City of Newberg

**PERMIT #:** BLD-25-272

**ISSUE DATE:** September 18, 2025

General Questions: 503. 537.1240
Email Address: building@newbergoregon.gov

# BUILDING PERMIT
## BUILDING DEPARTMENT

**SITE ADDRESS:** 427 W MYRTLEWOOD ST Newberg, OR. 97132

**PARCEL #:** R3207CA 03400

**TYPE OF CONSTRUCTION:** VB

**TYPE OF WORK:** Residential

**TOTAL SQ. FT.:**

**BUILDING USE:** R-3

**DETAILED DESCRIPTION OF WORK:** 26 module roof mounted 10.66kwDC

**ZONING:** R-1/6.6

**TOTAL VALUE OF WORK:** $

**PROJECT NAME** *(if applicable)*:

**TOTAL PERMIT FEE'S PAID:** $223.21

## AUTHORIZED PERMIT HOLDERS

**APPLICANT:** Infinity Solar USA

**PHONE:** 509-955-7034

**MAILING ADDRESS:** 808 SE Chkalov DR 3-337 Vancouver, WA. 98683

**CONTRACTOR:** TML INTERNATIONAL LLC

**PHONE:** 5038515793

**MAILING ADDRESS:** 808 SE CHKALOV DR STE 3-337

**CCB #:** 223690

## ADDITIONAL INFORMATION/CONDITIONS OF APPROVAL/COMMENTS

*ALL WORK IS TO CONFORM TO THE CURRENT EDITION OF THE ORSC & OSCC.*

INSPECTIONS REQUESTED **PRIOR TO 7AM** WILL BE COMPLETED THE ***SAME*** BUSINESS DAY.

INSPECTION RECEIVED **AFTER 7AM** WILL BE SCHEDULED FOR THE **NEXT** BUSINESS DAY.

***Schedule or track inspections at www.newbergor.portal.opengov.com OR Call 503.554.7714 leave PERMIT # BLD-25-272, address & type of Insp.***

**THIS PERMIT EXPIRES 6 MO FROM ISSUE DATE: March 17, 2026 IF WORK IS NOT STARTED OR IF WORK IS SUSPENDED OR ABANDONED FOR 180 DAYS OR LONGER AFTER WORK HAS COMMENCED.**

A copy of the building permit & 1 set of approved construction documents are to be available for review at the work site.

All persons or entities performing work under this permit are required to be licensed unless exempted by ORS 701.010 (Structural/Mechanical), and ORS 693.010-020 (Plumbing).

**8.15.150 UNNECESSARY NOISE–PERMITTED EXCEPTIONS. UNREASONABLE NOISE AND EXCEPTIONS.**

3. The following acts are declared to be per se violations of this section. This enumeration does not constitute an exclusive list:
j. Construction or Repair of Buildings, or Excavation of Streets and Highways. The construction, demolition, alteration or repair of any building or the excavation of streets and highways other than between the hours of 7:00 a.m. and 7:00 p.m. on weekdays. In cases of emergency, construction or repair noises are exempt from this provision. In nonemergency situations, the city may issue a permit, upon application, if the city determines that the public health and safety, as affected by loud and raucous noise caused by construction or repair of buildings or excavation of streets and highways between the hours of 7:00 p.m. and 7:00 a.m. will not be impaired, and if the city further determines that loss or inconvenience would otherwise result. The permit shall grant permission in nonemergency cases for a period of not more than three days. The permit may be renewed once for a period of three days or less.

**NEWBERG CITY HALL** **414 E FIRST ST** **Web address: newbergoregon.gov**

# PHOTOVOLTAIC ROOF MOUNT SYSTEM

26 MODULES-ROOF MOUNTED - 10.660 kW DC, 10.752 kW AC, 427 W MYRTLEWOOD ST, NEWBERG, OR 97132

## PHOTOVOLTAIC SYSTEM SPECIFICATIONS:

| | |
|---|---|
| SYSTEM SIZE: | 10.660 KW DC<br>10.752 KW AC |
| MODULE TYPE & AMOUNT: | (26) ZNSHINESOLAR ZXM7-SH108-410M |
| MODULE DIMENSIONS: | (L/W/H) 67.87"/44.64"/1.18" |
| INVERTER: | (14) AP SYSTEMS DS3-L [240V] |
| INTERCONNECTION METHOD: | LINE SIDE TAP |
| AHJ: | CITY OF NEWBERG |

## GOVERNING CODES:

- 2023 OREGON RESIDENTIAL SPECIALTY CODE
- 2022 OREGON STRUCTURAL SPECIALTY CODE (OSSC)
- 2021 OREGON ELECTRICAL SPECIALTY CODE (NEC 2020)
- 2022 OREGON FIRE CODE

## SITE DETAIL:

| | |
|---|---|
| UTILITY: | PGE |
| MSP: | EXISTING 200A MSP WITH 200A MAIN BREAKER |
| ROOF MATERIAL: | COMPOSITE SHINGLE |
| ASCE 7-10 WINDSPEEDS: | (3 SEC GUST IN MPH) |
| WIND SPEED AND EXPOSURE: | 110 MPH, C |
| ROOF SNOW LOAD: | 20 PSF |
| DEAD LOAD FOR ROOF-MOUNTED PANELS ATTACHMENTS: | 2.38 PSF |
| RACKING: | CHIKO RACKING SYSTEM FOR COMP ROOF |
| ARRAY AREA: | 21.04 SQFT x 26 = 547.0 SQFT |

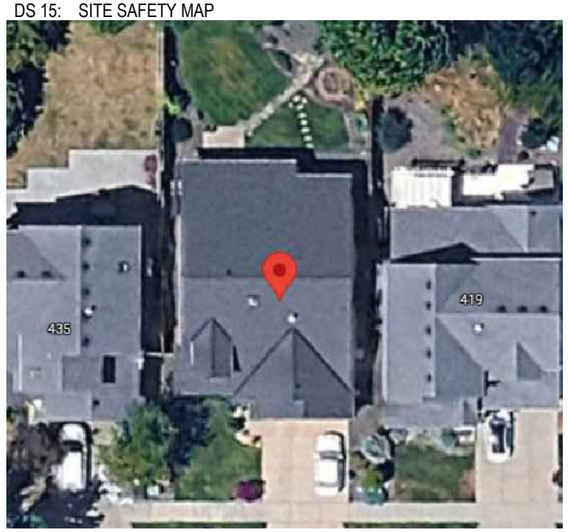
## SHEET INDEX:



## PHOTOVOLTAIC NOTES:

1. AN INVERTER OR AN AC MODULE IN AN INTERACTIVE PHOTOVOLTAIC SYSTEM SHALL AUTOMATIC ALL DE-ENERGIZE ITS OUTPUT TO THE CONNECTED ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK UPON LOSS OF VOLTAGE IN THAT SYSTEM AND SHALL REMAIN IN THAT STATE UNTIL THE ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK VOLTAGE HAS BEEN RESTORED. (NEC 690361)
2. ALL EXTERIOR ELECTRICAL METALLIC TUBING(EMT) CONDUIT FITTING SHALL BE RAIN TIGHT THREAD-LESS COMPRESSION TYPE.
3. MODULES AND SUPPORT STRUCTURES SHALL BE GROUNDED
4. NAMEPLATES SHALL BE PROVIDED FOR ALL CIRCUITS IN THE SERVICE DISTRIBUTION AND POWER DISTRIBUTION SWITCH BOARDS, PANEL BOARDS, DISCONNECTING SWITCHES, TERMINAL CABINETS, ETC. ALL NAMEPLATES SHALL BE PERMANENTLY ATTACHED AND BE OF SUFFICIENT CAPACITY TO WITHSTAND THE WEATHER.
5. JUNCTION BOX/COMBINER BOX HAVE TO USE COMPRESSION TYPE STRAIN RELIEF POSITIONED FOR APPROPRIATE WATER RUN OFF.
6. CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT WEATHERPROOF PULL BOXES OF JUNCTION BOX/COMBINER BOXES PER APPROPRIATE NEC REQUIREMENTS.
7. SEE PROVIDED CUT SHEETS FOR ADDITIONAL EQUIPMENT SPECIFICATIONS
8. WIRING MATERIALS SHALL BE SUITABLE FOR THE SUN EXPOSURE AND WET LOCATIONS. FIELD APPLIED PROTECTIVE COATINGS ARE NOT ACCEPTABLE.
9. JUNCTION, PULL AND OUTLET BOXES LOCATED BEHIND MODULES SHALL BE SO INSTALLED THAT THE WIRING CONTAINED IN THEM CAN BE RENDERED ACCESSIBLE DIRECTLY OR BY DISPLACEMENT OF MODULE(S) SECURED BY REMOVABLE FASTENERS AND CONNECTED BY A FLEXIBLE WIRING SYSTEM. (NEC 690.34)
10. IN AN UNDERGROUND PHOTOVOLTAIC SYSTEM, THE POWER SOURCE SHALL BE LABELED WITH THE FOLLOWING WARNING AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT AND DEVICE WHERE THE UNGROUNDED CIRCUITS MAY BE EXPOSED DURING SERVICE : " WARNING - ELECTRIC SHOCK HAZARD. THE CURRENT CIRCUIT CONDUCTORS OF THIS PHOTOVOLTAIC POWER SYSTEM ARE UNGROUNDED BUT MAY BE ENERGIZED WITH THE RESPECT TO GROUND DUE TO LEAKAGE PATHS AND/OR GROUND (NECE 690.35(F))
11. ALL PHOTOVOLTAIC MODULES AND ASSOCIATED EQUIPMENT AND WIRING MATERIAL SHALL BE PROTECTED FROM ANY PHYSICAL DAMAGE.
12. ALL ELECTRICAL DEVICES AND UTILIZATION EQUIPMENT SHALL BE LISTED BY AN APPROVED TESTING AGENCY.
13. OUTDOOR EQUIPMENT SHALL BE AT LEAST NEMA 3R RATED.
14. ALL SPECIFIED WIRING IS BASED ON THE USE OF COPPER
15. CONTRACTOR SHALL OBTAIN ELECTRICAL PERMITS AND SHALL COORDINATE ALL INSPECTION, COMMISSIONING AND ACCEPTANCE WITH THE CLIENT, UTILITY CO. AND CITY INSPECTORS AS NEEDED
16. DRAWINGS ARE DIAGRAMMATIC ONLY, ROUTING OF RACEWAYS SHALL BE AT THE OPTION OF THE CONTRACTOR UNLESS OTHERWISE NOTED AND SHALL BE COORDINATED WITH OTHER TRADES.
17. IF DISTANCES OF CABLE RUNS ARE DIFFERENT THAN SHOWN, THE CONTRACTOR SHALL NOTIFY ELECTRICAL ENGINEER TO VALIDATE THE WIRE SIZE. FINAL DRAWINGS WILL BE RED-LINED AND UPDATED AS APPROPRIATE.
18. WHENEVER A DISCREPANCY IN QUANTITY OF EQUIPMENT, ARISES ON THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO ENDURE COMPLETE COMPLIANCE AND LONGEVITY OF THE OPERABLE SYSTEM REQUIRED BY THE ARCHITECT/ENGINEER.
19. ALL BROCHURES, OPERATION MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE HANDED OVER TO THE OWNER'S REPRESENTATIVE AT THE COMPLETION OR WORK.
20. ALL WIRING CONCEALED IN WALL AND CEILING SPACES SHALL BE IN METAL CONDUIT.
21. THE SEISMIC BRACING AND ANCHORAGE OF ELECTRICAL CONDUITS SHALL BE IN ACCORDANCE WITH THE "SMACNA"-GUIDLINES FOR SEISMIC RESTRAINS OF MECHANICAL SYSTEMS AND PLUMING PIPING SYSTEMS.
22. ALL OF THE LISTED SYSTEMS REQUIRED THAT THE SEISMIC LATERAL FORCE F INCLUDING CONSIDERATION OF a^P AND r^P BE DETERMINED AT EACH LEVEL OF THE BUILDING SO THAT BRACE SPACING CAN BE CALCULATED. THE DISTRICT STRUCTURAL ENGINEER CAN APPROVE THE SEISMIC LATERAL FORCE DETERMINATION.
23. A COPY OF THE CHOSEN BRACING SYSTEM(S) INSTALLATION GUIDE/MANUAL SHALL BE ON THE JOB SITE PRIOR TO STARTING THE INSTALLING OF HANGERS AND/OR BRACES.
24. WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWDER DRIVEN PINS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE REINFORCED BARS . WHEN INSTALLING THEM INTO EXISTING PRE-STRESSED CONCRETE TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR.
25. THE WORKING CLEARANCES AROUND THE EXISTING ELECTRICAL EQUIPMENT AS WELL AS THE NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC 110.26.
26. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT. (NEC 300.6 01, 310.8 D)
27. GROUNDING BUSHINGS ARE REQUIRED AROUND PRE-PUNCHED CONCENTRIC KNOCKOUTS ON THE DC SIDE OF THE SYSTEM. (NEC 250.97)
28. THE GROUNDING ELECTRODE CONDUCTOR MUST BE PROTECTED FROM PHYSICAL DAMAGE IF SMALLER THAN #6 COPPER WIRE. (NEC 250.64 B)
29. GROUNDING ELECTRODE CONDUCTOR WILL BE CONTINUOUS, EXCEPT FOR SPLICES OR JOINTS AT BUSBARS WITHIN LISTED EQUIPMENT. (NEC 250.64 C)
30. RACEWAY FOR GROUNDING ELECTRODE CONDUCTOR SHALL BE BONDED AT EACH END. (CEC 250.64 (E)
31. WHERE ALL TERMINALS OF THE DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A SIGN WILL BE PROVIDED WARNING OF THE HAZARD PER NEC 690.17. 34. EACH UNGROUNDED CONDUCTOR OF THE MULT-IWIRE BRANCH CIRCUIT WILL BE IDENTIFIED PER PHASE AND SYSTEM PER NEC210.5.
32. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH NEC250.97 & 250.92 (B) & LAMC 93.250.97.
33. DC CONDUCTORS EITHER DO NOT ENTER THE BUILDING OR ARE RUN IN METALLIC RACEWAYS OR ENCLOSURES TO THE FIRST ACCESSIBLE DC DISCONNECTING MEANS PER NEC 690.31 (E), LAMC 93.690.31 (E)
34. ALL METALLIC FRAME RAILS AND OTHER CURRENT CARRYING METALLIC COMPONENTS (CONDUIT, JUNCTION & PULL BOXES, RACEWAY, ETC) SHALL BE SOLIDLY GROUNDED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS LAMC 93.690.110.3 & 93.110.3(B).
35. SCREWS, NUTS, BOLTS & WASHERS THAT ATTACH EQUIPMENT GROUNDING LUGS SHALL BE STAINLESS STEEL LAMC 93.110.3(B).
36. NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE LOCATED WITHIN THE DEDICATED SPACE ABOVE THE ELECTRICAL EQUIPMENT.
37. ALL FIELD INSTALLED JUNCTION, PULL AND OUTLET BOXED LOCATED BEHIND MODULES OR PANELS SHALL BE ACCESSIBLE DIRECTLY OR BY DISPLACEMENT OF A MODULE (S) OR PANEL (S) SECURED BY REMOVABLE FASTENERS.
38. REMOVAL OF A DWP-INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BONDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR AND THE PHOTOVOLTAIC SOURCE AND/OR OUTPUT CIRCUIT GROUNDED CONDUCTOR.
39. THE ROOF MOUNTED PHOTOVOLTAIC MODULES, PANELS, OR SOLAR VOLTAIC ROLL ROOFING MATERIAL SHALL HAVE THE SAME OR BETTER LISTED FIRE-RESISTANCE RATING THAN THE BUILDING ROOF-COVERING MATERIAL.
40. ALL ROOF MOUNTED CONDUIT WILL BE A MINIMUM 1/2" OFF THE ROOF SURFACE.

1 GENERAL NOTES AND PROJECT DATA
PV 0.0

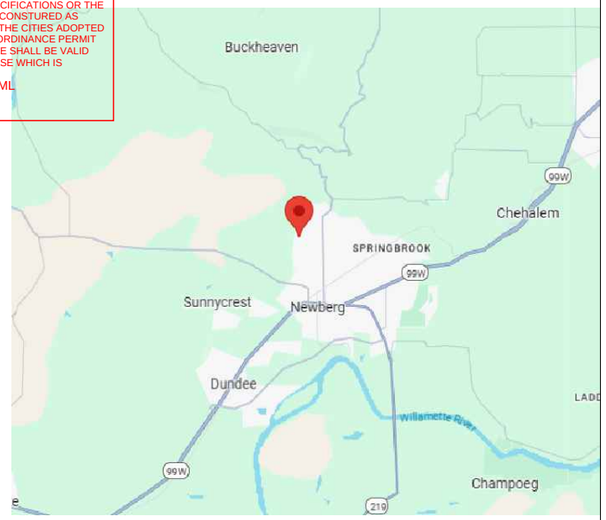



2 SATELLITE VIEW
PV 0.0
SCALE: NTS

BLD-25-272 427 W Myrtlewood St. - Approved

Reviewed & Approved for Code Compliance

NEITHER THE APPROVAL OF PLANS AND SPECIFICATIONS OR THE ISSUANCE OF A BUILDING PERMIT SHALL BE CONSTURED AS PERMISSION OF ENDOREMENT TO VIOLATE THE CITIES ADOPTED BUILDING CODE OR ANY OTHER MUNICIPAL ORDINANCE PERMIT ISSUED IN ACCORD WITH THE BUILDING CODE SHALL BE VALID ONLY TO THE EXTENT THAT THE WORK OR USE WHICH IS AUTHORIZED IS LAWFUL.
DATE: 9/9/2025 PLANS EXAMINER: ML




3 VICINITY MAP
PV 0.0
SCALE: NTS


infinity solar

INFINITY HOME SOLUTIONS
6405 E MILL PLAIN
VANCOUVER WA 98661
PHONE: 1-800-818-0598
INFINITY SOLAR.COM


REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
GENERAL NOTES AND PROJECT DATA

Sheet Size
ANSI B
11" X 17"

Sheet Number
PV 0.0

# PHOTOVOLTAIC ROOF MOUNT SYSTEM

26 MODULES-ROOF MOUNTED - 10.660 kW DC, 10.752 kW AC, 427 W MYRTLEWOOD ST, NEWBERG, OR 97132

## PHOTOVOLTAIC SYSTEM SPECIFICATIONS:

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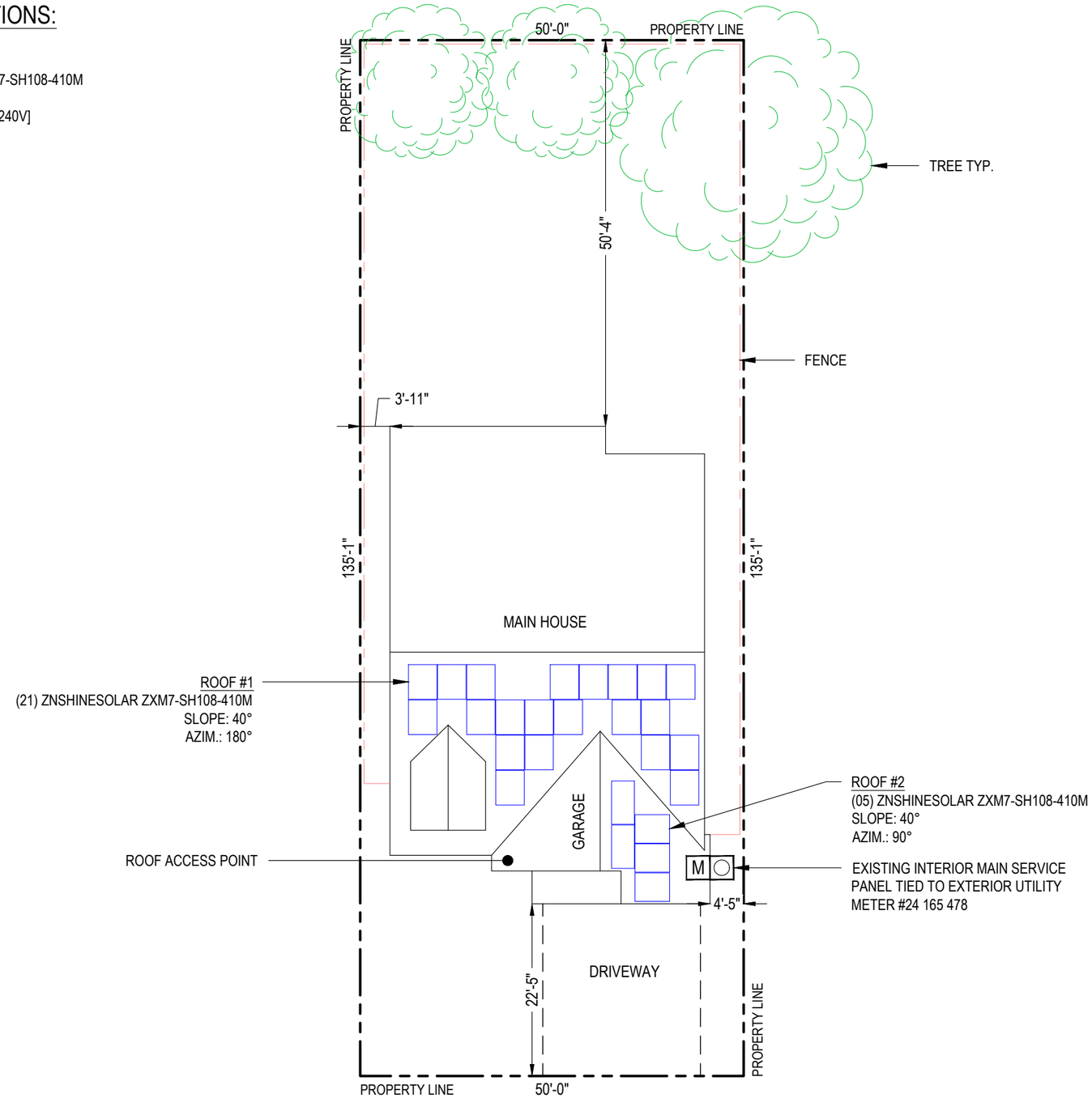
| MODULE DIMENSIONS: | (L/W/H) 67.87"/44.64"/1.18" |
| INVERTER: | (14) AP SYSTEMS DS3-L [240V] |
| AHJ: | CITY OF NEWBERG |

NEW PV AC DISCONNECT VISIBLE, LOCKABLE, LABELED DISCONNECT WITHIN 10' OF UTILITY METER




427 W MYRTLEWOOD ST

## ROOF ACCESS POINT

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.

N

1 PLOT PLAN
PV 1.0
SCALE: 1/16" = 1'-0"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VANCOUVER WA 98661
PHONE: 1-800-818-0598
INFINITY SOLAR.COM


REVISIONS

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| | | |
| | | |

Signature with Seal

Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
PLOT PLAN

Sheet Size
ANSI B
11" X 17"

Sheet Number
PV 1.0

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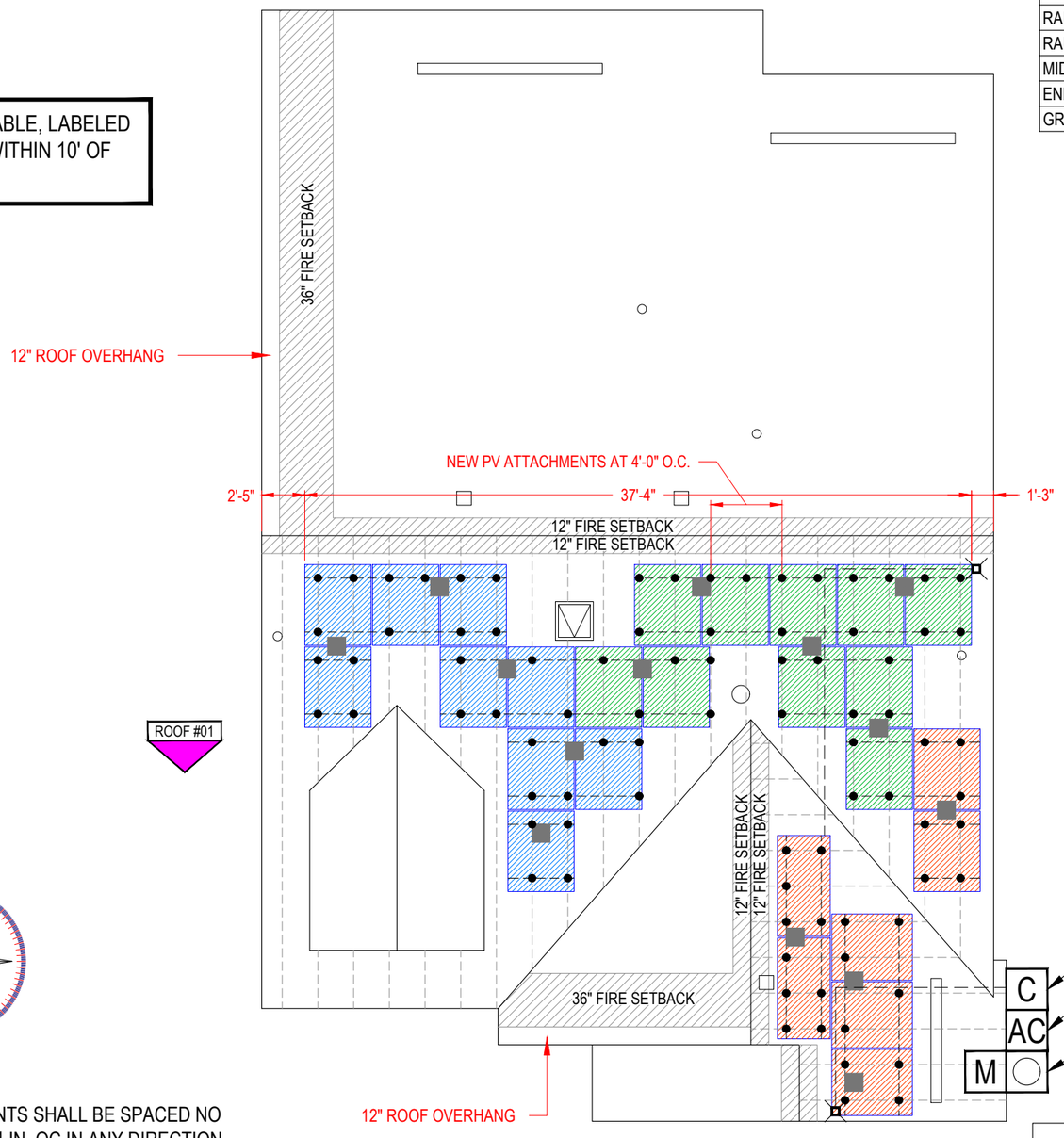
| AHJ: | CITY OF NEWBERG |

NOTE :
ATTIC RUN - YES
ATTIC FAN - NO
SHUTDOWN - NO

VISIBLE, LOCKABLE, LABELED DISCONNECT WITHIN 10' OF UTILITY METER




NOTE :-
ROOF ATTACHMENTS SHALL BE SPACED NO GREATER THAN 24 IN. OC IN ANY DIRECTION WHERE LOCATED WITHIN 3FT. OF A ROOF EDGE, HIP, EAVE OR RIDGE (OSISC 305.4.3)

1 SITE PLAN
PV 1.1
SCALE: 1/8" = 1'-0"

FRONT OF HOUSE
427 W MYRTLEWOOD ST

NEW AC COMBINER PANEL

NEW PV AC DISCONNECT GROUPED WITH SERVICE EQUIPMENT (VISIBLE, LOCKABLE, LABELED)

EXISTING INTERIOR MAIN SERVICE PANEL & POINT OF INTERCONNECTION. TIED TO EXTERIOR UTILITY METER #24 165 478

## BILL OF MATERIALS

| | | |
|---|---|---|
| NUMBER OF MODULES | 26 | ZNSHINESOLAR ZXM7-SH108-410M |
| NUMBER OF INVERTER | 14 | AP SYSTEMS DS3-L [240V] |
| COMBINER PANEL | 1 | EATON BR STYLE 1-INCH LOAD CENTER 816L125RP |
| AC DISCONNECT | 1 | 60A FUSIBLE AC DISCONNECT, 240V |
| NUMBER OF ATTACHMENTS | 85 | CHIKO AL ROOF HOOK #167<br>CK-FTS-167RT2 |
| RAILS | 15 | CHIKO 518 RAIL 4200MM |
| RAIL SPLICE | 4 | SPLICE KIT |
| MID CLAMPS | 30 | MID CLAMPS / UFO |
| END CLAMPS | 44 | END CLAMPS / STOPPER SLEEVE |
| GROUNDING LUG | 22 | GROUNDING LUG |

## MODULE, ARRAY WEIGHT (LOAD CALC'S)

| | | |
|---|---|---|
| Number of Modules | 26 | |
| Module Weight | 45.19 | LBS |
| Total Module (Array) Weight | 1174.94 | LBS |
| Number of Attachment point | 85 | |
| Mounting System Weight *(Per Module)* | 1.5 | LBS |
| Mounting System Weight | 127.50 | LBS |
| Total System Weight *(Module Weight + Mounting System Weight)* | 1302.44 | LBS |
| Weight at Each Attachment Point *(Array Weight / Number of Attachment Point)* | 13.82 | LBS |
| Module Area (67.87"x44.64") | 21.04 | SqFt |
| Total Array Area | 547.03 | SqFt |
| Distributed Load *(Total System Weight / Total Array Area)* | 2.38 | Per SqFt |
| Total Roof Area | 2406 | SqFt |
| Total Percentage or Roof Covered *Total Array Area / Total Roof Area)*100* | 22.74% | |

## CIRCUIT(S)

- CIRCUIT #1 - 09 MODULES WITH 05 MICROINVERTERS
- CIRCUIT #2 - 10 MODULES WITH 05 MICROINVERTERS
- CIRCUIT #3 - 07 MODULES WITH 04 MICROINVERTERS

## SYSTEM LEGEND

- M — EXISTING INTERIOR MAIN SERVICE PANEL & POINT OF INTERCONNECTION. TIED TO EXTERIOR UTILITY METER #24 165 478.
- AC — NEW VISIBLE, LOCKABLE, LABELED DISCONNECT LOCATED WITHIN 10' FROM THE UTILITY METER
- C — NEW DEDICATED PV SYSTEM COMBINER PANEL.
- 26 NEW ZNSHINESOLAR ZXM7-SH108-410M MODULES WITH NEW (14) AP SYSTEMS DS3-L [240V] INVERTERS.
- = FIRE PATHWAY
- = ROOF OBSTRUCTIONS
- = ATTACHMENT POINTS
- = RAFTER
- = RACKING SYSTEM
- = ATTIC RUN
- = CONDUIT ATTIC RUN JUNCTION BOX

## ROOF SECTIONS

ROOF #01
MODULE - 21
SLOPE - 40°
AZIMUTH - 180°
MATERIAL - COMPOSITE SHINGLE
RAFTER SIZE & SPACING - 2"X4" @ 24" O.C.

ROOF #02
MODULE - 05
SLOPE - 40°
AZIMUTH - 90°
MATERIAL - COMPOSITE SHINGLE
RAFTER SIZE & SPACING - 2"X4" @ 24" O.C.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SITE PLAN

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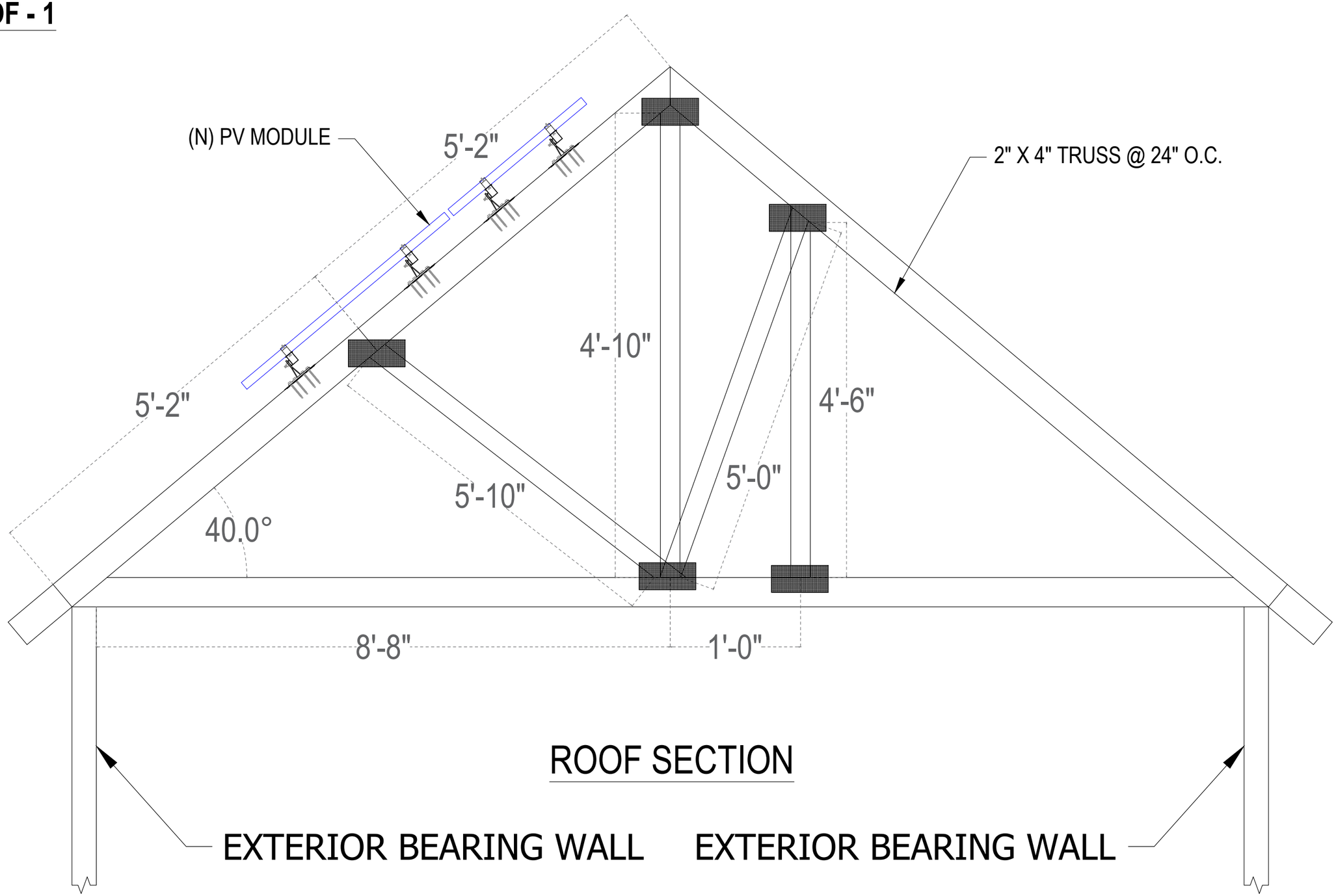
PV 1.1

# ROOF - 1




## ROOF SECTION

EXTERIOR BEARING WALL EXTERIOR BEARING WALL

1 ROOF SECTION
PV 1.2

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Sheet Name
ROOF SECTION

Sheet Size
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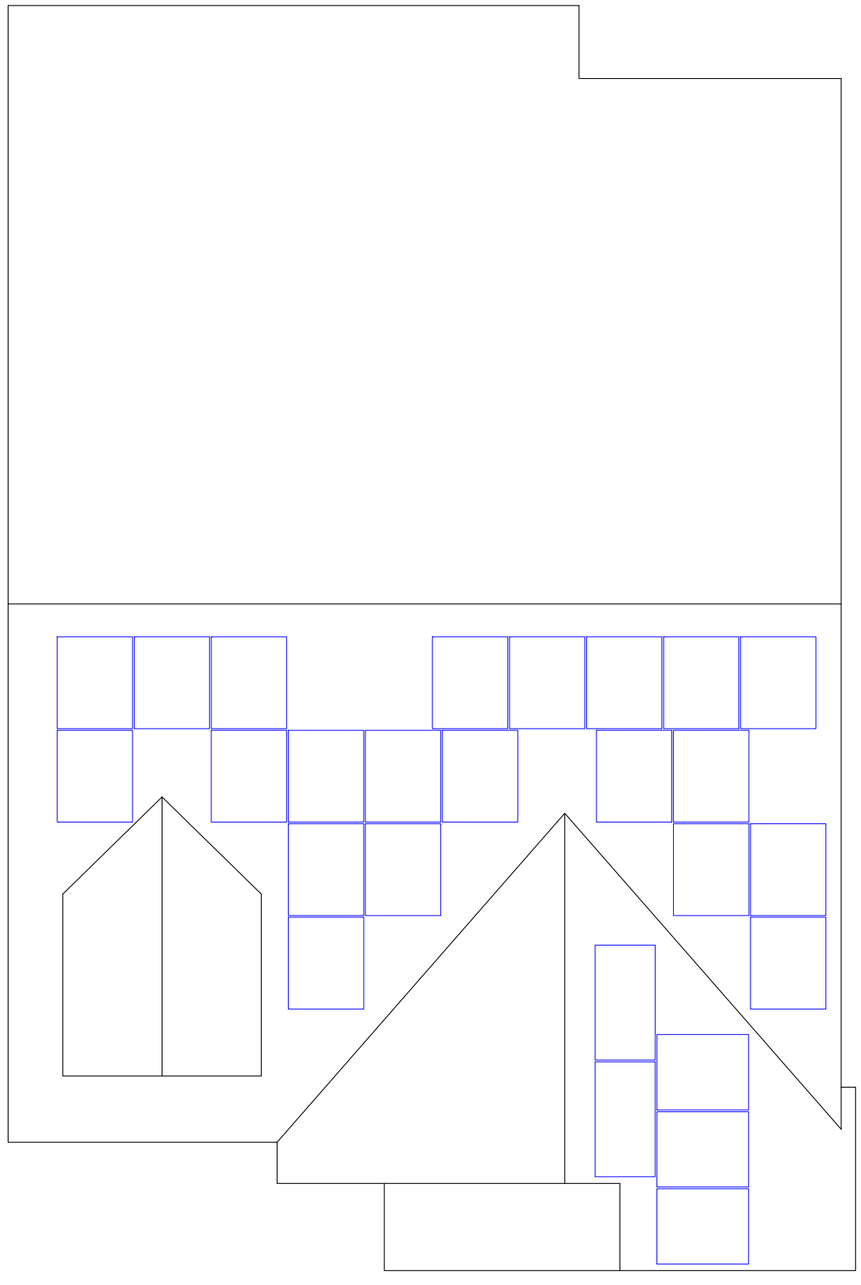

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| 3 | 15 |
| 4 | 16 |
| 5 | 17 |
| 6 | 18 |
| 7 | 19 |
| 8 | 20 |
| 9 | 21 |
| 10 | 22 |
| 11 | 23 |
| 12 | 24 |

1 INVERTER MAP

IM 1.0

☐ DTU/ECU:


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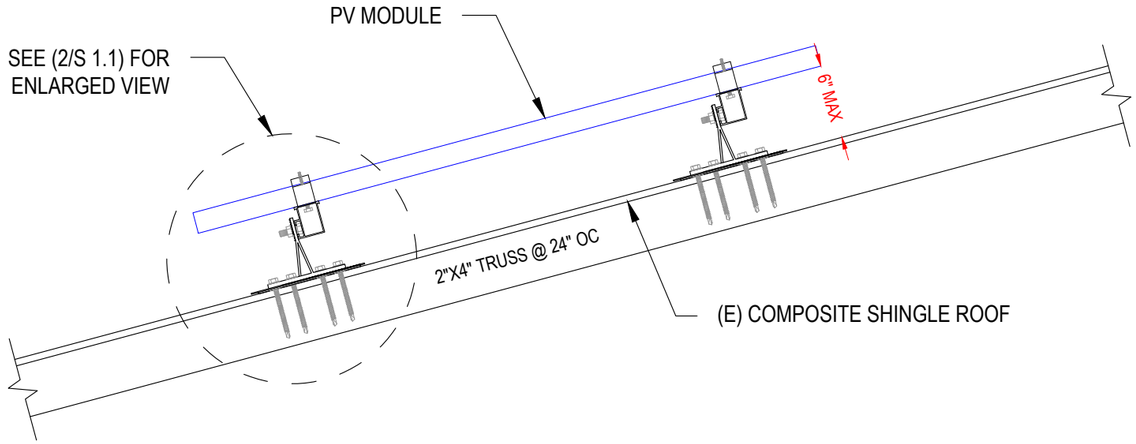
## GENERAL STRUCTURAL NOTES:

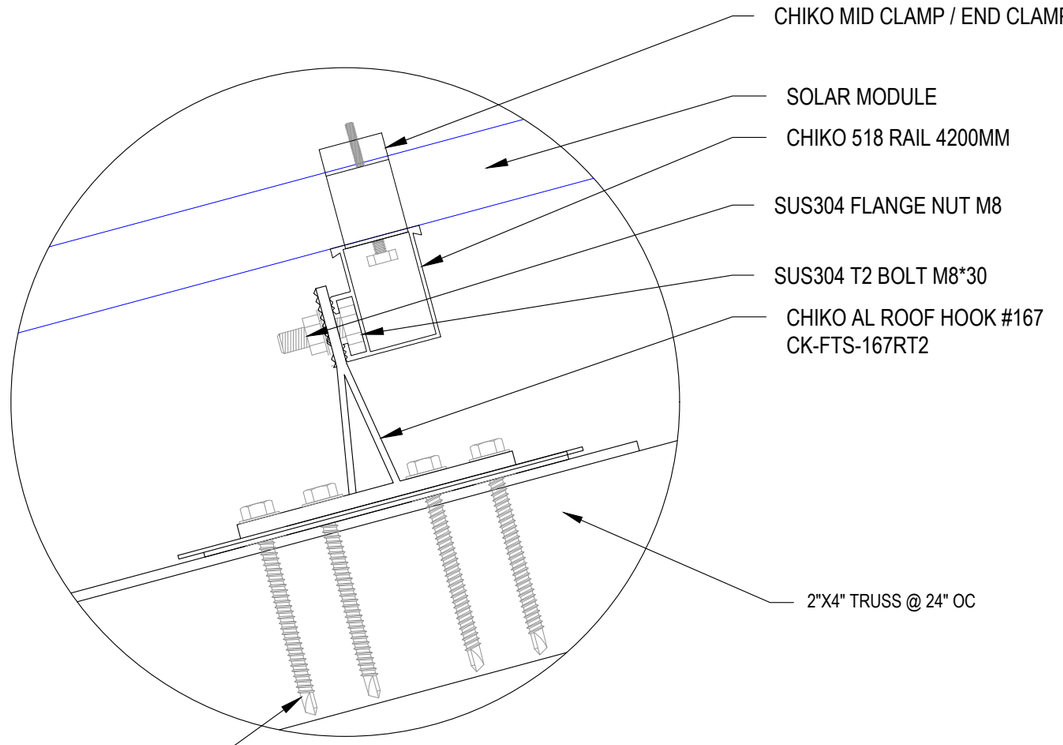
THE SOLAR PANELS ARE TO BE MOUNTED TO THE ROOF FRAMING USING THE CHIKO RACKING SYSTEM WITH CHIKO AL ROOF HOOK #167 CK-FTS-167RT2 ATTACHMENTS. THE MOUNTING FEET ARE TO BE SPACED AS SHOWN IN THE DETAILS, AND MUST BE STAGGERED TO ADJACENT FRAMING MEMBERS TO SPREAD OUT THE ADDITIONAL LOAD.

1. THE PROPOSED PV SYSTEM ADDS 2.38 PSF TO THE ROOF FRAMING SYSTEM.
2. ROOF LIVE LOAD = 20 PSF TYPICAL, 0 PSF UNDER NEW PV SYSTEM.
3. GROUND SNOW LOAD = 20 PSF
4. WIND SPEED = 110 MPH
5. EXPOSURE CATEGORY = C
6. RISK CATEGORY = II




1 S 1.1 **ATTACHMENT DETAIL (SIDE VIEW)**

SCALE: NTS




NOTE: - A PANELS WILL NOT MOUNT HIGHER THAN 12 INCHES ABOVE THE SURFACE OF THE ROOF TOP WHICH THEY ARE MOUNTED.

2 S 1.1 **ATTACHMENT DETAIL ENLARGED VIEW**

SCALE: NTS

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REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

Project Name & Address

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PHONE:- N/A
EMAIL:- N/A

Sheet Name
MOUNT DETAIL

Sheet Size
ANSI B
11" X 17"

Sheet Number
S 1.1

| MICROINVERTERS SPECIFICATION | |
|---|---|
| MICROINVERTER MAKE | AP SYSTEMS |
| MICROINVERTER MODEL NO. | DS3-L |
| MAXIMUM AC OUTPUT | 768 W |
| MAX INPUT VOLTAGE | 60 V |
| MAX AC CURRENT | 3.20 A |
| MAX OUTPUT VOLTAGE | 240 V |

VISIBLE, LOCKABLE, LABELED DISCONNECT
WITHIN 10' OF UTILITY METER

| PV MODULE RATING @ STC | |
|---|---|
| MANUFACTURER | ZNSHINESOLAR ZXM7-SH108-410M |
| MAX. POWER-POINT CURRENT (IMP) | 13.10 AMPS |
| MAX. POWER-POINT VOLTAGE (VMP) | 31.30 VOLTS |
| OPEN-CIRCUIT VOLTAGE (VOC) | 37.50 VOLTS |
| SHORT-CIRCUIT CURRENT (ISC) | 13.84 AMPS |
| NOM. MAX. POWER AT STC (PMAX) | 410 WATT |
| MAX. SYSTEM VOLTAGE | 1500V |
| VOC TEMPERATURE COEFFICIENT | -0.29 %/°C |

MODULE: (26) ZNSHINESOLAR ZXM7-SH108-410M
INVERTER: (14) AP SYSTEMS DS3-L [240V]

Rooftop conductor ampacities designed in compliance with art. 690.8, Tables 310.15(B)(1), 310.15(C)(1), 310.15(B)(2), 310.16, Chapter 9 Table 4, 5, & 9. Location specific temperature obtained from ASHRAE 2017 data tables

| | |
|---|---|
| RECORD LOW TEMP | -5°C |
| AMBIENT TEMP (HIGH TEMP 2%) | 32°C |
| CONDUIT HEIGHT | 7/8" |
| ROOF TOP TEMP | 54°C |
| CONDUCTOR TEMPERATURE RATE | 90°C |

NOTE :
ATTIC RUN - YES
SHUTDOWN - NO

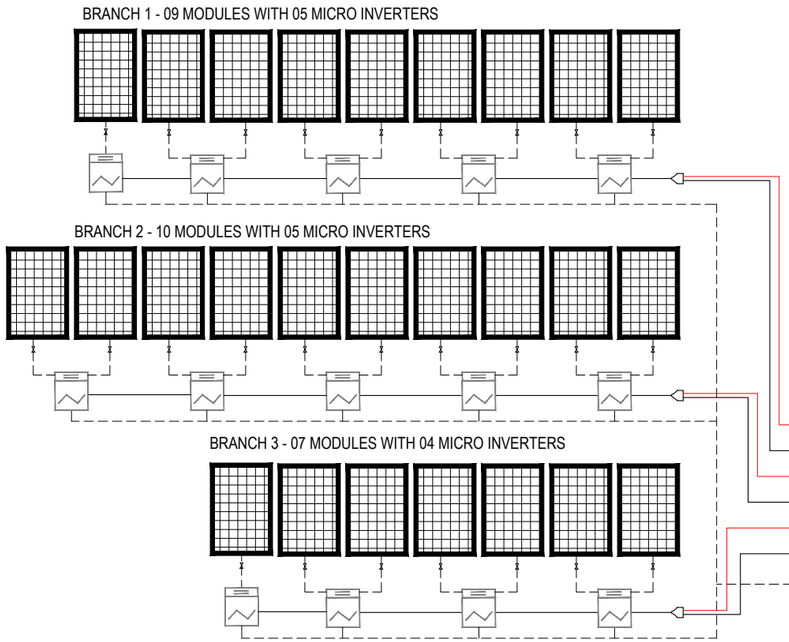
**120% RULE**

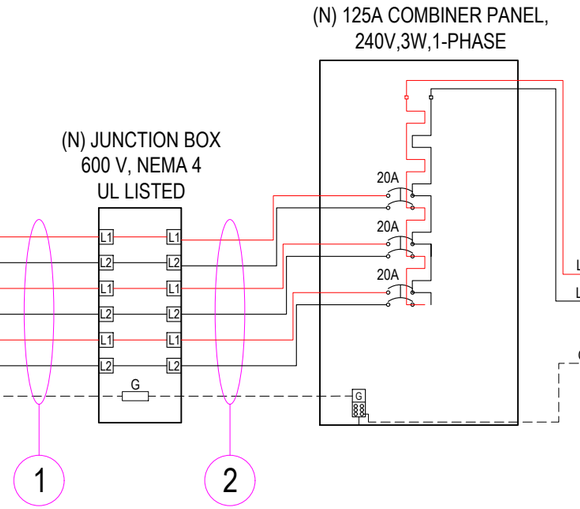
BUS BAR RATING X 120%) - MAIN BREAKER RATING = MAX. PV OCPD

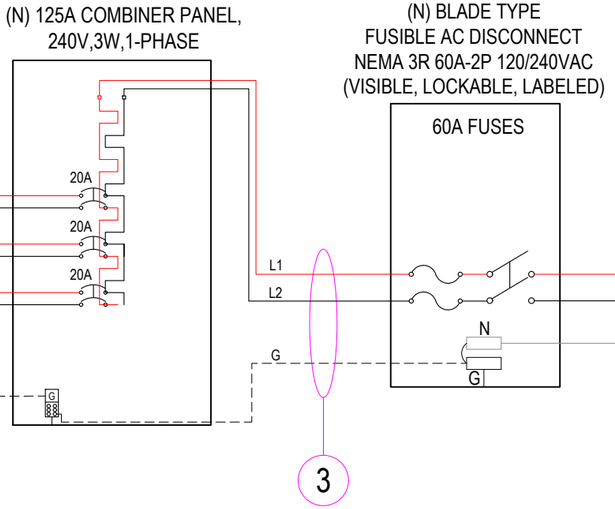
(200A x 120%) - 200 = 40A

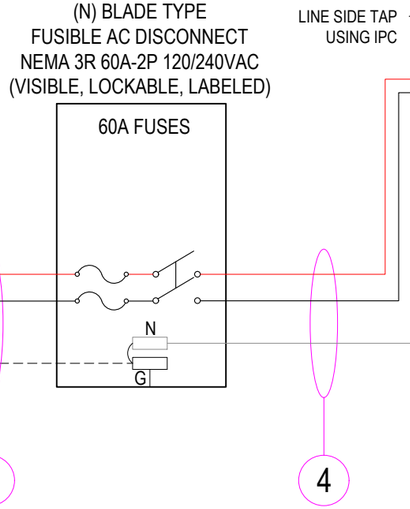
| THIS PANEL IS FED BY MULTIPLE SOURCES (UTILITY AND SOLAR) | |
|---|---|
| AC OUTPUT CURRENT | 45A |
| NOMINAL AC VOLTAGE | 240V |

(26) ZNSHINESOLAR ZXM7-SH108-410M
(14) AP SYSTEMS DS3-L [240V] INVERTERS

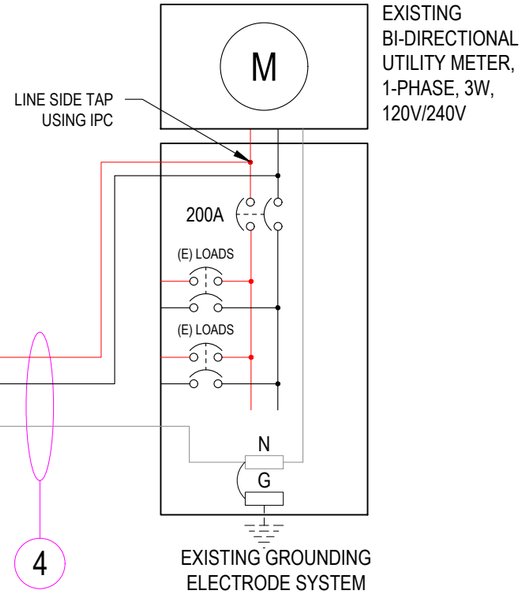



POINT OF INTERCONNECT, LINE SIDE TAP
EXISTING 240V/200A BUS BAR RATING,
MAIN SERVICE PANEL, SINGLE PHASE,
WITH A 200A MAIN BREAKER
UTILITY COMPANY - PGE
UTILITY METER# 24 165 478




| WIRE TAG # | MAX PARALLEL DEVICES | | C.C RATING | | PV CURR. MULT | | TOTAL CURR | CONT. CURR X 125% | WIRE SIZE\TYPE\AMP. | WIRE OCP | #C.C.C. | CONDUIT | TEMP DE-RATE: | | CONDUIT FILL: | | WIRE AMP: | DERATED AMPACITY | MAX. CONT. CURRENT | GND | LENGTH FT. MAX | VOLTAGE DROP(%) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 05 | x | 3.20 | x | N/A | = | 16.00A | 20.00A | #10\ THWN \ 40A @90°C | 20A | 2 | TRUNK CABLE IN AIR | 0.96 | x | 1.00 | x | 40A | 38.40A | 16.00A | #6 AWG | 40 | 0.38 | 1.29< 2 |
| 2 | 05 | x | 3.20 | x | N/A | = | 16.00A | 20.00A | #10\ THWN \ 40A @90°C | 20A | 6 | 3/4" FMC / NMC IN AIR | 0.96 | x | 0.80 | x | 40A | 30.72A | 16.00A | #6 AWG | 50 | 0.59 | |
| 3 | 14 | x | 3.20 | x | N/A | = | 44.80A | 56.00A | #6 \ THWN \ 65A @75°C | 60A | 3 | 3/4" EMT | 0.94 | x | 1.00 | x | 65A | 61.10A | 44.80A | #6 AWG | 10 | 0.16 | |
| 4 | 14 | x | 3.20 | x | N/A | = | 44.80A | 56.00A | #4 \ THWN \ 85A @75°C | 60A | 3 | 1" EMT | 0.94 | x | 1.00 | x | 85A | 79.90A | 44.80A | | 10 | 0.16 | |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Signature with Seal

Project Name & Address

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EMAIL:- N/A

Sheet Name
3-LINE DIAGRAM

Sheet Size
ANSI B
11" X 17"

Sheet Number
E 1.1

SITE NOTES:

1. A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
2. THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.
3. THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
4. PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION NEC 110.26.
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:

1. ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.
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)(1) AND 310.15 (B)(2).
3. JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.
4. ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT. 2.2.6 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.
5. ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

STRUCTURAL NOTES:

1. RACKING SYSTEM & PV ARRAY WILL BE INSTALLED ACCORDING TO 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, ACCORDING TO RAI MANUFACTURER'S INSTRUCTIONS.
2. JUNCTION BOX WILL BE INSTALLED PER MANUFACTURERS' SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.
3. ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.
4. ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER. 2.3.6 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

WIRING & CONDUIT NOTES:

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. CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7.
3. VOLTAGE DROP LIMITED TO 1.5%.
4. DC WIRING LIMITED TO MODULE FOOTPRINT. MICRO INVERTER WIRING SYSTEMS SHALL BE LOCATED AND SECURED UNDER THE ARRAY W/ SUITABLE WIRING CLIPS.
5. AC CONDUCTORS COLORED OR MARKED AS FOLLOWS: PHASE A OR L1- BLACK PHASE B OR L2- RED, OR OTHER CONVENTION IF THREE PHASE PHASE C OR L3- BLUE, YELLOW, ORANGE**, OR OTHER CONVENTION NEUTRAL- WHITE OR GREY IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].

GROUNDING NOTES:

1. GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVISES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.
2. PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO NEC 690.43 AND MINIMUM NEC TABLE 250.122.
3. METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES CONSIDERED GROUNDED IN ACCORD WITH 250.134 AND 250.136.
4. EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO NEC 690.45 AND MICRO INVERTER MANUFACTURERS' INSTRUCTIONS.
5. EACH MODULE WILL BE GROUNDED USING WEEB GROUNDING CLIPS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ. IF WEEBS ARE NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURERS' INSTALLATION REQUIREMENTS.
6. THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OFA MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.
7. GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER [NEC 250.119]
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 ACCORDING TO NEC 250, NEC 690.47 AND AHJ.
9. GROUND-FAULT DETECTION SHALL COMPLY WITH NEC 690.41(B)(1) AND (2) TO REDUCE FIRE HAZARDS

DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:

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. DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH
3. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.12(A) THROUGH (D).
4. ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690.8, 690.9, AND 240.
5. MICRO INVERTER BRANCHES CONNECTED TO A SINGLE BREAKER OR GROUPED FUSES IN ACCORDANCE WITH NEC 110.3(B).
6. IF REQUIRED BY AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION ACCORDING TO NEC 690.11 AND UL1699B.

INTERCONNECTION NOTES:

1. LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH [NEC 705.12]
2. THE SUM OF THE UTILITY OCPD AND INVERTER CONTINUOUS OUTPUT MAY NOT EXCEED 120% OF BUS BAR RATING [NEC 705.12(B)(3)(2)].
3. THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUS BAR SHALL NOT EXCEED 120 PERCENT OF THE AMPACITY OF THE BUS BAR, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD [NEC 705.12(B)(3)(1)].
4. AT MULTIPLE ELECTRIC POWER SOURCES OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR. HOWEVER, THE COMBINED OVERCURRENT DEVICE MAY BE EXCLUDED ACCORDING TO NEC 705.12 (B)(3)(3).
5. FEEDER TAP INTERCONNECTION (LOADSIDE) ACCORDING TO NEC 705.12 (B)(1)
6. SUPPLY SIDE TAP INTERCONNECTION ACCORDING TO NEC 705.11 WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42 2.7.8BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING [NEC 705.12 (E)].

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| Initial Design | 8/17/25 | 00 |
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| | | |
| | | |

Signature with Seal

Project Name & Address

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EMAIL:- N/A

Sheet Name

NOTES

Sheet Size

ANSI B
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Sheet Number

E 1.2

**WARNING**

ELECTRICAL SHOCK HAZARD

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

LABEL LOCATION:
WHERE ALL TERMINALS OF THE DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECTING MEANS.
PER CODE(S): NEC 2020:
NEC 706.15(C)(4) and NEC 690.13(B)

**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:
PERMANENT WARNING LABELS SHALL BE APPLIED TO DISTRIBUTION EQUIPMENT, AC DISCONNECT
NEC: 2020
PER CODE: 705.12(B)(3)(3)

**PHOTOVOLTAIC AC DISCONNECT**

LABEL LOCATION:
AC DISCONNECT
NEC: 2020
(NEC 690.13(B)

**WARNING**

PHOTOVOLTAIC SYSTEM COMBINER PANEL

DO NOT ADD LOADS

LABEL LOCATION:
UTILITY SERVICE ENTRANCE/METER, INVERTER/DC DISCONNECT IF REQUIRED BY LOCAL AHJ, OR OTHER LOCATIONS AS REQUIRED BY LOCAL AHJ.
PER CODE(S): NEC 2020: ARTICLE 690.56(C)

**WARNING**

PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION :
EXPOSED RACEWAY, CABLE TRAYS, JUNCTION BOX
NEC: 2020, PER CODE: NEC 690.31(D)(2)

M

A C

COMBINER BOX

J/B

PV ARRAY

**WARNING**

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

LABEL LOCATION:
MAIN SERVICE DISCONNECT
NEC: 2020, 705.12(B)(3)(2)

**MAIN PHOTOVOLTAIC SYSTEM DISCONNECT**

LABEL LOCATION: MAIN SERVICE DISCONNECT, NEC 2020, 690.13(B)

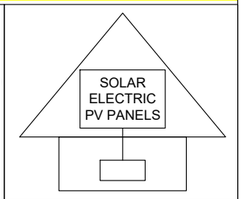
**PV SOLAR BREAKER**

DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION: MAIN SERVICE PANEL, NEC 2020, 690.13(B)

**SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN**

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUTDOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY




AT INVERTER [IFC 605.11.3.1(1) & 690.56(C)]
PER CODE: NEC 2020

SOLAR PHOTOVOLTAIC SYSTEMS

(PER CODE: NEC 690)

SOLAR PHOTOVOLTAIC SYSTEMS

(PER CODE: NEC 690)

**WARNING**

DUAL POWER SUPPLY

SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

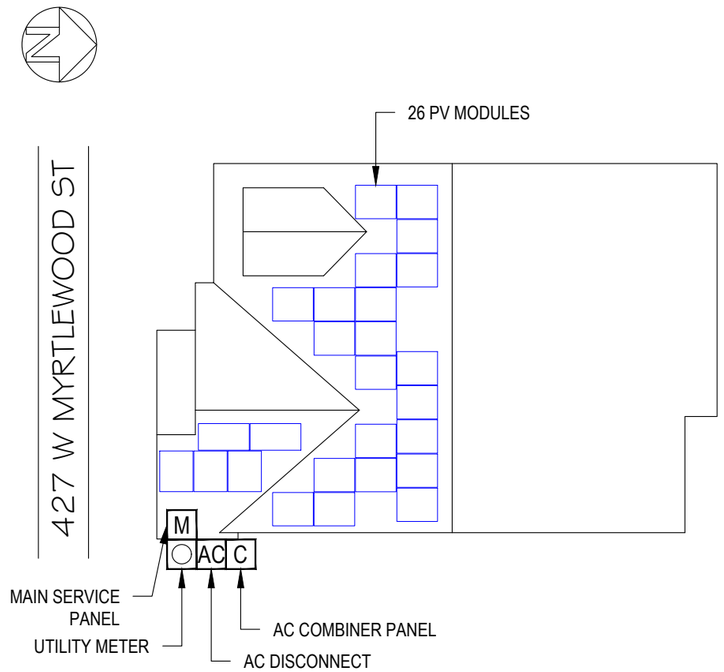
LABEL LOCATION:
PRODUCTION / NET METER (BI-DIRECTIONAL)
NEC: 2020
NEC 690.59, 705.12(D)(3)

**PHOTOVOLTAIC AC DISCONNECT**
MAXIMUM AC OPERATING CURRENT 44.80 AMPS
NOMINAL OPERATING VOLTAGE 240 VOLTS

LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION
NEC: 2020
(PER CODE: NEC 690.54)

# CAUTION:

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECT(S) LOCATED AS SHOWN.
DANGEROUS VOLTAGE MAY BE PRESENT AT ALL TIMES

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WARNING LABELS

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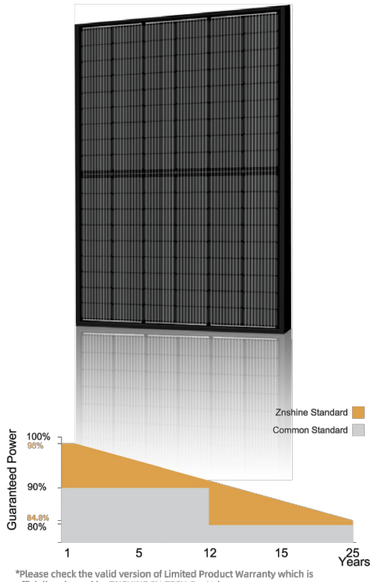
ZNSHINESOLAR

# ZXM7-SH108 Series

## 10BB HALF-CELL Black Monocrystalline PERC PV Module




*Please check the valid version of Limited Product Warranty which is officially released by ZNSHINE PV-TECH Co.,Ltd.

**390-410W**
POWER RANGE

**20.97%**
MAXIMUM EFFICIENCY

**0.55%**
YEARLY DEGRADATION

12 YEARS PRODUCT WARRANTY

25 YEARS OUTPUT GUARANTEE

IEC 61215/IEC 61730/IEC 61701/IEC 62716/UL 61730-1/UL 61730-2

ISO 14001: Environmental Management System

ISO 9001: Quality Management System

ISO45001: Occupational Health and Safety Management System

*As there are different certification requirements in different markets.please contact your local znshine sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

## KEY FEATURES

### Excellent Cells Efficiency
MBB technology reduce the distance between busbars and finger grid line which is benefit to power increase.

### Better Weak Illumination Response
More power output in weak light condition, such as haze, cloudy, and early morning.

### Anti PID
Ensured PID resistance through the quality control of cell manufacturing process and raw materials.

### Adapt To Harsh Outdoor Environment
Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity environment.

### TIER 1
Global,Tier 1 bankable brand,with independently certified advanced automated manufacturing.

### Excellent Quality Managerment System
Warranted reliability and stringent quality assurances well beyond certified requirements.

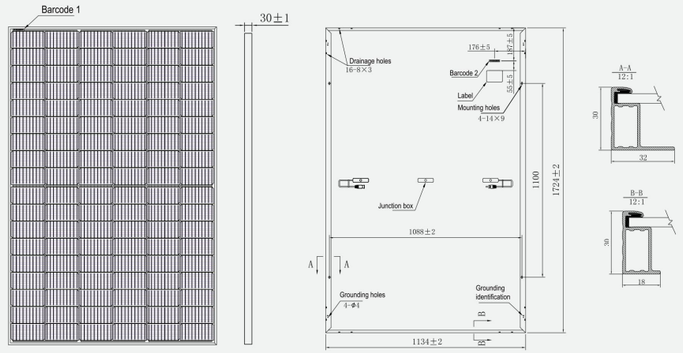
### Improved Aesthetics
Compared to conventional modules,this full black modules have a more uniform appearance and superior aesthetics.

Founded in 1988, ZNShine solar is a world's leading high-tech PV module manufacturer.With the advanced production lines, the company boasts module capacity of 6GW. Bloomberg has listed ZNShine as a global Tier 1 PV module maker. Today Znshine has distributed its sales to more than 60 countries around the globe.

www.znshinesolar.com



## DIMENSIONS OF PV MODULE(mm)

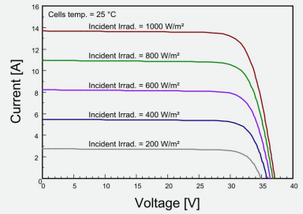



Front View

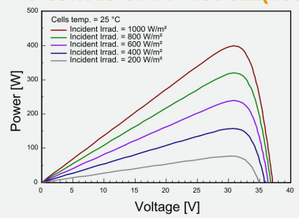
Back View

*Remark: customized frame color and cable length available upon request

## I-V CURVES OF PV MODULE(400W)




## P-V CURVES OF PV MODULE(400W)




## ELECTRICAL CHARACTERISTICS | STC*

| | | | | | |
|---|---|---|---|---|---|
| Nominal Power Watt Pmax(W)* | 390 | 395 | 400 | 405 | 410 |
| Maximum Power Voltage Vmp(V) | 30.50 | 30.70 | 30.90 | 31.10 | 31.30 |
| Maximum Power Current Imp(A) | 12.79 | 12.87 | 12.95 | 13.03 | 13.10 |
| Open Circuit Voltage Voc(V) | 36.70 | 36.90 | 37.10 | 37.30 | 37.50 |
| Short Circuit Current Isc(A) | 13.56 | 13.63 | 13.70 | 13.77 | 13.84 |
| Module Efficiency (%) | 19.95 | 20.20 | 20.46 | 20.72 | 20.97 |

*The data above is for reference only and the actual data is in accordance with the pratical testing
*STC (Standard Test Condition): Irradiance 1000W/m², Module Temperature 25±2℃, AM 1.5
*Measuring uncertainty: ±3%, all the electrical characteristics such as Power, Im, Vm and FF are within ±3% tolerance.

## MECHANICAL DATA

| | |
|---|---|
| Solar cells | Mono PERC |
| Cells orientation | 108 (6×18) |
| Module dimension | 1724×1134×30 mm (With Frame) |
| Weight | 20.5±1 .0 kg |
| Glass | 3.2mm, High Transmission, AR Coated Tempered Glass |
| Junction box | IP 68, 3 diodes |
| Cables | 4 mm² ,350 mm (With Connectors) |
| Connectors* | MC4-compatible |

*Please refer to regional datasheet for specified connector

## ELECTRICAL CHARACTERISTICS | NMOT

| | | | | | |
|---|---|---|---|---|---|
| Maximum Power Pmax(Wp) | 291.50 | 295.20 | 299.00 | 302.70 | 306.30 |
| Maximum Power Voltage Vmpp(V) | 28.30 | 28.50 | 28.70 | 28.90 | 29.10 |
| Maximum Power Current Impp(A) | 10.29 | 10.35 | 10.41 | 10.47 | 10.53 |
| Open Circuit Voltage Voc(V) | 34.30 | 34.50 | 34.70 | 34.80 | 35.00 |
| Short Circuit Current Isc(A) | 10.95 | 11.01 | 11.06 | 11.12 | 11.18 |

*NMOT:Irradiance 800W/m²,Ambient Temperature 20℃,AM 1.5,Wind Speed 1m/s

## TEMPERATURE RATINGS*

| | |
|---|---|
| NMOT | 44℃ ±2℃ |
| Temperature coefficient of Pmax | -0.35%/℃ |
| Temperature coefficient of Voc | -0.29%/℃ |
| Temperature coefficient of Isc | 0.05%/℃ |

## WORKING CONDITIONS

| | |
|---|---|
| Maximum system voltage | 1500 V DC |
| Operating temperature | -40℃~+85℃ |
| Maximum series fuse | 25 A |
| Front Side Maximum Static Loading | Up to 5400 Pa |
| Rear Side Maximum Static Loading | Up to 2400 Pa |

*Remark:Do not connect Fuse in Combiner Box with two or more strings in parallel connection
*Remark:Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.
*Caution:Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

## PACKAGING CONFIGURATION*

| | |
|---|---|
| Piece/Box | 36 |
| Piece/Container(40'HQ) | 936 |

*Customized packaging is available upon request.


Add : 1#, Zhixi Industrial Zone, Jintanjiangsu 213251, P.R. China  Tel: +86 519 6822 0233  E-mail: info@znshinesolar.com

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INFINITY HOME SOLUTIONS
6405 E MILL PLAIN
VANCOUVER WA 98661
PHONE: 1-800-818-0598
INFINITY SOLAR.COM


| REVISIONS | | |
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| Description | Date | Rev |
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
PV MODULE SPECIFICATION SHEET

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 01

APsystems
ALTENERGY POWER

Leading the Industry in
**Solar Microinverter Technology**

# DS3 Series

## The most powerful Dual Microinverter

- One microinverter connects to two solar modules
- Max output power reaching 640VA, 768VA or 880VA
- Two independent input channels (MPPT)
- CA Rule 21 (UL 1741 SB) compliant
- NEC 2020 690.12 Rapid Shutdown Compliant
- Encrypted Wireless ZigBee Communication
- Phase Monitored and Phase Balanced

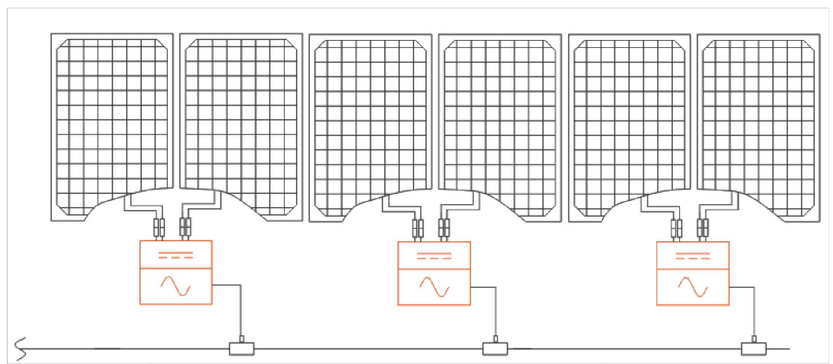
## PRODUCT FEATURES

**APsystems' 3rd generation of dual-module microinverters, the DS3 product family represents the culmination of years of power conversion expertise and innovation in high-efficiency, high-density power conversion to maximize the peak performance of today's high-capacity PV modules.**

The DS3 series reaches unprecedented levels of power output. It features 2 input channels, each with independent MPPT, and encrypted wireless ZigBee communication. An innovative and compact design makes the product lighter while maximizing power production, and silicone-encapsulated components reduce stress on electronics, facilitate thermal dissipation, and enhance weatherproofing. Reliability is significantly increased thanks to 20% fewer components than previous generations. A 24/7 energy access through apps or web based portal facilitate remote diagnosis and maintenance.

The DS3 series is grid-interactive and fully compliant with CA Rule 21 requirements. With an excellent performance and high converstion efficiency, a unique integration with less components, the APsystems DS3 series is a gamechanger for residential and commercial solar.

## WIRING SCHEMATIC



2024/02/22 Rev2.0

## Datasheet | DS3 Microinverter Series

| Model | DS3-S | DS3-L | DS3 |
|---|---|---|---|
| **Region** | | USA / Canada | |
| **Input Data (DC)** | | | |
| Recommended PV Module Power (STC) Range | 250Wp-480Wp+ | 265Wp-570Wp+ | 300Wp-660Wp+ |
| Peak Power Tracking Voltage | | 28V-45V | |
| Operating Voltage Range | | 26V-60V | |
| Maximum Input Voltage | | 60V | |
| Maximum Input Current | 16A x 2 | 18A x 2 | 20A x 2 |
| Maximum input short circuit current | 20A per input | 22.5A per input | 25A per input |
| **Output Data (AC)** | | | |
| Maximum Continuous Output Power | 640VA | 768VA | 880VA |
| Nominal Output Voltage/Range(1) | | 240V / 211V-264V | |
| Nominal Output Current | 2.66A | 3.2A | 3.7A |
| Maximum Output Fault Current (ac) And Duration | 5.691Apk, 26.75ms of duration; 3.307Arms | | |
| Nominal Output Frequency/ Range(1) | 60Hz/58.8Hz-61.2Hz(HECO:57Hz-63Hz) | | |
| Power Factor (Default/Adjustable) | 0.99/0.8 leading...0.8 lagging | | |
| Maximum Units per 12AWG Branch(2) | 6 (20A breaker) | 5 (20A breaker) | 4 (20A breaker) |
| Maximum Units per 10AWG Branch(2) | 9 (30A breaker) | 7 (30A breaker) | 6 (30A breaker) |
| **Efficiency** | | | |
| Peak Efficiency | 97.3% | | |
| CEC Efficiency | 97% | | |
| Nominal MPPT Efficiency | 99.5% | | |
| Night Power Consumption | 20mW | | |
| **Mechanical Data** | | | |
| Operating Ambient Temperature Range(3) | -40°F to +149°F (-40°C to +65°C) | | |
| Storage Temperature Range | -40°F to +185°F (-40°C to+85°C) | | |
| Dimensions (W x H x D) | 10.3" × 8.6" × 1.6" (263mm x 218mm x 41.2mm) | | 10.3" × 8.6" × 1.7" (263mm x 218mm x 42.5mm) |
| Weight | 5.7lbs(2.7kg) | | 6.8lbs(3.1kg) |
| DC Connector Type | Stäubli MC4 PV-ADBP4-S2&ADSP4-S2 | | |
| Cooling | Natural Convection - No Fans | | |
| Enclosure Environmental Rating | Type 6 | | |
| **Features** | | | |
| Communication (Inverter To ECU) (4) | Encrypted ZigBee | | |
| Isolation Design | High Frequency Transformers, Galvanically Isolated | | |
| Energy Management | Energy Management Analysis (EMA) system | | |
| Warranty(5) | 10 Years Standard ; 25 Years Optional | | |
| **Compliance** | | | |
| Safety and EMC Compliance | UL1741; CSA C22.2 No. 107.1-16; UL1741SA; UL1741SB; IEEE1547; Rule 21; SRD-V2.0; FCC Part15; ICES-003; NEC2014&NEC2017&NEC2020 Section 690.11 DC Arc-Fault circuit Protection; NEC2014&NEC2017&NEC2020 Section 690.12 Rapid Shutdown of PV systems on Buildings | | |

*(1) Nominal voltage/frequency range can be extended beyond nominal if required by the utility.*
*(2) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.*
*(3) The inverter may enter to power de-grade mode under poor ventilation and heat dissipation installation environment.*
*(4) Recommend no more than 80 inverters register to one ECU for stable communication.*
*(5) To be eligible for the warranty, APsystems microinverters need to be monitored via the EMA portal. Please refer to our warranty T&Cs available on usa.APsystems.com.*


*Specifications subject to change without notice please ensure you are using the most recent update found at web : usa.APsystems.com*

**APsystems**
8627 N. Mopac Expy, Suite 150, Austin, TX 78759
apsystems.com

Meets the standard requirements for Distributed Energy Resources (UL 1741) and identified with the CSA Listed Mark

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Signature with Seal

Project Name & Address

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EMAIL:- N/A

Sheet Name
MICROINVERTER SPECIFICATION SHEET

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 02

Powering Business Worldwide

pe.eaton.com

# BR style 1-inch loadcenter

**BR816L125RP**

**UPC:**786676001472

**Dimensions:**

- **Height:** 13 IN
- **Length:** 3.56 IN
- **Width:** 11 IN

**Warranties:**

- 10 year

**Specifications:**

- **Special Features:** Current design
- **Type:** Main lug
- **Amperage Rating:** 125A
- **Box Size:** 7r
- **Bus Material:** Aluminum
- **Cover:** Cover included
- **Enclosure:** NEMA 3R
- **Enclosure Material:** Metallic
- **Interrupt Rating:** 10 kAIC
- **Main Circuit Breaker:** BR
- **Number Of Circuits:** 16
- **Number Of Spaces:** 8
- **Number Of Wires:** Three-wire
- **Phase:** Single-phase
- **Voltage Rating:** 120/240V
- **Wire Size:** #14-1 AWG Cu/Al

**Supporting documents:**

- Eatons Volume 1-Residential and Light Commercial
- Cutler-Hammer Type CH and BR Loadcenters - Instructions
- Type BR Arc Fault Circuit Breakers and Loadcenters
- Eaton Specification Sheet - BR816L125RP


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Sheet Name
COMBINER PANEL CERTIFICATION

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 03

## Product Overview

### Product Selection Guide

#### Safety Switch

| Description | General-Duty | Heavy-Duty | Six-Pole Motor Circuit | Double-Throw | Enclosed Rotary Switches |
|---|---|---|---|---|---|
| Type | Single-throw maximum 240 Vac horsepower rated | Single-throw maximum 600V AC/DC horsepower rated | Single-throw maximum 600 Vac | Maximum 600 Vac horsepower rated | Maximum 600 Vac |
| Fuse type Fusible | Plug<br>Cartridge | Cartridge | Cartridge | Cartridge | — |
| Fuse class Fusible | ① | ① | ① | ① | ① |
| Ampere rating Fusible | 30–600 | 30–1200 | 30–200 | 30–1200 | — |
| Non-fusible | 30–600 | 30–1200 | 30–200 | 30–1200 | 16–125 |
| Number of poles Fusible | 1, 2 and 3<br>2 and 3 | 2, 3 and 4 | 6 | 2 and 3 | — |
| Non-fusible | 2 and 3 | 2, 3, 4 and 6 | 6 | 2, 3, 4 and 6 | 3 and 4 |
| Enclosure types NEMA® 1 Fusible | Yes | Yes | — | Yes | Yes |
| Non-fusible | Yes | Yes | — | Yes | Yes |
| NEMA 3R Fusible | Yes | Yes | — | Yes | Yes |
| Non-fusible | Yes | Yes | Yes | Yes | Yes ② |
| NEMA 12 Fusible | — | Yes ② | Yes, up to 200A ② | Yes | Yes |
| Non-fusible | — | Yes, up to 1200A ② | Yes ② | Yes, up to 400A. | Yes ② |
| NEMA 4 painted steel Fusible | — | Yes, 400–800A | — | — | — |
| Non-fusible | — | Yes, 400–800A | — | — | — |
| NEMA 4X stainless steel Fusible | — | Yes | Yes, up to 200A | Yes | Yes |
| Non-fusible | — | Yes, up to 1200A | Yes | Yes, up to 400A. | Yes |
| NEMA 4X non-metallic Fusible | — | Yes, up to 200A. | — | — | Yes |
| Non-fusible | — | Yes, up to 200A. | — | — | Yes |
| NEMA 7/9 Fusible | — | Yes, up to 100A. | — | — | — |
| Non-fusible | — | Yes, up to 100A ③ | — | — | — |

***Notes***

① See specific catalog number page for Fuse Class details. Enclosed rotary switches are non-fusible only.
② NEMA Type 12 enclosures (30–800A) can be field modified to meet NEMA 3R rainproof requirements when a factory provided drain screw is removed.
③ Class J fuse clips provided.





1 1

**Product Description**

- Used to open or close a circuit
- Non-fusible safety switches provide a means to manually connect or disconnect the load from the source
- Fusible safety switches provide a means to manually open and close a circuit and overcurrent protection by means of installed fuses
- Also commonly referred to as a disconnect switch or disconnect
- Available from 30 to 1200A

**Standards and Certifications**

- UL® 98
- UL 50
- NEMA KS-1



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| Description | Date | Rev |
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Project Name & Address

MICHAEL ROONEY RESIDENCE
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NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
AC DISCONNECT
UL CERTIFICATION

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 04

1

## Cross-Reference

### General-Duty

| Ampere Rating | Catalog Number Eaton | General Electric | Siemens | Square D |
|---|---|---|---|---|
| **Plug Fuse, Single-Pole, Two-Wire, 120 Vac, NEMA 1** | | | | |
| 30 | **DP111NGB** | TPF130 | LF111N | D211N |
| **Plug Fuse, Two-Pole, Three-Wire, 240 Vac, NEMA 1** | | | | |
| 30 | **DP221NGB** | TPF230 | LF211N | D211N |
| **Fusible, Two-Pole, Three-Wire, 240 Vac, NEMA 1** | | | | |
| 30 | **DG221NGB** | TG3221 | GF221N | D221N |
| 60 | **DG222NGB** | TG3222 | GF222N | D222N |
| 100 | **DG223NGB** | TG3223 | GF223N | D223N |
| 200 | **DG224NGK** | TG3224 | GF224N | D224N |
| 400 | **DG225NGK** | TG3225 | GF225N | D225N |
| 600 | **DG226NGK** | TG3226 | GF226N | D226N |
| **Fusible, Three-Pole, Three-Wire, 240 Vac, NEMA 1** | | | | |
| 30 | **DG321NGB** | TG4321 | GF321N | D321N |
| 60 | **DG322NGB** | TG4322 | GF322N | D322N |
| 100 | **DG323NGB** | TG4323 | GF323N | D323N |
| 200 | **DG324NGK** | TG4324 | GF324N | D324N |
| 400 | **DG325FGK** | TG3325 | GF325N | D325N |
| 600 | **DG326FGK** | TG3326 | GF326N | D326N |
| **Fusible, Three-Pole, Four-Wire, 240 Vac, NEMA 1** | | | | |
| 30 | **DG321NGB** | TG4321 | GF321N | D321N |
| 60 | **DG322NGB** | TG4322 | GF322N | D322N |
| 100 | **DG323NGB** | TG4323 | GF323N | D323N |
| 200 | **DG324NGK** | TG4324 | GF324N | D324N |
| 400 | **DG325NGK** | TG4325 | GF325N | D325N |
| 600 | **DG326NGK** | TG4326 | GF326N | D326N |
| **Non-Fusible, Two-Pole, Two-Wire, 240 Vac, NEMA 1** | | | | |
| 30 | **DG221UGB** | TGN3321 | N/A | N/A |
| 60 | **DG222UGB** | TGN3322 | N/A | QO260NATS |
| 100 | **DG223UGB** | TGN3323 | N/A | QO2000NS |
| 200 | **DG324UGK** | TGN3324 | N/A | DU324 |
| 400 | **DG325UGK** | TGN3325 | N/A | DU325 |
| 600 | **DG326UGK** | TGN3326 | N/A | DU326 |
| **Non-Fusible, Three-Pole, Three-Wire, 240 Vac, NEMA 1** | | | | |
| 30 | **DG321UGB** | TGN3321 | GNF321 | DU321 |
| 60 | **DG322UGB** | TGN3322 | GNF322 | DU322 |
| 100 | **DG323UGB** | TGN3323 | GNF323 | DU323 |
| 200 | **DG324UGK** | TGN3324 | GNF324 | DU324 |
| 400 | **DG325UGK** | TGN3325 | GNF325 | DU325 |
| 600 | **DG326UGK** | TGN3326 | GNF326 | DU326 |

### General-Duty, continued

| Ampere Rating | Catalog Number Eaton | General Electric | Siemens | Square D |
|---|---|---|---|---|
| **Fusible, Two-Pole, Three-Wire, 240 Vac, NEMA 3R** | | | | |
| 30 | **DG221NRB** | TG3221R | GF221NR | D221NRB |
| 60 | **DG222NRB** | TG3222R | GF222NR | D222NRB |
| 100 | **DG223NRB** | TG3223R | GF223NR | D223NRB |
| 200 | **DG224NRK** | TG3224R | GF224NR | D224NRB |
| 400 | **DG225NRK** | TG3225R | GF225NR | D225NR |
| 600 | **DG226NRK** | TG3226R | GF226NR | D226NR |
| **Fusible, Three-Pole, Three-Wire, 240 Vac, NEMA 3R** | | | | |
| 30 | **DG321NRB** | TG4321R | GF321NR | D321NRB |
| 60 | **DG322NRB** | TG4322R | GF322NR | D322NRB |
| 100 | **DG323NRB** | TG4323R | GF323NR | D323NRB |
| 200 | **DG324NRK** | TG4324R | GF324NR | D324NRB |
| 400 | **DG325FRK** | TG3325R | GF325NR | D325NR |
| 600 | **DG326FRK** | TG3326R | GF326NR | D326NR |
| **Fusible, Three-Pole, Four-Wire, 240 Vac, NEMA 3R** | | | | |
| 30 | **DG321NRB** | TG4321R | GF321NR | D321NRB |
| 60 | **DG322NRB** | TG4322R | GF322NR | D322NRB |
| 100 | **DG323NRB** | TG4323R | GF323NR | D323NRB |
| 200 | **DG324NRK** | TG4324R | GF324NR | D324NRB |
| 400 | **DG325NRK** | TG3325R ⓝ | GF325NR | D325NR |
| 600 | **DG326NRK** | TG3326R ⓝ | GF326NR | D326NR |
| **Non-Fusible, Two-Pole, Two-Wire, 240 Vac, NEMA 3R** | | | | |
| 30 | **DG221URB** | TGN3321R | GNF321R | DU221RB |
| 60 | **DG222URB** | TGN3322R | GNF322R | DU222RB |
| 100 | **DG223URB** | TGN3323R | GNF323R | QO2000NRB |
| 200 | **DG324URK** | TGN3324R | GNF324R | DU324RB |
| **Non-Fusible, Three-Pole, Three-Wire, 240 Vac, NEMA 3R** | | | | |
| 30 | **DG321URB** | TGN3321R | GNF321R | DU321RB |
| 60 | **DG322URB** | TGN3322R | GNF322R | DU322RB |
| 100 | **DG323URB** | TGN3323R | GNF323R | DU323RB |
| 200 | **DG324URK** | TGN3324R | GNF324R | DU324RB |
| 400 | **DG325URK** | N/A | N/A | N/A |
| 600 | **DG326URK** | N/A | N/A | N/A |

***Notes***

ⓝ Separate neutral kit required.

Always verify the number of poles and wires required since catalog numbers may appear in multiple tables.



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Sheet Name
AC DISCONNECT
UL CERTIFICATION

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 05

RSTC Enterprises, Inc.
2214 Heimstead Road
Eau Claire, WI 54703
715-830-9997

SOLADECK
FLASHED PV ROOF-MOUNT
COMBINER/ENCLOSURES

# Outdoor Photovoltaic Enclosures

Composition/Cedar Roof System

## 0799 Series

**ETL listed and labeled**

Report # 3171411PRT-002 Revised May, 2018

- UL50 Type 3R, 11 Edition Electrical equipment enclosures
- CSA C22.2 No. 290 Nema Type 3R
- Conforms to UL 1741 Standard

**0799 Series Includes:**

| | |
|---|---|
| 0799 - 2 | Wire size 2/0-14 |
| 0799 - 5 | Wire size 14-6 |
| 0799 - D | Wire size 14-8 |

Models available in Grey, Black or Stainless Steel




## Basic Specifications

Material options:
- Powder coated, 18 gauge galvanized 90 steel (1,100 hours salt spray)
- Stainless steel

Process - Seamless draw (stamped)
Flashing - 15.25" x 17.25"
Height - 3"
Cavity - 255 Cubic inches

## Base Plate:

- Fastened to base using toggle fastening system
- 5 roof deck knockouts
- Knockout sizes: (3) .5", (1) .75" and (1) 1"
- 8", 35mm slotted din rail
- Ground Block

Passthrough and combiner kits are available for either AC or DC applications.

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Sheet Name
JUNCTION BOX UL CERTIFICATION

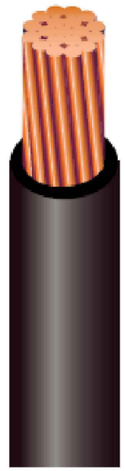
Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 06

PV PHOTOVOLTAIC CABLE

# 2kV Rated PV

Cross-Linked Polyethylene Insulated
18 - 750 MCM • 2000 Volts • -40°C to 90°C Wet and Dry




## Cable Identification

"ADVANCED DIGITAL CABLE INC. XX AWG (UL) PV WIRE OR RHW-2 2000V OR USE-2 600V 90°C WET OR DRY (-40C) SR GRII DIRECT BURIAL RoHS E324841"

## Description

ADC's *Solarlink* brand Photovoltaic cable has a chemically cross-linked polyethylene insulation.

## Applications

Appropriate for use in solar power applicatioins that require 2,000 volt rating. For use in grounded interconnection and ungrounded Photovoltaic power systems.

## Construction

**Conductors:** Stranded bare copper conductor per ASTM B-3, B-8. Available in 7 or 19 stranded versions as well as tinned copper.

**Insulation:** Chemically Cross-linked polyethylene

**Colors:** Black, Green, White, Red. Print on one side with a contrasting ink. An extruded stripe and other colors are available upon request.

## Industry Listings & Standards

UL Listed as Photovoltaic Cable per Standard Subject 4703 and 44
-40°C/90°C Wet and Dry Rated
Gasoline and Oil Resistant II
RoHS Compliant
Sunlight Resistant
VW-1 Flame Rating Optional

## Cable Data

| Part Number | AWG | Strand | Insulation Thickness (mils) | Nominal O.D. (inch) | Approximate Net Weight lbs/1 M' |
|---|---|---|---|---|---|
| 3182NPV | 18 | 7 | 75 | .196 | 18 |
| 3162NPV | 16 | 7 | 75 | .208 | 22 |
| 3142NPV | 14 | 7 | 75 | .221 | 28 |
| 3122NPV | 12 | 7 | 75 | .242 | 38 |
| 3102NPV | 10 | 7 | 75 | .264 | 51 |
| 3082NPV | 8 | 7 | 85 | .314 | 78 |
| 3062NPV | 6 | 7 | 85 | .351 | 112 |
| 3042NPV | 4 | 7 | 85 | .399 | 166 |
| 3032NPV | 3 | 7 | 85 | .427 | 203 |
| 3022NPV | 2 | 7 | 85 | .459 | 249 |
| 3012NPV | 1 | 19 | 105 | .539 | 323 |
| 30102NPV | 1/0 | 19 | 105 | .572 | 390 |
| 30202NPV | 2/0 | 19 | 105 | .616 | 480 |
| 30302NPV | 3/0 | 19 | 105 | .667 | 590 |
| 30402NPV | 4/0 | 19 | 105 | .722 | 737 |
| 302502NPV | 250 MCM | 37 | 120 | .798 | 879 |
| 303002NPV | 300 MCM | 37 | 120 | .845 | 1045 |
| 303502NPV | 350 MCM | 37 | 120 | .901 | 1198 |
| 304002NPV | 400 MCM | 37 | 120 | .946 | 1365 |
| 305002NPV | 500 MCM | 37 | 120 | 1.029 | 1673 |
| 306002NPV | 600 MCM | 61 | 135 | 1.136 | 2011 |
| 307502NPV | 750 MCM | 61 | 135 | 1.238 | 2518 |

The information contained on this specification is intended to be used as a guide in product selection and is believed to be reliable.
ADC has made every effort to ensure the data shown above is accurate at the time of publication. This specification is subject to change anytime without notice. REV0618



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REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
WIRING SPECIFICATION

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 07

CHIKOUSA
RACKING MADE SIMPLE

www.chikousa.com

# RAD MOUNT (Rafter And Decking)

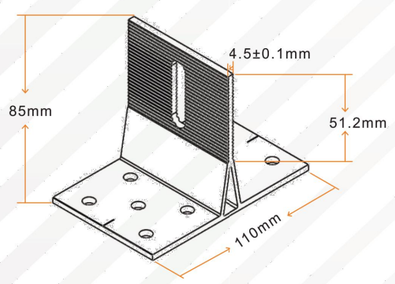
Integrated with a L-Foot & Flash with the flexibility to mount to Either the Rafter or Decking. This simple but RADICAL design is made for asphalt shingle roofs. Installers love the ease and faster install times!

## PRODUCT LINE

| Item | Product Name |
|---|---|
| CK-FTS-167RT2 | RAD Mount Al Roof Hook #167-SILVER |
| CK-FTS-167BRT2 | RAD Mount Al Roof Hook #167-BLACK |

## TECHNICAL DATA

Main Material : AL 6005-T5
Uplift P : N*Fv ( N=3 )
Wind Velocity : Up to 60 M/S (134 MPH)
Snow Load : 1.4 KN/m²/ 30 lbs/sq. foot
Spacing : Up to 2000mm; 6.5 feet; 80 Inches
Install Site Type : Asphalt Shingle




## ORDERING SPECIFICS

Standard Packaging : 25PCS/CTN
Dimensions : 45x27x30/CM
Weight : 21KG

## COMPONENT LIST

| Material | QTY |
|---|---|
| Rad Mount #167 Hook | 01 |
| SUS304 T2 Bolt M8*30 | 01 |
| SUS304 Flange nut M8 | 01 |
| Wooden Screw M6.3*65 | 02 |
| Butyl rubber | 01 |

For Deck Mount; Add Qty 2 Add'l Screws

## ADVANTAGES

- Optional Holes provided for Rafter & Decking
- Flexible moving on orientations Vertical & Horizonal
- Water-proof with thermoplastic butyl adhesive
- Faster Install Time

## WARRANTY

DURABILITY GUARANTEE 25 YEARS CHIKO SOLAR MOUNTING SYSTEMS

## INTERTEK LISTED

ETL LISTED US
Intertek
Conforms to UL STD NO.2703

www.chikousa.com
101 East Baseline Road
Buckeye, AZ 85326
Tel : 1-800-948-5390
Email : info@chikousa.com

CHIKOUSA
RACKING MADE SIMPLE

infinity solar

INFINITY HOME SOLUTIONS
6405 E MILL PLAIN
VANCOUVER WA 98661
PHONE: 1-800-818-0598
INFINITY SOLAR.COM

REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
MOUNTING - DATA SHEET

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 08

CHIKO
Solar Mounting Solutions

www.chikolar.com/www.chikosolar.com

# #518 RAIL

CHIKO 518R aluminum rail is designed for roof mounting system,it could applied on all roof mount system.A variety of lengths can help to reduce unnecessary cut.

## ADVANTAGES

- Easy installation
- Highclass anodized
- Universal on roof mount system

## WARRANTY



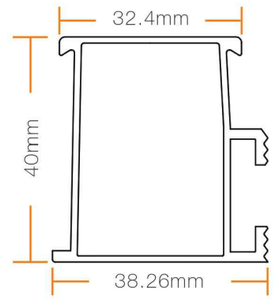
## PRODUCT LINE

| Item | Product Name |
|---|---|
| CK-FT-R518B1-2100 | CHIKO 518 Rail 2100mm |
| CK-FT-R518B1-3200 | CHIKO 518 Rail 3200mm |
| CK-FT-R518B1-4200 | CHIKO 518 Rail 4200mm |
| CK-FT-R518B1-4350 | CHIKO 518 Rail 4350mm |

## TECHNICAL DATA

| | |
|---|---|
| Main Material | AL 6005-T5 |
| Wind Velocity | Up to 60 M/S |

Ix=34466.83 $mm^4$
Iy=49849.13 $mm^4$




## COMPONENT LIST

| MATERIAL | QTY |
|---|---|
| Aluminium Rail | 01 |

## ORDERING SPECIFICS

| | |
|---|---|
| Standard Packaging | 8PCS/PKG |
| Dimensions | 2100/3200/4200/4350mm |
| Weight | 9.6/14.6/19.2/19.85kg |



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PHONE: 1-800-818-0598
INFINITY SOLAR.COM

REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
RACKING - DATA SHEET

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 09

## PRODUCT LINE

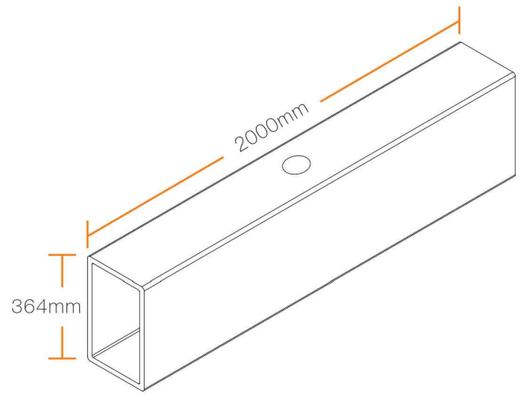
| Item | Product Name |
|---|---|
| CK-FT-SKA | CHIKO 43 Rail Splice Kit |

## TECHNICAL DATA

| | |
|---|---|
| Main Material | AL 6005-T5 |
| Wind Load | Up to 60 M/S |
| Snow Load | 1.4 KM/M$^2$ |

# 43 RAIL SPLICE KIT

CHIKO 43R aluminium rail splice kit is designed for 43R rail connection from back to position. The most simple and handy installation way.




## ADVANTAGES

- Easy installation
- Highclass anodized

## COMPONENT LIST

| MATERIAL | QTY |
|---|---|
| Aluminium Rail Splice Kit | 01 |
| SUS304 ∮ 4.2*16 | 04 |

## WARRANTY



## ORDERING SPECIFICS

| | |
|---|---|
| Standard Packaging | 150 PCS/PKG |
| Dimensions | 51X38X22CM |
| Weight | 30KG |



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REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

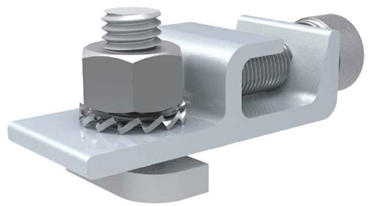
Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
SPLICE KIT
-DATA SHEET

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 10



# Grounding Lug

CHIKO grounding lug is designed for fixing grounding cable going through smoothly betweeen each rails

## TECHNICAL DATA

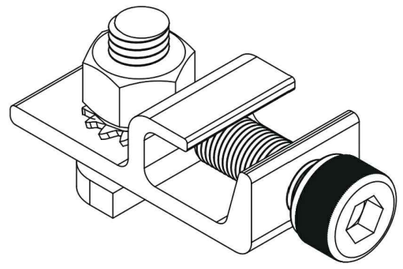
| | |
|---|---|
| Main Material | AL 6005-T5 |
| Tighten torque | 15N.m |
| Safe torque | 20N.m |

## COMPONENT LIST

| MATERIAL | QTY |
|---|---|
| Grounding Lug | 01 |
| SUS304 inner hex bots M8X20 | 01 |
| SUS304 T4 bolts M8x25 | 01 |
| SUS304 hex nut M8 | 01 |
| SUS304 spring washer M8 | 01 |
| SUS304 star washer | 01 |

## ADVANTAGES

- Easy installation
- High class anodized
- Tilt- in nut



## WARRANTY


## ORDERING SPECIFICS

| | |
|---|---|
| Standard Packaging | 140 PCS/BOX 560PCS/CTN |
| Dimensions | 51X38X22CM |
| Weight | 5.8/23.2KGS |



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6405 E MILL PLAIN
VANCOUVER WA 98661
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INFINITY SOLAR.COM

REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

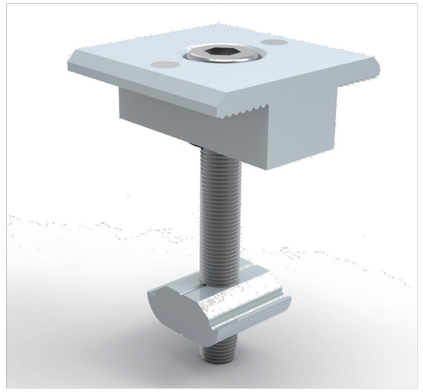
Sheet Name
GROUNDING LUG -DATA SHEET

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 11

CHIKO
Solar Mounting Solutions

www.chikolar.com/www.chikosolar.com



## PRODUCT LINE

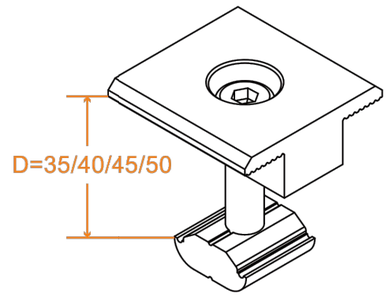
| Item | Product Name |
|---|---|
| CK-FTM-35 | CHIKO Fix Mid Clamp 35mm |
| CK-FTM-40 | CHIKO Fix Mid Clamp 40mm |
| CK-FTM-45 | CHIKO Fix Mid Clamp 45mm |
| CK-FTM-50 | CHIKO Fix Mid Clamp 50mm |

## PRODUCT LINE

| | |
|---|---|
| Main Material | AL 6005-T5 |
| Tighten torque | 15N.m |
| Safe torque | 20N.m |

# Fix Mid Clamp

CHIKO mid clamps is designed base on 7R rail to fix module between two module, 30mm to 55mm thickness module are available.




## ADVANTAGES

- Easy installation
- High class anodized
- Tilt- in nut

## COMPONENT LIST

| MATERIAL | QTY |
|---|---|
| Mid Clamp | 01 |
| SUS304 Bolt M8 | 01 |
| 057 Alu Nut | 01 |

## WARRANTY


## ORDERING SPECIFICS

| | |
|---|---|
| Standard Packaging | 100 PCS/BOX 400PCS/CTN |
| Dimensions | 51X38X22CM |
| Weight | 26.8/27.5/28/28.6KG |

Phone:86-21-59972267-801 Fax:86-21-59972938

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VANCOUVER WA 98661
PHONE: 1-800-818-0598
INFINITY SOLAR.COM

REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

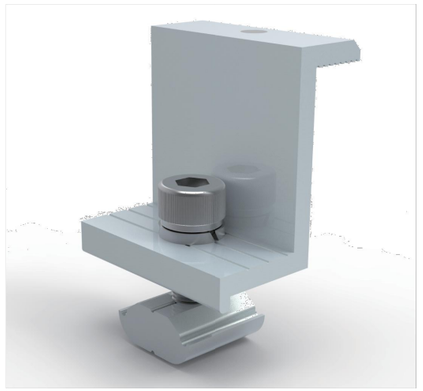
Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
MID CLAMP - DATA SHEET

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 12



# Fix End Clamp

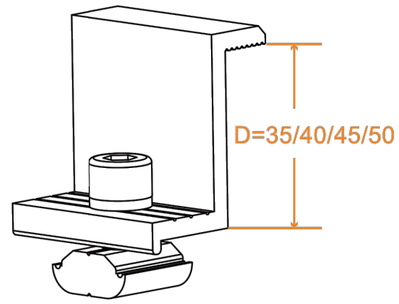
CHIKO end clamps is designed base on 7R rail to fix module on the end of rail, 30mm to 55mm thickness module are available.

## PRODUCT LINE

| Item | Product Name |
|---|---|
| CK-FTE-35 | CHIKO Fix End Clamp 35mm |
| CK-FTE-40 | CHIKO Fix End Clamp 40mm |
| CK-FTE-45 | CHIKO Fix End Clamp 45mm |
| CK-FTE-50 | CHIKO Fix End Clamp 50mm |

## PRODUCT LINE

| | |
|---|---|
| Main Material | AL 6005-T5 |
| Tighten torque | 15N.m |
| Safe torque | 20N.m |




## ADVANTAGES

- Easy installation
- High class anodized
- Tilt- in nut

## COMPONENT LIST

| MATERIAL | QTY |
|---|---|
| End Clamp | 01 |
| SUS304 Bolt M8*25 | 01 |
| SUS304 Washer M8 | 01 |
| 057 Alu Nut | 01 |

## WARRANTY


## ORDERING SPECIFICS

| | |
|---|---|
| Standard Packaging | 100 PCS/BOX 400PCS/CTN |
| Dimensions | 51X38X22CM |
| Weight | 22/24.5/25.5/26KG |



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VANCOUVER WA 98661
PHONE: 1-800-818-0598
INFINITY SOLAR.COM

REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
END CLAMP - DATA SHEET

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 13

intertek
Total Quality. Assured.

# AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

| | | | |
|---|---|---|---|
| **Applicant:** | SHANGHAI CHIKO SOLAR TECHNOLOGY CO., LTD | **Manufacturer:** | SHANGHAI CHIKO SOLAR TECHNOLOGY CO., LTD |
| **Address:** | NO.680 Xing Wen Rd.Jiading District, Jiading District Shanghai 201811 | **Address:** | NO.680 Xing Wen Rd.Jiading District Jiading District Shanghai |
| **Country:** | China | **Country:** | China |

**Party Authorized To Apply Mark:** Same as Manufacturer
**Report Issuing Office:** Intertek Testing Services NA, Inc., Lake Forest, CA

**Control Number:** *5010190* **Authorized by:** _____
for L. Matthew Snyder, Certification Manager

ETL LISTED US
Intertek

This document supersedes all previous Authorizations to Mark for the noted Report Number.



Intertek Testing Services NA Inc.
545 East Algonquin Road, Arlington Heights, IL 60005
Telephone 800-345-3851 or 847-439-5667 Fax 312-283-1672

| | |
|---|---|
| **Standard(s):** | Photovoltaic Hazard Control [ANSI/UL 3741:2020 Ed.1] |
| **Product:** | Photovoltaic Hazard Control System (PVHCS) using Chiko installation manual defined by, ChikoUSA Racking Made Simple Model No: CK-AR Rail Based Rooftop System Installation Manual-Incl UL 3741 Version No.: CHIKO-20230601-V.01, January 11, 2024 (UL 3741 PV Hazard Control Installation Addendum) |
| **Brand Name:** | Chiko USA LLC |
| **Models:** | Chiko Solar Asphalt Roof<br>Chiko Solar Stand-Off<br>Chiko Solar Tile Roof |



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INFINITY HOME SOLUTIONS
6405 E MILL PLAIN
VANCOUVER WA 98661
PHONE: 1-800-818-0598
INFINITY SOLAR.COM

REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
CHIKO USA UL LISTING CERTIFICATE

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 14

Customer Address:
Customers Name:

Date:
Prepared by:

Nearest Hospital/urgent care:
Manger contact:
Information:

# Site Specific Safety Map:

Red dashed lines: Roof edges (fall hazards).

Blue arrows: Ladder/scaffold access points.

Yellow zones: Material storage areas.

Lightning bolt icons: Electrical panels/PV arrays.

Green star: Emergency assembly point (driveway).

Signatures:
Journeyman Electrician:
Apprentice:
Roof Lead:
Roof Installer:
Roof Installer:

infinity solar

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6405 E MILL PLAIN
VANCOUVER WA 98661
PHONE: 1-800-818-0598
INFINITY SOLAR.COM

REVISIONS

| Description | Date | Rev |
|---|---|---|
| Initial Design | 8/17/25 | 00 |
| | | |
| | | |
| | | |

Signature with Seal

Project Name & Address

MICHAEL ROONEY RESIDENCE
427 W MYRTLEWOOD ST
NEWBERG, OR 97132
PHONE:- N/A
EMAIL:- N/A

Sheet Name
SITE SAFETY MAP

Sheet Size
ANSI B
11" X 17"

Sheet Number
DS 15

City of Newberg, OR

# Inspection Report

**Inspection:** BUILDING FINAL INSPECTION

**Inspector:** BLD-Mariah Lemen

**Inspection Date:** Oct 10, 2025

**Record:** *Building Permit #BLD-25-272

**Location:** 427 W MYRTLEWOOD ST, Newberg, OR 97132

**Applicant:** Infinity Solar USA

### BUILDING FINAL INSP

## Overall Result: Pass

> **Overall Remarks:**
>
> Approved. Could see everything from the street

City of Newberg

**PERMIT #:** BLD-25-272

**ISSUE DATE:** September 18, 2025

General Questions: 503. 537.1240
Email Address: building@newbergoregon.gov

# BUILDING PERMIT
## BUILDING DEPARTMENT

**SITE ADDRESS:** 427 W MYRTLEWOOD ST Newberg, OR. 97132

**PARCEL #:** R3207CA 03400

**TYPE OF CONSTRUCTION:** VB

**TYPE OF WORK:** Residential

**TOTAL SQ. FT.:**

**BUILDING USE:** R-3

**DETAILED DESCRIPTION OF WORK:** 26 module roof mounted 10.66kwDC

**ZONING:** R-1/6.6

**TOTAL VALUE OF WORK:** $

**PROJECT NAME** *(if applicable)*:

**TOTAL PERMIT FEE'S PAID:** $223.21

## AUTHORIZED PERMIT HOLDERS

**APPLICANT:** Infinity Solar USA

**PHONE:** 509-955-7034

**MAILING ADDRESS:** 808 SE Chkalov DR 3-337 Vancouver, WA. 98683

**CONTRACTOR:** TML INTERNATIONAL LLC

**PHONE:** 5038515793

**MAILING ADDRESS:** 808 SE CHKALOV DR STE 3-337

**CCB #:** 223690

## ADDITIONAL INFORMATION/CONDITIONS OF APPROVAL/COMMENTS

*ALL WORK IS TO CONFORM TO THE CURRENT EDITION OF THE ORSC & OSCC.*

INSPECTIONS REQUESTED **PRIOR TO 7AM** WILL BE COMPLETED THE ***SAME*** BUSINESS DAY.

INSPECTION RECEIVED **AFTER 7AM** WILL BE SCHEDULED FOR THE **NEXT** BUSINESS DAY.

***Schedule or track inspections at www.newbergor.portal.opengov.com OR Call 503.554.7714 leave PERMIT # BLD-25-272, address & type of Insp.***

**THIS PERMIT EXPIRES 6 MO FROM ISSUE DATE: March 17, 2026 IF WORK IS NOT STARTED OR IF WORK IS SUSPENDED OR ABANDONED FOR 180 DAYS OR LONGER AFTER WORK HAS COMMENCED.**

A copy of the building permit & 1 set of approved construction documents are to be available for review at the work site.

All persons or entities performing work under this permit are required to be licensed unless exempted by ORS 701.010 (Structural/Mechanical), and ORS 693.010-020 (Plumbing).

**8.15.150 UNNECESSARY NOISE–PERMITTED EXCEPTIONS. UNREASONABLE NOISE AND EXCEPTIONS.**

3. The following acts are declared to be per se violations of this section. This enumeration does not constitute an exclusive list:
j. Construction or Repair of Buildings, or Excavation of Streets and Highways. The construction, demolition, alteration or repair of any building or the excavation of streets and highways other than between the hours of 7:00 a.m. and 7:00 p.m. on weekdays. In cases of emergency, construction or repair noises are exempt from this provision. In nonemergency situations, the city may issue a permit, upon application, if the city determines that the public health and safety, as affected by loud and raucous noise caused by construction or repair of buildings or excavation of streets and highways between the hours of 7:00 p.m. and 7:00 a.m. will not be impaired, and if the city further determines that loss or inconvenience would otherwise result. The permit shall grant permission in nonemergency cases for a period of not more than three days. The permit may be renewed once for a period of three days or less.

**NEWBERG CITY HALL** **414 E FIRST ST** **Web address: newbergoregon.gov**

# Oregon Solar Installation Specialty Code

## Check List for Prescriptive Photovoltaic Installations in accordance with Section 305.4

City of Newberg, Oregon
Building Division
414 E. First Street
P.O. Box 970
Phone: (503) 537-1240
Fax: (503) 537-1272
Web: www.newbergoregon.gov/building

| Property Owner Information | |
|---|---|
| **Property Owner Name:** Michael Rooney | |
| **Installation address:** 427 West Myrtlewood Street, | |
| **City:** Newberg **State: OR** **Zip:** 97132 | |
| **Structure on which modules are to be installed:** Home roof | |
| **Day Phone: (** **)** (503)537-0588 | **Evening Phone: (** **)** |
| **Email address:** kungpaomichael@gmail.com | |
| **Contractor:** TML International LLC | **CCB#:** 223690 |
| **Day Phone: (** **)** 360-326-0650 | **Evening Phone: (** **)** |
| **Email address:** permit@infinitysolarusa.com | |

## Site Plan

- Attach a simple site plan showing the location of the PV system in relation to buildings, structures, property lines, and, as applicable, flood hazard areas.
- System must be shown in sufficient detail to assess whether the requirements of section 304.9 or one of the exceptions have been met.
- The site plan must be on 8.5 x 11 or larger paper.

## Structural Information

### All Structures:

- Is this conventional light framed wood construction? **Yes** **No** **(circle one)**
- Does the structure have pre-engineered trusses? **Yes** **No** **(circle one) ;**

  **OR**
- Does structure have roof framing members spaced at 24 inches on center maximum?
  **Yes** **No** **(circle one)**
- Is the weight of the PV modules and racking less than 4.5 pounds per square foot?
  **Yes** **No** **(circle one)**
- Is the roofing material metal, single layer wood shingle, or not more than two layers of composition shingle?
  **Yes** **No** **(circle one)**

## Structural Information (continued)

### Standing Seam Metal Roofs:

- Is the metal gauge 26 or heavier? **Yes No ( circle one)**
- Clamp design: Are clamps designed to withstand uplift of at least 115 pounds for clamps spaced at 60 inches on center or less or at least 75 pounds for clamps spaced at 48 inches on center or less? **Yes No (circle one)**
- Is the spacing of the clamps as measured along the seam less than or equal to 24"o.c.? **Yes No ( circle one)**
- Is the roofing panel width 18-inches or greater? **Yes No (circle one)**
- Will the roofing panel attachments be at least #10 screws at 24-inches on center? **Yes No (circle one)**
- Will the roofing panels be installed over minimum ½-inch nominal wood structural panels attached to framing with 8d nails at 6-inches on center at panel edges and 12-inches on center field nailing? **Yes No (circle one)**

*If no, on any of these requirements, the project may not be submitted using the prescriptive path.*

## Roof Design and Attachment

- Attach a simple structural plan showing the roof framing (rafter size, type, and spacing) and PV system racking attachment.
- System must be shown in sufficient detail to assess whether the requirements of section 305.4 have been met.
- The structural plan must be on 8.5 x 11 or larger paper.

## Wind Design

- Does the project site exceed 95 MPH in exposure C or 105 MPH in exposures A or B. **Yes No (circle one)** *If yes, the project may not be submitted using the prescriptive path.*
- Is the module height less than 18 inches above the roof in accordance with section 305.4? **Yes No (circle one)**

## PV Modules

- Manufacturer: ZNShine
- Model Number: ZXM7-SH108 Series 410W
- Listing Agency: UL

| Jessica Paxton | Jessica Paxton | 9/4/2025 |
|---|---|---|
| **Applicant name (please print)** | **Applicant Signature** | **Date** |