PV MATERIAL SUMMARY: DISTRIBUTOR

Q.PEAK DUO BLK-G8+340	35
P401	35
SE10000H-US000BNU4	1
SE-ZBGW-B-S1-NA	1
XR-10-168B	18
XR-10-204B	1
XR10-BOSS-01-M1	4
UFO-CL-01-B1	86
UFO-STP-32MM-B1	32
XR-LUG-03-A1	8
4 IN QB1	85
GC66803 Geocel Sealant	6
SOLADECK 0799-5B	5

NC SOLAR NOW

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
6/11/21

CLIENT INFO

AMANDA SOTO
407 COKESBURY PARK LANE
FUQUAY-VARINA,NC 27526

PROJECT INFO

DC INPUT:	11.90 kW
AC EXPORT:	10.00 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:	115 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

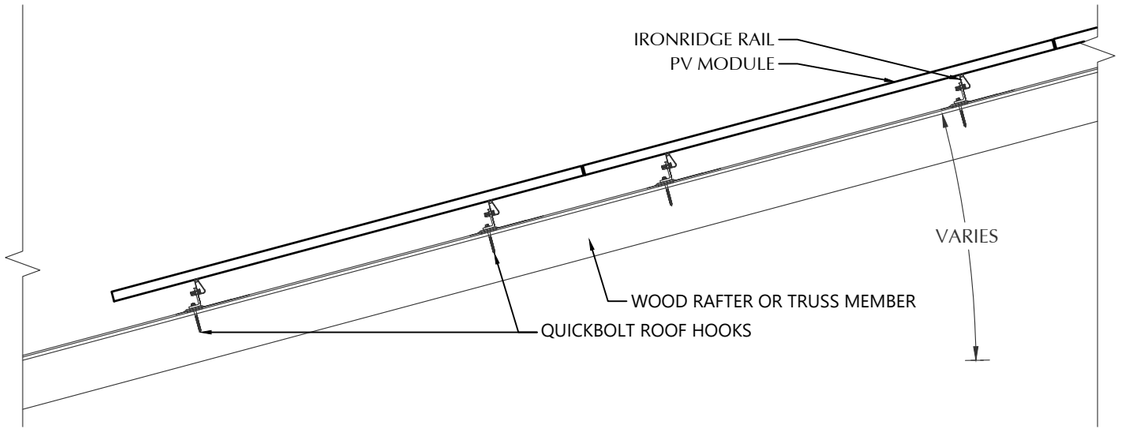
SHEET INDEX

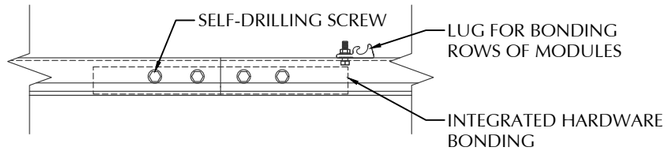
DESIGNER INFO

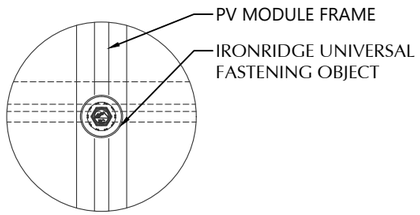
DESIGNER	CRM
ENGINEER	AWK
DATE	6/10/2021
VERSION	P1

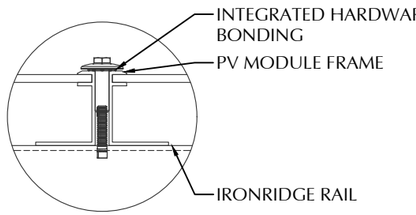
PV SYSTEM COVER PAGE

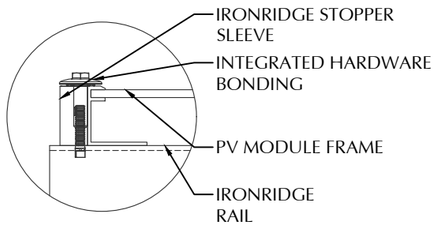
PV-1.1

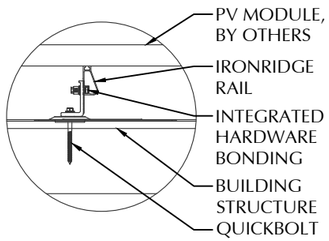




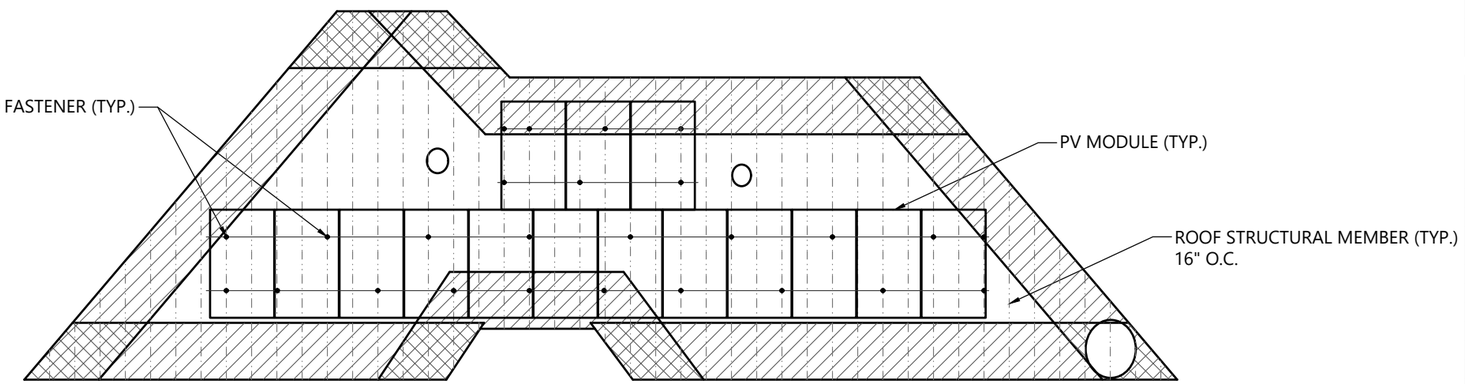








1 ROOF FASTENER DETAIL
NOT TO SCALE



2 ROOF A ARRAY LAYOUT
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.

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	290 SQFT.
ARRAY WEIGHT	724 LBS.

ROOF SUMMARY

STRUCTURE:	
TYPE	RAFTERS
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 8
SPACING	16 IN O.C.
EFFECTIVE SPAN	202 IN
PITCH	7/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	COMPOSITE
THICKNESS	7/16 IN
WEIGHT	1.60 LBS/SQFT
ROOFING:	
TYPE	ASPHALT SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.30 LBS./SQFT.

ROOF MOUNT SUMMARY

MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	64 IN	26 IN
WIND ZONE 2	48 IN	26 IN
WIND ZONE 3	48 IN	23 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	-371 LBS.
UPLIFT ZONE 2	-328 LBS.
UPLIFT ZONE 3	-328 LBS.
DOWNWARD	347 LBS.

ROOF MOUNT & FASTENER

ROOF MOUNT:	
MAKE	QUICKBOLT
MODEL	4 IN QB1
MATERIAL	STAINLESS / EPDM
FASTENER:	
MAKE	SOLAR ROOF HOOK
MODEL	HANGER BOLT
MATERIAL	304 SS
SIZE	5/16-18 X 5-1/4"
GENERAL:	
WEIGHT	0.56 LBS.
FASTENERS PER MOUNT	1
MAX. PULL-OUT FORCE	960.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	480.0 LBS.

MOUNTING RAILS

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

NC SOLAR NOW

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
6/11/21

CLIENT INFO

AMANDA SOTO
407 COKESBURY PARK LANE
FUQUAY-VARINA,NC 27526

PROJECT INFO

DC INPUT:	11.90 kW
AC EXPORT:	10.00 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:	115 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

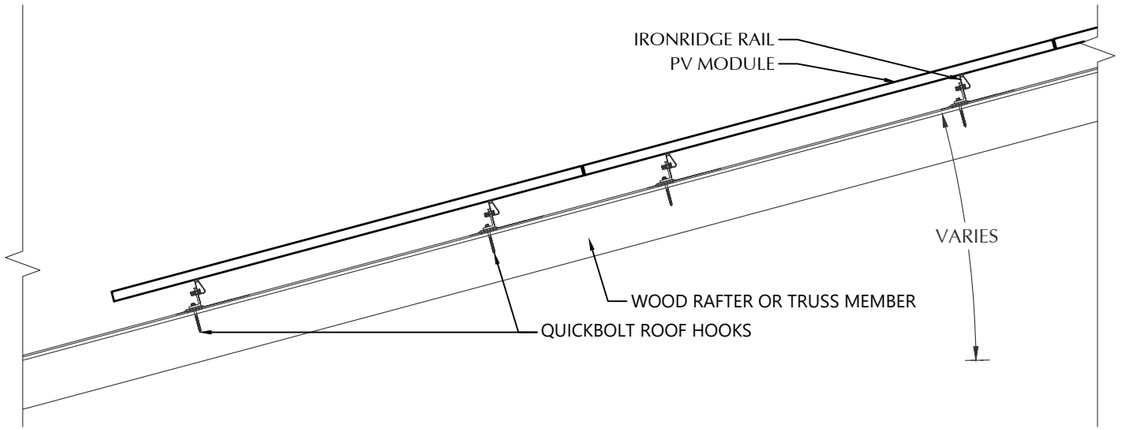
SHEET INDEX

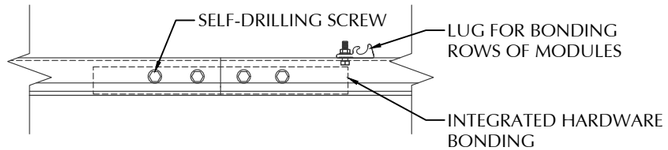
DESIGNER INFO

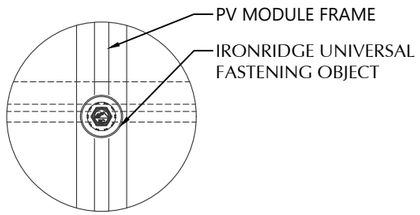
DESIGNER	CRM
ENGINEER	AWK
DATE	6/10/2021
VERSION	P1

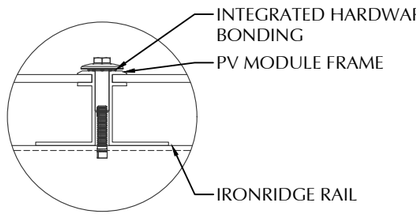
PV SYSTEM STRUCTURAL

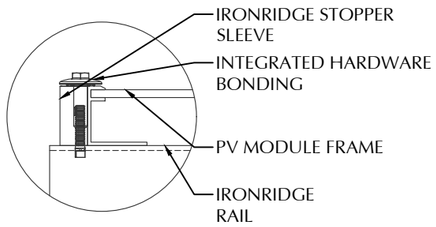
PV-2.1

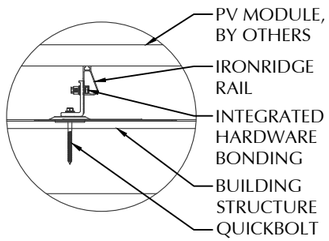




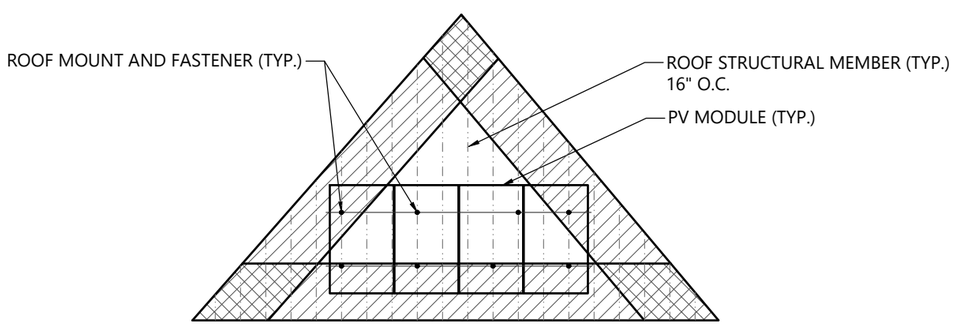








1 ROOF FASTENER DETAIL
NOT TO SCALE



2 ROOF B ARRAY LAYOUT
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.

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	77 SQFT.
ARRAY WEIGHT	193 LBS.

ROOF SUMMARY

STRUCTURE:	
TYPE	RAFTERS
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 8
SPACING	16 IN O.C.
EFFECTIVE SPAN	167 IN
PITCH	7/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	COMPOSITE
THICKNESS	7/16 IN
WEIGHT	1.60 LBS/SQFT
ROOFING:	
TYPE	ASPHALT SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.30 LBS./SQFT.

ROOF MOUNT SUMMARY

MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	64 IN	26 IN
WIND ZONE 2	48 IN	25 IN
WIND ZONE 3	48 IN	23 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	-372 LBS.
UPLIFT ZONE 2	-329 LBS
UPLIFT ZONE 3	-329 LBS
DOWNWARD	348 LBS

ROOF MOUNT & FASTENER

ROOF MOUNT:	
MAKE	QUICKBOLT
MODEL	4 IN QB1
MATERIAL	STAINLESS / EPDM
FASTENER:	
MAKE	SOLAR ROOF HOOK
MODEL	HANGER BOLT
MATERIAL	304 SS
SIZE	5/16-18 X 5-1/4"
GENERAL:	
WEIGHT	0.56 LBS.
FASTENERS PER MOUNT	1
MAX. PULL-OUT FORCE	960.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	480.0 LBS.

MOUNTING RAILS

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

NC SOLAR NOW

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
6/11/21

CLIENT INFO

AMANDA SOTO
407 COKESBURY PARK LANE
FUQUAY-VARINA,NC 27526

PROJECT INFO

DC INPUT:	11.90 kW
AC EXPORT:	10.00 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:	115 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

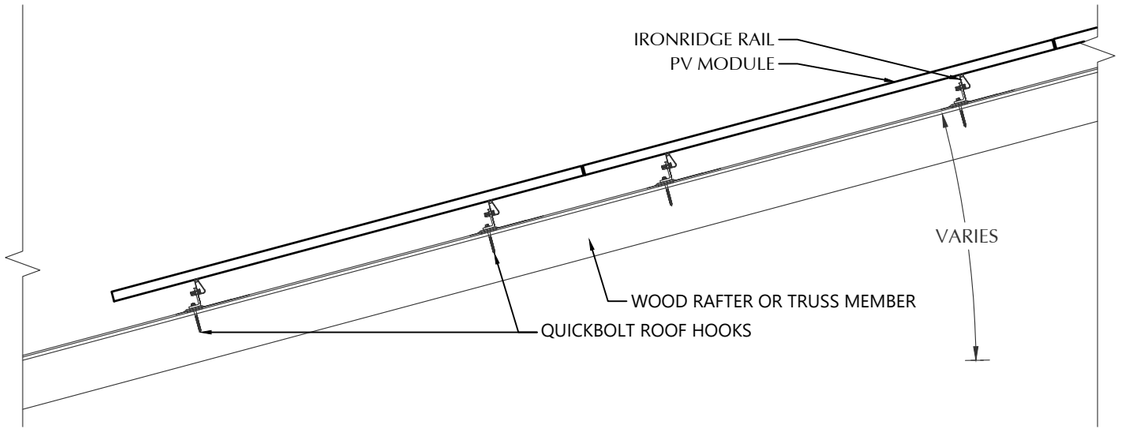
SHEET INDEX

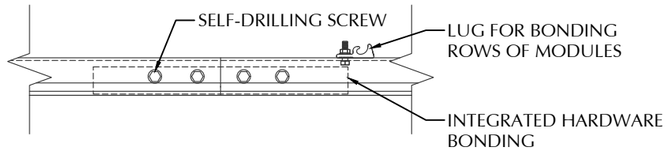
DESIGNER INFO

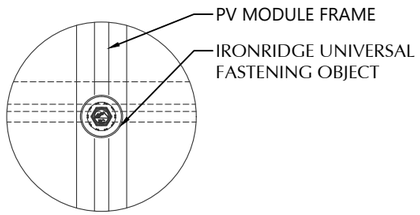
DESIGNER	CRM
ENGINEER	AWK
DATE	6/10/2021
VERSION	P1

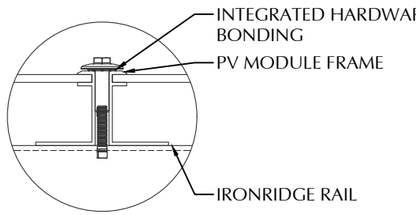
PV SYSTEM STRUCTURAL

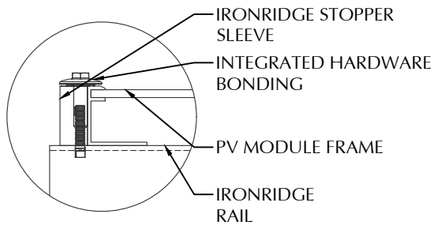
PV-2.2

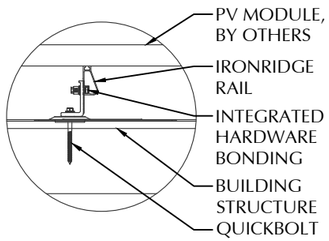




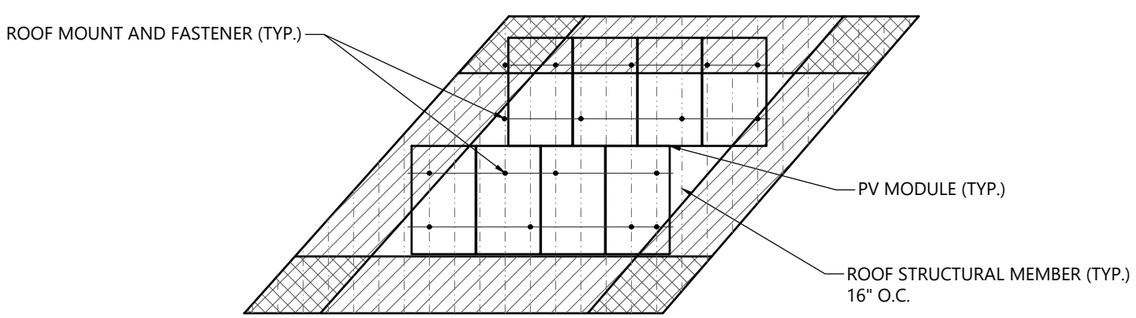








1 ROOF FASTENER DETAIL
NOT TO SCALE



2 ROOF C ARRAY LAYOUT
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.

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	155 SQFT.
ARRAY WEIGHT	386 LBS.

ROOF SUMMARY

STRUCTURE:	
TYPE	RAFTERS
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 8
SPACING	16 IN O.C.
EFFECTIVE SPAN	163 IN
PITCH	7/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	COMPOSITE
THICKNESS	7/16 IN
WEIGHT	1.60 LBS/SQFT
ROOFING:	
TYPE	ASPHALT SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.30 LBS./SQFT.

ROOF MOUNT SUMMARY

MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	64 IN	26 IN
WIND ZONE 2	48 IN	25 IN
WIND ZONE 3	48 IN	23 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	-372 LBS.
UPLIFT ZONE 2	-329 LBS
UPLIFT ZONE 3	-329 LBS
DOWNWARD	348 LBS

ROOF MOUNT & FASTENER

ROOF MOUNT:	
MAKE	QUICKBOLT
MODEL	4 IN QB1
MATERIAL	STAINLESS / EPDM
FASTENER:	
MAKE	SOLAR ROOF HOOK
MODEL	HANGER BOLT
MATERIAL	304 SS
SIZE	5/16-18 X 5-1/4"
GENERAL:	
WEIGHT	0.56 LBS.
FASTENERS PER MOUNT	1
MAX. PULL-OUT FORCE	960.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	480.0 LBS.

MOUNTING RAILS

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

NC SOLAR NOW

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
6/11/21

CLIENT INFO

AMANDA SOTO
407 COKESBURY PARK LANE
FUQUAY-VARINA,NC 27526

PROJECT INFO

DC INPUT:	11.90 kW
AC EXPORT:	10.00 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:	115 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

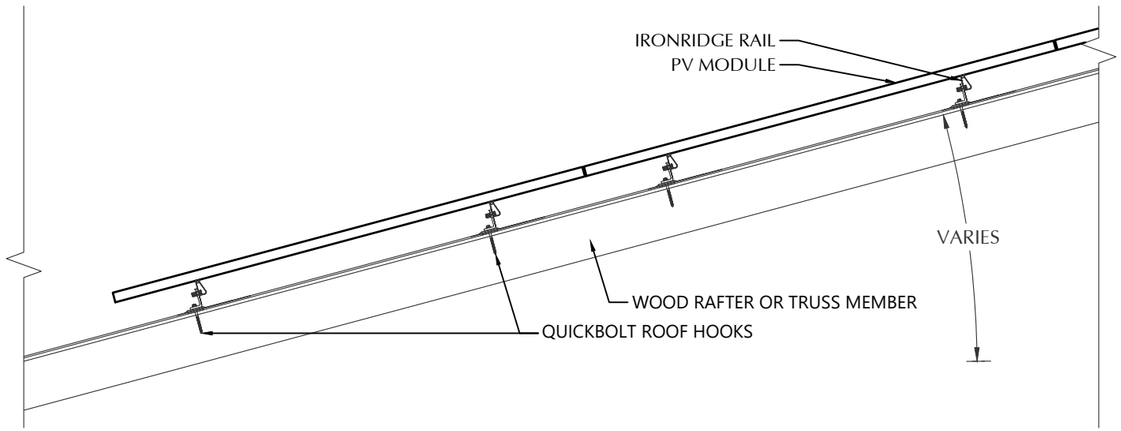
SHEET INDEX

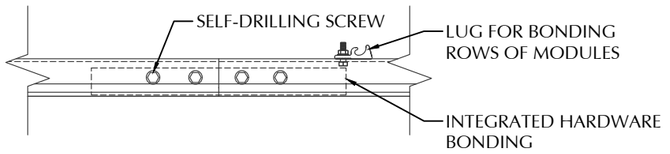
DESIGNER INFO

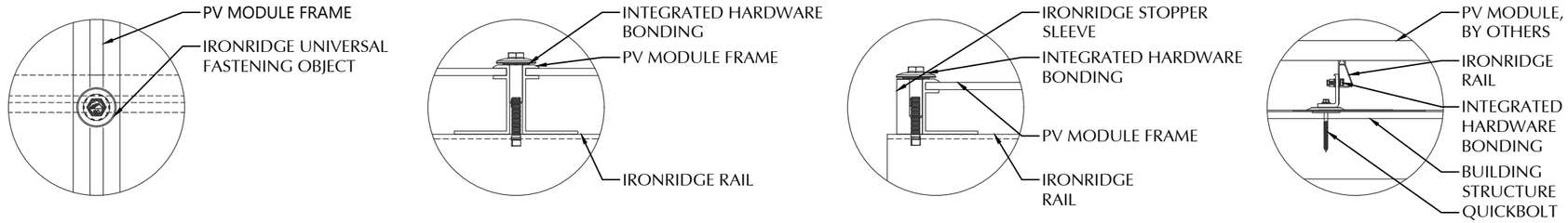
DESIGNER	CRM
ENGINEER	AWK
DATE	6/10/2021
VERSION	P1

PV SYSTEM STRUCTURAL

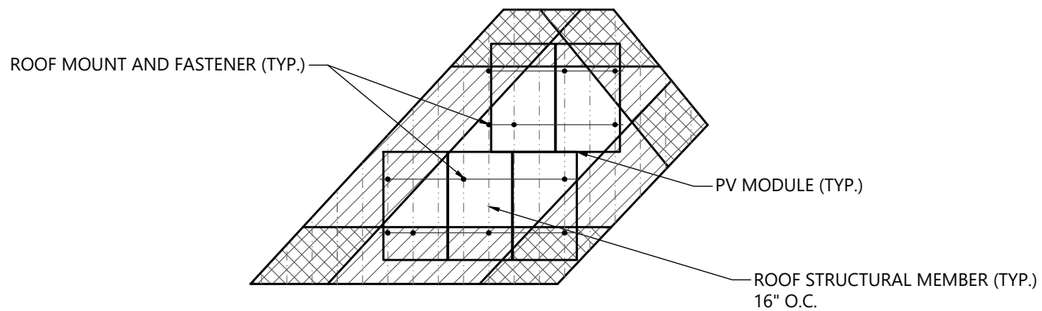
PV-2.3







1 ROOF FASTENER DETAIL
NOT TO SCALE



2 ROOF D ARRAY LAYOUT
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.

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	97 SQFT.
ARRAY WEIGHT	241 LBS.

ROOF SUMMARY

STRUCTURE:	
TYPE	RAFTERS
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 8
SPACING	16 IN O.C.
EFFECTIVE SPAN	150 IN
PITCH	7/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	COMPOSITE
THICKNESS	7/16 IN
WEIGHT	1.60 LBS/SQFT
ROOFING:	
TYPE	ASPHALT SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.30 LBS./SQFT.

ROOF MOUNT SUMMARY

MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	64 IN	26 IN
WIND ZONE 2	48 IN	25 IN
WIND ZONE 3	48 IN	23 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	-372 LBS.
UPLIFT ZONE 2	-329 LBS
UPLIFT ZONE 3	-329 LBS
DOWNWARD	348 LBS

ROOF MOUNT & FASTENER

ROOF MOUNT:	
MAKE	QUICKBOLT
MODEL	4 IN QB1
MATERIAL	STAINLESS / EPDM
FASTENER:	
MAKE	SOLAR ROOF HOOK
MODEL	HANGER BOLT
MATERIAL	304 SS
SIZE	5/16-18 X 5-1/4"
GENERAL:	
WEIGHT	0.56 LBS.
FASTENERS PER MOUNT	1
MAX. PULL-OUT FORCE	960.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	480.0 LBS.

MOUNTING RAILS

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

NC SOLAR NOW

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
6/11/21

CLIENT INFO

AMANDA SOTO
407 COKESBURY PARK LANE
FUQUAY-VARINA,NC 27526

PROJECT INFO

DC INPUT:	11.90 kW
AC EXPORT:	10.00 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:	115 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

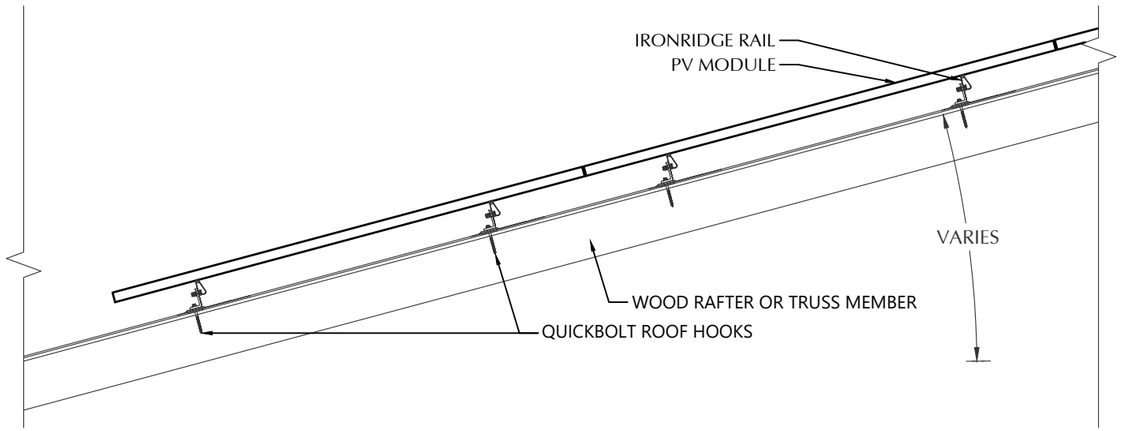
SHEET INDEX

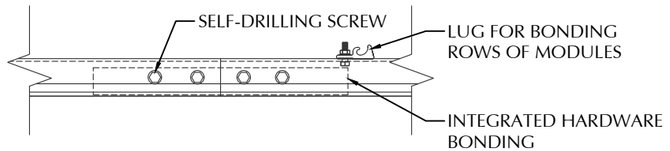
DESIGNER INFO

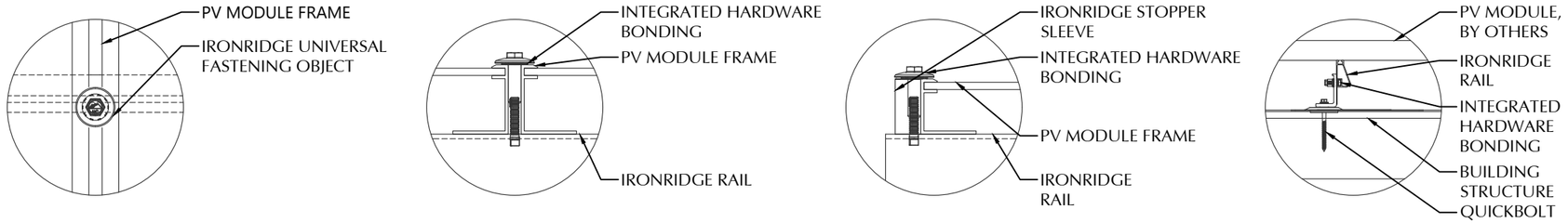
DESIGNER	CRM
ENGINEER	AWK
DATE	6/10/2021
VERSION	P1

PV SYSTEM STRUCTURAL

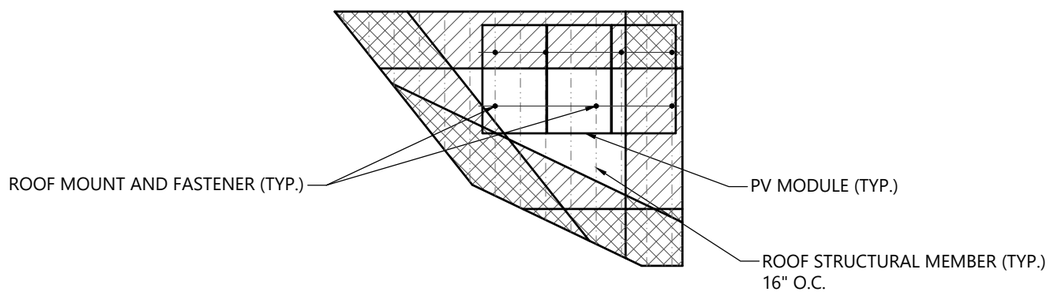
PV-2.4







1 ROOF FASTENER DETAIL
NOT TO SCALE



2 ROOF E ARRAY LAYOUT
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.

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	58 SQFT.
ARRAY WEIGHT	145 LBS.

ROOF SUMMARY

STRUCTURE:	
TYPE	RAFTERS
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 8
SPACING	16 IN O.C.
EFFECTIVE SPAN	139 IN
PITCH	7/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	COMPOSITE
THICKNESS	7/16 IN
WEIGHT	1.60 LBS/SQFT
ROOFING:	
TYPE	ASPHALT SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.30 LBS./SQFT.

ROOF MOUNT SUMMARY

MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	64 IN	26 IN
WIND ZONE 2	48 IN	25 IN
WIND ZONE 3	48 IN	23 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	-372 LBS.
UPLIFT ZONE 2	-329 LBS
UPLIFT ZONE 3	-329 LBS
DOWNWARD	348 LBS

ROOF MOUNT & FASTENER

ROOF MOUNT:	
MAKE	QUICKBOLT
MODEL	4 IN QB1
MATERIAL	STAINLESS / EPDM
FASTENER:	
MAKE	SOLAR ROOF HOOK
MODEL	HANGER BOLT
MATERIAL	304 SS
SIZE	5/16-18 X 5-1/4"
GENERAL:	
WEIGHT	0.56 LBS.
FASTENERS PER MOUNT	1
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SITE CONDITIONS

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EXPOSURE:	B
SNOW:	15 PSF

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PV SYSTEM STRUCTURAL

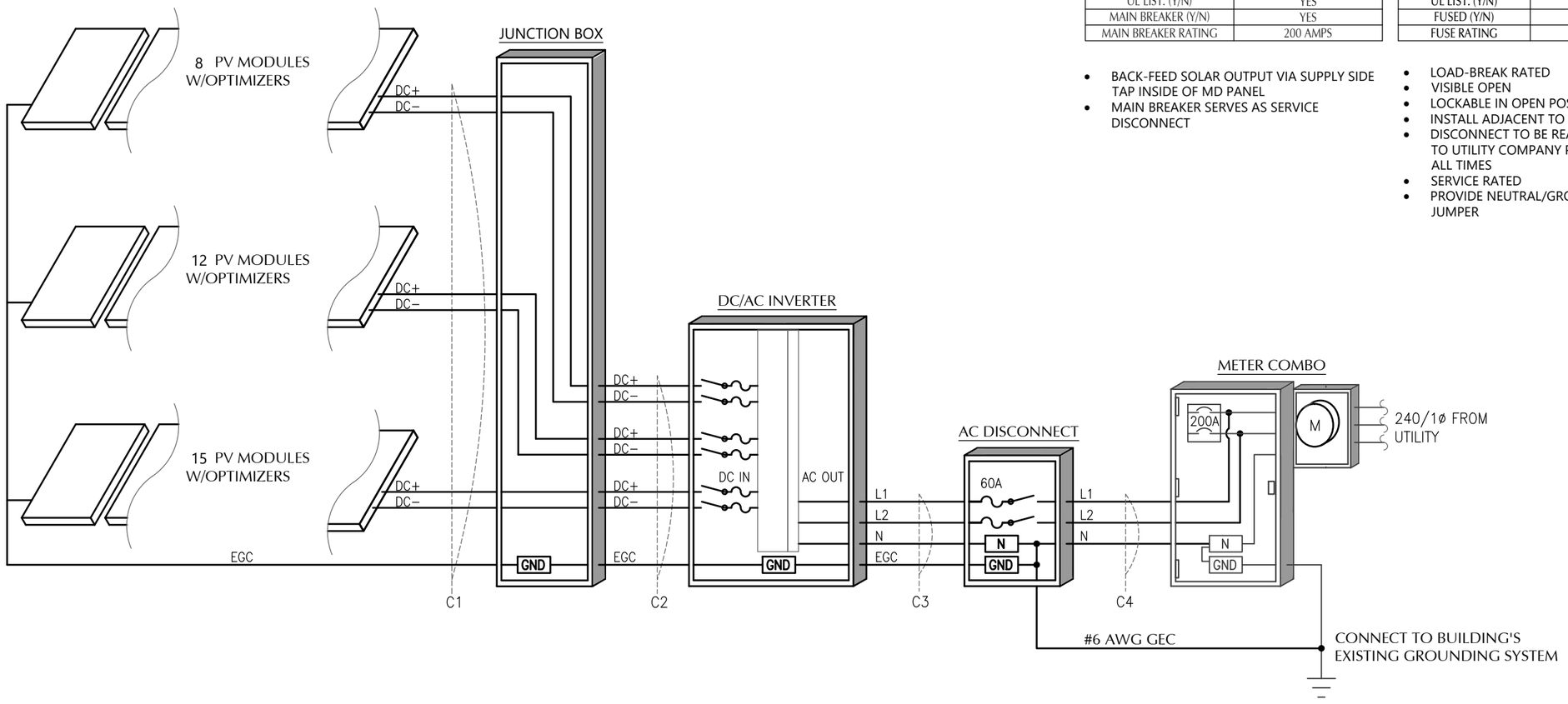
PV-2.5

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	6	10 AWG	THWN	1	10 AWG	THWN	1	3/4"	EXT/INT	2,4
C3	3	6 AWG	THWN	1	10 AWG	THWN	1	3/4"	EXTERIOR	2,4
C4	3	6 AWG	THWN	-	-	-	1	3/4"	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



1 ELECTRICAL SCHEMATIC
NTS

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

MODULE OPTIMIZER

MAKE	SOLAREDGE
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

JUNCTION BOX

MAKE	SOLADECK
PROTECT. RATING	NEMA TYPE 3R
UL LIST. (Y/N)	YES

METER COMBO (EXISTING)

MAKE	EATON-CUTLER HAMMER
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	200 AMPS

- BACK-FEED SOLAR OUTPUT VIA SUPPLY SIDE TAP INSIDE OF MD PANEL
- MAIN BREAKER SERVES AS SERVICE DISCONNECT

DC / AC INVERTER

MAKE	SOLAREDGE
MODEL	SE10000H-US000BNU4
DC INPUT:	
MAX POWER	15500 WATTS
VOLT. RANGE	400-480
NOM. VOLT.	400 VOLTS
MAX. CURRENT	27 AMPS
STRING INPUTS	3 STRINGS
AC OUTPUT:	
MAX. POWER	10000 WATTS
NOM. POWER	10000 WATTS
NOM. VOLT.	211-240-264
MAX. CURR.	42.00 AMPS
DC DISC. (Y/N)	YES
RAPID SHUTDOWN (Y/N)	YES
PROTECT. RATING	NEMA TYPE 4X
UL LIST. (Y/N)	YES
CONSUMPTION MONITOR	No

AC DISCONNECT

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	60 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
- SERVICE RATED
- PROVIDE NEUTRAL/GROUND BONDING JUMPER

NC SOLAR NOW

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
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PROJECT INFO

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DOI INSPT. METHOD:	OPTION 2

CODE REFERENCES

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SITE CONDITIONS

WIND SPEED:	115 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

SHEET INDEX

DESIGNER INFO

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PV SYSTEM ELECTRICAL

PV-3.1

⚠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
DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

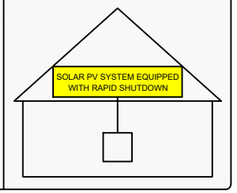
NEC 705.12 (B)(3)
PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY BOTH POWER SOURCES

WARNING: 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.

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

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.

PHOTOVOLTAIC POWER SOURCE
OPERATING AC VOLTAGE 240 V
MAXIMUM OPERATING AC OUTPUT CURRENT 42.0 A

NEC 690.54
PLACE ON INTERCONNECTION DISCONNECTING MEANS

DIRECT CURRENT
PHOTOVOLTAIC POWER SOURCE
MAXIMUM VOLTAGE 600 VDC
MAX CIRCUIT CURRENT 45.0 AMPS

NEC 690.53
PLACE ON ALL DC DISCONNECTING MEANS

SERVICE DISCONNECT LOCATED: EXTERIOR WEST WALL OF HOME

PV DISCONNECT LOCATED: EXTERIOR WEST WALL OF HOME

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

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

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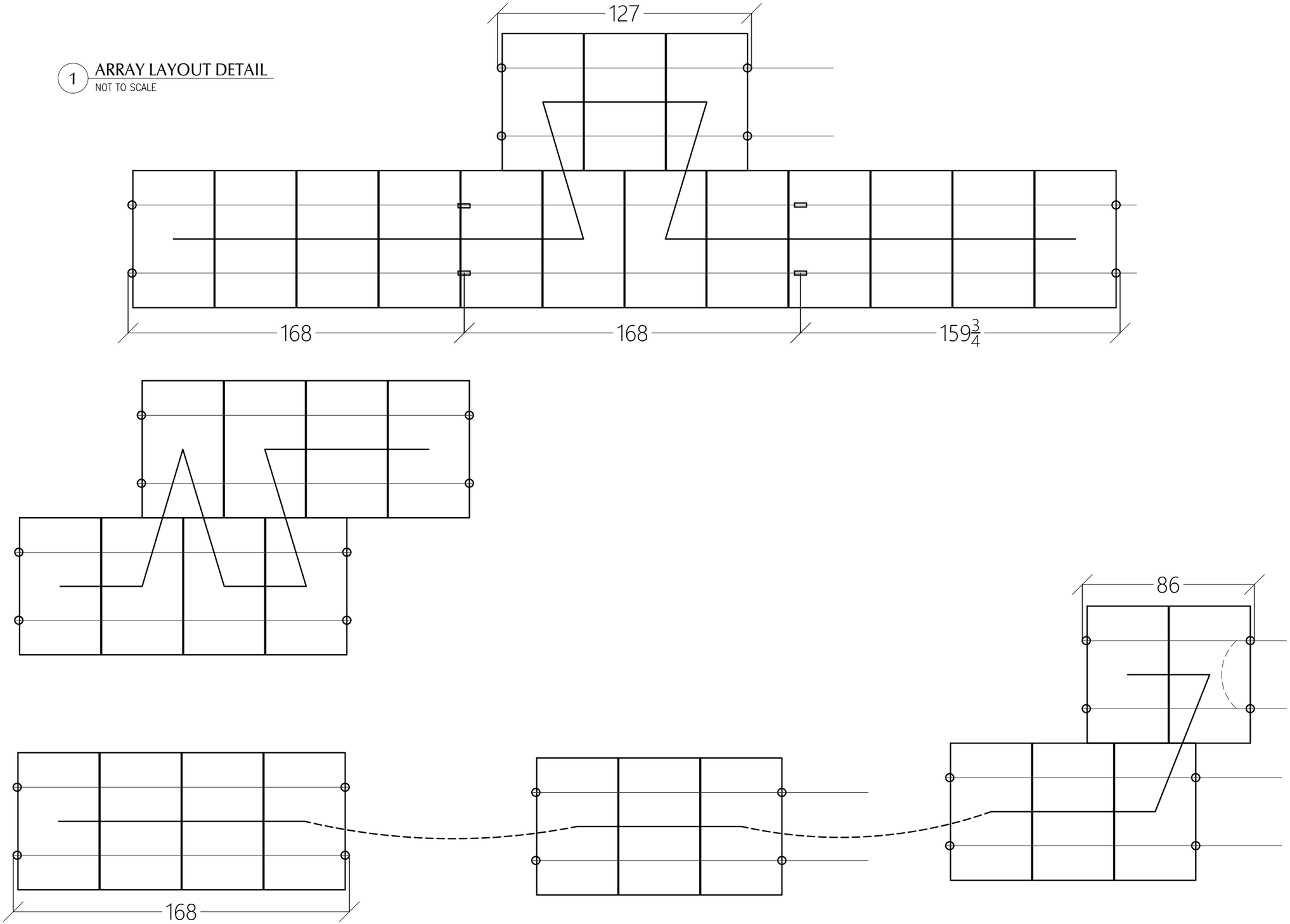
PV SYSTEM EQUIPMENT LABELS

PV-4.1

1 ARRAY LAYOUT DETAIL

NOT TO SCALE



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PV SYSTEM INSTALL GUIDE

PV-5.1