRE	HERS Verification
SFam IAQVentRpt	89	0.35	Exhaust	n/a	n/a	Yes

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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: Steffi Carter	Documentation Author Signature: Steffi Carter
Company: DuctTesters, Inc.	Signature Date: 07/05/2023
Address: 633 S. Andrews Avenue, Suite 204	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Fort Lauderdale, FL 33301	Phone: 209-579-5000

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: Steffi Carter	Responsible Designer Signature: Steffi Carter
Company: DuctTesters, Inc.	Date Signed: 07/05/2023
Address: 633 S. Andrews Avenue, Suite 204	License:
City/State/Zip: Fort Lauderdale, FL 33301	Phone: 209-579-5000

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

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2019 Low-Rise Residential Mandatory Measures Summary

Building Envelope Measures:	
§ 110.6(a)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 cfm per square foot or less when tested per NFRC-400, ASTM E283 or AAMA/WDMA/CSA 101/I.S.2/A440-2011.*
§ 110.6(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of Section 10-111(a).
§ 110.6(b):	**Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather stripped.*
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of Section 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Ceiling and Rafter Roof Insulation.** Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous roof or ceiling which is sealed to limit infiltration and exfiltration as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.*
§ 150.0(b):	**Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the 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, (R-19 in 2x6 or U-factor of 0.074 or less). Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102, equivalent to an installed value of R-13 in a wood framed assembly. Masonry walls must meet Table 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%; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	**Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(d).
§ 150.0(g)2:	**Vapor Retarder.** In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.*
Fireplaces, Decorative Gas Appliances, and Gas Log Measures:	
§ 110.5(e)	**Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	**Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device.*
§ 150.0(e)3:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.*
Space Conditioning, Water Heating, and Plumbing System Measures:	
§ 110.0-§ 110.3:	**Certification.** Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the Energy Commission.*
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-K.*
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Electric Resistance Heaters.** Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.*
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.*
§ 110.3(c)4:	**Water Heating Recirculation Loops Serving Multiple Dwelling Units.** Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)4.
§ 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.
§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu/hr are exempt); and pool and spa heaters.*
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.
§ 150.0(h)3A:	**Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least 5 feet from the outlet of any dryer vent.
§ 150.0(h)3B:	**Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(j)1:	**Storage Tank Insulation.** Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have a minimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
§ 150.0(j)2A:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in Section 609.11 of the California Plumbing Code. In addition, the following piping conditions must have a minimum insulation wall thickness of 1 inch or a minimum insulation R-value of 7.7: the first 5 feet of cold water pipes from the storage tank; all hot water piping with a nominal diameter equal to or greater than 3/4 inch and less than 1 inch; all hot water piping with a nominal diameter less than 3/4 inch that is: associated with a domestic hot water recirculation system, from the heating source to storage tank or between tanks, buried below grade, and from the heating source to kitchen fixtures.*
§ 150.0(j)3:	**Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by Section 120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(n)1:	**Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: A dedicated 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within 3 feet from the water heater without obstruction. Both ends of the unused conductor must be labeled with the word "spare" and be electrically isolated. Have a reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words "Future 240V Use"; a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than 2 inches higher than the base of the water heater, and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu per hour.
§ 150.0(n)2:	**Recirculating Loops.** Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.
§ 150.0(n)3:	**Solar Water-heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the Executive Director.
Ducts and Fans Measures:	
§ 110.8(d)3:	**Ducts.** Insulation installed on an existing space-conditioning duct must comply with California Mechanical Code (CMC) Section 604.0. 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 the requirements of the CMC Section 601.0, 602.0, 603.0, 604.0, 605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to a minimum installed level of R-6.0 or a minimum installed level of R-4.2 when ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8). Portions of the duct system completely exposed and surrounded by directly conditioned space are not required to be insulated. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than ¼ inch, the combination of mastic and either mesh or tape must be used. Building cavities, support platforms for air handlers, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms must not be compressed to cause reductions in the cross-sectional area.*
§ 150.0(m)2:	**Factory-Fabricated Duct Systems.** Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	**Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	**Gravity Ventilation Dampers.** Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	**Protection of Insulation.** Insulation must be protected from damage, sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner core flex ducts must have a non-porous layer between the inner core and outer vapor barrier.
§ 150.0(m)11:	**Duct System Sealing and Leakage Test.** When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with § 150.0(m)11 and Reference Residential Appendix RA3.
§ 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 2 inch depth or can be 1 inch if sized per Equation 150.0-A. Pressure drops and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service.*
§ 150.0(m)13:	**Space Conditioning System Airflow Rate and Fan Efficacy.** Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.*
Requirements for 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)1C:	**Single Family Detached Dwelling Units.** Single family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2 and as specified in § 150.0(o)1C.
§ 150.0(o)1E:	**Multifamily Attached Dwelling Units.** Multifamily attached dwelling units must have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B and must be either a balanced system or continuous supply or continuous exhaust system. If a balanced system is not used, all units in the building must use the same system type and the dwelling-unit envelope leakage must be ≤ 0.3 CFM at 50 Pa (0.2 inch water) per square foot of dwelling unit envelope surface area and verified in accordance with Reference Residential Appendix RA3.8.
§ 150.0(o)1F:	**Multifamily Building Central Ventilation Systems.** Central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow for each dwelling unit served at a rate equal to or greater than the rate specified by Equation 150.0-B. All unit airflows must be within 20% of the unit with the lowest airflow rate as it relates to the individual unit's minimum required airflow rate needed for compliance.
§ 150.0(o)1G:	**Kitchen Range Hoods.** Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0(o)2:	**Field Verification and Diagnostic Testing.** Dwelling unit ventilation airflow must be verified in accordance with Reference Residential Appendix RA3.7. Kitchen range hoods must be verified in accordance with Reference Residential Appendix RA3.7.4.3 to confirm it is rated by HVI to comply with the airflow rates and sound requirements as specified in Section 5 and 7.2 of ASHRAE 62.2.
Pool and Spa Systems and Equipment Measures:	
§ 110.4(a):	**Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating.*
§ 110.4(b)1:	**Piping.** Any pool or spa heating 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 Measures:	
§ 110.9:	**Lighting Controls and Components.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*
§ 150.0(k)1A:	**Luminaire Efficacy.** All installed luminaires must meet the requirements in Table 150.0-A.
§ 150.0(k)1B:	**Blank Electrical Boxes.** The number of electrical boxes that are more than 5 feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.
§ 150.0(k)1D:	**Electronic Ballasts for Fluorescent Lamps.** Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(k)1E:	**Night Lights, Step Lights, and Path Lights.** Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.
§ 150.0(k)1F:	**Lighting Integral to Exhaust Fans.** Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).*
§ 150.0(k)1G:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8.*
§ 150.0(k)1H:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1I:	**Light Sources in Drawers, Cabinets, and Linen Closets.** Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(k)2A:	**Interior Switches and Controls.** All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B:	**Interior Switches and Controls.** Exhaust fans must be controlled separately from lighting systems.*
§ 150.0(k)2C:	**Interior Switches and Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.*
§ 150.0(k)2D:	**Interior Switches and Controls.** Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(k)2E:	**Interior Switches and Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the control is installed to comply with § 150.0(k).
§ 150.0(k)2F:	**Interior Switches and Controls.** Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2G:	**Interior Switches and Controls.** An energy management control system (EMCS) may be used to comply with control requirements if it: provides functionality of the specified control according to § 110.9; meets the Installation Certificate requirements of § 130.4; meets the EMCS requirements of § 130.0(e); and meets all other requirements in § 150.0(k)2.
§ 150.0(k)2H:	**Interior Switches and Controls.** A multiscene programmable controller may be used to comply with dimmer requirements in § 150.0(k) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(k)2.
§ 150.0(k)2I:	**Interior Switches and Controls.** In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces must be controlled by an occupant sensor or a vacancy sensor providing automatic-off functionality. If an occupant sensor is installed, it must be initially configured to manual-on operation using the manual control required under Section 150.0(k)2C.
§ 150.0(k)2J:	**Interior Switches and Controls.** Luminaires that are or contain light sources that meet Reference Joint Appendix JA8 requirements for dimming, and that are not controlled by occupancy or vacancy sensors, must have dimming controls.*
§ 150.0(k)2K:	**Interior Switches and Controls.** Under cabinet lighting must be controlled separately from ceiling-installed lighting systems.
§ 150.0(k)3A:	**Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must meet the requirement in item § 150.0(k)3Ai (ON and OFF switch) and the requirements in either § 150.0(k)3Aii (photocell and either a motion sensor or automatic time switch control) or § 150.0(k)3Aiii (astronomical time clock), or an EMCS.
§ 150.0(k)3B:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, outdoor lighting for private patios, entrances, balconies, and porches; and residential parking lots and carports with less than eight vehicles per site must comply with either Section 150.0(k)3A or with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3C:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, any outdoor lighting for residential parking lots or carports with a total of eight or more vehicles per site and any outdoor lighting not regulated by Section 150.0(k)3B or Section 150.0(k)3D must comply with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must comply with § 140.8; or must consume no more than 5 watts of power as determined according to § 130.0(c).
§ 150.0(k)5:	**Residential Garages for Eight or More Vehicles.** Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in Sections 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.
§ 150.0(k)6A:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must be comply with Table 150.0-A and be controlled by an occupant sensor.
§ 150.0(k)6B:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting for the interior common areas in that building must: i. Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.0; and ii. Lighting installed in corridors and stairwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off from all designed paths of ingress and egress.
Solar Ready Buildings:	
§ 110.10(a)1:	**Single Family Residences.** Single family residences located in subdivisions with ten or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(b) through § 110.10(e).
§ 110.10(a)2:	**Low-rise Multifamily Buildings.** Low-rise multi-family buildings that do not have a photovoltaic system installed must comply with the requirements of § 110.10(b) through § 110.10(d).
§ 110.10(b)1:	**Minimum Solar Zone Area.** The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other Parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. For low-rise multi-family buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on covered parking installed with the building project, and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.*
§ 110.10(b)2:	**Azimuth.** All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees of true north.
§ 110.10(b)3A:	**Shading.** The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment.*
§ 110.10(b)3B:	**Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the distance, measured in the horizontal plane, of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.*
§ 110.10(b)4:	**Structural Design Loads on Construction Documents.** For areas of the roof designated as 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) through § 110.10(c) must be provided to the occupant.
§ 110.10(e)1:	**Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	**Main Electrical Service Panel.** The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric".

DATE	REVISION	No.

Ellis Architects
4132 C Street
Sacramento, CA 95819
916-440-6765

North Avenue Half-Plexes
Sacramento, CA
Unit 2B

ENERGY FORMS
TITLE-24 COMPLIANCE DOCUMENTS

336 W. Main Street
Ripon, CA 95366
(209) 579-5000
(209) 522-5001

DuctTesters

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