

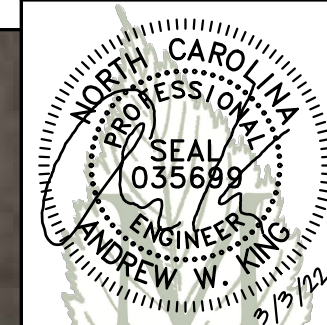
## VICINITY MAP



## PROPERTY MAP



ENGINEER:



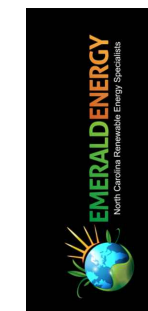
**MODEL ENERGY**

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

JOB TITLE:

**NEW SOLAR PV SYSTEM**  
7.56 kW DC INPUT  
7.60 kW AC EXPORT  
**Hector Pantoja**  
70 Mosby Lane  
Spring Lake, NC 28390

CLIENT:



ISSUED FOR:	DATE:
CONSTRUCTION	03/03/22

PROJECT INFORMATION

# PV1.1

## CONSTRUCTION NOTES

- ALL WORK AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL, STATE, AND LOCAL CODES AND ORDINANCES
- FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS
- WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS
- THE PHOTOVOLTAIC SYSTEM SHALL NOT EXCEED 600 VOLTS OR 800 AMPS
- EACH ELECTRICAL APPLIANCE SHALL BE PROVIDED WITH A NAMEPLATE GIVING THE IDENTIFYING NAME AND THE RATING IN VOLTS AND AMPERES, OR VOLTS AND WATTS. IF THE APPLIANCE IS TO BE USED ON A SPECIFIC FREQUENCY OR FREQUENCIES, IT SHALL BE SO MARKED. WHERE MOTOR OVERLOAD PROTECTION EXTERNAL TO THE APPLIANCES IS REQUIRED, THE APPLIANCE SHALL BE SO MARKED
- WHERE APPLICABLE, GROUNDING ELECTRODE CONDUCTOR TO BE CONTINUOUS. GROUNDING CRIMPS TO BE IRREVERSIBLE
- IN ONE- AND TWO-FAMILY DWELLINGS, LIVE PARTS IN PHOTOVOLTAIC SOURCE CIRCUITS AND PHOTOVOLTAIC OUTPUT CIRCUITS OVER 150 VOLTS TO GROUND, SHALL ONLY BE ACCESSIBLE TO QUALIFIED PERSONS WHILE ENERGIZED.
- PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
- EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT
- WHERE ALL TERMINALS OF A DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECT
- A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED BY THE INSTALLED AT THE DC DISCONNECT MEANS
- A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES SERVING THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL POWER PRODUCTION SOURCES.
- A PERMANENT PLAQUE OR DIRECTORY SHALL BE PROVIDED DENOTING THE LOCATIONS OF THE SERVICE DISCONNECT MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECT MEANS IF THEY ARE NOT LOCATED AT THE SAME LOCATION.



## ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
DC	DIRECT CURRENT
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMT	ELECTRICAL METAL TUBING
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GND	GROUND
I	CURRENT
IMP	CURRENT AT MAXIMUM POWER
ISC	SHORT-CIRCUIT CURRENT
KVA	KILOVOLT AMPERE
KW	KILOWATT
MAX	MAXIMUM
MIN	MINIMUM
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
NOM	NOMINAL
NTS	NOT TO SCALE
PNOM	NOMINAL POWER
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
SN	SOLAR NOON
STC	STANDARD TEST CONDITIONS
TYP	TYPICAL
V	VOLT
VMP	VOLTAGE AT MAXIMUM POWER
Voc	OPEN-CIRCUIT VOLTAGE
W	WATT

## CODE REFERENCES

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

## SHEET INDEX

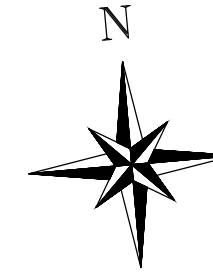
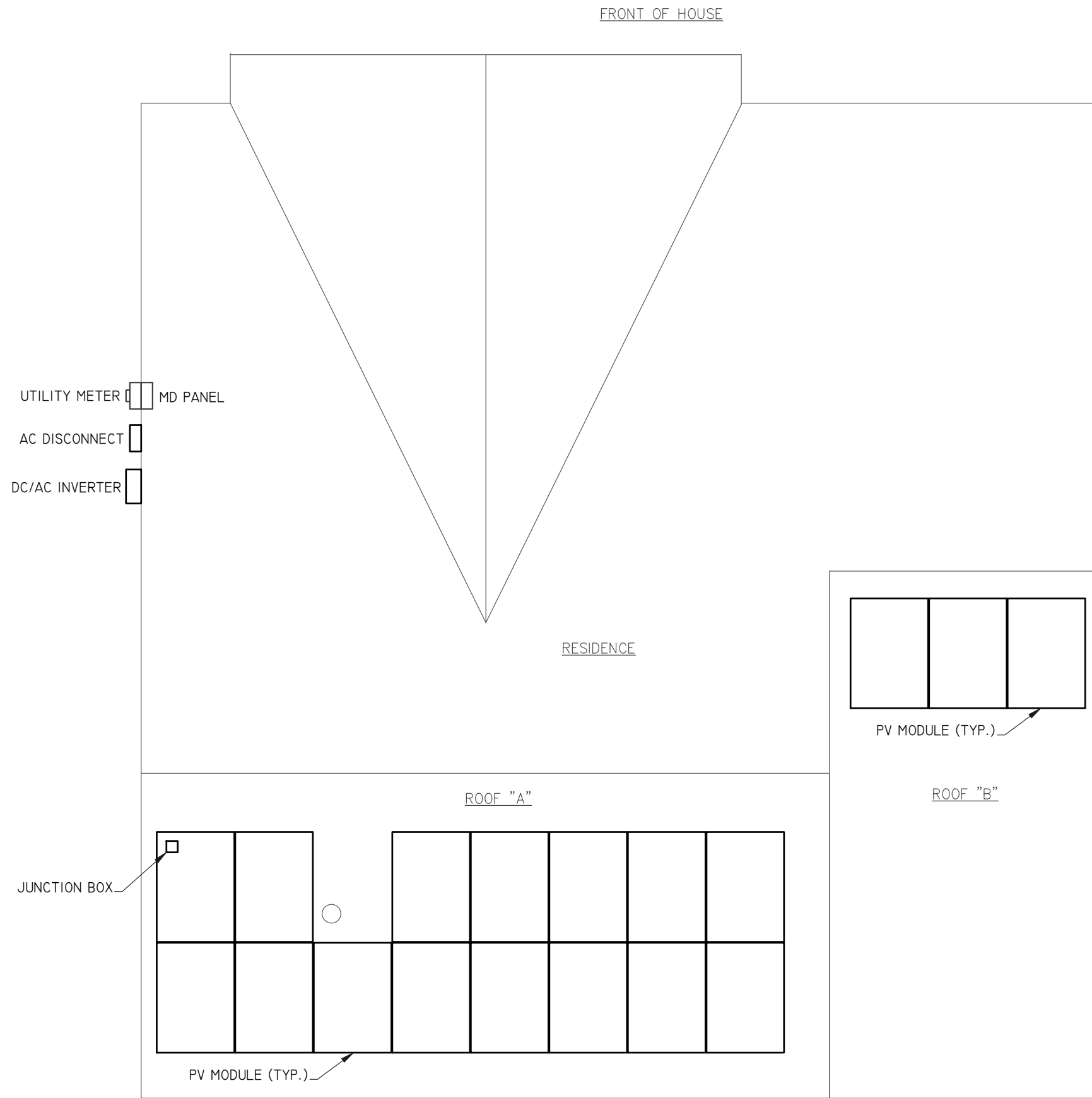
PV1.1 :	PROJECT INFORMATION
PV2.1 :	SITE INFORMATION
PV3.1 :	STRUCTURAL INFORMATION
PV4.1 :	ELECTRICAL INFORMATION
PV5.1 :	EQUIPMENT LABELS
PV6.1 - PV6.2:	EQUIPMENT SPEC SHEETS

## SITE CONDITIONS

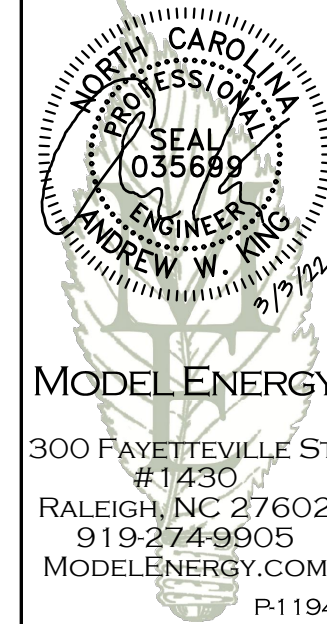
ASCE 7-10 WIND SPEED - 115 MPH  
EXPOSURE CATEGORY - B  
RISK CATEGORY - II

## LEGEND

	DISCONNECT SWITCH
	FUSE
	CIRCUIT BREAKER
	EQUIP. GROUND



ENGINEER:

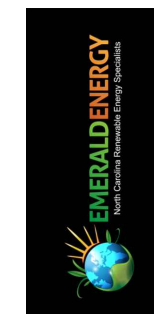


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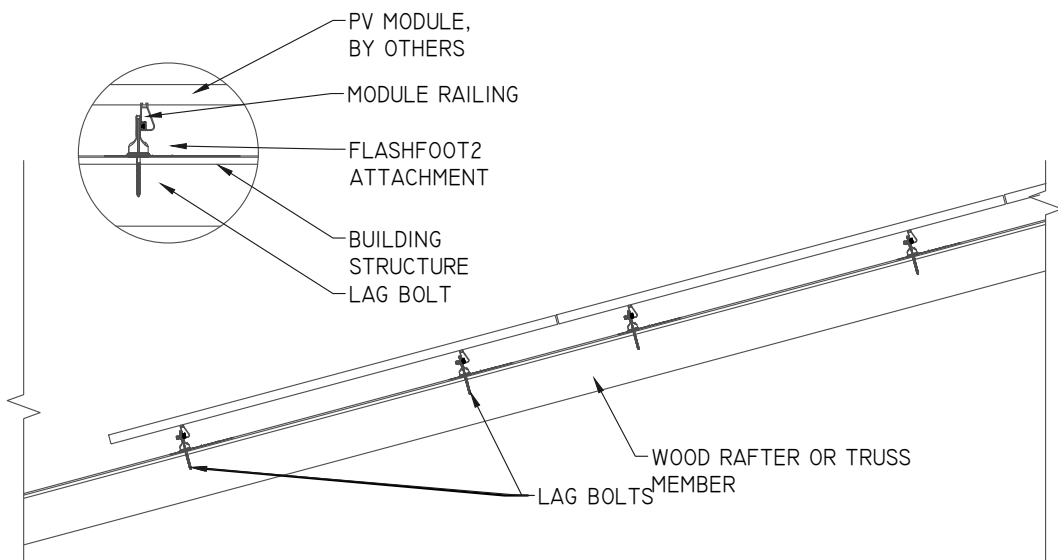
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SITE INFORMATION

**PV2.1**



**2 FASTNER DETAIL**

SCALE : NTS

**ROOFS "A" & "B" ZONES:**  
 ALL ZONES MAX. RAIL OVERHANG = 16"  
 □ ZONE 1 MAX. FASTENER SPAN ZONE 1 = 48"  
 ▨ ZONE 2 MAX. FASTENER SPAN ZONE 2 = 24"  
 ▩ ZONE 3 MAX. FASTENER SPAN ZONE 3 = 24"

MOUNTING RAILS	
MAKE	IRONRIDGE
MODEL	XR10
MATERIAL	ALUMINUM
WEIGHT	1.25 LBS./SQFT.
SPACING	34 IN.

ROOF MOUNT & FASTENER	
ROOF MOUNT:	
MAKE	IRONRIDGE
MODEL	FLASHFOOT2
MATERIAL	ALUMINUM
FASTENER	
MAKE	GENERIC
MODEL	LAG BOLT
MATERIAL	304 SS
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

ROOFS "A" & "B" LOADING	
GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD:	20 LBS./SQFT.
DEAD LOAD:	
ROOFING	3.9 LBS./SQFT.
PV ARRAY	2.5 LBS./SQFT.
TOTAL	6.4 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	-338 LBS.
UPLIFT ZONE 2	-199 LBS.
UPLIFT ZONE 3	-199 LBS.
DOWNWARD	316 LBS.

**STATEMENT OF STRUCTURAL COMPLIANCE**

THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PURPOSED 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

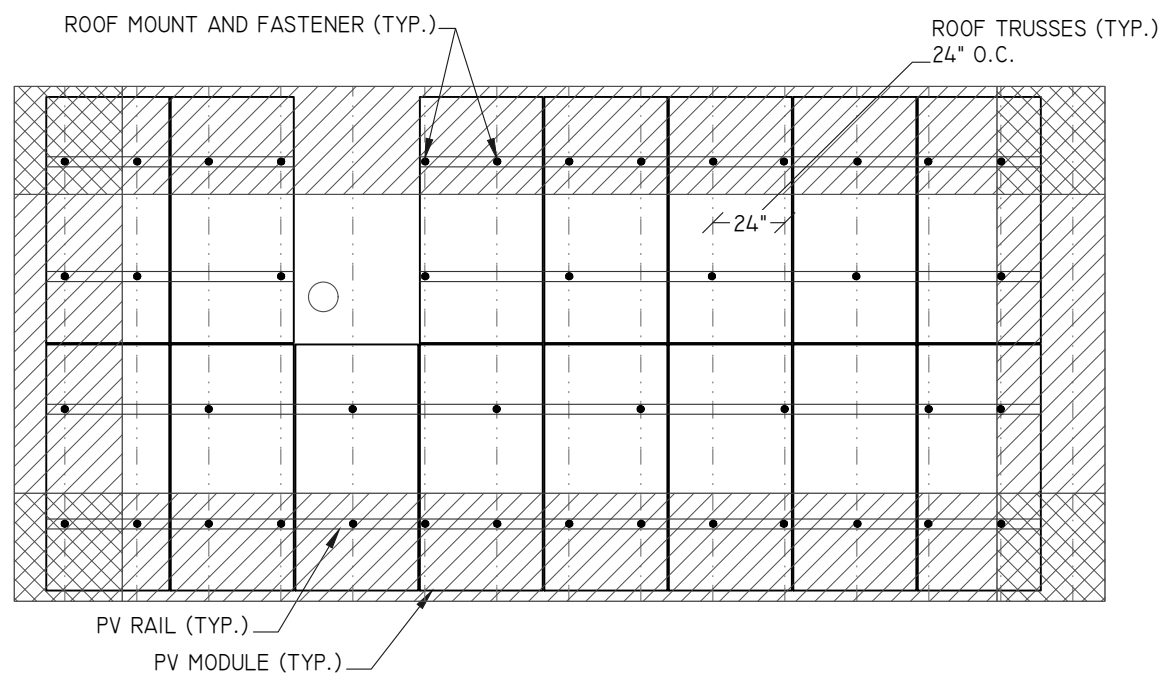
TITLE: PROFESSIONAL ENGINEER

PV MODULES	
MAKE	TESLA
MODEL	T420S
WIDTH	40.9"
LENGTH	82.4"
THICKNESS	1.57"
WEIGHT	55.8 LBS

ROOF "A" ARRAY SUMMARY	
# MODULES	15
# ROOF MOUNTS	43
RAIL LENGTH	107 FT.
ARRAY AREA	352 SQFT.
ARRAY WEIGHT	975 LBS.
AZIMUTH @ SN	185°
TILT ANGLE	33°

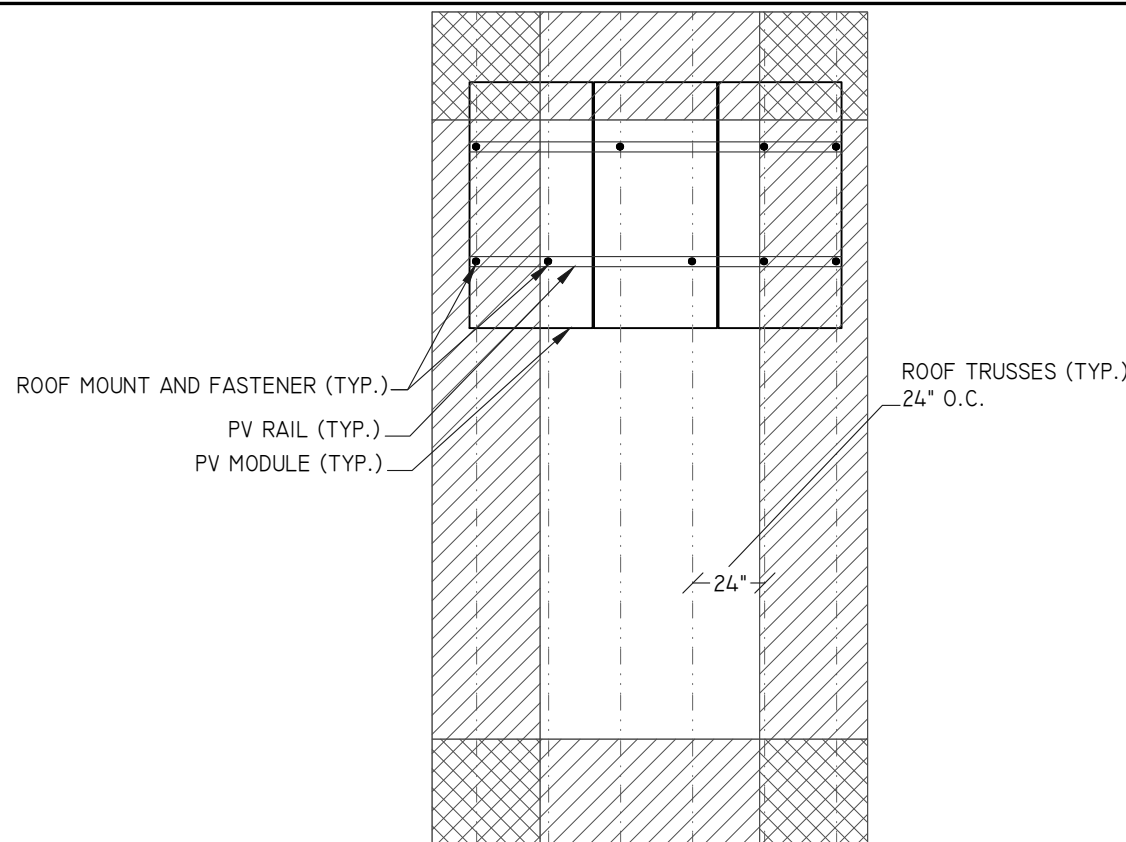
ROOF "B" ARRAY SUMMARY	
# MODULES	3
# ROOF MOUNTS	9
RAIL LENGTH	24 FT.
ARRAY AREA	71 SQFT.
ARRAY WEIGHT	325 LBS.
AZIMUTH @ SN	185°
TILT ANGLE	30°

ROOF SUMMARY	
STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2" X 4"
SPACING	24" o.c.
EFF.SPAN - ROOF "A"	13'-11"
EFF.SPAN - ROOF "B"	23'-2"
PITCH - ROOF "A"	8 / 12
PITCH - ROOF "B"	7 / 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.



**3 ROOF "A" PLANAR VIEW**

SCALE: 3/16" = 1'-0"



**1 ROOF "B" PLANAR VIEW**

SCALE: 3/16" = 1'-0"

ENGINEER:



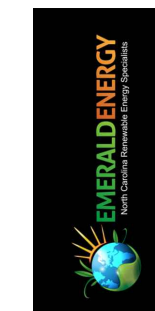
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STRUCTURAL INFORMATION

**PV3.1**

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PV MODULES	
MAKE	TESLA
MODEL	T420S
TECHNOLOGY	MONO-CRYST.
NOM. POWER (P <sub>nom</sub> )	420 WATTS
NOM. VOLT. (V <sub>MP</sub> )	40.90 VOLTS
O.C. VOLT. (V <sub>oc</sub> )	48.50 VOLTS
MAX. SYS. VOLT.	1000 V (UL)
TEMP. COEF. (V <sub>Tc</sub> )	-0.26 %/°C
NOM. CURR. (I <sub>MP</sub> )	10.27 AMPS
S.C. CURR. (I <sub>sc</sub> )	11.16 AMPS
MAX. SERIES FUSE	20 AMPS

MODULE OPTIMIZER	
MAKE	SOLAREEDGE
MODEL	P505
DC INPUT:	
RATED POWER	505 WATTS
VOLT. RANGE	12.5-83
MAX. SHORT CIRCUIT CURRENT	14.0 AMPS
MAX. DC INPUT CURRENT	17.5 AMPS
DC OUTPUT:	
MAX. CURRENT	15 AMPS
MAX. VOLT.	80 VOLTS
MAX. SYSTEM VOLT.	1000 VOLTS
MIN. STRING	6 OPTIMIZERS
MAX. STRING	25 OPTIMIZERS
MAX. POWER	6000 WATTS

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

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

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

MONITORING SYSTEM	
MAKE	SOLAREEDGE
MODEL	SEI000-ZBGW-K5-NA
METER	SE-MTR240-2-200-SI
LINE TO LINE VOLTAGE	211-254 VAC
WIRING	L1/L2/N/PE
POWER CONSUMPTION	1.2W
COMM. INTERFACE	RS485
RATED RMS CURRENT	200 AMPS
SAFETY	UL1741
ENCLOSURE TYPE	ABS, ABS/PC
PROTECTION RATING	UL94V-0, IEC FV-0

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

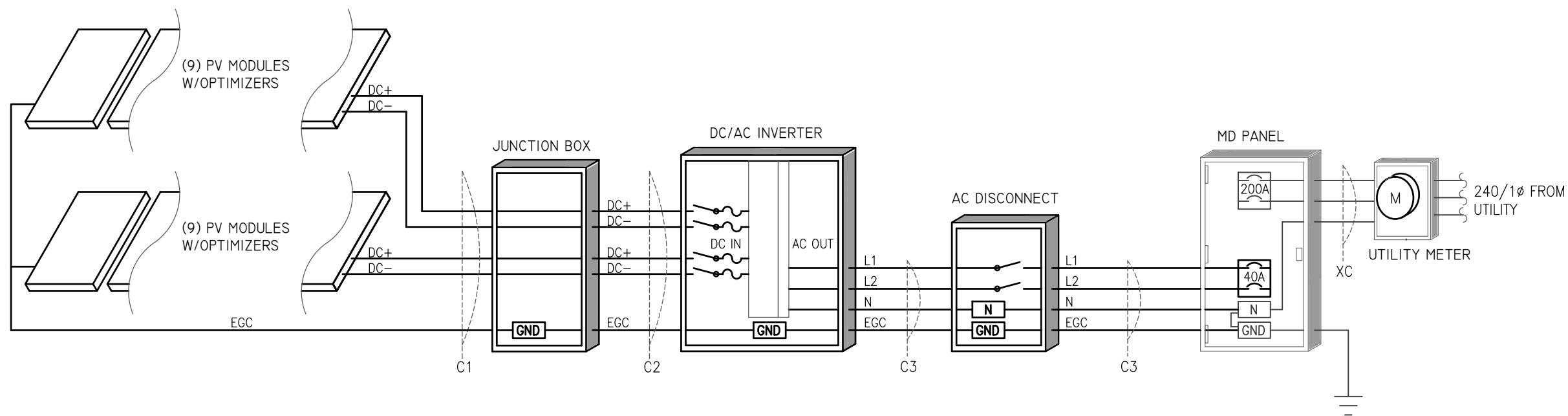
NOTES:

- 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

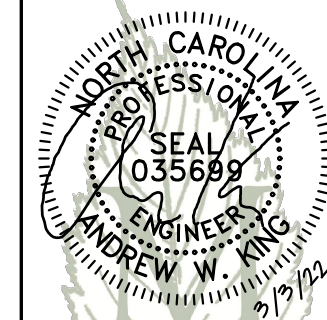
MD PANEL (EXISTING)	
MAKE	N/A
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
BREAKER RATING	200 AMPS

NOTES:

- BACK-FEED SOLAR OUTPUT VIA 40A BREAKER AT THE OPPOSITE END OF THE BUS BAR FROM MAIN BREAKER.
- MAIN BREAKER SERVES AS SERVICE DISCONNECT SWITCH.



ENGINEER:



MODEL ENERGY

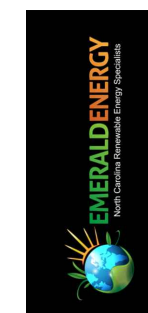
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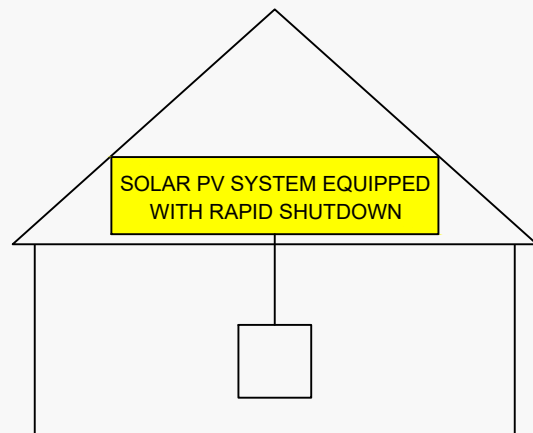
ISSUED FOR: CONSTRUCTION  
DATE: 03/03/22

ELECTRICAL INFORMATION

**PV4.1**

# 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 EVERY 10' AND 1' FROM BENDS AND PENETRATIONS, ADJACENT TO THE MAIN SERVICE DISCONNECT \*REFLECTIVE\*

# 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

1. LABELS SHOWN ARE IN THEIR ACTUAL REQUIRED SIZE.
2. LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
3. 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

## DIRECT CURRENT PHOTOVOLTAIC POWER SOURCE

MAXIMUM VOLTAGE 600 VDC  
MAX CIR. CURRENT 30.0 AMPS

NEC 690.53

PLACE ON ALL DC DISCONNECTING MEANS

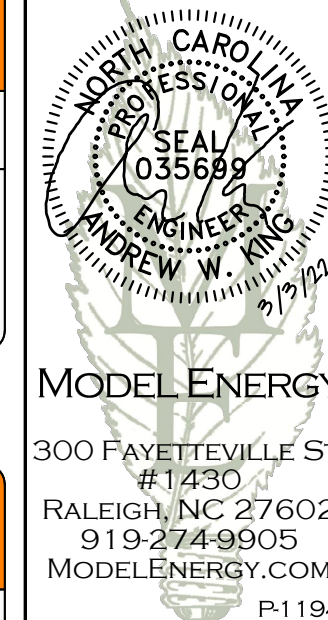
## PHOTOVOLTAIC POWER SOURCE

OPERATING AC VOLT. 240 VAC  
MAXIMUM OPERATING AC OUTPUT CURRENT 32.0 AMPS

NEC 690.54

PLACE ON INTERCONNECTION DISCONNECTING MEANS

ENGINEER:



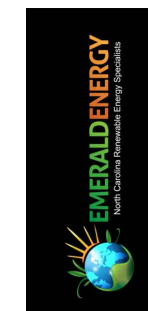
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LABELS, DETAILS, & SPECS

# PV5.1

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# Module Specifications

## Electrical Characteristics

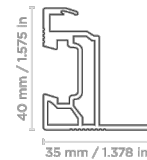
Power Class	T420S		T425S		T430S	
	STC	NOCT	STC	NOCT	STC	NOCT
Test Method	STC	NOCT	STC	NOCT	STC	NOCT
Max Power, P <sub>MAX</sub> (W)	420	313.7	425	317.4	430	321.1
Open Circuit Voltage, V <sub>OC</sub> (V)	48.5	45.47	48.65	45.61	48.8	45.75
Short Circuit Current, I <sub>SC</sub> (A)	11.16	9.02	11.24	9.09	11.32	9.15
Max Power Voltage, V <sub>MP</sub> (V)	40.90	38.08	41.05	38.22	41.20	38.36
Max Power Current, I <sub>MP</sub> (A)	10.27	8.24	10.36	8.3	10.44	8.37
Module Efficiency (%)	19.3		19.6		19.8	
STC	1000 W/m <sup>2</sup> , 25°C, AM1.5					
NOCT	800 W/m <sup>2</sup> , 20°C, AM1.5, wind speed 1m/s					

## Temperature Rating (STC)

Temperature Coefficient of I <sub>sc</sub>	+0.040% / °C
Temperature Coefficient of V <sub>oc</sub>	-0.260% / °C
Temperature Coefficient of P <sub>MAX</sub> (W)	-0.331% / °C

## Mechanical Loading

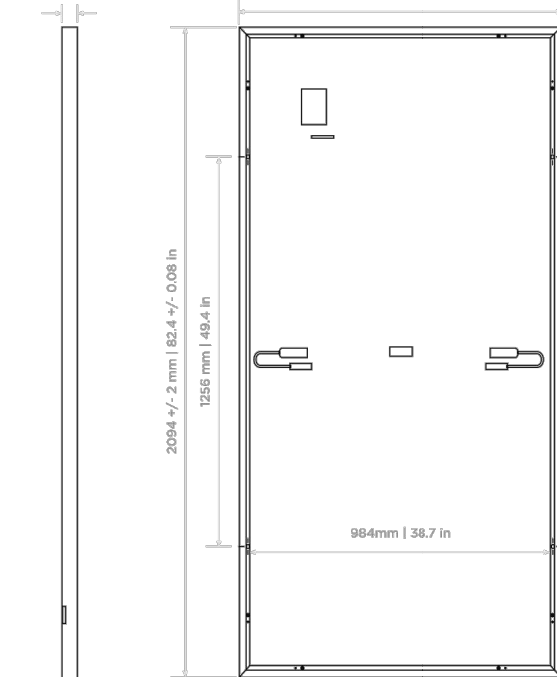
Front Side Design Load	3600 Pa   75 lb/ft <sup>2</sup>
Rear Side Design Load	1600 Pa   33 lb/ft <sup>2</sup>
Hailstone Test	25 mm Hailstone at 23 m/s



## Mechanical Parameters

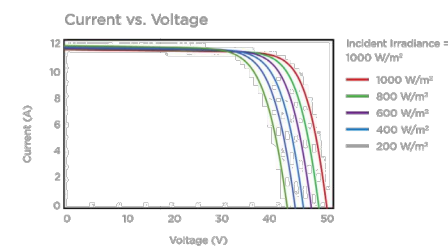
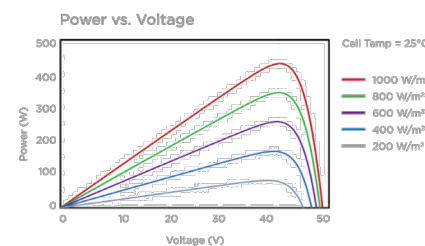
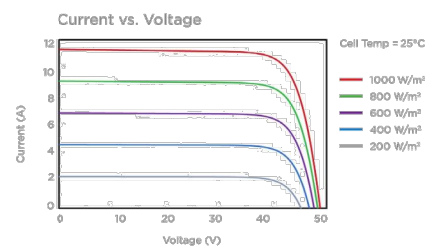
Cell Orientation	144 (6 x 24)
Junction Box	IP68, 3 diodes
Cable	4 mm <sup>2</sup>   12 AWG, 1400 mm   55.1 in. Length
Connector	Staubli MC4 or EVO2
Glass	3.2 mm ARC Glass
Frame	Black Anodized Aluminum Alloy
Weight	25.3 kg   55.8 lb
Dimension	2094 mm x 1038 mm x 40 mm 82.4 in x 40.9 in x 1.57 in

40 +/- 0.5 mm  
1.57 +/- 0.020 in



## Operation Parameters

Operational Temperature	-40°C - +85°C
Power Output Tolerance	-0 / +5 W
V <sub>oc</sub> & I <sub>sc</sub> Tolerance	+/- 3%
Max System Voltage	DC 1000 V (IEC/UL)
Max Series Fuse Rating	20 A
NOCT	45.7 +/- 2°C
Safety Class	Class II
Fire Rating	UL Type 1 or 2



Tesla Photovoltaic Module - T420S, T425S, and T430S

T E S L A

# Power Optimizer For North America

P370 / P400 / P401 / P485 / P505

Optimizer model (typical module compatibility)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96- cell modules)	P401 (for high power 60 and 72 cell modules)	P485 (for high-voltage modules)	P505 (for higher current modules)
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## INPUT

Rated Input DC Power <sup>(1)</sup>	370	400	430	485	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	60	80	60	125 <sup>(2)</sup>	83 <sup>(2)</sup>	Vdc
MPPT Operating Range	8 - 60	8 - 80	8-60	12.5 - 105	12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11	10.1	12.5	11	14	Adc
Maximum DC Input Current	13.75	12.5	14.65	12.5	17.5	
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		80			Vdc

## OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)

Safety Output Voltage per Power Optimizer	1 ± 0.1					Vdc
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## STANDARD COMPLIANCE

EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3				
Safety	IEC62109-1 (class II safety), UL1741, NEC/PVRS5				
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 <sup>(3)</sup>			MC4 <sup>(3)</sup>	MC4 <sup>(3)</sup>	
Input Wire Length	0.16 / 0.5					m / ft
Output Wire Type / Connector	Double Insulated / MC4					
Output Wire Length	1.2 / 3.9					m / ft
Operating Temperature Range <sup>(4)</sup>	-40 to +85 / -40 to +185					°C / °F
Protection Rating	IP68 / Type6B					
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) Longer inputs wire lengths are available for use. For 0.9m input wire length order P401-xxLoxx

(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: <https://www.solaredge.com/sites/default/files/temperature-de-rating-note-na.pdf>

## PV System Design Using a SolarEdge Inverter<sup>(6)(7)</sup>

	Single Phase HD-Wave P370, P400, P401 P485, P505	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	8	6	10	18	
Maximum String Length (Power Optimizers)	25	25	25	50	
Maximum Power per String	5700 <sup>(8)</sup> (6000 with SE7600-US - SE11400-US)	5250 <sup>(9)</sup>	6000 <sup>(9)</sup>	12750 <sup>(10)</sup>	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](http://www.solaredge.com/sites/default/files/string_sizing_na.pdf)

(7) It is not allowed to mix P485/P505 with P370/P400/P401 in one string

(8) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement

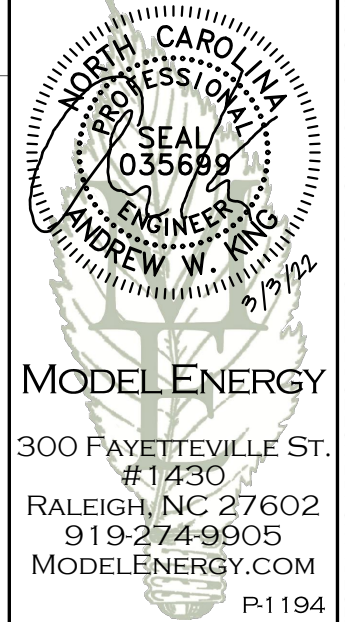
(9) For 208V grid: it is allowed to install up to 6,500W per string when the maximum power difference between each string is 1,000W

(10) For 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W

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ENGINEER:



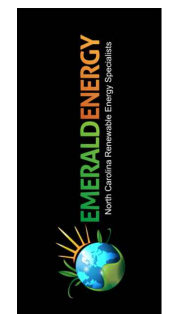
MODEL ENERGY

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

JOB TITLE:

**NEW SOLAR PV SYSTEM**  
7.56 kW DC INPUT  
7.60 kW AC EXPORT  
**Hector Pantoja**  
70 Mosby Lane  
Spring Lake, NC 28390

CLIENT:



ISSUED FOR: CONSTRUCTION  
DATE: 03/03/22

EQUIPMENT  
SPEC SHEETS

**PV6.1**

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

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

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US		
<b>OUTPUT</b>									
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 <sup>1)</sup>							Hz	
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A	
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A	
GFDI Threshold	1							A	
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes								
<b>INPUT</b>									
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							Vdc	
Maximum Input Current @240V <sup>2)</sup>	8.5	10.5	13.5	16.5	20	27	30.5	Adc	
Maximum Input Current @208V <sup>2)</sup>	-	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	
<b>ADDITIONAL FEATURES</b>									
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)								
Revenue Grade Data: ANSI C12.20	Optional <sup>3)</sup>								
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect								
<b>STANDARD COMPLIANCE</b>									
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.L. M-07								
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (H)								
Emissions	FCC Part 15 Class B								
<b>INSTALLATION SPECIFICATIONS</b>									
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					in / mm
Weight with Safety Switch	22 / 10	25.1 / 11.4		26.2 / 11.9			38.8 / 17.6	lb / kg	
Noise	< 25							dBA	
Cooling	Natural Convection								
Operating Temperature Range	-13 to +140 / -25 to +60 <sup>4)</sup> (-40F / -40C option) <sup>5)</sup>							F / °C	
Protection Rating	NEMA 4X (Inverter with Safety Switch)								

<sup>1)</sup> For other regional settings please contact SolarEdge support.  
<sup>2)</sup> A higher current source may be used, the inverter will limit its input current to the values stated.  
<sup>3)</sup> Revenue grade inverter P/N: SE3000H-US000N1C7.  
<sup>4)</sup> For power derating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>  
<sup>5)</sup> -40 version P/N: SE3000H-US000N1L4

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ROHS



XR10 Rail

See Description / Length

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

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

Cut Sheet



FlashFoot2

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

**FLASHFOOT 2**

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

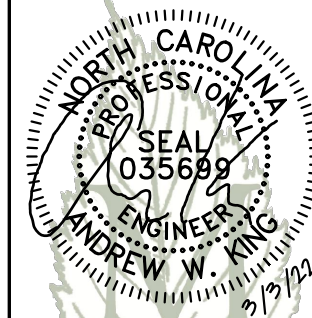
1) Bolt, Lag 5/16 x 4.75"

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.21

Cut Sheet

ENGINEER:



MODEL ENERGY

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

JOB TITLE:

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**7.56 kW DC INPUT**  
**7.60 kW AC EXPORT**  
**Hector Pantoja**  
**70 Mosby Lane**  
**Spring Lake, NC 28390**

CLIENT:



ISSUED FOR: CONSTRUCTION DATE: 03/03/22

EQUIPMENT SPEC SHEETS

**PV6.2**

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