

PHOTOVOLTAIC ROOF MOUNT SYSTEM

41 MODULES-ROOF MOUNTED - 17.015 kW DC, 15.580 kW AC

768 SW WALTER AVE, LAKE CITY, FL 32024



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

PROJECT DATA

PROJECT ADDRESS: 768 SW WALTER AVE, LAKE CITY, FL 32024

OWNER: ROBERT BELL

CONTRACTOR: LUNEX POWER, 4721 N GRADY AVE TAMPA FL 33614 PHONE: 813-540-8807

DESIGNER: ESR

SCOPE: 17.015 KW DC ROOF MOUNT SOLAR PV SYSTEM WITH 41 TRINA SOLAR TSM-NE09RC.05 415W PV MODULES WITH 41 ENPHASE: IQ8X-80-M-US 380W MICROINVERTERS (COMPLIANT WITH RAPID SHUTDOWN) 02 ENPHASE IQBATTERY-10C-1P-NA [240V] BATTERIES

AUTHORITIES HAVING JURISDICTION:
BUILDING: COLUMBIA COUNTY
ZONING: COLUMBIA COUNTY
UTILITY: CLAY ELECTRIC

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PV-11+	EQUIPMENT SPECIFICATIONS

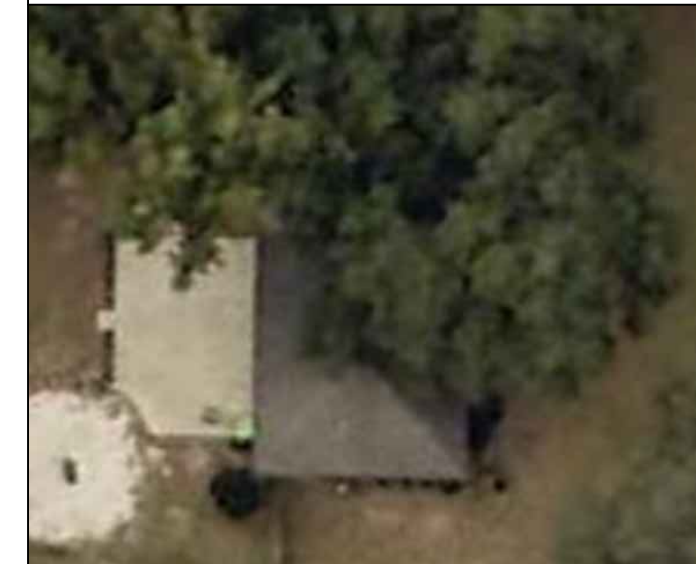
GENERAL NOTES

- ALL COMPONENTS ARE UL LISTED AND NEC CERTIFIED, WHERE WARRANTED.
- THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE NEC 2020.
- THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION.
- 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.
- WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
- HEIGHT OF THE AC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
- 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.
- PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
- PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
- 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.
- ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH THE LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SINAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.
- INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE UL 1741 LISTED.
- THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [NEC 690.4(C)]
- ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED (OR BETTER), INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND SWITCHES.
- ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
- SYSTEM GROUNDING SHALL BE IN ACCORDANCE WITH NEC 690.41.
- PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION IN ACCORDANCE WITH NEC 690.12
- 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)]
- ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC 690.31
- WORK CLEARANCES AROUND ELECTRICAL EQUIPMENT WILL BE MAINTAINED PER NEC 110.26(A)(1), 110.26(A)(2) AND 110.26(A)(3).
- ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED & IDENTIFIED IN ACCORDANCE WITH UL1703
- ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.

VICINITY MAP



HOUSE PHOTO



CODE REFERENCES

PROJECT TO COMPLY WITH THE FOLLOWING:

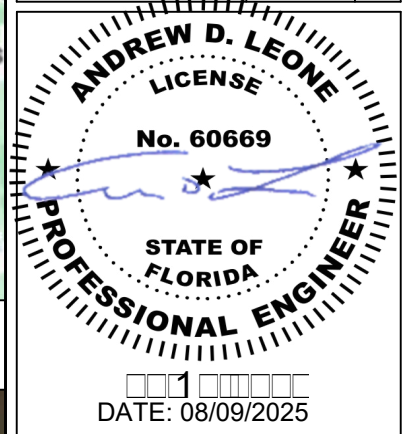
FLORIDA RESIDENTIAL CODE, 8TH EDITION 2023 (FRC)
FLORIDA PLUMBING CODE, 8TH EDITION 2023 (FPC)
FLORIDA BUILDING CODE, 8TH EDITION 2023 (FBC)
FLORIDA MECHANICAL CODE, 8TH EDITION 2023 (FMC)
2020 NATIONAL ELECTRICAL CODE
FLORIDA FIRE PREVENTION CODE, 8TH EDITION 2023 (FFPC)

PROFESSIONAL ENGINEER SEAL

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REVISIONS		
DESCRIPTION	DATE	REV



PROJECT NAME & ADDRESS

ROBERT BELL
RESIDENCE
768 SW WALTER AVE,
LAKE CITY, FL 32024

DRAWN BY
ESR

SHEET NAME
COVER SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-1

PROJECT DESCRIPTION:

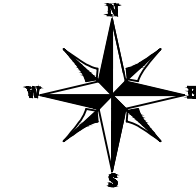
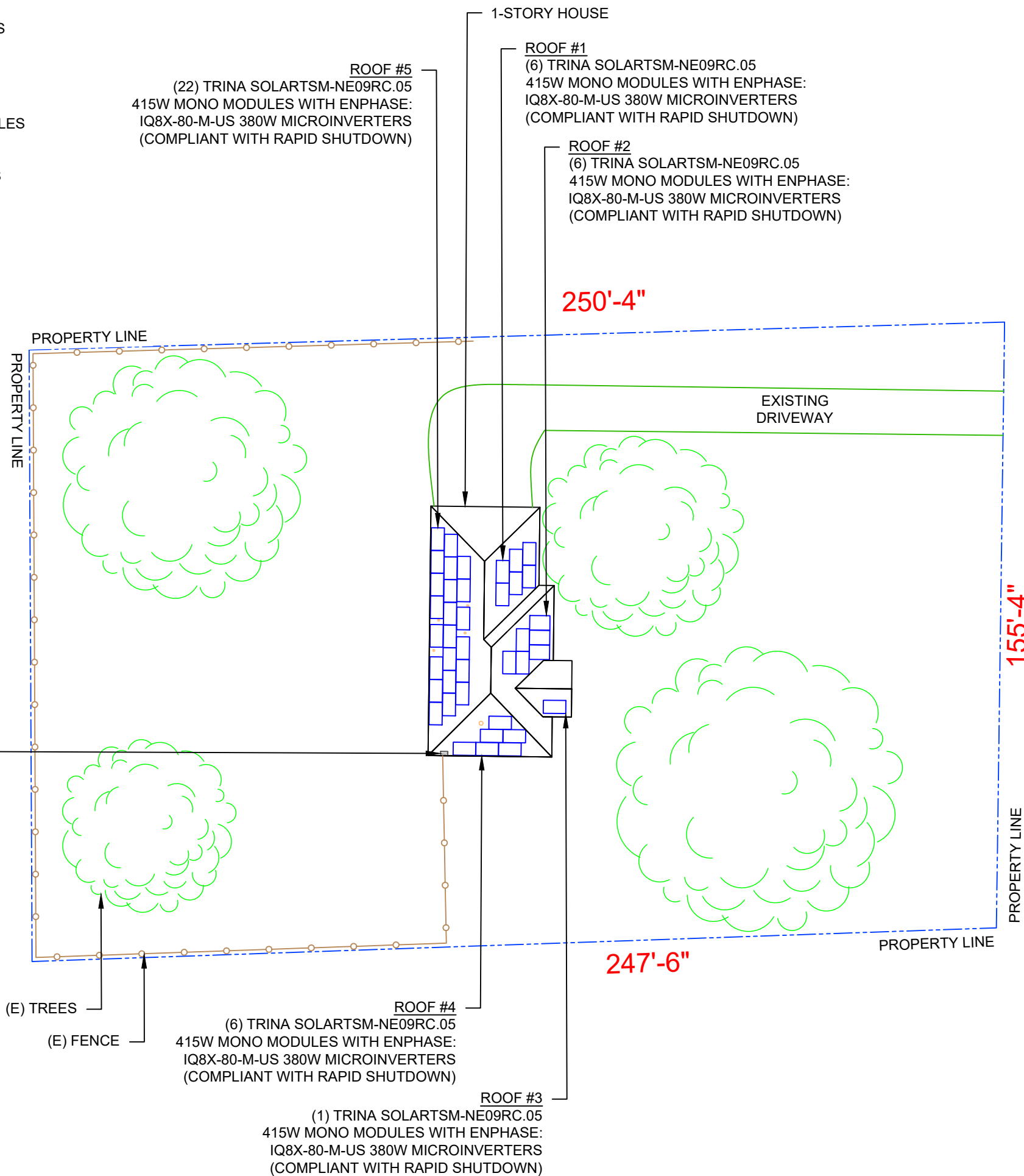
41 X TRINA SOLAR TSM-NE09RC.05 415W PV MODULES
 ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
 DC SYSTEM SIZE: 41 x 415 = 17.015KW DC
 AC SYSTEM SIZE: 41 x 380 = 15.580KW AC

EQUIPMENT SUMMARY

41 TRINA SOLAR TSM-NE09RC.05 415W MONO MODULES
 41 ENPHASE: IQ8X-80-M-US 380W MICROINVERTERS
 (COMPLIANT WITH RAPID SHUTDOWN)
 02 ENPHASE IQBATTERY-10C-1P-NA [240V] BATTERIES

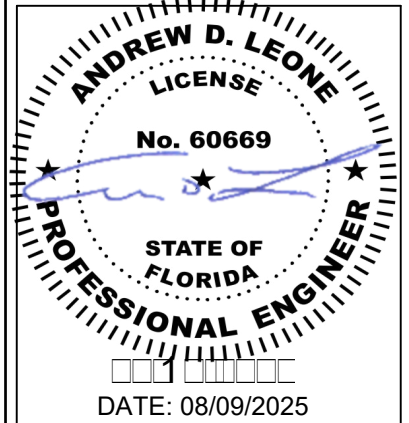
ROOF ARRAY AREA #1:- 129.00 SQ FT.
 ROOF ARRAY AREA #2:- 129.00 SQ FT.
 ROOF ARRAY AREA #3:- 21.50 SQ FT.
 ROOF ARRAY AREA #4:- 129.00 SQ FT.
 ROOF ARRAY AREA #5:- 473.00 SQ FT.

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



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 ESR

SHEET NAME
 SITE PLAN

SHEET SIZE
 ANSI B
 11" X 17"

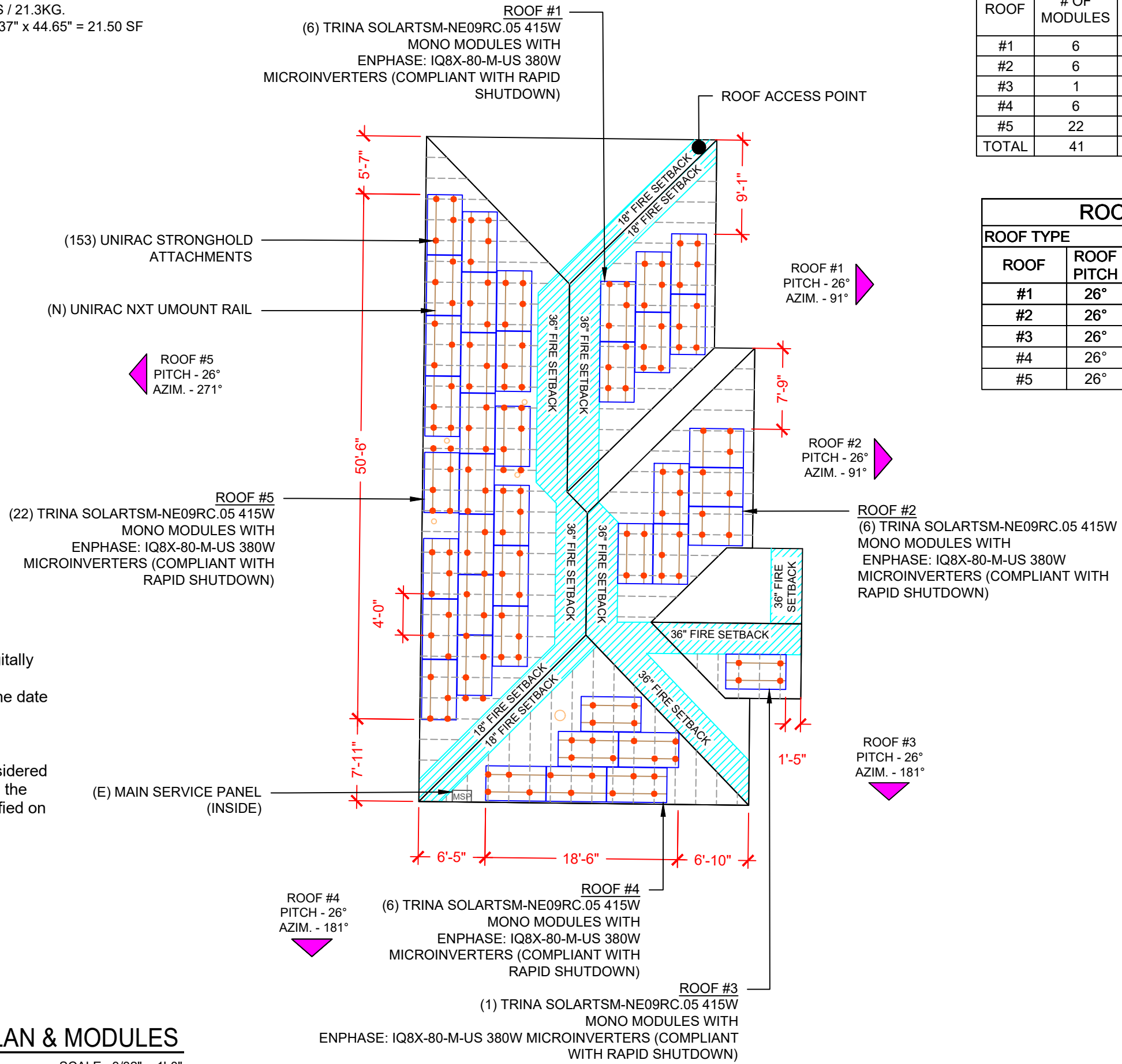
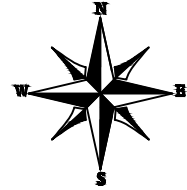
SHEET NUMBER
 PV-2

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MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 41 MODULES
 MODULE TYPE = TRINA SOLAR TSM-NE09RC.05 415W MONO MODULES
 MODULE WEIGHT = 47.0 LBS / 21.3KG.
 MODULE DIMENSIONS = 69.37" x 44.65" = 21.50 SF



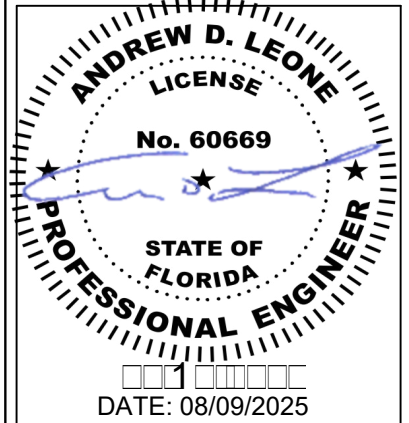
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	6	129.00	280.48	46
#2	6	129.00	355.89	36
#3	1	21.50	78.62	27
#4	6	129.00	257.18	50
#5	22	473.00	721.67	66
TOTAL	41	881.50	2027.80	43

ROOF TYPE			ASPHALT SHINGLE	
ROOF	ROOF PITCH	AZIMUTH	TRUSS SIZE	TRUSS SPACING
#1	26°	91°	2"X4"	24"
#2	26°	91°	2"X4"	24"
#3	26°	181°	2"X4"	24"
#4	26°	181°	2"X4"	24"
#5	26°	271°	2"X4"	24"



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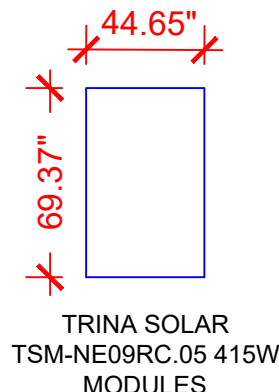
SHEET NAME
ROOF PLAN & MODULES

SHEET SIZE
**ANSI B
 11" X 17"**

SHEET NUMBER
PV-3

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LEGEND

- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- TRUSS
- ROOF ATTACHMENT
- MAIN SERVICE DISCONNECT
- MAIN SERVICE PANEL
- UTILITY METER

1 ROOF PLAN & MODULES

PV-3 SCALE: 3/32" = 1'-0"

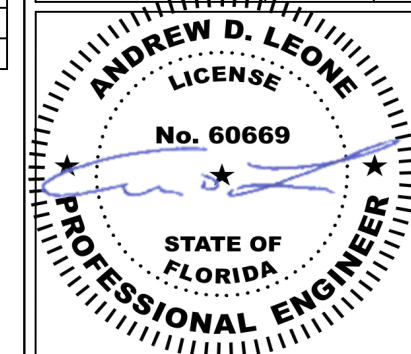
CIRCUIT LEGENDS	
	CIRCUIT #1
	CIRCUIT #2
	CIRCUIT #3
	CIRCUIT #4
	CIRCUIT #5

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULES	41	TRINA SOLAR TSM-NE09RC.05 415W MODULE
MICROINVERTERS	41	ENPHASE: IQ8X-80-M-US 380W MICROINVERTERS (COMPLIANT WITH RAPID SHUTDOWN)
COMBINER BOX	1	ENPHASE IQ COMBINER BOX 6C [240V]
BATTERY	2	ENPHASE IQBATTERY-10C-1P-NA [240V]
METER COLLAR	1	ENPHASE IQ METER COLLAR
JUNCTION BOX	5	JUNCTION BOX (JB 1.2)
BATTERY	2	ENPHASE IQBATTERY-10C-1P-NA [240V]
RAILS	34	UNIRAC NXT UMount RAIL
SPLICES	12	SPLICE KIT
MID MODULE CLAMPS	48	MID MODULE CLAMPS
END CLAMPS	68	END CLAMPS / STOPPER SLEEVE
ATTACHMENTS	153	UNIRAC STRONGHOLD ATTACHMENTS



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DESCRIPTION	DATE	REV



DATE: 08/09/2025

PROJECT NAME & ADDRESS

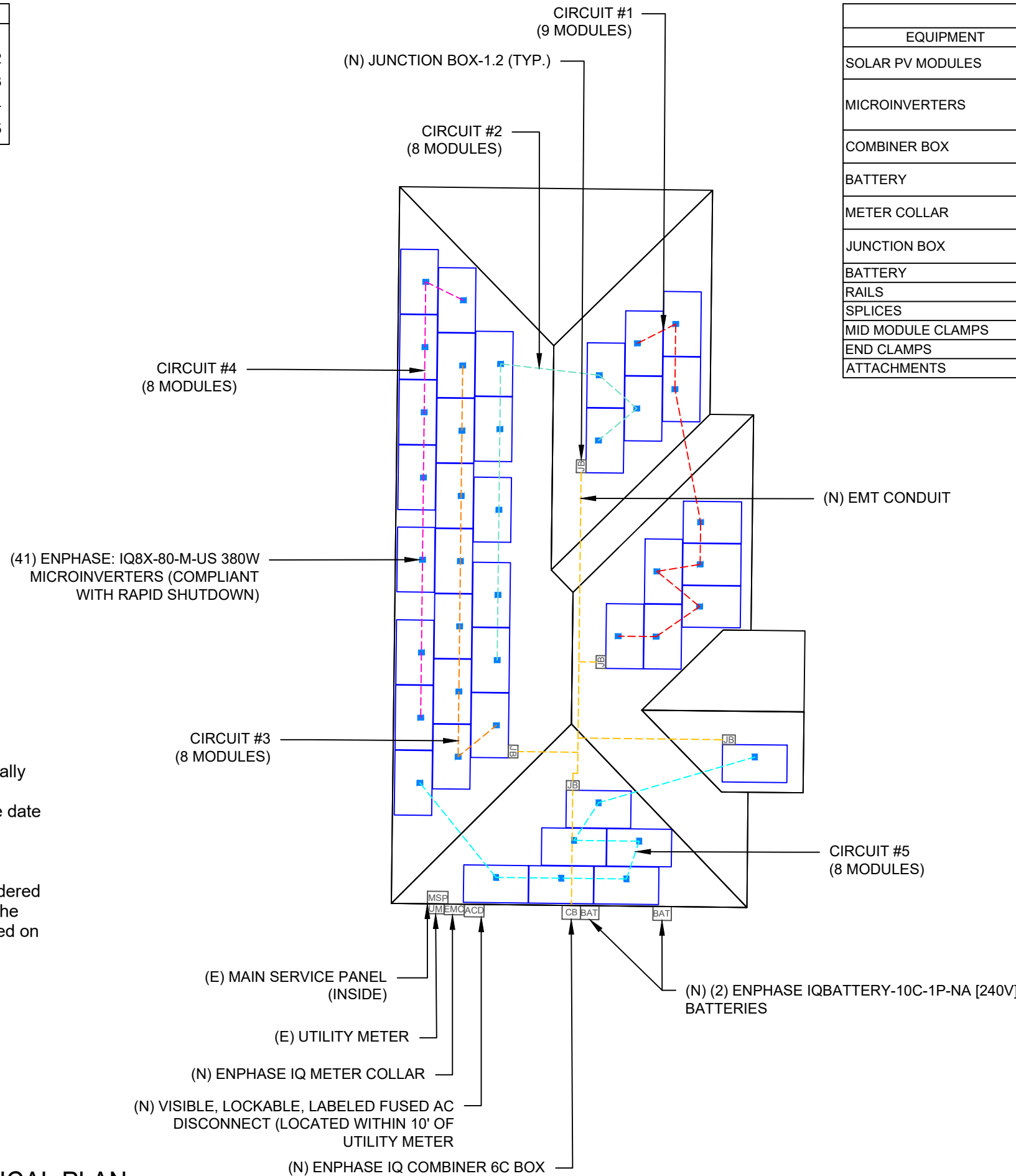
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SHEET NAME
ELECTRICAL PLAN

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4



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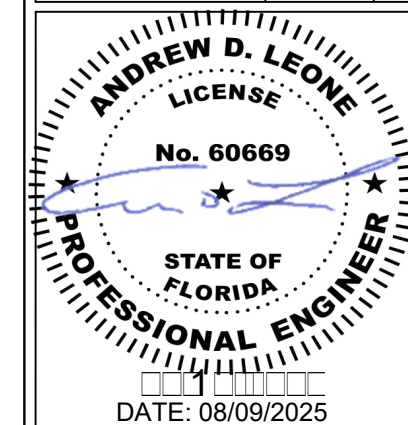
LEGEND	
	- MAIN SERVICE DISCONNECT
	- SUB PANEL
	- ENPHASE IQ SYSTEM CONTROLLER 3
	- ESS AC DISCONNECT
	- ENPHASE IQBATTERY-5P-1P-NA
	- JUNCTION BOX
	- AC DISCONNECT
	- UTILITY METER
	- MAIN SERVICE PANEL
	- INVERTER
	- CONDUIT

1 ELECTRICAL PLAN

PV-4

SCALE: 3/32" = 1'-0"

REVISIONS		
DESCRIPTION	DATE	REV



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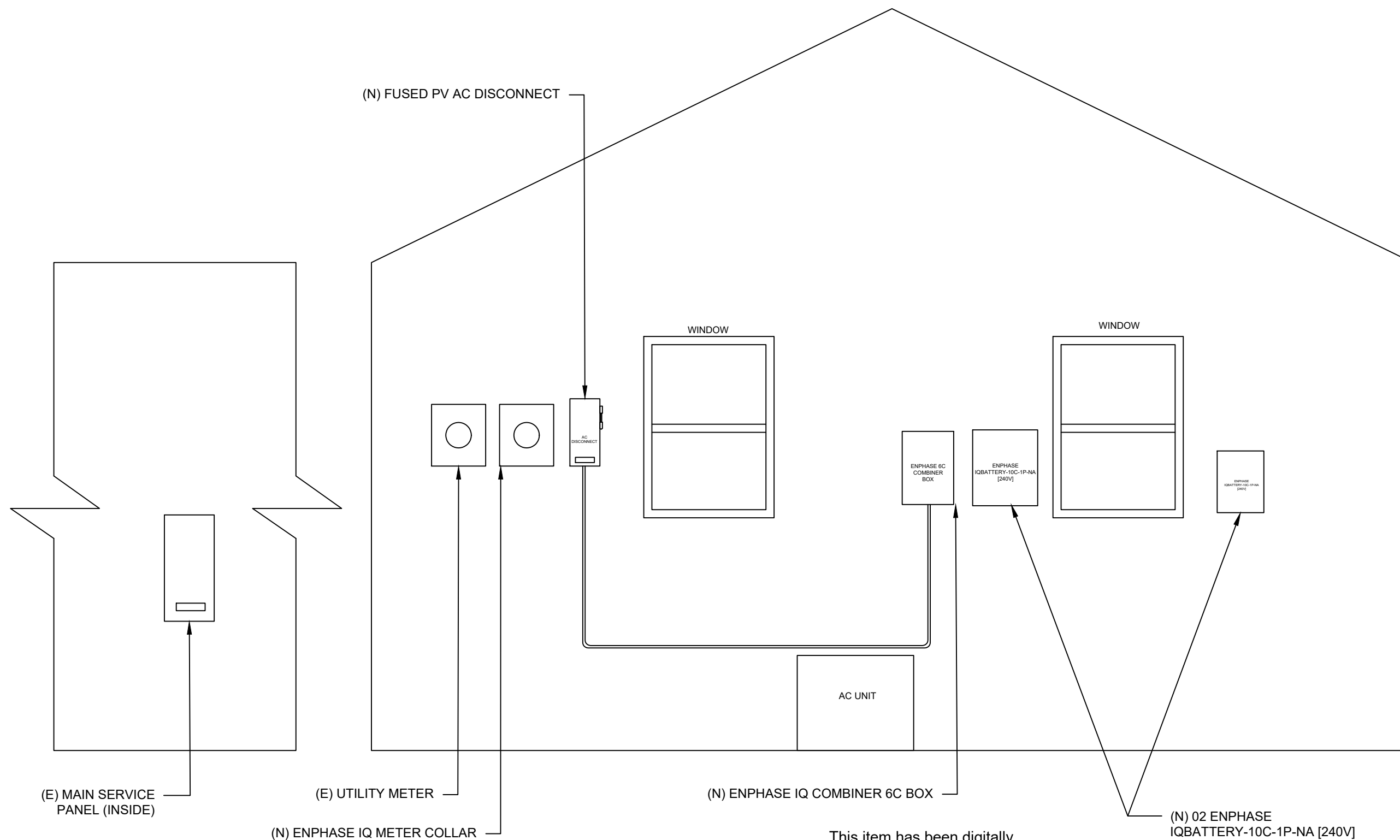
DRAWN BY
ESR

SHEET NAME
ELEVATION PLAN

SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-4A

(N) FUSED PV AC DISCONNECT



(N) ENPHASE IQ COMBINER 6C BOX

(N) 02 ENPHASE
IQBATTERY-10C-1P-NA [240V]
BATTERIES

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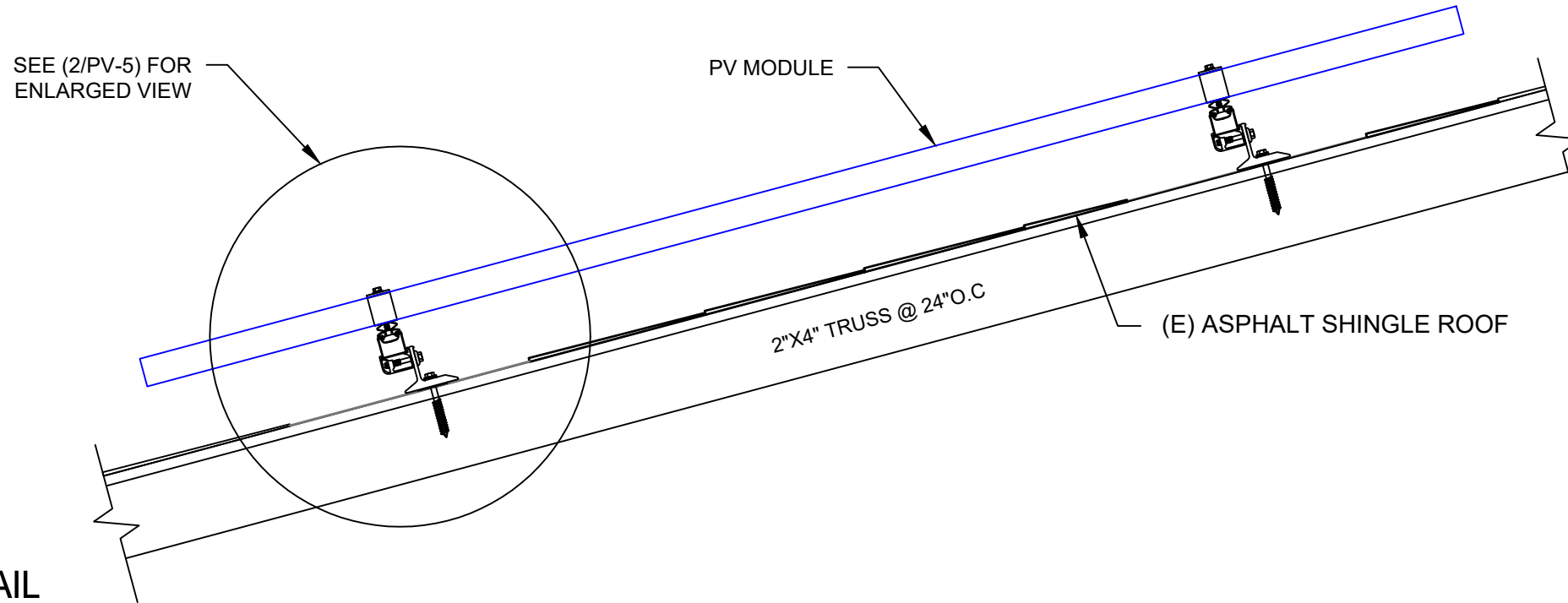
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1 | ELEVATION PLAN

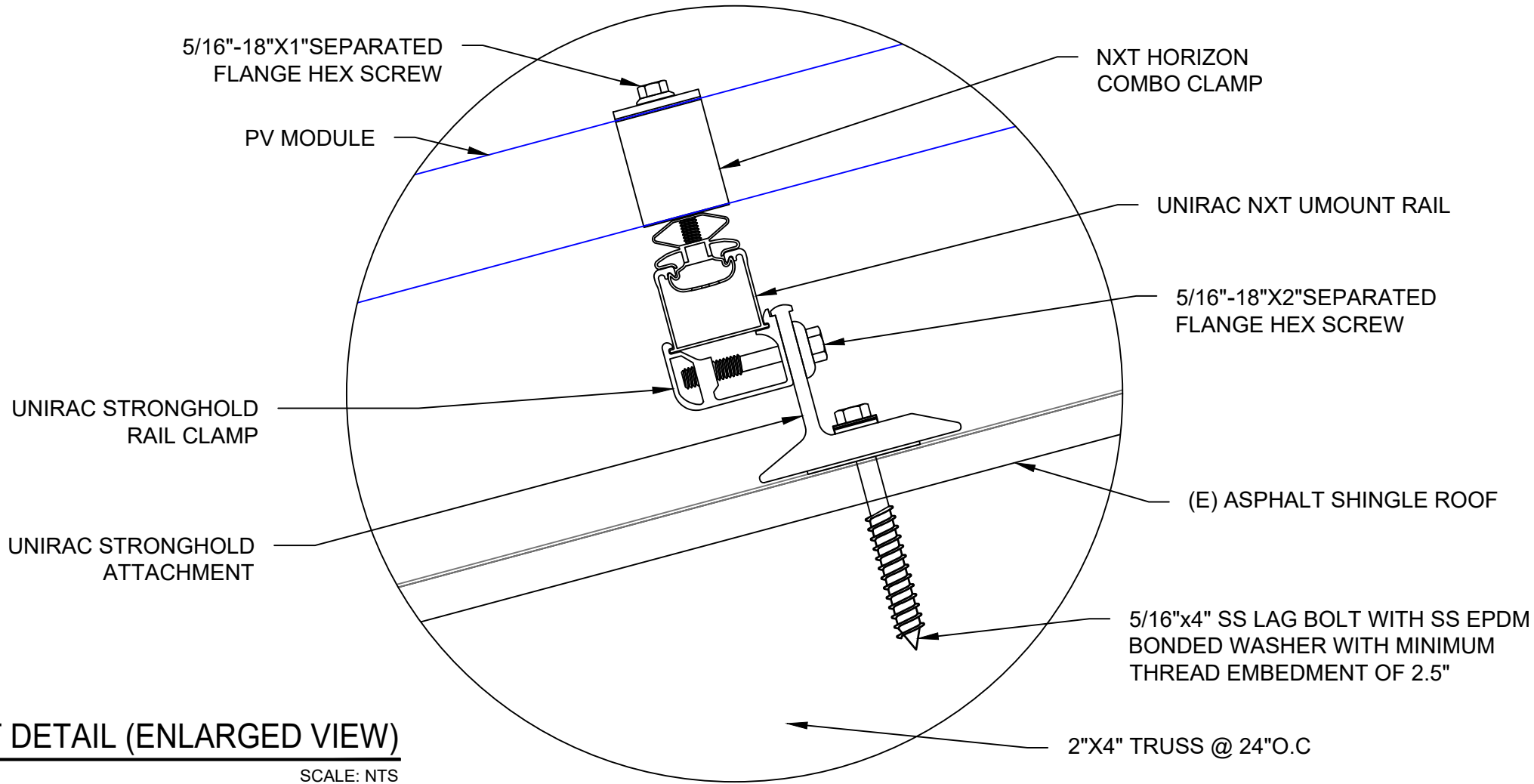
PV-4A

SCALE: NTS

DESCRIPTION: CANTILEVER
 CANTILEVER CONSIDER 1/3RD OF ROOF ATTACHMENT SPACING.
 ATTACHMENT SPACING= 48" O/C
 CANTILEVER = 16"



1 ATTACHMENT DETAIL
 PV-5 SCALE: NTS



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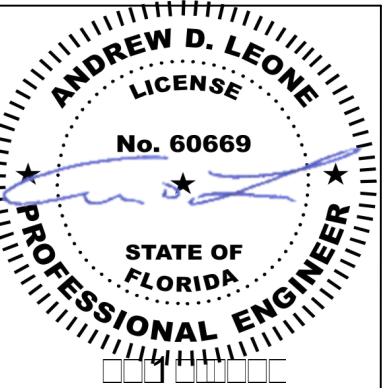
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2 ATTACHMENT DETAIL (ENLARGED VIEW)
 PV-5 SCALE: NTS



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SHEET NAME
STRUCTURAL DETAIL

SHEET SIZE
**ANSI B
 11" X 17"**

SHEET NUMBER
PV-5

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	ENPHASE: IQ8X-80-M-US 380W MICROINVERTERS EQUIPPED WITH RAPID SHUTDOWN
MIN/MAX DC VOLT RATING	30V MIN/ 79.5V MAX
MAX INPUT POWER	320W-540W
NOMINAL AC VOLTAGE RATING	240V/ 211-264V
MAX AC CURRENT	1.58A
MAX MODULES PER CIRCUIT	10 (SINGLE PHASE)
MAX OUTPUT POWER	380 VA

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	TRINA SOLAR TSM-NE09RC.05 415W MODULE
VMP	42.5V
IMP	9.77A
VOC	50.5V
ISC	10.40A
TEMP. COEFF. VOC	-0.24%/°C
MODULE DIMENSION	69.37"L x 44.65"W x 1.18"D (In Inch)

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-5°
AMBIENT TEMP (HIGH TEMP 2%)	37°
MODULE TEMPERATURE COEFFICIENT OF Voc	-0.24%/°C

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

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)(1)	DERATION FACTOR FOR CONDUCTORS PER RACEWAY NEC 310.15(C)(1)	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#1	240	14.22	17.78	20	N/A	BARE COPPER #6 AWG	CU #10 AWG	35	PASS	34	2	40	0.96	1	38.4	PASS			0.49	N/A	#N/A
CIRCUIT 2	JUNCTION BOX#1	240	12.64	15.80	20	N/A	BARE COPPER #6 AWG	CU #10 AWG	35	PASS	34	2	40	0.96	1	38.4	PASS			0.71	N/A	#N/A
CIRCUIT 3	JUNCTION BOX#1	240	12.64	15.80	20	N/A	BARE COPPER #6 AWG	CU #10 AWG	35	PASS	34	2	40	0.96	1	38.4	PASS			0.71	N/A	#N/A
CIRCUIT 4	JUNCTION BOX#2	240	12.64	15.80	20	N/A	BARE COPPER #6 AWG	CU #10 AWG	35	PASS	34	2	40	0.96	1	38.4	PASS			0.71	N/A	#N/A
CIRCUIT 5	JUNCTION BOX#2	240	12.64	15.80	20	N/A	BARE COPPER #6 AWG	CU #10 AWG	35	PASS	34	2	40	0.96	1	38.4	PASS			0.71	N/A	#N/A
JUNCTION BOX#1	COMBINER BOX	240	14.22	17.78	20	N/A	CU #10 AWG	CU #10 AWG	35	PASS	34	6	40	0.96	0.8	30.72	PASS	23	1.24	0.338	3/4" EMT	27.71%
JUNCTION BOX#2	COMBINER BOX	240	12.64	15.80	20	N/A	CU #10 AWG	CU #10 AWG	35	PASS	34	4	40	0.96	0.8	30.72	PASS	23	1.24	0.300	3/4" EMT	19.79%
ENPHASE BATTERY	COMBINER BOX	240	32	40.00	40	CU #8 AWG	CU #10 AWG	CU #8 AWG	50	PASS	34	2	55	0.96	1	52.8	PASS	5	0.778	0.104	3/4" EMT	24.56%
COMBINER BOX	AC DISCONNECT	240	96.78	120.98	125	CU #1 AWG	CU #6 AWG	CU #1 AWG	130	PASS	34	2	145	0.96	1	139.2	PASS	10	0.154	0.124	1 1/4" EMT	34.71%
AC DISCONNECT	POI	240	96.78	120.98	125	CU #1 AWG	CU #6 AWG	CU #1 AWG	130	PASS	34	2	145	0.96	1	139.2	PASS	5	0.154	0.062	1 1/4" EMT	34.71%

Circuit 1 Voltage Drop	1.014
Circuit 2 Voltage Drop	1.234
Circuit 3 Voltage Drop	1.234
Circuit 4 Voltage Drop	1.197
Circuit 5 Voltage Drop	1.197

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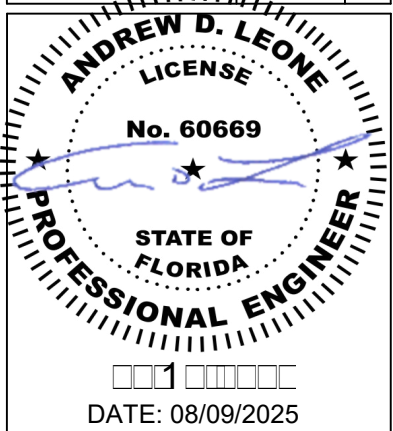
ELECTRICAL NOTES

- ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
- ALL CONDUCTORS SHALL BE RATED UPTO 600V FOR RESIDENTIAL AND 1000V FOR COMMERCIAL AND 90 DEGREE C WET ENVIRONMENT.
- 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.
- WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
- DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
- WHERE SIZES OF JUNCTION BOX, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
- ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
- MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
- MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
- 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.



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768 SW WALTER AVE,
LAKE CITY, FL 32024

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**

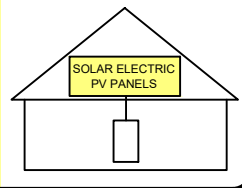
LABEL- 4:
LABEL LOCATION:
MAIN SERVICE PANEL
SUBPANEL
MAIN SERVICE DISCONNECT
COMBINER
CODE REF: NEC 110.27(C) & OSHA 1910.145 (f) (7)

WARNING
**POWER SOURCE OUTPUT
CONNECTION. DO NOT
RELOCATE THIS
OVERCURRENT DEVICE**

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(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- 6:
LABEL LOCATION:
AC DISCONNECT
CODE REF: IFC 605.11.3.1(1) & NEC 690.56(C)

**RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM**

LABEL- 7:
LABEL LOCATION:
AC DISCONNECT
CODE REF: NEC 690.56(C)(2)

**PHOTOVOLTAIC
AC DISCONNECT**

LABEL- 8:
LABEL LOCATION:
AC DISCONNECT
CODE REF: NEC 690.13(B)

**PHOTOVOLTAIC
AC DISCONNECT**

NOMINAL OPERATING AC VOLATGE **240 V**
RATED AC OUTPUT CURRENT **96.78 A**

LABEL- 9:
LABEL LOCATION:
MAIN SERVICE PANEL
SUBPANEL
AC DISCONNECT
CODE REF: NEC 690.54

**MAIN PHOTOVOLTAIC
SYSTEM DISCONNECT**

LABEL- 10:
LABEL LOCATION:
MAIN SERVICE DISCONNECT (ONLY IF MAIN SERVICE DISCONNECT IS PRESENT)
CODE REF: NEC 690.13(B)

**ENERGY
STORAGE SYSTEM
DISCONNECT**

LABEL- 11:
LABEL LOCATION:
ESS DISCONNECT
CODE REF: NEC 706.15(C)

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

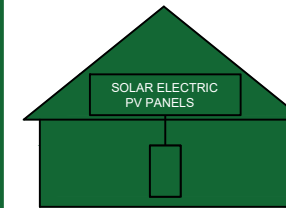
LABEL-12:

**WARNING: PHOTOVOLTAIC
POWER SOURCE**

LABEL-13:
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- 14:
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)

**PCS CONTROLLED
CURRENT SETTING 200 A**

THE MAXIMUM OUTPUT CURRENT FROM THIS SYSTEM
TOWARDS THE MAIN PANEL IS CONTROLLED
ELECTRONICALLY. REFER TO THE MANUFACTURER'S
INSTRUCTION FOR MORE INFORMATION.

LABEL- 15:
LABEL LOCATION:
MAIN SERVICE PANEL
CODE REF: NEC 705.13

NOMINAL ESS AC VOLTAGE: **240 VAC**
MAXIMUM ESS DC VOLTAGE: **76.8 VDC**
AVAILABLE FAULT CURRENT
DERIVED FROM THE ESS:
DATE CALCULATION PERFORMED: **08/09/2025**

LABEL- 16:
LABEL LOCATION:
BATTERY
CODE REF: NEC 706.15(C)

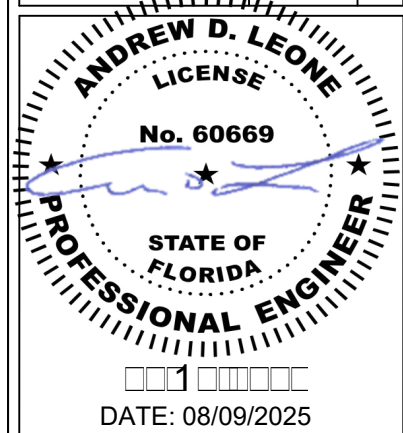
**WARNING: THIS SENSOR IS PART
OF A POWER CONTROL SYSTEM.
DO NOT REMOVE. REPLACE ONLY
WITH THE SAME TYPE AND
RATING.**

LABEL- 17:
LABEL LOCATION:
MAIN SERVICE PANEL
CODE REF: NEC 705.13



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

REVISIONS		
DESCRIPTION	DATE	REV



PROJECT NAME & ADDRESS

**ROBERT BELL
RESIDENCE**
768 SW WALTER AVE,
LAKE CITY, FL 32024

DRAWN BY
ESR

SHEET NAME
LABELS

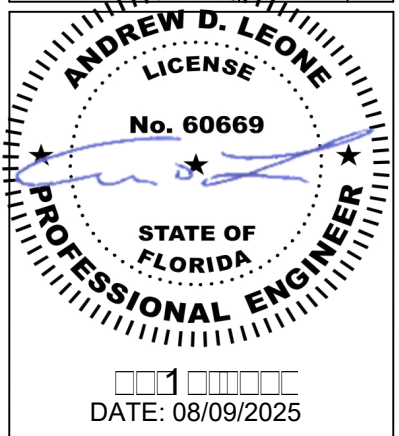
SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-8

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.

REVISIONS		
DESCRIPTION	DATE	REV



PROJECT NAME & ADDRESS

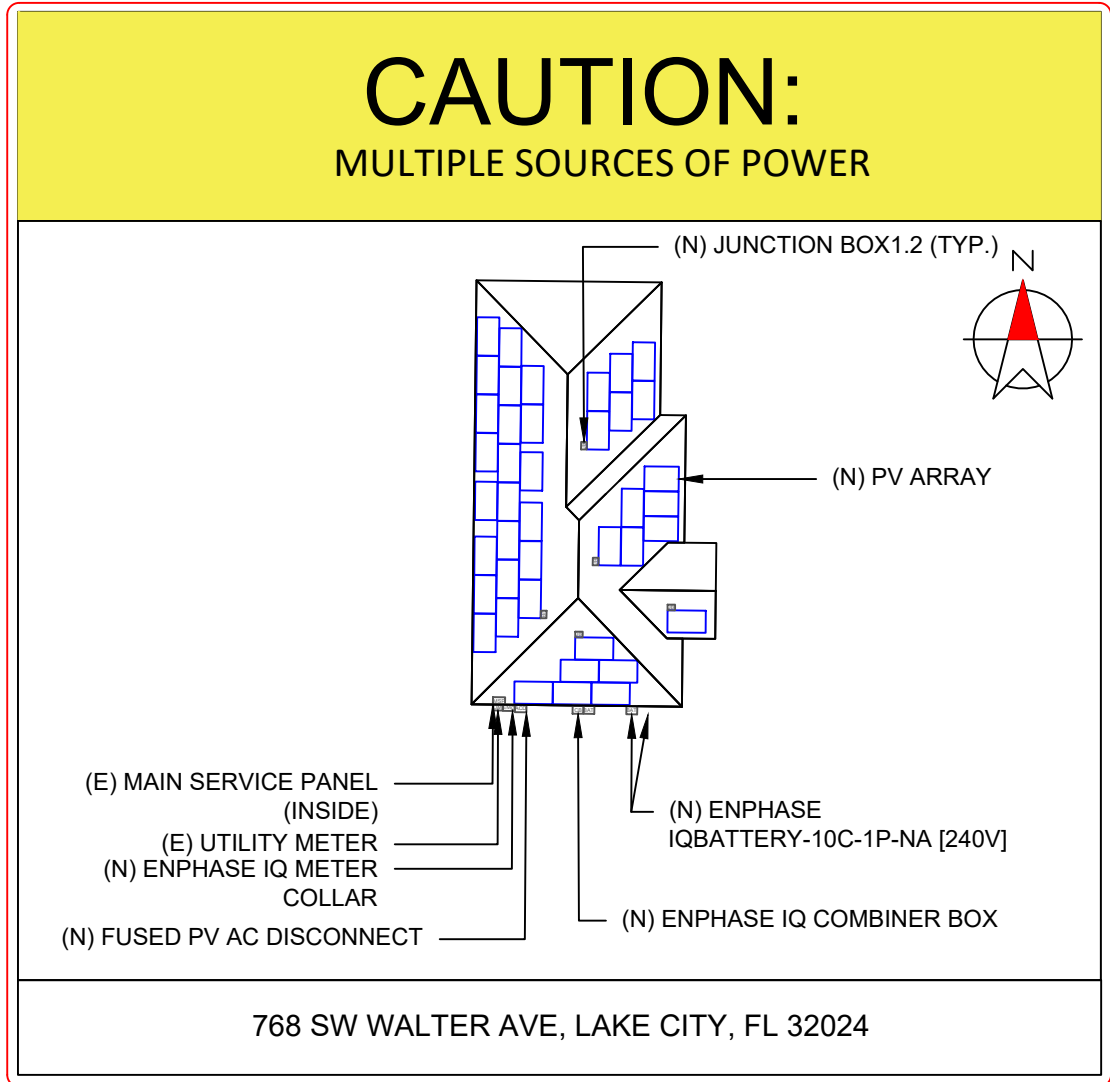
**ROBERT BELL
RESIDENCE**
768 SW WALTER AVE,
LAKE CITY, FL 32024

DRAWN BY
ESR

SHEET NAME
PLACARD

SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-9



**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])**

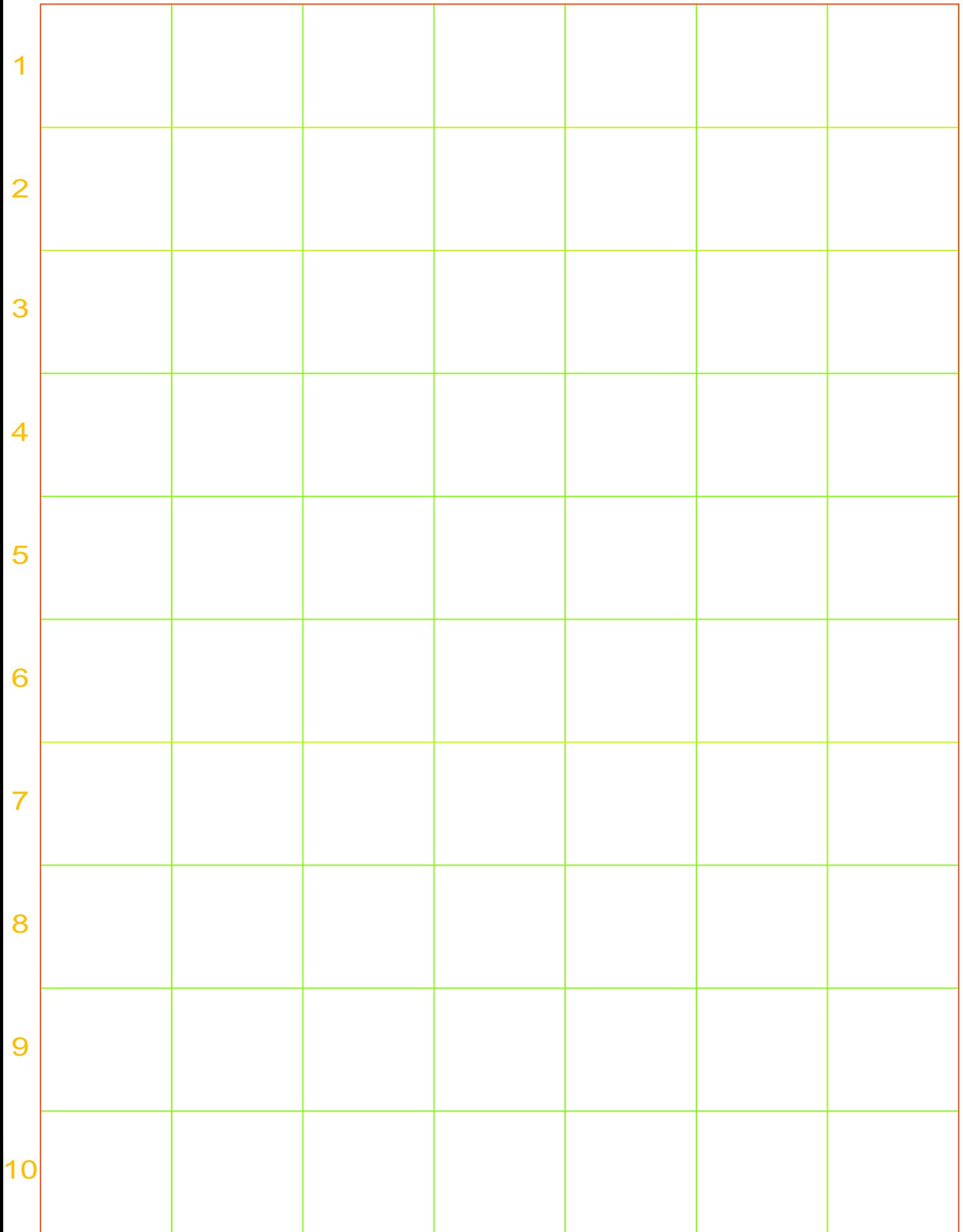
This item has been digitally signed and sealed by Andrew D. Leone on the date adjacent to the seal.

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

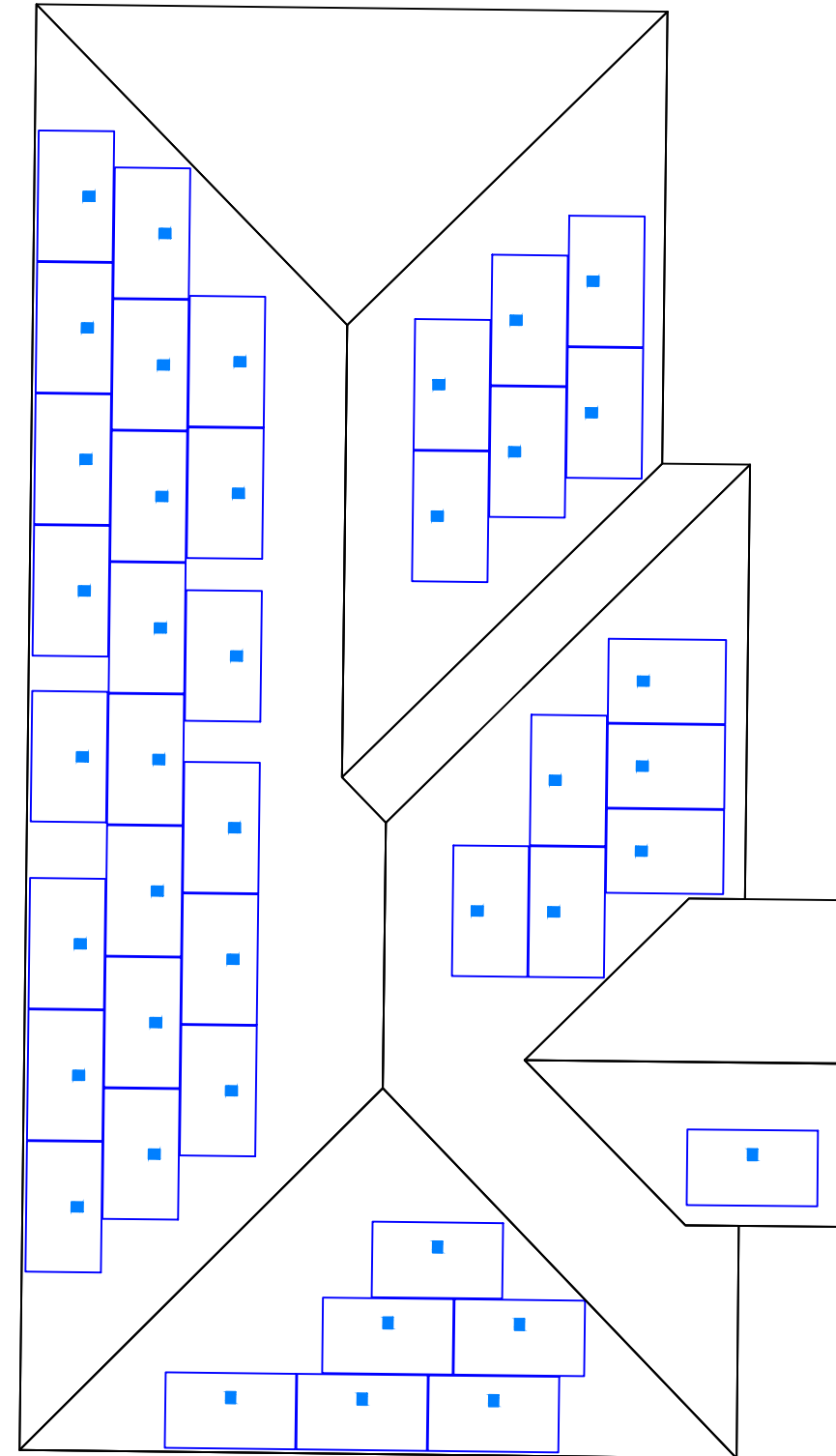
LABELING NOTES:

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]

1-10 11-20 21-30 31-40 41-50 51-60 61-70



MICRO INVERTER CHART



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

REVISIONS		
DESCRIPTION	DATE	REV

DATE: 08/09/2025

PROJECT NAME & ADDRESS

**ROBERT BELL
 RESIDENCE**

768 SW WALTER AVE,
 LAKE CITY, FL 32024

DRAWN BY
ESR

SHEET NAME
MICRO INVERTER CHART

SHEET SIZE
**ANSI B
 11" X 17"**

SHEET NUMBER
PV-10



BACKSHEET MONOCRYSTALLINE MODULE

Mono Multi Solutions

PRODUCT: TSM-NE09RC.05
PRODUCT RANGE: 400-430W

430W

MAXIMUM POWER OUTPUT

0~+5W

POSITIVE POWER TOLERANCE

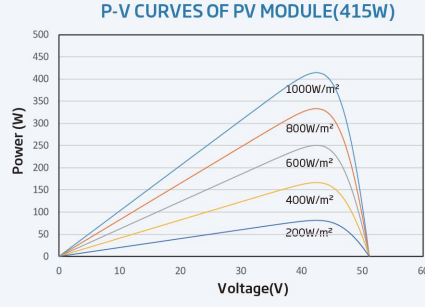
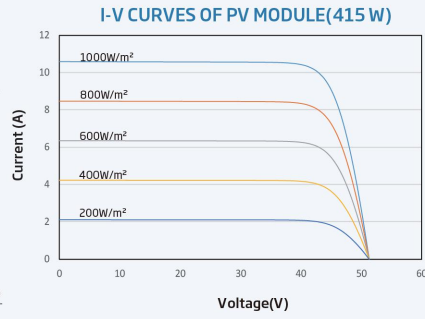
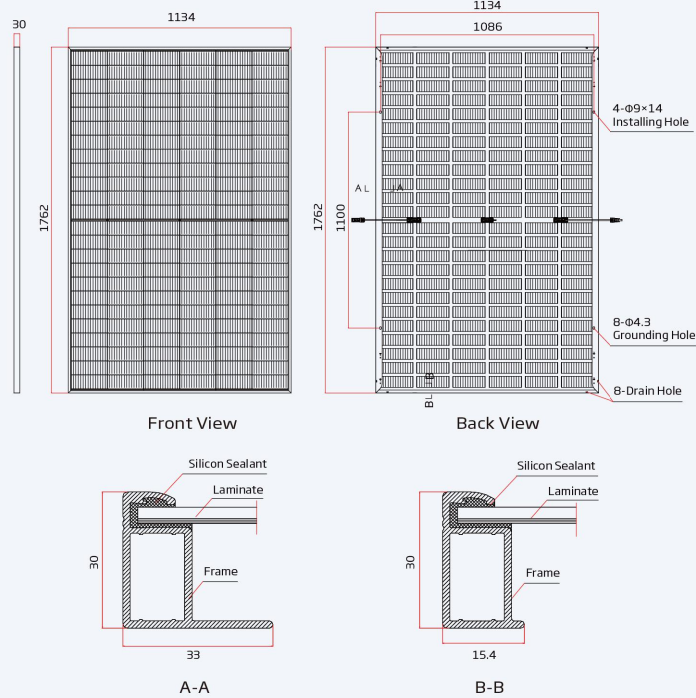
21.5%

MAXIMUM EFFICIENCY



BACKSHEET MONOCRYSTALLINE MODULE

DIMENSIONS OF PV MODULE(mm)



ELECTRICAL DATA (STC)

Table with 8 columns (Peak Power Watts-PMax (Wp)*, Power Tolerance-PMAX (W), Maximum Power Voltage-VMP (V), Maximum Power Current-IMP (A), Open Circuit Voltage-Voc (V), Short Circuit Current-IsC (A), Module Efficiency ηm (%)) and 8 rows of data.

Electrical characteristics with different power bin (reference to 10% Irradiance ratio)

Table with 8 columns and 8 rows of electrical characteristics data.

ELECTRICAL DATA (NOCT)

Table with 8 columns and 8 rows of electrical data under NOCT conditions.

MECHANICAL DATA

Table with 2 columns (Solar Cells, Topcon Bifacial) and 10 rows of mechanical specifications.

TEMPERATURE RATINGS

Table with 2 columns and 4 rows of temperature ratings.

MAXIMUM RATINGS

Table with 2 columns and 4 rows of maximum ratings.

WARRANTY

25 year Product Workmanship Warranty
25 year Power Warranty
1% first year degradation
0.4% Annual Power Attenuation

PACKAGING CONFIGURATION

Modules per box: 36 pieces
Modules per 40' container: 792 pieces
Pallet dimensions (L x W x H): 1800 x 1135 x 1259 mm
Pallet weight: 829 kg (1827 lb)

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

(Please refer to product warranty for details)

Small in size, bigger on power

- Up to 430W, 21.5% module efficiency with high density interconnect technology
- Reduce installation cost with higher power bin and efficiency
- Boost performance in warm weather with low temperature coefficient and operating temperature

High Reliability

- Innovative non-destructive cutting for improved mechanical resistance and strength
- Excellent fire rating, weather resistance, salt spray, sand dust, ammonia performance which is fully applicable in coastal, high temperature, humidity area and harsh environment

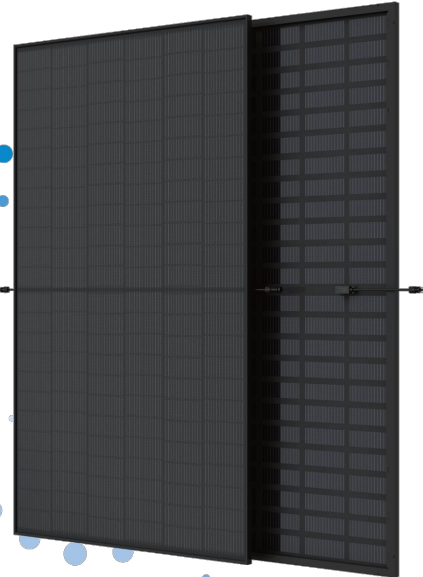
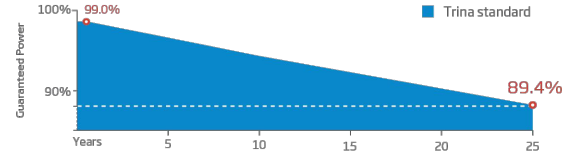
Ultra-low Degradation, longer warranty, higher output

- First-year degradation 1% and annual degradation at 0.4%
- Up to 25 years product warranty and 25 years power warranty

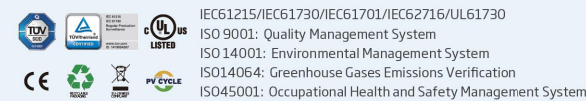
Universal solution for residential and C&I rooftops

- Easy for integration, designed for compatibility with existing mainstream inverters and diverse mounting systems
- Perfect size and low weight for handling and installation
- Most valuable solution on low load capacity rooftops (weight similar to backsheet version)
- Mechanical performance up to 6000 Pa positive load and 4000 Pa negative load

Trina Solar's Vertex Bifacial Backsheet Performance Warranty



Comprehensive Products and System Certificates



CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.
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Version number: TSM_NA_EN_2023_A www.trinasolar.com



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

Table with 3 columns: REVISIONS, DESCRIPTION, DATE, REV.

DATE: 08/09/2025

PROJECT NAME & ADDRESS
ROBERT BELL RESIDENCE
768 SW WALTER AVE,
LAKE CITY, FL 32024

DRAWN BY
ESR

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-11



DATA SHEET



IQ8X Microinverter

Our newest IQ8 Series 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 mode. This chip is built using advanced 55-nm technology with high-speed digital logic and superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.

IQ8X Microinverter is the latest addition to this family, designed to support PV modules with high output DC voltage and cell counts, such as 80-half-cut cells, 88-half-cut cells, and 96-cells.



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



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.



Connect PV modules quickly and easily to the IQ8 Series Microinverters with integrated MC4 connectors.



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

*Meets UL 1741 only when installed with IQ System Controller 2 or 3.

IQ8X Microinverter

INPUT DATA (DC)	UNIT	IQ8X-80-M-US / IQ8X-80-M-D0M-US ¹	
Commonly used module pairings ²	W	320-540	
Module compatibility	—	To meet compatibility, PV modules must be within the following maximum input DC voltage and maximum module I _{sc} . Module compatibility can be checked at https://enphase.com/installers/microinverters/calculator	
MPPT voltage range	V	43-60	
Operating range	V	25-79.5	
Minimum and maximum start voltage	V	30-79.5	
Maximum input DC voltage	V	79.5	
Maximum continuous operating DC current	A	10	
Maximum input DC short-circuit current	A	16	
Maximum module I _{sc}	A	13	
Overvoltage class DC port	—	II	
DC port backfeed current	mA	0	
PV array configuration	—	Ungrounded array; no additional DC side protection required; AC side protection requires a maximum of 20 A per branch circuit	
OUTPUT DATA (AC)	UNIT	IQ8X-80-M-US / IQ8X-80-M-D0M-US @240 V	IQ8X-80-M-US / IQ8X-80-M-D0M-US @208 V
Peak output power	VA	384	366
Maximum continuous output power	VA	380	360
Nominal grid voltage (L-L)	V	240, split-phase (L-L), 180°	208, single-phase (L-L), 120° ³
Minimum and maximum grid voltage ⁴	V	211-264	183-229
Maximum continuous output current	A	1.58	1.73
Nominal frequency	Hz	60	
Extended frequency range	Hz	47-68	
AC short circuit fault current over three cycles	A _{max}	2.70	
Maximum units per 20 A (L-L) branch circuit ⁵	—	10	9
Total harmonic distortion	%	<5	
Overvoltage class AC port	—	III	
AC port backfeed current	mA	18	
Power factor setting	—	1.0	
Grid-tied power factor (adjustable)	—	0.85 leading ... 0.85 lagging	
Peak efficiency	%	97.3	97.0
CEC weighted efficiency	%	96.5	96.5
Nighttime power consumption	mW	26	12
MECHANICAL DATA			
Ambient temperature range	-40°C to 65°C (-40°F to 149°F)		
Relative humidity range	4% to 100% (condensing)		
DC connector type	Stäubli MC4		
Dimensions (H × W × D); Weight	212 mm (8.3") × 175 mm (6.9") × 30.2 mm (1.2"); 1.1 kg (2.43 lb)		
Cooling	Natural convection - no fans		
Approved for wet locations; Pollution degree	Yes; PD3		
Enclosure	Class II double-insulated, corrosion-resistant polymeric enclosure		
Environmental category; UV exposure rating	NEMA Type 6; outdoor		

¹ IQ8X-80-M-D0M-US is made in the USA, and the PCBA, electrical parts, and enclosure are domestically manufactured to meet the eligibility requirements to be considered for the ITC domestic content bonus adder.

² No enforced DC/AC ratio.

³ IQ8X is not certified for use with Enphase Three Phase Network Protection Relay (NPR-3P-208-NA) and is, therefore, designed for single-phase operation only. Check with the local utility requirements if you wish to install single-phase inverters across three phases.

⁴ Nominal voltage range can be extended beyond nominal if required by the utility.

⁵ Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.



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

REVISIONS		
DESCRIPTION	DATE	REV

DATE: 08/09/2025		
PROJECT NAME & ADDRESS		
ROBERT BELL RESIDENCE	768 SW WALTER AVE, LAKE CITY, FL 32024	

ROBERT BELL RESIDENCE	768 SW WALTER AVE, LAKE CITY, FL 32024
--------------------------	---

DRAWN BY ESR

SHEET NAME EQUIPMENT SPECIFICATION
--

SHEET SIZE ANSI B 11" X 17"

SHEET NUMBER PV-12



NORTH AMERICA DATA SHEET

IQ Combiner 6C

The IQ Combiner 6C consolidates interconnection equipment into a single enclosure, streamlining the installation of IQ Series Microinverters. It integrates the IQ Gateway to offer a consistent, pre-wired solution for residential applications. It includes breaker spaces for PV, battery, EV charger, and an integrated load controller. Additionally, it reduces installation time with integrated and pre-wired current transformers for PV and batteries.



Key specifications	X-IQ-AMI-240-6C
Nominal voltage/Range (L-L)	240 VAC-/+20% Split-phase (L1-L2 240 V, L-N 120 V, 180°)
Nominal frequency/Range	60 Hz/56-63 Hz
Maximum continuous PV current (combined)	80 A
Maximum continuous battery current	2 x 59 A
Maximum continuous EVSE current	1 x 48 A
Maximum continuous integrated load controller current	64 A
Maximum continuous Distributed Energy Resources (DERs) current	160 A
Maximum continuous backfeed current	100 A
Maximum aggregate PV breaker size	Up to 100 A (ships with 60 A pre-installed breaker ¹)
Dimensions (H x W x D)	680 mm (26.8") x 460 mm (18.1") x 220 mm (8.7")
Ambient operating temperature range	-40°C to 46°C (-40°F to 115°F)
Cooling	Solar shield, active air cooling

Smart

- Integrated combiner controller board (CCB) and IQ Gateway.
- Includes Enphase Mobile Connect (CELLMODEM-07-NA).
- Supports flexible networking: Wi-Fi, Ethernet, or cellular.
- Integrated revenue-grade production and storage metering via pre-installed current transformers. Also supports consumption and EV charger monitoring.

Easy

- Pre-installed UL 489 certified device for Rapid Shutdown.
- Single-stud mountable with two screws.
- Supports multiple conduit entry options such as top side right, top side left, bottom side left, bottom side right, bottom rear, and bottom.
- Supports up to five PV branches, two battery circuit breakers and one EVSE circuit breaker.
- Bluetooth-based Wi-Fi provisioning for easy Wi-Fi setup.
- Supports an integrated load controller with up to 80 A using double-pole or quadplex breakers.

Reliable

- Durable NRTL-certified NEMA type 3R enclosure.
- 15-year limited warranty.

¹ Usable as a Rapid Shutdown Initiator if the IQ Combiner 6C is installed at a readily accessible outdoor location.

Product details	IQ Combiner 6C
IQ Combiner 6C ² (X-IQ-AMI-240-6C)	<p>IQ Combiner 6C includes the following components:</p> <ul style="list-style-type: none"> • IQ Gateway for revenue-grade production and storage metering. • Combiner controller board for safety. • Solar shield and fans to enhance thermal performance. • Integrated Rapid Shutdown initiator for outdoor installs. • Integrated and pre-wired current transformers for PV and batteries. • Enphase Mobile Connect cellular modem (CELLMODEM-07-NA). • Integrated load controller, with monitoring and control loads.

What's in the box	
Enclosure	IQ Combiner 6C unit
Enphase Mobile Connect	CELLMODEM-07-NA ³ cellular modem with a 5-year data plan.
Accessory kit	IQ Combiner 6C accessory kit, including labels, control (CTRL) headers, and the quick install guide (QIG).
Aggregate PV breaker	The pre-installed (60 A) UL 489-certified breaker is usable as a Rapid Shutdown Initiator if the IQ Combiner 6C is installed at a readily accessible outdoor location.

Features	
IQ Gateway	The integrated IQ Gateway reports production and storage metering, IQ EV Charger, and consumption monitoring, along with IQ Battery and IQ Microinverters data from the site to the Enphase Cloud. This monitoring and analysis software enables comprehensive, remote maintenance and management of Enphase systems.
Distributed Energy Resource (DER) relay	The integrated DER relay isolates home loads from PV systems and batteries. It enables the system to automatically recover the State of Charge (SoC) when the batteries are depleted during off-grid operation.
DER busbar	<p>A 100 A PV busbar (for IQ Microinverters) with support for four double-pole breakers for installing IQ Series Microinverters.</p> <p>A 200 A DER busbar (for PV, batteries, EV charger, and other home loads) with support for four double-pole breakers for installation:</p> <ul style="list-style-type: none"> • Two for IQ Battery 10C. • One for Enphase EV charger. • One for aggregate PV (integrated Rapid Shutdown Device).
Integrated production metering	Fully integrated meter with solid-core current transformer (CT), accurate up to ±0.5%, ANSI C12.20 class 0.5 compliant. Does not require field wiring.
Integrated battery metering	Fully integrated meter with two solid-core CTs, accurate up to ±0.5%, ANSI C12.20 class 0.5 compliant. Does not require field wiring.
Integrated backfeed monitoring	Fully integrated monitoring using two solid-core CTs, accurate up to ±2.5%. Does not require field wiring.
Integrated monitoring in the built-in load controller	Fully integrated monitoring using two solid-core CTs, accurate up to ±0.5%. Does not require field wiring.
EV charger monitoring	Supports monitoring of EV charger; accuracy up to ±2.5%. ⁴
Breaker spaces ⁵	Up to 4 x 20 A breakers for PV. ⁶ Up to 1 x 100 A aggregate PV breaker. ⁷

¹ IQ Combiner 6C is not service-entrance rated. IQ Combiner 6C does not support generator integration and fully off-grid systems (that is, without utility supply).

² A plug-and-play industrial-grade cell modem for systems of up to 99 microinverters.

³ One unit of CT-200-CLAMP must be purchased separately and installed on the L2 line of the EV charger. Lead wires of the CT must be connected to the IQ Gateway according to the instructions in the QIG.

⁴ All breaker spaces are supported with integrated hold-down kit.

⁵ Also supports five 20 A PV branches using three double-pole breakers and one quadplex breaker. Refer to the QIG for information about specific spaces that can be used with the quadplex breakers.

⁶ Ships with a factory-installed 60 A breaker. The aggregate PV breaker can be used as a PV disconnecting means, if the IQ Combiner 6C is installed outdoors, the aggregate PV breaker can be the Rapid Shutdown Initiator.

Features	
	Up to 2 x 80 A breakers for batteries. Up to 1 x 60 A breaker for IQ EV Charger. Up to 1 x 80 A breaker for integrated load controller.
Rapid Shutdown initiator (options)	<p>Aggregate PV breaker (if the combiner is installed at a readily accessible outdoor location)⁸</p> <p>OR</p> <p>External AC disconnect (located outdoors) installed between the IQ Combiner 6C and the backfed panel.⁹</p> <p>OR</p> <p>External AC disconnect (located outdoors) on aggregate PV breaker.¹⁰</p>
Cellular data plan	5-year data plan included. ¹¹

Electrical specifications	
Nominal voltage/Range (L-L)	240 VAC-/+20% Split-phase (L1-L2 240 V, L-N 120 V, 180° phase angle)
Voltage measurement accuracy	±1% V _{nominal} (±1.2 V L-N and ±2.4 V L-L)
Nominal frequency/Range	60 Hz/56-63 Hz
Maximum continuous PV current	80 A
Maximum continuous battery current	2 x 59 A
Maximum continuous EV charger current	1 x 48 A
Maximum continuous DER current	160 A
Maximum continuous current supported by integrated load controller	64 A
Maximum continuous backfeed current	100 A
Maximum breaker rating for PV branch circuit	20 A
Maximum breaker rating for battery branch circuit	80 A
Maximum breaker rating for EV charger	60 A
Maximum breaker rating for integrated load controller	80 A
Maximum breaker rating for backfeed (breaker located in the backfed panel)	125 A
Maximum short circuit current	10 kA
Maximum rating for aggregate PV breaker	100 A ¹²
Maximum breaker rating for aggregate PV feed-in if combining branch circuits on external panel board	100 A ¹³
Internal PV busbar rating	100 A
Internal DER busbar rating	200 A
Auxiliary/Dry contacts	1 x NO/NC (120 VAC, 3 A) on the Combiner Controller Board

⁸ The pre-installed aggregate PV breaker has been evaluated as the Rapid Shutdown (RSD) initiation device and can be used accordingly.

⁹ AC disconnect requires a three-pole disconnect with the third pole connected to the AC-sense header on IQ Combiner 6C, or a double-pole disconnect with auxiliary contacts connected to the AC-sense header on IQ Combiner 6C.

¹⁰ If placing the AC disconnect inline with the aggregate PV breaker or using a separate panel for PV branch circuits, place the AC disconnect on the aggregate PV feed-in to the IQ Combiner 6C.

¹¹ Enphase requires Wi-Fi or Ethernet-based internet connectivity for battery systems. A cellular modem is a backup connection for systems with batteries. The cellular modem can be used as the primary internet connection for PV-only systems. However, Enphase recommends connecting Wi-Fi or Ethernet in addition.

¹² Ships with a 60 A breaker preinstalled. Upgrade to an 80/100 A breaker if wiring more than three PV branch circuits.

¹³ Refer to the QIG for information about the placement of the 100 A breaker on the PV busbar. The aggregate PV breaker must also be replaced with a 100 A breaker. Do not connect the aggregate feed-in directly to the aggregate PV breaker on the right side.



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

REVISIONS		
DESCRIPTION	DATE	REV

DATE: 08/09/2025

PROJECT NAME & ADDRESS
ROBERT BELL RESIDENCE
768 SW WALTER AVE,
LAKE CITY, FL 32024

DRAWN BY
ESR

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-13



NORTH AMERICA DATA SHEET

IQ Meter Collar

IQ Meter Collar is a meter socket adapter with an integrated microgrid interconnection device (MID) and energy meter. It is installed on an ANSI C12 Form 2S meter socket. IQ Meter Collar is rated for 200 A continuous current. It can be installed either at the service entrance between an ANSI C12 Form 2S utility meter and the meter socket or on the load side of the utility service on a separate meter socket pan.



Key specifications	MC-200-011-V01
Nominal grid supply	120/240 VAC/180°, split-phase
Nominal frequency	60 Hz
Nominal power consumption	3.8 W
Overvoltage category	Category IV (service entrance-rated)
Integrated consumption meter	±0.5% accurate
Maximum continuous current rating	200 A
Maximum short-circuit current withstand	22 kA
Maximum overcurrent protection device	200 A
Weight	3.6 lb (1.63 kg)
Meter and meter socket interface	ANSI Form 2S, 200 A, ringless, or ring type

Easy to install

- Lightweight and simple to install
- Lowers the cost of whole home backup
- Remote commissioning saves additional truck roll

Robust and reliable

- Thermal management minimizes use of internal fan
- Integrated AC-DC power supply closes MID to restore power to the home when the utility grid is available, even if battery energy is exhausted
- 15-year product warranty

Smart grid-ready

- Complies with advanced grid support, voltage, and frequency ride-through requirements
- Supports remote firmware updates to changing grid requirements
- Configurable at commissioning to comply with applicable grid interconnection parameters
- Meets CA Rule 21 (UL 1741-SA), IEEE 1547:2018 (UL 1741-SB), Puerto Rico Electric Power Authority (PREPA), and Hawaiian Electric Industries (HEI) SRD V2.0 grid profiles

Product details	IQ Meter Collar
Order code	MC-200-011-V01
What's in the box	
IQ Meter Collar	Meter collar adapter with microgrid interconnect device (MID)
Seal ring	Seal ring to prevent tampering or unauthorized removal of the utility watt-hour meter
Plastic bag	Plastic bag for installers to hang the IQ Meter Collar next to the utility watt-hour meter
Quick install guide (QIG)	IQ Meter Collar quick install guide
Accessories kit	One control connector; one junction box sub-assembly; two cable glands, 1/2" NPT (national pipe taper thread)
Blank cover plate	One blank cover plate attached in front of the IQ Meter Collar

Electrical specifications	
Nominal grid supply	120/240 VAC/180°, split-phase
Nominal frequency	60 Hz
Nominal power consumption	3.8 W
Power consumption	2.5 W to 5.8 W
Overvoltage category	Category IV (service entrance-rated)
Integrated consumption meter	±0.5% accurate
Maximum continuous current rating	200 A
Maximum short-circuit current withstand ¹	22 kA
Maximum overcurrent protection device	200 A

Mechanical specifications	
Dimensions (L × W × D)	6.9 in × 8.1 in × 5.0 in (175 mm × 206 mm × 128 mm)
Weight	3.6 lb (1.63 kg)
Meter and meter socket interface	ANSI Form 2S, 200 A, ringless, or ring type
Cooling	Forced convection-cooled

Environmental specifications	
Ambient temperature range	-40°F to 122°F (-40°C to 50°C)
Enclosure environmental rating	Indoor/Outdoor, NEMA type 3R
Maximum altitude	8,200 ft. (2,500 m)

Compliance	
Safety	UL 414
Emissions	CFR 47 Part 15B

System and grid compatibility	
Grid	UL 1741 SA/SB (IEEE 1547:2018), multi-mode
Power control system (PCS)	Current sensor for a power control system under UL 3141

¹The short-circuit current is limited by an external overcurrent protection device.

Interfaces	
Control connector	4-wire signaling with 24 VDC power supply between system components
Manual override lever	Manually sets MID relay state. Pull to open the MID relay, push to close the MID relay
Push button	Short press (7–10 seconds): Disables the firmware control of MID, toggle again to enable firmware control of MID Long press (>15 seconds): Hard reset of the unit. The relay state does not change The relay LED and the control LED blink simultaneously for 6 seconds, indicating a successful hard reset.

RELAY LED	CONTROL LED	STATE
RED	RED	MID closed
RED	Blinking (1 second ON, 1 second OFF)	MID locked closed, firmware control disabled
RED	OFF	MID closed, error
OFF	RED	MID open
OFF	Blinking (1 second ON, 1 second OFF)	MID locked open, firmware control disabled
Fast blinking (0.25 seconds ON, 0.25 seconds OFF)	Fast blinking (0.25 seconds ON, 0.25 seconds OFF)	Hard reset successful
OFF	OFF	No supply
OFF	Fast blinking (0.25 seconds ON, 0.25 seconds OFF)	MID open, error
OFF	Slow blinking (1 second ON, 3 seconds OFF)	MID open, grid present

Accessories	
ACC-MC-200	One junction box assembly including two cable glands, one control connector, one plastic bag, and one seal ring
JC-MC-200	Jumper cover suitable for up to 200 A meter socket
MP-MC-200	200 A ringless meter socket
CTRL-SC3-NA-01	Control cable, 500 ft. spool, 18/4 TC-ER

Warranty	
Limited warranty	15 years

Enphase equipment compatibility	
IQ Gateway	ENV2-IQ-AM1-240, ENV-IQ-AM1-240
Communications Kit	COMMS-KIT-02
Microinverters	IQ8, IQ7, IQ6 Series Microinverters
Enphase Energy System 3.0	IQ Battery 5P (IQBATTERY-5P-1P-NA), IQ Combiner 5/5C (X-IQ-AM1-240-5, X-IQ-AM1-5C), IQ System Controller 3M (SC200D11CMCIUS01)
Enphase Energy System 4.0	IQ Battery 10C (IQBATTERY-10C-1P-NA), IQ Battery 10CS (IQBATTERY-10CS-1P-NA), and IQ Combiner 6C (X-IQ-AM1-240-6C)

Third-party inverters and legacy Enphase microinverters Supported with fourth-generation Enphase Energy System



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DATE: 08/09/2025

PROJECT NAME & ADDRESS
ROBERT BELL RESIDENCE
768 SW WALTER AVE,
LAKE CITY, FL 32024

DRAWN BY
ESR

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-14



NORTH AMERICA DATA SHEET

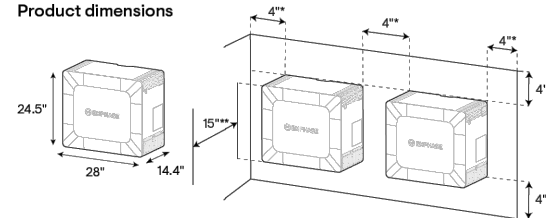
IQ Battery 10C

The IQ Battery 10C all-in-one AC-coupled system is compact, powerful, reliable, and safe. It has a total usable capacity¹ of 10.0 kWh and includes four embedded, grid-forming microinverters with a 7.08 kVA continuous power rating. It provides backup capability, and installers can quickly design the right system size to meet the customer's needs.



Key specifications	IQBATTERY-10C-1P-NA
Rated (continuous) output power	7.08 kVA ¹
Rated output current (@240 V _{L-L} AC~)	29.5 A ¹
Rated neutral current (@120 V _{L-N} AC~)	24 A ¹
Interconnection	Single-phase
Nominal voltage	120/240 VAC~
Nominal frequency	60 Hz
Usable capacity	10.0 kWh ¹
Ambient operating temperature range (charging) ³	-20°C to 50°C (-4°F to 122°F) Non-condensing
Ambient operating temperature range (discharging) ³	-20°C to 55°C (-4°F to 131°F) Non-condensing
Chemistry	Lithium iron phosphate (LFP)
Mounting	Wall-mount or pedestal-mount (sold separately)

Product dimensions



* The 4" clearances on the sides and the top are per the UL 9540A evaluation. Enphase recommends 8" for ease of service.
** Follow the local and national regulations while planning. A 15" clearance in the front is recommended for ease of service.

¹ Refer to the following page for more details.

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DSH-00565-4.0-EN-2025-05-28

Product details	Order code: IQBATTERY-10C-1P-NA
Name	IQ Battery 10C
Description	The IQ Battery 10C system with two 5 kWh battery units having integrated IQ Microinverters (SKU: IQ8BL, IQ8BN) with a battery management system (BMS) as part of IQBL Microinverters.
Limited warranty	
IQ Battery 10C unit	60% capacity, up to 15 years, or 6,000 cycles ²
Output (AC~)	@240 VAC~ ³
Rated (continuous) output power	7.08 kVA ⁴
Nominal voltage/range	240/211-264 VAC~
Nominal frequency/range	60/57-63 Hz
Rated output current (@240 V _{L-L} AC~)	29.5 A ⁴
Rated neutral current (@240 V _{L-N} AC~)	24 A ⁵
Peak output current (@240 V _{L-L} AC~)	56 A (three seconds), 44.8 A (ten seconds)
Power Start capability	Up to 90 A LRA ⁶
Power factor (adjustable)	0.85 leading ... 0.85 lagging
Maximum conductor size supported	3 AWG
Overcurrent protection device (OCPD)	40 A OCPD, requires a minimum of 8 AWG for one IQ Battery 10C or 80 A OCPD, requires a minimum of 4 AWG for two or more IQ Battery 10C ⁷
Interconnection	Single-phase
AC round-trip efficiency ⁸	90%
Battery	
Total capacity	10.0 kWh
Usable capacity ⁹	10.0 kWh
DC round-trip efficiency	96%
Nominal DC voltage	76.8 V
Maximum DC voltage	86.4 V
Ambient operating temperature range (charging) ¹⁰	-20°C to 50°C (-4°F to 122°F) non-condensing
Ambient operating temperature range (discharging) ¹⁰	-20°C to 55°C (-4°F to 131°F) non-condensing
Optimum operating temperature range	0°C to 30°C (32°F to 86°F) ¹¹
Chemistry	Lithium iron phosphate (LFP)

¹ Whichever occurs first. Restrictions apply.
² Supported in both grid-connected and backup/off-grid operations.
³ 7.08 kVA, 29.5 A for the balanced 240 V_{L-L} loads.
⁴ A maximum of 24 A, 120 V_{L-N} unbalanced loads can be supported along with 5.5 A, 240 V_{L-L} loads.
⁵ Power Start capability may vary.
⁶ More than two IQ Battery 10C on a 4 AWG circuit protected by 80 A OCPD requires setting Power Control System: IQ Battery Oversubscription.
⁷ AC to the battery to AC at 50% power rating.
⁸ The battery's usable capacity supports loads, and turns PV on (when off-grid), in normal daily operation. The usable capacity includes a safety-critical limit of 2% that safeguards the customer's asset in case of a long-duration grid outage. An additional 3% capacity is maintained for battery electronic sustenance at night. Refer to https://enphase.com/iqbattery_usable_capacity_en_na for more information.
⁹ A reduction in charging power occurs at temperatures below 15°C and above 45°C.
¹⁰ A reduction in discharging power occurs at temperatures below 0°C and above 50°C.
¹¹ Keeping the battery in this temperature range maximizes the battery life.

DSH-00565-4.0-EN-2025-05-28

Mechanical data	
Dimensions (H x W x D)	621 mm x 708 mm x 365 mm (24.5 in x 28 in x 14.4 in)
Maximum lifting weight	57 kg (125 lb)
Total installed weight for	144 kg (317 lb)
Enclosure	Outdoor-NEMA 3R
Cooling	Natural convection
Altitude ¹²	Up to 3,000 meters (9,842 feet)
Mounting	Wall-mount or pedestal-mount (sold separately)
Features and compliance	
Compatibility	Compatible with IQ and M Series Microinverters, IQ Meter Collar, IQ Combiner 6C, and IQ Gateway for grid-tied and backup operations.
Communication	Wired control communication
Services	Backup, Self-Consumption, TOU, and NEM integrity
Monitoring	Enphase Installer Platform and Enphase App monitoring options; API integration
Compliance	CA Rule 21 (UL 1741-SA), IEEE 1547:2018 (UL 1741-SB, 3rd Ed.) CAN/CSA C22.2 No. 1071-16 UL 9540 ¹³ , UL 9540A ¹⁵ , UN 38.3, UL 1998, UL 991, NEMA Type 3R, AC156 EMI: 47 CFR, Part 15, Class B, ICES 003 Cell module: UL 1973, UN 38.3 Inverters: UL 62109-1, IEC 62109-2

What's in the box (order code: IQBATTERY-10C-1P-NA)
There are a total of three boxes; two boxes contain the 5.0 kWh battery units and the third box contains the IQ Battery 10C cover kit.

5.0 kWh battery unit (B05-C01-US00-1-3)	
Battery units	Two 5.0 kWh battery units of IQ Battery 10C
Mounting bracket	Two mounting brackets for mounting the batteries on the wall
Seismic screws	Four seismic screws for securing the battery unit on the mounting bracket
Mounting bracket fasteners	Twelve M8 hexagonal Phillips screws with washers for mounting second wall bracket on preinstalled battery unit
Drill template	Two drill templates to mark drilling points and conduit entry locations on the wall
IQ Battery 10C cover kit (B10C-NC-0708-0)	
Cover	One cover for IQ Battery 10C
Interconnect power cable	One interconnect power cable assembly for internally connecting two battery units of IQ Battery 10C
Interconnect control cable	One interconnect control cable assembly for internally connecting two battery units of IQ Battery 10C having one preinstalled control connector (without resistor) at one end
Control connector with resistor	One spare control connector with resistor for control wiring
Raceway adapter	Two raceway adapters for routing cables internally between two battery units
Cable holder	Two cable holders for cable management in wiring compartments

¹² Refer to the data sheet for all components used with the IQ Battery 10C to determine the maximum altitude. For example, the IQ Battery 10C has a maximum altitude limit of 3,000 meters, while the IQ Meter Collar has a limit of 2,500 meters. When used together, the maximum altitude is restricted to 2,500 meters.
¹³ Following local standards, choose a non-habitable indoor location (like a 2-car garage) or an outdoor location where the ambient temperature and humidity are within -20°C to 55°C (-4°F to 131°F) and 5% to 95% RH, non-condensing. Avoid direct sunlight to ensure the temperature stays in the optimal operating range. This ensures charging and discharging currents are not de-rated due to temperature.
¹⁴ Evaluated to UL 9540A for thermal runaway fire propagation and reduced separation distance as required in 2021 IRC R328.3.1, 2021 IFC 1207.1.5, and 2023 NFPA 855 15.3.1 and 8.1.5. Follow all installation instructions and local codes and requirements of the Authority Having Jurisdiction (AHJ) when installing the Enphase Energy System.

DSH-00565-4.0-EN-2025-05-28



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

REVISIONS		
DESCRIPTION	DATE	REV

DATE: 08/09/2025

PROJECT NAME & ADDRESS

**ROBERT BELL
RESIDENCE**

768 SW WALTER AVE,
LAKE CITY, FL 32024

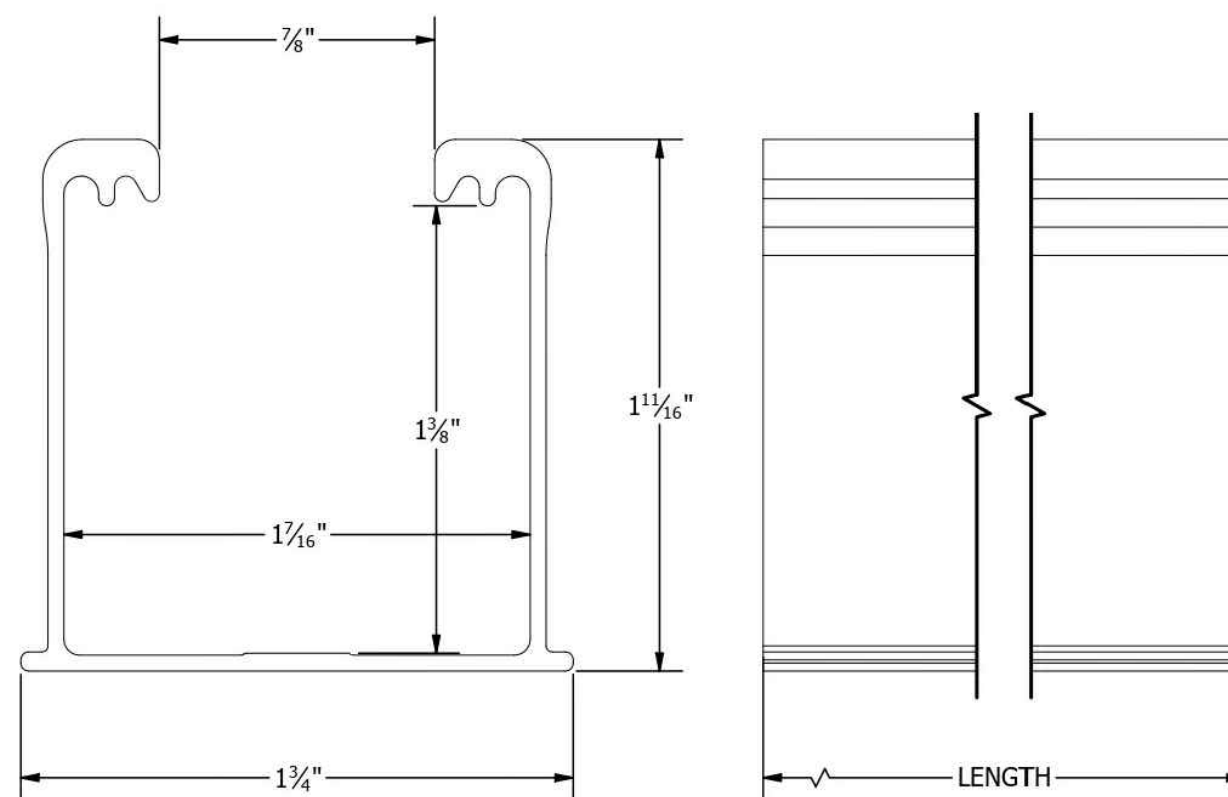
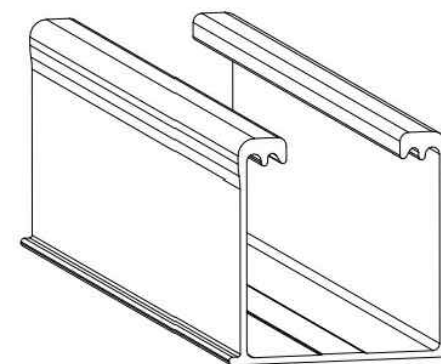
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SHEET NAME
**EQUIPMENT
SPECIFICATION**

SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-15

PART # TABLE		
P/N	DESCRIPTION	LENGTH
084RLM1	NXT HORIZON RAIL 84" MILL	84"
084RLD1	NXT HORIZON RAIL 84" DARK	84"
168RLM1	NXT HORIZON RAIL 168" MILL	168"
168RLD1	NXT HORIZON RAIL 168" DARK	168"
208RLM1	NXT HORIZON RAIL 208" MILL	208"
208RLD1	NXT HORIZON RAIL 208" DARK	208"
246RLM1	NXT HORIZON RAIL 246" MILL	246"
246RLD1	NXT HORIZON RAIL 246" DARK	246"



REVISIONS		
DESCRIPTION	DATE	REV

DATE: 08/09/2025

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**ROBERT BELL
RESIDENCE**
768 SW WALTER AVE,
LAKE CITY, FL 32024

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SHEET NAME
**EQUIPMENT
SPECIFICATION**

SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-16

UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

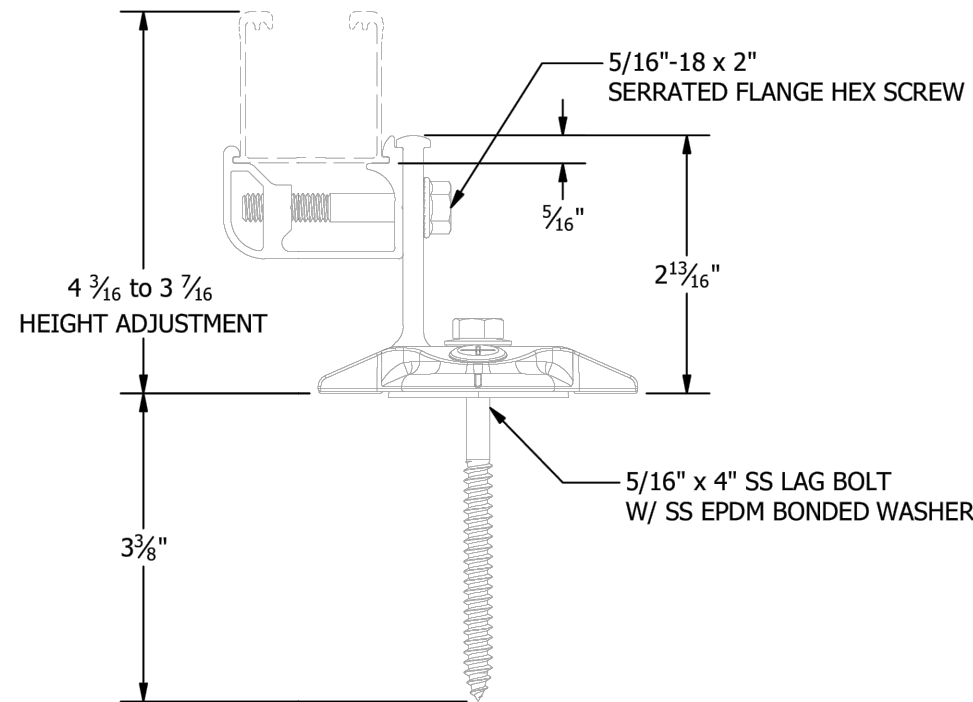
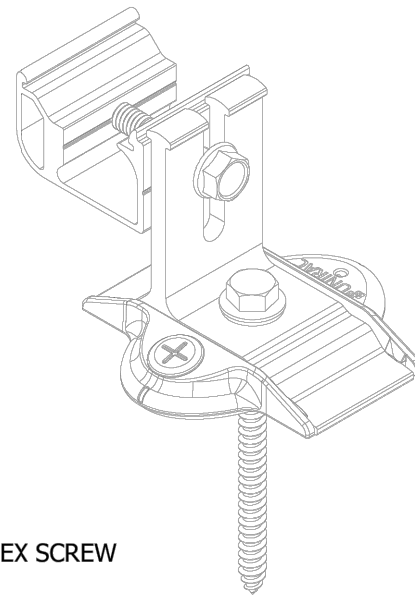
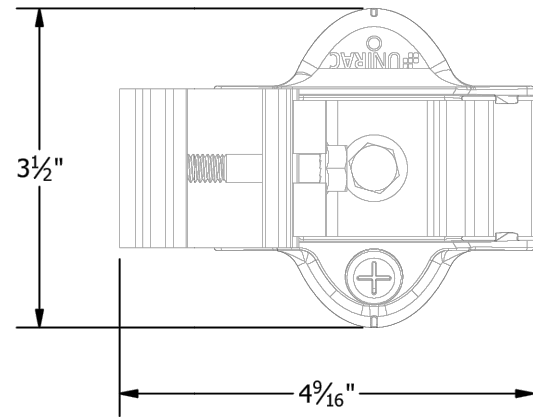
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DRAWING TYPE:	PART DETAIL
DESCRIPTION:	RAIL
REVISION DATE:	9/13/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

NH-P01
SHEET

PART # TABLE	
P/N	DESCRIPTION
SHCPKTM1	STRONGHOLD ATT KIT COMP MILL
SHCPKTD1	STRONGHOLD ATT KIT COMP DRK
SHCPKTM1-NS	STRONGHOLD ATT COMP MILL (NS)
SHCPKTD1-NS	STRONGHOLD ATT COMP DRK (NS)



UNIRAC
 1411 BROADWAY BLVD. NE
 ALBUQUERQUE, NM 87102 USA
 PHONE: 505.242.6411
 WWW.UNIRAC.COM

PRODUCT LINE:	NXT UMount
DRAWING TYPE:	PARTS ASSEMBLY
DESCRIPTION:	STRONGHOLD ATTACHMENT
REVISION DATE:	11/17/2022

DRAWING NOT TO SCALE
 ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY
 ONE OR MORE US PATENTS

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NU-A04
 SHEET



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

REVISIONS		
DESCRIPTION	DATE	REV

DATE: 08/09/2025

PROJECT NAME & ADDRESS

ROBERT BELL
 RESIDENCE
 768 SW WALTER AVE,
 LAKE CITY, FL 32024

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 ESR

SHEET NAME
 EQUIPMENT
 SPECIFICATION

SHEET SIZE
 ANSI B
 11" X 17"

SHEET NUMBER
 PV-17



REVISIONS		
DESCRIPTION	DATE	REV

DATE: 08/09/2025		
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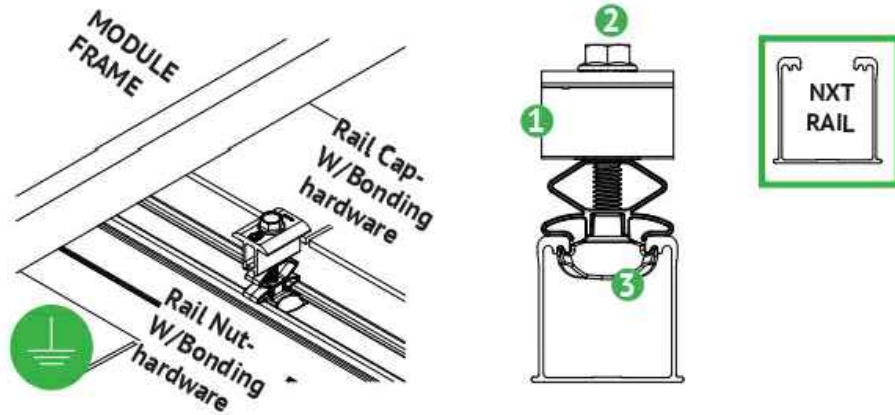
PROJECT NAME & ADDRESS	
ROBERT BELL RESIDENCE	768 SW WALTER AVE, LAKE CITY, FL 32024

DRAWN BY ESR

SHEET NAME EQUIPMENT SPECIFICATION
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SHEET SIZE ANSI B 11" X 17"

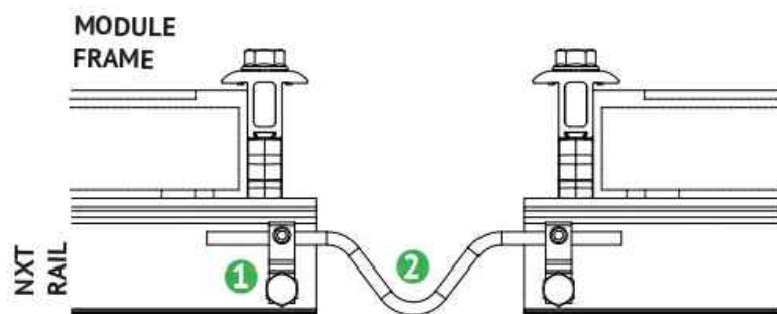
SHEET NUMBER PV-18



BONDING COMBO MID-END CLAMP ASSEMBLY

- 1 Aluminum combo mid-end clamp cap with stainless steel bonding pins that pierce module frame anodization to bond module to module through clamp
- 2 Stainless steel bolt bonds aluminum clamp to stainless steel Hex bolt
- 3 Aluminum combo mid-end clamp rail nut with stainless steel bonding pins that pierce rail anodization to bond module to module through clamp

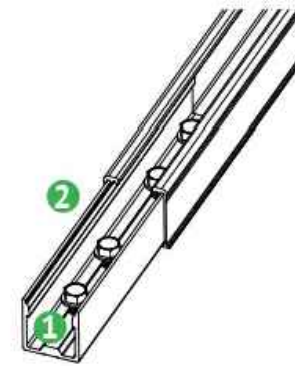
NOTE: See Page 19 for installation details.



BONDING BETWEEN THERMAL BREAKS

- 1 Lug is connected at the end of each thermal break to the rail.
- 2 Solid copper wire is connected across the gap to bond the two ends.

NOTE: See Page 5 for installation details.

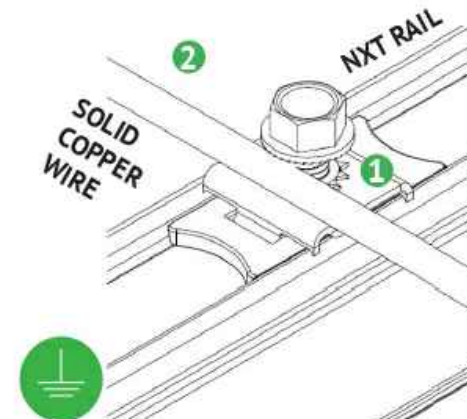


BONDING RAIL SPLICE

- 1 Bonding Hardware creates bond between Splice bar and each rail section.
- 2 Aluminum splice bar spans across rail gap to create rail to rail bond. Rail on at least one side of splice will be grounded.

NOTE:

- See Page 15 for installation details
- Splice certified for single-use only

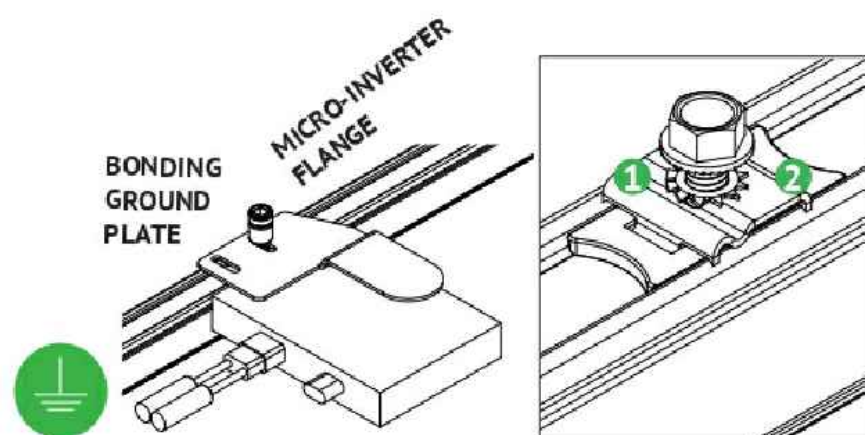


RACK SYSTEM GROUNDING

- 1 Tabs on the stainless-steel washer pierce anodization on the rail to bond rail to ground wire.
- 2 Solid copper wire connected to lug is routed to provide final system ground connection.

NOTE: See Page 16 for installation details and alternate racking system grounding methods.

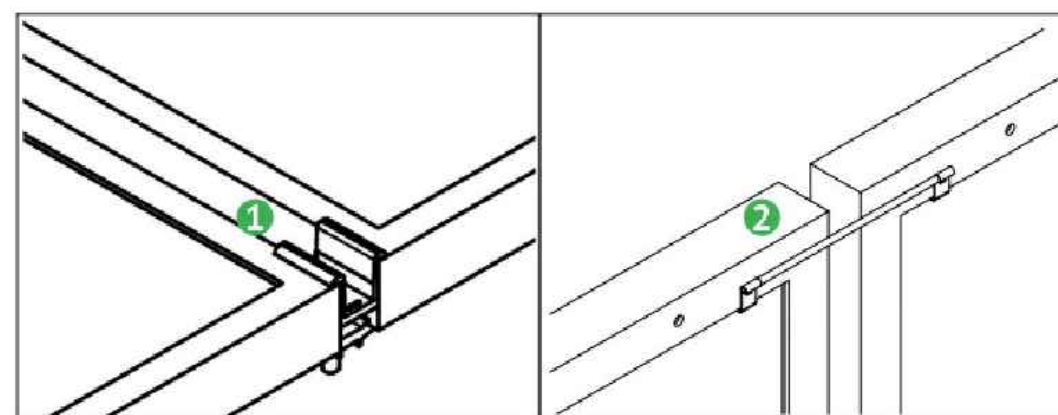
REVISIONS		
DESCRIPTION	DATE	REV



BONDING MICROINVERTER MOUNT

- 1 Stainless steel Tooth lock washer beneath the MLPE flange remove anodization on the MLPE and bonds.
- 2 Tabs on the stainless steel washer remove anodization on the rail and bonds.

NOTE: See Page 17 for installation details



ALTERNATE ROW-TO-ROW BONDING PATHS

- 1 Row-to-row module bonding is accomplished with bonding clamp with 2 integral bonding pins.
- 2 Alternate method by connecting clips on either module to complete the bonding path.

NOTE:

- See Page 16 for installation details
- Row-to-row module bonding certified for single-use only

DATE: 08/09/2025

PROJECT NAME & ADDRESS

**ROBERT BELL
RESIDENCE**
768 SW WALTER AVE,
LAKE CITY, FL 32024

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ESR

SHEET NAME
**EQUIPMENT
SPECIFICATION**

SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-19

A. System Specifications and Ratings

- Maximum Voltage: 1,000 Volts
- Maximum Current: **JB-1.2:** 80 Amps; **JB-1.XL:** 120 Amps
- Allowable Wire: 14 AWG – 6 AWG
- Spacing: Please maintain a spacing of at least 1/2" between uninsulated live parts and fittings for conduit, armored cable, and uninsulated live parts of opposite polarity.
- Enclosure Rating: Type 3R
- Roof Slope Range: 2.5 – 12:12
- Max Side Wall Fitting Size: 1"
- Max Floor Pass-Through Fitting Size: 1"
- Ambient Operating Conditions: (-35°C) - (+75°C)
- Compliance:
 - **JB-1.2:** UL1741, CSA C22.2 No. 290; **JB-1.XL:** UL1741, CSA C22.2 No. 290
 - Approved wire connectors: must conform to UL1741, CSA C22.2 No. 290
- System Marking: **Intertek Symbol and File #5019942**
- Periodic Re-inspections: If re-inspections yield loose components, loose fasteners, or any corrosion between components, components that are found to be affected are to be replaced immediately.



Table 1: Typical Wire Size, Torque Loads and Ratings

	1 Conductor	2 Conductor	Torque				
			Type	NM	Inch Lbs	Voltage	Current
ABB ZS6 terminal block	10-24 awg	16-24 awg	Sol/Str	0.5-0.7	6.2-8.85	600V	30 amp
ABB ZS10 terminal block	6-24 awg	12-20 awg	Sol/Str	1.0-1.6	8.85-14.16	600V	40 amp
ABB ZS16 terminal block	4-24 awg	10-20 awg	Sol/Str	1.6-2.4	14.6-21.24	600V	60 amp
ABB M6/8 terminal block	8-22 awg		Sol/Str	.08-1	8.85	600V	50 amp
Ideal 452 Red <small>WING-NUT Wire Connector</small>	8-18 awg		Sol/Str	Self-Torque	Self-Torque	600V	
Ideal 451 Yellow <small>WING-NUT Wire Connector</small>	10-18 awg		Sol/Str	Self-Torque	Self-Torque	600V	
Ideal, In-Sure <small>Push-In Connector Part #99</small>	10-14 awg		Sol/Str	Self-Torque	Self-Torque	600V	
WAGO, 2204-1201	10-20 awg	16-24 awg	Sol/Str	Self-Torque	Self-Torque	600V	30 amp
WAGO, 221-612	10-20 awg	10-24 awg	Sol/Str	Self-Torque	Self-Torque	600V	30 amp
Dottie DRC75	6-12 awg		Sol/Str	Snap-In	Snap-In		
ESP NG-53	4-6 awg		Sol/Str		45	2000V	
	10-14 awg		Sol/Str		35		
ESP NG-717	4-6 awg		Sol/Str		45	2000V	
	10-14 awg		Sol/Str		35		
Brumall 4-5,3	4-6 awg		Sol/Str		45	2000V	
	10-14 awg		Sol/Str		35		

Table 2: Minimum wire-bending space for conductors through a wall opposite terminals in mm (inches)

Wire size, AWG or kcmil (mm2)	Wires per terminal (pole)			
	1 mm (inch)	2 mm (inch)	3 mm (inch)	4 or More mm (inch)
14-10 (2.1-5.3)	Not Specified	-	-	-
8 (8.4)	38.1 (1-1/2)	-	-	-
6 (13.3)	50.8 (2)	-	-	-

REVISIONS		
DESCRIPTION	DATE	REV

DATE: 08/09/2025

PROJECT NAME & ADDRESS

ROBERT BELL RESIDENCE

768 SW WALTER AVE,
LAKE CITY, FL 32024

DRAWN BY

ESR

SHEET NAME

EQUIPMENT SPECIFICATION

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PV-20