

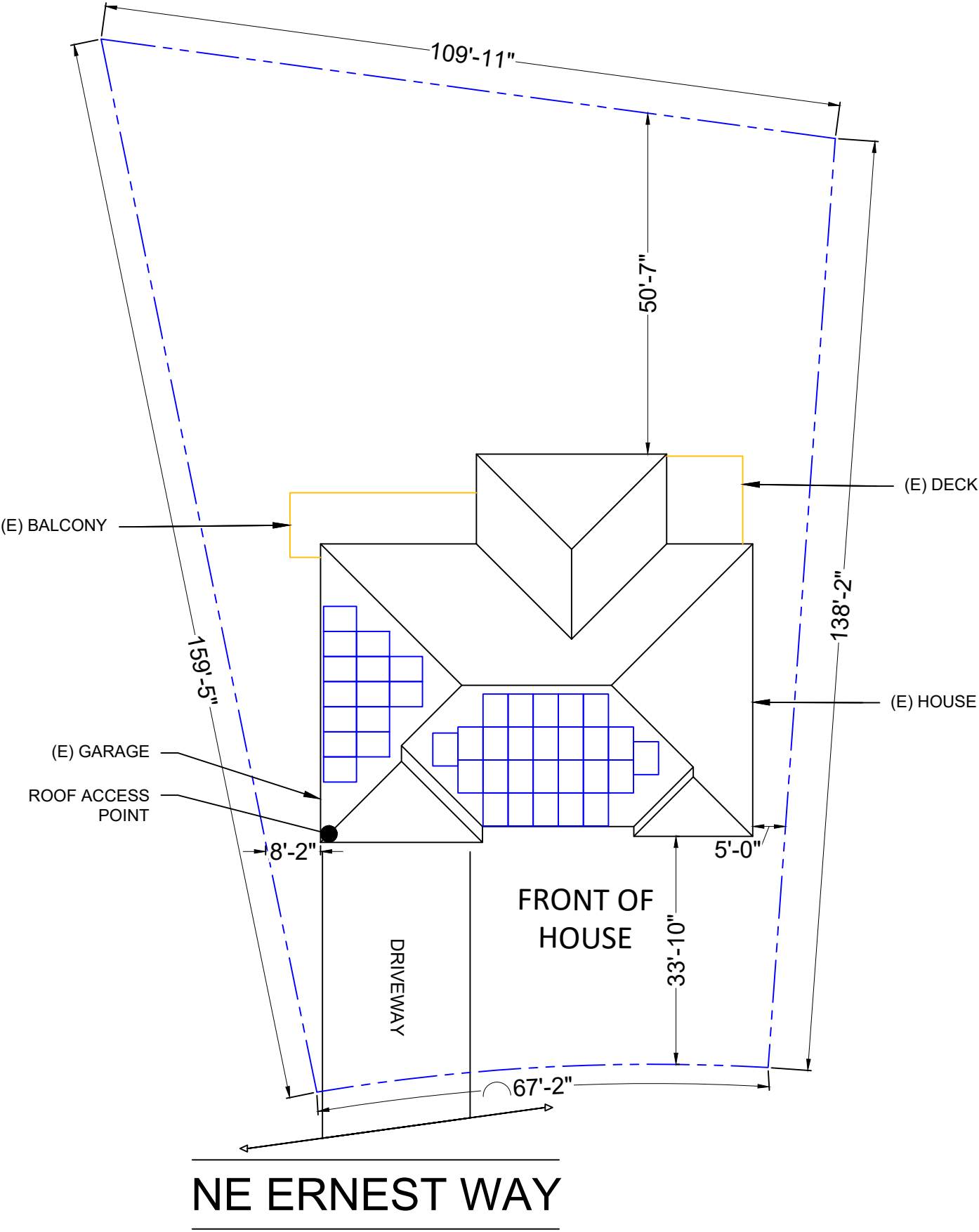
NEW PHOTOVOLTAIC ROOF MOUNTED SYSTEM - 17.000 KW DC/11.600 KW AC  
1408 NE ERNEST WAY, LEE'S SUMMIT, MO 64086

NEW PV SYSTEM SPECIFICATIONS  
SYSTEM SIZE: DC SIZE: 17.000 KW DC-(STC)  
AC SIZE: 11.600 KW AC  
MODULE: (40) JINKO JKM425N-54HL4-B [425W]  
INVERTER: (40) ENPHASE IQ8PLUS-72-2-US [240V]

DESIGN CRITERIA  
ROOF SURFACE TYPE: ASPHALT SHINGLES  
ROOF FRAMING: 2"x4" TRUSS @ 24" OC  
BUILDING STORY: ONE STORY  
GROUND SNOW LOAD: 30 PSF  
WIND SPEED: 115 MPH  
WIND EXPOSURE: B  
RISK CATEGORY: II

APPLICABLE CODES  
2018 INTERNATIONAL BUILDING CODE  
2018 INTERNATIONAL FIRE CODE  
2018 INTERNATIONAL RESIDENTIAL CODE  
2017 NATIONAL ELECTRICAL CODE  
AS ADOPTED BY CITY OF LEE'S SUMMIT

PROJECT NOTES  
1.1.1 THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE RELEVANT YEAR OF THE NATIONAL ELECTRIC CODE (NEC), ALL MANUFACTURER'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.  
1.1.2 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND THE PV SYSTEM MUST BE INSPECTED PRIOR TO OPERATION  
1.1.3 ALL PV SYSTEM COMPONENTS; MODULES, UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY NEC AND OTHER GOVERNING CODES  
1.1.4 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH 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.



SHEET INDEX

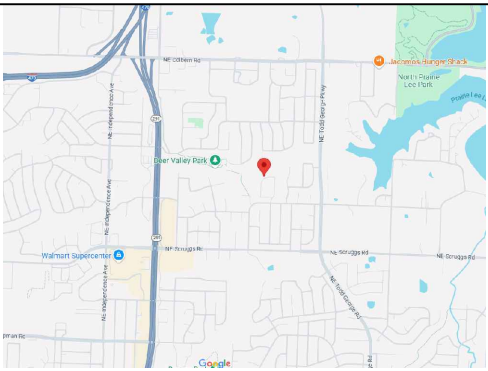
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|-------------------------------|-----------------------|
| PV-01                         | COVER PAGE            |
| PV-02                         | SITE PLAN             |
| PV-03                         | ATTACHMENT PLAN       |
| PV-3.1                        | ATTACHMENT DETAILS    |
| PV-04                         | ELECTRICAL DIAGRAM    |
| PV-05                         | NOTES                 |
| PV-06                         | WARNING LABELS        |
| PV-07                         | INSTALLATION RESOURCE |
| EQUIPMENT DATASHEETS ATTACHED |                       |

LEGEND

|  |                 |
|--|-----------------|
|  | - PROPERTY LINE |
|  | - FENCE LINE    |

SCOPE OF WORK  
1.2.1 CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC SYSTEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTION OF EXISTING ONSITE CONDITIONS TO DESIGN, SPECIFY, AND INSTALL THE ROOF-MOUNTED PHOTOVOLTAIC SYSTEM DETAILED IN THIS DOCUMENT

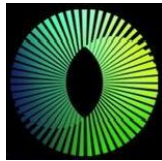
VICINITY MAP



SATELLITE MAP



CONTRACTOR



NATURAL ENERGY SOLUTIONS

501 SW B ST, BENTONVILLE,  
AR 72712  
PHONE - (479) 273-0123  
LIC. NO. - 427310323

PROJECT NAME & ADDRESS

LAUREN MEDLIN  
1408 NE ERNEST WAY,  
LEE'S SUMMIT, MO 64086  
APN #: 52720280600000000  
AHJ: CITY OF LEE'S SUMMIT  
UTILITY: EVERGY ELECTRIC

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AC SIZE: 11.600 KW AC  
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REVISIONS

| REV | DESCRIPTION | DATE |
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SHEET TITLE

COVER PAGE

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| DRAWN BY   | ND       |

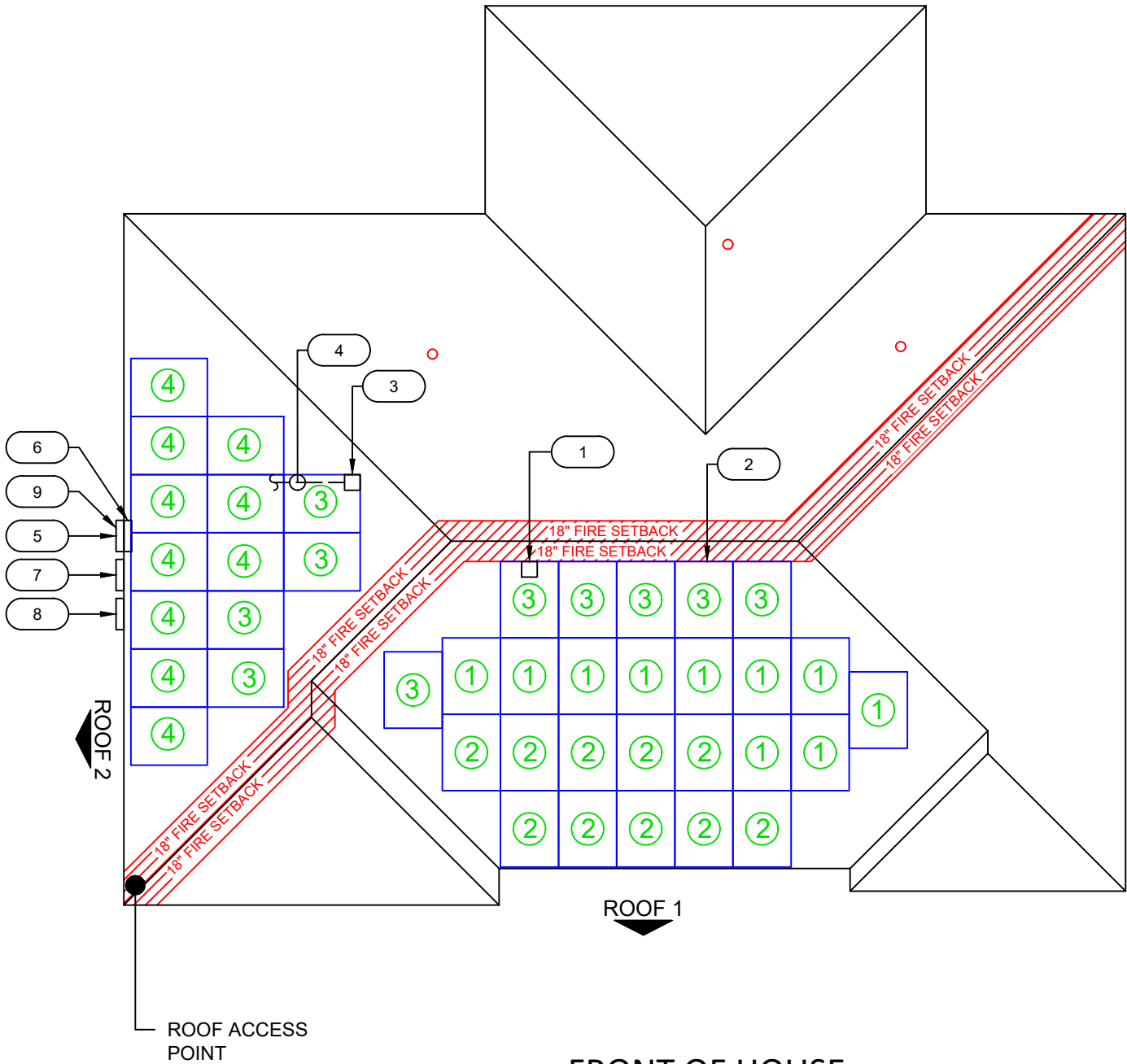
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PV-01

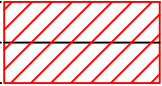
- NOTES:**
- ROOF ACCESS POINT SHALL NOT BE LOCATED IN AREAS THAT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS.
  - STRUCTURES, PATIO COVERS, AND/OR ADDITIONS BUILT WITHOUT PERMITS TO BE RESOLVED BY A SEPARATE PERMIT.

PLAN VIEW TOTAL ROOF AREA: 3145 FT<sup>2</sup>  
TOTAL PV ARRAY AREA: 840.78 FT<sup>2</sup>  
TOTAL % OF ROOF COVERED BY PV: 26.73%

BACK OF HOUSE



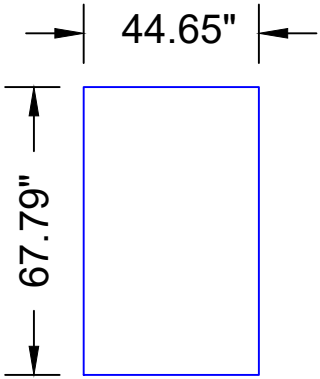
## LEGEND

-  FIRE SETBACKS
-  = MECHANICAL VENT
-  = FLUE / PLUMBING VENT
-  MICROINVERTER (1 PER MODULE)
-  (40) JINKO JKM425N-54HL4-B [425W] MODULES WITH ENPHASE IQ8PLUS-72-2-US [240V] UNDER EACH MODULE
-  (N) JUNCTION BOX (NEMA 3R)
-  CONDUIT RUN; SURFACE MOUNTED (ACTUAL CONDUIT RUNS TO BE DETERMINED IN FIELD)
-  (E) UTILITY METER-MAIN (UNDERGROUND SERVICE) METER #: 25 016 313
-  (E) MAIN DISTRIBUTION PANEL (INSIDE HOUSE)
-  AC DISCONNECT AND PV PRODUCTION METER
-  (N) ENPHASE IQ COMBINER BOX 4
-  (N) CONNECT DER METER COLLAR

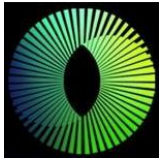
|        |              |                    |
|--------|--------------|--------------------|
| ROOF 1 | SLOPE        | - 30°              |
|        | AZIMUTH      | - 154°             |
|        | MODULE QTY   | - 26               |
|        | TRUSS        | - 2"X4" @ 24" O.C. |
| ROOF 2 | SURFACE TYPE | - ASPHALT SHINGLES |
|        | SLOPE        | - 30°              |
|        | AZIMUTH      | - 244°             |
|        | MODULE QTY   | - 14               |
|        | TRUSS        | - 2"X4" @ 24" O.C. |
|        | SURFACE TYPE | - ASPHALT SHINGLES |

## PV CIRCUITS

-  - MODULE STRING
-  - MODULE STRING
-  - MODULE STRING
-  - MODULE STRING



## CONTRACTOR



NATURAL ENERGY SOLUTIONS

501 SW B ST, BENTONVILLE,  
AR 72712

PHONE - (479) 273-0123  
LIC. NO. - 427310323

## PROJECT NAME & ADDRESS

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1408 NE ERNEST WAY,  
LEE'S SUMMIT, MO 64086

APN #: 52720280600000000  
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AC SIZE: 11.600 KW AC  
(40) JINKO JKM425N-54HL4-B [425W]  
(40) ENPHASE IQ8PLUS-72-2-US [240V]

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## SHEET TITLE

**SITE PLAN**

DRAWN DATE 6/5/2025

DRAWN BY ND

## SHEET NUMBER

**PV-02**



1

**SITE PLAN**

SCALE:1"-10'-0"

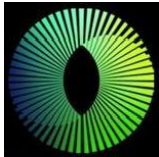
| DISTRIBUTED LOAD CALCULATIONS |                              |
|-------------------------------|------------------------------|
| MODULE                        | JINKO JKM425N-54HL4-B [425W] |
| MODULE WEIGHT                 | 46.3 LBS                     |
| MODULE DIMENSIONS (L" x W")   | 67.79" x 44.65"              |
| TOTAL QTY. OF MODULES         | 40                           |
| TOTAL WEIGHT OF MODULES       | 1852.00 LBS                  |
| TYPE OF RACKING               | PEGASUS SKIP RAIL            |
| TYPE OF ATTACHMENT            | PEGASUS INSTAFLASH           |
| DISTRIBUTED WEIGHT OF RACKING | 0.5 PSF                      |
| TOTAL WEIGHT OF ARRAY         | 2272.39 LBS                  |
| AREA OF MODULE                | 21.02 SQFT.                  |
| TOTAL ARRAY AREA              | 840.78 SQFT.                 |
| DISTRIBUTED LOAD              | 2.70 PSF                     |

- NOTE:**
- CONTRACTOR/INSTALLER TO VERIFY COMPATIBILITY OF ANY BRANDS OR PRODUCTS SUBSTITUTED OR USED AS ALTERNATES WITHIN ANY BRAND-SPECIFIC SYSTEMS. CONTRACTOR SHALL SUPPLY AND PRESENT CERTIFICATES OF COMPATIBILITY TO THE BUILDING OFFICIAL UPON INSPECTION AS NEEDED.
  - REFER TO PV MODULE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR RAIL SPACING SPECIFICATIONS

| LEGEND                                                                              |                     |
|-------------------------------------------------------------------------------------|---------------------|
|  | - ATTACHMENT POINTS |
|  | - RAIL              |
|  | - STRUCTURAL MEMBER |

|                                                                                               |              |                    |
|-----------------------------------------------------------------------------------------------|--------------|--------------------|
| ROOF 1<br>  | SLOPE        | - 30°              |
|                                                                                               | AZIMUTH      | - 154°             |
|                                                                                               | MODULE QTY   | - 26               |
|                                                                                               | TRUSS        | - 2"X4" @ 24" O.C. |
| ROOF 2<br> | SURFACE TYPE | - ASPHALT SHINGLES |
|                                                                                               | SLOPE        | - 30°              |
|                                                                                               | AZIMUTH      | - 244°             |
|                                                                                               | MODULE QTY   | - 14               |
|                                                                                               | TRUSS        | - 2"X4" @ 24" O.C. |
|                                                                                               | SURFACE TYPE | - ASPHALT SHINGLES |

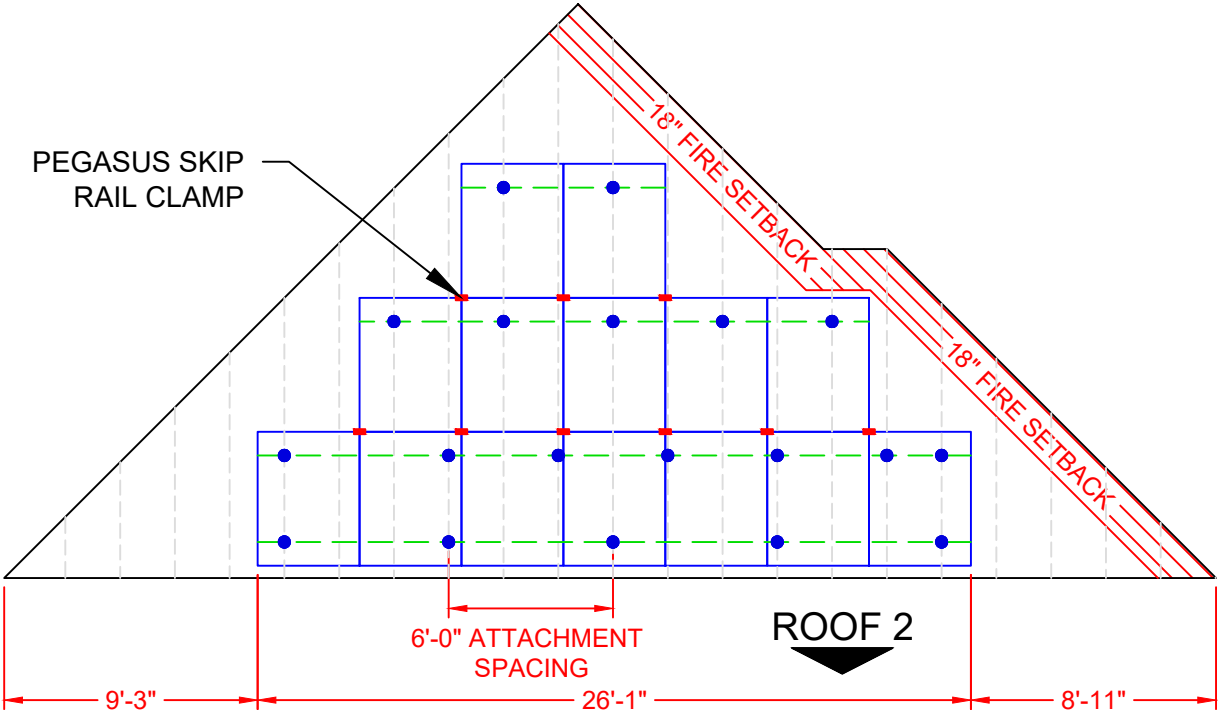
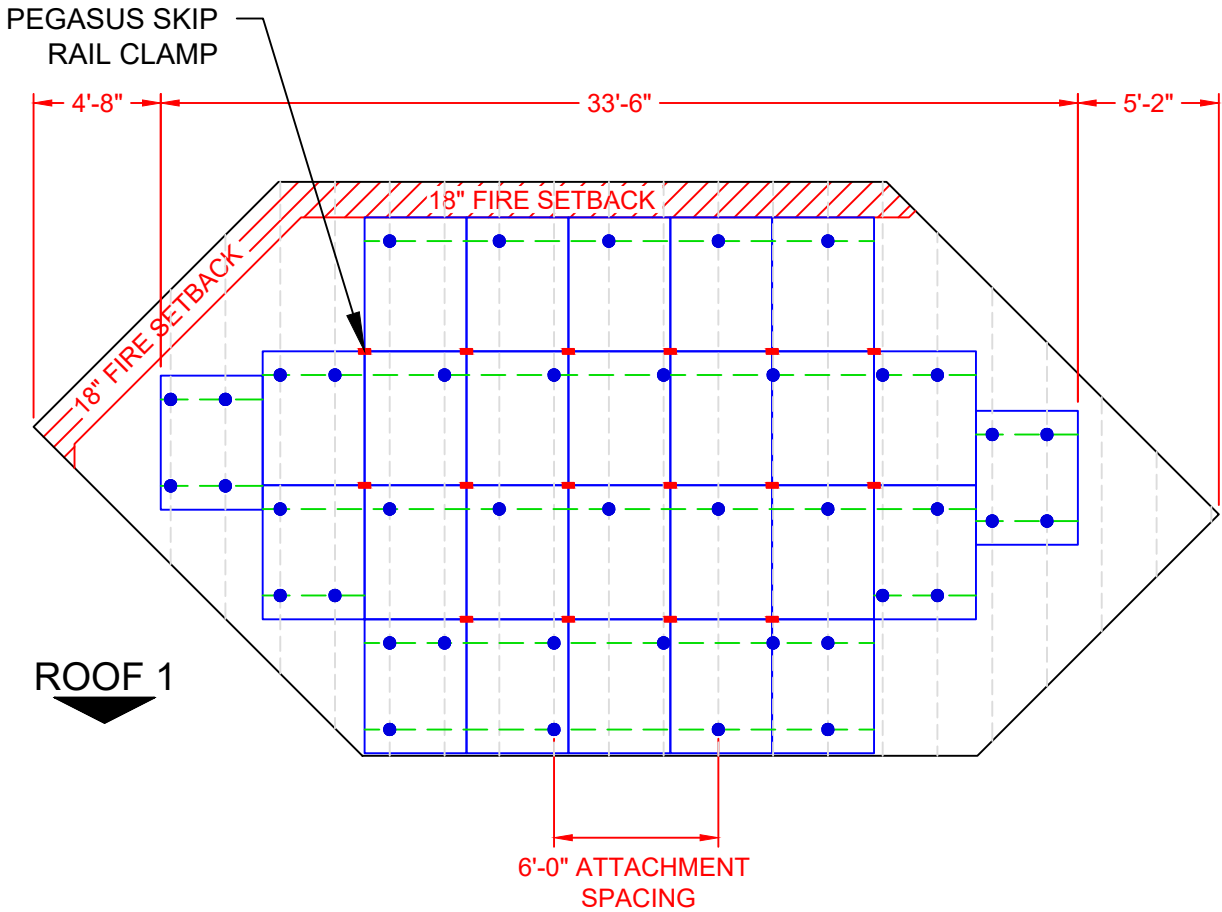
CONTRACTOR



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UTILITY: EVERGY ELECTRIC

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AC SIZE: 11.600 KW AC  
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SHEET TITLE  
ATTACHMENT PLAN

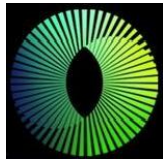
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SHEET NUMBER

PV-03

CONTRACTOR



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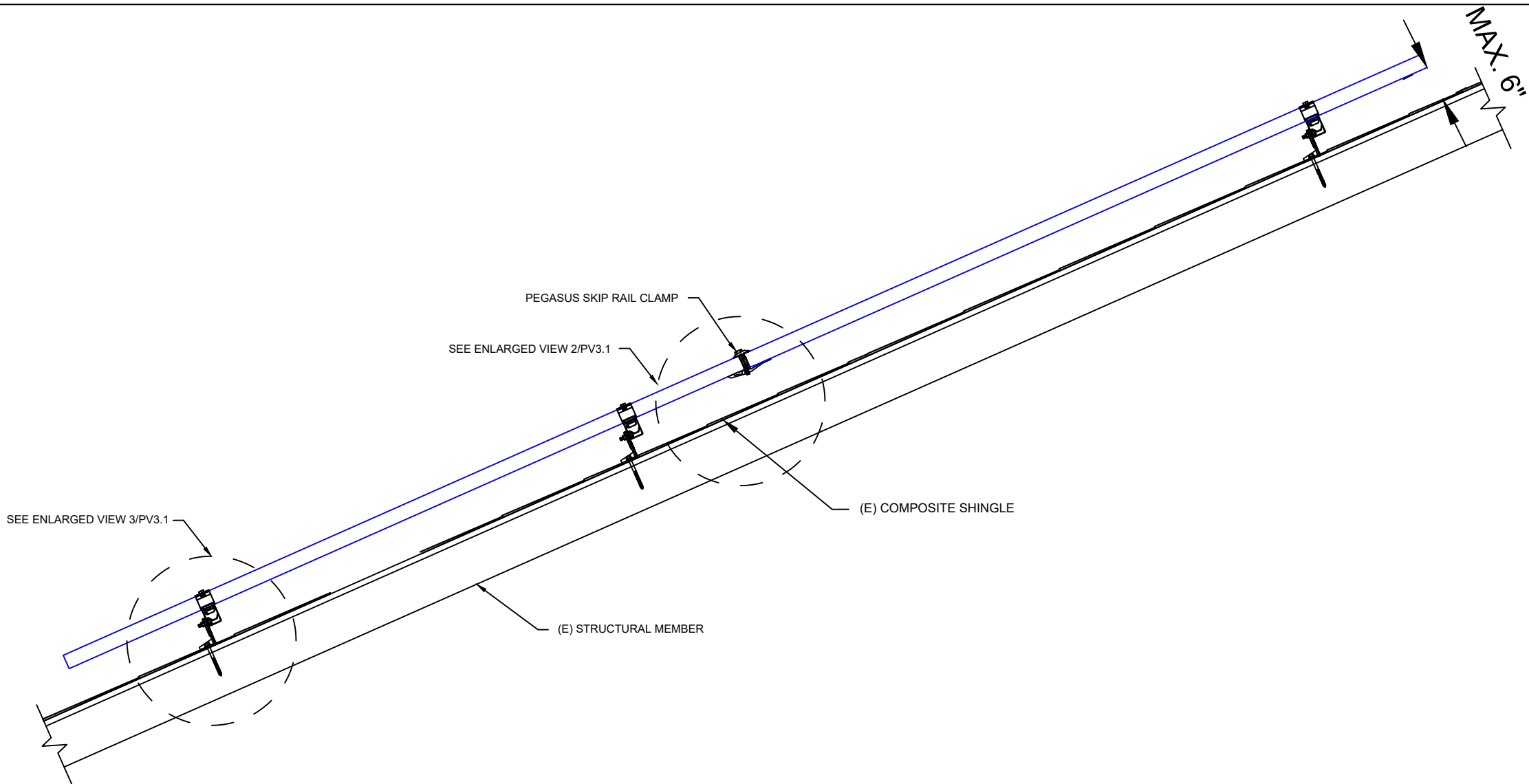
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ATTACHMENT  
DETAILS

DRAWN DATE 6/5/2025

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PV-3.1

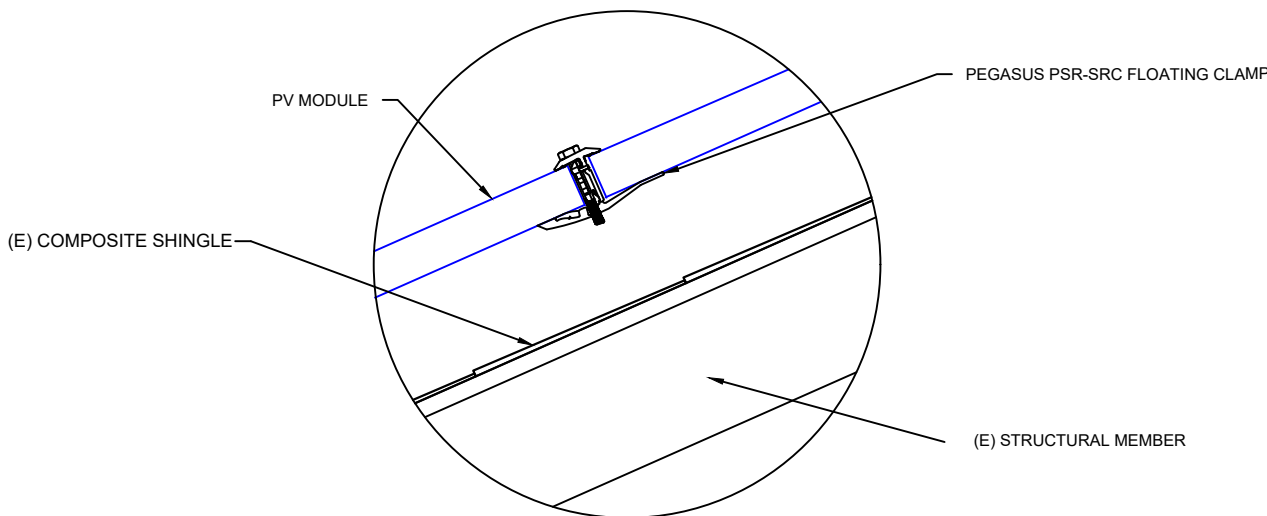


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ATTACHMENT DETAIL

PV-03.1

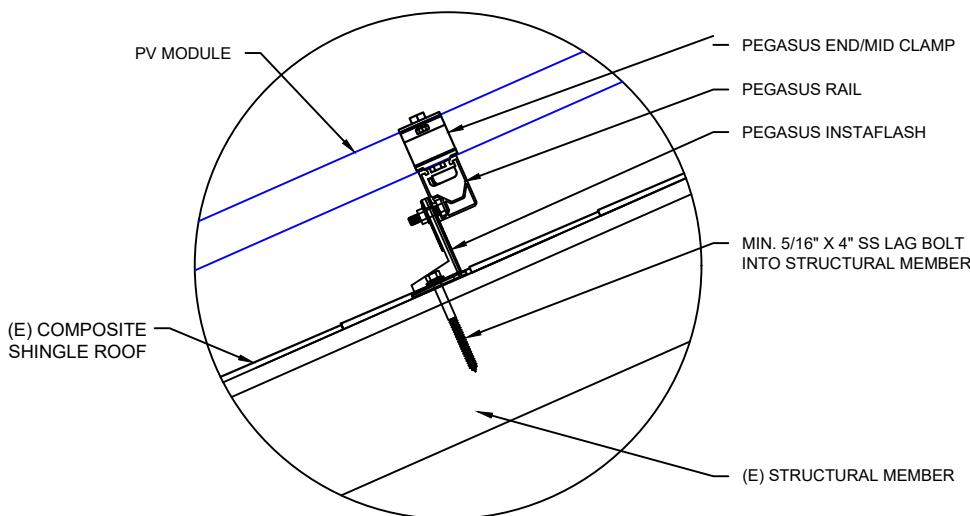
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2

ENLARGED VIEW

PV-03.1



3

ENLARGED VIEW

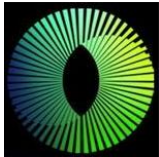
PV-03.1

| MICROINVERTER SPECIFICATIONS |                                | SOLAR MODULE SPECIFICATIONS |                              |
|------------------------------|--------------------------------|-----------------------------|------------------------------|
| MANUFACTURER / MODEL #       | ENPHASE IQ8PLUS-72-2-US [240V] | MANUFACTURER / MODEL #      | JINKO JKM425N-54HL4-B [425W] |
| INPUT POWER RANGE            | 235W-440W                      | VMP                         | 32.37V                       |
| MIN/MAX START VOLTAGE        | 22V/58V                        | IMP                         | 13.13A                       |
| NOMINAL AC VOLTAGE           | 240V                           | VOC                         | 38.95V                       |
| MAX CONT. OUTPUT CURRENT     | 1.21A                          | ISC                         | 13.58A                       |
| MAX CONT. OUTPUT POWER       | 290W                           | TEMP. COEFF. VOC            | -0.25%/°C                    |
| MAX MODULES PER STRING       | 13 (13 MICROINVERTERS)         |                             |                              |

| NEW PV SYSTEM SPECIFICATIONS |                                                      |
|------------------------------|------------------------------------------------------|
| SYSTEM SIZE:                 | DC SIZE: 17.000 KW DC-(STC)<br>AC SIZE: 11.600 KW AC |
| MODULE:                      | (40) JINKO JKM425N-54HL4-B [425W]                    |
| INVERTER:                    | (40) ENPHASE IQ8PLUS-72-2-US [240V]                  |

| AMBIENT TEMPERATURE SPECIFICATIONS        |       |
|-------------------------------------------|-------|
| RECORD LOW TEMP                           | -15°C |
| AMBIENT TEMP (HIGH TEMP 2% AVG.)          | 34°C  |
| MINIMUM CONDUIT HEIGHT BELOW ROOF SURFACE | 18"   |

CONTRACTOR

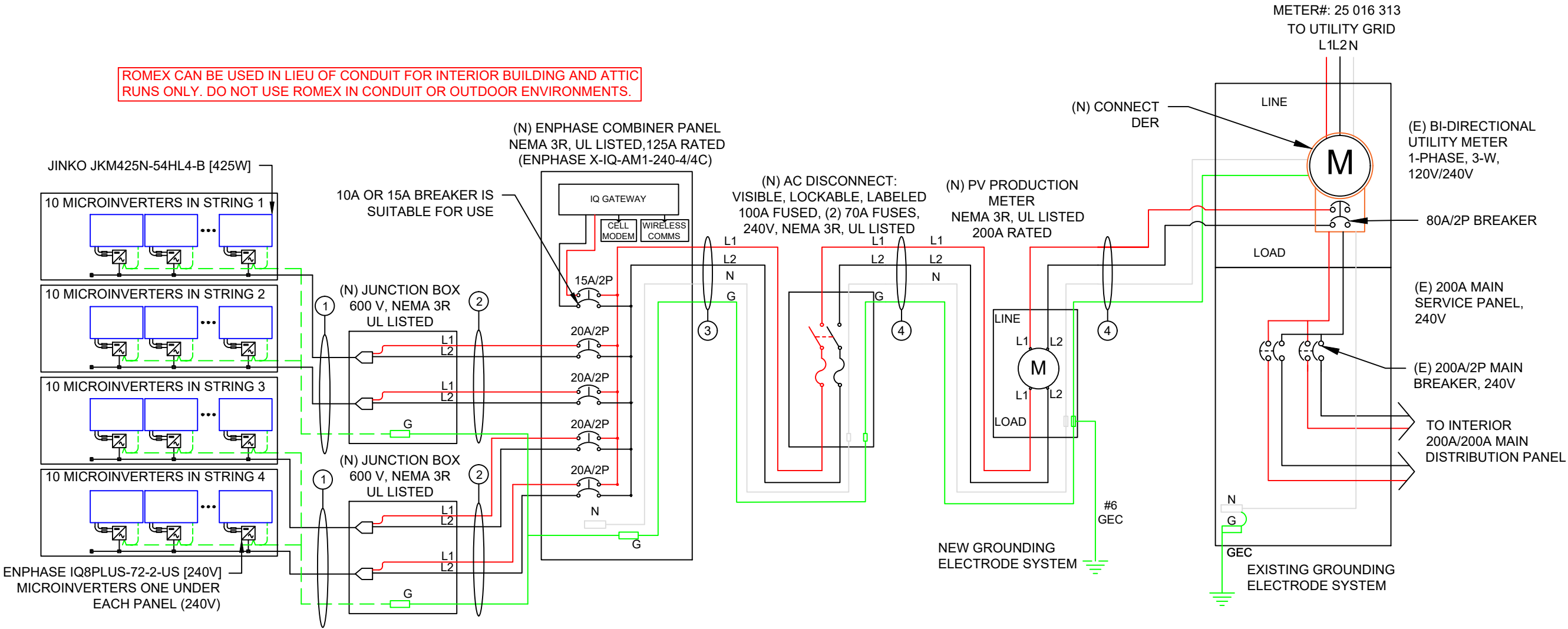


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ROMEX CAN BE USED IN LIEU OF CONDUIT FOR INTERIOR BUILDING AND ATTIC  
RUNS ONLY. DO NOT USE ROMEX IN CONDUIT OR OUTDOOR ENVIRONMENTS.



| DESCRIPTION                            |                         |                     |                                    |                     | FORMULA                                                    |                   |                               |                               |                                         | RESULT                                  |                               |                         |
|----------------------------------------|-------------------------|---------------------|------------------------------------|---------------------|------------------------------------------------------------|-------------------|-------------------------------|-------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------|-------------------------|
| PV OVERCURRENT PROTECTION NEC 690.9(B) |                         |                     |                                    |                     | TOTAL INVERTER OUTPUT CURRENT x 1.25 = (40 x 1.21)A x 1.25 |                   |                               |                               |                                         | 60.50A (SELECTED OCPD = 30A)            |                               |                         |
| WIRE ID                                | EXPECTED WIRE TEMP (°C) | TEMP DERATE (90 °C) | QTY OF CURRENT CARRYING CONDUCTORS | CONDUIT FILL DERATE | MINIMUM CONDUIT SIZE (TBD ON SITE)                         | WIRE GAUGE & TYPE | CONDUCTOR AMPACITY @ 90°C (A) | CONDUCTOR AMPACITY @ 75°C (A) | REQUIRED CIRCUIT CONDUCTOR AMPACITY (A) | ADJUSTED CONDUCTOR AMPACITY @ 90 °C (A) | NEUTRAL CONDUCTOR SIZE & TYPE | GROUND WIRE SIZE & TYPE |
| 1                                      | 34                      | 0.96                | 4/4                                | 1                   | NM-B ROMEX                                                 | #12/4 NM-B ROMEX  | 30                            | 25                            | 15.13                                   | 24.00                                   | NONE                          | #12 THHN                |
| 2                                      | 34                      | 0.96                | 4/4                                | 1                   | 3/4" EMT                                                   | #12 THHN          | 30                            | 25                            | 15.13                                   | 28.80                                   | NONE                          | #12 THHN                |
| 3                                      | 34                      | 0.96                | 2                                  | 1                   | 1" EMT                                                     | #4 THHN           | 95                            | 85                            | 60.50                                   | 91.20                                   | #4 THHN                       | #8 THHN                 |
| 4                                      | 34                      | 0.96                | 2                                  | 1                   | 1" LFMC                                                    | #4 THHN           | 95                            | 85                            | 60.50                                   | 91.20                                   | #4 THHN                       | #6 THHN                 |

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SHEET TITLE  
ELECTRICAL  
DIAGRAM

DRAWN DATE 6/5/2025

DRAWN BY ND

SHEET NUMBER

PV-04

# GENERAL NOTES

## SITE NOTES

- 2.1.1 A LADDER WILL BE IN PLACE FOR INSPECTION IN ACCORDANCE WITH OSHA REGULATIONS.
- 2.1.2 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.
- 2.1.3 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
- 2.1.4 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED IN ACCORDANCE WITH SECTION NEC 110.26.
- 2.1.5 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.

## EQUIPMENT LOCATIONS

- 2.2.1 ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS IN ACCORDANCE WITH NEC 110.26.
- 2.2.2 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31 (A),(C) AND NEC TABLES 310.15 (B)(2)(A) AND 310.15 (B)(3)(C).
- 2.2.3 JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES IN ACCORDANCE WITH NEC 690.34.
- 2.2.4 ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.
- 2.2.5 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL IN ACCORDANCE WITH NEC APPLICABLE CODES.
- 2.2.6 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

## STRUCTURAL NOTES

- 2.3.1 RACKING SYSTEM & PV ARRAY WILL BE INSTALLED IN ACCORDANCE WITH THE CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUBARRAY, IN ACCORDANCE WITH RAIL MANUFACTURER'S INSTALLATION PRACTICES.
- 2.3.2 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.
- 2.3.3 ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.
- 2.3.4 ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER OR PROFESSIONAL ENGINEERING GUIDANCE.
- 2.3.5 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

## WIRING & CONDUIT NOTES

- 2.4.1 ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.
- 2.4.2 CONDUCTORS SIZED IN ACCORDANCE WITH THE NEC
- 2.4.3 AC CONDUCTORS TO BE COLORED OR MARKED PER NEC
- 2.4.4 LISTED OR LABELED EQUIPMENT SHALL BE INSTALLED AND USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING PER NEC

## GROUNDING NOTES

- 2.5.1 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.
- 2.5.2 PV EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH NEC 690.43 AND NEC TABLE 250.122.
- 2.5.3 METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES CONSIDERED GROUNDED IN ACCORDANCE WITH NEC 250.134 AND 250.136(A).
- 2.5.4 EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH NEC 690.45 AND INVERTER MANUFACTURER'S INSTALLATION PRACTICES
- 2.5.5 EACH MODULE WILL BE GROUNDED AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ.
- 2.5.6 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.
- 2.5.7 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER PER NEC 250.119
- 2.5.8 THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690.47 AND NEC 250.50 THROUGH 250.106. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED IN ACCORDANCE WITH NEC 250, NEC 690.47 AND THE AHJ.
- 2.5.9 GROUND-FAULT DETECTION SHALL COMPLY WITH NEC 690.41(B)(1) AND (2) TO REDUCE FIRE HAZARDS

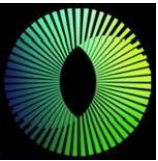
## DISCONNECTION AND OVERCURRENT PROTECTION NOTES

- 2.6.1 DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE CONNECTED TO THE TERMINALS MARKED “LINE SIDE” (TYPICALLY THE UPPER TERMINALS).
- 2.6.2 DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH
- 2.6.3 PV SYSTEM CIRCUITS INSTALLED ON OR IN HABITABLE BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.12
- 2.6.4 ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690.8, 690.9, AND 240.
- 2.6.5 INVERTER ON-GRID BRANCHES SHALL BE CONNECTED TO A SINGLE BREAKER OR GROUPED FUSE DISCONNECT(S) IN ACCORDANCE WITH NEC 110.3(B).
- 2.6.6 IF REQUIRED BY THE AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION IN ACCORDANCE WITH NEC 690.11 AND UL1699B.

## INTERCONNECTION NOTES

- 2.7.1 LOAD SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH NEC 705.12.
- 2.7.2 THE SUM OF THE UTILITY OCPD AND INVERTER CONTINUOUS OUTPUT MAY NOT EXCEED 120 PERCENT OF BUSBAR RATING PER NEC 705.12.
- 2.7.3 THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED 120 PERCENT OF THE AMPACITY OF THE BUSBAR, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD IN ACCORDANCE WITH NEC 705.12.
- 2.7.4 AT MULTIPLE ELECTRIC POWER SOURCES OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT PROTECTION DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR. HOWEVER, THE MAIN OVERCURRENT PROTECTION DEVICE MAY BE EXCLUDED IN ACCORDANCE WITH NEC 705.12.
- 2.7.5 FEEDER TAP INTERCONNECTION (LOAD SIDE) IN ACCORDANCE WITH NEC 705.12.
- 2.7.6 SUPPLY SIDE TAP INTERCONNECTION IN ACCORDANCE WITH TO NEC 705.12 WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42.
- 2.7.7 BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING PER NEC 705.12.

## CONTRACTOR



NATURAL ENERGY SOLUTIONS

501 SW B ST, BENTONVILLE,  
AR 72712

PHONE - (479) 273-0123  
LIC. NO. - 427310323

## PROJECT NAME & ADDRESS

LAUREN MEDLIN

1408 NE ERNEST WAY,  
LEE'S SUMMIT, MO 64086

APN #: 52720280600000000  
AHJ: CITY OF LEE'S SUMMIT  
UTILITY: EVERGY ELECTRIC

## SYSTEM DETAILS

DC SIZE: 17.000 KW DC-(STC)  
AC SIZE: 11.600 KW AC  
(40) JINKO JKM425N-54HL4-B [425W]  
(40) ENPHASE IQ8PLUS-72-2-US [240V]

## REVISIONS

| REV | DESCRIPTION | DATE |
|-----|-------------|------|
|     |             |      |
|     |             |      |
|     |             |      |
|     |             |      |

## SHEET TITLE

## NOTES

|            |          |
|------------|----------|
| DRAWN DATE | 6/5/2025 |
| DRAWN BY   | ND       |

## SHEET NUMBER

PV-05

⚠️

WARNING

ELECTRICAL SHOCK HAZARD

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

LABEL LOCATION: COMBINER PANEL, AC DISCONNECT,  
POINT OF INTERCONNECTION  
PER CODE: NEC 690.13(B)

⚠️

WARNING

TURN OFF PHOTOVOLTAIC AC  
DISCONNECT PRIOR TO  
WORKING INSIDE PANEL

LABEL LOCATION: COMBINER PANEL(S), MAIN SERVICE DISCONNECT  
PER CODE: NEC 110.27(C), OSHA 1910.145(f)(7)

WARNING: PHOTOVOLTAIC  
POWER SOURCE

LABEL LOCATION: DC CONDUIT/RACEWAY/CABLE TRAY  
PER CODE: NEC 690.31(G)(3-4)

PHOTOVOLTAIC SYSTEM AC DISCONNECT

RATED AC OUTPUT CURRENT: 48.40 A

NOMINAL OPERATING AC VOLTAGE: 240 V

LABEL LOCATION: POINT OF INTERCONNECTION  
PER CODE: NEC 690.54

PV SYSTEM

DISCONNECT

LABEL LOCATION: AC DISCONNECT  
PER CODE: NEC 690.13(B)

DO NOT DISCONNECT  
UNDER LOAD

LABEL LOCATION: MAIN SERVICE DISCONNECT  
PER CODE: NEC 690.15(C) & NEC 690.33(E)(2)

⚠️

WARNING

DUAL POWER SOURCE

SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION: MAIN SERVICE DISCONNECT  
PER CODE: NEC 705.12(B)(3-4), NEC 690.59

⚠️

WARNING

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

LABEL LOCATION: POINT OF INTERCONNECTION, COMBINER PANEL  
PER CODE: NEC 705.12(B)(2)(3)(c)

⚠️

WARNING

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

LABEL LOCATION: MAIN SERVICE DISCONNECT, POINT  
OF INTERCONNECTION  
PER CODE: 705.12(B)(2)(3)(b)

MAIN PHOTOVOLTAIC  
SYSTEM DISCONNECT

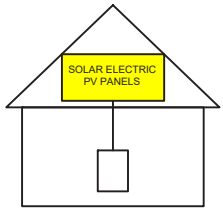
LABEL LOCATION: MAIN SERVICE DISCONNECT, UTILITY METER  
PER CODE: NEC 690.13(B)

RAPID SHUTDOWN FOR  
SOLAR PV SYSTEM

LABEL LOCATION: RSD INITIATION DEVICE, AC DISCONNECT  
PER CODE: NEC 690.56(C)(3)

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 LOCATION: MAIN SERVICE DISCONNECT  
PER CODE: NEC 690.56(C)(1)(a)

⚠️

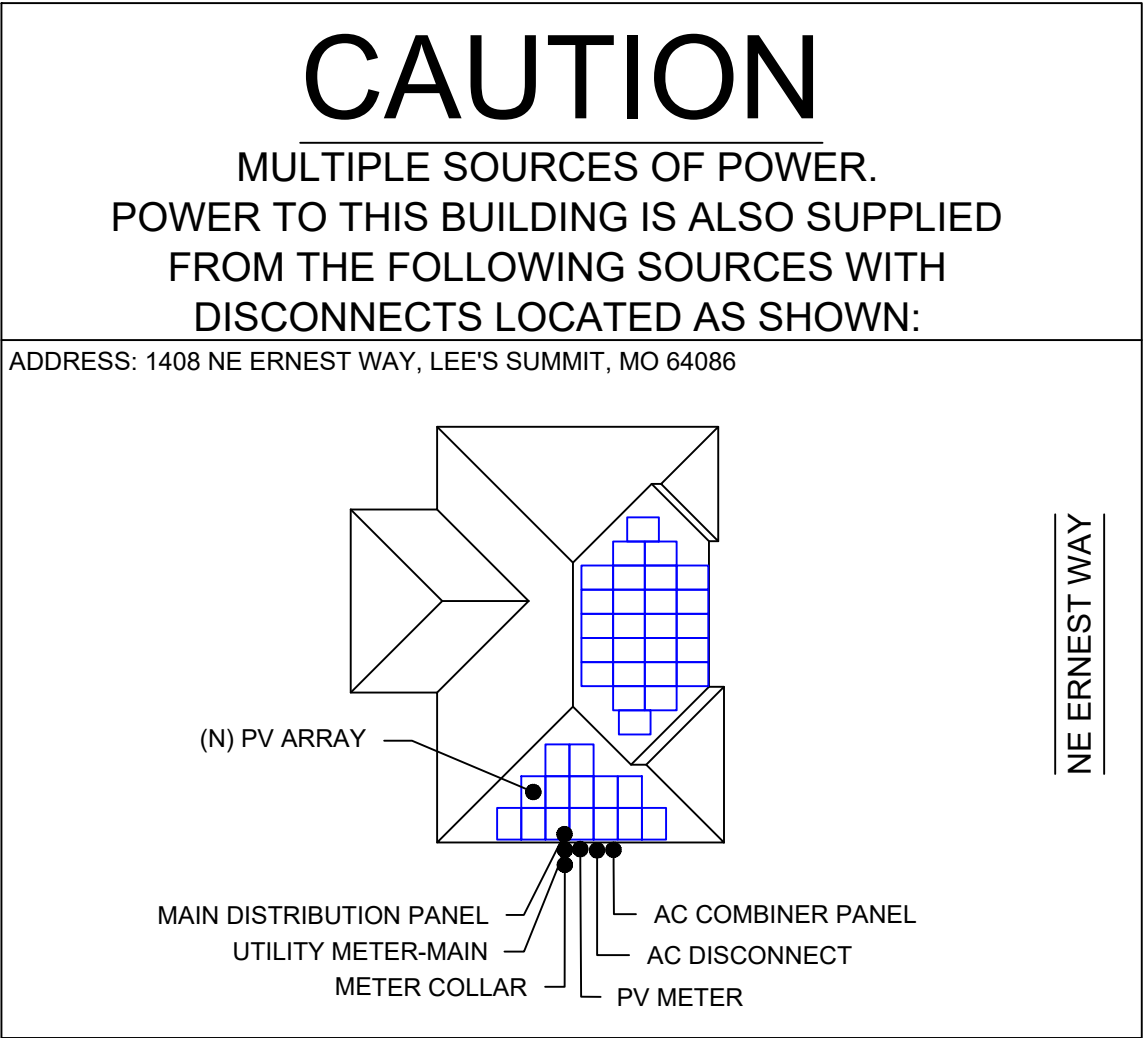
CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

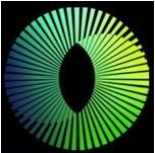
LABEL LOCATION: MAIN SERVICE DISCONNECT  
PER CODE: NEC 690.13(F), NEC 705.12(B)(3-4), NEC 690.59

PV METER

LABEL LOCATION: PV METER



CONTRACTOR



NATURAL ENERGY SOLUTIONS

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AR 72712

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LEE'S SUMMIT, MO 64086

APN #: 52720280600000000  
AHJ: CITY OF LEE'S SUMMIT  
UTILITY: EVERGY ELECTRIC

SYSTEM DETAILS

DC SIZE: 17.000 KW DC-(STC)  
AC SIZE: 11.600 KW AC  
(40) JINKO JKM425N-54HL4-B [425W]  
(40) ENPHASE IQ8PLUS-72-2-US [240V]

REVISIONS

| REV | DESCRIPTION | DATE |
|-----|-------------|------|
|     |             |      |
|     |             |      |
|     |             |      |
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SHEET TITLE

WARNING LABELS

DRAWN DATE

6/5/2025

DRAWN BY

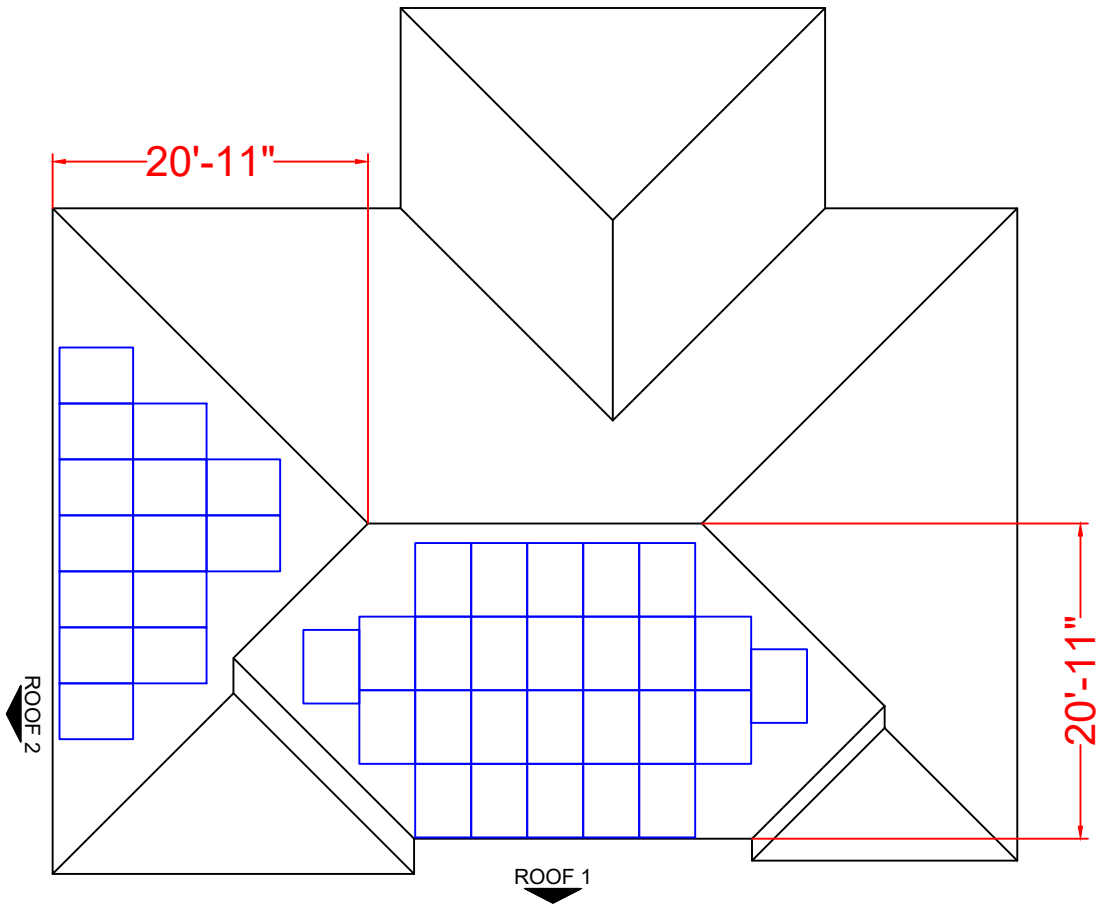
ND

SHEET NUMBER

PV-06

|    | A | B | C | D | E | F |
|----|---|---|---|---|---|---|
| 1  |   |   |   |   |   |   |
| 2  |   |   |   |   |   |   |
| 3  |   |   |   |   |   |   |
| 4  |   |   |   |   |   |   |
| 5  |   |   |   |   |   |   |
| 6  |   |   |   |   |   |   |
| 7  |   |   |   |   |   |   |
| 8  |   |   |   |   |   |   |
| 9  |   |   |   |   |   |   |
| 10 |   |   |   |   |   |   |

REFERENCE ONLY



\*\*DIMENSIONS ARE 2D (FLAT)

CONTRACTOR



NATURAL ENERGY SOLUTIONS

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AR 72712

PHONE - (479) 273-0123  
LIC. NO. - 427310323

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REVISIONS

| REV | DESCRIPTION | DATE |
|-----|-------------|------|
|     |             |      |
|     |             |      |
|     |             |      |
|     |             |      |

SHEET TITLE  
INSTALLATION  
RESOURCE

|            |          |
|------------|----------|
| DRAWN DATE | 6/5/2025 |
| DRAWN BY   | ND       |

SHEET NUMBER

PV-07



# THE MOST DEPENDABLE SOLAR PRODUCT

## EAGLE® 54 66R

420-440 WATT • N-TYPE TOPCON  
Positive power tolerance of 0~+3%

- NYSE-listed since 2010, Bloomberg Tier 1 manufacturer
- Top performance in the strictest 3<sup>rd</sup> party labs
- Automated manufacturing utilizing artificial intelligence
- Vertically integrated, tight controls on quality
- Premium solar factories in USA, Vietnam, and Malaysia

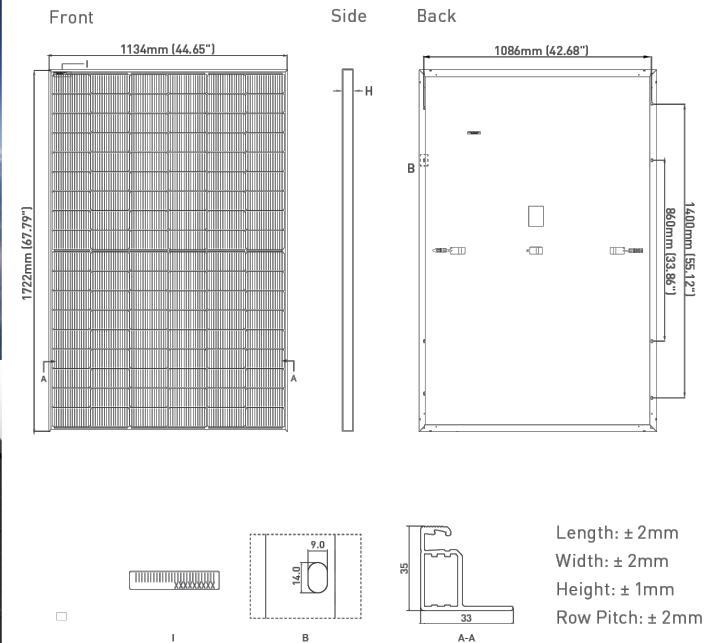
### KEY FEATURES

- Superior Aesthetics**  
Black backsheet and black frame create ideal look for residential applications.
- N-Type Technology**  
N-type cells with Jinko's in-house TOPCon technology offers better performance and improved reliability.
- Thick and Tough**  
Fire Type 1 rated module engineered with a thick frame, 3.2mm front side glass, and thick backsheet for added durability.
- Shade Tolerant**  
Twin array design allows continued performance even with shading by trees or debris.
- Protected Against All Environments**  
Certified to withstand humidity, heat, rain, marine environments, wind, hailstorms, and packed snow.
- Warranty**  
25-year product and 30-year linear power warranty.

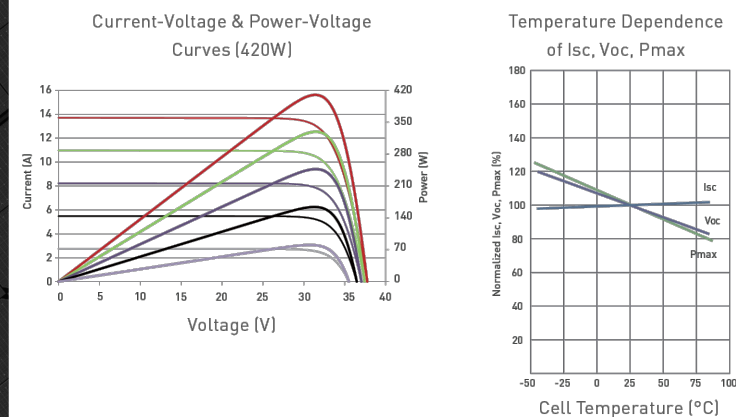
- ISO9001:2015 Quality Standards
- ISO45001:2018 Occupational Health & Safety Standards
- IEC61215, IEC61730 certified products
- UL61730 certified products



### ENGINEERING DRAWINGS



### ELECTRICAL PERFORMANCE & TEMPERATURE DEPENDENCE



### MECHANICAL CHARACTERISTICS

|                   |                                                                               |
|-------------------|-------------------------------------------------------------------------------|
| No. of Half Cells | 108 (2 x 54)                                                                  |
| Dimensions        | 1722 × 1134 × 35mm (67.79 × 44.65 × 1.38 inch)                                |
| Weight            | 21.0kg (46.3lbs)                                                              |
| Front Glass       | 3.2mm, Anti-Reflection Coating<br>High Transmission, Low Iron, Tempered Glass |
| Frame             | Anodized Aluminum Alloy                                                       |
| Junction Box      | IP68 Rated                                                                    |
| Output Cables     | 12 AWG, 1400mm (55.12in) or Customized Length                                 |
| Connector         | Staubli MC4                                                                   |
| Fire Type         | Type 1                                                                        |
| Pressure Rating   | 5400Pa (Snow) & 2400Pa (Wind)*                                                |

\*see Supplemental Installation Manual for higher wind pressure rating solutions

### TEMPERATURE CHARACTERISTICS

|                                           |           |
|-------------------------------------------|-----------|
| Temperature Coefficients of Pmax          | -0.29%/°C |
| Temperature Coefficients of Voc           | -0.25%/°C |
| Temperature Coefficients of Isc           | 0.045%/°C |
| Nominal Operating Cell Temperature (NOCT) | 45±2°C    |

### MAXIMUM RATINGS

|                            |             |
|----------------------------|-------------|
| Operating Temperature (°C) | -40°C~+85°C |
| Maximum System Voltage     | 1000VDC     |
| Maximum Series Fuse Rating | 25A         |

### PACKAGING CONFIGURATION

(Two pallets = One stack)  
31pcs/pallets, 62pcs/stack, 806pcs/40 HQ Container

### WARRANTY

25-year product and 30-year linear power warranty  
1<sup>st</sup> year degradation not to exceed 1%, each subsequent year not to exceed 0.4%, minimum power at year 30 is 87.4% or greater.

### ELECTRICAL CHARACTERISTICS

| Module Type                 | JKM420N-54HL4-B |        | JKM425N-54HL4-B |        | JKM430N-54HL4-B |        | JKM435N-54HL4-B |        | JKM440N-54HL4-B |        |
|-----------------------------|-----------------|--------|-----------------|--------|-----------------|--------|-----------------|--------|-----------------|--------|
|                             | STC             | NOCT   | STC             | NOCT   | STC             | NOCT   | STC             | NOCT   | STC             | NOCT   |
| Maximum Power (Pmax)        | 420Wp           | 316Wp  | 425Wp           | 320Wp  | 430Wp           | 323Wp  | 435Wp           | 327Wp  | 440Wp           | 331Wp  |
| Maximum Power Voltage (Vmp) | 32.16V          | 29.95V | 32.37V          | 30.19V | 32.58V          | 30.30V | 32.78V          | 30.50V | 32.99V          | 30.73V |
| Maximum Power Current (Imp) | 13.06A          | 10.55A | 13.13A          | 10.60A | 13.20A          | 10.66A | 13.27A          | 10.72A | 13.34A          | 10.77A |
| Open-circuit Voltage (Voc)  | 38.74V          | 36.80V | 38.95V          | 37.00V | 39.16V          | 37.20V | 39.36V          | 37.39V | 39.57V          | 37.59V |
| Short-circuit Current (Isc) | 13.51A          | 10.91A | 13.58A          | 10.96A | 13.65A          | 11.02A | 13.72A          | 11.08A | 13.80A          | 11.14A |
| Module Efficiency STC (%)   | 21.51%          |        | 21.76%          |        | 22.02%          |        | 22.28%          |        | 22.53%          |        |

\*STC: ☀ Irradiance 1000W/m<sup>2</sup>  
NOCT: ☀ Irradiance 800W/m<sup>2</sup>

🌡 Cell Temperature 25°C  
🌡 Ambient Temperature 20°C

☁ AM = 1.5  
☁ AM = 1.5

🌀 Wind Speed 1m/s

\*Power measurement tolerance: ±3%

The company reserves the final right for explanation on any of the information presented hereby. JKM400-420N-54HL4-B-F4-US

BUILDING YOUR TRUST IN SOLAR. [WWW.JINKOSOLAR.US](http://WWW.JINKOSOLAR.US)



# IQ8 and IQ8+ Microinverters

Our newest IQ8 Microinverters<sup>1,2,3</sup> are the industry's first microgrid-forming<sup>4</sup>, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently.



| Key specifications         | IQ8-60-2-US                    | IQ8PLUS-72-2-US |
|----------------------------|--------------------------------|-----------------|
| Peak output power          | 245 VA                         | 300 VA          |
| Nominal grid voltage (L-L) | 240 V, split-phase (L-L), 180° |                 |
| Nominal frequency          | 60 Hz                          | 60 Hz           |
| CEC weighted efficiency    | 97%                            | 97%             |
| Maximum input DC voltage   | 50 V                           | 60 V            |
| MPPT voltage range         | 27–37 V                        | 27–45 V         |
| Maximum module $I_{sc}$    | 20 A                           | 20 A            |
| Ambient temperature range  | –40°C to 60°C (–40°F to 140°F) |                 |

## Simple

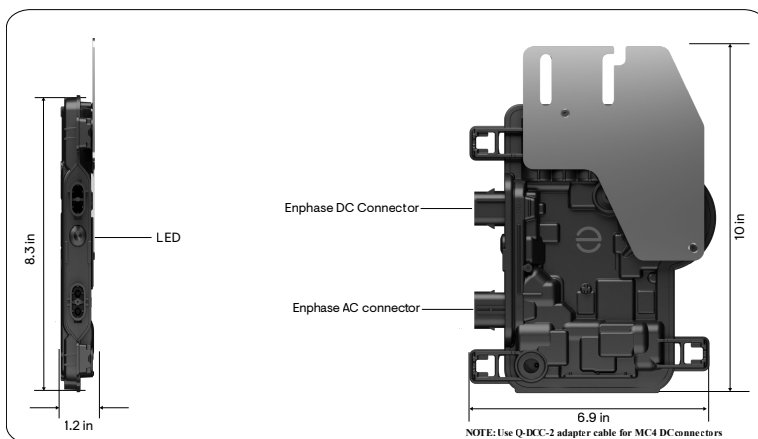
- Lightweight and compact with plug-and-play connectors
- Power line communication (PLC) between components
- Faster installation with simple two-wire cabling

## Reliable

- Produce power even when the grid is down<sup>4</sup>
- More than one million cumulative hours of testing
- Industry-leading limited warranty of up to 25 years
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

## Microgrid-forming

- Compliant with the latest advanced grid support<sup>5</sup>
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) and IEEE 1547:2018 (UL 1741-SB 3<sup>rd</sup> Ed.)



<sup>1</sup> IQ8 Series Microinverters can be added to existing IQ7 systems on the same IQ Gateway only in the following grid-tied configurations: Solar Only or Solar + Battery (IQ Battery 3T/10T and IQ Battery 5P) without backup.

<sup>2</sup> IQ7 Series Microinverters cannot be added to a site with existing IQ8 Series Microinverters on the same gateway. Mixed system of IQ7 and IQ8 will not support IQ8-specific PCS features and grid-forming capabilities.

<sup>3</sup> IQ Microinverters ship with default settings that meet North America's IEEE 1547 interconnection standard requirements. Region-specific adjustments may be requested by an Authority Having Jurisdiction (AHJ) or utility representative, according to the IEEE 1547 interconnection standard. Use an IQ Gateway to make these changes during installation.

<sup>4</sup> Meets UL 1741 only when installed with IQ System Controller 2 or 3.

<sup>5</sup> IQ8 and IQ8+ support split-phase, 240 V installations only.

| Input data (DC)                                          | Units | IQ8-60-2-US                                                                                                                                                                                                                                                                      | IQ8PLUS-72-2-US |
|----------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Commonly used module pairings <sup>6</sup>               | W     | 235–350                                                                                                                                                                                                                                                                          | 235–440         |
| Module compatibility                                     | —     | To meet compatibility, PV modules must be within maximum input DC voltage and maximum module $I_{sc}$ . 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                                   | —     | Ungrounded array; no additional DC side protection required; AC side protection requires a 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>7</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>8</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                                          |       | IQ8-60-2-US                                                                                                                                                                                                                                                                      | IQ8PLUS-72-2-US |
| Ambient temperature range                                |       | –40°C to 60°C (–40°F to 140°F)                                                                                                                                                                                                                                                   |                 |

<sup>6</sup> No enforced DC/AC ratio.

<sup>7</sup> Nominal voltage range can be extended beyond nominal if required by the utility.

<sup>8</sup> Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

| Mechanical data                           | IQ8-60-2-US                                                                                                                                                                                                                                                                                                                                                                                                                                       | IQ8PLUS-72-2-US |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 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 lb)                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |
| Compliance                                | IQ8-60-2-US                                                                                                                                                                                                                                                                                                                                                                                                                                       | IQ8PLUS-72-2-US |
| 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.<br>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. |                 |

# Enphase IQ Combiner 4/4C

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



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



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



## 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 (not included, order separately)                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Ensemble Communications Kit<br>COMMS-CELLMODEM-M1-06<br>CELLMODEM-M1-06-SP-05<br>CELLMODEM-M1-06-AT-05            | - Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites<br>- 4G based LTE-M1 cellular modem with 5-year Sprint data plan<br>- 4G based LTE-M1 cellular modem with 5-year AT&T data plan                                                                                                                                                                                                                                                                                                                                                              |
| Circuit Breakers<br>BRK-10A-2-240V<br>BRK-15A-2-240V<br>BRK-20A-2P-240V<br>BRK-15A-2P-240V-B<br>BRK-20A-2P-240V-B | Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers.<br>Circuit breaker, 2 pole, 10A, Eaton BR210<br>Circuit breaker, 2 pole, 15A, Eaton BR215<br>Circuit breaker, 2 pole, 20A, Eaton BR220<br>Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support<br>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<br>• 60 A breaker branch input: 4 to 1/0 AWG copper conductors<br>• Main lug combined output: 10 to 2/0 AWG copper conductors<br>• Neutral and ground: 14 to 1/0 copper conductors<br>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<br>Production metering: ANSI C12.20 accuracy class 0.5 (PV production)<br>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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# Enphase Q Cable Accessories

The **Enphase Q Cable™** and accessories are part of the latest generation Enphase IQ System™. These accessories provide simplicity, reliability, and faster installation times.



## Enphase Q Cable

- Two-wire, double-insulated Enphase Q Cable is 50% lighter than the previous generation Enphase cable
- New cable numbering and plug and play connectors speed up installation and simplify wire management
- Link connectors eliminate cable waste

## Field-Wireable Connectors

- Easily connect Q cables on the roof without complex wiring
- Make connections from any open connector and center feed any section of cable within branch limits
- Available in male and female connector types

# Enphase Q Cable Accessories

| CONDUCTOR SPECIFICATIONS                        |                                                                                                                                    |                                                                                                                                     |                       |                         |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------|
| Certification                                   | UL3003 (raw cable), UL 9703 (cable assemblies), DG cable                                                                           |                                                                                                                                     |                       |                         |
| Flame test rating                               | FT4                                                                                                                                |                                                                                                                                     |                       |                         |
| Compliance                                      | RoHS, OIL RES I, CE, UV Resistant, combined UL for Canada and United States                                                        |                                                                                                                                     |                       |                         |
| Conductor type                                  | THHN/THWN-2 dry/wet                                                                                                                |                                                                                                                                     |                       |                         |
| Disconnecting means                             | The AC and DC bulkhead connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690. |                                                                                                                                     |                       |                         |
| Q CABLE TYPES / ORDERING OPTIONS                |                                                                                                                                    |                                                                                                                                     |                       |                         |
| Connectorized Models                            | Size / Max Nominal Voltage                                                                                                         | Connector Spacing                                                                                                                   | PV Module Orientation | Connector Count per Box |
| Q-12-10-240                                     | 12 AWG / 277 VAC                                                                                                                   | 1.3 m (4.2 ft)                                                                                                                      | Portrait              | 240                     |
| Q-12-17-240                                     | 12 AWG / 277 VAC                                                                                                                   | 2.0 m (6.5 ft)                                                                                                                      | Landscape (60-cell)   | 240                     |
| Q-12-20-200                                     | 12 AWG / 277 VAC                                                                                                                   | 2.3 m (7.5 ft)                                                                                                                      | Landscape (72-cell)   | 200                     |
| ENPHASE Q CABLE ACCESSORIES                     |                                                                                                                                    |                                                                                                                                     |                       |                         |
| Name                                            | Model Number                                                                                                                       | Description                                                                                                                         |                       |                         |
| Raw Q Cable                                     | Q-12-RAW-300                                                                                                                       | 300 meters of 12 AWG cable with no connectors                                                                                       |                       |                         |
| Field-wireable connector (male)                 | Q-CONN-10M                                                                                                                         | Make connections from any open connector                                                                                            |                       |                         |
| Field-wireable connector (female)               | Q-CONN-10F                                                                                                                         | Make connections from any Q Cable open connector                                                                                    |                       |                         |
| Cable Clip                                      | Q-CLIP-100                                                                                                                         | Used to fasten cabling to the racking or to secure looped cabling                                                                   |                       |                         |
| Disconnect tool                                 | Q-DISC-10                                                                                                                          | Disconnect tool for Q Cable connectors, DC connectors, and AC module mount                                                          |                       |                         |
| Q Cable sealing caps (female)                   | Q-SEAL-10                                                                                                                          | One needed to cover each unused connector on the cabling                                                                            |                       |                         |
| Terminator                                      | Q-TERM-10                                                                                                                          | Terminator cap for unused cable ends                                                                                                |                       |                         |
| Enphase EN4 to MC4 adaptor <sup>1</sup>         | ECA-EN4-S22                                                                                                                        | Connect PV module using MC4 connectors to IQ micros with EN4 (TE PV4-S SOLARLOK). 150mm/5.9" to MC4.                                |                       |                         |
| Enphase EN4 non-terminated adaptor <sup>1</sup> | ECA-EN4-FW                                                                                                                         | For field wiring of UL certified DC connectors. EN4 (TE PV4-S SOLARLOK) to non-terminated cable. 150mm/5.9"                         |                       |                         |
| Enphase EN4 to MC4 adaptor (long) <sup>1</sup>  | ECA-EN4-S22-L                                                                                                                      | Longer adapter cable for EN4 (TE PV4-S SOLARLOK) to MC4. Use with split cell modules or PV modules with short DC cable. 600mm/23.6" |                       |                         |
| Replacement DC Adaptor (MC4)                    | Q-DCC-2                                                                                                                            | DC adaptor to MC4 (max voltage 100 VDC)                                                                                             |                       |                         |
| Replacement DC Adaptor (UTX)                    | Q-DCC-5                                                                                                                            | DC adaptor to UTX (max voltage 100 VDC)                                                                                             |                       |                         |

1. Qualified per UL subject 9703.

|                                                                                       |                                                                                                       |                                                                                       |                                                                                                                                   |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
|  | <b>TERMINATOR</b><br>Terminator cap for unused cable ends, sold in packs of ten (Q-TERM-10)           |  | <b>SEALING CAPS</b><br>Sealing caps for unused aggregator and cable connections (Q-BA-CAP-10 and Q-SEAL-10)                       |
|  | <b>DISCONNECT TOOL</b><br>Plan to use at least one per installation, sold in packs of ten (Q-DISC-10) |  | <b>CABLE CLIP</b><br>Used to fasten cabling to the racking or to secure looped cabling, sold in packs of one hundred (Q-CLIP-100) |

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

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2020-06-26

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20230825-E341165  
**Report Reference** E341165-20210317  
**Date** 2023-09-27

SB

**Issued to:** Enphase Energy Inc.  
1420 N. McDowell Blvd. Petaluma, CA 94954-6515

**This is to certify that representative samples of** Photovoltaic Grid Support Utility Interactive Inverter with Rapid Shutdown Functionality

Models: IQ8-60, IQ8PLUS-72, IQ8M-72, IQ8A-72, IQ8H-208-72, IQ8H-240-72, may be f/b -2, -5, -E or -M, may be f/b -ACM, f/b -US, may be f/b -NM, may be f/b -RMA, may be f/b -&, where "&" designates additional characters.

Models IQ8HC-72, IQ8AC-72, IQ8MC-72 may be f/b -2, -5, -E or -M, may be f/b -ACM, f/b -US, may be f/b -NM, may be f/b -RMA, may be f/b -&, where "&" designates additional characters.

Model IQ8X-80 may be f/b -2, -5, -E, or -M, may be f/b -ACM, f/b -US, may be f/b -NM, may be f/b -RMA, may be f/b -&, where "&" designates additional characters

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** See Page 2

**Additional Information:** See the UL Online Certifications Directory at [www.ul.com/database](http://www.ul.com/database) for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.



Bruce Mahrenholz, Director North American Certification Program

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# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20230825-E341165  
**Report Reference** E341165-20210317  
**Date** 2023-09-27

SB

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.  
Standards for Safety:

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements, Standards for Safety:

UL 1741, Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources, Edition 3, Issue Date 05/19/2023. Including the requirements in UL 1741 Supplement SA and SB.

IEEE 1547, Interconnection and Interoperability of Distributed Energy Resources (DERs) with Associated Electric Power Systems (EPSs) Interfaces, Issue Date 02/15/2018

IEEE 1547.1, IEEE Standard Conformance Test Procedures for Interconnecting Distributed Energy Resources (DERs) with Electric Power Systems (EPSs) Associated Interfaces, Issue Date 03/05/2020.

CSA C22.2 No. 107.1-16, General Use Power Supplies, Edition 4, Issue Date 06/2016

☒ R21: The evaluation to the Standards above provides evidence of compliance to the intent of the existing California Rule 21 Interconnection (references to the past publication of IEEE 1547 standards) and UL1741 Table SA1.1 option to use the IEEE 1547.1-2020 and UL1741 SB test methods in conjunction with using IEEE 1547-2018 as the SRD under which SA11.2 Normal Ramp Rate is not address. Additional testing was conducted to confirmed compliance to Normal Ramp Rate SA11.2

☐ 14H (SA): The evaluation to the Standards above provides evidence of compliance to HECO Rule 14H, SRD V1.0, Interconnection Application.

☒ 14H (SB): The evaluation to the Standards above provides evidence of compliance to HECO Rule 14H, SRD V2.0, Interconnection Application.



Bruce Mahrenholz, Director North American Certification Program

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# SOLAR METER SOCKET ADAPTER

The ConnectDER™ Solar Meter Socket Adapter (MSA) is designed to rapidly connect grid-ready solar PV assets to the home. The adapter is UL-listed, NEC compliant, and a low-cost alternative to traditional installation methods.



## SIMPLE PLUG & PLAY INTERCONNECTION FOR RESIDENTIAL SOLAR PV



- Eliminates main panel upgrades (MPU), reduces costs; provides a safe, reliable, and standardized point of interconnection
- Tool-free junction box removal provides easy access to meter socket for inspection and allows for safe removal by emergency personnel
- Junction box is reversible for conduit entry from either side of the MSA
- Ability to interconnect Solar PV without entering the premises or accessing the main panel
- Compatible with most residential meter sockets, including lever and horn bypass
- Integrated overcurrent protection device for Solar PV (80A, 22k AIC maximum)

**Available Now!**

[www.connectder.com](http://www.connectder.com)

INSIDE A CONNECTDER SOLAR MSA



CIRCUIT BREAKER



TERMINAL BLOCK

Suitable for use as Service Equipment





# SOLAR METER SOCKET ADAPTER



| MECHANICAL SPECIFICATIONS               |                                                                                       | UTILITY INTERACTIVE SOURCE RATINGS   |                                                                                                                                     |
|-----------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| ENCLOSURE RATING                        | NEMA 3R                                                                               | MAXIMUM POWER                        | 15.36 KW AC                                                                                                                         |
| ENCLOSURE TYPE                          | Injection molded polycarbonate, UL 94 V0 flame rating                                 | MAXIMUM VOLTAGE                      | 240V                                                                                                                                |
| COOLING                                 | Natural convection                                                                    | MAXIMUM CONTINUOUS PV CURRENT        | 64A                                                                                                                                 |
| DIMENSIONS (H X W X D)                  | 6.7 x 6.7 x 4.6in adapter only<br>8.6 x 7.0 x 4.6in with junction box                 | CONTINUOUS COMBINED CURRENT, PV/GRID | 200A                                                                                                                                |
| WEIGHT                                  | 4.1lb (1.9kg)                                                                         | INVERTER WIRING TERMINATION          | Terminal block                                                                                                                      |
| MOUNTING SYSTEM                         | Blade interface with 4-jaw or 5-jaw meter socket                                      | GRID TERMINATION METHOD              | Blade interface with meter socket for L1/L2, pigtail for neutral                                                                    |
| ELECTRIC METER COMPATIBILITY            | Type 2S and 12S                                                                       |                                      |                                                                                                                                     |
| METER SOCKET COMPATIBILITY              | Ringless and ring-type, lever and horn bypass meter sockets                           |                                      |                                                                                                                                     |
| DER INTERFACE POINT                     | Factory configured, load side of utility meter/supply side of main service disconnect |                                      |                                                                                                                                     |
| CONDUIT CONNECTION                      | Single 1" NPT fitting                                                                 |                                      |                                                                                                                                     |
| TERMINAL CONNECTIONS                    | L1, L2, N, G; Up to 3 AWG wire                                                        |                                      |                                                                                                                                     |
| SAFETY INFORMATION                      |                                                                                       | OVERCURRENT PROTECTION               |                                                                                                                                     |
| APPLICABLE SAFETY STANDARDS             | UL 414 – Meter Sockets                                                                | TYPE                                 | Siemens Type QP, Eaton Type BR (10k AIC) Siemens Type QH, Eaton Type BRH (22k AIC) Thermal magnetic 120/240V, externally resettable |
| UL FILE NUMBER (STANDARDS)              | E361188                                                                               | OVERCURRENT RATINGS AVAILABLE        | 40A, 60A and 80A Standard                                                                                                           |
| AMBIENT AIR OPERATING TEMPERATURE RANGE | -22°F to 158°F (-30°C to 70°C)                                                        | CURRENT INTERRUPTING RATING          | 10k AIC or 22k AIC                                                                                                                  |
| AMBIENT AIR STORAGE TEMPERATURE RANGE   | -40°F to 176°F (-40°C to 80°C)                                                        |                                      |                                                                                                                                     |



# RAIL SYSTEM

## One Clamp Anywhere

The Multi-Clamp works as mid- or end-clamp, and fits standard 30-40mm frames.

## Instant Bonding

The N-S Bonding Jumper bonds row to row with no tools.

## Lifetime Wire Management

Open rail channel holds and protects wires. Clamps won't pinch wires after tightening.

## Bonding Structural Splice

Connect rails instantly, without tools, interference or limitations.

## Next-Level Solar Mounting

A complete system for hassle-free rooftop installation, from watertight mounts to lifetime wire management.



### Simplicity

1/2" socket for everything.  
One clamp for mid or end.  
No tool splicing and bonding.  
Easy wire management.



### Code Compliant

UL 2703 listed  
LTR-AE-001-2012 listed  
Class A fire rating for any slope  
ASCE 7-16 PE Certified



### Premium Aesthetics

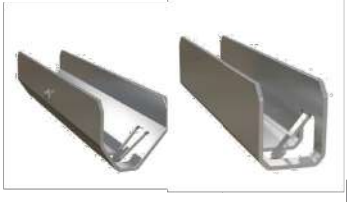
The narrowest panel gap available. Optional Hidden End Clamps and End Caps provide a flush look on the edge of the array.



### Watertight for Life

Secured on industry-leading Pegasus Mounts, for composite shingle and tile roofs. Backed by a 25-year warranty.

# RAIL SYSTEM

|                                                                                                                                                                  |                                                                                                                                          |                                                                                                                            |                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
|                                                                               |                                                       |                                         |                        |
| <b>Pegasus Rail</b>                                                                                                                                              | <b>Pegasus Max Rail</b>                                                                                                                  | <b>Splice and Max Splice</b>                                                                                               | <b>Dovetail T-bolt</b>                                                                                    |
| Available in 14' and 7' lengths for easy layout and shipping.<br>Open-channel design holds MC4 connectors, PV wire and trunk cables.<br>Black and Mill finish    | Maximum-strength design.<br>Meets specifications for high snow-load and hurricane zones.<br>Black and Mill finish                        | Installs by hand.<br>Works over mounts.<br>Structurally connects and bonds rails automatically; UL2703 listed as reusable. | Dovetail shape for extra strength.<br>Uses 1/2" socket.                                                   |
|                                                                               |                                                       |                                         |                        |
| <b>Multi-Clamp</b>                                                                                                                                               | <b>Hidden End Clamp</b>                                                                                                                  | <b>Ground Lug</b>                                                                                                          | <b>N-S Bonding Jumper</b>                                                                                 |
| Fits 30-40mm PV frames, as mid- or end-clamp.<br>Twist-locks into position; doesn't pinch wires in rail.<br>Bonds modules to rail; UL2703 listed as reusable     | Offers premium edge appearance.<br>Preinstalled pull-tab grips rail edge, allowing easy, one-hand installation.<br>Tucks away for reuse. | Holds 6 or 8 AWG wire.<br>Mounts on top or side of rail.<br>Assembled on MLPE Mount.<br>UL2703 listed as reusable.         | Installs by hand, eliminates row-to-row copper wire.<br>UL2703 listed as reusable only with Pegasus Rail. |
|                                                                             |                                                     |                                       |                      |
| <b>MLPE Mount</b>                                                                                                                                                | <b>Cable Grip</b>                                                                                                                        | <b>Wire Clip</b>                                                                                                           | <b>End Cap and Max End Cap</b>                                                                            |
| Secures and bonds most micro-inverters and optimizers to rail.<br>Connectors and wires easily route underneath after installation.<br>UL2703 listed as reusable. | Secures four PV wires or two trunk cables.<br>Stainless-steel backing provides durable grip.<br>Eliminates sagging wires.                | Hand operable.<br>Holds wires in channel.<br>Won't slip.                                                                   | Fits flush to PV module and hides raw or angled cuts.<br>Hidden drain quickly clears water from rail.     |

### Certifications:

- UL 2703, Edition 1
- LTR-AE-001-2012
- ASCE 7-16 PE certified
- Class A fire rating for any slope roof



### FREE PEGASUS SOLAR Design Tool

Quickly calculate the most efficient layout, spans and materials needed to suit your job. Visit the Pegasus Customer Portal. [pegassussolar.com/portal](https://www.pegassussolar.com/portal)

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| LOAD       |            | SPAN             |    |    |    |
|------------|------------|------------------|----|----|----|
| SNOW (PSF) | WIND (MPH) | 32"              | 4' | 6' | 8' |
| 0          | 120        | PEGASUS RAIL     |    |    |    |
|            | 160        |                  |    |    |    |
|            | 190        |                  |    |    |    |
| 15         | 140        | PEGASUS RAIL     |    |    |    |
|            | 160        |                  |    |    |    |
|            | 190        |                  |    |    |    |
| 30         | 160        | PEGASUS RAIL     |    |    |    |
|            | 190        |                  |    |    |    |
| 45         | 190        | PEGASUS RAIL     |    |    |    |
| 70         | 190        | PEGASUS RAIL     |    |    |    |
| 110        | 190        | PEGASUS MAX RAIL |    |    |    |

For reference only. Spans above are calculated using ASCE 7-16 for a Gable Roof, Exposure Category B, 7-20deg roof angle, 30ft mean roof height with non-exposed modules. For PE certified span tables, visit [www.pegassussolar.com/spans](https://www.pegassussolar.com/spans).



INSTAFLASH™



INSTAFLASH™

### Never Deal With Caulking Again!

Factory-installed,  
non-hardening sealant

**Before InstaFlash Installed:**  
Sealant is contained above roof surface  
by a protective cage.

**After InstaFlash Installed:**  
Sealant is compressed to fill all  
holes and voids.

**Protective Cage**  
Prevents sealant from getting on hands or roof.  
Collapses upon lag installation.

## Effortless Lifetime Roof Protection

The non-hardening sealant completely fills any missed pilot holes, shingle rips, voids,  
or other potential water ingress points under the entire footprint of the 4.6" wide base.



#### 25-Year Warranty

Manufactured with advanced  
materials and coatings to  
outlast the roof itself



#### Code Compliant

Fully IBC/CBC Code Compliant  
Exceeds ASCE 7-16 Standards  
FL Cert of Approval FL41396  
UL2703 Certified



#### Self-Healing

The proprietary non-hardening  
sealant will flex and reseal over  
years of thermal expansion  
and contraction



#### Larger Spans

The extra-large L-foot and  
proprietary lag screw result in  
larger spans between mounts

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**1**  
Drill pilot hole in the  
center of the rafter  
using a 7/32" bit.



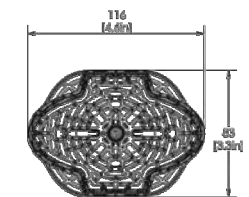
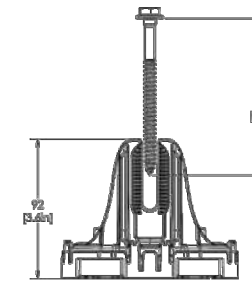
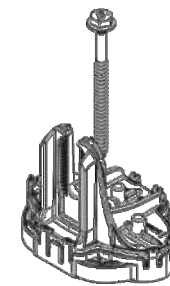
**2**  
Place the InstaFlash  
over the pilot hole.  
**Note:** the direction of  
the InstaFlash Down  
arrows should point  
down the roof.



**3**  
Insert the lag screw  
through the center  
hole into the pilot hole.



**4**  
Drive the lag until the  
InstaFlash is fully seated  
to the roof.



| SPECIFICATIONS              | INSTAFLASH KITS                                                                                    |                                                                        |                                                                  |                                                 |                                                                       |
|-----------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------|
|                             | PIF-RB0                                                                                            | PIF-RBDT                                                               | PIF-RBSH                                                         | PIF-RM0                                         | PIF-RMDT                                                              |
| Finish                      | Black                                                                                              |                                                                        |                                                                  | Mill                                            |                                                                       |
| Kit Contents                | Black InstaFlash,<br>5/16" x 4.0" SS<br>Lag                                                        | Black InstaFlash,<br>5/16" x 4.0" SS Lag,<br>Dovetail T-bolt w/<br>Nut | Black InstaFlash,<br>5/16" x 4.0" SS Lag,<br>M10 Hex Bolt w/ Nut | Mill Insta-<br>Flash,<br>5/16" x 4.0"<br>SS Lag | Mill InstaFlash,<br>5/16" x 4.0" SS<br>Lag, Dovetail<br>T-bolt w/ Nut |
| Attachment Type             | Rafter Attached                                                                                    |                                                                        |                                                                  |                                                 |                                                                       |
| Roof Type                   | Sloped Roof: Composition Shingle, Rolled Asphalt   Flat roof: Modified Bitumen Roof, Built-Up Roof |                                                                        |                                                                  |                                                 |                                                                       |
| Sealant Application         | Factory Installed                                                                                  |                                                                        |                                                                  |                                                 |                                                                       |
| Installation<br>Temperature | 0°F to 170° F                                                                                      |                                                                        |                                                                  |                                                 |                                                                       |
| Cure Time                   | Instantly Waterproof; Non-hardening                                                                |                                                                        |                                                                  |                                                 |                                                                       |
| Service Temperature         | -40°F to 195° F                                                                                    |                                                                        |                                                                  |                                                 |                                                                       |
| Certifications              | IBC, ASCE/SEI 7-16, FL Cert of Approval FL41396, TAS 100(A), UL2703                                |                                                                        |                                                                  |                                                 |                                                                       |
| Install Application         | Most Railed Systems, Pegasus Tilt Leg Kit                                                          |                                                                        |                                                                  |                                                 |                                                                       |
| Kit Quantity                | 24                                                                                                 |                                                                        |                                                                  |                                                 |                                                                       |
| Boxes per Pallet            | 36                                                                                                 |                                                                        |                                                                  |                                                 |                                                                       |

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SCAN FOR  
INSTALLATION  
VIDEO



SCAN FOR  
FREE TRIAL

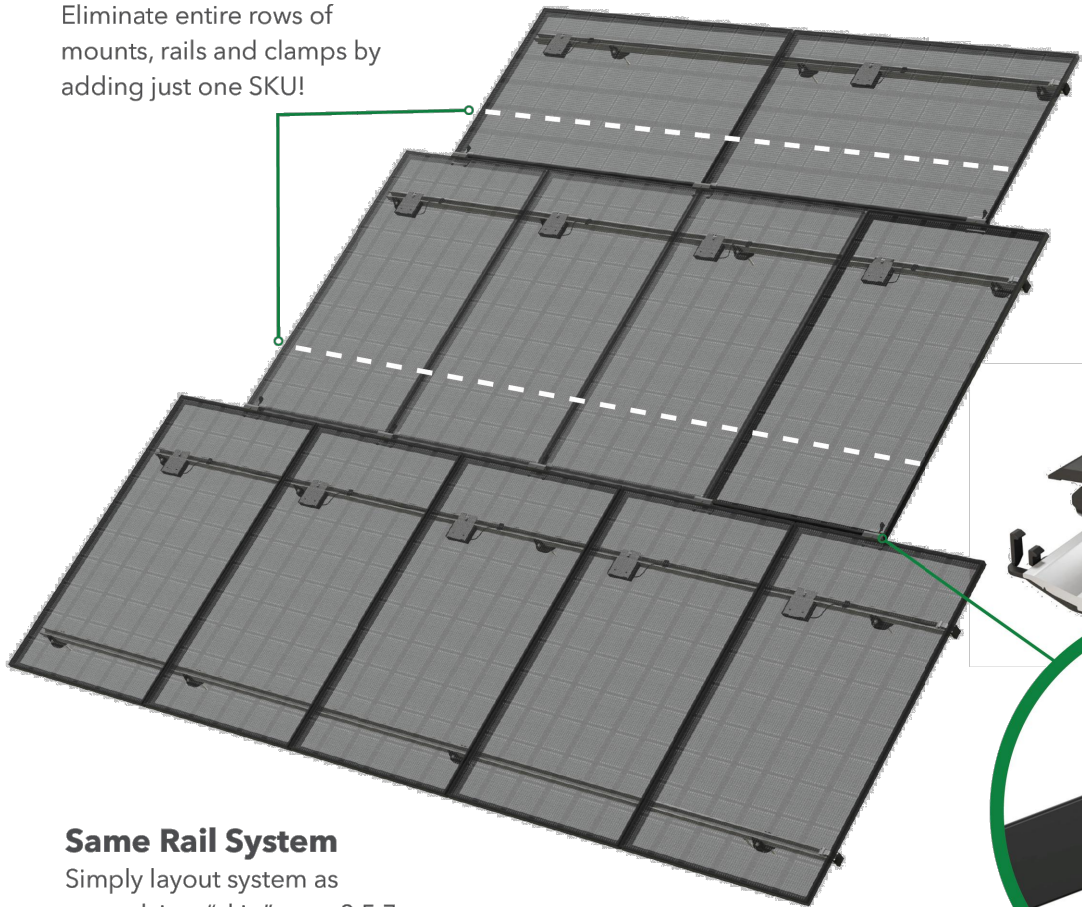
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# SK•PRAIL

### Skip Rows!

Eliminate entire rows of mounts, rails and clamps by adding just one SKU!



### SkipRail Clamp

Structurally connects and bonds modules row-to-row  
Eliminate leveling rails:  
aligns module rows to be in-plane



### Same Rail System

Simply layout system as normal, just "skip" rows 3,5,7,etc. of attachments, rails, and clamps

## A Revolution in Solar Installations

Lower your costs and provide your crews a faster system by eliminating entire rows of mounts, rails and clamps with just one SKU.



#### Dramatically Lower Costs

25% fewer rails and clamps  
15% fewer roof penetrations  
3500 lbs less per MW to ship, warehouse, pack, and load



#### Recruit the Best Crews

Less work = happier crews  
300 lbs less per week to haul  
Faster install  
Auto-levels modules



#### Easy to Implement

Minimal to no training  
Same layout as standard rail  
Same open-channel wire management



#### Universal to Any Roof

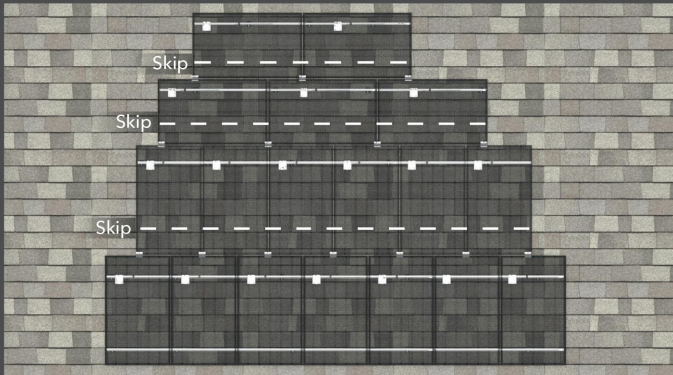
Comp, Tile, Metal, other.  
Low slope, steep slopes  
Easily work around roof obstructions  
Mixed portrait / landscape



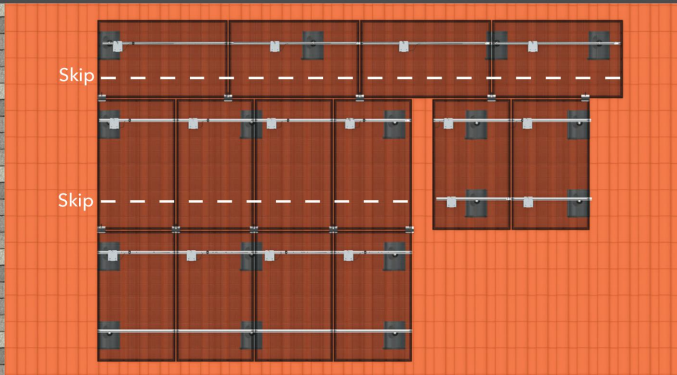
# SK•PRAIL

**SkipRail SAVINGS** | 18% fewer attachments • 32% fewer feet of rails  
22% fewer pounds to ship & warehouse

**SkipRail SAVINGS** | 21% fewer attachments • 30% fewer feet of rails  
21% fewer pounds to ship & warehouse

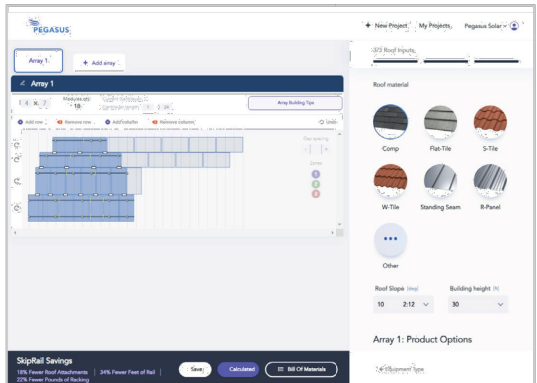


Example of Comp Roof Array

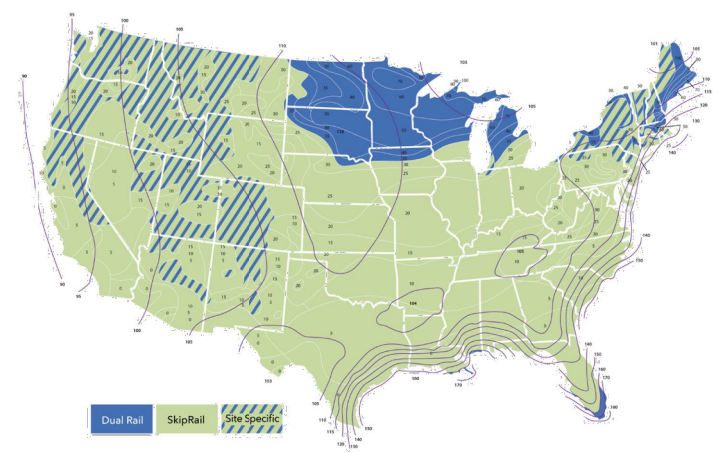


Example of Tile Roof Array

**Free Design Tool:**  
[pegasussolar.com/portal](https://pegasussolar.com/portal)



### Where SkipRail Works



| Specifications          |                             | SkipRail Kits                         |  |
|-------------------------|-----------------------------|---------------------------------------|--|
| SKU                     | PSR-SRC                     | PSR-SRCK                              |  |
| Type                    | Floating Clamp              | Extra support with Kickstand          |  |
| Finish                  | Black                       |                                       |  |
| PV module frames        | 30, 32, 35, 40mm            |                                       |  |
| Certifications          | ASCE 7-16, IBC, CBC, UL2703 |                                       |  |
| Applicable Roof Types   | Any                         |                                       |  |
| Compatible Rail Systems | Pegasus Rail System         |                                       |  |
| Kit Contents            | Pegasus SkipRail Clamp      | Pegasus SkipRail Clamp with Kickstand |  |
| Kit Quantity            | 20                          | 30                                    |  |



SCAN FOR VIDEO

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SCAN FOR  
FREE TRIAL

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