Scott E. Wyssling, PE, PP, CME

**Wyssling Consulting**
76 North Meadowbrook Drive
Alpine, UT 84004
office (201) 874-3483
swyssling@wysslingconsulting.com

September 30, 2021

Scott E Wyssling

Digitally signed by Scott E Wyssling
DN: C=US, S=Utah, L=Alpine, O=Wyssling Consulting, CN=Scott E Wyssling + E=swyssling@wysslingconsulting.com
Reason: I am the author of this document
Location: your signing location here
Date: 2021.10.01 10:51:07-06'00'
Foxit PhantomPDF Version: 10.1.4

Ken Trappen
Advanced Solar Solutions
39650 Mallard
Bass Lake, CA 93604

Re: Engineering Services
Moody Residence
508 NW Oglethorpe Terrace, Lake City FL
8.775 kW System

Dear Mr. Trappen:

Pursuant to your request, we have reviewed the following information regarding solar panel installation on the roof of the above referenced home:

1. Site Visit/Verification Form prepared by Advanced Solar Solutions representative identifying specific site information including size and spacing of rafters for the existing roof structure.
2. Design drawings of the proposed system including a site plan, roof plan and connection details for the solar panels. This information was prepared by Advanced Solar Solutions and will be utilized for approval and construction of the proposed system.
3. Photographs of the interior and exterior of the roof system identifying existing structural members and their conditions.

Based on the above information we have evaluated the structural capacity of the existing roof system to support the additional loads imposed by the solar panels and have the following comments related to our review and evaluation:

***Description of Residence:***

The existing residence is typical wood framing construction with the roof system consisting of truss system with all chords constructed of 2 x 3 dimensional lumber at 24" on center. The attic space is unfinished and photos indicate that there was free access to visually inspect the size and condition of the roof rafters. All wood material utilized for the roof system is assumed to be Doug-Fir #2 or better with standard construction components. The existing roofing material consists of metal roofing. Photos of the dwelling also indicate that there is a permanent foundation.

***A. Loading Criteria Used***

- 117 MPH wind loading based on ASCE 7-16 Exposure Category "C" at a slope of 20 degrees
- 7 PSF = Dead Load roofing/framing Live Load = 20 PSF/ 0 PSF(where panels are installed)
- 3 PSF = Dead Load solar panels/mounting hardware

*Total Dead Load =10 PSF*

*The above values are within acceptable limits of recognized industry standards for similar structures in accordance with the (FBC 2020, 7th Edition). Analysis performed of the existing roof structure utilizing the above loading criteria indicates that the existing rafters will support the additional panel loading without damage, if installed correctly.*

***B. Solar Panel Anchorage***

1. The solar panels shall be mounted in accordance with the most recent "*S-5 Installation Manual*", which can be found on the S-5 website (*http://s-5.com/*). If during solar panel installation, the roof framing members appear unstable or deflect non-uniformly, our office should be notified before proceeding with the installation.
2. System will be attached to the metal roofing material utilizing the patented S-5 connection. Installation of the connections shall be in accordance with the manufacturer's recommendations.
3. Considering the roof slopes, the size, spacing, condition of roof, the panel supports shall be placed no greater than 72" o/c.

Based on the above evaluation, it is the opinion of this office that with appropriate panel anchors being utilized the roof system will adequately support the additional loading imposed by the solar panels. This evaluation is in conformance with the FBC 2020, 7th Edition, current industry and standards, and based on information supplied to us at the time of this report.

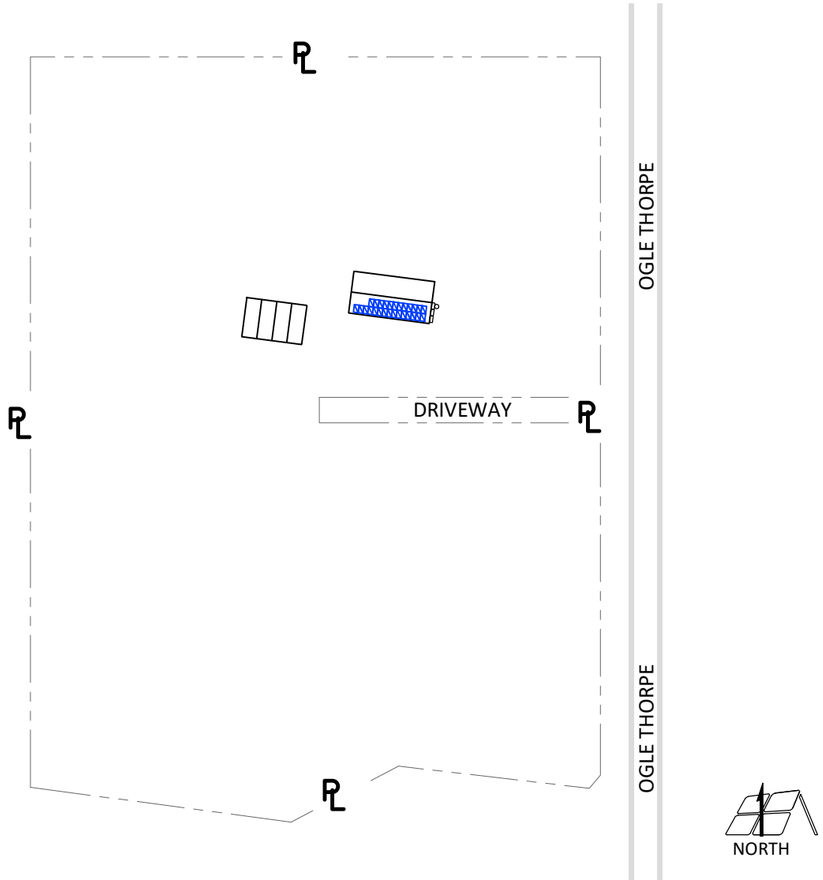
Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

Very truly yours,

Scott E. Wyssling, PE
Florida License No. 81558

## PARCEL MAP

GPS COORDINATES : 30.22257650879996, -82.68329470023755




PROJECT APN:

## GENERAL PROJECT & JURISDICTIONAL NOTES

### INSPECTION REQUIREMENTS

1. A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH ALL OSHA REGULATIONS.

2. PENDING LOCAL JURISDICTIONAL REQUIREMENTS AND WHEN APPLICABLE ALL ELECTRICAL ENCLOSURE DEAD FRONTS, COVERS, DOORS, ETC. SHALE BE OPEN AND ACCESSIBLE FOR INSPECTIONS. WHEN TRENCH AND ROOF INSPECTIONS ARE REQUIRED WORK SHALL BE OPEN AND ACCESSIBLE FOR INSPECTOR.

### JURISDICTIONAL & LISTING REQUIREMENTS

1. WHEN APPLICABLE A SMOKE DETECTOR, APPROVED AND LISTED BY THE STATE FIRE MARSHAL OR ANSI/UL 217 CERTIFIED TO NATIONAL FIRE ALARM AND SIGNALING CODE, NFPA 72 SHALL BE VERIFIED FUNCTIONAL OR INSTALLED IN ALL APPLICABLE CODE REQUIRED LOCATIONS.

2. ALL APPLICABLE EQUIPMENT TO BE UL LISTED OR LISTED BY OTHER JURISDICTIONAL AND UTILITY APPROVED ASSOCIATION OR NATIONALLY RECOGNIZED ORGANIZATION.

3. FULL SCOPE OF WORK SHALL COMPLY WITH ALL APPLICABLE CODES LISTED IN GOVERNING CODES SECTION, ALL MANUFACTURES' LISTINGS, INSTALLATION INSTRUCTIONS AND SPECIFICATIONS AND JURISDICTIONAL REQIREMENTS.

4. REVISED PLANS WILL BE REQUIRED TO BE RESUBMITTED TO THE LOCAL JURISDICTION IF THE INSTALLED ARRAY AND ASSOCIATED EQUIPMENT DOES NOT MATCH THE APPROVED BUILDING PLANS. ADDITIONAL FEES MAY ALSO APPLY.

5. THE PLACEMENT OF A UTILITY PV PRODUCTION METER SHALL BE PROVIDED AND PLACED BY THE CONTRACTOR AS PER APPLICABLE UTILITY OR AHJ REQUIREMENTS.

### COPYRIGHT NOTICE



## GOVERNING CODES

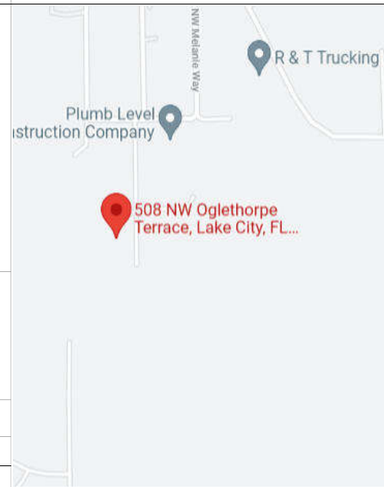
**APPLICABLE BUILDING CODES:**

2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL RESIDENTIAL CODE
2018 INTERNATIONAL FIRE CODE
2017 NATIONAL ELECTRIC CODE
2020 FLORIDA BUILDING CODE
2020 FLORIDA RESIDENTIAL CODE

## DESIGN CRITERIA

**BUILDING OCCUPANCY:** R-3
**RISK CATEGORY:** II
**ASCE 7-16 WIND SPEED:** 117
**EXPOSURE CATEGORY:** Exposure C
**SNOW LOAD:** 0
**SNOW EXPOSURE:** N/A
**CONSTRUCTION TYPE:** IIIA

## PROJECT LOCATION




## SCOPE OF WORK

# ROOF MOUNTED PV (SOLAR) PROJECT GRID-TIED W/O BATTERY STORAGE

## PROPOSED SOLAR EQUIPMENT

| QTY. | EQUIPMENT | DESCRIPTION/MFG/MODEL |
|---|---|---|
| 27 | MODULES | PEIMAR SM325M (FB) |
| 1 | INVERTER(S) | SolarEdge SE6000H-US (240V) |
| N/A | RACKING | IronRidge XR100 Rail |
| 35 | STANCHIONS | S-5 S-5-U |
| N/A | RSD DEVICE | INTEGRATED IN INV & OPT |
| 0 | BATTERIES | |
| 0 | COMBINER(S) | |
| (E) | MSP RATINGS | 200A BUS/200A MAIN BREAKER |

## SITE / PROJECT DETAILS

| | |
|---|---|
| **CONNECTION** | WIRE TAP |
| **SYSTEM SIZE DC** | 8.775 KW |
| **SYSTEM SIZE AC** | 6.000 KW |
| **QTY. STRING/CKT.** | 2 |
| **ELECT. SERVICE** | 120/240V - 1Φ |
| **ROOF COVERING** | Standing Metal Seam |
| **MAX ARRAY HGT.** | N/A |
| **TILT** | 20° |
| **AZIMUTH** | 189° |

## PROJECT TEAM LIST

**CONTRACTOR:**
Daybreak Install LLC
2100 N Main St Ste. 212
Fort Worth, TX 76164
**CONTRACTOR LIC #:** CVC56966
**PHONE:** (817) 995-9572
**CONTACT NAME:** Sherrie Ledbetter
**PHONE:** (817) 501-4922
**EMAIL:** sherrie.ledbetter@DaybreakInstall.com

**DESIGN BY:**
Sherrie Ledbetter
**PHONE:** (817) 501-4922
**EMAIL:**

**PROJECT DRAFTER:**
Advanced Solar Solutions
39650 Mallard
Bass Lake, CA 93604
**PHONE:** 559-321-7000
**EMAIL:** info@advpermits.com

**HOME OWNER PROJECT LOCATION:**
Moody Jr, JM
508 NW Oglethorpe Terrace, Lake City, FL 32055

**CONTACT NAME:** Moody Jr, JM
**PHONE:**
**EMAIL:**

**ELECTRICAL UTILITY:**
FPL - Florida Power & Light
**METER NUMBER:**
**PHONE:**

**AUTHORITY HAVING JURISDICTION:**
**BUILDING:** County Of Columbia
**PHONE:**

**ENGINEERED BY:**
Scott E. Wyssling
76 North Meadowbrook Dr
Alpine, UT 84004
**LICENSE #:** 81558
**LICENSE TYPE:** Civil
**PHONE:** (202) 874-3483
**EMAIL:** swyssling@wysslingconsulting.com

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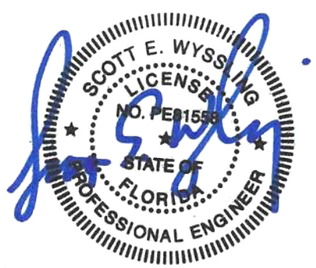


## SHEET INDEX

| SHEET NUMBER | SHEET TITLE |
|---|---|
| PV-001 | COVER SHEET |
| N-001 | GENERAL NOTES |
| PV-100R | PV ARRAY LAYOUT |
| S-100 | RACKING LAYOUT |
| S-200 | SECTION ELEVATION |
| S-201 | ATTACHMENT DETAILS |
| E-001 | EQUIP. CALCULATION |
| E-002 | WIRE AND COND. CALCS |
| E-003 | THREE LINE DIAGRAM |
| E-100 | ELECTRICAL LAYOUT |
| P-001 | STANDARD PLACARDS |
| P-002 | DYNAMIC PLACARDS |
| R-1xx | EQUIP.CUT SHEETS |

REV | DATE | RELEASE
09/29/2021 | SUBMIT FOR PERMIT

PV-001

COVER SHEET

8.775 kW PHOTOVOLTAIC PLANS

NAME | Moody Jr, JM
ADDRESS | 508 NW Oglethorpe Terrace
ADDRESS | Lake City, FL 32055
APN

**Daybreak Install LLC**
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

## GENERAL NOTES:*

**PROPER ACCESS AND WORKING CLEARANCE** AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION *NEC 110.26.*

**PV SYSTEM COMPONENTS**; INCLUDING BUT NOT LIMITED TO, MODULES, INVERTERS AND SOURCE CIRCUIT COMBINERS ARE IDENTIFIED AND LISTED FOR USE IN PV SYSTEMS IN COMPLIANCE WITH *NEC 690.4 AND 690.6* AND *ALL UL, IEC, IEEE* CLASSIFICATIONS AS REQUIREMENTS.

## RAPID SHUTDOWN NOTES:*

PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDIDNG SHALL INCLUDE A **RAPID SHUTDOWN FUNCTION** THAT CONTROLS SPECIFIC PV CONDUCTORS IN ACCORDANCE WITH *2017 NEC 690.12(A)-(D)*

## EQUIPMENT LOCATIONS & ELECTRICAL NOTES:*

**JUNCTION AND PULL BOXES** ARE PERMITTED TO BE INSTALLED UNDER PV MODULES IN COMPLIANCE WITH *NEC 690.34*.

**ADDITIONAL AC DISCONNECT(S)** SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT. *2017 NEC 690.15(A)*

ALL EQUIPMENT SHALL BE INSTALLED **ACCESSIBLE TO QUALIFIED PERSONNEL** IN COMPLIANCE *WITH NEC* APPLICABLE CODES.

ALL COMPONENTS ARE **LISTED FOR THEIR INTENDED PURPOSE AND RATED FOR OUTDOOR USAGE** WHEN APPLICABLE.

## STRUCTURAL AND INSTALLATION NOTES:*

**RACKING SYSTEM & PV PANELS MOUNTED ON A ROOFTOP** SHALL BE LISTED AND LABELED IN ACCORDANCE WITH *UL 1703* AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER INSTALLATION INSTRUCTIONS.

ALL PV RACKING ATTACHMENT POINTS SHALL NOT EXCEED THE PRE-ENGINEERED **MAX SPANS** OUTLINED BY THE RACKING MANUFACTURES ENGINEER OF RECORD.

## GROUNDING NOTES:*

**IN UNGROUNDED SYSTEMS** ONLY THE DC CONDUCTORS ARE UNGROUNDED AND REQUIRE AN EQUIPMENT GROUNDING CONDUCTOR. ALL METAL ELECTRICAL EQUIPMENT AND STRUCTURAL COMPONENTS BONDED TO GROUND, IN COMPLIANCE WITH *NEC 250.134* AND *NEC 250.136(A)*.

PV EQUIPMENT INCLUDING **MODULE FRAMES AND OTHER METAL PARTS SHALL BE GROUNDED** IN COMPLIANCE WITH *NEC 690.43* AND MINIMUM GROUND CONDUCTORS SIZED IN ACCORDANCE WITH *NEC TABLE 250.122*.

CONDUCTIVE PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES SHALL BE GROUNDED IN COMPLIANCE WITH *NEC 250.134 AND NEC 250.136(A)*.

**UL2703** APPROVED **MODULE AND RACK GROUNDING** SHALL BE USED AND INSTALLED PER MANUFACTURER'S INSTALLATION MANUAL. IF *UL2703* APPROVED GROUNDING IS NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS.

**THE GROUNDING CONNECTION TO A MODULE** SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.

**THE GROUNDING ELECTRODE SYSTEM** COMPLIES WITH *NEC 690.47* AND *NEC 250.50* THROUGH *NEC 250.106*. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM WILL BE PROVIDED IN COMPLIANCE WITH *NEC 250, NEC 690.47* AND *AHJ*.

PV SYSTEMS SHALL BE PROVIDED WITH **DC GROUND-FAULT PROTECTION** *2017 NEC 690.41(B)*

## INTERCONNECTION / POC NOTES:*

**ALL LOAD-SIDE INTERCONNECTIONS** ARE IN COMPLIANCE WITH *2017 NEC 705.12(B)*

**THE TOTAL RATING OF ALL OCPD IN SOLAR LOAD CENTERS** SHALL NOT EXCEED THE RATED AMPACITY OF THE BUSBAR EXCLUDING THE OCPD PROTECTING THE BUSBAR IN COMPLIANCE WITH *NEC 705.12(B)(2)(3)(c)*

**ALL FEEDER TAP (LOAD SIDE) INTERCONNECTIONS** ARE IN COMPLIANCE WITH *2017 NEC 705.12(B)(2)(1)*

THE PV SYSTEM BACK-FEED BREAKER SHALL BE INSTALLED ON THE OPPOSITE END OF THE BUS BAR AND IT SHALL ALSO BE SIZED APPROPRIATELY AS PER *2017 NEC 705.12(B)(2)(3)(b)*

**SUPPLY SIDE TAP INTERCONNECTIONS** ARE IN COMPLIANCE WITH *NEC 705.12(A)* WITH SERVICE ENTRANCE CONDUCTORS IN COMPLIANCE WITH *NEC 230.42*

**BACKFEEDING BREAKER** FOR INVERTER OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING *2017 NEC 705.12(B)(5)*

**MICROINVERTER BRANCH CIRCUITS** SHALL BE CONNECTED TO A SINGLE OCPD IN ACCORDANCE WITH THEIR INSTALLATION INSTRUCTIONS AND *NEC 690.9*

## DISCONNECTS AND OCPD NOTES:*

**ALL DISCONNECTING SWITCHES** WILL BE CONFIGURED SO THAT ALL ENERGIZED CONDUCTORS WHEN DISCONNECT IS OPEN SHALL BE ON THE TERMINALS MARKED, "LINE SIDE" (TYPICALLY THE UPPER TERMINALS)

**ALL AC DISCONNECTS** SHALL BE LABELED, LOCKABLE, OF VISIBLE BREAK TYPE SWITCH WITH EXTERNAL HANDLE AND ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL.

**AC DISCONNECTS** SHALL BE A "KNIFE BLADE" TYPE DISCONNECT. IF EXTERIOR, RATED TO NEMA 3R OR BETTER PER *NEC 110.28*

**ADDITIONAL AC DISCONNECTS** SHALL BE PROVIDED WHERE THE INVERTER IS NOT ADJACENT TO THE UTILITY AC DISCONNECT, OR NOT WIHTIN SIGHT OF THE UTILITY AC DISCONNECT. *2017 NEC 690.15(A)*

**BOTH POSITIVE AND NEGATIVE PV CONDUCTORS** REMAIN UNGROUNDED. THEREFORE, BOTH SHALL REMAIN OPEN WHERE A DISCONNECT IS REQUIRED IN COMPLIANCE WITH *2017 NEC 690.15(D)*

**ALL OCPD RATINGS AND TYPES SPECIFIED** SHALL BE IN COMPLIANCE WITH *NEC 690.8, 690.9, 705.12* AND *240*.

**BOTH POSITIVE AND NEGATIVE DC PV CONDUCTORS ARE UNGROUNDED**; BOTH REQUIRE OVERCURRENT PROTECTION IN COMPLIANCE WITH *NEC 690.9*

**ARC FAULT (AFCI) DC CIRCUIT PROTECTION** IS REQUIRED FOR ALL PV SYSTEMS ON OR PENETRATING A BUILDING WITH A MAXIMUM SYSTEM VOLTAGE OF 80 VOLTS OR GREATER. ALL DC PV CIRCUITS INSTALLED IN OR ON BUILDINGS WILL BE ARC-FAULT CIRCUIT PROTECTED IN COMPLIANCE WITH *NEC 690.11, UL1699B* AND SHALL BE LISTED AND LABELED IN ACCORDANCE WITH *UL 1699 (B).*

## WIRING & CONDUIT NOTES:*

**ALL CONDUIT AND CONDUCTORS SHALL BE APPROVED** FOR THEIR INTENDED PURPOSE INCLUDING WET LOCATIONS AND EXPOSED TO SUNLIGHT. CONDUIT AND CONDUCTOR SIZE SPECIFICATIONS ARE BASED ON THE MINIMUM CODE REQUIREMENTS AND ARE NOT LIMITED TO UP SIZING.

**ALL CONDUCTORS SHALL BE SIZED** IN COMPLIANCE WITH *NEC 690.8, NEC 690.7*.

**ALL CONDUCTORS SHALL BE DERATED** AS APPLICABLE TO THEIR RESPECTIVE ENVIRONMENT INCLUDING DIRECT SUNLIGHT IN ACCORDANCE WITH *2017 NEC 310.15(B)(3)(4)(c)*

**EXPOSED UNGROUNDED DC PV SOURCE AND OUTPUT CIRCUITS** SHALL USE CONDUCTORS LISTED AND IDENTIFIED AS PHOTOVOLTAIC (PV) WIRE IN COMPLIANCE *2017 NEC 690.31(C)(1)*. PV MODULES WIRE LEADS SHALL BE LISTED FOR USE WITH UNGROUNDED SYSTEMS IN COMPLIANCE WITH *2017 NEC 690.4(B)*

**PV WIRE BLACK WIRE** MAY BE FIELD-MARKED WHITE IN COMPLIANCE WITH *NEC 200.6 (A)(6).*

**PV MODULE CONDUCTORS LOCATED UNDER ARRAYS** WILL BE SECURED IN A WORKMANLIKE MANNER IN COMPLIANCE WITH *NEC 110.12*.

## WATERPROOFING:*

ALL NEW **ROOFTOP PENETRATIONS** SHALL BE SEALED AND MADE WEATHER TIGHT WITH APPROVED CHEMICAL SEALANT AND FLASHINGS WHERE REQUIRED PER CODE AND GENERAL BUILDING AND ROOFING WORKMANSHIP STANDARDS BY A LICENSED CONTRACTOR.

ALL **EXTERIOR ELECTRICAL EQUIPMENT, SHALL BE NEMA 3R** OR BETTER RATED. ALL EXTERIOR CONDUIT AND CONNECTORS SHALL BE RATED FOR WET LOCATIONS.

*ALL NOTES ARE AS APPLICABLE TO THIS PROJECT. DISREGARD ANY NOTES THAT DO NOT APPLY TO THIS PROJECT.

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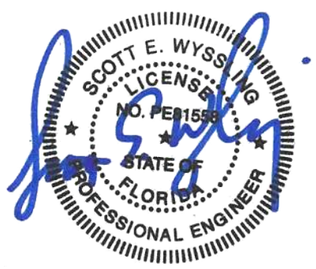



| REV | DATE | |
|---|---|---|
| | 09/29/2021 | SUBMIT FOR PERMIT |

N-001

GENERAL NOTES

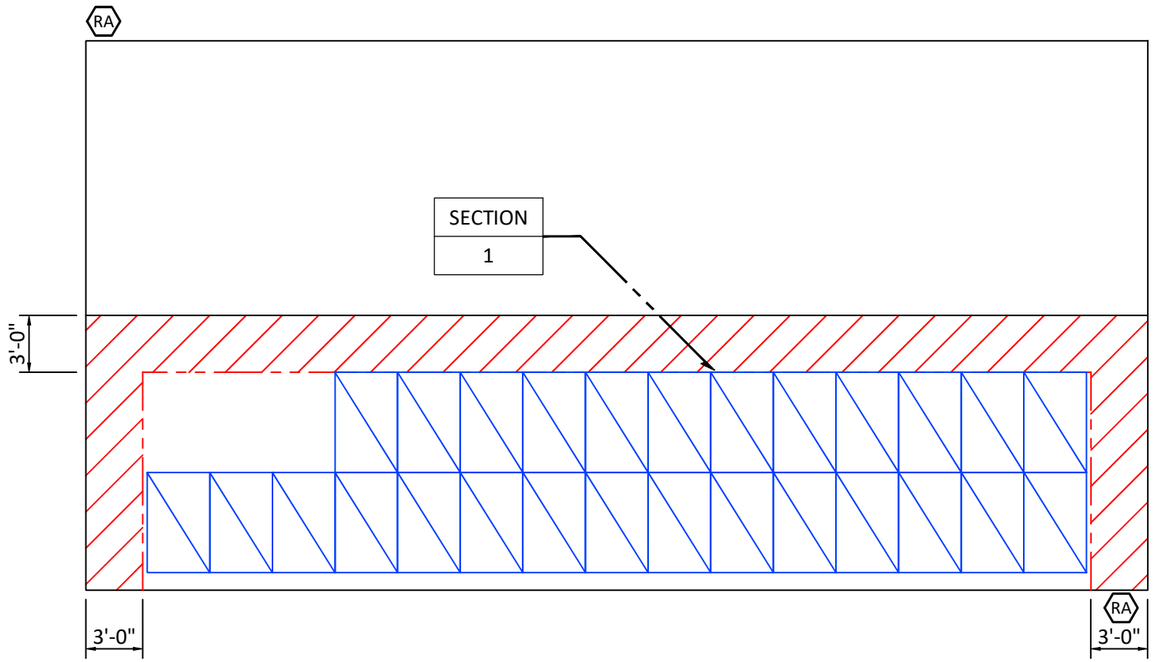
8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |


Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

PV AC DISCONNECT LOCATED ON ACCESSIBLE EXTERIOR WALL WITH EXTERNAL HANDLE VISIBLE, LOCKABLE & LABELED WITHIN 10 FEET OF THE METER

NOTE: ALL ELECTRICAL LAYOUT DETAILS ON SHEET E-100

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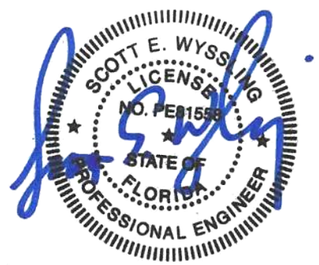


NORTH

QTY 27 PEIMAR SM325M (FB) MODULES QTY 1 SolarEdge SE6000H-US (240V) INVERTER

## 2018 IFC ROOF ACCESS REQUIREMENTS

THE FOLLOWING INFORMATION INDICATES THE REQUIRED ROOF TOP CLEARANCES FOR PANELS/ARRAYS INSTALLED ON RESIDENTIAL BUILDINGS WITH SLOPES GREATER 2:12:

**ROOF ACCESS POINTS –** ROOF ACCESS POINTS SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT THE STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRE, OR SIGNS.

**PRIMARY FIRECODE PATHWAY AND SECONDARY PATHWAYS –** THERE SHALL BE NO LESS THAN TWO MINIMUM 36"PATHWAYS ON SEPARATE ROOF SECTION TO THE RIDGE OF THE HOME. ONE OF THOSE PATHWAYS WILL BE ACCESSIBLE FROM STREET SIDE OF THE HOME OR ON THE DRIVEWAY WITH MINIMAL OBSTRUCTIONS. FOR EACH ROOF PLANE WITH PANELS/MODULES A MINIMIM 36-INCH-WIDE PATHWAY FROM THE LOWEST ROOF EDGE TO RIDGE SHALL BE PROVIDED ON THE SAME ROOF PLANE AS THE ARRAY, ON AN ADJACENT ROOF PLANE, OR STRADDLING THE SAME AND ADJACENT ROOF PLANES.

**SET-BACKS AT RIDGE –** PANELS/MODULES OCCUPYING 33 PERCENT OR LESS OF THE PLAN VIEW TOTAL ROOF AREA, A MINIMUM 18 INCHES SETBACK IS REQUIRED ON BOTH SIDES [HM1] [DR2] OF A HORIZONTAL RIDGE. FOR PANELS/MODULES OCCUPYING MORE THAN 33 PERCENT OF THE PLAN VIEW TOTAL ROOF AREA, A MINIMUM OF 36 INCHES WIDE SETBACK IS REQUIRED ON BOTH SIDES.

**EMERGENCY ESCAPE AND RESCUE OPENING –** PANELS/MODULES INSTALLED ON DWELLINGS SHALL NOT BE PLACED ON THE PORTION OF A ROOF THAT IS BELOW AN EMERGENCY ESCAPE AND RESCUE OPENING. A 36-INCH-WIDE PATHWAY SHALL BE PROVIDED TO THE EMERGENCY RESCUE AND ESCAPE OPENING.

-SEE HATCH DEFINITION BELOW.

**NOTE:** DESIGNATION OF RIDGE, HIP, AND VALLEY DOES NOT APPLY TO ROOFS WITH 2:12 OR LESS PITCH. DETACHED, NONHABITABLE GROUP U STRUCTURES INCLUDING, BUT NOT LIMITED TO, PARKING SHADE STRUCTURES, CARPORTS, SOLAR TRELLISES AND SIMILAR STRUCTURES SHALL NOT BE SUBJECT TO THE REQUIREMENTS OR WHERE THE FIRE CODE OFFICIAL HAS DETERMINED ROOFTOP OPERATIONS WILL NOT BE EMPLOYED.

## PV SITE LAYOUT LEGEND

| | |
|---|---|
| SECTION 1 | PV ARRAY TAG<br>SECTION #<br>MODULE GROUP |
| RA | ROOF ACCESS POINT |
| SA | SITE ACCESS |
| GA | GATE ACCESS |

## AZIMUTH AND TILT TABLE

| SECTION # | AZIMUTH | ROOF PITCH / TILT |
|---|---|---|
| SECTION-1 | 189 | 20° |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

## SQUARE FOOTAGE CALCULATIONS

| ROOF REFERENCE | SQUARE FOOTAGE |
|---|---|
| EXISTING ROOF | 1625 |
| SECTION-1 | 488 |
| | |
| | |
| | |
| | |
| | |
| **TOTAL PERCENTAGE** | 30.03% |

* EXISTING DIMENSIONS ARE APPROX. CONFIRM ALL DIMENSIONS SHOWN

SCALE: 1/8"= 1'0" @ SHEET SIZE A3

| REV | DATE | RELEASE |
|---|---|---|
| | 09/29/2021 | SUBMIT FOR PERMIT |

PV-100R

PV ARRAY LAYOUT

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
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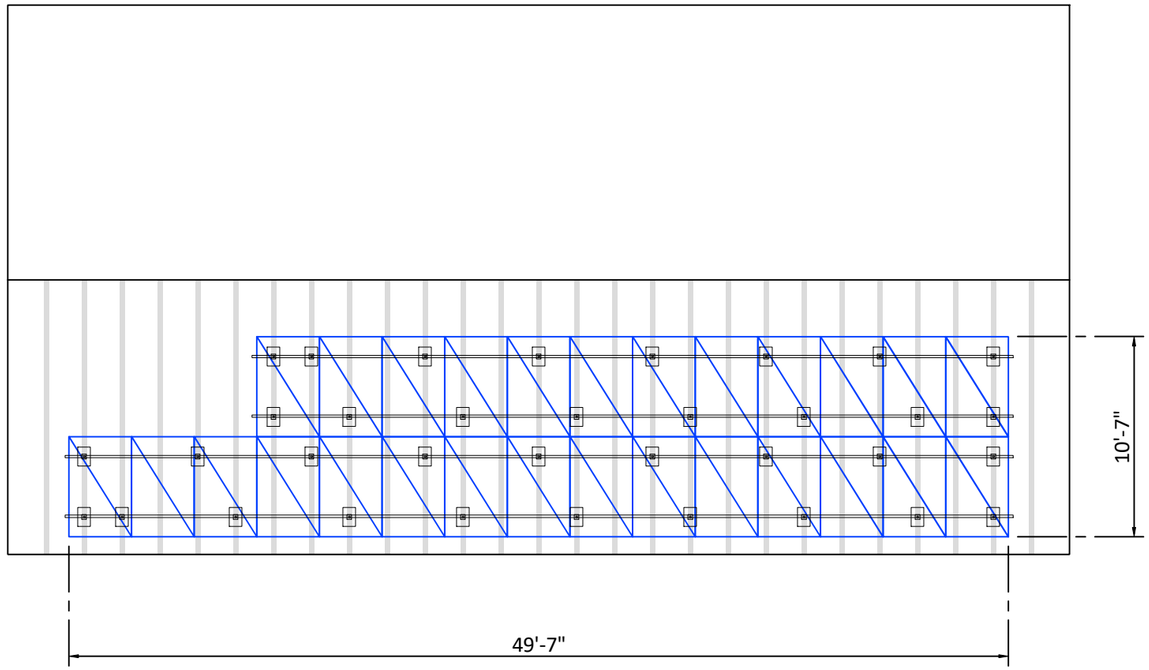



## SHEET NOTES

A. FOR MANUFACTURED PLATED WOOD TRUSSES AT SLOPES OF FLAT TO 6:12, THE HORIZONTAL ANCHOR SPACING SHALL NOT EXCEED 6'-0"AND ANCHORS IN ADJACENT ROWS SHALL BE STAGGERED. UNLESS NOTED OTHERWISE PER RACKING MANUFACTURER CERTIFIED ENGINEERED PRODUCT AND LOCAL REQUIREMENTS.

B. ANCHORS ARE ALSO KNOWN AS "STAND-OFFS," "MOUNTS," OR "STANCHIONS." HORIZONTAL ANCHOR SPACING IS ALSO KNOWN AS "CROSS-SLOPE" OR "EAST-WEST" ANCHOR SPACING. MAXIMUM HORIZONTAL ANCHOR SPACING SHOWN IN DETAIL. UNLESS NOTED OTHERWISE PER RACKING MANUFACTURER CERTIFIED ENGINEERED PRODUCT AND LOCAL REQUIREMENTS. SEE "TABLE OF DIMENSIONS" EACH SECTION DETAILED FOR HORIZONTAL ANCHOR SPACING.

C. SEE SHEET S-200 FOR SPECIFIC RACKING COMPONENT MANUFACTURERS.

## PV RACKING LEGEND

ROOF RACKING RAIL

ROOF RACKING RAIL SPLICE

ROOF RACKING STANCHION W/ RETRO FIT FLASHING

| SECTION |
|---|
| 1 |

PV ARRAY TAG
SECTION #
MODULE GROUP

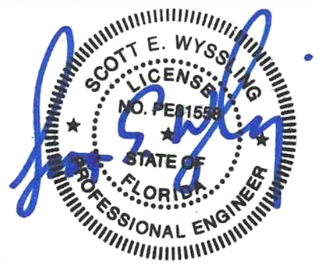
* DETAILS IN TOP VIEW

## EXISTING ROOF CONSTRUCTION

| COMPONENT | TYPE |
|---|---|
| ROOF STRUCTURAL CONSTRUCTION | Pre-Eng Roof Trusses 24" O.C. |
| FRAMING INFO | 2"X3" @ 24" MAX OC |
| ROOFING COVERING | Standing Metal Seam |
| RACKING MAX PSF | 2.87 PSF |

## RACKING BILL OF MATERIALS (BOM)

| COMPONENT | QTY | MODEL | LENGTH |
|---|---|---|---|
| PV RAIL 1 | | | |
| PV RAIL SPLICE 1 | | | |
| PV RAIL 2 | | | |
| PV RAIL SPLICE 2 | | | |
| RAIL TO ROOF ATTACHMENT | | | |

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NORTH

* EXISTING ROOF DIMENSIONS ARE APPROX. CONFIRM ALL DIMENSIONS SHOWN

SCALE: 1/8"= 1'0"@ SHEET SIZE A3

QTY 27 PEIMAR SM325M (FB) MODULES QTY 1 SolarEdge SE6000H-US (240V) INVERTER

| REV | DATE | RELEASE |
|---|---|---|
| | 09/29/2021 | SUBMIT FOR PERMIT |

S-100

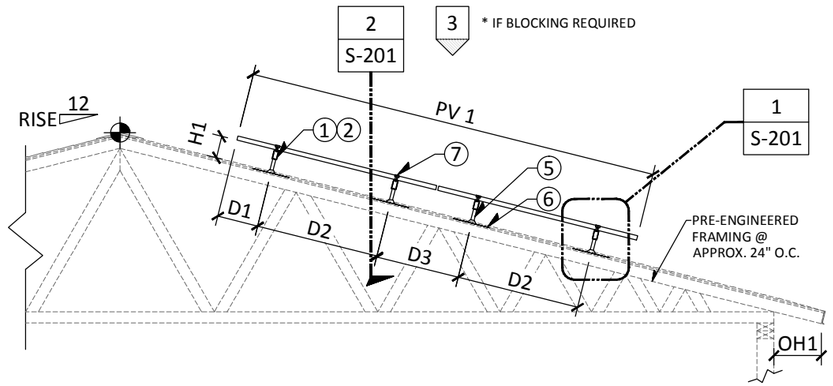
RACKING LAYOUT

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |

Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

## 1 MANUF TRUSS / TRUSS - PORTRAIT — SCALE: NTS

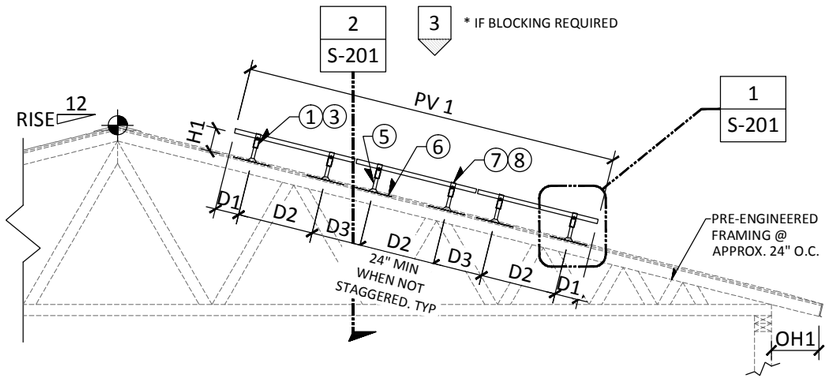



** COMP SHINGLE ROOF IN EXAMPLE. SAME ATTACHMENT FOR STANDING SEAM METAL ROOF APPLIES.

**TABLE OF DIMENSIONS**

| DIM | COMPONENT | DIMENSIONS | DIM | COMPONENT | DIMENSIONS |
|---|---|---|---|---|---|
| H1 | PV MODULE HGT. ABOVE ROOF | 3" - 6" TYP | RISE | ROOF PITCH | 20° |
| OH1 | OVERHANG IN THIS AREA | | | MAX RAFTER SPAN | ENGINEERED TRUSS |
| **UPSLOPE ANCHOR SPACING** | | | | | |
| D1 | RAIL OVERHANG | 16.39" | D3 | STANCHION O.C. | 33.03" |
| D2 | STANCHION O.C. | 32.78" | D4 | MIN./MAX. STANCHION O.C. | |

## 2 MANUF TRUSS / TRUSS - LANDSCAPE — SCALE: NTS




** COMP SHINGLE ROOF IN EXAMPLE. SAME ATTACHMENT FOR STANDING SEAM METAL ROOF APPLIES.

**TABLE OF DIMENSIONS**

| DIM | COMPONENT | DIMENSIONS | DIM | COMPONENT | DIMENSIONS |
|---|---|---|---|---|---|
| H1 | PV MODULE HGT. ABOVE ROOF | 3" - 6" TYP | RISE | ROOF PITCH | 20° |
| OH1 | OVERHANG IN THIS AREA | | | MAX RAFTER SPAN | ENGINEERED TRUSS |
| **UPSLOPE ANCHOR SPACING** | | | | | |
| D1 | RAIL OVERHANG | 9.86" | D3 | STANCHION O.C. | 19.98" |
| D2 | STANCHION O.C. | 19.73" | D4 | MIN./MAX. STANCHION O.C. | |

## SHEET NOTES

A. THESE NOTES APPLY TO PRE-ENGINEERED PLATED TRUSSES.

B. THE ROOF STRUCTURE CONFORMED TO BUILDING CODE REQUIREMENTS AT THE TIME IT WAS BUILT.

C. THE ROOF SHEATHING IS AT LEAST 7/16" THICK ORIENTED STRAND BOARD OR PLYWOOD. 1X SKIP SHEATHING IS ACCEPTABLE.

D. THE SOLAR ARRAY DISPLACES ROOF LIVE LOADS (TEMPORARY CONSTRUCTION LOADS) THAT THE ROOF WAS ORIGINALLY DESIGNED TO CARRY.

E. IF THE ROOF COVERING IS SHINGLES; IT SHALL HAVE NO MORE THAN TWO LAYERS. (SHOWN)

F. IF ROOF COVERING IS TILE; ITS A SINGLE LAYER. ALL TILES ON PLANE OF PV COMPONENTS ARE SECURE. (NOT SHOWN IN DETAIL)

G. THE ROOF STRUCTURE IS STRUCTURALLY SOUND, WITHOUT SIGNS OF ALTERATIONS OR SIGNIFICANT STRUCTURAL DETERIORATION OR SAGGING.

H. THE PV MODULES ARE PARALLEL WITH THE ROOF SURFACE.

I. THERE IS A 2" TO 10" GAP BETWEEN UNDERSIDE OF MODULE AND THE ROOF SURFACE. (SEE TABLE OF DIMENSIONS "H1")

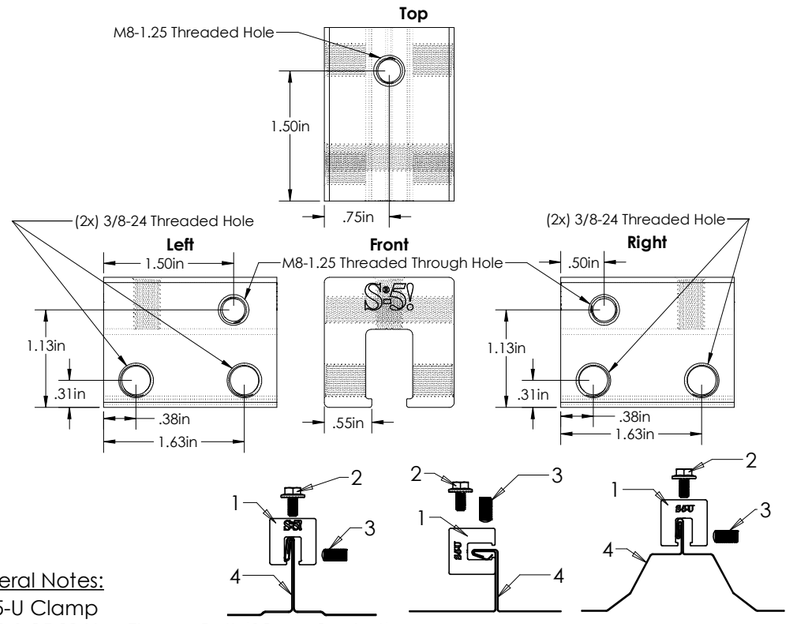
J. UPSLOPE ANCHOR SPACING MAY VARY FROM LISTED TABLES. STANCHIONS CAN BE PLACED NO CLOSER THAN 24" O.C.

K. DETAILS SHOWN ARE A REPRESENTATION OF EXISTING ROOF CONDITIONS. ACTUAL FIELD CONDITIONS MAY VARY. DETAILS ARE SHOWN FOR DIAGRAM USE ONLY. REFER TO TABLES FOR DESIGN CRITERIA.

L. ALL PLUMBING AND ROOF VENTS SHALL NOT BE OBSTRUCTED BY PV MODULES AND EQUIPMENT.

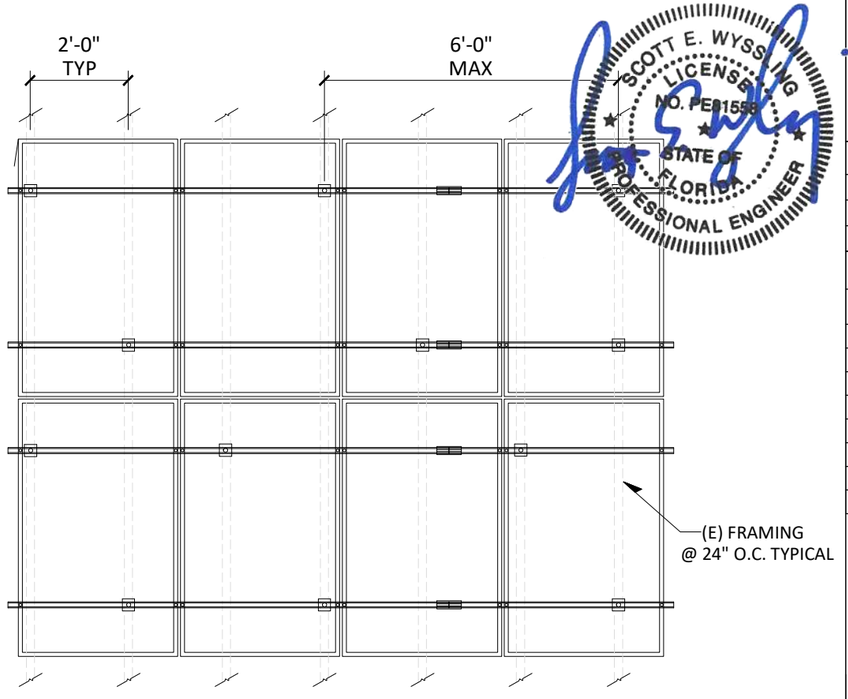
M.

## 3 STANCHION DETAIL — SCALE: NTS




General Notes:
1. S-5-U Clamp
2. M8-1.25 SS Hex Flange Bolt (13mm Socket)
3. 3/8-24 SS Round Point Setscrew (3/16 Hex Drive)
4. Example roof

## 4 STANCHION SPACING DETAIL — SCALE: NTS




## PV RACKING LEGEND

ROOF RACKING RAIL

ROOF RACKING RAIL SPLICE

ROOF RACKING STANCHION W/ RETRO FIT FLASHING

SECTION / 1 — PV ARRAY TAG SECTION # MODULE GROUP

* DETAILS IN SECTION OR SIDE VIEW

**EXISTING ROOF CONSTRUCTION**

| COMPONENT | TYPE |
|---|---|
| MEAN ROOF HGT MAX | 15' |
| ROOFING COVERING | Standing Metal Seam |

**TABLE OF COMPONENTS**

| # | COMPONENT | MODEL |
|---|---|---|
| 1 | PV RAIL TYPE 1 | XR100 Rail |
| 2 | PV RAIL SPLICE TYPE 1 | PER RAIL MANUFACTURER |
| 3 | PV RAIL TYPE 2 | NOT USED |
| 4 | PV RAIL SPLICE TYPE 2 | PER RAIL MANUFACTURER |
| 5 | STANCHION | S-5-U |
| 6 | FLASHING | N/A |
| 7 | MID CLAMP | PER RAIL MANUFACTURER |
| 8 | END CLAMP | PER RAIL MANUFACTURER |

SCOTT E. WYSSLING LICENSE NO. PE81558 STATE OF FLORIDA PROFESSIONAL ENGINEER

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| | 09/29/2021 | SUBMIT FOR PERMIT |

S-200

SECTION ELEVATIONS

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |

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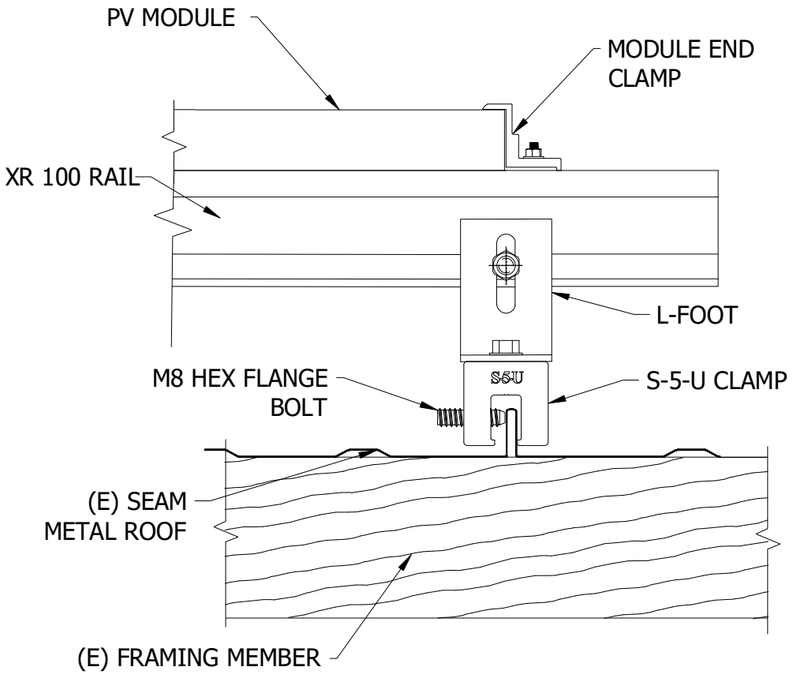
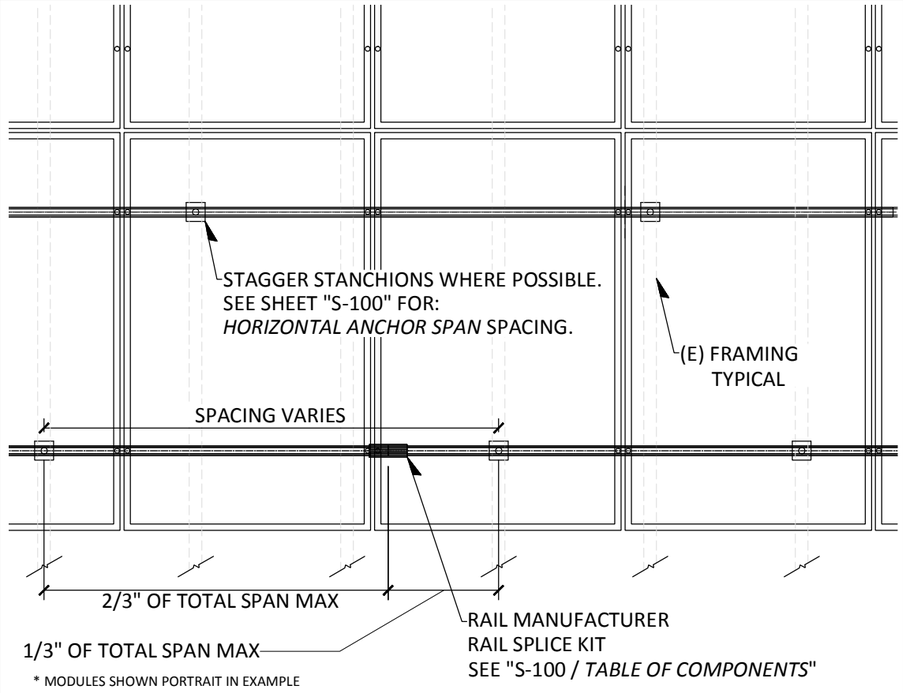
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

## 1 STANCHION ATTACHMENT DETAIL — SCALE: NTS




## 2 RAIL SPLICE DETAIL - HORIZONTAL RAIL — SCALE: NTS




* MODULES SHOWN PORTRAIT IN EXAMPLE

## SHEET NOTES

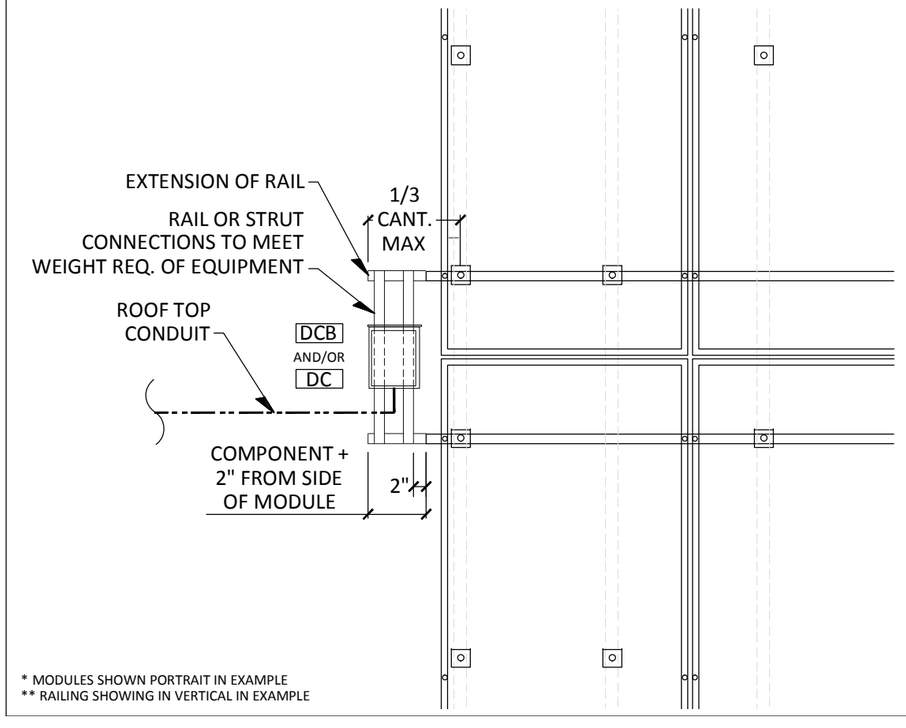
1. A MINIMUM OF (1) 5/16" DIAMETER LAG SCREWS WITH 2.5" EMBEDMENT INTO THE RAFTER USED, OR THE ANCHOR FASTENER MUST MEET THE MANUFACTURER'S ENGINEERING.
2. ADHERE TO RACKING MANUFACTURERS INSTALLATION INSTRUCTIONS PERTAINING TO CANTILEVER.

## PV RACKING LEGEND

- ROOF RACKING RAIL
- ROOF RACKING RAIL SPLICE
- ROOF RACKING STANCHION W/ RETRO FIT FLASHING
- SECTION / 1 — PV ARRAY TAG SECTION # MODULE GROUP

* DETAILS IN SECTION OR SIDE VIEW

## 3 RAIL EXTENSION DETAIL — SCALE: NTS




* MODULES SHOWN PORTRAIT IN EXAMPLE
** RAILING SHOWING IN VERTICAL IN EXAMPLE

## 4 NOT USED — SCALE: NTS

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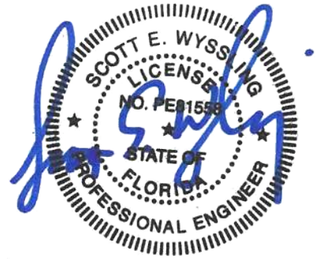



| REV | DATE | |
|---|---|---|
| | 09/29/2021 | RELEASE SUBMIT FOR PERMIT |

S-201 ATTACHMENT DETAILS

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Ogletho |
| ADDRESS | Lake City, FL 320 |
| APN | |

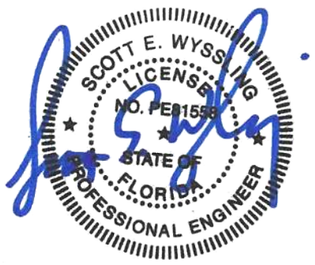

Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

## PV MODULE #1 SPECIFICATIONS

| | | |
|---|---|---|
| MANUFACTURER | PEIMAR | |
| MODEL NUMBER | SM325M (FB) | |
| WEIGHT | 41.01 | lbs |
| DIMENSIONS | 65.55 x 39.45 x 1.57 | L" x W" x D"/THICK |
| PEAK POWER @ STC (Pmax) | 325 | WATTS |
| Voc (OPEN-CIRCUIT VOLTAGE) | 41.67 | VOLTS DC |
| Vmp (MAX-POWER VOLTAGE) | 34.15 | VOLTS DC |
| isc (SHORT-CIRCUIT CURRENT) | 10.08 | AMPS |
| imp (OPERATING CURRENT) | 9.52 | AMPS |
| MFR. Voc TEMP COEFFICIENT | 0.28 | %/K |
| MAX SERIES FUSE RATING | 20.0 | AMPS |
| TEMP. CORRECTED Voc | 37.92 | VOLTS DC |

## DC/DC OPTIMIZER (IF APPL.)

| | | |
|---|---|---|
| MANUFACTURER | SolarEdge Technologies | |
| MODEL NUMBER | P370 Single (240V) | |
| WEIGHT | 1.5 | lbs |
| RATED OUTPUT isc | 15 | AMPS |
| MAX OUTPUT VOLTAGE | 60 | VOLTS |
| MAX INPUT VOLTAGE Voc | 60 | VOLTS |

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## DC COMBINER / DISCONNECT #1

| | | |
|---|---|---|
| MANUFACTURER | | |
| MODEL NUMBER | | |
| OCPD (DISCONNECT TYPE) | | |
| WEIGHT | | lbs |
| NEMA RATING | | |
| LOCATION OF COMPONENT | | |
| **DC INPUT** | | |
| SERIES FUSE RATING FOR PV MODULES | | AMPS (OCPD) |
| QUANTITY OF PV SOURCE CIRCUITS | | QTY |
| MAX PV MODULE Voc | | VOLTS DC |
| MAX # OF MODULES IN CIRCUIT | | QTY |
| MAX ALLOWED INPUT VOLTAGE | | VOLTS DC |
| MAX INPUT FUSE/BREAKER RATING | | AMPS |
| **DC OUTPUT** | | |
| MAX CIRCUIT OUTPUT CURRENT | | AMPS |
| MAX CONT. OUTPUT CURRENT | | AMPS |

## DC COMBINER / DISCONNECT #2 (IF APPL.)

| | | |
|---|---|---|
| MANUFACTURER | | |
| MODEL NUMBER | | |
| OCPD (DISCONNECT TYPE) | | |
| WEIGHT | | lbs |
| NEMA RATING | | |
| LOCATION OF COMPONENT | | |
| **DC INPUT** | | |
| SERIES FUSE RATING FOR PV MODULES | | AMPS (OCPD) |
| QUANTITY OF PV SOURCE CIRCUITS | | QTY |
| MAX PV MODULE Voc | | VOLTS DC |
| MAX # OF MODULES IN CIRCUIT | | QTY |
| MAX ALLOWED INPUT VOLTAGE | | VOLTS DC |
| MAX INPUT FUSE/BREAKER RATING | | AMPS |
| **DC OUTPUT** | | |
| MAX CIRCUIT OUTPUT CURRENT | | AMPS |
| MAX CONT. OUTPUT CURRENT | | AMPS |

## DC COMBINER / DISCONNECT #3 (IF APPL.)

| | | |
|---|---|---|
| MANUFACTURER | | |
| MODEL NUMBER | | |
| OCPD (DISCONNECT TYPE) | | |
| WEIGHT | | lbs |
| NEMA RATING | | |
| LOCATION OF COMPONENT | | |
| **DC INPUT** | | |
| SERIES FUSE RATING FOR PV MODULES | | AMPS (OCPD) |
| QUANTITY OF PV SOURCE CIRCUITS | | QTY |
| MAX PV MODULE Voc | | VOLTS DC |
| MAX # OF MODULES IN CIRCUIT | | QTY |
| MAX ALLOWED INPUT VOLTAGE | | VOLTS DC |
| MAX INPUT FUSE/BREAKER RATING | | AMPS |
| **DC OUTPUT** | | |
| MAX CIRCUIT OUTPUT CURRENT | | AMPS |
| MAX CONT. OUTPUT CURRENT | | AMPS |

## PV SYSTEM MAXIMUM VOLTAGE ( MODULE $Voc_{MAX}$)

| DATA SOURCE | | SOLARABCS.ORG/ABOUT/PUBLICATIONS/REPORTS/ EXPEDITED-PERMIT/MAP/ | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EXTREME MIN. TEMP. [°C ] | | STC TEMPERATURE [°C] | | CORRECTED TEMPERATURE | | MFR. $P_{MAX}$ TEMP COEFFICIENT [-0.#%/C] * 100 | FORMULA | CORRECTED TEMP. COEFFICIENT | MODULE Voc [VDC] | TEMPERATURE CORRECTED OPEN CIRCUIT VOLTAGE |
| -6 | - | 25 | = | -31 | * | 0.28% | = -0.09 + 1 | 0.91 | * 41.67 | = 37.92 |

## STRING INVERTER #1 SPECIFICATIONS

| | | |
|---|---|---|
| MANUFACTURER | SolarEdge | |
| MODEL NUMBER | SE6000H-US (240V) | |
| QUANTITY | 1 | INVERTER(S) |
| NOMINAL POWER RATING | 6000 | WATT AC |
| WEIGHT | 25.3 | lbs. |
| **DC INPUT** | | |
| Max INPUT DC VOLTAGE | 480 | VOLTS DC |
| Min. MPPT VOLTAGE RANGE | 380 | VOLTS DC |
| Max. MPPT VOLTAGE RANGE | 480 | VOLTS DC |
| Max INPUT CURRENT | 16.5 | AMPS |
| MPPT QTY | N/A | |
| INTEGRATED DC DISCONNECT | YES | COMPLY W/NEC 690.17 |
| INTEGRATED AC DISCONNECT | NO | |
| **AC OUTPUT** | | |
| NOMINAL VOLTAGE OUTPUT | 240 | VOLTS AC |
| MAX. AC APPARENT POWER | 6000 | WATTS |
| MAX OVERCURRENT PROTECTION (OCPD) | 40 | AMPS |
| MAX. OUTPUT CURRENT | 25 | AMPS - MAX |

## STRING INVERTER #2 SPECIFICATIONS (IF APPL.)

| | | |
|---|---|---|
| MANUFACTURER | | |
| MODEL NUMBER | | |
| QUANTITY | | INVERTER(S) |
| NOMINAL POWER RATING | | WATT AC |
| WEIGHT | | lbs. |
| **DC INPUT** | | |
| Max INPUT DC VOLTAGE | | VOLTS DC |
| Min. MPPT VOLTAGE RANGE | | VOLTS DC |
| Max. MPPT VOLTAGE RANGE | | VOLTS DC |
| Max INPUT CURRENT | | AMPS |
| MPPT QTY | | |
| INTEGRATED DC DISCONNECT | | COMPLY W/NEC 690.17 |
| INTEGRATED AC DISCONNECT | | |
| **AC OUTPUT** | | |
| NOMINAL VOLTAGE OUTPUT | | VOLTS AC |
| MAX. AC APPARENT POWER | | WATTS |
| MAX OVERCURRENT PROTECTION (OCPD) | | AMPS |
| MAX. OUTPUT CURRENT | | AMPS - MAX |

## AC COMBINER #1 (SOLAR LOAD CENTER)

| | | |
|---|---|---|
| MANUFACTURER | | |
| MODEL NUMBER | | |
| RATED OPERATIONAL VOLTAGE | | VOLTS |
| RATED CURRENT | | AMPS |
| NUMBER OF POLES | | P |
| NEMA RATING | | |
| MAIN BREAKER SIZE | | AMPS |
| TOTAL INPUT CURRENT | | AMPS |
| NUMBER OF BRANCH CIRCUITS | | CIRCUITS |

## AC COMBINER #2 (SOLAR LOAD CENTER)

| | | |
|---|---|---|
| MANUFACTURER | | |
| MODEL NUMBER | | |
| RATED OPERATIONAL VOLTAGE | | VOLTS |
| RATED CURRENT | | AMPS |
| NUMBER OF POLES | | P |
| NEMA RATING | | |
| MAIN BREAKER SIZE | | AMPS |
| TOTAL INPUT CURRENT | | AMPS |
| NUMBER OF BRANCH CIRCUITS | | CIRCUITS |

## AC DISCONNECT #1 (IF APPL.)

| | | |
|---|---|---|
| MANUFACTURER | Eaton | |
| MODEL NUMBER | DG222NRB | |
| QUANTITY | 1 | AC DISCO.(S) |
| DISCONNECT DEVICE TYPE | Fusible | |
| RATED OPERATIONAL VOLTAGE | 240 | VOLTS |
| RATED CURRENT | 60 | AMPS |
| NUMBER OF POLES | 2 | P |
| NEMA RATING | 3R | |
| FUSE RATING | 40 | AMPS |
| TOTAL INPUT CURRENT | 25 | AMPS |

## AC DISCONNECT #2 (IF APPL.)

| | | |
|---|---|---|
| MANUFACTURER | | |
| MODEL NUMBER | | |
| QUANTITY | | AC DISCO.(S) |
| DISCONNECT DEVICE TYPE | | |
| RATED OPERATIONAL VOLTAGE | | VOLTS |
| RATED CURRENT | | AMPS |
| NUMBER OF POLES | | P |
| NEMA RATING | | |
| FUSE RATING | | AMPS |
| TOTAL INPUT CURRENT | | AMPS |

## AC SUB-PANEL #1 (IF APPL.)

| | | |
|---|---|---|
| NEW OR EXISTING | | |
| MAKE / MODEL | | |
| TYPE OF PANEL | | |
| NUMBER OF POLES | | P |
| NEMA RATING | | |
| BUSS BAR RATING | | AMPS |
| SUB-PANEL MAIN BREAKER | | AMPS |
| MAIN SERVICE PANEL P.O.C. BREAKER | | AMPS |
| SUM OF EXISTING CIRCUIT BREAKERS | | AMPS |
| MAX ALLOWABLE SOLAR CURRENT | | AMPS |
| PV BACKFEED BREAKER #1 | | AMPS (Imax) |
| PV BACKFEED BREAKER #2 | | AMPS (Imax) |
| PV BACKFEED BREAKER #3 | | AMPS (Imax) |
| PV BACKFEED BREAKER #4 | | AMPS (Imax) |

## MAIN SERVICE PANEL (IF APPL.)

| | | |
|---|---|---|
| NEW OR EXISTING | EXISTING | |
| ELECTRICAL SERVICE | 120/240V Single Phase | |
| BUSS BAR RATED CURRENT | 200 | AMPS |
| MAIN BREAKER RATED CURRENT | 200 | AMPS |
| SUM OF EXISTING CIRCUIT BREAKERS | | AMPS |
| MAX ALLOWABLE SOLAR CURRENT 100% | 0 | AMPS |
| MAX ALLOWABLE SOLAR CURRENT 120% | 40 | AMPS (Imax) |
| PV BACKFEED BREAKER #1 | | AMPS (Imax) |
| PV BACKFEED BREAKER #2 | | AMPS (Imax) |
| PV BACKFEED BREAKER #3 | | AMPS (Imax) |
| PV BACKFEED BREAKER #4 | | AMPS (Imax) |
| ALT. ENERGY BACKFEED BREAKER (IF APPL.) | | AMPS (Imax) |

| REV | DATE | |
|---|---|---|
| | 09/29/2021 | RELEASE SUBMIT FOR PERMIT |

E-001

EQUIP. CALCULATIONS

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |


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Fort Worth, TX 76164
(817) 501-4922

## WIRE AND CONDUCTOR NOTES

1. ANY CONDUCTOR LENGTH UNDER 50' DOESN'T REQUIRE VOLTAGE DROP CALCULATIONS
2. BECAUSE WE ARE UNABLE TO DETERMINE THE EXACT PATH THE INSTALLER WILL RUN CONDUCTORS; WORST CASE SCENARIOS, ROUNDING UP SIZES OF CONDUCTORS THAT ARE DEEMED QUESTIONABLE TO PREVENT ISSUES RELATED TO USING CONDUCTORS THAT ARE IMPROPERLY SIZED.
3. WIRING METHODS IN THESE CALCULATIONS DON'T EXCEED 1000 VOLTS
4. CEC/NEC 310.15(A)(2) (AS APPLICABLE) WHERE TWO DIFFERENT AMPACITIES APPLY TO ADJACENT PORTIONS OF A CIRCUIT, THE HIGHER AMPACITY SHALL BE PERMITTED TO BE USED BEYOND THE POINT OF TRANSITION, A DISTANCE EQUAL TO 10'-0" (3 METERS) OR 10% OF THE CIRCUIT LENGTH FIGURED AT THE HIGHER AMPACITY, WHICHEVER IS LESS. WHEN LESS THAN 10'-0" OR 10% OF THE CIRCUIT LENGTH; THE LESSER AMPACITY MAY BE USED.

## WIRE COLOR CODING (2017) NEC SECTIONS 250.119 & 200.6

| PV DC WIRING | | AC WIRING | |
|---|---|---|---|
| EQUIPMENT GROUND | GREEN OR BARE, OR GREEN/YELLOW | EQUIPMENT GROUND | GREEN OR BARE, OR GREEN/YELLOW |
| GROUNDED CONDUCTOR. TYPICALLY NEGATIVE | WHITE OR GRAY | GROUNDED CONDUCTOR (NEUTRAL) | WHITE OR GRAY |
| UNGROUNDED CONDUCTOR(S). TYPICALLY POSITIVE | ANY COLOR OTHER THAN GREEN OR WHITE/GRAY | UNGROUNDED CONDUCTOR(S) HOT: L1 AND L2 | ANY COLOR OTHER THAN GREEN OR WHITE/GRAY ALLOWED. |
| | CONVENTION IS RED FOR GROUNDED SYSTEMS | | CONVENTION IS L1 BLACK |
| | RED (+) AND BLACK (-) FOR UNGROUNDED SYSTEMS | | CONVENTION IS L2 RED |

## DC WIRE AND CONDUIT SIZING CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

| TAG | CIRCUIT ORIGIN | CIRCUIT DESTINATION | CONDUCTOR SPECIFICATIONS | | | | REQUIRED CONDUCTOR AMPACITY | | | | | | | | CONDUCTOR TEMPERATURE DERATING | | | | | | CONDUIT FILL DERATING | | CORRECTED AMPACITY CALCULATION | | | | | | | AMPACITY CHECK | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QTY IN PARALLEL & MATERIAL | TEMP RATING (°C) | TRADE SIZE | AMPACITY @ 30°C PER 310.16 | Isc (AMPS) OR COMPONENT (AMPS) | X | #OF COMBINED PARALLEL STRINGS | X | MAX CURRENT 690.8 (A)(1) | X | CONT. OPERATION 690.8 (B)(1) | = | REQUIRED AMPACITY | CIRCUIT ENVIRONMENT | AMBIENT TEMP. (°C) | HGT. ABOVE ROOF (in) | TEMP. ADDER PER 310.15 (B)(2)(c) | OPERAT. TEMP. (°C) | AMPACITY CORRECTION 310.15 (B)(2)(a) | # OF UNGRND. COND. | AMPACITY CORRECTION 310.15 (B)(3)(a) | COND. AMPACITY | X | TEMP. DERATING | X | CONDUIT FILL DERATING | = | CORRECTED AMPACITY | REQUIRED AMPACITY | ≤ | CORRECTED AMPACITY |
| DC1 | PV MODULE | DC/DC CONVERTER | (1) CU | 90 | #12 AWG | 30 | 10.08 | X | 1 | X | 1.25 | X | 1.25 | = | 15.75 | ROOFTOP | 35 | >7/8" | 0 | 35 | 0.96 | 2 | N/A | 30 | X | 0.96 | X | 1.0 | = | 28.8 | 15.75 | ≤ | 28.8 |
| DC2 | DC/DC CONVERTER | JUNCTION BOX | (1) CU | 90 | #10 AWG | 40 | 15 | X | 1 | X | 1 | X | 1.25 | = | 18.75 | ROOFTOP | 35 | >7/8" | 0 | 35 | 0.96 | 4 | N/A | 40 | X | 0.96 | X | 1.0 | = | 38.4 | 18.75 | ≤ | 38.4 |
| DC3 | JUNCTION BOX | INVERTER | (1) CU | 90 | #10 AWG | 40 | 15 | X | 1 | X | 1 | X | 1.25 | = | 18.75 | ROOFTOP | 35 | >7/8" | 0 | 35 | 0.96 | 4 | 0.80 | 40 | X | 0.96 | X | 0.80 | = | 30.72 | 18.75 | ≤ | 30.72 |
| DC4 | | | | | | | | X | | X | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| DC5 | | | | | | | | X | | X | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| DC6 | | | | | | | | X | | X | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| DC7 | | | | | | | | X | | X | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| DC8 | | | | | | | | X | | X | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |

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SCOTT E. WYSSLING LICENSED NO. PE81568 STATE OF FLORIDA PROFESSIONAL ENGINEER

## AC WIRE AND CONDUIT FILL DERATE CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

| TAG | CIRCUIT ORIGIN | CIRCUIT DESTINATION | CONDUCTOR SPECIFICATIONS | | | | REQUIRED CONDUCTOR AMPACITY | | | | | CONDUCTOR TEMPERATURE DERATING | | | | | | CONDUIT FILL DERATING | | CORRECTED AMPACITY CALCULATION | | | | | | | | AMPACITY CHECK | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QTY IN PARALLEL & MATERIAL | TEMP RATING (°C) | TRADE SIZE | AMPACITY @ 30°C PER 310.16 | CONT. OPERATION 690.8 (B)(1) | X | MAX INV. OUTPUT CURRENT (AMPS) OR COMPONENT (AMPS) | = | REQUIRED AMPACITY | CIRCUIT ENVIRONMENT | AMBIENT TEMP. (°C) | HGT. ABOVE ROOF (in) | TEMP. ADDER PER 310.15 (B)(2)(c) | OPERAT. TEMP. (°C) | AMPACITY CORRECTION 310.15 (B)(2)(a) | # OF UNGRND. COND. | AMPACITY CORRECTION 310.15 (B)(3)(a) | COND. AMPACITY | X | TEMP. DERATING | X | CONDUIT FILL DERATING | = | CORRECTED AMPACITY | REQUIRED AMPACITY | ≤ | CORRECTED AMPACITY |
| AC1 | INVERTER | AC DISCONNECT | (1) CU | 75 | #8 AWG | 50 | 1.25 | X | 25.0 | = | 31.2 | EXT WALL | 35 | N/A | 0 | 35 | 0.94 | 3 | 1.0 | 50 | X | 0.94 | X | 1.0 | = | 47.0 | 31.2 | ≤ | 47.0 |
| AC2 | AC DISCONNECT | EXISTING SERVICE PANEL | (1) CU | 75 | #6 AWG | 65 | 1.25 | X | 25.0 | = | 31.2 | EXT WALL | 35 | N/A | 0 | 35 | 0.94 | 3 | 1.0 | 65 | X | 0.94 | X | 1.0 | = | 61.1 | 31.2 | ≤ | 61.1 |
| AC3 | | | | | | | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| AC4 | | | | | | | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| AC5 | | | | | | | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| AC6 | | | | | | | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| AC7 | | | | | | | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| AC8 | | | | | | | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| AC9 | | | | | | | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |
| AC10 | | | | | | | | X | | = | | | | | | | | | | | X | | X | | = | | | ≤ | |

| REV | DATE | RELEASE |
|---|---|---|
| | 09/29/2021 | SUBMIT FOR PERMIT |

E-002 WIRE AND COND. CALCS.

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |


Daybreak Install LLC
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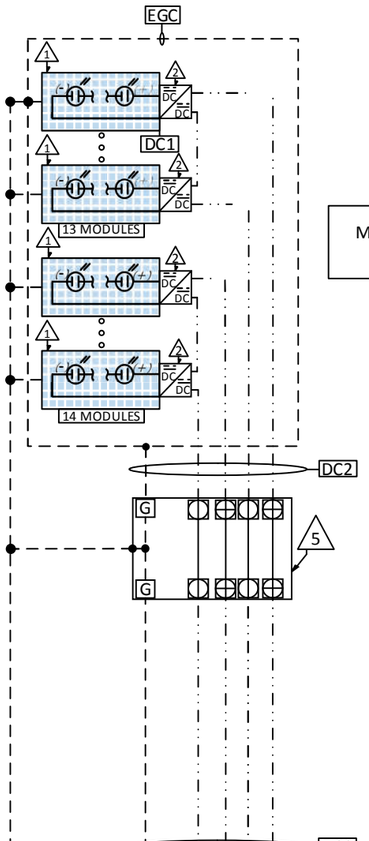



MODULE NAMEPLATE
RATING 325W

## EQUIPMENT TABLE

| TAG | QTY | COMPONENT | |
|---|---|---|---|
| 1 | 27 | PV MODULES | PEIMAR SM325M (FB) |
| 2 | 27 | DC/DC OPTIMIZER | P370 Single (240V) |
| 3 | 1 | DC DISCONNECT | INTEGRATED IN INV |
| 4 | 0 | DC COMBINER BOX | |
| 5 | 1 | JUNCTION BOX | Generic NEMA 4 JUNCTION BOX |
| 6 | N/A | RAPID SHUTDOWN | INTEGRATED IN INV & OPT |
| 7 | 1 | AC/DC INVERTER | SolarEdge SE6000H-US (240V) |
| 8 | 0 | AC/DC INVERTER W/ INTE AC DISC | |
| 9 | 0 | AC DISCONNECT (INDEPENDENT) | |
| 10 | 0 | SOLAR LOAD CENTER | |
| 11 | 0 | PROD/GENERATION METER | |
| 12 | 0 | SUB PANEL | |
| 13 | 1 | AC DISCONNECT (FUSIBLE) | Eaton DG222NRB |
| 14 | | | |
| 15 | 1 | EXISTING MAIN SERVICE PANEL | 200A BUS/200A MB |
| 16 | 1 | EXISTING UTILITY METER | 120/240V - 1Φ |
| 17 | 0 | BATTERY | |
| 18 | | | |

NOTE: EQUIP TAGS MAY NOT BE IN SEQUENTIAL ORDER, N/A USED
SEE SHEET E-001 FOR ADDITIONAL ELECTRICAL SPECIFICATIONS

| STRING | MODULE QTY | INVERTER # |
|---|---|---|
| 1 | 13 | INV 1 |
| 2 | 14 | INV 1 |

BACK-FEED SOLAR BREAKER: N/A

## CONDUCTOR TABLE

| TAG | QTY* | SIZE | TYPE | GROUND |
|---|---|---|---|---|
| DC1 | 2 | #12 AWG | PV Wire | #6 AWG |
| DC2 | 5 | #10 AWG | PV Wire | #6 AWG |
| DC3 | 5 | #10 AWG | THWN-2 | #6 AWG |
| DC4 | | | | |
| DC5 | | | | |
| DC6 | | | | |
| DC7 | | | | |
| DC8 | | | | |
| AC1 | 4 | #8 AWG | THWN-2 | #6 AWG |
| AC2 | 4 | #6 AWG | THWN-2 | #6 AWG |
| AC3 | | | | |
| AC4 | | | | |
| AC5 | | | | |
| AC6 | | | | |
| AC7 | | | | |
| AC8 | | | | |
| AC9 | | | | |
| AC10 | | | | |

## CONDUIT TABLE

| SIZE | TYPE |
|---|---|
| N/A | Open Air |
| N/A | Open Air |
| 3/4 inch | EMT |
| | |
| | |
| | |
| | |
| | |
| 3/4 inch | EMT |
| 3/4 inch | EMT |

## LEGEND

DC# DC CONDUCTOR TAG — 1 EQUIPMENT TAG
AC# AC CONDUCTOR TAG — GND GROUND CONDUCTOR TAG

## ELECTRICAL NOTES

UNGROUNDED PV SYSTEMS:
- INVERTERS, MODULES, AND DC COMPONENTS MUST BE LISTED FOR USE IN UNGROUNDED SYSTEMS, TYPICALLY TRANSFORMER-LESS (TL)
- OCPD'S WHERE NECESSARY MUST HAVE DISCONNECTING MEANS.
- PV SOURCE CIRCUITS MUST BE EITHER PV WIRE AND LISTED FOR WET LOCATIONS OR JACKETED MULTI-CONDUCTOR CABLES INSTALLED IN RACEWAY.
- THE AC SIDE IS STILL GROUNDED ON THE NEUTRAL CONDUCTOR.
- REQUIRE EQUIPMENT GROUNDING BUT DOES NOT HAVE SYSTEM GROUNDING; NO DC CURRENT-CARRYING CONDUCTOR IS CONNECTED TO GROUND. THESE CONDUCTORS ARE COLOR CODED DIFFERENTLY THAN GROUNDED PV SYSTEMS.

AC/DC ELECTRICAL NOTES:
- ALL OVERCURRENT PROTECTION DEVICES (OCPDs) MUST BE RATED FOR 600 VOLTS ON THE DC / PV POWER SIDE OF THE INVERTER.
- EXTERIOR ENCLOSURES TO BE NEMA TYPE 3R OR BETTER.
- ALL CONDUIT AND CONDUIT CONNECTIONS SHALL BE RATED FOR WET AND DAMP LOCATIONS WHEN APPLICABLE.

INTERCONNECTION NOTES:
- 705.12(B)(4) CIRCUIT BREAKERS MUST BE SUITABLE FOR BACKFEEDING. NEC INFORMATIONAL NOTE: FUSED DISCONNECTS, UNLESS OTHERWISE MARKED, ARE SUITABLE FOR BACKFEEDING.
- 690.13(F)(2) DEVICES MARKED WITH "LINE" AND "LOAD" SHALL NOT BE PERMITTED FOR BACKFEED OR REVERSE CURRENT
- 705.12(B)(5) CIRCUIT BREAKERS BACK FEED FROM UTILITY INTERACTIVE INVERTERS (ANTI-ISLANDING, UL 1741 CERTIFIED)
- **NO CENTER-FED MAIN BREAKER. PANEL CONFIGURED PER NEC 705.12(A) OR (B)**

* INCLUDES GROUND & CURRENT CARRYING CONDUCTORS

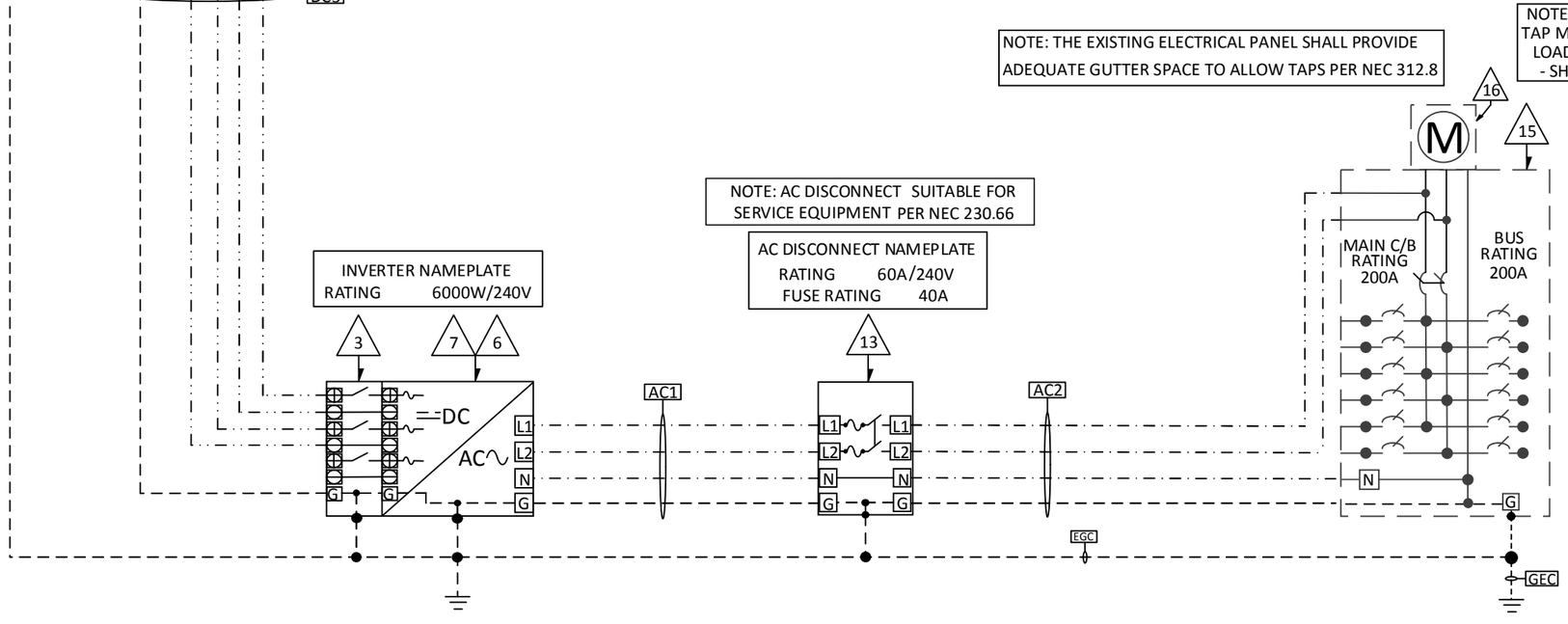
NOTE: THE EXISTING ELECTRICAL PANEL SHALL PROVIDE ADEQUATE GUTTER SPACE TO ALLOW TAPS PER NEC 312.8

NOTE: POINT OF CONNECTION TAP MAY BE INSTALLED LINE OR LOAD OF THE MAIN BREAKER - SHALL BE FIELD VERIFIED -

NOTE: AC DISCONNECT SUITABLE FOR SERVICE EQUIPMENT PER NEC 230.66

AC DISCONNECT NAMEPLATE
RATING 60A/240V
FUSE RATING 40A

INVERTER NAMEPLATE
RATING 6000W/240V

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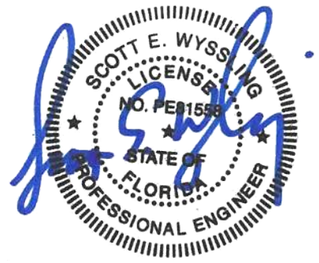


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E-003

THREE LINE DIAGRAM

8.775 kW PHOTOVOLTAIC PLANS

NAME: Moody Jr, JM
ADDRESS: 508 NW Oglethorpe Terrace
ADDRESS: Lake City, FL 32055
APN


Daybreak Install LLC
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2100 N Main St Ste. 212
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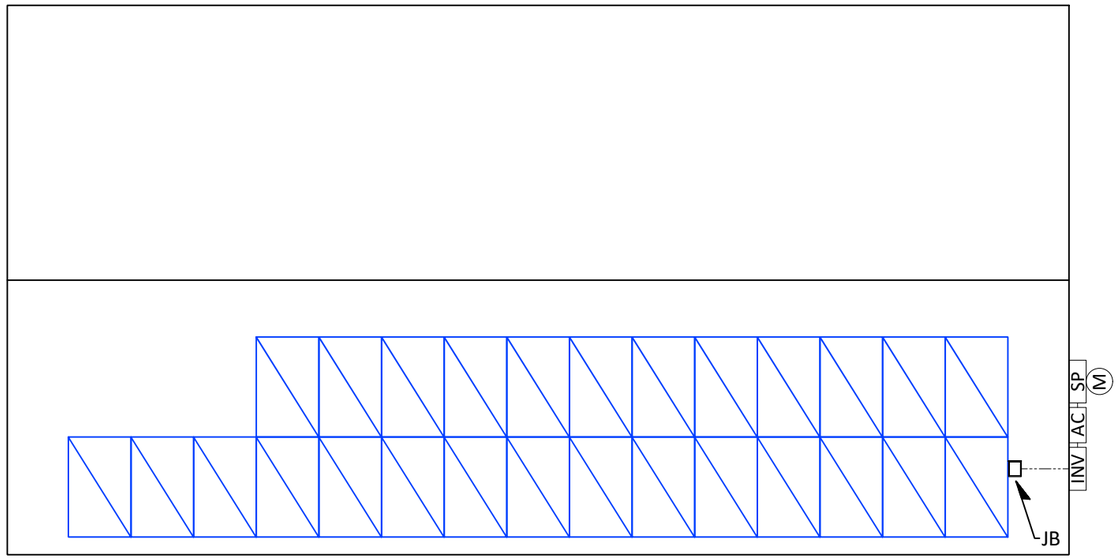
(817) 501-4922




QTY 27 PEIMAR SM325M (FB) MODULES QTY 1 SolarEdge SE6000H-US (240V) INVERTER

## EQUIPMENT GROUNDING

1. METAL PV MODULE FRAMES MUST BE CONNECTED TO THE EGC (EQUIPMENT GROUNDING CONDUCTOR).
   - 1.1. WEEBS MAY BE USED IN LIEU OF MODULE GROUND CLAMPS OR LUGS, WITH APPROVAL OF AHJ AND RACKING MFG. WEEBS ARE ONE TIME USE ONLY. SEE "we-llc.com" FOR RACKING SPECIFIC WEEB, INSTALL INSTRUCTIONS, AND UL 2703 CERT.
   - 1.2. FOR "LAY-IN" LUG MODULE GROUNDING; CORRECT HARDWARE OF PROPER METAL MATERIAL TO AVOID CORROSION MUST BE USED. TYPICALLY DIRECT BURIAL RATED, TINNED, OR STAINLESS STEEL. GROUNDING LUGS MUST BE ATTACHED AT MARKED LOCATION ON EACH MODULE.
2. THE EGC (EQUIPMENT GROUNDING CONDUCTOR) IS USED TO BOND ALL NON-CURRENT CARRYING CONDUCTORS AND EXPOSED METAL PARTS THAT MIGHT COME INTO CONTACT WITH CURRENT-CARRYING CONDUCTORS, INCLUDING THE FOLLOWING:
   - 2.1. PV MODULES FRAMES, ARRAY MOUNTING RACKING; THE METAL CHASSIS OF EQUIPMENT SUCH AS INVERTERS, DISCONNECTS, METERS, JUNCTION BOXES AND COMBINER BOXES; AND METAL CONDUIT HOLDING CIRCUITS > 250 VOLTS TO GROUND PER NEC 250.97
3. THE GEC (GROUNDING ELECTRODE CONDUCTOR) IS THE CONDUCTOR USED TO CONNECT THE GE OR GE SYSTEM TO THE SYSTEM GC, TO THE EGC, OR TO BOTH.
4. THE GE (GROUNDING ELECTRODE) IS A CONDUCTING OBJECT, OFTEN A ROD, RING, OR PLATE ESTABLISHING A DIRECT CONNECTION TO EARTH. THE AC SYSTEM GROUND IS EXISTING, USUALLY AT THE EXISTING MAIN PANEL AND/OR UTILITY METER. THE GROUND CAN ONLY OCCUR IN ONE PLACE AND MUST NOT BE DUPLICATED IN SUB-PANELS OR ANYWHERE ELSE ON AC SIDE.

## ELECTRICAL SYMBOL LEGEND

| | | | |
|---|---|---|---|
| CB | DC COMBINER BOX | ATF | AUTO TRANSFORMER |
| DCB | DC DISCONNECTING COMBINER BOX | SLC | SOLAR LOAD CENTER |
| | | ACC | AC COMBINER |
| DC | DC DISCONNECT | BATT | BATTERY |
| INV# | DC/AC STRING INVERTER | AC | AC DISCONNECT |
| CLP | CRITICAL LOADS PANEL | SP | SERVICE PANEL |
| RSD | RAPID SHUTDOWN | (P) | PERFORMANCE METER |
| SUB | SUB-PANEL | (M) | UTILITY METER |
| SECTION / 1 | PV ARRAY TAG SECTION # MODULE GROUP | XFMR | TRANSFORMER |
| | | JB | JUNCTION BOX |
| | | ATS | AUTO TRANSFER SWITCH |

PV AC DISCONNECT LOCATED ON ACCESSIBLE EXTERIOR WALL WITH EXTERNAL HANDLE VISIBLE, LOCKABLE & LABELED WITHIN 10 FEET OF THE METER.

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SCOTT E. WYSSLING LICENSED NO. PE81558 STATE OF FLORIDA PROFESSIONAL ENGINEER

NORTH

SCALE: 1/8”= 1’0” @ SHEET SIZE A3

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|---|---|---|
| | 09/29/2021 | SUBMIT FOR PERMIT |

E-100 ELECTRICAL LAYOUT

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |

Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
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## 1 CONDUIT, RACEWAY, J-BOX, AND PULL BOXES

SCALE: 1/2" = 1'-0"

WARNING: PHOTOVOLTAIC POWER SOURCE

1. PLACE ON CONDUIT AND/OR RACE WAYS EVERY 10' (60"), 12" FROM BENDS, 12" ABOVE AND BELOW PENETRATIONS.
2. CODE REFERENCE: NEC 690.31(G)(3)
3. MINIMUM OF 1 1/8" x 5 3/4"
4. FONT: 3/8" AND .8 WIDTH FACTOR.
5. REFLECTIVE WHITE LETTERS ON A RED BACKGROUND.

## 2 J-BOX, DC COMBINER, AND DC DISCONNECT

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

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

1. ONLY FOR UNGROUNDED SYSTEMS.
2. PLACED ON ALL ENCLOSURES WITH UNGROUNDED CIRCUITS OR DEVICES WHICH ARE ENERGIZED AND MAY BE EXPOSED DURING SERVICE.
3. MINIMUM OF 3" x 10 1/2"
4. FONT: 3/8"
5. WHITE LETTERS ON A RED BACKGROUND.

## 3 DC COMBINER BOX

SCALE: 1/2" = 1'-0"

DC COMBINER BOX

COMBINER # 1

1. USE PLACARD "COMBINER # 1" WHEN MORE THAN 1 DC COMBINER IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.
2. MINIMUM OF 1" x 4"
3. FONT: 3/8" AND .75 TO .8 WIDTH FACTOR
4. WHITE LETTERS ON A RED BACKGROUND.

## SHEET NOTES

CODE ABBREVIATIONS:
NATIONAL ELECTRICAL CODE (NEC)
INTERNATIONAL BUILDING CODE (IBC)
INTERNATIONAL RESIDENTIAL CODE (IRC)
INTERNATIONAL FIRE CODE (IFC)
UNDERWRITERS LABORATORY (UL)

1. COMBINATION PLACARDS MAY BE USED IN PLACE OF MULTIPLE PLACARDS FOR THE SAME DEVICE. ALL INFORMATION FROM THE MULTIPLE PLACARDS MUST BE PRESENT.
2. BLACK LETTERS WITH YELLOW BACKGROUND MAY BE USED IN PLACE OF THE STANDARD WHITE LETTERS WITH RED BACKGROUND WITH AHJ APPROVAL.
3. ALL INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS ARE MARKED. (NEC 690.31[G], NEC 690.13 & 690.53)
4. THE MARKINGS ON THE CONDUITS, RACEWAYS AND CABLE ASSEMBLIES ARE EVERY 10 FEET, WITHIN ONE FOOT OF ALL TURNS OR BENDS AND WITHIN ONE FOOT ABOVE AND BELOW ALL PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS AND BARRIERS. (IFC 605.11.1.4, NEC 690.31[G][3] )
5. WHERE PV CIRCUITS ARE EMBEDDED IN BUILT-UP, LAMINATE OR MEMBRANE ROOFING MATERIALS IN ROOF AREAS NOT COVERED BY PV MODULES AND ASSOCIATED EQUIPMENT, THE LOCATION OF CIRCUITS SHALL BE CLEARLY MARKED.
6. REQUIRED LABELS SHALL BE PERMANENT AND SUITABLE FOR THE ENVIRONMENT. MATERIALS USED FOR MARKING MUST BE WEATHER RESISTANT. UL STANDARD IS RECOMMENDED TO DETERMINE WEATHER RATING. UL LISTING OF MARKINGS IS NOT REQUIRED. SEE UL LABELING SYSTEM 969 (UL 969)
7. MARKING CONTENT AND FORMAT:
   - 7.1. ARIAL OR SIMILAR FONT, NON-BOLD.
   - 7.2. MINIMUM 3/8" LETTER HEIGHT FOR HEADERS.
   - 7.3. MINIMUM 1/16" LETTER HEIGHT FOR DATA
   - 7.4. CONTRASTING BACKGROUND AND LETTERING.
   - 7.5. ALL CAPITAL LETTERS.
   - 7.6. CONTRASTING SPACE BETWEEN ROWS OF TEXT
   - 7.7. DIMENSIONS OF PLACARDS ARE APPROXIMATE. MAY BE REDUCED AND / OR INCREASED TO UL APPROVED MANUFACTURED PRODUCT

| REV | DATE | RELEASE |
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| | 09/29/2021 | SUBMIT FOR PERMIT |

P-001 STANDARD PLACARDS

## 4 NON-LOAD BREAK DC COMBINER / J-BOX

SCALE: 1/2" = 1'-0"

DO NOT OPEN UNDER LOAD

1. CODE REFERENCE: NEC 690.13(C)
2. USE ON NON-LOAD BREAK RATED DISCONNECTION.
3. MINIMUM OF 1" x 6"
4. FONT: 3/8" AND .8 WIDTH FACTOR
5. WHITE LETTERS ON A RED BACKGROUND.

DO NOT DISCONNECT UNDER LOAD

## 5 DC DISCONNECTS

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

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

1. PLACED ON DC DISCONNECT(S) AND ON ANY EQUIPMENT THAT STAYS ENERGIZED IN THE OFF POSITION FROM THE PV SUPPLY.
2. CODE REFERENCE: NEC 690.13(B)
3. MINIMUM OF 3 1/2" x 10"
4. FONT: 3/8"
5. WHITE LETTERS ON A RED BACKGROUND.

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SCOTT E. WYSSLING LICENSE NO. PE81558 STATE OF FLORIDA PROFESSIONAL ENGINEER

## 6 INVERTER(S)

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

WARNING:
ELECTRIC SHOCK HAZARD
IF A GROUND FAULT IS INDICATED, NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

2. MINIMUM OF 3 1/2" x 10 1/2"
3. FONT: 3/8"
4. WHITE LETTERS ON A RED BACKGROUND.

## 7 RAPID SHUTDOWN SWITCH

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

1. A RAPID SHUTDOWN SWITCH SHALL HAVE A LABEL LOCATED ON OR NO MORE THAN 1M (3 FT) FROM THE SWITCH THAT INCLUDES THE FOLLOWING:

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

2. THE LABEL SHALL BE REFLECTIVE WITH ALL LETTERS CAPITALIZED AND HAVING A MINIMUM HEIGHT OF 9.5 MM (3⁄8 IN.), IN WHITE ON RED BACKGROUND.

8.775 kW PHOTOVOLTAIC PLANS

| NAME | Moody Jr, JM |
|---|---|
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |

## 8 INVERTER(S)

SCALE: 1/2" = 1'-0"

INVERTER # 1

1. USE PLACARD "INVERTER # 1" WHEN MORE THAN 1 INVERTER IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.
2. MINIMUM OF 1" x 4"
3. FONT: 3/8"
4. WHITE LETTERS ON A RED BACKGROUND.

## 9 AC AND DC DISCONNECTS

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

AC DISCONNECT # 1

DC DISCONNECT # 1

USE PLACARD "[AC][DC] DISCONNECT # 1" WHEN MORE THAN ONE DISCONNECT IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.

PV SYSTEM DISCONNECT

1. PLACE ON ALL AC AND DC DISCONNECTS
2. CODE REFERENCE: NEC 690.13(B)
3. MINIMUM OF 1" x 10 1/2"
4. FONT: 3/8"
5. WHITE LETTERS ON A RED BACKGROUND.

## 10 SOLAR kWh METER

SCALE: 1/2" = 1'-0"

SOLAR PRODUCTION METER CUSTOMER OWNED

PHOTOVOLTAIC SYSTEM kWh METER

1. USE PLACARD ON CUSTOMER GENERATION METER.
2. VERIFY WHICH PLACARD IS REQUIRED WITH AHJ.
3. MINIMUM OF 1" x 4"
4. FONT: 3/8" AND .8 WIDTH FACTOR
5. WHITE LETTERS ON A RED BACKGROUND.

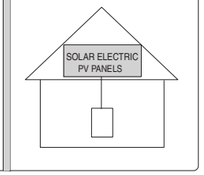
## 11 MAIN SERVICE PANEL

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

1. LOCATE NO MORE THAN 1 m FROM THE SERVICE DISCONNT MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATION OF ALL IDENTIFIED RAPID SHUTDOWN SWITCHES IF NOT AT THE SAME LOCATION.

**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.




2. CODE REFERENCE: NEC 690.56(C)(1)(a)
3. TITLE: MIN. 3/8" BLACK CHARACTERS ON YELLOW BACKGROUND, REMAINING CHARACTERS MIN. 3/16" IN BLACK ON WHITE BACKGROUND.


Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922


QTY 27 PEIMAR SM325M (FB) MODULES QTY 1 SolarEdge SE6000H-US (240V) INVERTER

## 1 DC DISCONNECTS & DISCO. COMBINER

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

PV SYSTEM DC DISCONNECT
MAXIMUM CIRCUIT CURRENT 30.0 ADC
MAXIMUM VOLTAGE 480 VDC

#1

PHOTOVOLTAIC SYSTEM
DC DISCONNECT
MAX. CIRCUIT CURRENT 30.0 ADC
MAXIMUM VOLTAGE 480 VDC

PV SYSTEM DC DISCONNECT
MAXIMUM CIRCUIT CURRENT ADC
MAXIMUM VOLTAGE VDC

#2

PHOTOVOLTAIC SYSTEM
DC DISCONNECT
MAX. CIRCUIT CURRENT ADC
MAXIMUM VOLTAGE VDC

PV SYSTEM DC DISCONNECT
MAXIMUM CIRCUIT CURRENT ADC
MAXIMUM VOLTAGE VDC

#3

PHOTOVOLTAIC SYSTEM
DC DISCONNECT
MAX. CIRCUIT CURRENT ADC
MAXIMUM VOLTAGE VDC

1. PLACARD PLACED ON EACH DISCONNECT, IF MORE THAN ONE PRESENT.
2. VALUES MUST MATCH EQUIPMENT CALCULATIONS.
   SEE SHEET "E-001 / DC DISCONNECT [#]"
3. CODE REFERENCE: NEC 690.53
4. MINIMUM OF 2 1/2" x 8" OR 5" x 2 1/2" RESPECTIVELY.
5. FONT: 3/8" HEADER, 3/16" DATA
6. WHITE LETTERS ON A RED BACKGROUND.
7. IN SOME CASES TWO LABELS MAY BE REQUIRED. AN INVERTER WITH INTEGRATED DC DISCONNECT UTILIZING TWO MPPT TRACKERS; IF CONFIGURATION USES DIFFERENT MODULES.

## 2 AC DISCONNECT, AC SUB-PANEL

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

AC DISCONNECT #1 - INDEPENDENT/ SEPARATE

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT 25.0 AMPS
AC NORMAL OPERATING VOLTAGE 240 VOLTS

PHOTOVOLTAIC SYSTEM
AC DISCONNECT
RATED AC OUTPUT CURRENT 25.0 AMPS
AC NORMAL OPERATING VOLTAGE 240 VOLTS

STRING INVERTER #1 - INTEGRATED AC DISCONNECT

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT 25.0 AMPS
AC NORMAL OPERATING VOLTAGE 240 VOLTS

PHOTOVOLTAIC SYSTEM
AC DISCONNECT
RATED AC OUTPUT CURRENT 25.0 AMPS
AC NORMAL OPERATING VOLTAGE 240 VOLTS

STRING INVERTER #2 - INTEGRATED AC DISCONNECT

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT AMPS
AC NORMAL OPERATING VOLTAGE VOLTS

PHOTOVOLTAIC SYSTEM
AC DISCONNECT
RATED AC OUTPUT CURRENT AMPS
AC NORMAL OPERATING VOLTAGE VOLTS

AC SUB-PANEL #1

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT AMPS
AC NORMAL OPERATING VOLTAGE VOLTS

PHOTOVOLTAIC SYSTEM
AC DISCONNECT
RATED AC OUTPUT CURRENT AMPS
AC NORMAL OPERATING VOLTAGE VOLTS

1. PLACARD PLACED ON EACH SOLAR SYSTEM DISCONNECTING COMPONENT.
2. VALUES MUST MATCH EQUIPMENT CALCULATIONS.
   SEE SHEET "E-001 / AC DISCONNECT [#]"
3. CODE REFERENCE: NEC 690.54
4. MINIMUM OF 1 1/2" x 8 1/2" OR 1 3/4" x 6 1/2" RESPECTIVELY.
5. FONT: 3/8" HEADER, 3/16" DATA
6. WHITE LETTERS ON A RED BACKGROUND.

## 3 UTILITY METER, SERVICE PANEL, SUB-PANEL

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

WARNING
DUAL POWER SOURCES
RATED AC OUTPUT CURRENT 25.0 AMPS
AC NORMAL OPERATING VOLTAGE 240 VOLTS

#1

BUILDING CONTAINS TWO SOURCES OF POWER: UTILITY, SOLAR PV UTILITY SERVICE DISCONNECT LOCATED BELOW. SOLAR PV SYSTEM DISCONNECT LOCATED [N/E/S/W] WALL OF BUILDING

#2

BUILDING CONTAINS TWO SOURCES OF POWER: UTILITY, SOLAR PV UTILITY SERVICE DISCONNECT LOCATED BELOW. SOLAR PV SYSTEM DISCONNECT LOCATED [N/E/S/W] WALL OF BUILDING

#3

1. (#1) PLACARD PLACED AT MAIN UTILITY SERVICE DISCONNECT/BREAKER AND PV SYSTEM SUPPLY BREAKER AT POINT OF INTERCONNECTION. (#2 & #3) PLACARD(S) REQUIRED WITH #1 PLACARD WHEN UTILITY SERVICE AND PV SYSTEM DISCONNECT(S) ARE NOT LOCATED NEXT TO EACH OTHER. MAP PLACARD REQUIRED AS SPECIFIED.
2. VALUES MUST MATCH EQUIPMENT CALCULATIONS.
   2.1. VALUES WILL MATCH LOAD CENTER OR SUB-PANEL VALUES IF INSTALLED AFTER INVERTERS. IF AC CONNECTION TO SERVICE PANEL COMES FROM INVERTERS; SEE SHEET "E-001 / STRING INVERTER[#] SPECIFICATIONS".
      2.1.1. INVERTERS ARE PARALLEL CONNECTIONS.
      2.1.2. "RATED AC OUTPUT CURRENT" WILL BE THE SUM OF THE INVERTERS
      2.1.3. "AC NORMAL OPERATING VOLTAGE" WILL BE THE NAME PLATE RATING OF THE INVERTER
3. CODE REFERENCE: NEC 690.54, NEC 705.12(B)(3)
4. MINIMUM OF 2" x 6 1/2" (#1), VARIES (#2 & #3)
5. FONT: 3/8" HEADER, 3/16" DATA (#1), 1/4" (#2 & #3)
6. WHITE LETTERS ON A RED BACKGROUND.

## SHEET NOTES

CODE ABBREVIATIONS:
NATIONAL ELECTRICAL CODE (NEC)
INTERNATIONAL BUILDING CODE (IBC)
INTERNATIONAL RESIDENTIAL CODE (IRC)
INTERNATIONAL FIRE CODE (IFC)
UNDERWRITERS LABORATORY (UL)

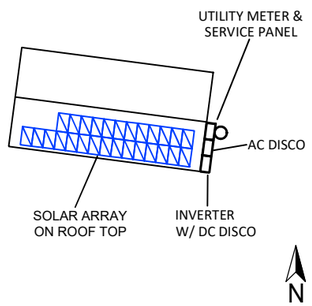
1. COMBINATION PLACARDS MAY BE USED IN PLACE OF MULTIPLE PLACARDS FOR THE SAME DEVICE. ALL INFORMATION FROM THE MULTIPLE PLACARDS MUST BE PRESENT.
2. BLACK LETTERS WITH YELLOW BACKGROUND MAY BE USED IN PLACE OF THE STANDARD WHITE LETTERS WITH RED BACKGROUND WITH AHJ APPROVAL.
3. ALL INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS ARE MARKED. (NEC 690.31[E][3], NEC 690.31[E][4] & 690.53)
4. REQUIRED LABELS SHALL BE PERMANENT AND SUITABLE FOR THE ENVIRONMENT. MATERIALS USED FOR MARKING MUST BE WEATHER RESISTANT. UL STANDARD IS RECOMMENDED TO DETERMINE WEATHER RATING. UL LISTING OF MARKINGS IS NOT REQUIRED. SEE UL LABELING SYSTEM 969 (UL 969)
5. MARKING CONTENT AND FORMAT:
   5.1. ARIAL OR SIMILAR FONT, NON-BOLD.
   5.2. MINIMUM 3/8" LETTER HEIGHT FOR HEADERS.
   5.3. MINIMUM 1/16" LETTER HEIGHT FOR DATA
   5.4. CONTRASTING BACKGROUND AND LETTERING.
   5.5. ALL CAPITAL LETTERS.
   5.6. CONTRASTING SPACE BETWEEN ROWS OF TEXT
   5.7. DIMENSIONS OF PLACARDS ARE APPROXIMATE. MAY BE REDUCED AND / OR INCREASED TO UL APPROVED MANUFACTURED PRODUCT
6. ANSI Z535.4 PRODUCT SAFETY SIGNS AND LABELS: THIS INFORMATIONAL NOTE AND ITS REQUIREMENTS FOR PLACARDS MAY BE USED WITH PRIOR APPROVAL OF THE AHJ. MOST NOTABLE DIFFERENCES IS COLOR OF PLACARDS AND USE OF HAND WRITTEN VALUES WITH INDUSTRIAL MARKERS ON STANDARD PLACARDS WHERE THE VALUE MAY CHANGE AT A FUTURE DATE. I.E. ADDING MODULES AT A FUTURE DATE, OR STANDARD PLACARD MANUFACTURER INSTALLED ON ELECTRICAL COMPONENT. AHJ APPROVAL REQUIRED. (SEE NOTE #1 FOR INDIVIDUAL PLACARDS)

## 4 MAP PLACARD: MAIN SERVICE PANEL AND PV INVERTER (IF NOT SAME LOCATION)

SCALE: 1/2" = 1'-0"

(WITH COMBINED WARNING PLACARD IF REQUIRED. EXAMPLE: LADWP)

CAUTION
POWER TO THIS BUILDING IS SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN:



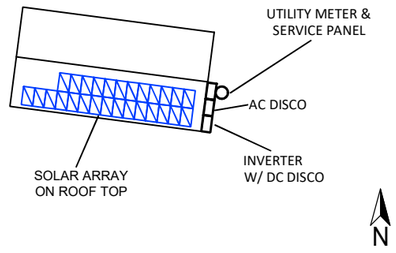

WARNING
ELECTRIC SHOCK HAZARD - DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

1. PLACARD PLACED AT ELECTRICAL SERVICE AND AT THE PV INVERTER AND PV DISCONNECTS IF NOT AT THE SAME LOCATION.
2. MAP PLACARD PROVIDES A DIRECTORY OF THE SERVICE DISCONNECTING MEANS AND PHOTOVOLTAIC SYSTEM DISCONNECTION MEANS.
3. CODE REFERENCE: NEC 690.56(A)(B), 705.10
4. WHITE LETTERS ON A RED BACKGROUND.
5. MINIMUM OF 7 3/4" x 5"
6. FONT: 3/4" "CAUTION", 1/4" "WARNING", 3/16" HEADER, 1/8" DATA AND NOTES
7. PLACARD WILL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM WHERE THE DISCONNECT IS OPERATED. (IFC 605.11.1.3)

## 5 MAP PLACARD: MAIN SERVICE PANEL AND PV INVERTER (IF NOT SAME LOCATION)

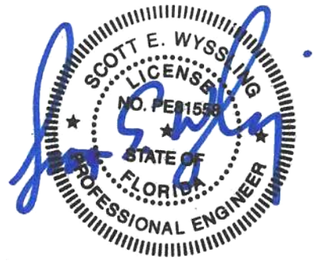
SCALE: 1/2" = 1'-0"

CAUTION
POWER TO THIS BUILDING IS SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN:




1. PLACARD PLACED AT ELECTRICAL SERVICE AND AT THE PV INVERTER AND PV DISCONNECTS IF NOT AT THE SAME LOCATION.
2. MAP PLACARD PROVIDES A DIRECTORY OF THE SERVICE DISCONNECTING MEANS AND PHOTOVOLTAIC SYSTEM DISCONNECTION MEANS.
3. CODE REFERENCE: NEC 690.56(A)(B), 705.10
4. WHITE LETTERS ON A RED BACKGROUND.
5. MINIMUM OF 6 1/2" x 6 1/2"
6. FONT: 3/4" "CAUTION", 1/4" HEADER, 1/8" DATA AND NOTES
7. PLACARD WILL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM WHERE THE DISCONNECT IS OPERATED. (IFC 605.11.1.3)

THIS PLAN HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY SCOTT WYSSLING, PE USING A DIGITAL SIGNATURE AND DATE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES




## RESPONSIBILITY NOTES

1. PRIME CONTRACTOR / PERMIT APPLICANT SIGNER IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE PHOTOVOLTAIC SYSTEM INSTALLATION. PRIME CONTRACTOR / PERMIT APPLICANT SIGNER WILL BE RESPONSIBLE FOR COLLECTION OF EXISTING ONSITE INFORMATION REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR MOUNTED PORTION OF THE PHOTOVOLTAIC SYSTEM DETAILED IN THIS DOCUMENT.
2. ADVANCED SOLAR SOLUTIONS, INC IS RESPONSIBLE FOR APPLYING SUPPLIED INFORMATION INTO A SET OF PERMIT DRAWINGS. ANY CHANGES TO DRAWINGS ARE SUBJECT TO CONTRACT CONDITIONS BETWEEN THE CLIENT AND ADVANCED SOLAR SOLUTIONS, INC. IN ACCORDANCE WITH THE REQUIREMENTS OF THE AHJ.

| REV | DATE | RELEASE |
|---|---|---|
| | 09/29/2021 | SUBMIT FOR PERMIT |

P-002

DYNAMIC PLACARDS

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |


Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

PEIMAR
ITALIAN PHOTOVOLTAIC MODULES

# SM325M (FB)

## 60-CELL LINE

MADE IN ITALY MODULE

Peimar monocrystalline solar panels, produced using a combination of innovative production processes and advanced engineering techniques, provide customers with maximum output and super high performance.

This allows fewer panels to be used to generate more energy, ideal if space is restricted or environmental conditions are challenging. Modern design, using matching black cells and frames and a very long lifespan ensure this monocrystalline are a great option.

30 YEAR LINEAR POWER WARRANTY
20 YEAR PRODUCT WARRANTY

**PERC** TECHNOLOGY

MODULE FIRE PERFORMANCE: **CLASS 1**

**ANTI-REFLECTIVE** GLASS

**QBE INSURANCE**
*Product Liability Insurance QBE*

### CELLS

60 CELLS
MONO 5BB / 9BB M3 | ***PERC***

158.75x158.75mm / 6.25x6.25"

### FRAME

COMPACT AND STURDY | ***40mm***

ANCHORABLE ALSO ON THE SHORT SIDE [5]

60-CELL LINE

### ELECTRICAL CHARACTERISTICS (STC) [1]

| | SM325M (FB) |
|---|---|
| Nominal Output (Pmax) [2] | 325 W |
| Sorting Tolerance | 0/+5 W |
| Voltage at Pmax (Vmp) | 34.15 V |
| Current at Pmax (Imp) | 9.52 A |
| Open Circuit Voltage (Voc) [2] | 41.67 V |
| Short Circuit Current (Isc) [2] | 10.08 A |
| Maximum System Voltage | 1500 V |
| Maximum Series Fuse Rating | 15 A |
| Module Efficiency | 19,48% |
| Protection class against electric shock | Class II |

### MECHANICAL CHARACTERISTICS

| | |
|---|---|
| Solar Cells | 60 (6x10) M3 monocrystalline ***PERC*** |
| Solar Cells Size | 158,75x158,75 mm / 6,25x6,25" |
| Front Cover | 3.2 mm / 0.13" thick, low iron tempered glass |
| Back Cover | TPT (Tedlar-PET-Tedlar) |
| Encapsulant | EVA (Ethylene vinyl acetate) |
| Frame | Anodized aluminium alloy, double wall |
| Frame finishing | Black |
| Backsheet finishing | Black |
| Diodes | 3 Bypass diodes serviceable |
| Junction Box | IP67 rated |
| Connector | MC4 or compatible connector |
| Cables Lenght | 900 mm / 35,43" |
| Cables Section | 4.0 mm² / 0,006 in² |
| Dimensions | 1665x1002x40 mm / 65.55x39.45x1.57" |
| Weight | 18.6 Kg / 41.01 lbs |
| Max Load (Test Load) - SF | 5400 Pa - 1.5 [5] |

### TEMPERATURE CHARACTERISTICS

| | |
|---|---|
| NMOT [3] | 45±2 °C |
| Temperature Coefficient of Pmax | -0.37 %/°C |
| Temperature Coefficient of Voc | -0.28 %/°C |
| Temperature Coefficient of Isc | 0,042 %/°C |
| Operating Temperature | -40 °C ~ +85°C |

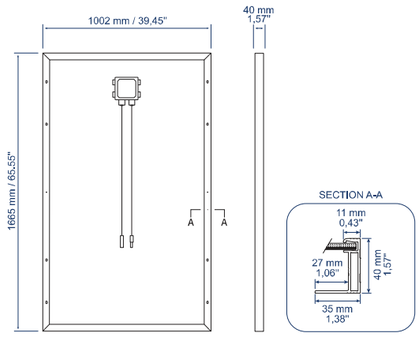
### PACKAGING [4]

| | |
|---|---|
| Pallet dimensions | 1720x1200x1210 mm / 67.72x47.24x47.64" |
| Pieces per pallet | 27 |
| Weight | 535 Kg / 1179 lbs |

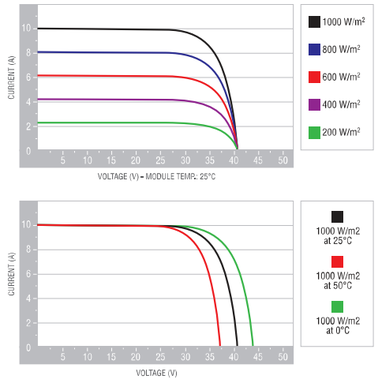
### CERTIFICATIONS

| | |
|---|---|
| Fire Resistance Rating | Class of reaction to fire: 1 (UNI 9177) |
| Fire Performance Rating | Type 1 (UL 61730:2017) |
| Product Certificate | UL 61730:2017 |

### DIMENSIONS




### CURRENT/VOLTAGE CHARACTERISTICS




1. STC: (Standard Test Condition) Irradiance 1000W/m²; Module Temperature 25°C; Air Mass 1.5
2. Pmax, Voc, Isc measurement tolerance: ±3%
3. NMOT: Nominal Module Operating Temperature: Irradiance 800W/m²; Air 20°C; Wind speed 1m/s
4. Pallets can be stacked up to two
5. Consult the installation manual for the relative mounting configurations

www.peimar.com



USA_2021_06_00

PEIMAR
ITALIAN PHOTOVOLTAIC MODULES

| REV | DATE | |
|---|---|---|
| | 09/29/2021 | RELEASE<br>SUBMIT FOR PERMIT |

R-100

EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |

Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

# Certificate of Compliance

**Certificate:** 80042800 **Master Contract:** 274817

**Project:** 80042800 **Date Issued:** 2020-11-03

**Issued To:** **Peimar Inc**
**309 Fellowship Road, Suite 115**
**East Gate Center**
**Mount Laurel, New Jersey, 08054**
**United States**

**Attention: Stefano Caruso**

***The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.***

**Issued by:** Michael Hoffnagle
Michael Hoffnagle

C US

**PRODUCTS**

CLASS 5311 10 - POWER SUPPLIES - Photovoltaic Modules and Panels
CLASS 5311 90 - POWER SUPPLIES - Photovoltaic Modules and Panels (Certified to U.S. Standards)

**Certificate:** 80042800
**Project:** 80042800

**Master Contract:** 274817
**Date Issued: 2020-11-03**

- Model SMXXXM Series, mono-crystalline silicon, 72 Cell, where xxx is the power output from 405 W to 340 W.

| Model | Rated Max @ STC (Watts) | Voltage at Rated @ Max Power (V) | Current at Rated Max Power @ STC (A) | Open Circuit Voltage @ STC (A) | Short Circuit Current @ STC (A) |
|---|---|---|---|---|---|
| | (Pmax) | (Vmp) | (Imp) | (Voc) | (Isc) |
| SM405M | 405 | 41.5 | 9.76 | 50.63 | 10.34 |
| SM400M | 400 | 41.3 | 9.69 | 50.39 | 10.26 |
| SM395M | 395 | 41.1 | 9.61 | 50.14 | 10.18 |
| SM390M | 390 | 40.9 | 9.54 | 49.9 | 10.1 |
| SM385M | 385 | 40.7 | 9.46 | 49.66 | 10.02 |
| SM380M | 380 | 40.5 | 9.39 | 49.41 | 9.94 |
| SM375M | 375 | 40.3 | 9.31 | 49.17 | 9.86 |
| SM370M | 370 | 40.1 | 9.24 | 48.92 | 9.78 |
| SM365M | 365 | 39.9 | 9.16 | 48.68 | 9.7 |
| SM360M | 360 | 39.7 | 9.09 | 48.44 | 9.62 |
| SM355M | 355 | 39.5 | 9.01 | 48.19 | 9.54 |
| SM350M | 350 | 39.3 | 8.94 | 47.95 | 9.46 |
| SM345M | 345 | 39.1 | 8.86 | 47.70 | 9.38 |
| SM340M | 340 | 38.9 | 8.79 | 47.46 | 9.3 |
| Max Series Fuse Rating (A) | 15 | | | | |
| Max System Voltage (V) | 1500 | | | | |
| Fire Performance Rating | Type 1 | | | | |

- Model SMXXXM Series, mono-crystalline silicon, 60 Cell, where xxx is the power output from 340 W to 290 W.

| Model | Rated Max @ STC (Watts) | Voltage at Rated @ Max Power (V) | Current at Rated Max Power @ STC (A) | Open Circuit Voltage @ STC (A) | Short Circuit Current @ STC (A) |
|---|---|---|---|---|---|
| | (Pmax) | (Vmp) | (Imp) | (Voc) | (Isc) |
| SM340M | 340 | 34.75 | 9.79 | 42.39 | 10.37 |
| SM335M | 335 | 34.55 | 9.7 | 42.16 | 10.27 |
| SM330M | 330 | 34.35 | 9.61 | 41.91 | 10.18 |
| SM325M | 325 | 34.15 | 9.52 | 41.67 | 10.08 |
| SM320M | 320 | 33.95 | 9.43 | 41.42 | 9.98 |

REV | DATE | RELEASE
09/29/2021 | SUBMIT FOR PERMIT

R-101 EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

NAME Moody Jr, JM
ADDRESS 508 NW Oglethorpe Terrace
ADDRESS Lake City, FL 32055
APN

Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

**Certificate:** 80042800
**Project:** 80042800

**Master Contract:** 274817
**Date Issued:** 2020-11-03

| | | | | | |
|---|---|---|---|---|---|
| SM315M | 315 | 33.75 | 9.34 | 41.18 | 9.89 |
| SM305M | 305 | 33.55 | 9.25 | 40.94 | 9.79 |
| SM300M | 300 | 33.35 | 9.16 | 40.70 | 9.69 |
| SM295M | 295 | 33.15 | 9.07 | 40.45 | 9.59 |
| SM290M | 290 | 32.95 | 8.98 | 40.21 | 9.50 |
| Max Series Fuse Rating (A) | 15 | | | | |
| Max System Voltage (V) | 1500 | | | | |
| Fire Performance Rating | Type 1 | | | | |

Design Load: 3600 Pa
Test Load: 5400 Pa

Notes:
1. Rated electrical characteristics are within +/-10% of measured values at Standard Test Conditions of 100 mW/cm2 irradiance, AM 1.5 spectrum, and 25ºC.
2. 1500V maximum system voltage can only be used with 1500V rated components (Junction box, connector and cable)

**APPLICABLE REQUIREMENTS**

| | |
|---|---|
| CAN/CSA-C22.2 No. 61730-1:19 | Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction |
| CAN/CSA-C22.2 No. 61730-2:19 | Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing |
| UL 61730-1:2017 | Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction |
| UL 61730-2:2017 | Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing |

**MARKINGS**

The manufacturer is required to apply the following markings:
- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.





**Certificate:** 80042800
**Project:** 80042800

**Master Contract:** 274817
**Date Issued:** 2020-11-03

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

1. The following markings appear on the enclosure by silk-screening, permanent ink stamping, on adhesive labels that appear on the CSA List of Accepted Adhesive Nameplates, or by other permanent method:
   Each PV module shall include the following clear and indelible markings:
   a) Submitter's name and/or CSA Master Contract number "266494".
   b) Model designation.
   c) Complete electrical ratings at STC:
      - Open-circuit voltage (include tolerances)
      - Operating voltage
      - Maximum system voltage
      - Short-circuit current (include tolerances)
      - Current at rated operating voltage
      - Maximum power (include tolerances)
   d) date and place of manufacture; alternatively serial number assuring traceability of date and place of manufacture;
   e) PV module classification: Class II, as indicated
   f) PV module application class: Class A
   g) For Class II PV modules, the (IEC 60417-6042: Caution, risk of electric shock) symbol shall be applied, the caution mark:
   h) Maximum over-current protection rating.
   i) The CSA Monogram with the "C/US" indicators;

2. All electrical data shall be shown as relative to standard test conditions (STC) (1 000 W/m$^2$, (25 ± 2) °C, AM 1.5 according to IEC 60904-3).

3. Polarity of terminals or leads, PV connectors shall be clearly marked indicating the terminal polarity. A module or panel may be identified with one of the following marking statements:
   "+" and "-" or
   "POS" and "NEG" or
   "POSITIVE" and "NEGATIVE"





| REV | DATE | RELEASE |
|---|---|---|
| | 09/29/2021 | SUBMIT FOR PERMIT |

R-102 EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr, JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |

Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

**Certificate:** 80042800
**Project:** 80042800

**Master Contract:** 274817
**Date Issued:** 2020-11-03

4. PV connectors or wiring shall be marked in accordance to IEC 62852 with “Do not disconnect under load”. Symbol or warning notice shall be imprinted or labelled close to connector.

The following symbols may be used to show that a PV connector shall not be disconnected under load. See Figures A.1 and A.2.


Figure A.1 – Symbol "DO NOT DISCONNECT UNDER LOAD"

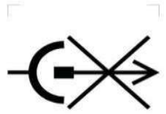


Figure A.2 – Symbol "DO NOT DISCONNECT UNDER LOAD" (IEC 60417-6070)

5. A wiring terminal or bonding location of a PV module intended to accommodate a field installed bonding conductor for equipotential bonding shall be identified with the appropriate symbol IEC 60417-5019 ⏚. Each grounding point is identified with ground symbol located adjacent to terminal.

6. PV modules provided with terminals for field wiring rated only for use with copper wire shall be marked, at or adjacent to the terminals, with the statement "Use copper wire only", "Cu only", or the equivalent.

7. PV modules provided with terminals for field wiring rated only for use with a different specific wiring material shall be marked with a similar statement referring to the rated material.

8. PV modules provided with terminals for field wiring rated for use with all types of wiring material do not need to be marked.

9. The recommended maximum series/ parallel module configurations shall be applied to either the module or placed into the instruction and installation manual.

10. A module employing a nonmetallic junction box having a threaded or unthreaded opening shall be marked “for use with nonmetallic conduit systems only” or the equivalent.

11. A module employing a nonmetallic junction box having threaded or unthreaded opening shall be marked “For use with nonmetallic conduit systems only” or the equivalent.

12. System Fire Class Rating: See Installation Instructions for Installation Requirements to Achieve a Specified System Fire Class Rating with this Product, this statement should be marked on the label.

13. Module Fire Performance: Class A (CSA 61730:2019) or Type 1 (UL 61730:2017).





## *Supplement to Certificate of Compliance*

**Certificate:** 80042800

**Master Contract:** 274817

***The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.***

### Product Certification History

| Project | Date | Description |
|---|---|---|
| 80042800 | 2020-11-03 | New Certification Evaluation of Peimar PV modules to UL61730 and CAN/CSA 61730 Standards from IEC CB Scheme. Additional models and components were added to the project.<br><br>- CB Certificates for IEC 61730-1 and -2 are provided along with supporting IEC test reports<br>- Gap testing only for UL ND<br>- Fire testing will be carried over from UL1703 certification report. |





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R-103

EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
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**Daybreak Install LLC**
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(817) 501-4922

# Single Phase Inverter with HD-Wave Technology

## for North America

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

INVERTERS

12-25 YEAR WARRANTY

## Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- 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)

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

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

| | SE3000H-US | SE3800H-US | SE5000H-US | SE6000H-US | SE7600H-US | SE10000H-US | SE11400H-US | |
|---|---|---|---|---|---|---|---|---|
| **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 |
| 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 | 600kΩ Sensitivity | | | | | | | |
| Maximum Inverter Efficiency | 99 | 99.2 | | | | | | % |
| CEC Weighted Efficiency | 99 | | | | | | 99 @ 240V 98.5 @ 208V | % |
| Nighttime Power Consumption | < 2.5 | | | | | | | W |
| **ADDITIONAL FEATURES** | | | | | | | | |
| Supported Communication Interfaces | RS485, Ethernet, ZigBee (optional), Cellular (optional) | | | | | | | |
| Revenue Grade Data, ANSI C12.20 | Optional[3] | | | | | | | |
| 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 | 3/4" minimum / 14-6 AWG | | | | | 3/4" minimum /14-4 AWG | | |
| DC Input Conduit Size / # of Strings / AWG Range | 3/4" minimum / 1-2 strings / 14-6 AWG | | | | | 3/4" minimum / 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 / -25 to +60[4] (-40°F / -40°C option)[5] | | | | | | | °F / °C |
| Protection Rating | NEMA 4X (Inverter with Safety Switch) | | | | | | | |

[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
[3] Revenue grade inverter P/N: SExxxxH-US000NNC2
[4] For power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf
[5] -40 version P/N: SExxxxH-US000NNU4



RoHS

| REV | DATE | RELEASE |
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R-104

EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
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| ADDRESS | Lake City, FL 32055 |
| APN | |

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(817) 501-4922

# Power Optimizer

## For North America

P320 / P340 / P370 / P400 / P401 / P405 / P485 / 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

solaredge.com

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# Power Optimizer

## For North America

P320 / P340 / P370 / P400 / P401 / P405 / P485 / 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) | P401 (for high power 60 and 72 cell modules) | P405 (for high-voltage modules) | P485 (for high-voltage modules) | P505 (for higher current modules) | |
|---|---|---|---|---|---|---|---|---|---|
| **INPUT** | | | | | | | | | |
| Rated Input DC Power[1] | 320 | 340 | 370 | 400 | | 405 | 485 | 505 | W |
| Absolute Maximum Input Voltage (Voc at lowest temperature) | 48 | | 60 | 80 | 60 | 125[2] | | 83[2] | Vdc |
| MPPT Operating Range | 8 - 48 | | 8 - 60 | 8 - 80 | 8-60 | 12.5 - 105 | | 12.5 - 83 | Vdc |
| Maximum Short Circuit Current (Isc) | 11 | | | 10.1 | 11.75 | 11 | | 14 | Adc |
| Maximum DC Input Current | 13.75 | | | 12.5 | 14.65 | 12.5 | | 17.5 | Adc |
| Maximum Efficiency | 99.5 | | | | | | | | % |
| Weighted Efficiency | 98.8 | | | | | | | 98.6 | % |
| Overvoltage Category | II | | | | | | | | |
| **OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)** | | | | | | | | | |
| Maximum Output Current | 15 | | | | | | | | Adc |
| Maximum Output Voltage | 60 | | | | | 85 | | | Vdc |
| **OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE 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 153 x 29.5 /5.1 x 6 x 1.16 | | 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 | 655 / 1.5 | | 845 / 1.9 | | 1064 / 2.3 | gr / lb |
| Input Connector | MC4[3] | | | | | | Single or dual MC4[3][4] | 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[5] | -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
(4) For dual version for parallel connection of two modules use P485-4NMDMRM. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer connected to one PV module. When connecting a single module seal the unused input connectors with the supplied pair of seals.
(5) For ambient temperature above +85°C / +185°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details.

| PV System Design Using a SolarEdge Inverter[6][7] | | Single Phase HD-Wave | Single phase | Three Phase for 208V grid | Three Phase for 277/480V grid | |
|---|---|---|---|---|---|---|
| Minimum String Length (Power Optimizers) | P320, P340, P370, P400, P401 | 8 | | 10 | 18 | |
| | P405, P485, P505 | 6 | | 8 | 14 | |
| Maximum String Length (Power Optimizers) | | 25 | | 25 | 50[8] | |
| Maximum Power per String | | 5700 (6000 with SE7600-US - SE11400-US) | 5250 | 6000[9] | 12750[10] | W |
| Parallel Strings of Different Lengths or Orientations | | Yes | | | | |

(6) For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
(7) It is not allowed to mix P405/P485/P505 with P320/P340/P370/P400/P401 in one string
(8) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement
(9) For 208V grid: it is allowed to install up to 6,500W per string when the maximum power difference between each string is 1,000W
(10) For 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W



Intertek RoHS

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R-105 EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

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Tech Brief

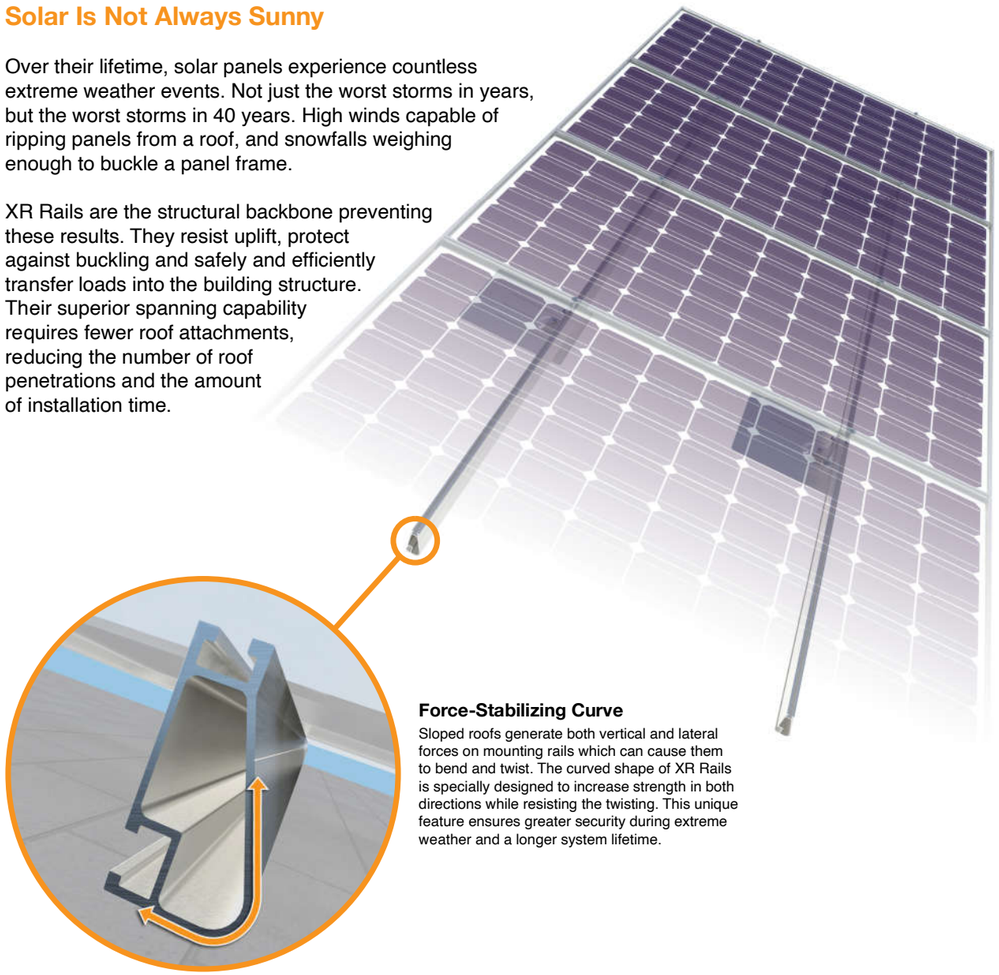
IRONRIDGE

# XR Rail Family

## Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.



### Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

### Compatible with Flat & Pitched Roofs

XR Rails are compatible with FlashFoot and other pitched roof attachments.

IronRidge offers a range of tilt leg options for flat roof mounting applications.

### Corrosion-Resistant Materials

All XR Rails are made of 6000-series aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.

Tech Brief

## XR Rail Family

The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your locatio n, there is an XR Rail to match.

**XR10**

XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves spans up to 6 feet, while remaining light and economical.

- 6' spanning capability
- Moderate load capability
- Clear & black anodized finish
- Internal splices available

**XR100**

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 10 feet.

- 10' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available

**XR1000**

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans up to 12 feet for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

## Rail Selection

The table below was prepared in compliance with applicable engineering c odes and standards.* Values are based on the following criteria: ASCE 7-16, Gable Roof Flush Mount, Roof Zones 1 & 2e, Exposure B, Roof Slope of 8 to 20 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed certification letters.

| Load | | Rail Span | | | | | |
|---|---|---|---|---|---|---|---|
| Snow (PSF) | Wind (MPH) | 4' | 5' 4" | 6' | 8' | 10' | 12' |
| None | 90 | XR10 | | XR100 | | XR1000 | |
| | 120 | | | | | | |
| | 140 | | | | | | |
| | 160 | | | | | | |
| 20 | 90 | | | | | | |
| | 120 | | | | | | |
| | 140 | | | | | | |
| | 160 | | | | | | |
| 30 | 90 | | | | | | |
| | 160 | | | | | | |
| 40 | 90 | | | | | | |
| | 160 | | | | | | |
| 80 | 160 | | | | | | |
| 120 | 160 | | | | | | |

*Table is meant to be a simplified span chart for conveying general rail capabilities. Use approved certification letters for actual design guidance.



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R-106

EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

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Tech Brief

IRONRIDGE

# Class A Fire Rating

## Background

All roofing products are tested and classified for their ability to resist fire.

Recently, these fire resistance standards were expanded to include solar equipment as part of the roof system. Specifically, this requires the modules, mounting hardware and roof covering to be tested together as a system to ensure they achieve the same fire rating as the original roof covering.

These new requirements are being adopted throughout the country in 2016.

## IronRidge Certification

IronRidge was the first company to receive a Class A Fire Rating—the highest possible rating—from Intertek Group plc., a Nationally Recognized Testing Laboratory.

IronRidge Flush Mount and Tilt Mount Systems were tested on sloped and flat roofs in accordance with the new UL 1703 & UL 2703 test standards. The testing evaluated the system's ability to resist flame spread, burning material and structural damage to the roof.

Refer to the table below to determine the requirements for achieving a Class A Fire Rating on your next project.

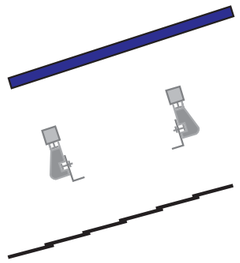
## Fire Testing Process

### Test Setup

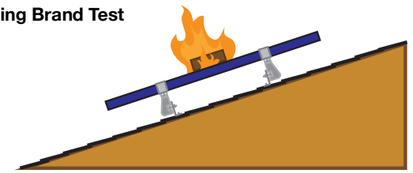
**Solar Modules**
Solar modules are given a Type classification based on their materials and construction.

**Mounting System**
Mounting is tested as part of a system that includes type-tested modules and fire-rated roof covering.

**Roof Covering**
Roof covering products are given a Fire Class Rating of A, B or C based on their tested fire resistance.

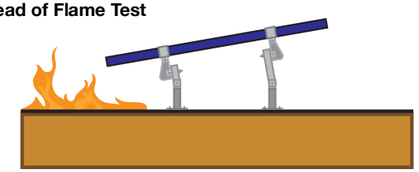


### Burning Brand Test



A burning wooden block is placed on module as a fan blows at 12 mph. Flame cannot be seen on underside of roof within 90 minutes.

### Spread of Flame Test



Flame at southern edge of roof is aimed up the roof as a fan blows at 12 mph. The flame cannot spread 6 feet or more in 10 minutes.

| System | Roof Slope | Module | Fire Rating* |
|---|---|---|---|
| Flush Mount | Any Slope | Type 1, 2, & 3 | Class A |
| Tilt Mount | ≤ 6 Degrees | Type 1, 2, & 3 | Class A |

*Class A rated PV systems can be installed on Class A, B, and C roofs.

Tech Brief

## Frequently Asked Questions

**What is a "module type"?**

The new UL1703 standard introduces the concept of a PV module type, based on 4 construction parameters and 2 fire performance parameters. The purpose of this classification is to certify mounting systems without needing to test it with every module.

**What roofing materials are covered?**

All fire rated roofing materials are covered within this certification including composition shingle, clay and cement tile, metal, and membrane roofs.

**What if I have a Class C roof, but the jurisdiction now requires Class A or B?**

Generally, older roofs will typically be "grandfathered in", and will not require re-roofing. However, if 50% or more of the roofing material is replaced for the solar installation the code requirement will be enforced.

**Where is the new fire rating requirement code listed?**

*2012 IBC: 1509.7.2 Fire classification. Rooftop mounted photovoltaic systems shall have the same fire classification as the roof assembly required by Section 1505.*

**Where is a Class A Fire Rating required?**

The general requirement for roofing systems in the IBC refers to a Class C fire rating. Class A or B is required for areas such as Wildland Urban Interface areas (WUI) and for very high fire severity areas. Many of these areas are found throughout the western United States. California has the most Class A and B roof fire rating requirements, due to wild fire concerns.

**Are standard mid clamps covered?**

Mid clamps and end clamps are considered part of the PV "system", and are covered in the certification.

**What attachments and flashings are deemed compatible with Class A?**

Attachments and their respective flashings are not constituents of the rating at this time. All code-compliant flashing methods are acceptable from a fire rating standpoint.

**What mounting height is acceptable?**

UL fire testing was performed with a gap of 5", which is considered worst case in the standard. Therefore, the rating is applicable to any module to roof gap.

**Am I required to install skirting to meet the fire code?**

No, IronRidge achieved a Class A fire rating without any additional racking components.

**What determines Fire Classification?**

Fire Classification refers to a fire-resistance rating system for roof covering materials based on their ability to withstand fire exposure.

*Class A - effective against severe fire exposure*
*Class B - effective against moderate fire exposure*
*Class C - effective against light fire exposure*

**What if the roof covering is not Class A rated?**

The IronRidge Class A rating will not diminish the fire rating of the roof, whether Class A, B, or C.

**What tilts is the tilt mount system fire rated for?**

The tilt mount system is rated for 1 degrees and up and any roof to module gap, or mounting height.

## More Resources

**Installation Manuals**
Visit our website for manuals that include UL 2703 Listing and Fire Rating Classification.
Go to IronRidge.com

**Engineering Certification Letters**
We offer complete engineering resources and pre-stamped certification letters.
Go to IronRidge.com



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|---|---|---|
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R-107 EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

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IRONRIDGE

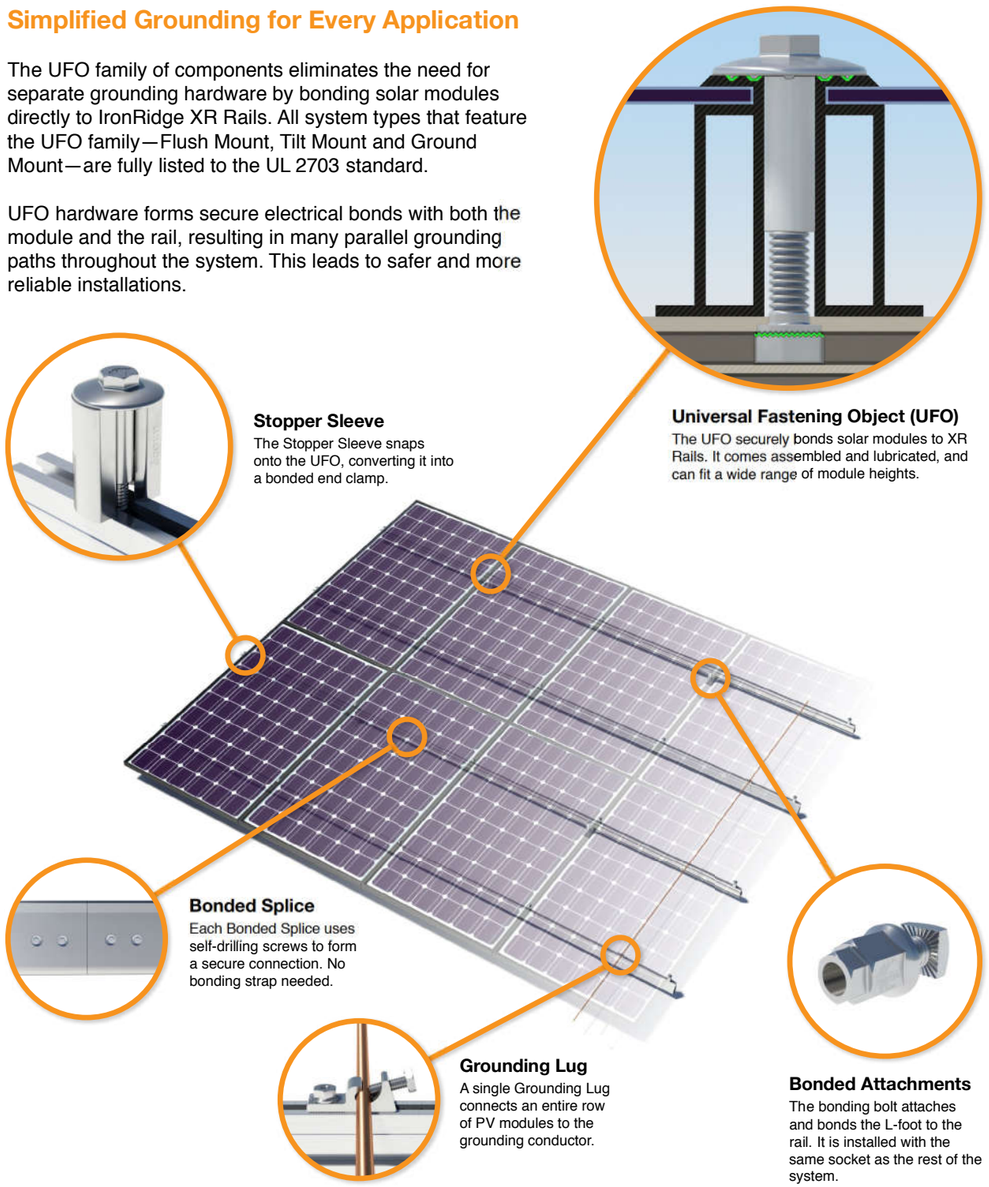
Tech Brief

# UFO Family of Components

## Simplified Grounding for Every Application

The UFO family of components eliminates the need for separate grounding hardware by bonding solar modules directly to IronRidge XR Rails. All system types that feature the UFO family—Flush Mount, Tilt Mount and Ground Mount—are fully listed to the UL 2703 standard.

UFO hardware forms secure electrical bonds with both the module and the rail, resulting in many parallel grounding paths throughout the system. This leads to safer and more reliable installations.



**Universal Fastening Object (UFO)**
The UFO securely bonds solar modules to XR Rails. It comes assembled and lubricated, and can fit a wide range of module heights.

**Stopper Sleeve**
The Stopper Sleeve snaps onto the UFO, converting it into a bonded end clamp.

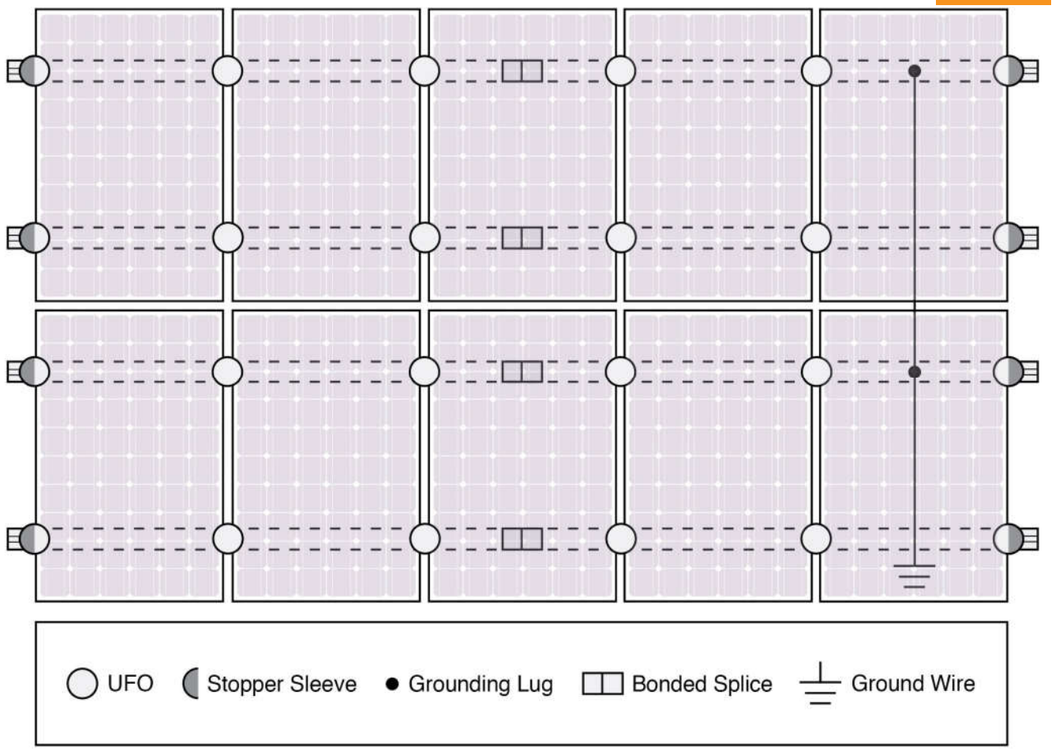
**Bonded Splice**
Each Bonded Splice uses self-drilling screws to form a secure connection. No bonding strap needed.

**Grounding Lug**
A single Grounding Lug connects an entire row of PV modules to the grounding conductor.

**Bonded Attachments**
The bonding bolt attaches and bonds the L-foot to the rail. It is installed with the same socket as the rest of the system.

## System Diagram

Tech Brief




Approved Enphase microinverters can provide equipment grounding of IronRidge systems, eliminating the need for grounding lugs and field installed equipment ground conductors (EGC). A minimum of two microinverters mounted to the same rail and connected to the same Engage cable is required. Refer to installation manuals for additional details.

## UL Certification

The IronRidge Flush Mount, Tilt Mount, and Ground Mount Systems have been listed to UL 2703 by Intertek Group plc.

UL 2703 is the standard for evaluating solar mounting systems. It ensures these devices will maintain strong electrical and mechanical connections over an extended period of time in extreme outdoor environments.

Go to IronRidge.com/UFO

**Cross-System Compatibility**

| Feature | Flush Mount | Tilt Mount | Ground Mount |
|---|---|---|---|
| XR Rails | ✔ | ✔ | XR1000 Only |
| UFO/Stopper | ✔ | ✔ | ✔ |
| Bonded Splice | ✔ | ✔ | N/A |
| Grounding Lugs | 1 per Row | 1 per Row | 1 per Array |
| Microinverters & Power Optimizers | Enphase - M250-72, M250-60, M215-60, C250-72<br>Darfon - MIG240, MIG300, G320, G640<br>SolarEdge - P300, P320, P400, P405, P600, P700, P730 | | |
| Fire Rating | Class A | Class A | N/A |
| Modules | Tested or Evaluated with over 400 Framed Modules<br>Refer to installation manuals for a detailed list. | | |



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R-108

EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

NAME | Moody Jr, JM
ADDRESS | 508 NW Oglethorpe Terrace
ADDRESS | Lake City, FL 32055
APN

Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

# S-5!®

## The Right Way!

### S-5-U Clamp

The S-5-U clamp is by far our most popular and most versatile clamp. It fits about 85% of the standing seam profiles manufactured in North America—including most structural and architectural profiles. It can be used on vertically oriented seams and, by rotating the clamp 90 degrees, it can also be used on most horizontal 2" seam profiles.

Its simple design, generous dimensioning, and multiple hole orientations are what make the S-5-U clamp so versatile for use with the S-5!® snow retention products, such as ColorGard®, as well as with other heavy-duty applications.

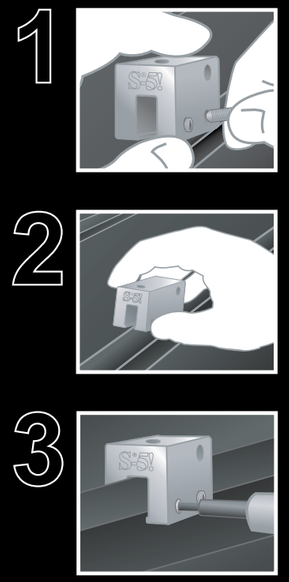
Installation is as simple as setting the specially patented round-point setscrews into the clamp, placing the clamp on the seam, and tightening them to the specified tension. Then, affix ancillary items using the bolt provided with the product. Go to www.S-5.com/tools for information and tools available for properly attaching and tensioning S-5! clamps.

### S-5-U Mini Clamp

The S-5-U Mini is a bit shorter than the S-5-U and has one setscrew rather than two. The mini is the choice for attaching all kinds of rooftop accessories: signs, walkways, satellite dishes, antennas, rooftop lighting, lightning protection systems, solar arrays, exhaust stack bracing, conduit, condensate lines, mechanical equipment—just about anything!*

*S-5! mini clamps are not compatible with, and should not be used with S-5! SnoRail™/SnoFence™ or ColorGard® snow retention systems.

The right way to attach almost anything to metal roofs!




S-5-U and S-5-U Mini


The S-5-U clamp is our most popular and versatile clamp, fitting about 85% of the standing seam profiles in North America.

888-825-3432 | www.S-5.com |

MADE IN USA

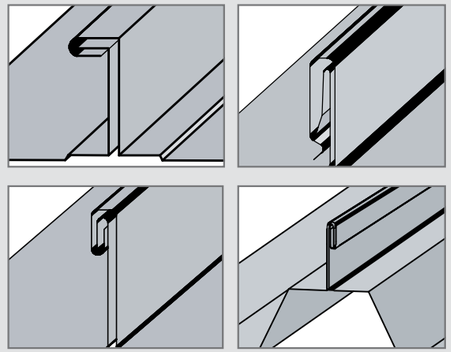
S-5!®
The Right Way!

**The strength of the S-5-U clamp is in its simple design. The patented setscrews will slightly dimple the metal seam material but not pierce it—leaving the roof manufacturer's warranty intact.**

The **S-5-U and S-5-U Mini clamps** are each furnished with the hardware shown to the right. Each box also includes a bit tip for tightening setscrews using an electric screw gun. A structural aluminum attachment clamp, the S-5-U is compatible with most common metal roofing materials excluding copper. All included hardware is stainless steel. Please visit **www.S-5.com** for more information including CAD details, metallurgical compatibilities and specifications.

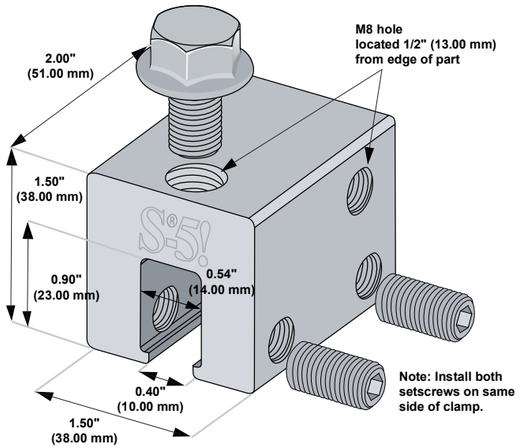
The S-5-U clamp has been tested for load-to-failure results on most major brands and profiles of standing seam roofing. The independent lab test data found at www.S-5.com can be used for load-critical designs and applications. S-5!® holding strength is unmatched in the industry.

### Example Profiles

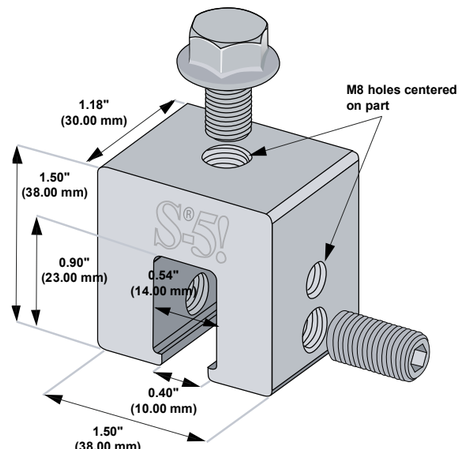


For horizontal seams under 0.65", do not use this clamp. Visit www.S-5.com for more detailed information and proper clamp usage.

### S-5-U Clamp




### S-5-U Mini Clamp




Please note: All measurements are rounded to the second decimal place.

Distributed by

**S-5!® Warning! Please use this product responsibly!**

**Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.**



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| | 09/29/2021 | SUBMIT FOR PERMIT |

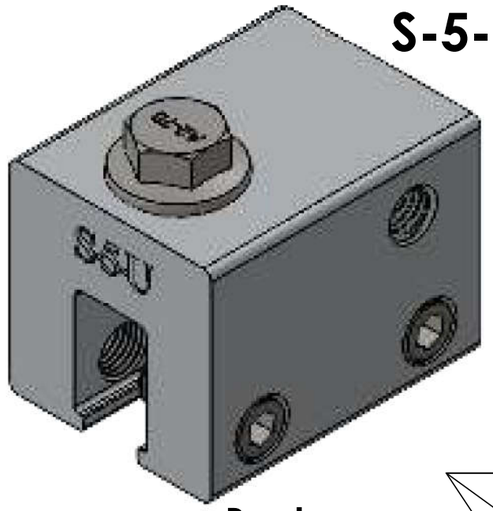
R-109 EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

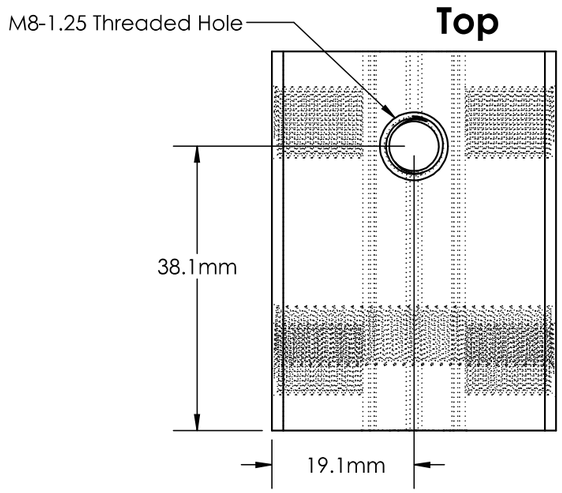
| | |
|---|---|
| NAME | Moody Jr., JM |
| ADDRESS | 508 NW Oglethorpe Terrace |
| ADDRESS | Lake City, FL 32055 |
| APN | |

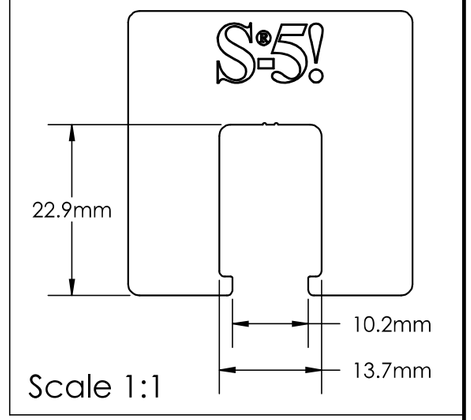
Daybreak Install LLC
CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

# S-5-U




**Top**

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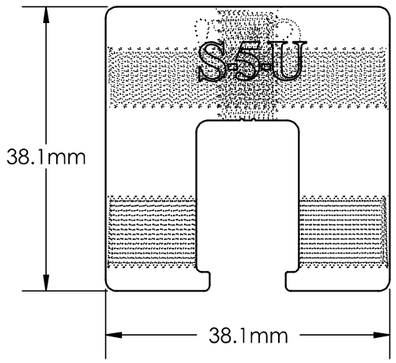


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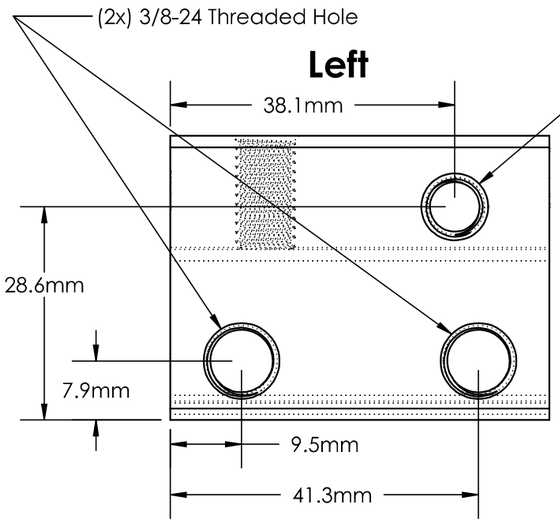
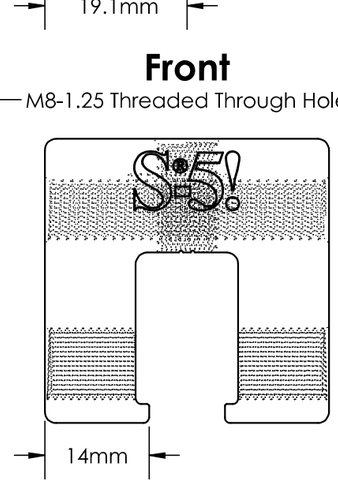



**Front**

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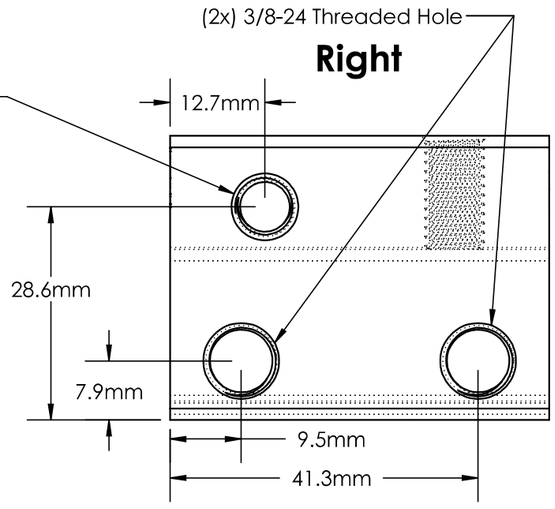


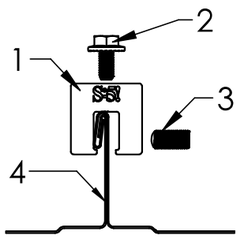


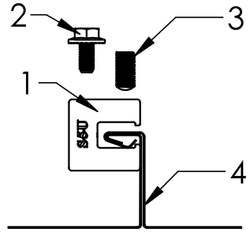


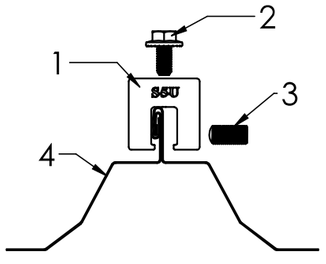


**FOR STANDING SEAM SPECIFIC MECHANICAL LOAD TEST INFORMATION AND CLAMP INSTALLATION INFORMATION PLEASE VISIT: WWW.S-5.COM**

General Notes:

1. S-5-U Clamp
2. M8-1.25 SS Hex Flange Bolt (13mm Socket)
3. 3/8-24 SS Round Point Setscrew (3/16 Hex Drive)
4. Example roof

| | | | |
|---|---|---|---|
| MATERIAL: 6061 T6 Al | S-5! The Right Way! | METAL ROOF INNOVATIONS, LTD.<br>8655 TABLE BUTTE RD<br>COLORADO SPRINGS, CO 80908<br>719-495-0518<br>719-495-0045(FAX) | |
| EST ASSEMBLY WEIGHT: 168.96 g | TITLE: S-5-U | | |
| SUPPLIED HARDWARE: M8-1.25 x 16 mm HEX Bolt (2x) 3/8-24 x .800" Setscrews | | | |
| SCALE: 1:1 | DRAWING NO.: U11-B-16-D | DRAWN BY: Kati Kadakas | DATE: 4/11/2016 |
| EST. WEIGHT: Clamp: 137.89 g Setscrew: 7.71 g Bolt: 15.65 g | S-5!® PRODUCTS ARE PROTECTED BY MULTIPLE U.S. AND FOREIGN PATENTS. VISIT OUR WEBSITE AT WWW.S-5.COM FOR COMPLETE INFORMATION ON PATENTS AND TRADEMARKS. | | |

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R-110 EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

| | |
|---|---|
| NAME | Moody Jr., JM |
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| APN | |

CVC56966
2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 501-4922

Daybreak Install LLC

EATON
Powering Business Worldwide

# General Duty Cartridge Fuse Safety Switch

**DG222NRB**

**UPC:**782113144221

**Dimensions:**

- **Height:** 7 IN
- **Length:** 6.41 IN
- **Width:** 8.4 IN

**Weight:**9 LB

**Notes:**Maximum hp ratings apply only when dual element fuses are used. 3-Phase hp rating shown is a grounded B phase rating, UL listed.

**Warranties:**

- Eaton Selling Policy 25-000, one (1) year from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first.

**Specifications:**

- **Type:** General Duty/Cartridge Fuse
- **Amperage Rating:** 60A
- **Enclosure:** NEMA 3R
- **Enclosure Material:** Painted galvanized steel
- **Fuse Class Provision:** Class H fuses
- **Fuse Configuration:** Fusible with neutral
- **Number Of Poles:** Two-pole
- **Number Of Wires:** Three-wire
- **Product Category:** General Duty Safety Switch
- **Voltage Rating:** 240V

**Supporting documents:**

- Eatons Volume 2-Commercial Distribution
- Eaton Specification Sheet - DG222NRB

**Certifications:**

- UL Listed


pe.eaton.com

1.1

1

## Switching Devices

Safety Switches

**All general-duty switches above 100A and all heavy-duty switches incorporate these K-Series switch design features.**

- Two points of contact provide a positive open and close, easier operation, and also help prevent contact burning for longer contact life

***Visible Double-Break Rotary Blade Mechanism***

- Protects against accidental contact with energized parts. Probe holes enable the user to test if the line side is energized without removing the shield. Not provided on general-duty switches, but available as a field kit or factory installed

***Clear Line Shield***


***Clearly Visible Handle***

- The position (ON or OFF) can be clearly seen from a distance and the length provides for easy operation

***Triple Padlocking Capability***

- Personnel safety feature because the large hasp can accommodate up to three 3/8-inch (9.5 mm) shank locks

***Additional Locking Capability***

- Cabinet door can be further padlocked at the top and bottom as applicable

***Interlocking Mechanism***

- Door cannot be opened when the handle is in the ON position. Front and side operable defeater mechanism provides for user access when necessary on single-throw switches

***Tangential Knockouts***

- An ample number are provided on the top, bottom and sides of both NEMA Types 1 and 3R enclosures through 200A

***Bolt-On Hub Kits***

- For switches in a NEMA Type 3R, 30–200A. Use a Myers type hub for all others

**Standards and Certifications**

- UL listed File No. E5239
- Meets UL 98 for enclosed switches and NEMA Std. KS-1

Listed

***Seismic Qualifications***

- General-duty switches exceed the requirements of Uniform Building Code (UBC) and California Code Title 24 OSP-0011-10, OSP-0012-10



**Product compliance:** No Data



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R-111 EQUIP. CUT SHEETS

8.775 kW PHOTOVOLTAIC PLANS

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| ADDRESS | Lake City, FL 320 |
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