

PROJECT DESCRIPTION:

16 HANWHA Q.CELL Q.PEAK DUO ML-G10.a+ 400 MODULE (400W)
 16 ENPHASE IQ8PLUS-72-2-US [240V] INVERTER
 SYSTEM SIZE: 6.4 KW DC STC
 SYSTEM SIZE: 4.64 KW AC

SYSTEM SUMMARY

16 HANWHA Q.CELL Q.PEAK DUO ML-G10.a+ 400 MODULE (400W)
 16 ENPHASE IQ8PLUS-72-2-US [240V] INVERTER

| DESIGN CRITERIA | |
|-------------------|--------------|
| WIND SPEED | 100 |
| EXPOSURE CATEGORY | B |
| RISK CATEGORY | II |
| MOUNTING METHOD | GROUND MOUNT |
| GROUND SNOW LOAD | 10 |

CODE COMPLIANCE

ALL WORK SHALL COMPLY WITH ALL STATE AND LOCAL CODES, ORDINANCES AND ANY OTHER REGULATING AUTHORITIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK.

AHJ CODES

- 2022 CALIFORNIA BUILDING CODE
- 2022 CALIFORNIA MECHANICAL CODE
- 2022 CALIFORNIA PLUMBING CODE
- 2022 CALIFORNIA ELECTRICAL CODE
- 2022 CALIFORNIA FIRE CODE
- 2022 CALIFORNIA ENERGY CODE
- 2022 CALIFORNIA RESIDENTIAL BUILDING CODE
- 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

NOTE:

1. "ALL ELECTRICAL WORK SHALL BE DESIGNED PER 2023 LOS ANGELES COUNTY ELECTRICAL CODE, 2022 CALIFORNIA ELECTRICAL CODE, AND 2020 NATIONAL ELECTRICAL CODE."
2. "110.2 APPROVAL: ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION."

GENERAL INSTALLATION NOTES

1. INSTALLER SHALL ASSUME FULL RESPONSIBILITY AND LIABILITY FOR COMPLIANCE WITH REGULATIONS PER FEDERAL OSHA AND LOCAL REGULATIONS PERTAINING TO WORK PRACTICES, PROTECTION OF WORKERS AND VISITORS TO THE SITE.
2. INSTALLER SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT SITE BEFORE COMMENCING WORK.
3. CONTRACTOR SHALL FURNISH ALL MATERIAL EXCEPT AS SPECIFIED IN THE CONTRACT AND/OR THESE DRAWINGS.
4. ALL MATERIALS SHALL BE IN NEW AND UNUSED CONDITION.
5. MANUFACTURER'S MATERIAL EQUIPMENT, ETC. SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
6. THE INSTALLER SHALL BECOME FAMILIAR WITH ALL UTILITY AS-BUILT PLANS AND THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES, PAVEMENT OR IMPROVEMENTS.
7. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE OWNER OF DISCREPANCIES REQUIRING FURTHER CLARIFICATION BEFORE PROCEEDING WITH THE WORKS.
8. INSTALL ALL ASPECTS OF THIS PROJECT IN ACCORDANCE WITH THE SPECIFICATIONS AND AS NOTED ON DRAWINGS ISSUED FOR CONSTRUCTION.
9. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER 310.0(D)
10. WORKING CLEARANCES AROUND THE EXISTING AND NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC 110.26
11. EXACT CONDUIT RUN LOCATIONS SUBJECT TO CHANGE
12. ROOF PENETRATIONS ARE SEALED.
13. INVERTER IS LISTED TO UL-1741 "UTILITY INTERACTIVE"

SHEET INDEX

| | |
|--------|---------------------------|
| PV-0 | COVER SHEET |
| PV-1 | PLOT PLAN |
| PV-2 | ARRAY PLAN |
| PV-3 | ADDITIONAL DETAIL |
| PV-4 | ATTACHMENT DETAIL |
| PV-5 | ELECTRICAL LINE DIAGRAM |
| PV-5.1 | WIRE CALCULATIONS |
| PV-6 | LABELS & PLACARD |
| PV-7.1 | EQUIPMENT SPECIFICATION-1 |
| PV-7.2 | EQUIPMENT SPECIFICATION-2 |
| PV-7.3 | EQUIPMENT SPECIFICATION-3 |
| PV-7.4 | EQUIPMENT SPECIFICATION-4 |
| PV-7.5 | EQUIPMENT SPECIFICATION-5 |
| PV-7.6 | EQUIPMENT SPECIFICATION-6 |
| PV-7.7 | EQUIPMENT SPECIFICATION-7 |

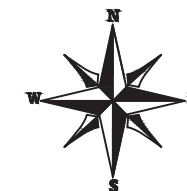
2



1 HOUSE PHOTO
 PV-0 SCALE: NTS



2 VICINITY MAP
 PV-0 SCALE: NTS



| REVISIONS | REV | DATE | DESCRIPTION |
|-----------|-----|-------------|--------------|
| | 01 | 02-APRIL-23 | 100% DESIGN |
| | 02 | 16-AUG-23 | AHJ COMMENTS |
| | | | |
| | | | |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST
 2609 W AVE M12,
 PALMDALE, CA 93551 USA
 JURISDICTION: LOS ANGELES COUNTY

SHEET NAME

COVER SHEET

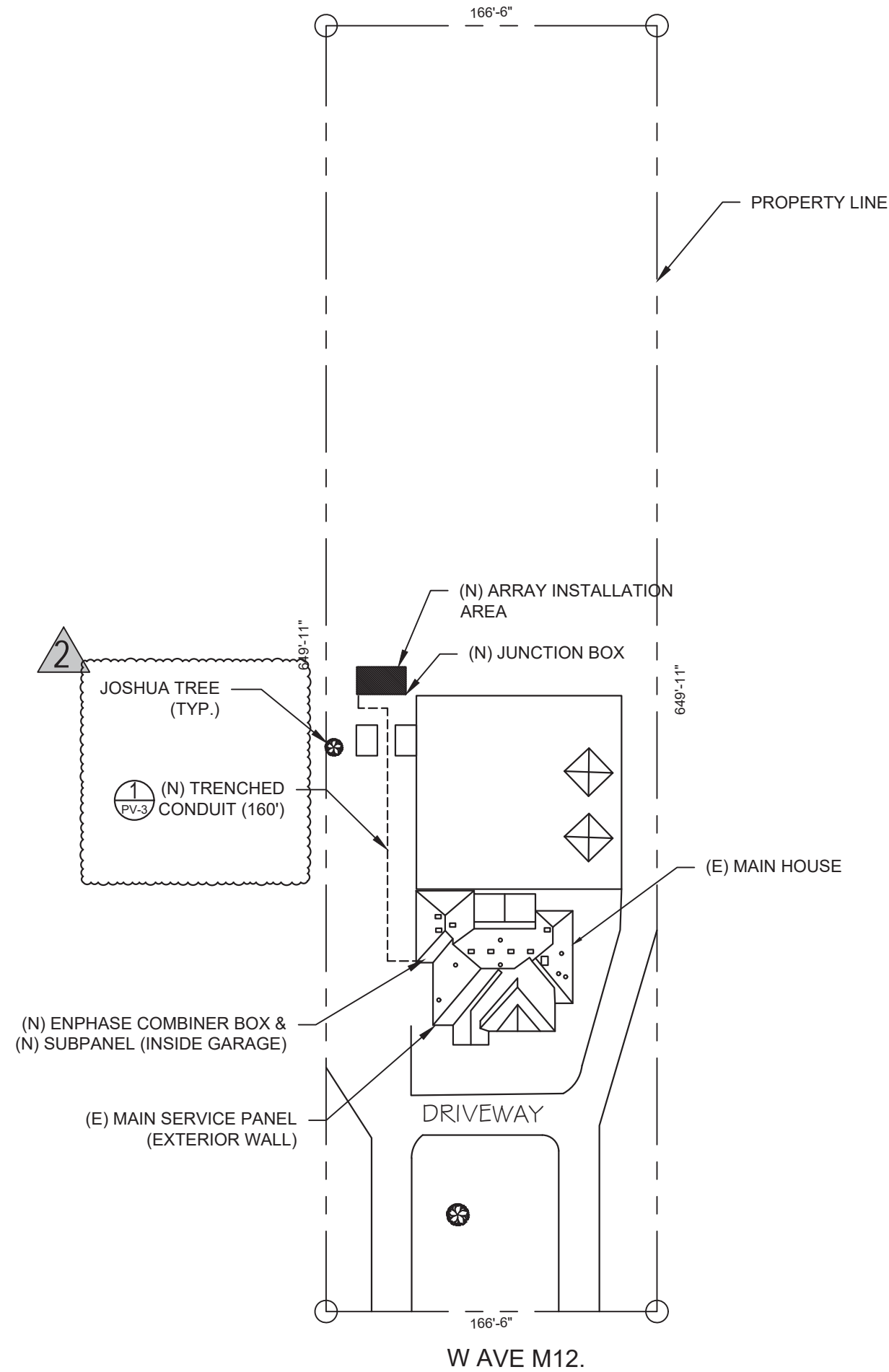
SHEET SIZE

ANSI B
 11" X 17"

SHEET NUMBER

PV-0

SYSTEM SUMMARY
 16 HANWHA Q.CELL Q.PEAK DUO ML-G10.a+ 400W
 16 ENPHASE IQ8PLUS-72-2-US [240V] INVERTER
 SYSTEM SIZE: 6.4 KW DC STC
 SYSTEM SIZE: 4.64 KW AC



1 PLOT PLAN
 PV-1 SCALE: 1/70"=1'-0"

| REVISIONS | DESCRIPTION | DATE | REV |
|-----------|--------------|-------------|-----|
| | 100% DESIGN | 02-APRIL-23 | 01 |
| | AHJ COMMENTS | 16-AUG-23 | 02 |
| | | | |
| | | | |
| | | | |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST
 2609 W AVE M12,
 PALMDALE, CA 93551 USA
 JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
 PLOT PLAN

SHEET SIZE
ANSI B
 11" X 17"

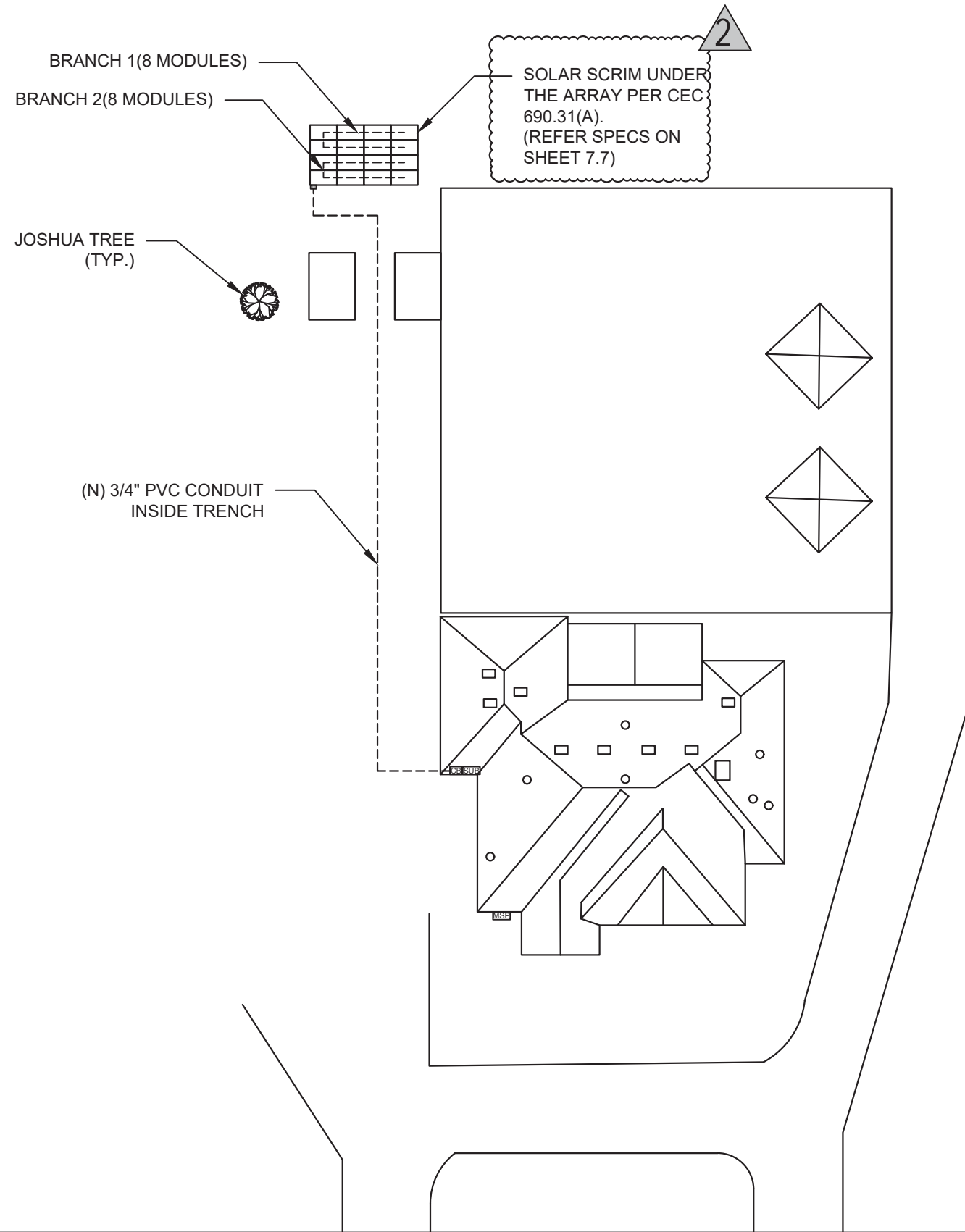
SHEET NUMBER
PV-1

SYSTEM SUMMARY
 16 HANWHA Q.CELL Q.PEAK DUO ML-G10.a+ 400W
 16 ENPHASE IQ8PLUS-72-2-US [240V] INVERTER
 SYSTEM SIZE: 6.4 KW DC STC
 SYSTEM SIZE: 4.64 KW AC

NOTE:
 "SECTION 690.33 (C) TYPE: THE CONNECTORS SHALL BE OF THE LATCHING OR LOCKING TYPE. CONNECTORS THAT ARE READILY ACCESSIBLE AND THAT ARE USED IN CIRCUITS OPERATING AT OVER 30 VOLTS DC OR 15 VOLTS AC SHALL REQUIRE A TOOL FOR OPENING."



| MOUNTING PLANE | TILT | TRUE AZIMUTH | # OF MODULES |
|----------------|------|--------------|--------------|
| ARRAY 1 | 20° | 180° | 16 |



LEGEND

- MSP - MAIN SERVICE PANEL
- CB - COMBINER BOX
- JB - JUNCTION BOX
- SUB - SUBPANEL
- - BRANCH

| REVISIONS | DESCRIPTION | DATE | REV |
|-----------|--------------|-------------|-----|
| | 100% DESIGN | 02-APRIL-23 | 01 |
| | AHJ COMMENTS | 16-AUG-23 | 02 |
| | | | |
| | | | |
| | | | |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST
 2609 W AVE M12,
 PALMDALE, CA 93551 USA
 JURISDICTION: LOS ANGELES COUNTY

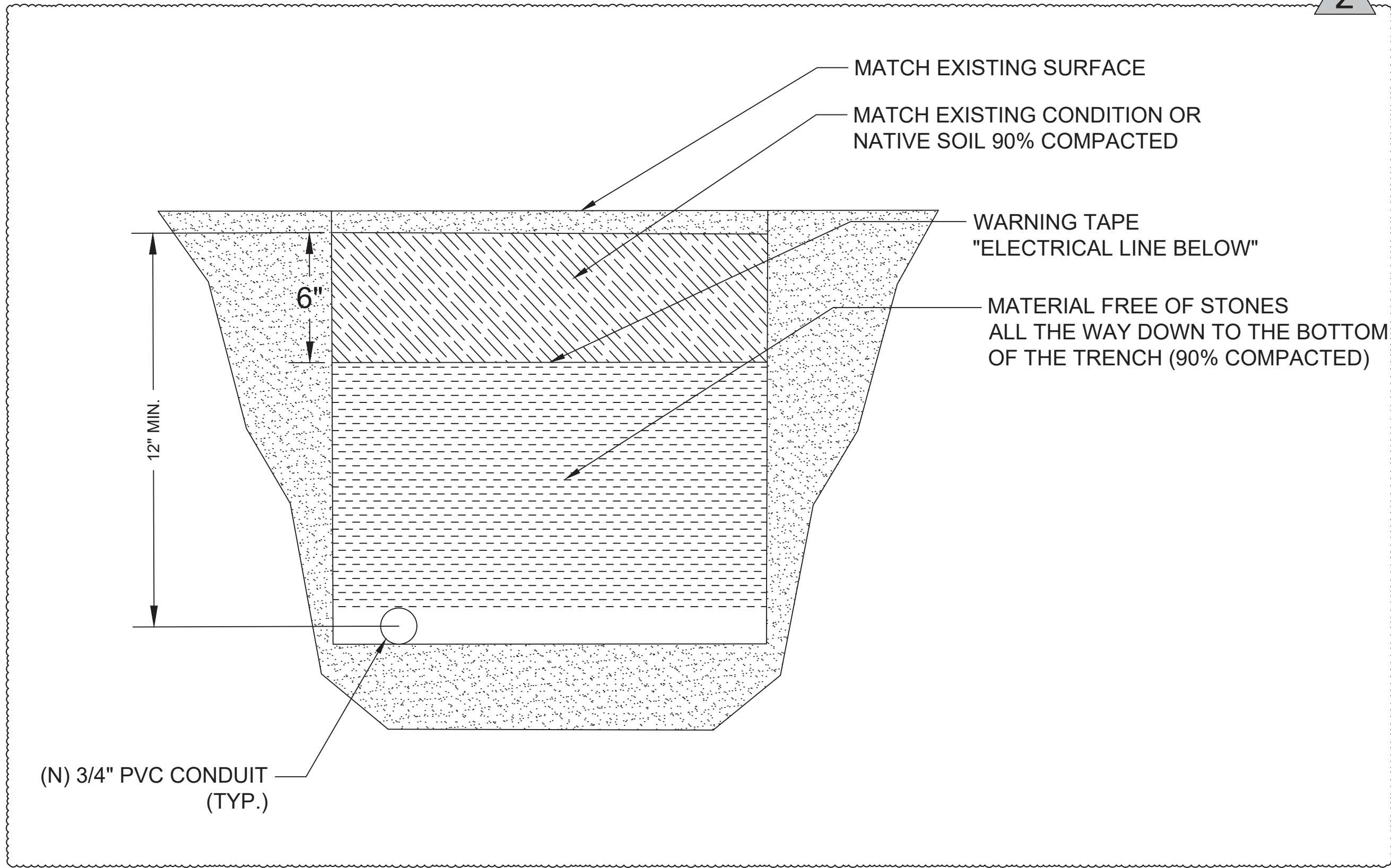
SHEET NAME
 ARRAY PLAN

SHEET SIZE
 ANSI B
 11" X 17"

SHEET NUMBER
 PV-2



2



| REVISIONS | DESCRIPTION | DATE | REV |
|-----------|--------------|-------------|-----|
| | 100% DESIGN | 02-APRIL-23 | 01 |
| | AHJ COMMENTS | 16-AUG-23 | 02 |
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Signature with Seal

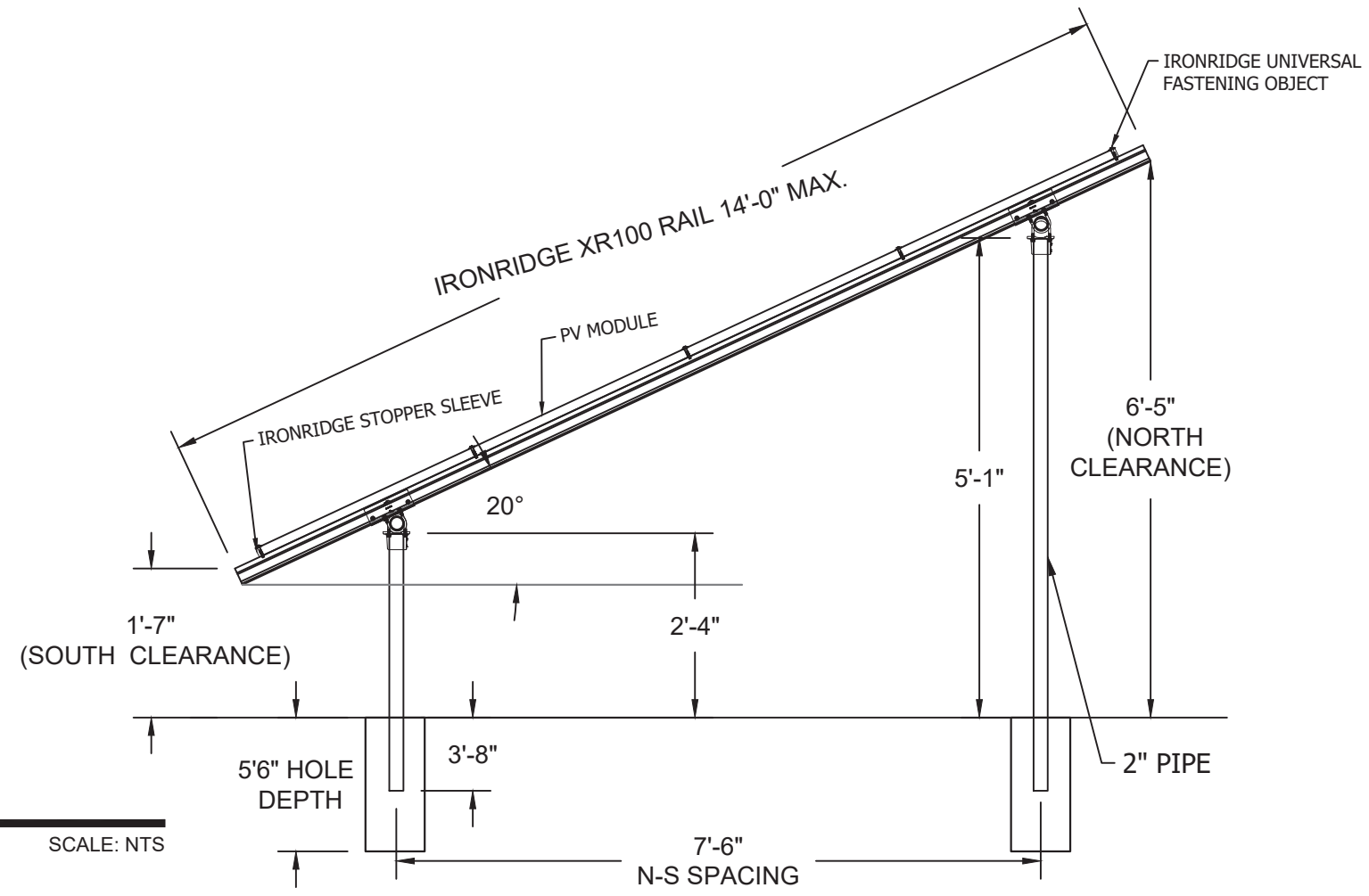
CUSTOMER INFORMATION

KAREN TILLQUIST
 2609 W AVE M12,
 PALMDALE, CA 93551 USA
 JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
 ADDITIONAL DETAIL

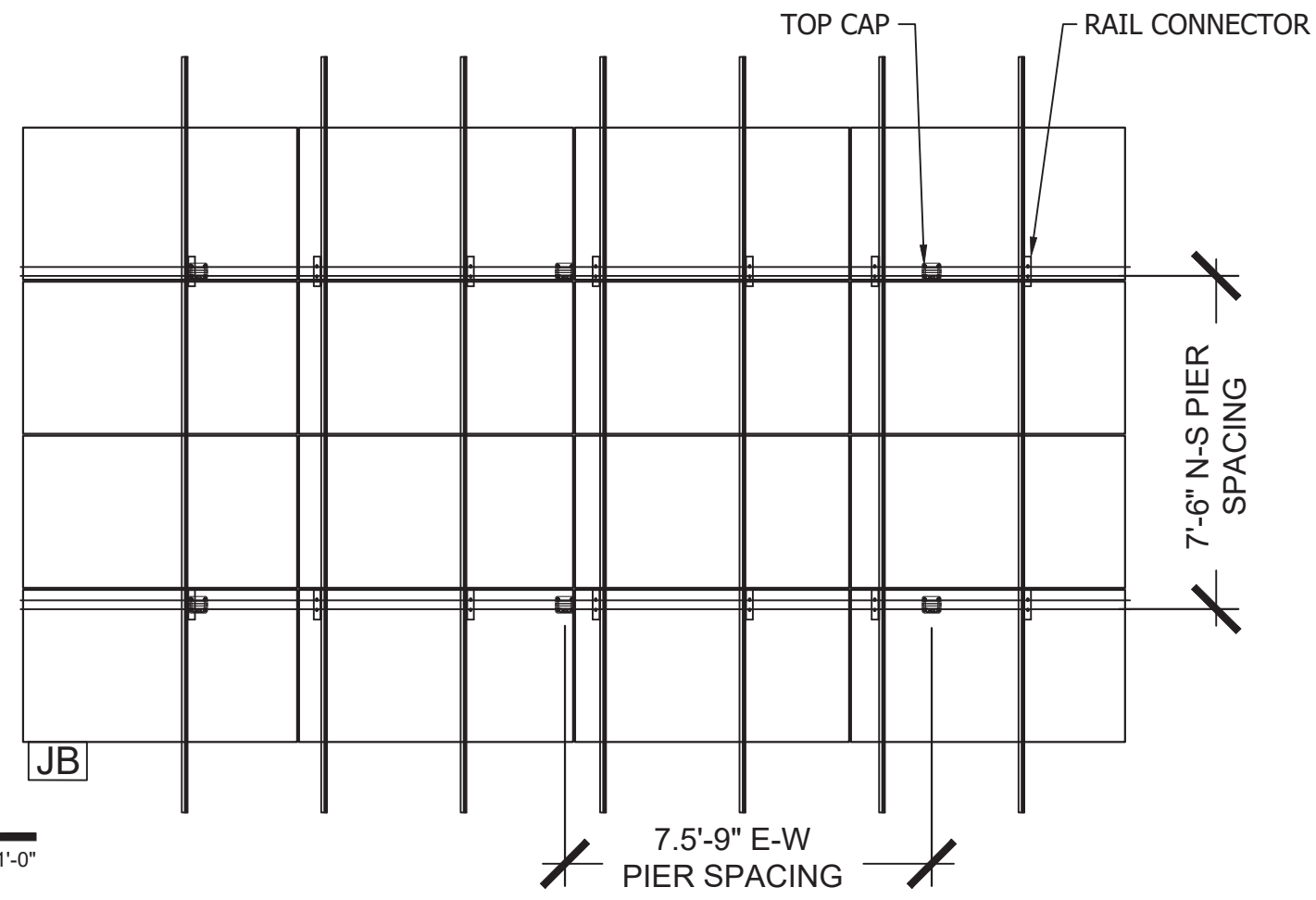
SHEET SIZE
 ANSI B
 11" X 17"

SHEET NUMBER
 PV-3



A STRUCTURAL DETAIL
PV-4

SCALE: NTS



B GROUND MOUNT ARRAY
PV-4

SCALE: 1/4"=1'-0"

| REVISIONS | DESCRIPTION | DATE | REV |
|-----------|--------------|-------------|-----|
| | 100% DESIGN | 02-APRIL-23 | 01 |
| | AHJ COMMENTS | 16-AUG-23 | 02 |
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Signature with Seal

CUSTOMER INFORMATION

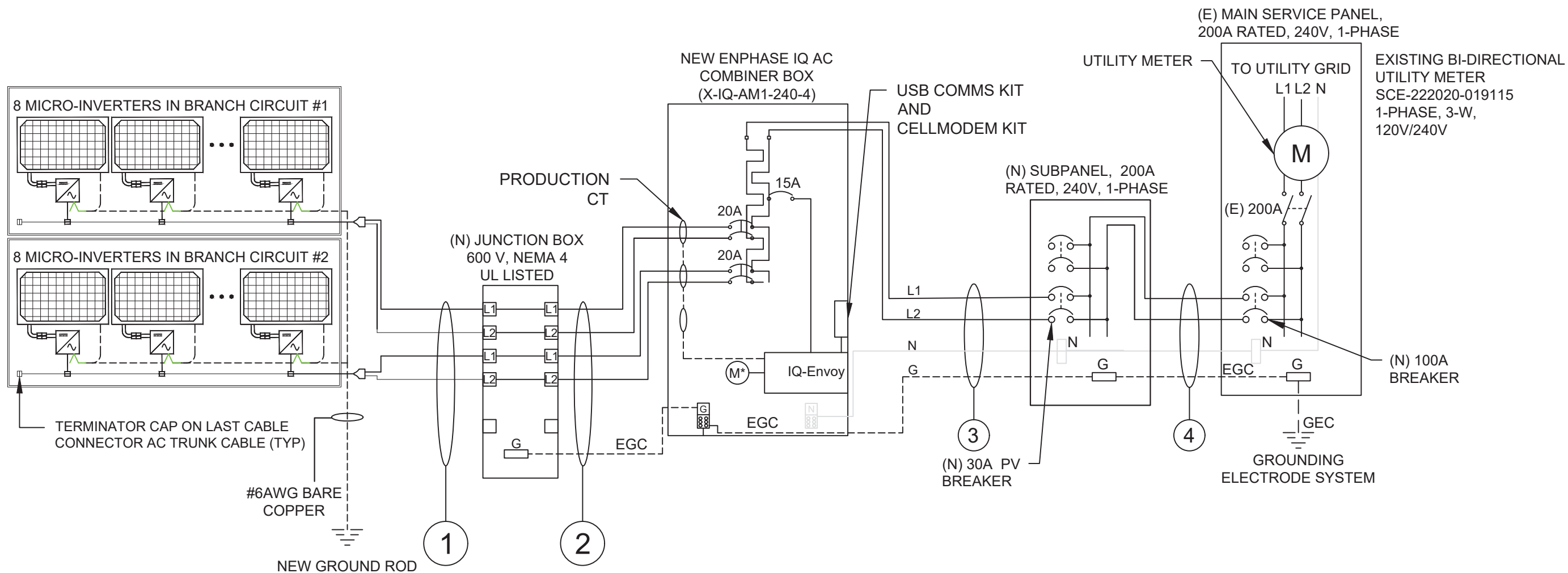
KAREN TILLQUIST
2609 W AVE M12,
PALMDALE, CA 93551 USA
JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
**ATTACHMENT
DETAIL**

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

SHEET NUMBER
PV-4

SYSTEM SUMMARY
 16 HANWHA Q.CELL Q.PEAK DUO ML-G10.a+ 400 MODULE (400W)
 16 ENPHASE IQ8PLUS-72-2-US [240V] INVERTER
 SYSTEM SIZE: 6.4 KW DC STC
 SYSTEM SIZE: 4.64 KW AC



- NOTES:
- 1) CONNECTION IN A PANELBOARD SHALL BE POSITIONED AT THE OPPOSITE END FROM THE INPUT FEEDER LOCATION PER CEC 690.64(D)(7).
 - 2) CIRCUITS MODIFIED OR EXTENDED BEYOND 6' SHALL BE PROVIDED WITH AFCI PROTECTION PER CEC 210.12(D).
 - 3) RELOCATE LOADS FROM EXISTING MAIN SERVICE PANEL TO NEW SUBPANEL

| REVISIONS | REV | DATE | DESCRIPTION |
|-----------|-----|-------------|--------------|
| | 01 | 02-APRIL-23 | 100% DESIGN |
| | 02 | 16-AUG-23 | AHJ COMMENTS |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST
 2609 W AVE M12,
 PALMDALE, CA 93551 USA
 JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
ELECTRICAL LINE DIAGRAM

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

SHEET NUMBER
PV-5

ENPHASE TRUNK CABLE TO BE ATTACHED TO RAIL MIN. 3-1/2" ABOVE ROOF SURFACE

CONDUIT TO BE MIN. 7/8" ABOVE ROOF SURFACE

PV BREAKER TO BE INSTALLED AT THE END OF THE BUS

| WIRE TAG # | WIRE FROM -- | CONDUIT | WIRE QTY. (CCC) | WIRE GAUGE: | WIRE TYPE | TEMP RATING: | WIRE AMP | TEMP DE-RATE: | CONDUIT FILL: | WIRE OCP: | TERMINAL 75°C RATING: | AMP. | QTY: | NEC: | STRING AMPS |
|------------|------------------------------|----------|-----------------|-------------|-------------|--------------|----------|---------------|---------------|-----------|-----------------------|---------|------|--------|-------------|
| ① | ARRAY TO JUNCTION BOX | FREE AIR | 2 | #12 | TRUNK CABLE | 90°C | 30A x | 01 x | NA = | 30A | 25A | 1.21 x | 15 x | 1.25 = | 14.52A |
| ② | JUNCTION BOX TO COMBINER BOX | 3/4" PVC | 4 | #10 | THWN-2 | 90°C | 40A x | 0.96 x | 1.00 = | 38.4A | 35A | 1.21 x | 8 x | 1.25 = | 9.68A |
| ③ | COMBINER BOX TO SUBPANEL | 3/4" EMT | 3 | #10 | THWN-2 | 90°C | 40A x | 0.96 x | 1.00 = | 38.4A | 35A | 19.36 x | 1 x | 1.25 = | 24.2A |
| ④ | MSP TO SUBPANEL | 1" EMT | 3 | #3 | THWN-2 | 90°C | 115A x | 0.96 x | 1.00 = | 110.4A | 100A | 100 x | 1 x | 1 = | 100A |

Rooftop conductor ampacities designed in compliance with art. 690.8, Tables 310.15(B)(2)(a), 310.15(B)(3)(a), 310.15(B)(3)(c), 310.15(B)(16), Chapter 9 Table 4, 5, & 9. Location specific temperature obtained from ASHRAE data tables

| | |
|-----------------------------|-----------|
| RECORD LOW TEMP | 1°C |
| AMBIENT TEMP (HIGH TEMP 2%) | 35°C |
| CONDUIT HEIGHT | 7/8" MIN. |
| CONDUCTOR TEMPERATURE RATE | 90°C |

| WIRE TAG # | CONDUIT FILL | OCPD | GRND SIZE | GRND WIRE TYPE |
|------------|--------------|------|-----------|----------------|
| ① | N/A | N/A | #6 | BARE COPPER |
| ② | 20.81% | 20A | #10 | THWN-2 |
| ③ | 15.9% | 30A | #10 | THWN-2 |
| ④ | 38.12% | 100A | #8 | THWN-2 |

120% RULE

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

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

| REVISIONS | DESCRIPTION | DATE | REV |
|-----------|--------------|-------------|-----|
| | 100% DESIGN | 02-APRIL-23 | 01 |
| | AJH COMMENTS | 16-AUG-23 | 02 |
| | | | |
| | | | |
| | | | |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST
 2609 W AVE M12,
 PALMDALE, CA 93551 USA
 JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
WIRE CALCULATIONS

SHEET SIZE
ANSI B 11" X 17"

SHEET NUMBER
PV-5.1

WARNING
INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
 POINT OF INTERCONNECTION
 (PER CODE: CEC 705.12(B)[Not required if panelboard is rated not less than sum of ampere ratings of all overcurrent devices supplying it])

SOLAR DISCONNECT

LABEL LOCATION:
 DISCONNECT, POINT OF INTERCONNECTION
 (PER CODE: CEC690.13(B))

PHOTOVOLTAIC SYSTEM AC DISCONNECT
 RATED AC OPERATING CURRENT 19.36 AMPS
 AC NOMINAL OPERATING VOLTAGE 240 VOLTS

LABEL LOCATION:
 AC DISCONNECT, INVERTER
 (PER CODE: CEC690.53)

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

LABEL LOCATION:
 WEATHER RESISTANT MATERIAL, DURABLE ADHESIVE, UL969 AS STANDARD TO WEATHER RATING (UL LISTING OF MARKINGS NOT REQUIRED), MIN 3/8" LETTER HEIGHT ARIAL OR SIMILAR FONT NON-BOLD, PLACED WITHIN THE MAIN SERVICE DISCONNECT, PLACED ON THE OUTSIDE OF THE COVER WHEN DISCONNECT IS OPERABLE WITH SERVICE PANEL CLOSED. (PER CODE: CEC690.15, 690.13(B))

CAUTION
DUAL POWER SOURCE
 SECOND SOURCE IS PV SYSTEM

CEC 705.12(D)(4) - AT MAIN SERVICE PANEL

CAUTION: SOLAR CIRCUIT

LABEL LOCATION:
 MARKINGS PLACED ON ALL INTERIOR AND EXTERIOR DC/AC CONDUIT, RACEWAYS, ENCLOSURES, AND CABLE ASSEMBLIES AT LEAST EVERY 10 FT, AT TURNS AND ABOVE/BELOW PENETRATIONS AND ALL COMBINER/JUNCTION BOXES.

AC SYSTEM DISCONNECT FOR UTILITY OPERATION

LABEL LOCATION:
 UTILITY DISCONNECT

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
 INVERTER, JUNCTION BOXES (ROOF), AC DISCONNECT
 (PER CODE: CEC690.13 & CEC 690.13)

WARNING DUAL POWER SOURCE
 SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
 POINT OF INTERCONNECTION
 (PER CODE: CEC 705.12(D)(4))

WARNING - Electric Shock Hazard
 No user serviceable parts inside
 Contact authorized service provider for assistance

LABEL LOCATION:
 INVERTER, JUNCTION BOXES (ROOF), AC DISCONNECT
 (PER CODE: CEC690.13 & CEC 690.13)

WARNING
ELECTRIC SHOCK HAZARD
 DO NOT TOUCH TERMINALS
 TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:
 AC DISCONNECT, POINT OF INTERCONNECTION
 (PER CODE: CEC 690.17(B))

WARNING
ELECTRIC SHOCK HAZARD
 IF A GROUND FAULT IS INDICATED
 NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

LABEL LOCATION:
 DC DISCONNECT, INVERTER
 (PER CODE: CEC 690.15)
 [To be used when inverter is ungrounded]

WARNING
ELECTRIC SHOCK HAZARD
 DO NOT TOUCH TERMINALS
 TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION
 DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

LABEL LOCATION:
 DC DISCONNECT, INVERTER
 (PER CODE: CEC 690.17(B))
 [To be used when inverter is ungrounded]

WARNING
ELECTRIC SHOCK HAZARD
 THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

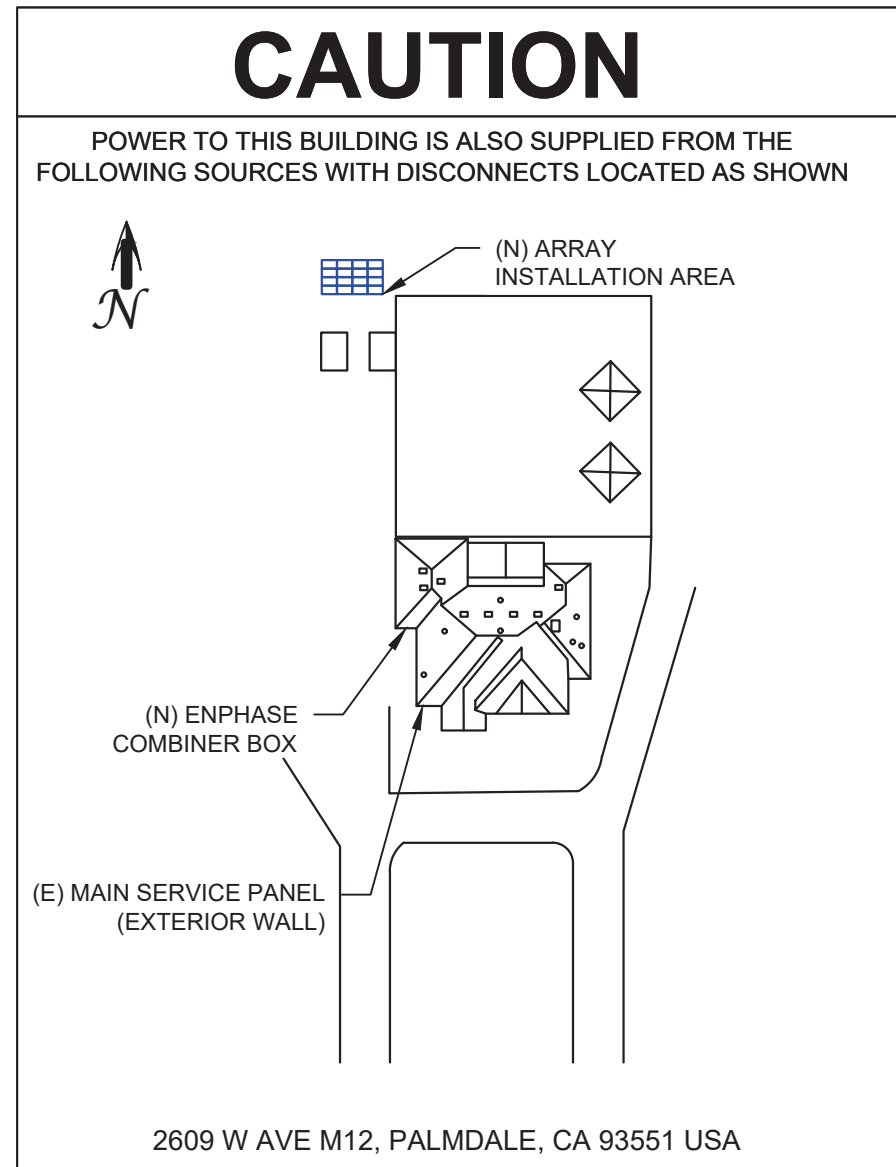
LABEL LOCATION:
 AC DISCONNECT, POINT OF INTERCONNECTION

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

LABEL LOCATION:
 WEATHER RESISTANT MATERIAL, DURABLE PLAQUE, UL969 AS STANDARD TO WEATHER RATING (UL LISTING OF MARKINGS NOT REQUIRED), MIN 3/8" LETTER HEIGHT ARIAL OR SIMILAR FONT NON-BOLD, PLACED WITHIN THE MAIN SERVICE DISCONNECT, PLACED ON THE OUTSIDE OF THE COVER WHEN DISCONNECT IS OPERABLE WITH SERVICE PANEL CLOSED. (PER CODE: CEC690.12, 690.56(C))

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



| REVISIONS | REV | DATE | DESCRIPTION |
|-----------|-----|-------------|--------------|
| | 01 | 02-APRIL-23 | 100% DESIGN |
| | 02 | 16-AUG-23 | AHJ COMMENTS |
| | | | |
| | | | |
| | | | |
| | | | |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST
 2609 W AVE M12,
 PALMDALE, CA 93551 USA
 JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
LABELS & PLACARD

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

SHEET NUMBER
PV-6

powered by
Q.ANTUM DUO Z

Q.PEAK DUO BLK ML-G10.a+

385-405

ENDURING HIGH PERFORMANCE



BREAKING THE 20% EFFICIENCY BARRIER

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



THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY

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



INNOVATIVE ALL-WEATHER TECHNOLOGY

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



ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID Technology, Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.



EXTREME WEATHER RATING

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



A RELIABLE INVESTMENT

Inclusive 25-year product warranty and 25-year linear performance warranty².

¹ APT test conditions according to IEC / TS 62804-1:2015, method A (-1530 V, 96h)
² See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:



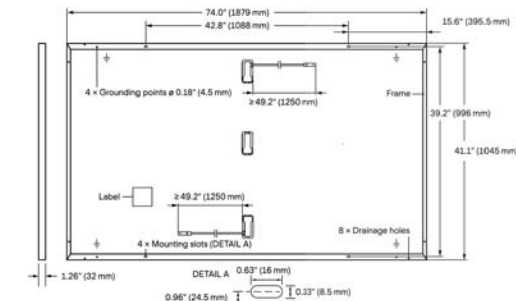
Rooftop arrays on residential buildings

Engineered in Germany



MECHANICAL SPECIFICATION

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

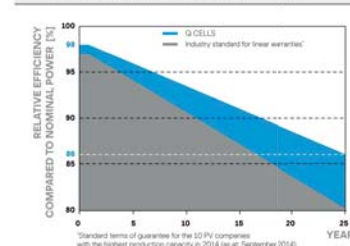


ELECTRICAL CHARACTERISTICS

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

¹ Measurement tolerances P_{MPP} ± 3%; I_{SC}; V_{OC} ± 5% at STC: 1000 W/m², 25 ± 2°C, AM 1.5 according to IEC 60904-3 • 2800 W/m², NMOT, spectrum AM 1.5

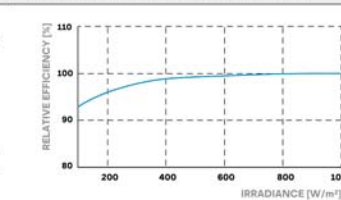
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

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

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

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

PROPERTIES FOR SYSTEM DESIGN

| | | | | |
|--|------------------------|------------------------------|---|---|
| Maximum System Voltage V _{sys} | [V] | 1000 (IEC) / 1000 (UL) | PV module classification | Class II |
| Maximum Series Fuse Rating | [A DC] | 20 | Fire Rating based on ANSI / UL 61730 | TYPE 2 |
| Max. Design Load, Push / Pull ³ | [lbs/ft ²] | 75 (3600 Pa) / 55 (2660 Pa) | Permitted Module Temperature on Continuous Duty | -40°F up to +185°F (-40°C up to +85°C) |
| Max. Test Load, Push / Pull ³ | [lbs/ft ²] | 113 (5400 Pa) / 84 (4000 Pa) | | |

³ See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant, Quality Controlled PV - TÜV Rheinland, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells), QCPV Certification ongoing.



PACKAGING INFORMATION

| | | | | | | | |
|----------------------|--------------------|--------------------|--------------------|--------------------|------------|------------|------------|
| Horizontal packaging | 76.4 in 1940 mm | 43.3 in 1100 mm | 48.0 in 1220 mm | 1656 lbs 751 kg | 24 pallets | 24 pallets | 32 modules |
|----------------------|--------------------|--------------------|--------------------|--------------------|------------|------------|------------|

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

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

| REVISIONS | REV | DATE | DESCRIPTION |
|-----------|-----|-------------|--------------|
| | 01 | 02-APRIL-23 | 100% DESIGN |
| | 02 | 16-AUG-23 | AHJ COMMENTS |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST
2609 W AVE M12,
PALMDALE, CA 93551 USA
JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
EQUIPMENT SPECIFICATION-1

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

SHEET NUMBER
PV-7.1

Specifications subject to technical changes © Q CELLS Q.PEAK DUO BLK ML-G10.a+ 385-405_2022-03_Rev02_NA



IQ8 and IQ8+ Microinverters

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



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



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



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



IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer's instructions.

Easy to install

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

High productivity and reliability

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

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) requirements

IQ8 and IQ8+ Microinverters

| INPUT DATA (DC) | | IQ8-60-2-US | IQ8PLUS-72-2-US |
|--|----|---|---|
| Commonly used module pairings ¹ | W | 235 – 350 | 235 – 440 |
| Module compatibility | | 60-cell/120 half-cell | 60-cell/120 half-cell and 72-cell/144 half-cell |
| MPPT voltage range | V | 27 – 37 | 29 – 45 |
| Operating range | V | 25 – 48 | 25 – 58 |
| Min/max start voltage | V | 30 / 48 | 30 / 58 |
| Max input DC voltage | V | 50 | 60 |
| Max DC current ² [module Isc] | A | | 15 |
| Overtoltage class DC port | | | II |
| DC port backfeed current | mA | | 0 |
| PV array configuration | | 1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit | |
| OUTPUT DATA (AC) | | IQ8-60-2-US | IQ8PLUS-72-2-US |
| Peak output power | VA | 245 | 300 |
| Max continuous output power | VA | 240 | 290 |
| Nominal (L-L) voltage/range ³ | V | 240 / 211 – 264 | |
| Max continuous output current | A | 1.0 | 1.21 |
| Nominal frequency | Hz | 60 | |
| Extended frequency range | Hz | 50 – 68 | |
| Max units per 20 A (L-L) branch circuit ⁴ | | 16 | 13 |
| Total harmonic distortion | | <5% | |
| Overtoltage 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 | % | 97.5 | 97.6 |
| CEC weighted efficiency | % | 97 | 97 |
| Night-time power consumption | mW | 60 | |
| MECHANICAL DATA | | | |
| Ambient temperature range | | -40°C to +60°C (-40°F to +140°F) | |
| Relative humidity range | | 4% to 100% (condensing) | |
| DC Connector type | | MC4 | |
| Dimensions (HxWxD) | | 212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2") | |
| Weight | | 1.08 kg (2.38 lbs) | |
| Cooling | | Natural convection – no fans | |
| Approved for wet locations | | Yes | |
| Acoustic noise at 1 m | | <60 dBA | |
| Pollution degree | | PD3 | |
| Enclosure | | Class II double-insulated, corrosion resistant polymeric enclosure | |
| Environ. category / UV exposure rating | | NEMA Type 6 / outdoor | |
| COMPLIANCE | | | |
| Certifications | | CA Rule 21 (UL 1741-SA), UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 | |
| | | This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions. | |

(1) No enforced DC/AC ratio. See the compatibility calculator at <https://link.enphase.com/module-compatibility> (2) Maximum continuous input DC current is 10.6A (3) Nominal voltage range can be extended beyond nominal if required by the utility. (4) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

| REVISIONS | REV | DATE | | | |
|-----------|--------------|-------------|-------------|----|--|
| | DESCRIPTION | 100% DESIGN | 02-APRIL-23 | 01 | |
| | AHJ COMMENTS | 16-AUG-23 | 02 | | |
| | | | | | |
| | | | | | |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST
 2609 W AVE M12,
 PALMDALE, CA 93551 USA
 JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
EQUIPMENT SPECIFICATION-2

SHEET SIZE
ANSI B 11" X 17"

SHEET NUMBER
PV-7.2

Enphase IQ Combiner 4/4C

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



X-IQ-AM1-240-4C

X-IQ-AM1-240-4

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

Smart

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

Simple

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

Reliable

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

Enphase IQ Combiner 4/4C

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

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

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

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

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

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



To learn more about Enphase offerings, visit enphase.com



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| REVISIONS | REV | DATE | | | |
|-----------|-----|-----------|-------------|--|--|
| | | 01 | 02-APRIL-23 | | |
| | 02 | 16-AUG-23 | | | |
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Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST

2609 W AVE M12,
PALMDALE, CA 93551 USA

JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
EQUIPMENT
SPECIFICATION-3

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-7.3

XR100® Rail

Universal Fastening Object

| Rail Section Properties | |
|----------------------------|-----------------------|
| Property | Value |
| Total Cross-Sectional Area | 0.582 in ² |
| Section Modulus (X-axis) | 0.297 in ³ |
| Moment of Inertia (X-axis) | 0.390 in ⁴ |
| Moment of Inertia (Y-axis) | 0.085 in ⁴ |
| Torsional Constant | 0.214 in ³ |
| Polar Moment of Inertia | 0.126 in ⁴ |

APPROVED MATERIALS:
6005-T6, 6005A-T61, 6105-T5, 6N01-T6
(34,000 PSI YIELD STRENGTH MINIMUM)

| Clear Part Number | Black Part Number | Description / Length | Material | Weight |
|-------------------|-------------------|----------------------------|----------------------|------------|
| XR-100-132A | XR-100-132B | XR100, Rail 132" (11 Feet) | 6000-Series Aluminum | 7.50 lbs. |
| XR-100-168A | XR-100-168B | XR100, Rail 168" (14 Feet) | | 9.55 lbs. |
| XR-100-204A | XR-100-204B | XR100, Rail 204" (17 Feet) | | 11.60 lbs. |

v1.11

UNIVERSAL FASTENING OBJECT

| ITEM NO. | DESCRIPTION |
|--------------|-------------------------------|
| UFO-CL-01-A1 | UNIVERSAL MODULE CLAMP, CLEAR |
| UFO-CL-01-B1 | UNIVERSAL MODULE CLAMP, BLACK |

| Property | Value |
|----------|----------------------------|
| Material | 300 Series Stainless Steel |
| Finish | Clear and Black |

v1.30

| REVISIONS | DESCRIPTION | DATE | REV |
|-----------|--------------|-------------|-----|
| | 100% DESIGN | 02-APRIL-23 | 01 |
| | AHJ COMMENTS | 16-AUG-23 | 02 |
| | | | |
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| | | | |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST
2609 W AVE M12,
PALMDALE, CA 93551 USA
JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
EQUIPMENT SPECIFICATION-4

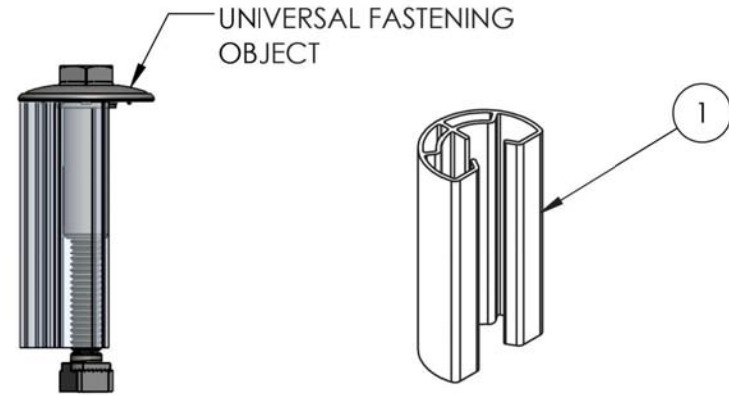
SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
PV-7.4



Cut Sheet

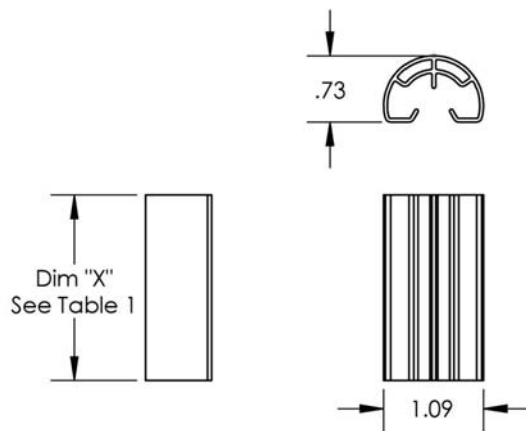
Stopper Sleeve



| ITEM NO. | COMPONENT |
|----------|----------------|
| 1 | STOPPER SLEEVE |

TABLE 1: STOPPER SLEEVE PART NUMBERS AND HEIGHT

| MILL PART NUMBER | BLACK PART NUMBER | HEIGHT "X" (mm) |
|------------------|-------------------|-----------------|
| UFO-STP-30MM-M1 | UFO-STP-30MM-B1 | 30 |
| UFO-STP-32MM-M1 | UFO-STP-32MM-B1 | 32 |
| UFO-STP-33MM-M1 | UFO-STP-33MM-B1 | 33 |
| UFO-STP-35MM-M1 | UFO-STP-35MM-B1 | 35 |
| UFO-STP-38MM-M1 | UFO-STP-38MM-B1 | 38 |
| UFO-STP-40MM-M1 | UFO-STP-40MM-B1 | 40 |
| UFO-STP-42MM-M1 | UFO-STP-42MM-B1 | 42 |
| UFO-STP-46MM-M1 | UFO-STP-46MM-B1 | 46 |



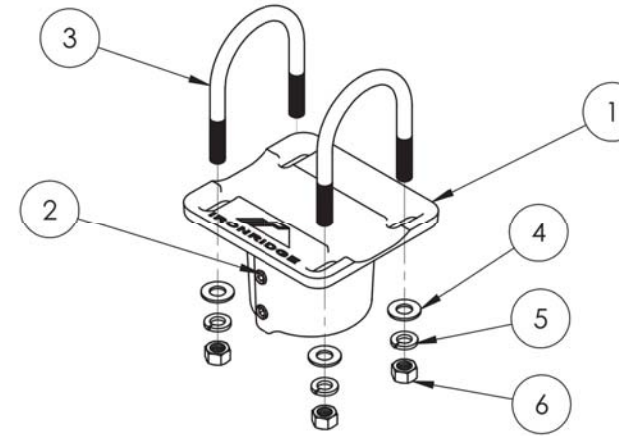
| Property | Value |
|----------|----------------------|
| Material | 6000 Series Aluminum |
| Finish | Mill or Black |

v1.30



Cut Sheet

Top Cap

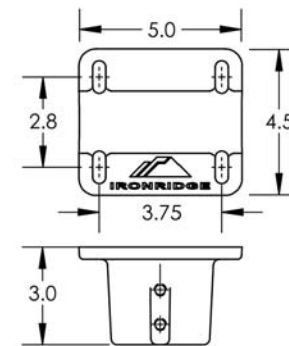


| Item Number | Component | Qty in Kit |
|-------------|--|------------|
| 1 | CAP, FLAT CSTG, ALUM | 1 |
| 2 | SET SCREW, CONE POINT, 3/8-16 X 3/4 LONG | 2 |
| 3 | UBOLT, CUSTOM SGA PIPE | 2 |
| 4 | WASHER, FLAT 3/8 GALV | 4 |
| 5 | WASHER, LOCK 3/8 GALV | 4 |
| 6 | NUT, HEX 3/8-16 GALV | 4 |

| Part Number | Description |
|-------------|-------------------------|
| 70-0200-SGA | SGA Top Cap at 2", Mill |
| 70-0300-SGA | SGA Top Cap at 3", Mill |

1) Cap, Flat CSTG, Alum

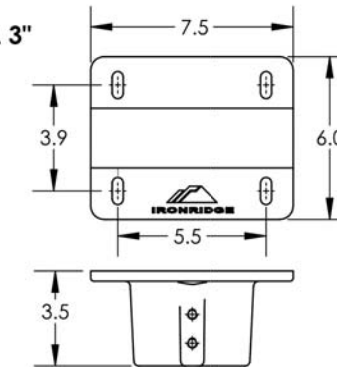
SGA 2"



| Property | Value |
|----------|-----------|
| Material | ALMAG 535 |
| Finish | Clear |

v1.0

SGA 3"



| Property | Value |
|----------|-----------|
| Material | ALMAG 535 |
| Finish | Clear |

| REVISIONS | REV | DATE | DESCRIPTION |
|-----------|-----|-------------|--------------|
| | 01 | 02-APRIL-23 | 100% DESIGN |
| | 02 | 16-AUG-23 | AHJ COMMENTS |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST

2609 W AVE M12,
PALMDALE, CA 93551 USA

JURISDICTION: LOS ANGELES COUNTY

SHEET NAME

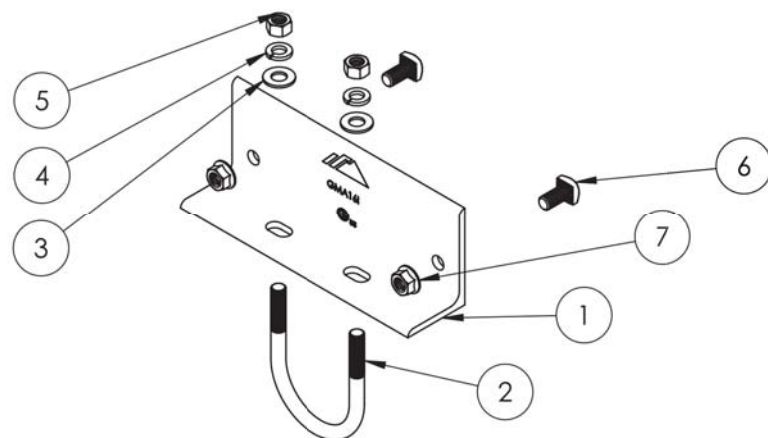
**EQUIPMENT
SPECIFICATION-5**

SHEET SIZE

**ANSI B
11" X 17"**

SHEET NUMBER

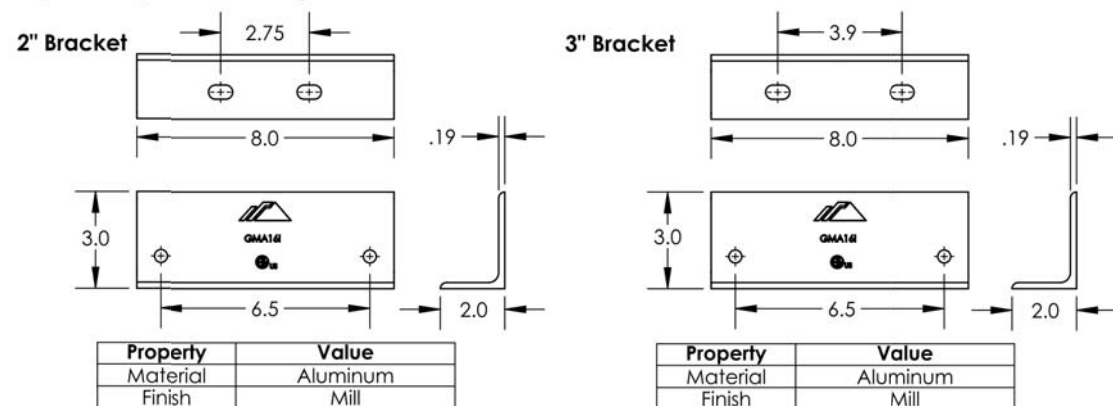
PV-7.5



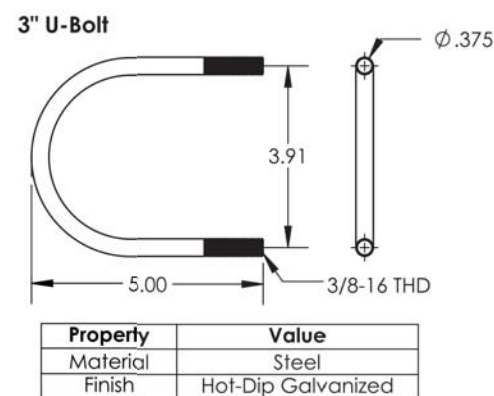
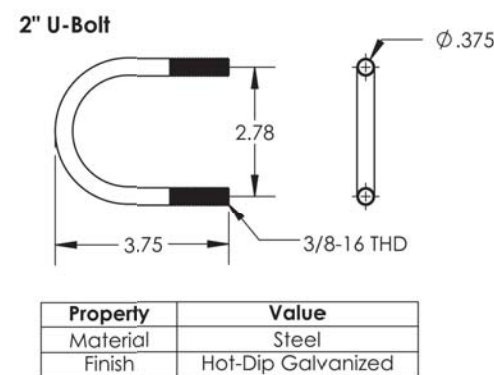
| Item Number | Component | Qty in Kit |
|-------------|------------------------------------|------------|
| 1 | RAIL, 2" PIPE ATTACHING BRKT | 1 |
| 2 | UBOLT, CUSTOM SGA PIPE | 1 |
| 3 | WASHER, FLAT 3/8 GALV | 2 |
| 4 | WASHER, LOCK 3/8 GALV | 2 |
| 5 | NUT, HEX 3/8-16 GALV | 2 |
| 6 | BOLT, BOND 3/8-16 X .75 LG SQ HEAD | 2 |
| 7 | NUT, FLANGE HEX 3/8-16 SS | 2 |

| Part Number | Description |
|-------------|---|
| GM-BRC-002 | GROUND MOUNT BONDED RAIL CONNECTOR - 2" |
| GM-BRC-003 | GROUND MOUNT BONDED RAIL CONNECTOR - 3" |

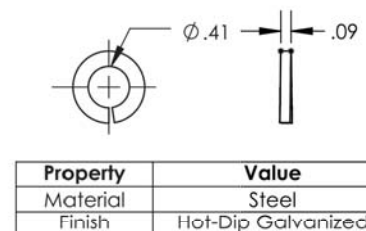
1) Rail, Pipe Attaching Bracket



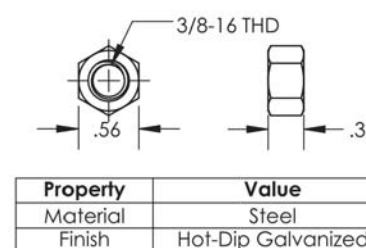
2) U-bolt, Custom SGA Pipe



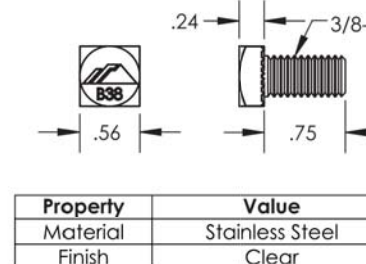
4) Washer, Lock 3/8 Galv



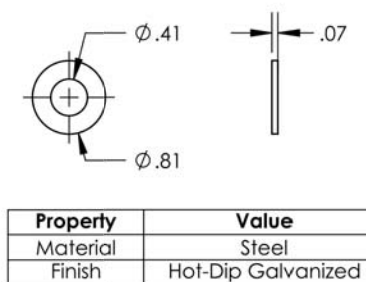
5) Nut, Hex 3/8-16 Galv



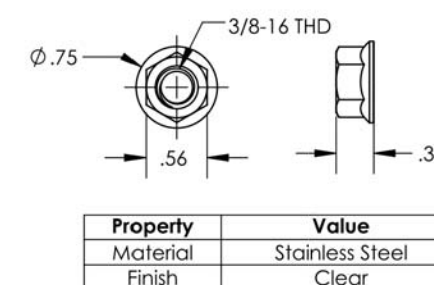
6) Bolt, Bond 3/8-16 X .75 LG SQ Head



3) Washer, Flat 3/8 Galv



7) Nut, Flange Hex 3/8-16 SS



| REVISIONS | REV | DATE | DESCRIPTION |
|-----------|-----|-------------|--------------|
| | 01 | 02-APRIL-23 | 100% DESIGN |
| | 02 | 16-AUG-23 | AHJ COMMENTS |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST

2609 W AVE M12,
PALMDALE, CA 93551 USA

JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
**EQUIPMENT
SPECIFICATION-6**

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

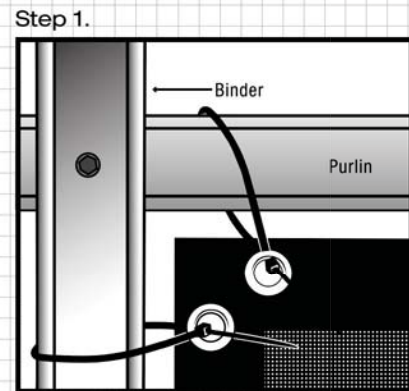
SHEET NUMBER

PV-7.6

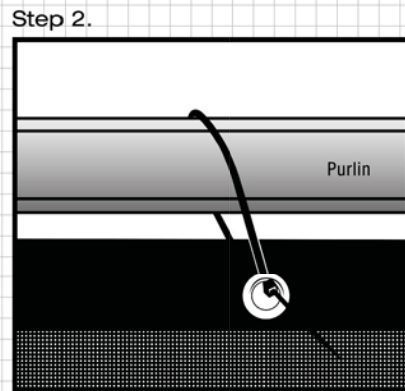


INSTALLATION Under Array

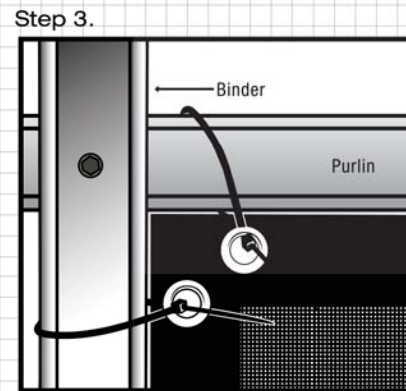
| Supplies Check List (per panel) | Tools Needed... | Tips... |
|---|---|---|
| <ul style="list-style-type: none"> • 14" to 19" Black UV rated zip-ties or Black coated electrical wire. | <ul style="list-style-type: none"> • Heavy Duty Pliers with Wire Cutter feature. | <ul style="list-style-type: none"> • Loosely hang panels, tighten when complete. |



Step 1. Using zip-ties, loosely attach each side of all four corners of the scrim panel.

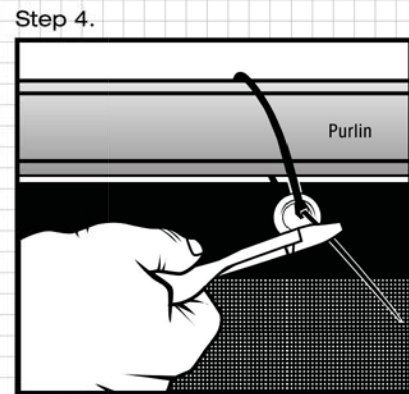


Step 2. Using the zip-ties loosely attach all sides of the scrim panel through each of the grommets.

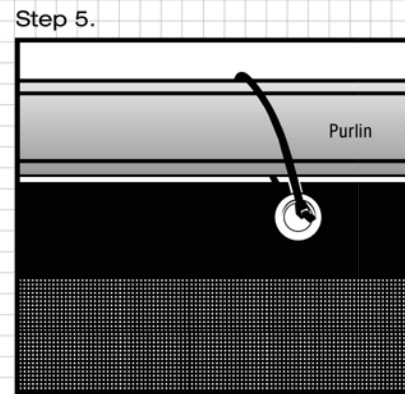


Step 3. Tighten the zip-ties from the 4 corners before working around the entire perimeter of the panel.

Note: May also zip-tie to holes on Solar Panel frames when available .



Step 4. Trim the excess tails of the zip-ties, leaving approximately 1/2" in place. A small tail in place may be helpful for making adjustments in the future.

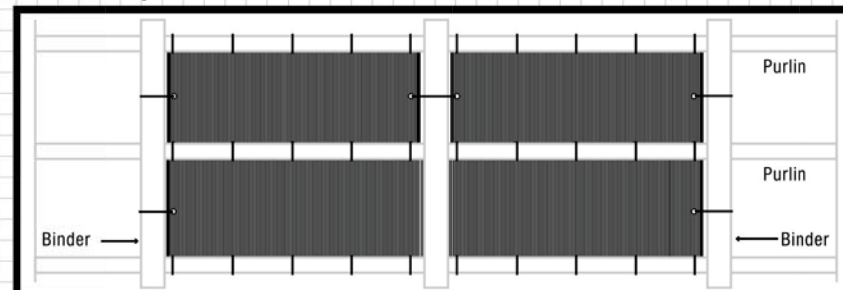


Step 5. Rotate each of the zip-ties towards the interior of the frame structure for a clean, finished look.

Under Array Detail: (view of Solar Panel from below). Scrim covers circuitry.

Option 1.
Panel per section.

Option 2.
One continuous panel.



thom@solarscrim.com | 720.452.5352 | Denver, Colorado

| REVISIONS | REV | DATE | |
|-----------|-------------|-------------|----|
| | DESCRIPTION | 02-APRIL-23 | 01 |
| | 16-AUG-23 | 02 | |
| | | | |
| | | | |
| | | | |

Signature with Seal

CUSTOMER INFORMATION

KAREN TILLQUIST
 2609 W AVE M12,
 PALMDALE, CA 93551 USA
 JURISDICTION: LOS ANGELES COUNTY

SHEET NAME
**EQUIPMENT
SPECIFICATION-7**

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

SHEET NUMBER
PV-7.7