



Scott E. Wyssling, PE, PP, CME

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September 30, 2021

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

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

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.

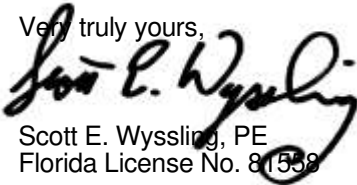
B. Solar Panel Anchorage

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.

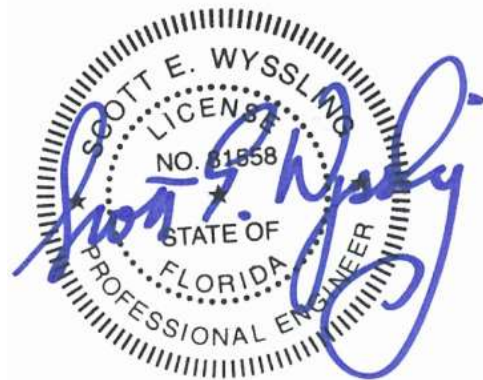
Based on the above evaluation, it is the opinion of this office that with appropriate panel anchors being utilized the roof system will adequately support the additional loading imposed by the solar panels. This evaluation is in conformance with the FBC 2020, 7th Edition, current industry and standards,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



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 BUILDING 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 **UNGROUND**ED 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.

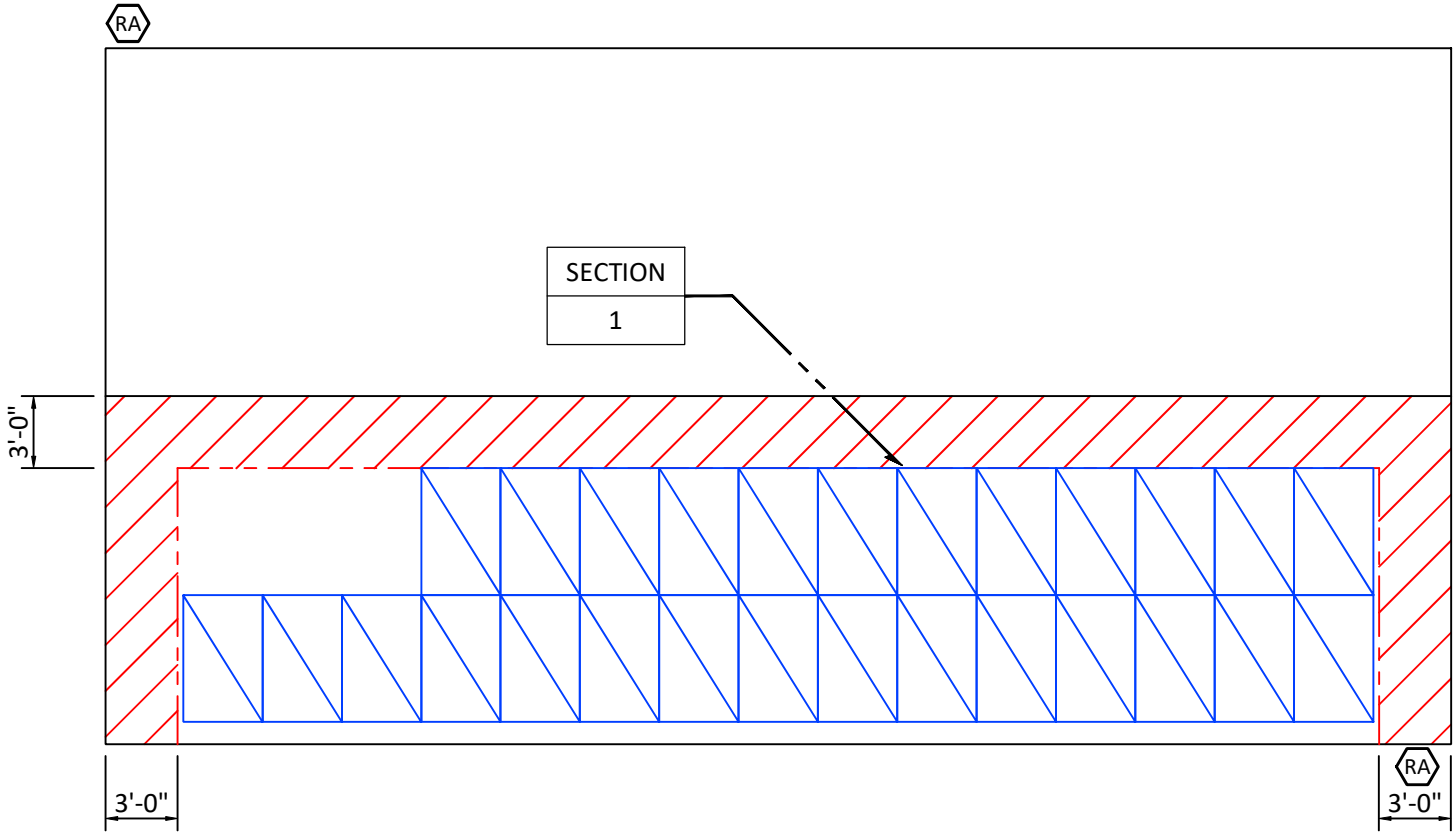
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Daybreak Install LLC	CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 501-4922	REV	DATE	RELEASE	GENERAL NOTES
			09/29/2021	SUBMIT FOR PERMIT	
8.775	kW PHOTOVOLTAIC PLANS	NAME	Moody Jr, JM	N-001	
		ADDRESS	508 NW Oglethorpe Terrace		
		ADDRESS	Lake City, FL 32055		
		APN			

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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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 MINIMUM 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.



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	PV ARRAY TAG	RA	ROOF ACCESS POINT
1	SECTION #	SA	SITE ACCESS
	MODULE GROUP	GA	GATE ACCESS

AZIMUTH AND TILT TABLE

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

SQUARE FOOTAGE CALCULATIONS

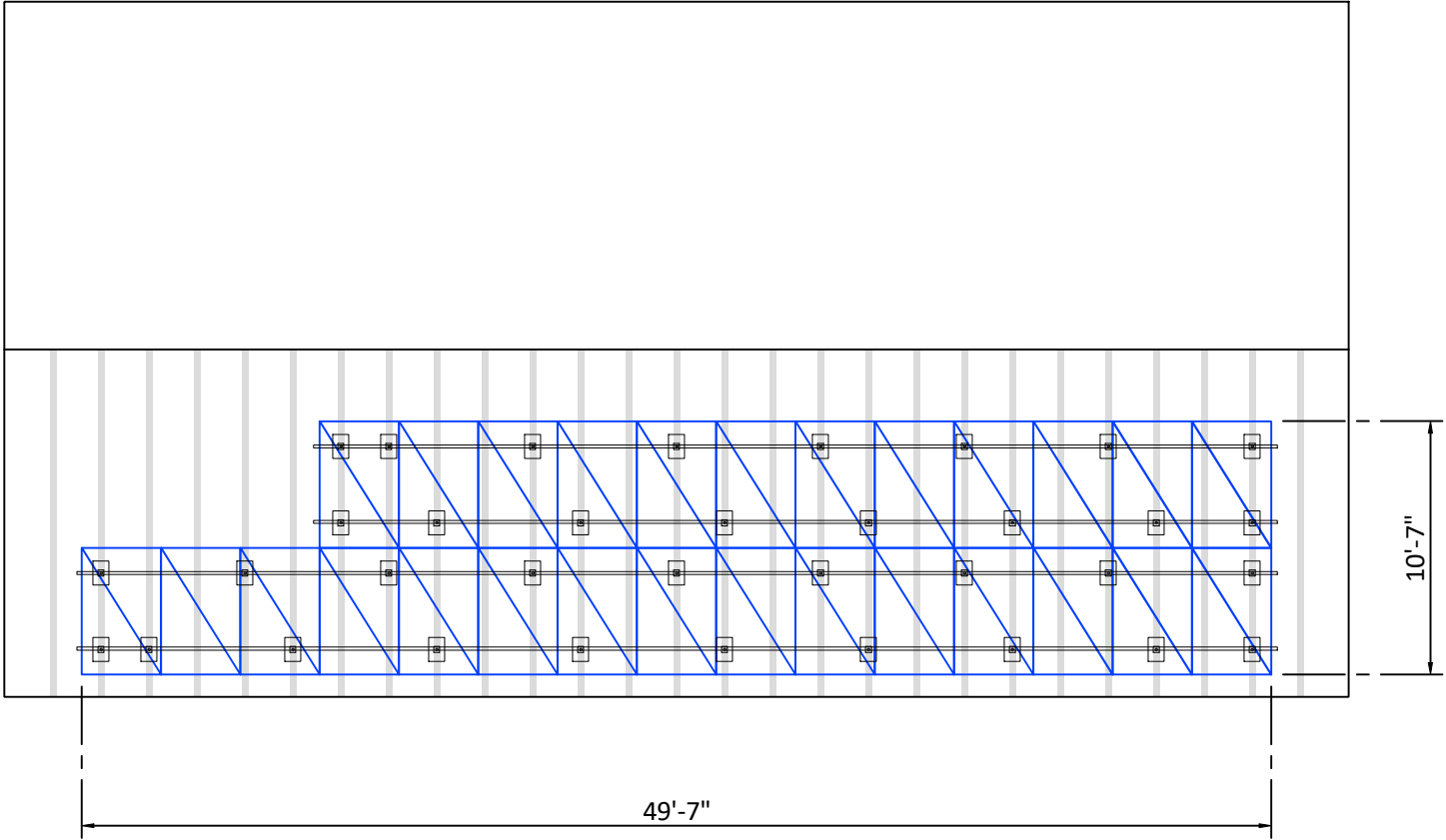
ROOF REFERENCE	SQUARE FOOTAGE
EXISTING ROOF	1625
SECTION-1	488
TOTAL PERCENTAGE	30.03%

* EXISTING DIMENSIONS ARE APPROX.
CONFIRM ALL DIMENSIONS SHOWN

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

REV	DATE	RELEASE	PV-100R	PV ARRAY LAYOUT
	09/29/2021	SUBMIT FOR PERMIT		
8.775 kW PHOTOVOLTAIC PLANS			Moody Jr, JM	
NAME			508 NW Oglethorpe Terrace	
ADDRESS			Lake City, FL 32055	
APN				
CVC56966				
2100 N Main St Ste. 212				
Fort Worth, TX 76164				
(817) 501-4922				
Daybreak Install LLC				





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

* EXISTING ROOF DIMENSIONS ARE APPROX. CONFIRM ALL DIMENSIONS SHOWN

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

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			

REV

DATE

RELEASE

09/29/2021

SUBMIT FOR PERMIT

8.775 kW PHOTOVOLTAIC PLANS

NAME

Moody Jr, JM

ADDRESS

508 NW Oglethorpe Terrace

ADDRESS

Lake City, FL 32055

APN

S-100

RACKING LAYOUT

Daybreak Install LLC

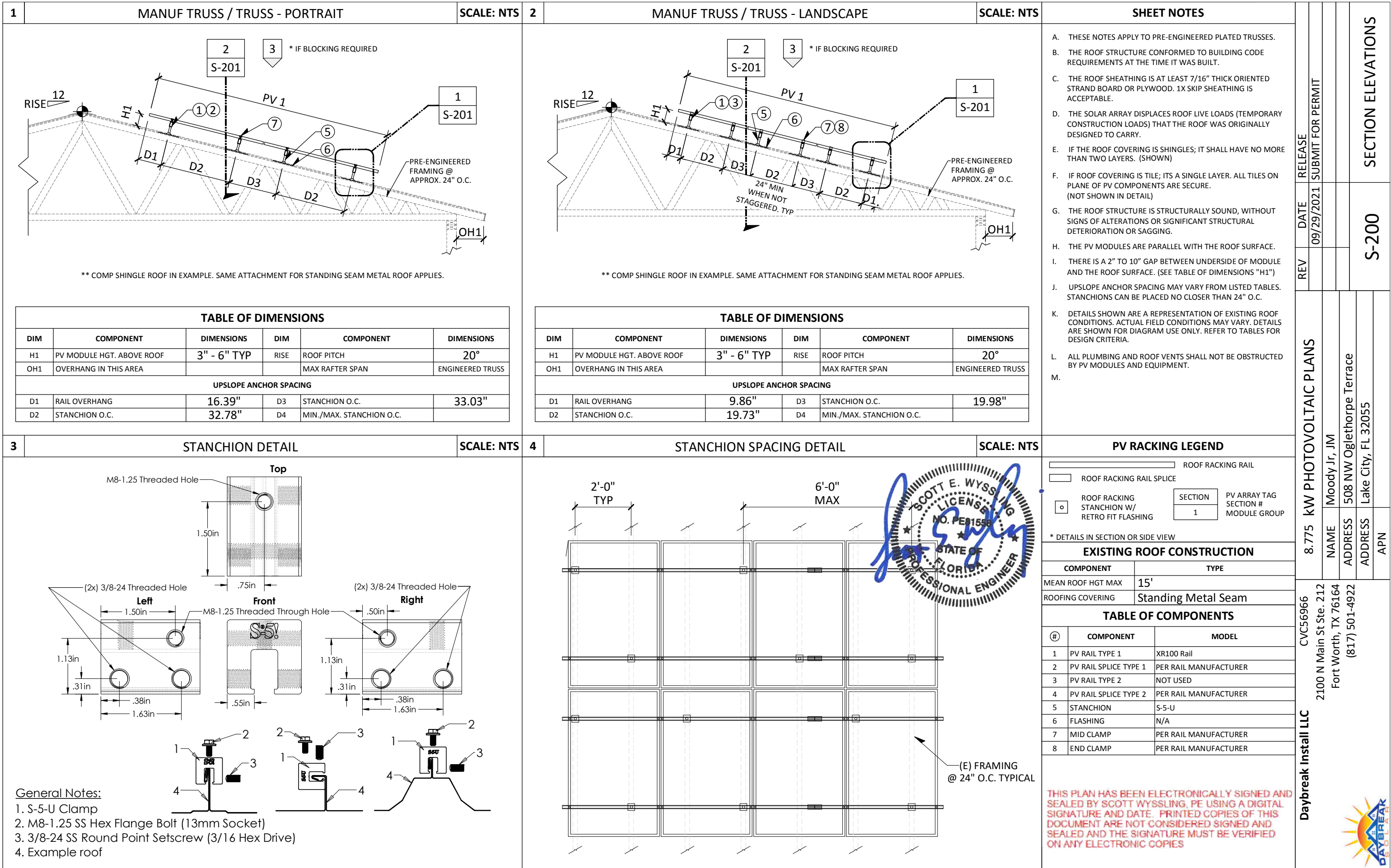
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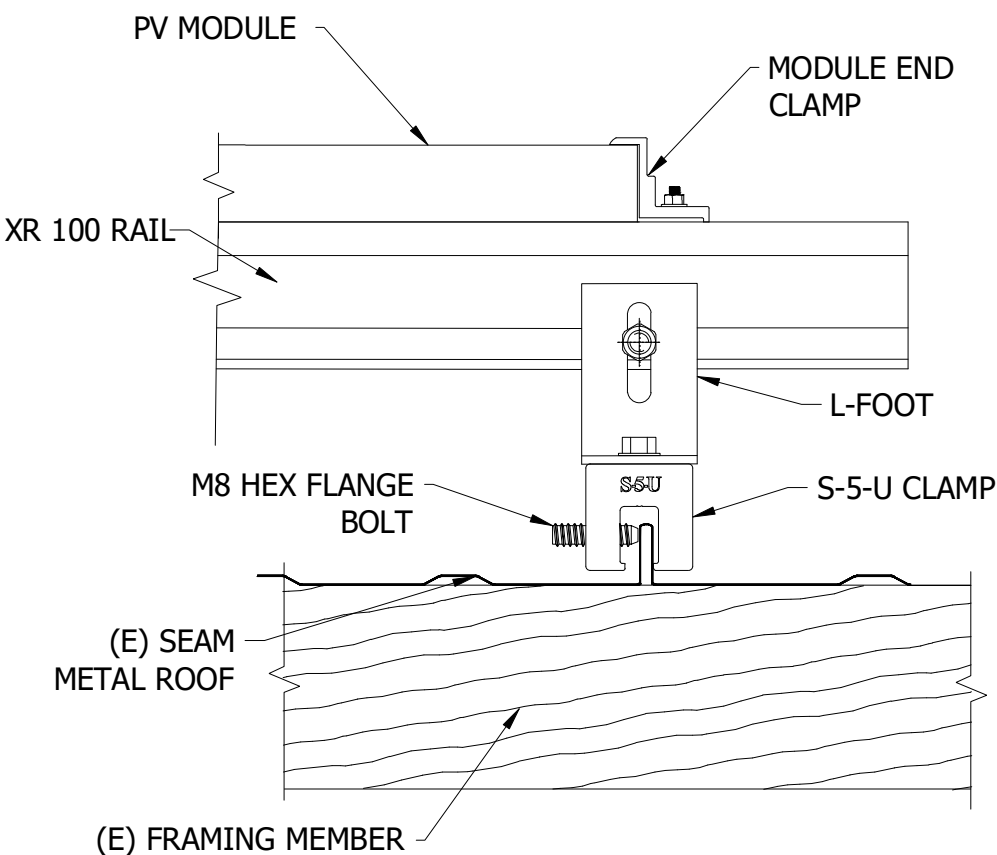
DAYBREAK SOLAR



1

STANCHION ATTACHMENT DETAIL

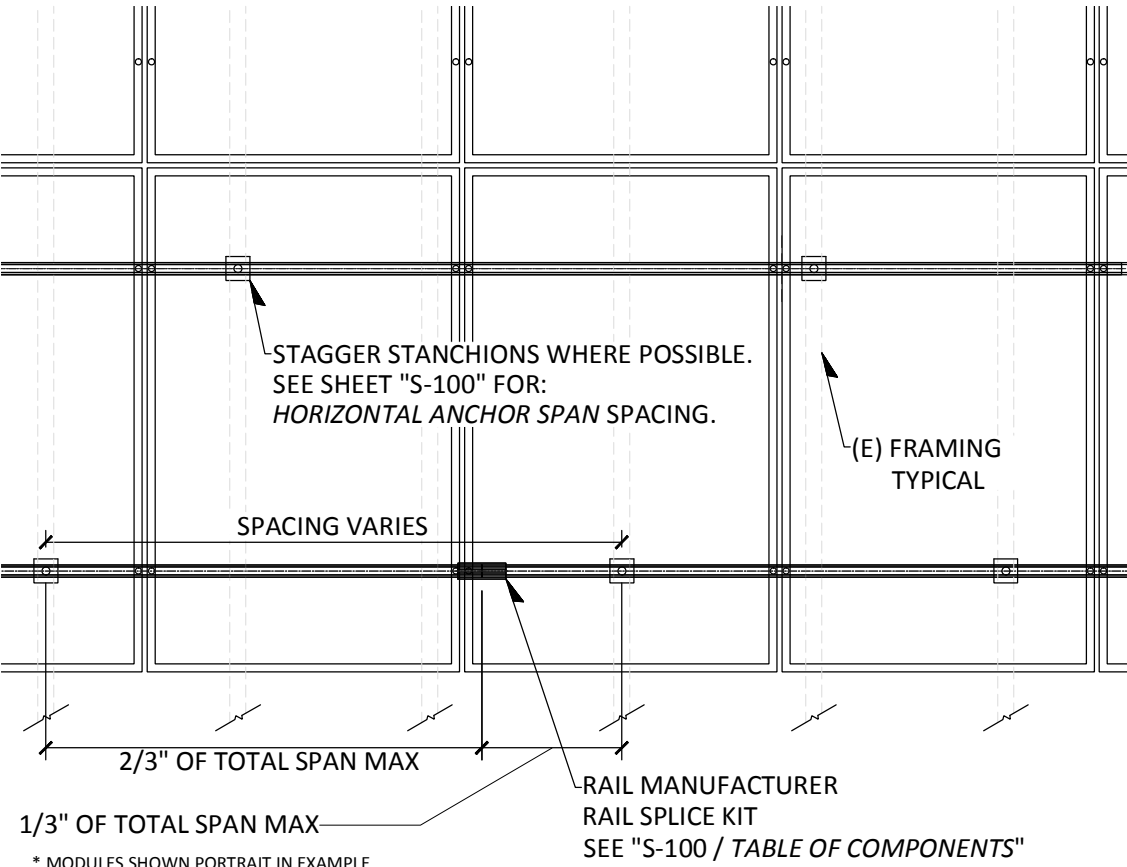
SCALE: NTS



2

RAIL SPLICE DETAIL - HORIZONTAL RAIL

SCALE: NTS



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

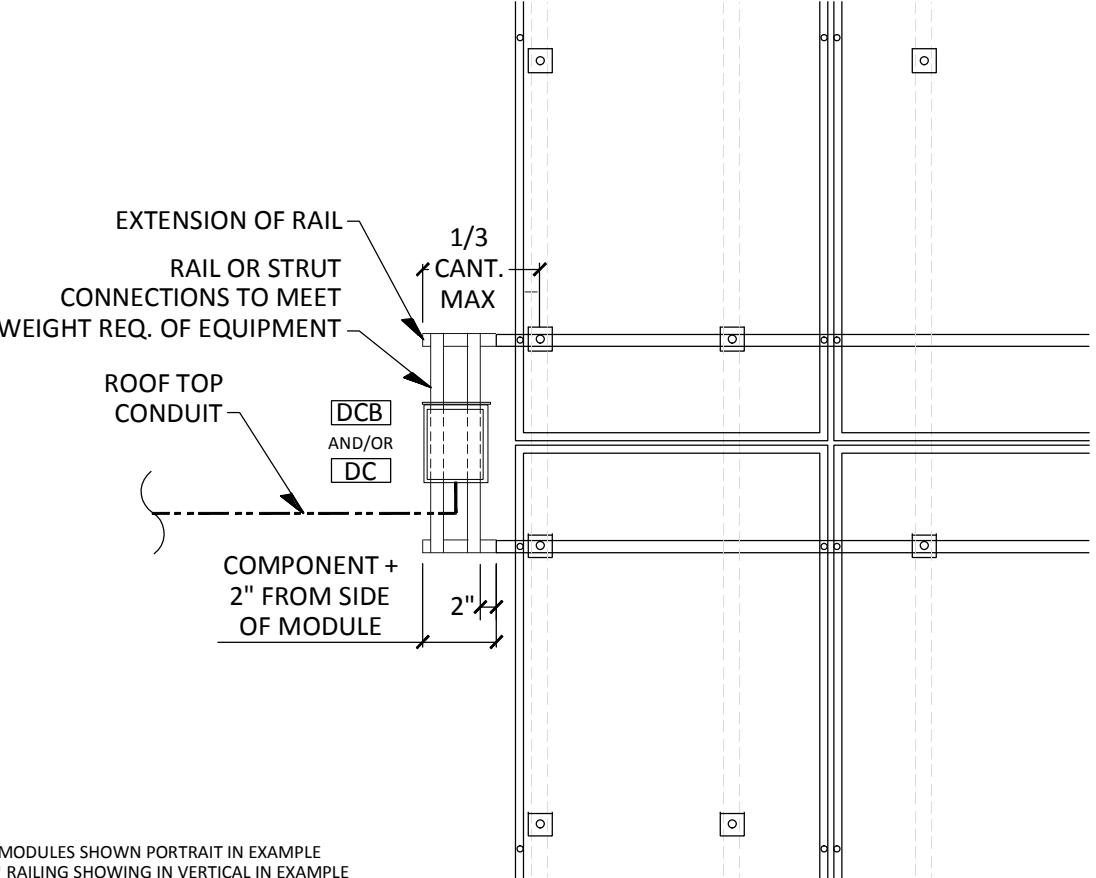
PV ARRAY TAG SECTION # MODULE GROUP

* DETAILS IN SECTION OR SIDE VIEW

3

RAIL EXTENSION DETAIL

SCALE: NTS



* MODULES SHOWN PORTRAIT IN EXAMPLE

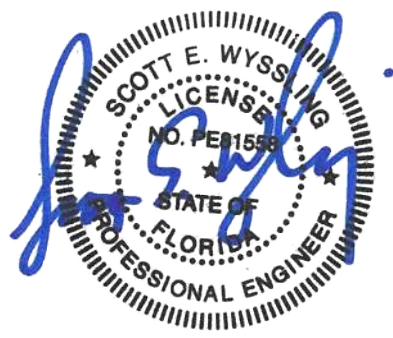
** RAILING SHOWING IN VERTICAL IN EXAMPLE

4

NOT USED

SCALE: NTS

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ATTACHMENT DETAILS

S-201

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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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 [-0.0%/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		

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

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)

Daybreak Install LLC CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 501-4922	8.775 kW PHOTOVOLTAIC PLANS		REV	DATE	RELEASE
	NAME	Moody Jr, JM		09/29/2021	SUBMIT FOR PERMIT
	ADDRESS	508 NW Oglethorpe Terrace			
	ADDRESS	Lake City, FL 32055			
	APN				
			E-001		EQUIP. CALCULATIONS



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.

PV DC WIRING

EQUIPMENT GROUND

GREEN OR BARE, OR GREEN/YELLOW

GROUNDED CONDUCTOR. TYPICALLY NEGATIVE

WHITE OR GRAY

UNGROUND CONDUCTOR(S). TYPICALLY POSITIVE

ANY COLOR OTHER THAN GREEN OR WHITE/GRAY

CONVENTION IS RED FOR GROUNDED SYSTEMS

RED (+) AND BLACK (-) FOR UNGROUNDED SYSTEMS

AC WIRING

EQUIPMENT GROUND

GREEN OR BARE, OR GREEN/YELLOW

GROUNDED CONDUCTOR (NEUTRAL)

WHITE OR GRAY

UNGROUND CONDUCTOR(S) HOT: L1 AND L2

ANY COLOR OTHER THAN GREEN OR WHITE/GRAY ALLOWED.

CONVENTION IS L1 BLACK

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

LICENSE NO. PE01558

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		=			≤	

DAYBREAK SOLAR

8.775

NAME

Moody Jr, JM

ADDRESS

508 NW Oglethorpe Terrace

ADDRESS

Lake City, FL 32055

APN

CVC56966

2100 N Main St Ste. 212

Fort Worth, TX 76164

(817) 501-4922

Daybreak Install LLC

RELEASE

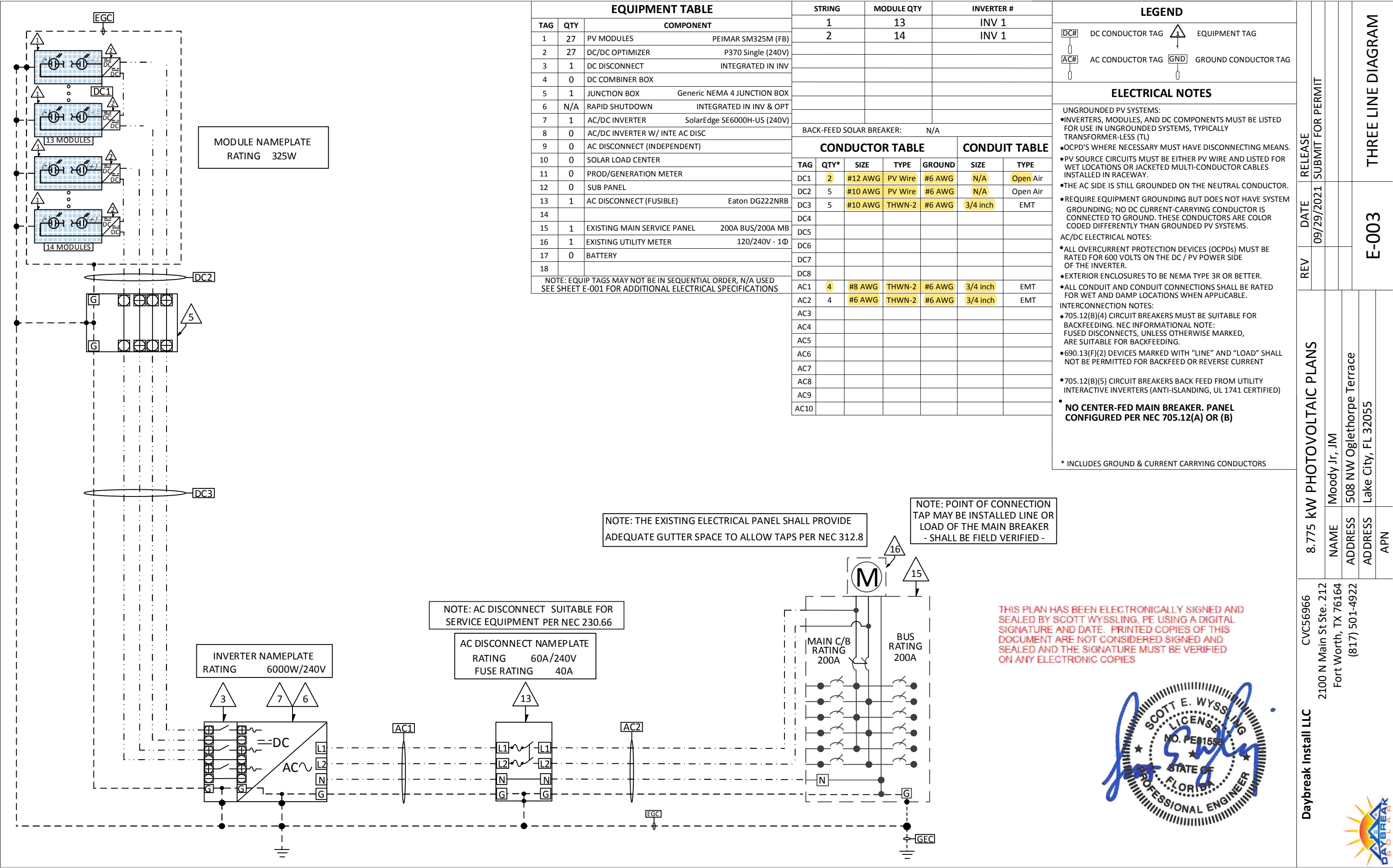
DATE

09/29/2021

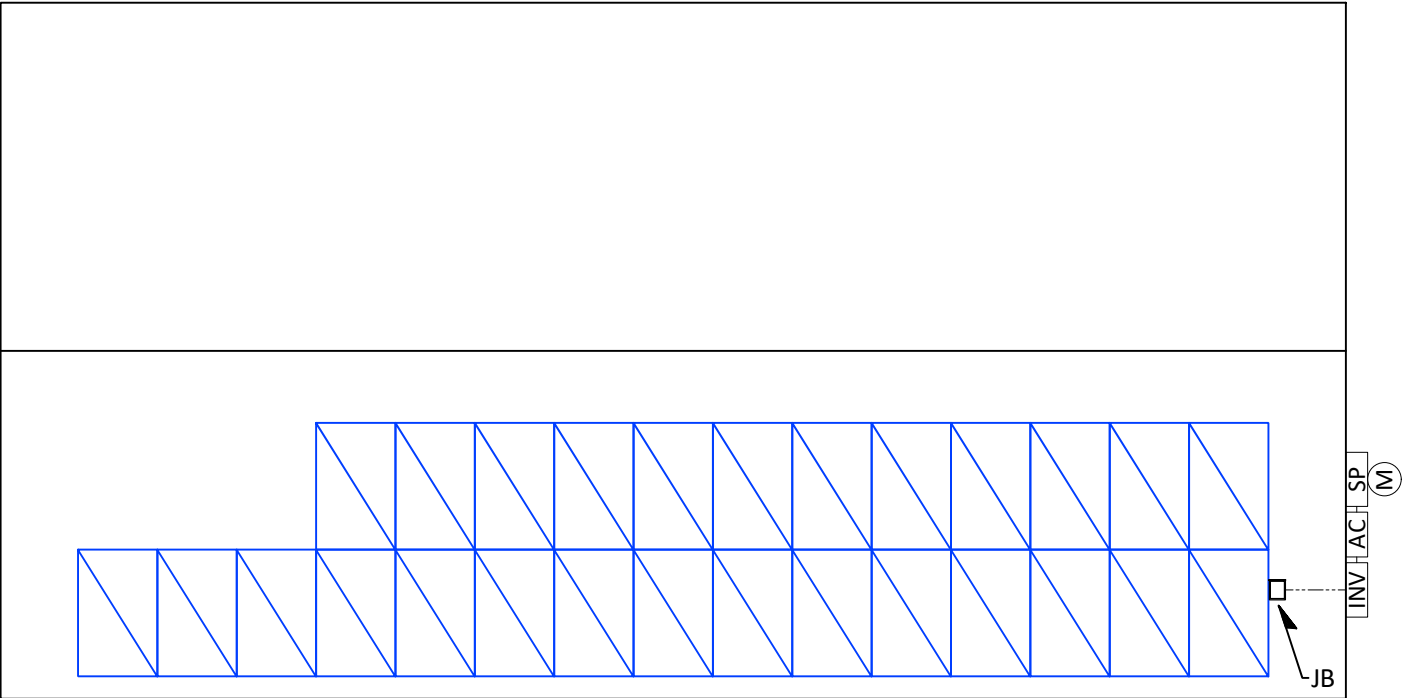
SUBMIT FOR PERMIT

E-002

WIRE AND COND. CALCS.



Daybreak Install LLC	8.775 kW PHOTOVOLTAIC PLANS		CVC56966	2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 501-4922	
	NAME	Moody Jr, JM		ADDRESS	508 NW Oglethorpe Terrace
	ADDRESS	Lake City, FL 32055		APN	
DATE		09/29/2021	RELEASE		THREE LINE DIAGRAM
REV			SUBMIT FOR PERMIT		E-003



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

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



EQUIPMENT GROUNDING

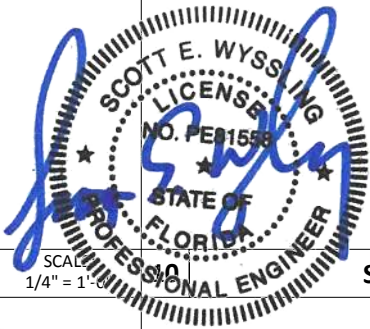
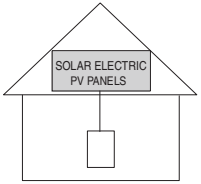
- 1. METAL PV MODULE FRAMES MUST BE CONNECTED TO THE EGC (EQUIPMENT GROUNDING CONDUCTOR).
- 1.1. WEEBS MAY BE USED IN LIEU OF MODULE GROUND CLAMPS OR LUGS, WITH APPROVAL OF AHJ AND RACKING MFG. WEEBS ARE ONE TIME USE ONLY. SEE "we-lc.com" FOR RACKING SPECIFIC WEEB, INSTALL INSTRUCTIONS, AND UL 2703 CERT.
- 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
[DC]	DC DISCONNECT	[ACC]	AC COMBINER
[INV#]	DC/AC STRING INVERTER	[BATT]	BATTERY
[CLP]	CRITICAL LOADS PANEL	[AC]	AC DISCONNECT
[RSD]	RAPID SHUTDOWN	[SP]	SERVICE PANEL
[SUB]	SUB-PANEL	[P]	PERFORMANCE METER
[SECTION]	PV ARRAY TAG	[M]	UTILITY METER
1	SECTION #	[XFMR]	TRANSFORMER
	MODULE GROUP	[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.

REV	DATE	RELEASE	ELECTRICAL LAYOUT			
	09/29/2021	SUBMIT FOR PERMIT	E-100			
8.775 kW PHOTOVOLTAIC PLANS			ELECTRICAL LAYOUT			
CVC56966			ELECTRICAL LAYOUT			
2100 N Main St Ste. 212			ELECTRICAL LAYOUT			
Fort Worth, TX 76164			ELECTRICAL LAYOUT			
(817) 501-4922			ELECTRICAL LAYOUT			
Daybreak Install LLC			ELECTRICAL LAYOUT			
NAME			ELECTRICAL LAYOUT			
ADDRESS			ELECTRICAL LAYOUT			
ADDRESS			ELECTRICAL LAYOUT			
APN			ELECTRICAL LAYOUT			

1	CONDUIT, RACEWAY, J-BOX, AND PULL BOXES	SCALE: 1/2" = 1'-0"	2	J-BOX, DC COMBINER, AND DC DISCONNECT	SCALE: 1/4" = 1'-0"	3	DC COMBINER BOX	SCALE: 1/2" = 1'-0"	SHEET NOTES											
WARNING: PHOTOVOLTAIC POWER SOURCE 1. PLACE ON CONDUIT AND/OR RACEWAYS 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.			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.			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.			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			RELEASE	DATE	09/29/2021	SUBMIT FOR PERMIT	P-001	STANDARD PLACARDS			
4	NON-LOAD BREAK DC COMBINER / J-BOX	SCALE: 1/2" = 1'-0"	5	DC DISCONNECTS	SCALE: 1/4" = 1'-0"	6	INVERTER(S)	SCALE: 1/4" = 1'-0"	REV											
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			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. 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 			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			Moody Jr, JM	508 NW Oglethorpe Terrace	Lake City, FL 32055
8	INVERTER(S)	SCALE: 1/2" = 1'-0"	9	AC AND DC DISCONNECTS	SCALE: 1/4" = 1'-0"	SOLAR kWh METER			SCALE: 1/2" = 1'-0"	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.			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					Daybreak Install LLC					



1	DC DISCONNECTS & DISCO. COMBINER		SCALE: 1/4" = 1'-0"	2	AC DISCONNECT, AC SUB-PANEL		SCALE: 1/4" = 1'-0"	3	UTILITY METER, SERVICE PANEL, SUB-PANEL		SCALE: 1/4" = 1'-0"	SHEET NOTES																																			
PV SYSTEM DC DISCONNECT MAXIMUM CIRCUIT CURRENT30.0 ADC MAXIMUM VOLTAGE480 VDC #1 PHOTOVOLTAIC SYSTEM DC DISCONNECT MAX. CIRCUIT CURRENT30.0 ADC MAXIMUM VOLTAGE480 VDC PV SYSTEM DC DISCONNECT MAXIMUM CIRCUIT CURRENTADC MAXIMUM VOLTAGEVDC #2 PHOTOVOLTAIC SYSTEM DC DISCONNECT MAX. CIRCUIT CURRENTADC MAXIMUM VOLTAGEVDC PV SYSTEM DC DISCONNECT MAXIMUM CIRCUIT CURRENTADC MAXIMUM VOLTAGEVDC #3 PHOTOVOLTAIC SYSTEM DC DISCONNECT MAX. CIRCUIT CURRENTADC MAXIMUM VOLTAGEVDC 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.													AC DISCONNECT #1 - INDEPENDENT/ SEPARATE PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT25.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS PHOTOVOLTAIC SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT25.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS STRING INVERTER #1 - INTEGRATED AC DISCONNECT PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT25.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS PHOTOVOLTAIC SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT25.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS STRING INVERTER #2 - INTEGRATED AC DISCONNECT PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENTAMPS AC NORMAL OPERATING VOLTAGEVOLTS PHOTOVOLTAIC SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENTAMPS AC NORMAL OPERATING VOLTAGEVOLTS AC SUB-PANEL #1 PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENTAMPS AC NORMAL OPERATING VOLTAGEVOLTS PHOTOVOLTAIC SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENTAMPS AC NORMAL OPERATING VOLTAGEVOLTS 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.													WARNING DUAL POWER SOURCES RATED AC OUTPUT CURRENT25.0 AMPS AC NORMAL OPERATING VOLTAGE240 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.													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)				REV	DATE	RELEASE	SUBMIT FOR PERMIT	DYNAMIC PLACARDS
4	MAP PLACARD: MAIN SERVICE PANEL AND PV INVERTER (IF NOT SAME LOCATION)			SCALE: 1/2" = 1'-0"	5	MAP PLACARD: MAIN SERVICE PANEL AND PV INVERTER (IF NOT SAME LOCATION)			SCALE: 1/2" = 1'-0"	8.775 KW PHOTOVOLTAIC PLANS																																					
(WITH COMBINED WARNING PLACARD IF REQUIRED. EXAMPLE: LADWP) CAUTION POWER TO THIS BUILDING IS SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN: UTILITY METER & SERVICE PANEL AC DISCO SOLAR ARRAY ON ROOF TOP INVERTER W/ DC DISCO N 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)													CAUTION POWER TO THIS BUILDING IS SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN: UTILITY METER & SERVICE PANEL AC DISCO SOLAR ARRAY ON ROOF TOP INVERTER W/ DC DISCO N 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 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)													CVC56966	2100 N Main St Ste. 212	Fort Worth, TX 76164	(817) 501-4922	APN																	
Daybreak Install LLC	Moody Jr, JM	508 NW Oglethorpe Terrace	Lake City, FL 32055	P-002	P-002																																										



SM325M (FB)

60-CELL LINE



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⁾

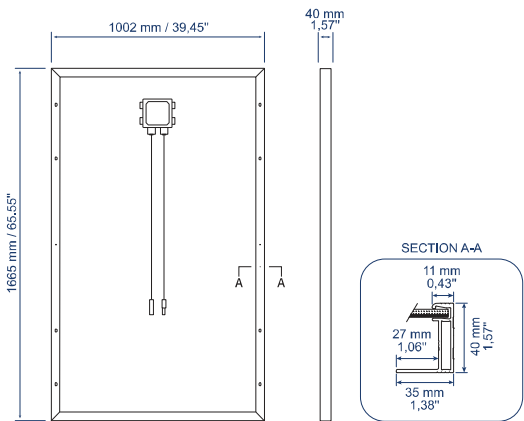
ELECTRICAL CHARACTERISTICS (STC) ⁽¹⁾

	SM325M (FB)
Nominal Output (P _{max}) ⁽²⁾	325 W
Sorting Tolerance	0/+5 W
Voltage at P _{max} (V _{mp})	34.15 V
Current at P _{max} (I _{mp})	9.52 A
Open Circuit Voltage (V _{oc}) ⁽³⁾	41.67 V
Short Circuit Current (I _{sc}) ⁽³⁾	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 Length	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⁾

DIMENSIONS



1. STC: (Standard Test Condition) Irradiance 1000W/m²; Module Temperature 25°C; Air Mass 1.5

2. P_{max}, V_{oc}, I_{sc} measurement tolerance: ±3%

3. NMOT: Nominal Module Operating Temperature; Irradiance 800W/m²; Air 20°C; Wind speed 1m/s

TEMPERATURE CHARACTERISTICS

NMOT ⁽³⁾	45±2 °C
Temperature Coefficient of P _{max}	-0.37 %/°C
Temperature Coefficient of V _{oc}	-0.28 %/°C
Temperature Coefficient of I _{sc}	0.042 %/°C
Operating Temperature	-40 °C ~ +85°C

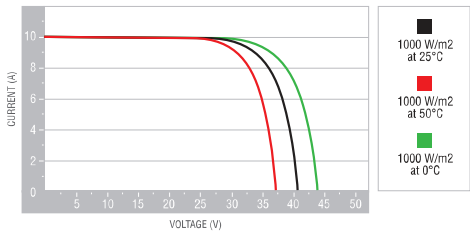
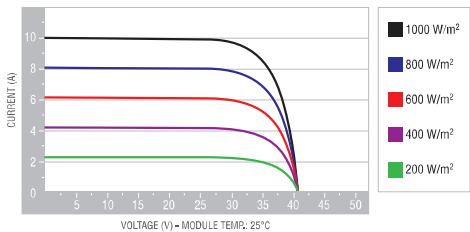
PACKAGING ⁽⁴⁾

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 (UN 9177)
Fire Performance Rating	Type 1 (UL 61730:2017)
Product Certificate	UL 61730:2017

CURRENT/VOLTAGE CHARACTERISTICS



4. Pallets can be stacked up to two

5. Consult the installation manual for the relative mounting configurations

www.peimar.com



It is important to point out, that all technical specifications, information and figures contained in this datasheet are estimated values. Peimar reserves the right to change the technical specifications, information and figures contained in this document at any time without notice. USA_2021_06_00





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

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

Daybreak Install LLC	CVC56966	2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 501-4922	8.775 kW PHOTOVOLTAIC PLANS	REV	DATE	RELEASE
			NAME	Moody Jr, JM	09/29/2021	SUBMIT FOR PERMIT
			ADDRESS	508 NW Oglethorpe Terrace		
			ADDRESS	Lake City, FL 32055		
			APN			
			R-101	EQUIP. CUT SHEETS		



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:

- Rated electrical characteristics are within +/-10% of measured values at Standard Test Conditions of 100 mW/cm2 irradiance, AM 1.5 spectrum, and 25°C.
- 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) Submittor’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/m², (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”

Daybreak Install LLC

CVC56966

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

8.775 kW PHOTOVOLTAIC PLANS

NAME

Moody Jr, JM

ADDRESS

508 NW Oglethorpe Terrace

ADDRESS

Lake City, FL 32055

APN

REV

DATE

RELEASE

09/29/2021

SUBMIT FOR PERMIT

R-102

EQUIP. CUT SHEETS





Certificate: 80042800
Project: 80042800

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

4. PV connectors or wiring shall be marked in accordance with 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”

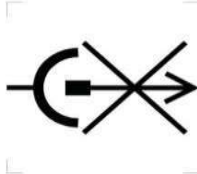


Figure A.2 – Symbol “DO NOT DISCONNECT UNDER LOAD” (IEC 60417-6070)

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. - CB Certificates for IEC 61730-1 and -2 are provided along with supporting IEC test reports - Gap testing only for UL ND - Fire testing will be carried over from UL1703 certification report.

REV	DATE	RELEASE
	09/29/2021	SUBMIT FOR PERMIT
R-103		
EQUIP. CUT SHEETS		

8.775 kW PHOTOVOLTAIC PLANS	CVC56966	Daybreak Install LLC
NAME	Moody Jr, JM	2100 N Main St Ste. 212
ADDRESS	508 NW Oglethorpe Terrace	Fort Worth, TX 76164
ADDRESS	Lake City, FL 32055	(817) 501-4922
APN		



Single Phase Inverter with HD-Wave Technology

for North America

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



12-25
YEAR
WARRANTY

INVERTERS

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)

solaredge.com



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 [®]							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	600k Ω 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 [®]							
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 [®] (-40°F / -40°C option) ⁽⁵⁾							
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: SExxxH-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: SExxxH-US000NNU4

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RoHS

Daybreak Install LLC CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 501-4922	8.775 kW PHOTOVOLTAIC PLANS				REV	DATE	RELEASE	
	NAME				Moody Jr, JM		09/29/2021	SUBMIT FOR PERMIT
	ADDRESS				508 NW Oglethorpe Terrace			
	ADDRESS				Lake City, FL 32055			
	APN							
					R-104		EQUIP. CUT SHEETS	



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



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 SOLAREEDGE INVERTER)										
Maximum Output Current	15								Adc	
Maximum Output Voltage	60					85			Vdc	
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)										
Safety Output Voltage per Power Optimizer	1 ± 0.1								Vdc	
STANDARD COMPLIANCE										
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3									
Safety	IEC62109-1 (class II safety), UL1741									
Material	UL94 V-0 , UV Resistant									
RoHS	Yes									
INSTALLATION SPECIFICATIONS										
Maximum Allowed System Voltage	1000								Vdc	
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters									
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1			129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 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 P405, P485, P505	8	10	18	
Maximum String Length (Power Optimizers)		6	8	14	
		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



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	APN				
			R-105		EQUIP. CUT SHEETS

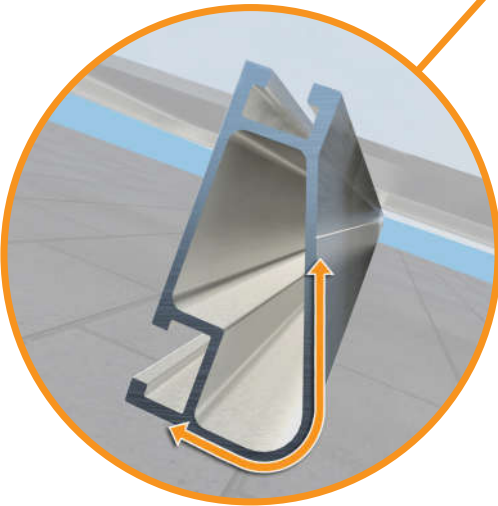
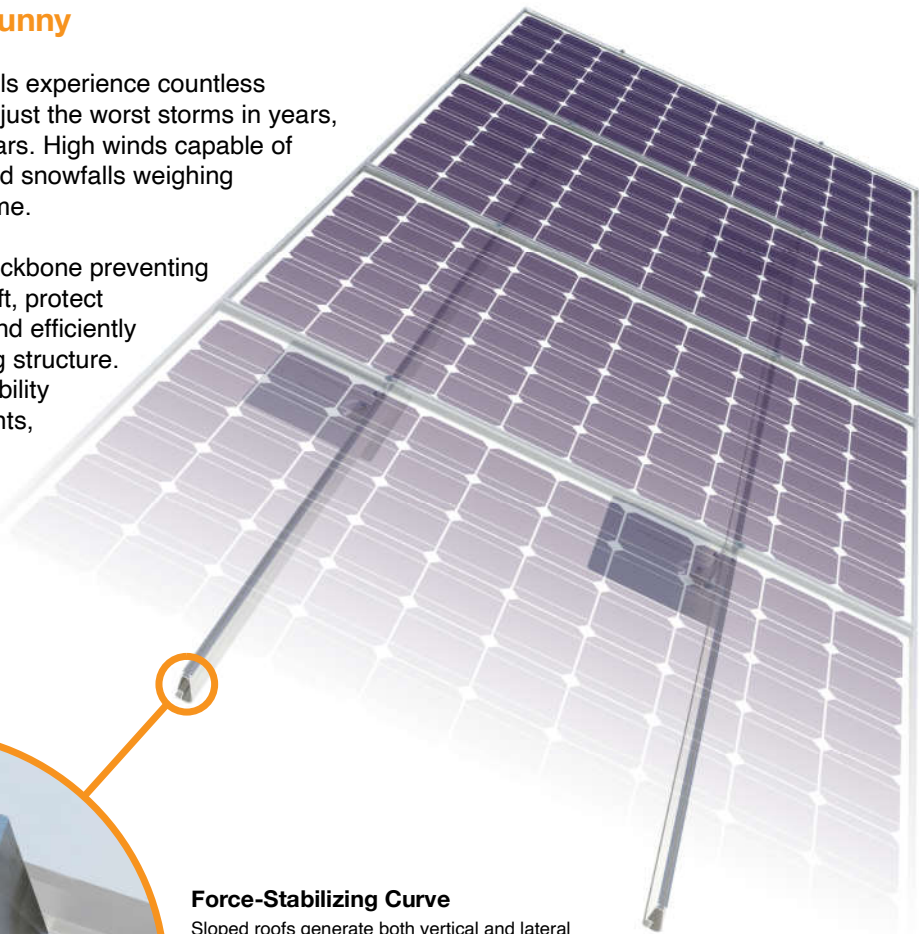


XR Rail Family

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.



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 location, 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 codes 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.

 Daybreak Install LLC	CVC56966	8.775 kW PHOTOVOLTAIC PLANS					
	2100 N Main St Ste. 212	NAME	Moody Jr, JM				
	Fort Worth, TX 76164	ADDRESS	508 NW Oglethorpe Terrace				
	(817) 501-4922	ADDRESS	Lake City, FL 32055				
		APN					
		R-106		EQUIP. CUT SHEETS			
		REV	DATE	RELEASE			
			09/29/2021	SUBMIT FOR PERMIT			





Class A Fire Rating

Tech Brief

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.

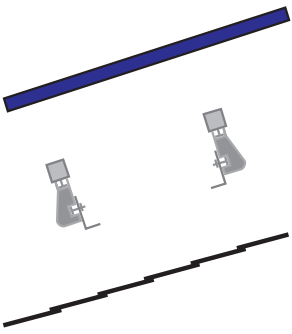
Fire Testing Process

Test Setup

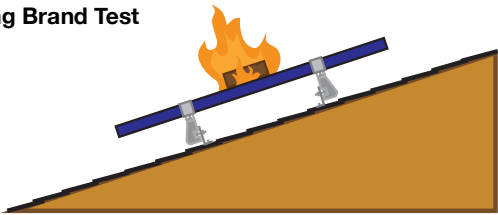
Solar Modules
Solar modules are given a Type classification based on their materials and construction.

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.

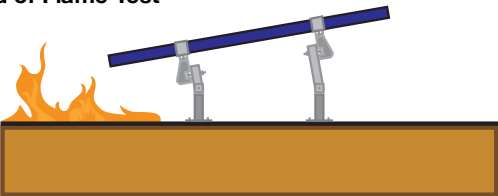


Burning Brand Test



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.

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.

More Resources



Installation Manuals

Visit our website for manuals that include UL 2703 Listing and Fire Rating Classification.

Go to IronRidge.com

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.

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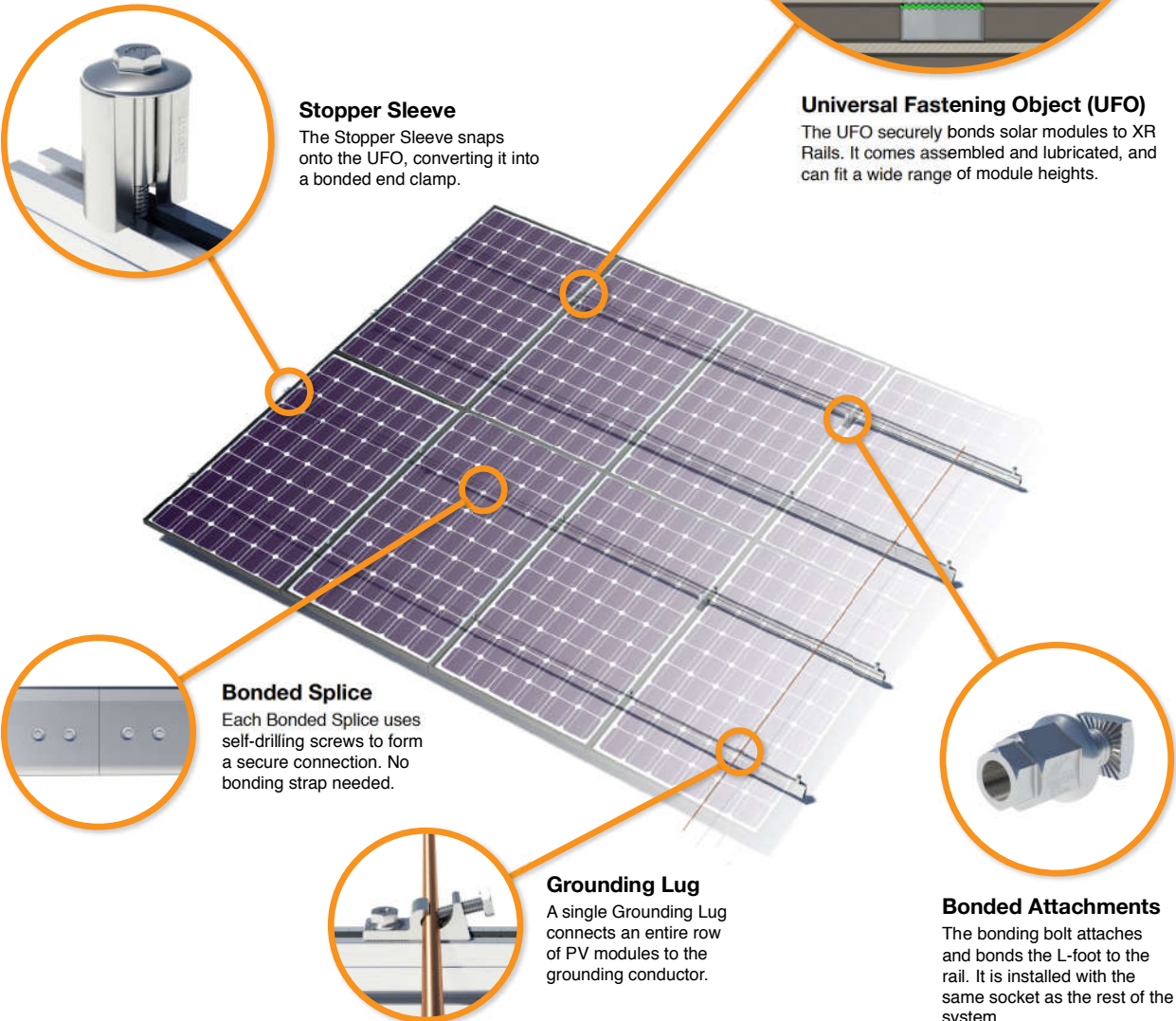




Simplified Grounding for Every Application

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.

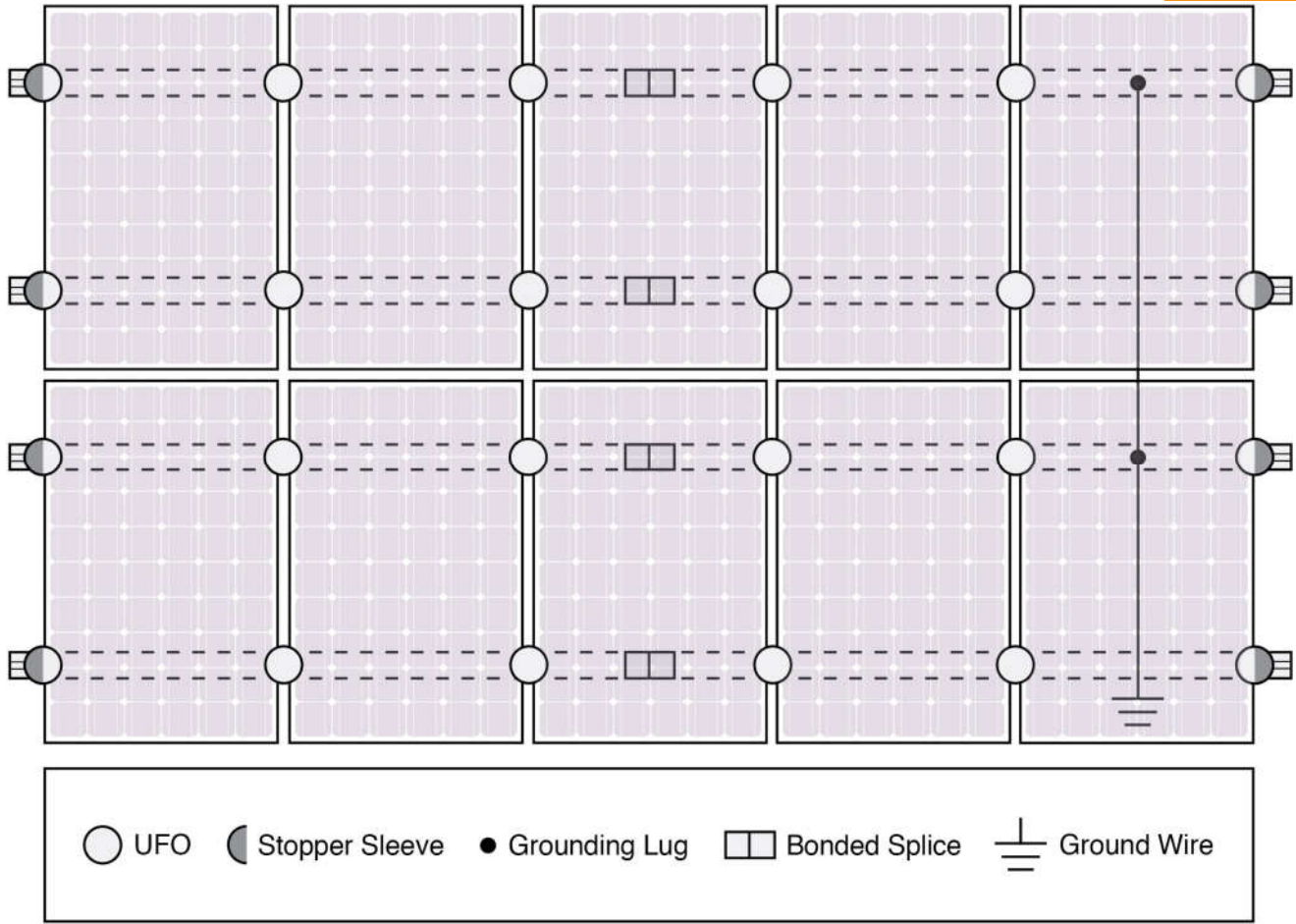


UFO Family of Components

Tech Brief

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](https://www.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 Darfon - MIG240, MIG300, G320, G640 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 Refer to installation manuals for a detailed list.		

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The right way to attach almost anything to metal roofs!

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.

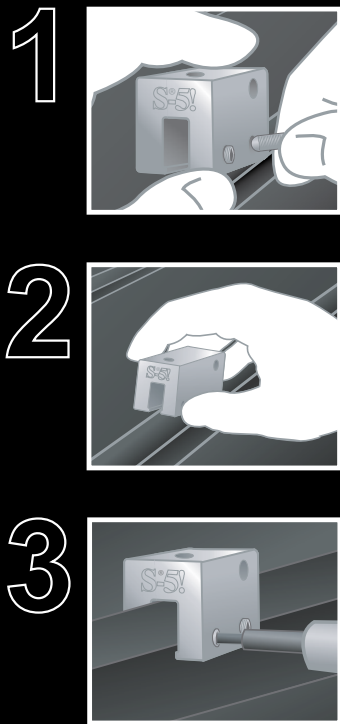
Its simple design, generous dimensioning, and multiple hole orientations are what make the S-5-U clamp so versatile for use with the S-5![®] snow retention products, such as ColorGard[®], as well as with other heavy-duty applications.

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

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

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

S-5![®]

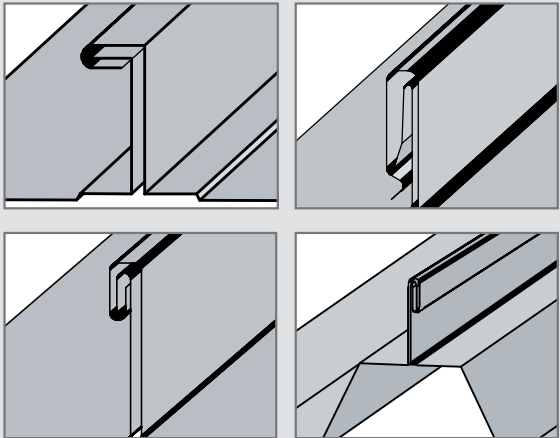
The Right Way!

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



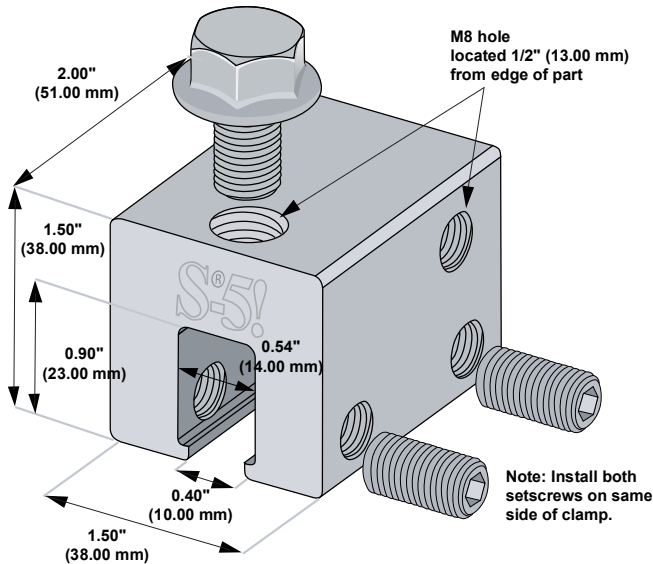
For horizontal seams under 0.65", do not use this clamp. Visit www.S-5.com for more detailed information and proper clamp usage.

S-5![®] Warning! Please use this product responsibly!

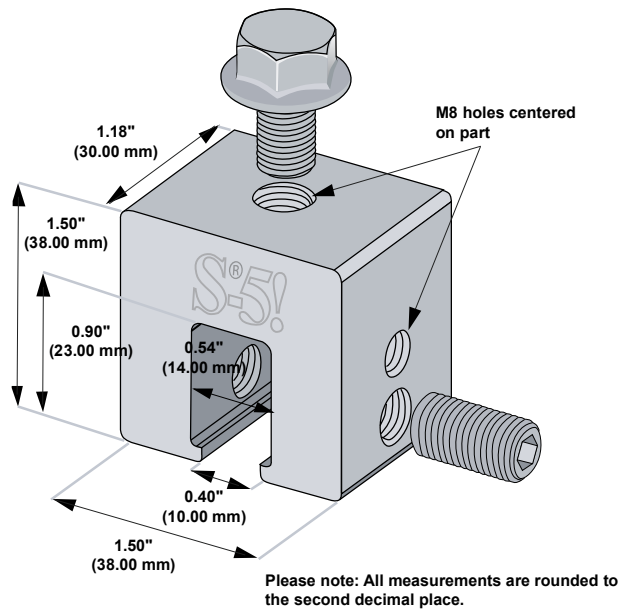
Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using 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.

Copyright 2015, Metal Roof Innovations, Ltd. S-5! products are patent protected. S-5! aggressively protects its patents, trademarks, and copyrights. Version 052115.

S-5-U Clamp



S-5-U Mini Clamp

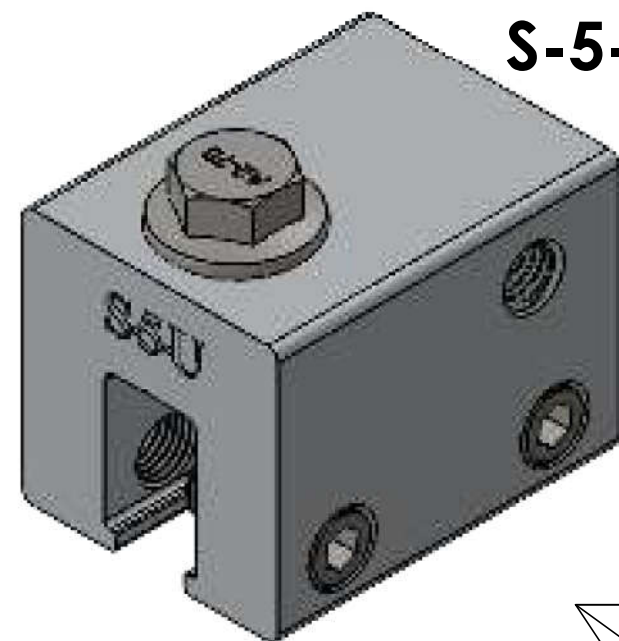


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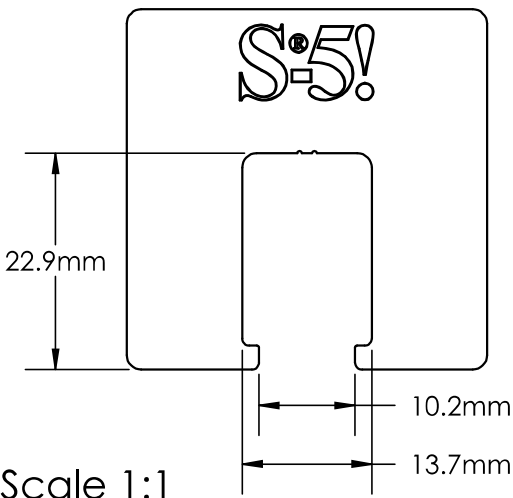
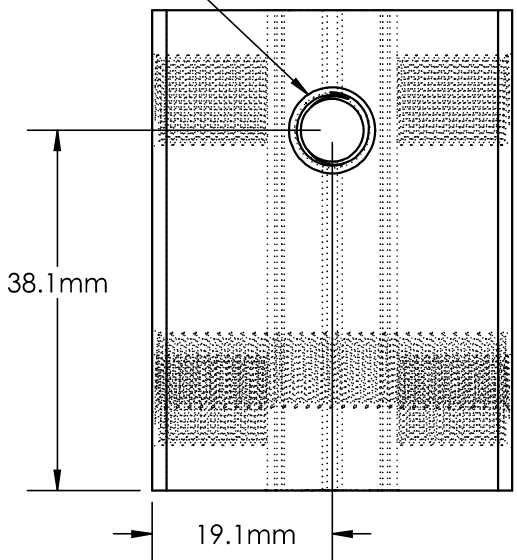
STANCHION - ROOF ATTACHMENT CUT SHEET



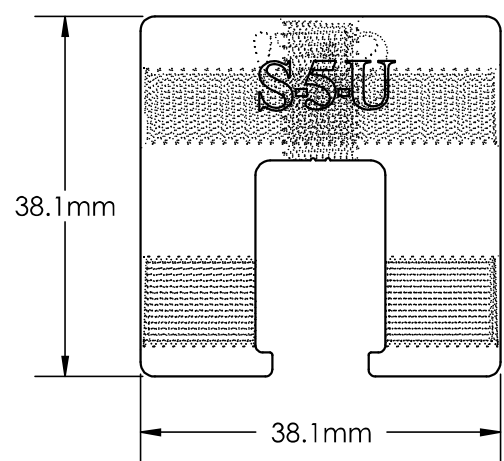
S-5-U

M8-1.25 Threaded Hole

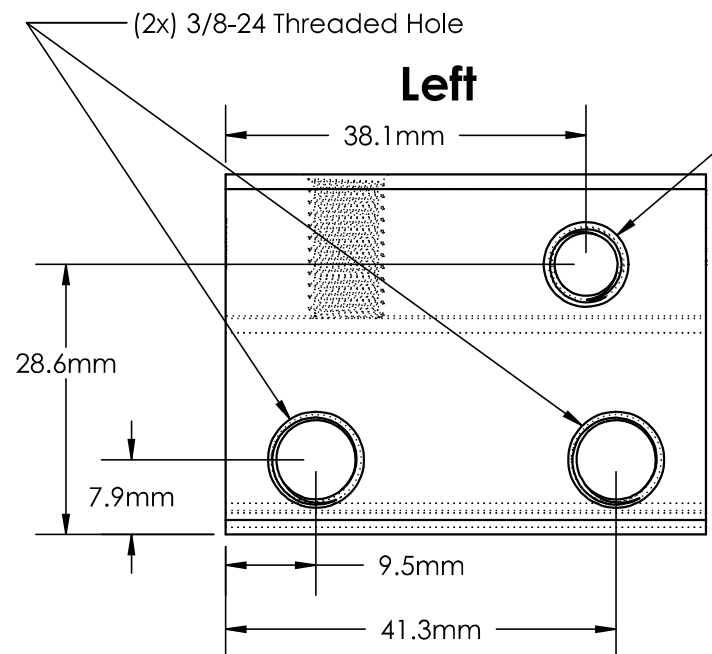
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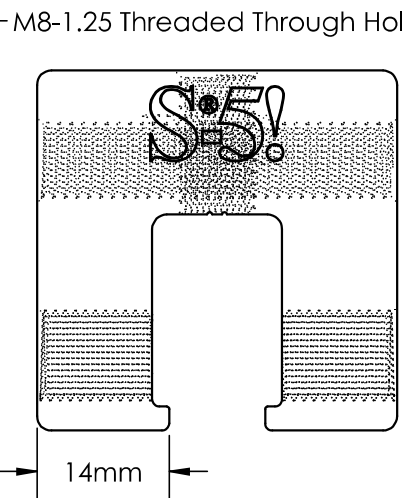
Back



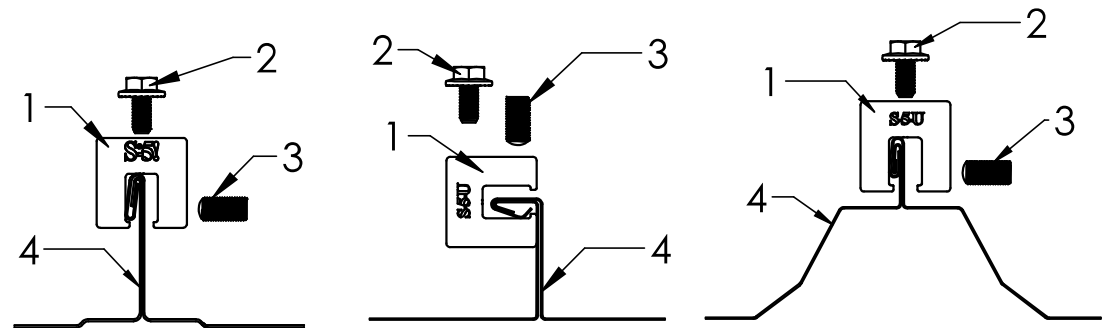
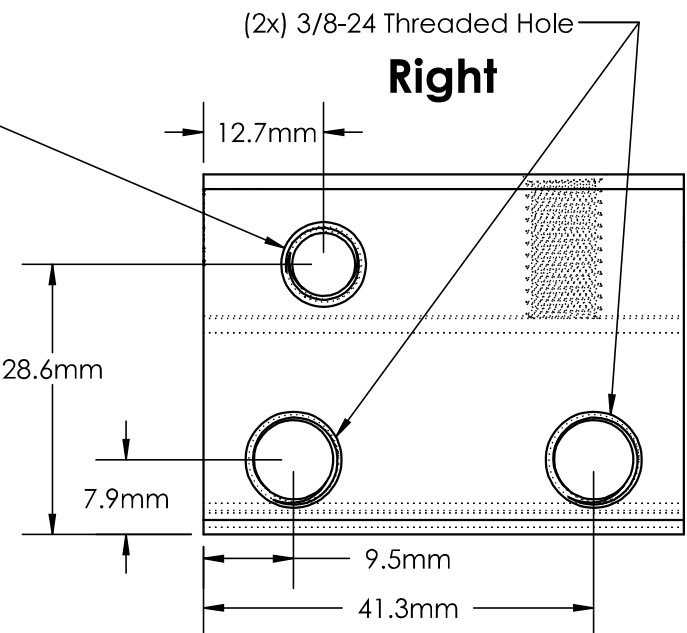
Left



Front



Right



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

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

MATERIAL: 6061 T6 Al	S-5! The Right Way!			METAL ROOF INNOVATIONS, LTD. 8655 TABLE BUTTE RD COLORADO SPRINGS, CO 80908 719-495-0518 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	DRAWING NO. U11-B-16-D		DRAWN BY Kati Kadakas		DATE 4/11/2016
SCALE: 1:1					
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.				

Daybreak Install LLC CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 501-4922	8.775 kW PHOTOVOLTAIC PLANS		REV	DATE	RELEASE
				09/29/2021	SUBMIT FOR PERMIT
	NAME	Moody Jr., JM			
	ADDRESS	508 NW Oglethorpe Terrace			
	ADDRESS	Lake City, FL 32055			
	APN				
			R-110		EQUIP. CUT SHEETS





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

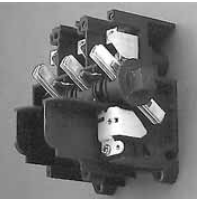
1

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



Seismic Qualifications

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



REV	DATE	RELEASE
	09/29/2021	SUBMIT FOR PERMIT
8.775 KW PHOTOVOLTAIC PLANS		
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NAME	Moody Jr, JM	
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R-111		
EQUIP. CUT SHEETS		

