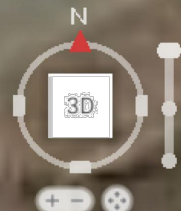


SYSTEM SIZE: 3.375 KW



ADDRESS: 1640 S. STATE ST
OREM, UT 84097
PHONE: 830-709-7090

SCOPE OF WORK:

AVOLTA POWER INC. SHALL INSTALL THE PROPOSED GRID-TIED PHOTOVOLTAIC SYSTEM. AVOLTA POWER INC. WILL BE RESPONSIBLE FOR COLLECTING THE NEEDED SITE INFORMATION TO DESIGN AND INSTALL THE PROPOSED PHOTOVOLTAIC SYSTEM.

THE PHOTOVOLTAIC SYSTEM INCLUDES:

- (9) JINKO - JKM375M-6RL3-B (CS-1)
- (1) SOLAREEDGE - SE3000H-US (CS-2)
- (9) SOLAREEDGE - P370 (CS-3)

THE MODULES SHALL BE FLUSH-MOUNTED USING

- APPROX. (18) PEGASUS #PSCR-UBB0 MOUNTS
- ON IRONRIDGE XR-10-168B RAIL

THE PHOTOVOLTAIC SYSTEM SHALL BE INTERCONNECTED BY PERFORMING A LINE SIDE TAP INTO THE EXISTING 200 A MAIN SERVICE PANEL

INSTALL SHALL INCLUDE:

- MODULE INSTALLATION
- OPTIMIZER INSTALLATION
- INVERTER INSTALLATION
- MOUNTING AND RACKING INSTALLATION
- AC/DC DISCONNECTS
- GROUNDING AND PV GROUNDING ELECTRODE AND BONDING TO EXISTING GEC
- SYSTEM WIRING
- NET METERING (IF NEEDED)
- PV LABELS (THAT ARE APPLICABLE TO PROJECT)

ASCE 7-16 WIND SPEED:	115 MPH	B
GROUND SNOW LOAD:	15 PSF	

CONTENTS:

- C-1 COVER PAGE
- PV-1 SITE PLAN
- PV-2 ROOF INFO
- PV-3 SITE PHOTOS
- E-1 3-LINE DIAGRAM
- E-2 LABELS
- E-3 ELEC. CALCS
- M-1 MOUNT
- EQ-1 EQUIPMENT
- EQ-2 EQUIP. CONT.
- EQ-3 EQUIP. CONT.
- EQ-4 EQUIP. CONT.
- EQ-5 EQUIP. CONT.
- CS-1 MODULE
- CS-2 INVERTER
- CS-3 OPTIMIZER/COM
- IN-1 INSTALL NOTES
- O-1 OFFICE USE

EQ1-5, IN-1, AND O-1 ARE PER REQUEST OF PV SOLAR INSTALLER

GENERAL NOTES





1. EACH MODULE TO BE GROUNDED USING THE SUPPLIED CONNECTION POINT PER MANUFACTURER'S REQUIREMENTS. ALL SOLAR MODULES, EQUIPMENT, AND METALLIC COMPONENTS ARE TO BE BONDED.
2. ALL PLAQUES AND SIGNAGE REQUIRED BY NEC 2017 SHALL BE METAL OR PLASTIC, ENGRAVED OR MACHINED IN A CONTRASTING COLOR TO THE PLAQUE/LABEL. ALL PLAQUES/LABELS SHALL BE UV & WEATHER RESISTANT (SEE PV-2).
3. DC CONDUCTORS SHALL BE RUN IN EMT AND/OR MC (METAL CLAD CABLE) AND SHALL BE LABELED A MINIMUM OF EVERY 10' (SEE PV-2).
4. EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH 250.134 OR 250.136(A).
5. CONFIRM LINE SIDE VOLTAGE AT ELECTRIC UTILITY SERVICE PRIOR TO CONNECTING INVERTER. VERIFY SERVICE VOLTAGE IS WITHIN INVERTER VOLTAGE OPERATIONAL RANGE.
6. ALL SIGNAGE MUST BE PERMANENTLY ATTACHED AND BE WEATHER/SUNLIGHT RESISTANT AND CANNOT BE HAND-WRITTEN.
7. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.
8. ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE. FOR ROOF-MOUNTED SYSTEMS, WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF OF THE ROOF SURFACE. NEC 110.2 - 110.4 / 300.4
9. PV METERS TO BE INSTALLED CORRECTLY. CHECK LOCAL JURISDICTION AND UTILITY REQUIREMENTS.
10. ALL ROOF PENETRATIONS MUST BE FLASHED. SIMPLY CAULKING DOES NOT SUFFICE.
11. ALL DC CONDUCTORS RUN INSIDE THE STRUCTURE SHALL BE INSTALLED A MINIMUM OF 18" BELOW THE ROOF DECK.
12. ALL WORK SHALL COMPLY WITH THE 2018 IBC AND 2018 IRC.
13. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2017 NATIONAL ELECTRIC CODE.

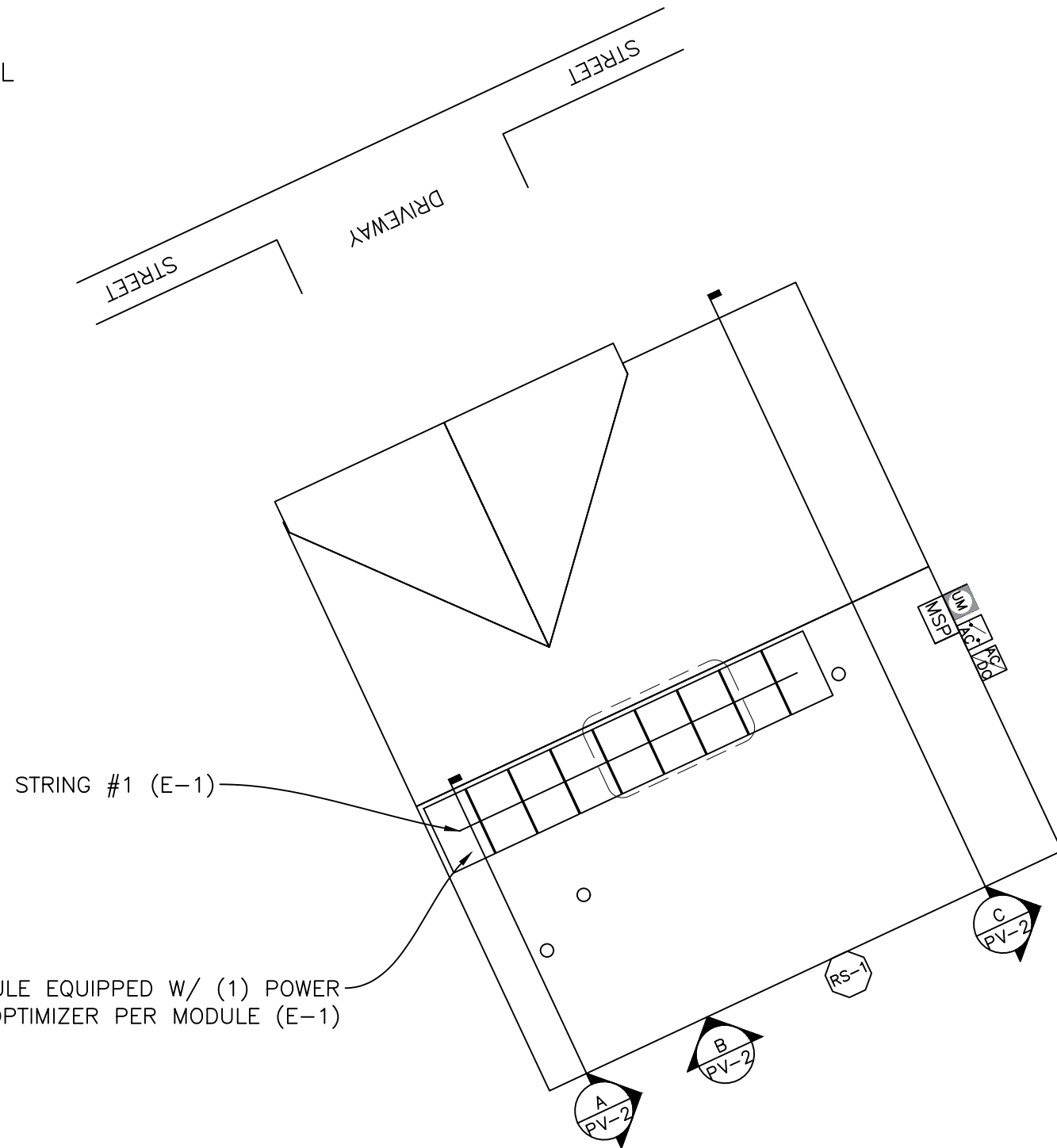
CUSTOMER LAST NAME:	WILLIFORD RESIDENCE
ADDRESS:	27 DOONBEG DR
CITY:	FUQUAY-VARINA
STATE:	NC
ZIP:	27526
JURISDICTION:	HARNETT
UTILITY COMPANY:	DUKE ENERGY
SYSTEM SIZE:	3375W DC - 3000W AC (E-1)
	(9) JINKO - JKM375M-6RL3-B (CS-1)
	(1) SOLAREEDGE - SE3000H-US (CS-2)
	(9) SOLAREEDGE - P370 (CS-3)
	ROOF TYPE: COMP SHINGLE (PV-2)
	PREFABRICATED TRUSSES, 2X4 @ 24" (PV-2)
	INTERCONNECTION METHOD: LINE SIDE TAP

DESIGNED BY:	JD
DESIGNED ON	6/9/2021

COVER PAGE

LEGEND:

-  = UTILITY METER
-  = MAIN SERVICE PANEL
-  = AC DISCONNECT
-  = INVERTER



(N) PV MODULE EQUIPPED W/ (1) POWER OPTIMIZER PER MODULE (E-1)

	TILT	AZIMUTH
ROOF SECTION 1	30	155
ROOF SECTION 2	N/A	N/A
ROOF SECTION 3	N/A	N/A
ROOF SECTION 4	N/A	N/A
ROOF SECTION 5	N/A	N/A
ROOF SECTION 6	N/A	N/A



ADDRESS: 1640 S. STATE ST
OREM, UT 84097
PHONE: 830-709-7090

CUSTOMER LAST NAME:	WILLIFORD RESIDENCE	SYSTEM SIZE: 3375W DC - 3000W AC (E-1)
ADDRESS:	27 DOONBEG DR	(9) JINKO - JKM375M-6RL3-B (CS-1)
CITY:	FUQUAY-VARINA	(1) SOLAREEDGE - SE3000H-US (CS-2)
STATE:	NC	(9) SOLAREEDGE - P370 (CS-3)
ZIP:	27526	ROOF TYPE: COMP SHINGLE (PV-2)
JURISDICTION:	HARNETT	PREFABRICATED TRUSSES, 2X4 @ 24" (PV-2)
UTILITY COMPANY:	DUKE ENERGY	INTERCONNECTION METHOD: LINE SIDE TAP

DESIGNED BY: JD

DESIGNED ON

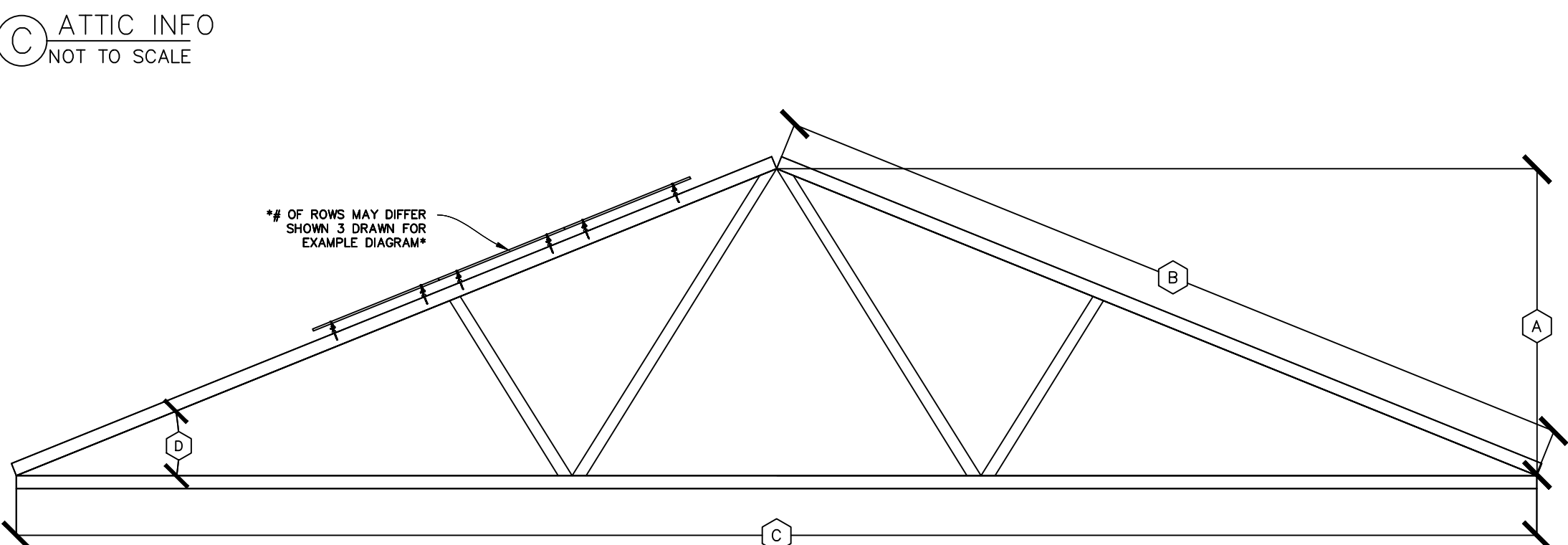
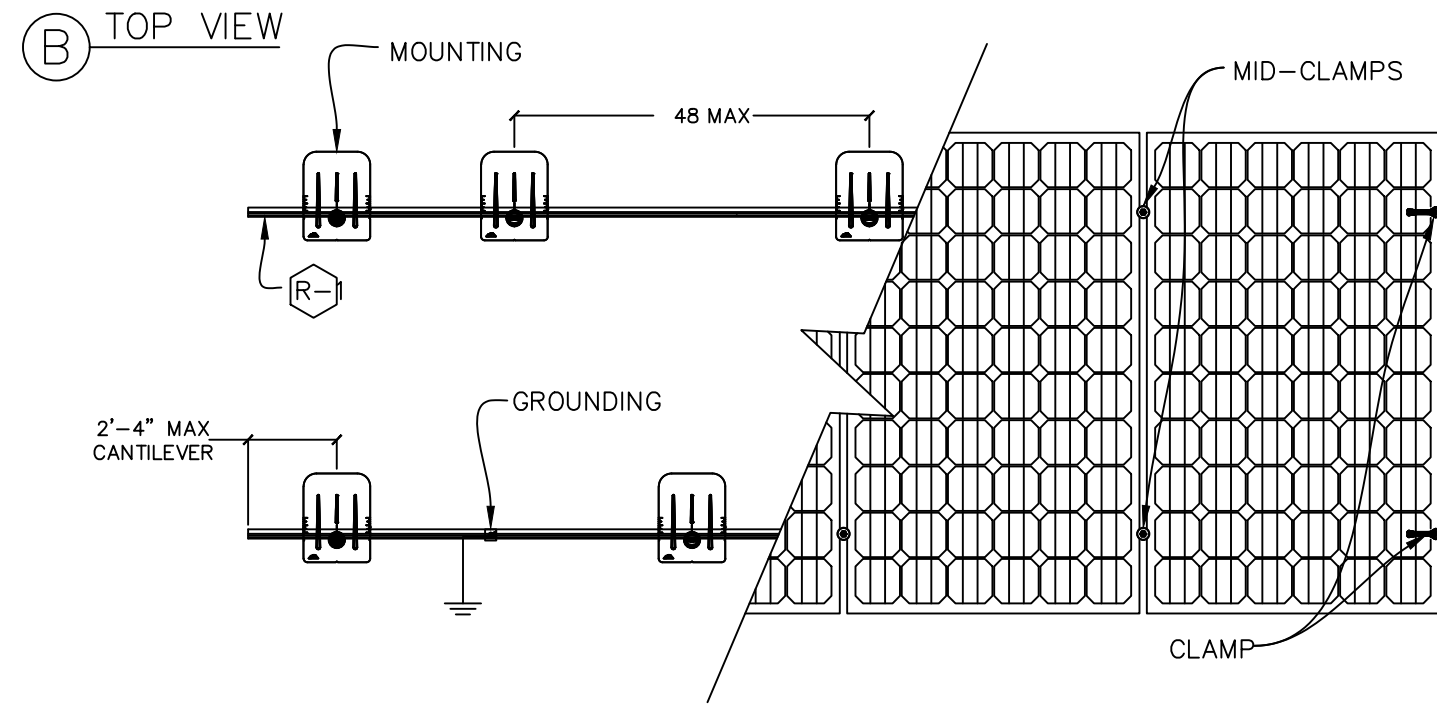
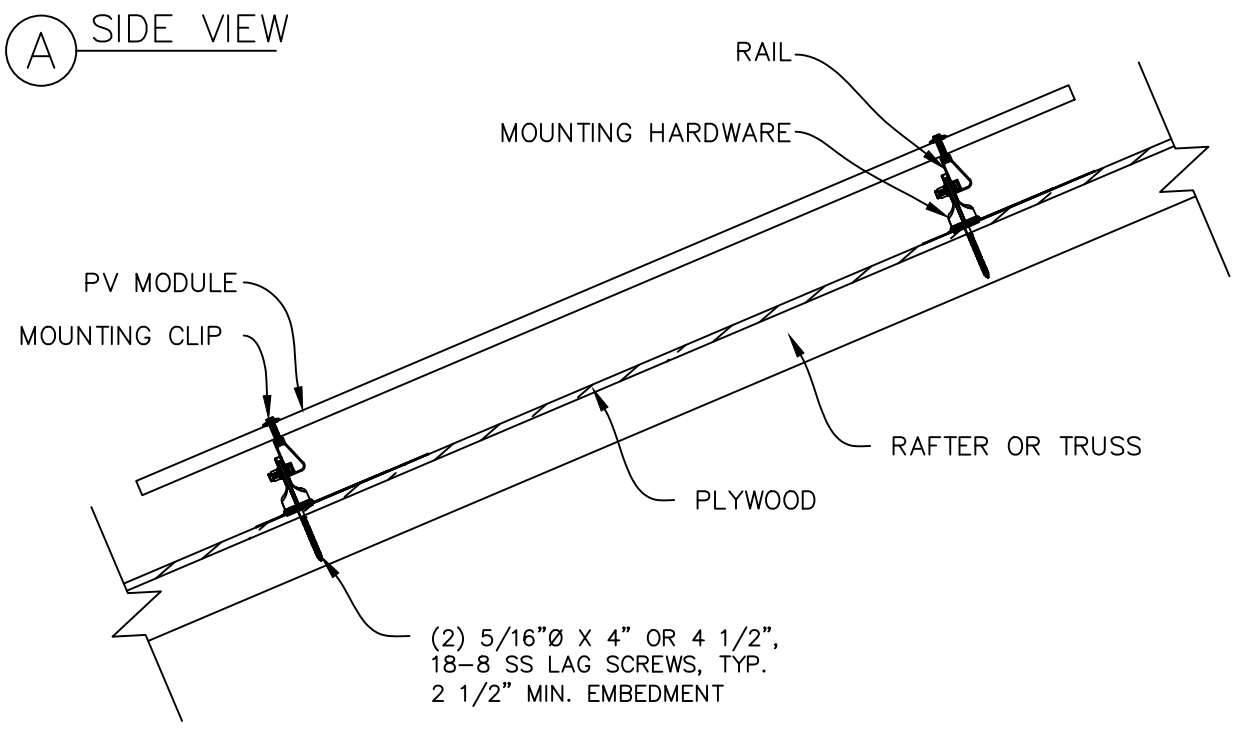
6/9/2021

SITE PLAN

PV-1

GENERAL NOTES:

- VERIFY ALL OBSTRUCTIONS IN THE FIELD.
- VERIFY ALL DIMENSIONS IN THE FIELD.
- EXISTING ROOF RAFTERS OR TRUSSES 2X4 @ 24 O.C. PER SITE SURVEY MEASUREMENTS.
- PROVIDE RAIL SPLICES AS REQUIRED BY MANUFACTURER'S GUIDELINES.
- NO SIGNIFICANT SHADING WILL RESULT FROM EXISTING ROOF OBSTRUCTIONS.
- PV MODULES CANNOT BE INSTALLED OVER OR BLOCK ATTIC VENTS, FURNACE OR WATER HEATER VENTS ETC.
- SCALE 3/32" = 1'



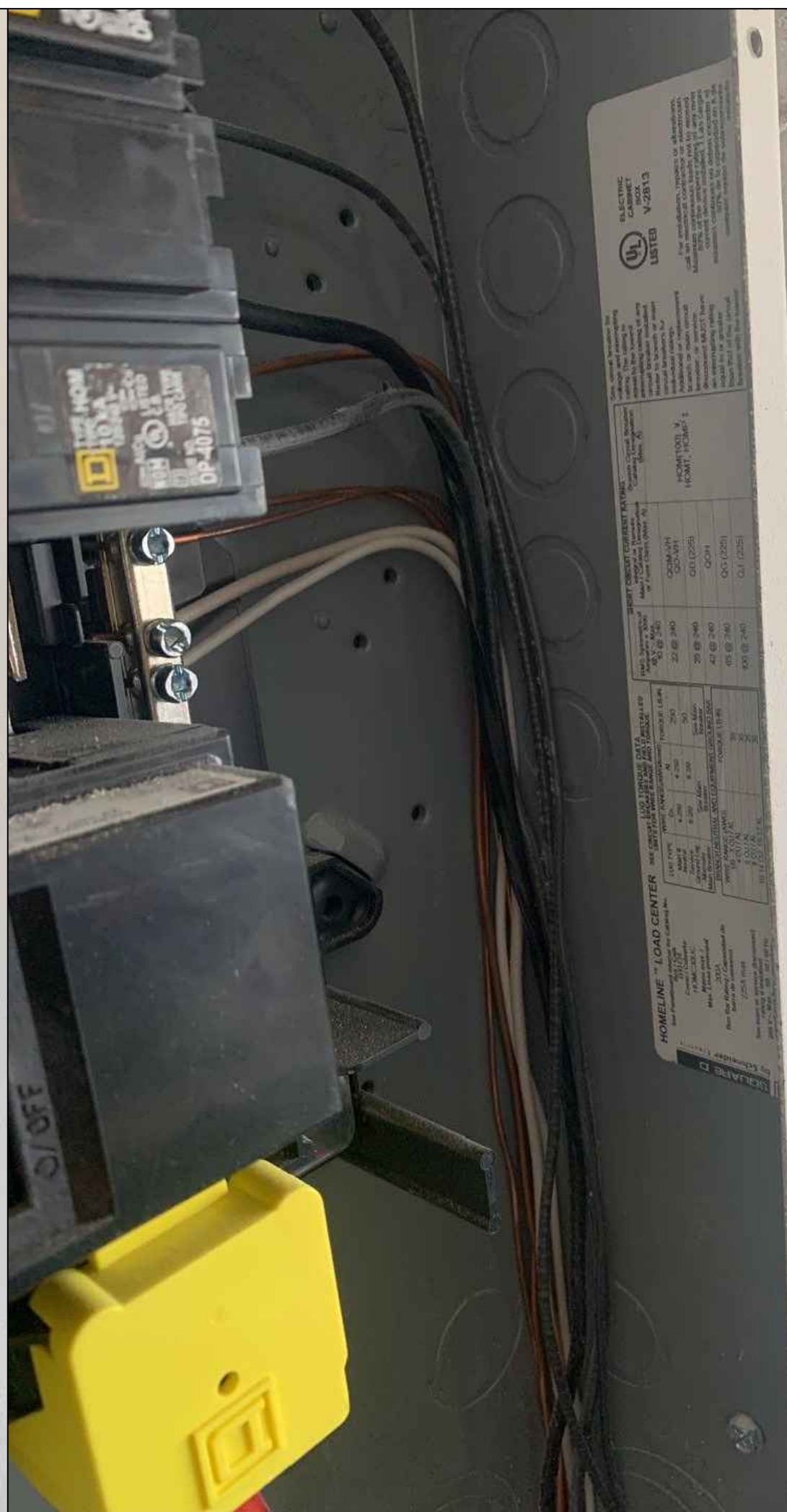
PREFABRICATED TRUSSES SIZE: 2X4 SPACING: 24

ROOF INFO IN INCHES		TAG ID
ROOF HEIGHT	161	A
ROOF FACE SPAN	322	B
ROOF LENGTH	558	C
ROOF TILT	30	D

PV ARRAY STRUCTURAL INFO		
TOTAL PV MODULE COUNT:	(TOTAL NUMBER OF MODULES BEING INSTALLED)	9 MODULES
APPROX. ATTACHMENT POINTS:	(ROUND UP (TOTAL ROWS WIDTH) / (MOUNT SPACING)) + 2	18 MOUNTS
INDIVIDUAL ARRAY AREA:	(MODULE LENGTH) X (MODULE WIDTH)	20.53 FT ²
TOTAL ARRAY AREA:	(INDIVIDUAL ARRAY AREA) X (TOTAL MODULE COUNT) = FT ²	184.78 FT ²
TOTAL ROOF AREA:	(ROOF AREA TOTAL) = FT ²	1998 FT ²
% ARRAY/ROOF:	(ARRAY AREA) / (ROOF AREA) = %	9.2 %
TOTAL ARRAY WEIGHT:	(TOTAL MODULE COUNT) X (MODULE WEIGHT) = LBS	426.6 LBS
TOTAL DISTRIBUTED LOAD ON ROOF:	(TOTAL ARRAY WEIGHT) / (ARRAY AREA) = LBS / FT ²	2.31 LBS / FT ²
LOAD ON EACH MOUNT	(TOTAL ARRAY WEIGHT) / (TOTAL NUMBER OF ATTACHMENTS)	23.70 LBS / ATTACH.
ASCE 7-16 WIND SPEED:	115 MPH	B
GROUND SNOW LOAD:	15 PSF	

CUSTOMER LAST NAME:	WILLIFORD RESIDENCE
ADDRESS:	27 DOONBEG DR
CITY:	FUQUAY-VARINA
STATE:	NC
ZIP:	27526
JURISDICTION:	HARNETT
UTILITY COMPANY:	DUKE ENERGY
SYSTEM SIZE:	3375W DC - 3000W AC (E-1)
	(9) JINKO - JKM375M-6RL3-B (CS-1)
	(1) SOLAREGE - SE3000H-US (CS-2)
	(9) SOLAREGE - P370 (CS-3)
	ROOF TYPE: COMP SHINGLE (PV-2)
	PREFABRICATED TRUSSES, 2X4 @ 24" (PV-2)
	INTERCONNECTION METHOD: LINE SIDE TAP

DESIGNED BY:	JD
DESIGNED ON	6/9/2021
ROOF INFO	
PV-2	



ADDRESS: 1640 S. STATE ST
 OREM, UT 84097
 PHONE: 830-709-7090

CUSTOMER LAST NAME:	WILLIFORD RESIDENCE	SYSTEM SIZE:	3375W DC - 3000W AC (E-1)
ADDRESS:	27 DOONBEG DR	(9) JINKO -	JKM375M-6RL3-B (CS-1)
CITY:	FUQUAY-VARINA	(1) SOLAREGE -	SE3000H-US (CS-2)
STATE:	NC	(9) SOLAREGE -	P370 (CS-3)
ZIP:	27526	ROOF TYPE:	COMP SHINGLE (PV-2)
JURISDICTION:	HARNETT	PREFABRICATED TRUSSES,	2X4 @ 24" (PV-2)
UTILITY COMPANY:	DUKE ENERGY	INTERCONNECTION METHOD:	LINE SIDE TAP

DESIGNED BY: JD

DESIGNED ON

6/9/2021

SITE PHOTOS

PV-3

TAP CONDUCTOR SCHEDULE

TAG ID	CONDUCTORS			GROUND			CONDUIT
	WIRES IN CONDUIT	MINIMUM WIRE SIZE	TYPE, MATERIAL	WIRE 90°C (194°F) AMPERAGE RATING TABLE 310.15 (B)(16)	MINIMUM WIRE SIZE	RATING TABLE 250.122	
A	3	#10 AWG	PV CABLE, CU	40	#6 AWG	200	BARE, CU 3/4" EMT
B	3	#10 AWG	THWN-2, CU	40	#10 AWG	60	THWN-2, CU 3/4" EMT
C	4	#10 AWG	THWN-2, CU	40	#10 AWG	60	THWN-2, CU 3/4" EMT
D	3	#6 AWG	THWN-2, CU	75			3/4" EMT

AC DISCONNECT SIZE:	ENCLOSURE TYPE:	SPECIAL NOTES:
60A FUSED	NEMA 3R	20A FUSES WITH FUSE REDUCERS
N / A	NEMA 3R	N / A
CONDUCTOR NOTES:		PRODUCTION METER:
TAG A= SOLAREGE MC CABLE WILL RUN THROUGH ATTIC WHERE POSSIBLE		NO PM REQUIRED
EE-1	EXISTING	200A
EE-2	EXISTING	200A
EE-3	NEW	20A
EE-4		
EE-5		

AVOLTA

ADDRESS: 1640 S. STATE ST
OREM, UT 84097
PHONE: 830-709-7090

SYSTEM SIZE: 3375W DC - 3000W AC (E-1)
(9) JINKO - JKM375M-6RL3-B (CS-1)
(1) SOLAREGE - SE3000H-US (CS-2)
(9) SOLAREGE - P370 (CS-3)
ROOF TYPE: COMP SHINGLE (PV-2)
PREFABRICATED TRUSSES, 2X4 @ 24" (PV-2)
INTERCONNECTION METHOD: LINE SIDE TAP

MODULE

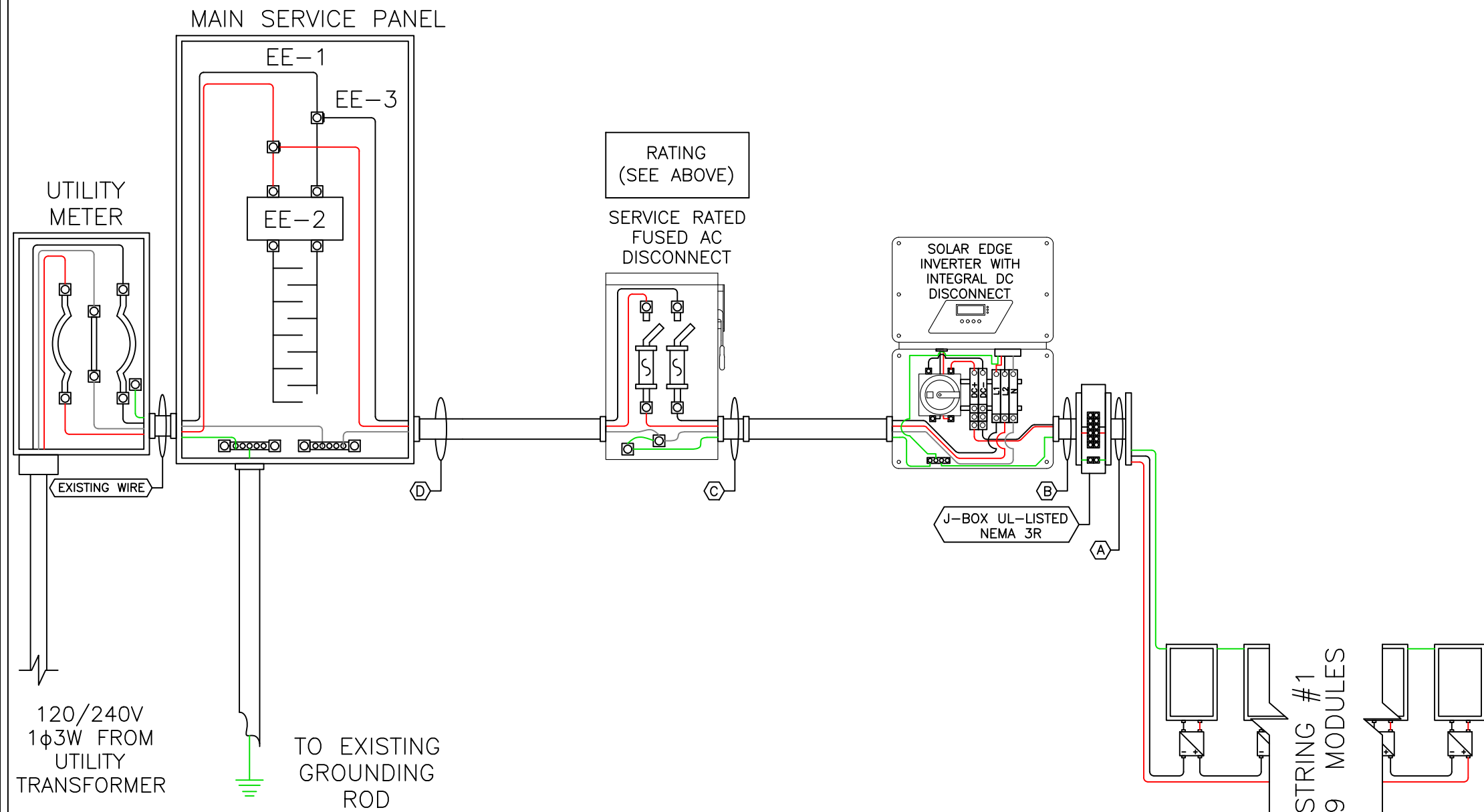
MANUFACTURER	JINKO
MODEL	JKM375M-6RL3-B
P _{MAX}	375 W
V _{OC}	44.12 V
V _{MP}	36.8 V
I _{MP}	10.19 A
I _{SC}	11.01 A
TEMPERATURE COEFFICIENT OF P _{MAX}	-0.35 %/°C
TEMPERATURE COEFFICIENT OF V _{OC}	-0.28 %/°C

INVERTER / MICRO-INVERTER

MANUFACTURER	SOLAREGE
MODEL	SE3000H-US
MAX AC OUTPUT	12.5A
AC OUTPUT VOLTAGE	240V
MAX DC INPUT VOLTAGE	480V
NOMINAL DC INPUT VOLTAGE	380V
MAX INPUT CURRENT	8.5A
MAX OUTPUT CURRENT	12.5A
WEIGHTED CEC EFFICIENCY	99%
MIN AC CONDUCTOR SIZE	#10 AWG
MIN AC GROUND SIZE	#10 AWG
PV BREAKER	20A
INVERTER WATTAGE	3000W

OPTIMIZER / COMBINER PANEL

MANUFACTURER	SOLAREGE
MODEL	P370
MAX. INPUT POWER	370 W
MAX. V _{OC}	60 V
OUTPUT CURRENT	15 A
OUTPUT VOLTAGE	60 V
MIN. STRING LENGTH	8
MAX. STRING LENGTH	18
MAX. STRING POWER	5700W (6000W W/ SE7600H-US +)



CUSTOMER LAST NAME:	WILLIFORD RESIDENCE
ADDRESS:	27 DOONBEG DR
CITY:	FUQUAY-VARINA
STATE:	NC
ZIP:	27526
JURISDICTION:	HARNETT
UTILITY COMPANY:	DUKE ENERGY

DESIGNED BY: JD
DESIGNED ON
6/9/2021

3-LINE DIAGRAM

E-1

1) DC POWER SUPPLY
 NEC 690.53
 LOCATED AT HIGHEST MAXIMUM
 DC VOLTAGE IN PV SYSTEM ON
 INVERTER, DC DISCONNECT, OR
 DISTRIBUTION PANEL

**DIRECT CURRENT
 PHOTOVOLTAIC
 POWER SOURCE**

MAXIMUM VOLTAGE
 480 V DC

MAXIMUM CIRCUIT CURRENT
 15 A DC

MAXIMUM OUTPUT CURRENT OF
 THE DC TO DC CONVERTER
 15 A DC

2) AC DISCONNECT
 NEC 690.54
 LOCATED ON EACH AC DISCONNECT

**PHOTOVOLTAIC SYSTEM
 AC DISCONNECT**

OPERATING VOLTAGE 240 VOLTS
 OPERATING CURRENT 12.5 AMPS

3) PV SOLAR BREAKER
 NEC 705.12(B)(3)(2)
 LOCATED NEXT TO THE PV BREAKER

PV SOLAR BREAKER

**DO NOT RELOCATE
 THIS OVERCURRENT
 DEVICE**

4) PV CONDUCTORS
 NEC 690.31(D)(2)
 LOCATED ON CABLE TRAYS, JUNCTION BOXES
 AND CONDUIT

**WARNING: PHOTOVOLTAIC
 POWER SOURCE**

LABELS MUST BE VISIBLE AFTER INSTALLATION. LABELS MUST BE LOCATED ON EVERY SECTION OF THE WIRING SYSTEM SEPARATED BY WALLS, FLOORS OR OTHER PARTITIONS AND MUST NOT BE SEPARATED BY MORE THAN 10'

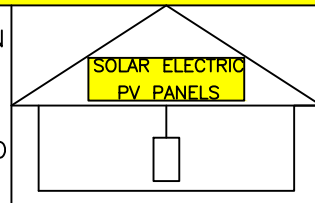
5) PV SYSTEM DISCONNECT
 NEC 690.56(C)(2)
 LOCATED ON THE INVERTER

**RAPID SHUTDOWN
 SWITCH FOR
 SOLAR PV SYSTEM**

6) RAPID SHUTDOWN
 NEC 690.56(C)
 MUST BE LOCATED ON THE MAIN SERVICE PANEL

**SOLAR 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



7) PV AC DISCONNECT
 NEC 690.13(B)
 LOCATED ON EACH AC DISCONNECT

CAUTION:

BOTH TOP AND LOWER SOCKET JAWS MAY BE ENERGIZED
 BY SOURCE AND CUSTOMER SOLAR PV SYSTEM

LABELING NOTES:

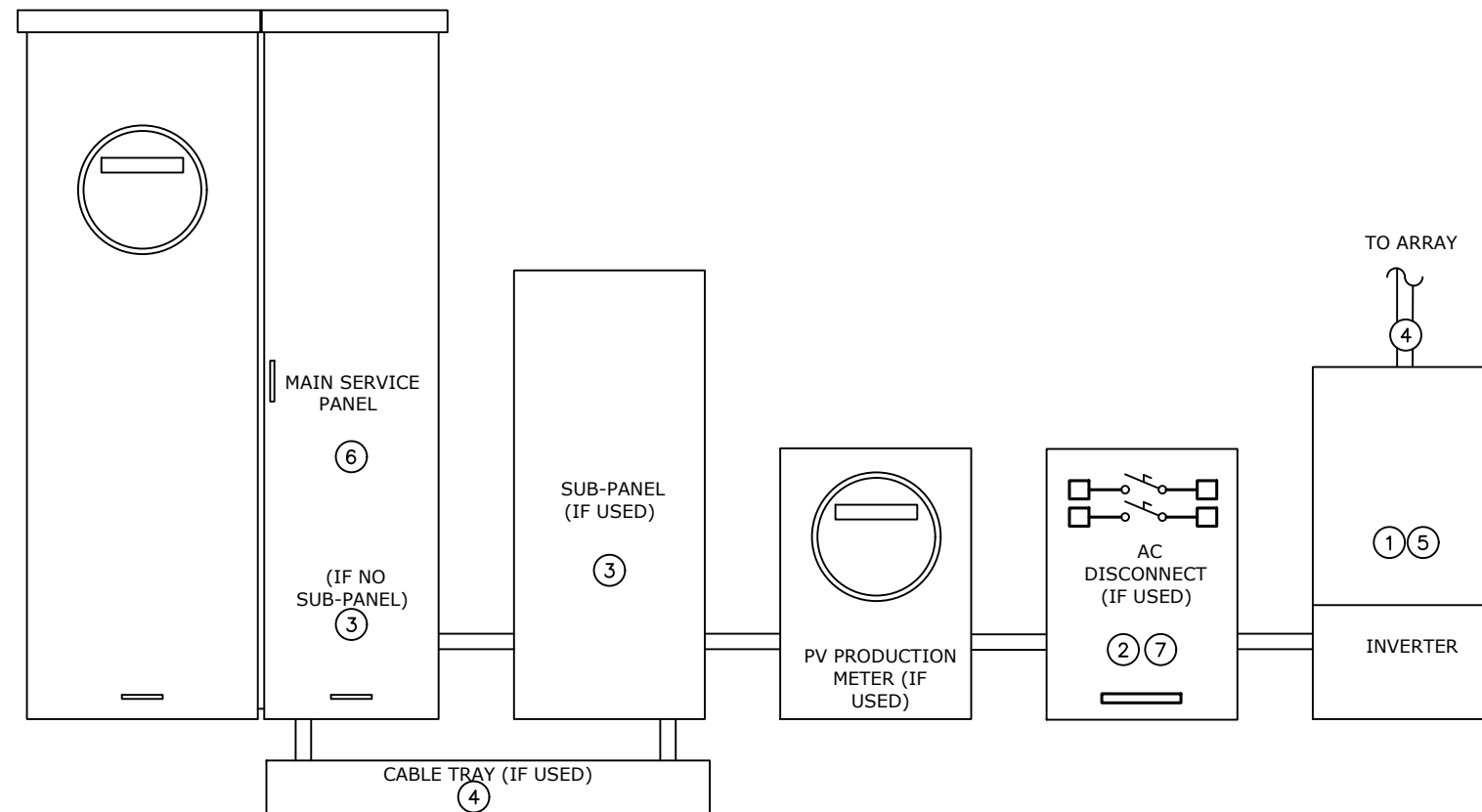
1. LABELS CALLED OUT ACCORDING TO ALL COMMON CONFIGURATIONS. ELECTRICIAN TO DETERMINE EXACT REQUIREMENTS IN THE FIELD PER CURRENT NEC AND LOCAL CODES AND MAKE APPROPRIATE ADJUSTMENTS.

2. LABELING REQUIREMENTS BASED ON THE NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145, ANSI Z535.

3. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

4. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21] THEY SHALL BE PERMANENTLY ATTACHED, WEATHER/SUNLIGHT RESISTANT, AND SHALL NOT BE HAND WRITTEN NEC 11.21(B)

5. LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND; REFLECTIVE, AND PERMANENTLY AFFIXED [IFC 605.11.1.1]



CUSTOMER LAST NAME:	WILLIFORD RESIDENCE	SYSTEM SIZE: 3375W DC - 3000W AC (E-1)
ADDRESS:	27 DOONBEG DR	(9) JINKO - JKM375M-6RL3-B (CS-1)
CITY:	FUQUAY-VARINA	(1) SOLAREGE - SE3000H-US (CS-2)
STATE:	NC	(9) SOLAREGE - P370 (CS-3)
ZIP:	27526	ROOF TYPE: COMP SHINGLE (PV-2)
JURISDICTION:	HARNETT	PREFABRICATED TRUSSES, 2X4 @ 24" (PV-2)
UTILITY COMPANY:	DUKE ENERGY	INTERCONNECTION METHOD: LINE SIDE TAP

DESIGNED BY: JD

DESIGNED ON

6/9/2021

LABELS

E-2

ALL LABELS MUST BE PERMANENTLY ATTACHED, MUST BE WEATHER AND SUNLIGHT RESISTANT AND MAY NOT BE HAND-WRITTEN

TAG A ELECTRICAL CALCS (SEE E-1)
UNDER MODULES, NOT IN CONDUIT
#10 AWG MAX CURRENT= 40A
40A * .96= 38.4A
SOLAREGE SE3000H-US MAX CIRCUIT CURRENT
14.06A FOR STRING 1

TAG B ELECTRICAL CALCS (SEE E-1)
#10 AWG MAX CURRENT = 40A
40A * .96 = 38.4A (ASHRAE 2% AVERAGE HIGH =32° C)
38.4A PER CONDUCTOR
SOLAREGE SE3000H-US MAX CIRCUIT CURRENT
14.06A FOR STRING 1

TAG C ELECTRICAL CALCS (SEE E-1)
#10 AWG MAX CURRENT = 40A
40A * .96 = 38.4A (ASHRAE 2% AVERAGE HIGH =32° C)
38.4A PER CONDUCTOR
SOLAREGE SE3000H-US MAX CIRCUIT CURRENT
14.06A FOR STRING 1

TAG D (IF APPLICABLE) ELECTRICAL CALCS (SEE E-1)
#6 AWG MAX CURRENT = 75A
75A * .96 = 72A (ASHRAE 2% AVERAGE HIGH =32° C)
72A PER CONDUCTOR
SOLAREGE SE3000H-US MAX OUTPUT =12.5A
12.5A * 1.25 (SAFETY FACTOR) = 11.25A
SOLAREGE RECOMMENDED OCPD= 20A

DESIGN CRITERIA AND CALCULATIONS BASED UPON:
NEC TABLE CEC/NEC 310.15(B)(16) 90° C (194° F)
ASHRAE 2% AVERAGE HIGH =32° C
NEC TABLE 310.15(B)(2)(a) 90° C DERATE FACTOR = .96

INTERCONNECTION CALCULATIONS		
ITEM	UNIT	PANEL
BUS RATING	AMPS	200A
MAIN OCPD	AMPS	200A
ALLOWED PV PER NEC	AMPS	240A

CUSTOMER LAST NAME:	WILLIFORD RESIDENCE	SYSTEM SIZE: 3375W DC - 3000W AC (E-1)
ADDRESS:	27 DOONBEG DR	(9) JINKO - JKM375M-6RL3-B (CS-1)
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UTILITY COMPANY:	DUKE ENERGY	INTERCONNECTION METHOD: LINE SIDE TAP

DESIGNED BY: JD
DESIGNED ON
6/9/2021
ELECTRICAL CALCS

COMP MOUNTS

Simple 3-piece design for rapid installation

Encapsulating design raises the water seal 0.9" above roof deck

One-piece flashing with elevated cone – No press-fits or deck-level EPDM washers to fail



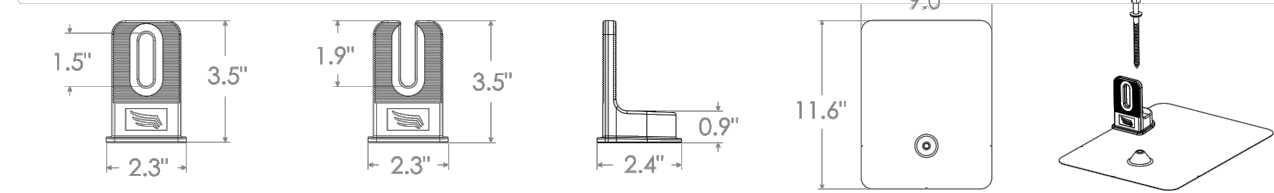
WATERTIGHT FOR LIFE

Pegasus Solar's Comp Mounts are a cost effective, high-quality option for rail installations on composition shingle roofs. Designed to last decades, the one-piece flashing with elevated cone means there is simply nothing to fail.

<p>25-year Warranty Manufactured with advanced materials and coatings to outlast the roof itself</p>	<p>Superior Waterproofing Tested to AC286 without sealant 0.9" elevated water seal</p>
<p>Code Compliant Fully IBC/CBC Code Compliant Exceeds ASCE 7-16 Standards</p>	<p>All-In-One Kit Packaging Flashings, L-Feet and SS lags with bonded EPDM washers are included in each 24-pack</p>

COMP MOUNTS

- Drill pilot hole in center of rafter.
- Optional: Apply a "U-shape" of sealant to underside of flashing and position under 2nd shingle course, cone over pilot hole.
- Place L-Foot over cone and install lag with washer through L-Foot.
- Drive lag to required depth. Attach rail per rail manufacturer's instructions.



Specifications	Comp Mount Install Kits				
SKU	PSCR-CBB0	PSCR-UBB0	SPCR-CBBH	PSCR-CMM0	PSCR-UMM0
Finish	Black L-Foot and Black Flashing			Mill L-Foot and Mill Flashing	
L-Foot Type	Closed Slot	Open Slot	Closed Slot	Closed Slot	Open Slot
Kit Contents	L-Foot, Flashing, 5/16" x 4-1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16" x 4-1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16" x 4-1/2" SS Lag with metalized EPDM washer and M10 Hex Bolt	L-Foot, Flashing, 5/16" x 4-1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16" x 4-1/2" SS Lag with metalized EPDM washer
Roof Type	Composition Shingle				
Certifications	IBC, ASCE/SEI 7-16, AC286				
Install Application	Railed Systems				
Compatible Rail	Most				
Flashing Material	Painted Galvalume Plus			Galvalume Plus	
L-Foot Material	Aluminum				
Kit Quantity	24				
Boxes per Pallet	72				

CUSTOMER LAST NAME:	WILLIFORD RESIDENCE	SYSTEM SIZE:	3375W DC – 3000W AC (E-1)
ADDRESS:	27 DOONBEG DR	(9) JINKO –	JKM375M-6RL3-B (CS-1)
CITY:	FUQUAY-VARINA	(1) SOLAREGE –	SE3000H-US (CS-2)
STATE:	NC	(9) SOLAREGE –	P370 (CS-3)
ZIP:	27526	ROOF TYPE:	COMP SHINGLE (PV-2)
JURISDICTION:	HARNETT	PREFABRICATED TRUSSES,	2X4 @ 24" (PV-2)
UTILITY COMPANY:	DUKE ENERGY	INTERCONNECTION METHOD:	LINE SIDE TAP

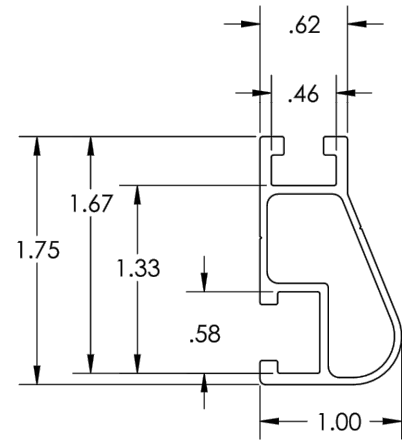
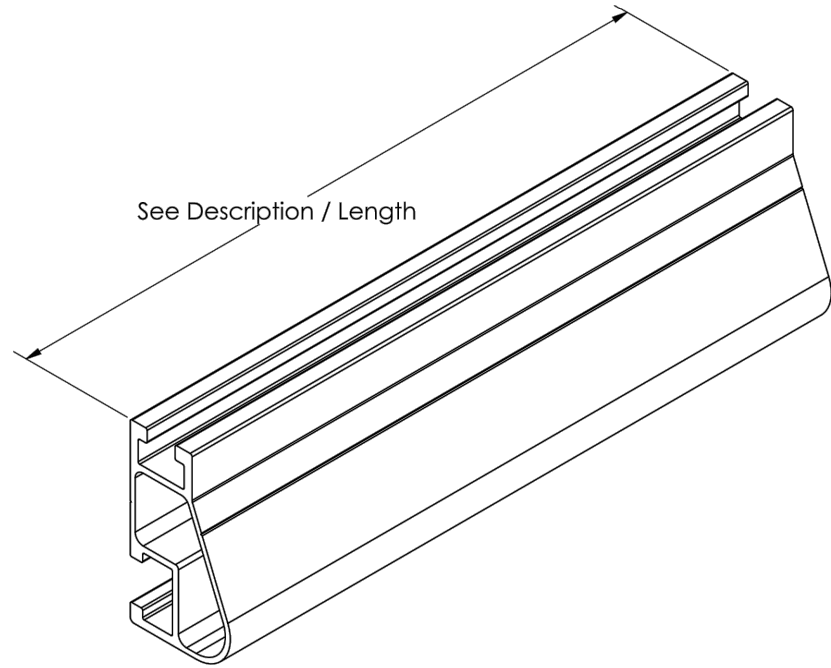
DESIGNED BY: JD

DESIGNED ON

6/9/2021

MOUNT

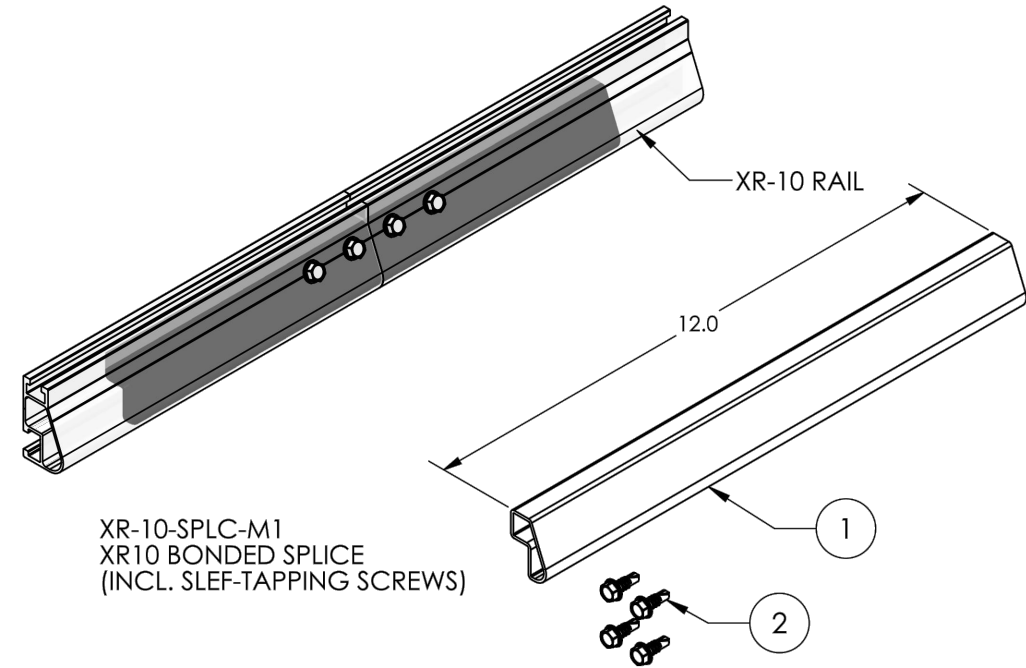
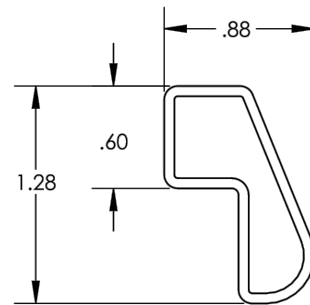
M-1



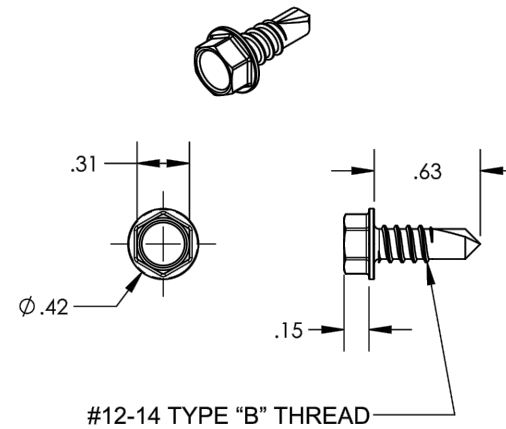
Rail Section Properties	
Property	Value
Total Cross-Sectional Area	0.363 in ²
Section Modulus (X-axis)	0.136 in ³
Moment of Inertia (X-axis)	0.124 in ⁴
Moment of Inertia (Y-axis)	0.032 in ⁴
Torsional Constant	0.076 in ³
Polar Moment of Inertia	0.033 in ⁴

Clear Part Number	Black Part Number	Description / Length	Material	Weight
XR-10-132A	XR-10-132B	XR10, Rail 132" (11 Feet)	6000-Series Aluminum	4.67 lbs.
XR-10-168A	XR-10-168B	XR10, Rail 168" (14 Feet)		5.95 lbs.
XR-10-204A	XR-10-204B	XR10, Rail 204" (17 Feet)		7.22 lbs.

v1.0


1) Splice, XR10, Mill 12" long


Property	Value
Material	6000 Series Aluminum
Finish	Mill

2) Screw, Self Drilling


Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.10

CUSTOMER LAST NAME:	WILLIFORD RESIDENCE	SYSTEM SIZE:	3375W DC - 3000W AC (E-1)
ADDRESS:	27 DOONBEG DR	(9) JINKO -	JKM375M-6RL3-B (CS-1)
CITY:	FUQUAY-VARINA	(1) SOLAREDDGE -	SE3000H-US (CS-2)
STATE:	NC	(9) SOLAREDDGE -	P370 (CS-3)
ZIP:	27526	ROOF TYPE:	COMP SHINGLE (PV-2)
JURISDICTION:	HARNETT	PREFABRICATED TRUSSES,	2X4 @ 24" (PV-2)
UTILITY COMPANY:	DUKE ENERGY	INTERCONNECTION METHOD:	LINE SIDE TAP

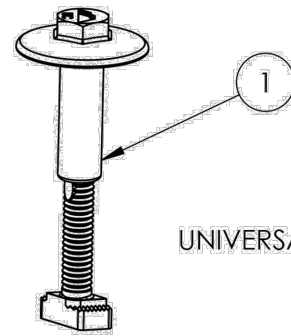
DESIGNED BY: JD

DESIGNED ON

6/9/2021

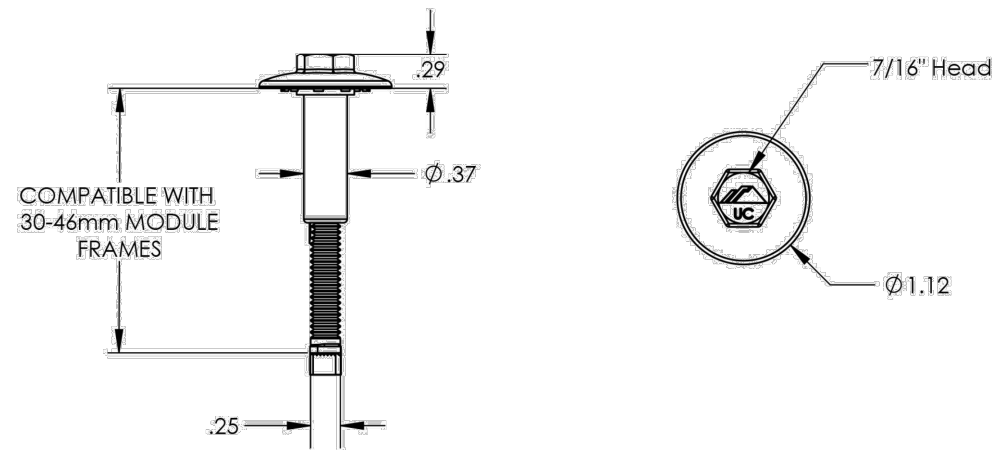
EQUIPMENT

EQ-1



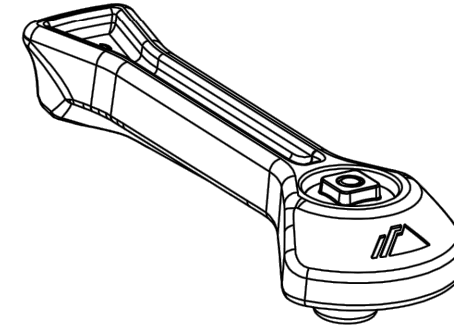
UNIVERSAL FASTENING OBJECT

ITEM NO.	DESCRIPTION
UFO-CL-01-A1	UNIVERSAL MODULE CLAMP, CLEAR
UFO-CL-01-B1	UNIVERSAL MODULE CLAMP, BLACK

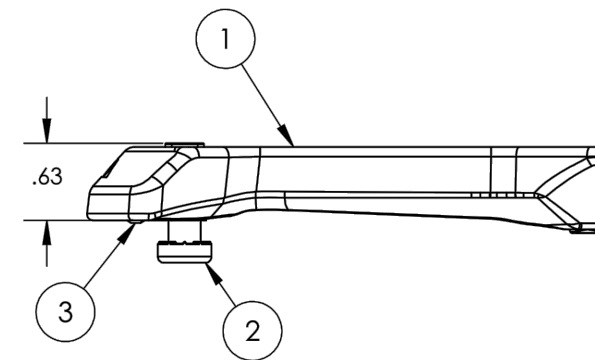
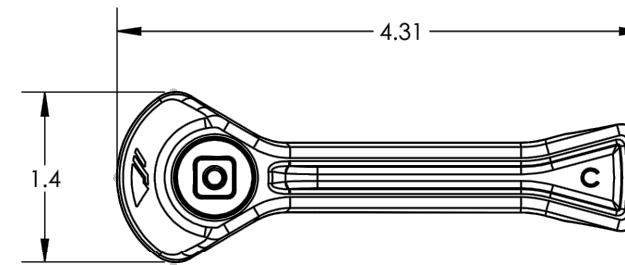


Property	Value
Material	300 Series Stainless Steel
Finish	Clear and Black

v1.30



PART NO.	DESCRIPTION
CAMO-01-M1	HIDDEN END CAM (UNIVERSAL CLAMP)



Item No.	Description	Material	Finish
1	Handle	Aluminum	Mill
2	Bolt, Bonding Shoulder	300 Series Stainless Steel	Clear
3	Bonding Pins, Linear	300 Series Stainless Steel	Clear

v1.0

CUSTOMER LAST NAME:	WILLIFORD RESIDENCE	SYSTEM SIZE:	3375W DC - 3000W AC (E-1)
ADDRESS:	27 DOONBEG DR	(9) JINKO -	JKM375M-6RL3-B (CS-1)
CITY:	FUQUAY-VARINA	(1) SOLAREGE -	SE3000H-US (CS-2)
STATE:	NC	(9) SOLAREGE -	P370 (CS-3)
ZIP:	27526	ROOF TYPE:	COMP SHINGLE (PV-2)
JURISDICTION:	HARNETT	PREFABRICATED TRUSSES,	2X4 @ 24" (PV-2)
UTILITY COMPANY:	DUKE ENERGY	INTERCONNECTION METHOD:	LINE SIDE TAP

DESIGNED BY: JD

DESIGNED ON

6/9/2021

EQUIPMENT

EQ-2



28357 Industrial Blvd.
Hayward, CA 94545
1-800-227-9523
IronRidge.com

Attn: Corey Geiger, COO, IronRidge Inc.
Date: January 1st, 2020

Re: Structural Certification and Span Tables for the IronRidge Flush Mount System

This letter addresses the structural performance and code compliance of IronRidge's Flush Mount System. The contents of the letter shall be read in its entirety before applying to any project design. The Flush Mount System is a proprietary rooftop mounting system used to support photovoltaic (PV) modules installed in portrait or landscape orientation and set parallel to the underlying roof surface. PV modules are supported by extruded aluminum XR Rails and secured to the rails with IronRidge mounting clamps. The XR Rails are side mounted to a selected roof attachment with 3/8" stainless steel bonding hardware and then attached directly to the roof structure or to a stanchion that is fastened to the underlying roof structure. Assembly details of a typical Flush Mount installation and its core components are shown in Exhibit EX-0015.

The IronRidge Flush Mount System is designed and certified to the structural requirements of the reference standards listed below, for the load conditions and configurations tabulated in the attached span tables.

- ASCE/SEI 7-16 Minimum Design Loads for Buildings and Other Structures (ASCE 7-16)
- 2018 International Building Code (IBC-2018)
- Statewide Amendments to International Building Code 2018
- 2015 Aluminum Design Manual (ADM-2015)

The tables included in this letter provide the maximum allowable spans of XR Rails in the Flush Mount System for the respective loads and configurations listed, covering wind exposure categories B, C, & D, roof zones provided in ASCE 7-16 for gable & hip roof profiles, and roof slopes of 8° to 45°. The tabulated spans are applicable when the following conditions are met:

1. *Span* is the distance between two adjacent roof attachment points (measured at the center of the attachment fastener).
2. The underlying roof pitch, measured between the roof surface and horizontal plane, is 45° or less.
3. The *mean roof height*, defined as the average of the roof eave height and the roof ridge height measured from grade, does not exceed 30 feet.
4. A clearance from the underside of the array to the roof surface of 2" minimum shall be provided and the height of the array, the distance from the module top surface to the roof surface (defined as h_2), shall not exceed 10".
5. Module length and area shall not exceed the maximum values listed on the respective span tables.
6. All Flush Mount components shall be installed in a professional workmanlike manner per IronRidge's *Flush Mount Installation Manual* and other applicable standards for the general roof construction practice.



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1-800-227-9523
IronRidge.com

The parameters and adjustments allowed in the span tables are defined as the following:

1. The Flush Mount System is designed as a Risk Category II structure as defined by ASCE 7-16 Table 1.5-1.
2. Wind speed shall conform to ASCE 7-16 Fig. 26.5-1B (for Risk Category II) and applicable state & local county/city amendments to the IBC. No special wind topographic features are included and both topographic coefficient (K_z) and wind ground elevation factor (K_e) are taken as 1.0.
3. Snow load used in the span tables is the *ground snow* and shall conform to ASCE 7-16 Fig. 7.2-1 and applicable state & local county/city amendments to the IBC. If the local jurisdiction specified snow load is in the format of a *flat roof snow*, it shall first be converted to a *ground snow* following the local building code/ amendments before the application of the attached span tables. No special snow conditions are considered including unbalanced, drifting, sliding, retention, or ponding snow. No rain-on-snow surcharge load is considered. The span tables do not apply to buildings which are intentionally kept below freezing, kept just above freezing, or unheated.
4. The span tables reflect the ASCE 7 prescribed earthquake loads with the maximum magnitudes being:
 - (a) For ground snow no greater than 42psf: $S_s \leq 2.0g$ for Site Class A, B, C, & D.
 - (b) For ground snow greater than 42psf and 65psf: $S_s \leq 1.0g$ for Site Class A, B, C, & D.
 - (c) For ground snow between 42 and 65psf: $S_s \leq 1.5g$ for Site Class A, B, C, & D.
5. Roof zones are defined by ASCE 7-16 Figure 30.3-2A to Figure 30.3-2I and are organized into three *groups* in which the zones share the same External Pressure Coefficients ($G C_p$). Roof zones comprising each *group* along with each roof zone's size and location are depicted in Figures 2 and 3 below each span table.
6. The maximum rail cantilever length, measured from the rail end to the nearest attachment point, shall be the lesser of the following two conditions: 40% of the allowable span provided for the respective load & configuration condition from the span tables, or 36".
7. Allowable span length in the charts may be multiplied by a factor of 1.08 if the rails are continuous over a minimum of three spans.
8. No rail splices are allowed in the cantilever, outer 2/3 of end spans, or middle 1/3 of interior spans.
9. Shaded cells of the span tables indicate conditions in which UFO Mid Clamp connection capacity is exceeded. If such conditions are encountered contact support@ironridge.com.
10. Systems using CAMO module clamps shall be installed with the following guidance:
 - a) For single module installations (orphan modules) using modules with a length greater than 67.5", CAMO clamps shall not be installed in regions that experience ground snow loads of 70psf and greater. Such scenarios are shown by asterisks in the applicable span tables.
 - b) CAMO will function within a module's design load ratings. Be sure the specific module being used with CAMO meets the dimensional requirements shown in the figure below and that the module selected is suitable for the environmental conditions of a particular project.

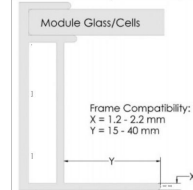


Figure 1: CAMO Module Frame Dimensional Requirements



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Span values for *Exposed* and *Edge* module conditions, as defined below, are included in the attached span tables and shall be used when each condition exists. The maximum allowable span for *Exposed* or *Edge* modules shall be the lesser of the following two: (1) The span value for the *Exposed* or *Edge* module condition; (2) The span value determined by site wind speed and ground snow load. Additionally, irrespective of the lesser span, the shaded cells for the *Exposed* and *Edge* module conditions which reflect the UFO clamp usage limitation detailed in note 9 of page 2 shall apply to the respective condition.

1. Exposed Module conditions:

A module is defined as *Exposed* (per Section 29.4.4 of ASCE 7-16) if the distance from any of its free edges (an edge with no connectivity to other modules) to its facing roof edge (such as eave, ridge, rake, or hip) is greater than $0.5h$ (h is ASCE defined building height) AND if the distance from its free edge to any other adjacent array or panel is greater than 4 feet.

The allowable spans and cantilever shall only be applied to the portion of rail directly under *Exposed* Modules.

2. Edge Module conditions:

A module is defined as an *Edge Module* when its distance from any side of the module to its facing perimeter roof edge (such as eave, ridge, rake, or hip) is less than 2 times the height of the array ($2h_2$) where h_2 is measured from the roof surface to the top surface of the module.

The allowable spans and cantilever shall only be applied to the portion of rail directly under *Edge* Modules. Additionally, if the roof edge is the eave or ridge, only the rail nearest to that roof edge shall be considered for this span adjustment.

SYSTEM SIZE: 3375W DC – 3000W AC (E-1)
(9) JINKO – JKM375M-6RL3-B (CS-1)
(1) SOLAREGE – SE3000H-US (CS-2)
(9) SOLAREGE – P370 (CS-3)
ROOF TYPE: COMP SHINGLE (PV-2)
PREFABRICATED TRUSSES, 2X4 @ 24" (PV-2)
INTERCONNECTION METHOD: LINE SIDE TAP

CUSTOMER LAST NAME: WILLIFORD RESIDENCE
ADDRESS: 27 DOONBEG DR
CITY: FUQUAY-VARINA
STATE: NC
ZIP: 27526
JURISDICTION: HARNETT
UTILITY COMPANY: DUKE ENERGY

DESIGNED BY: JD

DESIGNED ON
6/9/2021

EQUIPMENT

EQ-3

CUSTOMER LAST NAME:	WILLIFORD RESIDENCE
ADDRESS:	27 DOONBEG DR
CITY:	FUQUAY-VARINA
STATE:	NC
ZIP:	27526
JURISDICTION:	HARNETT
UTILITY COMPANY:	DUKE ENERGY
SYSTEM SIZE:	3375W DC - 3000W AC (E-1)
	(9) JINKO - JKM375M-6RL3-B (CS-1)
	(1) SOLAREDDGE - SE3000H-US (CS-2)
	(9) SOLAREDDGE - P370 (CS-3)
ROOF TYPE:	COMP SHINGLE (PV-2)
PREFABRICATED TRUSSES:	2X4 @ 24" (PV-2)
INTERCONNECTION METHOD:	LINE SIDE TAP

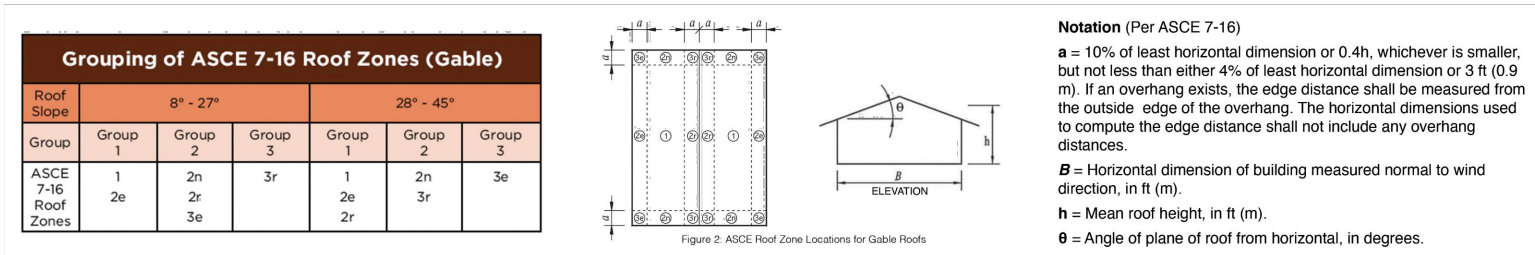
DESIGNED BY: JD
DESIGNED ON
6/9/2021
EQUIPMENT
EQ-4

Gable Roof Flush Mount System Span Table (Inches) - Portrait or Landscape Installation
Max Module Length: 67.5" (60 cell typ.), Max Module SF: 21 SF

Exposure B

Wind Speed (mph)	Roof Slope (deg.)	Exposure B																								Exposed Mod.		Edge Mod.																
		0 psf			10 psf			20 psf			30 psf			40 psf			50 psf			60 psf			70 psf			80 psf			90 psf			100 psf			110 psf			120 psf			Exposed Mod.			Edge Mod.
8-20	89	89	86	79	79	79	66	66	66	65	65	65	59	59	59	53	53	53	49	49	49	45	45	45	43	43	43	40	40	40	39	39	37	37	35	35	35	86	78	72	74	64	57	
21-27	89	89	89	76	76	76	64	64	64	64	64	64	58	58	58	55	55	55	50	50	50	48	48	48	44	44	44	42	42	42	40	40	40	38	38	37	37	37	89	84	79	83	68	64
28-45	90	90	90	74	74	74	64	64	64	64	64	64	58	58	58	54	54	54	52	52	52	49	49	49	45	45	45	42	42	42	40	40	40	39	39	39	90	90	81	86	76	66		

= min 72" span = min 64" span = min 48" span
 Shaded cells indicate conditions in which UFO Mid Clamp connection capacity is exceeded. Refer to Note 9 on page 2.

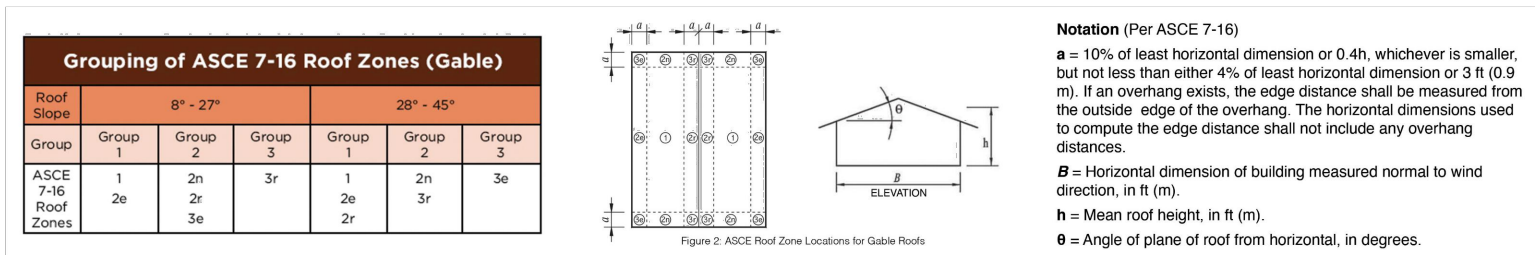


Gable Roof Flush Mount System Span Table (Inches) - Portrait or Landscape Installation
Max Module Length: 67.5" (60 cell typ.), Max Module SF: 21 SF

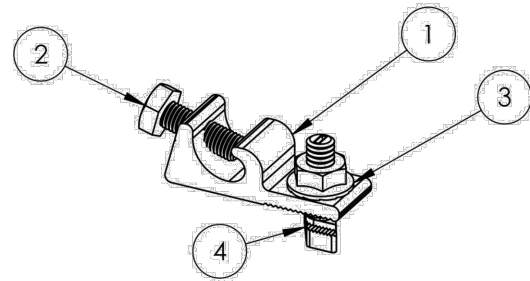
Exposure C

Wind Speed (mph)	Roof Slope (deg.)	Exposure C																								Exposed Mod.		Edge Mod.																
		0 psf			10 psf			20 psf			30 psf			40 psf			50 psf			60 psf			70 psf			80 psf			90 psf			100 psf			110 psf			120 psf			Exposed Mod.			Edge Mod.
8-20	89	80	73	79	79	73	66	66	66	65	65	65	59	59	59	53	53	53	49	49	49	45	45	45	43	43	43	40	40	40	39	39	37	37	35	35	35	76	64	56	64	52	48	
21-27	89	86	82	76	76	76	64	64	64	64	64	64	58	58	58	55	55	55	50	50	50	48	48	48	44	44	44	42	42	42	40	40	40	38	38	37	37	37	85	72	64	72	57	52
28-45	90	90	84	74	74	74	64	64	64	64	64	64	58	58	58	54	54	54	52	52	52	49	49	49	45	45	45	42	42	42	40	40	40	39	39	39	83	76	67	67	64	56		

= min 72" span = min 64" span = min 48" span
 Shaded cells indicate conditions in which UFO Mid Clamp connection capacity is exceeded. Refer to Note 9 on page 2.



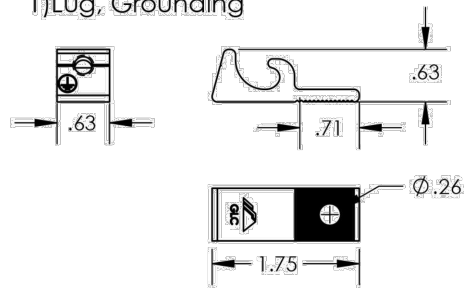
Grounding Lug



ITEM NO.	DESCRIPTION
1	LUG, GROUNDING, LAY-IN - LOW PROFILE
2	BOLT, 1/4-28 X .750" HEX CS SST
3	NUT, FLANGE HEX 1/4-20 SST
4	BOLT, T CSTM 1/4-20 X 1.188" LOCK SS

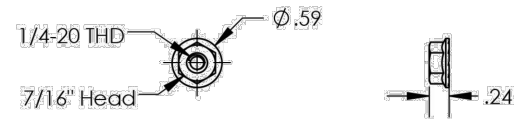
Part Number	Description	Wire Size Range (AWG)
XR-LUG-03-A1	GROUNDING LUG, LOW PROFILE	4-10

1) Lug, Grounding



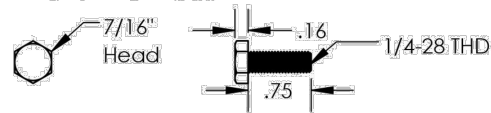
Property	Value
Material	Tin Plated Copper
Finish	Clear Matte

3) Nut, Flange Hex 1/4-20



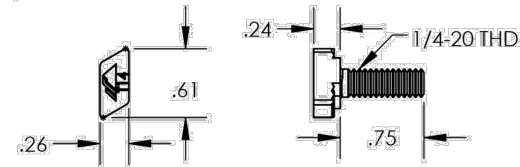
Property	Value
Material	300 Series Stainless Steel
Finish	Clear

2) Bolt, 1/4-28 x .750 Hex



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

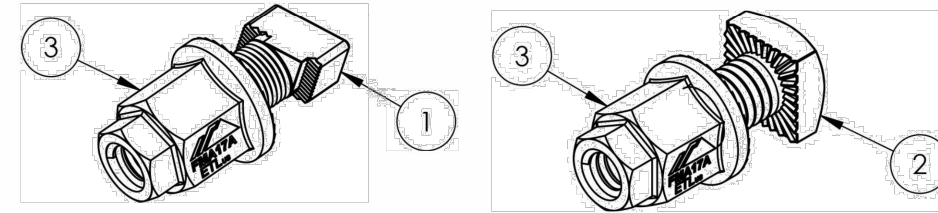
4) Bolt, T CSTM 1/4-20 x .750



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.10

Bonding Hardware

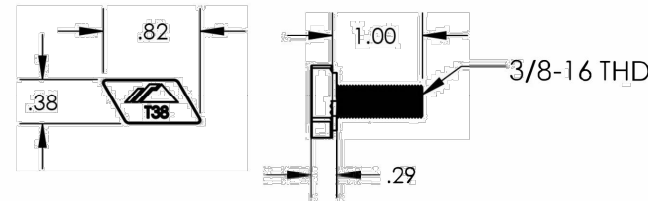


ITEM NO.	DESCRIPTION
1	BOLT, T CSTM, 3/8-16
2	BOLT, BONDING 3/8-16 SQ HEAD
3	NUT, BONDING STEP

BONDING HARDWARE

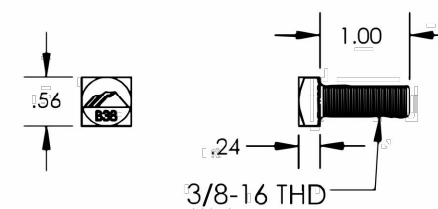
Part Number	Description
BHW-TB-02-A1	T-BOLT, BONDING HARDWARE
BHW-SQ-02-A1	SQUARE-BOLT, BONDING HARDWARE

1) BOLT, T CSTM, 3/8-16



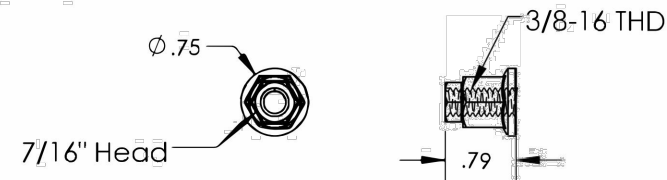
Property	Value
Material	300 Series Stainless Steel
Finish	Clear

2) BOLT, BONDING 3/8-16 SQ HEAD



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

3) NUT, BONDING STEP



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.30

ADDRESS: 1640 S. STATE ST
OREM, UT 84097
PHONE: 830-709-7090

SYSTEM SIZE: 3375W DC - 3000W AC (E-1)
(9) JINKO - JKM375M-6RL3-B (CS-1)
(1) SOLAREGE - SE3000H-US (CS-2)
(9) SOLAREGE - P370 (CS-3)
ROOF TYPE: COMP SHINGLE (PV-2)
PREFABRICATED TRUSSES, 2X4 @ 24" (PV-2)
INTERCONNECTION METHOD: LINE SIDE TAP

CUSTOMER LAST NAME: WILLIFORD RESIDENCE
ADDRESS: 27 DOONBEG DR
CITY: FUQUAY-VARINA
STATE: NC
ZIP: 27526
JURISDICTION: HARNETT
UTILITY COMPANY: DUKE ENERGY

DESIGNED BY: JD

DESIGNED ON
6/9/2021

EQUIPMENT

EQ-5

EAGLE
MODULES

THE MOST
DEPENDABLE
SOLAR BRAND

EAGLE 66TR G4

370-390 WATT
TILING RIBBON MONO MODULE

Positive power tolerance of 0~+3%

- NYSE-listed since 2010, Bloomberg Tier 1 manufacturer
- Best-selling panel globally for last 4 years
- Top performance in the strictest 3rd party labs
- 99.9% on-time delivery to the installer
- Premium solar panel factories in USA and Malaysia

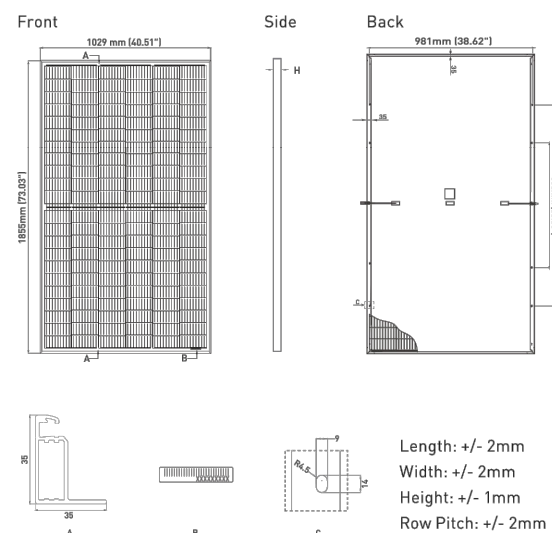
KEY FEATURES

- TR Technology**
Tiling Ribbon eliminates cell gaps to increase module efficiency and power.
- 9BB Half Cell Technology**
Uniquely designed 9 busbar mono half cut solar cells deliver ultra-high power in a small footprint.
- Shade Tolerant**
Twin array design allows continued performance even with shading by trees or debris.
- Designed for Long Life**
Uses the same DuPont protective film as the Space Station, Mars Lander, and jetliners.
- Leading Warranty**
12-year product and 25-year linear power warranty; 98% guaranteed first year, max 0.55% annual loss.

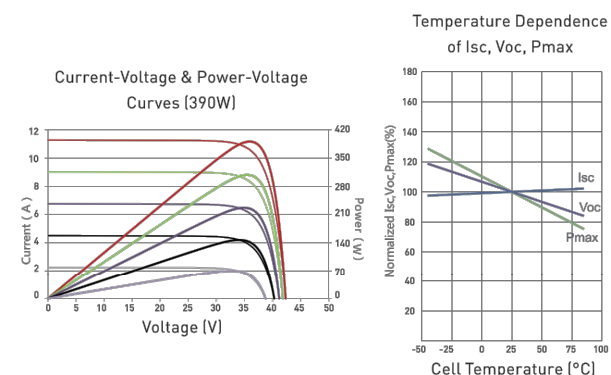
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Jinko Solar

ENGINEERING DRAWINGS



ELECTRICAL PERFORMANCE & TEMPERATURE DEPENDENCE



ELECTRICAL CHARACTERISTICS

Module Type	JKM370M-6RL3-B		JKM375M-6RL3-B		JKM380M-6RL3-B		JKM385M-6RL3-B		JKM390M-6RL3-B	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	370Wp	275Wp	375Wp	279Wp	380Wp	283Wp	385Wp	286Wp	390Wp	290Wp
Maximum Power Voltage (Vmp)	36.71V	33.49V	36.80V	33.57V	36.90V	33.70V	37.02V	33.90V	37.15V	34.02V
Maximum Power Current (Imp)	10.08A	8.22A	10.19A	8.31A	10.30A	8.39A	10.40A	8.45A	10.50A	8.53A
Open-circuit Voltage (Voc)	44.02V	41.55V	44.12V	41.64V	44.22V	41.74V	44.34V	41.85V	44.47V	41.97V
Short-circuit Current (Isc)	10.90A	8.80A	11.01A	8.89A	11.12A	8.98A	11.22A	9.06A	11.32A	9.14A
Module Efficiency STC (%)	19.38%		19.65%		19.91%		20.17%		20.43%	

*STC: ☀ Irradiance 1000W/m² 🌡 Cell Temperature 25°C ☁ AM = 1.5
 NOCT: ☀ Irradiance 800W/m² 🌡 Ambient Temperature 20°C ☁ AM = 1.5 🌬 Wind Speed 1m/s

*Power measurement tolerance: +/- 3%

The company reserves the final right for explanation on any of the information presented hereby. JKM370-390M-6RL3-B-A1-US

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Jinko Solar

MECHANICAL CHARACTERISTICS

Cells	Monocrystalline
No. of Cells	132 (2x66)
Dimensions	1855x1029x35mm (73.03x40.51x1.37 in)
Weight	21.5 kg (47.40 lbs)
Front Glass	3.2mm, Anti-Reflection Coating High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminum Alloy
Junction Box	IP67 Rated
Output Cables	12 AWG, 2053mm (80.83in) or Customized Length
Connector	MC4
Fire Type	Type 1
Pressure Rating	5400Pa (Snow) & 2400Pa (Wind)

TEMPERATURE CHARACTERISTICS

Temperature Coefficients of Pmax	-0.35%/°C
Temperature Coefficients of Voc	-0.28%/°C
Temperature Coefficients of Isc	0.048%/°C
Nominal Operating Cell Temperature (NOCT)	45 ± 2°C

MAXIMUM RATINGS

Operating Temperature (°C)	-40°C~+85°C
Maximum System Voltage	1000VDC
Maximum Series Fuse Rating	20A

PACKAGING CONFIGURATION

2 pallets = 1 stack; 31pcs/pallets, 62pcs/stack, 744pcs/ 40'HQ Container

- ISO9001:2008 Quality Standards
- ISO14001:2004 Environmental Standards
- IEC61215, IEC61730 certified products
- UL61730 Certification
- ISO45001:2018 Occupational Health & Safety Standards



AVOLTA

ADDRESS: 1640 S. STATE ST
OREM, UT 84097
PHONE: 830-709-7090

CUSTOMER LAST NAME:	WILLIFORD RESIDENCE	SYSTEM SIZE:	3375W DC - 3000W AC (E-1)
ADDRESS:	27 DOONBEG DR	(9) JINKO -	JKM375M-6RL3-B (CS-1)
CITY:	FUQUAY-VARINA	(1) SOLAREDDGE -	SE3000H-US (CS-2)
STATE:	NC	(9) SOLAREDDGE -	P370 (CS-3)
ZIP:	27526	ROOF TYPE:	COMP SHINGLE (PV-2)
JURISDICTION:	HARNETT	PREFABRICATED TRUSSES,	2X4 @ 24" (PV-2)
UTILITY COMPANY:	DUKE ENERGY	INTERCONNECTION METHOD:	LINE SIDE TAP

DESIGNED BY: JD

DESIGNED ON
6/9/2021

MODULE

CS-1

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

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

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 ⁽¹⁾							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380			400				Vdc
Maximum Input Current @240V ⁽²⁾	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600ka Sensitivity							
Maximum Inverter Efficiency	99						99.2	%
CEC Weighted Efficiency	99			99 @ 240V 98.5 @ 208V				%
Nighttime Power Consumption	< 2.5							W

⁽¹⁾ For other regional settings please contact SolarEdge support

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

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

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

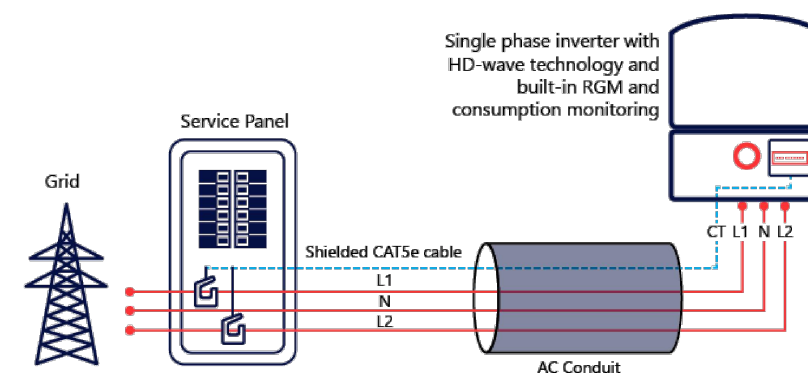
MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Metering, ANSI C12.20	Optional ⁽³⁾							
Consumption metering	Optional ⁽³⁾							
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection							
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect							
STANDARD COMPLIANCE								
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07							
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (H)							
Emissions	FCC Part 15 Class B							
INSTALLATION SPECIFICATIONS								
AC Output Conduit Size / AWG Range	1" Maximum / 14-6 AWG				1" Maximum / 14-4 AWG			
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1-2 strings / 14-6 AWG				1" Maximum / 1-3 strings / 14-6 AWG			
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174				21.3 x 14.6 x 7.3 / 540 x 370 x 185			
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9	38.8 / 17.6				lb / kg
Noise	< 25				< 50			
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁴⁾							
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

⁽³⁾ Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BNI4. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box

⁽⁴⁾ Full power up to at least 50°C / 122°F; for power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

How to Enable Consumption Monitoring

By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills



CUSTOMER LAST NAME:	WILLIFORD RESIDENCE
ADDRESS:	27 DOONBEG DR
CITY:	FUQUAY-VARINA
STATE:	NC
ZIP:	27526
JURISDICTION:	HARNETT
UTILITY COMPANY:	DUKE ENERGY
SYSTEM SIZE:	3375W DC - 3000W AC (E-1)
	(9) JINKO - JKM375M-6RL3-B (CS-1)
	(1) SOLAREEDGE - SE3000H-US (CS-2)
	(9) SOLAREEDGE - P370 (CS-3)
	ROOF TYPE: COMP SHINGLE (PV-2)
	PREFABRICATED TRUSSES, 2X4 @ 24" (PV-2)
	INTERCONNECTION METHOD: LINE SIDE TAP

DESIGNED BY: JD

DESIGNED ON
6/9/2021

INVERTER

CS-2

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 Efficiency	99.5								%
Weighted Efficiency	98.8								%
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	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 7,200W 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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ADDRESS: 1640 S. STATE ST
 OREM, UT 84097
 PHONE: 830-709-7090

CUSTOMER LAST NAME:	WILLIFORD RESIDENCE	SYSTEM SIZE:	3375W DC - 3000W AC (E-1)
ADDRESS:	27 DOONBEG DR		(9) JINKO - JKM375M-6RL3-B (CS-1)
CITY:	FUQUAY-VARINA		(1) SOLAREEDGE - SE3000H-US (CS-2)
STATE:	NC		(9) SOLAREEDGE - P370 (CS-3)
ZIP:	27526	ROOF TYPE:	COMP SHINGLE (PV-2)
JURISDICTION:	HARNETT		PREFABRICATED TRUSSES, 2X4 @ 24" (PV-2)
UTILITY COMPANY:	DUKE ENERGY		INTERCONNECTION METHOD: LINE SIDE TAP

DESIGNED BY: JD

DESIGNED ON

6/9/2021

OPTIMIZER/COM

CS-3

TAP CONDUCTOR SCHEDULE

TAG ID	CONDUCTORS				GROUND			CONDUIT
	WIRES IN CONDUIT	MINIMUM WIRE SIZE	TYPE, MATERIAL	WIRE 90°C (194°F) AMPERAGE RATING TABLE 310.15 (B)(16)	MINIMUM WIRE SIZE	RATING TABLE 250.122	TYPE, MATERIAL	
A	3	#10 AWG	PV CABLE, CU	40	#6 AWG	200	BARE, CU	3/4" EMT
B	3	#10 AWG	THWN-2, CU	40	#10 AWG	60	THWN-2, CU	3/4" EMT
C	4	#10 AWG	THWN-2, CU	40	#10 AWG	60	THWN-2, CU	3/4" EMT
D	3	#6 AWG	THWN-2, CU	75				3/4" EMT

CLIENT: DUKE ENERGY	
# OF MODULES	9
# OF STRINGS	1
STRING SIZES	9
STRING #1	9
STRING #2	
STRING #3	
STRING #4	
STRING #5	
STRING #6	
BUS (N / E)	EXISTING
BUS RATING	200
MAIN BREAKER	200
MAIN BREAK (N/E)	EXISTING
MAIN PANEL MAKE	N / A
MAIN PANEL TYPE	N / A
MAIN PANEL SIZE	N / A
MAIN PANEL SPACE	N / A
MAIN PANEL SERIAL	N / A
PV BREAKER MAKE	N / A
PV BREAKER MODEL #	N / A
MAIN BREAKER MAKE	N / A
MAIN BREAKER MODEL	

AVOLTA
 ADDRESS: 1640 S. STATE ST
 OREM, UT 84097
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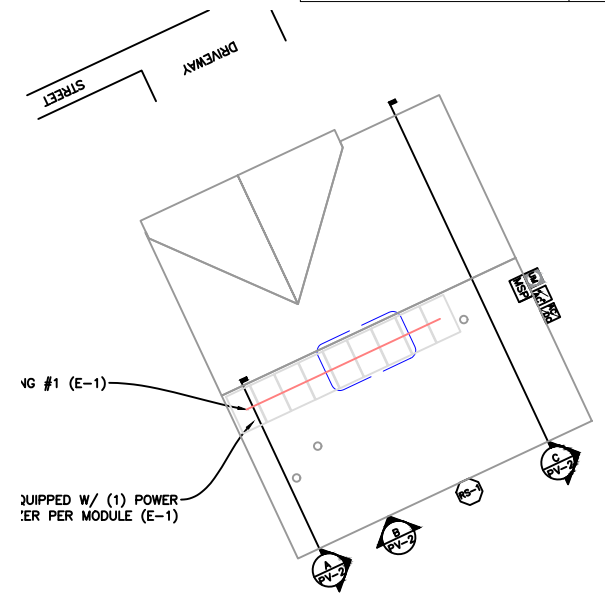
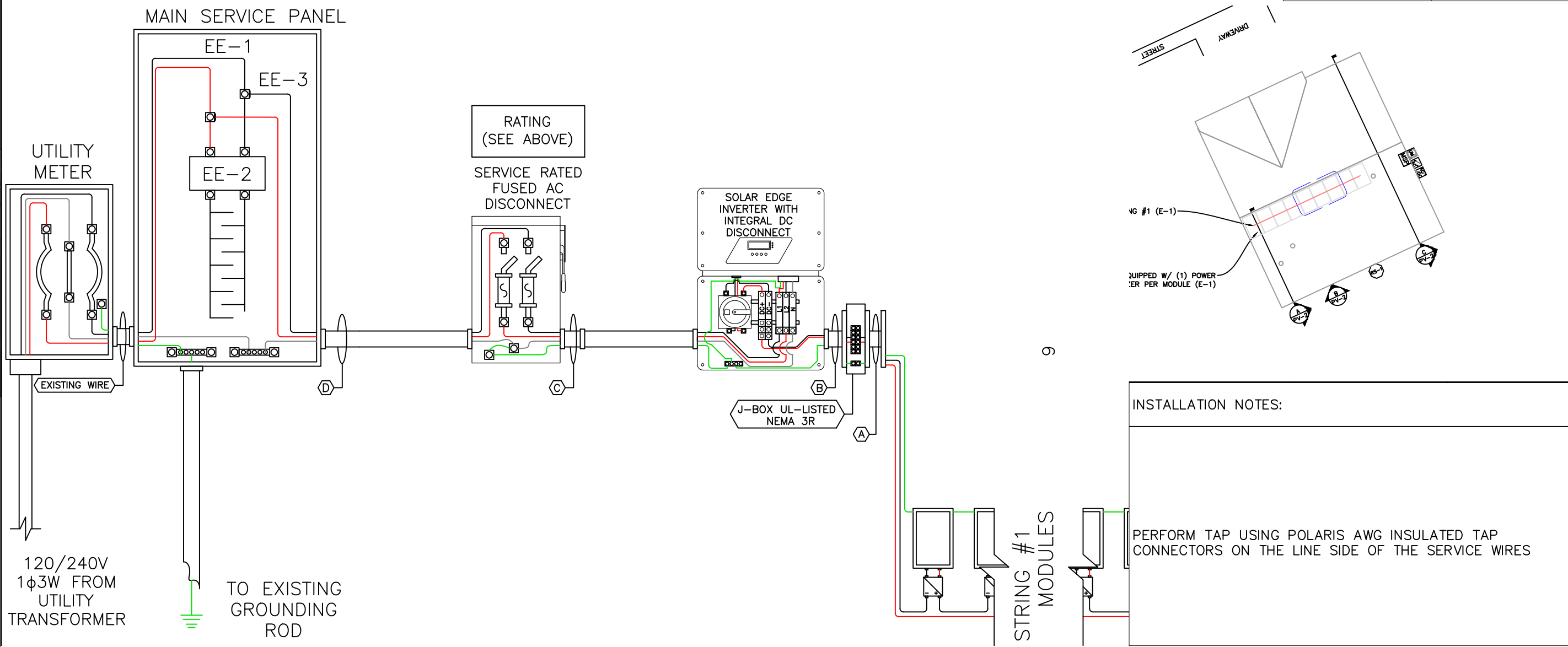
SYSTEM SIZE: 3375W DC - 3000W AC (E-1)
 (9) JINKO - JKM375M-6RL3-B (CS-1)
 (1) SOLAREEDGE - SE3000H-US (CS-2)
 (9) SOLAREEDGE - P370 (CS-3)
 ROOF TYPE: COMP SHINGLE (PV-2)
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 INTERCONNECTION METHOD: LINE SIDE TAP

CUSTOMER LAST NAME: WILLIFORD RESIDENCE
 ADDRESS: 27 DOONBEG DR
 CITY: FUQUAY-VARINA
 STATE: NC
 ZIP: 27526
 JURISDICTION: HARNETT
 UTILITY COMPANY: DUKE ENERGY

DESIGNED BY: JD
 DESIGNED ON: 6/9/2021

INSTALL NOTES

IN-1



INSTALLATION NOTES:
 PERFORM TAP USING POLARIS AWG INSULATED TAP CONNECTORS ON THE LINE SIDE OF THE SERVICE WIRES

PERMITTING SECTION	
BUILDING COST (CONSTRUCTION COST X 0.2)=	\$979
ELECTRICAL COST (CONSTRUCTION COST X 0.8)=	\$3,915
CONSTRUCTION COST (SYSTEM SIZE X 1.45)=	\$4,894
UTILITY SERVICE SIZE (IN AMPS)=	200A
TOTALS AMPS ADDED TO UTILTY=	12.5A (IF MULTIPLE INVERTERS MULTIPLY THIS BY HOW MANY INVERTERS ARE BEING USED)
ROOF SQ FOOTAGE =	1998
PANEL SQ FOOTAGE =	185



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DESIGNED BY: JD

DESIGNED ON

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OFFICE USE