MILLER PV

540 LESLIE ST SE, SALEM, OR 97301

PRESCRIPTIVE SOLAR INSTALLATION

PROJECT SCOPE

PRESCRIPTIVE ROOFTOP SOLAR INSTALLATION ON RESIDENCE.
THE SOLAR PANELS WILL BE INSTALLED ON IRONRIDGE FLUSHMOUNT RACKING SYSTEM ATTACHED TO ROOF RAFTERS VIA LAG LAG BOLTS.
AN SMA SBSE3.8-US-50 STRING INVERTER WILL BE INSTALLED ON THE EXTERIOR EAST WALL OF HOUSE, WITH A UTILITY PV AC DISCONNECT.
APSMART MLPE DEVICES WILL BE INSTALLED UNDER EACH MODULE AND THE PV MODULES WIRED IN A DC SERIES-STRING SOURCE CIRCUIT ON THE ROOF.
THE PV DC SOURCE CIRCUIT WILL BE CONNECTED TO INVERTER MPPT INPUT A.
THE PV SYSTEM WILL BE INTERCONNECTED TO THE UTILIY VIA SOURCE CONNECTION TO (N) UTILITY METER MAIN SUPPLY SIDE BREAKER. A UTILITY REQUIRED PV SYSTEM AC DISCONNECT WILL BE INSTALLED AT THE (N) HOUSE METER MAIN LOCATION (WITHIN 10FT OF THE METER).
AN SMA ENERGY METER WILL BE INSTALLED IN THE INVERTER FOR DATA ACQUISITION TO PROVIDE WEB BASED PRODUCTION MONITORING.
ADDITIONALLY, AN SMA BACKUP START MODULE WILL BE INSTALLED IN THE INVERTER TO PROVIDE A SECURE POWER SUPPLY, WITH RSD, OF 1,900 W.

PROPOSED PV SYSTEM DETAILS

PV RACKING	MANUFACTURER, RAIL, ATTACHMENT	IRONRIDGE FLUSHMOUNT SYSTEM, XR100 RAIL, FLASHFOOT2 ATTACHMENTS
SYSTEM SIZE	4.51 KW DC STC	3.8 KVA AC
PV MODULE	(QTY) MAKE AND MODEL, WDC-STC	11 - SOLAR-4-AMERICA S4A410-108MH10BB MODULES (410 W)
PV INVERTER	(QTY) MAKE AND MODEL	SMA SBSE3.8-US-50 SINGLE PHASE STRING INVERTER

SITE TEMPATURE DATA

ASHRAE LOCATION	SALEM, OR USA
ASHRAE 0.4% HIGHT TEMP	37.2 DEG C
ASHRAE MINIMUM TEMP	-7.5 DEG C
ASHRAE AVERAGE HIGH TEMP	27.4

VOLTAGE DROP CALCULATIONS

WIRE TAG	A	WIRE TAG	B	WIRE TAG	C	WIRE TAG	D
DC V-DROP %	0.617	DC V-DROP %	0.336	AC V-RISE %	0.165	AC V-RISE %	0.165
ASHRAE 0.4% V	288.6 V DC	ASHRAE 0.4% V	288.6 V DC	VOLTAGE	240 V AC	VOLTAGE	240 V AC
MODULE IMP	13.05 A DC	MODULE IMP	13.05 A DC	AMPERAGE	16 A AC	AMPERAGE	16 A AC
CONDUCTOR	#10 COPPER	CONDUCTOR	#10 COPPER	CONDUCTOR	#10 COPPER	CONDUCTOR	#10 COPPER
DISTANCE	55 FT	DISTANCE	30 FT	DISTANCE	10 FT	DISTANCE	10 FT
DC V-DROP % TOTAL				0.95			
AC V-RISE % TOTAL				0.33			

PV STRING CALCULATIONS

11 - S4A410-108MH10BB	4,510 W DC STC TOTAL	SMA SBSE3.8-US-50 INVERTER	AC TO DC RATIO 1.19
MPPT 1		1 STRING OF 10 / 3,600 W	
VMP ASHRAE 0.4% HIGH TEMP		288.6 V DC	
RATED ISC		13.94 A DC	
VOC AT ASHRAE LOW TEMP		447.7 V DC	
RATED MAX POWER VOLTAGE		345.7 V DC	
MAX SHORT CIRCUIT CURRENT		16.31 A DC	
RATED MAX POWER CURRENT		13.05 A DC	

APPLICABLE CODES

2023 OREGON STRUCTURAL SPECIALTY CODE (OSSC)
2021 OREGON RESIDENTIAL SPECIALTY CODE (ORSC)
2023 OREGON ELECTRICAL SPECIALTY CODE (NEC 2023)
2022 OREGON FIRE CODE
AHJ: CITY OF SALEM
UTILITY: PORTLAND GENERAL ELECTRIC (PGE)

DESIGN CRITERIA

STRUCTURE: PRESCRIPTIVE SOLAR
OCCUPANCY: ONE AND TWO FAMILY DWELLING
PROPERTY TYPE: RESIDENTIAL
ZONING: RS
WIND EXPOSURE: B 98 MPH
GROUND SNOW LOAD: 9 PSF (36 PSF CODE MIN)

CONTRACTOR INFO

SOLAR CONTRACTOR: ENERGY DESIGN
CCB LICENSE NO: 161672 BCD LICENSE NO: CLR48
SIGNING SUPERVISOR: VINCE MCCLELLAN
PHONE CONTACT: 541-485-8122

ELECTRICAL SUBCONTRACTOR: THINK ELECTRIC COOP
BCD LICENSE NO: C763 SUPERVISOR LICENSE NO: 5382S
SIGNING SUPERVISOR: STEPHEN E. SCHMIECHEN
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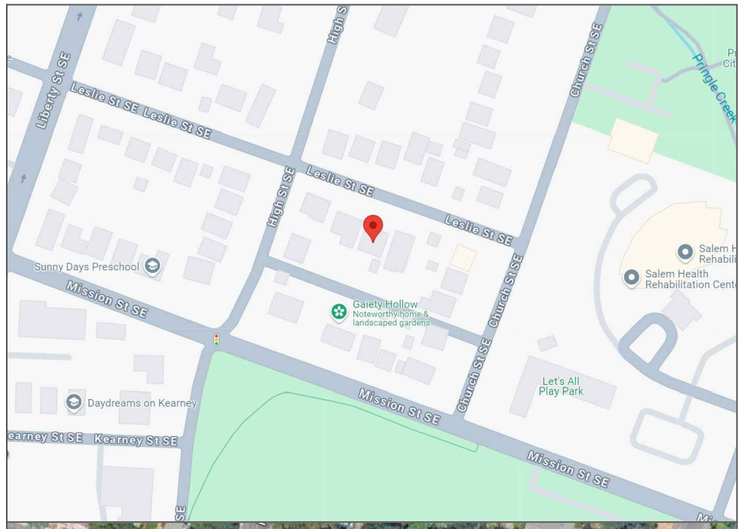
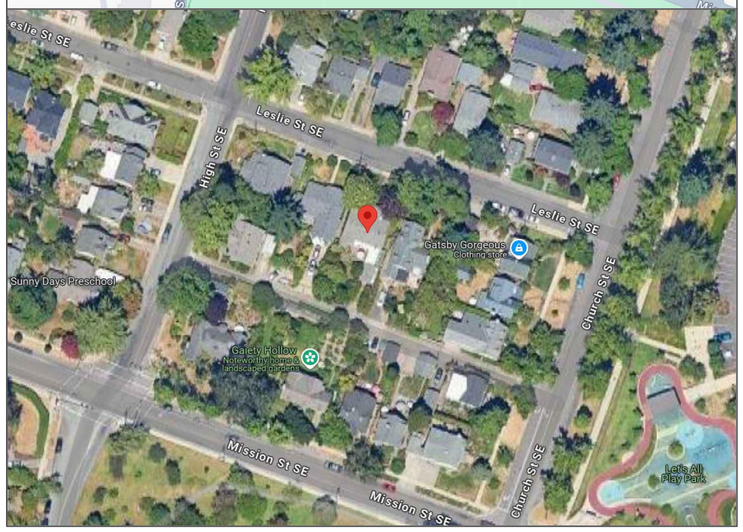
LOCATION MAP





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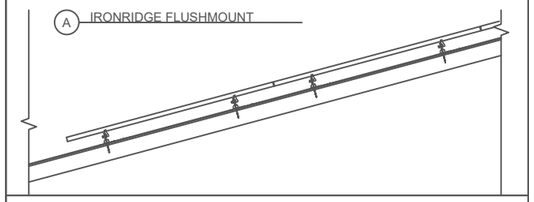
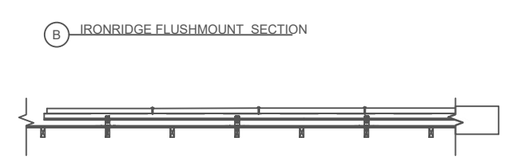
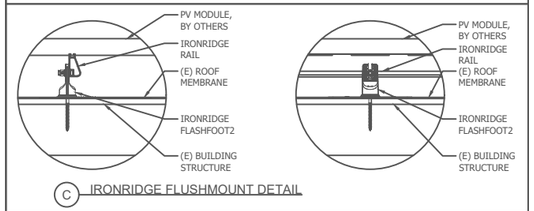
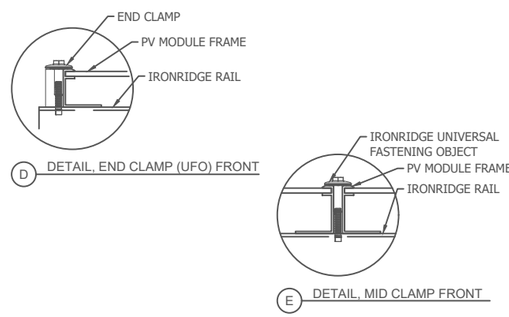
PV MODULE RACKING DETAILS









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JOB: #6158
REVISION: #0
DATE: 10/3/2024
DRAWN BY: JW

G-0
SHEET NUMBER

PROJECT NOTES

ELECTRICAL GENERAL NOTES:
1. ALL PV AND ELECTRICAL EQUIPMENT MUST BE INSTALLED IN A PROFESSIONAL AND SKILLFUL MANNER. NEC 110.12.
2. ALL PV AND ELECTRICAL WORK TO BE DONE BY QUALIFIED PERSONS IN ACCORDANCE WITH THE NEC AND ANY OTHER STANDARDS ADOPTED BY THE AHJ. NEC 690.4 (C).
3. ALL EQUIPMENT SHALL BE LISTED, LABELED AND USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING. NEC 110.3 (B)(C).
4. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER RECOMMENDATIONS AS OUTLINED IN ANY DOCUMENTATION PROVIDED BY THE MANUFACTURER.
5. THE TEMPERATURE RATING ASSOCIATED WITH THE AMPACITY OF A CONDUCTOR SHALL BE SELECTED AND COORDINATED SO AS NOT TO EXCEED THE LOWEST TEMPERATURE RATING OF ANY CONNECTED TERMINATION, CONDUCTOR, OR DEVICE. NEC 110.14 (C).
6. ALL INSTALLED EQUIPMENT SHALL HAVE A TERMINAL RATING OF 75 DEG C. INSTALLED CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THEIR TEMPERATURE RATING. NM, UF, AND SO TYPE CABLES SHALL BE SIZED IN ACCORDANCE WITH THE TEMPERATURE RATING PROVIDED BY THE MANUFACTURER.
7. IF THE TEMPERATURE RATING OF THE TERMINALS OF EXISTING ELECTRICAL EQUIPMENT IS NOT VERIFIABLE THE 60 DEG C COLUMN OF THE APPROPRIATE AMPACITY CHART SHALL BE USE TO SIZE THE CONDUCTOR.
8. CABLES AND CONDUCTORS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE WITH HARDWARE DESIGNED AND INSTALLED SO AS NOT TO DAMAGE THE CABLE. NEC110.12 (C) NEC 300.4 NEC 300.11.
9. TERMINAL CONNECTION TORQUE VALUES FOR TERMINAL CONNECTIONS SHALL BE AS INDICATED ON EQUIPMENT OR IN INSTALLATION INSTRUCTIONS PROVIDED BY THE MANUFACTURER. AN APPROVED MEANS SHALL BE USED TO ACHIEVE THE INDICATED TORQUE VALUE. NEC 110.14 (D).
10. WORKING SPACE SHALL BE PROVIDED AND MAINTAINED ABOUT ALL ELECTRICAL EQUIPMENT TO PERMIT READY AND SAFE OPERATION AND MAINTENANCE OF SUCH EQUIPMENT. NEC 110.26.
11. EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER RECOMMENDED CLEARANCES FOR SAFE OPERATION.
12. IN LOCATIONS WHERE ELECTRICAL EQUIPMENT IS LIKELY TO BE EXPOSED TO PHYSICAL DAMAGE, ENCLOSURES OR GUARDS SHALL BE SO ARRANGED AND OF SUCH STRENGTH AS TO PREVENT SUCH DAMAGE.
13. ELECTRICAL EQUIPMENT MUST BE MARKED WITH AN ENCLOSURE-TYPE AND BE SUITABLE FOR THE LOCATION IN ACCORDANCE WITH NEC TABLE 110.28. OUTDOOR EQUIPMENT MUST HAVE MINIMUM NEMA 3R RATING.
14. ALL INSTALLED PV SYSTEMS AND ELECTRICAL EQUIPMENT WILL BE GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
15. EQUIPMENT GROUNDS WILL BE SIZED TO NEC TABLE 250.122.
16. SERVICE MAIN BONDING JUMPER WILL BE SIZED TO NEC TABLE 250.102 (C)(1).
17. GROUND ELECTRODE CONDUCTORS WILL BE SIZED TO NEC TABLE 250.66.

SOLAR PV GENERAL NOTES:
1. INSTALLED PV EQUIPMENT SHALL BE LISTED FOR USE IN PV SYSTEMS. NEC 690.4.
2. PV DC SOURCE CIRCUITS SHALL NOT EXCEED 600 V ON OR IN ONE AND TWO FAMILY DWELLINGS. NEC 690.7 (2)
3. UTILITY INTERACTIVE INVERTERS AND INTERCONNECTION SYSTEM EQUIPMENT SHALL BE UL 1741 RATED. NOTE UTILITY INTERACTIVE INVERTERS TURN OFF WHEN GRID POWER IS NOT PRESENT AND WILL NOT EXPORT POWER TO THE UTILITY DURING A GRID OUTAGE. MULTIMODAL ESS INVERTERS WILL OPERATE DURING AN OUTAGE TO POWER LOADS IN A BUILDING BUT ALSO MUST BE UL1741 RATED AND WILL NOT EXPORT POWER TO THE UTILITY DURING A GRID OUTAGE.
4. PV SYSTEM DISCONNECT(S) SHALL BE READILY ACCESSIBLE AND LOCKEABLE. THE PV SYSTEM DISCONNECT OR THE ENCLOSURE PROVIDING ACCESS TO THE DISCONNECT MUST BE CAPABLE OF BEING LOCKED IN THE OPEN POSITION. NEC 110.25. NOTE IF THE PV SYSTEM IS UTILITY INTERACTIVE CONSULT APPLICABLE UTILITY REQUIREMENTS FOR PV SYSTEM DISCONNECTS AS WELL AS UTILITY METER CLEARANCE REQUIREMENTS.
5. PV SYSTEMS INSTALLED IN OR ON BUILDINGS MUST COMPLY WITH NEC 690.12 RAPID SHUTDOWN OF PV SYSTEMS ON BUILDINGS.
6. THE RAPID SHUTDOWN INITIATION MUST OCCUR BY THE INITIATION OF: THE SERVICE DISCONNECT, THE PV SYSTEM DISCONNECT, OR A READILY ACCESSIBLE SWITCH THAT INDICATES WHETHER IT IS IN THE 'OFF' OR 'ON' POSITION.
7. FOR BUILDINGS THAT HAVE PV SYSTEMS WITH MORE THAN ONE RAPID SHUTDOWN TYPE OR PV SYSTEMS WITH NO RAPID SHUTDOWN, A DETAILED PLAN VIEW DIAGRAM OF THE ROOF SHALL BE PROVIDED SHOWING EACH DIFFERENT PV SYSTEM WITH A DOTTED LINE AROUND AREAS THAT REMAIN ENERGIZED AFTER RAPID SHUTDOWN IS INITIATED.
8. DISCONNECTING MEANS SHALL BE PROVIDED FOR ISOLATING PV EQUIPMENT SO IT CAN BE SAFELY SERVICED. AN ISOLATING DEVICE SHALL NOT BE REQUIRED TO HAVE AN INTERRUPT RATING. WHERE AN ISOLATING DEVICE IS NOT RATED FOR INTERRUPTING A PV DC CIRCUIT IT SHALL BE MARKED "NOT FOR CURRENT INTERRUPTING." THE ISOLATING DEVICE SHALL BE ONE OF THE FOLLOWING: A MATING CONNECTOR LISTED FOR THE USE, A FINGER-SAFE FUSE HOLDER, AN ISOLATING DEVICE THAT REQUIRES A TOOL TO TURN OFF, OR AN ISOLATING DEVICE LISTED FOR THE INTENDED APPLICATION. NEC 690.15 B.
9. PV EQUIPMENT DISCONNECTING MEANS SHALL COMPLY WITH THE FOLLOWING: HAVE SUFFICIENT RATINGS FOR MAX CIRCUIT CURRENT, VOLTAGE, AND AVAILABLE FAULT CURRENT AT THE TERMINALS, SIMULTANEOUSLY DISCONNECT ALL CURRENT CARRYING CONDUCTORS THAT ARE NOT SOLIDLY GROUNDED TO THE CIRCUIT TO WHICH IT IS CONNECTED, BE EXTERNALLY OPERABLE WITHOUT EXPOSING THE OPERATOR TO ENERGIZED PARTS, BE LOCKABLE WHEN NOT WITHIN SIGHT OF THE EQUIPMENT, BE LOAD BREAK RATED, AND OF ONE OF THE TYPES LISTED IN NEC 690.13 (E)(1) THROUGH (E)(5). NEC 690.15 (C).
10. WHERE INSIDE BUILDINGS, PV SYSTEM DC SOURCE CIRCUITS THAT EXCEED 30 V OR 8 A SHALL BE CONTAINED IN METAL RACEWAYS, IN TYPE MC METAL-CLAD CABLE THAT COMPLIES WITH NEC 250.118(A)(10)(B) OR (A)(10)(C), OR IN METAL ENCLOSURES. NEC 690.31.
11. PV SYSTEM DC SOURCE CIRCUITS WITHIN THE PV ARRAY SHALL BE PV WIRE. EXPOSED PV WIRE SHALL BE SUPPORTED AND SECURED AT INTERVALS NOT TO EXCEED 24 INCHES BY CABLE TIES, OR SIMILIAR FITTINGS LISTED AND IDENTIFIED FOR SECUREMENT AND SUPPORT IN OUTDOOR LOCATIONS.
12. PV DC SOURCE CIRCUIT CONDUCTORS SHALL BE IDENTIFIED AT ALL ALL TERMINATION, CONNECTION, AND SPLICE POINTS FOR POLARITY UNGROUNDED POS (POS, +, OR RED), UNGROUNDED NEG (BLACK, NEG, OR -) AND EACH PV DC CIRCUIT TAGGED TO DIFFERENTIATE IT FROM OTHER PV DC CIRCUITS. NEC 690.31 (B)(2).
13. THE REQUIREMENTS OF NEC 690 PERTAINING TO PV SYSTEM DC SOURCE CIRCUITS SHALL NOT APPLY TO AC MODULES OR AC MICROINVERTER MLPE SYSTEMS NEC 690.6 (A), OR INVERTER AC OUTPUT CIRCUITS.
14. PV MODULE MATING CONNECTORS AND MATING CONNECTORS OF CONNECTED EQUIPMENT, OR FIELD WIREABLE CONNECTORS SUCH AS MC4 CONNECTORS SHALL BE CONFIRMED WITH THE MANUFACTURER FOR INTERMATEABILITY.
15. IN GENERAL PV DC SOURCE CIRCUITS SHALL NOT OCCUPY THE SAME EQUIPMENT WIRING ENCLOSURE AS OTHER NON PV SYSTEMS OR INVERTER AC OUTPUT CIRCUITS. HOWEVER, WHERE ALL CONDUCTORS AND CABLES HAVE AN INSULATION RATING EQUAL TO AT LEAST THE MAXIMUM CIRCUIT VOLTAGE APPLIED TO ANY CONDUCTOR WITHIN THE SAME WIRING METHOD THE FOLLOWING SHALL BE PERMITTED TO OCCUPY THE SAME WIRING ENCLOSURE AS PV DC SOURCE CIRCUIT CONDUCTORS: MULTICONDUCTOR JACKETED CABLES FOR REMOTE CONTROL, SIGNALING, OR POWER-LIMITED CIRCUITS, AND INVERTER AC OUTPUT CIRCUITS. NEC 690.31 (B)(1).
16. WHERE AC AND DC CONDUCTORS OF PV SYSTEMS OCCUPY THE SAME JUNCTION BOX, PULL BOX, OR WIREWAY, THE AC AND DC CIRCUIT CONDUCTORS SHALL BE GROUPED SEPARATELY BY CABLE TIES OR SIMILAR MEANS AT LEAST ONCE AND AT INTERVALS NOT TO EXCEED 6 FT. NEC 690.31 (B)(3).
17. THE BONDING REQUIREMENTS CONTAINED IN NEC 250.97 SHALL APPLY ONLY TO SOLIDLY GROUNDED PV SYSTEM DC CIRCUITS OPERATING OVER 250 VOLTS TO GROUND. MOST PV INVERTERS ARE NOT SOLIDLY GROUNDED, THEY ARE FUNCTIONALLY GROUNDED VIA ELECTRONICS OR A FUSE. AS A RESULT METAL RACEWAYS CONTAINING PV DC CONDUCTORS DO NOT REQUIRE GROUNDING BUSHINGS. NEC 690.43 D.
18. PV DC SOURCE CIRCUIT CONDUCTORS SHALL BE SIZED TO NOT LESS THAN THE MAX CURRENT CALCULATED IN NEC 690.8 (A) MULTIPLIED BY 125%. EXECUTED AS (THE SUM OF THE SHORT CIRCUIT RATING OF THE MODULES CONNECTED IN PARALLEL (PV MODULE ISC) MULTIPLIED BY 125%) MULTIPLIED BY 125%. NEC 690.8 (A)(B). FURTHERMORE, ADJUSTMENT AND CORRECTION FACTORS MUST BE APPLIED FOR CONDITIONS OF USE: MORE THAN 3 CURRENT-CARRYING CONDUCTORS IN A RACEWAY NEC TABLE 310.15 (C)(1), FOR RACEWAYS INSTALLED IN DIRECT SUNLIGHT OR ON ROOFTOPS, AMBIENT TEMPERATURE ADJUSTMENT FACTORS FOR TEMPERATURES GREATER THAN 30 DEG. C (86 DEG F) NEC TABLE 310.15 (B)(1)(1). THESE ADJUSTMENT FACTORS ARE APPLIED TO THE CONDUCTOR BASED ON THE CONDUCTOR INSULATION RATING, TYPICALLY THE 90 DEG C COLUMN. NEC 310.15.
19. CONDUIT CONTAINING PV DC SOURCE CIRCUIT CONDUCTOR INSTALLED ON A ROOF SHALL BE INSTALLED A MINIMUM OF 1" ABOVE THE ROOF TO AVOID THE NEED FOR ROOFTOP TEMPERATURE ADDER ADJUSTMENTS. NEC 310.15 (B)(2).
20. EXPOSED NON-CURRENT-CARRYING METAL PARTS OF THE PV SYSTEM SHALL BE CONNECTED TO AN EQUIPMENT GROUNDING CONDUCTOR. PV MODULE MOUNTING SYSTEMS SHALL BE LISTED AND LABELED, AND IDENTIFIED FOR THE BONDING OF PV MODULES. METALLIC SUPPORT STRUCTURES SHALL HAVE IDENTIFIED BONDING JUMPERS CONNECTED BETWEEN SEPARATE METALLIC SECTIONS SUCH AS SEPARATE ROWS OF PV MODULES AND SHALL BE CONNECTED TO THE EQUIPMENT GROUNDING CONDUCTOR.
21. EQUIPMENT GROUNDING CONDUCTORS MUST BE SIZED IN ACCORDANCE WITH NEC TABLE 250.122 BASED ON THE RATING OF THE CIRCUIT OVER-CURRENT PROTECTIVE DEVICE. WHERE NO OVER-CURRENT PROTECTIVE DEVICE IS REQUIRED IN THE CIRCUIT, AN ASSUMED OVER-CURRENT DEVICE RATED IN ACCORDANCE WITH NEC 690.9 (B) SHALL BE USED WHEN APPLYING NEC TABLE 250.122.
22. A BUILDING OR STRUCTURE SUPPORTING A PV SYSTEM MUST HAVE A GROUNDING ELECTRODE SYSTEM INSTALLED. FOR PV SYSTEMS THAT ARE NOT SOLIDLY GROUNDED, THE EQUIPMENT GROUNDING CONDUCTOR FOR THE OUTPUT OF THE PV SYSTEM, WHERE CONNECTED TO ASSOCIATED DISTRIBUTION EQUIPMENT CONNECTED TO A GROUNDING ELECTRODE SYSTEM, SHALL BE PERMITTED TO BE THE ONLY CONNECTION TO GROUND FOR THE SYSTEM. NOTE MOST PV INVERTERS ARE NOT SOLIDLY GROUNDED, THEY ARE FUNCTIONALLY GROUNDED VIA ELECTRONICS OR A FUSE. NEC 690.47 (1).
23. PV DC CIRCUITS WHERE THE CONDUCTORS HAVE SUFFICIENT AMPACITY FOR THE MAXIMUM CIRCUIT CURRENT, AND WHEN CURRENTS FROM ALL SOURCES DO NOT EXCEED THE MAX OVER-CURRENT PROTECTIVE RATING FOR THE PV MODULE OR POWER CONVERTER, DO NOT REQUIRE OVER-CURRENT PROTECTION. EXAMPLE: WIRING OF MORE THAN 2 STRINGS OF PV MODULES IN PARALLEL WILL REQUIRE OVER-CURRENT PROTECTION. NEC 690.9 (A)(1).
24. PV INVERTER OUTPUT CIRCUITS SHALL BE SIZED ACCORDING TO NEC 705.12 (B)(1) THE MAXIMUM INVERTER OUTPUT CURRENT CALCULATED IN NEC 705.28 (A) MULTIPLIED BY 125% WITHOUT ADJUSTMENT OR CORRECTION FACTORS. NOTE MULTIMODAL ESS INVERTER SYSTEMS MAY HAVE MORE THAN ONE OUTPUT RATING AS WELL AS A PASS-THROUGH CURRENT RATING TO CONSIDER WHEN SIZING AC SYSTEM CONDUCTORS.
25. NEUTRAL CONDUCTORS SIZED ACCORDING TO NEC 705.28 (C)(1) OR (C)(2). A POWER PRODUCTION EQUIPMENT NEUTRAL CONDUCTOR USED SOLELY FOR INSTRUMENTATION, VOLTAGE DETECTION, OR PHASE DETECTION SHALL BE PERMITTED TO BE SIZED IN ACCORDANCE WITH NEC TABLE 250.102.
26. EQUIPMENT GROUNDS WILL BE SIZED TO NEC TABLE 250.122. WHERE NO OVER-CURRENT PROTECTIVE DEVICE IS USED AN ASSUMED OVERCURRENT PROTECTION DEVICE RATED IN ACCORDANCE WITH NEC 690.9 (B) SHALL BE USED WHEN APPLYING NEC TABLE 250.122.
27. INCREASES IN EQUIPMENT GROUNDING CONDUCTOR SIZE TO ADDRESS VOLTAGE DROP CONSIDERATIONS SHALL NOT BE REQUIRED. NEC 690.45.

PV SYSTEM INTERCONNECTION NOTES:
1. UTILITY INTERACTIVE INVERTERS AND INTERCONNECTION SYSTEM EQUIPMENT SHALL BE UL1741 RATED AND CEC RATED TO BE INTERCONNECTED OR OPERATED IN PARALLEL WITH THE UTILITY.
2. A CAUTION PLACARD WILL BE PROVIDED INDICATING ALL PARALLEL POWER PRODUCTION SOURCE DISCONNECT LOCATIONS.

A. SOURCE CONNECTION TO SERVICE NOTES:
1. PV SYSTEMS INTERCONNECTED VIA SUPPLY SIDE CONNECTION OF THE SERVICE DISCONNECTING MEANS SHALL COMPLY WITH NEC 705.11(B) THROUGH (F).
2. THE SERVICE CONDUCTORS CONNECTED TO THE POWER PRODUCTION SOURCE SERVICE DISCONNECTING MEANS SHALL BE SIZED IN ACCORDANCE WITH NEC 705.28 AND NOT SMALLER THAN 6 AWG COPPER OR 4 AWG ALUMINUM.
3. SPLICE OR TAPS SHALL BE MADE WITH CONNECTORS MARKED "SUITABLE FOR USE ON THE LINE SIDE OF THE SERVICE EQUIPMENT" OR EQUIVALENT. NEC 230.46 COMPLIANT INSULATION PIERCING CONNECTORS OR PRESSURE CONNECTORS WILL BE LISTED UL486 A AND UL486 B, ANNEX H. NEC 230.33 AND NECS 230.46.
4. A SERVICE RATED DISCONNECTING MEANS IN ACCORDANCE WITH NEC ARTICLE 230 PARTS VI AND VII MUST BE PROVIDED TO DISCONNECT THE POWER PRODUCTION SOURCE SUPPLY CONDUCTORS. THIS DISCONNECTING MEANS LABELED PV SYSTEM DISCONNECT IS INSTALLED AS A NEW SERVICE. IT WILL INCLUDE A NEUTRAL TO GROUND BOND, A NEUTRAL CONDUCTOR SIZED FOR AVAILABLE FAULT CURRENT, AN EGC FROM CONNECTED TO THE POWER PRODUCTION EQUIPMENT, AND A GEC CONNECTED TO THE BUILDING'S GROUND ELECTRODE SYSTEM CONNECTED PER NEC 250.64(C).
5. ALL METAL ENCLOSURES, METAL WIRING METHODS, AND METAL PARTS ASSOCIATED WITH THE SERVICE CONNECTED TO A POWER PRODUCTION SOURCE SHALL BE BONDED IN ACCORDANCE WITH NEC ARTICLE 250 PARTS II THROUGH V AND VIII.
6. THE PV PRODUCTION SOURCE DISCONNECTING MEANS SHALL HAVE GEC INSTALLED PER NEC 250.64 (D)(1) AND (D)(2).

B. PANEL BUSBAR LOAD-SIDE SOURCE CONNECTION:
1. PV INTERCONNECTION AT OPPOSITE END OF A PANEL BUSBAR REQUIRES THE PANEL BUSBAR TO HAVE AN AMPERE RATING OF NOT LESS THAN 120% OF THE SUM OF THE PANEL OCPD, PLUS 125% OF THE POWER PRODUCTION SOURCE CURRENT RATING.
   EXAMPLE: PANEL WITH 200A BUSBAR RATING AND 200A OCPD PROTECTING THE BUSBAR ALLOWS FOR 40A POWER PRODUCTION SOURCE BREAKER. PROOF: 200A (BUSBAR RATING) X 1.20(120%) = 240A. 240A - 200A (OCPD) = 40A (PV PRODUCTION SOURCE OCPD). 32A PV PRODUCTION SOURCE X 1.25 (CONTINOUS) = 40A OCPD. MAX ALLOWABLE POWER PRODUCTION SOURCE 32A. NEC 705.12 (B)(2).
2. PV INTERCONNECTION TO A PANEL WHERE THE SUM OF THE AMPERE RATINGS OF ALL OVER-CURRENT PROTECTIVE DEVICES, EXCLUDING THE OCPD PROTECTING THE PANEL BUSBAR, DOES NOT EXCEED THE RATING OF THE BUSBAR. NEC 705.12 (B)(3).
   EXAMPLE: PANEL WITH 200A BUSBAR RATING AND 200A OCPD PROTECTING THE BUSBAR WHERE THE SUM OF THE OCPD IN THE PANEL IS 180A ALLOWS FOR A 20A PV INTERCONNECTED BREAKER TO BE PLACED ANYWHERE ON THE BUSBAR.
3. THE PV INTERCONNECTION OCPD CAN BE PLACED ANYWHERE ON A PANEL BUSBAR WHEN THE SUM OF 125% OF THE POWER SOURCE OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OCPD PROTECTING THE BUSBAR DOES NOT EXCEED THE BUSBAR AMPERE RATING. NEC705.12 (B)(1).
4. PV INTERCONNECTIONS SHALL BE PERMITTED ON BUSBARS OF PANELS THAT SUPPLY LUGS CONNECTED TO FEED-THROUGH CONDUCTORS WHERE OCPD IS INSTALLED AT EITHER END OF THE FEED-THROUGH CONDUCTORS. FEED-THROUGH CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH NEC 705.12 (A). NEC 705.12 (B)(4).
5. PV INTERCONNECTION TO EITHER END OF A CENTER-FED PANEL IN DWELLINGS SHALL BE PERMITTED WHERE THE SUM OF 125% OF THE THE POWER PRODUCTION SOURCE OUTPUT CURRENT AND THE RATING OF THE OCPD PROTECTING THE BUSBAR DOES NOT EXCEED 120% OF THE BUSBAR RATING. NEC 705.12 (B)(4).

C. FEEDER TAP LOAD-SIDE SOURCE CONNECTION:
1. PV SYSTEM FEEDER TAP INTERCONNECTION SHALL BE PERFORMED ACCORDING TO 240.21 (B)(1) TAPS NOT OVER 10 FT LONG OR B(2) TAPS NOT OVER 25 FT LONG. WHERE THE POWER SOURCE OUTPUT CONNECTION IS MADE TO A FEEDER, THE FEEDER AMPACITY SHALL BE GREATER THAN OR EQUAL TO 125% OF THE POWER-SOURCE OUTPUT CIRCUIT CURRENT. WHERE THE POWER-SOURCE OUTPUT CONNECTION IS MADE AT A LOCATION OTHER THAN THE OPPOSITE END OF THE FEEDER FROM THE PRIMARY SOURCE OCPD, THAT PORTION OF THE POWER SOURCE OUPUT CONNECTION SHALL BE PROTECTED BY ONE OF THE FOLLOWING: THE FEEDER AMPACITY SHALL BE NOT LESS THAN THE SU OF THE RATING OF THE PRIMARY SOURCE OCPD AND 125% OF THE POWER-SOURCE OUTPUT CIRCUIT CURRENT, OR AN OCPD AT THE LOAD SIDE OF THE POWER SOURCE CONNECTION POINT SHALL BE RATED NOT GREATER THAN THE AMPACITY OF THE FEEDER. NEC 705.12 (A)(1) THROUGH (A)(3).
2. FEEDER TAP OF FEED-THROUGH CONDUCTORS WHERE OCPD IS INSTALLED AT EITHER END OF THE FEED-THROUGH CONDUCTORS, FEED-THROUGH CONDUCTORS ARE PROTECTED FROM DOWNSTREAM OVER-CURRENT FROM THE POWER PRODUCTION SOURCE AS ARE PANEL BUSBARS ON EITHER SIDE OF THE FEED-THROUGH CONDUCTORS PERMITTED TO BE SIZED IN ACCORDANCE WITH NEC 705.12(B)(1) THROUGH (B)(3). THE OCPD INSTALLED AT EITHER END OF THE FEED THROUGH CONDUCTORS, MOST OFTEN AT THE SUBPANEL LOCATION, PROTECTS THE FEED-THROUGH CONDUCTORS FROM OVER-CURRENT FROM THE ADDED CURRENT FROM THE POWER PRODUCTION SOURCE AS ARE BOTH THE UPSTREAM AND DOWNSTREAM PANEL BUSBARS.
   EXAMPLE: LOAD SIDE TAP OF FEED-THROUGH FROM FEED-THROUGH LUGS OF A 200A BUSBAR SERVICE PANEL WITH 200A MAIN OCPD TO A 200A BUSBAR SUBPANEL WITH A 200A MAIN OCPD AT THE SOURCE OF THE FEED-THROUGH IN THE SERVICE PANEL. IN THIS INSTANCE THE 200A RATED FEED-THROUGH CONDUCTORS ARE NOT REQUIRED TO BE UPSIZED TO 240A CONDUCTORS BECAUSE THEY ARE PROTECTED BY THE 200A BREAKER. LOAD SIDE TAP OF THE FEED-THROUGH CONDUCTORS AT THE SERVICE PANEL LOCATION IS THE SAME AS PLACING A 40A BREAKER AT THE OPPOSITE END OF THE BUS. THE SERVICE PANEL BUSBAR IS BACKFED BY THE POWER PRODUCTION SOURCE VIA THE FEED-THROUGH LUGS WHICH ARE TRULY AT THE OPPOSITE END OF THE BUSBAR.

ENERGY STORAGE SYSTEM (ESS) GENERAL NOTES:
1. AN ESS IS DEFINED AS ONE OR MORE DEVICES INSTALLED AS A SYSTEM CAPABLE OF STORING ENERGY AND PROVIDING ELECTRICAL ENERGY TO THE PREMISES WIRING SYSTEM. NOTE, ESS CAN INCLUDE SEPARATE COMPONENTS: INVERTERS OR CONVERTERS TO CHANGE VOLTAGE LEVELS OR TO MAKE A CHANGE BETWEEN ALTERNATING-CURRENT OR A DIRECT-CURRENT SYSTEM. NEC ARTICLE 706. NOT INTENDED TO BE GOVERNED BY NEC 480 STATIONARY STANDBY BATTERIES. ENERGY STORAGE SYSTEMS DIFFER FROM A STATIONARY BATTERY INSTALLATION WHERE A BATTERY SPENDS THE MAJORITY OF THE TIME ON CONTINUOUS FLOAT CHARGE OR IN A HIGH STATE OF CHARGE, IN READINESS FOR A DISCHARGE EVENT. NEC ARTICLE 100 DEFINITIONS ESS INFO NOTES 1 AND 2.
2. THE ESS DISCONNECTING MEANS SHALL BE READILY ACCESSIBLE AND EITHER LOCATED WITHIN THE ESS, LOCATED WITHIN SIGHT 10 FT FROM THE ESS, WHERE NOT LOCATED WITHIN SIGHT OF THE ESS, THE DISCONNECTING MEANS, OR THE ENCLOSURE PROVIDING ACCESS TO THE DISCONNECTING MEANS, SHALL BE CAPABLE OF BEING LOCKED IN ACCORDANCE WITH NEC 110.25. 706.15 (A)(B).
3. FOR ONE AND TWO FAMILY DWELLINGS, AN ESS SHALL INCLUDE AN EMERGENCY SHUTDOWN FUNCTION TO CEASE THE EXPORT OF POWER FROM THE ESS TO PREMISES WIRING OF OTHER SYSTEMS. NEC 706.15 (B).
4. EACH ESS DISCONNECTING MEANS SHALL PLAINLY INDICATE WHETHER IT IS IN THE OPEN (0FF) OR CLOSED (ON) POSITION AND BE PERMANENTLY MARKED AS FOLLOWS: "ENERGY STORAGE SYSTEM DISCONNECT."
5. VENTILATION OF AN ESS SHALL BE PERMITTED TO BE PROVIDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMENDATIONS AND LISTING FOR THE SYSTEM. NEC 706.2 (A) INFO NOTE 1: NOT ALL ESS TECHNOLOGIES REQUIRE VENTILATION.
6. REQUIREMENTS FOR SPACES ABOUT ESS COMPONENTS IN GENERAL SHALL COMPLY WITH NEC 110.26 AND NEC 110.34. ESS SHALL BE PERMITTED TO HAVE SPACE BETWEEN COMPONENTS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND LISTING. LASTLY, SPACE BETWEEN ESS COMPONENTS WILL BE DETERMINED BY THE FIRE CODE ADOPTED BY THE AHJ.
7. ESS CONDUCTOR AMPACITY SHALL NOT BE LESS THAN THE GREATER OF THE NAMEPLATE-RATED CIRCUIT CURRENT OR THE ESS OVERCURRENT PROTECTION DEVICE. NEC 706.30 (B).
8. THE NEUTRAL CONDUCTOR AMPACITY IN AN ESS SHALL BE CAPABLE OF CARRYING THE CALCULATED UNBALANCED NEUTRAL LOAD, PLUS THE ESS OUTPUT RATING SHALL NOT EXCEED THE AMPACITY OF THE GROUND OR NEUTRAL CONDUCTOR.
9. ESS SYSTEM SHALL BE UL9540 LISTED AND INSTALLED ACCORDING TO MANUFACTURER INSTRUCTIONS.

STRUCTURAL NOTES:
1. BEFORE STARTING CONSTRUCTION OF THE PV ARRAY, VERIFY PLAN ARRAY FITTING AND OBSTRUCTION LOCATIONS ON THE ROOF.
2. INSTALL PV FLASHING AND STANDOFF ACCORDING TO MANUFACTURER PROVIDED INSTRUCTIONS.
3. TAKE CARE NOT TO TEAR OR DAMAGE THE SHINGLES IN PREPARATION FOR THE INSTALLATION OF ATTACHMENT FLASHING. REPAIR ANY SHINGLES DAMAGED DURING THE FLASHING INSTALLATION PROCESS.
4. PRE-DRILL TRUSSES OR RAFTERS WITH MINIMUM $\frac{3}{16}$" DIA BIT AT ATTACHMENT POINTS WHERE LAG BOLTS ARE INSTALLED TO PREVENT SPLITTING.
5. EACH ROOF PENETRATION MUST BE SEALED WITH AN APPROVED ROOF SEALANT UNDER EACH INSTALLED FLASHING AT EACH ATTACHMENT POINT.
6. ATTACH EACH MIN $\frac{5}{16}$" DIA. LAG BOLT AT THE CENTER OF EACH TRUSS OR RAFTER MEMBER EMBEDDED 3" MINIMUM DEPTH. THIS REQUIRES A TRAINED AND SKILLED PROFESSIONAL.
7. IF A RAFTER IS NOT AVAILABLE AT THE REQUIRED ATTACHMENT SPACING A #2 DF 4X4 BLOCK MAY BE INSTALLED IN THE ATTIC BETWEEN THE TOP CHORD OF TRUSSES, OR RAFTERS. BLOCKS INSTALLED FOR PV ATTACHMENT POINTS MUST BE ATTACHED TO TRUSSES OR RAFTERS WITH A 20 GAUGE MIN ANGLE CLIP OR 18 GAUGE MIN HANGER ON THE SIDE OF EACH END.
8. REPAIR ANY UNUSED ROOF PENETRATIONS WITH APPROVED ROOF SEALANT AND A METAL SHINGLE UNDERNEATH THE DRILLED SHINGLE.

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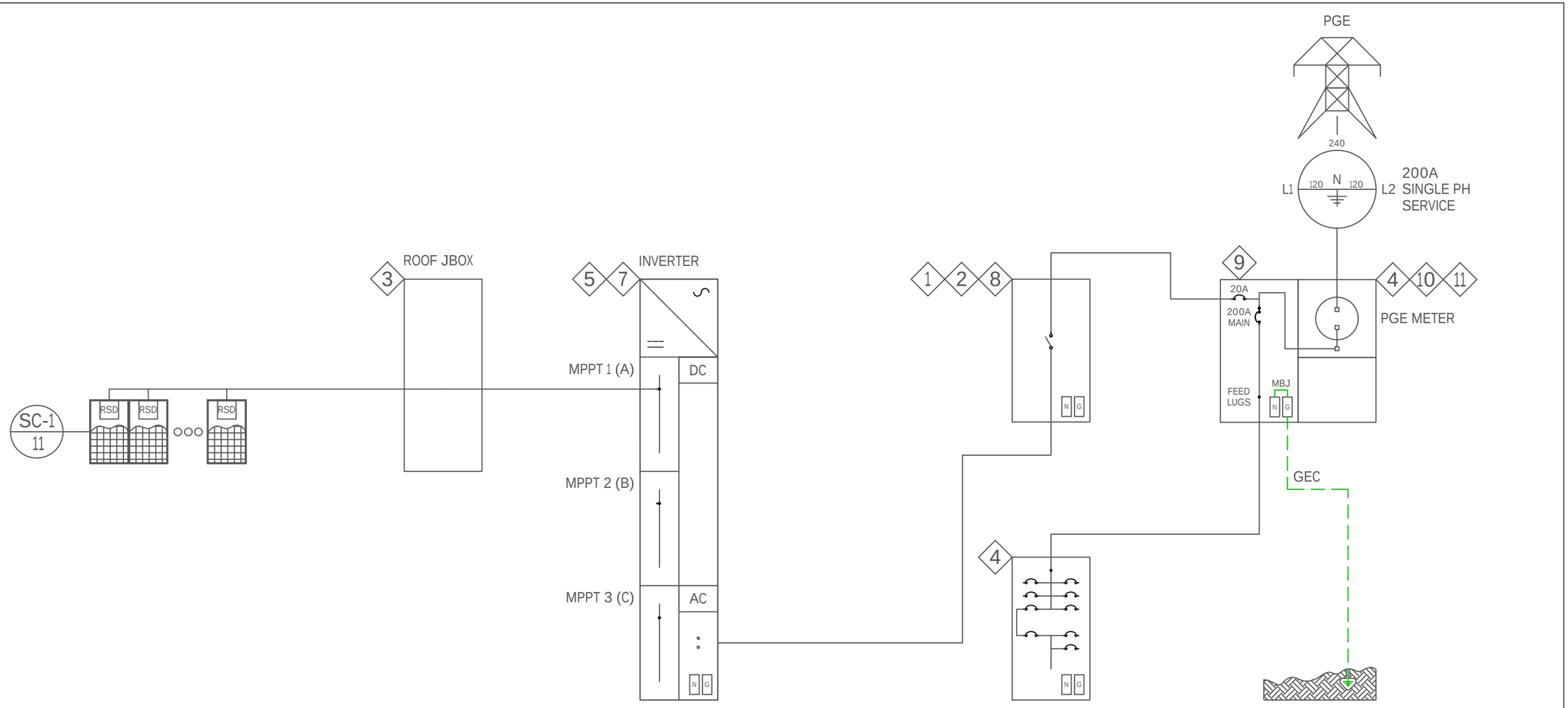
PROJECT NOTES

PROJECT: MILLER PV
ADDRESS: 540 LESLIE ST SE, SALEM, OR 97301

JOB: #6158
REVISION: #0
DATE: 10/3/2024
DRAWN BY: JW

G-1
SHEET NUMBER



1 RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

PV RAPID SHUTDOWN SWITCH LABEL NEC 690.12 (D)(2).

2 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

SOLAR ELECTRIC PV PANELS

PV RAPID SHUTDOWN INITIATION DEVICE LABEL NEC 690.12 (D).

3 WARNING: PHOTOVOLTAIC POWER SOURCE

4 ⚠WARNING
DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM
pvlabels.com 05-411

EQUIPMENT SUPPLIED BY INTERCONNECTED PV NEC 705.30 (C).
UTILITY REQUIRED PARALLEL PRODUCTION WARNING LABEL.

5 PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

INTERCONNECTED PV SYSTEM RSD COMPLIANT NEC 690.12.

6 ⚠WARNING
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE
pvlabels.com 05-412

INTERCONNECTED PV OCPD, OPPOSITE END NEC 705.12 (B)(2).

7
PHOTOVOLTAIC DC DISCONNECT MPPT 1 MPPT 2
OPERATING VOLTAGE:
OPERATING CIRCUIT CURRENT:
MAXIMUM VOLTAGE:
MAXIMUM CIRCUIT CURRENT:

PV SYSTEM AC DISCONNECT NEC 690.13 (B)

8
PV SYSTEM AC DISCONNECT
MAXIMUM RATED AC OUTPUT CURRENT:
MAXIMUM RATED AC OPERATING VOLTAGE:

PV SYSTEM AC DISCONNECT NEC 690.13 (B)

9
PV AC DISCONNECT
MAXIMUM RATED AC OUTPUT CURRENT:
MAXIMUM RATED AC OPERATING VOLTAGE:

REQUIRED CIRCUIT DIRECTOR OR DESCRIPTION NEC 408.4 (A)

10 PGE NET METER

INFORMATIONAL LABEL INDICATING UTILITY SUPPLYING THE BUILDING.

11
CAUTION
POWER TO THIS SITE IS SUPPLIED FROM PV ARRAY AND UTILITY GRID.
PV ARRAY LOCATED AS DESCRIBED HERE.
PV SYSTEM DISCONNECT LOCATED AS DESCRIBED HERE.

INTERCONNECTED POWER PRODUCTION SOURCES IDENTIFICATION NEC 705.10 (3).
UTILITY REQUIRED IDENTIFICATION OF PARALLEL PRODUCTION SOURCES PLACARD.

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PLACARDS AND LABELS

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ADDRESS: 540 LESLIE ST SE, SALEM, OR 97301

JOB: #6158
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G-2
SHEET NUMBER

1 SITE PLAN

1/16" = 1'-0"

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SITE PLAN

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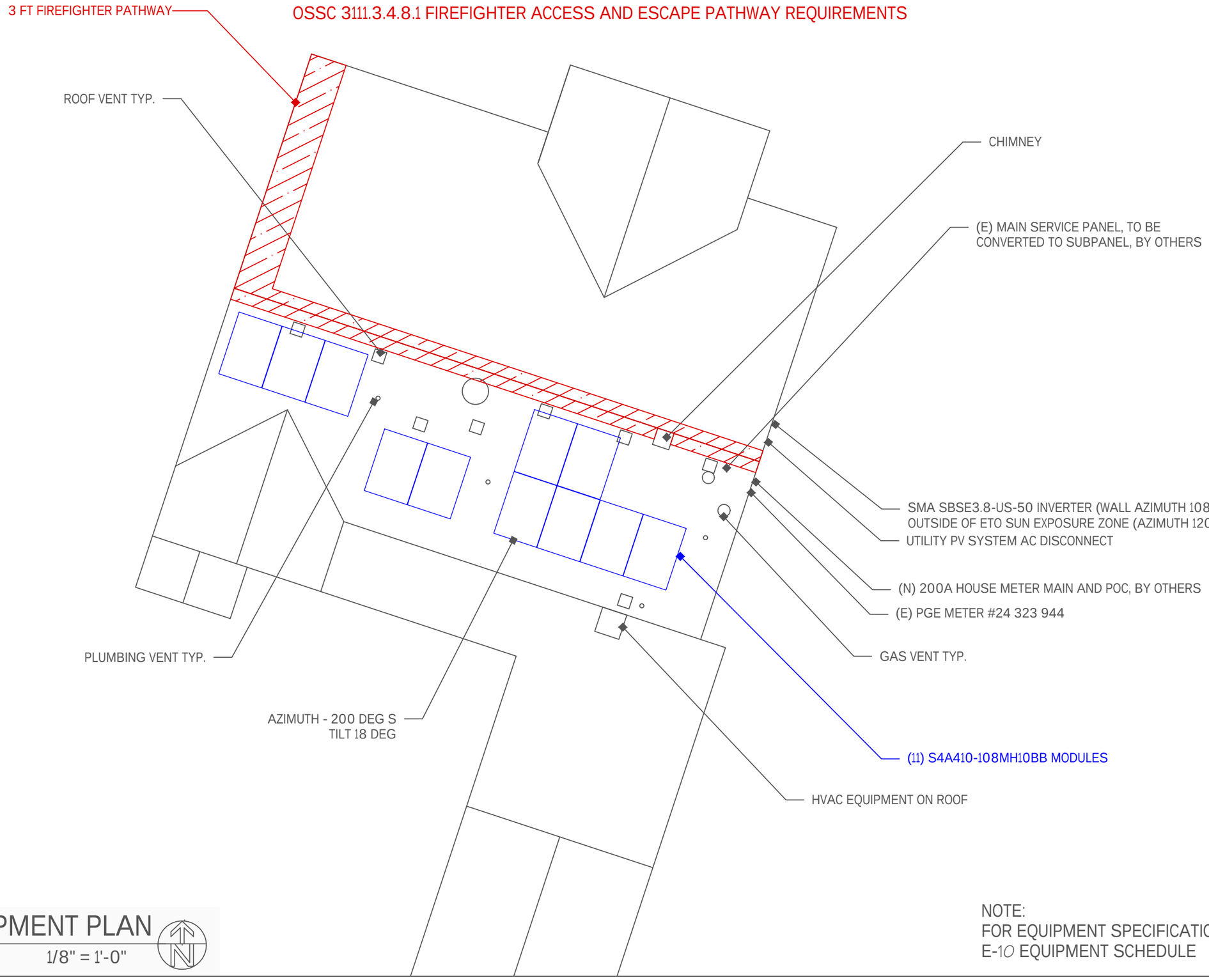
G-3

SHEET NUMBER

OSSC 3111.3.4.8.1 FIREFIGHTER ACCESS AND ESCAPE PATHWAY REQUIREMENTS



1 EQUIPMENT PLAN
1/8" = 1'-0"

NOTE:
FOR EQUIPMENT SPECIFICATIONS SEE
E-10 EQUIPMENT SCHEDULE

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EQUIPMENT PLAN

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ADDRESS: 540 LESLIE ST SE, SALEM, OR 97301

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PV-4
SHEET NUMBER

ROOF STRUCTURE:
MEETS PRESCRIPTIVE SOLAR REQUIREMENTS
2X4 #2 DF RAFTERS AT 16" O.C.
MAX SPAN 8'-6". MAX ALLOWABLE SPAN PER OSSC TABLE 2308.7.2(1) 8'-6".
MIDSPAN SUPPORT WALL ON CONTINUOUS LOAD BEARING WALL BELOW.
COMP. SHINGLE ROOFING ON $\frac{1}{2}$" PLY ON 1X6 SKIP SHEATHING.

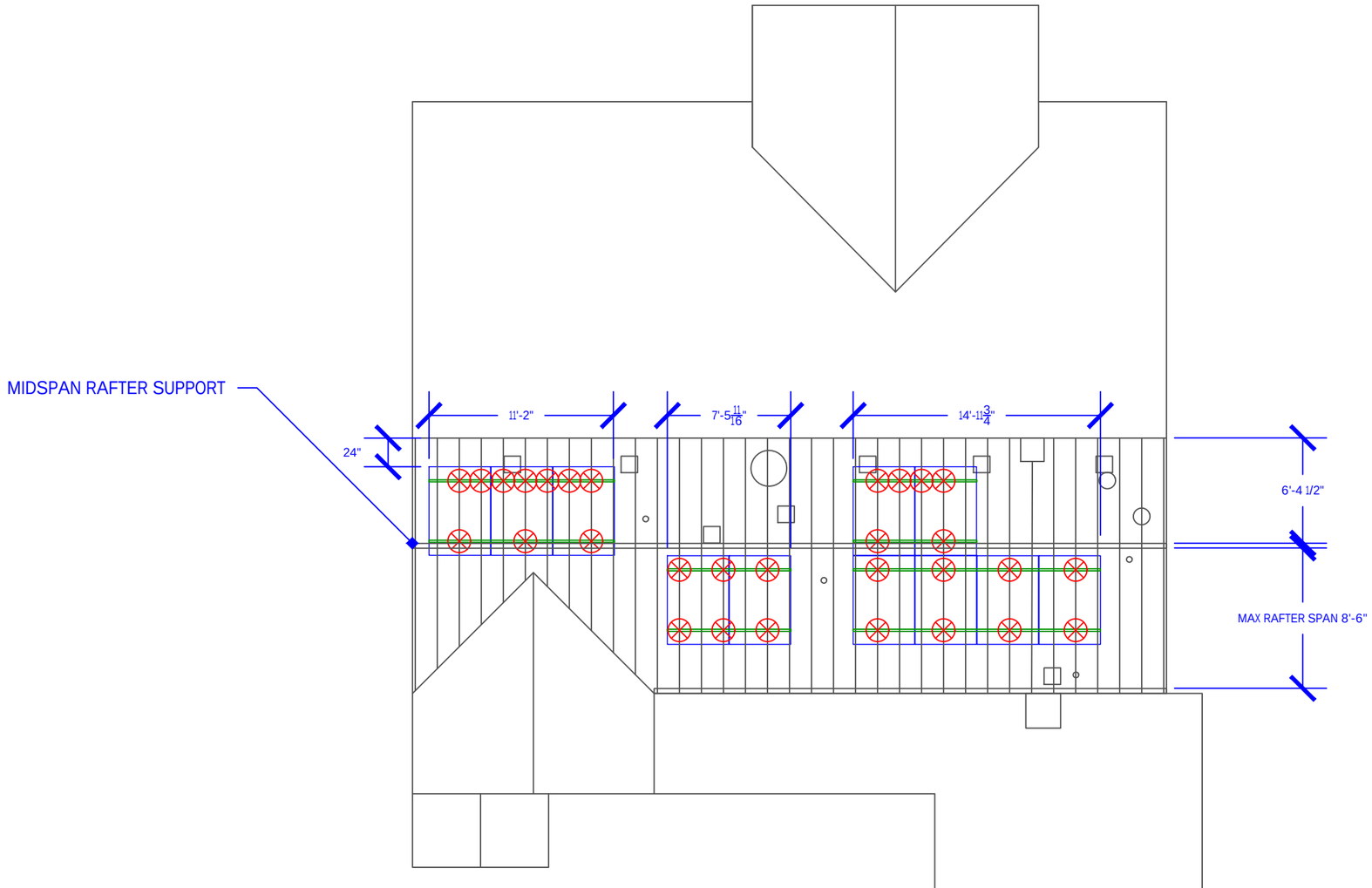
SOLAR RACKING:
IRONRIDGE XR100 RAILS
IRONRIDGE FLASHFOOT2 ATTACHMENTS 24" O.C. WITHIN 3FT OF ROOF EDGES AND 48" O.C.
IN THE FIELD AS PER OREGON SPECIALTY CODE FOR PRESCRIPTIVE INSTALLATIONS.

KEY:

FLASHFOOT2 ATTACHMENT

XR100 RAIL

PV MODULE



1 STRUCTURAL PLAN
1/8" = 1'-0"

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STRUCTURAL PLAN

PROJECT: MILLER PV

ADDRESS: 540 LESLIE ST SE, SALEM, OR 97301

JOB: #6158

REVISION: #0

DATE: 10/3/2024

DRAWN BY: JW

S-5

SHEET NUMBER

ROOF STRUCTURE:
MEETS PRESCRIPTIVE SOLAR REQUIREMENTS
2X4 #2 DF RAFTERS AT 16" O.C.
MAX SPAN 8'-6". MAX ALLOWABLE SPAN PER OSSC TABLE 2308.7.2(1) 8'-6".
MIDSPAN SUPPORT WALL ON CONTINUOUS LOAD BEARING WALL BELOW.
COMP. SHINGLE ROOFING ON $\frac{1}{2}$" PLY ON 1X6 SKIP SHEATHING.

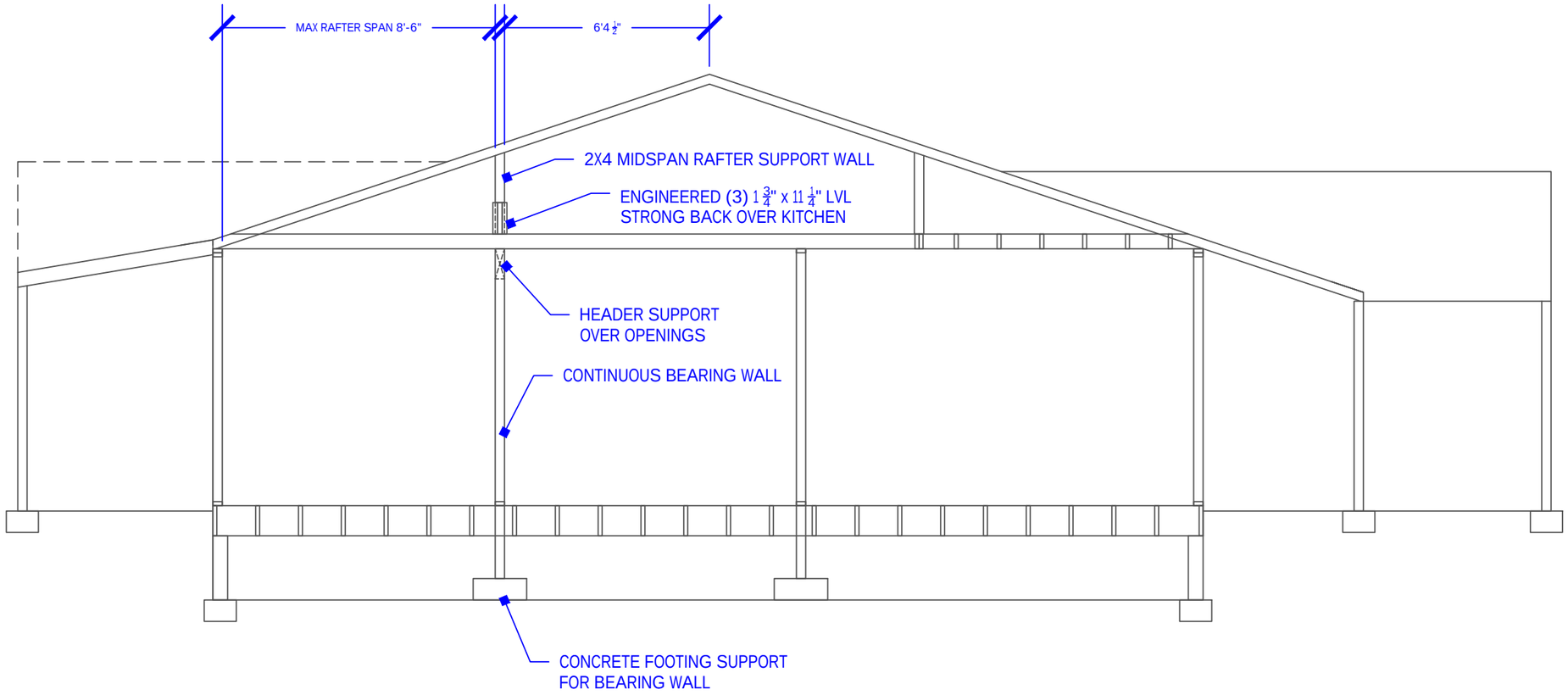
SOLAR RACKING:
IRONRIDGE XR100 RAILS
IRONRIDGE FLASHFOOT2 ATTACHMENTS 24" O.C. WITHIN 3FT OF ROOF EDGES AND 48" O.C.
IN THE FIELD AS PER OREGON SPECIALTY CODE FOR PRESCRIPTIVE INSTALLATIONS.

KEY:

FLASHFOOT2 ATTACHMENT ⊗

XR100 RAIL

PV MODULE



1 STRUCTURAL SECTION
1/4" = 1'-0"

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STRUCTURAL PLAN

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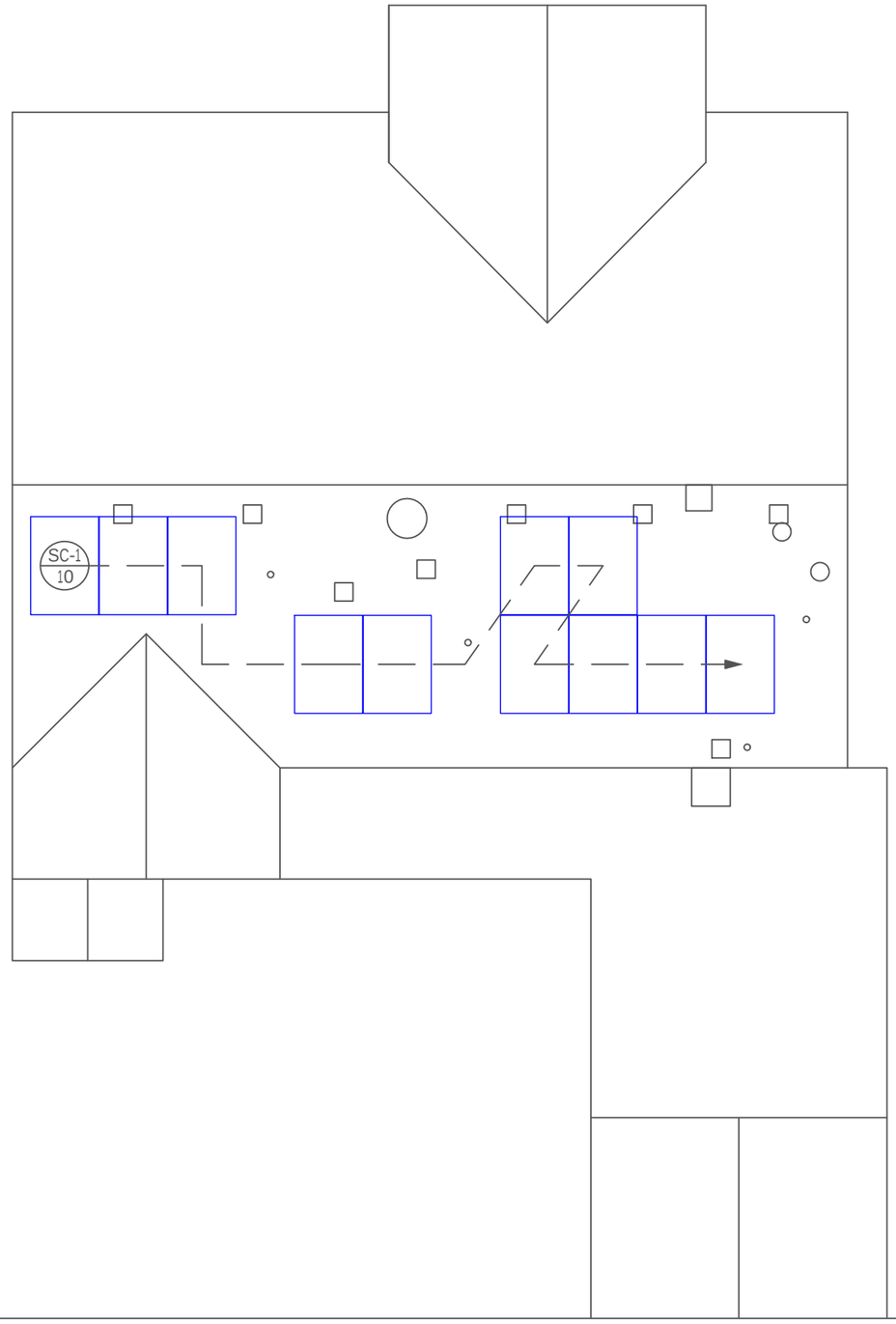
S-6
SHEET NUMBER



1 PV STRING PLAN

1/8" = 1'-0"

NOTE:
FOR SC WIRING DETAILS SEE E-8 ELECTRICAL PLAN

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PV STRING PLAN

PROJECT: MILLER PV

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REVISION: #0

DATE: 10/3/2024

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E-7

SHEET NUMBER

(11) SOLAR-4-AMERICA
S4A410-108MH10BB MODULES
4,510 W DC STC TOTAL

- NO SPLICE IN ROOF JBOX. PV WIRE IN CONDUIT TO INVERTER

ROOF JBOX

INVERTER

MPPT 1 (A)

MPPT 2 (B)

MPPT 3 (C)

DC

AC

SC-1
11

RSD

INTERCONNECTION DETAILS:
POC (N) METER MAIN PANEL, BY OTHERS
200A BUS RATING
NEC 705.12 (B)(2) LOAD-SIDE SOURCE CONNECTION
SOURCE CONNECTION TO SUPPLY SIDE BREAKER
50A SUPPLY SIDE BREAKER BUSSING
40A MAX ALLOWABLE PV
MAX CONT. PV AC CURRENT 16 A
20A PV OCPD

- UTILITY REQUIRED 200A PV SYSTEM AC DISCONNECT NEXT TO (E) HOUSE METER MAIN.

PGE

240

L1 120 N 120 L2

200A SINGLE PH SERVICE

20A

200A MAIN

PGE METER #24 323 944

FEED LUGS

MBJ

N G

GEC

- RE-FEED (E) INTERIOR 200A SPLIT-BUS SERVICE PANEL, BY OTHERS.

TO (E) BUILDING LOADS

- (E) 200A SPLIT-BUS SERVICE PANEL ON INTERIOR CONVERTED TO SUBPANEL, BY OTHERS.

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ELECTRICAL PLAN

PROJECT: MILLER PV

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DATE: 10/3/2024

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E-8

SHEET NUMBER

CONDUCTOR SCHEDULE

TAG	DESCRIPTION	CONDUCTOR	WIRE GAUGE	QUANTITY	UN-G COND.	NEUTRAL	EGC	GEC	CONDUIT	COND. FILL %	OCPD
A	PV SC MLPE RSD TO ROOF JBOX	PV WIRE	#10	2	(2) POS, NEG	NONE	#6		OPEN AIR		20A
B	PV SC ROOF JBOX TO INVERTER	PV WIRE	#10	2	(2) POS, NEG	NONE	#10		3/4" EMT	24.5	20A
C	INVERTER TO PV SYSTEM AC DISCO.	THWN-2 CU	#10	4	(2) L1, L2	#10	#10		3/4" EMT	15.8	20A
D	PV SYSTEM AC DISCO. TO POC	THWN-2 CU	#10	4	(2) L1, L2	#10	#10		3/4" EMT	15.8	20A
E	RE-FEED TO INTERIOR SUBPANEL	XHHW-2 AL/ SER AL	4/0	4	(2) L1, L2	2/0-4/0	#4				200A

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CONDUCTOR SCHEDULE

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E-9

SHEET NUMBER

EQUIPMENT SCHEDULE

SOLAR PV MODULE

TAG	MANUFACTURER	MODEL	QUANTITY	DIM	CLAMP RANGE	STC WATTS	VMP	IMP	VOC	ISC	TEMP PMPP %/DG C	TEMP VOC %/D C	TEMP ISC %/D C
1	SOLAR-4-AMERICA	S4A410-108MH10BB	11	44.65 X 67.8	10.62-11.02"	410	31.43	13.05	37.50	13.94	-0.35	-0.26	0.048

SOLAR PV INVERTER

TAG	DESCRIPTION	MANUFACTURER	MODEL	QUANTITY	MAX CONT. OUTPUT KVA	OPERATING VOLTAGE	MAX CONT. OUTPUT CURRENT A	MPPT DC V RANGE
2	SINGLE PHASE STRING INVERTER	SMA	SBSE3.8-US-50	1	3.8	240	16	60-480

EQUIPMENT

TAG	DESCRIPTION	MANUFACTURER	MODEL	QUANTITY	AMPS	VOLTAGE	PH	BUS	OCPD	SP	NEMA
3	PV AC DISCONNECT	EATON	DG221URB	1	30	120/240	1-PH				3R
4	(N) METER MAIN W/ SUPPLY SIDE BR.	EATON	MC0816B1200ESN	1	200	120/240	1-PH	200/ 50	200		3R
5	(E) SPLIT-BUS MAIN SERVICE PANEL	ITE IMPERIAL CORP.	EQC5X12B	1	200	120/240	SINGLE	200	200		1R
6	RAPID SHUTDOWN MLPE	APSMART	RSD-S-PLC	11	15	8-80	DC				6P/IP68
7	ENERGY METER	SMA	SMBEMETERUS50	1							
8	SMA BACKUP START MODULE	SMA	BU-STRT-US-50	1							

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E-10
SHEET NUMBER