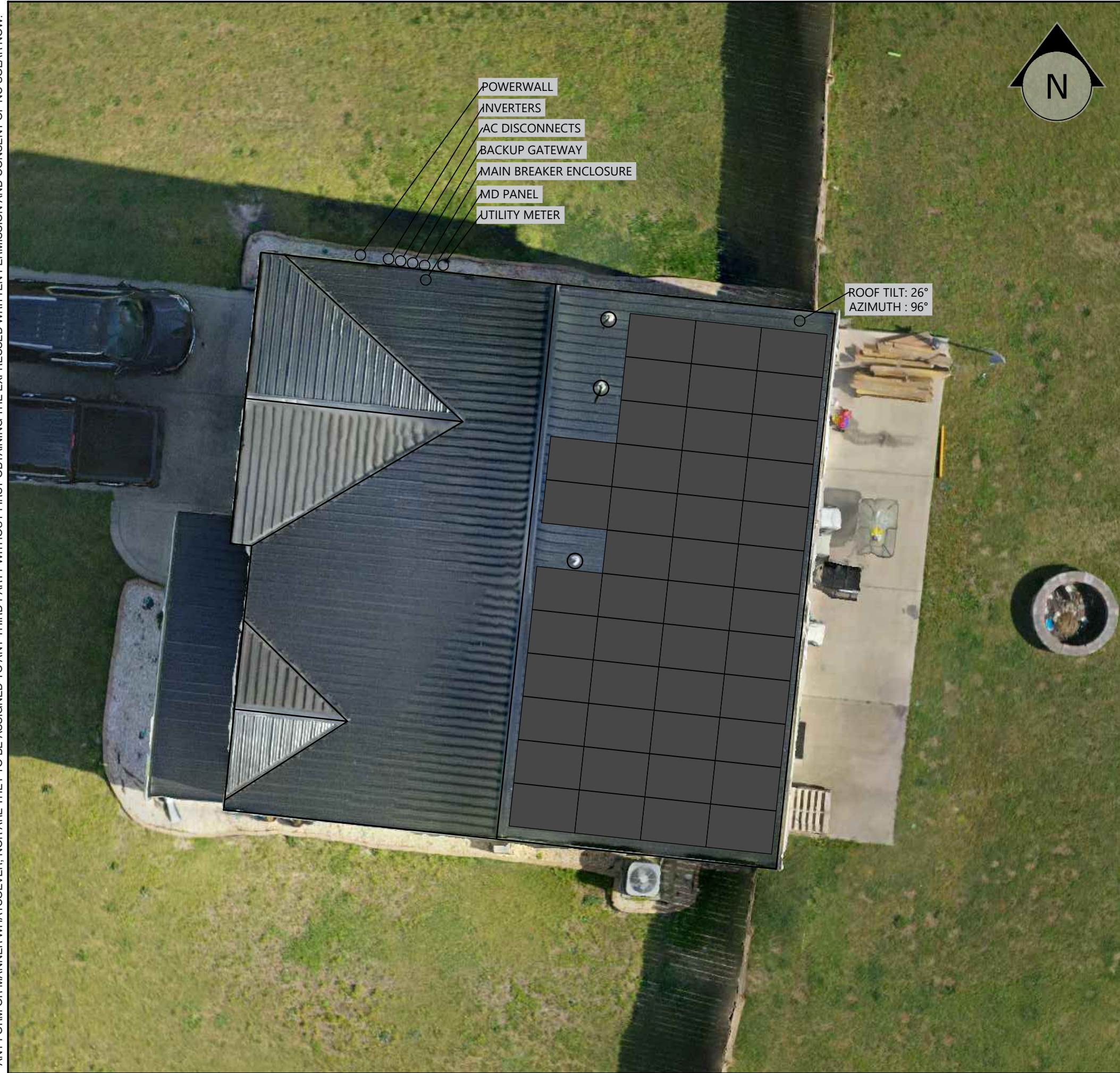


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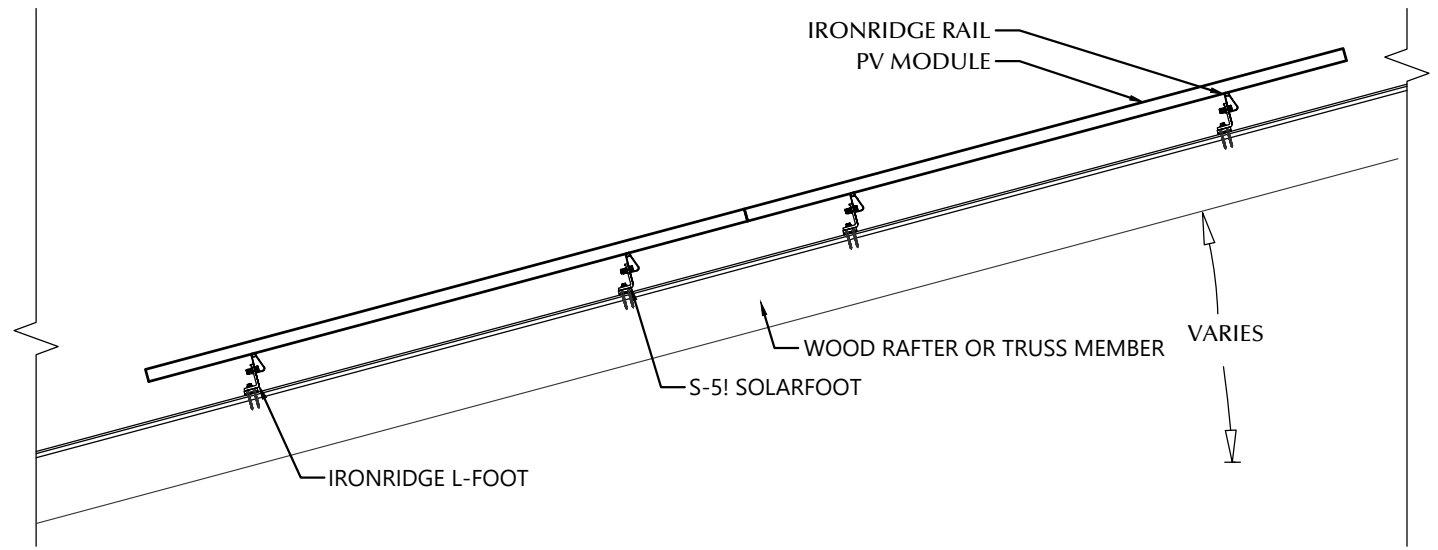
PV MATERIAL SUMMARY: DISTRIBUTOR	
Q.PEAK DUO BLK-G8+340	44
P401	44
SE7600H-US000BNU4	1
SE6000H-US000BNU4	1
SE-ZBGW-B-S1-NA	1
XR-10-168B	21
XR-10-204B	1
XR10-BOSS-01-M1	14
UFO-CL-01-B1	98
UFO-STP-32MM-B1	20
XR-LUG-03-A1	6
SOLARFOOT	169
TYPE 17-AB, SCREW (2.5")	676
LFT-03-M1	169
TESLA POWERWALL 2	1
TESLA BACKUP GATEWAY GEN 2	1

CLIENT INFO	
ALEGRA R HOLLEY 50 LUMINA COURT LINDEN, NC 28356	
PROJECT INFO	
DC INPUT:	14.96 kW
AC EXPORT:	13.60 kW
DOI INSPT. METHOD:	OPTION 2
CODE REFERENCES	
NATION ELECTRICAL CODE v. 2017 NC FIRE PROTECTION CODE v. 2018 NC BUILDING CODE v. 2018 NC RESIDENTIAL CODE v. 2018 ACSE v. 7-10	
SITE CONDITIONS	
WIND SPEED:	119 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	10 PSF
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PV-4:	PV EQUIPMENT LABELS
PV-5:	PV INSTALL GUIDE
DESIGNER INFO	
DESIGNER	JAM
ENGINEER	AWK
DATE	6/2/2021
VERSION	P1
PV SYSTEM COVER PAGE	
<b>PV-1.1</b>	



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**STATEMENT OF STRUCTURAL COMPLIANCE**

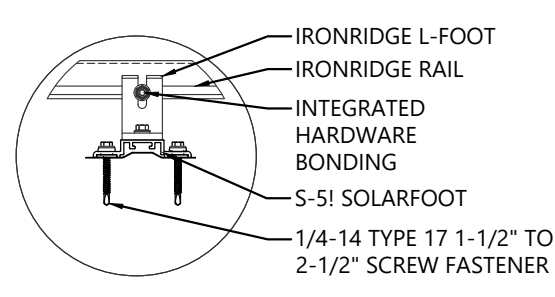
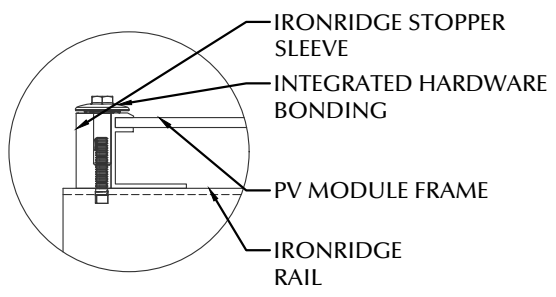
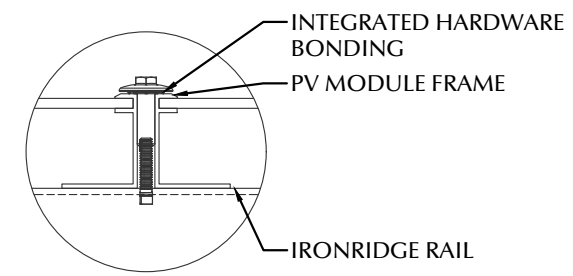
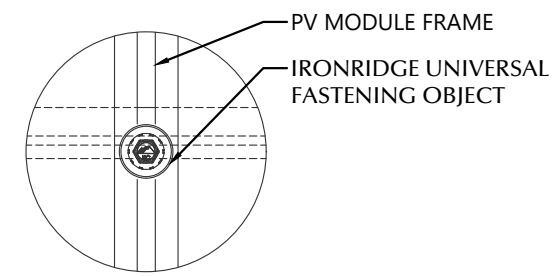
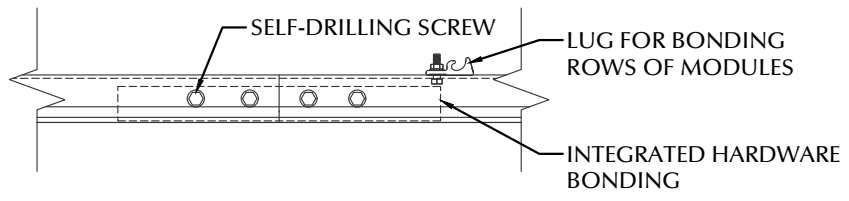
THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PROPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING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

NAME: ANDREW W. KING, PE

SIGNED:

PV MODULES	
MAKE	HANWHA
MODEL	Q.PEAK DUO BLK-G8+340
WIDTH	40.60 IN
LENGTH	68.50 IN
THICKNESS	32 MM
WEIGHT	43.90 LBS.
ARRAY AREA	850 SQFT.
ARRAY WEIGHT	2124 LBS.

ROOF SUMMARY	
STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 4
SPACING	24 IN O.C.
ALLOWABLE SPAN	88 IN
PITCH	6/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	COMPOSITE
THICKNESS	7/16 IN
WEIGHT	1.60 LBS./SQFT
ROOFING:	
TYPE	EXPOSED FASTENER METAL
MATERIAL	METAL
WEIGHT	1.30 LBS./SQFT.



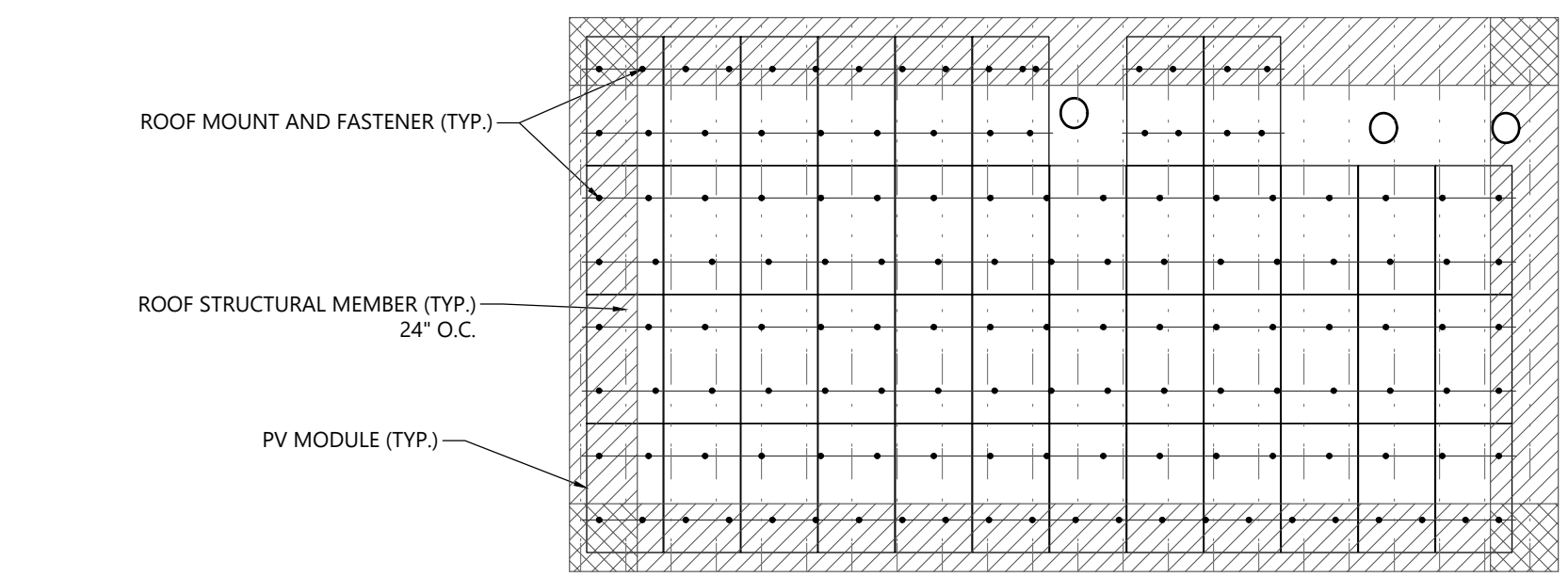
ROOF MOUNT SUMMARY		
MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	30 IN	12 IN
WIND ZONE 2	23 IN	9 IN
WIND ZONE 3	21 IN	9 IN

ROOF 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	-174 LBS.
UPLIFT ZONE 2	-157 LBS.
UPLIFT ZONE 3	-144 LBS.
DOWNWARD	163 LBS.

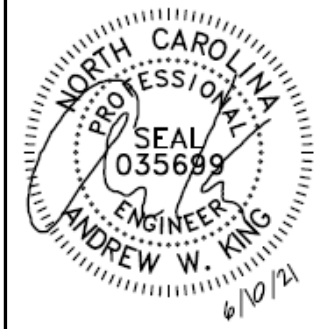
**1 ROOF FASTENER DETAIL**  
NOT TO SCALE

ROOF MOUNT & FASTENER	
ROOF MOUNT:	
MAKE	S-5!
MODEL	SOLARFOOT
MATERIAL	
FASTENER:	
MAKE	S-5!
MODEL	TYPE 17-AB, SCREW (2.5")
MATERIAL	ZINC / ALUMINUM CAP
SIZE	1/4 - 14 X 2-1/2" (3/8" HEX)
GENERAL:	
WEIGHT	
FASTENERS PER MOUNT	4
MAX. PULL-OUT FORCE	356.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	178.0 LBS.

MOUNTING RAILS	
MAKE	IRONRIDGE
MODEL	XR10
MATERIAL	ALUMINUM
WEIGHT	0.425 LBS/IN
SPACING	34 IN



**2 ARRAY LAYOUT**  
1/8" = 1'-0"



**CLIENT INFO**  
ALEGRA R HOLLEY  
50 LUMINA COURT  
LINDEN, NC 28356

**PROJECT INFO**  
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DOI INSPT. METHOD: OPTION 2

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**SITE CONDITIONS**  
WIND SPEED: 119 MPH  
RISK CATEGORY: II  
EXPOSURE: B  
SNOW: 10 PSF

**SHEET INDEX**  
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**DESIGNER INFO**  
DESIGNER: JAM  
ENGINEER: AWK  
DATE: 6/2/2021  
VERSION: P1

**PV SYSTEM STRUCTURAL**

**PV-2.1**

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## CONDUCTOR SCHEDULE

TAG	CURRENT CARRYING CONDUCTORS			GROUNDING CONDUCTORS			CONDUIT/RACEWAY			NOTES
	QTY.	SIZE	INSULATION	QTY.	SIZE	INSULATION	QTY.	SIZE	LOCATION	
C1	6	10 AWG	PV WIRE	1	6 AWG	BARE	-	-	FREE AIR	1
C2.1	2	10 AWG	THWN	1	10 AWG	THWN	1	3/4"	INT/EXT	2,4
C2.2	4	10 AWG	THWN	1	10 AWG	THWN	1	3/4"	INT/EXT	2,4
C3	3	8 AWG	THWN	1	10 AWG	THWN	1	3/4"	EXTERIOR	2,4
C4	3	6 AWG	THWN	-	-	-	1	3/4"	EXT/INT	2,4
C5	3	10 AWG	THWN	1	10 AWG	THWN	1	3/4"	EXT	2,4
C6	3	3/0 AWG	XHHW	1	4 AWG	THWN	1	2"	INT/EXT	2,4
C7	3	3 AWG	XHHW	1	6 AWG	THWN	1	1-1/4"	INT/EXT	2,4
C8	3	3/0 AWG	XHHW	1	6 AWG	THWN	1	2"	EXTERIOR	2,4
C9	3	3/0 AWG	XHHW	-	-	-	1	2"	EXTERIOR	2,4
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. PLEASE REFERENCE NOTES ON PV-4 FOR ADDITIONAL DETAIL

## PV MODULE

MAKE	HANWHA
MODEL	Q.PEAK DUO BLK-G8+340
NOM. POWER (PNOM)	340 WATTS
NOM. VOLT. (VMPP)	34.3 VOLTS
O.C. VOLT (VOC)	40.7 VOLTS
MAX. SYS. VOLT.	1000 VOLTS
NOM. CURR. (IMPP)	9.9 AMPS
S.C. CURR. (ISC)	10.4 AMPS
TEMP. COEF. (PMPP)	-0.35 %/C
TEMP. COEF. (Voc)	-0.27 %/C
MAX SERIES FUSE	20 AMPS
UL LIST. (Y/N)	YES

## JUNCTION BOX

MAKE	GENERIC
PROTECT. RATING	NEMA TC2
UL LIST. (Y/N)	YES

## AC DISCONNECT 1

MAKE	GENERIC
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	60 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	YES
FUSE RATING	35 AMPS

- 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
- SERVICE RATED
- PROVIDE NEUTRAL/GROUND BONDING JUMPER

## AC DISCONNECT 2

MAKE	GENERIC
MODEL	NA
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

- 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
- 3 POLE DISCONNECT MAY BE USED

## MODULE OPTIMIZER

MAKE	SOLAREEDGE
MODEL	P401
DC INPUT:	
NOM. POWER	400 WATTS
VOLT. RANGE	8 to 60
MAX. CURR.	11.8 AMPS
DC OUTPUT:	
NOM. POWER	400 WATTS
MAX. VOLT.	60 VOLTS
MAX. CURR.	15 AMPS
MIN-MAX STRING	8-25 OPTIMIZERS
UL LIST. (Y/N)	YES

## ENERGY STORAGE SYSTEM

MAKE	TESLA
MODEL	POWERWALL 2
USABLE ENERGY	13.5 kWh
NOM. VOLT.	240 VOLTS
REAL POWER CONT.	5000 WATTS
UL LIST. (Y/N)	YES
OCPD	30 AMPS
PROTECT RATING	NEMA 3R

## ENERGY MANAGEMENT

MAKE	TESLA
MODEL	BACKUP GATEWAY 2
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
DISCONNECT CURR.	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	200 AMPS

- TROUGH MAY BE USED IF NECESSARY
- INSTALL INTERNAL PANELBOARD
- PLACE PV AND BATTERY BREAKERS ON PANELBOARD
- FEED NON-BACKUP PANEL FROM NON-BACKUP LUGS

## MAIN BREAKER ENCLOSURE

MAKE	GENERIC
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	200 AMPS
UL LIST. (Y/N)	YES
BREAKER RATING	200 AMPS

- INTERCEPT SERVICE FEEDERS FROM METER
- TROUGH MAY BE USED AS NECESSARY
- SERVICE RATED
- PROVIDE NEUTRAL/GROUND BONDING JUMPER

## DC/AC INVERTER 1

MAKE	SOLAREEDGE
MODEL	SE6000H-US
TECHNOLOGY	TRANSFORMER-LESS
DC INPUT:	
MAX. POWER	9300 WATTS
VOLT. RANGE	350-480 VOLTS
NOM. VOLT.	380 VOLTS
MAX. CURRENT	16.5 AMPS
STRING INPUTS	2 STRINGS
AC OUTPUT:	
NOM. POWER	6000 WATTS
NOM. VOLT.	240 VOLTS
MAX. POWER	6000 WATTS
MAX. CURR.	25 AMPS
GFP (Y/N)	YES
GFCI (Y/N)	YES
AFCI (Y/N)	YES
DC DISC. (Y/N)	YES
RAPID SHUTDOWN	YES
FUSE RATING	15 AMPS
PROTECT. RATING	NEMA 3R

## DC/AC INVERTER 2

MAKE	SOLAREEDGE
MODEL	SE7600H-US
TECHNOLOGY	TRANSFORMER-LESS
DC INPUT:	
MAX. POWER	11800 WATTS
VOLT. RANGE	350-480 VOLTS
NOM. VOLT.	400 VOLTS
MAX. CURRENT	20 AMPS
STRING INPUTS	2 STRINGS
AC OUTPUT:	
NOM. POWER	7600 WATTS
NOM. VOLT.	240 VOLTS
MAX. POWER	7600 WATTS
MAX. CURR.	32 AMPS
GFP (Y/N)	YES
GFCI (Y/N)	YES
AFCI (Y/N)	YES
DC DISC. (Y/N)	YES
RAPID SHUTDOWN	YES
FUSE RATING	15 AMPS
PROTECT. RATING	NEMA 3R

## MD PANEL (EXISTING)

MAKE	EATON-CUTLER HAMMER
MODEL	N/A
ENCL. RATING	NEMA TYPE 1
VOLT. RATING	240
BUS RATING	225 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	200 AMPS

- REMOVE BONDING JUMPER AND ISOLATE NEUTRAL AND GROUND BARS
- MOVE HEAT, A/C, AND STOVE BREAKERS FROM HERE TO NON-BACKUP PANEL

## NON-BACKUP PANEL

MAKE	GENERIC
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	100 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	100 AMPS

- INSTALL 100A MAIN BREAKER
- RELOCATE HEAT, A/C, AND STOVE BREAKERS FROM MD PANEL TO HERE



### CLIENT INFO

ALEGRA R HOLLEY  
50 LUMINA COURT  
LINDEN, NC 28356

### PROJECT INFO

DC INPUT: 14.96 kW  
AC EXPORT: 13.60 kW  
DOI INSPT. METHOD: OPTION 2

### CODE REFERENCES

NATION ELECTRICAL CODE v. 2017  
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NC RESIDENTIAL CODE v. 2018  
ACSE v. 7-10

### SITE CONDITIONS

WIND SPEED: 119 MPH  
RISK CATEGORY: II  
EXPOSURE: B  
SNOW: 10 PSF

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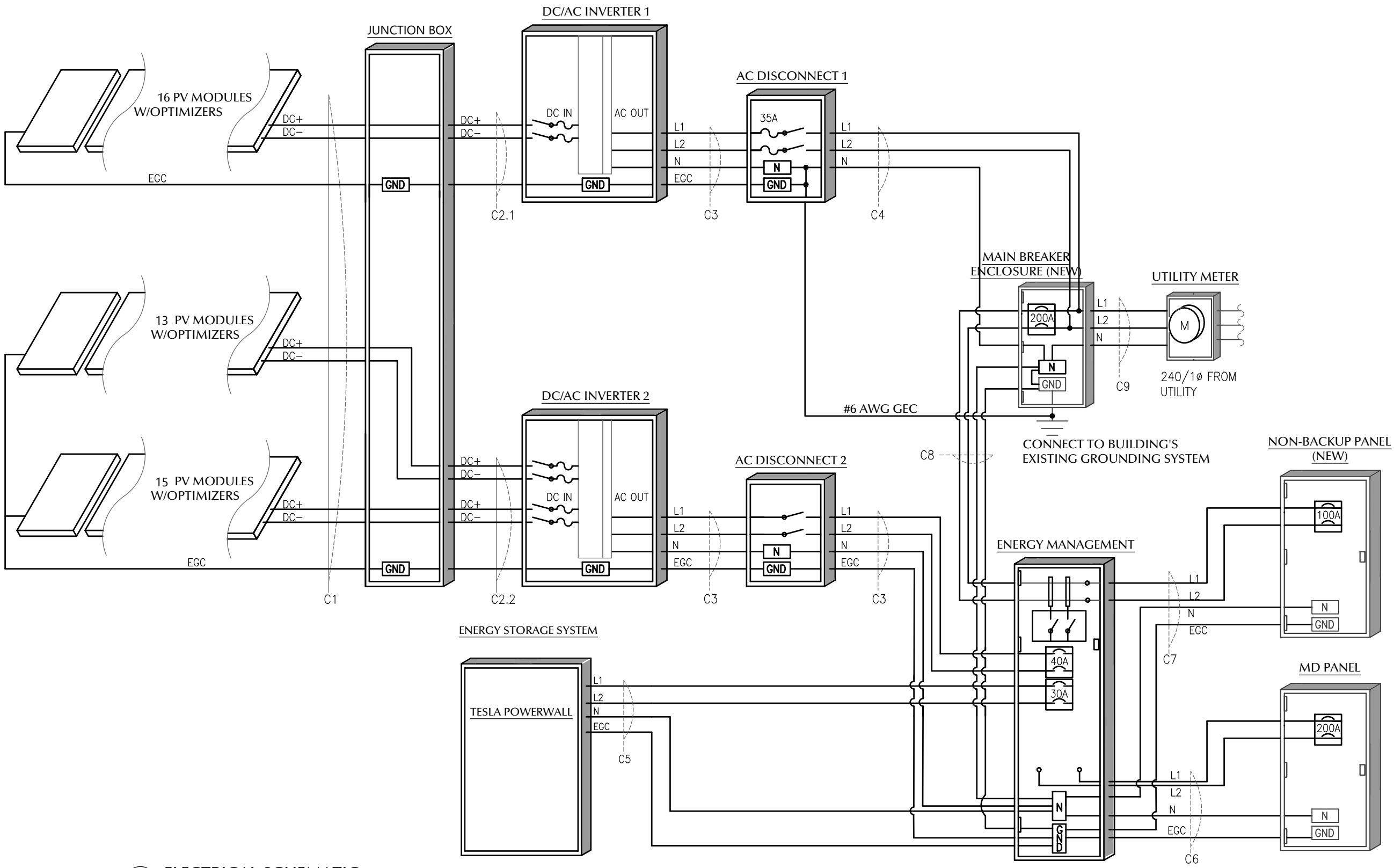
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DESIGNER: JAM  
ENGINEER: AWK  
DATE: 6/2/2021  
VERSION: P1

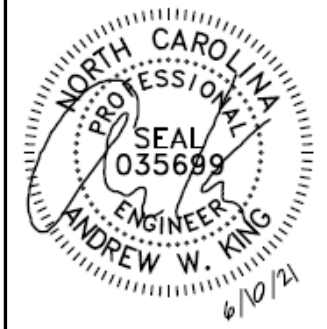
### PV SYSTEM ELECTRICAL

# PV-3.1

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**1** ELECTRICAL SCHEMATIC  
NOT TO SCALE



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50 LUMINA COURT  
LINDEN, NC 28356

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**DESIGNER INFO**

DESIGNER: JAM  
ENGINEER: AWK  
DATE: 6/2/2021  
VERSION: P1

**PV SYSTEM ELECTRICAL**

**PV-3.2**

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**⚠ 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

**⚠ WARNING**  
**THREE POWER SOURCES**  
 SOURCES: UTILITY GRID, BATTERY AND PV SOLAR ELECTRIC SYSTEM

NEC 705.12 (B)(3)  
 PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY BOTH POWER SOURCES

**WARNING: PHOTOVOLTAIC POWER SOURCE**

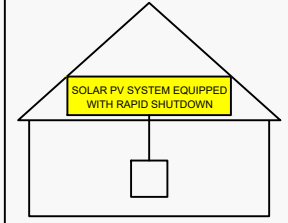
NEC 690.31 (G)(3)&(4)  
 PLACE ON ALL JUNCTION BOXES, EXPOSED RACEWAYS, AND OTHER WIRING METHODS EVERY 10' AND ON EVERY SECTION SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.

**RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM**

NEC 690.56 (C)(3)  
 PLACE ON RAPID SHUTDOWN SWITCH OR EQUIPMENT WITH INTEGRATED RAPID SHUTDOWN \*REFLECTIVE\*

**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

**PV SYSTEM DISCONNECT**

NEC 690.13 (B)  
 PLACE ON PV SYSTEM DISCONNECTING MEANS.

**PHOTOVOLTAIC POWER SOURCE**  
 OPERATING AC VOLTAGE 240 V  
 MAXIMUM OPERATING AC OUTPUT CURRENT 25.0 A

NEC 690.54  
 PLACE ON AC DISCONNECT 1

**DIRECT CURRENT PHOTOVOLTAIC POWER SOURCE**  
 MAXIMUM VOLTAGE 600 VDC  
 MAX CIRCUIT CURRENT 15.0 AMPS

NEC 690.53  
 PLACE ON INVERTER 1 DC DISCONNECTING MEANS

**GENERATION PANEL:**  
 IN THE EVENT OF AN EMERGENCY, TURN OFF ALL BREAKERS TO DISCONNECT BACKUP POWER SOURCE(S).

PLACE ON BACKUP GATEWAY

**PHOTOVOLTAIC POWER SOURCE**  
 OPERATING AC VOLTAGE 240  
 MAXIMUM OPERATING AC OUTPUT CURRENT 32.0

NEC 690.54  
 PLACE ON AC DISCONNECT 1

**DIRECT CURRENT PHOTOVOLTAIC POWER SOURCE**  
 MAXIMUM VOLTAGE 600 VDC  
 MAX CIRCUIT CURRENT 30.0 AMPS

NEC 690.53  
 PLACE ON INVERTER 2 DC DISCONNECTING MEANS

SERVICE DISCONNECT LOCATED:  
 NORTH WALL OF HOUSE

---

BATTERY DISCONNECT LOCATED:  
 NORTH WALL OF HOUSE

---

PV DISCONNECT LOCATED:  
 NORTH WALL OF HOUSE

NEC 705.10  
 PLACE AT SERVICE EQUIPMENT, BATTERY AND PV SYSTEM DISCONNECTING MEANS.

**⚠ WARNING**  
 THIS EQUIPMENT FED BY MULTIPLE SOURCES. THE TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED THE AMPACITY OF THE BUSBAR.

NEC 705.12 (B)(2)(c)  
 PLACE ON BACKUP GATEWAY

**WARNING:**  
 IN THE EVENT OF A UTILITY OUTAGE, THIS PANEL IS FED FROM ENERGY STORAGE SYSTEM.

PLACE ON BACKED UP LOAD PANEL(S).

**LABEL NOTES**

1. LABELS SHOWN ARE HALF THEIR ACTUAL REQUIRED SIZE.
2. LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
3. DC CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.
4. LABELS WILL BE APPLIED IN ACCORDANCE WITH THE NEC. SOME LABELS MAY NOT BE NECESSARY.

**DC WIRING NOTES**

1. CONDUCTORS SHALL BE COPPER, RATED AT NOT LESS THAN 600 VOLTS FOR RESIDENTIAL CONSTRUCTION AND NOT LESS THAN 1000 VOLTS FOR COMMERCIAL CONSTRUCTION.
2. MINIMUM SIZE SHALL BE #10 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXPOSED WIRING CONDUCTOR INSULATION SHALL BE TYPE PV WIRE, USE-2, OR RHW-2 WHERE THE OUTER LAYER OF THE INSULATION IS UV, SUNLIGHT, AND MOISTURE RESISTANT.
6. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT) OR RIGID POLYVINYL CHLORIDE CONDUIT(PVC). ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
7. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THHN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), OR METAL CLAD CABLE(MC).
6. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMMAGE
7. MINIMUM CONDUIT SIZE TO BE 1/2".
8. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2017 NEC.

**AC WIRING NOTES**

1. CONDUCTORS SHALL BE COPPER RATED AT NOT LESS THAN 600 VOLTS.
2. MINIMUM SIZE SHALL BE #14 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), RIGID POLYVINYL CHLORIDE CONDUIT(PVC), LIQUID-TIGHT FLEXIBLE METAL CONDUIT(LFMC), OR LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT(LFNC) . ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
4. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THHN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), METAL CLAD CABLE(MC), OR ROMEX.
5. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMMAGE
6. MINIMUM CONDUIT SIZE TO BE 1/2".
7. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2017 NEC.

**CONSTRUCTION NOTES**

1. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE NEC, STATE, AND LOCAL APPLICABLE CODES.
2. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS.
3. ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE MAINTAINED.
4. WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.
5. FUSES 0 - 600 AMPS SHALL BE UL CLASS "RK-1" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING AS MANUFACTURED BY BUSSMANN, UNLESS NOTED OTHERWISE.
6. ALL TERMINALS/LUGS SHALL BE 75° RATED. ALL TERMINALS, SPlicing CONNECTORS, LUGS, ETC SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
7. PROVIDE A PULLWIRE IN ALL EMPTY CONDUITS.
8. ALL PENETRATIONS THROUGH EXTERIOR ROOFS SHALL BE FLASHED IN A WATERPROOF MANNER.
9. ALL PENETRATIONS THROUGH ATTIC FIRE BARRIERS SHALL BE SEALED WITH FIRE-BARRIER SEALANT CAULK.
10. SUPPORT ALL CONDUIT AND EQUIPMENT IN ACCORDANCE W/ NEC. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
11. METAL CONDUIT COUPLINGS CAN BE COMPRESSION TYPE, THREADED, OR BE SET-SCREW TYPE. PLASTIC CONDUIT COUPLINGS TO BE SOCKET GLUED TYPE.
12. A COMPLETE GROUNDING SYSTEM SHALL BE PRESENT OR PROVIDED AND INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC, AND AS SHOWN ON THE DRAWINGS.
13. 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.
14. WHERE APPLICABLE, GROUNDING ELECTRODE CONDUCTOR TO BE CONTINUOUS. GROUNDING CRIMPS TO BE IRREVERSIBLE.
15. PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
16. EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT.
17. 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.
18. A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED AT THE DC DISCONNECT MEANS.
19. 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.
20. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC SECTION 690.4 (C)
21. A NORTH CAROLINA REGISTERED DESIGN PROFESSIONAL WILL BE REQUIRED TO SEAL THE STRUCTURAL DESIGN AT THE TIME OF PERMIT APPLICATION IF ANY OF THE FOLLOWING EXIST AND ARE ATTESTED TO BY THE APPLICANT:
  - I. THE WEIGHT OF THE PV SYSTEM EXCEEDS THREE (3) POUNDS PER SQUARE FOOT(PSF)
  - II. THE ROOF POSSESSES MORE THAN ONE (1) LAYER OF ASPHALT SHINGLES
  - III. THE ROOFING MATERIAL CONSISTS OF A TYPE OTHER THAN ASPHALT SHINGLES OR METAL
  - IV. THE ROOF IS LOCATED IN A 140 MPH OR GREATER WIND ZONE



**CLIENT INFO**  
 ALEGRA R HOLLEY  
 50 LUMINA COURT  
 LINDEN, NC 28356

**PROJECT INFO**  
 DC INPUT: 14.96 kW  
 AC EXPORT: 13.60 kW  
 DOI INSPT. METHOD: OPTION 2

**CODE REFERENCES**  
 NATION ELECTRICAL CODE v. 2017  
 NC FIRE PROTECTION CODE v. 2018  
 NC BUILDING CODE v. 2018  
 NC RESIDENTIAL CODE v. 2018  
 ACSE v. 7-10

**SITE CONDITIONS**  
 WIND SPEED: 119 MPH  
 RISK CATEGORY: II  
 EXPOSURE: B  
 SNOW: 10 PSF

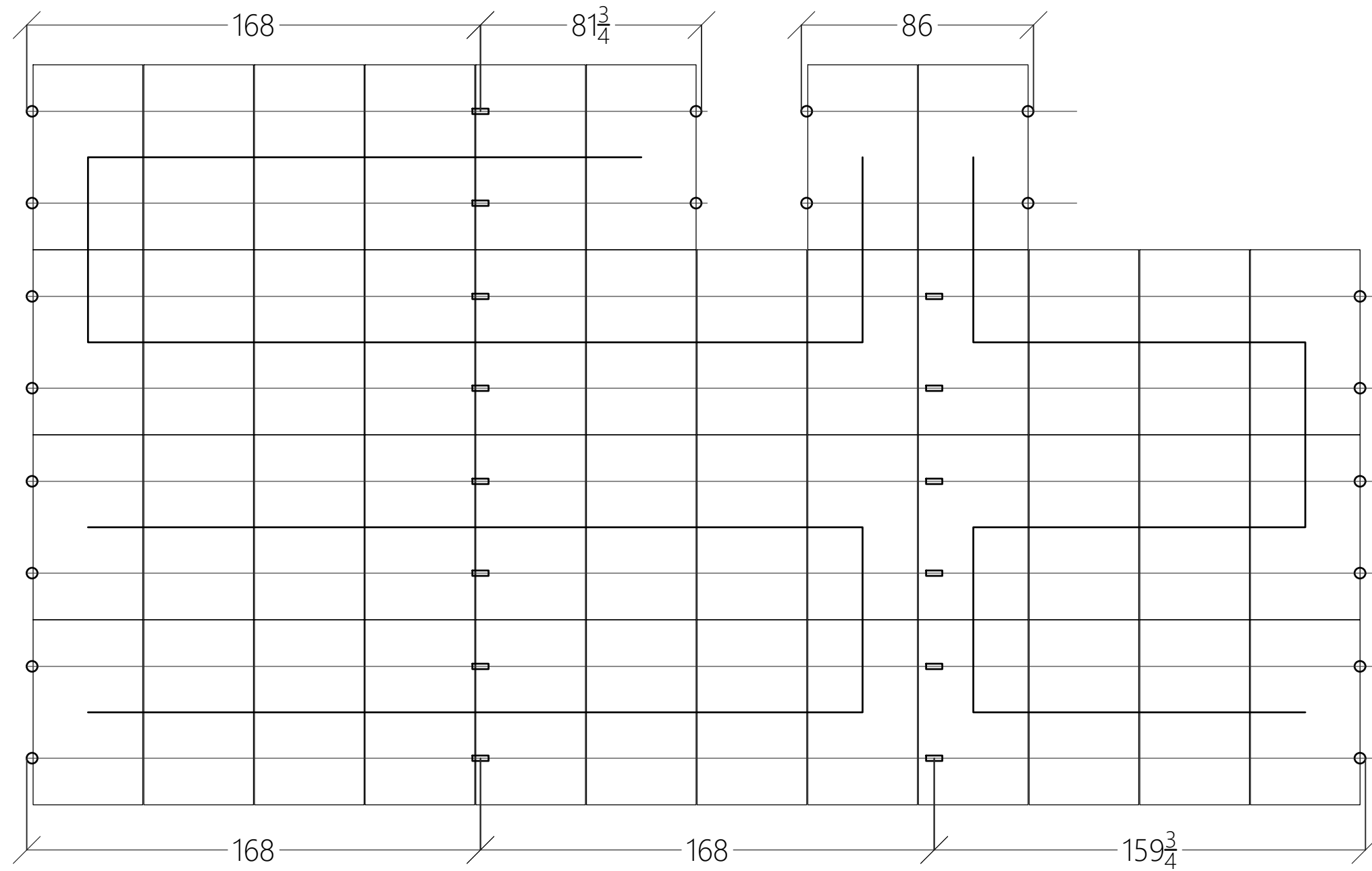
**SHEET INDEX**  
 PV-1: COVER SHEET  
 PV-2: PV STRUCTURAL  
 PV-3: PV ELECTRICAL  
 PV-4: PV EQUIPMENT LABELS  
 PV-5: PV INSTALL GUIDE

**DESIGNER INFO**  
 DESIGNER: JAM  
 ENGINEER: AWK  
 DATE: 6/2/2021  
 VERSION: P1

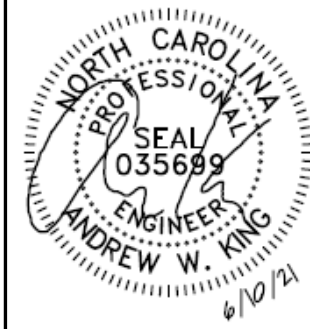
**PV SYSTEM EQUIPMENT LABELS**

**PV-4.1**

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1 ARRAY LAYOUT DETAIL  
NOT TO SCALE



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**DESIGNER INFO**

DESIGNER JAM  
ENGINEER AWK  
DATE 6/2/2021  
VERSION P1

**PV SYSTEM INSTALL GUIDE**

**PV-5.1**