

**LUNEX POWER**  
THE PURE SOURCE

LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

## VICINITY MAP

1. ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
2. THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE NEC 2020.
3. THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION.
4. ALL CONDUCTORS OF A CIRCUIT, INCLUDING THE EGC, MUST BE INSTALLED IN THE SAME RACEWAY, OR CABLE, OR OTHERWISE RUN WITH THE PV ARRAY CIRCUIT CONDUCTORS WHEN THEY LEAVE THE VICINITY OF THE PV ARRAY.
5. WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
6. HEIGHT OF THE AC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
7. A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC 2020 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER NEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
8. PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
9. PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
10. ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE. WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF THE ROOF SURFACE.
11. ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH THE LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.
12. INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE UL 1741 LISTED.
13. THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [NEC 690.4(C)]
14. ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED (OR BETTER), INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND SWITCHES.
15. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
16. SYSTEM GROUNDING SHALL BE IN ACCORDANCE WITH NEC 690.41.
17. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION IN ACCORDANCE WITH NEC 690.12
18. DISCONNECTING MEANS SHALL BE LOCATED IN A VISIBLE, READILY ACCESSIBLE LOCATION WITHIN THE PV SYSTEM EQUIPMENT OR A MAXIMUM OF 10 FEET AWAY FROM THE SYSTEM [NEC 690.13(A)]
19. ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC 690.31
20. WORK CLEARANCES AROUND ELECTRICAL EQUIPMENT WILL BE MAINTAINED PER NEC 110.26(A)(1), 110.26(A)(2) AND 110.26(A)(3)
21. ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED & IDENTIFIED IN ACCORDANCE WITH UL1703
22. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.



PROJECT TO COMPLY WITH THE FOLLOWING:

FLORIDA RESIDENTIAL CODE, 8TH EDITION 2023 (FRC)  
FLORIDA PLUMBING CODE, 8TH EDITION 2023 (FPC)  
FLORIDA BUILDING CODE, 8TH EDITION 2023 EDITION (FBC)  
FLORIDA MECHANICAL CODE, 8TH EDITION 2023 (FMC)  
2020 NATIONAL ELECTRICAL CODE  
FLORIDA FIRE PREVENTION CODE, 8TH EDITION 2023 (FFPC)

Andrew  
D. Leone

Digitally signed by  
Andrew D. Leone  
Date: 2024.05.03  
15:11:22 -04'00'

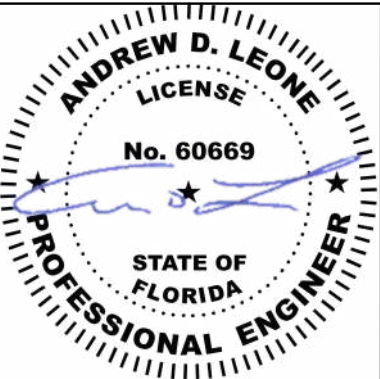
PV-1	COVER SHEET
PV-2	SITE PLAN
PV-3	ROOF PLAN & MODULES
PV-4	ELECTRICAL PLAN
PV-5	STRUCTURAL DETAIL
PV-6	ELECTRICAL LINE DIAGRAM
PV-7	WIRING CALCULATIONS
PV-8	LABELS
PV-9	PLACARD
PV-10	MICRO INVERTER CHART
PV-11+	EQUIPMENT SPECIFICATIONS

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## REVISIONS

DESCRIPTION	DATE	REV
CLIENT COMMENT	05/03/2024	A



05/03/2024  
DATE: 04/24/2024

PROJECT NAME & ADDRESS

BRANDON EDGERLY  
RESIDENCE

239 SE OLUSTEE AVE,  
LAKE CITY, FL 32025

DRAWN BY

# ESR

SHEET NAME

COVER SHEET

SHEET SIZE

ANSI B  
11" X 17"

SHEET NUMBER

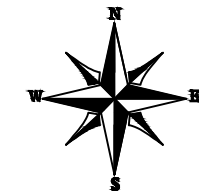
PV-1

PROJECT DESCRIPTION:

31 X HANWHA SOLAR: Q.PEAK DUO BLK ML-G10+ 400W PV MODULES  
ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES  
DC SYSTEM SIZE: 31 x 400 = 12.400KW DC  
AC SYSTEM SIZE: 31 x 290 = 8.990KW AC

EQUIPMENT SUMMARY  
31 HANWHA SOLAR: Q.PEAK DUO BLK ML-G10+ 400W MONO MODULES  
31 ENPHASE: IQ8PLUS-72-2-US (240V) MICROINVERTERS (COMPLIANT WITH RAPID SHUTDOWN)  
ROOF ARRAY AREA #1:- 654.72 SQ FT.

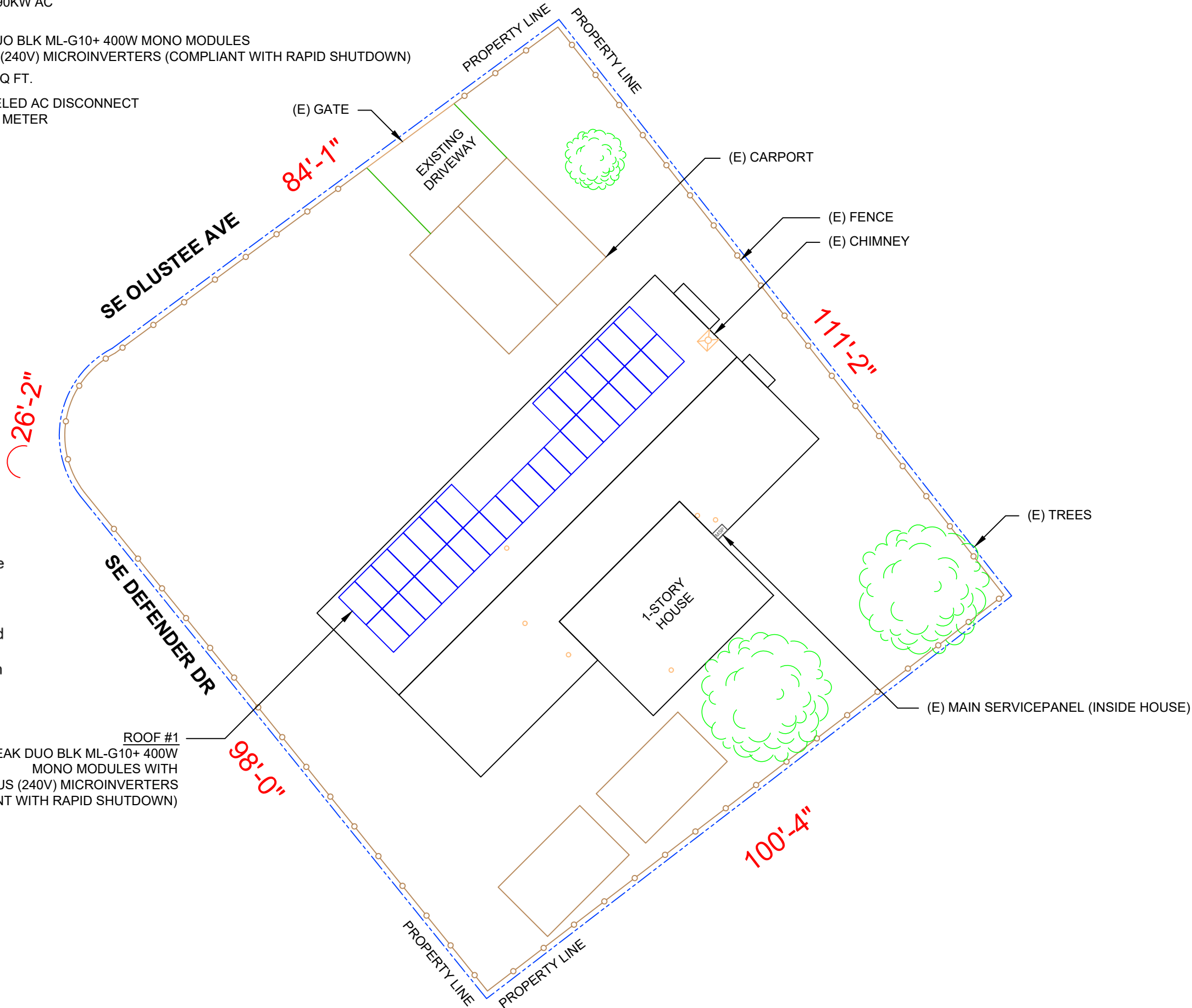
NOTE: VISIBLE, LOCKABLE, LABELED AC DISCONNECT  
LOCATED WITHIN 10' OF UTILITY METER



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ROOF #1  
(31) HANWHA SOLAR: Q.PEAK DUO BLK ML-G10+ 400W  
MONO MODULES WITH  
ENPHASE: IQ8PLUS-72-2-US (240V) MICROINVERTERS  
(COMPLIANT WITH RAPID SHUTDOWN)



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DRAWN BY  
ESR

SHEET NAME  
SITE PLAN

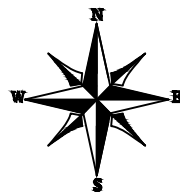
SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-2



MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 31 MODULES  
MODULE TYPE = HANWHA SOLAR: Q.PEAK DUO BLK ML-G10+ 400W MONO MODULES  
MODULE WEIGHT = 48.5 LBS / 22.0KG.  
MODULE DIMENSIONS = 74.0" x 41.1" = 21.12 SF



ROOF #1  
(31) HANWHA SOLAR: Q.PEAK DUO BLK ML-G10+ 400W MONO MODULES WITH ENPHASE: IQ8PLUS-72-2-US (240V) MICROINVERTERS (COMPLIANT WITH RAPID SHUTDOWN)

(N) EVEREST K2 SYSTEMS MILLRAIL 44-X RAIL 172" MILL  
(102) RT MINI II ATTACHMENTS

ROOF ACCESS POINT

ARRAY AREA & ROOF AREA CALC'S				
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	31	654.72	1273.64	51
TOTAL	31	654.72	2880.43	23

ROOF DESCRIPTION		
ROOF TYPE	METAL ROOF	
ROOF	ROOF PITCH	AZIMUTH
#1	18°	315°

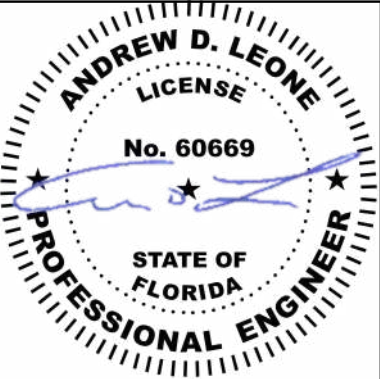
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SHEET NAME  
ROOF PLAN &  
MODULES

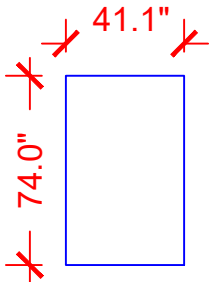
SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-3

LEGEND

- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- ROOF ATTACHMENT
- MAIN SERVICE PANEL

HANWHA SOLAR: Q.PEAK DUO BLK ML-G10+ 400W MODULES

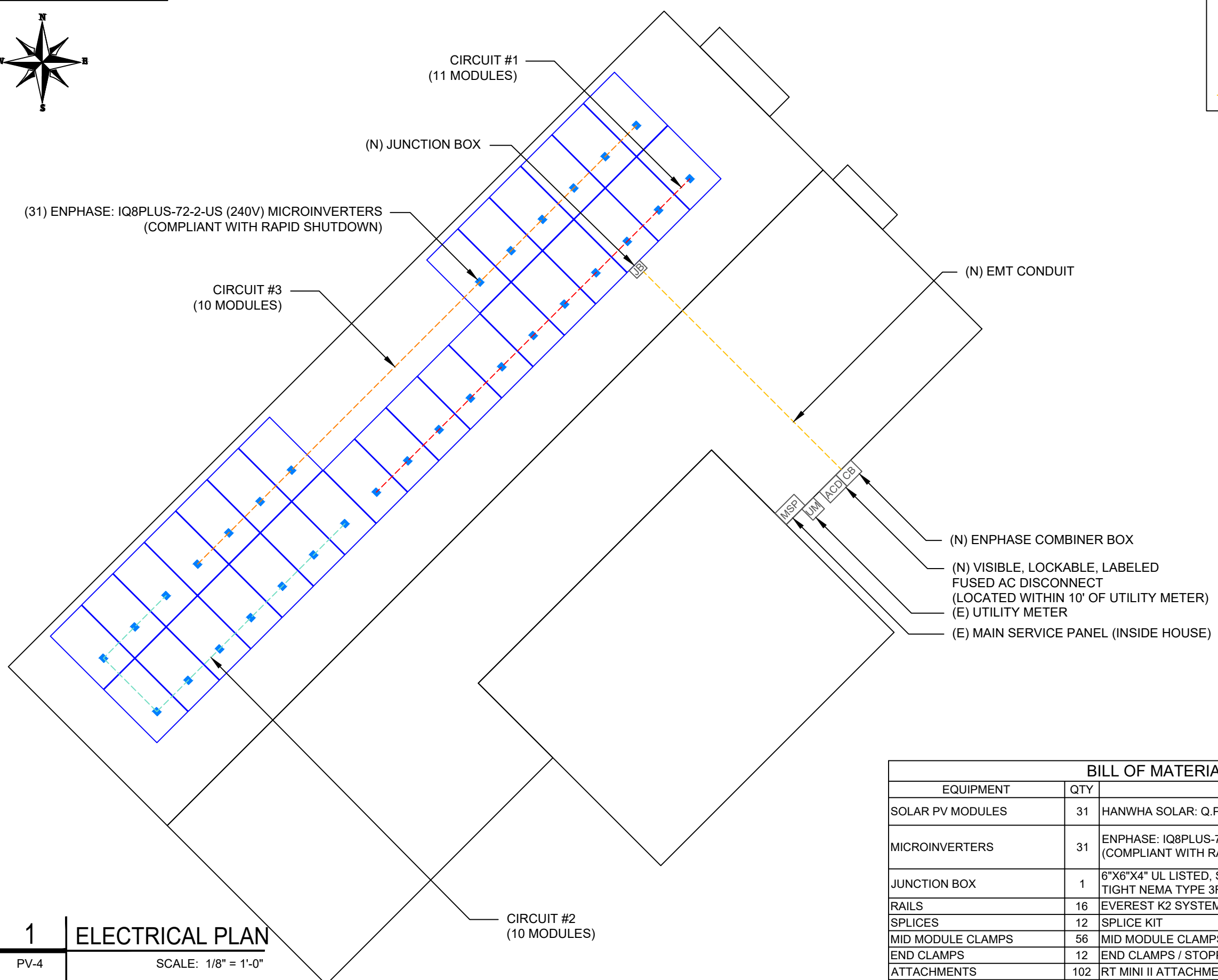
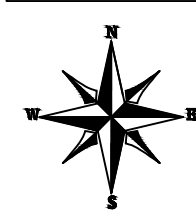


1 ROOF PLAN & MODULES

PV-3

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

CIRCUIT LEGENDS	
<span style="color: red;">---</span>	CIRCUIT #1
<span style="color: cyan;">---</span>	CIRCUIT #2
<span style="color: orange;">---</span>	CIRCUIT #3



LEGEND	
<span style="border: 1px solid black; padding: 2px;">JB</span>	- JUNCTION BOX
<span style="border: 1px solid black; padding: 2px;">CB</span>	- COMBINER BOX
<span style="border: 1px solid black; padding: 2px;">ACD</span>	- AC DISCONNECT
<span style="border: 1px solid black; padding: 2px;">UM</span>	- UTILITY METER
<span style="border: 1px solid black; padding: 2px;">MSP</span>	- MAIN SERVICE PANEL
<span style="color: orange;">---</span>	- CONDUIT

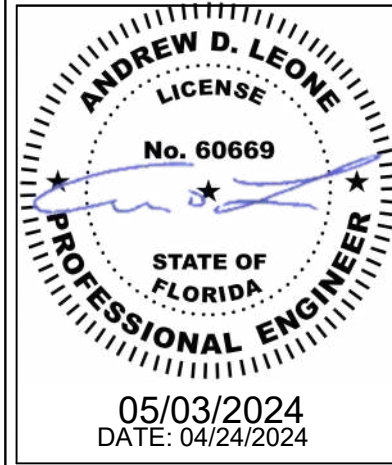
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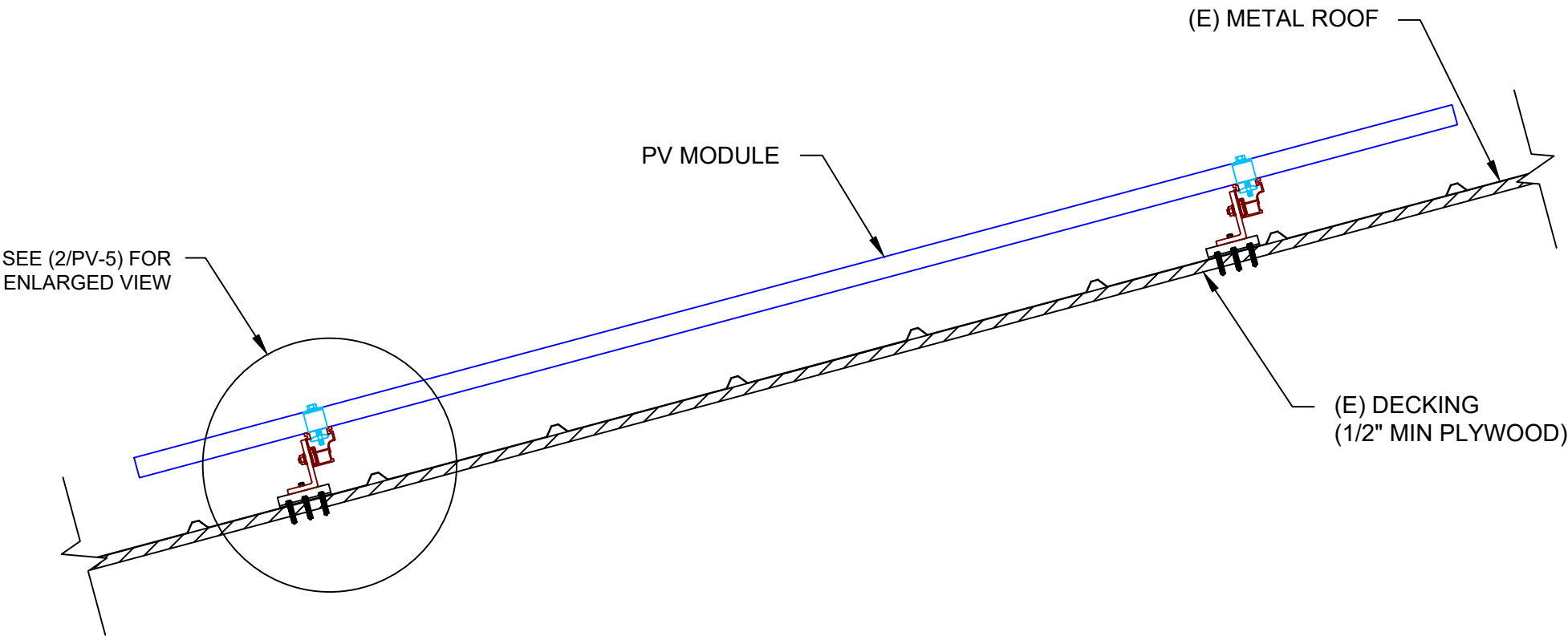
SHEET NAME  
ELECTRICAL PLAN

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-4

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULES	31	HANWHA SOLAR: Q.PEAK DUO BLK ML-G10+ 400W MODULE
MICROINVERTERS	31	ENPHASE: IQ8PLUS-72-2-US (240V) MICROINVERTERS (COMPLIANT WITH RAPID SHUTDOWN)
JUNCTION BOX	1	6"X6"X4" UL LISTED, STEEL WATER TIGHT NEMA TYPE 3R, UL LISTED
RAILS	16	EVEREST K2 SYSTEMS MILLRAIL 44-X, 172" MILL
SPLICES	12	SPLICE KIT
MID MODULE CLAMPS	56	MID MODULE CLAMPS
END CLAMPS	12	END CLAMPS / STOPPER SLEEVE
ATTACHMENTS	102	RT MINI II ATTACHMENTS

DESCRIPTION: CANTILEVER  
CANTILEVER CONSIDER 1/3<sup>RD</sup> OF ROOF ATTACHMENT SPACING.  
ATTACHMENT SPACING= 27" O/C  
CANTILEVER = 9"



1

ATTACHMENT DETAIL

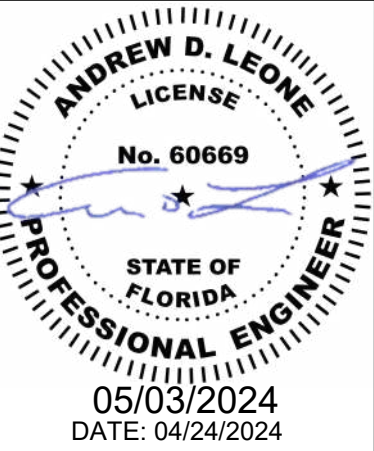
PV-5

SCALE: NTS



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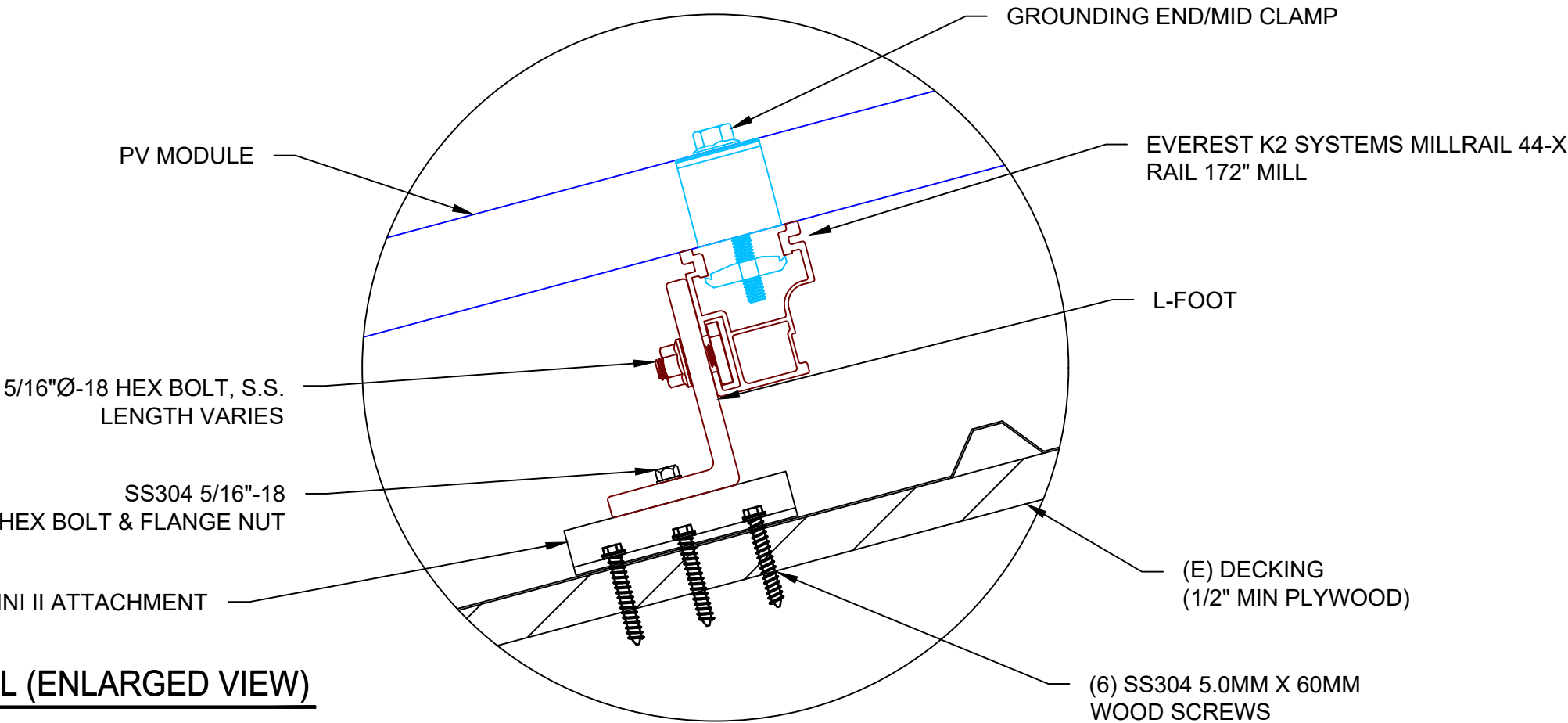
SHEET NAME  
STRUCTURAL DETAIL

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-5

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2

ATTACHMENT DETAIL (ENLARGED VIEW)

PV-5

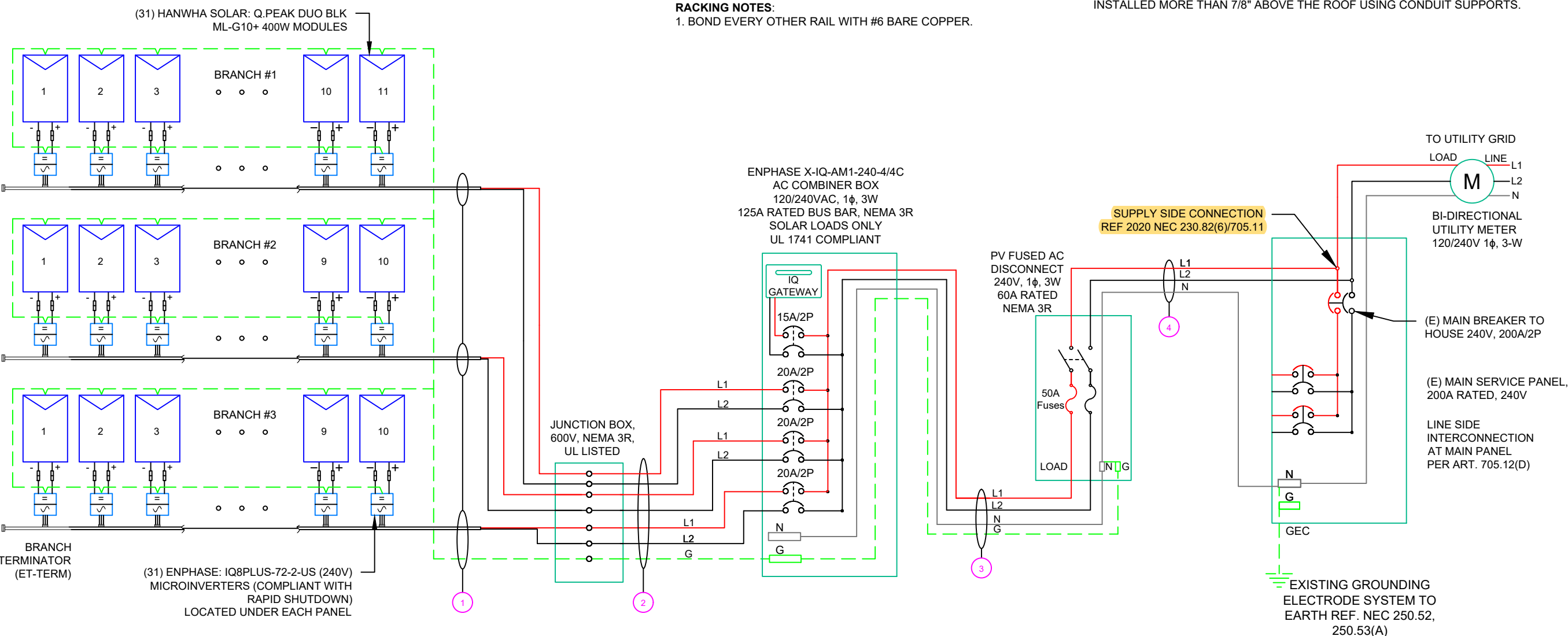
SCALE: NTS



DC SYSTEM SIZE: 31 X 400 = 12.400KW DC  
AC SYSTEM SIZE: 31 X 290 = 8.990KW AC

(31) HANWHA SOLAR: Q.PEAK DUO BLK ML-G10+ 400W MONO MODULES WITH  
(31) ENPHASE: IQ8PLUS-72-2-US (240V) MICROINVERTERS (COMPLIANT WITH RAPID SHUTDOWN)

(1) BRANCH CIRCUITS OF 11 MODULES AND  
(1) BRANCH CIRCUIT OF 10 MODULES ARE CONNECTED IN PARALLEL



- INTERCONNECTION NOTES:**
1. INTERCONNECTION SIZING, LIMITATIONS AND COMPLIANCE DETERMINED IN ACCORDANCE WITH [NEC 705.12], AND [NEC 690.59].
  2. GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9], [NEC 230.95].
  3. ALL EQUIPMENT TO BE RATED FOR BACKFEEDING.
  4. PV BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUSBAR RELATIVE TO THE MAIN BREAKER.
- DISCONNECT NOTES:**
1. DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS)
  2. AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH
  3. DISCONNECT MEANS AND THEIR LOCATION SHALL BE IN ACCORDANCE WITH [NEC 225.31] AND [NEC 225.32].
- RACKING NOTES:**
1. BOND EVERY OTHER RAIL WITH #6 BARE COPPER.

- GROUNDING & GENERAL NOTES:**
1. **GROUNDING ELECTRODES AND GROUNDING ELECTRODE CONDUCTORS.** ADDITIONAL GROUNDING ELECTRODES SHALL BE PERMITTED TO BE INSTALLED IN ACCORDANCE WITH 250.52 AND 250.54. GROUNDING ELECTRODES SHALL BE PERMITTED TO BE CONNECTED DIRECTLY TO THE PV MODULE FRAME(S) OR SUPPORT STRUCTURE PER [NEC 690.47(B)]
  2. PV INVERTER IS UNGROUNDED, TRANSFORMER-LESS TYPE.
  3. DC GEC AND AC EGC TO REMAIN UNSPLICED, OR SPICED TO EXISTING ELECTRODE
  4. ANY EXISTING WIRING INVOLVED WITH PV SYSTEM CONNECTION THAT IS FOUND TO BE INADEQUATE PER CODE SHALL BE CORRECTED PRIOR TO FINAL INSPECTION.
  5. SOLADECK QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - SOLADECK DEPICTED ON ELECTRICAL DIAGRAM REPRESENT WIRE TYPE TRANSITIONS.
  6. AC DISCONNECT NOTED IN EQUIPMENT SCHEDULE OPTIONAL IF OTHER AC DISCONNECTING MEANS IS LOCATED WITHIN 10' OF SERVICE DISCONNECT.
  7. RACEWAYS AND CABLES EXPOSED TO SUNLIGHT ON ROOFTOPS SHOULD BE INSTALLED MORE THAN 7/8" ABOVE THE ROOF USING CONDUIT SUPPORTS.

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RESIDENCE

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DRAWN BY

ESR

SHEET NAME

ELECTRICAL LINE DIAGRAM

SHEET SIZE

ANSI B  
11" X 17"

SHEET NUMBER

PV-6

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QTY	CONDUCTOR INFORMATION	CONDUIT TYPE	CONDUIT SIZE
1	(6) CU#12AWG - Q CABLE (L1 & L2 NO NEUTRAL)	N/A	N/A
(1)	CU#6AWG - BARE COPPER IN FREE AIR		
2	(6) CU#10AWG - THWN-2 (L1,L2) (EXTERIOR) / #10/2 ROMEX IN ATTIC	EMT OR LFMC IN ATTIC	3/4"
(1)	CU#10AWG - THWN-2 GND		
(2)	CU#6AWG - THWN-2 (L1,L2)	EMT, LFMC OR LFNC	3/4"
(1)	CU#6AWG - THWN-2 N		
(1)	CU#6AWG - THWN-2 GND		
(2)	CU#6AWG - THWN-2 (L1,L2)	EMT, LFMC OR LFNC	3/4"
(1)	CU#6AWG - THWN-2 N		

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	ENPHASE: IQ8PLUS-72-2-US (240V) MICROINVERTERS (COMPLIANT WITH RAPID SHUTDOWN)
MIN/MAX DC VOLT RATING	22V MIN/ 58V MAX
MAX INPUT POWER	235W-440W
NOMINAL AC VOLTAGE RATING	240V/ 211-264V
MAX AC CURRENT	1.21A
MAX MODULES PER CIRCUIT	13 (SINGLE PHASE)
MAX OUTPUT POWER	290 VA

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	HANWHA SOLAR: Q.PEAK DUO BLK ML-G10+ 400W MODULE
VMP	37.13V
IMP	10.77A
VOC	45.30V
ISC	11.14A
TEMP. COEFF. VOC	-0.27%/K
MODULE DIMENSION	74.0"L x 41.1"W x 1.26"D (In Inch)

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-5°
AMBIENT TEMP (HIGH TEMP 2%)	34°
MODULE TEMPERATURE COEFFICIENT OF Voc	-0.27%/K

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
.80	4-6
.70	7-9
.50	10-20



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AC CALCULATIONS																						
CIRCUIT ORIGIN	CIRCUIT DESTINATION	VOLTAGE (V)	FULL LOAD AMPS "FLA" (A)	FLA*1.25 (A)	OCPD SIZE (A)	NEUTRAL SIZE	GROUND SIZE	CONDUCTOR SIZE	75°C AMPACITY (A)	AMPACITY CHECK #1	AMBIENT TEMP. (°C)	TOTAL CC CONDUCTORS IN RACEWAY	90°C AMPACITY (A)	DERATION FACTOR FOR AMBIENT TEMPERATURE NEC 310.15(B)(2)(a)	DERATION FACTOR FOR CONDUCTORS PER RACEWAY NEC 310.15(B)(3)(a)	90°C AMPACITY DERATED (A)	AMPACITY CHECK #2	FEEDER LENGTH (FEET)	CONDUCTOR RESISTANCE (OHM/KFT)	VOLTAGE DROP AT FLA (%)	CONDUIT SIZE	CONDUIT FILL (%)
CIRCUIT 1	JUNCTION BOX	240	13.31	16.6375	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	34	2	30	0.96	1	28.8	PASS			0.55	N/A	#N/A
CIRCUIT 2	JUNCTION BOX	240	12.1	15.125	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	34	2	30	0.96	1	28.8	PASS			0.46	N/A	#N/A
CIRCUIT 3	JUNCTION BOX	240	12.1	15.125	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	34	2	30	0.96	1	28.8	PASS			0.46	N/A	#N/A
JUNCTION BOX	COMBINER BOX	240	13.31	16.6375	20	N/A	CU #10 AWG	CU #10 AWG	35	PASS	34	6	40	0.96	0.8	30.72	PASS	34	1.24	0.468	3/4" FMT	27.71107
COMBINER BOX	AC DISCONNECT	240	37.51	46.8875	50	CU #6 AWG	CU #6 AWG	CU #6 AWG	65	PASS	34	2	75	0.96	1	72	PASS	5	0.491	0.077	3/4" EMT	38.04878
AC DISCONNECT	POI	240	37.51	46.8875	50	CU #6 AWG	N/A	CU #6 AWG	65	PASS	34	2	75	0.96	1	72	PASS	5	0.491	0.077	3/4" EMT	28.53659

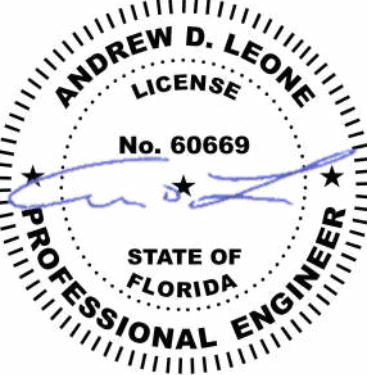
Circuit 1 Voltage Drop	1.171
Circuit 2 Voltage Drop	1.081
Circuit 3 Voltage Drop	1.081

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ELECTRICAL NOTES

1. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
2. ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.
3. WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
4. WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
5. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6. WHERE SIZES OF JUNCTION BOX, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7. ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8. MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
9. MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
10. TEMPERATURE RATINGS OF ALL CONDUCTORS, TERMINATIONS, BREAKERS, OR OTHER DEVICES ASSOCIATED WITH THE SOLAR PV SYSTEM SHALL BE RATED FOR AT LEAST 75 DEGREE C.



05/03/2024  
DATE: 04/24/2024

PROJECT NAME & ADDRESS

BRANDON EDGERLY  
RESIDENCE

239 SE OLUSTEE AVE,  
LAKE CITY, FL 32025

DRAWN BY  
ESR

SHEET NAME  
WIRING CALCULATIONS

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-7

CAUTION:  
AUTHORIZED SOLAR  
PERSONNEL ONLY!

LABEL-1:  
LABEL LOCATION:  
AC DISCONNECT

⚠ WARNING

ELECTRICAL SHOCK HAZARD

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

LABEL- 2:  
LABEL LOCATION:  
AC DISCONNECT  
COMBINER  
MAIN SERVICE PANEL  
SUBPANEL  
MAIN SERVICE DISCONNECT  
CODE REF: NEC 690.13(B)

⚠ WARNING DUAL POWER SOURCE

SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL- 3:  
LABEL LOCATION:  
PRODUCTION METER  
UTILITY METER  
MAIN SERVICE PANEL  
SUBPANEL  
CODE REF: NEC 705.12(C) & NEC 690.59

⚠ WARNING

TURN OFF PHOTOVOLTAIC AC  
DISCONNECT PRIOR TO  
WORKING INSIDE PANEL

LABEL- 4:  
LABEL LOCATION:  
MAIN SERVICE PANEL  
SUBPANEL  
MAIN SERVICE DISCONNECT  
COMBINER  
CODE REF: NEC 110.27(C) & OSHA 1910.145 (f) (7)

⚠ CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS  
BACKFEED

LABEL- 5:  
LABEL LOCATION:  
MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED)  
SUBPANEL (ONLY IF SOLAR IS BACK-FED)  
CODE REF: NEC 705.12(D) & NEC 690.59

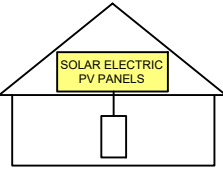
⚠ WARNING

POWER SOURCE OUTPUT  
CONNECTION. DO NOT  
RELOCATE THIS  
OVERCURRENT DEVICE

LABEL- 6:  
LABEL LOCATION:  
MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED)  
SUBPANEL (ONLY IF SOLAR IS BACK-FED)  
CODE REF: NEC 705.12(B)(3)(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



LABEL- 7:  
LABEL LOCATION:  
AC DISCONNECT  
CODE REF: IFC 605.11.3.1(1) & NEC 690.56(C)

RAPID SHUTDOWN SWITCH  
FOR SOLAR PV SYSTEM

LABEL- 8:  
LABEL LOCATION:  
AC DISCONNECT  
CODE REF: NEC 690.56(C)(2)

PHOTOVOLTAIC

AC DISCONNECT

LABEL- 9:  
LABEL LOCATION:  
AC DISCONNECT  
CODE REF: NEC 690.13(B)

PHOTOVOLTAIC  
AC DISCONNECT

NOMINAL OPERATING AC VOLATGE 240 V

RATED AC OUTPUT CURRENT 37.51 A

LABEL- 10:  
LABEL LOCATION:  
MAIN SERVICE PANEL  
SUBPANEL  
AC DISCONNECT  
CODE REF: NEC 690.54

MAIN PHOTOVOLTAIC  
SYSTEM DISCONNECT

LABEL- 11:  
LABEL LOCATION:  
MAIN SERVICE DISCONNECT (ONLY IF MAIN SERVICE DISCONNECT IS PRESENT)  
CODE REF: NEC 690.13(B)

PRODUCTION  
METER

LABEL- 12:  
LABEL LOCATION:  
PRODUCTION METER (ONLY IF PRODUCTION METER IS USED)

CAUTION: PHOTOVOLTAIC SYSTEM  
FOR SERVICE : LUNEX POWER  
813-540-8807

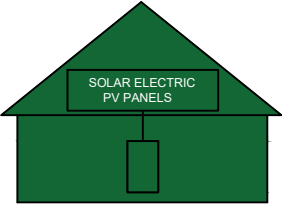
LABEL-13:

WARNING: PHOTOVOLTAIC  
POWER SOURCE

LABEL-14:  
LABEL LOCATION:  
EMT/CONDUIT RACEWAY  
SOLADECK/JUNCTION BOX  
CODE REF : NEC 690.31 (D) (14)

EMERGENCY RESPONDER  
THIS SOLAR PV SYSTEM EQUIPPED  
WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN  
SWITCH TO THE 'OFF'  
POSITION TO SHUTDOWN  
ENTIRE PV SYSTEM.



THE LABEL SHALL BE REFLECTIVE, WITH ALL LETTERS CAPITALIZED AND HAVING  
A MINIMUM HEIGHT OF 3/8 IN. (9.5 MM), IN WHITE ON A RED BACKGROUND.

LABEL- 15:  
LABEL LOCATION:  
AC DISCONNECT  
CODE REF:NFPA 1 (11.12.2.1.1.1.1)  
1. THE RAPID SHUTDOWN LABEL SHALL BE LOCATED ON OR NO MORE  
THAN 3 FT (1 M) FROM THE SERVICE DISCONNECTING MEANS  
2. (HEIGHT OF LABEL IS 3/8 IN. (9.5 MM), IN WHITE ON A RED BACKGROUND)

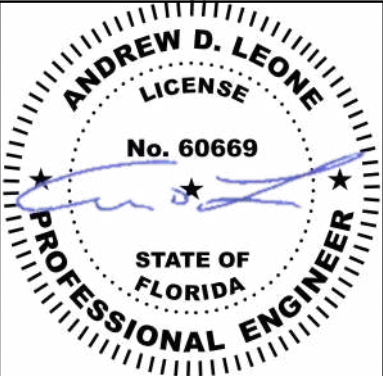
This item has been digitally  
signed and sealed by  
Andrew D. Leone on the date  
adjacent to the seal.

Printed copies of this  
document are not considered  
signed and sealed and the  
signature must be verified on  
any electronic copies.



LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

REVISIONS		
DESCRIPTION	DATE	REV
CLIENT COMMENT	05/03/2024	A



05/03/2024  
DATE: 04/24/2024

PROJECT NAME & ADDRESS

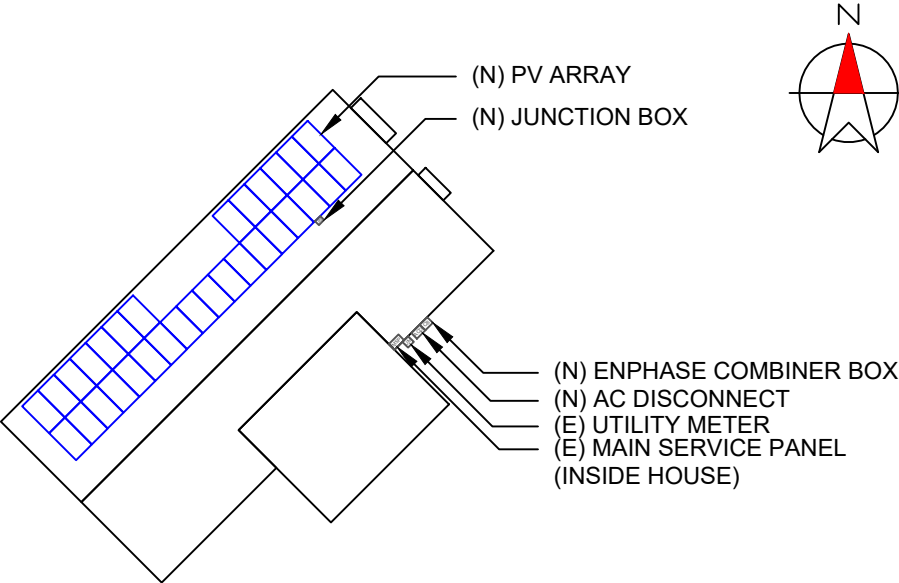
BRANDON EDGERLY  
RESIDENCE

239 SE OLUSTEE AVE,  
LAKE CITY, FL 32025

DRAWN BY	ESR
SHEET NAME	LABELS
SHEET SIZE	ANSI B 11" X 17"
SHEET NUMBER	PV-8



CAUTION:  
MULTIPLE SOURCES OF POWER



239 SE OLUSTEE AVE, LAKE CITY, FL 32025

DIRECTORY  
PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE  
SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM.

(ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS OUTLINED WITHIN:  
NEC 690.56(B)&(C), [NEC 705.10])

This item has been digitally  
signed and sealed by  
Andrew D. Leone on the date  
adjacent to the seal.

Printed copies of this  
document are not considered  
signed and sealed and the  
signature must be verified on  
any electronic copies.

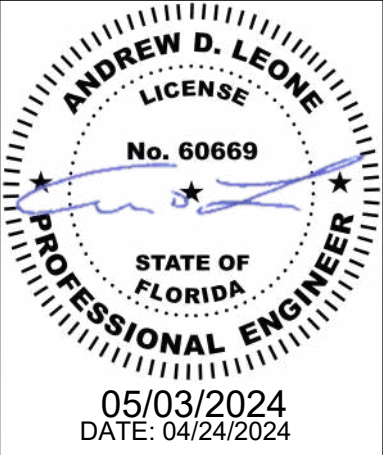
LABELING NOTES:

1. LABELS CALLED OUT ACCORDING TO ALL COMMON CONFIGURATIONS. ELECTRICIAN TO DETERMINE EXACT REQUIREMENTS IN THE FIELD PER CURRENT NEC AND LOCAL CODES AND MAKE APPROPRIATE ADJUSTMENTS.
2. LABELING REQUIREMENTS BASED ON THE 2020 NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145, ANSI Z535.
3. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
4. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21]
5. LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND; REFLECTIVE, AND PERMANENTLY AFFIXED [IFC 605.11.1.1]



LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

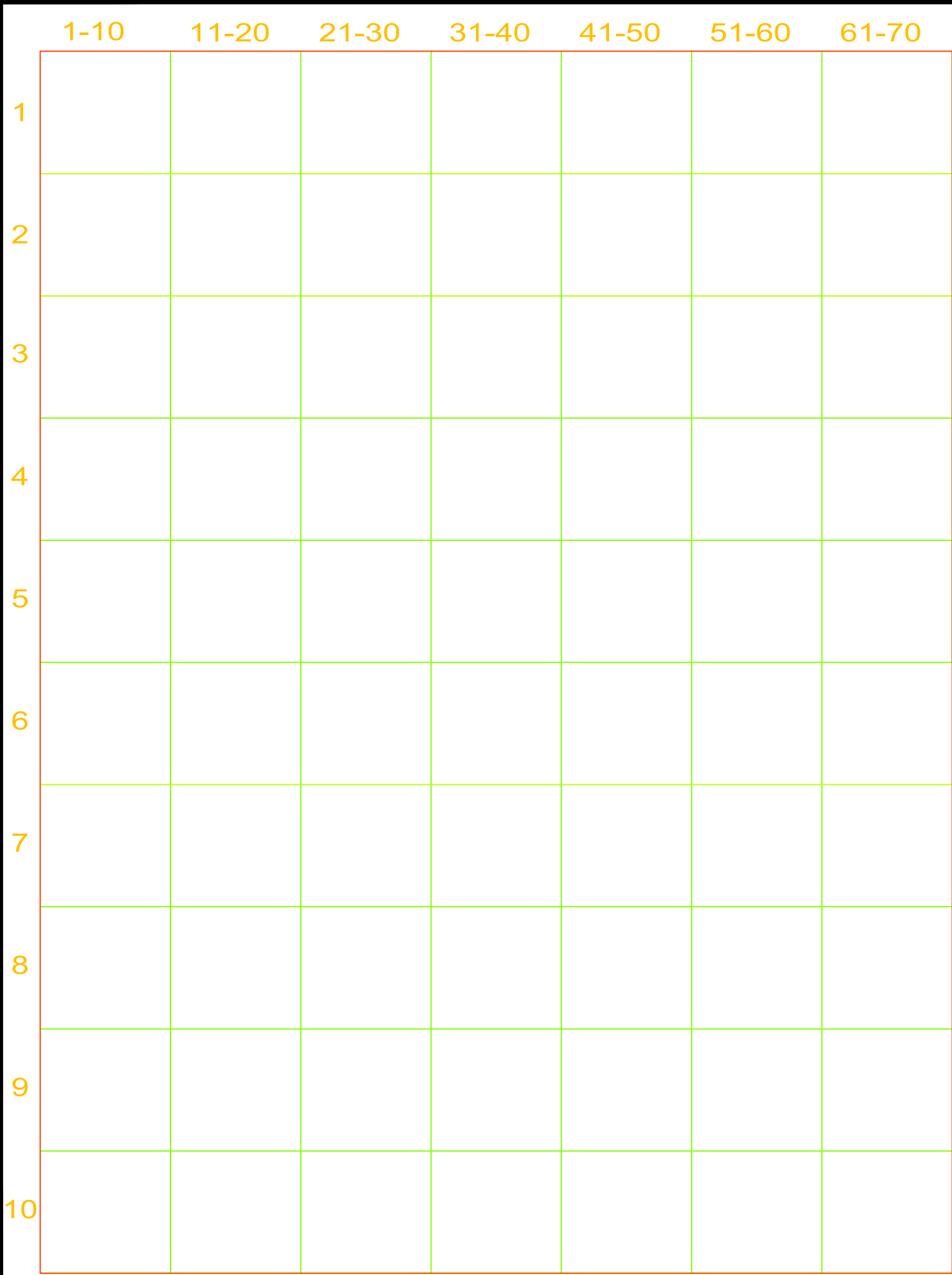
REVISIONS		
DESCRIPTION	DATE	REV
CLIENT COMMENT	05/03/2024	A



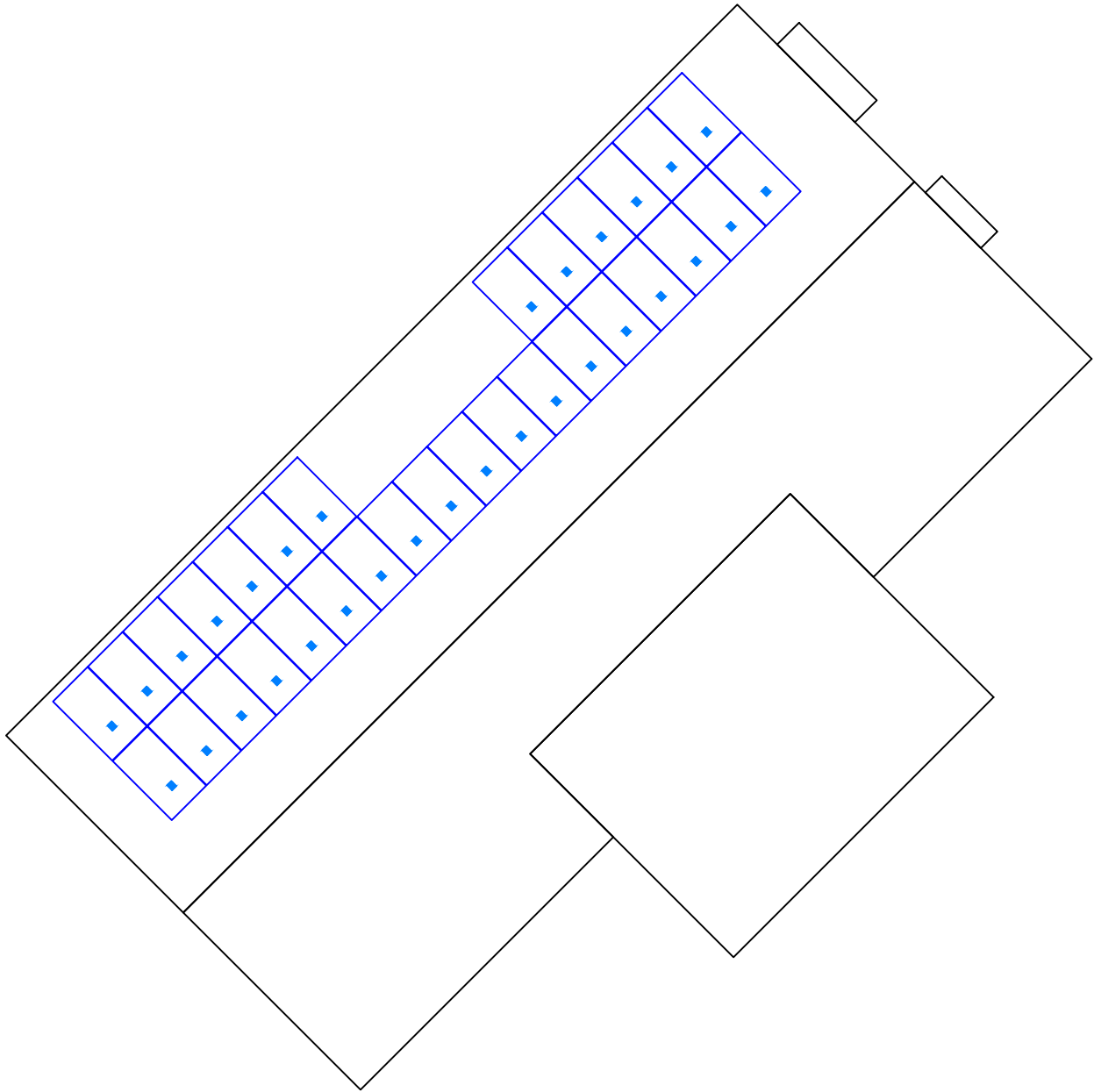
PROJECT NAME & ADDRESS


BRANDON EDGERLY  
RESIDENCE  
239 SE OLUSTEE AVE,  
LAKE CITY, FL 32025

DRAWN BY ESR
SHEET NAME PLACARD
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-9



# MICRO INVERTER CHART





LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

REVISIONS		
DESCRIPTION	DATE	REV
CLIENT COMMENT	05/03/2024	A

DATE: 04/24/2024

PROJECT NAME & ADDRESS

BRANDON EDGERLY  
RESIDENCE

239 SE OLUSTEE AVE,  
LAKE CITY, FL 32025

DRAWN BY

ESR

SHEET NAME

MICRO INVERTER CHART

SHEET SIZE

ANSI B  
11" X 17"

SHEET NUMBER

PV-10

powered by  
**Q.ANTUM DUO Z**

## Q.PEAK DUO BLK ML-G10+

385-405

ENDURING HIGH  
PERFORMANCE



### BREAKING THE 20% EFFICIENCY BARRIER

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.



### THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY

Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.



### INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behavior.



### ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID Technology, Anti PID Technology<sup>1</sup>, Hot-Spot Protect and Traceable Quality Tra.Q™.



### EXTREME WEATHER RATING

High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).



### A RELIABLE INVESTMENT

Inclusive 25-year product warranty and 25-year linear performance warranty<sup>2</sup>.

<sup>1</sup> APT test conditions according to IEC/TS 62804-1:2015, method A (~1500 V, 96h)

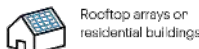
<sup>2</sup> See data sheet on rear for further information.



6 BUSBAR  
CELL TECHNOLOGY

12 BUSBAR  
CELL TECHNOLOGY

### THE IDEAL SOLUTION FOR:

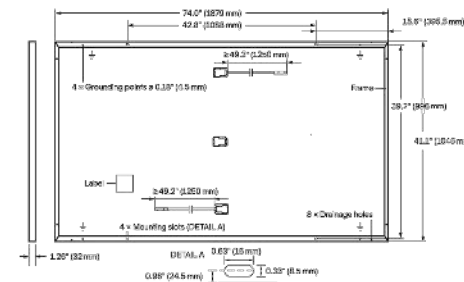


Engineered in Germany

**Q CELLS**

### MECHANICAL SPECIFICATION

Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm <sup>2</sup> Solar cable; (+) ≥ 49.2 in (1250 mm), (-) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4; IP68



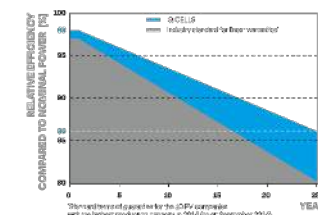
### ELECTRICAL CHARACTERISTICS

POWER CLASS		385	390	395	400	405
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC <sup>1</sup> (POWER TOLERANCE +5 W / -0 W)						
Power at MPP <sup>1</sup>	P <sub>MPP</sub> [W]	385	390	395	400	405
Short Circuit Current <sup>1</sup>	I <sub>SC</sub> [A]	11.04	11.07	11.10	11.14	11.17
Open Circuit Voltage <sup>1</sup>	V <sub>OC</sub> [V]	45.19	45.23	45.27	45.30	45.34
Current at MPP	I <sub>MPP</sub> [A]	10.59	10.65	10.71	10.77	10.83
Voltage at MPP	V <sub>MPP</sub> [V]	36.36	36.62	36.88	37.13	37.39
Efficiency <sup>2</sup>	η [%]	≥ 19.6	≥ 19.9	≥ 20.1	≥ 20.4	≥ 20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT <sup>3</sup>						
Power at MPP	P <sub>MPP</sub> [W]	288.8	292.6	296.3	300.1	303.8
Short Circuit Current	I <sub>SC</sub> [A]	8.90	8.92	8.95	8.97	9.00
Open Circuit Voltage	V <sub>OC</sub> [V]	42.62	42.65	42.69	42.72	42.76
Current at MPP	I <sub>MPP</sub> [A]	8.35	8.41	8.46	8.51	8.57
Voltage at MPP	V <sub>MPP</sub> [V]	34.59	34.81	35.03	35.25	35.46

<sup>1</sup> Measurement tolerances P<sub>MPP</sub> ± 3%; I<sub>SC</sub>, V<sub>OC</sub> ± 5% at STC: 1000 W/m<sup>2</sup>, 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • \*900 W/m<sup>2</sup>, NMOT, spectrum AM 1.5

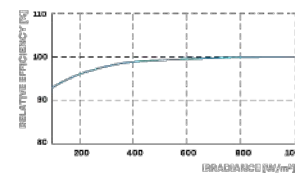
### Q CELLS PERFORMANCE WARRANTY

### PERFORMANCE AT LOW IRRADIANCE



At least 96% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m<sup>2</sup>)

### TEMPERATURE COEFFICIENTS

Temperature Coefficient of I <sub>SC</sub>	α [%/K]	+0.04	Temperature Coefficient of V <sub>OC</sub>	β [%/K]	-0.27
Temperature Coefficient of P <sub>MPP</sub>	γ [%/K]	-0.34	Nominal Module Operating Temperature	NMOT [°F]	109 ± 5.4 (43 ± 3 °C)

### PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V <sub>MYS</sub>	[V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI/UL 61730	TYPE 2
Max. Design Load, Push/Pull <sup>1</sup>	[lbs/ft <sup>2</sup> ]	75 (3600 Pa)/55 (2600 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push/Pull <sup>1</sup>	[lbs/ft <sup>2</sup> ]	113 (5400 Pa)/84 (4000 Pa)		

<sup>1</sup> See Installation Manual

### QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant,  
Quality Controlled PV - TÜV Rheinland,  
IEC 61215:2016, IEC 6130:2016,  
U.S. Patent No. 8,893,215 (solar cell),  
GCPV Certification ongoing



Horizontal packaging	76.4 in 1940 mm	43.3 in 1100 mm	48.0 in 1220 mm	1656 lbs 751 kg	24 pallets	24 pallets	32 modules
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**Note:** Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.

400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

**LUNEX POWER**  
THE PURE SOURCE

LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

### REVISIONS

DESCRIPTION	DATE	REV
CLIENT COMMENT	05/03/2024	A

DATE: 04/24/2024

### PROJECT NAME & ADDRESS

BRANDON EDGERLY  
RESIDENCE  
239 SE OLUSTEE AVE,  
LAKE CITY, FL 32025

DRAWN BY  
ESR

SHEET NAME  
EQUIPMENT  
SPECIFICATION

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-11

Specifications subject to technical changes © Q CELLS Q.PEAK DUO BLK ML-G10+ 385-405 2024-05 Rev01\_N/A





DATA SHEET

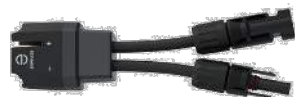


## IQ8 and IQ8+ Microinverters

Our newest IQ8 Microinverters are the industry's first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC), which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built using advanced 55-nm technology with high-speed digital logic and has superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the IQ Battery, IQ Gateway, and the Enphase App monitoring and analysis software.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-and-play MC4 connectors.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



IQ8 Series Microinverters are UL Listed as PV rapid shutdown equipment and conform with various regulations, when installed according to the manufacturer's instructions.

\*Meets UL 1741 only when installed with IQ System Controller 2.  
\*\*IQ8 and IQ8+ support split-phase, 240 V installations only.

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### Easy to install

- Lightweight and compact with plug-and-play connectors
- Power line communication (PLC) between components
- Faster installation with simple two-wire cabling

### High productivity and reliability

- Produce power even when the grid is down\*
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

### Microgrid-forming

- Compliant with the latest advanced grid support\*\*
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meet CA Rule 21 (UL 1741-SA) and IEEE® 1547:2018 (UL 1741-SB 3<sup>rd</sup> Ed.)

### NOTE:

- IQ8 Microinverters cannot be mixed with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, and so on) in the same system.
- IQ Gateway is required to change the default grid profile at the time of installation to meet local Authority Having Jurisdiction (AHJ) requirements.

IQ8SP-12A-DSH-00207-2.0-EN-US-2023-10-13

## IQ8 and IQ8+ Microinverters

INPUT DATA (DC)		UNITS	IQ8-60-2-US	IQ8PLUS-72-2-US
Commonly used module pairings <sup>(1)</sup>	W		235–350	235–440
Module compatibility	—	To meet compatibility, PV modules must be within maximum input DC voltage and maximum module $I_{sc}$ listed below. Module compatibility can be checked at <a href="https://enphase.com/installers/microinverters/calculator">https://enphase.com/installers/microinverters/calculator</a>		
MPPT voltage range	V		27–37	27–45
Operating range	V		16–48	16–58
Minimum/Maximum start voltage	V		22/48	22/58
Maximum input DC voltage	V		50	60
Maximum continuous input DC current	A		10	12
Maximum input DC short-circuit current	A		25	
Maximum module $I_{sc}$	A		20	
Overvoltage class DC port	—		II	
DC port backfeed current	mA		0	
PV array configuration	—	1 × 1 ungrounded array; no additional DC side protection required; AC side protection requires maximum 20 A per branch circuit.		
OUTPUT DATA (AC)		UNITS	IQ8-60-2-US	IQ8PLUS-72-2-US
Peak output power	VA		245	300
Maximum continuous output power	VA		240	290
Nominal grid voltage (L-L)	V		240, split-phase (L-L), 180°	
Minimum and Maximum grid voltage <sup>(2)</sup>	V		211–264	
Maximum continuous output current	A		1.0	1.21
Nominal frequency	Hz		60	
Extended frequency range	Hz		47–68	
AC short-circuit fault current over three cycles	Arms		2	
Maximum units per 20 A (L-L) branch circuit <sup>(3)</sup>	—		16	13
Total harmonic distortion	%		<5	
Overvoltage class AC port	—		III	
AC port backfeed current	mA		30	
Power factor setting	—		1.0	
Grid-tied power factor (adjustable)	—		0.85 leading ... 0.85 lagging	
Peak efficiency	%		97.7	
CEC weighted efficiency	%		97	
Nighttime power consumption	mW		23	25
MECHANICAL DATA				
Ambient temperature range			–40°C to 60°C (–40°F to 140°F)	
Relative humidity range			4% to 100% (condensing)	
DC connector type			MC4	
Dimensions (H × W × D)			212 mm (8.3 in) × 175 mm (6.9 in) × 30.2 mm (1.2 in)	
Weight			1.08 kg (2.38 lbs)	
Cooling			Natural convection—no fans	
Approved for wet locations			Yes	
Pollution degree			PD3	
Enclosure			Class II double-insulated, corrosion-resistant polymeric enclosure	
Environmental category/UV exposure rating			NEMA Type 6/Outdoor	

(1) No enforced DC/AC ratio.  
(2) Nominal voltage range can be extended beyond nominal if required by the utility.  
(3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8SP-12A-DSH-00207-2.0-EN-US-2023-10-13

## IQ8 and IQ8+ Microinverters

COMPLIANCE	
Certifications	CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE® 1547:2018 (UL 1741-SB 3 <sup>rd</sup> Ed.), FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV rapid shutdown equipment and conforms with NEC 2014, NEC 2017, NEC 2020, and NEC 2023 section 690.12 and C22.1-2018 Rule 64-218 rapid shutdown of PV Systems, for AC and DC conductors, when installed according to the manufacturer's instructions.



LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

### REVISIONS

DESCRIPTION	DATE	REV
CLIENT COMMENT	05/03/2024	A

DATE: 04/24/2024

### PROJECT NAME & ADDRESS

BRANDON EDGERLY  
RESIDENCE  
239 SE OLUSTEE AVE,  
LAKE CITY, FL 32025

DRAWN BY  
ESR

SHEET NAME  
EQUIPMENT  
SPECIFICATION

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-12

## Enphase IQ Combiner 4/4C

X-IQ-AM1-240-4  
X-IQ-AM1-240-4C



To learn more about Enphase offerings, visit [enphase.com](https://enphase.com)

The **Enphase IQ Combiner 4/4C** with Enphase IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure and streamlines IQ microinverters and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

### Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), included only with IQ Combiner 4C
- Includes solar shield to match Enphase IQ Battery aesthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

### Simple

- Centered mounting brackets support single stud mounting
- Supports bottom, back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80A total PV or storage branch circuits

### Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the IQ Combiner SKU's
- UL listed



## Enphase IQ Combiner 4/4C

### MODEL NUMBER

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

### ACCESSORIES AND REPLACEMENT PARTS

Ensemble Communications Kit COMMS-CELLMODEM-M1-06 CELLMODEM-M1-06-SP-05 CELLMODEM-M1-06-AT-05	(not included, order separately) - Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites - 4G based LTE-M1 cellular modem with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year AT&T data plan
Circuit Breakers BRK-10A-2-240V BRK-15A-2-240V BRK-20A-2P-240V BRK-15A-2P-240V-B BRK-20A-2P-240V-B	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220 Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 4/4C
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Gateway printed circuit board (PCB) for Combiner 4/4C
X-IQ-NA-HD-125A	Hold down kit for Eaton circuit breaker with screws.

### ELECTRICAL SPECIFICATIONS

Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 95A with IQ Gateway breaker included
Envoy breaker	10A or 15A rating GE/Siemens/Eaton included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers

### MECHANICAL DATA

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

### INTERNET CONNECTION OPTIONS

Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)

### COMPLIANCE

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

To learn more about Enphase offerings, visit [enphase.com](https://enphase.com)

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LUNEX POWER INC.  
4721 N GRADY AVE  
TAMPA FL 33614  
LIC #: CVC57085  
PHONE: 813-540-8807

### REVISIONS

DESCRIPTION	DATE	REV
CLIENT COMMENT	05/03/2024	A

DATE: 04/24/2024

### PROJECT NAME & ADDRESS

BRANDON EDGERLY  
RESIDENCE  
239 SE OLUSTEE AVE,  
LAKE CITY, FL 32025

DRAWN BY

ESR

SHEET NAME  
EQUIPMENT  
SPECIFICATION

SHEET SIZE

ANSI B  
11" X 17"

SHEET NUMBER

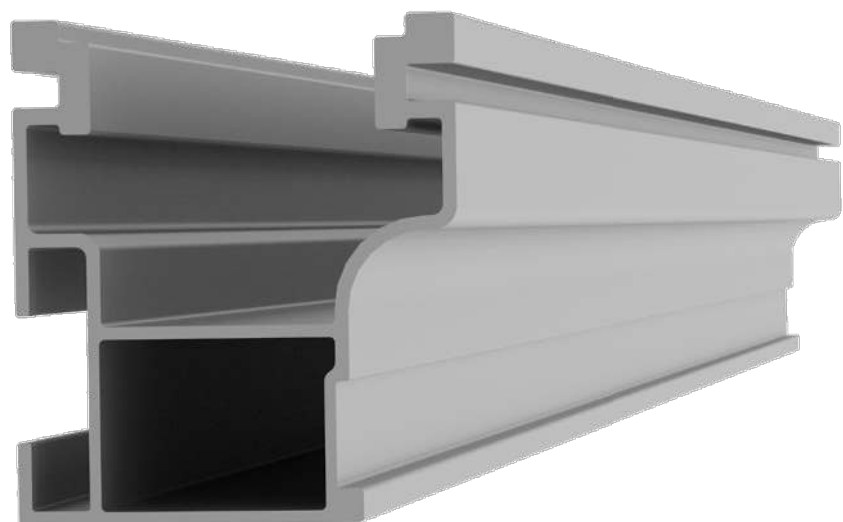
PV-13



# CrossRail 44-X



DATA SHEET



Part Number	Description
4000019	CrossRail 44-X 166", Mill
4000020	CrossRail 44-X 166", Dark
4000021	CrossRail 44-X 180", Mill
4000022	CrossRail 44-X 180", Dark
4000719	CrossRail 44-X 172", Mill
4000720	CrossRail 44-X 172", Dark
4000721	CrossRail 44-X 185", Mill
4000722	CrossRail 44-X 185", Dark
4000143	SPO CrossRail 44-X 86", Mill

## TECHNICAL DATA

### Mechanical Properties

	CrossRail 44-X
Material	6000 Series Aluminum
Ultimate Tensile Strength	37.7 ksi (260 MPa)
Yield Strength	34.8 ksi (240 MPa)
Weight	.47 lbs/ft (0.699 kg/m)

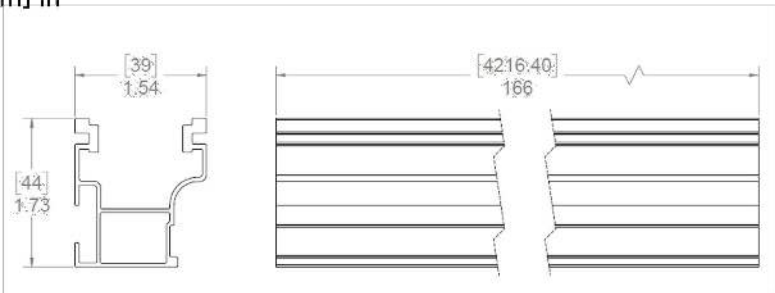
### Sectional Properties

	CrossRail 44-X
Sx	0.149 in <sup>3</sup> (0.3785 cm <sup>3</sup> )
Sy	0.145 in <sup>3</sup> (0.3683 cm <sup>3</sup> )
A (X-Section)	0.405 in <sup>2</sup> (1.0287 cm <sup>2</sup> )

LOAD		RAIL SPAN									
SNOW (psf)	WIND (mph)	32"	4'	64"	6'	80"	8'	112"	10 1/2'	12'	
0	120										
0	140										
0	160										
10	120										
10	140										
10	160										
20	140										
20	160										
30	160										
40	160										
80	160										
100	160										

44X/MAX 48X 48XL CR80

Units: [mm] in



### Notes:

- Structural values and span charts determined in accordance with Aluminum Design Manual and ASCE 7-16
- UL2703 Listed System for Fire and Bonding



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11" X 17"

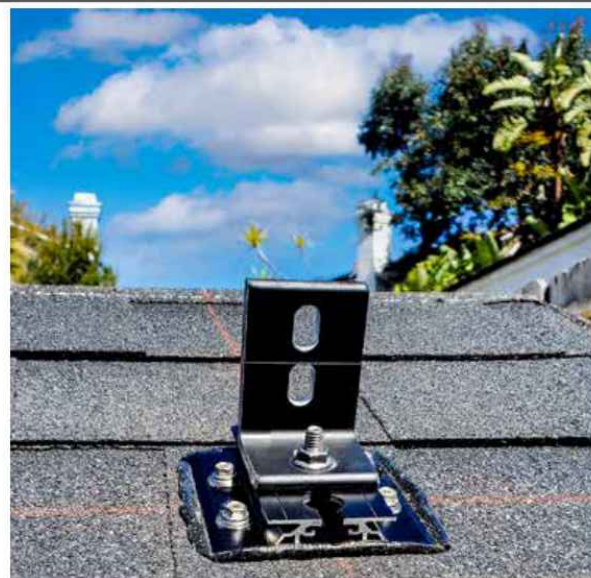
### SHEET NUMBER

PV-14



# RT-MINI II

A Self-flashing PV Mount Featuring Roof Tech's AlphaSeal™ Technology



RT-MINI II is suitable for all systems with any L-Foot

- ✓ No Caulking or Pre-Drilling Required
- ✓ Universal Attachment to Any Slope
- ✓ Metal, EPDM, TPO, SBS, & Asphalt Roofs
- ✓ Wide Range of Applications & Ultimate Flexibility on the Roof
- ✓ No Need to Bend Rails  
1 5/8 North & South Adjustment

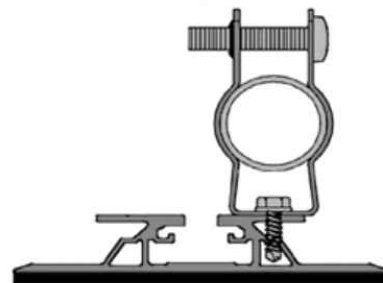


Installation Manual

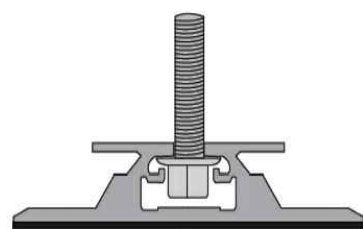


ICC ESR 3575

## Conduit Strap Installation



RT Serrated Hex Flange Bolt/Nut:  
5/16-18 x 1"



# RT-MINI II

Flexible Flashing Certified by the International Code Council (ICC)

## Components

RT2-00-MINIBK2



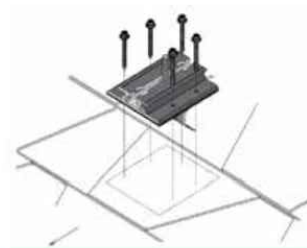
MINI II base : 20 ea.  
Screw : 40 ea.  
Extra RT-Butyl : 4 ea.

### Optional Items:

5 x 60mm Mounting Screw (RT2-04-SD5-60) : 100 ea./Bag  
5/16 X 25MM Flange Bolt & Nut (RT2-04-FBN25) : 100 ea./Bag  
RT-Butyl (RT2-04-MNBUTYL) : 10 ea./Box

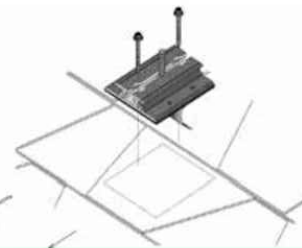
### Deck Installation

OSB & PLY



### Rafter Installation

Hybrid Mounting



Roof Tech Inc. AlphaSeal™ Technology has been used on over one million residential PV systems since 1994. It is the first PV mounting system with Flexible Flashing certified by the ICC, engineered to withstand wind speeds up to 180 mph and ground snow up to 90 psf.

Engineered to ASTM D 1761  
(Standard Test Methods for Mechanical Fasteners in Wood)

ICC ESR-3575



ASTM2140 Testing

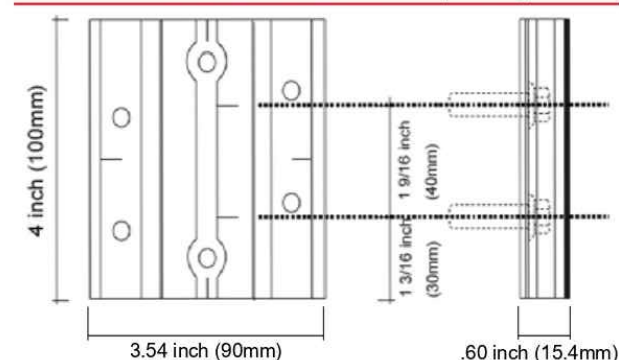


P.E. Letters

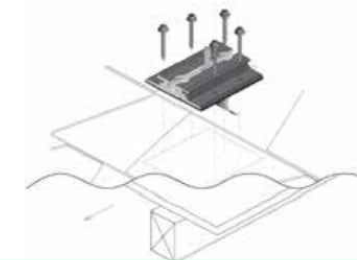


Support & Downloads

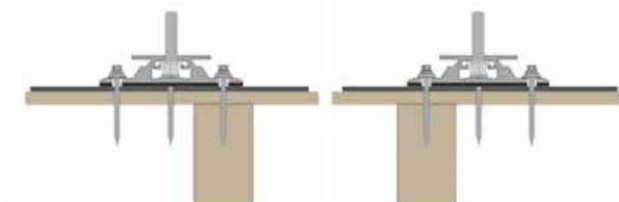
## Dimensions in (mm)



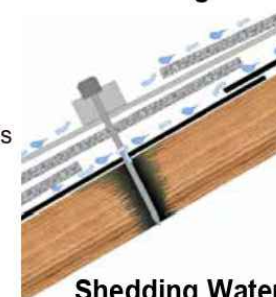
### Offset Rafter Installation



### Offset Rafter Attachment Options

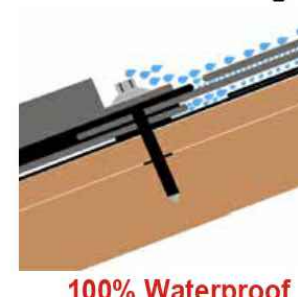


### Metal Flashing Retrofit



Shedding Water?

### Flexible Flashing



100% Waterproof



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SHEET NAME  
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### SHEET SIZE

ANSI B  
11" X 17"

### SHEET NUMBER

PV-15



**Roof Tech**  
The Standard for Waterproof Flexible Flashing Since 1994  
www.roof-tech.us info@roof-tech.us



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August 2022