ENCŌR

CONTRACTOR INFORMATION:
PROSPECT SOLAR, LLC
118 ACACIA LANE,
STERLING, VA
20166
License #2705146949

SITE INFORMATION:
David Moore
1803 Creekview Ln, Charlottesville, VA 22911
AC SYSTEM SIZE: 11.4 kW AC
DC SYSTEM SIZE: 14.26 kW DC

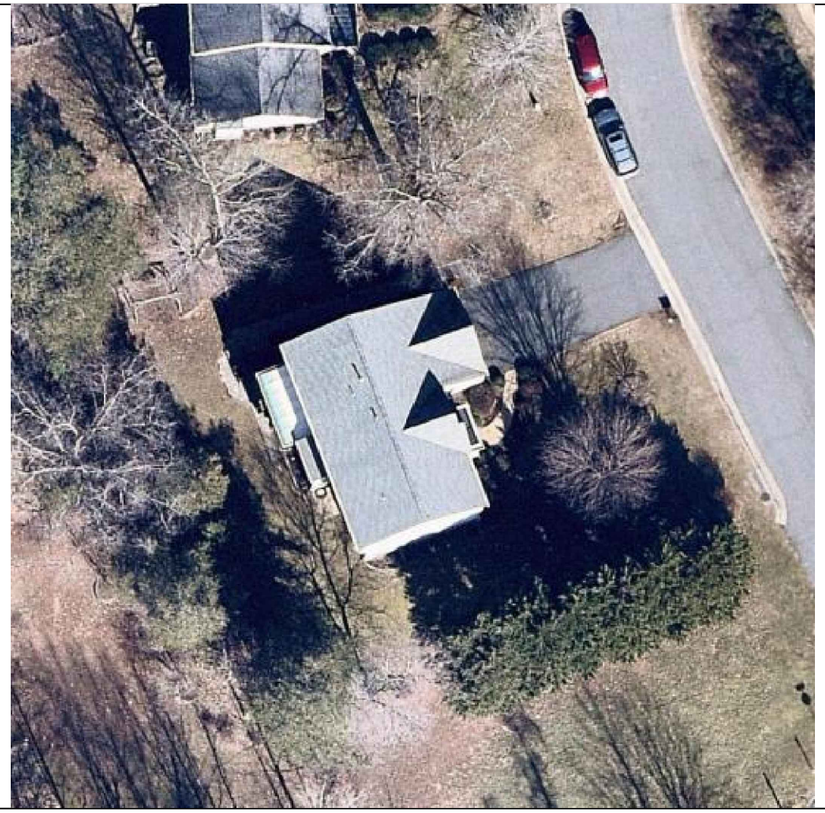
(46) S-Energy SN-310M-10T/15T PV MODULES
(1) SolarEdge SE11400H-US (240V) INVERTER(S)

DATE: January 29, 2020

PAGE: PV01
SHEET NAME: COVER PAGE

DRAWN BY: SoloCAD

AERIAL VIEW:



STREET VIEW:

SHEET INDEX:

GENERAL NOTES:

1. INSTALLATION OF SOLAR PHOTOVOLTAIC SYSTEM SHALL BE IN ACCORDANCE WITH NEC ARTICLE 690, AND ALL OTHER APPLICABLE NEC CODES WHERE NOTED OR EXISTING.
2. PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL COMPLY WITH NEC ARTICLE 110.
3. ALL WIRES, INCLUDING THE GROUNDING ELECTRODE CONDUCTOR SHALL BE PROTECTED FROM PHYSICAL DAMAGE IN ACCORDANCE WITH NEC ARTICLE 250
4. THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE; THIS SYSTEM IS UTILITY INTERACTIVE PER UL 1741 AND DOES NOT INCLUDE STORAGE BATTERIES OR OTHER ALTERNATIVE STORAGE SOURCES.
5. ALL DC WIRES SHALL BE SIZED ACCORDING TO [NEC 690.8]
6. DC CONDUCTORS SHALL BE WITHIN PROTECTED RACEWAYS IN ACCORDANCE WITH [NEC 690.31]
7. ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL JURISDICTIONAL BUILDING CODE.

DESCRIPTION OF DESIGN:
INSTALLATION OF GRID -TIED, UTILITY INTERACTIVE PHOTOVOLTAIC SYSTEM

EQUIPMENT:
AC SYSTEM SIZE: 11.4 kW AC
DC SYSTEM SIZE: 14.26 kW DC
PV MODULES: (46) S-Energy SN-310M-10T/15T
INVERTER(S): (1) SolarEdge SE11400H-US (240V)
RACKING: UNIRAC SM FLUSH MOUNT RAILING & ROOF ATTACHMENT SYSTEM - 48" O.C.

APPLICABLE GOVERNING CODES:

2011	NATIONAL ELECTRIC CODE [NEC]
2012	INTERNATIONAL BUILDING CODE [IBC]
2012	INTERNATIONAL RESIDENTIAL CODE [IRC]
2012	INTERNATIONAL FIRE CODE [IFC]

SITE SPECIFICATIONS:
OCCUPANCY: R-3
ZONING: RESIDENTIAL
EXPOSURE CATEGORY: B

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DATE: January 29, 2020

PAGE: PV02
SHEET NAME: PROPERTY PLAN

DRAWN BY: SoloCAD
SCALE: 1" = 24.07'

N

194'-0"

130'-0"

INV AC MSP M

J8

J8

MP1
PITCH: 30°
AZIMUTH: 249°

MP2
PITCH: 30°
AZIMUTH: 69°

FRONT OF HOME

1803 Creekview Ln

EQUIPMENT LEGEND:

- M — UTILITY METER
- MSP — MAIN SERVICE PANEL
- AC — VISIBLE, LOCKABLE, LABELED AC DISCONNECT
- PV — METER SOCKET (FOR UTILITY PV METER)
- INV — INVERTER
- C — COMBINER BOX
- LC — LOAD CENTER
- FIRE ACCESS PATHWAY (3' TYP)
- PROPERTY LINE
- BATT — BATTERY(IES)

VISIBLE, LOCKABLE, LABELED AC DISCONNECT LOCATED WITHIN 10' OF UTILITY METER

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DATE: January 29, 2020

PAGE: PV03
SHEET NAME: ROOF PLAN
DRAWN BY: SoloCAD

EQUIPMENT LEGEND:

- M — UTILITY METER
- MSP — MAIN SERVICE PANEL
- AC — VISIBLE, LOCKABLE, LABELED AC DISCONNECT
- PV — METER SOCKET (FOR UTILITY PV METER)
- INV — INVERTER
- C — COMBINER BOX
- LC — LOAD CENTER
- FIRE ACCESS PATHWAY (3' TYP)
- BATT — BATTERY(IES)

N

MP1
PITCH: 30°
AZIMUTH: 249°

MP2
PITCH: 30°
AZIMUTH: 69°

FRONT OF HOME

VISIBLE, LOCKABLE,
LABELED AC DISCONNECT
LOCATED WITHIN 10'
OF UTILITY METER

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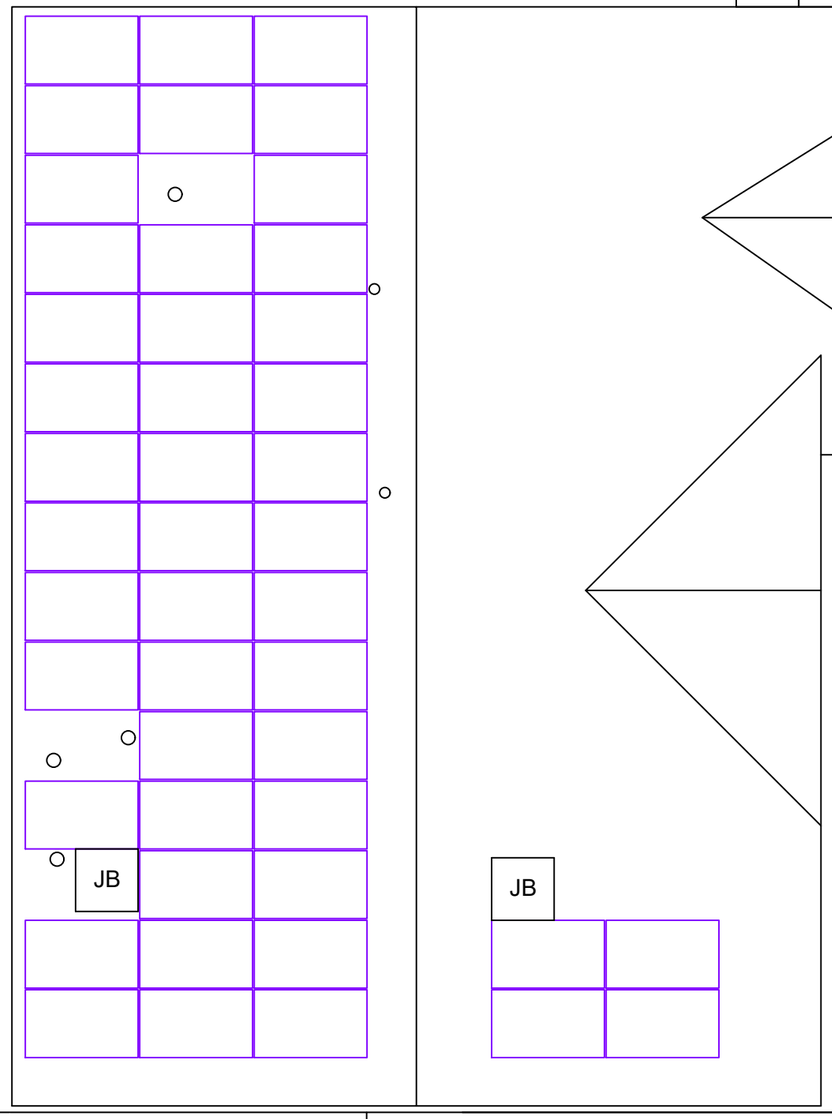
DATE: January 29, 2020

PAGE: PV04
SHEET NAME: ROOF ATTACHMENTS + BOM

DRAWN BY: SoloCAD



PHOTOVOLTAIC ARRAY STRUCTURAL CRITERIA:	
ROOF ATTACHMENT COUNT:	96
PV MODULE COUNT:	46
ARRAY AREA:	MODULE COUNT * 18.06ft² = 830.76
ROOF AREA:	2274 ft²
PERCENT OF ROOF COVERED:	37%
ARRAY WEIGHT:	MODULE COUNT * 50lbs = 2300
DISTRIBUTED LOAD:	ARRAY LBS/ATTACHMENTS = 23.96
POINT LOAD: (lbs/ft²)	(ARRAY) WEIGHT/AREA = 2.77 lbs/ft²

MOUNTING EQUIPMENT QTY:	
ROOF ATTACHMENT COUNT:	(96)
PV MODULE COUNT:	(46)
MID CLAMP COUNT:	(74)
END CLAMP QTY:	(36)
SPLICE COUNT:	(18)
ATTACHMENT SPACING:	48

FRAMING INFO:	
RAFTER SIZE:	2x4
RAFTER SPACING:	24"
FRAMING TYPE:	Manufactured Truss

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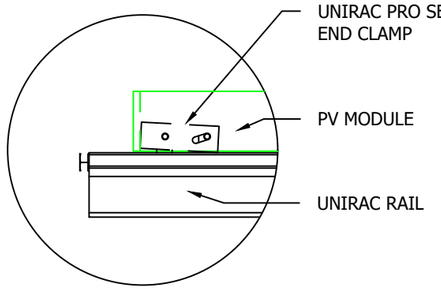
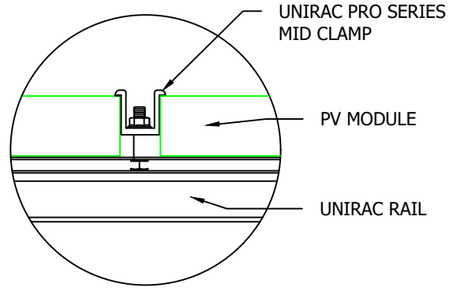
DATE: January 29, 2020

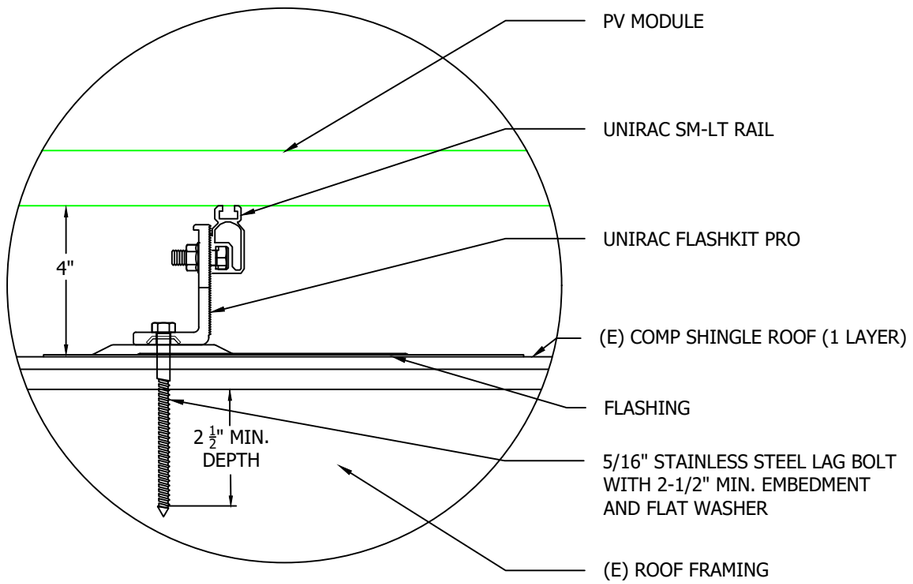
PAGE: PV05
SHEET NAME: MOUNTING DETAIL
DRAWN BY: SoloCAD



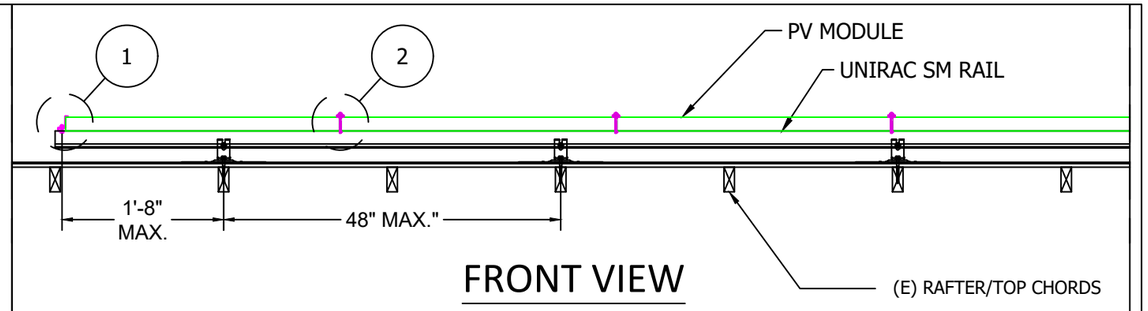
1 END CLAMP DETAILS



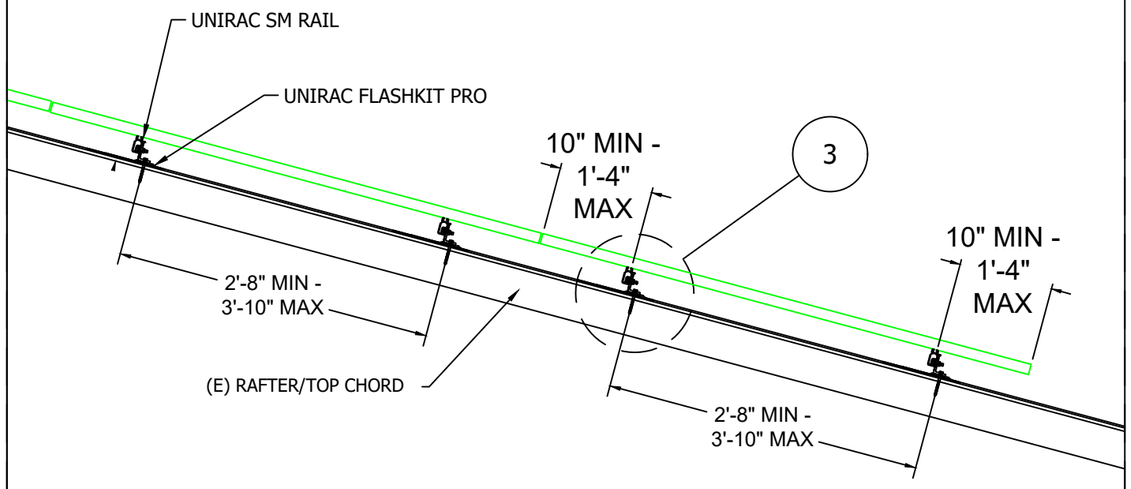
2 MID CLAMP DETAILS



3 DETAIL, MOUNTING AND FLASHING



FRONT VIEW



SIDE VIEW

PHOTOVOLTAIC ARRAY STRUCTURAL CRITERIA:	
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PV MODULE COUNT:	46
ARRAY AREA:	MODULE COUNT * 18.06ft² = 830.76
ROOF AREA:	2274 ft²
PERCENT OF ROOF COVERED:	37%
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DISTRIBUTED LOAD:	ARRAY LBS/ATTACHMENTS = 23.96
POINT LOAD: (lbs/ft²)	(ARRAY) WEIGHT/AREA = 2.77 lbs/ft²

MOUNTING EQUIPMENT QTY:	
ROOF ATTACHMENT COUNT:	(96)
PV MODULE COUNT:	(46)
MID CLAMP COUNT:	(74)
END CLAMP QTY:	(36)
SPLICE COUNT:	(18)
ATTACHMENT SPACING:	48

FRAMING INFO:	
RAFTER SIZE:	2x4
RAFTER SPACING:	24"
FRAMING TYPE:	Manufactured Truss

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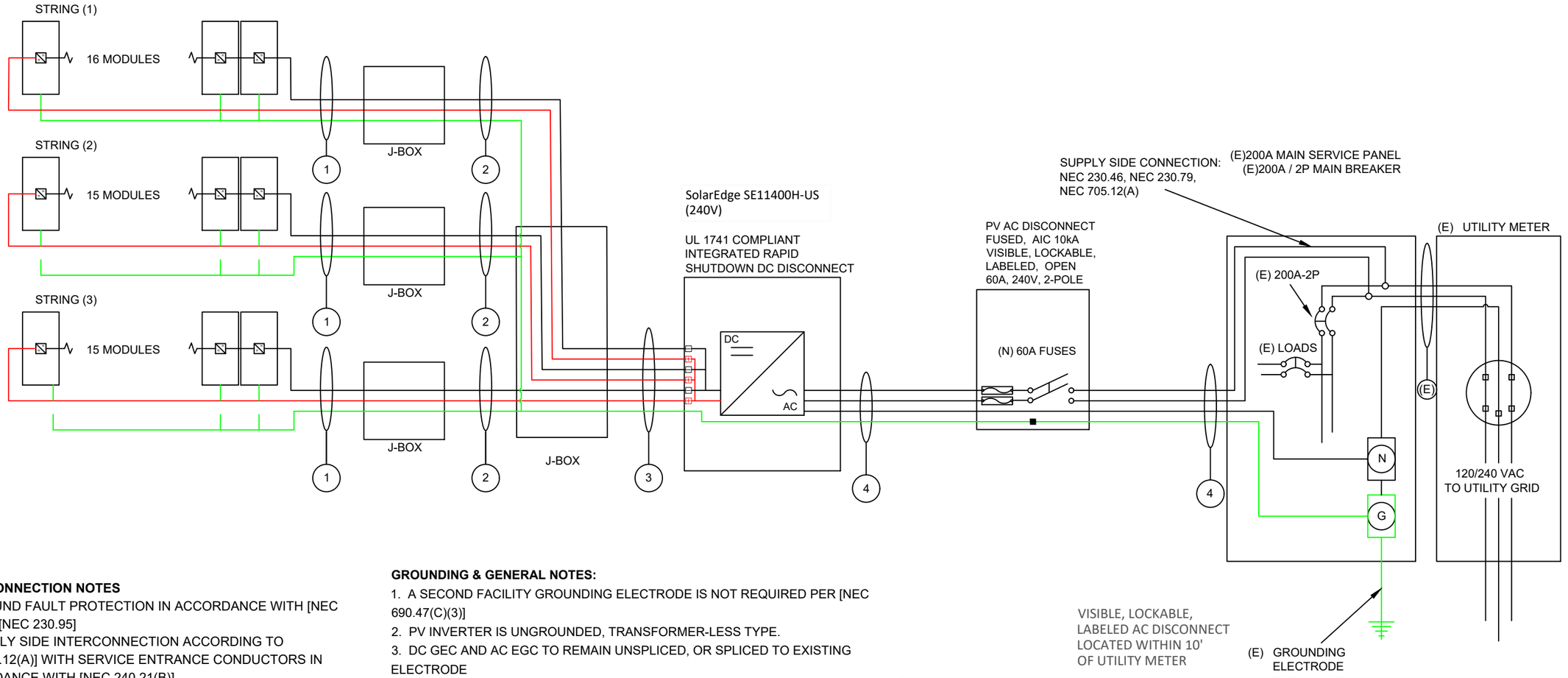
DATE: January 29, 2020

PAGE: PV06 SHEET NAME: ELECTRICAL DIAGRAM

DRAWN BY: SoloCAD

WIRE SCHEDULE

1	(2) PV-WIRE - 10 AWG, USE-2, COPPER (OR CODE APPROVED EQUIVALENT) (1) 6 AWG BARE, COPPER (GROUND)	2	(1) 10 AWG THWN-2, or THHN, or 10/2 NM-B COPPER - (POSITIVE) (1) 10 AWG THWN-2, or THHN, or 10/2 NM-B COPPER - (NEGATIVE) (1) 10 AWG THWN-2, or THHN, or 10/2 NM-B COPPER - (GROUND) (1) 3/4" LIQUID TIGHT OR EMT OR FMC (OR CODE APPROVED EQUIVALENT)	3	(3) 10 AWG THHN/THWN-2, COPPER - (POSITIVE) (3) 10 AWG THHN/THWN-2 COPPER - (NEGATIVE) (1) 10 AWG THHN/THWN-2 (GROUND) CONDUIT: 3/4" LIQUID TIGHT OR EMT (OR CODE APPROVED EQUIVALENT)	4	(1) 6 AWG THWN-2 COPPER - (L1) (1) 6 AWG THWN-2 COPPER - (L2) (1) 6 AWG THWN-2 COPPER - (NEUTRAL) (1) 10 AWG THWN-2 COPPER - (GROUND) (1) CONDUIT: 3/4" LIQUID TIGHT OR EMT (OR CODE APPROVED EQUIVALENT)



INTERCONNECTION NOTES

1. GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9] & [NEC 230.95]
2. SUPPLY SIDE INTERCONNECTION ACCORDING TO [NEC705.12(A)] WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH [NEC 240.21(B)]

DISCONNECT NOTES

1. DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED “LINE SIDE” (TYPICALLY THE UPPER TERMINALS)
2. AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH.
3. FUSED AC DISCONNECT TO BE USED.

GROUNDING & GENERAL NOTES:

1. A SECOND FACILITY GROUNDING ELECTRODE IS NOT REQUIRED PER [NEC 690.47(C)(3)]
2. PV INVERTER IS UNGROUNDED, TRANSFORMER-LESS TYPE.
3. DC GEC AND AC EGC TO REMAIN UNSPLICED, OR SPLICED TO EXISTING ELECTRODE
4. ANY EXISTING WIRING INVOLVED WITH PV SYSTEM CONNECTION THAT IS FOUND TO BE INADEQUATE PER CODE SHALL BE CORRECTED PRIOR TO FINAL INSPECTION.
5. JUNCTION BOX QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - JUNCTION BOXES DEPICTED ON ELECTRICAL DIAGRAM REPRESENT WIRE TYPE TRANSITIONS.
6. AC DISCONNECT NOTED IN EQUIPMENT SCHEDULE OPTIONAL IF OTHER AC DISCONNECTING MEANS IS LOCATED WITHIN 10' OF SERVICE DISCONNECT.

EQUIPMENT SCHEDULE:

TYPE:	QTY:	DESCRIPTION:	RATING:
MODULES:	(46)	S-Energy SN-310M-10T/15T	310 W
INVERTERS:	(1)	SolarEdge SE11400H-US (240V)	11400 W
AC DISCONNECT(S):	(1)	PV AC DISCONNECT, 240V, 2-POLE	60 A
DC OPTIMIZERS:	(46)	SolarEdge P320	15 Adc

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DATE: January 29, 2020

PAGE: PV07
SHEET NAME: LABELS

DRAWN BY: SoloCAD

WARNING
ELECTRIC SHOCK HAZARD.
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE UNGROUNDED
AND MAY BE ENERGIZED.

LABEL 1
AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT AND DEVICE WHERE ENERGIZED UNGROUNDED CONDUCTORS MAY BE EXPOSED DURING SERVICE [NEC. 690.35(F)]

WARNING
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND LOAD SIDES
MAY BE ENERGIZED IN THE OPEN POSITION

LABEL 2
AT BUILDING OR STRUCTURE MAIN DISCONNECTING MEANS. [NEC 690.17(E), NEC 705.22]

MAX. POWER POINT CURRENT (IMP) =	31
MAX. POWER POINT VOLTAGE (VMP) =	400
MAX. SYSTEM VOLTAGE (VOC) =	480
SHORT-CIRCUIT CURRENT (ISC) =	45

LABEL 3
AT EACH DC DISCONNECTING MEANS [NEC 690.53]

PHOTOVOLTAIC AC DISCONNECT

MAX. AC OPERATING CURRENT =	48
NOMINAL AC OPERATING VOLTAGE =	240

LABEL 4
AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS [NEC 690.54]

WARNING
DUEL POWER SOURCES.
SECOND SOURCE IS PV SYSTEM

LABEL 5
AT POINT OF INTERCONNECTION.
[NEC 705.12(D)(3)]

PHOTOVOLTAIC
DC DISCONNECT

LABEL 6
AT EACH DC DISCONNECTING MEANS
[NEC 690.13(B)]

PHOTOVOLTAIC
AC DISCONNECT

LABEL 8
AT EACH AC DISCONNECTING MEANS
[NEC 690.13(B)]

WARNING: PHOTOVOLTAIC
POWER SOURCE

LABEL 9
AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS [NEC 690.31(G)(3)]

INTERACTIVE PHOTOVOLTAIC SYSTEM
CONNECTED
PHOTOVOLTAIC SYSTEM DISCONNECT
LOCATED AT SIDE OF HOUSE

DIRECTORY PLAQUE
PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS IF NOT IN THE SAME LOCATION [NEC 690.56(B)]

WARNING
PV INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL 10
PLACED ADJACENT TO THE BACK-FED BREAKER FROM THE INVERTER IF TIE IN CONSISTS OF LOAD SIDE CONNECTION TO BUSBAR. [NEC 705.12(D)(2)(3)(b)]

PHOTOVOLTAIC SYSTEM
EQUIPPED WITH RAPID
SHUTDOWN

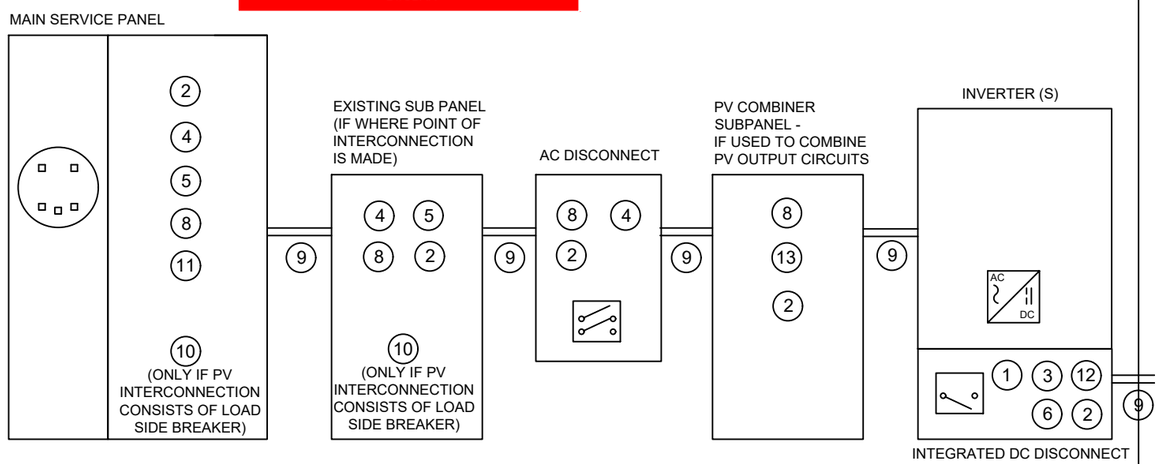
LABEL 11
SIGN LOCATED AT UTILITY SERVICE EQUIPMENT [NEC 690.56(C)]

PHOTOVOLTAIC
RAPID SHUTDOWN
DC DISCONNECT

LABEL 12
SIGN LOCATED AT RAPID SHUT DOWN DISCONNECT CONTROLLER [NEC 690.13(B)]

WARNING
THIS EQUIPMENT FED BY MULTIPLE SOURCES.
TOTAL RATING OF ALL OVERCURRENT DEVICES,
EXCLUDING MAIN SUPPLY OVERCURRENT
DEVICE, SHALL NOT EXCEED AMPACITY OF
BUSBAR

LABEL 13
SIGN LOCATED AT LOAD CENTER IF CONTAINS 3 OR MORE POWER SOURCES [NEC 705.12(D)(2)(3)(C)]



LABELING NOTES:

1. LABELING REQUIREMENTS BASED ON THE 2011 NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145, ANSI Z535.
2. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
3. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21]
4. LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND; REFLECTIVE, AND PERMANENTLY AF

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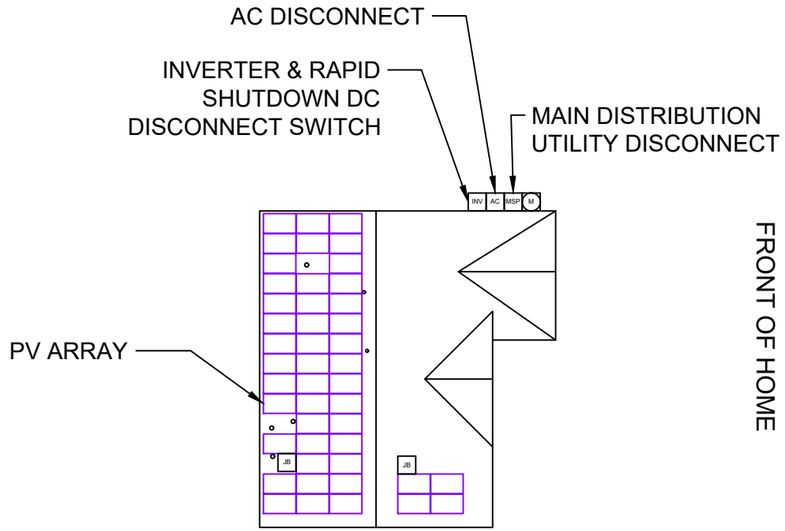
DATE: January 29, 2020

PAGE: PV08
SHEET NAME: PLACARD

DRAWN BY: SoloCAD

CAUTION

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM ROOF MOUNTED SOLAR ARRAYS WITH SAFETY DISCONNECTS AS SHOWN:



1803 Creekview Ln, Charlottesville VA 22911

DIRECTORY

PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM.

(ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS OUTLINED WITHIN: NEC 690.56(B)&(C), [NEC 705.10])

PAGE: PV09
DRAWN BY: SolidCAD
SHEET NAME: SITE PHOTOS
DATE: January 29, 2020

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