2019 CALIFORNIA GREEN BUILDING CODE -MANDATORY MEASURES-

4.1 SITE DEVELOPMENT

- PROJECT DISTURBS LESS THAN ONE ACRE OF SOIL AND IS NOT PART OF A LARGER DEVELOPMENT WHICH DISTURBS MORE THAN ONE ACRE OF SOIL. SEE EROSION AND DUST CONTROL NOTES FOR INFORMATION REGARDING SITE RUNOFF DURING CONSTRUCTION. RUNOFF WILL BE CONTROLLED PER LOCAL STORM WATER ORDINANCES WHERE THEY EXIST. C.G.C. 4.106.2
- SITE HAS BEEN PLANNED TO PREVENT THE ENTRANCE OF STORM WATER INTO THE BUILDING PER C.G.C. 4.106.3

4.2 ENERGY EFFICIENCY

1. PROJECT AT MINIMUM COMPLIES WITH CALIFORNIA ENERGY STANDARDS. C.G.C. 4.201.1

4.3 WATER EFFICIENCY AND CONSERVATION

PLUMBING FIXTURES SHALL MEET THE FOLLOWING FLOW RATES PER C.G.C. 4.303:

REUSE ON THE PROJECT OR SALVAGE FOR FUTURE USE OR SALE.

- A. 2.0 GALLONS MAXIMUM PER MINUTE FOR NEW SINGLE SHOWER HEADS AT 80 PSI
- B. 2.0 GALLONS MAXIMUM PER MINUTE COMBINED FLOW RATE FOR NEW MULTIPLE SHOWER HEADS AND/OR OTHER OUTLETS CONTROLLED BY ONE VALVE AT 80 PSI
- C. 1.2 GALLONS MAXIMUM PER MINUTE FOR NEW LAVATORY FAUCETS AT 60 PSI AND 0.8 GALLONS PER MINUTE MINIMUM AT 20
- D. 1.8 GALLONS MAXIMUM PER MINUTE FOR NEW KITCHEN FAUCETS (EXCEPT FOR TEMPORARY FLOW RATES UP TO 2.2 GPM
- E. 1.28 GALLONS MAXIMUM PER FLUSH FOR NEW TOILETS
- 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. C.G.C. 4.304.1

4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

- ANNULAR SPACES AROUND PIPES, ELECTRIC CABLES, CONDUITS, OR OTHER OPENINGS IN 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. C.G.C. 4.406.1
- A MINIMUM OF 65% OF THE NON-HAZARDOUS CONSTRUCTION WAS TE GENERATED AT THE SITE IS DIVERTED TO RECYCLE OR SALVAGE PER C.G.C. 4,408. AT THE CONCLUSION OF THE PROJECT, DOCUMENTATION OF NONHADARDOUS WASTE RECYCLING SHALL BE SUBMITTED TO NÛNTAL@SOLANOCOUNTY.COM WHICH SHALL BE APPROVED PRIOR TO FINAL INSECTION.
- AGENSTRUCTION WASTE MANAGEMENT PLAN SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL THAT AT MINIMUM: A. IDENTIFIES THE CONSTRUCTION AND DEMOLITION WASTE MATERIALS TO BE DIVERTED FROM DISPOSAL BY RECYCLING,
- B. SPECIFIES IF THE CONSTRUCTION AND DEMOLITION WASTE MATERIALS WILL BE SORTED ON-SITE OR BULK MIXED.
- C. IDENTIFIES THE DIVERSION FACILITY WHERE THE THE CONSTRUCTION AND DEMOLITION WASTE MATERIAL WILL BE TAKEN.
- D. IDENTIFIES CONSTRUCTION METHODS EMPLOYED TO REDUCE THE AMOUNT OF THE CONSTRUCTION AND DEMOLITION WASTE GENERATED.
- E. SPECIFIES THAT THE AMOUNT OF THE CONSTRUCTION AND DEMOLITION WASTE MATERIALS DIVERTED SHALL BE CALCULATED BY WEIGHT OR VOLUME, BUT NOT BOTH.
- AT THE TIME OF FINAL INSPECTION, A MANUAL, COMPACT DISK, WEB-BASED REFERENCE OR OTHER MEDIA ACCEPTABLE TO THE ENFORCING AGENCY WHICH INCLUDES ALL OF THE FOLLOWING SHALL BE PLACED IN THE BUILDING BY THE CONTRACTOR.
- A. DIRECTIONS TO THE OWNER OR OCCUPANT THAT THE MANUAL SHALL REMAIN WITH THE BUILDING THROUGHOUT THE LIFE CYCLE OF THE STRUCTURE.
- B. OPERATION AND MAINTENANCE INSTRUCTIONS FOR 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. ROOF AND YARD DRAINAGE, INCLUDING GUTTERS AND DOWNSPOUTS. SPACE CONDITIONING SYSTEMS, INCLUDING CONDENSERS AND AIR FILTERS. LANDSCAPE IRRIGATION SYSTEMS. WATER REUSE
- C. INFORMATION FROM LOCAL UTILITY, WATER AND WASTE RECOVERY PROVIDERS ON METHODS TO FURTHER REDUCE RESOURCE CONSUMPTION, INCLUDING RECYCLE PROGRAMS AND LOCATIONS.
- D. PUBLIC TRANSPORTATION AND/OR CARPOOL OPTIONS AVAILABLE IN THE AREA.
- E. EDUCATIONAL MATERIAL ON THE POSITIVE IMPACTS OF AN INTERIOR RELATIVE HUMIDITY BETWEEN 30-60% AND WHAT METHODS ON OCCUPANT MAY USE TO MAINTAIN THE RELATIVE HUMIDITY LEVEL IN THAT RANGE.
- F. INFORMATION ABOUT WATER CONSERVING LANDSCAPE AND IRRIGATION DESIGN AND CONTROLLERS WHICH CONSERVE
- G. INSTRUCTION FOR MAINTAINING GUTTERS AND DOWNSPOUTS AND THE IMPORTANCE OF DIVERTING WATER AT LEAST 5 FEET
- H. INFORMATION ON REQUIRED ROUTINE MAINTENANCE MEASURES, INCLUDING, BUT NOT LIMITED TO, CAULKING, PAINTING, GRADING AROUND THE BUILDING. ETC

(N) ELECTRICAL LINE FROM

- INFORMATION ABOUT STATE SOLAR ENERGY AND INCENTIVE PROGRAMS AVAILABLE.
- . A COPY OF ALL SPECIAL INSPECTION VERIFICATIONS REQUIRED BY THE ENFORCING AGENCY OR THIS CODE

4.5 ENVIRONMENTAL QUALITY

FOLLOWING:

- 1. ANY INSTALLED GAS FIREPLACES 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. THEY SHALL ALSO COMPLY WITH ALL LOCAL ORDINANCES. C.G.C. 4.503.1
- 2. AT THE TIME OF ROUGH INSTALLATION, DURING STORAGE ON THE CONSTRUCTION SITE, AND UNTIL FINAL STARTUP OF THE HEATING AND COOLING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF WATER, DUST, AND DEBRIS WHICH MAY ENTER THE SYSTEM. C.G.C. 4.504.1
- 3. ADHESIVES, SEALANTS, CAULKS AND OTHER TOXIC COMPOUNDS SHALL MEET VOC LIMITS OF C.G.C. TABLE 4.504.1 OR TABLE 4.504.2. C.G.C. 4.504.2.1
- 4. PAINTS, STAINS AND OTHER COATINGS SHALL BE COMPLIANT WITH VOC LIMITS OF C.G.C. TABLE 4.504.3. C.G.C. 4.504.2.2 5. AEROSOL PAINTS AND COATINGS SHALL BE COMPLIANT WITH PRODUCT-WEIGHTED MIR LIMITS FOR ROC AND OTHER TOXIC
- COMPOUNDS IN COMPLIANCE WITH CALIFORNIA CODE OF REGULATIONS, TITLE 17. C.G.C. 4.504.2.3 6. ALL CARPET INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE TESTING AND PRODUCT REQUIREMENTS OF ONE OF THE
 - A. CARPET AND RUG INSTITUTE'S GREEN LABEL PLUS PROGRAM
 - B. CALIFORNIA DEPARTMENT OF PUBLIC HEALTH "STANDARD PRACTICE FOR THE TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMCAL EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENTAL CHAMBERS" VERSION 1.1, FEBRUARY 2010

WITH ONE OR MORE OF THE FOLLOWING.

- SCIENTIFIC CERTIFICATIONS SYSTEMS INDOOR ADVANTAGE GOLD C.G.C. 4.504.3.
- GREEN LABEL PROGRAM. C.G.C. 4.504.3.1
- 8. ALL CARPET ADHESIVE SHALL MEET THE REQUIREMENTS OF C.G.C. TABLE 4.504.1. C.G.C. 4.504.3.2 9. WHERE RESILIENT FLOORING IS INSTALLED, AT LEAST 80 PERCENT OF FLOOR AREA RECEIVING RESILIENT FLOORING SHALL COMPLY

7. ALL CARPET CUSHION INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE REQUIREMENTS OF THE CARPET AND RUG INSTITUTE

- A. PRODUCTS COMPLIANT WITH THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH "STANDARD PRACTICE FOR THE TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMCAL EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENTAL CHAMBERS" VERSION 1.1, FEBRUARY 2010, CERTIFIED AS A CHPS LOW-EMITTING MATERIAL IN THE COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS HIGH PERFORMANCE PRODUCTS DATABASE.
- B. PRODUCTS CERTIFIED UNDER UL GREENGAURD GOLD
- C. CERTIFCATION UNDER THE RESILIENT FLOOR COVERING INSTITUTE FLOORSCORE PROGRAM.
- D. MEET THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH, "STANDARD PRACTICE FOR THE TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMCAL EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENTAL CHAMBERS" VERSION 1.1, FEBRUARY 2010 C.G.C. 4.504.4
- 10. 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 AS SHOWN IN C.G.C. TABLE 4.504.5. C.G.C. 4.504.5
- 11. A CAPILLARY BREAK SHALL BE INSTALLED IN COMPLIANCE WITH AT LEAST ONE OF THE FOLLOWING:
 - A. A 4-INCH THICK BASE OF 1/2" 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,
 - B. OTHER EQUIVALENT METHODS APPROVED BY THE ENFORCING AGENCY.
 - A SLAB DESIGN SPECIFIED BY A LICENSED DESIGN PROFESSIONAL
- 12. 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:
 - A. 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 C.G.C. 101.8.
 - B. MOISTURE READINGS SHALL BE TAKEN AT A POINT 2 FEET TO 4 FEET FROM THE GRADE STAMPED END OF EACH PIECE TO BE
 - C. AT LEAST THREE RANDOM MOISTURE READINGS SHALL BE PERFORMED ON WALLAND FLOOR FRAMING WITH DOCUMENTATION ACCEPTABLE TO THE ENFORCING AGENCY PROVIDED AT THE TIME OF APPROVAL TO ENCLOSE THE WALL AND FLOOR FRAMING.
- 13. EACH BATHROOM SHALL BE MECHANICALLY VENTILATED AND COMPLY WITH THE FOLLOWING:
 - A. FANS SHALL BE ENERGY STAR COMPLIANT AND BE DUCTED TO TERMINATE OUTSIDE THE BUILDING.
- B. UNLESS FUNCTIONING AS A COMPONENT OF A WHOLE HOUSE VENTILATION SYSTEM, FANS MUST BE CONTROLLED BY A HUMIDITY CONTROL. HUMITIDY 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, AND MAY BE A SEPARATE COMPONENT TO THE EXHASUT FAN (IT IS NOT REQUIRED TO BE INTEGRAL/BUILT IN).
- 14. HEATING AND AIR CONDITIONING SYSTEMS SHALL BE SIZED, DESIGNED, AND HAVE THEIR EQUIPMENT SELECTED USING THE
 - A. THE HEAT LOSS AND HEAT GAIN IS ESTABLISHED ACCORDING TO ANSI/ACCA 2 MANUAL J-2016, ASHRAE HANDBOOKS OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS
 - B. DUCT SYSTEMS ARE SIZED ACCORDING TO ANSI/ACCA 1-MANUAL D 2016, ASHRAE HANDBOOKS OR OTHER EQUIVALENT

SELECT HEATING AND COOLING EQUIPMENT ACCORDING TO ANSI/ACCA 3- MANUAL S 2014.

COMPLY WITH THE LATEST CALIFORNIA EDITION

ALL WORK SHALL

PROJECT DESIGN CRITERIA: OF THE BUILDING, ELECTRICAL **RISK CATEGORY: TYPE 2** MECHANICAL & PLUMBIING **IMPORTANCE FACTOR: 1** WIND SPEED: 110 MPH

EXPOSURE CATEGORY: C INTERNAL PRESSURE COEFFICIENT: .18 ± MAPPED SPECTRAL RESPONSE COEFFICIENTS SITE CLASS: D SPECTRAL RESPONSE COEFFICIENTS: S_{DS} = 1.2

☐ ENV. HEALTH ☐ OTHER SEISMIC DESIGN CATEGORY: D BASIC SEISMIC-FORCE-RESISTING SYSTEM: WOOD SHEAR WALLS DESIGN BASE SHEAR: SEE CALCULATIONS SEISMIC RESPONSE COEFFICIENT: $C_S \neq 0.168$

SEISMIC R = 6.5 ANALYSIS PROCEDURE: ELFP ALLOWABLE SOIL BEARING PRESSURE = 1500 PSF

FLOOR D.L.:17.3 FLOOR L.L.: 40.0 **DECK D.L.: 32.3** DECK L.L.: 60.0 ROOF D.L: 22.7 PSF ROOF L.L.: 20 PSF RAIN LOAD: 0

FLOOD LOAD: 0 SNOW LOAD±0 Pf-N/A Ce-N/A I = 1 Ct-N/A

GENERAL NOTES

- ALL DIMENSIONS SHOWN ARE TO ROUGH FRAME. THOSE PERFORMING THE WORK FOR THIS PROJECT SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO THE COMMENCEMENT OF WORK. ANY DISCREPANCIES OR ERRORS, APPARENT OR SUSPECTED, SHALL BE REPORTED TO THE DESIGNER.
- 2. THIS DESIGNER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES. ERRORS, OMISSIONS, OR DEVIATIONS BY THE OWNER OR CONTRACTOR. EITHER INTENTIONAL OR ACCIDENTAL.
- THESE PLANS ARE FOR GENERAL CONSTRUCTION PURPOSES ONLY. THEY ARE NOT FULLY SPECIFIED. IT IS THE RESPONSIBILITY OF THE OWNER AND/OR CONTRACTOR TO SELECT, VERIFY, RESOLVE, AND INSTALL ALL MATERIALS AND EQUIPMENT WITH COMPLIANCE TO LOCAL CODES OR ORDINANCES.
- 4. THIS DESIGNER WILL NOT BE OBSERVING CONSTRUCTION OF THIS PARTICULAR PROJECT. THOSE PERFORMING THE WORK FOR THIS PROJECT ARE SOLELY RESPONSIBLE FOR THE QUALITY CONTROL AND STANDARDS FOR THIS PROJECT.
- 5. ALL CONSTRUCTION SHALL MEET OR EXCEED THE CURRENT EDITION OF CODES ADOPTED BY THE LOCAL GOVERNING AGENCIES, AND ALL OTHER HEALTH AND SAFETY CODES, ORDINANCES, AND REQUIREMENTS ADOPTED BY THE GOVERNING AGENCIES. THE CONSTRUCTION SHALL BE OF THE HIGHEST QUALITY OF WORKMANSHIP. ALL WALLS SHALL BE PLUMB AND TRUE. ALL CONNECTIONS SHALL BE MADE SECURE ACCORDING TO ACCEPTED CONSTRUCTION PRACTICES, OR AS SPECIFIED HEREIN, OR AS PER THE CURRENT CODES.

SANITATION DISTRICT NOTES

- ALL SEWER WORK SHALL CONFORM TO THE VALLEJO WASTEWATER STANDARDS.
- CALL VALLEJO WASTEWATER A MINIMUM OF 24 HOURS IN ADVANCE FOR INSPECTIONS.

INDEX OF DRAWINGS:

PRIOR TO FINAL INSPECTION

SIGN-OFF REQUIRED BY:

HOLDOWN ANCHOR BOLTS AND

STANDARD ANCHOR BOLTS

SHALL BE IN PLACE PRIOR TO

FOUNDATION INSPECTION.

HERS VERIFICATION REQUIRED

PAGE 1 **COVER SHEET** PAGE 2. **GRADING PLAN** PAGE 3. FLOOR PLANS ☐ PLANNING ☐ PUBLIC WORKS PAGE 4. **ELEVATIONS** PAGE 5. FOUNDATION AND FLOOR FRAMING PLANS PAGE 6. ROOF PLAN AND CROSS-SECTION PAGE 7. LONGITUDINAL SECTION PAGE SD1 GENERAL NOTES AND DETAILS PAGE SD2 STRUCTURAL DETAILS

B2022-0728

PAGE SD3 STRUCTURAL DETAILS PAGE 8. ELECTRICAL PLANS PAGE 9. TITLE 24 PAGE 10. TITLE 24

PV3 SOLAR ROOF LAYOUT **SOLAR STRING LAYOUT & BOM** PV4 PV5-PV6 SOLAR ATTACHEMENT DETAILS SOLAR ELECTRICAL LINE & CALCS. PV/7 PV8 **SOLAR SPECIFICATIONS & NOTES**

SOLAR COVER PAGE

SOLAR SITE PLAN

PV9-PV-10 SOLAR SIGNAGE PV11-PV15 SOLAR EQUIPMENT SPECIFICATIONS

REFERENCED CODES:

2019 CALIFORNIA ENERGY CODE (C.E.C.) 2019 CALIFORNIA BUILDING CODE (C.B.C.)

PV1

PV2

- 2019 CALIFORNIA RESIDENTIAL BUILDING CODE (C.R.C.)
- C.R.C. NOT APPLICABLE TO STRUCTURAL PER C.R.C. 301.1.3
- 2019 CALIFORNIA PLUMBING CODE (C.P.C.)
- 2019 CALIFORNIA MECHANICAL CODE (C.M.C.) 2019 CALIFORNIA ELECTRICAL CODE (C.E.C.)
- 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (C.G.B.S.C.)

PROJECT DATA:

OCCUPANCY GROUP: R-3 TYPE OF CONSTRUCTION: V-B

ZONE: R-TC-10 (RESIDENTIAL - TRADITIONAL COMMUNITY - 10,000 SQUARE FEET MINIMUM - VALLEJO UNINCORPORATED AREA)

STORIES: 2 (1 PLUS BASEMENT LEVEL GARAGE) LOT AREA: 9,788 SQ. FT. (.22 ACRES)

(E) RESIDENCE SQUARE FOOTAGE = 1,792 SQ. FT. (2 STORY - 896 PER FLOOR) (E) COVERED PORCH SQUARE FOOTAGE = 72 SQ. FT. (E) DECK SQUARE FOOTAGE = 72 SQ. FT.

PROPOSED ADU SQUARE FOOTAGE = 952 SQ. FT. PROPOSED GARAGE SQUARE FOOTAGE = 1,288 SQ. FT. PROPOSED COVERED PORCH SQUARE FOOTAGE = 336 SQ. FT.

FIRE SPRINKLERS: NOT REQUIRED

REQUIRED PARKING: ONE SPACE FOR ACCESSORY DWELLING (TWO CAR **GARAGE FOR PRIMARY RESIDENCE)**

ACCESSORY DWELLING UNIT PLACEMENT SOLANO COUNTY:

FRONT YARD SETBACK: 20' MIN. OR 50' FROM CENTERLINE OF STREET, WHICHEVER IS GREATER

SIDE YARD SETBACK: 4' MIN. (10' PRIMARY RESIDENCE)

REAR YARD SETBACK: 4' MIN. (25' PRIMARY RESIDENCE)

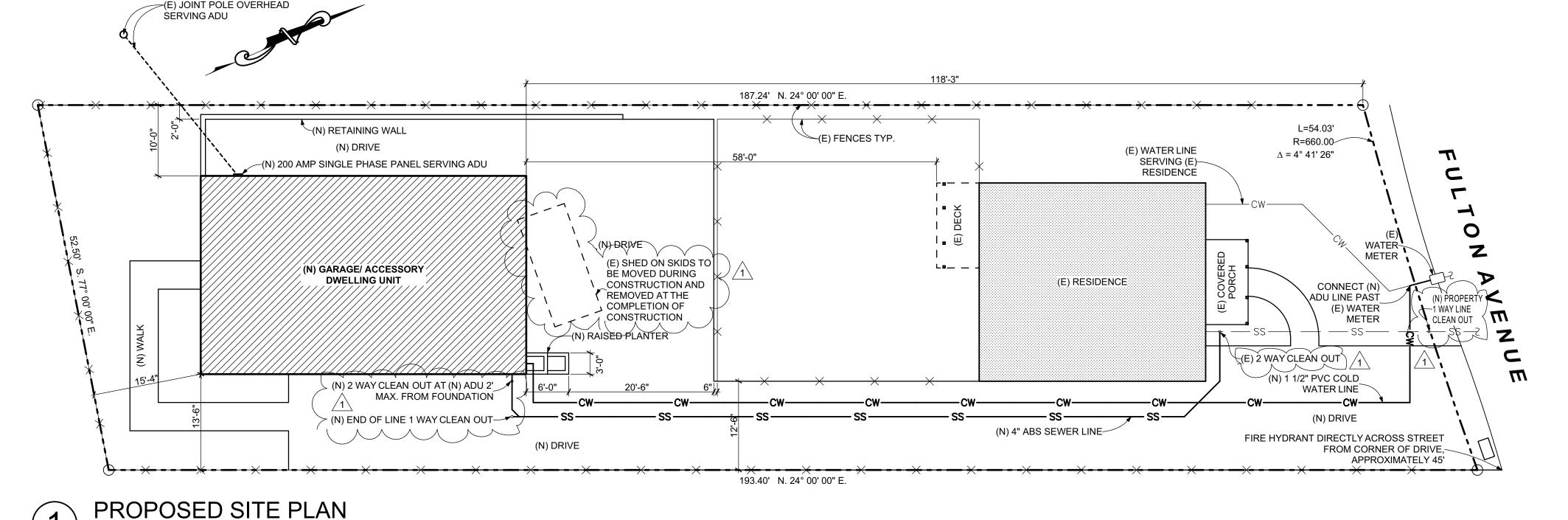
DISTANCE BETWEEN STRUCTURES: 10' MIN.

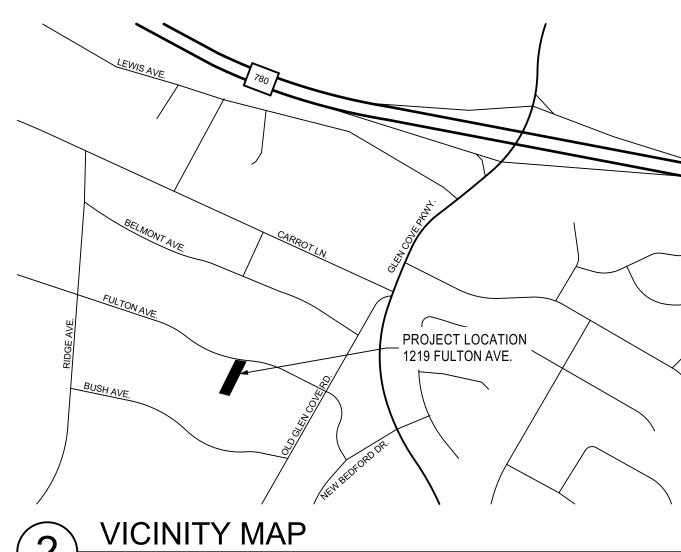
MAXIMUM SIZE: 850 SQUARE FEET FOR SINGLE BEDROOM, 1,000 SQUARE FEET FOR MORE THAN A SINGLE BEDROOM

MAXIMUM HEIGHT: 35'

SCOPE OF WORK

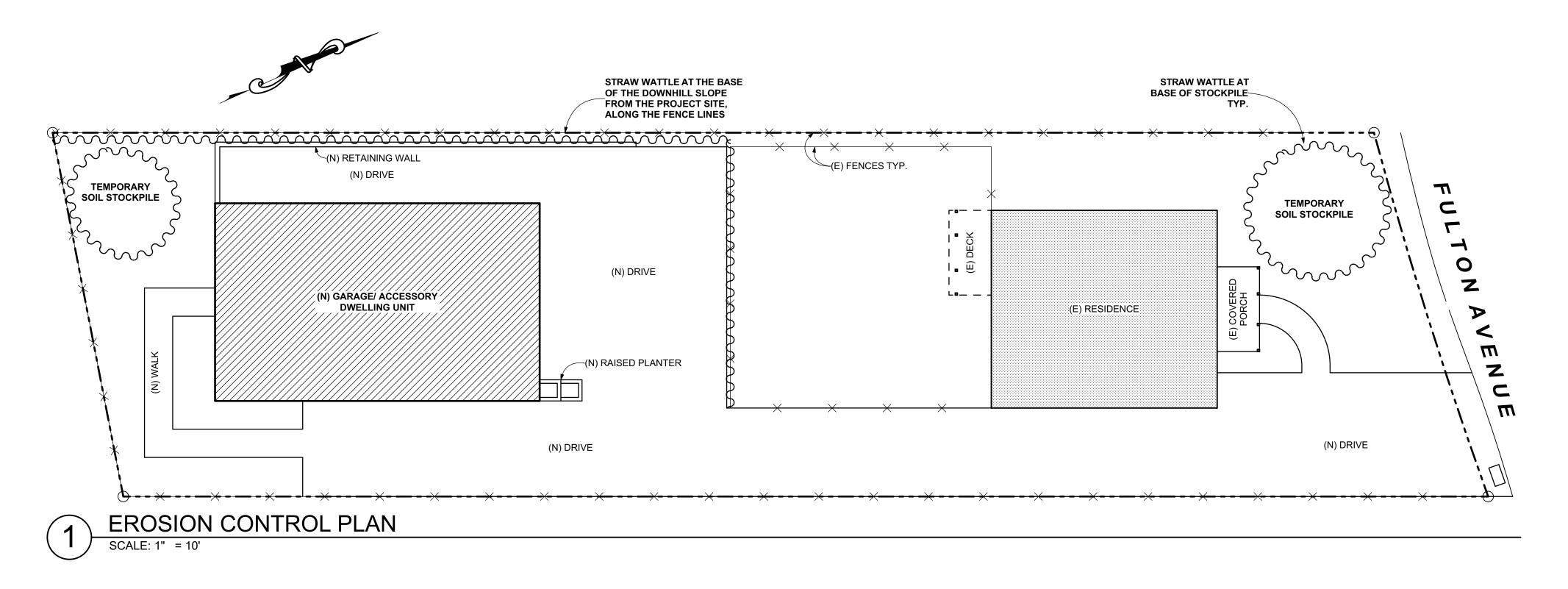
THIS PROJECT IS A NEW PRIVATE ACCESSORY DWELLING UNIT. THE UNIT WILL BE CONDITIONED AND MEET ALL OF THE REQUIREMENTS OF A RESIDENTIAL DWELLING UNIT, ALONG WITH ANY SOLANO COUNTY REQUIREMENTS SPECIFIC TO ACCESSORY DWELLING UNITS.





Sheet Number Fotal sheat countive 28

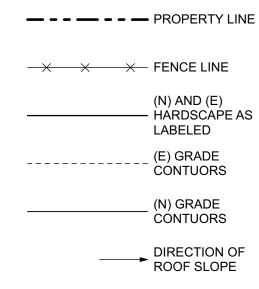
1 COVER SHEET: Plotted on 11/3/2022 at 9:36 PM by Jeron. File Path: C:\Users\Jeron\Documents\Current Archicad Projects\2021\Harper-Vallejo 10-21\Harper - Vallejo 3-2-22_Revised 3-19-22.pln



GRADING NOTES:

- PER CAL-GREEN 4.106.2
 a. DURING RAINY SEASON SITE PERIMETER OF WORK WILL BE SURROUNDED BY FIBER ROLLS
 b. CONCRETE WASHOUT WILL BE USED.
- ARROWS FOR DIRECTION AND MANAGEMENT OF SURFACE FLOWS ARE SHOWN ON GRADING PLAN
- 3. ROOF DRAINAGE TO DRAIN TO DRAIN PIPE AND TO STREET
- 4. GRADE OF IMPERVIOUS SURFACES TO DIRECT SURFACE WATER INTO DRAIN

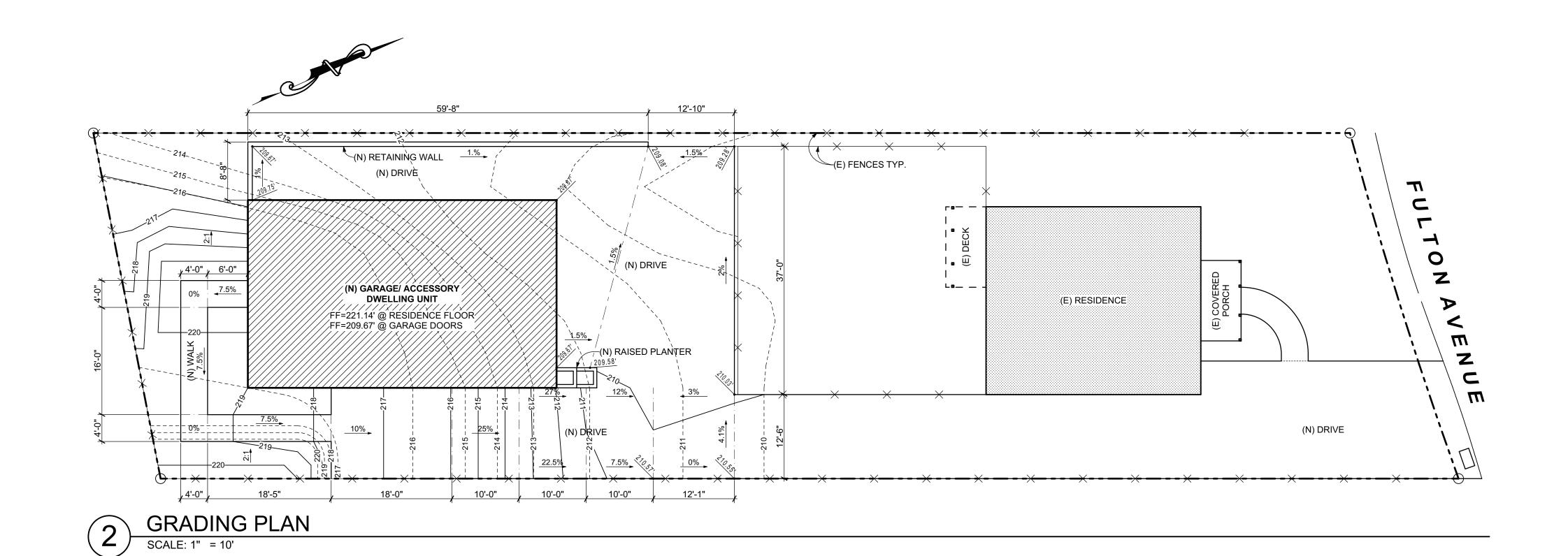
GRADING PLAN LEGEND



SITE MATERIALS

ALL NEW WALKS, SIDEWALKS, AND DRIVEWAYS ARE CONCRETE

ALL FENCING IS EXISTING



Sheet Number:

2

SOLANG COUNTY RESOURCE MANATOTAL Sheet resurtive:

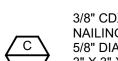
SHEAR WALL SCHEDULE GARAGE:

 $\langle A \rangle$

3/8" CDX PLYWOOD OR OSB
NAILING: 8d's SPACED 6" O.C. AT EDGES, 12" O.C. AT FIELD
5/8" DIAM. ANCHOR BOLTS @ 60" O.C. WITHIN SHEARWALL
3" X 3" X 1/4" PLATE WASHERS
UPPER STORY SILL NAILING: 16d's @ 4" O.C.



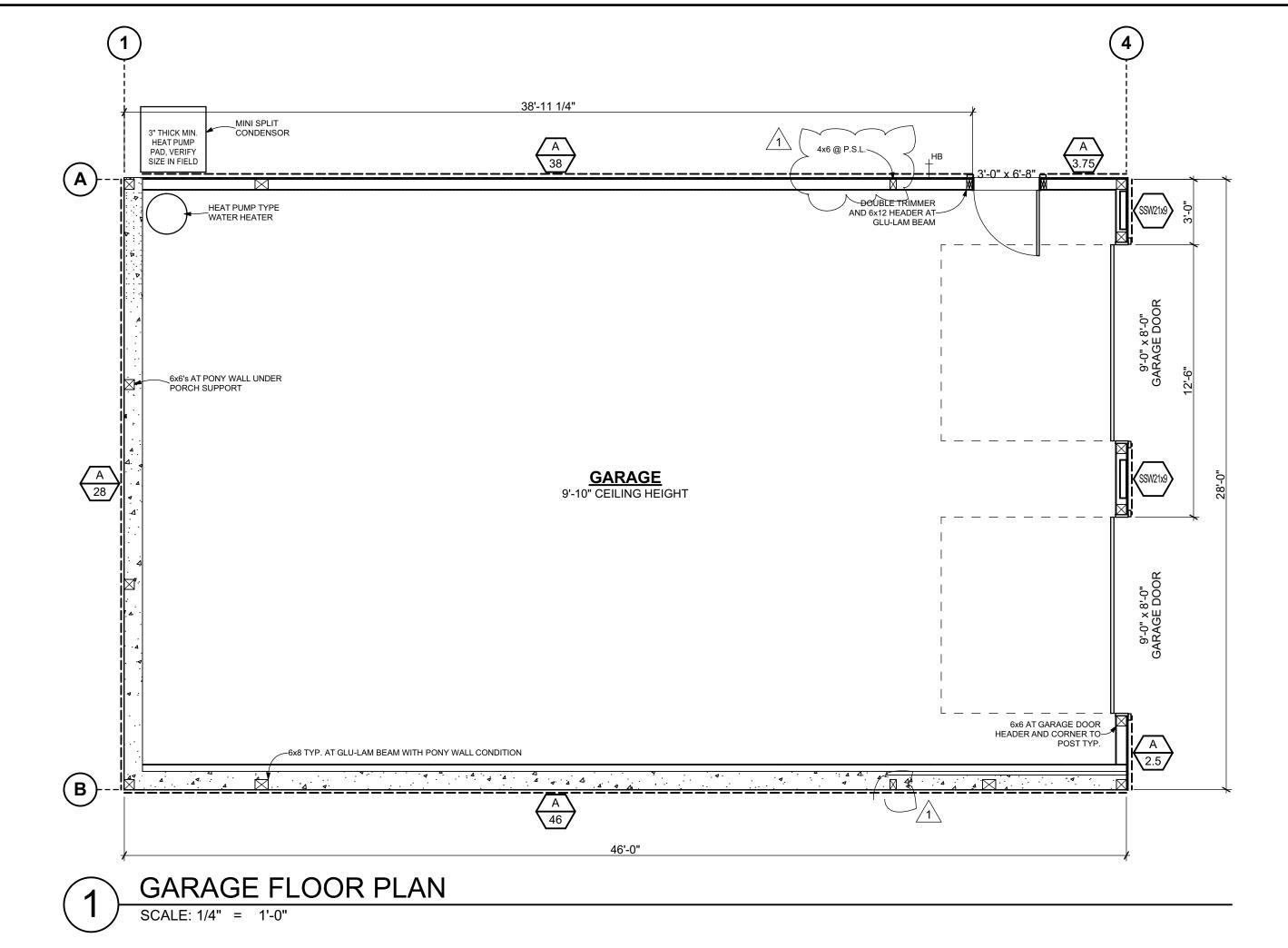
3/8" CDX PLYWOOD OR OSB
NAILING: 8d's SPACED 4" O.C. AT EDGES, 12" O.C. AT FIELD
5/8" DIAM. ANCHOR BOLTS @ 48" O.C. WITHIN SHEARWALL
3" X 3" X 1/4" PLATE WASHERS
3X_ STUDS AT ADJOINING PANEL EDGES, AND BLOCKING
UPPER STORY SILL NAILING: 16d's @ 4" O.C.



3/8" CDX PLYWOOD OR OSB
NAILING: 8d's SPACED 3" O.C. AT EDGES, 12" O.C. AT FIELD
5/8" DIAM. ANCHOR BOLTS @ 32" O.C. WITHIN SHEARWALL
3" X 3" X 1/4" PLATE WASHERS
3X_ STUDS AT ADJOINING PANEL EDGES, AND BLOCKING
UPPER STORY SILL NAILING: 16d's @ 4" O.C.



SIMPSON STEEL STRONG WALL SSW21x9
30" WIDE x 24" DEEP x 60" LONG FOOTING CENTERED UNDER



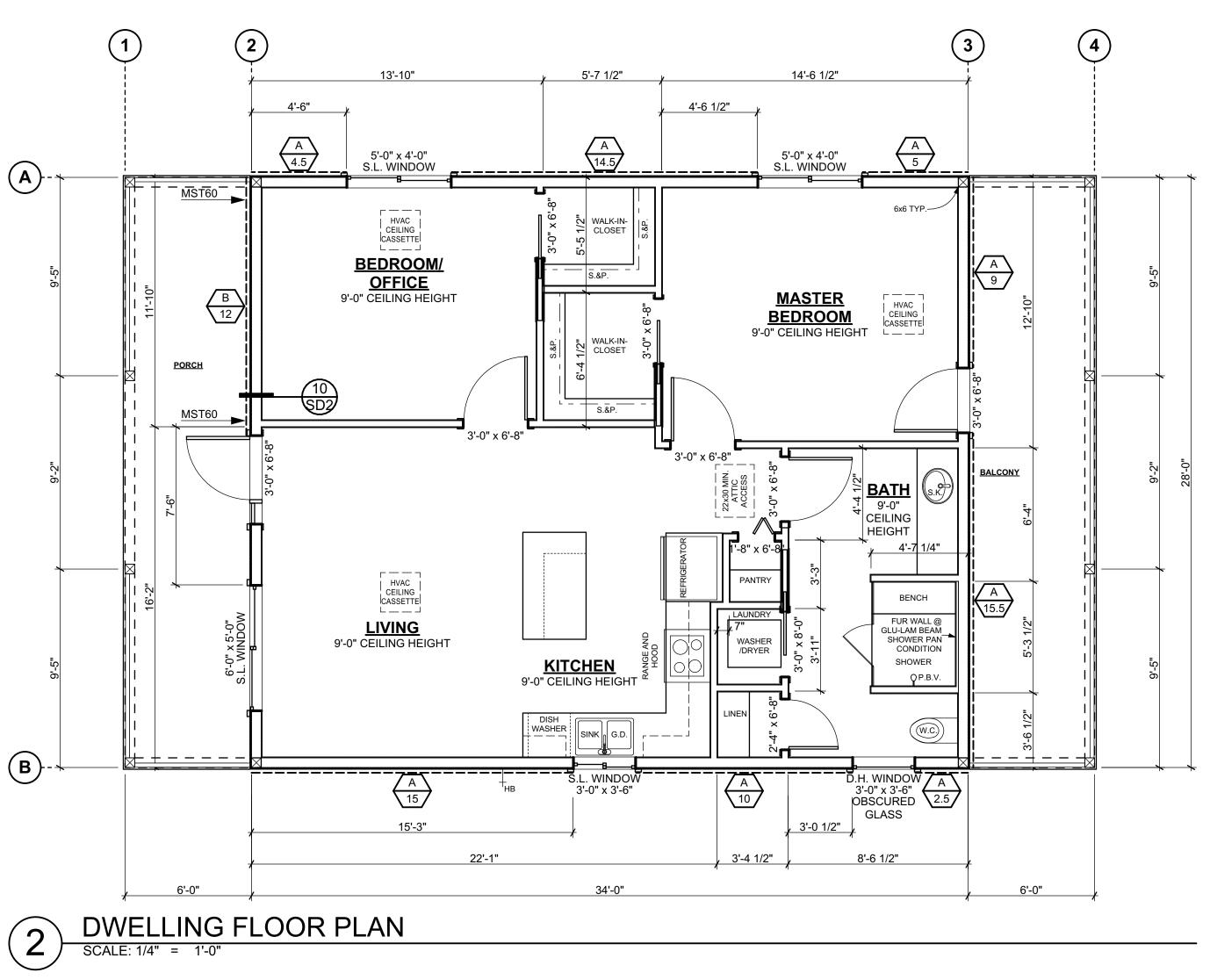
SHEAR WALL SCHEDULE DWELLING:



3/8" CDX PLYWOOD OR OSB NAILING: 8d's SPACED 6" O.C. AT EDGES, 12" O.C. AT FIELD 5/8" DIAM. ANCHOR BOLTS @ 60" O.C. WITHIN SHEARWALL 3" X 3" X 1/4" PLATE WASHERS



3/8" CDX PLYWOOD OR OSB NAILING: 8d's SPACED 4" O.C. AT EDGES, 12" O.C. AT FIELD 5/8" DIAM. ANCHOR BOLTS @ 48" O.C. WITHIN SHEARWALL 3" X 3" X 1/4" PLATE WASHERS 3X STUDS AT ADJOINING PANEL EDGES, AND BLOCKING



FLOOR PLAN LEGEND 2x6 WALLS

2x4 WALLS

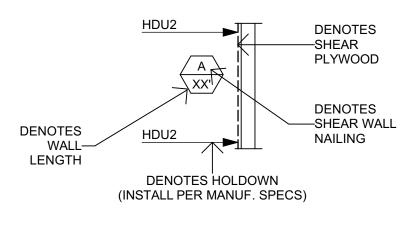
CASEMENT DBL. **DOUBLE EXISTING** (E) GARBAGE DISPOSAL G.D. **HOSE BIB** H.B. MINIMUM ON CENTER O.C. ORIENTED STRAND BOARD O.S.B. **OVERHANG** O.V.H. Ρ.Ŕ.V. PRESSURE BALANCE VALVE **ROUGH OPENING** R.O. SHELF AND POLE (CLOSET) S.&P. SINGLE HUNG S.H. S.K. **SLIDING WINDOW** S.L. **TYPICAL** TYP. TANKLESS WATER HEATER T.W.H. UNLESS OTHERWISE NOTED U.O.N.

W.C.

ABBREVIATIONS

WATER CLOSET

SHEARWALL LEGEND



FLOOR PLAN NOTES

1. ALL GLAZING SHALL MEET THE REQUIREMENTS OF **C.R.C. 308**. SAFETY GLAZING SHALL BE PROVIDED IN ALL OF THE FOLLOWING LOCATIONS:

GLAZING IN DOORS SHALL BE CONSIDERED A HAZARDOUS LOCATION EXCEPT GLAZING PANELS THROUGH WITH A 3 INCH DIAMETER SHPERE IS UNABLE TO PASS AND DECORATIVE GLAZING.

GLAZING IN WALLS, ENCLOSURES, OR FENCES FACING HOT TUBS, SPAS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS, SHOWERS AND INDOOR OR OUTDOOR SWIMMING POOLS WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES MEASURED VERTICALLY ABOVE ANY STANDING OR WALKING SURFACE SHALL BE CONSIDERED A HAZARDOUS LOCATION. THIS SHALL APPLY TO SINGLE GLAZING AND ALL PANES IN MULTIPLE GLAZING.

GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR WHERE THE BOTTOM EDGE OF THE GLAZING IS LESS THAN 60 INCHES ABOVE THE FLOOR OR WALKING SURFACE AND WHERE THE GLAZING IS WITHIN 24 INCHES OF EITHER SIDE OF THE DOOR IN THE PLANE OF THE DOOR IN A CLOSED POSITION OR WHERE THE GLAZING IS ON A WALL PERPENDICULAR TO THE PLANE OF THE DOOR IN A CLOSED POSITION AND WITHIN 24 INCHES OF THE HINGE SIDE OF AN IN-SWINGING DOOR.

GLAZING WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 36 INCHES ABOVE THE PLANE OF THE ADJACENT WALKING SURFACE OF STAIRWAYS, LANDINGS BETWEEN FLIGHTS OF STAIRS AND RAMPS SHALL BE CONSIDERED A HAZARDOUS LOCATION.

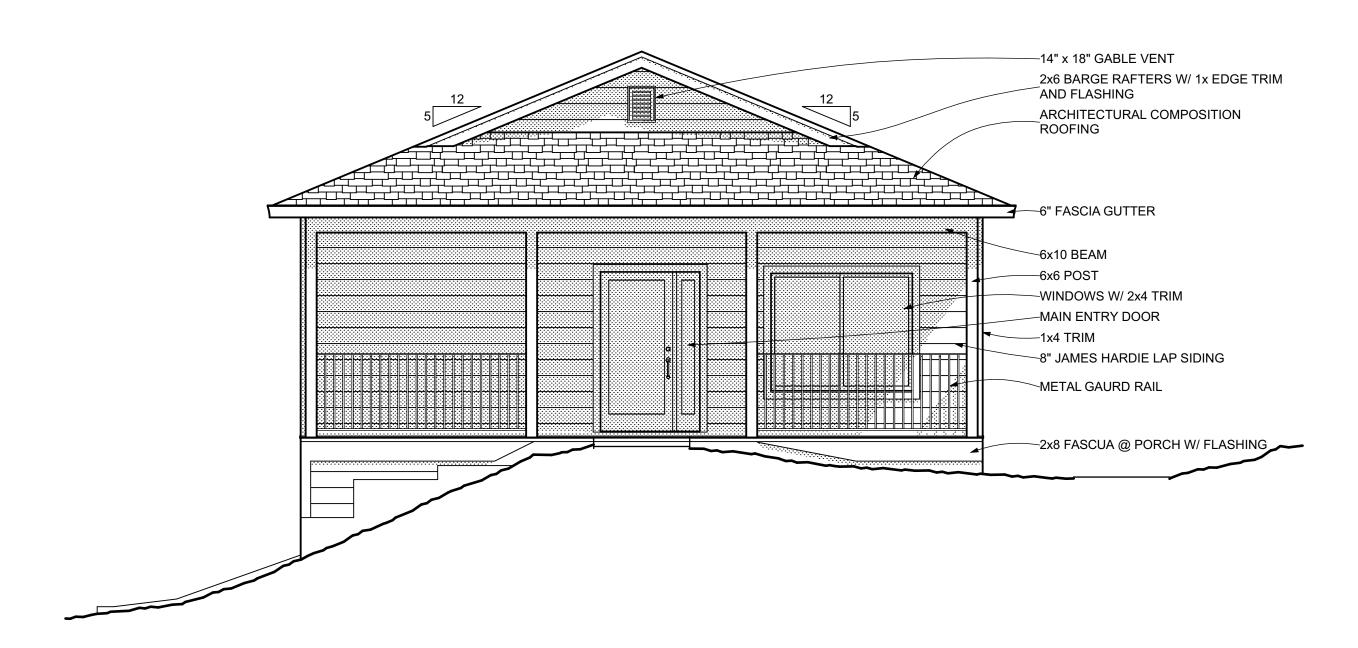
- 2. CAULK ALL DOORS, WINDOWS, JOINTS AND AREAS REQUIRED TO PROVIDE A WEATHERPROOF SEAL.
- 3. DRYWALL NAILING SHALL BE IN ACCORDANCE WITH C.B.C. REQUIREMENTS FOR THE TYPES AND THICKNESSES BEING USED UNLESS OTHERWISE NOTED.
- 4. NO WATER CLOSET OR BIDET SHALL BE SET CLOSER THAN 15 INCHES FROM ITS CENTER TO A SIDE WALL OR OBSTRUCTION OR CLOSER THAN 30" CENTER TO A SMILAR FIXTURE. THE CLEAR SPACE IN FRONT OF A WATER CLOSET, LAVATORY, OR BIDET SHALL BE NOT LESS THAN 24 INCHES. C.P.C. 402.5
- 5. BATHTUB AND SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET ABOVE THE FLOOR. C.R.C. 307.2
- 6. WINDOW FALL PROTECTION SHALL BE PROVIDED IN ACCORDANCE WITH C.R.C. 312.2.1 -

PLUMBING NOTES

- 1. ALL PLUMBING FOR THIS PROJECT IS NEW
- 2. SHOWERS AND TUB-SHOWER COMBINATIONS SHALL BE PROVIDED WITH INDIVIDUAL CONTROL VALVES OF THE PRESSURE BALANCE, THERMOSTATIC, OR COMBINATION PRESSURE BALANCE/THERMOSTATIC MIXING VALVE TYPE THAT PROVIDE SCALD AND THERMAL SHOCK PROTECTION FOR THE RATED FLOW RATE OF THE INSTALLED SHOWERHEAD. THESE VALVES SHALL BE INSTALLED AT THE POINT OF USE AND IN ACCORDANCE WITH ASSE 1016, OR ASME A112.1016/CSA B125.16 OR ASME A112.18.1/CSA B125.1. HANDLE POSITION STOPS SHALL BE PROVIDED ON SUCH VALVES AND SHALL BE ADJUSTED PER THE MANUFACTURER'S INSTRUCTIONS TO DELIVER A MAXIMUM MIXED WATER SETTING OF 120°F (49°C). C.P.C. 408.3
- CONTROL VALVES AND SHOWERHEADS SHALL BE LOCATED ON THE SIDEWALL OF SHOWER COMPARTMENTS OR OTHERWISE ARRANGED SO THAT THE SHOWERHEAD DOES NOT DICHARGE DIRECTLY AT THE ENTRANCE TO THE COMPARTMENT SO THAT THE BATHER CAN ADJUST THE VALVES BEFORE STEPPING INTO THE SHOWER SPRAY. C.P.C. 408.9
- 4. WATER HEATERS INSTALLED ON THIS PROJECT 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 IN. SHALL BE MAINTAINED ABOVE THE CONTROLS WITH THE STRAPPING. C.P.C. 507.2 THIS APPLIES TO ALL NEW AND EXISTING WATER HEATERS PER THE CALIFORNIA HEALTH AND SAFETY CODE SECTION 19211(a)
- 5. WHERE A WATER HEATER IS INSTALLED PIPING SHALL BE INSULATED AS REQUIRED IN. C.E.C. 150(J) 2
- 6. POTABLE WATER OUTLETS WITH HOSE ATTACHMENTS OTHER THAN WATER HEATER DRAINS, BOILER DRAINS, AND CLOTHES WASHER CONNECTIONS, SHALL BE PROTECTED BY A NON REMOVABLE HOSE-BIB-TYPE BACKFLOW PREVENTER, A NON REMOVABLE HOSE BIB TYPE VACUUM BREAKER, OR BY AN ATMOSPHERIC VACUUM BREAKER INSTALLED NOT LESS THAN 6 IN. ABOVE THE HIGHEST POINT OF USAGE LOCATED ON THE DISCHARGE SIDE OF THE LAST VALVE. C.P.C. 603.5.7
- 7. EACH PLUMBING VENT SHALL TERMINATE NOT LESS THAN 10 FEET FROM, OR NOT LESS THAN 3 FEET ABOVE, AN OPENABLE WINDOW, DOOR, OPENING, AIR INTAKE, OR VENT SHAFT, OR NOT LESS THAN 3 FEET FROM A LOT LINE, ALLEY AND STREET EXCEPTED. C.P.C. 906.2

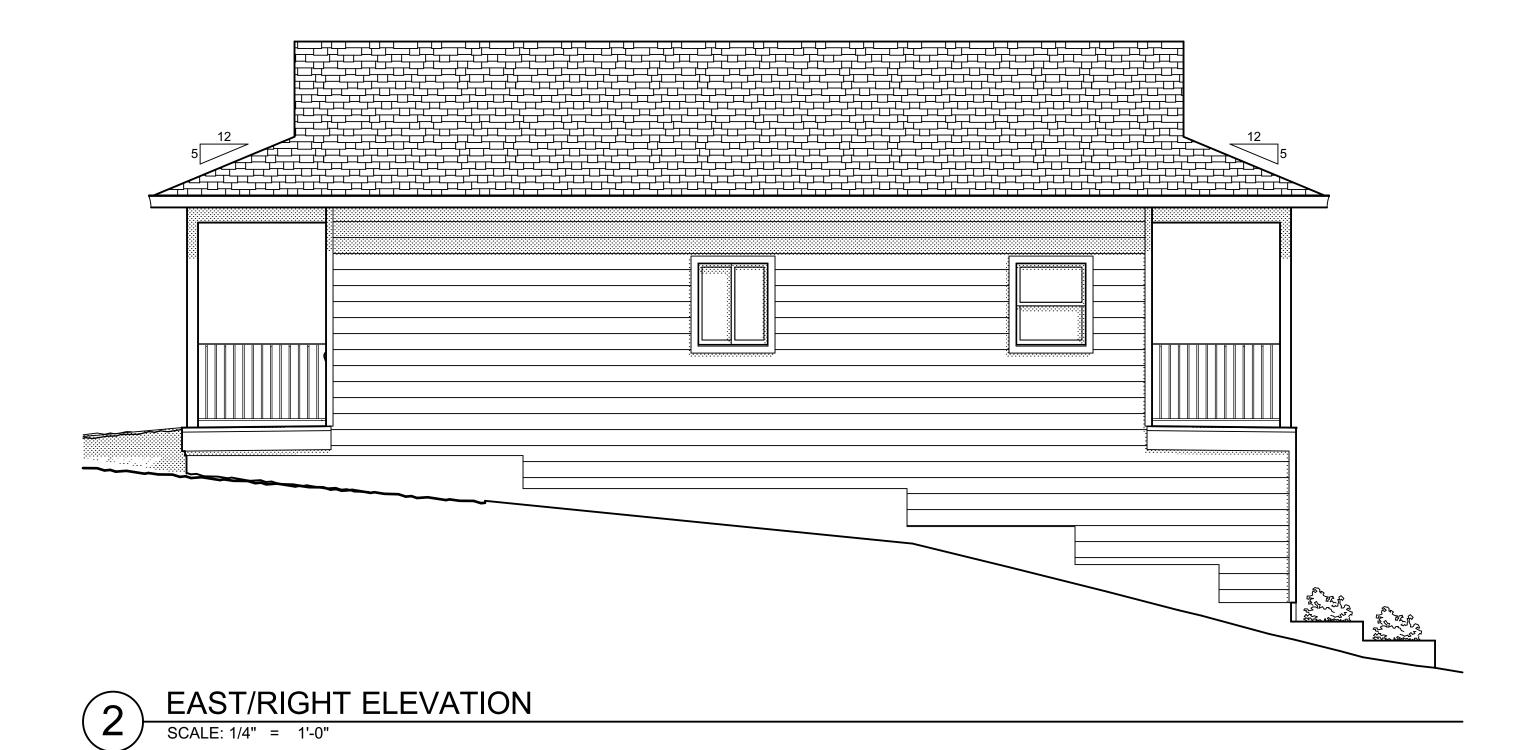
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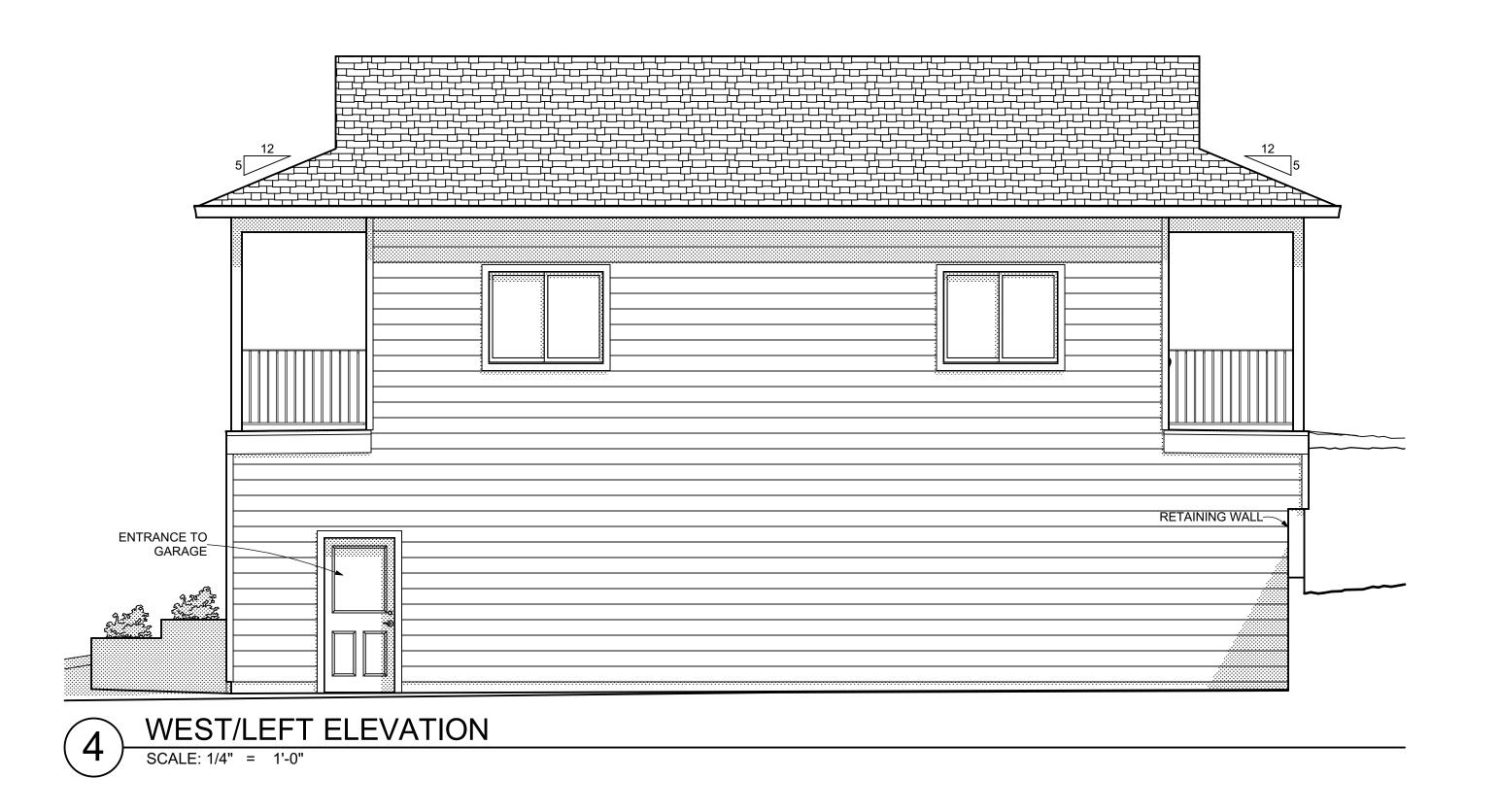


SOUTH/FRONT ELEVATION

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



3 NORTH/REAR ELEVATION
SCALE: 1/4" = 1'-0"



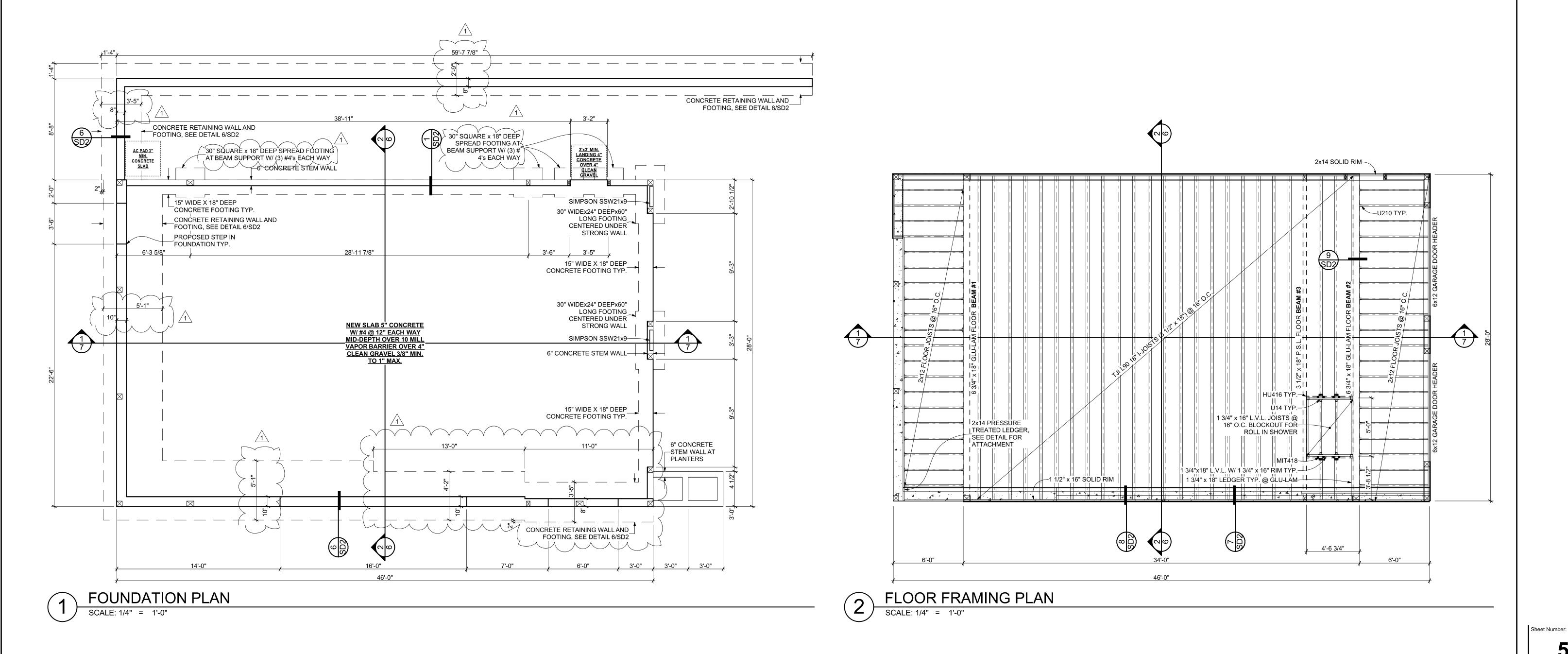
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FOUNDATION NOTES:

SEE FOUNDATION AND CONCRETE NOTES ON SHEET SD1
 ANCHOR BOLTS PER SHEAR SCHEDULE SHEET 3

FLOOR FRAMING NOTES:

SEE WOOD NOTES ON SHEET SD1.
 FLOOR SHEATHING SHALL BE 3/4" T&G PLY W/ 8d's @ 6"O.C. EDGE NAILING & 12"O.C FIELD NAILING



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ROOF NOTES:

- 1. NEW ROOF ATTIC AREA VENTILATION IS THE FOLOWING: ATTIC AREA IS 1288 SQUARE FEET / 150 = 1237 SQUARE INCHES OF VENTILATION, OR 1288/300 = 619 SQUARE INCHES OF VENTILATION IF EVENLY DISTRIBUTED BETWEEN THE RIDGE AND THE EAVE. VENTING IN UPPER THIRD TO BE PROVIDED BY (2) 14"x18" GABLE VENTS = 220 SQUARE INCHES NET FREET AREA + AT LEAST 6 FEET OF RIDGE VENT 16.9x6 = 101.4 SQUARE INCHES NET FREET AREA AND IN THE LOWER THIRD HARDIE SOFFIT VENTED 5 SQUARE INCHES PER LINEAL FOOT 150x5 = 750 SQUARE INCHES NET FREET
- 2. ENCLOSED ATTICS AND ENCLOSED RAFTER SPACES FORMED WHERE CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE BY VENTILATING OPENINGS PROTECTED AGAINST THE ENTRANCE OF RAIN OR SNOW. VENTILATION OPENINGS SHALL HAVE A LEAST DIMENSION OF \$^{1}_{16}\$ INCH MINIMUM AND \$^{1}_{4}\$ INCH MAXIMUM. VENTILATION OPENINGS HAVING A LEAST DIMENSION LARGER THAN \$^{1}_{4}\$ INCH SHALL BE PROVIDED WITH CORROSION-RESISTANT WIRE CLOTH SCREENING, HARDWARE CLOTH, PERFORATED VINYL, OR SIMILAR MATERIAL WITH OPENINGS HAVING A LEAST DIMENSION OF \$^{1}_{16}\$ INCH MINIMUM AND \$^{1}_{4}\$ INCH MAXIMUM. REQUIRED VENTILATION OPENINGS SHALL OPEN TO THE OUTSIDE AIR AND SHALL BE PROTECTED TO PREVENT THE ENTRY OF BIRDS, RODENTS, SNAKES, AND OTHER SIMILAR CREATURES **C.R.C. 806.1**
- 3. THE MINIMUM NET FREE VENTILATING AREA SHALL BE $^{1}/_{150}$ OF THE AREA OF THE VENTED SPACE. EXCEPT THAT THE MINIMUM NET FREE VENTILATION AREA SHALL BE $^{1}/_{300}$ OF THE VENTED SPACE PROVIDED BOTH OF THE FOLLOWING CONDITIONS ARE MET:
 - A. IN CLIMATE ZONES 14 AND 16, A CLASS I OR II VAPOR RETARDER IS INSTALLED ON THE WARM-IN-WINTER SIDE OF THE CEILING.
 - B. NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET (914 MM) BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY. THE BALANCE OF THE REQUIRED VENTILATION PROVIDED SHALL BE LOCATED IN THE BOTTOM ONE-THIRD OF THE ATTIC SPACE. WHERE THE LOCATION OF WALL OR ROOF FRAMING MEMBERS CONFLICTS WITH THE INSTALLATION OF UPPER VENTILATORS, INSTALLATION MORE THAN 3 FEET (914 MM) BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE SHALL BE PERMITTED. C.R.C. 806.2

ROOF FRAMING NOTES:

- 1. ALL BEAM SUPPORTING POSTS ARE TO BE AT LEAST THE WIDTH OF THE BEAM BEING SUPPORTED.
- 2. ROOF SHEATHING SHALL BE 1/2" CDX/OSB AND 8d's @ 6"O.C. EDGE NAILING & 12"O.C FIELD NAILING
- 3. GIRDER TRUSS SUPPORT, ONE 2X_ FOR EACH PLY
- 4. CONFIRM ALL DIMENSIONS IN THE FIELD BEFORE ORDERING TRUSSES.

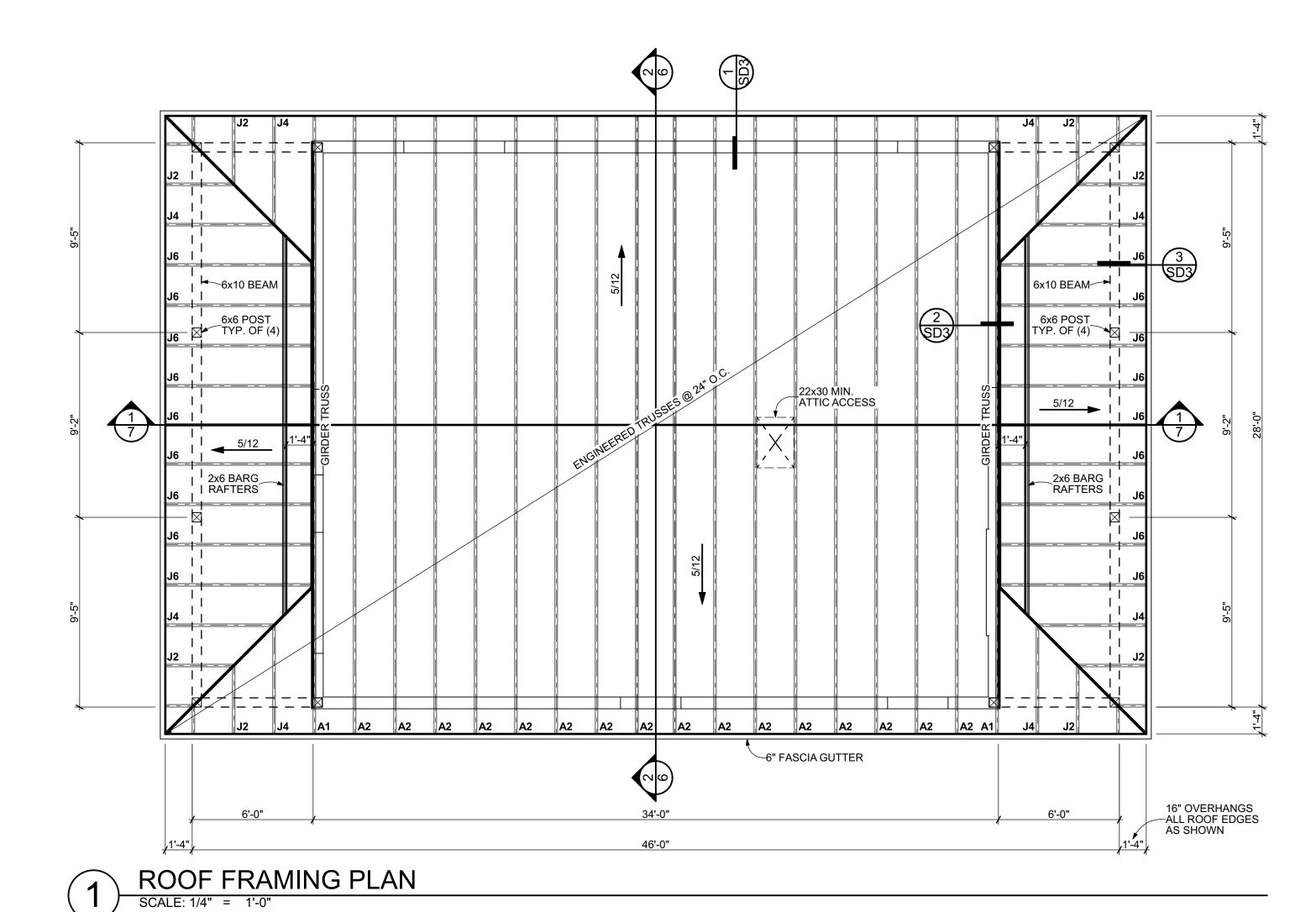
HEADER SCHEDULE

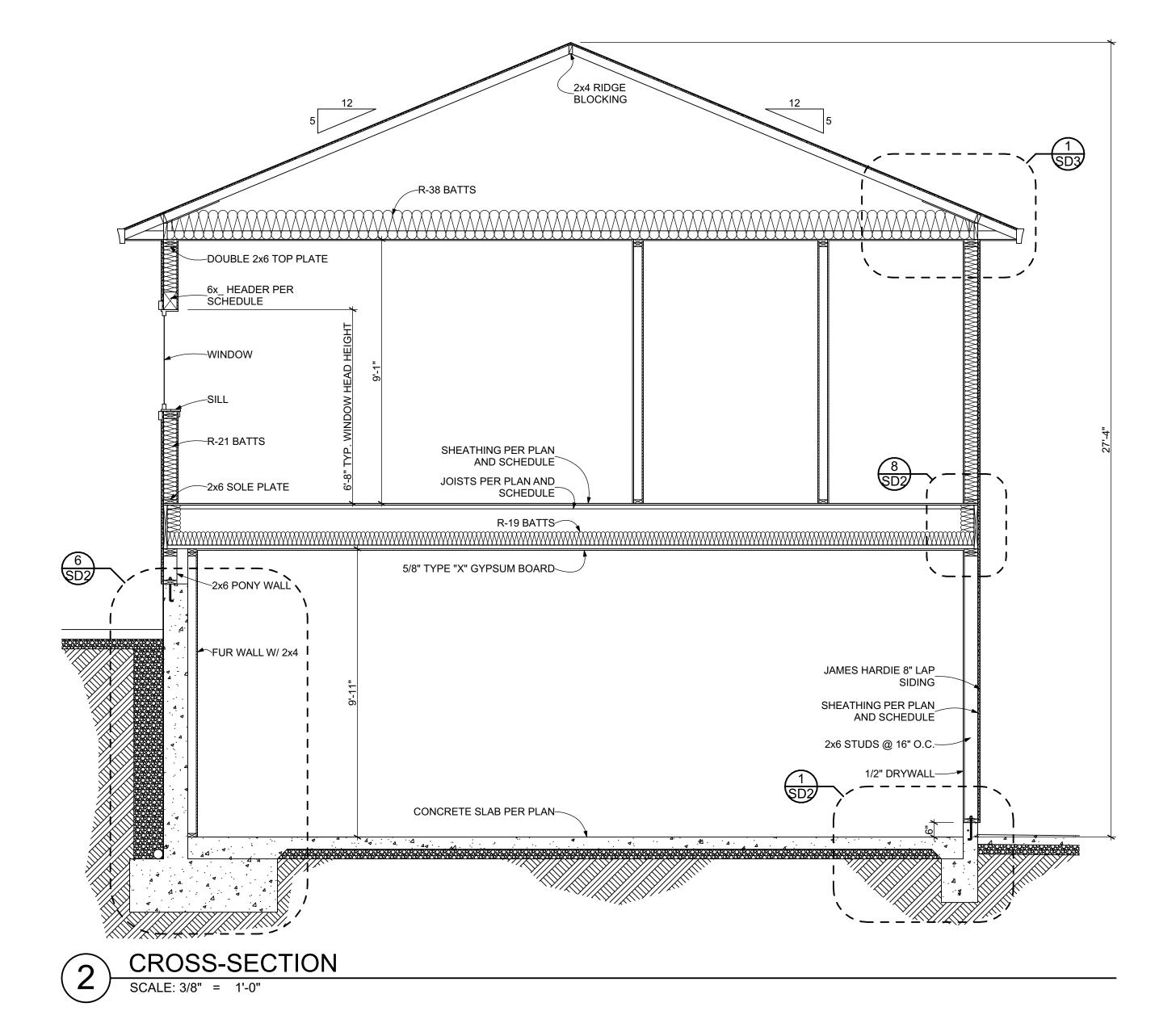
2'-0" 6X6 SINGLE TRIMMER 3'-0" 6X8 SINGLE TRIMMER

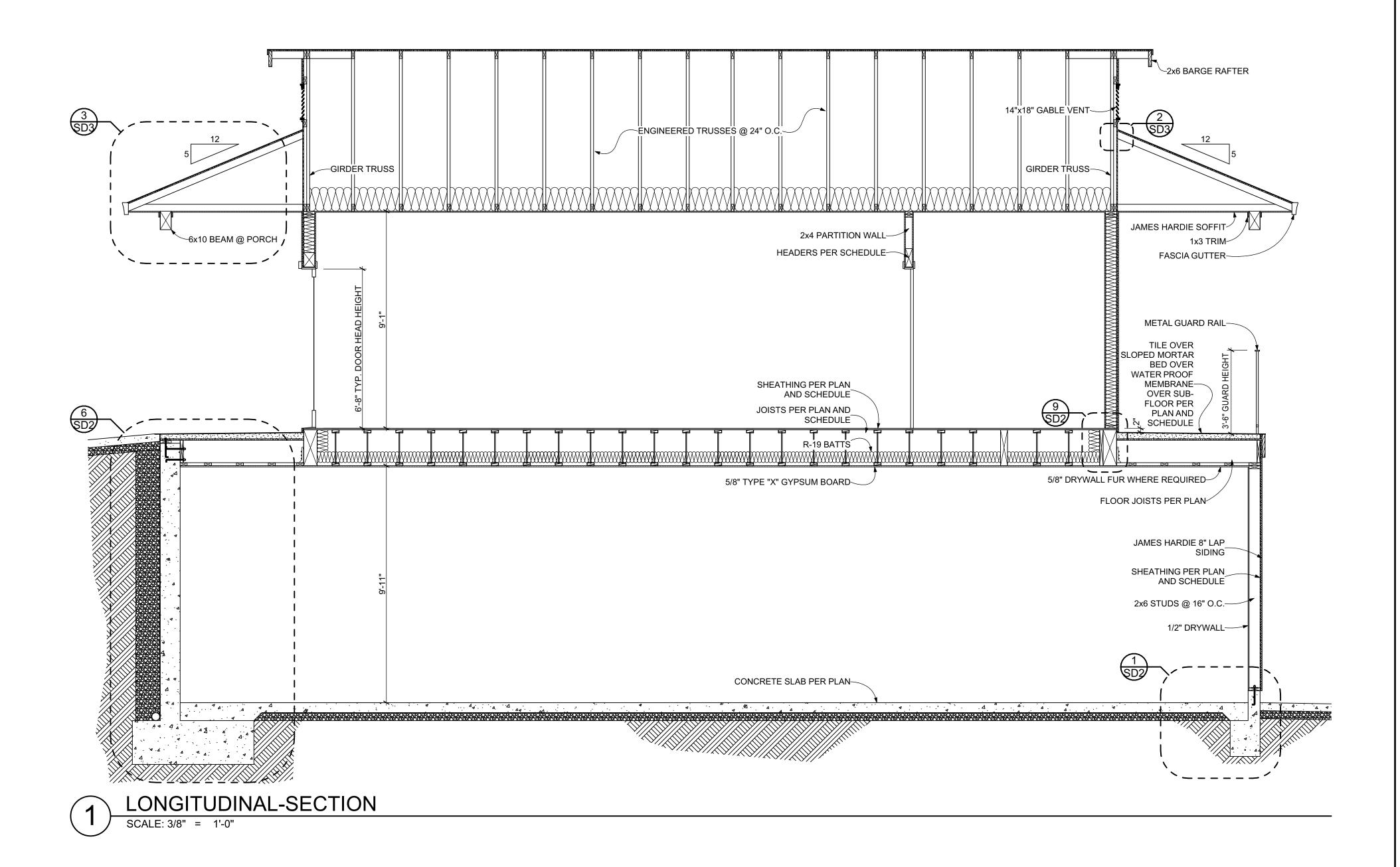
4'-0" 6X10 SINGLE TRIMMER 5'-0" 6X10 DOUBLE TRIMMER

6'-0" 6X10 DOUBLE TRIMMER

7'-0" AND LONGER - SEE PLAN DOUBLE TRIMMER

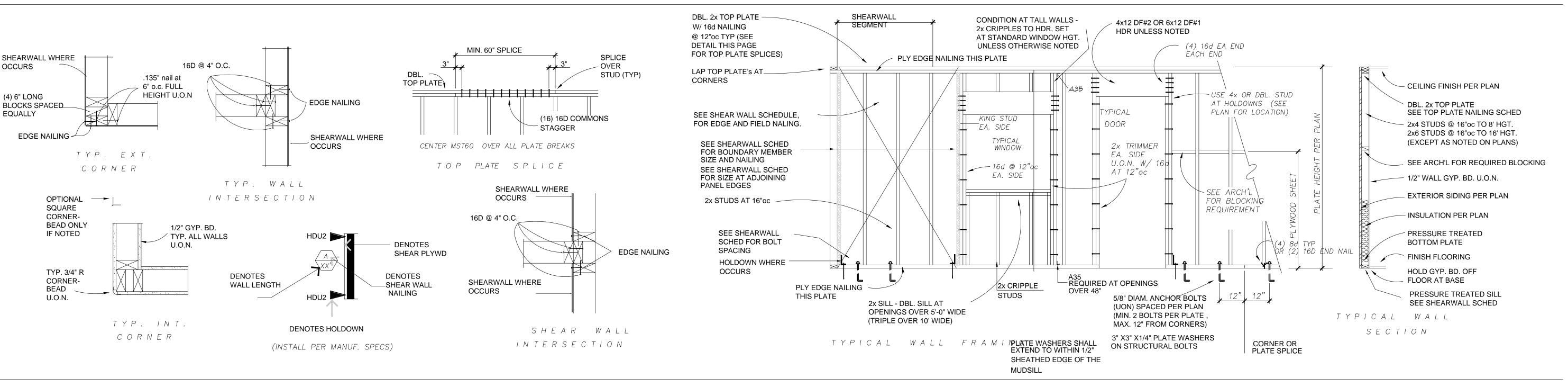






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STRUCTURAL NOTES:

GENERAL NOTES:

- 1. ALL CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE , APPLICABLE STANDARDS, AND THE 2019 CBC
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE BUILDING DURING CONSTRUCTION AND SHALL PROVIDE ADEQUATE SHORING AND BRACING DURING CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH APPLICABLE SAFETY REGULATIONS.
- 3. DETAILS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO DETAILS FOR SIMILAR CONSTRUCTION SHOWN ON THESE DRAWINGS.
- 4. THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ANY DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER AND BE RESOLVED BEFORE PROCEEDING WITH
- 5. NO STRUCTURAL MEMBERS SHALL BE CUT, NOTCHED OR OTHERWISE PENETRATED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER IN ADVANCE OR SHOWN ON THESE DRAWINGS.
- 6. TYPICAL DETAILS SHALL APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
- WHERE THESE GENERAL NOTES AND TYPICAL DETAILS ARE IN CONFLICT WITH ANY SPECIFICATIONS, THESE NOTES SHALL GOVERN.
- 8. PROVIDE OPENINGS, CURBS, FRAMING AND/OR SUPPORTS FOR ITEMS INDICATED ON ANY OF THESE DRAWINGS INCLUDED IN THE CONSTRUCTION DOCUMENTS.
- ALL ELEVATIONS ARE REFERENCED FROM TOP OF FINISH GROUND FLOOR ELEVATION =0'-0" UNLESS OTHERWISE NOTED.
- 10. PROVIDE INSPECTIONS IN AS REQUIRED BY THE BUILDING DEPT. OR THESE DRAWINGS.
- CONTRACTOR OR OWNER IS RESPONSIBLE FOR THE INSTALLATION AND SHALL PROVIDE PROPER FUNCTION OF ALL COSMETIC TREATMENTS AND FINISHES -INCLUDING, BUT NOT LIMITED TO: TILE, STUCCO, GYPSUM BOARD, PAINT, ETC. WHERE STANDARD SPECIFICATIONS CALL FOR CONSTRUCTION MORE STRINGENT THAN SHOWN ON THESE PLANS, THE CONTRACTOR OR OWNER SHALL ADJUST THE
- CONSTRUCTION ACCORDINGLY 12. CONTRACTOR SHALL READ AND BE FAMILIAR WITH ALL FACETS OF THE PLANS AND SPECIFICATIONS AND SHALL REQUEST CLARIFICATION AS REQUIRED BEFORE COMMENCING CONSTRUCTION. IF THESE PLANS ARE NOT EXECUTED BY A CONTRACTOR LICENSED IN CALIFORNIA AND WHO IS INTIMATELY FAMILIAR WITH THIS TYPE OF CONSTRUCTION, THE PLANS SHALL BE
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CONSTRUCTION WHICH IS IN DEVIATION FROM THESE PLANS.
- CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL FIELD CONDITIONS AND SHALL OBTAIN APPROVAL BEFORE CONTINUING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR THE CORRECT INSTALLATION OF ALL MANUFACTURED PRODUCTS, INCLUDING BUT NOT LIMITED TO 06B, TI-11 PARALLAMS AND MICRO-LAMS. ALL INSTALLATIONS SHALL BE DONE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS

FOUNDATION:

CONSIDERED NULL AND YOID.

- I. FOUNDATION SOIL STRATA IS NATIVE SOIL OR ENGINEERED FILL AS PER THE PROJECT SOILS REPORT WHEN APPLICABLE. IF ANY DISCREPENCIES ECIST BETWEEN THE SOILS REPORT & THESE PLANS, THE SOILS REPORT SHALL GOVERN. 2035 BY JIM GLOMB SOILS REPORT:
- WHEN NO SOILS REPORT IS AVAILABLE, IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR OWNER TO ENSURE THAT ALL SOIL CONDITIONS ARE APPROPRIATE FOR THE CONSTRUCTION OF THIS PROJECT AS DRAWN. FOUNDATIONS SHALL BEAR ON FIRM, UNDISTURBED FOUNDATION SOIL STRATA.
- 2. THE ELEVATIONS OF BOTTOMS OF FOOTINGS AS SHOWN ON THESE DRAWINGS INDICATE THE ESTIMATED MINIMUM FOUNDATION DEPTHS.
- FOUNDATIONS ARE DESIGNED FOR A MAXIMUM DEAD PLUS LIVE LOAD ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF.
- BOTTOMS OF FOOTINGS SHALL EXTEND A MINIMUM OF 12" BELOW LOWEST ADJACENT GRADE FOR ONE STORY SECTIONS, 18" FOR TWO STORIES (U.O.N.)
- 5. THE BOTTOM OF ALL FOOTINGS SHALL BE LEVEL. CHANGES IN FOOTING ELEVATIONS SHALL BE MADE UTILIZING THE TYPICAL FOOTING STEP DETAIL
- ON THESE DRAWINGS. 6. CENTER FOOTINGS UNDER WALLS OR COLUMNS UNLESS OTHERWISE INDICATED ON THESE DRAWINGS.
- 7. BOLTS AND NAILS IN CONTACT WITH PRESSURE TREATED WOOD SHALL BE HOT DIPPED ZINC COATED GALVANIZED OR EQ.

DESIGN CRITERIA:

ROOF B.C.D.L.: 10 RISK CATEGORY - II ROOF LIVE LOAD: 20 IMPORTANCE FACTOR: FLOOR DEAD LOAD: 17 WIND SPEED: 110 MPH FLOOR LIVE LOAD: 40 EXPOSURE CATEGORY: C RAIN LOAD: 0 INTERNAL PRESSURE COEFFICIENT: .18+/-DESIGN WIND PRESSURE: SEE CALCS MAPPED SPECTRAL RESPONSE COEFFICIENTS: SITE CLASS: D

SPECTRAL RESPONSE COEFFICIENTS: SEISMIC DESIGN CATEGORY: D BASIC SEISMIC-FORCE-RESISTING SYSTEM: WOOD SHEARWALLS DESIGN BASE SHEAR: SEE CALCS SEISMIC RESPONSE COEFFICIENT: $C_s = 0.168$ SEISMIC R=6.5

ANALYSIS PROCEDURE : ELFP CONCRETE:

CONCRETE SHALL DEVELOP A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS IN ACCORDANCE WITH ASTM C39. ALL CONCRETE SHALL BE CONSOLIDATED BY MECHANICAL VIBRATORS.

ROOF T.C.D.L: 10

FLOOD LOAD: C

SNOW LOAD: 0

- ALL CONRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE C.B.C. AND ACI STANDARD 318, LATEST EDITION, OF THE AMERICAN CONCRETE INSTITUTE UNLESS SHOWN OR NOTED OTHERWISE ON THESE DRAWINGS.
- 3. AGGREGATE SHALL CONFORM TO ASTM C-33.
- 4. CEMENT SHALL BE ASTM C-150, TYPE I OR TYPE II.
- 5. REINFORCING STEEL SHALL BE DEFORMED COMFORMING TO ASTM A615 GRADE 40 FOR #5 AND SMALLER AND GR 60 FOR LARGER UNLESS OTHERWISE NOTED.
- 6. WELDED WIRE FABRIC REINFORCEMENT SHALL CONFORM TO ASTM A-185.
- 7. WELDING OF REINFORCING STEEL SHALL BE PERFORMED ONLY WHERE INDICATED ON THE DRAWINGS AND SHALL BE IN COMPLIANCE WITH ALL REQUIREMENTS OF THE REINFORCING STEEL WELDING SOCIETY. PROVIDE WELDING PROCEDURE AND MILL TEST REPORTS FOR ALL REINFORCEMENT TO BE WELDED. ENGINEER SHALL APPROVE WELDING PROCEDURE AND MILL TEST REPORTS PRIOR TO EXECUTION OF WELDING.
- 8. COVERAGE FOR REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE C.B.C. AND ACI STANDARD 318 UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
- LAP SPLICES FOR REINFORCING SHALL BE 50 BAR DIAMETERS OR 12" MINIMUM UNLESS SHOWN OTHERWISE ON THE DRAWINGS. WIRE BARS TOGETHER AT LAPS OR SPLICES. HOOKS SHALL BE 135 DEGREES WITH 4" MIN TAILS
- 10. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ASTM C94 AND ACI STANDARD 304.
- II. ALL EMBEDDED ITEMS SHALL BE PLACED ACCURATELY AND SECURELY PRIOR TO BEGINNING CONCRETE PLACEMENT.
- 12. CONSTRUCTION JOINTS SHALL BE LOCATED SO AS NOT TO IMPAIR THE
- STRENGTH OF THE STRUCTURE.

13. MEETING COMPRESSIVE STRENGTH RQUIREMENTS ARE THE RESPONSIBILTY OF

- THE CONCRETE SUPPLIER 14. SUBMIT CONCRETE MIX DESIGNS TO THE ENGINEER FOR APPROVAL
- PRIOR TO PLACEMENT OF ANY CONCRETE.
- 15. ALL GROUT SHALL BE NON-METALLIC NON-SHRINK GROUT
- 16. REINFORCING AND EMBEDMENT ITEMS SHALL BE FREE OF EXCESSIVE SCALE OR RUST, DIRT, GREASE, OIL OR ANY OTHER SUBSTANCE THAT WILL IMPAIR BOND WITH CONCRETE.
- 17. NO SPECIAL INSPECTION IS REQUIRED.
- 18. BOLTS AND NAILS IN CONTACT WITH PRESSURE TREATED WOOD SHALL BE HOT DIPPED ZINC COATED GALVANIZED OR EQ.

PREMANUF. WOOD TRUSSES:

TRUSS LOADINGS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED AT FLOORS: DEAD LOAD- 17 PSF LIVE LOAD-40

> ROOF T.C.D.L: 10 ROOF B.C.D.L.: 10

- ROOF LIVE LOAD: 20 DESIGN AND FABRICATE USING THIS CRITERIA, THE LATEST CBC AND CBC. STANDARDS, AND APPLICABLE RESEARCH REPORTS -
- TRUSS MANUFACTURER TO SUPPLY ALL HANGERS FOR TRUSSES AS REQD.
- MECHANICAL UNIT LOADS AND PARTITION LOADS SHALL BE CONSIDERED WHERE APPLICABLE.
- 5. WHERE PREFABRICATED TRUSSES ARE INSTALLED AS BLOCKING OR RIM JOISTS IN BEARING WALLS, TRUSS SHALL BE DESIGNED TO TRANSMIT DIRECT AXIAL WALL LOADS.
- PROVIDE COMPLETE FRAMING PLANS WITH TRUSS IDENTIFICATION NUMBERS CLEARLY IDENTIFIED ON PLANS AND CALCULATIONS. DESIGN AND CLEARLY INDICATE ALL BRACING AND BRIDGING. SPECIFY TRUSS MANUFACTURER ON TRUSS DRAWINGS AND PLANS. PROVIDE SIGNATURE
- PROVIDE TRUSS DRAWINGS, CALCULATIONS AND COPIES OF RESEARCH REPORTS TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. CALCULATIONS SHALL CONSIDER COMBINED AXIAL AND BENDING STRESSES AND BE SIGNED BY A CIVEL ENGINEER
- 8. INSTALL TRUSSES IN ACCORDANCE WITH THE REQUIREMENTS OF THE REFERENCED STANDARDS, THESE DRAWINGS, AND THE MANUFACTURER'S RECOMMENDATIONS AND DETAILS.
- 9. TRUSS WEB MEMBERS SHALL BE CAPABLE OF CARRYING ALL
- DEAD PLUS LIVE PLUS MISCELLANEOUS LOADS IMPOSED BY ROOF AND FLOORS 10 TOP CHORDS SHALL BE 2X DOUGLAS FIR - LARCH NO.2, MINIMUM.
- II. WEB MEMBERS SHALL BE 2X4 DOUGLAS FIR LARCH STANDARD, MINIMUM.
- 12. MAXIMUM TRUSS PANEL LENGTHS SHALL BE SET BY THE TRUSS ENGINEER
- 13. MINIMUM METAL PLATE CONNECTION PER SIDE = 10" SQUARE.
- 14. MINIMUM PLATE BITE FOR EACH MEMBER =2".

OF ENGINEER ON ALL TRUSS DRAWINGS.

LICENSED IN THE STATE OF CALIFORNIA.

- 15. EACH TRUSS SHALL BE LEGIBLY BRANDED, MARKED OR OTHERWISE HAVE PERMANENTLY AFFIXED THERETO THE FOLLOWING INFORMATION LOCATED WITHIN 2 FEET OF THE CENTER OF THE SPAN ON THE FACE OF THE BOTTOM CHORD: a) IDENTITY OF THE COMPANY MANUFACTURING THE TRUSS. b) THE LOAD DESIGN.
- c) THE SPACING OF THE TRUSSES.
- 16. TRUSS MANUFACTURER MAY SUBSTITUE MATERIALS WITH PROPER DOCUMENTATION
- 17. TRUSSES SHALL NOT BE MODIFIED IN ANY WAY EXCEPT BY THE TRUSS DESIGN ENGINEER

3" X3" X1/4" PLATE WASHERS

SHEAR WALL SCHEDULE:

3/8" CDX PLYWOOD OR OSB NAILING: 8d's SPACED 6"oc AT EDGES, 12" O.C. AT FIELD 5/8" diam. a.b. at 60" o.c. within shearwall



3/8" CDX PLYWOOD OR OSB NAILING: 8d's SPACED 4"oc AT EDGES, 12" O.C. AT FIELD 5/8" diam. a.b. at 48" o.c.within shearwall 3" ×3" ×1/4" PLATE WASHERS

3 X STUDS AT ADJOINING PANEL EDGES, AND BLOCKING

W O O D :

- 1. STRUCTURAL FRAMING SHALL BE DOUGLAS FIR LARCH GRADED IN ACCORDANCE WITH THE STANDARD GRADING RULES OF THE WESTERN WOOD PRODUCTS ASSOCIATION. GRADES SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED ON THE
 - DRAWINGS. 6X & LARGER MEMBERS 2× # 4× MEMBERS

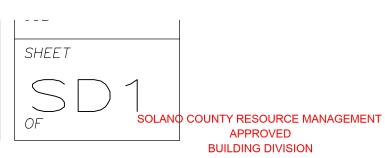
-NO. 2 (MINIMUM)

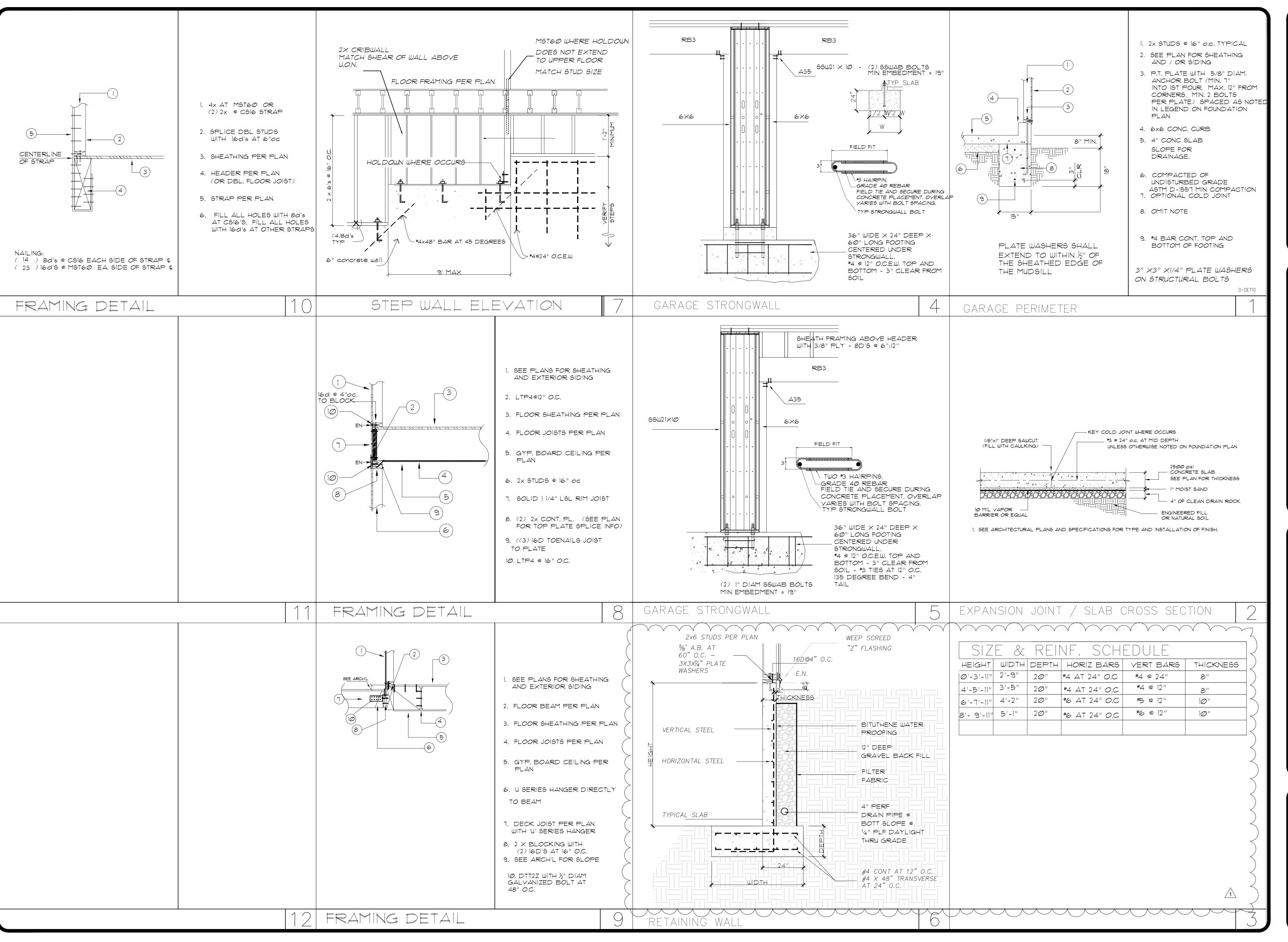
- 2. ALL PLYWOOD SHOWN ON THESE DRAWINGS SHALL BE C-D WITH EXTERIOR GLUE IN ACCORDANCE WITH U.S. PRODUCT STANDARD PS 1-95. ALL PANELS SHALL BE MARKED WITH AN APA GRADE MARK WITH AN IDENTIFICATION INDEX ROOF PLY SHALL BE PANEL INDEX 24/0 U.O.N, FLOOR PLY SHALL BE PANEL INDEX 48/24 U.O.N. EQUIVALENT OSB MAY REPLACE PLYWOOD SHEARWALLS OR DIAPHRAGMS
- 3. SILL PLATES SHALL BE PRESSURE PRESERVATIVE TREATED DOUGLAS FIR.
- 4. PROVIDE BLOCKING FOR ALL FRAMING MEMBERS AT ALL SUPPORTS.
- 5. BOLTS FOR TIMBER CONNECTIONS SHALL BE ASTM A30T MACHINE BOLTS UNLESS OTHERWISE NOTED. BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION BY THE NATIONAL FOREST PRODUCTS ASSOCIATION. BOLT HOLES SHALL BE 1/16 INCH LARGER THAN BOLT DIAMETER.
- 6. HOLES FOR LAG SCREW SHANKS SHALL BE BORED THE SAME DEPTH AND DIAMETER AS THE SHANK. THE REMAINING DEPTH OF PENETRATION OF THE SCREW SHALL BE BORED TO 10% OF THE SHANK DIAMETER.
- 7. PROVIDE MALLEABLE IRON WASHERS OR EQUIVALENT CUT PLATE WASHERS UNDER NUTS AND BOLT OR LAG SCREW HEADS WHICH BEAR ON WOOD.
- 8. WOOD MEMBERS SHALL BE CUT OR NOTCHED ONLY AS SHOWN ON THESE DRAWINGS.
- 9. WHEN REQUIRED NAILING TENDS TO SPLIT WOOD MEMBERS, NAIL HOLES SHALL BE PRE-BORED TO 3/4 OF THE NAIL DIAMETER.
- 10. NAILING NOT SPECIFICALLY INDICATED SHALL COMPLY WITH TABLE 2304.10.1 IN THE 2015 IBC AND THE COMPLIMENTRY TABLE IN THE 2019 CBC
- 11. STRUCTURAL NAILING SHALL BE WITH COMMON NAILS U.O.N ON TABLE BELOW
- 12. PROVIDE LATERAL SUPPORT FOR ALL FRAMING MEMBERS AT POINTS OF SUPPORT
- 13. PROVIDE SHOP DRAWINGS FOR ALL PREFABRICATED JOIST MEMBERS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
- 14. FXCFPT WHERE MORE STRINGENT CONSTRUCTION IS SHOWN ON THE DRAWINGS, WOOD CONSTRUCTION SHALL COMPLY WITH IBC. SECTION 2308 , CONVENTIONAL LIGHT FRAMED CONSTRUCTION PROVISIONS
- AND THE COMPLIMENTARY SECTION OF THE 2019 CBC, AS A MINIMUM. 15. ALL PREFABRICATED CONNECTING HARDWARE SPECIFIED IS MANUFACTURED BY SIMPSON COMPANY, SAN LEANDRO, CALIFORNIA, UNLESS OTHERWISE NOTED. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS FOR MAXIMUM RATED VALUES. HARDWARE EQUAL IN STRENGTH MAY BE SUBSTITUTED
- 16. ALL GLU-LAM BEAMS SHALL BE 24F-V4 DF/DF, U.O.N. All GLU-LAMS SHALL BE MARKED "ANSI/AITC- STANDARD A 190.1" GLU-LAMS SHALL BE PROVIDED BY A CERTIFIED MANUFACTURER PROVIDE CERTIFICATION TO BUILDING INSPECTOR
- ALL PARALLAMS AND MICRO-LAMS SHALL HAVE E = 2,000,000 PSI
- 17. BLOCK UNSUPPORTED EDGES OF PLYWOOD OR GYP. BD SHEARWALLS. 18. MAXIMUM MOISTURE CONTENT SHALL BE 19% U.O.N.

PROVIDE MINIMUM CAMBER UNLESS OTHERWISE NOTED

- 19. ALL BEAMS INTENDED FOR EXTERIOR USE SHALL BE TREATED
- FOR EXPOSURE TO WATER 20. ALL EXPOSED WOOD SHALL BE PROTECTED FROM DECAY PER
- 2019 CRC SECTION R403.1 21. ALL FASTENERS CONNECTIN SHEAR PANELS OR FRAMING MEMBERS TO PRESERVATIVE TREATED WOOD SHALL BE HOT DIPPED STEEL, ZINC COATED GALVANIZED STEEL, STAINLESS STEEL, SILICONE BRONZE OR COPPER

NAIL	L	D	Н	PENE IRA IION	NOTES
8dbox	2 1/2"	.113	.297	1 3/8"	1. LENGTH MAY BE
10d box	3	.128	.312	1 1/2"	ADJUSTED AS LONG AS REQUIRED PENETRATION
16d box	3 1/2	.136	.344	1 5/8"	IS MAINTAINED
	,			·	2. SHEARWALLS USE GALVANIZED
8d common	2 1/2	.131	.281	1 1/2"	BOX OR COMMON
10d common	3	.148	.312	1 3/4"	3. DIAPHRAGMS USE ONLY COMMONS
16d common	3 1/2	.162	.344	2	4. SEE TBL. 23—I—Q FOR OTHER NAILING





	3 4 5	1. ROOF SHEATHING PER PLAN 2. 2x OUTRIGGER FLAT - LET-IN TO END TRUSS, NAIL W 8df SAT 65 cc 3. GABLE END FRAMING WITH IN FILL STUDS AT 16 cc 5. RUN TYPICAL SHEARWALL CONSTRUCTION TO PLATE BOTTOM OF ROOF PLYWD. 6. 2x STUDS PER PLAS ATHING) 7. 2x4 FURLIN Ø MID-SPAN OF BACKE IF OVER 66 WITH (2) 16df SAT EACH BRACE 8. 2x BLKG WITH 8df SAT 45 cc AND (3) 16df SEACH END 9. 2x4 DIAG. BRACE & 8 co MAX. W (3) 16df SEACH END - MAX UNISUPPORTED LENGTH - 66* 10. 2x BLKG EACH RACE WITH (3) 16df SEACH SEACH INFO 11. ROOF SHEATHING PER PLAN 2. 2x CONT. BLOCKING 2X6 FLAT BLOCK W(2) ROWS E. NO BLUCK W(3) 2x6 FLAT BLOCK W(2) 2x6 FLAT BLOCK W(2) 2x6 FLAT BLOCK W(3) 2x7 FLAT BL
	7 SHEAR TRANSFER	
	8	1. ROOF SHEATHING PER PLAN 2. 2x CONT. BLOCKING (PROVIDE DRILLED HOLES FOR VENTLATION) 3. SEE ARCH FOR FASCIA 4. TYPICAL TRUSS 5. H1 AT EACH RAFTER 6. SEE FRAMING PLAN
12	9	6 TYPICAL EAVE OF SHEETS SOLAND COUNTY RES

ELECTRICAL NOTES

- 1. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CODES, RULES, AND REGULATIONS AND COMPLY WITH THE REQUIREMENTS OF THE SERVING POWER AND TELEPHONE COMPANIES
- 2. ALL ELECTRICAL SHOWN IS NEW.

RECEPTACLES

- 1. ALL 120-VOLT, SINGLE PHASE, 15- AND 20- AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT 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 PROTECTED BY ANY OF THE MEANS DESCRIVED IN C.E.C. 210.12 (A) 1-6
- 2. IN DWELLING UNITS ALL 125 AMP, SINGLE PHASE, 15- AND 20-AMPERE RECEPTACLES INSTALLED IN THE FOLLOWING PLACES SHALL HAVE GROUND-FAULT CIRCUIT INTERRUPTER PROTECTION: BATHROOMS, GARAGES (AT OR BELOW GRADE) AND SIMILAR SPACES, OUTDOORS, CRAWL SPACES (AT OR BELOW GRADE), UNFINISHED PORTIONS OR AREAS THE BASEMENTS NOT INTENDED AS HABITABLE ROOMS (AT OR BELOW GRADE) KITCHENS (WHERE RECEPTACLES ARE INSTALLED TO SERVE COUNTERTOP SURFACES), SINKS (LOCATED IN AREAS OTHER THAN KITCHENS WHERE THE RECPTACLES ARE INSTALLED WITHIN 6' OF THE TOP INSIDE EDGE OF THE BOWL OF THE SINK), BATHTUBS AND SHOWER STALLS (WHERE THE RECPTACLES ARE INSTALLED WITHIN 6' OF THE OUTSIDE EDGE OF THE BATHTUB OR SHOWER STALL), AND LAUNDRY AREAS . C.E.C. 210.8(A)
- 3. IN ALL AREAS OF DWELLING UNITS SPECIFIED IN C.E.C. 210.52 AND 550.13, ALL NONLOCKING-TYPE 125 AND 50 VOLT, 15- AND 20-AMPERE RECEPTACLES SHALL BE LISTED TAMPER RESISTANT. C.E.C.406.12
- 4. RECEPTACLE OUTLETS SHALL BE LOCATED ON OR ABOVE, BUT NOT MORE THAN 20 IN., ABOVE THE COUNTERTOP OR WORK SURFACE. RECEPTACLE OUTLET ASSEMBLIES LISTED FOR USE IN COUNTERTOPS OR WORK SURFACES SHALL BE PERMITED TO BE INSTALLED IN COUTERTOPS OR WORK SURFACES. RECEPTACLE OUTLETS RENDERED NOT READILY ACCESSIBLE BY APPLIANCES FASTENED IN PLACE, APPLIANCE GARAGES, SINKS, OR RANGE TOPS AS COVERED IN C.E.C. 210.52(C)(1), EXCEPTION, OR APPLIANCES OCCUPYING DEDICATED SPACE SHALL NOT BE CONSIDERED AS THESE REQUIRED OUTLETS. C.E.C. 210.52(C)(5)
- 5. AT LEAST ONE RECEPTACLE OUTLET SHALL BE INSTALLED IN BATHROOMS WITHIN 3 FT OF THE OUTSIDE EDGE OF EACH BASIN. THE RECEPTACLE OUTLET SHALL BE LOCATED ON A WALL OR PARTITION THAT IS ADJACENT TO THE BASIN OR BASIN COUNTERTOP, OR INSTALLED ON THE SIDE OR FACE OF THE BASIN CABINET. IN NO CASE SHALL THE RECEPTACLE BE LOCATED MORE THAN 12 IN. BELOW THE TOP OF THE BASIN OR BASIN COUNTERTOP. RECEPTACLES LISTED FOR USE IN COUNTERTOPS SHALL BE PERMITTED TO BE INSTALLED IN THE COUNTERTOP. AT LEAST ONE 120 VOLT 20-AMPERE BRANCH CIRCUIT SHALL BE PROVIDED FOR THESE RECEPTACLES. C.E.C. 210.11(C)(3) AND 210.52(D)
- 6. BALCONIES, DECKS, AND PORCHES THAT ARE ATTACHED TO THE DWELLING UNIT AND ARE ACCESSIBLE FROM INSIDE THE DWELLING UNIT SHALL HAVE AT LEAST ONE RECEPTACLE OUTLET ACCESSIBLE FROM THE BALCONY, DECK, OR PORCH. THE RECEPTACLE OUTLET SHALL NOT BE LOCATED MORE THAN 6 ½ FT. ABOVE THE BALCONY, DECK, OR PORCH WALKING SURFACE. C.E.C. 210.52 (E)(3)
- 7. RECEPTACLE OUTLETS INSTALLED IN DAMP OR WET CONDITIONS SHALL MEET THE REQUIREMENTS OF C.E.C. 406.9
- 8. A SWITCHED ELECTRICAL OUTLET INSTALLED 18" ABOVE THE FLOOR SHALL BE PROVIDED FOR THE GARBAGE DISPOSAL.
- 9. WIRING SHALL BE PROVIDED FOR RANGE, HOOD, LIGHT AND FAN AT 72" ABOVE FLOOR WHERE REQUIRED.
- 10. A 110-VOLT RECEPTACLE OUTLET SHALL BE PROVIDED FOR THE WATER HEATER AND ANY HEATING FOUIPMENT.
- 11. PROVIDE PANEL SPACE FOR FUTURE 40 AMP DEDICATED CIRCUIT AND 1" RACEWAY MINIMUM TO BOX FOR FUTURE EV CHARGING STATION.
- 1. ALL LUMINAIRES SHALL BE HIGH EFFICACY LIGHTING AS DEFINED PER TABLE 150.0-A
- 2. IN ADDITION TO COMPLYING WITH 150.0(K)1A, LUMINAIRES RECESSED INTO CEILINGS SHALL MEET ALL OF THE FOLLOWING REQUIREMENTS: **A.** BE LISTED, AS DEFINED IN SECTION 100.1, FOR ZERO CLEARANCE INSULATION CONTACT (IC) BY UNDERWRITERS LABORATORIES OR OTHER NATIONALLY RECOGNIZED TESTING/RATING LABORATORIES; AND **B.** HAVE A LABEL THAT CERTIFIES THAT THE LUMINAIRE IS AIRTIGHT WITH AIR LEAKAGE LESS THAN 2.0 CFM AT 75 PASCALS WHEN TESTED IN ACCORDANCE WITH **ASTM E283**; AN EXHAUST FAN HOUSING SHALL NOT BE REQUIRED TO BE CERTIFIED AIRTIGHT; AND **C.** BE SEALED WITH A GASKET OR CAULK BETWEEN THE LUMINAIRE HOUSING AND CEILING, AND HAVE ALL AIR LEAK PATHS BETWEEN CONDITIONED AND UNCONDITIONED SPACES SEALED WITH A GASKET OR CAULK; AND **D.** FOR LUMINAIRES WITH HARDWIRED BALLASTS OR DRIVERS, ALLOW BALLAST MAINTENANCE AND REPLACEMENT TO BE READILY ACCESSIBLE TO BUILDING OCCUPANTS FROM BELOW THE CEILING WITHOUT REQUIRING THE CUTTING OF HOLES IN THE CEILING; AND **E.** SHALL NOT CONTAIN SCREW BASED SOCKETS. **C.E.C. 150.0 (k) 1 C**
- 3. SCREW BASED LUMINAIRES SHALL CONTAIN LAMPS THAT COMPLY WITH REFERENCE JOINT APPENDIX JA8. C.E.C. 150.0 (k) 1 G
- 4. EXHAUST FANS SHALL BE CONTROLLED SEPARATELY FROM THE LIGHTING SYSTEM, EXCEPT FOR AN EXHAUST FANS WITH AN INTEGRAL LIGHTING MAY BE ON THE SAME CONTROL AS THE FAN PROVIDED THE LIGHTING CAN BE TRUNED OFF IN ACCORDANCE WITH THE APPLICABLE PROVISIONS IN SECTION 150.0 (k)2 WHILE ALLOWING THE FAN TO CONTINUE TO OPERATE. C.E.C. 150 (k) 2 B
- 5. IN BATHROOMS, GARAGES, LAUNDRY ROOMS, AND UTILITY ROOMS, AT LEAST ONE LUMINAIRE IN EACH OF THESE SPACES SHALL BE CONTROLLED BY AN OCCUPANT OR VACANCY SENSOR PROVIDING AUTOMATIC-OFF FUNCTIONALITY. IF AN OCCUPANT SENSOR IS INSTALLED, IT SHALL BE INITIALLY CONFICUTRE TO MAUAL-ON OPERATION USING THE NAMUAL CONTROL REQUIRED UNDER SECTION 10.0 (k)2C. C.E.C. 150 (k) 2 I
- 6. DIMMERS OR VACANCY SENSORS SHALL CONTROL ALL LUMINAIRES REQUIRED TO HAVE LIGHT SOURCES COMPLIANT WITH REFERENCED JOINT APPENDIX JA8 EXCEPT LUMINAIRES IN CLOSETS LESS THAN 70 SQUARE FEET AND LIGHTS IN HALLWAYS. C.E.C. 150 (k) 2 J
- CLOSET LIGHTING SHALL BE OF A TYPE PERMITTED BY C.E.C. 410.16 AND SHALL BE LOCATED SO AS TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION.
- 8. LUMINAIRES INSTALLED NEAR COMBUSTIBLES SHALL MEET THE REQUIREMENTS OF **C.E.C.** 410.11
- 9. LUMINAIRES INSTALLED IN WET OR DAMP LOCATIONS SHALL MEET THE REQUIREMENTS OF C.E.C. 410.10 (A)
- 10. IN ADDITION TO MEETING THE REQUIREMENTS OF C.E.C. 150.0(k)1A, LUMINAIRES PROVIDING RESIDENTIAL OUTDOOR LIGHTING FOR THIS PROJECT SHALL MEET THE FOLLOWING REQUIREMENTS, AS APPLICABLE: FOR SINGLE-FAMILY RESIDENTIAL BUILDINGS, OUTDOOR LIGHTING PERMANENTLY MOUNTED TO A RESIDENTIAL BUILDING OR TO OTHER BUILDINGS ON THE SAME LOT SHALL BE CONTROLLED BY A MANUAL ON/OFF SWITCH THAT DOES NOT OVERRIDE TO ON THE AUTOMATIC ACTIONS OF THE REQUIRED PHOTOCELL AND MOTION SENSOR UNLESS THE OVERIDE AUTOMATICALLY REACTIVATES THE MOTION SENSOR WITHIN 6 HOURS. ALL EXTERIOR LIGHTS DESCRIBED ABOVE WILL BE CONTROLLED BY A PHOTOCELL AND MOTION SENSOR OR BY OTHER MEANS APROVED IN C.E.C. 150 (k) 3
- 11. LUMINAIRES AND LAMP HOLDERS SHALL BE SECURELY SUPPORTED. A LUMINAIRE THAT WEIGHS MORE THAN 6 LB OR EXCEEDS 16 IN. IN ANY DIMENSION SHALL NOT BE SUPPORTED BY THE SCREW SHELL OF A LAMP HOLDER. **C.E.C. 410.30 (A)**

SMOKE ALARMS

- 1. SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 217. COMBINATION SMOKE AND CARBON MONOXIDE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 217 AND UL 2034. THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THE C.R.C. AND NFPA 72. SYSTEMS AND COMPONENTS SHALL BE CALIFORNIA STATE FIRE MARSHAL LISTED AND APPROVED IN ACCORDANCE WITH CALIFORNIA CODE OF REGULATIONS, TITLE 19, DIVISION 1 FOR THE PURPOSE FOR WHICH THEY ARE INSTALLED. C.R.C. 314.1
- 2. 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. INTERCONNECTION IS NOT REQUIRED IN BUILDINGS THATARE NOT UNDERGOING ALTERATIONS. REPAIRS OR CONSTRUCTION OF ANY KIND. SMOKE ALARMS IN EXISTING AREAS ARE NOT REQUIRED TO BE INTERCONNECTED WHERE ALTERATIONS OR REPAIRS DO NOT RESULT IN THE REMOVAL OF INTERIOR WALL OR CEILING FINISHES EXPOSING THE STRUCTURE, UNLESS THERE IS AN ATTIC. CRAWL SPACE OR BASEMENT AVAILABLE WHICH COULD PROVIDE ACCESS FOR INTERCONNECTION WITHOUT THE REMOVAL OF INTERIOR FINISHES. SMOKE ALARMS ARE NOT REQUIRED TO BE INTERCONNECTED WHERE REPAIRS OR ALTERATIONS ARE LIMITED TO THE EXTERIOR SURFACES OF DWELLINGS. SUCH AS THE REPLACEMENT OF ROOFING OR SIDING, OR THE ADDITION OR REPLACEMENT OF WINDOWS OR DOORS. OR THE ADDITION OF A PORCH OR DECK. SMOKE ALARMS ARE NOT REQUIRED. TO BE INTERCONNECTED WHEN WORK IS LIMITED TO THE INSTALLATION, ALTERATION OR REPAIRS OF PLUMBING OR MECHANICAL SYSTEMS OR THE INSTALLATION, ALTERATION OR REPAIR OF ELECTRICAL SYSTEMS WHICH DO NOT RESULT IN THE REMOVAL OF INTERIOR WALL OR CEILING FINISHES EXPOSING THE STRUCTURE. R. 314.6

3. SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. SMOKE ALARMS WITH INTEGRAL STROBES THAT ARE NOT EQUIPPED WITH BATTERY BACKUP SHALL BE CONNECTED TO AN EMERGENCY ELECTRICAL SYSTEM. SMOKE ALARMS SHALL EMIT A SIGNAL WHEN THE BATTERIES ARE LOW. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN AS REQUIRED FOR OVERCURRENT PROTECTION. SMOKE ALARMS ARE PERMITTED TO BE SOLELY BATTERY OPERATED IN EXISTING BUILDINGS WHERE NO CONSTRUCTION IS TAKING PLACE. SMOKE ALARMS ARE PERMITTED TO BE SOLELY BATTERY OPERATED IN BUILDINGS THAT ARE NOT SERVED FROM A COMMERCIAL POWER SOURCE. SMOKE ALARMS ARE PERMITTED TO BE SOLELY BATTERY OPERATED IN EXISTING AREAS OF BUILDINGS UNDERGOING ALTERATIONS OR REPAIRS THAT DO NOT RESULT IN THE REMOVAL OF INTERIOR WALLS OR CEILING FINISHES EXPOSING THE STRUCTURE. UNLESS THERE IS AN ATTIC, CRAWL SPACE OR BASEMENT AVAILABLE WHICH COULD PROVIDE ACCESS FOR BUILDING WIRING WITHOUT THE REMOVAL OF INTERIOR FINISHES. SMOKE ALARMS ARE PERMITTED TO BE SOLELY BATTERY OPERATED WHERE REPAIRS OR ALTERATIONS ARE LIMITED TO THE EXTERIOR SURFACES OF DWELLINGS. SUCH AS THE REPLACEMENT OF ROOFING OR SIDING, OR THE ADDITION OR REPLACEMENT OF WINDOWS OR DOORS, OR THE ADDITION OF A PORCH OR DECK. SMOKE ALARMS ARE PERMITTED TO BE SOLELY BATTERY OPERATED WHEN WORK IS LIMITED TO THE INSTALLATION, ALTERATION OR REPAIRS OF PLUMBING OR MECHANICAL SYSTEMS OR THE INSTALLATION. ALTERATION OR REPAIR OF ELECTRICAL SYSTEMS WHICH DO NOT RESULT IN THE REMOVAL OF INTERIOR WALL OR CEILING FINISHES EXPOSING THE STRUCTURE. R.

CARBON MONOXIDE ALARMS

- 1. CARBON MONOXIDE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 2034.
 COMBINATION SMOKE AND CARBON MONOXIDE ALARMS SHALL BE LISTED IN ACCORDANCE
 WITH UL 217 AND UL 2034. CARBON MONOXIDE DETECTORS SHALL BE LISTED AS
 COMPLYING WITH THE REQUIREMENTS OF NFPA 720 AND UL 2075. COMBINATION SMOKE
 DETECTORS AND CARBON MONOXIDE DETECTORS SHALL COMPLY WITH UL 2075 AND UL
 268. CARBON MONOXIDE ALARMS AND CARBON MONOXIDE DETECTORS AS WELL AS
 COMBINATION ALARMS OR DETECTORS MAY BE USED IN LIEU OF ONE ANOTHER C.R.C 315
- CARBON MONOXIDE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING WHERE SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND, WHERE PRIMARY POWER IS INTERRUPTED. SHALL RECEIVE POWER FROM A BATTERY, WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION. CARBON MONOXIDE ALARMS SHALL BE PERMITTED TO BE BATTERY OPERATED WHERE INSTALLED IN BUILDINGS WITHOUT COMMERCIAL POWER. CARBON MONOXIDE ALARMS INSTALLED IN ACCORDANCE WITH SECTION R315.2.2 SHALL BE PERMITTED TO BE BATTERY POWERED. CARBON MONOXIDE ALARMS IN GROUP R OCCUPANCIES SHALL BE PERMITTED TO RECEIVE THEIR PRIMARY POWER FROM OTHER POWER SOURCES RECOGNIZED FOR USE BY NFPA 720. ARBON MONOXIDE ALARMS IN GROUP R OCCUPANCIES SHALL BE PERMITTED TO BE BATTERY-POWERED OR PLUG-IN WITH A BATTERY BACKUP IN EXISTING BUILDINGS BUILT PRIOR TO JANUARY 1, 2011, UNDER ANY OF THE FOLLOWING CONDITIONS: NO CONSTRUCTION IS TAKING PLACE. REPAIRS OR ALTERATIONS DO NOT RESULT IN THE REMOVAL OF INTERIOR WALLAND CEILING FINISHES EXPOSING THE STRUCTURE IN AREAS/SPACES WHERE CARBON MONOXIDE ALARMS ARE REQUIRED. REPAIRS OR ALTERATIONS ARE LIMITED TO THE EXTERIOR SURFACES OF DWELLINGS, SUCH AS THE REPLACEMENT OF ROOFING OR SIDING. OR THE ADDITION OR REPLACEMENT OF WINDOWS OR DOORS, OR THE ADDITION OF A PORCH OR DECK. WORK IS LIMITED TO THE INSTALLATION, ALTERATION OR REPAIR OF PLUMBING. MECHANICAL OR ELECTRICAL SYSTEMS, WHICH DO NOT RESULT IN THE REMOVAL OF INTERIOR WALL OR CEILING FINISHES EXPOSING THE STRUCTURE IN AREAS/SPACES WHERE CARBON MONOXIDE ALARMS ARE REQUIRED. C.R.C. 315.5
- WHERE MORE THAN ONE CARBON MONOXIDE ALARM IS REQUIRED TO BE INSTALLED WITHIN A DWELLING UNIT OR WITHIN A SLEEPING UNIT IN GROUP R OCCUPANCIES, THE ALARMS SHALL BE INTERCONNECTED IN A MANNER THAT ACTIVATION OF ONE ALARM SHALL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. INTERCONNECTION IS NOT REQUIRED IN EXISTING BUILDINGS BUILT PRIOR TO JANUARY 1, 2011, UNDER ANY OF THE FOLLOWING CONDITIONS: PHYSICAL INTERCONNECTION IS NOT REQUIRED WHERE LISTED WIRELESS ALARMS ARE INSTALLED AND ALL ALARMS SOUND UPON ACTIVATION OF ONE ALARM. NO CONSTRUCTION IS TAKING PLACE. REPAIRS OR ALTERATIONS DO NOT RESULT IN THE REMOVAL OF INTERIOR WALL AND CEILING FINISHES EXPOSING THE STRUCTURE IN AREAS/SPACES WHERE CARBON MONOXIDE ALARMS ARE REQUIRED. REPAIRS OR ALTERATIONS ARE LIMITED TO THE EXTERIOR SURFACES OF DWELLINGS. SUCH AS THE REPLACEMENT OF ROOFING OR SIDING, OR THE ADDITION OR REPLACEMENT OF WINDOWS OR DOORS, OR THE ADDITION OF A PORCH OR DECK. WORK IS LIMITED TO THE INSTALLATION. ALTERATION OR REPAIR OF PLUMBING, MECHANICAL, OR ELECTRICAL SYSTEMS, WHICH DO NOT RESULT IN THE REMOVAL OF INTERIOR WALL OR CEILING FINISHES EXPOSING THE STRUCTURE IN AREAS/SPACES WHERE CARBON MONOXIDE ALARMS ARE REQUIRED. C.R.C. 315.7

ELECTRICAL LEGEND

GENERAL LIGHTING

EXHAUST FAN

ELECTRICAL LEGEND	
SWITCH	
DIMMER	DM
MANUAL ON OCCUPANT SENSOR	occ
MANUAL ON/MOTION SENSOR/PHOTO SENSOR FOR OUTDOOR LIGHTING	PS
3 WAY SWITCH	3
TAMPER RESISTANT DUPLEX RECPETACLE	\bigcirc
ARC FAULT CIRCUIT INTERUPTER	AFCI
GROUND FAULT CIRCUIT INTERUPTER	GFCI
GROUND FAULT CIRCUIT INTERUPTER WITH ALL WEATHER USE COVER PER C.E.C.406.8	WP GFCI
220 OUTLET FOR RANGE	220
OUTLET FOR RANGE HOOD EXHAUST FAN	HOOD
OUTLET FOR DISHWASHER	DW
SWITCHED OUTLET FOR GARBAGE DISPOSAL	GD
OUTLET FOR REFRIGERATOR	FRIDGE
OUTLET FOR STACKED OR ALL IN ONE WASHER/DRYER	WASH/DRY

RECESSED LIGHTING -R

WALL SCONCE	—ws
UNDERCABINET LIGHTING	

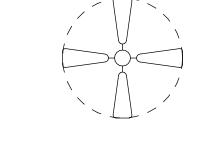
LED SHOP LIGHT

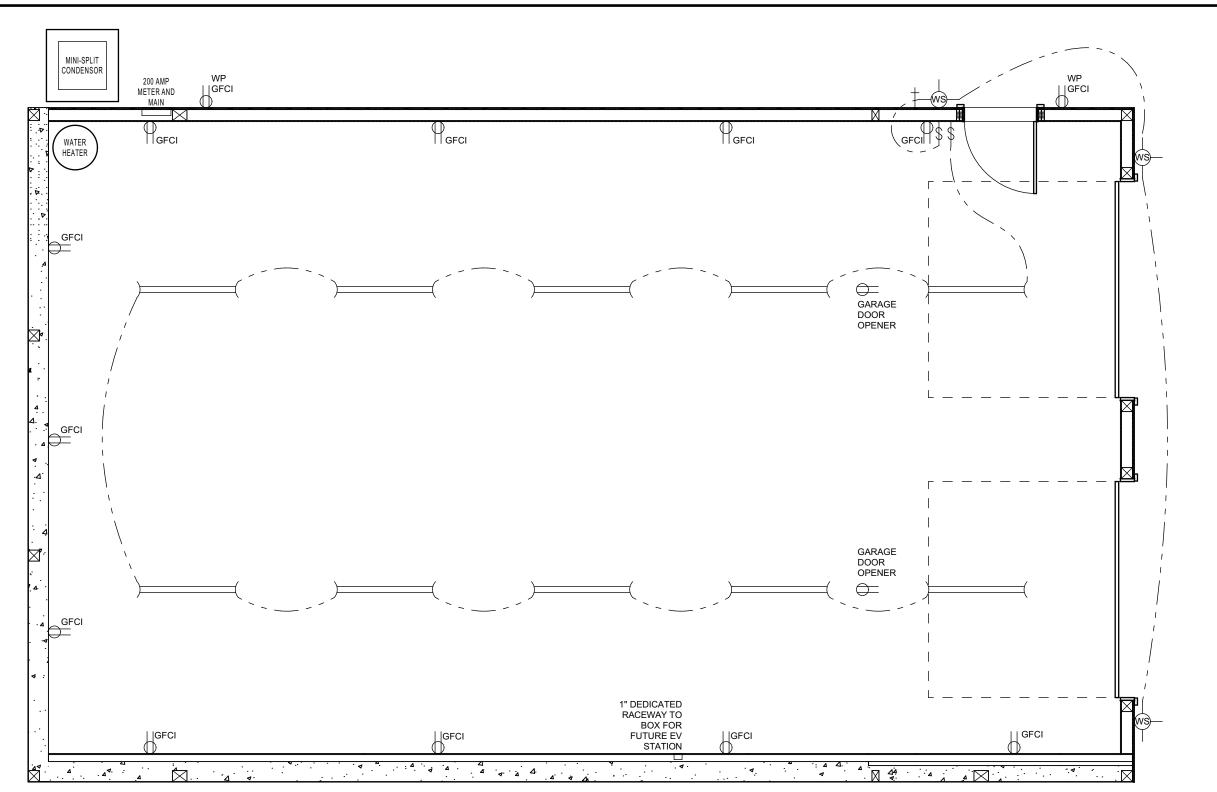
SMOKE ALARM/CARBON MONOXIDE
ALARM COMBINATION

SMOKE ALARM ONLY

SMOKE ALARM ONLY

CEILING FAN AND LIGHT COMBINATION



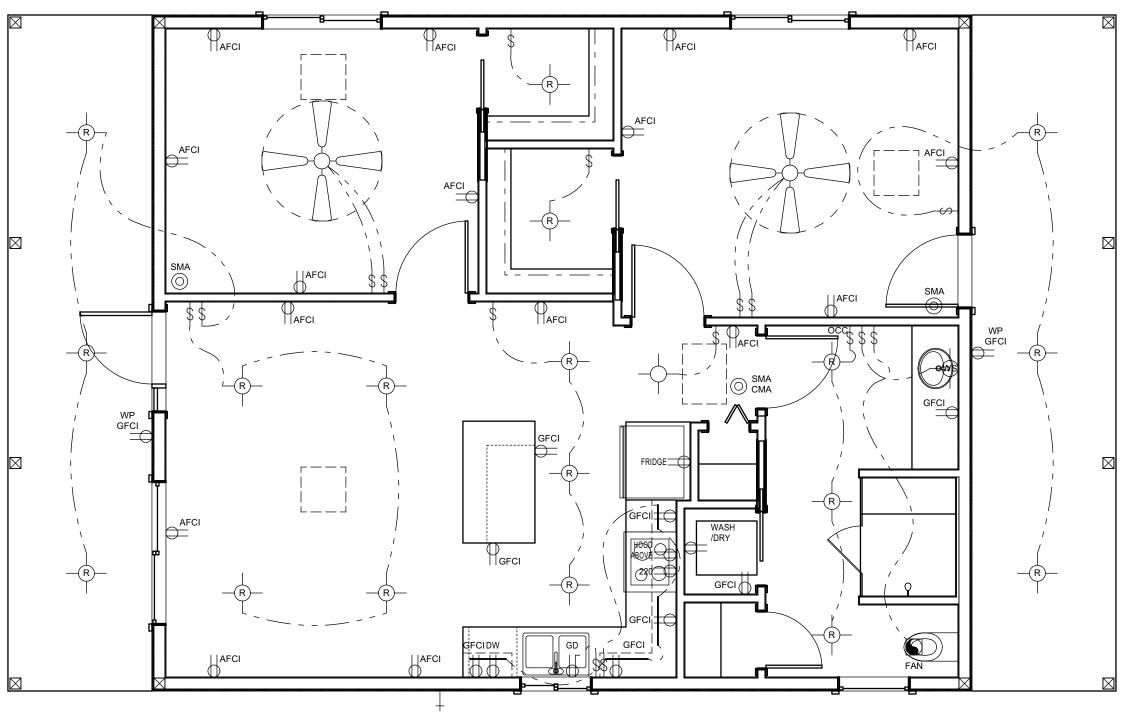


GARAGE ELECTRICAL PLAN

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

NOTE:

AN AUTOMATIC GARAGE DOOR OPENER THAT IS INSTALLED IN A RESIDENCE SHALL HAVE A
BATTERY BACKUP FUNCTION THAT IS DESIGNED TO OPERATE WHEN ACTIVATED BECAUSE OF
AN ELECTRICAL OUTAGE. SENATE BILL 969



2 DWELLING ELECTRICAL PLAN

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



CF1R-PRF-01E



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RESIDENTIAL COMMERCIAL ENERGY ENGINEERING

Jeron Chamberlain Chamberlain Design Service 7013 Cloverleaf Way Citrus Heights, CA 95621

May 13, 2022

Re: Harper ADU

Your project is complete and complies with the following Title 24 requirements for the new work: (in addition to all the required Mandatory Measures as applicable to your project):

Floor insulation -R-19 R-21 (2x6 framing) Wall insulation -

Attic Insulation -R-38 above ceiling Radiant Barrier -Cool Roof Required -

U-0.28, SHGC-0.18 Window Values -Water Heater -50-Gallon heat pump type (based on Rheem XE50T10H45U0)

HVAC (Mini-Split) -8.2 HSPF / 14.0 SEER Duct Insulation -None (Ductless)

IAQ Exhaust Fan Required YES (51 CFM min) Whole House Fan Required NO

2.35 kWdc (based on CFI defaults and 98% solar access) PV Solar System -Solar designer responsible that installed system meets compliance

HERS Field Verifications <u>Required</u> Duct Seal and Leakage -YES Proper Refrigerant Charge -SEER/EER Verification -Cooling Coil Air Flow (350 CFM/Ton) NO Cooling Fan Power (0.45 W/CFM) - NO IAQ Fan CFM -YES YES Kitchen Hood (HVI listed) -Quality Insulation Installation -Heat Pump Heating Capacity -YES HSPF Verification -NO NO Whole House Airflow -YES VCHP Verifications -

Please verify the above features before submitting to the building department. If you have any questions regarding this analysis, please call (916) 373-1383.

Sincerely,

Melinda Wollny

TITLE 24 - CAD - LOAD CALCULATIONS - HVAC DESIGN

ASHRAE STANDARD 62.2, CEEC MF-1R measure 150(o) **Local Ventilation** Rate Summary Bathroom Fan Flow 50 (cfm) min. (# of Bathrooms _____1_) 80 CFM **Kitchen Fan** Flow **100 (cfm) min.** (# of Kitchens 1)100 CFM Use the Fan Flow rate from this summary for selection of the local ventilation fan duct length design for the local ventilation system from Table 7.1 Bathroom Duct size (in) = 5 Kitchen Duct size (in) = 6 Maximum allowable Duct Length (ft) = $\frac{70}{}$ Maximum allowable Duct Length (ft) = 85

Sound Rating and Continuous Operation

The whole building ventilation exhaust fan will operate continuously and is required to be rated for sound at a **maximum of 1 sone**. This exhaust fan can be controlled by a standard on/off switch but the **switch must be labeled** to inform the occupant that the exhaust fan is the whole building ventilation exhaust fan and is intended to operate continuously. The wording needs to make clear what the control is for and the importance of operating the system. This may be as simple as "Ventilation Control" or might include wording such as; "Operate when the house is in use" or "fan is on for indoor air quality" Majority of local exhaust fans (bathrooms & kitchen) will operate intermittently and are required to be rated at max. 3 sones.

Table 7.1 Pr	escriptive	e Duct Sizin	g Requiren	nents				
Duct Type		Fl	ex Duct			Smooth	Duct	
Fan Rating*	50	80	100	125	50	80	100	125
	Maxim	um Allowal	ble Duct Le	ngth (ft)				
Diameter in.		Flex	C Duct			Smoot	h Duct	
4	70	3	Χ	Х	105	35	5	Х
5	NL	70	35	20	NL	135	85	55
6	NL	NL	125	95	NL	NL	NL	145
7 and above	have no	length limi	itation, 3 in	ich is only a	Illowed in s	mooth duc	t 50 cfm 5 f	ft. length
This table ass	sumes no	elbows. Ded	luct 15 ft of	allowable di	uct length fo	r each turn,	elbow or fit	ting
*cfm @ 0.25	5 in. w.g.		NL = no li	mit on duc	t length thi	s size.		
X = not allo	wed, any	duct of thi	s size will e	exceed the i	rated press	ure drop.		

CF1R-PRF-01E **CERTIFICATE OF COMPLIANCE** Calculation Date/Time: 2022-05-21T15:11:20-07:00 Project Name: Harper ADU (Page 1 of 10) Calculation Description: Title 24 Analysis

Input File Name: Chamberlain_JERON_Harper_Ductless_ADU.ribd19x

GENER	RAL INFORMATION				
01	Project N				
02	Run				
03	Project Loc				
04			05	Standards Version	2019
06	Zip		07	Software Version	CBECC-Res 2019.2.0
08	Climate Zone	12	09	Front Orientation (deg/ Cardinal)	204
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 (f <mark>t²)</mark>	0	15	Number of Stories	1
16	Existing Cond. Floor Area <mark>(ft²)</mark>	n/a	17	Fenestration Average U-factor	0.28
18	Total Cond. Floor Area (ft ²)	952	19	Glazing Percentage (%)	13.76%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Is Natural Gas A <mark>va</mark> ilable?	Yes	K		

		iotal Cond. Floor Area (it)	15 Chairing Forecasting (76)
20		ADU Bedroom Count	n/a ADU Conditioned Floor Area n/a
22		Is Natural Gas A <mark>va</mark> ilable?	Yes
			d Calcello, IIIC.
COMPL	IANCE RES	SULTS	HERS PROVIDER
	01	Building Complies with Computer	Performance
	02	This building incorporates features	s 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 r	more Special Features shown below

Registration Date/Time: **HERS Provider:** 222-P010100804A-000-000-0000000-0000 2022-05-21 15:22:32 CalCERTS inc. CA Building Energy Efficiency Standards - 2019 Residential Compliance Report Version: 2019.2.000 Report Generated: 2022-05-21 15:11:59 Schema Version: rev 20200901

CERTIFICATE OF COMPLIANCE Project Name: Harper ADU Calculation Description: Title 24 Analysis

Calculation Date/Time: 2022-05-21T15:11:20-07:00 (Page 2 of 10) Input File Name: Chamberlain_JERON_Harper_Ductless_ADU.ribd19x

ENERGY DESIGN RATING

	Energy Des	ign Ratings	Complianc	e Margins
	Efficiency¹ (EDR)	Total² (EDR)	Efficiency¹ (EDR)	Total² (EDR)
Standard Design	55.9	30.8		
Proposed Design	55.6	30.6	0.3	0.2
	RESULT: 3:	COMPLIES		

: Efficiency EDR includes improvements to the building envelope and more efficient equipment : Total EDR includes efficiency and demand respo<mark>n</mark>se 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: 2.35 kWdc PV System resized to 2.35 kWdc (a factor of 2.353) to achieve 'Standard Design PV' PV scaling

	ENERGY U	SE SUMMARY	_	
Energy Use (kTDV/ft ² -yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	18.14	21.42	-3.28	-18.1
Space Cooling	38.87	39.9	-1.03	-2.6
IAQ Ventilation	4.47	4.47	0	0
Water Heating	25.63	20.59	5.04	19.7
Self Utilization/Flexibility Credit	n/a	0	0	n/a
Compliance Energy Total	87.11	86.38	0.73	0.8

REQUIRED PV SYSTEMS - SIMPLIFIED DC System Size Azimuth Tilt Array Angle Tilt: (x in Inverter Eff. Exception **Module Type** Array Type **Power Electronics** (deg) (deg) 12) (%) 2.35 Standard Fixed 150-270 n/a <=7:12 none

Registration Number: Registration Date/Time: **HERS Provider:** 222-P010100804A-000-000-0000000-0000 2022-05-21 15:22:32 CalCERTS inc. CA Building Energy Efficiency Standards - 2019 Residential Compliance Report Version: 2019.2.000 Report Generated: 2022-05-21 15:11:59 Schema Version: rev 20200901

CERTIFICATE OF COMPLIANCE CF1R-PRF-01E Calculation Date/Time: 2022-05-21T15:11:20-07:00 Project Name: Harper ADU (Page 3 of 10) Input File Name: Chamberlain_JERON_Harper_Ductless_ADU.ribd19x Calculation Description: Title 24 Analysis

REQUIRED SPECIAL FEATURES

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

Variable capacity heat pump compliance option (verification details from VCHP Staff report, Appendix B, and RA3)

Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed

HERS FEATURE SUMMARY

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

Building-level Verifications:

Indoor air quality ventilation Kitchen range hood

Cooling System Verifications: Verified Refrigerant Charge

Airflow in habitable rooms (SC3.1.4.1.7)

eating System Verifications:

Verified heat pump rated heating capacity Wall-mounted thermostat in zones greater than 150 ft2 (SC3.4.5)

Ductless indoor units located entirely in conditioned space (SC3.1.4.1.8) **HVAC Distribution System Verifications:**

-- None --Domestic Hot Water System Verifications:

ADU

-- None --

BUILDING - FEATURES INFORMATION 03 06 07 01 Number of Ventilation Number of Water Number of Dwelling Number of Bedrooms **Number of Zones Project Name Cooling Systems** Heating Systems Harper ADU 952

952

ZONE INFORMATION Zone Type **HVAC System Name** Avg. Ceiling Height Zone Name Zone Floor Area (ft²)

Mini-Split1

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Conditioned

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Water Heating System 2

N/A

Water Heating System 1

DHW Sys 1

CERTIFICATE OF COMPLIANCE **Project Name:** Harper ADU Calculation Description: Title 24 Analysis

CF1R-PRF-01E Calculation Date/Time: 2022-05-21T15:11:20-07:00 (Page 4 of 10) Input File Name: Chamberlain_JERON_Harper_Ductless_ADU.ribd19x

OPAQUE SURFACES 05 06 07 08 01 Window and Door Construction Azimuth Orientation Gross Area (ft²) Tilt (deg) Area (ft2) Front R-21 Wall 204 Front 252 90 Left ADU R-21 Wall 294 Left 306 90 40 Back R-21 Wall Back 252 90 ADU 24 20 90 R-21 Wall 114 Right Right 306 Attic ADU R-38 Roof Attic n/a n/a 952 n/a n/a Raised Floor R-19 Floor No Crawlspace n/a n/a 952 n/a n/a Front 2 204 90 6 Concrete Wall Front 280 Garage Left 2 __Garage_ R-0 Wall 294 Left 460 0 90 Back 2 R-0 Wall Back 144 90 __Garage__ Garage_ 114 Right Right 2 6 Concrete Wall 0 90

ATTIC		7 60		110,	1110.		
01	02	03	R S 04 P	R 05 V	D E06 R	07	08
Name	Construction	Туре	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic ADU	Attic RoofADU	Ventilated	5	0.1	0.85	No	No

FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Туре	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft ²)	U-factor	U-factor Source	SHGC	SHGC Sourc e	Exterior Shading
1NFG1 FD	Window	Front	Front	204	3	6.66	1	20	0.28	NFRC	0.18	NFRC	Bug Screen
1NFG2	Window	Front	Front	204	6	5	1	30	0.28	NFRC	0.18	NFRC	Bug Screen
1NLG1	Window	Left	Left	294	5	4	1	20	0.28	NFRC	0.18	NFRC	Bug Screen
1NLG2	Window	Left	Left	294	5	4	1	20	0.28	NFRC	0.18	NFRC	Bug Screen
1NBG1 FD	Window	Back	Back	24	3	6.66	1	20	0.28	NFRC	0.18	NFRC	Bug Screen

222-P010100804A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-05-21 15:22:32 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-05-21 15:11:59



CF1R-PRF-01E

CERTIFICATE OF COMPLIANCE CF1R-PRF-01E Project Name: Harper ADU Calculation Date/Time: 2022-05-21T15:11:20-07:00 (Page 5 of 10) Input File Name: Chamberlain_JERON_Harper_Ductless_ADU.ribd19x Calculation Description: Title 24 Analysis

FENESTRATION / GLAZING 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | Width Height (ft) Height Mult. Area (ft²) **U-factor** Surface Orientation Azimuth U-factor Source Shading 1NRG1 Window Right 3 | 3.5 | 1 | 10.5 | 0.28 | NFRC | 0.18 | NFRC | Bug Screen Window Right 3 | 3.5 | 1 | 10.5 | 0.28 | NFRC 0.18 NFRC Bug Screen 1NRG2 Right

OPAQUE DOORS 02 03 04 Side of Building **U-factor** Name Area (ft²) Gar Door1 Back 2 72

Back 2

OVERHANGS AND FINS 02 03 04 05 06 07 08 09 10 11 12 13 14 Left Fin Window Dist L Dist R 1NFG1 FD 1NFG2 1NLG1 1NLG2 1NBG1 FD 1NRG1 1NRG2

222-P010100804A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

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CERTIFICATE OF COMPLIANCE Project Name: Harper ADU Calculation Description: Title 24 Analysis

Calculation Date/Time: 2022-05-21T15:11:20-07:00 (Page 6 of 10) **Input File Name:** Chamberlain_JERON_Harper_Ductless_ADU.ribd19x

SLAB FLOORS Edge Insul. R-value Edge Insul. R-value Name Perimeter (ft) **Carpeted Fraction** Heated Area (ft²) and Depth and Depth 1288 148 Slab-on-Grade __Garage__

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
6 Concrete Wall	Exterior Walls	Concrete / ICF / Brick	None	n/a	None / None	0.505	Inside Finish: Gypsum Board Mass Layer: 6 in. Concrete Exterior Finish: 3 Coat Stucco
R-0 Wall	Exterior W <mark>alls</mark>	Wood Framed Wall	2x6 @ 16 in. O. C.	R-0	None / None	0.347	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x6 Exterior Finish: 3 Coat Stucco
R-21 Wall	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
Attic RoofADU	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shin Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
R-38 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-38	None / None	0.025	Over Ceiling Joists: R-28.9 insu Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board

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Registration Date/Time: 2022-05-21 15:22:32 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-05-21 15:11:59

CF1R-PRF-01E

CERTIFICATE OF COMPLIANCE Project Name: Harper ADU

Calculation Description: Title 24 Analysis

OPAQUE SURFACE CONSTRUCTIONS

Calculation Date/Time: 2022-05-21T15:11:20-07:00

(Page 7 of 10) Input File Name: Chamberlain JERON Harper Ductless ADU.ribd19x

Interior / Exterior Assembly Layers **Construction Name** Surface Type **Construction Type** Continuous U-factor R-value R-value Floor Surface: Carpeted Floor Deck: Wood R-19 Floor No Wood Framed Floor 2x12 @ 16 in. O. C. R-19 None / None Siding/sheathing/decking Interior Floors Crawlspace Cavity / Frame: R-19 / 2x12 Ceiling Below Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION 02 04 High R-value Spray Foam Insulation **Building Envelope Air Leakage** Quality Insulation Installation (QII) CFM50 Not Required n/a Not Required Not Required

WATER HEATING SYSTEMS System Type Distribution Type Water Heater Name (#) **Solar Heating System** Compact Distribution **HERS Verification Domestic Hot Water** Standard Distribution DHW Sys 1 DHW Heater 1 (1) n/a

WATER HEATERS Insulation Input Rating Tank Location or or Recovery or Flow Rate Brand or Model Vol. Factor or or Pilot R-value Ambient Condition Efficiency Eff (Int/Ext) Rheem\XE50T10H4 <= 12 kW 50 NEEA Rated n/a n/a DHW Heater 1 Heat Pump 5U0 (50 gal)

222-P010100804A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-05-21 15:22:32 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-05-21 15:11:59

CERTIFICATE OF COMPLIANCE Project Name: Harper ADU

Gar Door2

CF1R-PRF-01E Calculation Date/Time: 2022-05-21T15:11:20-07:00 (Page 8 of 10) Calculation Description: Title 24 Analysis **Input File Name:** Chamberlain_JERON_Harper_Ductless_ADU.ribd19x

WATER HEATING - HERS VERIFICATION 08 ompact Distribution Central DHW **Shower Drain Water Parallel Piping Compact Distributio Recirculation Control** Name Pipe Insulation Distribution Heat Recovery DHW Sys 1 - 1/1 Not Required Not Required Not Required None Not Required Not Required Not Required

SPACE CONDITIONING SYSTEMS 10 09 01 Heating Unit | Cooling Unit Name System Type Fan Name Thermostat Status Existing Equipment Equipment Name Name Name Type Condition Count Heat Pump Heat Pump New Mini-Split1 Heat pump heating cooling n/a n/a Setback System 1

01 11 HVAC - HEAT PUMPS Heating Cooling **HERS Verification** HSPF/COP Cap 47 Cap 17 SEER EER/CEER Heat Pump System Single Heat Pump System 1 VCHP-ductless 8.2 12000 7800 14 11.7 Not Zonal 1-hers-htpump

HVAC HEAT PUMPS - HERS VERIFICATION 01 02 04 05 06 08 09 **Verified Refrigerant Verified Heating** Verified Heating Verified EER Verified SEER **Verified HSPF** Verified Airflow Airflow Target Name Charge Cap 47 Cap 17 **Heat Pump System** Not Required Not Required Not Required 1-hers-htpump

Registration Number 222-P010100804A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-05-21 15:22:32 Report Version: 2019.2.000 Schema Version: rev 20200901

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CERTIFICATE OF COMPLIANCE Project Name: Harper ADU Calculation Description: Title 24 Analysis

Registration Number:

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CA Building Energy Efficiency Standards - 2019 Residential Compliance

CF1R-PRF-01E Calculation Date/Time: 2022-05-21T15:11:20-07:00 (Page 9 of 10) Input File Name: Chamberlain JERON Harper Ductless ADU.ribd19x

HERS Provider:

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VARIABLE CAPACITY HEAT PUMP COMPLIANCE OPTION - HERS VERIFICATION Low Leakage Minimum Certified Airflow to Air Filter Sizing Certified Indoor Fan not **Ductless Units** Wall Mount Ducts in Airflow per Low-Static Habitable in Conditioned & Pressure non-continuous Running RA3.3 and Thermostat Conditioned VCHP System Space **Drop Rating** Continuously SC3.3.3.4.1 Space Heat Pump System 1 Not required Required Required Required Not required Not required Not required Not required

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	50	0.35	Exhaust	n/a	n/a	Yes	

Registration Date/Time:

Report Version: 2019.2.000

Schema Version: rev 20200901

2022-05-21 15:22:32



CERTIFICATE OF COMPLIANCE Project Name: Harper ADU

Calculation Description: Title 24 Analysis

CF1R-PRF-01E (Page 10 of 10) Calculation Date/Time: 2022-05-21T15:11:20-07:00 **Input File Name:** Chamberlain_JERON_Harper_Ductless_ADU.ribd19x

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

LESTONSIDE LEUSON S DECTUVATION STATEINEINT

rtify 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.

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

Registration Number: 222-P010100804A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-05-21 15:22:32 Report Version: 2019.2.000 Schema Version: rev 20200901

at CalCERTS.com CalCERTS inc. Report Generated: 2022-05-21 15:11:59

HERS Provider:

Easy to Verify

Total sheet count VE28

SCOPE OF WORK

TO INSTALL A ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM AT THE OWNER RESIDENCE LOCATED AT 1219 FULTON AVE, SACRAMENTO, CA 95825, USA.

THE POWER GENERATED BY THE PV SYSTEM WILL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ELECTRICAL SERVICE EQUIPMENT.

THE PV SYSTEM DOES NOT INCLUDE STORAGE BATTERIES.

EQUIPMENT SUMMARY

9 Q CELLS Q.PEAK DUO BLK ML-G10+ (400W) MODULES

1 SOLAREDGE SE3800H-US [240V] INVERTER

9 SOLAREDGE POWER OPTIMIZER s440

GENERAL NOTES

- THESE CONSTRUCTION DOCUMENTS HAVE BEEN BASED ON FIELD INSPECTIONS AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS IN CONSTRUCTION DETAILS.
- ARCHITECT HAS NOT BEEN RETAINED TO SUPERVISE ANY CONSTRUCTION OR INSTALLATION OF ANY EQUIPMENT AT SITE.
- CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, TOOLS, OBTAINS ALL PERMITS, LICENSES AND PAY ALL REQUIRED FEES AND COMPLETE INSTALLATION.
- CONTRACTOR HAS THE FULL RESPONSIBILITY TO CHECK AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. ANY WORK STARTED BEFORE CONSULTATION AND ACCEPTANCE BY THE ENGINEER SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBJECT TO CORRECTION BY THEM WITHOUT ADDITIONAL COMPENSATION.
- DAMAGE CAUSED TO THE EXISTING STRUCTURE, PIPES, DUCTS, WINDOWS, WALL, FLOORS, ETC. SHALL BE REPAIRED TO THE ORIGINAL CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE PROPER INSTALLATION AND COMPLETION OF THE WORK WITH APPROVED MATERIALS.
- NO CHANGES ARE TO BE MADE WITHOUT THE CONSULTATION AND APPROVAL OF THE ARCHITECT.
- CONTRACTOR SHALL OBTAIN BULDING PERMIT. NO WORK TO START UNLESS BUILDING PERMIT IS PROPERLY DISPLAYED.
- ALL WORKMANSHIP AND MATERIALS SHALL BE OF FIRST QUALITY AND IN COMPLIANCE WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ALL PERTINENT AGENCIES.
- IT 1S ESSENTIAL THAT ALL WORK PROCEED WITH THE MAXIMUM COOPERATION OF ALL PARTIES AND WITH MINIMUM INTERFERENCE TO THE OCCUPANTS WITHIN THE BUILDING. THE OWNER'S DIRECTIONS IN THIS REGARD SHALL BE FULLY COMPLIED WITH.
- ALL EXPOSED PLUMBING, HVAC, ELECTRICAL DUCTWORK, PIPING AND CONDUITS ARE TO BE PAINTED BY GENERAL CONTRACTOR.
- THE CONTRACTOR SHALL PERFORM THE WORK IN STRICT CONFORMANCE WITH THE LOCAL LAWS, REGULATIONS AND THE NATIONAL ELECTRIC CODE
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS, APPROVALS, AFFIDAVITS, CERTIFICATIONS, ETC. AND PAY ALL FEES AS REQUIRED BY THE LOCAL AUTHORITIES.
- CONTRACTORS SHALL OBTAIN FIRE CERTIF. UPON COMPLETION OF WORK.

- ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
- ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.
- WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
- WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL
- WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
- ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
- MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURERS INSTRUCTION.
- MODULE SUPPORT RAIL SHALL BE BONDED TO THE MODULE

GOVERNING CODES

2019 CALIFORNIA ELECTRICAL CODE. 2019 CALIFORNIA RESIDENTIAL CODE.

2019 CALIFORNIA FIRE CODE 2019 CALIFORNIA BUILDING CODE

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE.

2019 CALIFORNIA ENERGY CODE. 2019 CALIFORNIA PLUMBING CODE

AHJ NAME: SACRAMENTO COUNTY

2019 CALIFORNIA MECHANICAL CODE.

WIRING AND CONDUIT NOTES

- ALL CONDUIT SIZES AND TYPES SHALL BE LISTED FOR ITS PURPOSE AND APPROVAL FOR THE SITE APPLICATIONS
- ALL PV CABLES AND HOMERUN WIRES BE #10AWG *USE-2, PV WIRE, OR PROPRIETARY SOLAR CABLING SPECIFIED BY MFR, OR EQUIVALENT; ROUTED TO SOURCE CIRCUIT COMBINER BOXES AS REQUIRED
- ALL PV DC CONDUCTORS IN CONDUIT EXPOSED TO SUNLIGHT SHALL BE DERATED ACCORDING TO AS PER LATEST NEC CODE.
- EXPOSED ROOF PV DC CONDUCTORS SHALL BE USE-2, 90°C RATED, WET AND UV RESISTANT, AND UL LISTED RATED FOR 600V, UV RATED SPIRAL WRAP SHALL BE USED TO PROTECT WIRE FROM SHARP EDGES
- PHASE AND NEUTRAL CONDUCTORS SHALL BE DUAL RATED THHN/THWN-2 INSULATED, 90°C RATED, WET AND UV RESISTANT, RATED FOR 1000V PER NEC 2017
- 4-WIRE DELTA CONNECTED SYSTEMS HAVE THE PHASE WITH THE HIGHER VOLTAGE TO GROUND MARKED ORANGE OR IDENTIFIED BY OTHER EFFECTIVE MEANS
- ALL SOURCE CIRCUITS SHALL HAVE INDIVIDUAL SOURCE CIRCUIT PROTECTION
- VOLTAGE DROP LIMITED TO 2%
- AC CONDUCTORS >4AWG COLOR CODED OR MARKED: PHASE A OR L1- BLACK, PHASE B OR L2- RED, PHASE C OR L3- BLUE, NEUTRAL- WHITE/GRAY

SYSTEM RATING	PHO
3.60 kWDC	CL/

3.80 kWAC

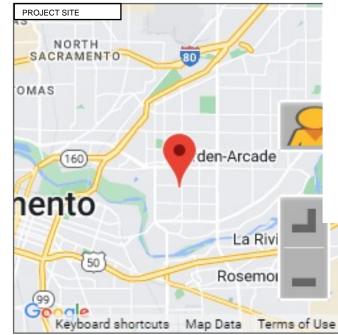
OTOVOLTAIC SYSTEM FIRE ASSIFICATION LISTING IN ACCORDANCE WITH UL 1703 STANDARD.

	SHEET INDEX
PV1	COVER PAGE
PV2	SITE PLAN
PV3	ROOF PLAN
PV4	STRING LAYOUT & BOM
PV5-PV6	ATTACHMENT DETAILS
PV7	ELECTRICAL LINE & CALCS.
PV8	SPECIFICATIONS & NOTES
PV9-PV10	SIGNAGE
PV11-PV15	FOUIPMENT SPECIFICATIONS



HOUSE PHOTO

SCALE



VICINITY MAP

COVER PAGE

SHEET NAME

RME INNOVATIONS

PH#: (916) 871-2992

SHEET SIZE **ANSI B** 11" X 17'

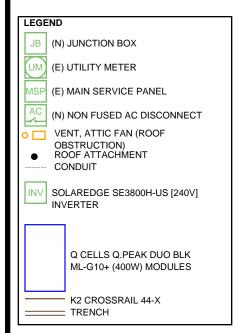
SCALE: NTS SOLANO COUNT

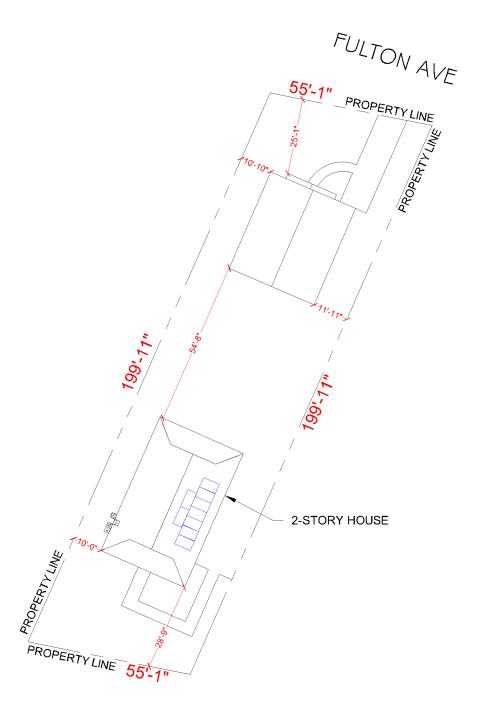
ROVEHEET NUMBER

ING DIVISPN__1

SITE NOTES

- A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
- THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS AN UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.
- THE SOLAR PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
- PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION [NEC 110.26]





RME INNOVATIONS PH# : (916) 871-2992

SHEET NAME SITE PLAN

SHEET SIZE

ANSI B 11" X 17"

SOLANO COUNTY RESC PROVERET NUMBER

BUILDING DIVISPV-2



DESIGN SPECIFICA	ATION
RISK CATEGORY:	II
CONSTRUCTION:	SFD
ZONING:	RESIDENTIAL
SNOW LOAD (ASCE7-16):	0 PSF
EXPOSURE CATEGORY:	В
WIND SPEED (ASCE7-16):	93 MPH

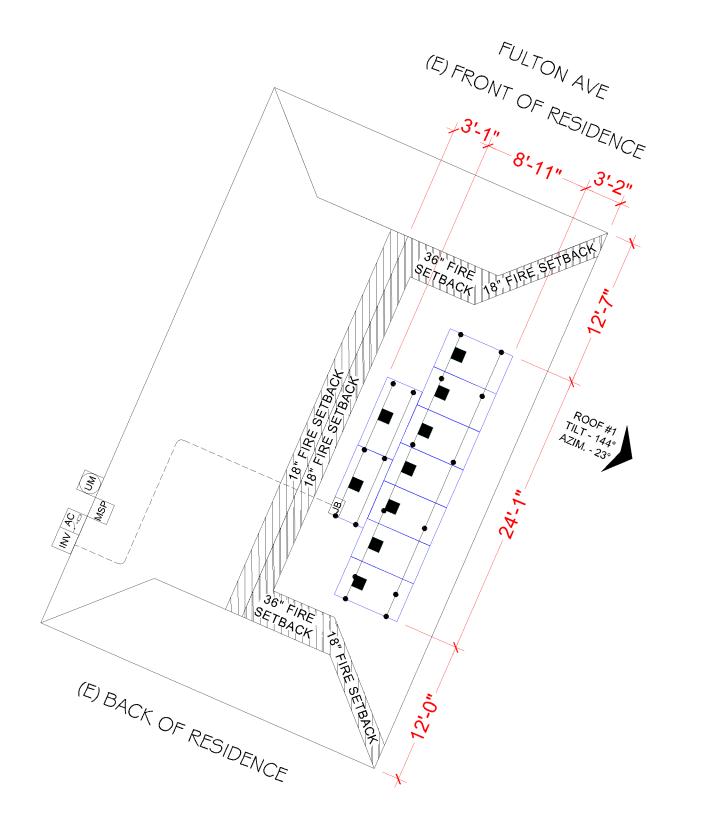
MODULE TYPE, DIMENSIONS & WEIGHT							
NUMBER OF MODULES:	9 MODULES						
MODULE TYPE:	Q CELLS Q.PEAK DUO BLK ML-G10+ (400W)						
MODULE WEIGHT:	48.5 LBS						
MODULE DIMENSIONS:	74" X 41.1" = 21.12 SF						
UNIT WEIGHT OF AREA:	2.3 PSF						

ROOF DESCRIPTION									
ROOF	ROOF TILT	AZIMUTH		RAFTER SPACING	ROOF MATERIAL				
#1	33°	114°	2" x 6"	24" o.c.	COMP SHINGLE				

	ARRAY AREA & ROOF AREA CALC'S									
ROOF # OF MODULES ARRAY AREA (Sq. Ft.)										
ļ	#1 9 190.09									
J	(TOTAL ARRAY AREA/TOTAL ROOF AREA) X 100%									
	= (190.09/1361.08) X 100% = 13.97%									

RME INNOVATIONS PH# : (916) 871-2992

LEGEND								
JB (N) JUNCTION BOX								
(E) UTILITY METER								
MSP (E) MAIN SERVICE PANEL								
(N) NON FUSED AC DISCONNECT								
O VENT, ATTIC FAN (ROOF OBSTRUCTION) ROOF ATTACHMENT CONDUIT								
SOLAREDGE SE3800H-US [240V] INVERTER								
Q CELLS Q.PEAK DUO BLK ML-G10+ (400W) MODULES								
K2 CROSSRAIL 44-X TRENCH								
PANEL HEIGHT OFF ROOF 4"								



SHEET NAME
ROOF PLAN

SHEET SIZE

ANSI B

11" X 17"

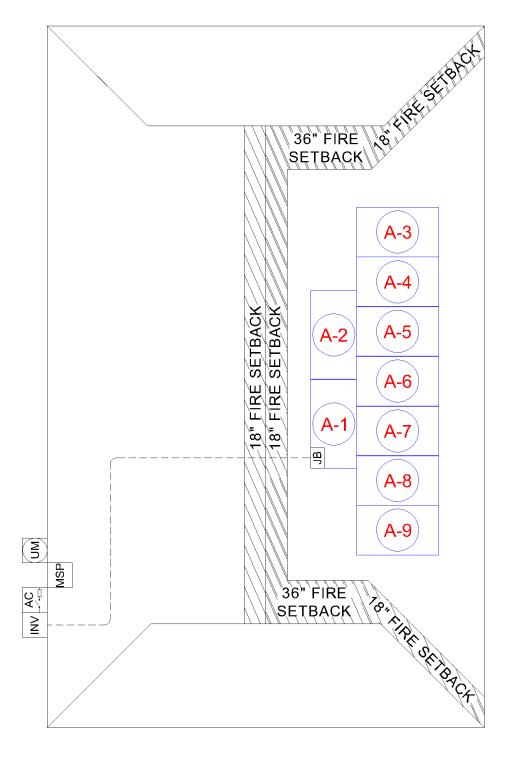
SOLANO COUNTY RESOURCE MAN

APPROVEDET NUMBER
BUILDING DIVIS PV-3



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

FULTON AVE (E) FRONT OF RESIDENCE



(E) BACK OF RESIDENCE

SHEET NAME
STRING LAYOUT
& BOM

ANSI B 11" X 17"

SOLANO COUNTY RES

APPROVEEET NUMBER
BUILDING DIVIS PV-4



BILL OF MATERIALS

Q CELLS Q.PEAK DUO BLK ML-G10+ (400W)

30A NON FUSED AC DISCONNECT, 240V, NEMA 3R, UL LISTED (KNIFE SWITCH)

SOLAREDGE POWER OPTIMIZER S440 JUNCTION BOX, NEMA 3R, UL LISTED

SOLAREDGE SE3800H-US [240V]

K2 SOLAR SEAL BUTYL PAD

M5 X 60 LAG SCREWS T BOLT & HEX NUT SET

K2 CROSSRAIL 44-X

SPLICE KIT

MID CLAMPS

END CLAMPS

GROUNDING LUG

DESCRIPTION

SPLICE FOOT X

18

36

14

EQUIPMENT

INVERTER

OPTIMIZER

JUNCTION BOX

NON FUSED AC DISCONNECT

ATTACHMENT

ATTACHMENT

ATTACHMENT

ATTACHMENT

BONDED SPLICE

GROUNDING LUG

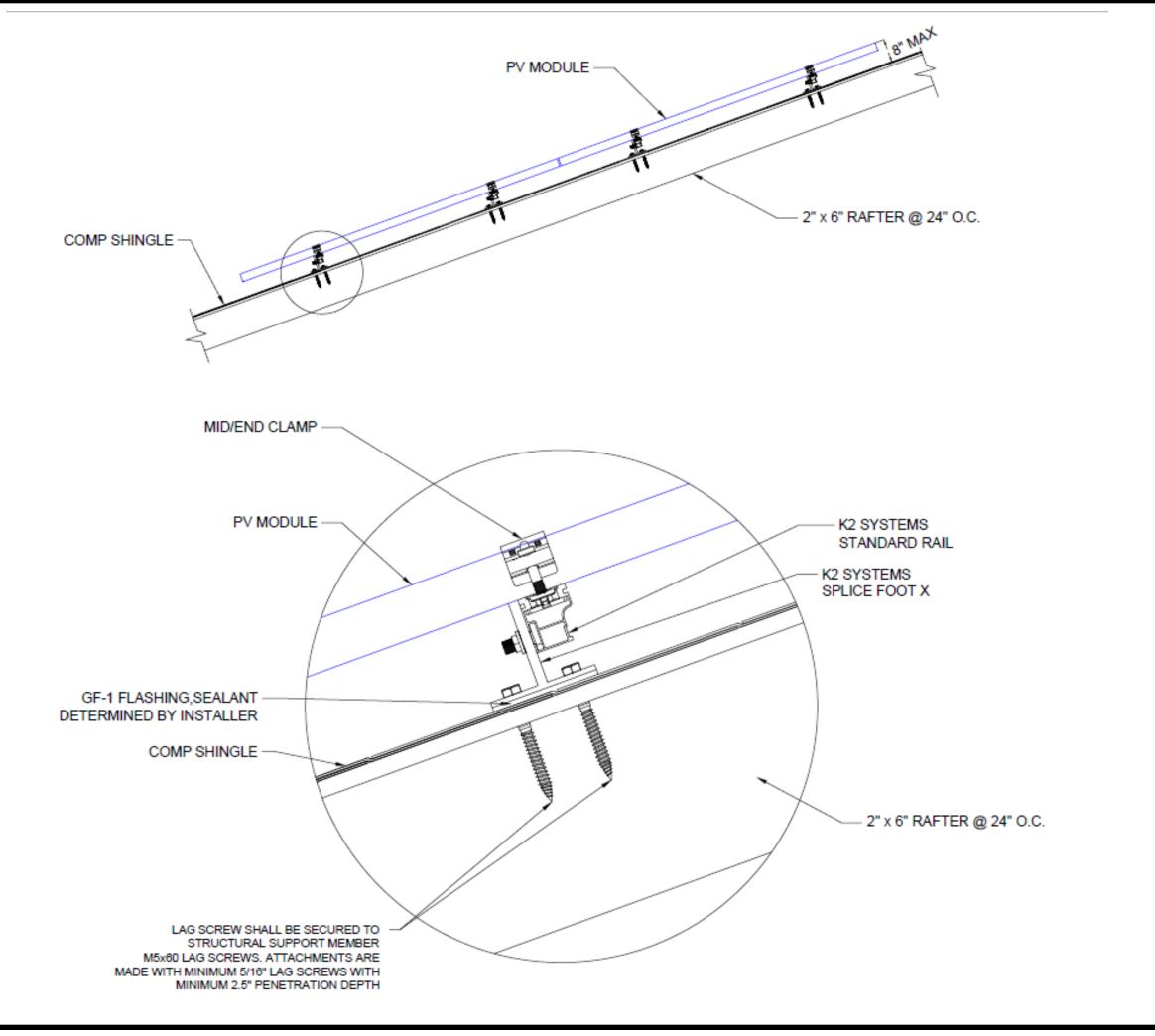
RAILS

CLAMPS

CLAMP

SOLAR PV MODULE

RME INNOVATIONS PH# : (916) 871-2992



SHEET NAME
ATTACHMENT
DETAILS

SHEET SIZE ANSI B

11" X 17"

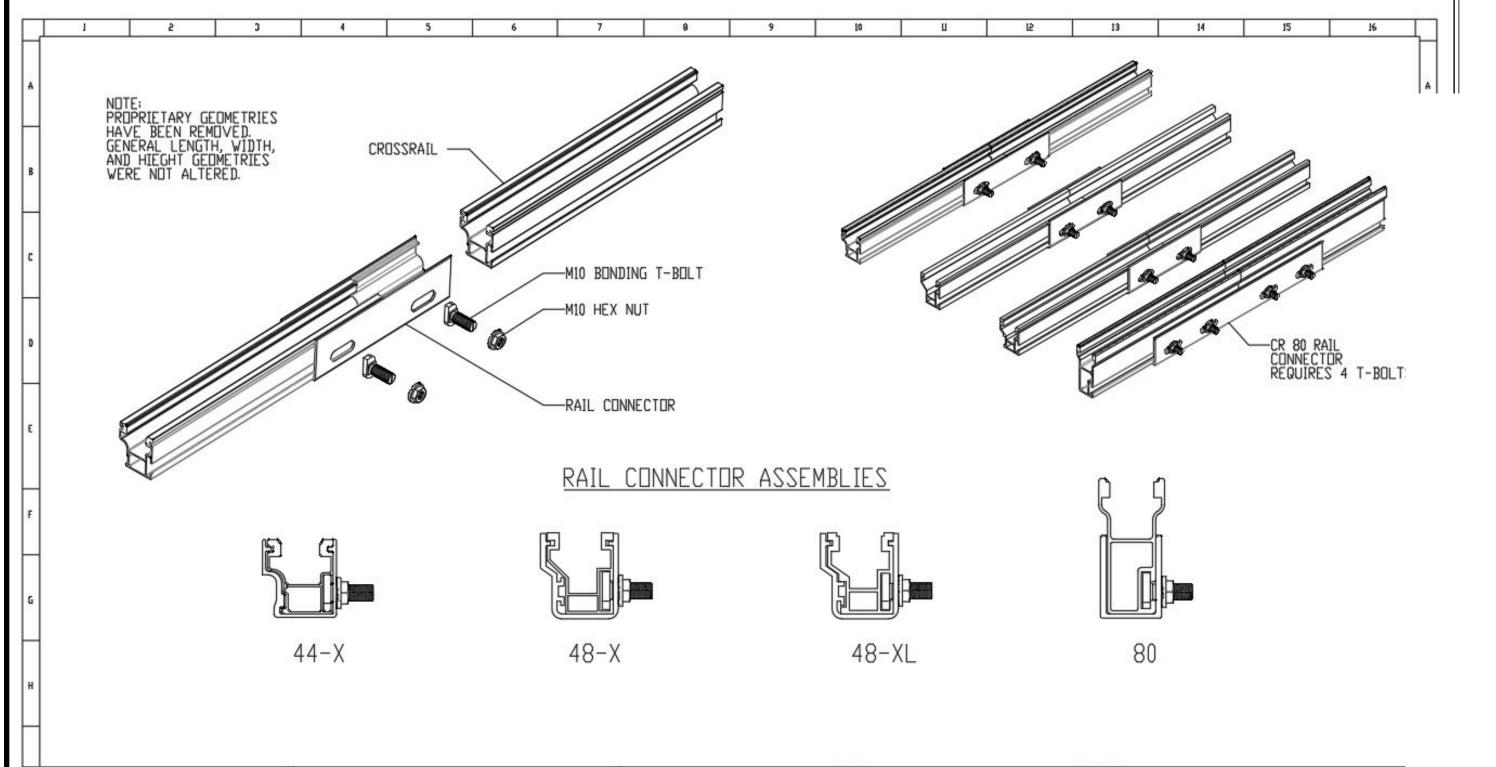
SOLANO COUNTY RESOURCE MANAGEM

BUILDING DIVISPV-5

laha Millaa

DATE: 11_15_201





PROPRIETARY AND CONFIDENTIAL
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Checked

Approved

Everest Solar Systems, LLC. o division of K2 Systems International 2835 La Mirado Dr Sutte A Visto, CA 92081 phone 760.301.5300

01/53/5050 99/107/2020 1. VEDENS \$6/30/5084

CROSSRAIL RAIL CONNECTOR ASSEMBLIES

M Drenslens are no Sheet 2 of 2 This drawing is the sole property of Evenest Solar Systems. It is protected by copyright and may only be capied, reproduced or distributed to a third party with explicit permissions. SHEET NAME

ATTACHMENT DETAILS

> SHEET SIZE ANSI B 11" X 17"

PROVERET NUMBER

BUILDING DIVISPV-6

ID	TYPICAL	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION		CONDUCTOR	?	CONDUIT	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CIRCUIT	CONDUIT FILL PERCENT	OCPD	E	GC	TEMP.	. CORR. CTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	LENGTH	VOTAGE DROP	RME INNOVATIONS PH# : (916) 871-2992
1	1	ARRAY	JUNCTION BOX	10 AWG	PV WIRE	COPPER	OPEN AIR	1	2	N/A	N/A	8 AWG	BARE COPPER	0.71	(60°C)	N/A	15.00A	18.75A	40A	28.40A	90°C	36FT	0.28%	(310) 371 2332
2	1	JUNCTION BOX	INVERTER	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	2	14.26%	N/A	8 AWG	THWN-2 COPPER	0.91	(38°C)	1	15.00A	18.75A	40A	36.40A	90°C	50FT	0.39%	
3	1	INVERTER	NON FUSED AC DISCONNECT	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	18.01%	N/A	8 AWG	THWN-2 COPPER	0.91	(38°C)	1	16.00A	20A	40A	36.40A	90°C	5FT	0.08%	
4	1	NON FUSED AC DISCONNECT	MSP	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	18.01%	20A	8 AWG	THWN-2 COPPER	0.91	(38°C)	1	16.00A	20A	40A	36.40A	90°C	5FT	0.08%	
		MAXIMUI 1 MAXIMUM MUTPUT LIMITATI	ER OPTIMIZER SAINPUT POWER - 4 M INPUT VOLTAGE MPPT RANGE - 8 INPUT CURRENT	RING 1: 1 AND THE PROPERTY OF	8 ED S OC OC OC OC OC OC OC S,	9	1	600\	99% C NEMA 3	AREDGE S OUTPUT: 2 CEC WEIG IR, UL LIST NTEGRATE	240 VAC HTED E ΓED, IN	E, 16A FFICIENC FERNAL G DISCONNE L2 L1 N BACK THI	Y FDI	NON-FUR, UL LIS	JSED TED 4	L1 L2 L1 L2 20/L1	W2P	BI-DIR METER 1-PH, 3	R# N/A 3-W, 12 (E) M/ HOUS (E) M/ PANE 1-PH,	20V/240V AIN BREA SE 240 V, AIN SERV L, 200A F 3-W, 240	AKER TO 200A/2 VICE RATED, IV		ΓΙΝ	SHEET NAME

INTERCONNECTION
120% RULE - NEC 705.12(B)(2)(3)(b)

UTILITY FEED + SOLAR BACKFEED
200A + 20A = 220A

BUSS RATING X 120%
200A x 120% = 240A

SERVICE INFO PACIFIC GAS AND ELECTRIC UTILITY PROVIDER: SACRAMENTO COUNTY AHJ NAME: MAIN SERVICE VOLTAGE: 240V MAIN SERVICE PANEL: 200 A SOLANO COUNT MAIN BREAKER RATING: 200 A MAIN SERVICE LOCATION: WEST SERVICE FEED SOURCE: OVERHEAD.

SHEET NAME
ELECTRICAL
LINE & CALCS.

SHEET SIZE ANSI B 11" X 17"

RESOURCE MANAGEME APPROVEEET NUMBER DING DIVISPV-7

SCALE: NTS

SOLAR MODULE SPECIFICATIONS						
MANUFACTURER / MODEL	Q CELLS Q.PEAK DUO BLK ML-G10+ (400W)					
VMP	37.13 V					
IMP	10.77 A					
VOC	45.3 V					
ISC	11.14 A					
TEMP. COEFF. VOC	-0.27%/K					
PTC RATING	376.55 W					
MODULE DIMENSION	74"(L) x 41.1"(W)					
PANEL WATTAGE	400 W					

INVERTER SPECIFICATIONS							
MANUFACTURER / MODEL	SOLAREDGE SE3800H-US [240V]						
NOMINAL AC POWER	3800 W						
NOMINAL OUTPUT VOLTAGE	240 VAC						
NOMINAL OUTPUT CURRENT	16 A						

POWER OPTIMIZER (SOLAREDGE s440)							
MAXIMUM INPUT POWER	440 W						
MAXIMUM INPUT VOLTAGE	60 VDC						
MAXIMUM INPUT ISC	14.5 ADC						
MAXIMUM OUTPUT CURRENT	15 ADC						
WEIGHTED EFFICIENCY	98.6%						

AMBIENT TEMPERATURE SPECS						
RECORD LOW TEMP	-3°C					
AMBIENT TEMP (HIGH TEMP 2%)	38°C					
CONDUIT HEIGHT	7/8"					
ROOF TOP TEMP	90°C					
CONDUCTOR TEMPERATURE RATE	60°C					
MODULE TEMPERATURE COEFFICIENT OF VOC	-0.27%/K					

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
0.80	4-6
0.70	7-9
0.50	10-20

RME INNOVATIONS PH# : (916) 871-2992

SHEET NAME

SPECIFICATIONS & NOTES

SHEET SIZE

ANSI B 11" X 17"

SOLANO COUNTY RESOURCE MANAGEMEN PPROVERET NUMBER BUILDING DIVISPV-8

RATED AC OUTPUT CURRENT **16 AMPS** NOMINAL OPERATING AC VOLTAGE 240 VOLTS

LABEL LOCATION:

MAIN SERVICE PANEL/MAIN SERVICE DISCONNECT/AC DISCONNECT PER CODE: CEC 690.13(B)



ELECTRIC SHOCK HAZARD

TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:

POINT OF INTERCONNECTION, MAIN SERVICE DISCONNECT, AC DISCONNECT, AC COMBINER,

PER CODE: NEC 690.13(B)

3

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:

EVERY 10' & ON CONDUIT BODIES WHEN EXPOSED PER CODE: CEC 690.31(G)(D)(3)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION:

INVERTER AT OR WITHIN 3' OF THE DC COMBINER SWITCH PER CODE: CEC 690.56(C)(3)



DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC

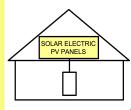
LABEL LOCATION:

MAIN SERVICE DISCONNECT/ AC DISCONNECT/ MAIN SERVICE PANEL/ REVENUE METER/ AC

PER CODE: CEC 705.12(B)(3)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE 'OFF' POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY



LABEL LOCATION:

MAIN SERVICE DISCONNECT IF MSD IS OUTSIDE PLACE IT THERE / IF MSD IS INSIDE PLACE ON THE AC DISCONNECT

PER CODE: CEC 690.56(C)(1)(a)

6

MAXIMUM VOLTAGE: MAXIMUM CIRCUIT CURRENT: 20.0 ADC MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC-CONVERTER(IF 15 ADC

LABEL LOCATION:

INVERTER

PER CODE: CEC 690.53

8

PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH

LABEL LOCATION:

AC DISCONNECT PER CODE: CEC 690.56(C)(3)

9

PV SOLAR BREAKER

DO NOT RELOCATE THIS **OVERCURRENT DEVICE**

LABEL LOCATION:

POINT OF INTERCONNECTION OR MAIN SERVICE PANEL PER CODE: CEC 705.12(B)(3)(2)

SERVICE DISCONNECT

SECTIONNEUR PRINCIPALE

SERVICIO DE DESCONEXION

LABEL LOCATION: AC DISCONNECT PER CODE: CEC 230.66 **ADHESIVE FASTENED SIGNS**

- THE LABEL SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE IT IS INSTALLED.
- WHERE REQUIRED ELSEWHERE IN THIS CODE, ALL FIELD APPLIED LABELS, WARNING AND MARKINGS SHOULD COMPLY WITH ANSI 2535.4 [NEC STOLENTY FIELD MARKING].
- ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF BUILDING DIVIS PTV-9 PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER RESISTANT [IFC 605.11.1.3]

PH#: (916) 871-2992

RME INNOVATIONS

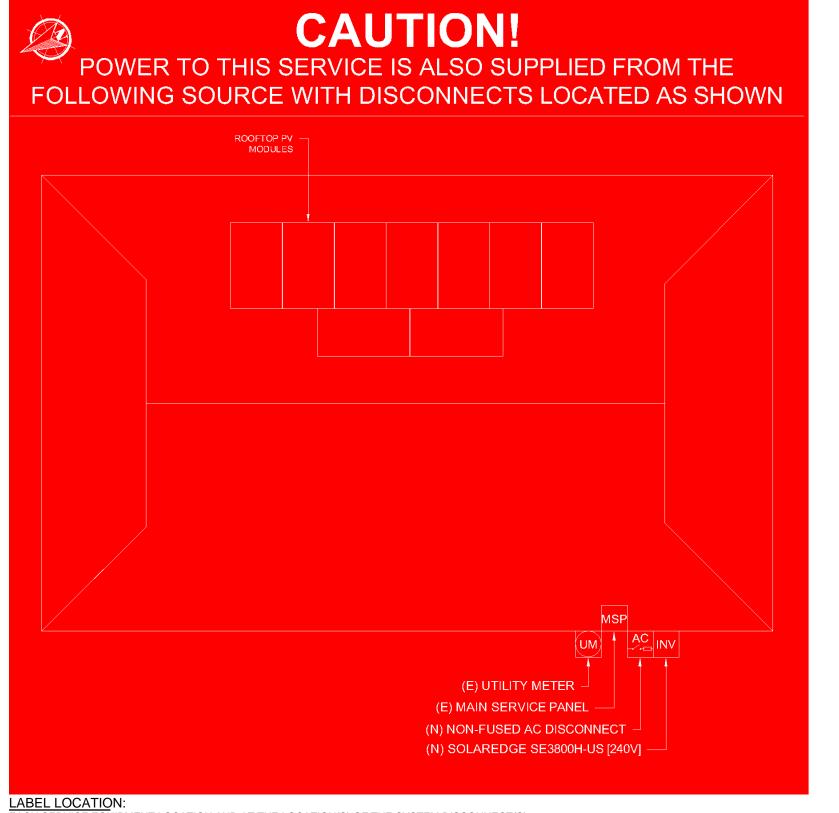
SHEET NAME **SIGNAGE**

SHEET SIZE

ANSI B 11" X 17"

PROVEHEET NUMBER

RME INNOVATIONS PH# : (916) 871-2992



EACH SERVICE EQUIPMENT LOCATION AND AT THE LOCATION(S) OF THE SYSTEM DISCONNECT(S) FOR ALL ELECTRIC POWER PRODUCTION SOURCES CAPABLE OF BEING INTERCONNECTED (PER CODE: NEC 705.10)

SHEET NAME SIGNAGE

SHEET SIZE

ANSI B 11" X 17"

SOLANO COUNTY RESOURCE MANAGEME
APPROVEHET NUMBER

BUILDING DIVISION -10

ohn Millea



Q.PEAK DUO BLK ML-G10+ 385-405

ENDURING HIGH PERFORMANCE









BREAKING THE 20% EFFICIENCY BARRIER

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.



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 behavior.



ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID Technology, Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.



EXTREME WEATHER RATING

High-tech aluminum 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 warranty².

 $^{\rm 1}$ APT test conditions according to IEC/TS 62804-1:2015, method A (–1500 V, 96 h)

² See data sheet on rear for further information

THE IDEAL SOLUTION FOR:

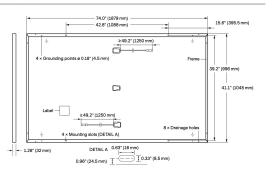






MECHANICAL SPECIFICATION

Format	74.0 in \times 41.1 in \times 1.26 in (including frame) (1879 mm \times 1045 mm \times 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction Box	$2.09\text{-}3.98\text{in}\times1.26\text{-}2.36\text{in}\times0.59\text{-}0.71\text{in}$ (53-101 mm \times 32-60 mm \times 15-18 mm), IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥49.2 in (1250 mm), (-) ≥49.2 in (1250 mm)
Connector	Stäubli MC4; IP68



ELECTRICAL CHARACTERISTICS

WER CLASS			385	390	395	400	405
IIMUM PERFORMANCE AT STANDAR	D TEST CONDITIO	NS, STC1 (PO	WER TOLERANCE +	5W/-0W)			
Power at MPP ¹	P _{MPP}	[W]	385	390	395	400	405
Short Circuit Current ¹	I _{sc}	[A]	11.04	11.07	11.10	11.14	11.17
Open Circuit Voltage ¹	Voc	[V]	45.19	45.23	45.27	45.30	45.34
Current at MPP	I _{MPP}	[A]	10.59	10.65	10.71	10.77	10.83
Voltage at MPP	V_{MPP}	[V]	36.36	36.62	36.88	37.13	37.39
Efficiency ¹	η	[%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6
IIMUM PERFORMANCE AT NORMAL	OPERATING CONI	DITIONS, NM	OT ²				
Power at MPP	P _{MPP}	[W]	288.8	292.6	296.3	300.1	303.8
Short Circuit Current	I _{sc}	[A]	8.90	8.92	8.95	8.97	9.00
Open Circuit Voltage	Voc	[V]	42.62	42.65	42.69	42.72	42.76
Current at MPP	I _{MPP}	[A]	8.35	8.41	8.46	8.51	8.57
Voltage at MPP	V _{MPP}	[V]	34.59	34.81	35.03	35.25	35.46
	Power at MPP¹ Short Circuit Current¹ Open Circuit Voltage¹ Current at MPP Voltage at MPP Efficiency¹ IIMUM PERFORMANCE AT NORMAL (Power at MPP Short Circuit Current Open Circuit Voltage Current at MPP	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	IMMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC¹ (PO Power at MPP¹ P _{MPP} [W] Short Circuit Current¹ I _{SC} [A] Open Circuit Voltage¹ V _{OC} [V] Current at MPP I _{MPP} [W] Voltage at MPP V _{MPP} [V] Efficiency¹ η [%] IMMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NM: Power at MPP P _{MPP} [W] Short Circuit Current I _{SC} [A] Open Circuit Voltage V _{OC} [V] Current at MPP I _{MPP} [A]	IMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC¹ (POWER TOLERANCE + Power at MPP¹	Number Number	Number Power at MPP Power Pow	Number Properties Proper

 $^{1}\text{Measurement tolerances P}_{\text{MPP}}\pm3\%; |_{\text{SC}}; \bigvee_{\text{OC}}\pm5\% \text{ at STC}: 1000\text{W/m}^{2}, 25\pm2\text{°C}, \text{AM 1.5 according to IEC 60904-3} \cdot ^{2}800\text{W/m}^{2}, \text{NMOT, spectrum AM 1.5}$

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.

90

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 Voc	β	[%/K]	-0.27
Temperature Coefficient of P _{MPP}	γ	[%/K]	-0.34	Nominal Module Operating Temperature	NMOT	[°F]	109±5.4 (43±3°C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{SYS}	[V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI/UL 61730	TYPE 2
Max. Design Load, Push / Pull ³	[lbs/ft ²]	75 (3600 Pa) / 55 (2660 Pa)	Permitted Module Temperature	-40°F up to +185°F
Max. Test Load, Push / Pull ³	[lbs/ft ²]	113 (5400 Pa) / 84 (4000 Pa)	on Continuous Duty	(-40°C up to +85°C)

QUALIFICATIONS AND CERTIFICATES

PACKAGING INFORMATION







				Ip S	[O-O	40'HC	
Horizontal packaging	76.4 in	43.3 in	48.0 in	1656 lbs	24	24	32
	1940 mm	1100 mm	1220 mm	751 kg	pallets	pallets	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.

Hanwha Q CELLS America Inc.

³See Installation Manual

400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

SHEET NAME
EQUIPMENT

SPECIFICATIONS

SHEET SIZE

ANSI B

11" X 17"

SOLANO COUNTY RESOURCE MANAGEME APPROVEHET NUMBER

BUILDING DIVISION-11

John Milles

ATE: 11-15-202

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	S :5	000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER				SEX	(XXXH-XXXXXI	BXX4			
OUTPUT			Т						
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V		5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V		5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage MinNomMax. (211 - 240 - 264)	✓	✓		✓	✓	✓	✓	✓	Vac
AC Output Voltage MinNomMax. (183 - 208 - 229)	-	✓		-	✓	-	-	✓	Vac
AC Frequency (Nominal)					59.3 - 60 - 60.5 ⁽¹⁾				Hz
Maximum Continuous Output Current @240V	12.5	16		21	25	32	42	47.5	А
Maximum Continuous Output Current @208V	-	16		-	24	-	-	48.5	А
Power Factor				1,	Adjustable - 0.85 to	0.85			
GFDI Threshold					1				Α
Utility Monitoring, Islanding Protection, Country Configurable Thresholds			1		Yes				
INPUT									
Maximum DC Power @240V	4650	5900		7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100		-	7750	-	-	15500	W
Transformer-less, Ungrounded					Yes				
Maximum Input Voltage					480				Vdc
Nominal DC Input Voltage		3	380				400		Vdc
Maximum Input Current @240V ⁽²⁾	8.5	10.5		13.5	16.5	20	27	30.5	Add
Maximum Input Current @208V ⁽²⁾	-	9		-	13.5	-	-	27	Add
Max. Input Short Circuit Current					45				Add
Reverse-Polarity Protection					Yes				
Ground-Fault Isolation Detection					600kΩ Sensitivity				
Maximum Inverter Efficiency	99				9	9.2			%
CEC Weighted Efficiency					99			99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption					< 2.5				W

Single Phase Inverter with HD-Wave Technology for North America

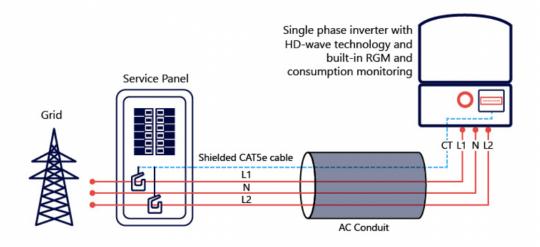
SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces			RS485, Ethernet,	ZigBee (optional), C	ellular (optional)			
Revenue Grade Metering, ANSI C12.20				0 : 10				
Consumption metering				Optional ⁽³⁾				
Inverter Commissioning		With the SetA	pp mobile applicatio	n using Built-in Wi-Fi	Access Point for Lo	cal Connection		
Rapid Shutdown - NEC 2014, NEC 2017 and NEC 2020, 690.12		Automatic Rapid Shutdown upon AC Grid Disconnect						
STANDARD COMPLIANCE								
Safety		UL1741, U	L1741 SA, UL1699B,	CSA C22.2, Canadiar	AFCI according to	T.I.L. M-07		
Grid Connection Standards			IEEE	1547, Rule 21, Rule 14	(HI)			
Emissions				FCC Part 15 Class B				
INSTALLATION SPECIFICAT	IONS							
AC Output Conduit Size / AWG Range		1"	Maximum / 14-6 AV	VG		1" Maximum	/14-4 AWG	
DC Input Conduit Size / # of Strings / AWG Range		1" Maxir	mum / 1-2 strings / 1-	4-6 AWG		1" Maximum / 1-3 st	rings / 14-6 AWG	
Dimensions with Safety Switch (HxWxD)		17.7 x	14.6 x 6.8 / 450 x 37	'0 x 174		21.3 x 14.6 x 7.3 /	540 x 370 x 185	in / mm
Weight with Safety Switch	22	/ 10	25.1 / 11.4	26.2	/ 11.9	38.8 /	17.6	lb / kg
Noise		<	25			<50		dBA
Cooling				Natural Convection				
Operating Temperature Range			-4(to +140 / -40 to +6	O ⁽⁴⁾			°F/°C
Protection Rating			NEMA 4	X (Inverter with Safet	y Switch)			

⁽³⁾ Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BNI4 . For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box

How to Enable Consumption Monitoring

By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills



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SHEET NAME **EQUIPMENT SPECIFICATIONS**

SHEET SIZE

ANSI B

11" X 17"

SOLANO COUNTY

RoHS

ROSHEET NUMBER BUILDING DIVISION-12

⁽²⁾ A higher current source may be used; the inverter will limit its input current to the values stated

⁽⁴⁾ Full power up to at least 50°C / 122°F; for power de-rating information refer to; https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

Power Optimizer

S440, S500



PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Faster installations with simplified cable management and easy assembly using a single bolt
- Detects abnormal PV connector behavior, preventing potential safety issues*
- Module-level voltage shutdown for installer and firefighter safety
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules



/ Power Optimizer

S440, S500

	S440	S500	UNIT
INPUT			
Rated Input DC Power ^{p1}	440	500	W
Absolute Maximum Input Voltage (Voc)	60		Vdc
MPPT Operating Range	8 - 60		Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5		Adc
Maximum Efficiency	99.5		%
Weighted Efficiency	98.6		%
Overvoltage Category	II		
OUTPUT DURING OPERATION			
Maximum Output Current	15		Adc
Maximum Output Voltage	60		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISC	ONNECTED FROM INVERTER OR IN	IVERTER OFF)	'
Safety Output Voltage per Power Optimizer	1	•	Vdc
STANDARD COMPLIANCE			
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC	61000-6-3, CISPR11, EN-55011	
Safety	IEC 62109-1 (class II sa	afety), UL1741	
Material	UL94 V-0, UV R	esistant	
RoHS	Yes		
Fire Safety	VDE-AR-E 2100-7	12:2013-05	
INSTALLATION SPECIFICATIONS			
Maximum Allowed System Voltage	1000		Vdc
Dimensions (W x L x H)	129 x 153 x	30	mm
Weight (including cables)	655 / 1.5)	gr / lb
Input Connector	MC4PI		
Input Wire Length	0.1		m
Output Connector	MC4		
Output Wire Length	(+) 2.3, (-) (0.10	m
Operating Temperature Range ^{an}	-40 to +8	35	°C
Protection Rating	IP68 / NEM	A6P	
Relative Humidity	0 - 100		%

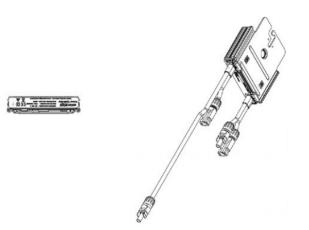
(1) Rated power of the module at STC will not exceed the power optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed (2) For other connector types please contact SolarEdge

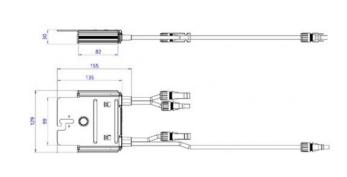
(3) For ambient temperature above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details

PV System Design Using a SolarEdge Inverter		Single Phase HD-Wave Single Phase		Three Phase	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	S440, S500	8	8		18	
Maximum String Length (Power Op	otimizers)	25		50		
Maximum Nominal Power per Strin	ngl ^a	5700 5250 11250 ^{sq}		1125019	12750 ^m	W
Parallel Strings of Different Lengths or Orientations		Yes				

Refer to: https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf
(5) For the 230/400V grid: it is allowed to install up to 13,500W per string when the maximum power difference between each string is 2,000W
(6) For the 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W

(7) It is not allowed to mix S-series and P-series power optimizers in new installations





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SHEET NAME **EQUIPMENT SPECIFICATIONS**

RME INNOVATIONS PH#: (916) 871-2992

SHEET SIZE ANSI B 11" X 17"

PROVEHEET NUMBER

BUILDING DIVISION -13

SOLANO COUNT

solaredge.com

^{*} Functionality subject to inverter model and firmware version

We support PV systems Formerly Everest Solar Systems





Splice Foot X

TECHNICAL SHEET

Item Number	Description	Part Number
1	Splice Foot X	4000113 Splice Foot X Kit, Mill
2	K2 Solar Seal Butyl Pad	
3	M5 x 60 lag screws	
4	T-Bolt & Hex Nut Set	

Technical Data

	Splice Foot X
Roof Type	Composition shingle
Material	Aluminum with stainless steel hardware
Finish	Mill
Roof Connection	M5 x 60 lag screws
Code Compliance	UL 2703
Compatibility	CrossRail 44-X, 48-X, 48-XL, 80

SHEET INVINE EQUIPMENT SPECIFICATIONS

SHEET SIZE ANSI B 11" X 17"

SOLANO COUNTY RESC

PROVERET NUMBER BUILDING DIVISION-14

We support PV systems Formerly Everest Solar Systems



CROSSRAIL 44-X



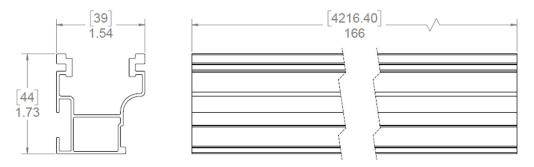
Mechanical Properties

	CrossRail 44-X
Material	6000 Series Aluminum
Ultimate Tensile Strength	37.7 ksi (260 MPa)
Yield Strength	34.8 ksi [240 MPa]
Weight	0.47 lbs/ft (0.699 kg/m)
Finish	Mill or Dark Anodized

Sectional Properties

	CrossRail 44-X
Sx	0.1490 in3 (0.3785 cm3)
Sy	0.1450 in3 (0.3683 cm3)
A (X-Section)	0.4050 in2 (1.0287 cm2

Units: [mm] in



Notes:

- Structural values and span charts determined in accordance with Aluminum Design Manual and ASCE 7-16
- UL2703 Listed System for Fire and Bonding

EQUIPMENT SPECIFICATIONS

SHEET SIZE

ANSI B

11" X 17"

SOLANO COUNTY RES

APPROVERET NUMBER
BUILDING DIVI