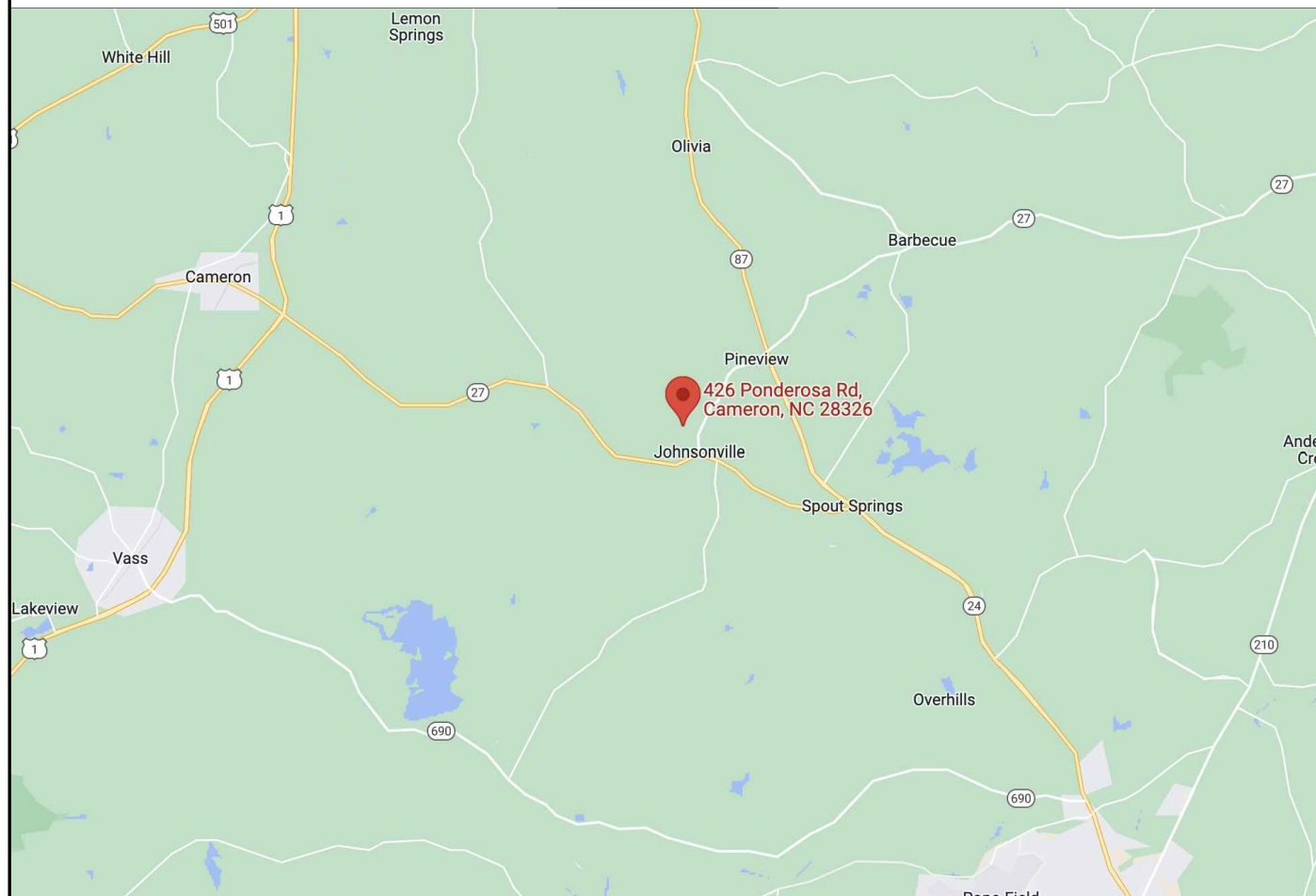
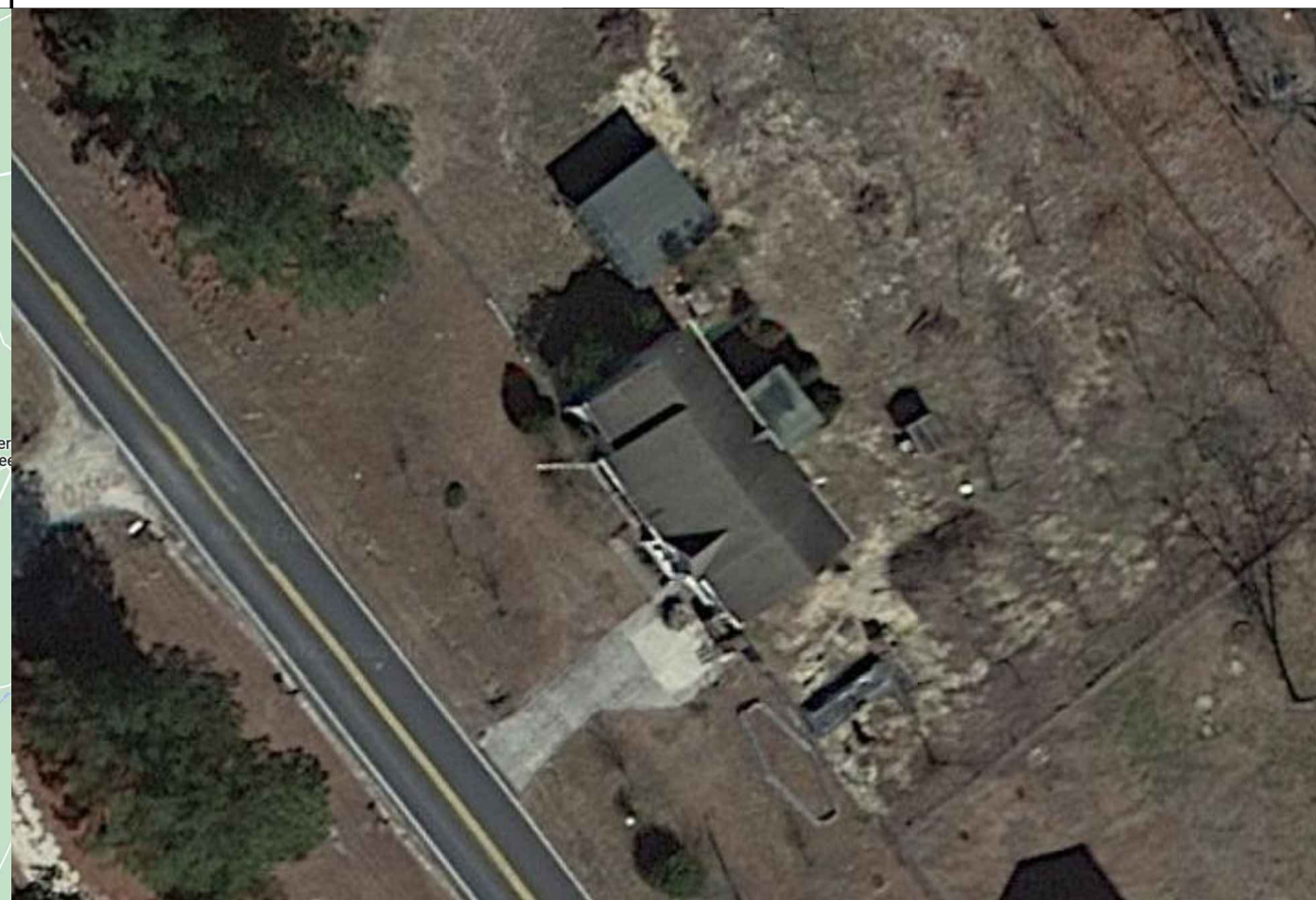


## VICINITY MAP



## 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**  
12.245 kW DC INPUT  
10.000 kW AC EXPORT  
**JASON LORENTZEN**  
426 PONDEROSA ROAD  
CAMERON, NC, 28326

CLIENT:



ISSUED FOR:	DATE:
CONSTRUCTION	08/18/22

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.
- ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC SECTION 690.4 (C)

## 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 - PV3.4 - STRUCTURAL INFORMATION  
PV4.1 - PV4.2 - ELECTRICAL INFORMATION  
PV5.1 - EQUIPMENT LABELS

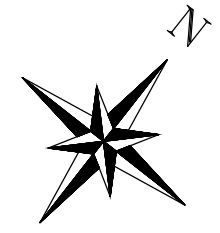
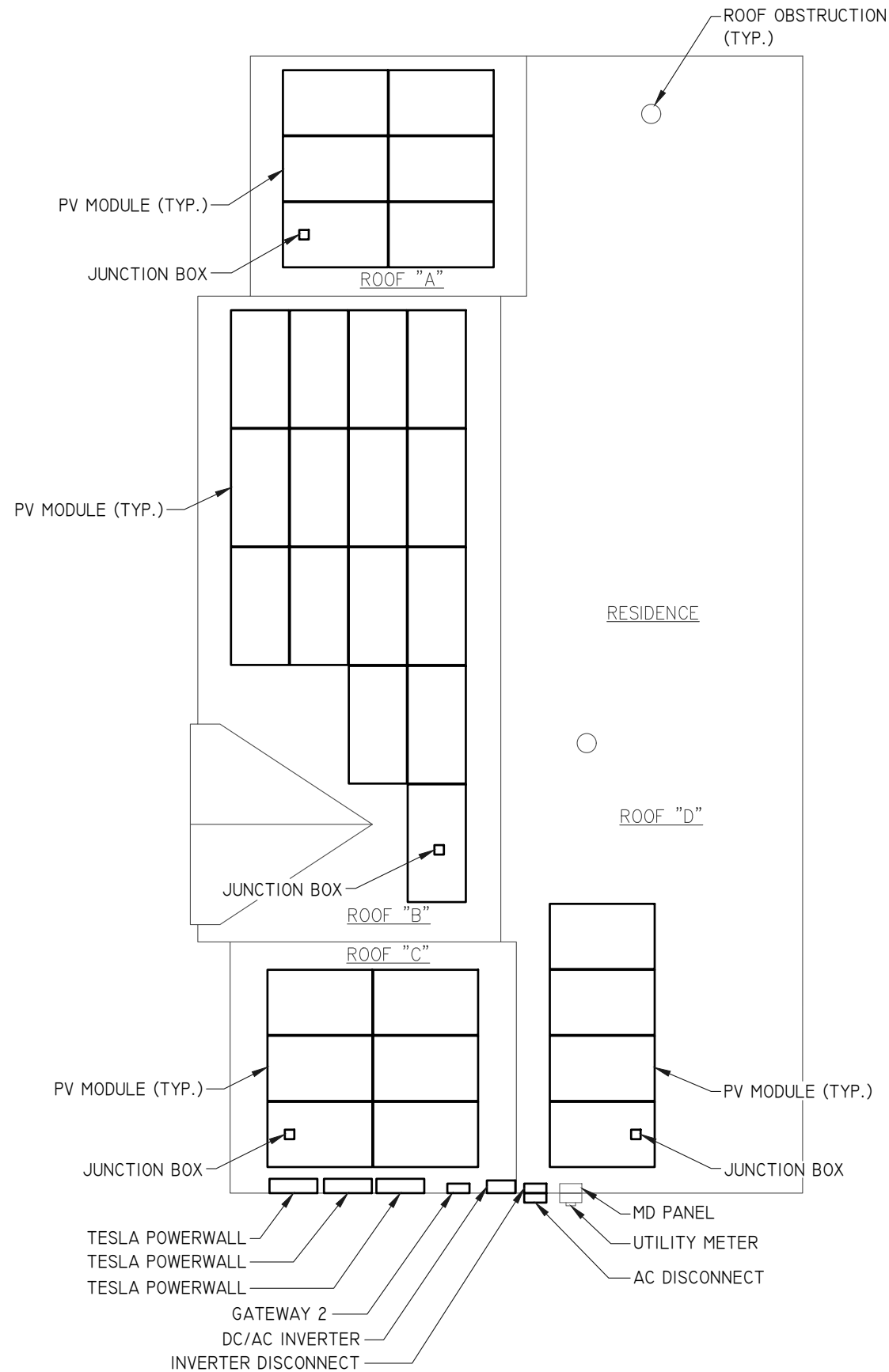
## SITE CONDITIONS

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

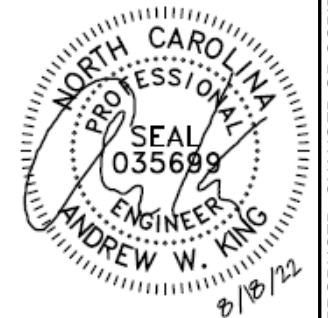
## LEGEND

	DISCONNECT SWITCH
	FUSE
	CIRCUIT BREAKER
	EQUIP. GROUND

© 2022 MODEL ENERGY, PLLC EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPRESSED WRITTEN PERMISSION AND CONSENT OF MODEL ENERGY, PLLC.



ENGINEER:



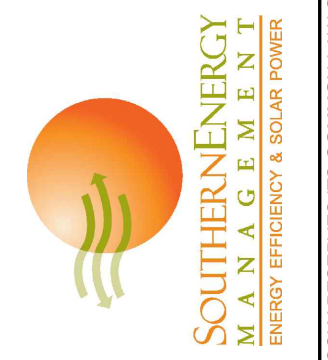
**MODEL ENERGY**

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

JOB TITLE:

**NEW SOLAR PV SYSTEM**  
12.245 kW DC INPUT  
10.000 kW AC EXPORT  
**JASON LORENTZEN**  
426 PONDEROSA ROAD  
CAMERON, NC, 28326

CLIENT:



ISSUED FOR:	DATE:
CONSTRUCTION	08/18/22

SITE INFORMATION

**PV2.1**

© 2022 MODEL ENERGY, PLLC EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPRESSED WRITTEN PERMISSION AND CONSENT OF MODEL ENERGY, PLLC.

ROOF LOADING	
GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD:	20 LBS./SQFT.
DEAD LOAD:	
ROOFING	3.9 LBS./SQFT.
PV ARRAY	2.7 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	-203 LBS.
UPLIFT ZONE 2	-240 LBS.
UPLIFT ZONE 3	-240 LBS.
DOWNWARD	190 LBS.

ROOF MOUNT & FASTENER	
ROOF MOUNT:	
MAKE	ZEP
MODEL	ZS COMP
MATERIAL	ALUMINUM
FASTENER	
MAKE	GENERIC
MODEL	LAG BOLT
MATERIAL	304 SS
SIZE	5/16"-18 X 4"
GENERAL	
WEIGHT	2 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


ARRAY SUMMARY	
# MODULES	6
# ROOF MOUNTS	18
RAIL LENGTH	N/A
ARRAY AREA	128 SQFT.
ARRAY WEIGHT	347 LBS.
AZIMUTH @ SN	128°
TILT ANGLE	27°

PV MODULES	
MAKE	TESLA
MODEL	T395H
WIDTH	41.2"
LENGTH	74.4"
THICKNESS	1.57"
WEIGHT	51.8 LBS

ROOF SUMMARY	
STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2" X 4"
SPACING	24" o.c.
EFF. SPAN	8'-6"
PITCH	6 / 12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	WOOD COMPOSITE
THICKNESS	3/8"
WEIGHT	1.6 LBS./SQFT.
ROOFING:	
TYPE	ARCH SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.3 LBS./SQFT.

### 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.

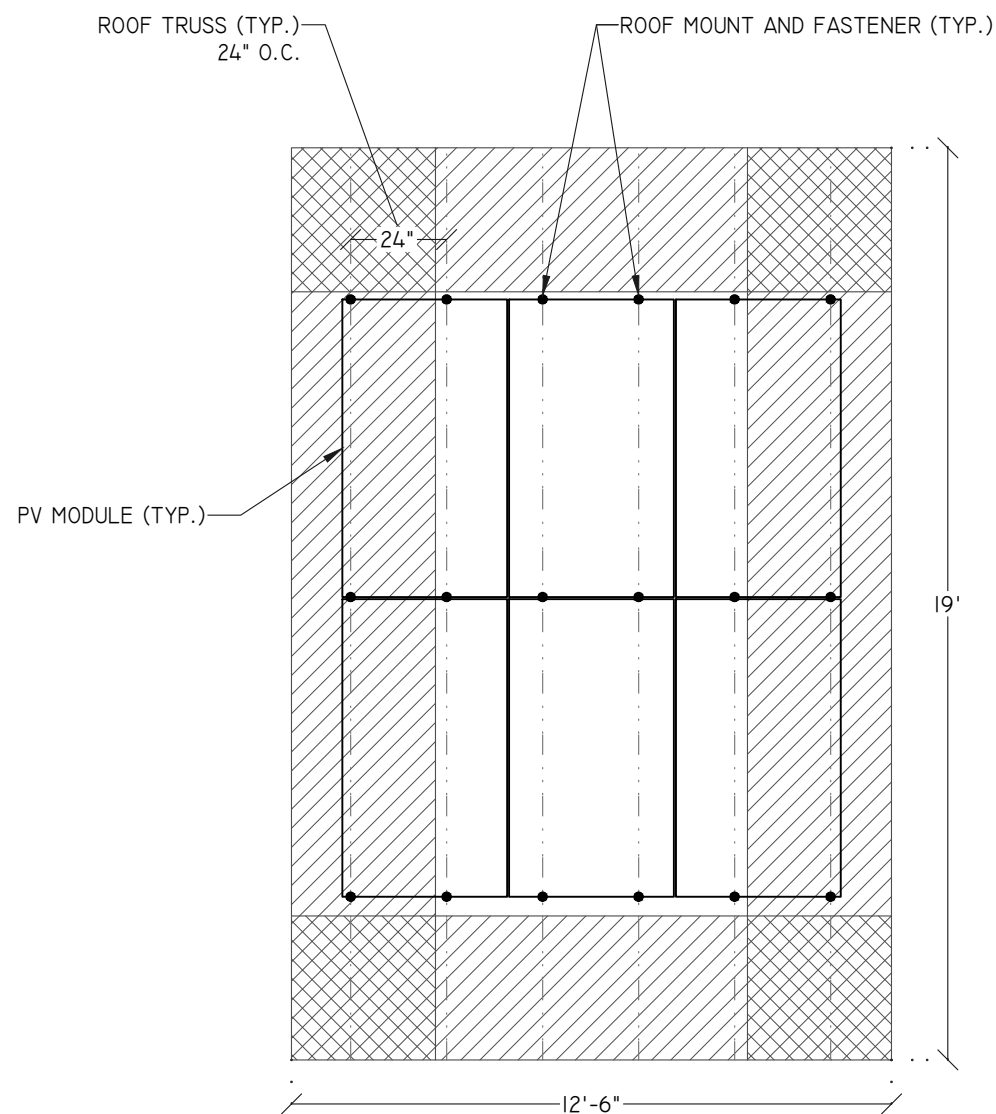
SIGNED: 

NAME: ANDREW W. KING, PE

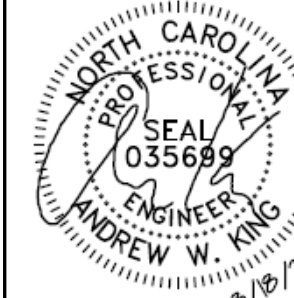
TITLE: PROFESSIONAL ENGINEER

#### ROOF ZONES:

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



ENGINEER:



MODEL ENERGY

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

JOB TITLE:

NEW SOLAR PV SYSTEM  
12.245 kW DC INPUT  
10.000 kW AC EXPORT  
JASON LORENTZEN  
426 PONDEROSA ROAD  
CAMERON, NC, 28326

CLIENT:



ISSUED FOR:	DATE:
CONSTRUCTION	08/18/22

STRUCTURAL  
INFORMATION

PV3.1

ROOF LOADING	
GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD:	20 LBS./SQFT.
DEAD LOAD:	
ROOFING	3.9 LBS./SQFT.
PV ARRAY	2.7 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	-253 LBS.
UPLIFT ZONE 2	-299 LBS.
UPLIFT ZONE 3	-149 LBS.
DOWNWARD	237 LBS.

ROOF MOUNT & FASTENER	
ROOF MOUNT:	
MAKE	ZEP
MODEL	ZS COMP
MATERIAL	ALUMINUM
FASTENER	
MAKE	GENERIC
MODEL	LAG BOLT
MATERIAL	304 SS
SIZE	5/16"-18 X 4"
GENERAL	
WEIGHT	2 LBS
FASTENERS PER MOUNT	1 PER MOUNT
MAX. PULL-OUT FORCE	800 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	400 LBS.


ARRAY SUMMARY	
# MODULES	15
# ROOF MOUNTS	37
RAIL LENGTH	N/A
ARRAY AREA	319 SQFT.
ARRAY WEIGHT	851 LBS.
AZIMUTH @ SN	128°
TILT ANGLE	27°

PV MODULES	
MAKE	TESLA
MODEL	T395H
WIDTH	41.2"
LENGTH	74.4"
THICKNESS	1.57"
WEIGHT	51.8 LBS

ROOF SUMMARY	
STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2" X 4"
SPACING	24" o.c.
EFF. SPAN	8'-0"
PITCH	6 / 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.

**STATEMENT OF STRUCTURAL COMPLIANCE**

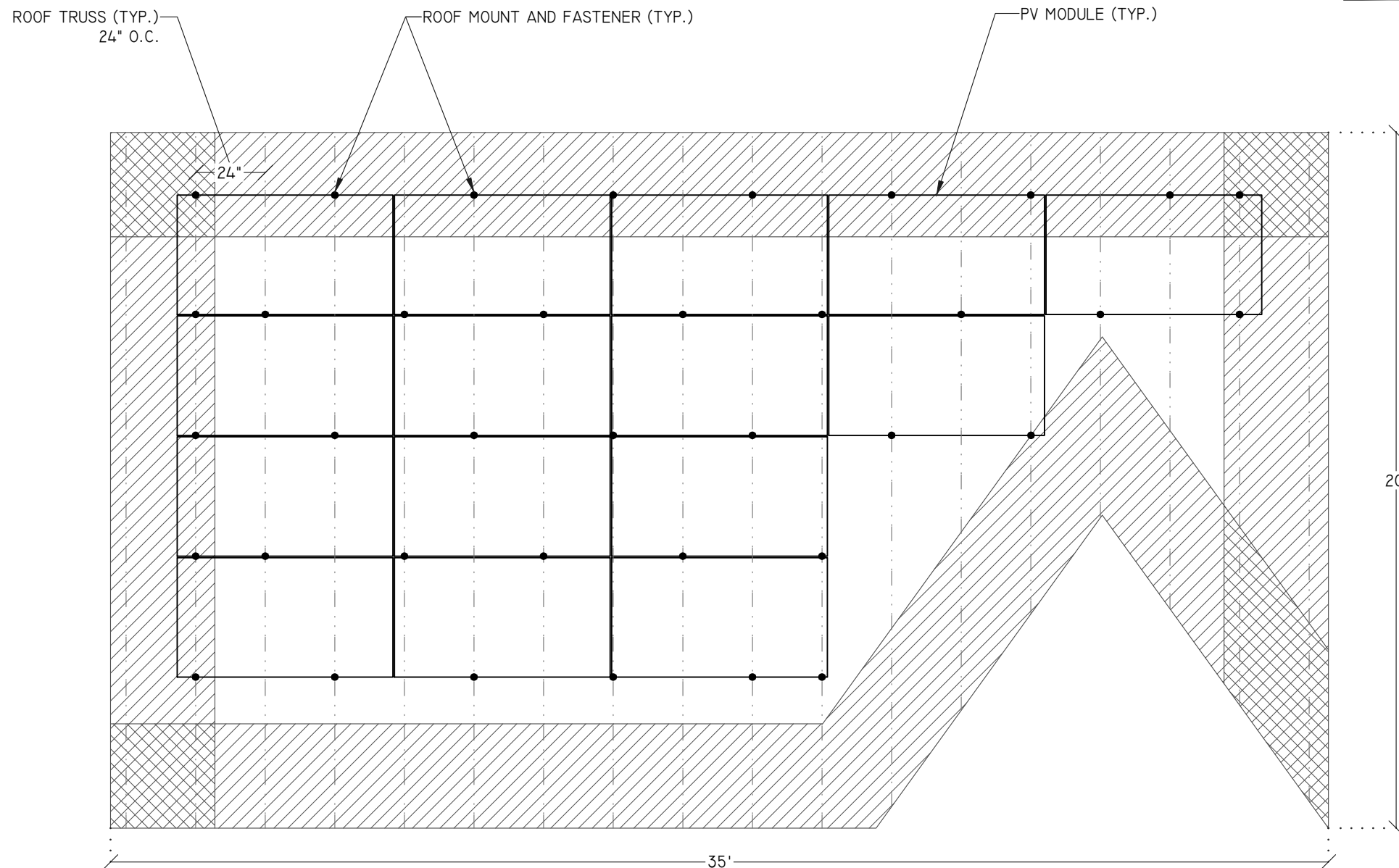
THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PROPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING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

SIGNED: 

NAME: ANDREW W. KING, PE

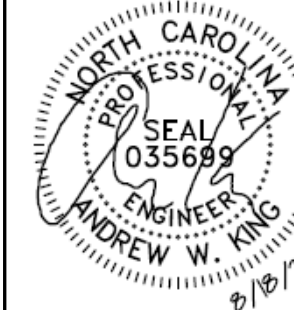
TITLE: PROFESSIONAL ENGINEER

ROOF ZONES:	
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"



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

ENGINEER:



**MODEL ENERGY**

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

JOB TITLE:

**NEW SOLAR PV SYSTEM**  
12.245 kW DC INPUT  
10.000 kW AC EXPORT

**JASON LORENTZEN**  
426 PONDEROSA ROAD  
CAMERON, NC, 28326

CLIENT:



ISSUED FOR:	DATE:
CONSTRUCTION	08/18/22

STRUCTURAL INFORMATION

**PV3.2**

1 | MODULE, RACKING, AND FASTENER LAYOUT – ROOF "B" PLANAR VIEW

SCALE: 1/4" = 1'-0"

© 2022 MODEL ENERGY, PLLC EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPRESSED WRITTEN PERMISSION AND CONSENT OF MODEL ENERGY, PLLC.

ROOF LOADING	
GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD:	20 LBS./SQFT.
DEAD LOAD:	
ROOFING	3.9 LBS./SQFT.
PV ARRAY	2.7 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	-203 LBS.
UPLIFT ZONE 2	-240 LBS.
UPLIFT ZONE 3	-240 LBS.
DOWNWARD	190 LBS.

ROOF MOUNT & FASTENER	
ROOF MOUNT:	
MAKE	ZEP
MODEL	ZS COMP
MATERIAL	ALUMINUM
FASTENER	
MAKE	GENERIC
MODEL	LAG BOLT
MATERIAL	304 SS
SIZE	5/16"-18 X 4"
GENERAL	
WEIGHT	2 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


ARRAY SUMMARY	
# MODULES	6
# ROOF MOUNTS	18
RAIL LENGTH	N/A
ARRAY AREA	128 sqft.
ARRAY WEIGHT	347 LBS.
AZIMUTH @ SN	128°
TILT ANGLE	27°

PV MODULES	
MAKE	TESLA
MODEL	T395H
WIDTH	41.2"
LENGTH	74.4"
THICKNESS	1.57"
WEIGHT	51.8 LBS

ROOF SUMMARY	
STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2" X 4"
SPACING	24" o.c.
EFF. SPAN	7'-6"
PITCH	6 / 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.

### 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: 

NAME: ANDREW W. KING, PE

TITLE: PROFESSIONAL ENGINEER

#### ROOF ZONES:

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

ENGINEER:



MODEL ENERGY

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

JOB TITLE:

**NEW SOLAR PV SYSTEM**  
12.245 kW DC INPUT  
10.000 kW AC EXPORT  
**JASON LORENTZEN**  
426 PONDEROSA ROAD  
CAMERON, NC, 28326

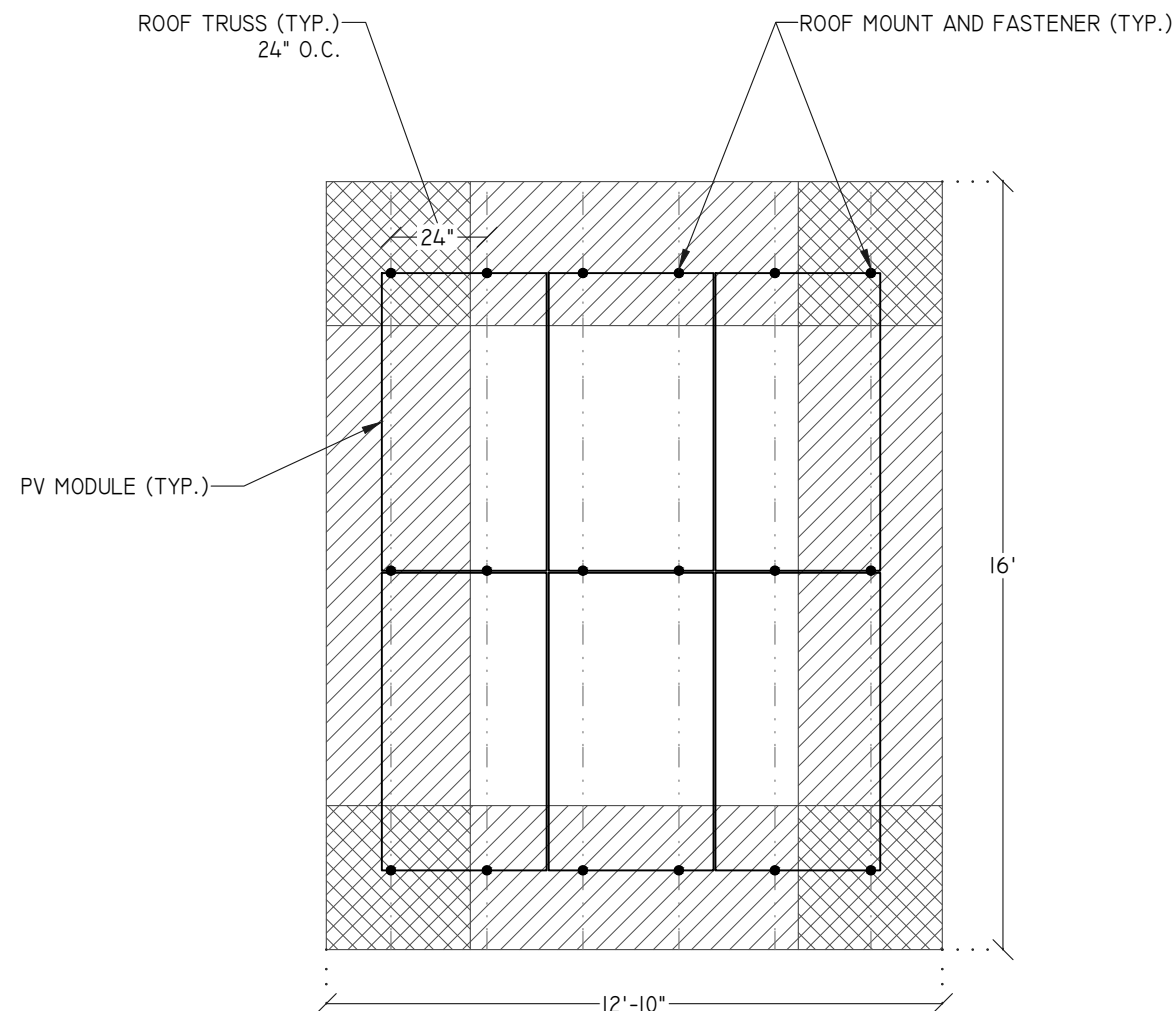
CLIENT:



ISSUED FOR:	DATE:
CONSTRUCTION	08/18/22

STRUCTURAL INFORMATION

# PV3.3



ROOF LOADING	
GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD:	20 LBS./SQFT.
DEAD LOAD:	
ROOFING	3.9 LBS./SQFT.
PV ARRAY	2.7 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	-305 LBS.
UPLIFT ZONE 2	-360 LBS.
UPLIFT ZONE 3	-180 LBS.
DOWNWARD	285 LBS.

ROOF MOUNT & FASTENER	
ROOF MOUNT:	
MAKE	ZEP
MODEL	ZS COMP
MATERIAL	ALUMINUM
FASTENER	
MAKE	GENERIC
MODEL	LAG BOLT
MATERIAL	304 SS
SIZE	5/16"-18 X 4"
GENERAL	
WEIGHT	2 LBS
FASTENERS PER MOUNT	1 PER MOUNT
MAX. PULL-OUT FORCE	800 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	400 LBS.


ARRAY SUMMARY	
# MODULES	4
# ROOF MOUNTS	11
RAIL LENGTH	N/A
ARRAY AREA	85 SQFT.
ARRAY WEIGHT	230 LBS.
AZIMUTH @ SN	52°
TILT ANGLE	27°

PV MODULES	
MAKE	TESLA
MODEL	T395H
WIDTH	41.2"
LENGTH	74.4"
THICKNESS	1.57"
WEIGHT	51.8 LBS

ROOF SUMMARY	
STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2" X 4"
SPACING	24" O.C.
EFF. SPAN	5'-4"
PITCH	6 / 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.

**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: 

NAME: ANDREW W. KING, PE

TITLE: PROFESSIONAL ENGINEER

ROOF ZONES:	
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"

ENGINEER:



**MODEL ENERGY**


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

JOB TITLE:

**NEW SOLAR PV SYSTEM**  
12.245 kW DC INPUT  
10.000 kW AC EXPORT

**JASON LORENTZEN**  
426 PONDEROSA ROAD  
CAMERON, NC, 28326

CLIENT:

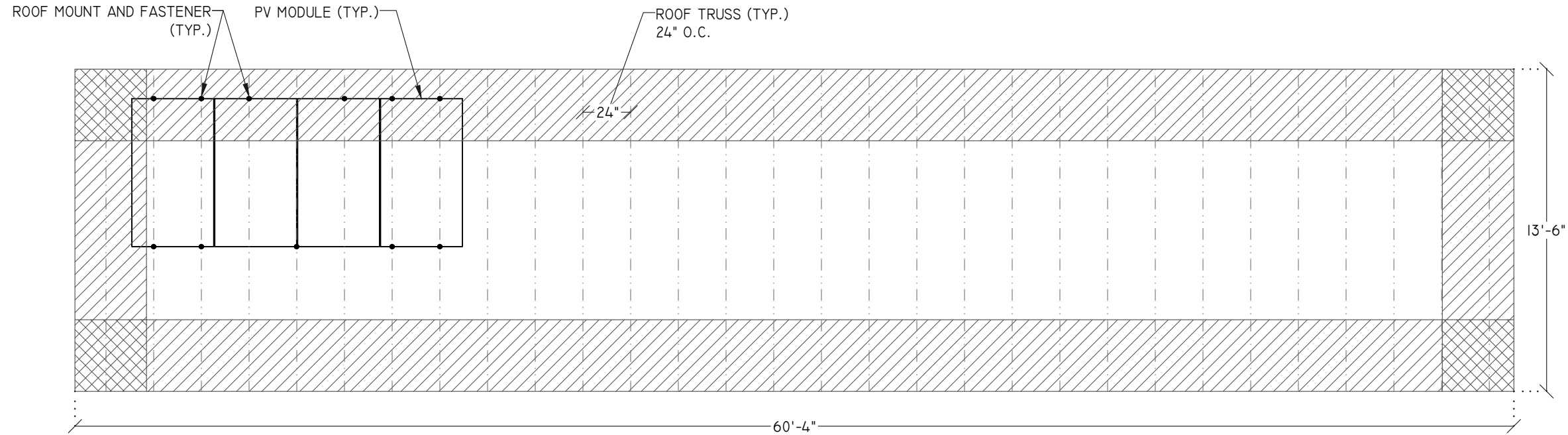


**SOUTHERN ENERGY MANAGEMENT**  
ENERGY EFFICIENCY & SOLAR POWER

ISSUED FOR:	DATE:
CONSTRUCTION	08/18/22

STRUCTURAL INFORMATION

**PV3.4**



1 MODULE, RACKING, AND FASTENER LAYOUT – ROOF "D" PLANAR VIEW

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

© 2022 MODEL ENERGY, PLLC EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPRESSED WRITTEN PERMISSION AND CONSENT OF MODEL ENERGY, PLLC.



PV MODULES	
MAKE	TESLA
MODEL	T395H
TECHNOLOGY	MONO-CRYST.
NOM. POWER (P <sub>NOM</sub> )	395 WATTS
NOM. VOLT. (V <sub>MP</sub> )	36.88 VOLTS
O.C. VOLT. (V <sub>OC</sub> )	45.27 VOLTS
MAX. SYS. VOLT.	1000 V (UL)
TEMP. COEF. (V <sub>Tc</sub> )	-0.27 %/°C
NOM. CURR. (I <sub>MP</sub> )	10.71 AMPS
S.C. CURR. (I <sub>sc</sub> )	11.10 AMPS
MAX. SERIES FUSE	20 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	6000 WATTS

BATTERY STORAGE SYSTEM	
MAKE	TESLA
MODEL	POWERWALL
TOTAL ENERGY	14 kWh
USABLE ENERGY	13.5 kWh
REAL PWR. (cont)	5 kW
REAL PWR. (10s)	7 kW
APPR. PWR. (cont)	5.8 kW
APPR. PWR. (10s)	7.2 kW
OCF	30 AMPS

- NOTES:
- QUANTITY: (3)
  - PCS IN GATEWAY SET TO NO EXPORT OF BATTERY POWER

DC/AC INVERTER	
MAKE	SOLAREEDGE
MODEL	SE10000H-US
TECHNOLOGY	TRANS-LESS
DC INPUT:	
MAX. POWER	15500 WATTS
MAX. VOLT	480 VOLTS
NOM. VOLT.	400 VOLTS
MAX. CURRENT	27 AMPS
MAX. SCC	45 AMPS
STRINGS INPUTS	3 STRINGS
AC OUTPUT:	
RATED POWER	10000 WATTS
MAX. POWER	10000 WATTS
NOM. VOLT.	240 VOLTS
MAX. CURR.	42 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

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

INVERTER DISCONNECT	
MAKE	N/A
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:
- PLACE NEXT TO INVERTER

CONDUCTOR SCHEDULE													
TAG	CURRENT CARRYING CONDUCTORS				GROUNDING CONDUCTORS				CONDUIT/RACEWAY				NOTES
	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	LOCATION	
C1.1	2	10 AWG	COPPER	PV WIRE	1	6 AWG	COPPER	PV WIRE	-	-	-	FREE AIR	1
C1.2	4	10 AWG	COPPER	PV WIRE	1	6 AWG	COPPER	PV WIRE	-	-	-	FREE AIR	1
C2.1	2	10 AWG	COPPER	THWN-2	1	10 AWG	COPPER	THWN-2	1	3/4"	FMC/EMT/MC	EXT/INT	2,4
C2.2	6	8 AWG	COPPER	THWN-2	1	10 AWG	COPPER	THWN-2	1	1"	FMC/EMT/MC	EXT/INT	2,4
C3	3	6 AWG	COPPER	THWN	1	10 AWG	COPPER	THWN	1	3/4"	NOTE 5	EXTERIOR	2,4,5
C4	3	3/0	COPPER	THWN	1	6 AWG	COPPER	THWN	1	2"	NOTE 5	INTERIOR	2,4,5
C5	3	3/0	COPPER	THWN	-	-	-	-	1	1-1/2"	NOTE 5	INTERIOR	2,4,5
C6	3	10 AWG	COPPER	THWN	1	10 AWG	COPPER	THWN	1	1/2"	NOTE 5	INTERIOR	2,4,5
XC	-	-	-	-	-	-	-	-	-	-	-	-	3

NOTES:

- MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
- CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED
- EXISTING CONDUCTORS, FIELD VERIFY
- EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR
- PVC, EMT, ROMEX, LFNMC & FMC ARE ACCEPTABLE WHEN USED IN ACCORDANCE WITH ARTICLES 330, 334, 348, 350, 352, 356, & 358 OF THE 2017 NEC

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

POWER MANAGEMENT SYSTEM (NEW)	
MAKE	TESLA
MODEL	BACKUP GATEWAY
AC VOLTAGE	240 VOLTS
MAX. AC CURR.	200 AMPS
PROTECT. RATING	NEMA 3R
FUSED (Y/N)	YES
FUSE RATING	200 AMPS

NOTES:

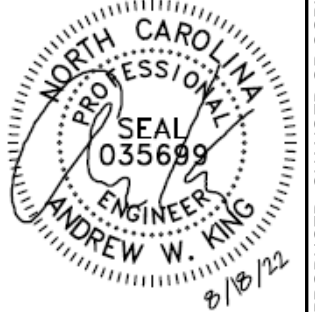
- MAIN BREAKER SERVES AS SERVICE DISCONNECT SWITCH.
- CONNECT CRITICAL LOADS PANEL VIA GATEWAY OUTPUTS.
- GATEWAY INTERNAL PANEL (GENERATION OPTION) INSTALLED.
- BACK-FEED POWERWALL OUTPUT VIA (3) 30A BREAKER IN GATEWAY PANEL.
- BACK-FEED INVERTER OUTPUT VIA 60A BREAKER IN GATEWAY PANEL.
- PCS IN GATEWAY SET TO NO EXPORT OF BATTERY POWER.
- SERVICE DISCONNECT LABEL
- PROVIDE N/G BOND
- PROVIDE GEC

CRITICAL LOADS 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:

- REMOVE SERVICE DISCONNECT LABEL
- REMOVE N/G BOND
- REMOVE GEC

ENGINEER:



MODEL ENERGY

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

JOB TITLE:

NEW SOLAR PV SYSTEM  
12.245 kW DC INPUT  
10.000 kW AC EXPORT  
JASON LORENTZEN  
426 PONDEROSA ROAD  
CAMERON, NC, 28326

CLIENT:



ISSUED FOR: CONSTRUCTION DATE: 08/18/22

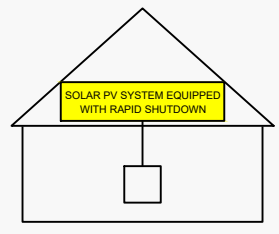
ELECTRICAL INFORMATION

PV4.2



**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\*

**WARNING**  
MULTIPLE POWER SOURCES ONSITE  
UTILITY SERVICE DISCONNECT LOCATED

NEC 705.10  
PLACE AT SERVICE EQUIPMENT AND PV SYSTEM DISCONNECT MEANS

**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

**PCS CONTROLLED CURRENT SETTING: 200 AMPS**  
THE MAXIMUM OUTPUT CURRENT FROM THIS SYSTEM TOWARDS THE MAIN PANEL IS CONTROLLED ELECTRICALLY. REFER TO THE MANUFACTURER'S INSTRUCTIONS FOR MORE INFORMATION.

NEC 705.13  
PLACE ON PANELS CONNECTED TO GATEWAY

**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 1/2 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 45.0 AMPS

NEC 690.53  
PLACE ON ALL DC DISCONNECTING MEANS

**PHOTOVOLTAIC POWER SOURCE**

OPERATING AC VOLT. 240 VAC  
MAXIMUM OPERATING AC OUTPUT CURRENT 42.0 AMPS

NEC 690.54  
PLACE ON INTERCONNECTION DISCONNECTING MEANS

ENGINEER:



MODEL ENERGY

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

JOB TITLE:

NEW SOLAR PV SYSTEM  
12.245 kW DC INPUT  
10.000 kW AC EXPORT  
JASON LORENTZEN  
426 PONDEROSA ROAD  
CAMERON, NC, 28326

CLIENT:



ISSUED FOR: CONSTRUCTION  
DATE: 08/18/22

EQUIPMENT LABELS

**PV5.1**