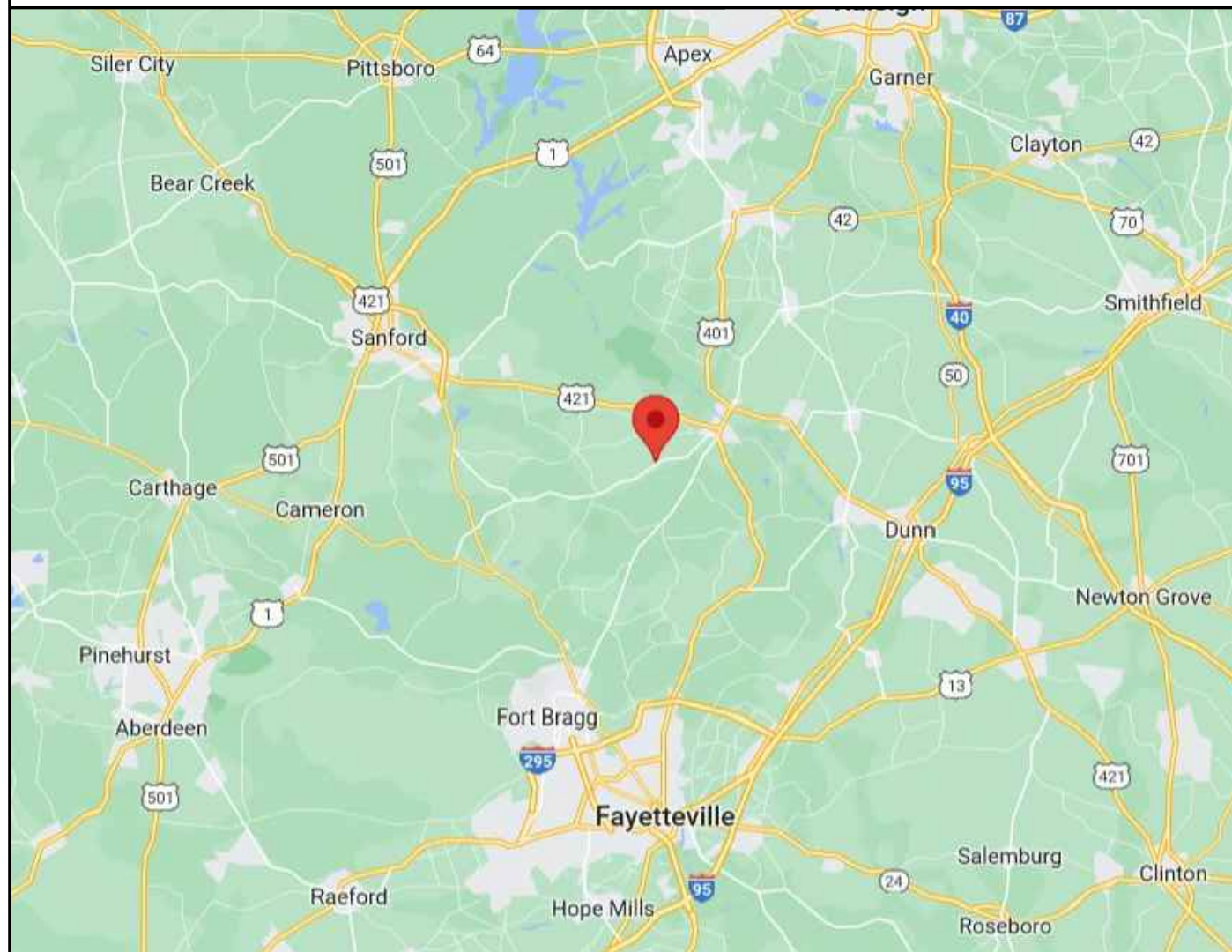


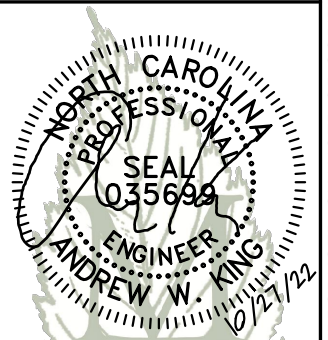
VICINITY MAP



PROPERTY MAP



ENGINEER:



MODEL ENERGY

300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM
P-1194

JOB TITLE:

NEW SOLAR PV SYSTEM
10.140 kW DC INPUT
8.450 kW AC EXPORT

William Ernest Weiss
4894 NC-27 W,
Lillington, NC 27546

CLIENT:



| | |
|--------------|----------|
| ISSUED FOR: | DATE: |
| CONSTRUCTION | 10/03/22 |
| AS BUILT | 10/27/22 |

PROJECT INFORMATION

PV1.1

SCOPE OF WORK

(26) CANADIAN SOLAR CS3N 390MS
(26) ENPHASE IQ8M-72-2-US
ROOF MOUNT: UNIRAC FLASHKIT PRO
MOUNTING RAILS: UNIRAC LIGHT RAIL

SITE CONDITION

ASCE 7-10 WIND SPEED - 117 MPH
EXPOSURE CATEGORY - B
RISK CATEGORY - II

SHEET INDEX

PV1.1 - 1.2 PROJECT INFORMATION
PV2.1 SITE INFORMATION
PV3.1 - 3.2 STRUCTURAL INFORMATION
PV4.1 ELECTRICAL INFORMATION
PV5.1 - 5.5 LABELS, DETAILS & SPECS

INTERCONNECTIONS TYPE

LINE SIDE TAP

CODE REFERENCES

2017 NATIONAL ELECTRIC CODE
2018 NORTH CAROLINA RESIDENTIAL CODE
2018 INTERNATIONAL BUILDING CODE
2018 NORTH CAROLINA FIRE CODE

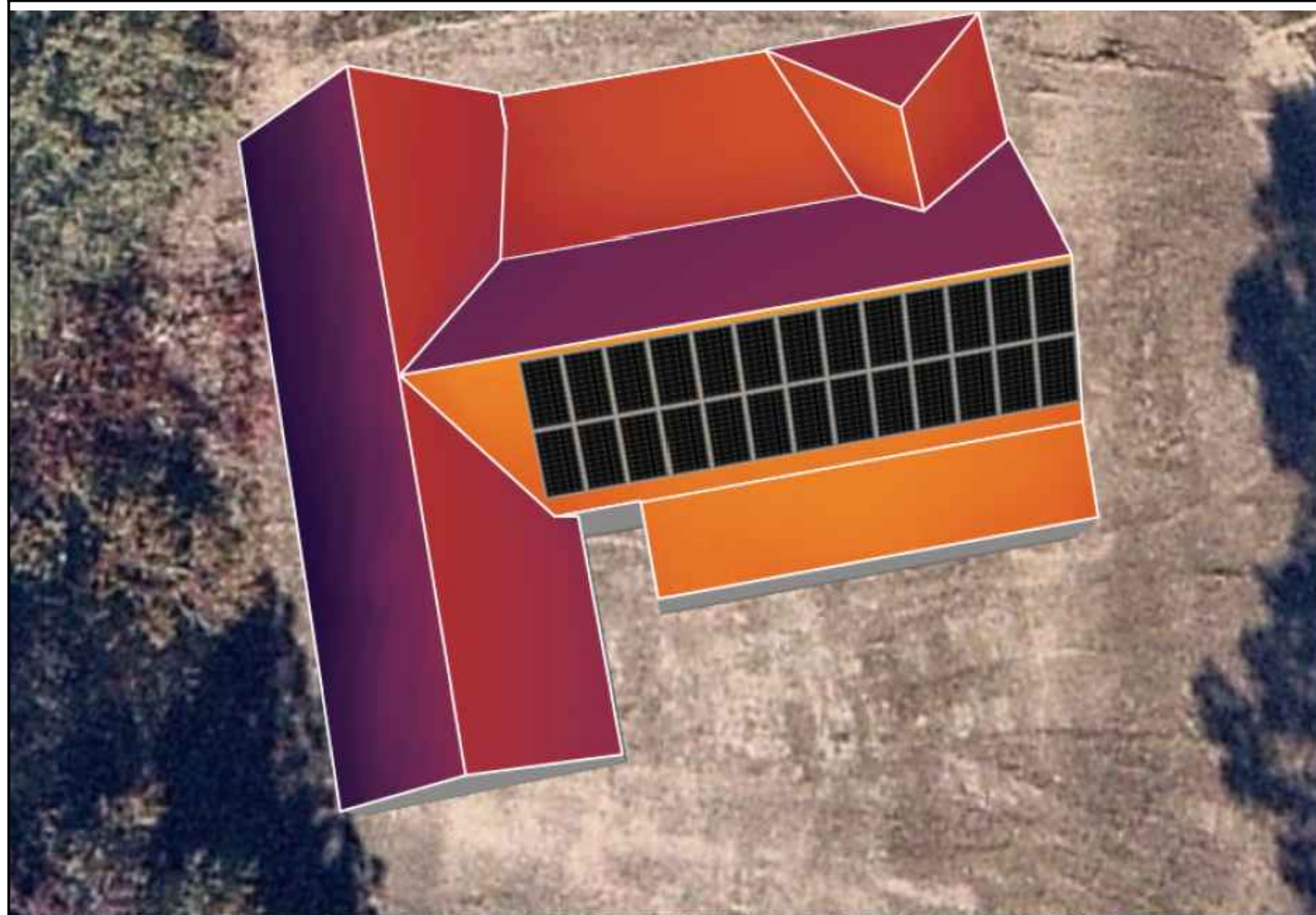
UTILITY COMPANY

SOUTH RIVER EMC

LEGEND

| | |
|--|-------------------|
| | DISCONNECT SWITCH |
| | FUSE |
| | CIRCUIT BREAKER |
| | EQUIP. GROUND |

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AURORA SOLAR SHADE ANALYSIS

WILLIAM ERNEST WEISS
 4894 NC-27 W,
 LILLINGTON, NC 27546
 10.140 KW DC STC
 8.450 KW AC

MODULES:

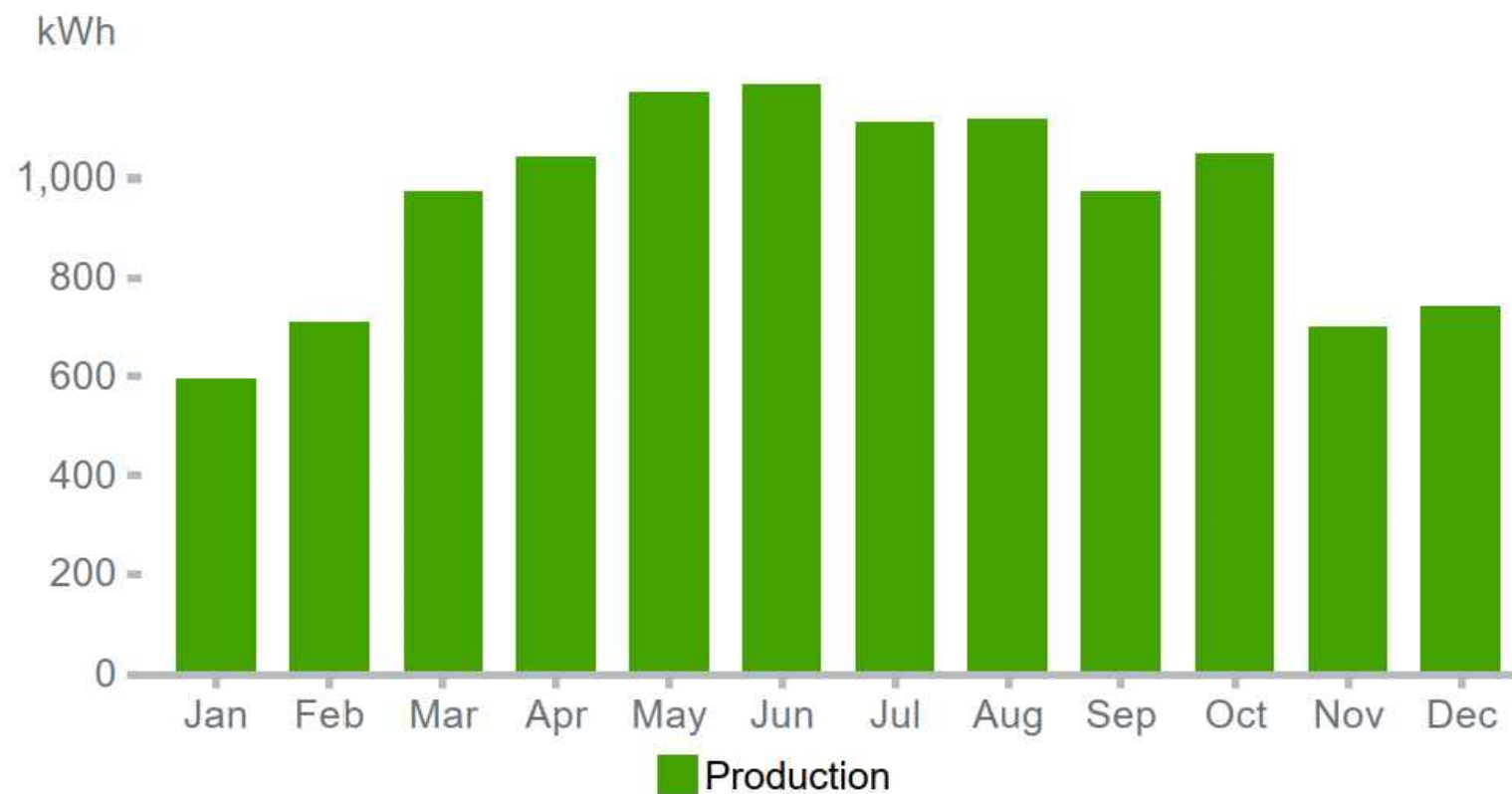
(26) CANADIAN SOLAR CS3N 390MS

INVERTERS:

(26) ENPHASE IQ8M-72-2-US

THE SYSTEM HAS AN FIRST YEAR ANNUAL ENERGY PRODUCTION OF: 11,355 KWH/YEAR

THIS PRODUCTION IS AN ESTIMATE PREPARED USING AURORA SOLAR SHADE ANALYSIS SOFTWARE. ALL SOLAR SYSTEMS EXPERIENCE PERFORMANCE DEGRADATION OVER THEIR LIFETIME. THIS IS USUALLY APPROXIMATELY 1% PER YEAR, BUT VARIES BASED ON EQUIPMENT USED AND ENVIRONMENTAL CONDITIONS.



ENGINEER:



MODEL ENERGY

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CLIENT:

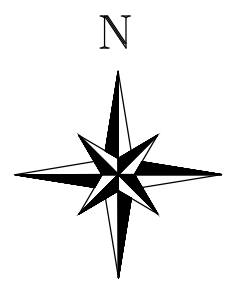
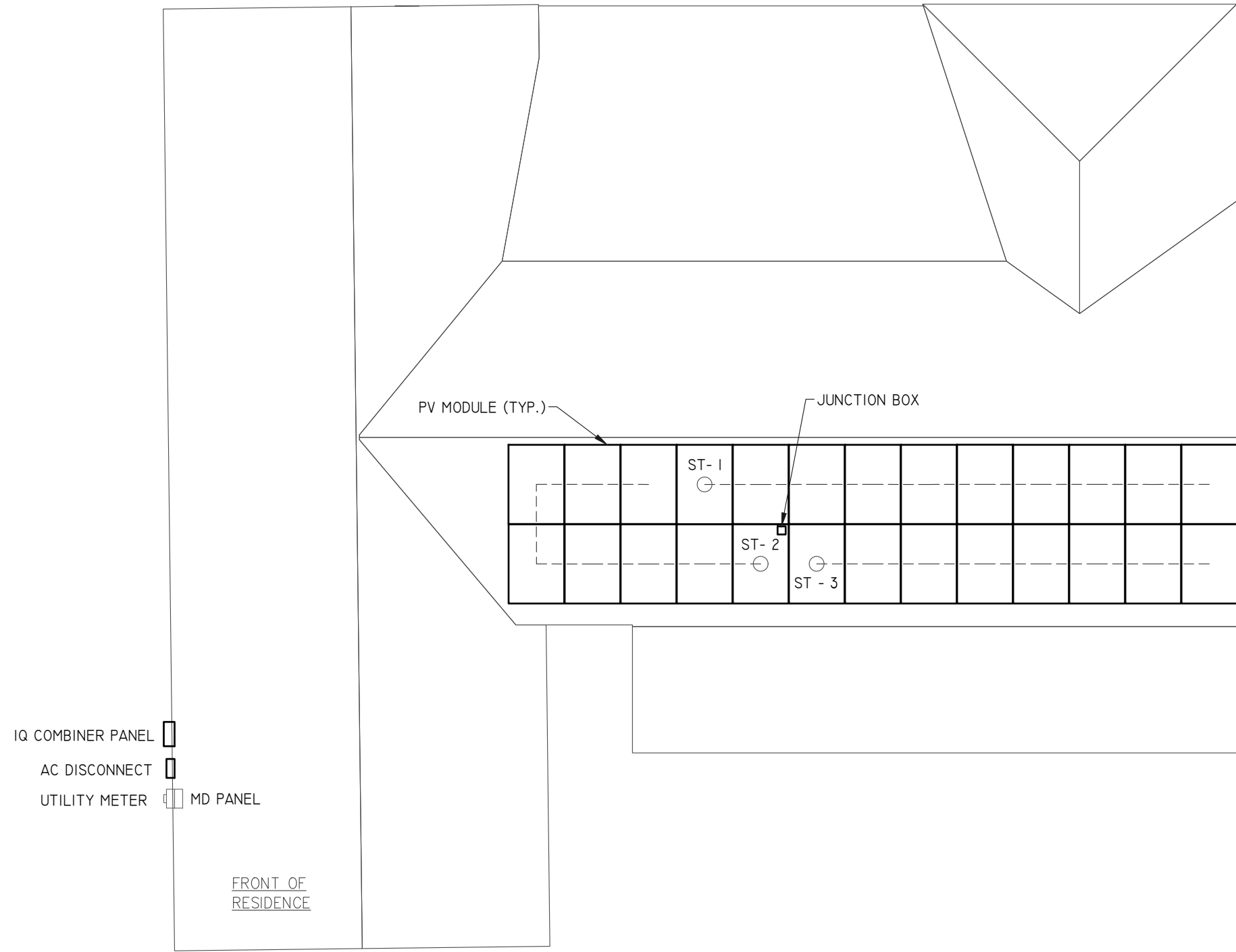


| | |
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SITE INFORMATION

PV1.2

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ENGINEER:

MODEL ENERGY
 300 FAYETTEVILLE ST.
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 RALEIGH, NC 27602
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 P-1194

JOB TITLE:

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William Ernest Weiss
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CLIENT:

| | |
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| ISSUED FOR: | DATE: |
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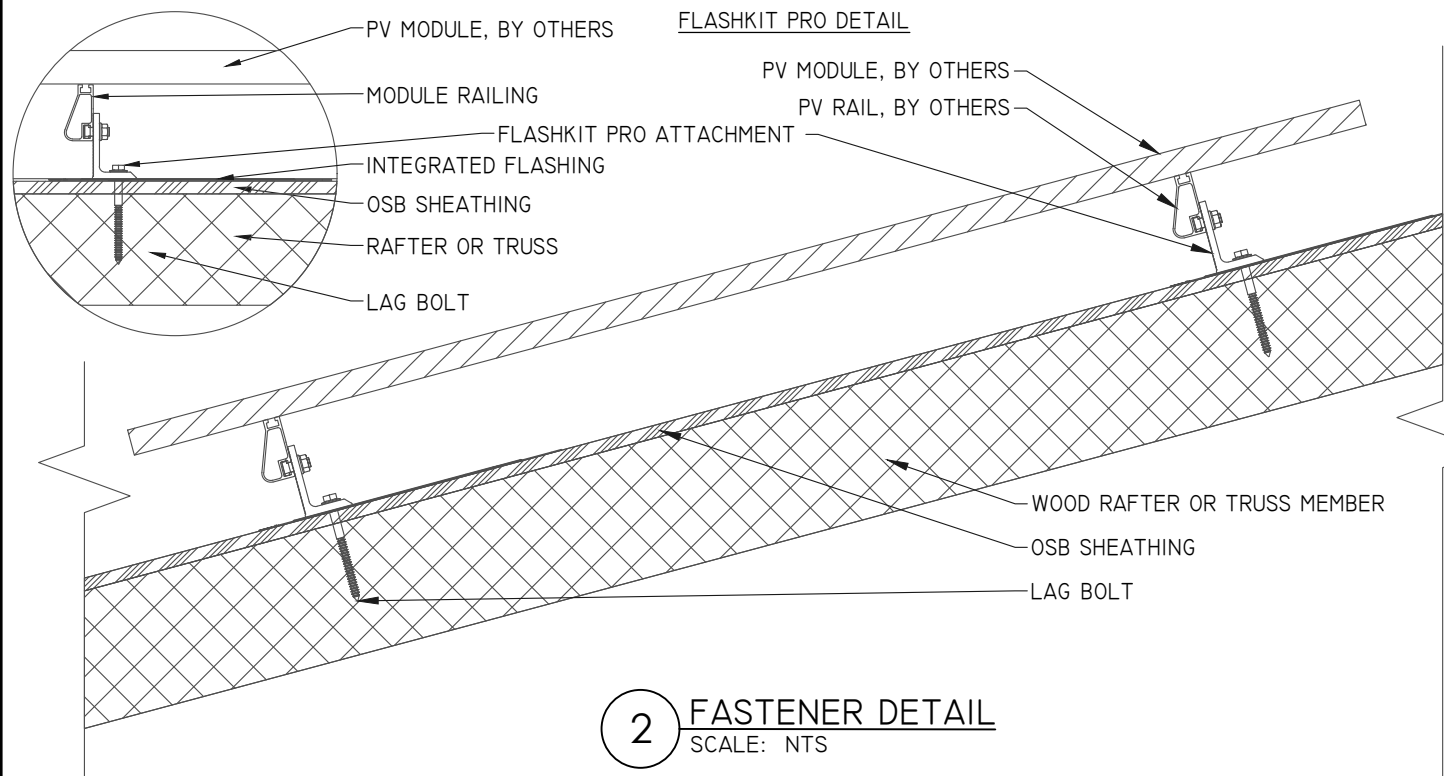
SITE INFORMATION

PV2.1

NOTE: PROVIDE ADDITIONAL JUNCTION BOXED AS REQUIRED TO COMBINE MODULES ON DIFFERENT ARRAYS INTO A SINGLE STRING

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

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2 FASTENER DETAIL
SCALE: NTS

| ARRAY "A" SUMMARY | |
|-------------------|-----------|
| # MODULES | 26 |
| # ROOF MOUNTS | 63 |
| RAIL LENGTH | 187 FT. |
| ARRAY AREA | 570 SQFT. |
| ARRAY WEIGHT | 1381 LBS. |
| AZIMUTH @ SN | 170° |
| TILT ANGLE | 40° |

| MOUNTING RAILS | |
|----------------|---------------|
| MAKE | UNIRAC |
| MODEL | SM LIGHT RAIL |
| MATERIAL | ALUMINUM |
| WEIGHT | 0.49 LBS/SQFT |
| SPACING | 34" |

| ROOF "A" ZONES: | | | |
|-----------------|-----------------------------|--|-----|
| ALL ZONES | MAX. RAIL OVERHANG = | | 16" |
| □ ZONE 1 | MAX. FASTENER SPAN ZONE 1 = | | 48" |
| ▨ ZONE 2 | MAX. FASTENER SPAN ZONE 2 = | | 24" |
| ▩ ZONE 3 | MAX. FASTENER SPAN ZONE 3 = | | 24" |

| PV MODULES | |
|------------|------------|
| MAKE | CAN. SOLAR |
| MODEL | CS3N-390MS |
| WIDTH | 41.3" |
| LENGTH | 76.4" |
| THICKNESS | 1.4" |
| WEIGHT | 50 LBS |

STATEMENT OF STRUCTURAL COMPLIANCE

THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PURPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING ARRANGEMENT DETAILED WITHIN THESE DRAWINGS.

SIGNED: *Andrew W. King*

NAME: ANDREW W. KING, PE

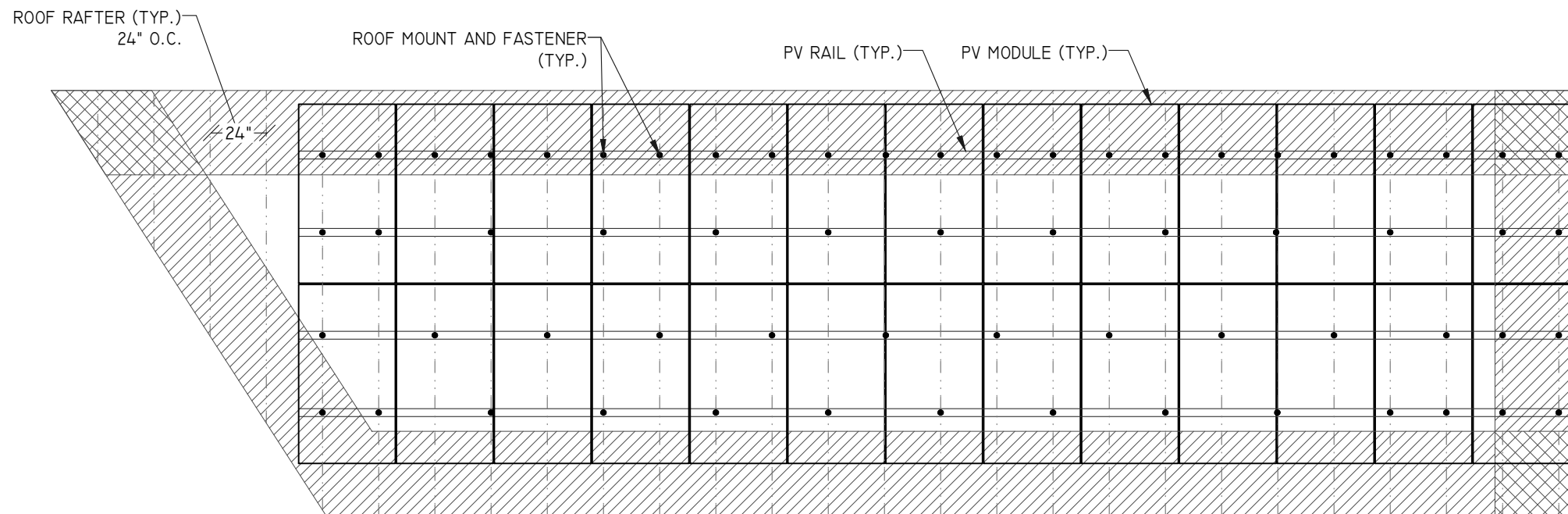
TITLE: PROFESSIONAL ENGINEER

| ROOF MOUNT & FASTENER | |
|-----------------------|----------------------|
| ROOF MOUNT: | |
| MAKE | UNIRAC |
| MODEL | FLASHKIT PRO |
| MATERIAL | ALUMINUM |
| FASTENER | |
| MAKE | GENERIC |
| MODEL | LAG BOLT |
| MATERIAL | SS LAG W/EPDM WASHER |
| SIZE | 5/16" x 4" |
| GENERAL | |
| WEIGHT | 1 LBS |
| FASTENERS PER MOUNT | 1 PER MOUNT |
| MAX. PULL-OUT FORCE | 800 LBS. |
| SAFETY FACTOR | 2 |
| DESIGN PULL-OUT FORCE | 400 LBS. |

- LAG BOLT EMBEDDED WITH 2.5" OF THREAD IN WOOD RAFTER OR TRUSSES MEMBER

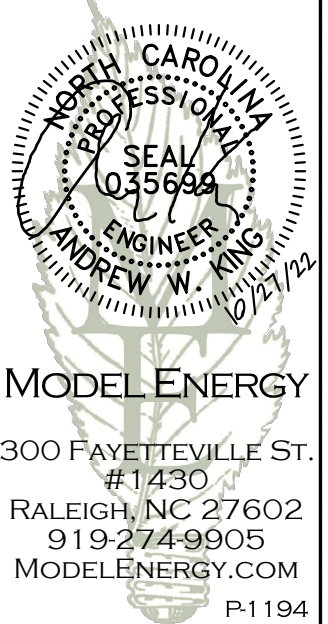
| ROOF "A" LOADING | |
|-------------------|----------------|
| GROUND SNOW LOAD: | 15 LBS./SQFT. |
| LIVE LOAD: | 20 LBS./SQFT. |
| DEAD LOAD: | |
| ROOFING | 3.9 LBS./SQFT. |
| PV ARRAY | 2.5 LBS./SQFT. |
| TOTAL | 6.4 LBS./SQFT. |
| WIND LOAD: | |
| UPLIFT ZONE 1 | -24.6 LBS/SQFT |
| UPLIFT ZONE 2 | -29.0 LBS/SQFT |
| UPLIFT ZONE 3 | -29.0 LBS/SQFT |
| DOWNWARD | 23.0 LBS/SQFT |
| FASTENER LOAD: | |
| UPLIFT ZONE 1 | -313 LBS |
| UPLIFT ZONE 2 | -185 LBS |
| UPLIFT ZONE 3 | -185 LBS |
| DOWNWARD | 293 LBS |

| ROOF "A" SUMMARY | |
|------------------|------------------|
| STRUCTURE: | |
| TYPE | TRUSS |
| MATERIAL | SOUTHERN PINE #2 |
| SIZE | 2" X 4" |
| SPACING | 24" |
| EFF. SPAN | 11'-6" |
| PITCH | 10/12 |
| DENSITY | 30 LBS./CU.FT. |
| DECKING: | |
| TYPE | OSB |
| MATERIAL | WOOD COMPOSITE |
| THICKNESS | 7/16 |
| WEIGHT | 1.6 LBS./SQFT. |
| ROOFING: | |
| TYPE | ARCH SHINGLE |
| MATERIAL | ASPHALT |
| WEIGHT | 2.3 LBS./SQFT. |



1 ROOF "A" PLANAR VIEW
SCALE: 3/16" = 1' -0"

ENGINEER:



MODEL ENERGY

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#1430
RALEIGH, NC 27602
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JOB TITLE:

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10.140 kW DC INPUT
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William Ernest Weiss
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Lillington, NC 27546

CLIENT:



| | |
|--------------|----------|
| ISSUED FOR: | DATE: |
| CONSTRUCTION | 10/03/22 |
| AS BUILT | 10/27/22 |

STRUCTURAL INFORMATION

PV3.1

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| PV MODULES | |
|--------------------------------|-------------|
| MAKE | CAN. SOLAR |
| MODEL | CS3N-390MS |
| TECHNOLOGY | MONO-CRYST. |
| NOM. POWER (P _{nom}) | 390 WATTS |
| NOM. VOLT. (V _{mp}) | 36.8 VOLTS |
| O.C. VOLT. (V _{oc}) | 44.1 VOLTS |
| MAX. SYS. VOLT. | 1000 V (UL) |
| TEMP. COEF. (V _{tc}) | -0.27 %/°C |
| NOM. CURR. (I _{mp}) | 10.6 AMPS |
| S.C. CURR. (I _{sc}) | 11.38 AMPS |
| MAX. SERIES FUSE | 20 AMPS |

| DC/AC INVERTER | |
|-----------------|----------------|
| MAKE | ENPHASE ENERGY |
| MODEL | IQ8M-72-2-US |
| TECHNOLOGY | MICRO INVERTER |
| DC INPUT: | |
| MAX. POWER | 460 WATTS |
| VOLT. RANGE | 25-58 VOLTS |
| MAX. CURRENT | 15 AMPS |
| AC OUTPUT: | |
| NOM. POWER | 325 WATTS |
| NOM. VOLT. | 240 VOLTS |
| MAX. CURR. | 1.35 AMPS |
| GFP (Y/N) | YES |
| GFCI (Y/N) | YES |
| AFCI (Y/N) | YES |
| DC DISC. (Y/N) | NO |
| RAPID SHUTDOWN | YES |
| FUSE RATING | 15 AMPS |
| PROTECT. RATING | NEMA 6R |

| JUNCTION BOX | |
|--------------|-----------|
| MAKE | SOLADECK |
| MODEL | 0783-3R |
| PRO. RATING | NEMA 3R |
| VOLT. RATING | 600 VOLTS |
| AMP RATING | 120 AMPS |
| UL LISTING | UL 50 |

NOTES:

- PROVIDE ADDITIONAL JUNCTION BOXES AS REQUIRED TO COMBINE MODULES ON DIFFERENT ARRAYS INTO A SINGLE STRING

| TAG | CURRENT CARRYING CONDUCTORS | | | | GROUNDING CONDUCTORS | | | | CONDUIT/RACEWAY | | | | NOTES |
|-----|-----------------------------|--------|----------|------------|----------------------|--------|----------|------------|-----------------|------|------------|----------|---------|
| | QTY. | SIZE | MATERIAL | INSULATION | QTY. | SIZE | MATERIAL | INSULATION | QTY. | SIZE | MATERIAL | LOCATION | |
| C1 | 2 | 10 AWG | COPPER | MANU. CAB. | 1 | 6 AWG | COPPER | BARE | - | - | - | FREE AIR | 1 |
| C2 | 2 | 12 AWG | COPPER | MANU. CAB. | 1 | 6 AWG | COPPER | BARE | - | - | - | FREE AIR | 1 |
| C3 | 6 | 10 AWG | COPPER | THWN-2 | 1 | 10 AWG | COPPER | THWN-2 | 1 | 3/4" | FMC/EMT/MC | EXT/INT | 2,4 |
| C4 | 3 | 8 AWG | COPPER | THWN | 1 | 10 AWG | COPPER | THWN | 1 | 3/4" | NOTE 5 | INT/EXT | 2,4,5 |
| C5 | 3 | 6 AWG | COPPER | THWN | - | - | - | - | 1 | 1" | NOTE 5 | EXT | 2,4,5,6 |
| XC | - | - | - | - | - | - | - | - | - | - | - | - | 3 |

NOTES:

1. MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
2. CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED.
3. EXISTING CONDUCTORS, FIELD VERIFY
4. EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR
5. PVC, EMT, ROMEX, LFNMC & FMC ARE ACCEPTABLE WHEN USED IN ACCORDANCE WITH ARTICLES 330, 334, 348, 350, 352, 356, & 358 OF THE 2017 NEC
6. SERVICE CONDUCTORS SHALL NOT TRAVEL MORE THAN 5' INSIDE OF THE BUILDING AND MORE THAN 10' IN TOTAL.

| IQ COMBINER PANEL (NEW) | |
|-------------------------|----------------|
| MAKE | ENPHASE |
| MODEL | X-IQ-AMI-240-4 |
| ENCL. RATING | NEMA 3R |
| VOLT. RATING | 240 VOLTS |
| BUS RATING | 125 AMPS |
| UL LIST. (Y/N) | YES |
| MAIN BREAKER (Y/N) | NO |
| BREAKER RATING | N/A |

NOTES:

- BACK-FEED INVERTER OUTPUT VIA (1) 20A & (2) 15A BREAKERS AT THE OPPOSITE END OF THE BUS BAR FROM MAIN BREAKER.
- PROVIDE "FED BY MULTIPLE POWER SOURCES" LABEL.

| AC DISCONNECT | |
|----------------|-----------|
| MAKE | GENERIC |
| MODEL | N/A |
| ENCL. RATING | NEMA 3R |
| VOLT. RATING | 240 VOLTS |
| AMP RATING | 60 AMPS |
| UL LIST. (Y/N) | YES |
| FUSED (Y/N) | YES |
| FUSE RATING | 45 AMPS |

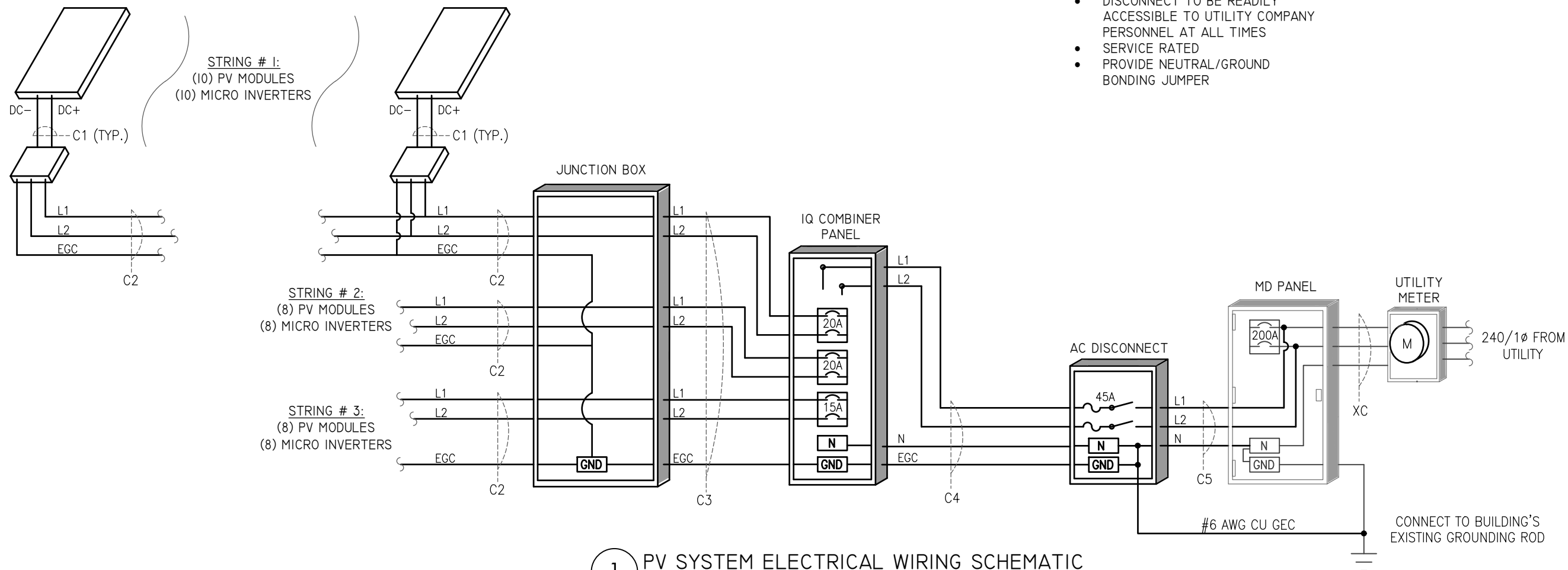
NOTES:

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- INSTALL ADJACENT TO METER
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES
- SERVICE RATED
- PROVIDE NEUTRAL/GROUND BONDING JUMPER

| MD PANEL (EXISTING) | |
|---------------------|-----------|
| MAKE | N/A |
| MODEL | N/A |
| ENCL. RATING | NEMA 3R |
| VOLT. RATING | 240 VOLTS |
| BUS RATING | 200 AMPS |
| UL LIST. (Y/N) | YES |
| MAIN BREAKER (Y/N) | YES |
| BREAKER RATING | 200 AMPS |

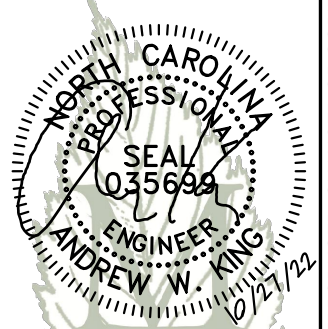
NOTES:

- BACK-FEED SOLAR OUTPUT VIA SUPPLY SIDE TAP INSIDE OF MD PANEL



1 PV SYSTEM ELECTRICAL WIRING SCHEMATIC
SCALE: NTS

ENGINEER:



MODEL ENERGY

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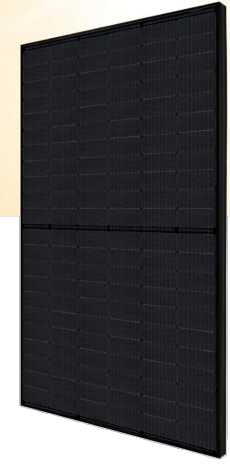
CLIENT:



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| ISSUED FOR: | DATE: |
| CONSTRUCTION | 10/03/22 |
| AS BUILT | 10/27/22 |

ELECTRICAL INFORMATION

PV4.1



HiKu Mono PERC (All-Black)

380 W ~ 400 W
CS3N-380 | 385 | 390 | 395 | 400MS

MORE POWER

425 W Module power up to 400 W
Module efficiency up to 19.7%

\$ Lower LCOE & BOS cost

Bar Chart Comprehensive LID / LeTID mitigation technology, up to 50% lower degradation

Calculator Better shading tolerance

MORE RELIABLE

Shield Minimizes micro-crack impacts

Snow Heavy snow load up to 5400 Pa, enhanced wind load up to 2400 Pa*

12 Years Enhanced Product Warranty on Materials and Workmanship*

25 Years Linear Power Performance Warranty*

1* year power degradation no more than 2%
Subsequent annual power degradation no more than 0.55%

*According to the applicable Canadian Solar Limited Warranty Statement.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001: 2015 / Quality management system
ISO 14001: 2015 / Standards for environmental management system
ISO 45001: 2018 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730 / CE
FSEC (US Florida)
UL 61730 / IEC 61701 / IEC 62716
UNI 9177 Reaction to Fire: Class 1 / Take-e-way



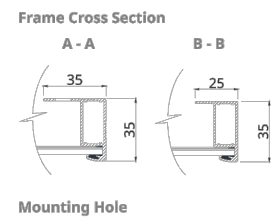
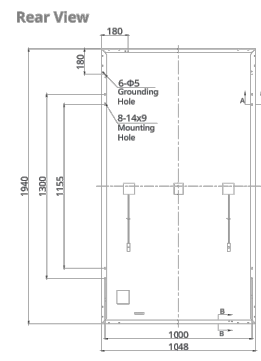
* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates available for your Product and applicable in the regions in which the products will be used.

Canadian Solar (USA) Inc. is committed to providing high quality solar products, solar system solutions and services to customers around the world. Canadian Solar was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey, and is a leading PV project developer and manufacturer of solar modules, with over 52 GW deployed around the world since 2001.

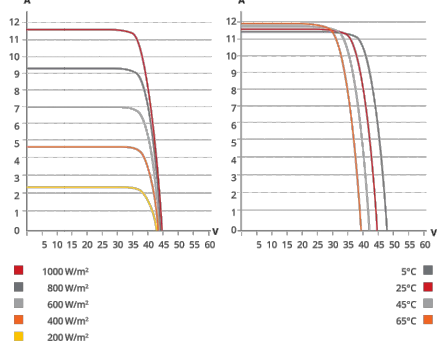
* For detailed information, please refer to the Installation Manual.

Canadian Solar (USA) Inc.
3000 Oak Road, Suite 400, Walnut Creek, CA 94597, USA, www.csisolar.com/na, service.ca@csisolar.com

ENGINEERING DRAWING (mm)



CS3N-400MS / I-V CURVES



ELECTRICAL DATA | STC*

| CS3N | 380MS | 385MS | 390MS | 395MS | 400MS |
|------------------------------|----------------|---------|---------|---------|---------|
| Nominal Max. Power (Pmax) | 380 W | 385 W | 390 W | 395 W | 400 W |
| Opt. Operating Voltage (Vmp) | 36.4 V | 36.6 V | 36.8 V | 37.0 V | 37.2 V |
| Opt. Operating Current (Imp) | 10.44 A | 10.52 A | 10.60 A | 10.68 A | 10.76 A |
| Open Circuit Voltage (Voc) | 43.7 V | 43.9 V | 44.1 V | 44.3 V | 44.5 V |
| Short Circuit Current (Isc) | 11.26 A | 11.32 A | 11.38 A | 11.44 A | 11.50 A |
| Module Efficiency | 18.7% | 18.9% | 19.2% | 19.4% | 19.7% |
| Operating Temperature | -40°C ~ +85°C | | | | |
| Max. System Voltage | 1000V (IEC/UL) | | | | |

| | | | | | |
|----------------------------|---|--|--|--|--|
| Module Fire Performance | TYPE 1 (UL 61730 1500V) or TYPE 2 (UL 61730 1000V) or CLASS C (IEC 61730) | | | | |
| Max. Series Fuse Rating | 20 A | | | | |
| Application Classification | Class A | | | | |
| Power Tolerance | 0 ~ + 10 W | | | | |

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

ELECTRICAL DATA | NMOT*

| CS3N | 380MS | 385MS | 390MS | 395MS | 400MS |
|------------------------------|--------|--------|--------|--------|--------|
| Nominal Max. Power (Pmax) | 283 W | 287 W | 291 W | 295 W | 298 W |
| Opt. Operating Voltage (Vmp) | 33.9 V | 34.1 V | 34.3 V | 34.5 V | 34.7 V |
| Opt. Operating Current (Imp) | 8.36 A | 8.42 A | 8.49 A | 8.56 A | 8.6 A |
| Open Circuit Voltage (Voc) | 41.1 V | 41.3 V | 41.5 V | 41.7 V | 41.9 V |
| Short Circuit Current (Isc) | 9.08 A | 9.13 A | 9.18 A | 9.23 A | 9.28 A |

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m² spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

MECHANICAL DATA

| Specification | Data |
|------------------------------------|--|
| Cell Type | Mono-crystalline |
| Cell Arrangement | 132 [2 X (11 X 6)] |
| Dimensions | 1940 X 1048 X 35 mm (76.4 X 41.3 X 1.38 in) |
| Weight | 22.5 kg (49.6 lbs) |
| Front Cover | 3.2 mm tempered glass |
| Frame | Anodized aluminium alloy |
| J-Box | IP68, 3 bypass diodes |
| Cable | 4 mm ² (IEC), 12 AWG (UL) |
| Cable Length (Including Connector) | Portrait: 400 mm (15.7 in) (+) / 280 mm (11.0 in) (-); Landscape: 1250 mm (49.2 in)* |
| Connector | T4 series or MC4 |
| Per Pallet | 30 pieces |
| Per Container (40' HQ) | 720 pieces |

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

TEMPERATURE CHARACTERISTICS

| Specification | Data |
|--------------------------------------|--------------|
| Temperature Coefficient (Pmax) | -0.35 % / °C |
| Temperature Coefficient (Voc) | -0.27 % / °C |
| Temperature Coefficient (Isc) | 0.05 % / °C |
| Nominal Module Operating Temperature | 42 ± 3°C |

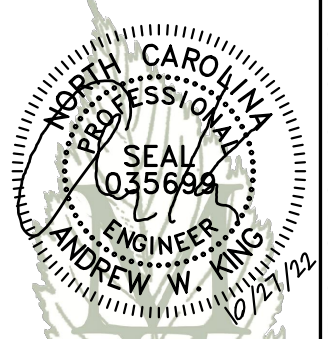
PARTNER SECTION



* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. CSI Solar Co., Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice. Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

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ENGINEER:



MODEL ENERGY

300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM
P-1194

JOB TITLE:

NEW SOLAR PV SYSTEM
10.140 kW DC INPUT
8.450 kW AC EXPORT
William Ernest Weiss
4894 NC-27 W,
Lillington, NC 27546

CLIENT:



| | |
|--------------|----------|
| ISSUED FOR: | DATE: |
| CONSTRUCTION | 10/03/22 |
| AS BUILT | 10/27/22 |

LABELS, DETAILS & SPECS

PV5.1

WARNING: PHOTOVOLTAIC POWER SOURCE

NEC 690.31 (G)(3)&(4)
PLACE ON ALL JUNCTION BOXES, EXPOSED RACEWAYS, AND OTHER WIRING METHODS EVERY 10' AND ON EVERY SECTION SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

NEC 690.56 (C)(3)
PLACE ON RAPID SHUTDOWN SWITCH OR EQUIPMENT WITH INTEGRATED RAPID SHUTDOWN *REFLECTIVE*

WARNING

FED BY MULTIPLE POWER SOURCES
TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING UTILITY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR

NEC 705.12 (B)(2)(3)(c)
PLACE ADJACENT TO BACK-FED BREAKER

EQUIPMENT LABEL NOTES
1. LABELS SHOWN ARE 1/2 THEIR ACTUAL REQUIRED SIZE.
2. LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
3. CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.

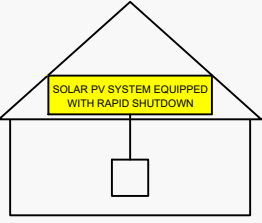
PHOTOVOLTAIC POWER SOURCE

OPERATING AC VOLT. 240 VAC
MAXIMUM OPERATING AC OUTPUT CURRENT 35.1 AMPS

NEC 690.54
PLACE ON INTERCONNECTION DISCONNECTING MEANS

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



NEC 690.56 (C)(1)(a)
PLACE WITHIN 3FT OF SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATIONS OF RAPID SHUTDOWN SWITCHES

PV SYSTEM DISCONNECT

NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

WARNING

DUAL POWER SUPPLY SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

NEC 705.12 (B)(3)
PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY BOTH POWER SOURCES

WARNING

ELECTRIC SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

WARNING

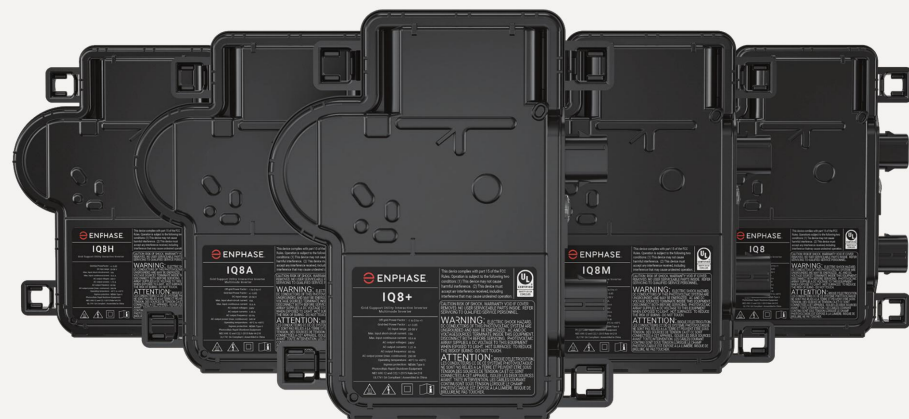
POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

NEC 705.12 (B)(2)(3)(b)
PLACE ADJACENT TO BACK-FED BREAKER

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DATA SHEET



IQ8 Series Microinverters

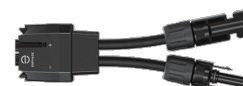
Our newest IQ8 Microinverters are the industry's first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has super-fast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the Enphase IQ Battery, Enphase IQ Gateway, and the Enphase App monitoring and analysis software.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.



IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer's instructions.

Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) requirements

IQ8 Series Microinverters

| INPUT DATA (DC) | | IQ8-60-2-US | IQ8PLUS-72-2-US | IQ8M-72-2-US | IQ8A-72-2-US | IQ8H-240-72-2-US | IQ8H-208-72-2-US ¹ | |
|--|----|---|-----------------|---|--------------|------------------|-------------------------------|--|
| Commonly used module pairings ² | W | 235 – 350 | 235 – 440 | 260 – 460 | 295 – 500 | 320 – 540+ | 295 – 500+ | |
| Module compatibility | | 60-cell/120 half-cell | | 60-cell/120 half-cell and 72-cell/144 half-cell | | | | |
| MPPT voltage range | V | 27 – 37 | 29 – 45 | 33 – 45 | 36 – 45 | 38 – 45 | 38 – 45 | |
| Operating range | V | 25 – 48 | | | 25 – 58 | | | |
| Min/max start voltage | V | 30 / 48 | | | 30 / 58 | | | |
| Max input DC voltage | V | 50 | | | 60 | | | |
| Max DC current ³ [module Isc] | A | | | | 15 | | | |
| Overtoltage class DC port | | | | | II | | | |
| DC port backfeed current | mA | | | | 0 | | | |
| PV array configuration | | 1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit | | | | | | |
| OUTPUT DATA (AC) | | IQ8-60-2-US | IQ8PLUS-72-2-US | IQ8M-72-2-US | IQ8A-72-2-US | IQ8H-240-72-2-US | IQ8H-208-72-2-US | |
| Peak output power | VA | 245 | 300 | 330 | 366 | 384 | 366 | |
| Max continuous output power | VA | 240 | 290 | 325 | 349 | 380 | 360 | |
| Nominal (L-L) voltage/range ⁴ | V | 240 / 211 – 264 | | | | | 208 / 183 – 250 | |
| Max continuous output current | A | 1.0 | 1.21 | 1.35 | 1.45 | 1.58 | 1.73 | |
| Nominal frequency | Hz | 60 | | | | | | |
| Extended frequency range | Hz | 50 – 68 | | | | | | |
| Max units per 20 A (L-L) branch circuit ⁵ | | 16 | 13 | 11 | 11 | 10 | 9 | |
| Total harmonic distortion | | <5% | | | | | | |
| Overtoltage class AC port | | III | | | | | | |
| AC port backfeed current | mA | 30 | | | | | | |
| Power factor setting | | 1.0 | | | | | | |
| Grid-tied power factor (adjustable) | | 0.85 leading – 0.85 lagging | | | | | | |
| Peak efficiency | % | 97.5 | 97.6 | 97.6 | 97.6 | 97.6 | 97.4 | |
| CEC weighted efficiency | % | 97 | 97 | 97 | 97.5 | 97 | 97 | |
| Night-time power consumption | mW | 60 | | | | | | |
| MECHANICAL DATA | | | | | | | | |
| Ambient temperature range | | -40°C to +60°C (-40°F to +140°F) | | | | | | |
| Relative humidity range | | 4% to 100% (condensing) | | | | | | |
| DC Connector type | | MC4 | | | | | | |
| Dimensions (HxWxD) | | 212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2") | | | | | | |
| Weight | | 1.08 kg (2.38 lbs) | | | | | | |
| Cooling | | Natural convection – no fans | | | | | | |
| Approved for wet locations | | Yes | | | | | | |
| Acoustic noise at 1 m | | <60 dBA | | | | | | |
| Pollution degree | | PD3 | | | | | | |
| Enclosure | | Class II double-insulated, corrosion resistant polymeric enclosure | | | | | | |
| Environ. category / UV exposure rating | | NEMA Type 6 / outdoor | | | | | | |
| COMPLIANCE | | | | | | | | |
| Certifications | | CA Rule 21 (UL 1741-SA), UL 62109-1, UL1741/IEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 | | | | | | |
| | | This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions. | | | | | | |

(1) The IQ8H-208 variant will be operating in grid-tied mode only at 208V AC. (2) No enforced DC/AC ratio. See the compatibility calculator at <https://link.enphase.com/module-compatibility> (3) Maximum continuous input DC current is 10.6A (4) Nominal voltage range can be extended beyond nominal if required by the utility. (5) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8SE-DS-0001-01-EN-US-2021-10-19

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EQUIPMENT
SPEC SHEETS

PV5.2

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Enphase IQ Combiner 4/4C

X-IQ-AM1-240-4
X-IQ-AM1-240-4C



X-IQ-AM1-240-4C

X-IQ-AM1-240-4



To learn more about Enphase offerings, visit enphase.com

The **Enphase IQ Combiner 4/4C** with Enphase IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure and streamlines IQ microinverters and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), included only with IQ Combiner 4C
- Includes solar shield to match Enphase IQ Battery aesthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Centered mounting brackets support single stud mounting
- Supports bottom, back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the IQ Combiner SKU's
- UL listed



Enphase IQ Combiner 4/4C

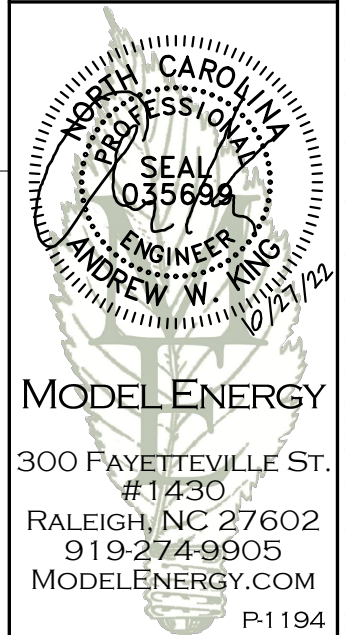
| MODEL NUMBER | |
|---|--|
| IQ Combiner 4 (X-IQ-AM1-240-4) | IQ Combiner 4 with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the IQ Battery system and IQ System Controller 2 and to deflect heat. |
| IQ Combiner 4C (X-IQ-AM1-240-4C) | IQ Combiner 4C with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the IQ Battery and IQ System Controller and to deflect heat. |
| ACCESSORIES AND REPLACEMENT PARTS (not included, order separately) | |
| Ensemble Communications Kit COMMS-CELLMODEM-M1-06 CELLMODEM-M1-06-SP-05 CELLMODEM-M1-06-AT-05 | - Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites - 4G based LTE-M1 cellular modem with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year AT&T data plan |
| Circuit Breakers BRK-10A-2-240V BRK-15A-2-240V BRK-20A-2P-240V BRK-15A-2P-240V-B BRK-20A-2P-240V-B | Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220 Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support |
| EPLC-01 | Power line carrier (communication bridge pair), quantity - one pair |
| XA-SOLARSHIELD-ES | Replacement solar shield for IQ Combiner 4/4C |
| XA-PLUG-120-3 | Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01) |
| XA-ENV-PCBA-3 | Replacement IQ Gateway printed circuit board (PCB) for Combiner 4/4C |
| X-IQ-NA-HD-125A | Hold down kit for Eaton circuit breaker with screws. |
| ELECTRICAL SPECIFICATIONS | |
| Rating | Continuous duty |
| System voltage | 120/240 VAC, 60 Hz |
| Eaton BR series busbar rating | 125 A |
| Max. continuous current rating | 65 A |
| Max. continuous current rating (input from PV/storage) | 64 A |
| Max. fuse/circuit rating (output) | 90 A |
| Branch circuits (solar and/or storage) | Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included) |
| Max. total branch circuit breaker rating (input) | 80A of distributed generation / 95A with IQ Gateway breaker included |
| Production metering CT | 200 A solid core pre-installed and wired to IQ Gateway |
| Consumption monitoring CT (CT-200-SPLIT) | A pair of 200 A split core current transformers |
| MECHANICAL DATA | |
| Dimensions (WxHxD) | 37.5 x 49.5 x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brackets. |
| Weight | 7.5 kg (16.5 lbs) |
| Ambient temperature range | -40° C to +46° C (-40° to 115° F) |
| Cooling | Natural convection, plus heat shield |
| Enclosure environmental rating | Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction |
| Wire sizes | • 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing. |
| Altitude | To 2000 meters (6,560 feet) |
| INTERNET CONNECTION OPTIONS | |
| Integrated Wi-Fi | 802.11b/g/n |
| Cellular | CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations. |
| Ethernet | Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included) |
| COMPLIANCE | |
| Compliance, IQ Combiner | UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5 |
| Compliance, IQ Gateway | UL 60601-1/CANCSA 22.2 No. 61010-1 |

To learn more about Enphase offerings, visit enphase.com

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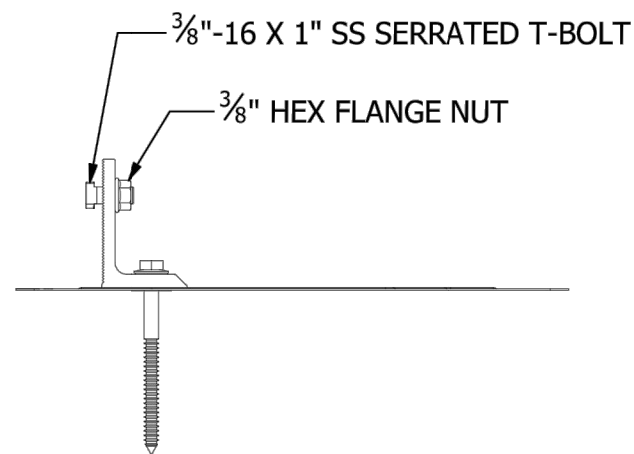
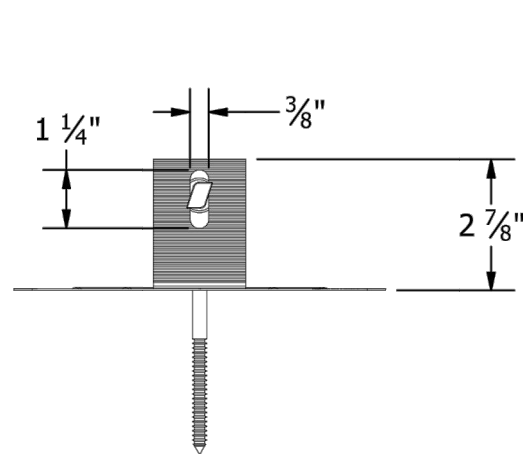
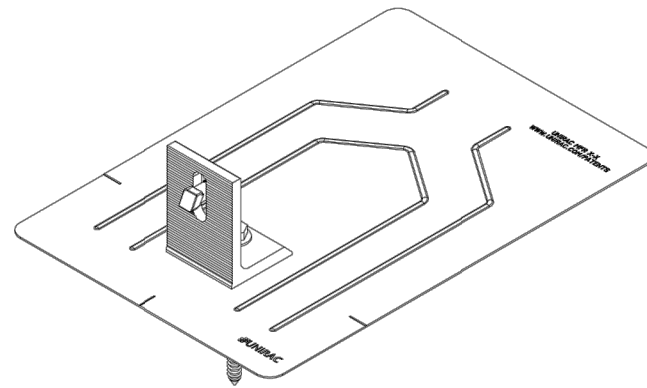
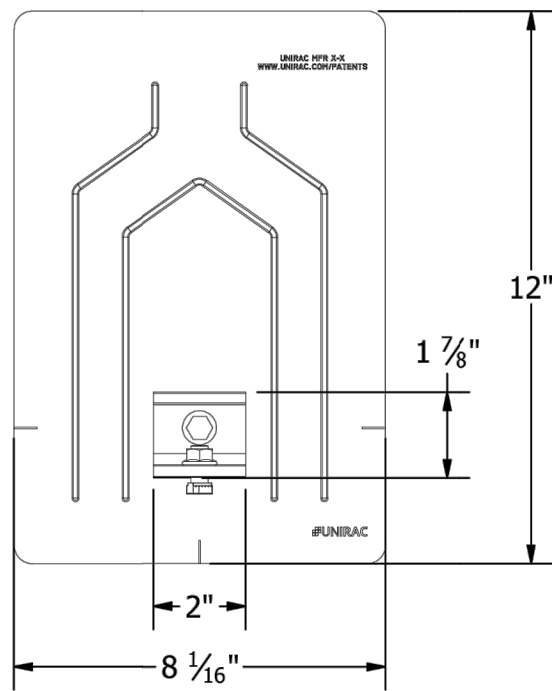
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| ISSUED FOR: | DATE: |
| CONSTRUCTION | 10/03/22 |
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EQUIPMENT
SPEC SHEETS

PV5.3

NOTES:

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN SPECIFICATIONS AND INSTALLATION INSTRUCTIONS.
2. PACKAGING: KITS OF 10



| PART # TABLE | |
|--------------|-------------------|
| P/N | DESCRIPTION |
| 004055M | FLASHKIT PRO MILL |
| 004055D | FLASHKIT PRO DRK |



1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

| | |
|----------------|--------------|
| PRODUCT LINE: | SOLARMOUNT |
| DRAWING TYPE: | KIT DETAIL |
| DESCRIPTION: | FLASHKIT PRO |
| REVISION DATE: | 9/24/2018 |

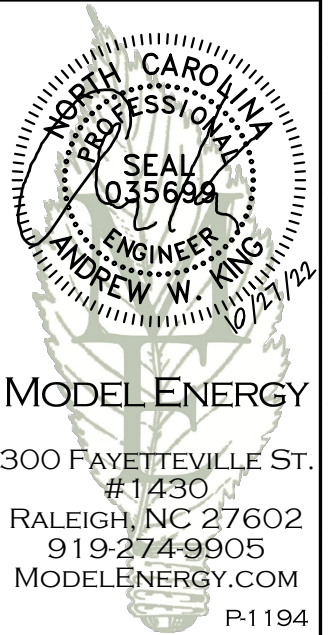
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
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SM-A03

SHEET

ENGINEER:



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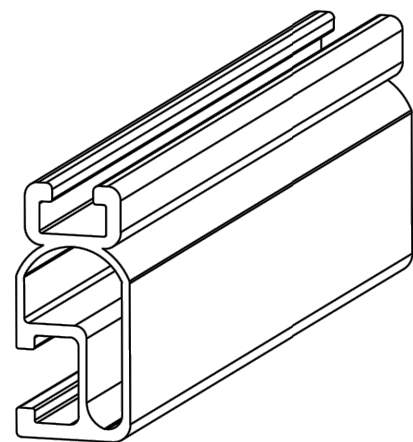


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EQUIPMENT
SPEC SHEETS

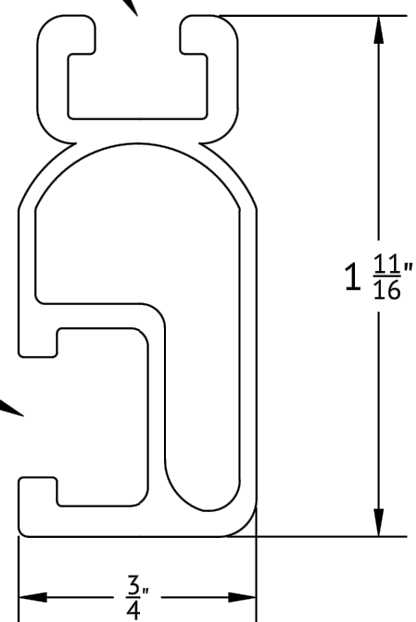
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1/4" BOLT LOCATION

3/8" BOLT LOCATION



UNIRAC
 1411 BROADWAY BLVD NE
 ALBUQUERQUE, NM 87102 USA
 WWW.UNIRAC.COM

| | |
|-----------------------|-------------|
| PRODUCT LINE: | SOLARMOUNT |
| DRAWING TYPE: | PART DETAIL |
| DESCRIPTION: | LIGHT RAIL |
| REVISION DATE: | APRIL 2016 |

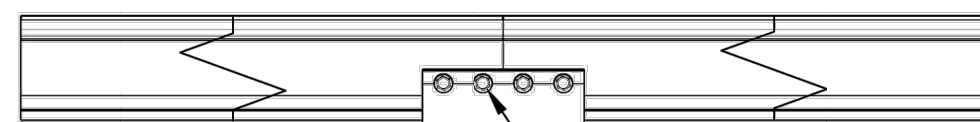
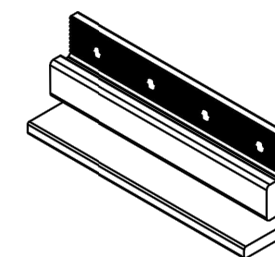
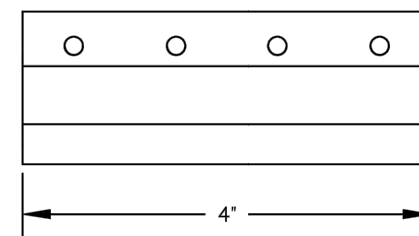
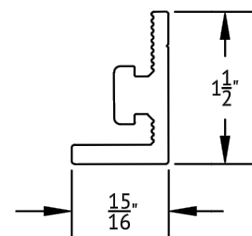
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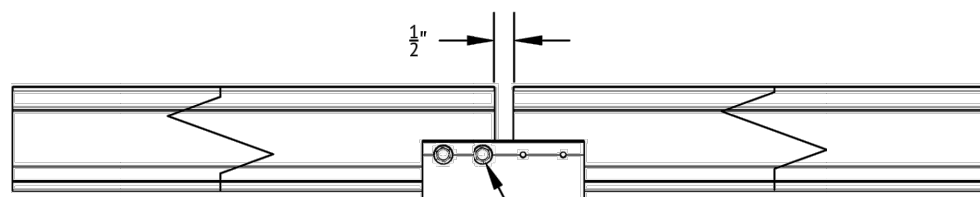
SM-P02
 SHEET

BONDING SPLICE BAR



#12 X 3/4" SELF DRILLING SS SCREWS INCLUDED

TYPICAL SPLICE BAR DETAIL



NOTE THAT ONLY 2 SCREWS ARE
 USED AT AN EXPANSION JOINT.
 THE SPLICE BAR DOES NOT BOND
 ACROSS AN EXPANSION JOINT.

TYPICAL EXPANSION JOINT DETAIL

UNIRAC
 1411 BROADWAY BLVD NE
 ALBUQUERQUE, NM 87102 USA
 WWW.UNIRAC.COM

| | |
|-----------------------|--------------------|
| PRODUCT LINE: | SOLARMOUNT |
| DRAWING TYPE: | PART & ASSEMBLY |
| DESCRIPTION: | BONDING SPLICE BAR |
| REVISION DATE: | APRIL 2016 |

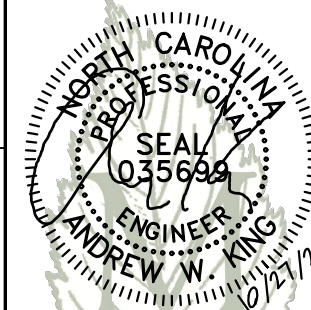
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 US PATENTS

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SM-A01
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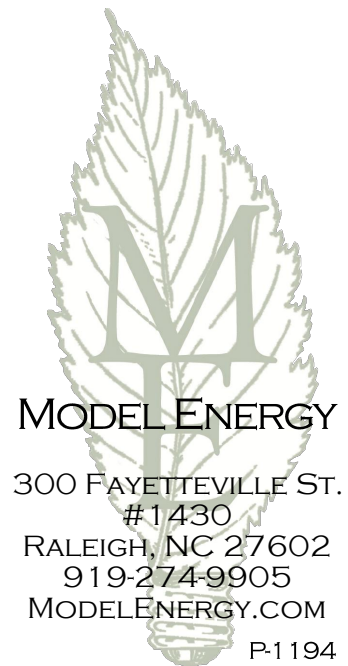
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EQUIPMENT
 SPEC SHEETS

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Customer: William Ernest Weiss
Installer: SmartSun
Subject: PV System Structural Compliance
Date: 10/03/22



To whom it may concern:

Model Energy, PLLC has reviewed the installation details of the proposed PV system that is to be installed by SmartSun Energy at 4894 NC-27 W, Lillington, NC 27546. The conditions of the existing structure have been reviewed and validated by Model Energy, PLLC. The existing roof structure has been designed to support the additional loads of the proposed PV system. In addition, the racking and fastening system shall be capable of securing the system to the structure under design conditions when installed properly and in accordance with the racking and fastening arrangement detailed within the accompanying permit set. The installation design is compliant with current 2018 North Carolina state and national building codes.

Thank you,

Andrew King, PE

