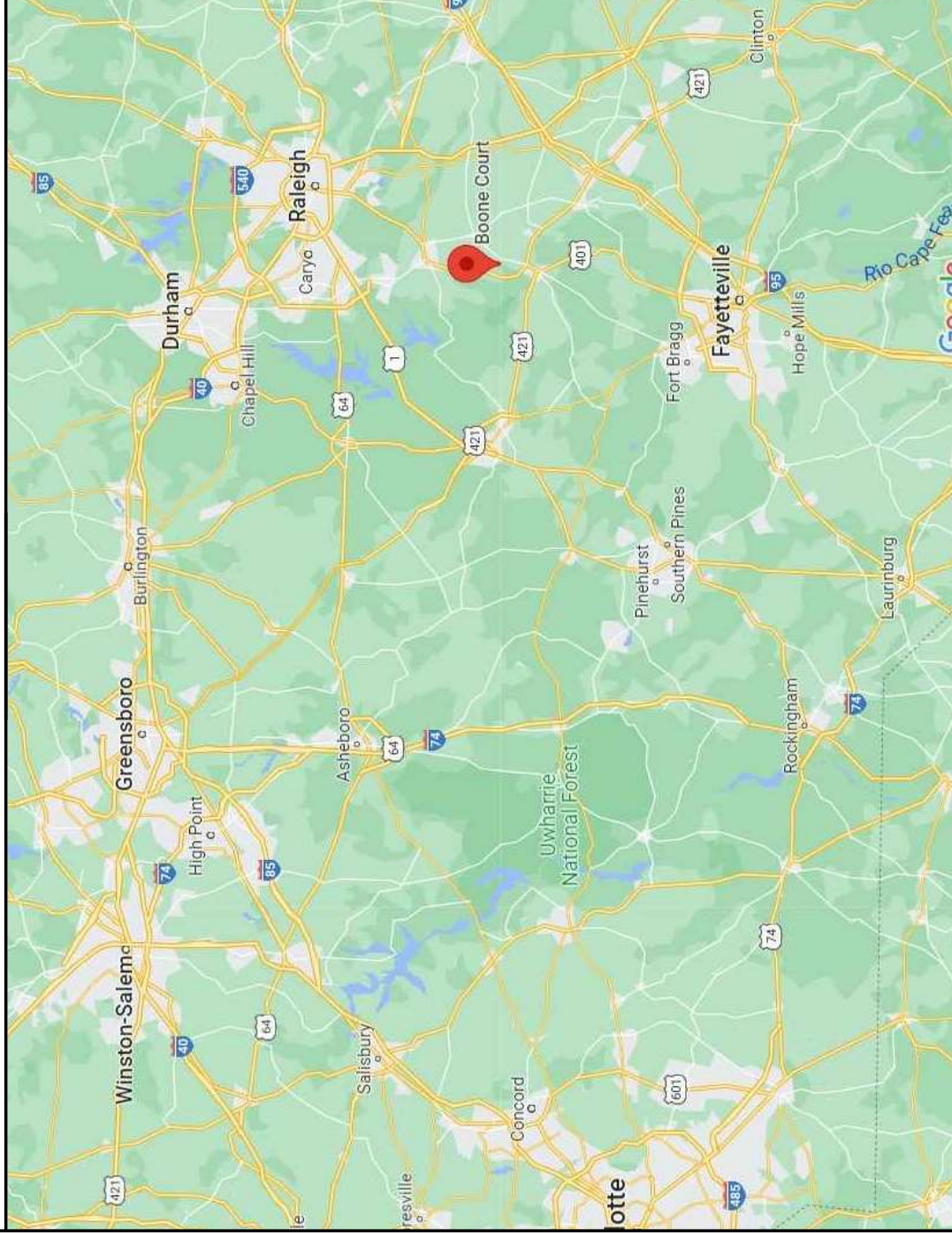


VICINITY MAP



PROPERTY



SCOPE OF WORK

- (22) URECO FBM400MFG-BB
- (1) SOLAR EDGE SE7600H-US
- (22) SOLAR EDGE S440
- ROOF MOUNT: IRONRIDGE FLASHFOOT 2
- MOUNTING RAILS: IRONRIDGE XR10

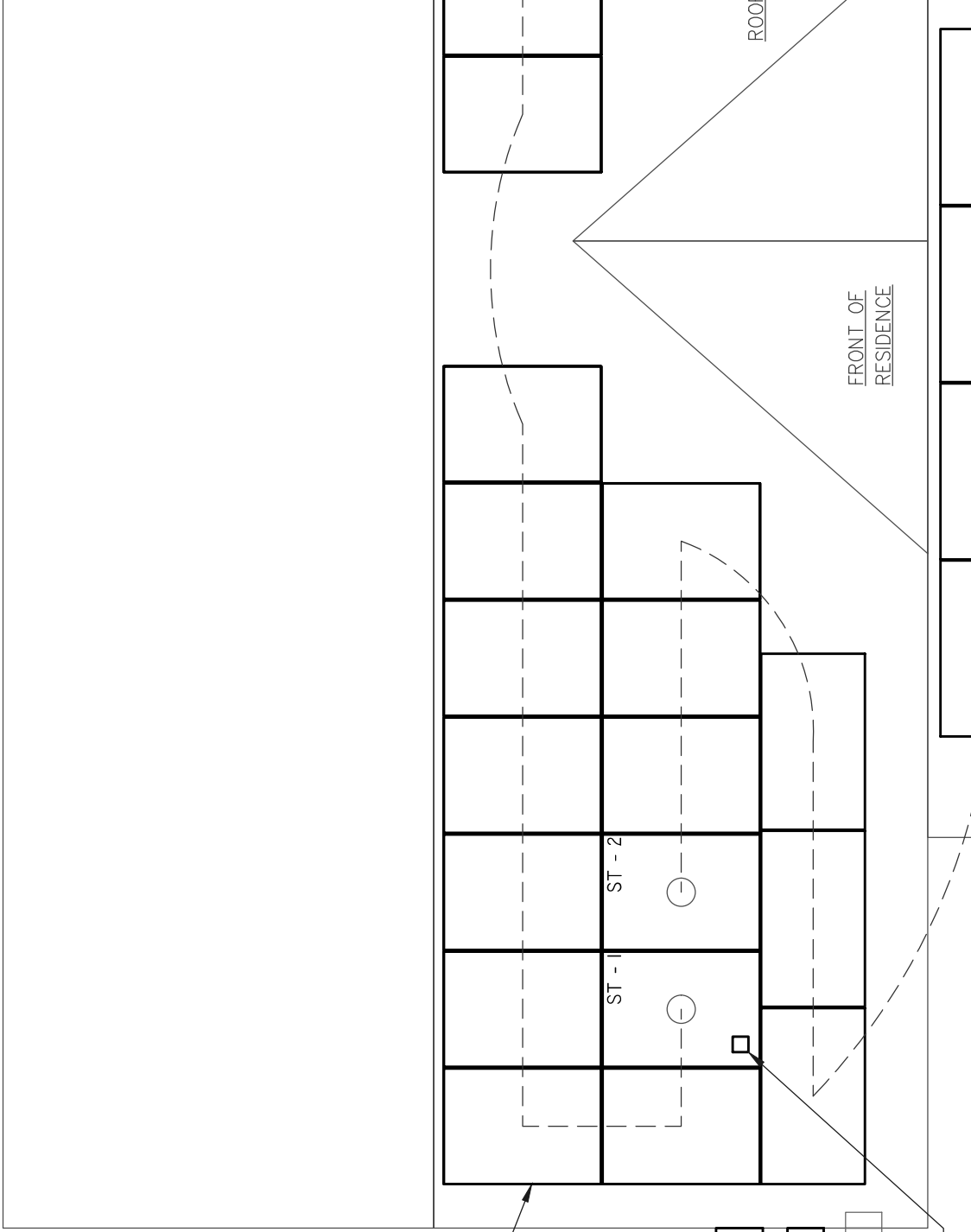
SITE CONDITION

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

- PV1.1
- PV2.1
- PV3.1
- PV4.1
- PV5.1

INTERCONNECTIONS TYPE

CODE REFERENCES



PV MODULE (TYP.)

DC/AC INVERTER

AC DISCONNECT

METER/PANEL COMBO

JUNCTION BOX

ST - 1


ST - 2

FRONT OF RESIDENCE

ROOF

STATE

THE EXISTING ROOF LOADS OF THE PV SYSTEM SHALL BE DESIGN CONDITION RACKING AND FASTENERS

SIGNED:  ANDREW

NAME: ANDREW

TITLE: PROFESSOR

ARRAY "B" SUMMARY

# MODULES	4
# ROOF MOUNTS	13
RAIL LENGTH	53 FT.
ARRAY AREA	84 SQFT.
ARRAY WEIGHT	258 LBS.
AZIMUTH @ SN	135°
TILT ANGLE	31°

ARRAY "A" SUMMARY

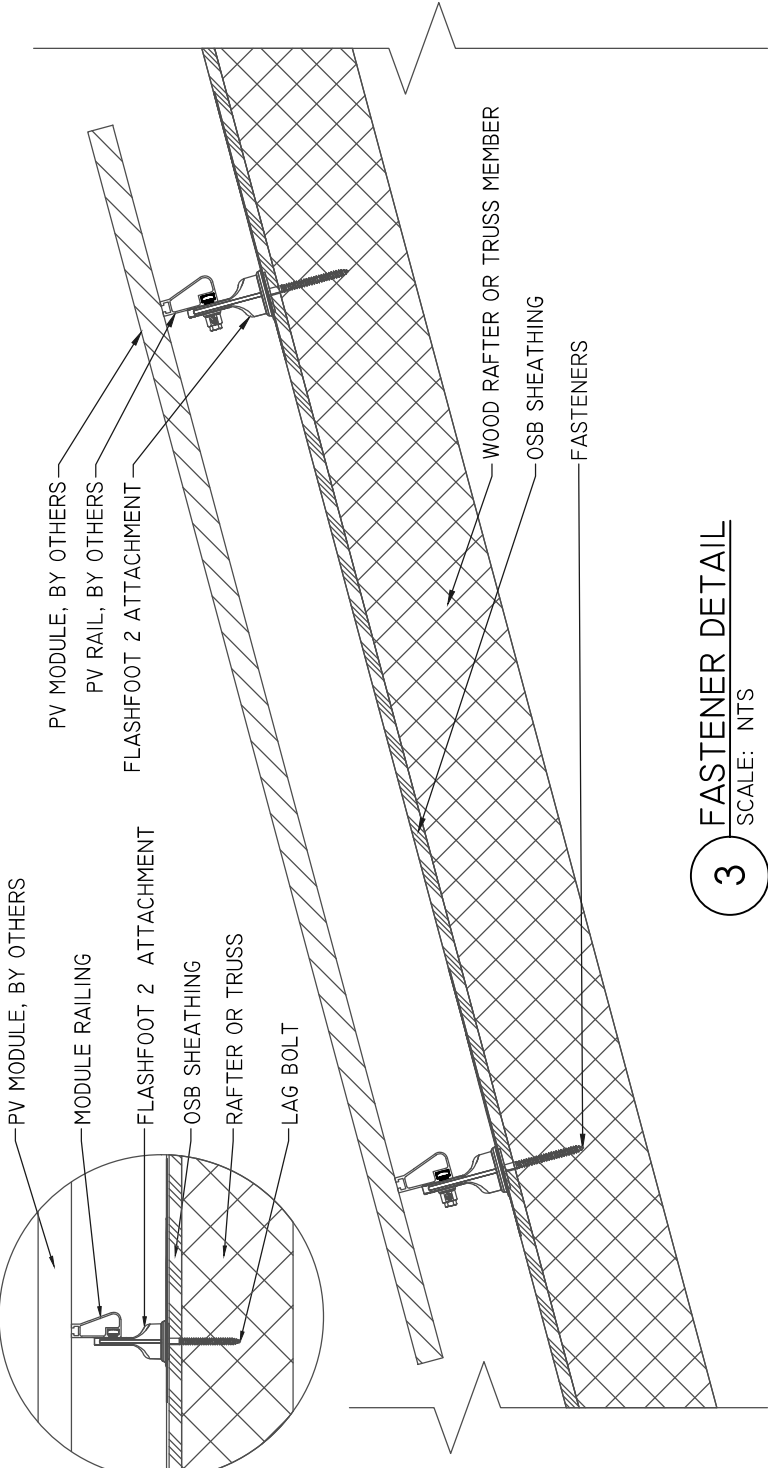
# MODULES	18
# ROOF MOUNTS	42
RAIL LENGTH	142 FT.
ARRAY AREA	378 SQFT.
ARRAY WEIGHT	1038 LBS.
AZIMUTH @ SN	135°
TILT ANGLE	27°

MOUNTING RAILS

MAKE	IRONRIDGE
MODEL	XRIO
MATERIAL	ALUMINUM
WEIGHT	1.25 LBS/SQFT
SPACING	34"

ROOF STRUCTURE

TYPE	
MATERIAL	S
SIZE	
SPACING	
EFF. SPAN	
ROOF "A"	
ROOF "B"	
PITCH	
ROOF "A"	
ROOF "B"	
DENSITY	
DECKING:	
TYPE	
MATERIAL	
THICKNESS	
WEIGHT	
ROOFING:	
TYPE	
MATERIAL	
WEIGHT	



3 FASTENER DETAIL
SCALE: NTS

PV MODULES

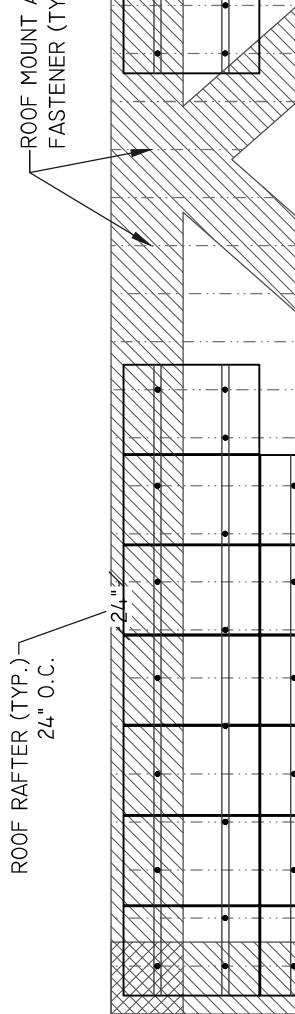
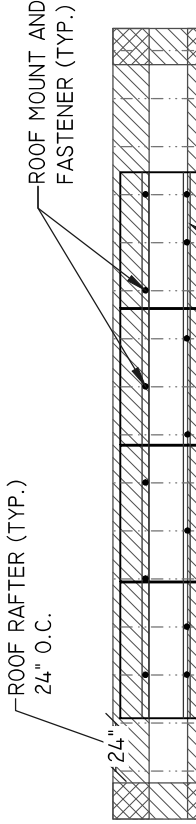
MAKE	URECO
MODEL	FBM400MFG-BB
WIDTH	44.6"
LENGTH	67.8"
THICKNESS	1.4"
WEIGHT	48 LBS

ROOF ZONES (LANDSCAPE):

ALL ZONES	MAX. RAIL OVERHANG =	16"
☐ ZONE 1	MAX. FASTENER SPAN ZONE 1 =	72"
▨ ZONE 2	MAX. FASTENER SPAN ZONE 2 =	48"
▩ ZONE 3	MAX. FASTENER SPAN ZONE 3 =	24"

ROOF ZONES (PORTRAIT):

ALL ZONES	MAX. RAIL OVERHANG =	16"
☐ ZONE 1	MAX. FASTENER SPAN ZONE 1 =	48"
▨ ZONE 2	MAX. FASTENER SPAN ZONE 2 =	48"
▩ ZONE 3	MAX. FASTENER SPAN ZONE 3 =	24"



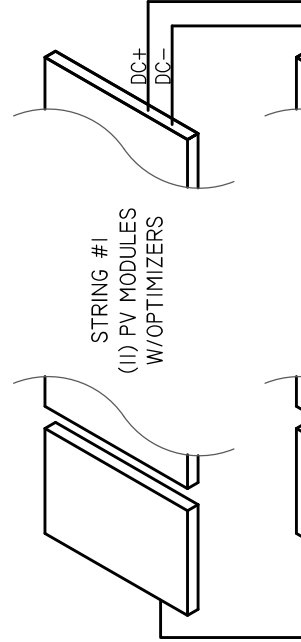
PV MODULES	
MAKE	URECO
MODEL	FBM400MFG-BB
TECHNOLOGY	MONO-CRYST.
NOM. POWER (P _{nom})	400 WATTS
NOM. VOLT. (V _{mp})	31.17 VOLTS
O.C. VOLT. (V _{oc})	37.20 VOLTS
MAX. SYS. VOLT.	1000 V (UL)
TEMP. COEF. (V _{tc})	-0.27 %/°C
NOM. CURR. (I _{mp})	12.84 AMPS
S.C. CURR. (I _{sc})	13.68 AMPS
MAX. SERIES FUSE	30 AMPS

MODULE OPTIMIZER	
MAKE	SOLAREEDGE
MODEL	S440
DC INPUT:	
RATED POWER	440 WATTS
VOLT. RANGE	8 - 60
MAX. SCC	14.5 AMPS
MAX. DC INPUT CURRENT	14.5 AMPS
DC OUTPUT:	
MAX. CURRENT	15 AMPS
MAX. VOLT.	60 VOLTS
MAX. SYSTEM VOLT.	1000 VOLTS
MIN. STRING	8 OPTIMIZERS
MAX. STRING	25 OPTIMIZERS
MAX. POWER	
INVERTERS: SE3000H-SE6000H	5700 WATTS
INVERTERS: SE7600H-SE11400H	5700 WATTS

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

NOTES:

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



CONDUCTOR SCHEDULE								
TAG	CURRENT CARRYING CONDUCTORS				GROUNDING CONDUCTORS			
	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	INSULATION
C1	2	10 AWG	COPPER	PV WIRE	1	6 AWG	COPPER	BARE WIRE
C2	4	10 AWG	COPPER	THWN-2	1	10 AWG	COPPER	THWN-2
C3	3	8 AWG	COPPER	THWN	1	10 AWG	COPPER	THWN
XC	-	-	-	-	-	-	-	-

NOTES:

1. MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED PIPING. CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED
2. EXISTING CONDUCTORS, FIELD VERIFY
3. EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF
4. PVC, EMT, ROMEX, LFNMC & FMC ARE ACCEPTABLE WHEN USED IN ACCORDANCE OF THE 2017 NEC

DC/AC INVERTER	
MAKE	SOLAREEDGE
MODEL	SE7600H-US
TECHNOLOGY	TRANS-LESS
DC INPUT:	
MAX. POWER	11800 WATTS
MAX. VOLT	480 VOLTS
NOM. VOLT.	400 VOLTS
MAX. CURRENT	20 AMPS
MAX. SCC	45 AMPS
STRINGS INPUTS	2 STRINGS
AC OUTPUT:	
RATED POWER	7600 WATTS
MAX. POWER	7600 WATTS
NOM. VOLT.	240 VOLTS
MAX. CURR.	32 AMPS
GFP (Y/N)	YES
RPP (Y/N)	YES
GFCI (Y/N)	YES
AFCI (Y/N)	YES
DC DISC. (Y/N)	YES
RAPID SHUTDOWN	AUTOMATIC
FUSE RATING	15 AMPS
PROTECT. RATING	NEMA 4X

AC DISCONNECT	
MAKE	GENERIC
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	60 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	NO
FUSE RATING	N/A

NOTES:

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- INSTALL ADJACENT TO METER
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES

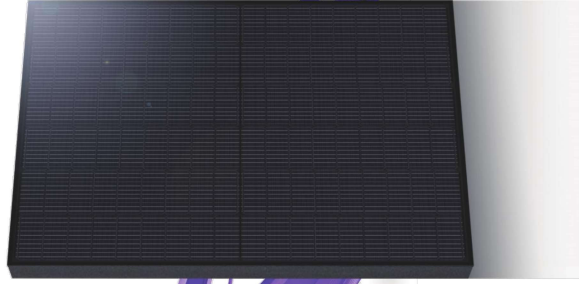
DC/AC INVERTER

JUNCTION BOX



FBM_MFG-BB / 108 cells
390W - 405 W
Mono-Crystalline PV Module

URE Peach module uses URE state-of-the-art cell cutting technology, and advanced module manufacturing experiences.



Key Features



Positive power tolerance
 +0 ~ +5 watt



Withstand heavy loading
 front load 5400 Pa & rear load 2400 Pa



Excellent low light performance
 3.5% relative eff. Reduction at low
 (200W/m²)



For more information, please visit us at www.urecorp.com

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WARNING: PHOTOVOLTAIC POWER SOURCE

WARNING

DIRECT CURRENT PHOTOVOLTAIC POWER SOURCE

Electrical Data

Model - STC	FBM390MFG-BB	FBM395MFG-BB	FBM400MFG-BB	FBM
Maximum Rating Power (Pmax)	[W]	390	395	400
Module Efficiency	[%]	19.98	20.23	20.49
Open Circuit Voltage (Voc)	[V]	36.84	37.03	37.20
Maximum Power Voltage	[V]	30.82	31.00	31.17
Short Circuit Current (Isc)	[A]	13.50	13.59	13.68
Maximum Power Current	[A]	12.66	12.75	12.84

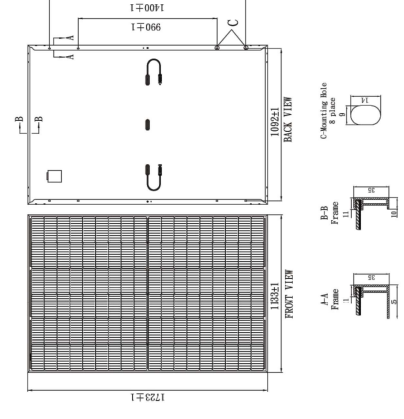
*Standard Test Condition (STC): Cell Temperature 25 °C, Irradiance 1000 W/m², AM 1.5
 *Values without tolerance are typical numbers. Measurement tolerance: ± 3%

Mechanical Data

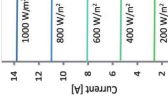
Item	Specification
Dimensions	1723 mm (L) x 1133 mm (W) x 35 mm (D) / 67.83" (L) x 44.61" (W) x 1.38" (D)
Weight	21.7 kg / 47.84 lbs
Solar Cell	12x9 pieces monocrystalline solar cells series strings
Front Glass	White toughened safety glass, 3.2mm thickness
Cell Encapsulation	EVA (Ethylene-Vinyl-Acetate)
Frame	Black anodized aluminum profile
Junction Box	IP≥ 68, 3 diodes
Cable & Connector	Potrait: 500 mm (cable length can be customized), 1 x 4 mm ² compatible with MC4
Package Configuration	31 pcs Per Pallet, 806 pcs per 40' HQ container

1: With assembly tolerance of ± 2 mm [± 0.08"]
 2: With assembly tolerance of ± 0.8 mm [± 0.03"]

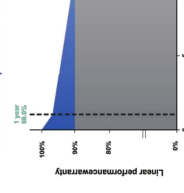
Engineering Drawing (mm)



Dependence on Irradiance



Reliability with Wafer



For more information,

Head Office
 9F, NO. 295, Sec. 2, Tiding Blvd.,
 Neihu Dist., Taipei 11493, Taiwan
 Tel: +886-2-2656-2000
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Taipei Office

United Renewable Energy Co., Ltd.

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Power Optimizer For Residential Installations

S440, S500



Enabling PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Detects abnormal PV connector behavior, preventing potential safety issues*
- Module-level voltage shutdown for installer and firefighter safety
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Faster installations with simplified cable management and easy assembly using a single bolt
- Flexible system design for maximum space utilization

Power Optimizer For Residential Installation S440, S500

Rated Input DC Power⁽¹⁾
Absolute Maximum Input Voltage (Voc)
MPPT Operating Range
Maximum Short Circuit Current (Isc) of Connected PV Module
Maximum Efficiency
Weighted Efficiency
Overvoltage Category

OUTPUT DURING OPERATION

Maximum Output Current
Maximum Output Voltage

OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED)
Safety Output Voltage per Power Optimizer

STANDARD COMPLIANCE

EMC
Safety
Material
RoHS
Fire Safety

INSTALLATION SPECIFICATIONS

Maximum Allowed System Voltage
Dimensions (W x L x H)
Weight (including cables)
Input Connector
Input Wire Length
Output Connector
Output Wire Length
Operating Temperature Range⁽⁶⁾
Protection Rating
Relative Humidity

(1) Rated power of the module at STC will not exceed the Power Optimizer Rated Input DC Power. Maximum power for other connector types please contact SolarEdge.
(2) For ambient temperature above +70°C / +158°F power de-rating is applied. Refer to Power Optimizer de-rating chart.
(3) For the 277V/480V grid, it is allowed to install up to 15,000W per string when the maximum power of the module is 150W.

PV System Design Using a SolarEdge Inverter

Minimum String Length (Power Optimizers) S440, S500 8
Maximum String Length (Power Optimizers) 25
Maximum Nominal Power per String⁽⁴⁾ 5700

Parallel Strings of Different Lengths or Orientations

(4) If the inverters rated AC power is maximum nominal power per string, then the maximum power per string is limited by the inverter. Refer to: <https://www.solaredge.com/sites/default/files/ser-power-optimizer-single-string-limitation.pdf>
(5) For the 230V/400V grid, it is allowed to install up to 13,500W per string when the maximum power of the module is 150W.
(6) For the 277V/480V grid, it is allowed to install up to 15,000W per string when the maximum power of the module is 150W.
(7) It is not allowed to mix S-series and P-series Power Optimizers in new installations.



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



Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Extremely small

INVERTERS

Single Phase Inverter with HD-Wave Technology

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

SE3000H-US SE3800H-US SE5000H-US

OUTPUT

Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	500
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	500
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-
AC Frequency (Nominal)			
Maximum Continuous Output Current @240V	12.5	16	2
Maximum Continuous Output Current @208V	-	16	

GFDI Threshold

Utility Monitoring, Islanding Protection, Country Configurable Thresholds

INPUT

Maximum DC Power @240V	4650	5900	7750
Maximum DC Power @208V	-	5100	-
Transformer-less, Ungrounded			
Maximum Input Voltage			380
Nominal DC Input Voltage			
Maximum Input Current @240V ⁽²⁾	8.5	10.5	13
Maximum Input Current @208V ⁽²⁾	-	9	-
Max. Input Short Circuit Current			
Reverse-Polarity Protection			
Ground-Fault Isolation Detection			
Maximum Inverter Efficiency	99		
CEC Weighted Efficiency			
Nighttime Power Consumption			

ADDITIONAL FEATURES

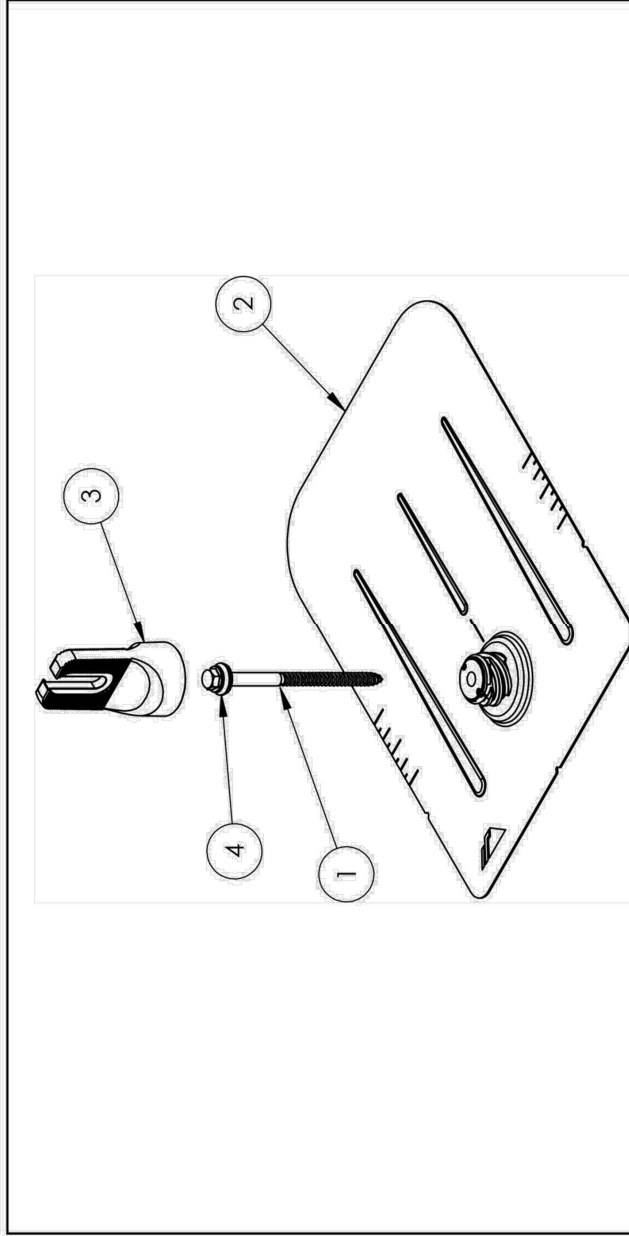
Supported Communication Interfaces	RS485
Revenue Grade Data, ANSI C12.20	
Rapid Shutdown - NEC 2014 and 2017 690.12	Auto

STANDARD COMPLIANCE

Safety	UL1741, UL1741 SA
Grid Connection Standards Emissions	

INSTALLATION SPECIFICATIONS

FlashFoot2



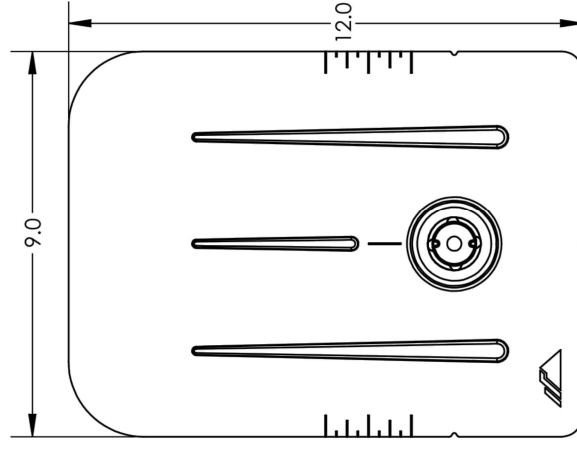
ITEM NO.	DESCRIPTION
1	BOLT LAG-5/16 X 4.75"
2	ASSY, FLASHING
3	ASSY, CAP
4	WASHER, EPDM BACKED

FLASHFOOT 2

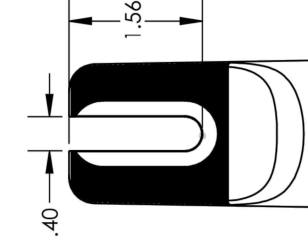
Part Number	Description
FF2-01-M1	FLASHFOOT2, MILL
FF2-01-B1	FLASHFOOT2, BLACK

1) Bolt, Lag 5/16 x 4.75"

2) Assy, Flashing



3) Assy, Cap



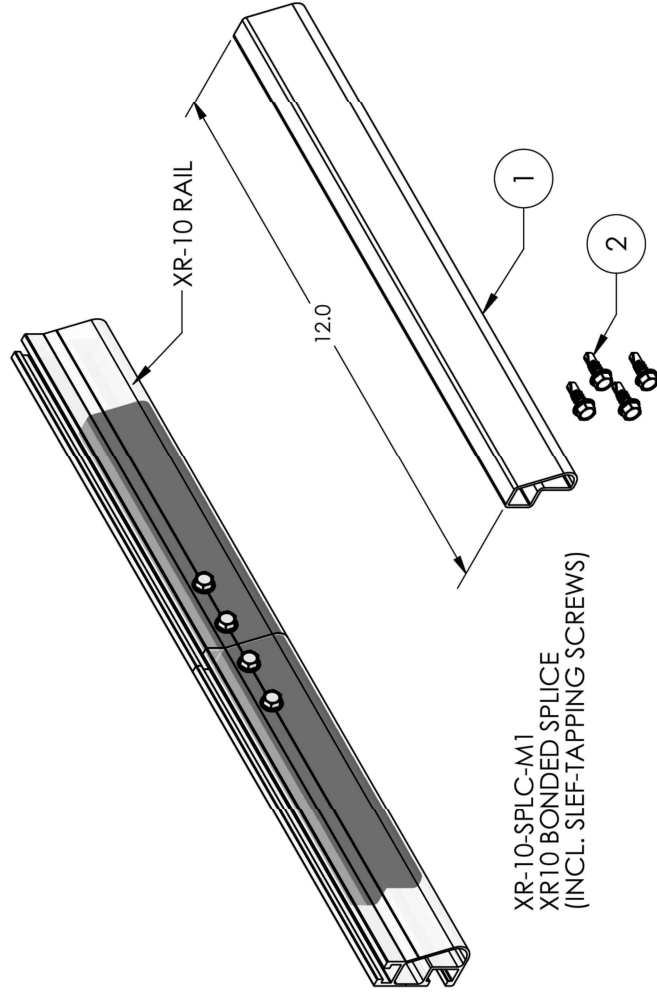


XR10 Bonded Splice

Cut Sheet



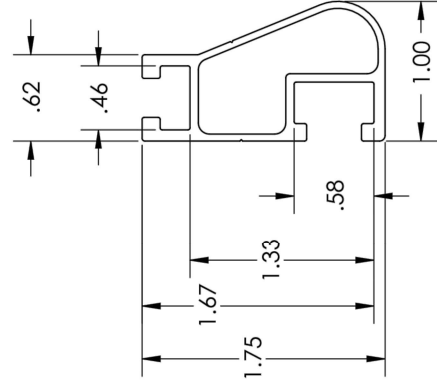
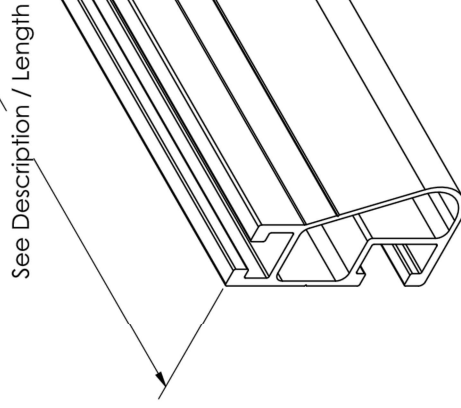
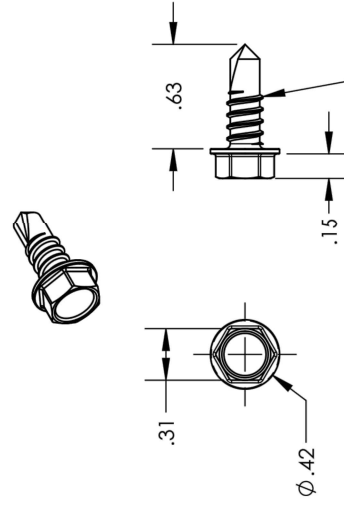
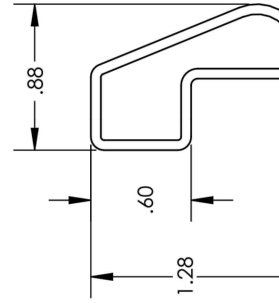
See Description / Length



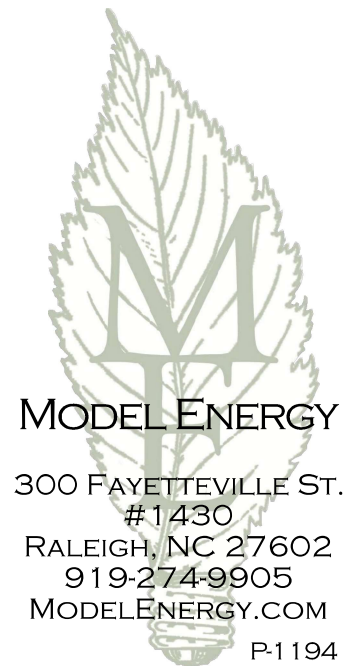
XR-10-SPLICER-M1
XR10 BONDED SPLICE
(INCL. SELF-TAPPING SCREWS)

1) Splice, XR10, Mill 12" long

2) Screw, Self Drilling



Customer: Brian Taptick
Installer: SmartSun
Subject: PV System Structural Compliance
Date: 11/23/22



To whom it may concern:

Model Energy, PLLC has reviewed the installation details of the proposed PV system that is to be installed by SmartSun Energy at 39 Boone Ct, Angier, NC 27501. The conditions of the existing structure have been reviewed and validated by Model Energy, PLLC. The existing roof structure has been designed to support the additional loads of the proposed PV system. In addition, the racking and fastening system shall be capable of securing the system to the structure under design conditions when installed properly and in accordance with the racking and fastening arrangement detailed within the accompanying permit set. The installation design is compliant with current 2018 North Carolina state and national building codes.

Thank you,

Andrew King, PE

