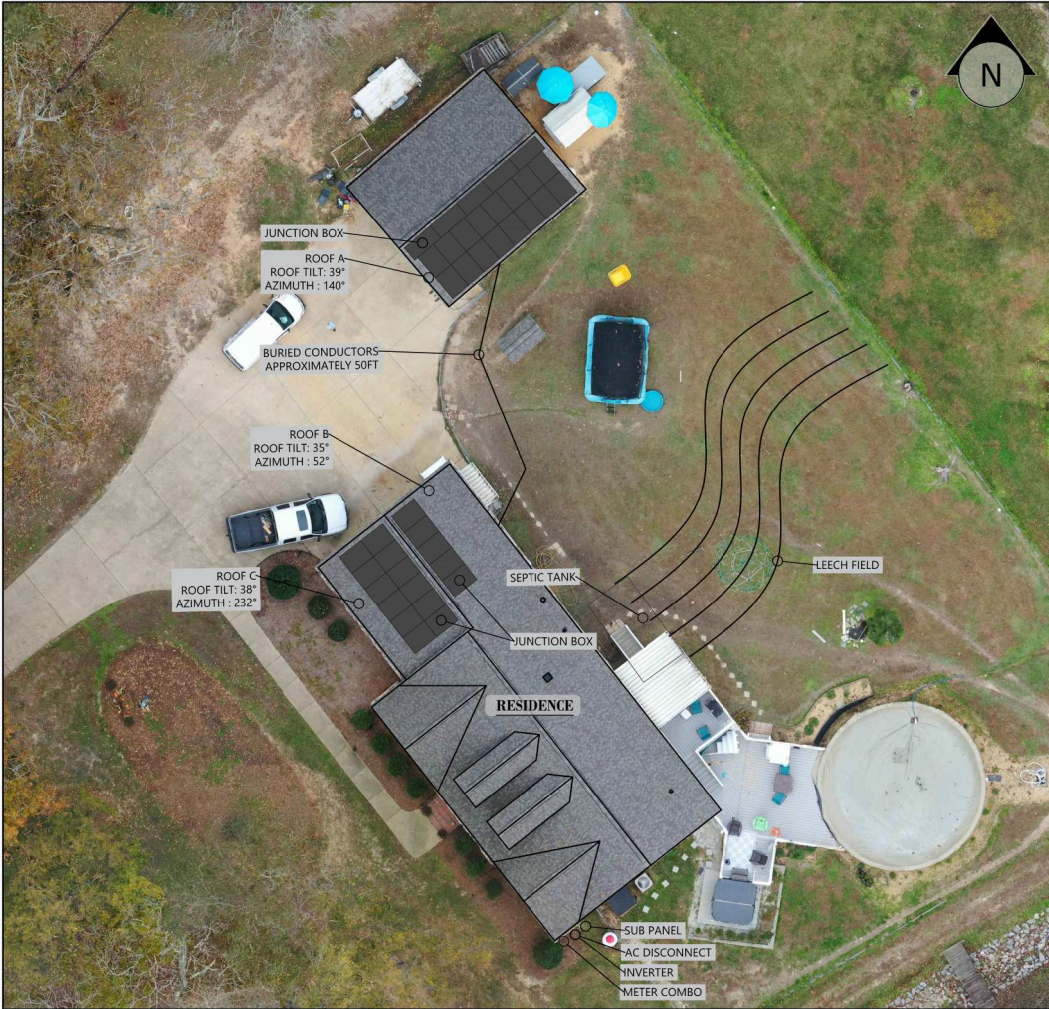


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| MATERIALS SUMMARY | |
|--------------------------------|------|
| PART: | QTY: |
| Q PEAK DUO BLK-G6-335 | 38 |
| SOLAREEDGE P340 OPTIMIZER | 38 |
| SOLAREEDGE SE1400H-US INVERTER | 1 |
| SOLADECK ENCLOSURE | 3 |
| 168" XR10 IRONRIDGE RAIL | 16 |
| 204" XR10 IRONRIDGE RAIL | 4 |
| XR10 BONDED SPLICE | 12 |
| UFO CLAMP | 88 |
| STOPPER SLEEVE (32 MM) | 24 |
| GD-LUG-003 | 6 |
| QUICKBOLT ATTACHMENT | 76 |
| CELL CARD | 1 |

NC SOLAR NOW

CLIENT INFO
 CHRIS G WEGNER
 325 VICTORIA HILLS DR S
 FURQUAY VARRINA, NC 27526

PROJECT INFO
 DC INPUT: 12.73 kW
 AC EXPORT: 11.40 kW
 DOI INSPT. METHOD: OPTION 2

CODE REFERENCES
 NATION ELECTRICAL CODE v.2017
 NC FIRE PROTECTION CODE v.2016
 NC BUILDING CODE v.2018
 NC RESIDENTIAL CODE v.2018
 ACSE v.7-10

SITE CONDITIONS
 WIND SPEED: 116 MPH
 RISK CATEGORY: II
 EXPOSURE: B
 SNOW: 15 PSF

SHEET INDEX
 PV-1: COVER SHEET
 PV-2: PV STRUCTURAL
 PV-3: PV ELECTRICAL
 PV-4: PV EQUIPMENT LABELS
 PV-5: PV INSTALL GUIDE

DESIGN INFO
 DESIGNER: CRM
 ENGINEER: AMWK
 DATE: 12-17-2020
 VERSION: PI

PV SYSTEM COVER PAGE

PV-1.1



SALES FORCE

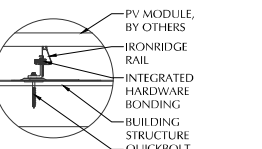
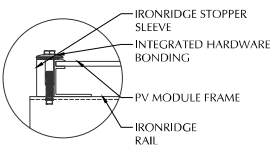
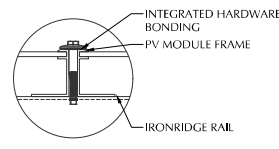
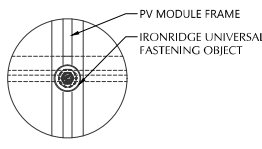
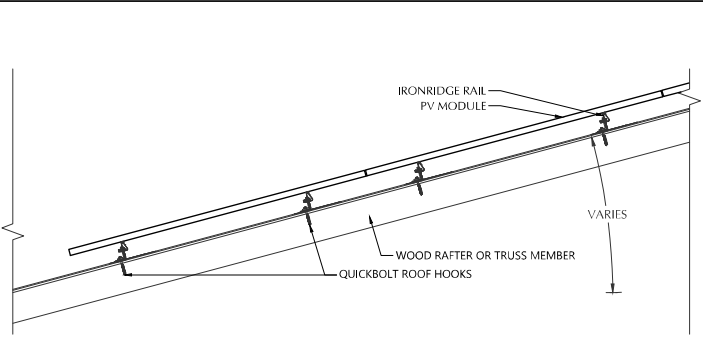


SITE VISIT

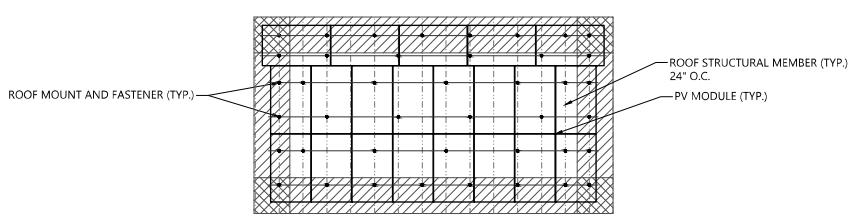


INSTALL

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1 ROOF FASTENER DETAIL
NOT TO SCALE

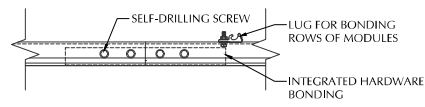


2 ROOF ARRAY LAYOUT
1/8" = 1'-0"

STATEMENT OF STRUCTURAL COMPLIANCE

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 THESE DRAWINGS.

NAME: ANDREW W. KING, PE
SIGNED: *Andrew W. King*



| PV MODULES | |
|--------------|-----------------------|
| MAKE | HANWHY CELL |
| MODEL | Q75AK D160 B15-G6 J35 |
| WIDTH | 48.6" |
| LENGTH | 66.5" |
| THICKNESS | 32 mm |
| WEIGHT | 43.9 LBS |
| ARRAY AREA | 406.9 SQ.FT |
| ARRAY WEIGHT | 1014 LBS. |

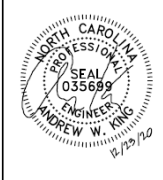
| ROOF SUMMARY | |
|--------------|------------------|
| STRUCTURE: | TRUSSES |
| TYPE: | SOUTHERN PINE #2 |
| SIZE: | 8" x 6" |
| SPACING: | 24 IN O.C. |
| DECKING: | 1/2" OSB |
| ROOFING: | ARCH SHINGLE |
| WEIGHT: | 1.60 LBS./SQ.FT |
| WEIGHT: | 2.1 LBS./SQ.FT |

| ROOF MOUNT SUMMARY | | |
|--------------------|----------------|--------------|
| MAXIMUM | AMOUNT SPACING | RAIL OVERLAP |
| WIND ZONE 1 | 22 IN | 19 IN |
| WIND ZONE 2 | 48 IN | 19 IN |
| WIND ZONE 3 | 48 IN | 19 IN |

| ROOF LOADING | |
|-------------------|-------------------|
| GROUND SNOW LOAD: | 15 LBS./SQ.FT. |
| DEAD LOAD: | 20 LBS./SQ.FT. |
| ROOFING: | 3.9 LBS./SQ.FT. |
| PV ARRAY: | 2.5 LBS./SQ.FT. |
| TOTAL: | 6.4 LBS./SQ.FT. |
| WIND LOAD: | |
| UPLIFT ZONE 1 | -24.6 LBS./SQ.FT. |
| UPLIFT ZONE 2 | -29.0 LBS./SQ.FT. |
| UPLIFT ZONE 3 | -29.0 LBS./SQ.FT. |
| DOWNWARD: | 23.0 LBS./SQ.FT. |
| FASTENER LOAD: | |
| UPLIFT ZONE 1 | -421 LBS. |
| UPLIFT ZONE 2 | -311 LBS. |
| UPLIFT ZONE 3 | -311 LBS. |
| DOWNWARD | 384 LBS. |

| ROOF MOUNT & FASTENER | |
|-----------------------|-----------------|
| ROOF MOUNT: | |
| MAKE | SOLAR ROOF HOOK |
| MODEL | 14G07 |
| MATERIAL | ALUMINUM |
| FASTENER: | |
| MAKE | SOLAR ROOF HOOK |
| MODEL | QUICKBOLT |
| MATERIAL | 304 SS |
| SIZE | 5/16-18 X 5.25" |
| GENERAL: | |
| WEIGHT | 1 LBS. |
| FASTENERS PER MOUNT | 1 |
| MAX. PULL-OUT FORCE | 960 LBS./MOUNT |
| SAFETY FACTOR | 2.0 |
| DESIGN PULL-OUT FORCE | 480 LBS./MOUNT |

| MOUNTING RAILS | |
|----------------|--------------|
| MAKE | IRONRIDGE |
| MODEL | XR10 |
| MATERIAL | ALUMINUM |
| WEIGHT | 436 LBS./FT. |
| SPACING | 34 IN. |



CLIENT INFO
CHRIS G WEGNER
325 VICTORIA HILLS DR S
FLUQUAY VARRINA, NC 27526

PROJECT INFO
DC INPUT: 12.73 kW
AC EXPORT: 11.40 kW
DOI/INSP. METHOD: OPTION 2

CODE REFERENCES
NATION ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2016
NC BUILDING CODE v. 2018
NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

SITE CONDITIONS
WIND SPEED: 116 MPH
RISK CATEGORY: II
EXPOSURE: B
SNOW: 15 PSF

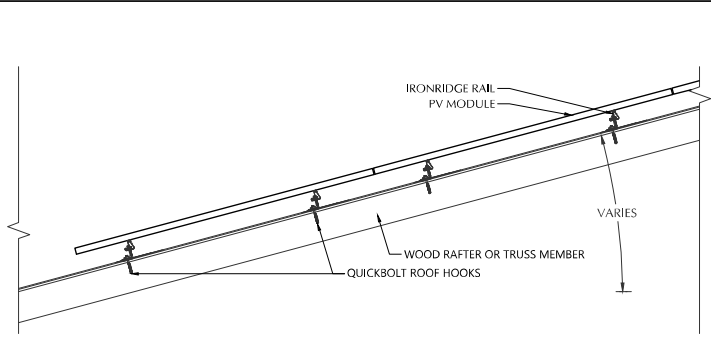
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PV-5: PV INSTALL GUIDE

DESIGN INFO
DESIGNER: CRM
ENGINEER: AWK
DATE: 12-17-2020
VERSION: PI

PV SYSTEM STRUCTURAL

PV-2.1

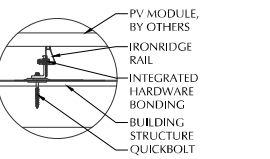
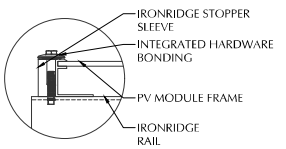
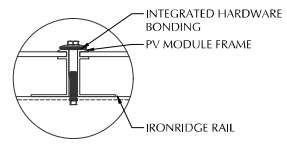
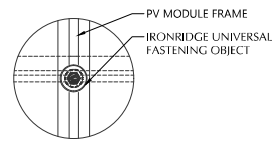
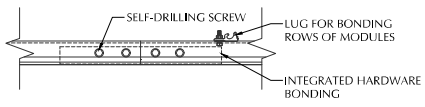
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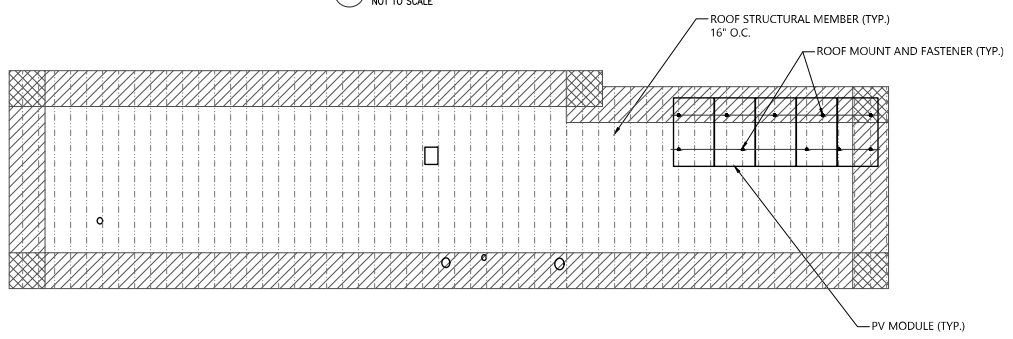
STATEMENT OF STRUCTURAL COMPLIANCE

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 THESE DRAWINGS.

NAME: ANDREW W. KING, PE
 SIGNED: *Andrew W. King*



1 ROOF FASTENER DETAIL
NOT TO SCALE



2 ROOF B ARRAY LAYOUT
1/8" = 1'-0"

| PV MODULES | |
|--------------|-----------------------|
| MAKE | HANWHA Q-CELL |
| MODEL | Q.PEAK DUO BUK-06-335 |
| WIDTH | 40.6" |
| LENGTH | 66.5" |
| THICKNESS | 32 mm |
| WEIGHT | 43.9 LBS. |
| ARRAY AREA | 97 SQ.F.T. |
| ARRAY WEIGHT | 2411 LBS. |

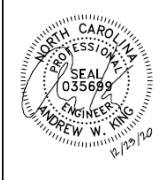
| ROOF SUMMARY | |
|--------------|------------------|
| STRUCTURE: | RAFTERS |
| TYPE: | SOUTHERN PINE #2 |
| SIZE: | 2" X 6" |
| SPACING: | 16 IN O.C. |
| EFF. SPAN: | 16.0 IN |
| PITCH: | 0/12 |
| DENSITY: | 30 LBS./CU.FT. |
| DECKING: | OSB |
| TYPE: | COMPOSITE |
| MATERIAL: | 7/16 IN |
| WEIGHT: | 1.60 LBS./SQ.FT. |
| ROOFING: | ARCH SHINGLE |
| TYPE: | ASPHALT |
| MATERIAL: | 2.3 LBS./SQ.FT. |

| ROOF MOUNT SUMMARY | | |
|---------------------|---------------|---------------|
| MAXIMUM WIND ZONE 1 | MOUNT SPACING | RAIL OVERHANG |
| 44 IN | 19 IN | 19 IN |
| 40 IN | 19 IN | 19 IN |
| 48 IN | 19 IN | 19 IN |

| ROOF LOADING | |
|-------------------|-------------------|
| GROUND SNOW LOAD: | 15 LBS./SQ.FT. |
| DEAD LOAD: | 20 LBS./SQ.FT. |
| ROOFING: | 3.9 LBS./SQ.FT. |
| PV ARRAY: | 2.5 LBS./SQ.FT. |
| TOTAL: | 6.4 LBS./SQ.FT. |
| WIND LOAD: | |
| UP/LIFT ZONE 1: | -24.6 LBS./SQ.FT. |
| UP/LIFT ZONE 2: | -29.0 LBS./SQ.FT. |
| UP/LIFT ZONE 3: | -29.0 LBS./SQ.FT. |
| DOWNWARD: | 23.0 LBS./SQ.FT. |
| FASTENER LOAD: | |
| UP/LIFT ZONE 1: | -374 LBS. |
| UP/LIFT ZONE 2: | -331 LBS. |
| UP/LIFT ZONE 3: | -331 LBS. |
| DOWNWARD: | 350 LBS. |

| ROOF MOUNT & FASTENER | |
|-----------------------|-----------------|
| ROOF MOUNT: | |
| MAKE | SOLAR ROOF HOOK |
| MODEL | LR001 |
| MATERIAL | ALUMINUM |
| FASTENER: | |
| MAKE | SOLAR ROOF HOOK |
| MODEL | QUICKBOLT |
| MATERIAL | 304 SS |
| SIZE | 5/16-18 X 5.25" |
| GENERAL: | |
| WEIGHT | 1 LBS. |
| FASTENERS PER MOUNT | 1 |
| MAX. PULL-OUT FORCE | 960 LBS./MOUNT |
| SAFETY FACTOR | 2.0 |
| DESIGN PULL-OUT FORCE | 480 LBS./MOUNT |

| MOUNTING RAILS | |
|----------------|---------------|
| MAKE | IRONRIDGE |
| MODEL | SR0 |
| MATERIAL | ALUMINUM |
| WEIGHT | 4.36 LBS./FT. |
| SPACING | 34 IN. |



CLIENT INFO
CHRIS G WEGNER
325 VICTORIA HILLS DR S
FLUQUA VARRINA, NC 27526

PROJECT INFO
DC INPUT: 12.73 kW
AC EXPORT: 11.40 kW
DOI/INSP. METHOD: OPTION 2

CODE REFERENCES
NATIONAL ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2016
NC BUILDING CODE v. 2018
NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

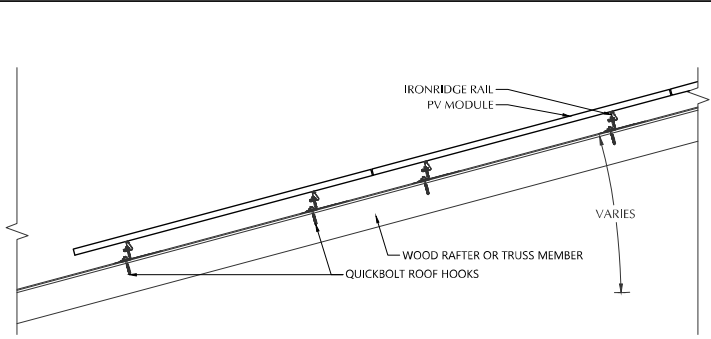
SITE CONDITIONS
WIND SPEED: 116 MPH
RISK CATEGORY: II
EXPOSURE: B
SNOW: 15 PSF

SHEET INDEX
PV-1: COVER SHEET
PV-2: PV STRUCTURAL
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PV-4: PV EQUIPMENT LABELS
PV-5: PV INSTALL GUIDE

DESIGN INFO
DESIGNER: CRM
ENGINEER: AWK
DATE: 12/17/2020
VERSION: P1

PV SYSTEM STRUCTURAL
PV-2.2

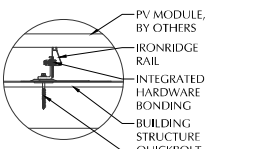
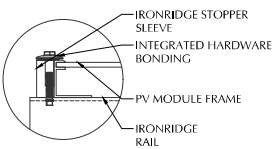
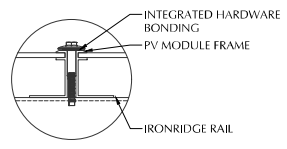
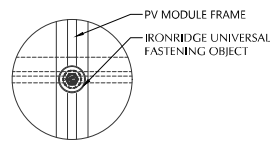
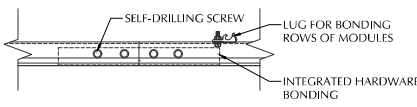
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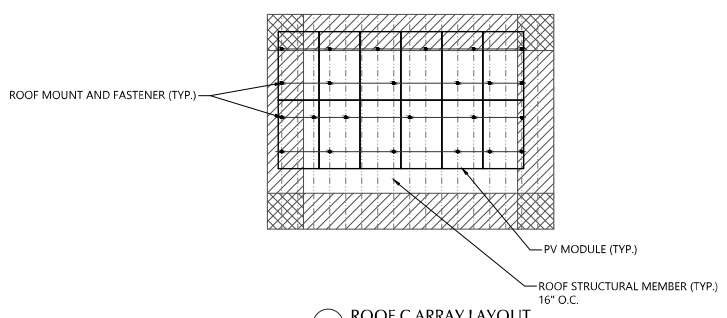
STATEMENT OF STRUCTURAL COMPLIANCE

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NAME: ANDREW W. KING, PE
 SIGNED: *Andrew W. King*



1 ROOF FASTENER DETAIL
NOT TO SCALE



2 ROOF C ARRAY LAYOUT
1/8" = 1'-0"

| PV MODULES | |
|--------------|-----------------------|
| NAME | HANAWA Q-CELL |
| MODEL | Q-PEAK DUO BLK-G6 335 |
| WIDTH | 40.6" |
| LENGTH | 48.5" |
| THICKNESS | 32 mm |
| WEIGHT | 43.5 LBS |
| ARRAY AREA | 232 SQ.FT |
| ARRAY WEIGHT | 579 LBS. |

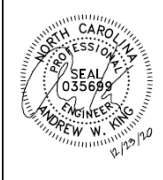
| ROOF SUMMARY | |
|--------------|------------------|
| STRUCTURE: | RAFTERS |
| TYPE: | SOUTHERN PINE #2 |
| SIZE: | 2" X 8" |
| SPACING: | 16 IN O.C. |
| ELL. SPAN: | 160 IN. |
| PITCH: | 9/12 |
| DENSITY: | 30 LBS./CU.FT. |
| DECKING: | OSB |
| TYPE: | COMPOSITE |
| THICKNESS: | 7/16 IN |
| WEIGHT: | 1.60 LBS./SQ.FT |
| ROOFING: | ARCH SHINGLES |
| TYPE: | ASPHALT |
| MATERIAL: | ASPHALT |
| WEIGHT: | 2.3 LBS./SQ.FT. |

| ROOF MOUNT SUMMARY | | |
|--------------------|----------------|---------------|
| WIND ZONE | AMOUNT SPACING | RAIL OVERHANG |
| WIND ZONE 1 | 64 IN. | 19 IN. |
| WIND ZONE 2 | 48 IN. | 19 IN. |
| WIND ZONE 3 | 48 IN. | 19 IN. |

| ROOF LOADING | |
|-------------------------|-------------------|
| GROUND SNOW LOAD: | 15 LBS./SQ.FT. |
| LIVE LOAD: | 20 LBS./SQ.FT. |
| DEAD LOAD: | 14 LBS./SQ.FT. |
| ROOFING: | 3.9 LBS./SQ.FT. |
| PV ARRAY: | 2.5 LBS./SQ.FT. |
| TOTAL: | 6.4 LBS./SQ.FT. |
| WIND LOAD: | |
| UP/LIFT ZONE 1: | -24.0 LBS./SQ.FT. |
| UP/LIFT ZONE 2: | -29.0 LBS./SQ.FT. |
| UP/LIFT ZONE 3: | -29.0 LBS./SQ.FT. |
| DOWNWARD FASTENER LOAD: | 23.0 LBS./SQ.FT. |
| UP/LIFT ZONE 1: | -374 LBS. |
| UP/LIFT ZONE 2: | -331 LBS. |
| UP/LIFT ZONE 3: | -331 LBS. |
| DOWNWARD: | 320 LBS. |

| ROOF MOUNT & FASTENER | |
|------------------------|-----------------|
| ROOF MOUNT: | SOLAR ROOF HOOK |
| MAKE: | 1-FOOT |
| MODEL: | ALUMINUM |
| MATERIAL: | |
| FASTENER: | SOLAR ROOF HOOK |
| MAKE: | QUICKBOLT |
| MODEL: | |
| MATERIAL: | 304 SS |
| SIZE: | 5/16-18 X 3.25" |
| GENERAL: | |
| WEIGHT: | 1 LBS. |
| FASTENERS PER MOUNT: | 1 |
| MAX. PULL-OUT FORCE: | 960 LBS./MOUNT |
| SAFETY FACTOR: | 2.0 |
| DESIGN PULL-OUT FORCE: | 480 LBS./MOUNT |

| MOUNTING RAILS | |
|----------------|---------------|
| NAME: | IRONRIDGE |
| MODEL: | MR10 |
| MATERIAL: | ALUMINUM |
| WEIGHT: | 4.86 LBS./FT. |
| SPACING: | 34 IN. |



CLIENT INFO
CHRIS G WEGNER
325 VICTORIA HILLS DR S
FLUQUAY VARRINA, NC 27526

PROJECT INFO
DC INPUT: 12.73 kW
AC EXPORT: 11.40 kW
DOI/INSP. METHOD: OPTION 2

CODE REFERENCES
NATIONAL ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2016
NC BUILDING CODE v. 2018
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ACSE v. 7-10

SITE CONDITIONS
WIND SPEED: 116 MPH
RISK CATEGORY: II
EXPOSURE: B
SNOW: 15 PSF

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PV-5: PV INSTALL GUIDE

DESIGN INFO
DESIGNER: CRM
ENGINEER: AWK
DATE: 12-17-2020
VERSION: P1

PV SYSTEM STRUCTURAL

PV-2.3

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| CONDUCTOR SCHEDULE | | | | | | | | | | |
|--------------------|-----------------------------|--------|------------|----------------------|--------|------------|-----------------|------|----------------|----------|
| TAG | CURRENT CARRYING CONDUCTORS | | | GROUNDING CONDUCTORS | | | CONDUIT/RACEWAY | | NOTES | |
| | QTY. | SIZE | INSULATION | QTY. | SIZE | INSULATION | QTY. | SIZE | | LOCATION |
| C1 | 6 | 10 AWG | PV WIRE | 1 | 6 AWG | BARE | - | - | FREE AIR | 1 |
| C2 | 6 | 10 AWG | THWN | 1 | 10 AWG | THWN | 1 | 3/4" | EXT INT/BURIED | 2,4 |
| C3 | 3 | 6 AWG | THWN | 1 | 10 AWG | THWN | 1 | 3/4" | EXTERIOR | 2,4 |
| C4 | 3 | 7 AWG | THWN | 1 | 6 AWG | THWN | 1 | 1/2" | EXTERIOR | 2,4 |
| XC | - | - | - | - | - | - | - | - | - | 3 |

| PV MODULES | |
|-------------------------------|-----------------------|
| MAKE | HANWHA Q-CELL |
| MODEL | Q.PEAK DUO BLK-G6-335 |
| TECHNOLOGY | MONO-CRYST. |
| NOM. POWER (P _{NO}) | 335 WATTS |
| NOM. VOLT. (V _{NO}) | 33.62 VOLTS |
| O.C. VOLT. (V _{OC}) | 40.41 VOLTS |
| MAX. SYS. VOLT. | 1000 V (UL) |
| TEMP. COEFF. (VTC) | -0.27 %/°C |
| NOM. CURR. (I _{NO}) | 9.97 AMPS |
| S.C. CURR. (I _{SC}) | 10.47 AMPS |
| MAX. SERIES FUSE | 20 AMPS |

| MODULE OPTIMIZER | |
|------------------|-----------------|
| MAKE | SOLAEDGE |
| MODEL | P140 |
| DC INPUT: | |
| NOM. POWER | 340 WATTS |
| VOLT. RANGE | 8 to 48 |
| MAX. CURR. | 11.0 AMPS |
| DC OUTPUT: | |
| NOM. POWER | 340 WATTS |
| MAX. VOLT. | 60 VOLTS |
| MAX. CURR. | 15 AMPS |
| MIN-MAX STRING | 0-15 OPTIMIZERS |
| UL LIST. (Y/N) | YES |

| DC/AC INVERTER | |
|----------------|------------------|
| MAKE | SOLAEDGE |
| MODEL | SF1140#4US |
| TECHNOLOGY | TRANSFORMER-LESS |
| DC INPUT: | |
| MAX. POWER | 1760 WATTS |
| VOLT. RANGE | 350-400 VOLTS |
| NOM. VOLT. | 400 VOLTS |
| MAX. CURRENT | 30.5 AMPS |
| STRING INPUTS | 3 STRINGS |
| AC OUTPUT: | |
| NOM. POWER | 1140 WATTS |
| NOM. VOLT. | 240 VOLTS |
| MAX. POWER | 1140 WATTS |
| MAX. CURR. | 47.5 AMPS |
| GFP (Y/N) | YES |
| GFCI (Y/N) | YES |
| REC (Y/N) | YES |
| DC DISC. (Y/N) | YES |
| RAPID SHUTDOWN | YES |
| FUSE RATING | 15 AMPS |
| POKCT. RATING | NEMA 3R |

| SUB PANEL | |
|---------------------|-----------|
| MAKE | GENERIC |
| MODEL | N/A |
| ENCL. RATING | NEMA 3R |
| VOLT. RATING | 240 VOLTS |
| BUS RATING | 125 AMPS |
| UL LIST. (Y/N) | YES |
| MAIN BREAKER (Y/N) | YES |
| MAIN BREAKER RATING | 125 AMPS |

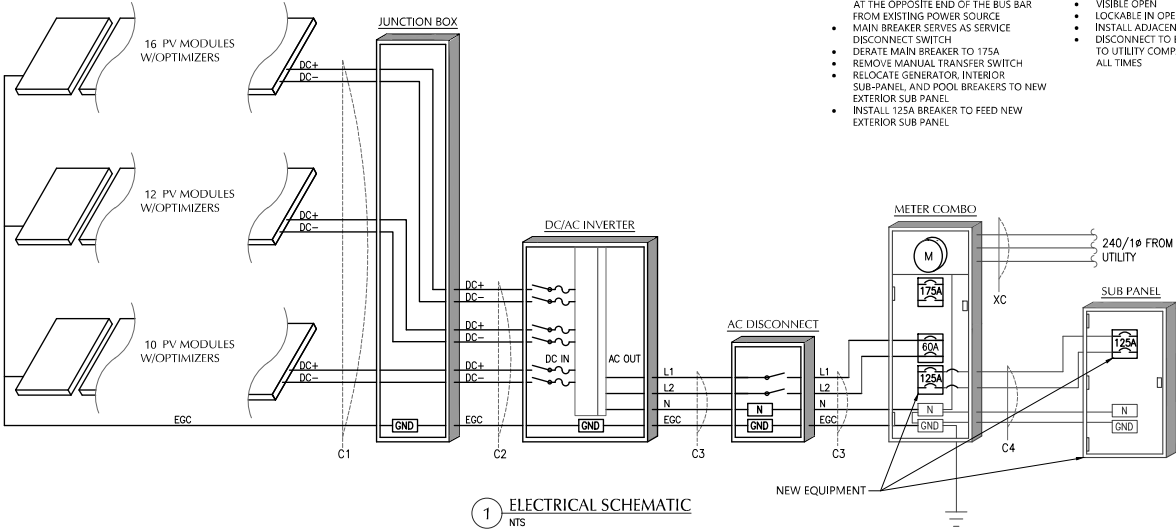
| JUNCTION BOX | |
|--------------|-----------|
| MAKE | SOLAEDGE |
| MODEL | N/A |
| PRO. RATING | NEMA 3R |
| VOLT. RATING | 600 VOLTS |
| AMP RATING | 120 AMPS |
| UL LISTING | UL 50 |

| 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) | NO |
| FUSE RATING | N/A |

| METER COMBO (EXISTING) | |
|------------------------|------------|
| MAKE | SQUARE D |
| MODEL | RC204M200C |
| ENCL. RATING | NEMA 3R |
| VOLT. RATING | 240 VOLTS |
| BUS RATING | 200 AMPS |
| UL LIST. (Y/N) | YES |
| MAIN BREAKER (Y/N) | YES |
| MAIN BREAKER RATING | 175 AMPS |

- INSTALL MANUAL TRANSFER SWITCH BETWEEN MAIN BREAKER AND THE GENERATOR BREAKER

- BACK-FEED SOLAR OUTPUT VIA 60A BREAKER AT THE OPPOSITE END OF THE BUS BAR FROM EXISTING POWER SOURCE
- MAIN BREAKER SERVES AS SERVICE DISCONNECT SWITCH
- DEPATE MAIN BREAKER TO 175A
- REMOVE MANUAL TRANSFER SWITCH
- RELOCATE GENERATOR, INTERIOR SUB-PANEL, AND POOL BREAKERS TO NEW EXTERIOR SUB PANEL
- INSTALL 125A BREAKER TO FEED NEW EXTERIOR SUB PANEL
- 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



1 ELECTRICAL SCHEMATIC
NTS



CLIENT INFO
CHRIS G WEGNER
125 VICTORIA HILLS DR S
FLUQUAY VARRINA, NC 27526

PROJECT INFO
DC INPUT: 12.73 kW
AC EXPORT: 11.40 kW
DOI/INSP. METHOD: OPTION 2

CODE REFERENCES
NATION ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2016
NC BUILDING CODE v. 2016
NC RESIDENTIAL CODE v. 2018
ACE v. 7-10

SITE CONDITIONS
WIND SPEED: 116 MPH
RISK CATEGORY: II
EXPOSURE: B
SNOW: 15 PSF

SHEET INDEX
PV-1: COVER SHEET
PV-2: PV STRUCTURAL
PV-3: PV ELECTRICAL
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PV-5: PV INSTALL GUIDE

DESIGN INFO
DESIGNER: CRM
ENGINEER: AWK
DATE: 12-17-2020
VERSION: P1

PV SYSTEM ELECTRICAL

PV-3.1

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⚠ 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

⚠ 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: PHOTOVOLTAIC POWER SOURCE

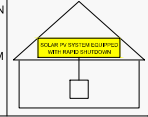
NEC 690.31 (G)(3)(4)
 PLACE ON ALL JUNCTION BOXES, EXPOSED RACEWAYS, AND OTHER WIRING METHODS EVERY 10' AND ON EVERY SECTION SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILING, OR FLOORS.

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

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

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)(3)(4)
 PLACE WITHIN 3 FT 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.

PHOTOVOLTAIC POWER SOURCE
 OPERATING AC VOLTAGE 240 V
 MAXIMUM OPERATING AC OUTPUT CURRENT 47.5 A

NEC 690.54
 PLACE ON INTERCONNECTION DISCONNECTING MEANS

DIRECT CURRENT PHOTOVOLTAIC POWER SOURCE
 MAXIMUM VOLTAGE 600 VDC
 MAX CIRCUIT CURRENT 45.0 AMPS

NEC 690.53
 PLACE ON ALL DC DISCONNECTING MEANS

LABEL NOTES

1. LABELS SHOWN ARE HALF THEIR ACTUAL REQUIRED SIZE.
2. LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
3. DC CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.
4. LABELS WILL BE APPLIED IN ACCORDANCE WITH THE NEC. SOME LABELS MAY NOT BE NECESSARY.

DC WIRING NOTES

1. CONDUCTORS SHALL BE COPPER, RATED AT NOT LESS THAN 600 VOLTS FOR RESIDENTIAL CONSTRUCTION AND NOT LESS THAN 1000 VOLTS FOR COMMERCIAL CONSTRUCTION.
2. MINIMUM SIZE SHALL BE #10 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXPOSED WIRING CONDUCTOR INSULATION SHALL BE TYPE PV WIRE, USE-2, OR RHW-2 WHERE THE OUTER LAYER OF THE INSULATION IS UV, SUNLIGHT, AND MOISTURE RESISTANT.
4. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT) OR RIGID POLYVINYL CHLORIDE CONDUIT(PVC), ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
5. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), OR METAL CLAD CABLE(MC).
6. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMAGE.
7. MINIMUM CONDUIT SIZE TO BE 1/2".
8. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2017 NEC.

AC WIRING NOTES

1. CONDUCTORS SHALL BE COPPER RATED AT NOT LESS THAN 600 VOLTS.
2. MINIMUM SIZE SHALL BE #14 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), RIGID POLYVINYL CHLORIDE CONDUIT(PVC), LIQUID-TIGHT FLEXIBLE METAL CONDUIT(LFMC), OR LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT(LFNC), ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
4. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), METAL CLAD CABLE(MC), OR ROMEX.
5. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMAGE.
6. MINIMUM CONDUIT SIZE TO BE 1/2".
7. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2017 NEC.

CONSTRUCTION NOTES

1. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE NEC, STATE, AND LOCAL APPLICABLE CODES.
2. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS.
3. ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE MAINTAINED.
4. WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.
5. FUSES 0 - 600 AMPS SHALL BE UL CLASS "RK-1" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING AS MANUFACTURED BY BUSSMANN, UNLESS NOTED OTHERWISE.
6. ALL TERMINALS/JUGS SHALL BE 75° RATED. ALL TERMINALS, SPLICING CONNECTORS, LUGS, ETC SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
7. PROVIDE A PULLWIRE IN ALL EMPTY CONDUITS.
8. ALL PENETRATIONS THROUGH EXTERIOR ROOFS SHALL BE FLASHED IN A WATERPROOF MANNER.
9. ALL PENETRATIONS THROUGH ATTIC FIRE BARRIERS SHALL BE SEALED WITH FIRE-BARRIER SEALANT CAULK.
10. SUPPORT ALL CONDUIT AND EQUIPMENT IN ACCORDANCE W/ NEC. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
11. METAL CONDUIT COUPLINGS CAN BE COMPRESSION TYPE, THREADED, OR BE SET-SCREW TYPE. PLASTIC CONDUIT COUPLINGS TO BE SOCKET GLUED TYPE.
12. A COMPLETE GROUNDING SYSTEM SHALL BE PRESENT OR PROVIDED AND INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC, AND AS SHOWN ON THE DRAWINGS.
13. EACH ELECTRICAL APPLIANCE SHALL BE PROVIDED WITH A NAMEPLATE GIVING THE IDENTIFYING NAME AND THE RATING IN VOLTS AND AMPERES OR VOLTS AND WATTS. IF THE APPLIANCE IS TO BE USED ON A SPECIFIC FREQUENCY OR FREQUENCIES, IT SHALL BE SO MARKED WHERE MOTOR OVERLOAD PROTECTION EXTERNAL TO THE APPLIANCE IS REQUIRED, THE APPLIANCE SHALL BE SO MARKED.
14. WHERE APPLICABLE, GROUNDING ELECTRODE CONDUCTOR TO BE CONTINUOUS. GROUNDING CRIMPS TO BE IRREVERSIBLE.
15. PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
16. EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT.
17. WHERE ALL TERMINALS OF A DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECT.
18. A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED AT THE DC DISCONNECT MEANS.
19. A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES SERVING THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL POWER PRODUCTION SOURCES.
20. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC SECTION 690.4 (C).
21. A NORTH CAROLINA REGISTERED DESIGN PROFESSIONAL WILL BE REQUIRED TO SEAL THE STRUCTURAL DESIGN AT THE TIME OF PERMIT APPLICATION IF ANY OF THE FOLLOWING EXIST AND ARE ATTESTED TO BY THE APPLICANT:
 - I. THE WEIGHT OF THE PV SYSTEM EXCEEDS THREE (3) POUNDS PER SQUARE FOOT (PSF)
 - II. THE ROOF POSSESSES MORE THAN ONE (1) LAYER OF ASPHALT SHINGLES
 - III. THE ROOFING MATERIAL CONSISTS OF A TYPE OTHER THAN ASPHALT SHINGLES OR METAL
 - IV. THE ROOF IS LOCATED IN A 140 MPH OR GREATER WIND ZONE



CLIENT INFO
 CHRIS G WEGNER
 325 VICTORIA HILLS DR S
 FLOUQUA VARRINA, NC 27526

PROJECT INFO
 DC INPUT: 12.73 kW
 AC EXPORT: 11.40 kW
 DC/INSP. METHOD: OPTION 2

CODE REFERENCES
 NATIONAL ELECTRICAL CODE v. 2017
 NC FIRE PROTECTION CODE v. 2016
 NC BUILDING CODE v. 2018
 NC RESIDENTIAL CODE v. 2018
 ACSE v. 7-10

SITE CONDITIONS
 WIND SPEED: 116 MPH
 RISK CATEGORY: II
 EXPOSURE: B
 SNOW: 15 PSF

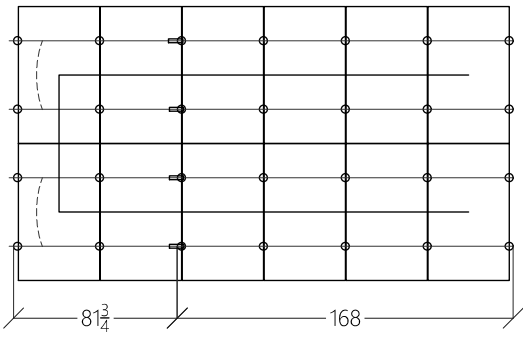
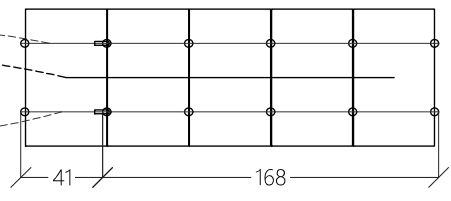
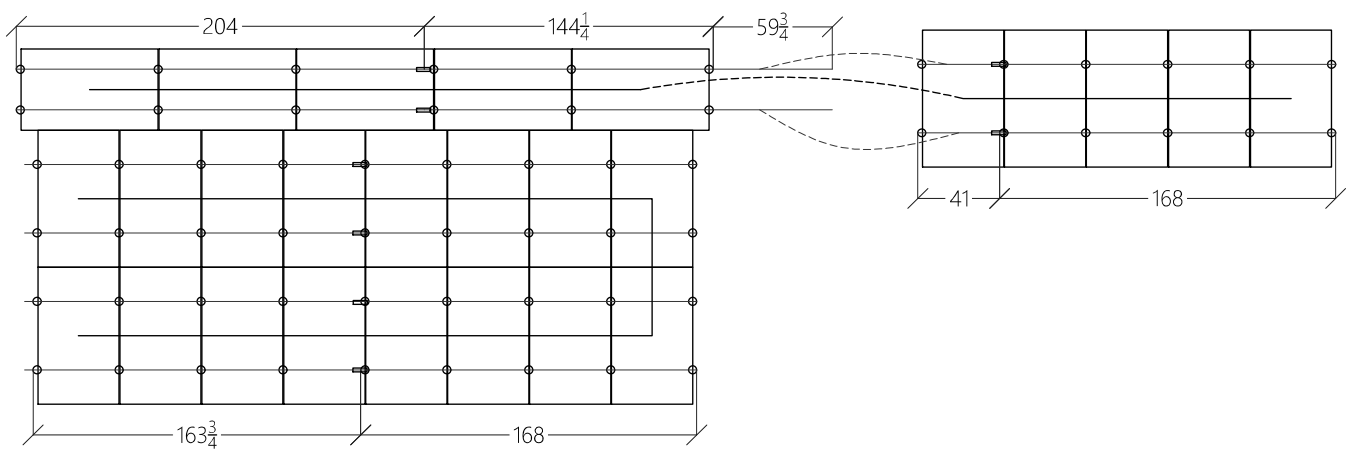
SHEET INDEX
 PV-1: COVER SHEET
 PV-2: PV STRUCTURAL
 PV-3: PV ELECTRICAL
 PV-4: PV EQUIPMENT LABELS
 PV-5: PV INSTALL GUIDE

DESIGN INFO
 DESIGNER: CRM
 ENGINEER: AWK
 DATE: 12-17-2020
 VERSION: P1

PV SYSTEM EQUIPMENT LABELS

PV-4.1

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NOTE: THERE MUST BE AT LEAST TWO ATTACHMENTS ON BOTH SIDES OF A SPLICE BAR

1 ARRAY LAYOUT DETAIL
NOT TO SCALE

NC SOLAR NOW

CLIENT INFO
CHRIS G WEGNER
325 VICTORIA HILLS DR S
FLUQUAY VARIANA, NC 27526

PROJECT INFO
DC INPUT: 12.73 kW
AC EXPORT: 11.40 kW
DOI INSPT. METHOD: OPTION 2

CODE REFERENCES
NATION ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2016
NC BUILDING CODE v. 2016
NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

SITE CONDITIONS
WIND SPEED: 116 MPH
RISK CATEGORY: II
EXPOSURE: B
SNOW: 15 PSF

SHEET INDEX
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PV-5: PV INSTALL GUIDE

DESIGN INFO
DESIGNER: CRM
ENGINEER: AMK
DATE: 12-17-2020
VERSION: P1

PV SYSTEM INSTALL GUIDE

PV-5.1

Single Phase Inverter with HD-Wave Technology

for North America

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



Optimized installation with HD-Wave technology

- / Specifically designed to work with power optimizers
- / Record-breaking efficiency
- / Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- / Fixed voltage inverter for longer strings
- / Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- / UL1741 SA certified, for CPUC Rule 21 grid compliance
- / Extremely small
- / Built-in module-level monitoring
- / Outdoor and indoor installation
- / Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

/ 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 | |
|---|---------------------------------|----------------------------|------------|----------------------------|------------|-------------|------------------------------|-----|
| APPLICABLE TO INVERTERS WITH PART NUMBER | SEXXXXH-XXXXXBXX4 | | | | | | | |
| OUTPUT | | | | | | | | |
| 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 Min.-Nom.-Max. (211 - 240 - 264) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Vac |
| AC Output Voltage Min.-Nom.-Max. (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 | A |
| Maximum Continuous Output Current @208V | - | 16 | - | 24 | - | - | 48.5 | A |
| Power Factor | 1, adjustable -0.85 to 0.85 | | | | | | | |
| GFDI Threshold | 1 | | | | | | | A |
| Utility Monitoring, Islanding Protection, Country Configurable Thresholds | 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 | 380 | | | | 400 | | | Vdc |
| Maximum Input Current @240V ⁽²⁾ | 8.5 | 10.5 | 13.5 | 16.5 | 20 | 27 | 30.5 | Adc |
| Maximum Input Current @208V ⁽²⁾ | - | 9 | - | 13.5 | - | - | 27 | Adc |
| Max. Input Short Circuit Current | 45 | | | | | | | Adc |
| Reverse-Polarity Protection | Yes | | | | | | | |
| Ground-Fault Isolation Detection | 600k Ω Sensitivity | | | | | | | |
| Maximum Inverter Efficiency | 99 | 99.2 | | | | | | % |
| CEC Weighted Efficiency | 99 | | | | | | 99 @ 240V 98.5 @ 208V | % |
| Nighttime Power Consumption | < 2.5 | | | | | | | W |

⁽¹⁾ For other regional settings please contact SolarEdge support

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

/ Single Phase Inverter with HD-Wave Technology for North America

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

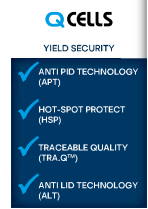
| Model Number | SE3000H-US | SE3800H-US | SE5000H-US | SE6000H-US | SE7600H-US | SE10000H-US | SE11400H-US | |
|--|---|-------------|-------------|-------------------------------------|------------|-------------|-------------|---------|
| ADDITIONAL FEATURES | | | | | | | | |
| Supported Communication Interfaces | RS485, Ethernet, ZigBee (optional), Cellular (optional) | | | | | | | |
| Revenue Grade Data, ANSI C12.20 | Optional ⁽³⁾ | | | | | | | |
| Inverter Commissioning | with the SetApp mobile application using built-in Wi-Fi Access Point for local connection | | | | | | | |
| Rapid Shutdown - NEC 2014 and 2017 690.12 | Automatic Rapid Shutdown upon AC Grid Disconnect | | | | | | | |
| STANDARD COMPLIANCE | | | | | | | | |
| Safety | UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07 | | | | | | | |
| Grid Connection Standards | IEEE1547, Rule 21, Rule 14 (HI) | | | | | | | |
| Emissions | FCC Part 15 Class B | | | | | | | |
| INSTALLATION SPECIFICATIONS | | | | | | | | |
| AC Output Conduit Size / AWG Range | 1" Maximum / 14-6 AWG | | | 1" Maximum /14-4 AWG | | | | |
| DC Input Conduit Size / # of Strings / AWG Range | 1" Maximum / 1-2 strings / 14-6 AWG | | | 1" Maximum / 1-3 strings / 14-6 AWG | | | | |
| Dimensions with Safety Switch (HxWxD) | 17.7 x 14.6 x 6.8 / 450 x 370 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 | -40 to +140 / -40 to +60 ⁽⁴⁾ | | | | | | | °F / °C |
| Protection Rating | NEMA 4X (Inverter with Safety Switch) | | | | | | | |

⁽³⁾ Revenue grade inverter P/N: SExxxxH-US000BNC4

⁽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>

Q.PEAK DUO BLK-G6+ 330-345

ENDURING HIGH
PERFORMANCE



Q.ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY

Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.5%.



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 and 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.



STATE OF THE ART MODULE TECHNOLOGY

Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

¹ APT test conditions according to IEC/TS 62804-1:2015, method B (-1500 V, 168h)

² See data sheet on rear for further information

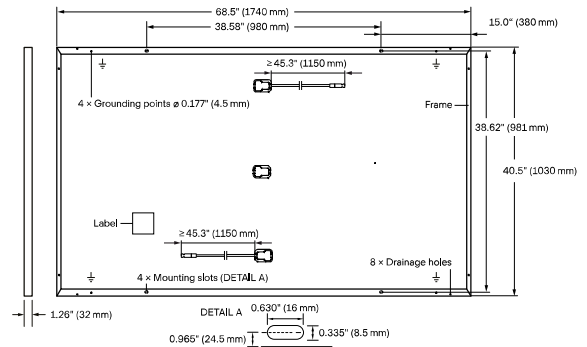
THE IDEAL SOLUTION FOR:



Rooftop arrays on residential buildings

MECHANICAL SPECIFICATION

| | |
|--------------|---|
| Format | 68.5 × 40.6 × 1.26 in (including frame) (1740 × 1030 × 32 mm) |
| Weight | 43.9 lbs (19.9 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 × 20 monocrystalline Q.ANTUM solar half cells |
| Junction Box | 2.09-3.98 × 1.26-2.36 × 0.59-0.71 in (53-101 × 32-60 × 15-18 mm), Protection class IP67, with bypass diodes |
| Cable | 4 mm ² Solar cable; (+) ≥45.3 in (1150 mm), (-) ≥45.3 in (1150 mm) |
| Connector | Stäubli MC4, Hanwha Q CELLS HQC4, Amphenol UTX, Renhe 05-6, Tongling TL-Cable01S, JMTHY JM601; IP68 or Friends PV2e; IP67 |

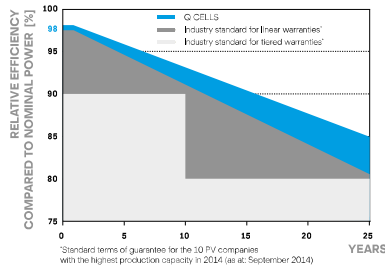


ELECTRICAL CHARACTERISTICS

| POWER CLASS | | 330 | 335 | 340 | 345 | |
|---|------------------------------------|---------------|-------|-------|-------|-------|
| MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5 W / -0 W) | | | | | | |
| Minimum | Power at MPP ¹ | P_{MPP} [W] | 330 | 335 | 340 | 345 |
| | Short Circuit Current ¹ | I_{SC} [A] | 10.41 | 10.47 | 10.52 | 10.58 |
| | Open Circuit Voltage ¹ | V_{OC} [V] | 40.15 | 40.41 | 40.66 | 40.92 |
| | Current at MPP | I_{MPP} [A] | 9.91 | 9.97 | 10.02 | 10.07 |
| | Voltage at MPP | V_{MPP} [V] | 33.29 | 33.62 | 33.94 | 34.25 |
| | Efficiency ¹ | η [%] | ≥18.4 | ≥18.7 | ≥19.0 | ≥19.3 |
| MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ² | | | | | | |
| Minimum | Power at MPP | P_{MPP} [W] | 247.0 | 250.7 | 254.5 | 258.2 |
| | Short Circuit Current | I_{SC} [A] | 8.39 | 8.43 | 8.48 | 8.52 |
| | Open Circuit Voltage | V_{OC} [V] | 37.86 | 38.10 | 38.34 | 38.59 |
| | Current at MPP | I_{MPP} [A] | 7.80 | 7.84 | 7.89 | 7.93 |
| | Voltage at MPP | V_{MPP} [V] | 31.66 | 31.97 | 32.27 | 32.57 |

¹Measurement tolerances $P_{MPP} \pm 3\%$; I_{SC} ; $V_{OC} \pm 5\%$ at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • *800 W/m², NMOT, spectrum AM 1.5

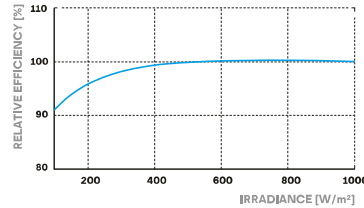
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.54% degradation per year. At least 93.1% of nominal power up to 10 years. At least 85% 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 organization of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

| | | | | | |
|--------------------------------------|------------------|-------|-------------------------------------|-----------------|-----------------------|
| Temperature Coefficient of I_{SC} | α [% / K] | +0.04 | Temperature Coefficient of V_{OC} | β [% / K] | -0.27 |
| Temperature Coefficient of P_{MPP} | γ [% / K] | -0.36 | Normal 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) | Safety Class | II |
| Maximum Series Fuse Rating | [A DC] | 20 | Fire Rating based on ANSI / UL 1703 | C (IEC) / TYPE 2 (UL) |
| Max. Design Load, Push / Pull ³ | [lbs / ft ²] | 75 (3600 Pa) / 55 (2667 Pa) | Permitted Module Temperature on Continuous Duty | -40 °F up to +185 °F (-40 °C up to +85 °C) |
| Max. Test Load, Push / Pull ³ | [lbs / ft ²] | 113 (5400 Pa) / 84 (4000 Pa) | | |

³See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 1703, VDE Quality Tested, CE-compliant, IEC 61215:2016, IEC 61730:2016, Application Class II, U.S. Patent No. 9,893,215 (solar cells)



PACKAGING INFORMATION

| | |
|--|---|
| Number of Modules per Pallet | 32 |
| Number of Pallets per 53' Trailer | 28 |
| Number of Pallets per 40' HC-Container | 24 |
| Pallet Dimensions (L × W × H) | 71.5 × 45.3 × 48.0 in (1815 × 1150 × 1220 mm) |
| Pallet Weight | 1505 lbs (683 kg) |

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.

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

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505



POWER OPTIMIZER

PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

/ Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505

| Optimizer model (typical module compatibility) | P320 (for 60-cell modules) | P340 (for high-power 60-cell modules) | P370 (for higher-power 60 and 72-cell modules) | P400 (for 72 & 96-cell modules) | P405 (for thin film modules) | P505 (for higher current modules) | |
|---|--|--|---|------------------------------------|------------------------------------|--------------------------------------|---------|
| INPUT | | | | | | | |
| Rated Input DC Power ⁽¹⁾ | 320 | 340 | 370 | 400 | 405 | 505 | W |
| Absolute Maximum Input Voltage (Voc at lowest temperature) | 48 | | 60 | 80 | 125 ⁽²⁾ | | Vdc |
| MPPT Operating Range | 8 - 48 | | 8 - 60 | 8 - 80 | 12.5 - 105 | | Vdc |
| Maximum Short Circuit Current (Isc) | 11 | | | 10.1 | | 14 | Adc |
| Maximum DC Input Current | 13.75 | | | 12.5 | | 17.5 | Adc |
| Maximum Efficiency | 99.5 | | | | | | % |
| Weighted Efficiency | 98.8 | | | | | 98.6 | % |
| Overtoltage Category | II | | | | | | |
| OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER) | | | | | | | |
| Maximum Output Current | 15 | | | | | | Adc |
| Maximum Output Voltage | 60 | | | 85 | | | Vdc |
| OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF) | | | | | | | |
| Safety Output Voltage per Power Optimizer | 1 ± 0.1 | | | | | | Vdc |
| STANDARD COMPLIANCE | | | | | | | |
| EMC | FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3 | | | | | | |
| Safety | IEC62109-1 (class II safety), UL1741 | | | | | | |
| Material | UL94 V-0, UV Resistant | | | | | | |
| RoHS | Yes | | | | | | |
| INSTALLATION SPECIFICATIONS | | | | | | | |
| Maximum Allowed System Voltage | 1000 | | | | | | Vdc |
| Compatible inverters | All SolarEdge Single Phase and Three Phase inverters | | | | | | |
| Dimensions (W x L x H) | 129 x 153 x 27.5 / 5.1 x 6 x 1.1 | | | 129 x 153 x 33.5 / 5.1 x 6 x 1.3 | 129 x 159 x 49.5 / 5.1 x 6.3 x 1.9 | 129 x 162 x 59 / 5.1 x 6.4 x 2.3 | mm / in |
| Weight (including cables) | 630 / 1.4 | | | 750 / 1.7 | 845 / 1.9 | 1064 / 2.3 | gr / lb |
| Input Connector | Single or dual MC4 ⁽³⁾ | | | | | | |
| Input Wire Length | 0.16 / 0.52 | | | | | | m / ft |
| Output Wire Type / Connector | Double Insulated / MC4 | | | | | | |
| Output Wire Length | 0.9 / 2.95 | | | 1.2 / 3.9 | | | m / ft |
| Operating Temperature Range | -40 - +85 / -40 - +185 | | | | | | °C / °F |
| Protection Rating | IP68 / NEMA6P | | | | | | |
| Relative Humidity | 0 - 100 | | | | | | % |

⁽¹⁾ Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed

⁽²⁾ NEC 2017 requires max input voltage be not more than 80V

⁽³⁾ For other connector types please contact SolarEdge

| PV System Design Using a SolarEdge Inverter ⁽⁴⁾⁽⁵⁾ | Single Phase HD-Wave | Single phase | Three Phase 208V | Three Phase 480V | |
|---|---|--------------|---------------------|----------------------|---|
| Minimum String Length (Power Optimizers) | P320, P340, P370, P400 | 8 | 10 | 18 | |
| | P405 / P505 | 6 | 13 (12 with SE3K) | 14 | |
| Maximum String Length (Power Optimizers) | | 25 | 25 | 50 ⁽⁶⁾ | |
| Maximum Power per String | 5700 (6000 with SE7600-US - SE11400-US) | 5250 | 6000 ⁽⁷⁾ | 12750 ⁽⁸⁾ | W |
| Parallel Strings of Different Lengths or Orientations | Yes | | | | |

⁽⁴⁾ For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf

⁽⁵⁾ It is not allowed to mix P405/P505 with P320/P340/P370/P400 in one string

⁽⁶⁾ A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement

⁽⁷⁾ For SE14.4KUS/SE43.2KUS: It is allowed to install up to 6,500W per string when 3 strings are connected to the inverter (3 strings per unit for SE43.2KUS) and when the maximum power difference between the strings is up to 1,000W

⁽⁸⁾ For SE30KUS/SE33.3KUS/SE66.6KUS/SE100KUS: It is allowed to install up to 15,000W per string when 3 strings are connected to the inverter (3 strings per unit for SE66.6KUS/SE100KUS) and when the maximum power difference between the strings is up to 2,000W

RSTC Enterprises, Inc.
2214 Heimstead Road
Eau Claire, WI 54703
715-830-9997



Outdoor Photovoltaic Enclosures

Composition/Cedar Roof System

ETL listed and labeled

Report # 3171411PRT-002 Revised May, 2018

- UL50 Type 3R, 11 Edition Electrical equipment enclosures
- CSA C22.2 No. 290 Nema Type 3R
- Conforms to UL 1741 Standard

0799 Series Includes:

- | | |
|----------|------------------|
| 0799 - 2 | Wire size 2/0-14 |
| 0799 - 5 | Wire size 14-6 |
| 0799 - D | Wire size 14-8 |

Models available in Grey, Black or Stainless Steel

Basic Specifications

Material options:

- Powder coated, 18 gauge galvanized 90 steel (1,100 hours salt spray)
- Stainless steel

Process - Seamless draw (stamped)

Flashing - 15.25" x 17.25"

Height - 3"

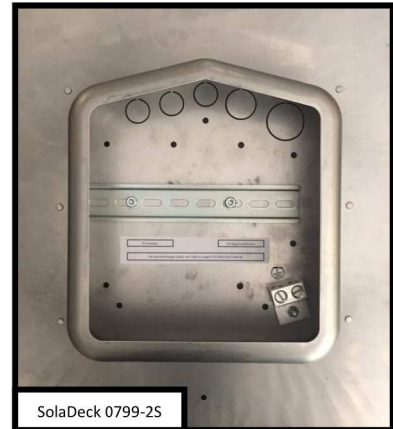
Cavity - 255 Cubic inches

Base Plate:

- Fastened to base using toggle fastening system
- 5 roof deck knockouts
- Knockout sizes: (3) .5", (1) .75" and (1) 1"
- 8", 35mm slotted din rail
- Ground Block

Passthrough and combiner kits are available for either AC or DC applications.

0799 Series



Product data sheet
Characteristics

D222NRB

Safety switch, general duty, fusible, 60A, 2 poles, 15 hp, 120 VAC, NEMA 3R, bolt-on provision, neutral factory installed

Product availability : Stock - Normally stocked in distribution facility



Price* : 326.00 USD



Main

| | |
|------------------------------|---|
| Product | Single Throw Safety Switch |
| Current Rating | 60 A |
| Certifications | UL listed file E2875 |
| Enclosure Rating | NEMA 3R |
| Disconnect Type | Fusible disconnect switch |
| Factory Installed Neutral | Neutral (factory installed) |
| Short Circuit Current Rating | 100 kA maximum depending on fuse H, K or R |
| Mounting Type | Surface |
| Number of Poles | 2 |
| Electrical Connection | Lugs |
| Duty Rating | General duty |
| Voltage Rating | 240 V AC |
| Wire Size | AWG 12...AWG 3 aluminium AWG 14...AWG 3 copper |

Complementary

| | |
|----------------------------|---|
| Maximum Horse Power Rating | 1.5 hp 120 V AC 60 Hz 1 phase NEC 240.6 3 hp 120 V AC 60 Hz 3 phase NEC 430.52 3 hp 240 V AC 60 Hz 1 phase NEC 240.6 7.5 hp 240 V AC 60 Hz 3 phase NEC 240.6 10 hp 240 V AC 60 Hz 1 phase NEC 430.52 15 hp 240 V AC 60 Hz 3 phase NEC 430.52 |
| Width | 7.45 in (189.23 mm) |
| Height | 14.88 in (377.95 mm) |
| Depth | 4.87 in (123.70 mm) |

* Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.

| | |
|-------------------|---|
| Tightening torque | 35 lbf.in (3.95 N.m) 0.00...0.01 in ² (2.08...5.26 mm ²) AWG 14...AWG 10) 35 lbf.in (3.95 N.m) AWG 14...AWG 10) 45 lbf.in (5.08 N.m) 0.01 in ² (8.37 mm ²) AWG 8) 45 lbf.in (5.08 N.m) 0.02...0.03 in ² (12.3...21.12 mm ²) AWG 6...AWG 4) 50 lbf.in (5.65 N.m) 0.04 in ² (26.67 mm ²) AWG 3) |
|-------------------|---|

Ordering and shipping details

| | |
|---------------------|-----------------------------------|
| Category | 00106 - D & DU SW,NEMA3R, 30-200A |
| Discount Schedule | DE1A |
| GTIN | 00785901460640 |
| Package weight(Lbs) | 8.25 lb(US) (3.74 kg) |
| Returnability | Yes |
| Country of origin | US |

Packing Units

| | |
|------------------|-----------------------------|
| Package 2 Weight | 1022.00 lb(US) (463.571 kg) |
|------------------|-----------------------------|

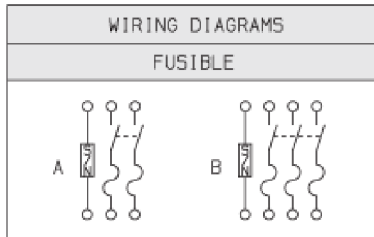
Offer Sustainability

| | |
|----------------------------|---|
| Sustainable offer status | Green Premium product |
| California proposition 65 | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov |
| REACH Regulation | REACH Declaration |
| REACH free of SVHC | Yes |
| EU RoHS Directive | Compliant EU RoHS Declaration |
| Mercury free | Yes |
| RoHS exemption information | Yes |
| China RoHS Regulation | China RoHS declaration Product out of China RoHS scope. Substance declaration for your information. |
| Environmental Disclosure | Product Environmental Profile |
| PVC free | Yes |

Contractual warranty

| | |
|----------|-----------|
| Warranty | 18 months |
|----------|-----------|

Connections and Wiring Diagrams



| TERMINAL LUGS † | | | |
|-----------------|-----------|-----------|----------|
| AMPERES | MAX. WIRE | MIN. WIRE | TYPE |
| 60 | # 3 AWG | # 14 AWG | CU OR AL |

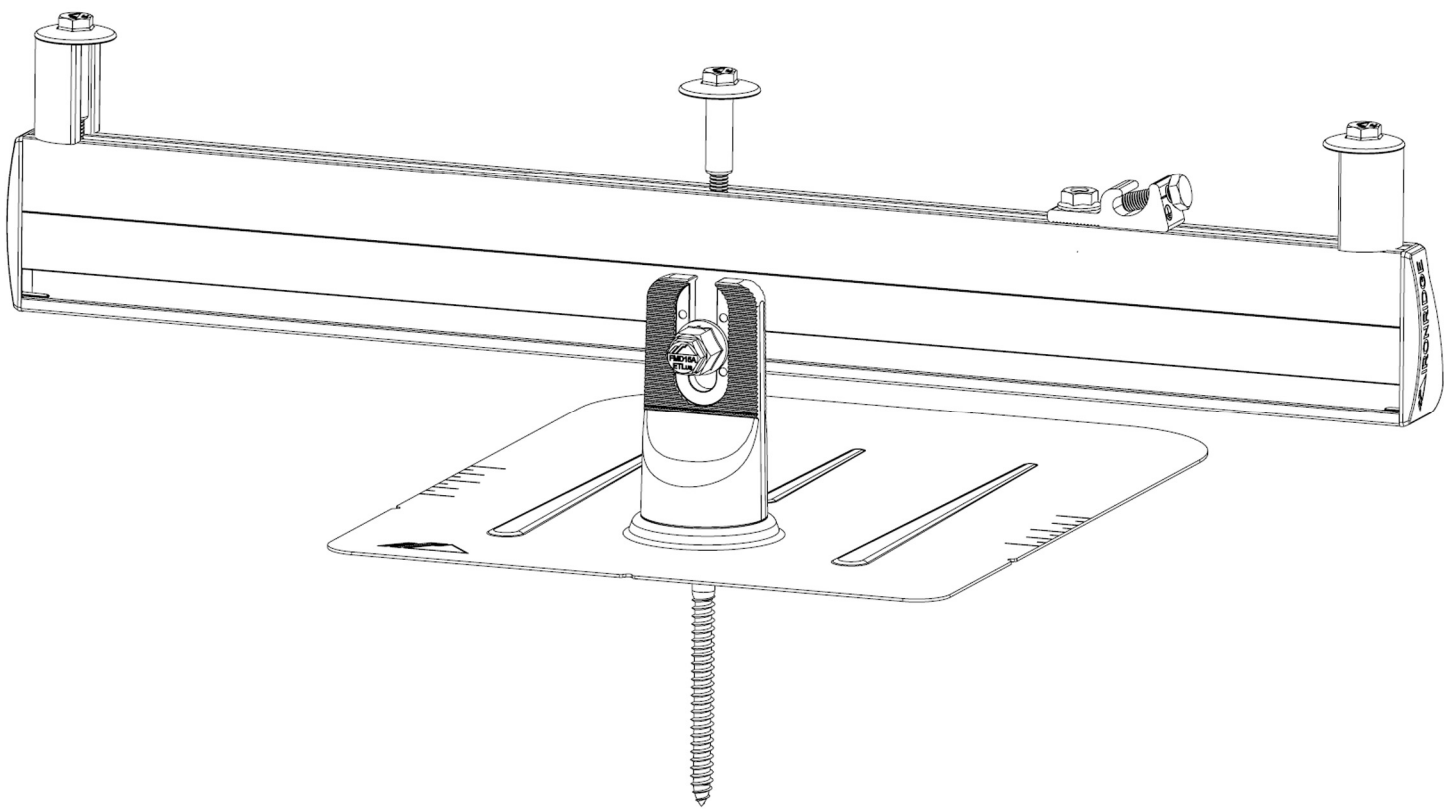
† LUGS SUITABLE FOR 60°C OR 75°C CONDUCTORS.

| CATALOG NUMBER | VOLTAGE RATINGS | WIRING DIAG. | AMPERE RATING | HORSEPOWER RATINGS | | | |
|----------------|-----------------|--------------|---------------|--------------------|--------|------|------|
| | | | | 240VAC | | | |
| | | | | STD. | | MAX. | |
| | | | | 1 Ø | 3 Ø | 1 Ø | 3 Ø |
| D222NRB | 240VAC | A | 60 | 3 | 7.50 ● | 10 | 15 ● |
| D322NRB | 240VAC | B | 60 | 3 ✱ | 7.50 | 10 | 15 |

✱ USE OUTER SWITCHING POLES.

● FOR CORNER GROUNDED DELTA SYSTEMS ONLY.

FLUSH MOUNT



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DISCLAIMER

This manual describes proper installation procedures and provides necessary standards required for product reliability. Warranty details are [available on website](#). All installers must thoroughly read this manual and have a clear understanding of the installation procedures prior to installation. Failure to follow these guidelines may result in property damage, bodily injury or even death.

IT IS THE INSTALLER'S RESPONSIBILITY TO:

- Ensure safe installation of all electrical aspects of the array. All electrical installation and procedures should be conducted by a licensed and bonded electrician or solar contractor. Routine maintenance of a module or panel shall not involve breaking or disturbing the bonding path of the system. All work must comply with national, state and local installation procedures, product and safety standards.
- Comply with all applicable local or national building and fire codes, including any that may supersede this manual.
- Ensure all products are appropriate for the installation, environment, and array under the site's loading conditions.
- Use only IronRidge parts or parts recommended by IronRidge; substituting parts may void any applicable warranty.
- Review the [Design Assistant](#) and [Certification Letters](#) to confirm design specifications.
- Ensure provided information is accurate. Issues resulting from inaccurate information are the installer's responsibility.
- Ensure bare copper grounding wire does not contact aluminum and zinc-plated steel components, to prevent risk of galvanic corrosion.
- If loose components or loose fasteners are found during periodic inspection, re-tighten immediately. If corrosion is found, replace affected components immediately.
- Provide an appropriate method of direct-to-earth grounding according to the latest edition of the National Electrical Code, including NEC 250: Grounding and Bonding, and NEC 690: Solar Photovoltaic Systems.
- Disconnect AC power before servicing or removing modules, AC modules, microinverters and power optimizers.
- Review module manufacturer's documentation for compatibility and compliance with warranty terms and conditions.

RATINGS

UL 2703 LISTED



Intertek

- Conforms to STD UL 2703 (2015) Standard for Safety First Edition: Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels.
- Max Overcurrent Protective Device (OCPD) Rating: 25A
- Max Module Size: 24ft²
- Module Orientation: Portrait or Landscape
- CAMO Specific Allowable Design Load Rating: 50 PSF downward, 50 PSF upward, 15 PSF lateral
- System Level Allowable Design Load Rating: meets minimum requirements of the standard (10 PSF downward, 5 PSF upward, 5 PSF lateral). Actual system structural capacity is defined by PE stamped [certification letters](#).

CLASS A SYSTEM FIRE RATING PER UL 1703

- Any Roof Slope with Module Types 1, 2, and 3
- Any module-to-roof gap is permitted, with no perimeter guarding required. This rating is applicable with any third-party attachment.
- Class A rated PV systems can be installed on Class A, B, and C roofs without affecting the roof fire rating.

WATER SEAL RATINGS: UL 441 & TAS 100(A)-95 (FLASHFOOT2, ALL TILE HOOK, KNOCKOUT TILE)

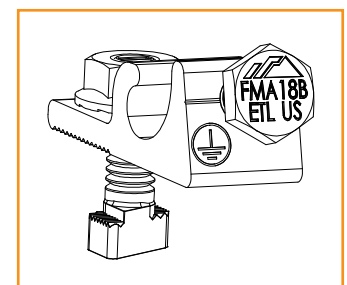
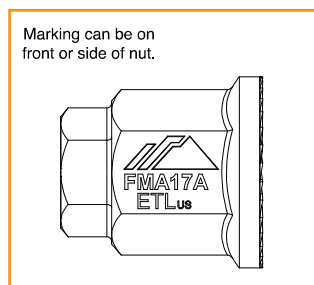
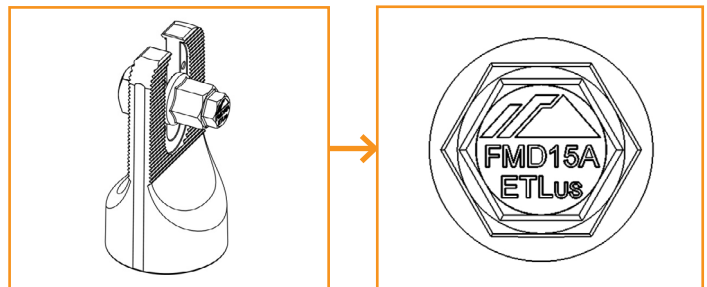
- Tested and evaluated without sealant.
- Any roofing manufacturer approved sealant is allowed. Ratings applicable for roof slopes between 2:12 and 12:12

STRUCTURAL CERTIFICATION

- Designed and Certified for Compliance with the International Building Code & ASCE/SEI-7

MARKINGS

Product markings are located on the 3/8" flange hex nut or Grounding Lug bolt head.



CHECKLIST

PRE-INSTALLATION

- Verify module compatibility. See [Page 10](#) for info.

TOOLS REQUIRED

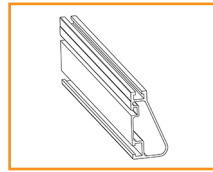
- Cordless Drill (non-impact)
- Impact Driver (for lag bolts)
- Torque Wrench (0-250 in-lbs)
- 5/16" Socket
- 7/16" Socket
- 1/2" Socket
- String Line

TORQUE VALUES

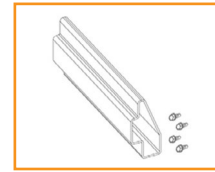
- FlashFoot2 Lag Bolts (7/16" Socket): Fully Seat
- Bonded Splice Screws (5/16" Socket): 20 in-lbs
- Grounding Lug Nuts (7/16" Socket): 80 in-lbs
- Grounding Lug Terminal Screws (7/16" Socket): 20 in-lbs
- Universal Fastening Object (7/16" Socket): 80 in-lbs
- Expansion Joint Nuts (7/16" Socket): 80 in-lbs
- Flush Standoffs (1/2" Socket): 132 in-lbs
- Microinverter Kit Nuts (7/16" Socket): 80 in-lbs
- Frameless Module Kit Nuts (7/16" Socket): 80 in-lbs
- 3/8" Bonding Hardware Nuts (7/16" Socket): 250 in-lbs
- All Tile Hook Lags (7/16" Socket): Fully Seat
- All Tile Hook Carriage Bolts (7/16" Socket): 132 in-lbs
- Knockout Tile Lags (1/2" Socket): Fully Seat
- Knockout Tile Nuts (1/2" Socket): 132 in-lbs
- Flat Roof Attachment Nuts (9/16" Socket): 250 in-lbs

💡 If using previous version of: FlashFoot, Integrated Grounding Mid Clamps, Grounding Lug, End Clamps, and Expansion Joints please refer to Alternate Components Addendum (Version 1.20).

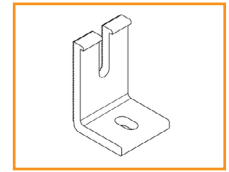
IRONRIDGE COMPONENTS



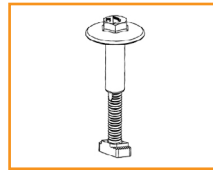
XR Rail



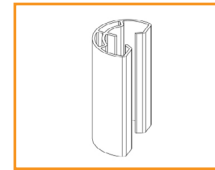
Bonded Splice



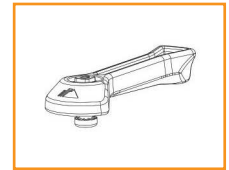
L-Foot



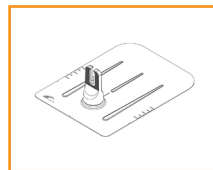
UFO



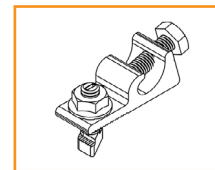
Stopper Sleeve



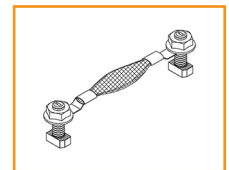
CAMO



FlashFoot2



Grounding Lug



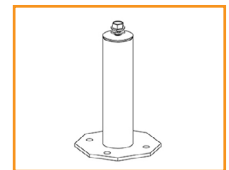
Expansion Joint



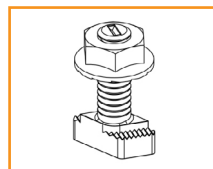
End Cap



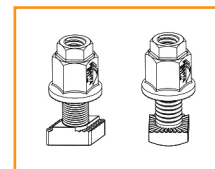
Wire Clip



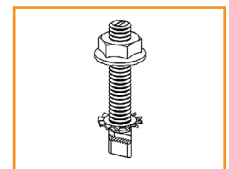
Flush Standoff



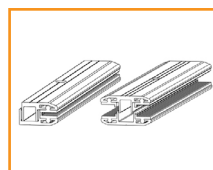
Microinverter Kit



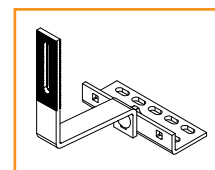
3/8" Bonding Hardware



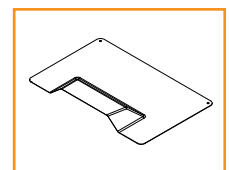
Frameless Module Kit



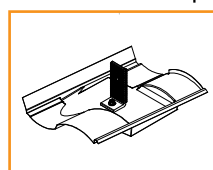
Frameless End/Mid Clamp



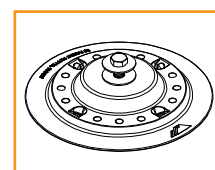
All Tile Hook



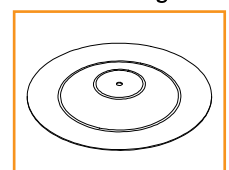
All Tile Hook Flashing



Knockout Tile



Flat Roof Attachment



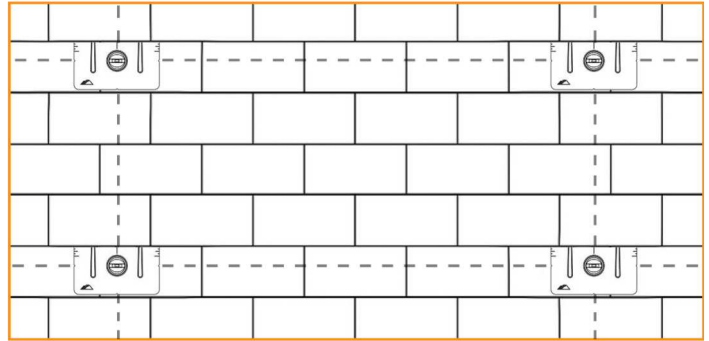
Membrane Flashing

1. ATTACH BASES

For composition roofs, refer to FlashFoot2 install instructions on [page 8](#). For tile roofs, refer to All Tile Hook and Knockout Tile install instructions on [page 8](#) and [9](#). For flat roofs, refer to Flat Roof Attachment install instructions on [page 9](#). When using approved third party attachments, refer to manufacturer's install instructions.

💡 **Tested or evaluated third-party roof attachments:**

- [Anchor Products - U-Anchor](#)
- [S-5! Standing Seam Metal Roof Clamps](#) - Certification of metal roof clamps includes bonding to both painted and galvalume metal roofs. Tighten S-5! and S-5! Mini set screws to 130-150 in-lbs (≥ 24 gauge) or 160-180 in-lbs (22 gauge) roofs. Tighten S-5! M10 bolt to 240 in-lbs or S-5! Mini M8 bolt to 160 in-lbs. Use the following fastening guidelines for other S-5! roof clamps: ProteaBracket™ - firmly seat roof screws and tighten hinge bolt to 225 in-lbs; RibBracket™ - firmly seat roof screws and tighten M8 bolt (M8-1.25 x 22mm sold separately) to 160 in-lbs; and SolarFoot™ - firmly seat roof screws and tighten M8 flange nut to 160 in-lbs.
- [EcoFasten Green Fasten GF-1 Anchors](#)
- Rooftech RT-Mini - Attach to L-foot using 5/16-18 x 1.25" stainless steel bolt and nut torqued to 132 in-lbs.
- QuickMount PV [Roof Mounts](#) QMLM/QMLM - ST and [Tile Hooks](#) - Tile Hook attaches to XR Rail using 3/8" Bonding Hardware Kit torqued to 250 in-lbs.
- Quickscrews Solar Roof Hooks, Ejot Aluminum Roof Hooks, Unirac Creotecc Tile Hooks, or Solarhooks - Attach to XR Rails with L-Foot or 3/8" Bonding Hardware Kit torqued to 250 in-lbs.
- Pegasus Comp Mount - Attach to XR Rail using 3/8" Bonding Hardware kit torqued to 250 in-lbs.

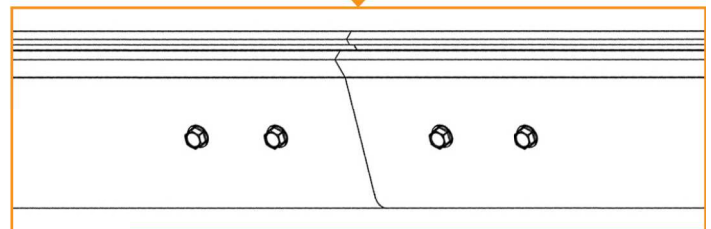
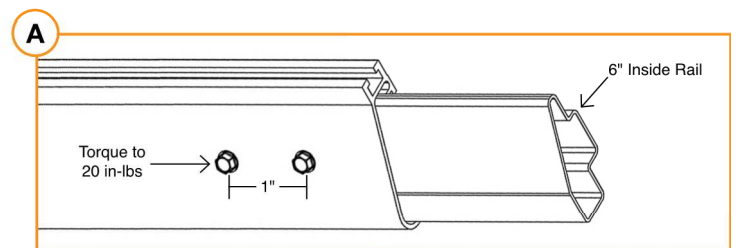


2. PLACE RAILS

A. CONNECT SPLICES

Use Bonded Splices, when needed, to join multiple sections of rail. Insert Bonded Splice 6" into first rail and secure with two self-drilling screws, spacing them approximately 1" apart and tightening to **20 in-lbs**. Slide second rail over Bonded Splice and secure with two more self-drilling screws.

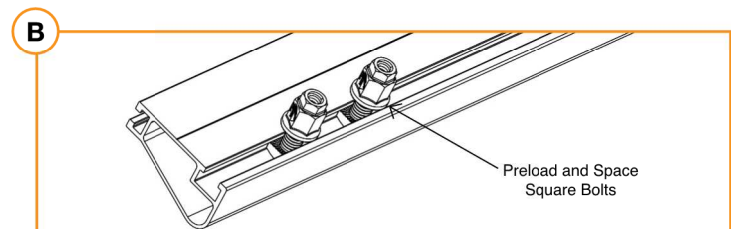
- 💡 Rows exceeding 100 feet of rail must use [Expansion Joints](#).
- 💡 For XR10 and XR100 rails, insert screws along the provided lines.
- 💡 Refer to Structural Certification letters for rail splice location requirements.
- 💡 Screws can be inserted on front or back of rails.



B. PREPARE HARDWARE

Slide square-headed bolts into side-facing rail slot. Space out bolts to match attachment spacing.

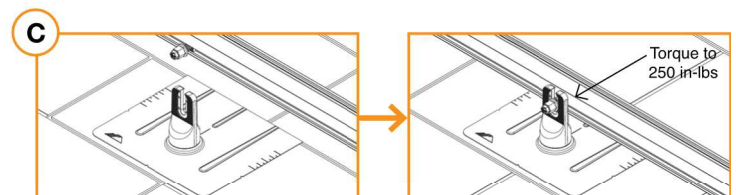
- 💡 Tape ends of rail, to keep bolts from sliding out while moving.
- 💡 If using T-bolts, carry hardware onto roof and proceed.



C. ATTACH RAILS

Drop rail with hardware into roof attachment. Level rail at desired height, then torque to **250 in-lbs**.

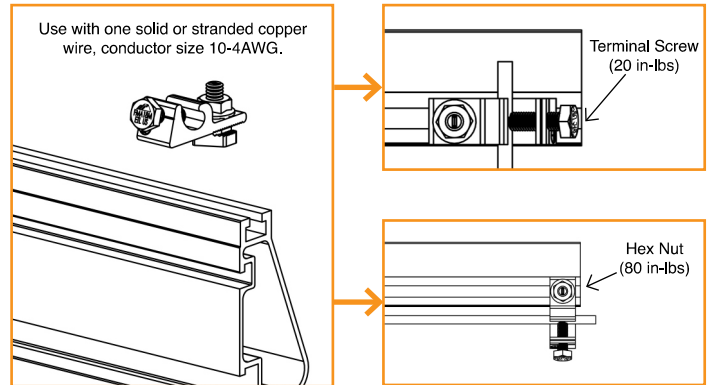
- 💡 Rail can face either upslope or downslope on roof.



3. SECURE LUGS

Insert T-bolt in top rail slot and torque hex nut to **80 in-lbs**. Install a minimum 10 AWG solid copper or stranded grounding wire. Torque terminal screw to **20 in-lbs**.

- 💡 Ground Lugs are only needed on one rail per continuous row of modules, regardless of row length (unless frameless modules are being used, see [Page 9](#)).
- 💡 If using Enphase microinverters or Sunpower AC modules, Grounding Lugs may not be needed. See [Page 9](#) for more info.
- 💡 Grounding Lugs can be installed anywhere along the rail and in either orientation shown. If installing lug underneath modules in areas with ground snow loads greater than 40 psf, place lug within 4 inches module frame edge.

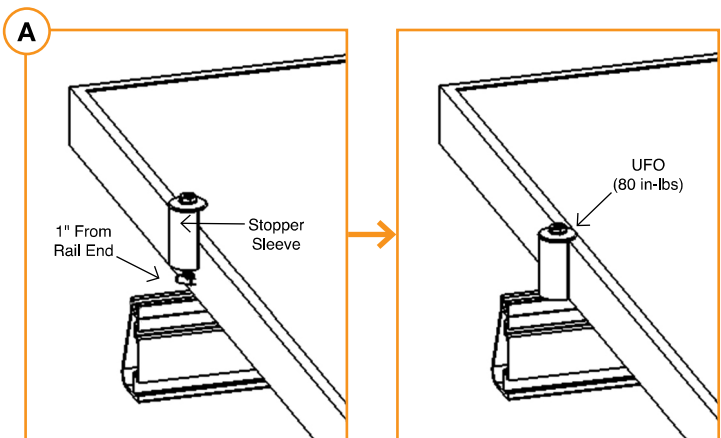


4. SECURE MODULES

A. SECURE FIRST END

Place first module in position on rails, a minimum of 1" from rail ends. Snap Stopper Sleeves onto UFO. Fasten module to rail using the UFO, ensuring that the UFO is hooked over the top of the module. Torque to **80 in-lbs**.

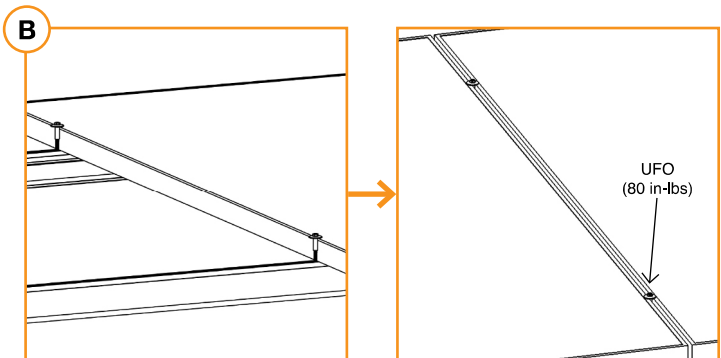
- 💡 Ensure rails are square before placing modules.
- 💡 Hold Stopper Sleeves on end while torquing to prevent rotation.
- 💡 If using CAMO instead of UFO + Stopper Sleeve, refer to [Page 6](#) for CAMO installation procedure.



B. SECURE NEXT MODULES

Place UFO into each rail, placing them flush against first module. Slide second module against UFO. Torque to **80 in-lbs**. Repeat for each following module.

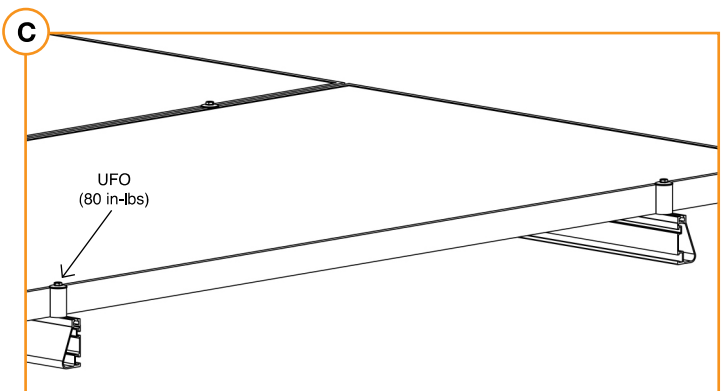
- 💡 When reinstalling UFO, move modules a minimum of 1/16" so UFOs are in contact with a new section of module frame.
- 💡 When UFOs are loosened and re-tightened, ensure UFO T-bolt bottoms out in rail channel before re-torquing UFO to achieve full engagement between T-bolt and rail.
- 💡 If using Wire Clips, refer to [Page 9](#).



C. SECURE LAST END

Place last module in position on rails, a minimum of 1" from rail ends. Snap Stopper Sleeves onto UFO. Secure UFO Clamps on rails, ensuring they are hooked over top of module. Torque to **80 in-lbs**.

- 💡 Hold Stopper Sleeves on end while torquing to prevent rotation.
- 💡 Repeat all steps for each following row of modules, leaving a minimum 3/8" gap between rows.
- 💡 If using CAMO instead of UFO + Stopper Sleeve, refer to [Page 6](#) for CAMO installation procedure.



A. SLIDE INTO RAIL

Slide CAMO into rail channel far enough to clear the module frame. CAMO requires 6" of clearance from end of rail.



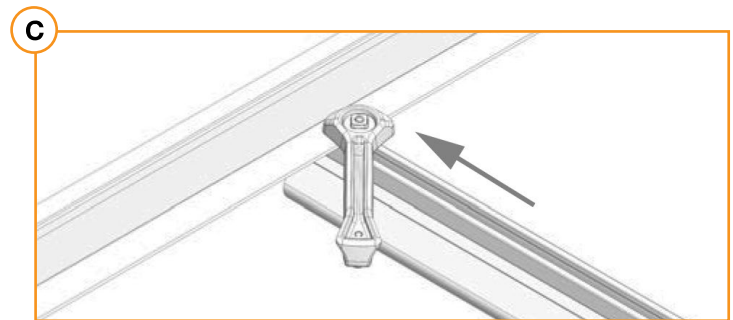
B. PLACE MODULE

Place module on rails (module cells not shown for clarity). When installing CAMO the module can overhang the rail no more than 1/4".



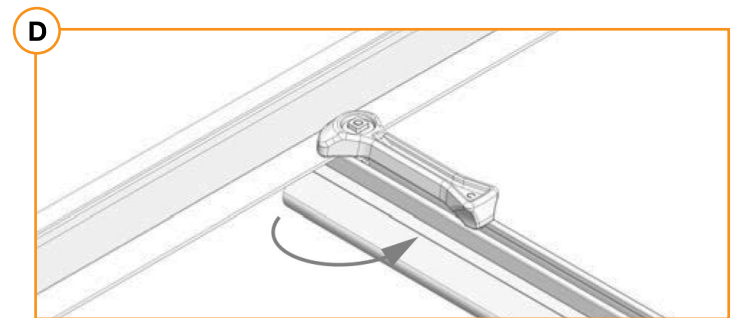
C. PULL TOWARDS END

Pull CAMO towards rail ends, at 45 degree angle, so the bonding bolt contacts the module flange edge.



D. SECURE TO FRAME

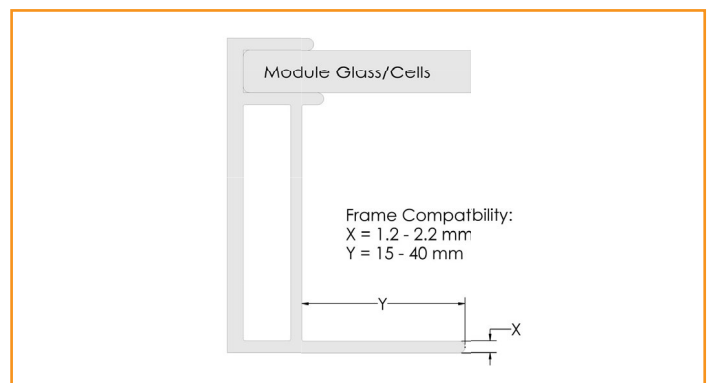
Rotate handle with an upwards motion until CAMO snaps into rail channel. Ensure CAMO bonding pins are fully seated on top of module frame.



FRAME COMPATIBILITY

CAMO has been tested or evaluated with all modules listed in the Module Compatibility section having frames within the referenced dimensions. Be sure the specific module being used meets the dimension requirements.

⚠ For installations with Hanwha Q CELLS modules with 32 mm frame heights, the maximum ground snow is 45 PSF (33 PSF module pressure).



EXPANSION JOINTS

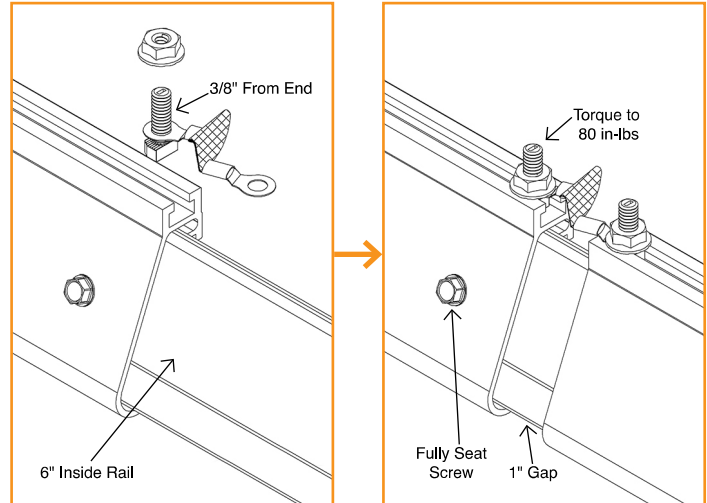
GROUNDING STRAP EXPANSION JOINT

Grounding Strap Expansion Joints are required for thermal expansion of rows exceeding 100 feet of rail.

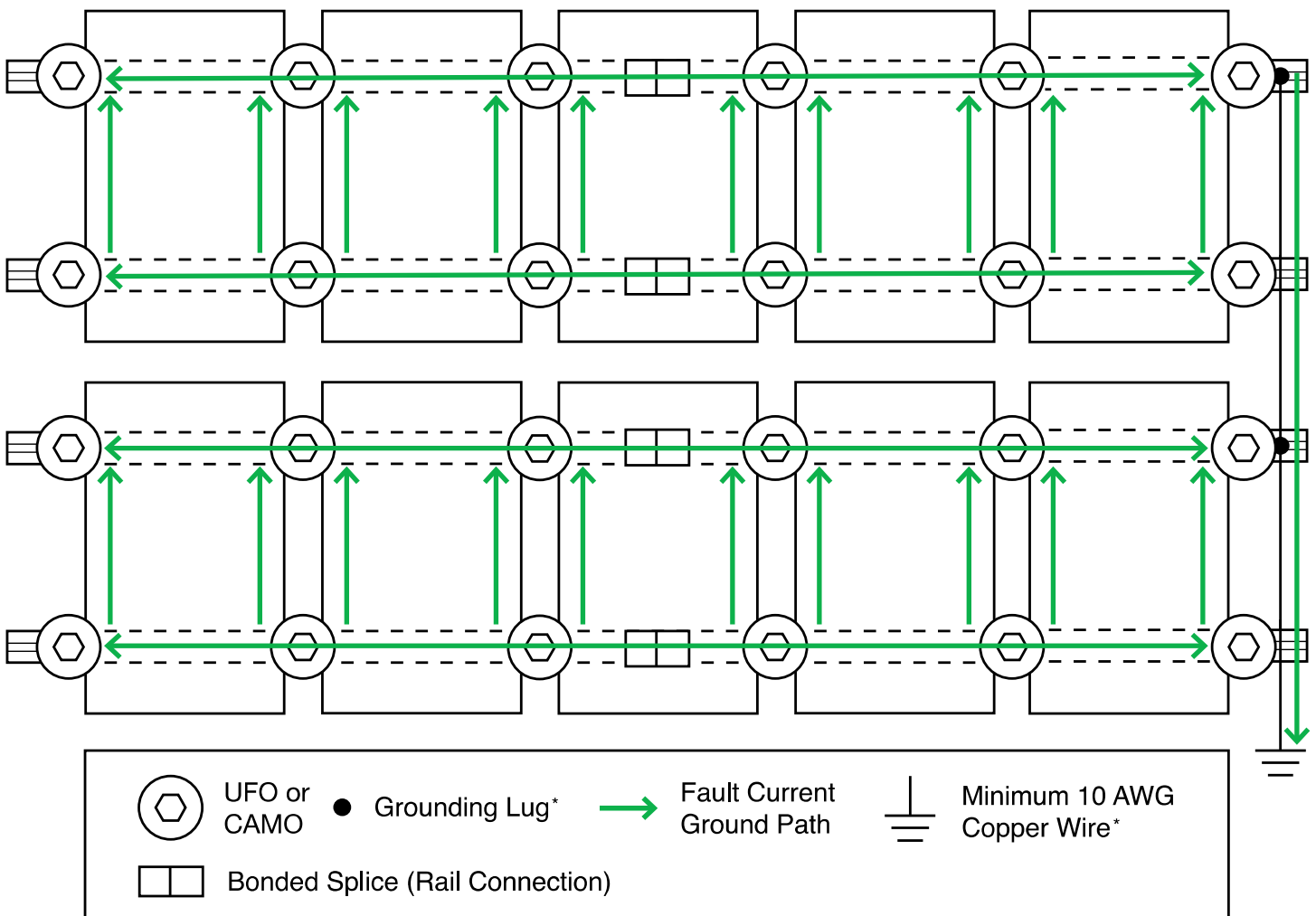
Insert Internal Splice into first rail and secure with screw. Assemble and secure Grounding Strap 3/8" from rail end. Slide second rail over Internal Splice leaving 1" gap between rails. Attach other end of Grounding Strap with hardware, and torque hex nuts to **80 in-lbs**.

💡 **Second Bonded Splice screw is not used with Expansion Joints.**

💡 **Do not install module over top of expansion joint location.**



ELECTRICAL DIAGRAM



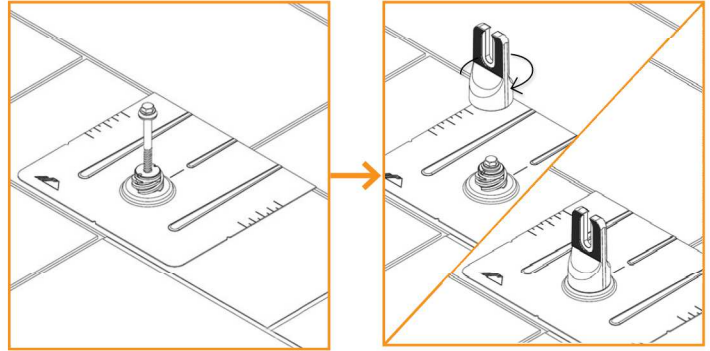
*Grounding Lugs and wire are not required in systems using certain Enphase microinverters or certain Sunpower modules. Equipment grounding is achieved with the Engage cable for Enphase or the AC module cable system for Sunpower via their integrated EGC.

FLASHFOOT2

Locate roof rafters and mark locations on roof. Drill 1/4" pilot holes and backfill with approved sealant. Slide flashing between 1st and 2nd course of shingles, ensuring flashing doesn't overhang the downhill shingle. Line up with pilot hole and insert supplied lag bolt with washer through flashing. Fully seat lag bolt. Place Cap onto flashing in desired orientation for E/W or N/S rails and rotate 180 degrees until it locks into place.

💡 Rail can be installed on either side of FlashFoot2 Cap.

💡 Standalone [FlashFoot2 manual](#) available on website.



ALL TILE HOOK

Remove tile and mark rafter. Position base over rafter, adjust arm if necessary and torque hardware to **132 in-lbs (11 ft-lbs)**. Use base as guide to drill 1/4" pilot holes, back fill with roofing manufacturer's approved sealant, then insert lag bolts and tighten until fully seated. Replace tiles and notch as necessary to ensure proper fit. Attach rails to either side of slot using bonding hardware and torque to **250 in-lbs (21-ft-lbs)**.

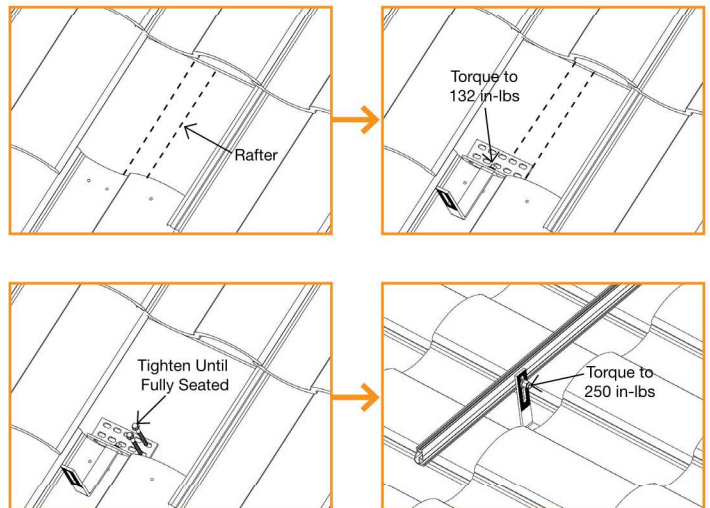
💡 Position arm near the center of valley for curved tiles.

💡 Position arm away from seam of joining flat tiles.

💡 Ensure top of hook does not extend above rail.

💡 IronRidge offers an optional aluminum deck flashing. Refer to [All Tile Hook Flashing Installation Manual](#). Other approved flashing methods include user supplied adhesive backed flexible flashing.

💡 Standalone [All Tile Hook manual](#) available on website.



KNOCKOUT TILE

Remove tile and mark rafter. Use base as guide to drill 1/4" pilot hole and fill with roofing manufacturer's approved sealant. Insert lag bolt with bonded washer through base and drive until fully seated. Insert Tile Replacement Flashing, lower onto base and apply pressure over the threaded post until it dimples the flashing. Place L-Foot over dimple and tap with hammer to punch threaded post through the flashing. Ensure punched pieces of flashing are cleared away. Form flashing as needed to sit flush with surrounding tiles, position L-Foot in desired orientation and torque hardware to **132 in-lbs (11 ft-lbs)**. Attach rail to either side of L-Foot with bonding hardware and torque to **250 in-lbs (21 ft-lbs)**.

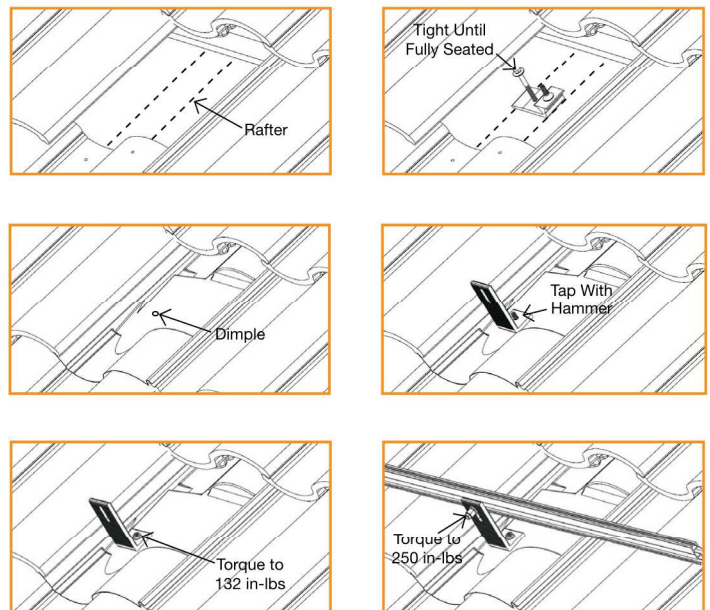
💡 Base can be installed parallel or perpendicular to rafter.

💡 L-foot can be installed facing any direction.

💡 Ensure L-Foot does not extend above rail.

💡 If deck level flashing is required, approved flashing methods include user supplied adhesive backed flexible flashing.

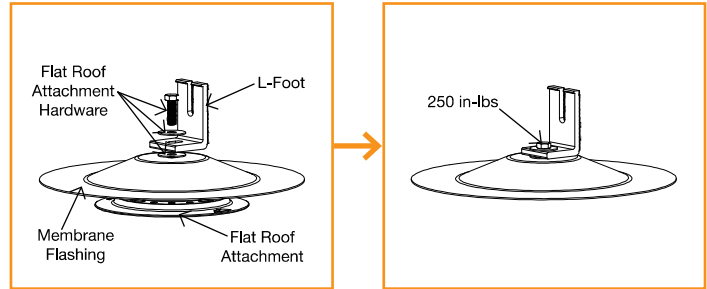
💡 Standalone [Knockout Tile manual](#) available on website.



FLAT ROOF ATTACHMENT

Flat Roof Attachment can be used with an L-foot for flush mounting modules on low sloped roofs. Mark locations for Flat Roof Attachment. Screws should be installed symmetrically to each other. If using a membrane flashing, remove the silicone washer's protective liner prior to attaching the membrane. Attach L-foot with washers and 3/8" hardware torqued to **250 in-lbs (21 ft-lbs)**. Seal attachment and/or membrane per roofing manufacturer's requirements.

- 💡 Type, size, and quantity of roof screws to be specified by Structural Engineer. Fastener size not to exceed #15.
- 💡 Membrane flashing available for TPO, PVC, and KEE roofs. Ensure membrane flashing is compatible with existing roofing material.
- 💡 If membrane flashing is not used, only washer on top of L-Foot is required.
- 💡 Standalone [Flat Roof Attachment manual](#) available on website.

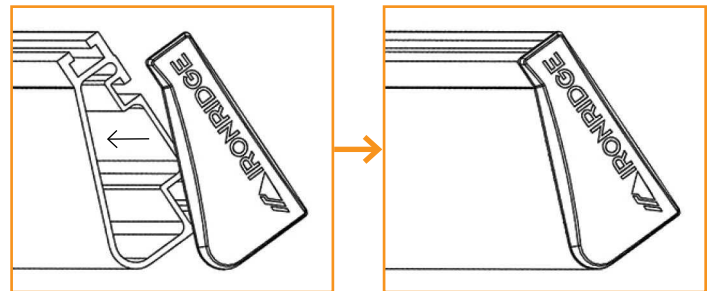


END CAPS

End Caps add a completed look and keep debris and pests from collecting inside rail.

Firmly press End Cap onto rail end.

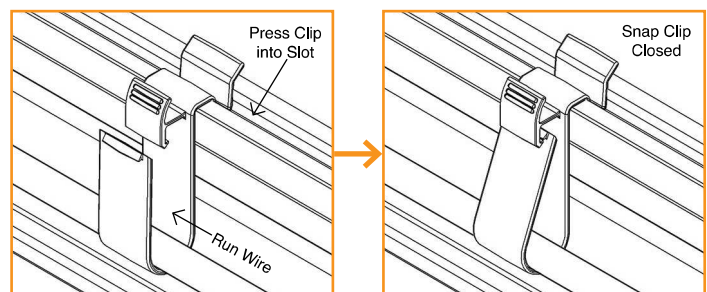
- 💡 End Caps come in sets of left and right. Check that the proper amount of each has been provided.



WIRE CLIPS

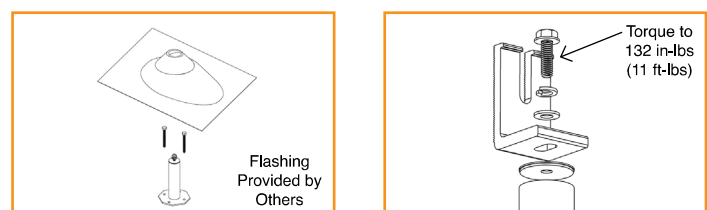
Wire Clips offer a simple wire management solution.

Firmly press Wire Clip into top rail slot. Run electrical wire through open clip. Snap closed once all wires have been placed.



FLUSH STANDOFFS

Attach Standoffs to roof locations with lag bolts (not included). Place flashing over Standoff. Attach L-Foot on Standoff washer with hardware. Torque to **132 in-lbs (11 ft-lbs)**.



MICROINVERTER KITS

Use IronRidge's Microinverter Kit to bond compatible microinverters and power optimizers to the racking system.

Insert Microinverter Kit T-bolt into top rail slot. Place compatible microinverter or power optimizer into position and tighten hex nut to **80 in-lbs**.

💡 If installing in areas with ground snow loads greater than 40 psf, install MLPE devices directly next to module frame edge.

COMPATIBLE PRODUCTS

Enphase

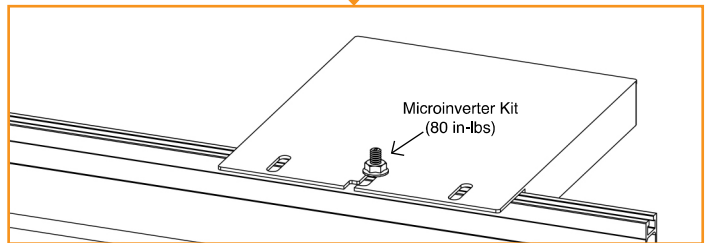
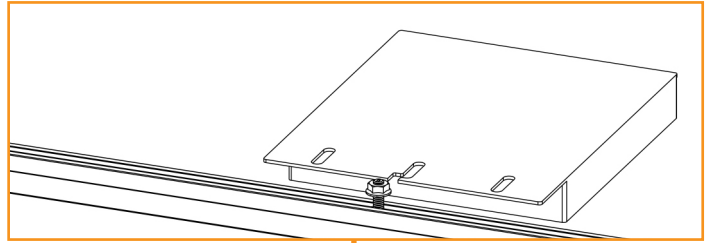
M250-72, 250-60, M215-60, C250-72, S230, S280, IQ 6, IQ 6+, IQ 7, IQ 7+, IQ 7X, Q Aggregator

Darfon

MIG240, MIG300, G320, G640

Solar Edge

P300, P320, P340, P370, P400, P405, P505, P600, P700, P730, P800p, P800s, P850, P860



SYSTEMS USING ENPHASE MICROINVERTERS OR SUNPOWER AC MODULES

IronRidge systems using approved Enphase products or SunPower modules eliminate the need for lay-in lugs and field installed equipment grounding conductors (EGC). This solution meets the requirements of UL 2703 for bonding and grounding and is included in this listing.

The following Sunpower modules are included in this listing: Modules with model identifier Ab-xxx-YY and InvisiMount (G5) 46mm frame; where "A" is either E, or X; "b" can be 17, 18, 19, 20, 21, or 22; and "YY" can be C-AC, D-AC, BLK-C-AC, or BLK-D-AC.

The following Enphase products are included in this listing: Microinverters M250-72, M250-60, M215-60, C250-72, and Engage cables ETXX-240, ETXX-208, ETXX-277.

💡 A minimum of two inverters mounted to the same rail and connected to the same Engage cable are required.

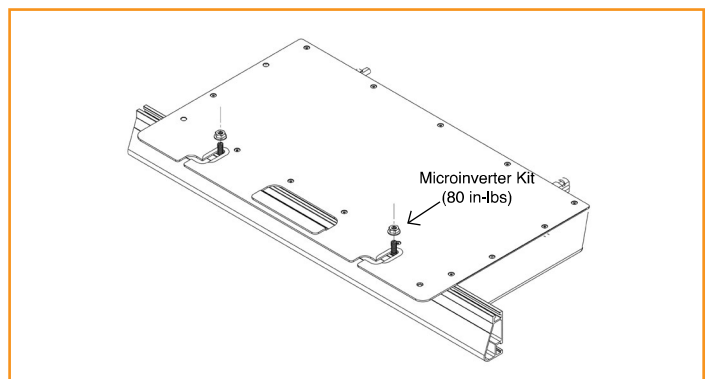
💡 The microinverters or Sunpower AC modules must be used with a maximum 20 A branch rated overcurrent protection device (OCPD).

💡 If an AC module is removed from a circuit for maintenance, you must first disconnect AC power and then install a temporary EGC to bridge the gap by inserting an AC extension cable (or via other NEC-compliant means), in order to maintain effective ground continuity to subsequent modules.

SYSTEMS USING PHAZR MICROSTORAGE PRODUCTS

Bonding and grounding is achieved via the IronRidge system when using the Microinverter Kit. Running a separate equipment grounding conductor to the PHAZRs is not required.

💡 If installing in areas with ground snow loads greater than 40 psf and underneath a module, install PHAZR devices as close as possible to module frame edge.



FRAMELESS MODULE KITS

Insert Frameless Kit T-bolt in top rail slot. Place star washer over T-bolt, allowing it to rest on top of rail. Secure module clamps with a hex nut and torque to **80 in-lbs**.

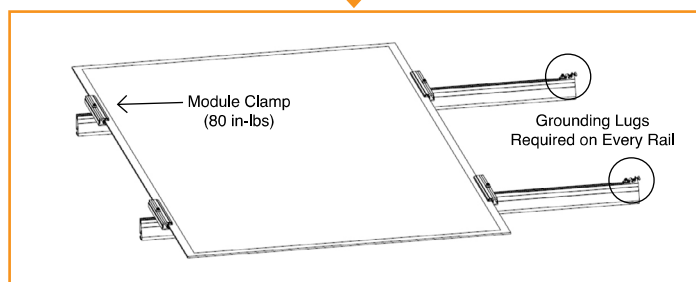
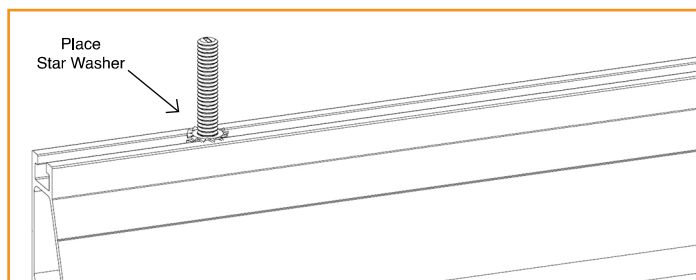
💡 **Tested or evaluated module clamps:**

- Sunforson silver or black SFS-UTMC-200(B) mid and SFS-UTEC-200(B) end clamps.
- Sunprime silver or black mid and end clamps with part numbers 7500105X where "X" is 1, 5, 6 or 7.
- IronRidge silver or black mid and end clamps with part numbers FMLS-XC-001-Y where "X" is E or M and "Y" is B or blank.

💡 **Follow module manufacturer's installation instructions to install the module clamps.**

💡 **Frameless modules require using a Grounding Lug on every rail.**

💡 **For Sunprime Modules Only: If required to use slide prevention hardware, see Module Slide Prevention Addendum (Version 1.10).**



MODULE COMPATIBILITY

The Flush Mount System may be used to ground and/or mount a PV module complying with UL 1703 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions. Unless otherwise noted, "xxx" refers to the module power rating and both black and silver frames are included in the certification.

| MAKE | MODELS |
|------------------|---|
| Amerisolar | Modules with 35, 40 and 50mm frames and model identifier ASbYxxxZ; where "b" can be 5 or 6; "Y" can be M, P, M27, P27, M30, or P30; and "Z" can be blank, W or WB. |
| Astronergy Solar | Modules with 35, 40, and 45mm frames and model identifier aaSM66yyPzz-xxx; where "aa" can be CH or A; "yy" can be either 10 or 12; and "zz" can be blank, HV, (BF) or (BL). Frameless modules with model identifier CHSM6610P(DG)-xxx. |
| Auxin | Modules with 40mm frames and model identifier AXN6y6zAxxx; where "y" can be M or P; "z" can be 08, 09, 10, 11, or 12; and "A" can be F or T. |
| Axitec | Modules with 35 and 40mm frames and model identifier AC-xxxY/aa-ZZ; where "Y" can be M or P; "aa" can be 125 or 156; and "ZZ" can be 54S, 60S or 72S. |
| Boviet | Modules with 40mm frames and model identifier BVM66aaYY-xxx; where "aa" can be 9, 10 or 12; and "YY" is M or P. |
| BYD | Modules with 35mm frames and model identifier BYDxxxAY-ZZ; where "A" can be M6, P6, or PH; "Y" can be C or K; and "ZZ" can be 30 or 36. |
| Canadian Solar | Modules with 30, 35 and 40mm frames and model identifier CSbY-xxxZ; where "b" can be 1, 3 or 6; "Y" can be H, K, P, U, V, or X; and "Z" can be M, P, MS, PX, M-SD, P-AG, P-SD, MB-AG, PB-AG, MS-AG, or MS-SD. Frameless modules with model identifier CSbY-xxx-Z; where "b" can be 3 or 6; "Y" is K, P, U, or X; and "Z" can be M-FG, MS-FG, P-FG, MB-FG, or PB-FG. |
| CertainTeed | Modules with 35 and 40mm frames and model identifier CTxxxYZZ-AA; where "Y" can be M or P; "ZZ" can be 00,01, 10, or 11; and "AA" can be 01, 02 or 03. |
| CSUN | Modules with 35 and 40mm frames and model identifier YYxxx-zzAbb; where "YY" is CSUN or SST; "zz" is blank, 60, or 72; "A" is blank, P or M; and "bb" is blank, BB, BW, or ROOF. |
| Ecosolargy | Modules with 35, 40, and 50mm frames and model identifier ECOxxxYZZA-bbD; where "Y" can be A, H, S, or T; "zz" can be 125 or 156; "A" can be M or P; "bb" can be 60 or 72; and "D" can be blank or B. |
| ET Solar | Modules with 35, 40, or 50mm frames and model identifier ET-Y6ZZxxxAA; where "Y" is P, L, or M; "ZZ" is 60 or 72; and "AA" is WB, WW, BB, WBG, WVG, WBAC, WBCO, WWCO, WWBCO or BBAC. |

MODULE COMPATIBILITY

| | |
|-----------------|--|
| Flex | Modules with 35, 40, or 50mm frames and model identifier FXS-xxxYY-ZZ; where "xxx" is the module power rating; "YY" is BB or BC; and "ZZ" is MAA1B, MAA1W, MAB1W, SAA1B, SAA1W, SAC1B, SAC1W, SAD1W, SBA1B, SBA1W, SBC1B, or SBC1W. |
| GCL | Modules with 35 and 40mm frames and model identifier GCL-a6/YY xxx; where "a" can be M or P; and "YY" can be 60, 72, or 72H. |
| GigaWatt Solar | Modules with 40mm frames and model identifier GWxxxYY; where "YY" is either PB or MB. |
| Hansol | Modules with 35 and 40mm frames and model identifier HSxxxYY-zz; where "YY" can be TB, TD, UB or UD; and "zz" can be AN1, AN3, AN4. |
| Hanwha Solar | Modules with 40, 45, or 50mm frames and model identifier HSLaaP6-YY-1-xxxZ; where "aa" is either 60 or 72; "YY" is PA or PB; and "Z" is blank or B. |
| Hanwha Q CELLS | Modules with 32, 35, 40, and 42mm frames and model identifier aaYY-ZZ-xxx; where "aa" can be Q. or B.; "YY" can be PLUS, PRO, PEAK, LINE PRO, LINE PLUS, or PEAK DUO; and "ZZ" can be G3, G3.1, G4, G4.1, L-G2, L-G2.3, L-G3, L-G3.1, L-G3y, L-G4, L-G4.2, L-G4y, LG4.2/TAA, BFR-G3, BLK-G3, BFR-G3.1, BLK-G3.1, BFR-G4, BFR-G4.1, BFR G4.3, BLK-G4.1, G4/SC, G4.1/SC, G4.1/TAA, G4.1/MAX, BFR G4.1/TAA, BFR G4.1/MAX, BLK G4.1/TAA, BLK G4.1/SC, EC-G4.4, G5, BLK-G5, L-G5, L-G5.1, L-G5.2, L-G5.2/H, L-G5.3, G6, BLK-G6, L-G6, LG6.1, LG6.2, or LG6.3. |
| Heliene | Modules with 40mm frames and model identifier YYZZxxx; where "YY" is 36, 60, 72, or 96; and "ZZ" is M, P, or MBLK. |
| Hyundai | Modules with 35, 40 and 50mm frames and model identifier HiS-YxxxZZ; where "Y" can be M or S; and "ZZ" can be KI, MI, MF, MG, SG, RI, RG(BF), RG(BK), TI, or TG. |
| Itek | Modules with 40 or 50mm frames and model identifier IT-xxx-YY; where "YY" is blank, HE, or SE, or SE72. |
| JA Solar | Modules with 35, 40 and 45mm frames and model identifier JAyyzz-bb-xxx/aa; where "yy" can be M, P, M6 or P6; "zz" can be blank, (K), (L), (R), (V), (BK), (FA), (TG), (FA)(R), (L)(BK), (L)(TG), (R)(BK), (R)(TG), (V)(BK), (BK)(TG), or (L)(BK)(TG); "bb" can be 48, 60, 72, 60S01, 60S02, 60S03, 72S01, 72S02, 72S03; and "aa" can be MP, SI, SC, PR, PR/1500V, 3BB, 4BB, 4BB/RE, 4BB/1500V, 5BB. |
| Jinko | Modules with 35 and 40mm frames and model identifier JKMYxxxZZ-aa; where "Y" can either be blank or S; "ZZ" can be P, PP, M; and "aa" can be blank, 60, 60B, 60H, 60L, 60BL, 60HL, 60HBL, 60-J4, 60B-J4, 60B-EP, 60(Plus), 60-V, 60-MX, 72, 72-V, 72H-V, 72L-V, 72HL-V or 72-MX. Frameless modules with model identifier JKMxxxPP-DV. |
| Kyocera | Modules with 46mm frames and model identifier KYxxxZZ-AA; where "Y" is D or U; "ZZ" is blank, GX, or SX; and "AA" is LPU, LFU, UPU, LPS, LPB, LFB, LFBs, LFB2, LPB2, 3AC, 3BC, 3FC, 4AC, 4BC, 4FC, 4UC, 5AC, 5BC, 5FC, 5UC, 6BC, 6FC, 8BC, 6MCA, or 6MPA. |
| LG | Modules with 35, 40, and 46mm frames LGxxxYaZ-bb; where "Y" can be A, E, N, Q, S; "a" can be 1 or 2; "Z" can be C, K, T, or W; and "bb" can be A3, A5, B3, G3, G4, K4, or V5. |
| Longi | Modules with 40 and 45mm frames and model identifier LR6-YYZZ-xxxM; where "YY" can be 60 or 72; and "ZZ" can be BK, BP, HV, PB, PE, or PH. |
| Mission Solar | Modules with 40mm frames and model identifier MSexxxZZaa; where "ZZ" can be MM, SE, SO or SQ; and "aa" can be 1J, 4J, 4S, 5K, 5T, 6J, 6S, 6W, 8K, 8T, or 9S. |
| Mitsubishi | Modules with 46mm frames and model identifier PV-MYYxxxZZ; where "YY" is LE or JE; and "ZZ" is either HD, HD2, or FB. |
| Motech | IM and XS series modules with 40, 45, or 50mm frames. |
| Neo Solar Power | Modules with 35mm frames and model identifier D6YxxxZZaa; where "Y" can be M or P; "ZZ" can be B3A, B4A, E3A, E4A, H3A, H4A; and "aa" can be blank, (TF), ME or ME (TF). |
| Panasonic | Modules with 35 and 40mm frames and model identifier VBHNxxxYYzzA; where "YY" can be either SA or KA; "zz" can be either 01, 02, 03, 04, 06, 06B, 11, 11B, 15, 15B, 16, 16B, 17, or 18; and "A" can be blank, E or G. |
| Peimar | Modules with 40mm frames and model identifier SGxxxYzz; where "Y" can be M or P; and "zz" can be blank, (BF), or (FB). |
| Phono Solar | Modules with 35, 40, or 45mm frames and model identifier PSxxxY-ZZ/A; where "Y" is M or P; "ZZ" is 20 or 24; and "A" is F, T or U. |

MODULE COMPATIBILITY

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| Prism Solar | Frameless modules with model identifier BiYY-xxxBSTC; where "YY" can be 48, 60, 60S, 72 or 72S. |
| REC Solar | Modules with 30, 38 and 45mm frames and model identifier RECxxxYYZZ; where "YY" can be M, NP, PE, TP, TP2, TP2M, TP2SM, or TP2S; and "ZZ" can be blank, Black, BLK, BLK2, SLV, or 72. |
| Renesola | Modules with 35, 40 or 50mm frames and model identifier JCxxxY-ZZ; where "Y" is F, M or S; and "ZZ" is Ab, Ab-b, Abh, Abh-b, Abv, Abv-b, Bb, Bb-b, Bbh, Bbh-b, Bbv, Bbv-b, Db, or Db-b. |
| Renogy | Modules with 40 or 50mm frames and model identifier RNG-xxxY; where "Y" is D or P. |
| S-Energy | Modules with 40mm frames and model identifier SNxxxY-ZZ; where "Y" is M or P; and "ZZ" is 10, or 15. |
| Seraphim Energy Group | Modules with 40mm frames and model identifier SEG-6YY-xxxZZ; where "YY" can be MA, MB, PA, PB; and "ZZ" can be BB, WB, or WW. |
| Seraphim USA | Modules with 40 and 50mm frames and model identifier SRP-xxx-6YY; where "YY" can be MA, MB, PA, PB, QA-XX-XX, and QB-XX-XX. |
| Sharp | Modules with 35 or 40mm frames and model identifier NUYYxxx; where "YY" is SA or SC. |
| Silfab | Modules with 38mm frames and model identifier SYY-Z-xxx; where "YY" is SA or LA; SG or LG; and "Z" is M, P, or X. |
| Solaria | Modules with 40mm frames and model identifier PowerXT xxxY-ZZ; where "Y" can be R or C; and "ZZ" can be AC, BD, BX, BY, PD, PX, PZ, WX or WZ. |
| SolarTech | Modules with 42mm frames and model identifier STU-xxxYY; where "YY" can be PERC or HJT. |
| SolarWorld AG / Industries GmbH | SolarWorld Sunmodule Plus, Protect, Bisun, XL, Bisun XL, may be followed by mono, poly, duo, black, bk, or clear; modules with 31, 33 or 46mm frames and model identifier SW-xxx. |
| SolarWorld Americas Inc. | SolarWorld Sunmodule Plus, Protect, Bisun, XL, Bisun XL, may be followed by mono, poly, duo, black, bk, or clear; modules with 33mm frames and model identifier SWA-xxx. |
| Stion | Thin film modules with 35mm frames and model identifier STO-xxx or STO-xxxA. Thin film frameless modules with model identifier STL-xxx or STL-xxxA. |
| SunEdison | Modules with 35, 40, or 50mm frames and model identifier SE-YxxxZABCDE; where "Y" is B, F, H, P, R, or Z; "Z" is 0 or 4; "A" is B, C, D, E, H, I, J, K, L, M, or N; "B" is B or W; "C" is A or C; "D" is 3, 7, 8, or 9; and "E" is 0, 1 or 2. |
| Suniva | Modules with 35, 38, 40, 46, or 50mm frames and model identifiers OPTxxx-AA-B-YYY-Z or MVXxxx-AA-B-YYY-Z; where "AA" is either 60 or 72; "B" is either 4 or 5; "YYY" is either 100,101,700,1B0, or 1B1; and "Z" is blank or B. |
| Sunpower | Modules with standard (G3 or G4) or InvisiMount (G5) 40 and 46mm frames with model identifier SPR-Zb-xxx-YY; where "Z" is either A, E, P or X; "b" can be blank, 17, 18, 19, 20, 21, or 22; and "YY" can be blank, NE, BLK, COM, C-AC, D-AC, E-AC, BLK-C-AC, or BLK-D-AC. |
| Sunpreme | Sunpreme modules with 35 and 40mm frames and model identifier SNPM-AxB-xxxYzz; where "A" can be G or H; "Y" can be blank or T; and "zz" can be blank, 4BB, SM or 4BB SM. Frameless modules with model identifier SNPM-GxB-xxxZZ; where "ZZ" can be blank, 4BB, SM or 4BB SM. |
| Sunspark | Modules with 40mm frames and model identifier SYY-xxZ; where "YY" can be MX or ST; and "Z" can be P or W. |
| Suntech | Vd, Vem, Wdb, Wde, and Wd series modules with 35, 40, or 50mm frames. |
| Talesun | Modules with 35 and 40mm frames and model identifier TP6yyZxxx-A; where "yy" can be 60, 72, H60 or H72; "Z" can be M, or P; and "A" can be blank, B, or T. |
| Trina | Modules with 35, 40 or 46mm frames and model identifier TSM-xxxYYZZ; where "YY" is PA05, PC05, PD05, PA14, PC14, PD14, PE14, or DD05; and "ZZ" is blank, A, A.05, A.08, A.10, A.18, .05, .08, .10, .18, .08D, .18D, 0.82, A.082(II), .002, .00S, 05S, 08S, A(II), A.08(II), A.05(II), A.10(II), or A.18(II). Frameless modules with model identifier TSM-xxxYY; and "YY" is either PEG5, PEG5.07, PEG14, DEG5(II), DEG5.07(II), or DEG14(II). |
| Winaico | Modules with 35 or 40mm frames and model identifier Wsy-xxxz6; where "y" is either P or T; and "z" is either M or P. |
| Yingli | Panda, YGE, and YGE-U series modules with 35, 40, or 50 mm frames. |