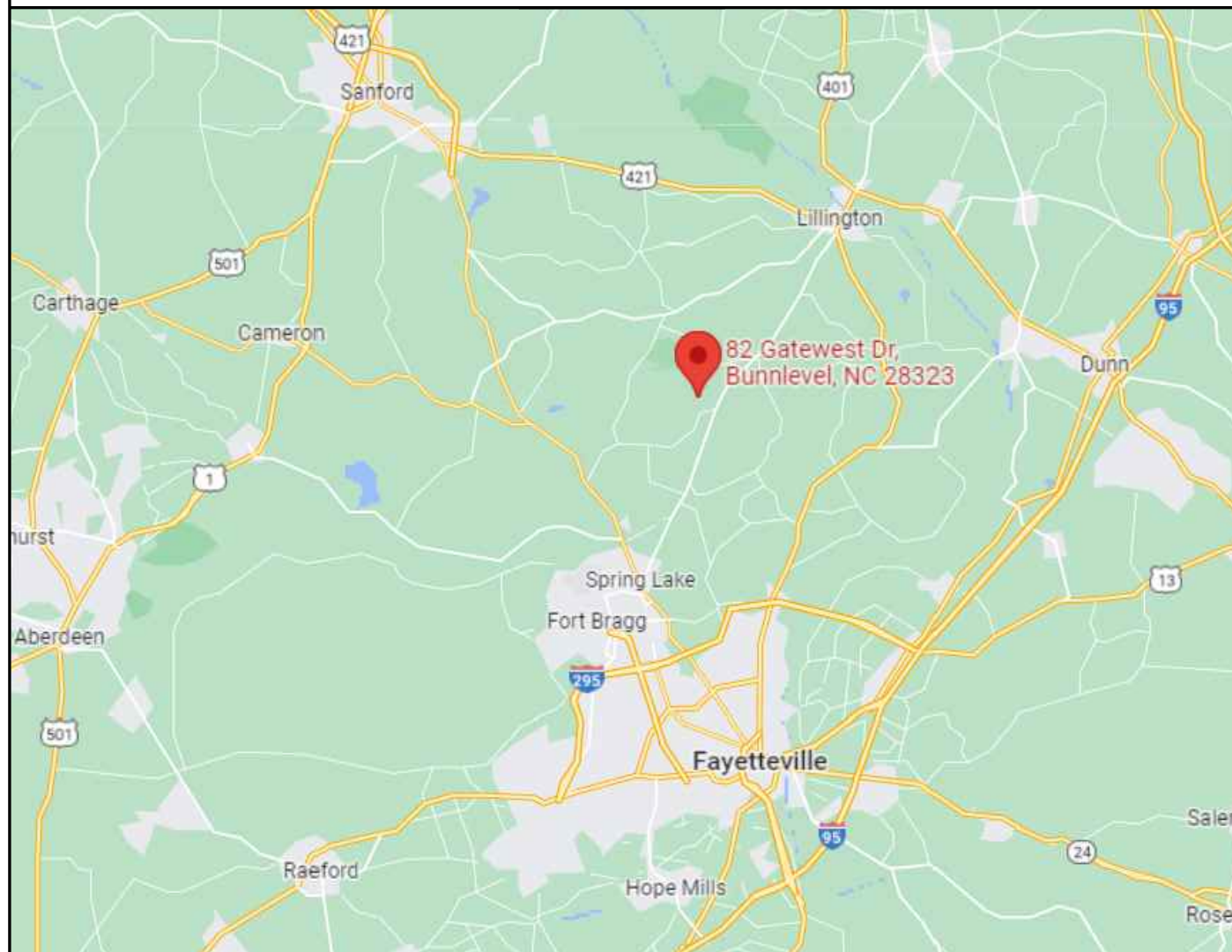
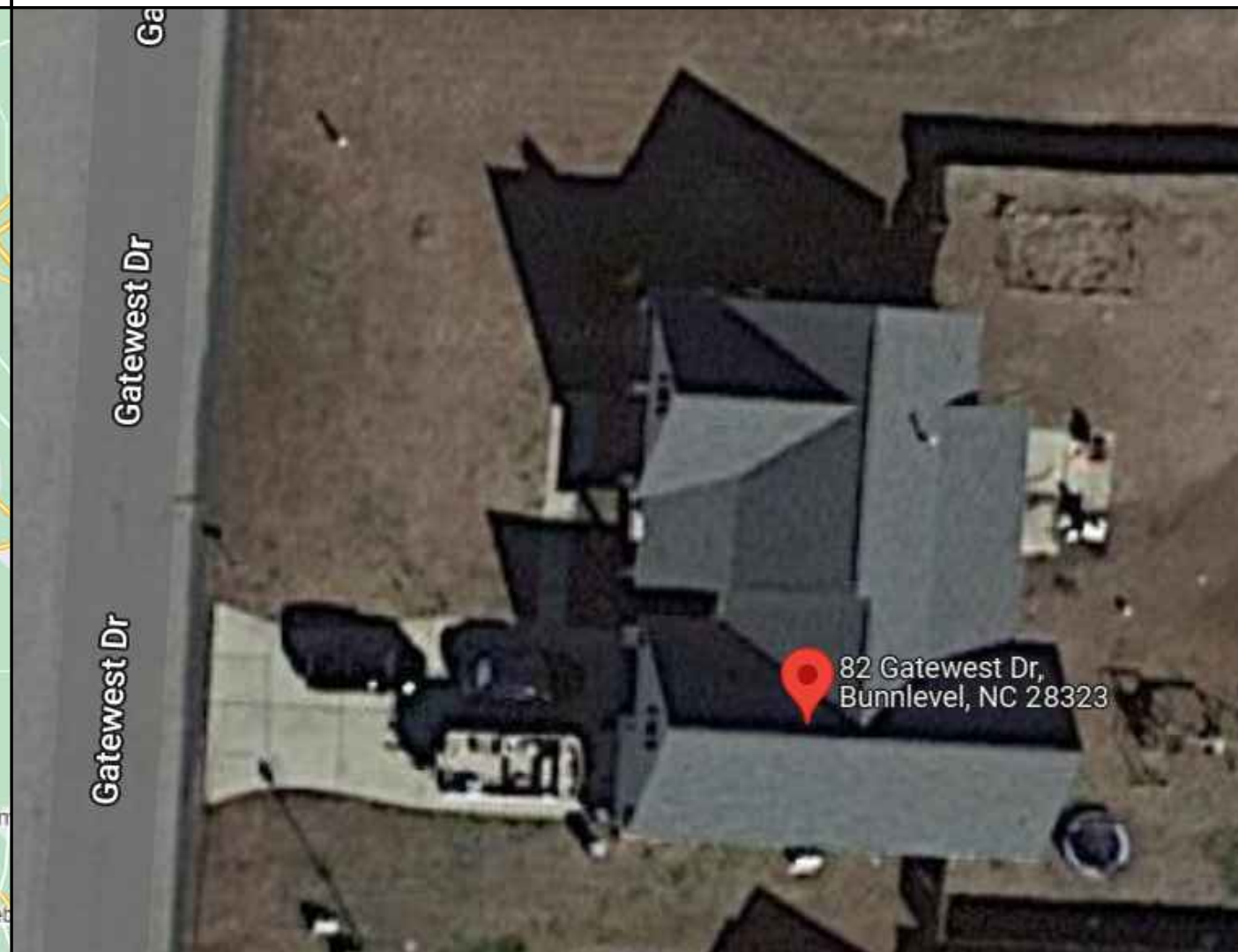



VICINITY MAP



PROPERTY MAP



ENGINEER:

MODEL ENERGY
 300 FAYETTEVILLE ST.
 #1430
 RALEIGH, NC 27602
 919-274-9905
 MODELENERGY.COM
 P-1194

JOB TITLE:
NEW SOLAR PV SYSTEM
 15.600 kW DC INPUT
 9.555 kW AC EXPORT
Steven Speissegger
 82 Gatewest Dr.
 Bunnlevel, NC 28323

CLIENT:
SMARTSUN ENERGY

ISSUED FOR:	DATE:
CONSTRUCTION	04/06/22

PROJECT INFORMATION

PV1.1

SCOPE OF WORK

(39) REC / REC400AA PURE
 (39) ENPHASE IQ8M-72-2-US
 ROOF MOUNT: FLASHKIT PRO
 MOUNTING RAILS: UNIRAC LIGHT RAIL

SITE CONDITION

ASCE 7-10 WIND SPEED - 118 MPH
 EXPOSURE CATEGORY - B
 RISK CATEGORY - II

SHEET INDEX

PV1.1	PROJECT INFORMATION
PV2.1	SITE INFORMATION
PV3.1	STRUCTURAL INFORMATION
PV4.1	ELECTRICAL INFORMATION
PV5.1	EQUIPMENT LABELS
PV6.1-6.2	EQUIPMENT SPEC SHEETS

INTERCONNECTION TYPE

LOAD SIDE TAP

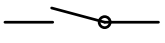



CODE REFERENCES

2017 NATIONAL ELECTRIC CODE
 2018 NORTH CAROLINA BUILDING CODE
 2018 NORTH CAROLINA RESIDENTIAL CODE
 2018 NORTH CAROLINA FIRE CODE

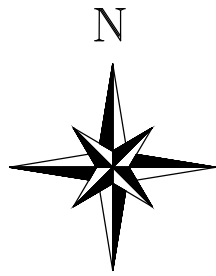
UTILITY COMPANY

SOUTH RIVER EMC

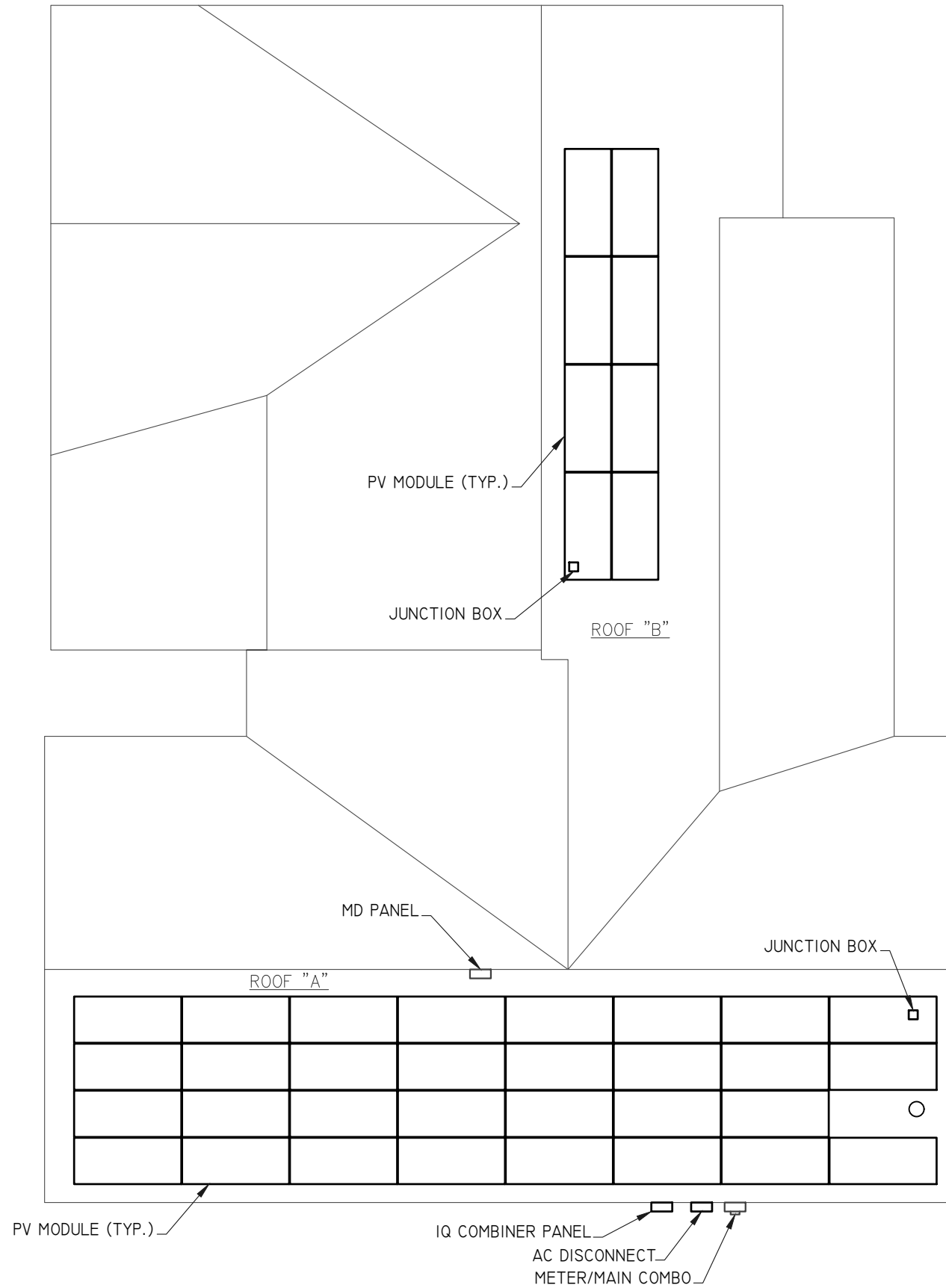
LEGEND

-  DISCONNECT SWITCH
-  FUSE
-  CIRCUIT BREAKER
-  EQUIP. GROUND

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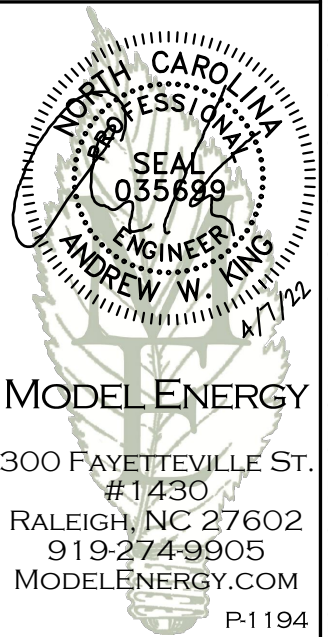


FRONT OF HOUSE



1 SITE PLAN
SCALE: 1/8" = 1' -0"

ENGINEER:



MODEL ENERGY

300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
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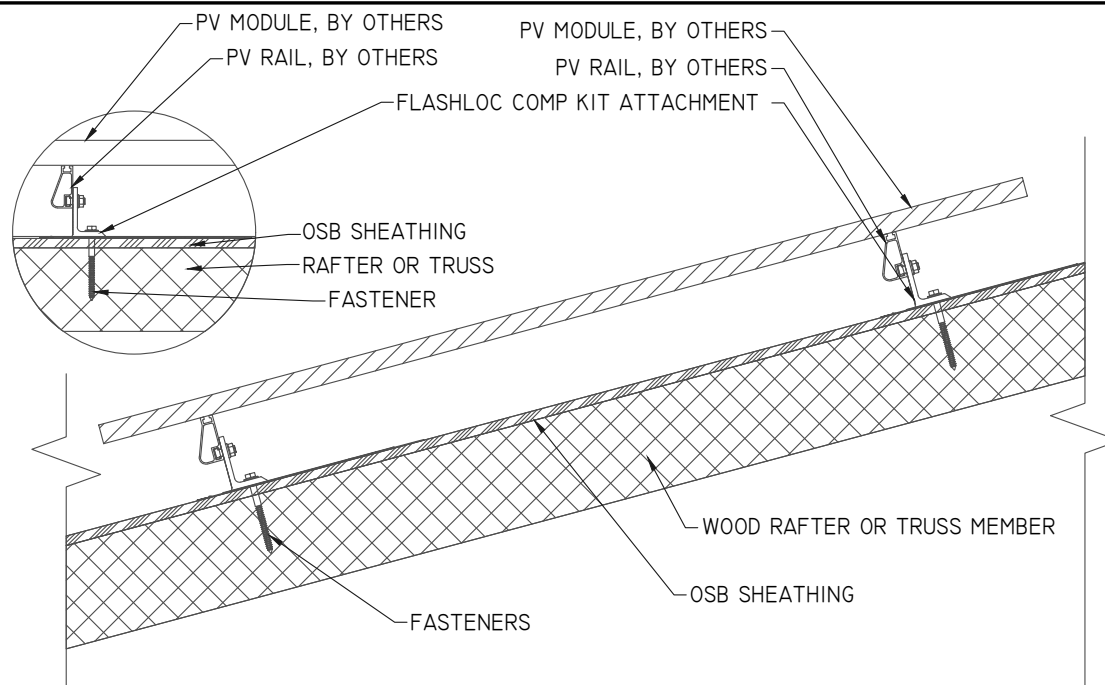
**SMARTSUN
ENERGY**

ISSUED FOR:	DATE:
CONSTRUCTION	04/06/22

SITE
INFORMATION

PV2.1

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ROOF "A" ARRAY SUMMARY

# MODULES	31
# ROOF MOUNTS	80
RAIL LENGTH	377 FT.
ARRAY AREA	620 SQFT.
ARRAY WEIGHT	1870 LBS.
AZIMUTH @ SN	180°
TILT ANGLE	40°

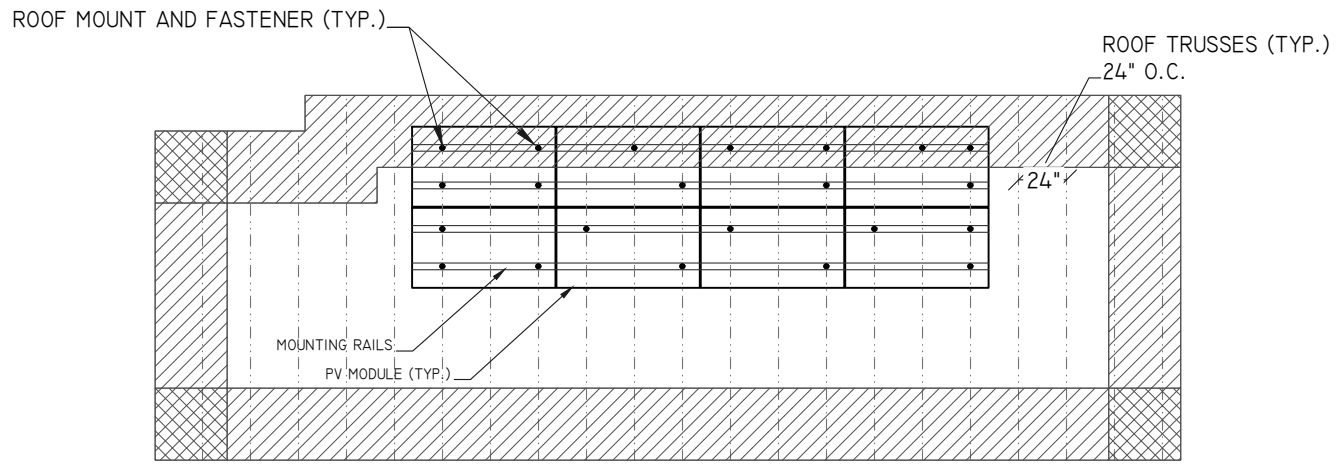
ROOF "B" ARRAY SUMMARY

# MODULES	8
# ROOF MOUNTS	22
RAIL LENGTH	98 FT.
ARRAY AREA	160 SQFT.
ARRAY WEIGHT	485 LBS.
AZIMUTH @ SN	90°
TILT ANGLE	27°

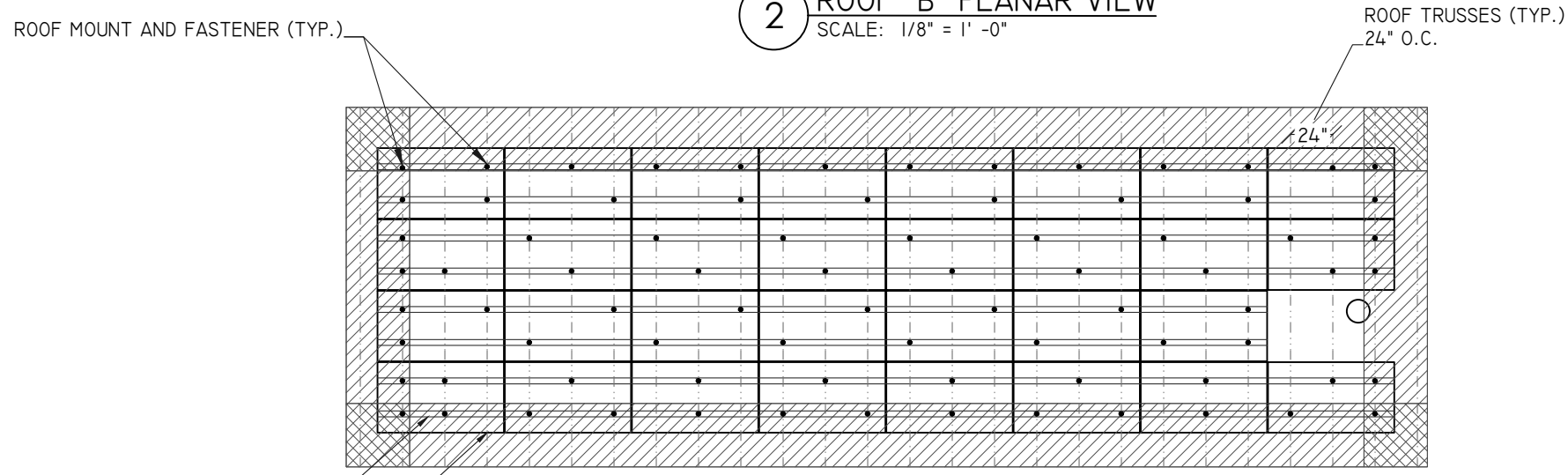
ROOF ZONES:

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"

3 FASTENER DETAIL
SCALE: NTS



2 ROOF "B" PLANAR VIEW
SCALE: 1/8" = 1' -0"



1 ROOF "A" PLANAR VIEW
SCALE: 1/8" = 1' -0"

STATEMENT OF STRUCTURAL COMPLIANCE

THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PROPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING ARRANGEMENT DETAILED WITHIN THESE DRAWINGS.

SIGNED: *Andrew W. King*

NAME: ANDREW W. KING, PE

TITLE: PROFESSIONAL ENGINEER

MOUNTING RAILS

MAKE	UNIRAC
MODEL	SM LIGHT RAIL
MATERIAL	ALUMINUM
WEIGHT	0.49 LBS./FT.
SPACING	34 IN.

PV MODULES

MAKE	REC
MODEL	REC400AA PURE
WIDTH	40"
LENGTH	71.7"
THICKNESS	1.2"
WEIGHT	45 LBS

ROOF SUMMARY

STRUCTURE:	
TYPE	TRUSS
MATERIAL	SOUTHERN PINE #2
SIZE	2" X 4"
SPACING	24" o.c.
EFF. SPAN	13'-0"
PITCH	10 / 12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	WOOD COMPOSITE
THICKNESS	7/16"
WEIGHT	1.6 LBS./SQFT.
ROOFING:	
TYPE	ARCH SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.3 LBS./SQFT.

ROOF LOADING

GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD:	20 LBS./SQFT.
DEAD LOAD:	
ROOFING	3.9 LBS./SQFT.
PV ARRAY	3.0 LBS./SQFT.
TOTAL	6.6 LBS./SQFT.
WIND LOAD:	
UPLIFT ZONE 1	-24.6 LBS./SQFT.
UPLIFT ZONE 2	-29.0 LBS./SQFT.
UPLIFT ZONE 3	-29.0 LBS./SQFT.
DOWNWARD	23.0 LBS./SQFT.
FASTENER LOAD:	
UPLIFT ZONE 1	-246 LBS.
UPLIFT ZONE 2	-193 LBS.
UPLIFT ZONE 3	-97 LBS.
DOWNWARD	230 LBS.

ROOF MOUNT & FASTENER

ROOF MOUNT:	
MAKE	UNIRAC
MODEL	FLASHKIT PRO
MATERIAL	ALUMINUM
FASTENER	
MAKE	GENERIC
MODEL	LAG BOLT
MATERIAL	SS LAG W/EPDM WASHER
SIZE	5/16" x 4"
GENERAL	
WEIGHT	1 LBS
FASTENERS PER MOUNT	1 PER MOUNT
MAX. PULL-OUT FORCE	800 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	400 LBS.

- LAG BOLT EMBEDDED WITH 2.5" OF THREAD IN WOOD RAFTER OR TRUSSES MEMBER

ENGINEER:

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Steven Speissegger
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Bunnlevel, NC 238323

CLIENT:

SMARTSUN ENERGY

ISSUED FOR:	DATE:
CONSTRUCTION	04/06/22

STRUCTURAL INFORMATION

PV3.1

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PV MODULES	
MAKE	REC
MODEL	REC400AA PURE
TECHNOLOGY	MONO-CRYST.
NOM. POWER (P _{nom})	400 WATTS
NOM. VOLT. (V _{mp})	42.1 VOLTS
O.C. VOLT. (V _{oc})	48.8 VOLTS
MAX. SYS. VOLT.	1000 V (UL)
TEMP. COEF. (V _{tc})	-0.24 %/°C
NOM. CURR. (I _{mp})	9.51 AMPS
S.C. CURR. (I _{sc})	10.25 AMPS
MAX. SERIES FUSE	25 AMPS

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 BOXES AS REQUIRED TO COMBINE MODULES ON DIFFERENT ARRAYS INTO A SINGLE STRING

DC/AC INVERTER	
MAKE	ENPHASE ENERGY
MODEL	IQ8-60-2-US
TECHNOLOGY	MICRO INVERTER
DC INPUT:	
MAX. POWER	350 WATTS
VOLT. RANGE	27-37 VOLTS
MAX. CURRENT	15 AMPS
AC OUTPUT:	
NOM. POWER	245 WATTS
NOM. VOLT.	240 VOLTS
MAX. CURR.	1.0 AMPS
GFP (Y/N)	YES
GFCI (Y/N)	YES
AFCI (Y/N)	YES
DC DISC. (Y/N)	NO
RAPID SHUTDOWN	YES
FUSE RATING	15 AMPS
PROTECT. RATING	NEMA 6R

SUB PANEL (EXISTING)	
MAKE	N/A
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	NO
BREAKER RATING	N/A

NOTES:

- SUB PANEL FED BY 200A BREAKER IN METER/MAIN COMBO.

CONDUCTOR SCHEDULE													
TAG	CURRENT CARRYING CONDUCTORS				GROUNDING CONDUCTORS				CONDUIT/RACEWAY				NOTES
	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	LOCATION	
C1	2	12 AWG	COPPER	PV WIRE	1	6 AWG	COPPER	BARE	-	-	-	FREE AIR	1
C2	2	12 AWG	COPPER	MANU. CAB.	1	10 AWG	COPPER	THWN-2	-	-	-	FREE AIR	1
C3.1	4	10 AWG	COPPER	THWN-2	1	10 AWG	COPPER	THWN-2	1	1/2"	FMC/EMT/MC	EXT/INT	2,4
C3.2	2	12 AWG	COPPER	THWN-2	1	12 AWG	COPPER	THWN-2	1	1/2"	FMC/EMT/MC	EXT/INT	2,4
C4	3	8 AWG	COPPER	THWN	1	10 AWG	COPPER	THWN	1	1/2"	NOTE 5	INT/EXT	2,4,5
C5	3	8 AWG	COPPER	THWN	1	6 AWG	COPPER	THWN	1	1"	NOTE 5	EXT	2,4,5,6
XC	-	-	-	-	-	-	-	-	-	-	-	-	3

NOTES:

1. MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
2. CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED.
3. EXISTING CONDUCTORS, FIELD VERIFY
4. EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR
5. PVC, EMT, ROMEX, LFNMC & FMC ARE ACCEPTABLE WHEN USED IN ACCORDANCE WITH ARTICLES 330, 334, 348, 350, 352, 356, & 358 OF THE 2017 NEC
6. SERVICE CONDUCTORS SHALL NOT TRAVEL MORE THAN 5' INSIDE OF THE BUILDING AND MORE THAN 10' IN TOTAL.

IQ COMBINER PANEL (NEW)	
MAKE	N/A
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	NO
BREAKER RATING	N/A

NOTES:

- BACK-FEED INVERTER OUTPUT VIA (1) 15A & (2) 20A BREAKERS AT THE OPPOSITE END OF THE BUS BAR FROM MAIN BREAKER.
- PROVIDE "FED BY MULTIPLE POWER SOURCES" LABEL.

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)	YES
FUSE RATING	50 AMPS

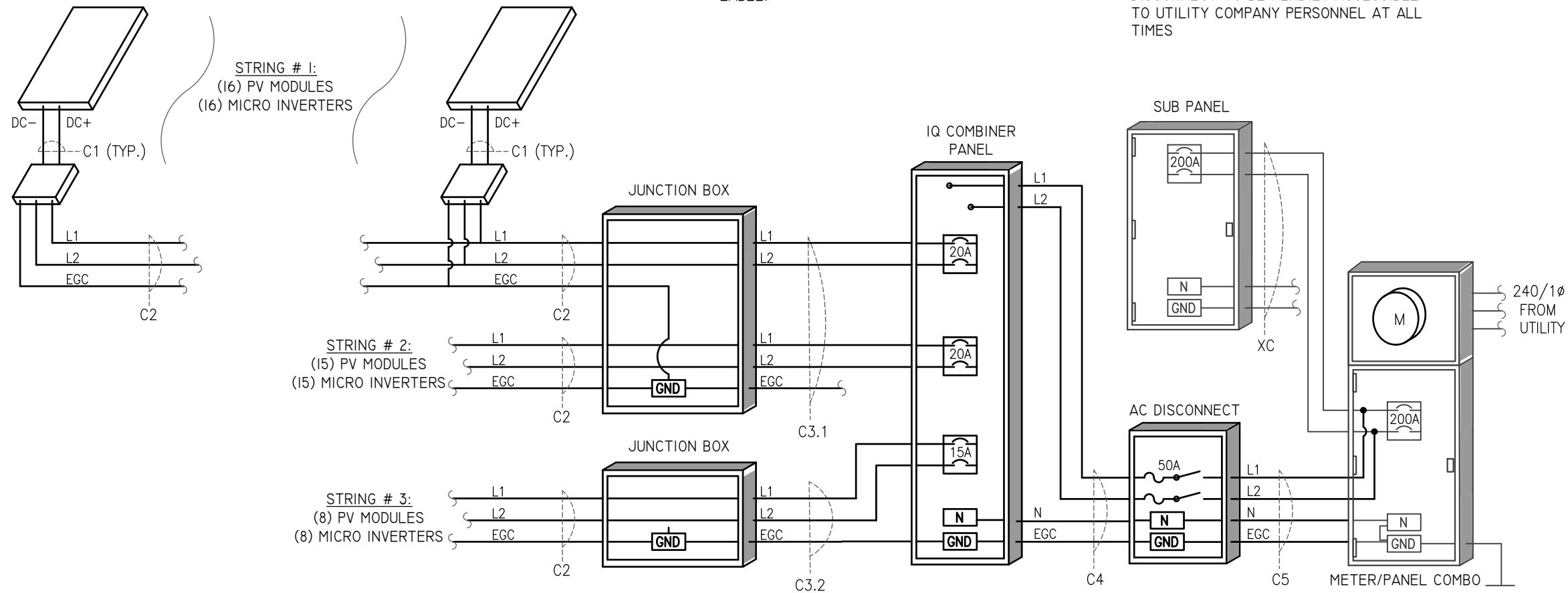
NOTES:

- 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

METER/MAIN COMBO (EXISTING)	
MAKE	N/A
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	NO
BREAKER RATING	N/A

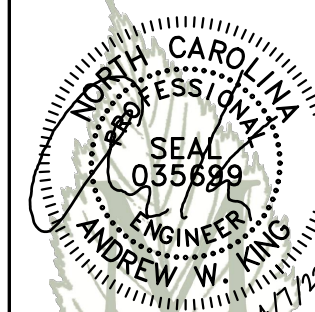
NOTES:

- BACK-FEED SOLAR OUTPUT VIA LOAD SIDE TAP INSIDE OF MD PANEL.
- 6 THROW DISCONNECT, EACH BREAKER SERVES AS SERVICE DISCONNECT.



1 PV SYSTEM ELECTRICAL WIRING SCHEMATIC
SCALE: NTS

ENGINEER:



MODEL ENERGY

300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM
P-1194

JOB TITLE:

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15.600 kW DC INPUT
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CLIENT:

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ISSUED FOR: CONSTRUCTION
DATE: 04/06/22

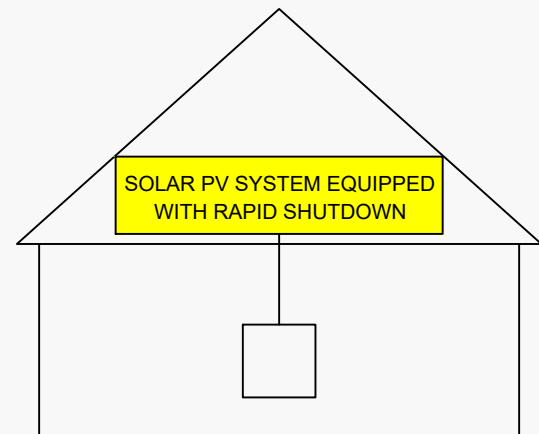
ELECTRICAL
INFORMATION

PV4.1

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SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY



NEC 690.56 (C)(1)(a)

PLACE WITHIN 3FT OF SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATIONS OF RAPID SHUTDOWN SWITCHES

WARNING: PHOTOVOLTAIC POWER SOURCE

NEC 690.31 (G)(3)&(4)

PLACE ON ALL JUNCTION BOXES, EXPOSED RACEWAYS, AND OTHER WIRING METHODS EVERY 10' AND ON EVERY SECTION SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

NEC 690.56 (C)(3)

PLACE ON RAPID SHUTDOWN SWITCH OR EQUIPMENT WITH INTEGRATED RAPID SHUTDOWN *REFLECTIVE*

PV SYSTEM DISCONNECT

NEC 690.13 (B)

PLACE ON PV SYSTEM DISCONNECTING MEANS.

WARNING

DUAL POWER SUPPLY

SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

NEC 705.12 (B)(3)

PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY BOTH POWER SOURCES

WARNING

FED BY MULTIPLE POWER SOURCES

TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING UTILITY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR

NEC 705.12 (B)(2)(3)(c)

PLACE ADJACENT TO BACK-FED BREAKER

EQUIPMENT LABEL NOTES

- LABELS SHOWN ARE IN THEIR ACTUAL REQUIRED SIZE.
- LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
- CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.

WARNING

ELECTRIC SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

NEC 690.13 (B)

PLACE ON PV SYSTEM DISCONNECTING MEANS.

WARNING

POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

NEC 705.12 (B)(2)(3)(b)

PLACE ADJACENT TO BACK-FED BREAKER

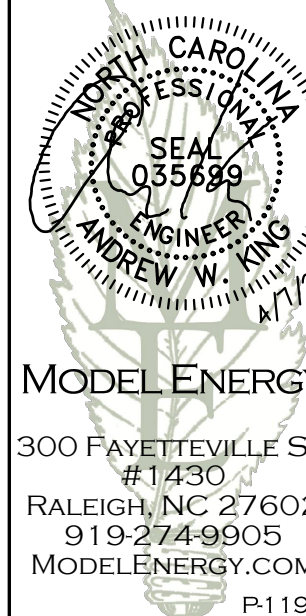
PHOTOVOLTAIC POWER SOURCE

OPERATING AC VOLT. 240 VAC
MAXIMUM OPERATING AC OUTPUT CURRENT 39.0 AMPS

NEC 690.54

PLACE ON INTERCONNECTION DISCONNECTING MEANS

ENGINEER:



MODEL ENERGY

300 FAYETTEVILLE ST.
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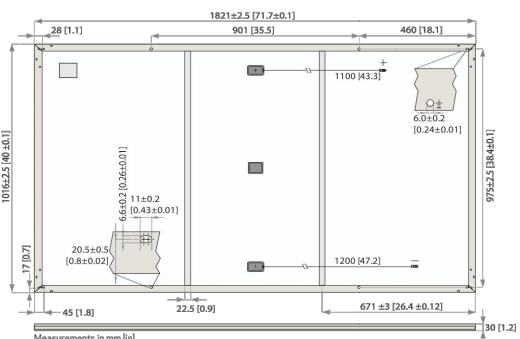
EQUIPMENT LABELS

PV5.1



REC ALPHA PURE BLACK SERIES > PRODUCT SPECIFICATIONS

PRODUCT SPECIFICATIONS



CERTIFICATIONS
IEC 61215:2016, IEC 61730:2016, UL 61730 (Pending), ISO 14001:2004, ISO 9001:2015, OHSAS 18001:2007, IEC 62941

WARRANTY

	Standard	REC ProTrust
Installed by an REC Certified Solar Professional	No	Yes
System Size	All	<25 kW
Product Warranty (yrs)	20	25
Power Warranty (yrs)	25	25
Labor Warranty (yrs)	0	25
Power in Year 1	98%	98%
Annual Degradation	0.25%	0.25%
Power in Year 25	92%	92%

GENERAL DATA

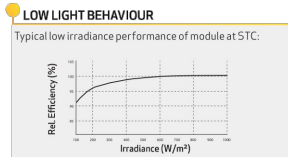
Cell type:	132 half-cut REC heterojunction cells with lead-free, gapless technology 6 strings of 22 cells in series	Connectors:	Stäubli MC4PV-KB14/KS14 12 AWG (4mm ²) in accordance with IEC 62852 IP68 only when connected
Glass:	0.13 in (3.2 mm) solar glass with anti-reflection surface treatment	Cable:	12 AWG (4mm ²) PV wire, 43+47 in (11+12 m) in accordance with EN 50618
Backsheet:	Highly resistant polymer (black)	Dimensions:	71.7 x 40 x 1.2 in (1821 x 1016 x 30 mm)
Frame:	Anodized aluminum (black)	Weight:	45 lbs (20.5 kg)
Junction box:	3-part, 3 bypass diodes, IP67 rated in accordance with IEC 62790	Origin:	Made in Singapore

ELECTRICAL DATA Product Code: RECxxxAA Pure Black

	385	390	395	400	405
Power Output - P _{max} (Wp)	385	390	395	400	405
Watt Class Sorting - (W)	0/+5	0/+5	0/+5	0/+5	0/+5
Nominal Power Voltage - V _{mp} (V)	41.2	41.5	41.8	42.1	42.4
Nominal Power Current - I _{mp} (A)	9.35	9.40	9.45	9.51	9.56
Open Circuit Voltage - V _{oc} (V)	48.5	48.6	48.7	48.8	48.9
Short Circuit Current - I _{sc} (A)	9.99	10.03	10.07	10.10	10.14
Power Density (W/sq ft)	19.3	19.6	19.8	20.1	20.3
Panel Efficiency (%)	20.8	21.1	21.3	21.6	21.9
Power Output - P _{max} (Wp)	293	297	301	305	309
Nominal Power Voltage - V _{mp} (V)	38.8	39.1	39.4	39.7	40.0
Nominal Power Current - I _{mp} (A)	7.55	7.59	7.63	7.68	7.72
Open Circuit Voltage - V _{oc} (V)	45.7	45.8	45.9	46.0	46.1
Short Circuit Current - I _{sc} (A)	8.07	8.10	8.13	8.16	8.19

TEMPERATURE RATINGS

Operational temperature:	-40 ... +185°F (-40 ... +85°C)
Maximum system voltage:	1000 V
Maximum test load (front):	+7000 Pa (146 lbs/sq ft)
Maximum test load (rear):	-4000 Pa (83.5 lbs/sq ft)
Max series fuse rating:	25 A
Max reverse current:	25 A



Values at standard test conditions (STC: air mass AM1.5, irradiance 1000 W/m², temperature 25°C) based on a production spread with a tolerance of P_{max} ±0.4%, V_{oc} ±0.4%, I_{sc} ±3% with one watt class. Nominal module operating temperature (NMOT) at air mass AM1.5, irradiance 800 W/m², temperature 68°F (20°C), wind speed 3.3 ft/s (1 m/s). *Where xxx indicates the nominal power class (P_{max}) at STC above.

Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.



Enphase IQ Combiner 4/4C

MODEL NUMBER

IQ Combiner 4 (X-IQ-AM1-240-4)	IQ Combiner 4 with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the IQ Battery system and IQ System Controller 2 and to deflect heat.
IQ Combiner 4C (X-IQ-AM1-240-4C)	IQ Combiner 4C with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the IQ Battery and IQ System Controller and to deflect heat.

ACCESSORIES AND REPLACEMENT PARTS (not included, order separately)

Ensemble Communications Kit	- Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites
CELLMODEM-M1-06-SP-05	- 4G based LTE-M1 cellular modem with 5-year Sprint data plan
CELLMODEM-M1-06-AT-05	- 4G based LTE-M1 cellular modem with 5-year AT&T data plan
Circuit Breakers	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers.
BRK-10A-2-240V	Circuit breaker, 2 pole, 10A, Eaton BR210
BRK-15A-2-240V	Circuit breaker, 2 pole, 15A, Eaton BR215
BRK-20A-2P-240V-B	Circuit breaker, 2 pole, 20A, Eaton BR220
BRK-20A-2P-240V-B	Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support
	Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 4/4C
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Gateway printed circuit board (PCB) for Combiner 4/4C
X-IQ-NA-HD-125A	Hold down kit for Eaton circuit breaker with screws.

ELECTRICAL SPECIFICATIONS

Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 95A with IQ Gateway breaker included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers

MECHANICAL DATA

Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL certified, NEMA type 3R, polycarbonate construction
Wire sizes	- 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors - 60 A breaker branch input: 4 to 1/0 AWG copper conductors - Main lug combined output: 10 to 2/0 AWG copper conductors - Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)

INTERNET CONNECTION OPTIONS

Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5e (or Cat 6) UTP Ethernet cable (not included)

COMPLIANCE

Compliance, IQ Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Gateway	UL 60601-1/CANCSA 22.2 No. 61010-1

To learn more about Enphase offerings, visit enphase.com
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IQ8 and IQ8+ Microinverters

INPUT DATA (DC)

	IQ8-60-2-US	IQ8PLUS-72-2-US
Commonly used module pairings ¹	235 - 350	235 - 440
Module compatibility	60-cell/120 half-cell	60-cell/120 half-cell and 72-cell/144 half-cell
MPPT voltage range	27 - 37	29 - 45
Operating range	25 - 48	25 - 58
Min/max start voltage	30 / 48	30 / 58
Max input DC voltage	50	60
Max DC current ² (module I _{sc})		15
Overvoltage class DC port		II
DC port backfeed current		0
PV array configuration	1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	

OUTPUT DATA (AC)

	IQ8-60-2-US	IQ8PLUS-72-2-US
Peak output power	245	300
Max continuous output power	240	290
Nominal (L-L) voltage/range ³		240 / 211 - 264
Max continuous output current	1.0	1.21
Nominal frequency		60
Extended frequency range		50 - 68
Max units per 20 A (L-L) branch circuit ⁴	16	13
Total harmonic distortion		<5%
Overvoltage class AC port		III
AC port backfeed current		30
Power factor setting		1.0
Grid-tied power factor (adjustable)		0.85 leading - 0.85 lagging
Peak efficiency	97.5	97.6
CEC weighted efficiency	97	97
Night-time power consumption		60

MECHANICAL DATA

Ambient temperature range	-40°C to +60°C (-40°F to +140°F)	
Relative humidity range	4% to 100% (condensing)	
DC Connector type	MC4	
Dimensions (HxWxD)	212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")	
Weight	1.08 kg (2.38 lbs)	
Cooling	Natural convection - no fans	
Approved for wet locations	Yes	
Acoustic noise at 1 m	<60 dBA	
Pollution degree	PD3	
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure	
Environ. category / UV exposure rating	NEMA Type 6 / outdoor	

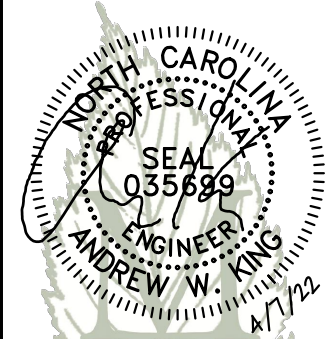
COMPLIANCE

Compliance	CA Rule 21 (UL 1741-SA), UL 82109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-003 Class B, CAN/CSA-C22.2 NO. 1071-01
Certifications	This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.

(1) No enforced DC/AC ratio. See the compatibility calculator at <https://ih.enphase.com/module-compatibility> (2) Maximum continuous input DC current is 10.6A (3) Nominal voltage range can be extended beyond nominal if required by the utility. (4) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8SP-DS-0002-01-EN-US-2021-10-19

ENGINEER:



MODEL ENERGY

300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM
P-1194

JOB TITLE:

NEW SOLAR PV SYSTEM
15.600 kW DC INPUT
9.555 kW AC EXPORT
Steven Speissegger
82 Gatewest Dr.
Bunlevel, NC 238323

CLIENT:

SMARTSUN
ENERGY

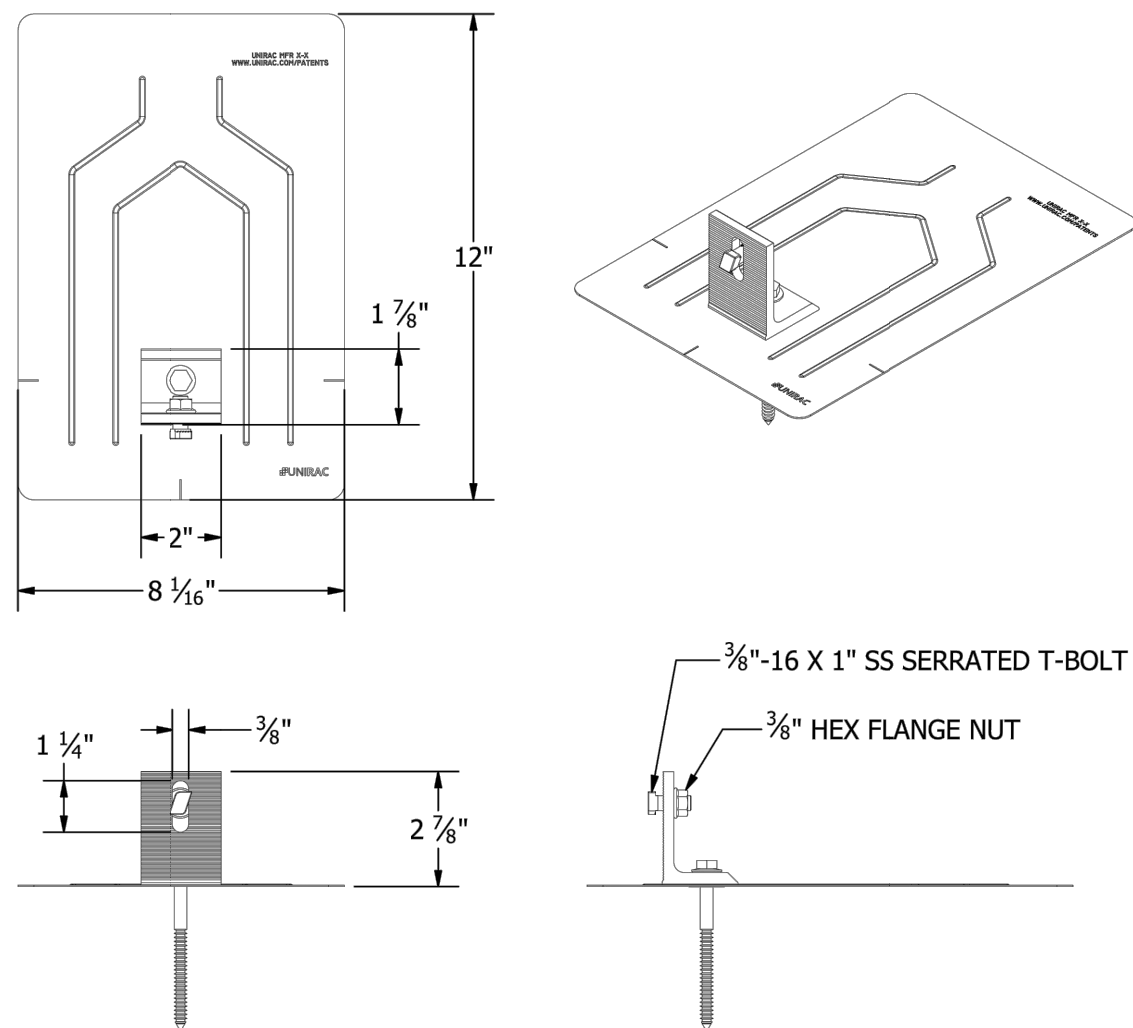
ISSUED FOR: CONSTRUCTION
DATE: 04/06/22

EQUIPMENT
SPEC SHEETS

PV6.1

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- NOTES:
 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN SPECIFICATIONS AND INSTALLATION INSTRUCTIONS.
 2. PACKAGING: KITS OF 10



PART # TABLE	
P/N	DESCRIPTION
004055M	FLASHKIT PRO MILL
004055D	FLASHKIT PRO DRK

UNIRAC
 1411 BROADWAY BLVD. NE
 ALBUQUERQUE, NM 87102 USA
 PHONE: 505.242.6411
 WWW.UNIRAC.COM

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	KIT DETAIL
DESCRIPTION:	FLASHKIT PRO
REVISION DATE:	9/24/2018

DRAWING NOT TO SCALE
 ALL DIMENSIONS ARE
 NOMINAL

PRODUCT PROTECTED BY
 ONE OR MORE US PATENTS

LEGAL NOTICE

SM-A03
 SHEET

UNIRAC
 1411 BROADWAY BLVD NE
 ALBUQUERQUE, NM 87102 USA
 WWW.UNIRAC.COM

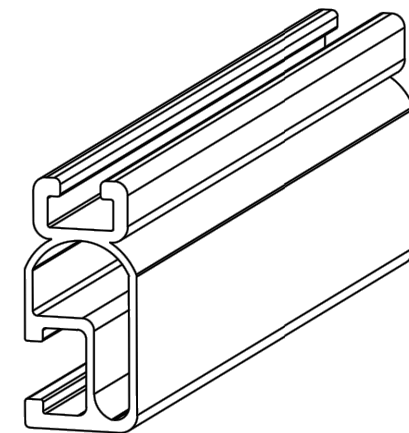
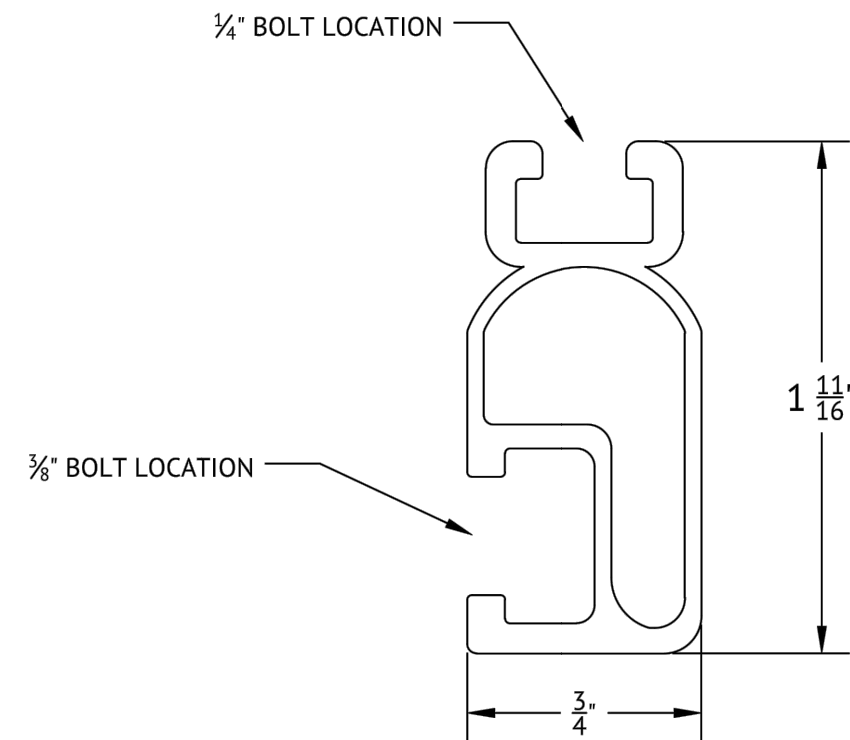
PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART DETAIL
DESCRIPTION:	LIGHT RAIL
REVISION DATE:	APRIL 2016

DRAWING NOT TO SCALE
 ALL DIMENSIONS ARE NOMINAL

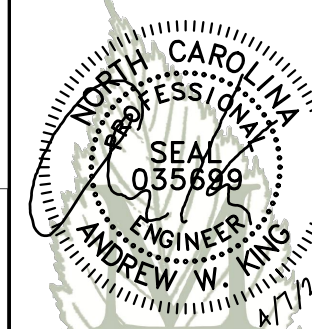
PRODUCT PROTECTED BY ONE
 OR MORE US PATENTS

LEGAL NOTICE

SM-P02
 SHEET



ENGINEER:



MODEL ENERGY

300 FAYETTEVILLE ST.
 #1430
 RALEIGH, NC 27602
 919-274-9905
 MODELENERGY.COM
 P-1194

JOB TITLE:

NEW SOLAR PV SYSTEM
 15.600 kW DC INPUT
 9.555 kW AC EXPORT

Steven Speissegger
 82 Gatewest Dr.
 Bunlevel, NC 238323

CLIENT:

**SMARTSUN
 ENERGY**

ISSUED FOR: CONSTRUCTION
 DATE: 04/06/22

EQUIPMENT
 SPEC SHEETS

PV6.2

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