NEW PHOTOVOLTAIC ROOF MOUNTED SYSTEM - 16.000 KW DC/1441.420 KW CEC AC
560 HESTER CREEK RD, LOS GATOS, CA 95033

NEW PV SYSTEM SPECIFICATIONS

SYSTEM SIZE:	DC SIZE: 16.000 KW DC-(STC) CEC AC SIZE: 1441.420 KW AC
MODULE:	(40) Q CELLS Q.PEAK DUO BLK ML-G10 400W
INVERTER:	(40) ENPHASE IQ8A-72-2-US [240V] [SI1-SB]

APPLICABLE CODES

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES:
2022 CALIFORNIA BUILDING CODE
2022 CALIFORNIA RESIDENTIAL CODE
2022 CALIFORNIA ENERGY CODE
2022 CALIFORNIA HISTORICAL BUILDING CODE
2022 CALIFORNIA EXISTING BUILDING CODE
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
2022 CALIFORNIA FIRE CODE
2022 CALIFORNIA ELECTRICAL CODE
AS ADOPTED BY COUNTY OF SANTA CRUZ

DESIGN CRITERIA

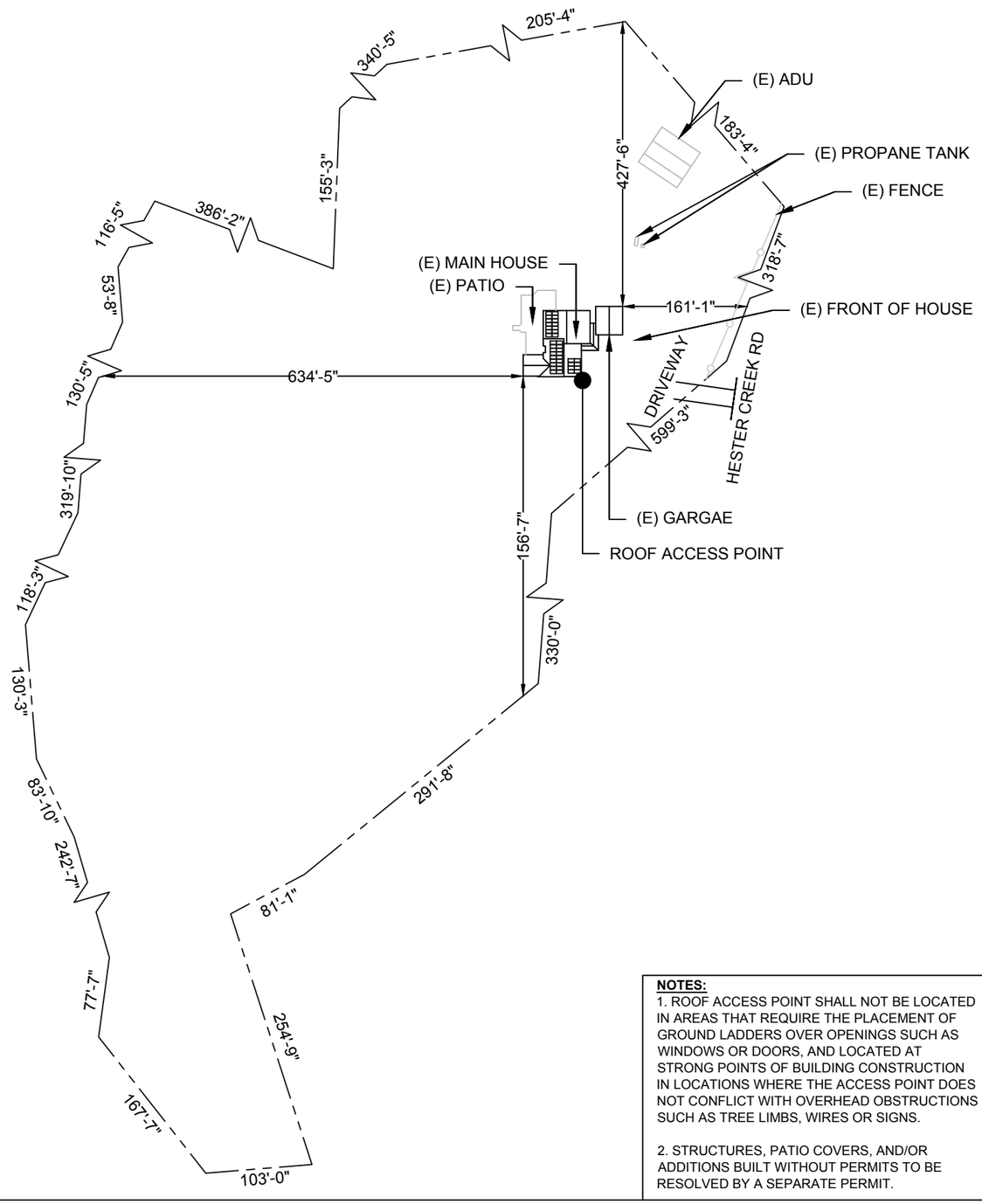
ROOF SURFACE TYPE: COMPOSITE SHINGLE
ROOF FRAMING: 2"X6" TRUSS @ 24" OC
BUILDING STORY: TWO STORY
GROUND SNOW LOAD: 0 PSF
WIND SPEED: 91 MPH
WIND EXPOSURE: C
RISK CATEGORY: II

PROJECT NOTES

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

SCOPE OF WORK

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



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1 PV-01 PROPERTY PLAN

SCALE:1/128"=1'-0"

SHEET INDEX

LEGEND

- PROPERTY LINE
- FENCE LINE

NOTES:

1. 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.

2. STRUCTURES, PATIO COVERS, AND/OR ADDITIONS BUILT WITHOUT PERMITS TO BE RESOLVED BY A SEPARATE PERMIT.

VICINITY MAP

SATELLITE MAP

CONTRACTOR

DAY ONE SOLAR

387 CORAL ST, SANTA CRUZ, CA 95060

LIC. NO. - 987896

County of Santa Cruz
Community Development & Infrastructure

Reviewed for Code Compliance

By: RAI
Date: 11/15/2023
Permit: B-237270
CCD/DEF:

PROJECT NAME & ADDRESS

ROBERT AND TAMMY ESTES

560 HESTER CREEK RD,
LOS GATOS, CA 95033
APN #: 09723135

AHJ: COUNTY OF SANTA CRUZ
UTILITY: PG&E

SYSTEM DETAILS

DC SIZE: 16.000 KW DC-(STC)
CEC AC SIZE: 1441.420 KW AC
(40) Q CELLS Q.PEAK DUO BLK ML-G10 400W
(40) ENPHASE IQ8A-72-2-US [240V] [SI1-SB]

REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE

COVER PAGE

DRAWN DATE	10/27/2023
DRAWN BY	PCAD

SHEET NUMBER

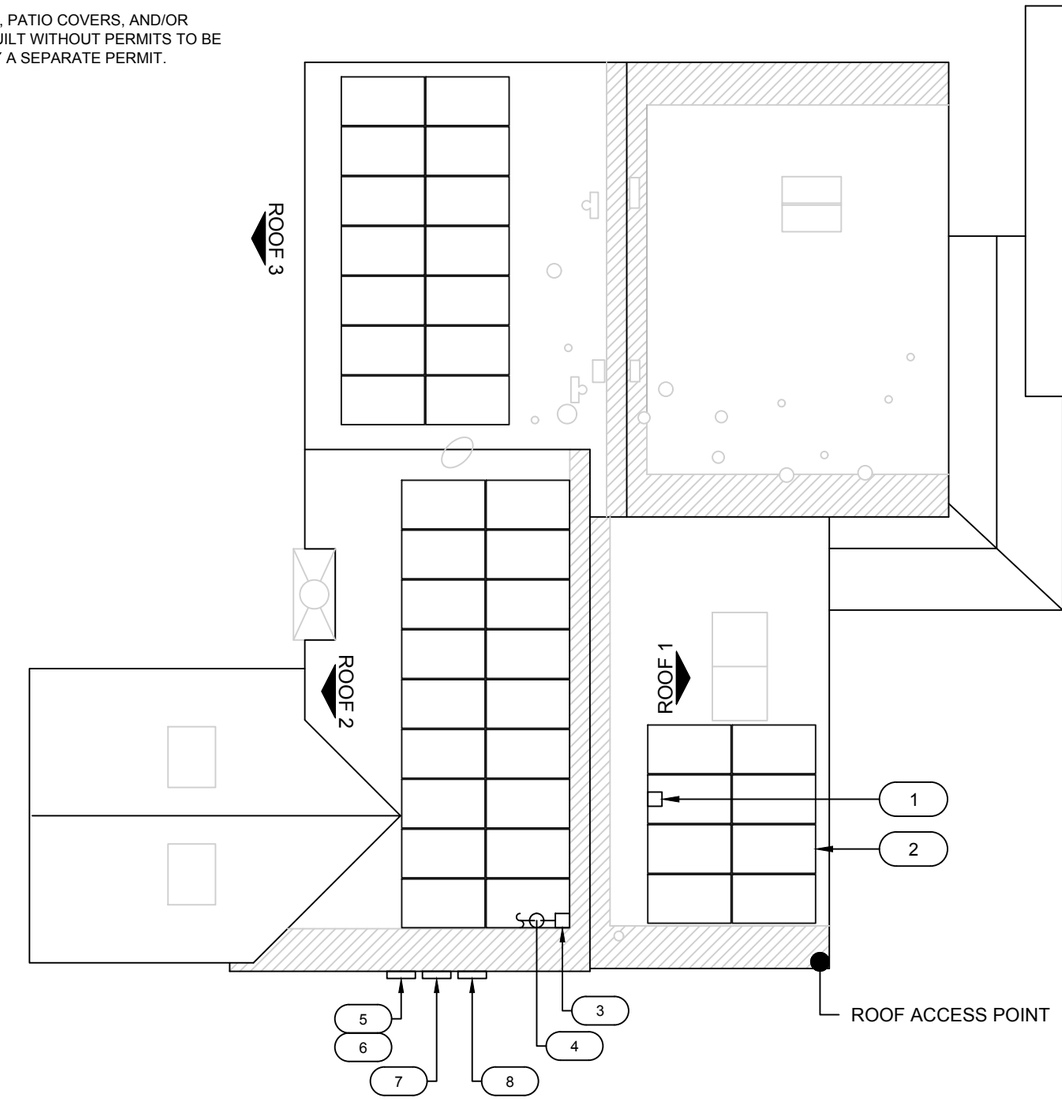
PV-01

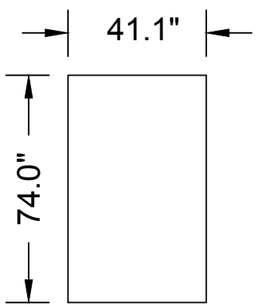
NOTES:

1. 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.

2. STRUCTURES, PATIO COVERS, AND/OR ADDITIONS BUILT WITHOUT PERMITS TO BE RESOLVED BY A SEPARATE PERMIT.

PLAN VIEW TOTAL ROOF AREA:	3973 FT²
TOTAL PV ARRAY AREA:	844.83 FT²
TOTAL % OF ROOF COVERED BY PV:	21.26%





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1 PV-02 SITE PLAN

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

LEGEND

36" 18" FIRE SETBACKS

= MECHANICAL VENT

= FLUE / PLUMBING VENT

1 MICROINVERTER (1 PER MODULE)

2 (40) Q CELLS Q.PEAK DUO BLK ML-G10 400W MODULES WITH ENPHASE IQ8A-72-2-US [240V] [SI1-SB] UNDER EACH MODULE

3 (N) JUNCTION BOX (NEMA 3R)

4 CONDUIT RUN; SURFACE MOUNTED (ACTUAL CONDUIT RUNS TO BE DETERMINED IN FIELD)

5 (E) UTILITY METER (UNDERGROUND SERVICE) METER #: 1010300413

6 MAIN SERVICE PANEL

7 EXISTING MLO PANEL

8 ENPHASE IQ COMBINER BOX

ROOF 1	SLOPE	- 18°
	AZIMUTH	- 95°
	MODULE QTY	- 08
	TRUSS	- 2"X6" @ 24" O.C.
	SURFACE TYPE	- COMPOSITE SHINGLE
ROOF 2	SLOPE	- 18°
	AZIMUTH	- 275°
	MODULE QTY	- 18
	TRUSS	- 2"X6" @ 24" O.C.
	SURFACE TYPE	- COMPOSITE SHINGLE
ROOF 3	SLOPE	- 18°
	AZIMUTH	- 275°
	MODULE QTY	- 14
	TRUSS	- 2"X6" @ 24" O.C.
	SURFACE TYPE	- COMPOSITE SHINGLE

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AHJ: COUNTY OF SANTA CRUZ
UTILITY: PG&E

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REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE

SITE PLAN

DRAWN DATE	10/27/2023
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PV-02

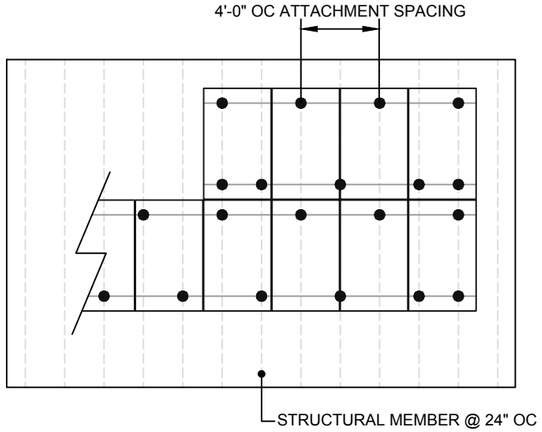
DISTRIBUTED LOAD CALCULATIONS	
MODULE	Q CELLS Q.PEAK DUO BLK ML-G10 400W
MODULE WEIGHT	48.50 LBS
MODULE DIMENSIONS (L" x W")	74.0" x 41.1"
TOTAL QTY. OF MODULES	40
TOTAL WEIGHT OF MODULES	1940.00 LBS
TYPE OF RACKING	IRONRIDGE XR-100 RAIL
TYPE OF ATTACHMENT	IRONRIDGE FLASHFOOT2 ATTACHEMTNS
DISTRIBUTED WEIGHT OF RACKING	0.5 PSF
TOTAL WEIGHT OF ARRAY	2362.42 LBS
AREA OF MODULE	21.12 SQFT.
TOTAL ARRAY AREA	844.83 SQFT.
DISTRIBUTED LOAD	2.80 PSF

NOTE:

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

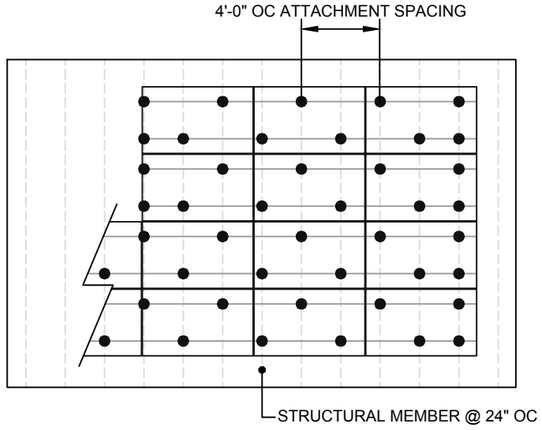
LEGEND

- ATTACHMENT POINTS
- RAIL
- STRUCTURAL MEMBER



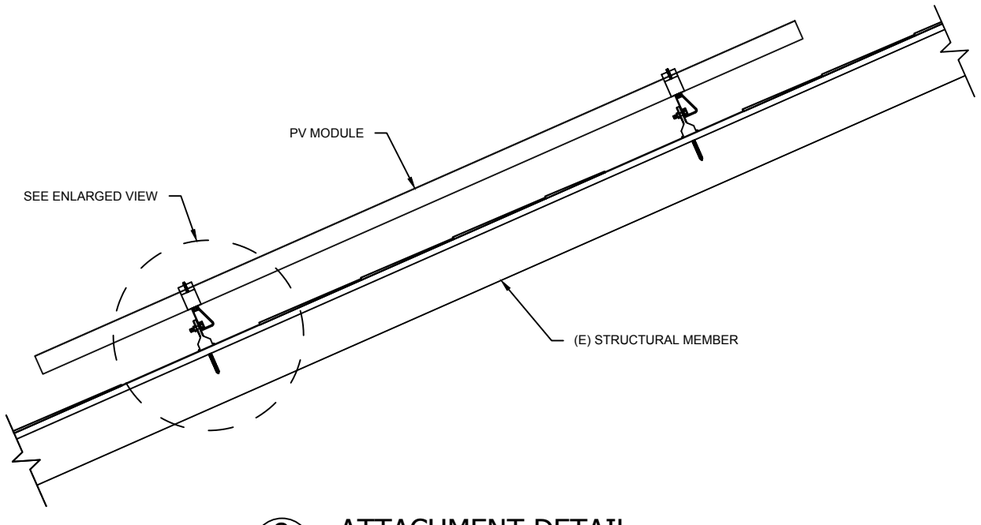
1.0 PV-03 TYPICAL ATTACHMENT PLAN (PORTRAIT)

SCALE: NTS



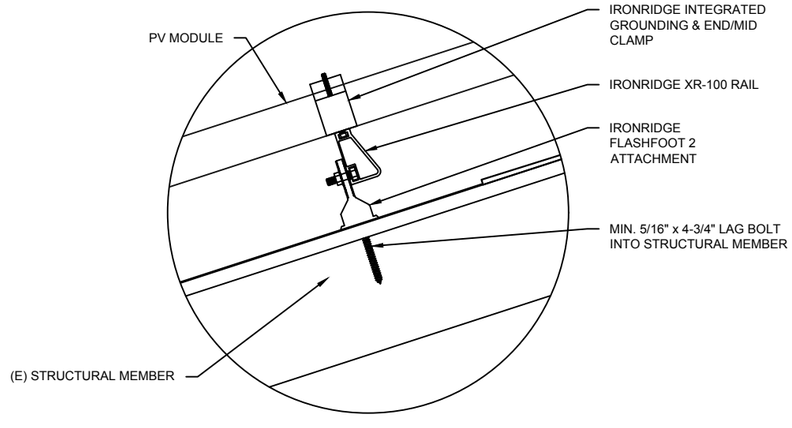
1.1 PV-03 TYPICAL ATTACHMENT PLAN (LANDSCAPE)

SCALE: NTS



2 PV-03 ATTACHMENT DETAIL

Scale: NTS



3 PV-03 ENLARGED VIEW

Scale: NTS

CONTRACTOR

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SYSTEM DETAILS

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CEC AC SIZE: 1441.420 KW AC
(40) Q CELLS Q.PEAK DUO BLK ML-G10 400W
(40) ENPHASE IQ8A-72-2-US [240V] [SI1-SB]

REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE

ATTACHMENT PLAN & DETAILS

DRAWN DATE	10/27/2023
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SHEET NUMBER

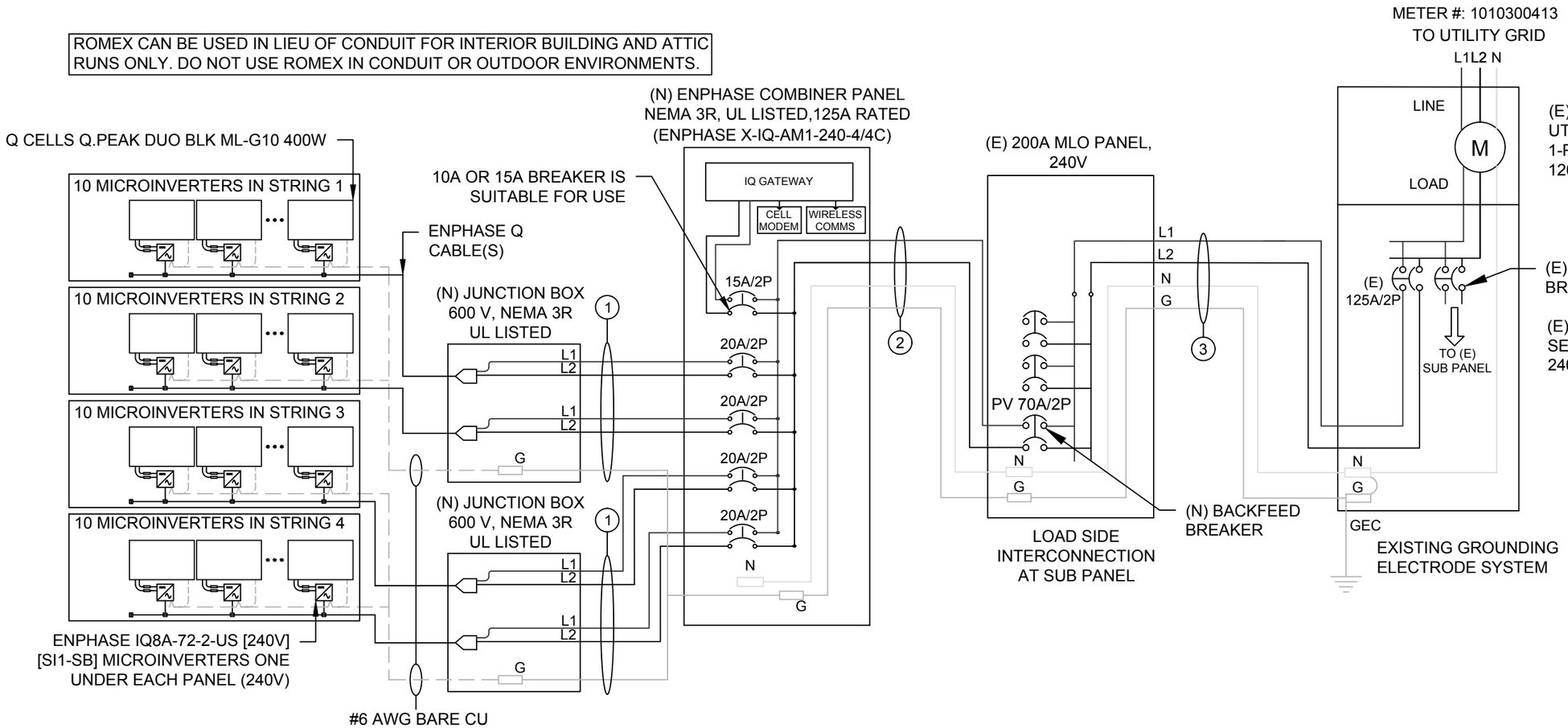
PV-03

MICROINVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	ENPHASE IQ8A-72-2-US [240V] [SI1-SB]
INPUT POWER RANGE	295W-500W
MIN/MAX START VOLTAGE	22V/58V
NOMINAL AC VOLTAGE	240V
MAX CONT. OUTPUT CURRENT	1.45A
MAX CONT. OUTPUT POWER	349W
MAX MODULES PER STRING	11 (11 MICROINVERTERS)

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	Q CELLS Q.PEAK DUO BLK ML-G10 400W
VMP	37.13V
IMP	10.77A
VOC	45.30V
ISC	11.14A
TEMP. COEFF. VOC	-0.27%/°K

AMBIENT TEMPERATURE SPECIFICATIONS	
RECORD LOW TEMP	0°C
AMBIENT TEMP (HIGH TEMP 2% AVG.)	32°C
MINIMUM CONDUIT HEIGHT ABOVE ROOF SURFACE	7/8"

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



DESCRIPTION	FORMULA (SUB-PANEL)	RESULT
PV OVERCURRENT PROTECTION CEC 690.9(B)	TOTAL INVERTER OUTPUT CURRENT x 1.25 = (40 x 1.45)A x 1.25	72.50A (SELECTED PV BREAKER = 70A)
120% RULE FOR BACKFEED BREAKER CEC 705.12	BUS BAR RATING x 1.2 - MCB RATING = MAX ALLOWABLE PV BREAKER 200A x 1.2 - 125A = 115A	SELECTED PV BREAKER <= MAX ALLOWABLE PV BREAKER 70A <= 115A

WIRE ID	EXPECTED WIRE TEMP (°C)	TEMP DERATE (90 °C)	QTY OF CURRENT CARRYING CONDUCTORS	CONDUIT FILL DERATE	MINIMUM CONDUIT SIZE (TBD ON SITE)	WIRE GAUGE & TYPE	CONDUCTOR AMPACITY @ 90°C (A)	CONDUCTOR AMPACITY @ 75°C (A)	REQUIRED CIRCUIT CONDUCTOR AMPACITY (A)	ADJUSTED CONDUCTOR AMPACITY @ 90 °C (A)	NEUTRAL CONDUCTOR SIZE & TYPE	GROUND WIRE SIZE & TYPE
1	32	0.96	4	0.8	3/4" METAL	#10 THWN-2	40	35	18.13	30.72	NONE	#10 THWN-2
2	32	0.96	2	1	1" METAL	#4 Al DIRECT BURIAL	75	65	72.50	72.00	#4 Al DIRECT BURIAL	#8 Al DIRECT BURIAL
3	32	0.96	2	1	1-1/2" METAL	#1 Al DIRECT BURIAL	115	100	72.50	110.40	#1 Al DIRECT BURIAL	#6 Al DIRECT BURIAL

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APN #: 09723135

AHJ: COUNTY OF SANTA CRUZ
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REVISIONS

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SHEET TITLE

ELECTRICAL DIAGRAM

DRAWN DATE	10/27/2023
DRAWN BY	PCAD

SHEET NUMBER

PV-04

GENERAL NOTES

1. EXISTING PLUMBING VENTS, SKYLIGHTS,EXHAUST OUTLETS, VENTILATION INTAKE AIR OPENINGS SHALL NOT BE COVERED BY THE SOLAR PHOTOVOLTAIC SYSTEM.
2. EQUIPMENT, INVERTERS, MOTOR GENERATORS, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AC PHOTOVOLTAIC MODULES, SOURCE-CIRCUIT COMBINERS, AND CHARGE CONTROLLERS INTENDED FOR USE IN PHOTOVOLTAIC POWER SYSTEMS SHALL BE IDENTIFIED AND LISTED FOR THE APPLICATION. [CEC 690.4(B)]
3. ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED, INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND NON ROOF SWITCHES. ROOF SWITCHES TO BE NEMA 3R RATED.
4. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH CEC ARTICLE 250.
5. PROTECTION DEVICES FOR PV SOURCE CIRCUITS AND PV OUTPUT CIRCUITS ALSO CONNECTED TO SOURCES HAVING SIGNIFICANTLY HIGHER CURRENT AVAILABILITY (E.G., PARALLEL STRINGS OF MODULES, UTILITY POWER), SHALL BE PROTECTED AT THE SOURCE FROM OVERCURRENT [CEC 690.9(A)]
6. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION [CEC 690.12]
7. THE UTILITY INTERACTIVE INVERTERS SHALL AUTOMATICALLY DE-ENERGIZE ITS OUTPUT TO THE CONNECTED ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK UPON LOSS OF VOLTAGE IN THE SYSTEM AND SHALL REMAIN IN THAT STATE UNTIL THE ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK VOLTAGE HAS BEEN RESTORED. [CEC 705.41]
8. ALL CONDUCTOR EXPOSED TO WEATHER SHALL BE LISTED AND IDENTIFIED FOR USE IN DIRECT SUNLIGHT. [CEC 310.10(D)(1)]
9.THE MODULE CONDUCTORS MUST BE TYPE USE-2 OR LISTED FOR PHOTOVOLTAIC (PV) WIRE [CEC 690.31(C)]
10. ALL CONDUCTORS SHALL BE MARKED ON EACH END FOR UNIQUE IDENTIFICATION.
11. AN INSULATED GROUNDED CONDUCTOR OF 6 AWG OR SMALLER SHALL BE IDENTIFIED AS A CONTINUOUS WHITE FINISH [CEC 200.6]
12. THE OUTPUT OF AN INTERCONNECTED ELECTRICAL POWER SOURCE SHALL BE PERMITTED TO BE CONNECTED TO THE LOAD SIDE. INTERCONNECTING PROVISIONS FOR OTHER POWER SOURCES SHALL COMPLY WITH CEC 705.12.
13. EACH SOURCE INTERCONNECTION OF ONE OR MORE POWER SOURCES INSTALLED IN ONE SYSTEM SHALL BE MADE AT A DEDICATED CIRCUIT BREAKER OR FUSIBLE DISCONNECTING MEANS IN ACCORDANCE WITH CEC 705.12.
14. THE SUM OF THE AMPERE RATING OF THE OVERCURRENT PROTECTION DEVICES IN CIRCUITS SUPPLYING POWER TO THE BUSBAR OR CONDUCTOR SHALL NOT EXCEED 120% OF THE RATING OF BUSBAR OR CONDUCTOR IN ACCORDANCE WITH CEC 705.12
15. A CONNECTION AT EITHER END, BUT NOT BOTH ENDS, OF A CENTER-FED PANEL BOARD IN DWELLINGS SHALL BE PERMITTED WHERE THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR DOES NOT EXCEED 120 PERCENT OF THE CURRENT RATING OF THE BUSBAR IN ACCORDANCE WITH CEC 705.12.
16. EQUIPMENT CONTAINING OVERCURRENT PROTECTION DEVICES IN CIRCUITS SUPPLYING POWER TO A BUS BAR OR CONDUCTOR SHALL BE MARKED TO INDICATE THE PRESENCE OF ALL SOURCES IN ACCORDANCE WITH CEC 705.12.
17. CIRCUIT BREAKER, IF BACKFED, SHALL BE SUITABLE FOR SUCH OPERATION IN ACCORDANCE WITH CEC 705.12.
18. TO MINIMIZE OVERHEATING OF THE BUSBAR IN ELECTRICAL ENCLOSURE, THE MAIN CIRCUIT BREAKER AND THE PV POWER SOURCE CIRCUIT BREAKER SHALL BE PHYSICALLY LOCATED AT THE OPPOSITE END OF THE BUSBAR.
19. ALL THE CEC REQUIRED WARNING SIGNS, MARKINGS, AND LABELS SHALL BE POSTED ON EQUIPMENT AND DISCONNECTS PRIOR TO ANY INSPECTIONS.
20. WHERE PV SYSTEM DC CIRCUIT'S RUN INSIDE A BUILDING, THEY SHALL BE CONTAINED IN METAL RACEWAYS TYPE MC METAL CLAD CABLE OR METAL ENCLOSURES FROM POINT OF PENETRATION OF THE SURFACE OF THE BUILDING TO THE FIRST READILY ACCESSIBLE DISCONNECTING MEANS [CEC 690.31(G)].
21. FLEXIBLE, FINE-STRANDED CABLES SHALL BE TERMINATED ONLY WITH TERMINALS, LUGS, DEVICES OR CONNECTORS THAT ARE LISTED IN ACCORDANCE WITH CEC 110.14.
22. CONNECTORS SHALL BE OF LATCHING OR LOCKING TYPE. CONNECTORS THAT ARE READILY ACCESSIBLE AND OPERATING AT OVER 30V DC OR 15V AC SHALL REQUIRE TOOL TO OPEN AND MARKED "DO NOT DISCONNECT UNDER LOAD" OR "NOT FOR CURRENT INTERRUPTING"[CEC 690.33(C) & (E)(2)].
23. EQUIPMENT GROUNDING CONDUCTOR FOR PV MODULES SMALLER THAN 6 AWG SHALL BE PROTECTED FROM PHYSICAL DAMAGE BY A RACEWAY OR CABLE ARMOR. [CEC 690.46 & 250.120(C)]
24. AN EQUIPMENT GROUNDING CONDUCTOR SHALL NOT BE SMALLER THAN 14 AWG [CEC 690.45]
25. GROUNDING ELECTRODE CONDUCTOR(S) SHALL BE INSTALLED IN ONE CONTINUOUS LENGTH WITHOUT A SPLICE OR JOINT. IF NECESSARY, SPLICES OR CONNECTIONS SHALL BE MADE AS PERMITTED [CEC 250.64 C)]
26. ALL SMOKE ALARMS, CARBON MONOXIDE ALARMS AND AUDIBLE NOTIFICATION DEVICES SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 217 AND UL 2034. THEY WILL BE INSTALLED IN ACCORDANCE WITH NFPA 72 AND NFPA 720 [IRC 2019 R314 & R315]
27. SMOKE ALARMS AND CARBON MONOXIDE ALARMS WILL BE RETROFITTED INTO THE EXISTING DWELLING. THESE SMOKE ALARMS ARE REQUIRED TO BE IN ALL BEDROOMS, OUTSIDE EACH BEDROOM, AND AT LEAST ONE ON EACH FLOOR OF THE HOUSE CARBON MONOXIDE ALARMS ARE REQUIRED TO BE RETROFITTED OUTSIDE EACH BEDROOM AND AT LEAST ONE ON EACH FLOOR OF THE HOUSE. THESE ALARMS MAY BE SOLELY BATTERY OPERATED IF THE PHOTOVOLTAIC PROJECT DOES NOT INVOLVE THE REMOVAL OF INTERIOR WALL AND CEILING FINISHES INSIDE THE HOME, OTHERWISE, THE ALARMS MUST BE HARD WIRED AND INTERCONNECTED.
28. LISTED OR LABELED EQUIPMENT SHALL BE INSTALLED AND USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING PER NEC

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REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE

NOTES

DRAWN DATE	10/27/2023
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SHEET NUMBER

PV-05

WARNING

ELECTRICAL SHOCK HAZARD

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

LABEL LOCATION: COMBINER PANEL, AC DISCONNECT, POINT OF INTERCONNECTION
PER CODE: CEC 706.15(C)(4), CEC 690.13(B)

WARNING

TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

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

PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION: DC CONDUIT/RACEWAYS
PER CODE: CEC 690.31(D)(2)

SOLAR PV DC CIRCUIT

LABEL LOCATION: DC CONDUIT/RACEWAYS
PER CODE: CEC 690.31(D)(2)

PHOTOVOLTAIC SYSTEM AC DISCONNECT

RATED AC OUTPUT CURRENT: **58.00** A
NOMINAL OPERATING AC VOLTAGE: 240 V

LABEL LOCATION: AC DISCONNECT/POINT OF INTERCONNECTION
PER CODE: CEC 690.54

WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION: MAIN SERVICE DISCONNECT, PRODUCTION/NET METER
PER CODE: CEC 690.59, 705.12(C)

PV SYSTEM

DISCONNECT

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

WARNING

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

LABEL LOCATION: AC DISCONNECT
PER CODE: CEC 705.12(B)(3)(3)

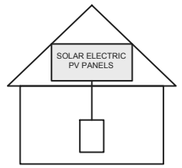
WARNING

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

LABEL LOCATION: POINT OF INTERCONNECTION
PER CODE: CEC 705.12(B)(3)(2)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: CEC 690.56(C)

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

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

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION: RSD INITIATION DEVICE, AC DISCONNECT
PER CODE: CEC 690.56(C)(2)

CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: CEC 705.12(D), CEC 690.59

DO NOT DISCONNECT UNDER LOAD

LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: CEC 690.15(B) & CEC 690.33(D)(2)

MAXIMUM DC VOLTAGE

OF PV SYSTEM

LABEL LOCATION: DC DISCONNECT/INVERTER/PV DIST. EQUIPMENT
PER CODE: CEC 690.53

WARNING

ELECTRICAL SHOCK HAZARD

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

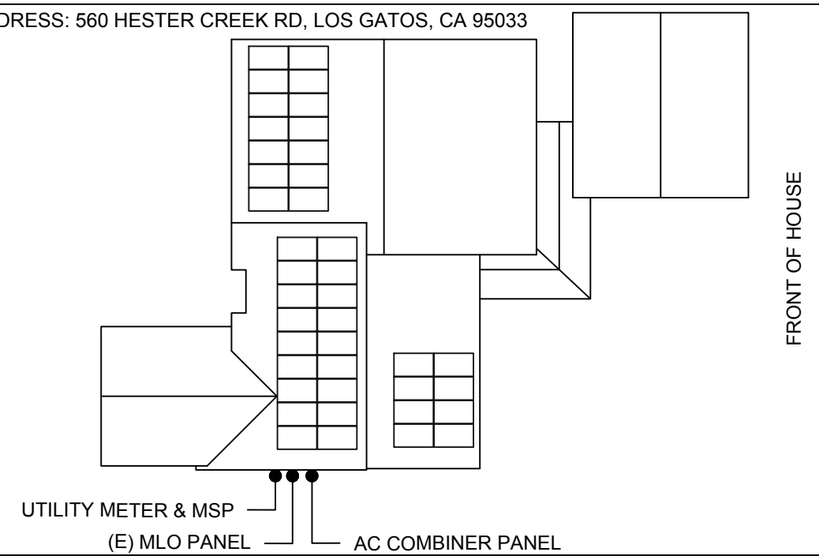
DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

LABEL LOCATION: DC DISCONNECT
PER CODE: CEC 690.13(B)

CAUTION

MULTIPLE SOURCES OF POWER.
POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN:

ADDRESS: 560 HESTER CREEK RD, LOS GATOS, CA 95033



CONTRACTOR

DAY ONE SOLAR

387 CORAL ST, SANTA CRUZ, CA 95060

LIC. NO. - 987896

County of Santa Cruz
Community Development & Infrastructure

Reviewed for Code Compliance

By: RAI
Date: 11/15/2023
Permit: B-237270
CCD/DEF:

PROJECT NAME & ADDRESS

ROBERT AND TAMMY ESTES

560 HESTER CREEK RD,
LOS GATOS, CA 95033
APN #: 09723135

AHJ: COUNTY OF SANTA CRUZ
UTILITY: PG&E

SYSTEM DETAILS

DC SIZE: 16.000 KW DC-(STC)
CEC AC SIZE: 1441.420 KW AC
(40) Q CELLS Q.PEAK DUO BLK ML-G10 400W
(40) ENPHASE IQ8A-72-2-US [240V] [SI1-SB]

REVISIONS

REV	DESCRIPTION	DATE

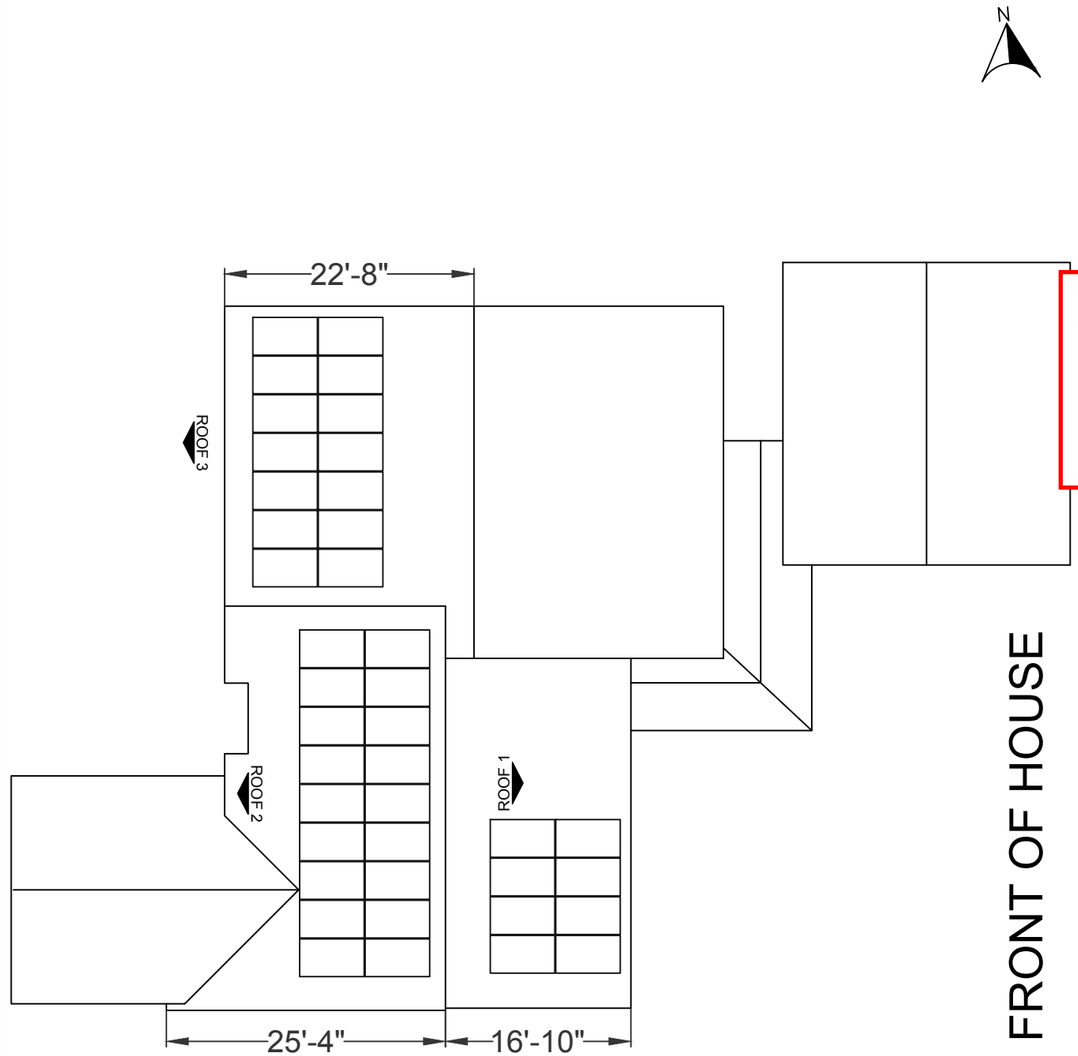
SHEET TITLE

WARNING LABELS

DRAWN DATE	10/27/2023
DRAWN BY	PCAD

SHEET NUMBER

PV-06



FRONT OF HOUSE

**DIMENSIONS ARE 2D (FLAT)

CONTRACTOR

DAY ONE SOLAR

387 CORAL ST, SANTA CRUZ, CA 95060

LIC. NO. - 987896

County of Santa Cruz
Community Development & Infrastructure

Reviewed for Code Compliance

By: RAI
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(40) ENPHASE IQ8A-72-2-US [240V] [SI1-SB]

REVISIONS

REV	DESCRIPTION	DATE

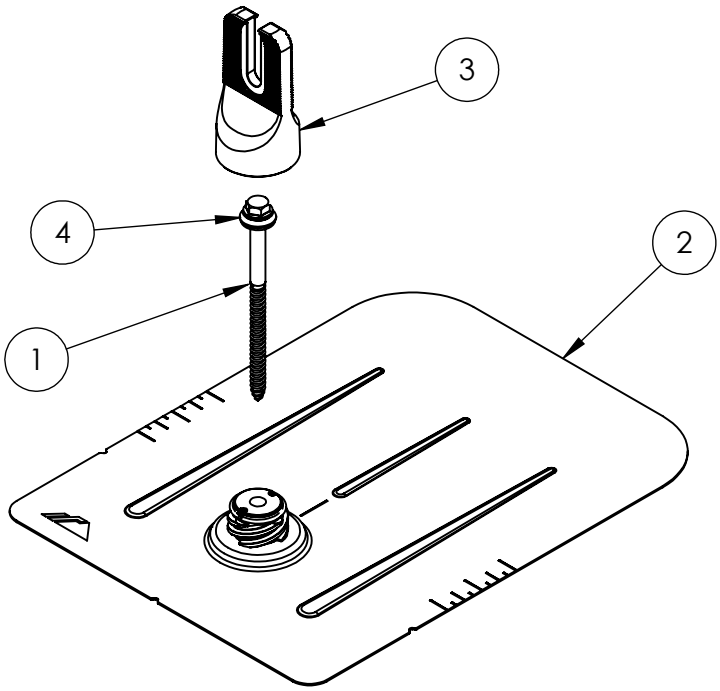
SHEET TITLE

INSTALLATION RESOURCE

DRAWN DATE	10/27/2023
DRAWN BY	PCAD

SHEET NUMBER

PV-07

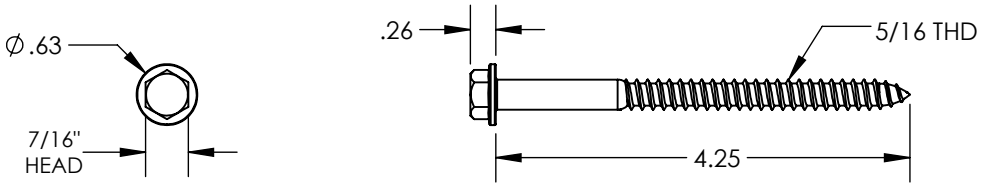


ITEM NO.	DESCRIPTION	QTY IN KIT
1	BOLT LAG 5/16 X 4.25"	1
2	ASSY, FLASHING	1
3	ASSY, CAP	1
4	WASHER, EPDM BACKED	1

FLASHFOOT 2

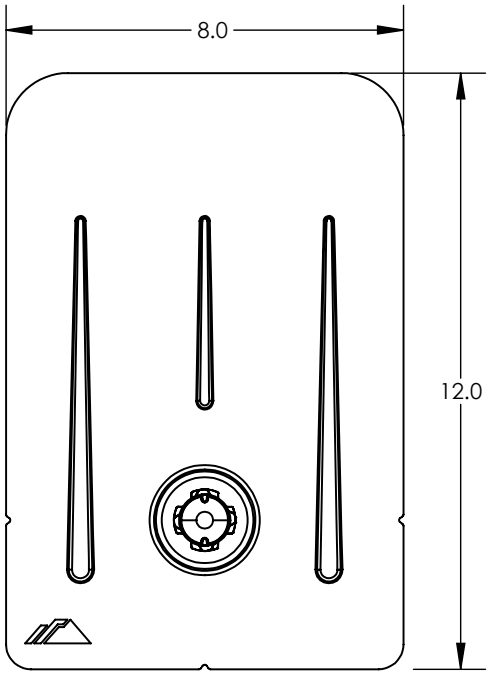
PART NUMBER	DESCRIPTION
FF2-02-M2	FLASHFOOT2® (MILL)
FF2-02-B2	FLASHFOOT2® (BLACK)

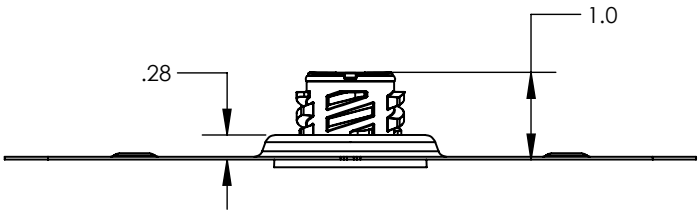
1) BOLT, LAG 5/16 x 4.25



PROPERTY	VALUE
MATERIAL	300 SERIES STAINLESS STEEL
FINISH	CLEAR

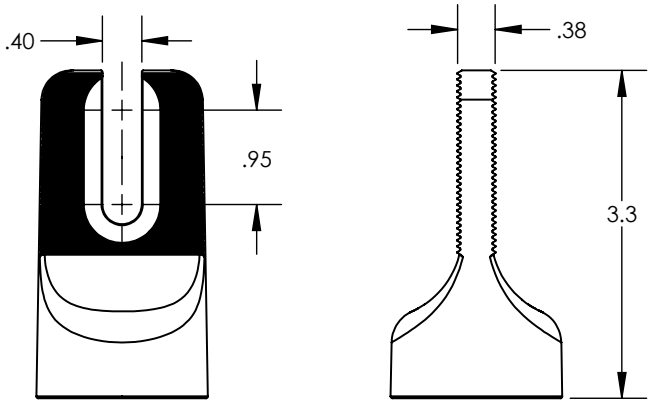
2) ASSY, FLASHING





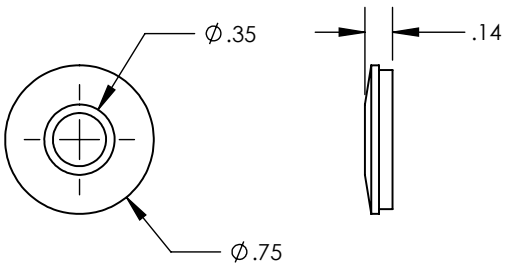
PROPERTY	VALUE
MATERIAL	ALUMINUM
FINISH	MILL/BLACK

3) ASSY, CAP



PROPERTY	VALUE
MATERIAL	ALUMINUM
FINISH	MILL/BLACK

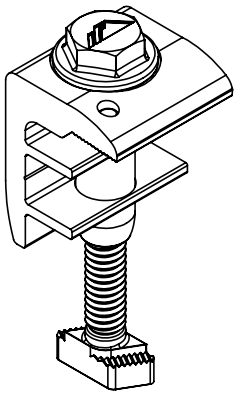
4) WASHER, EPDM BACKED



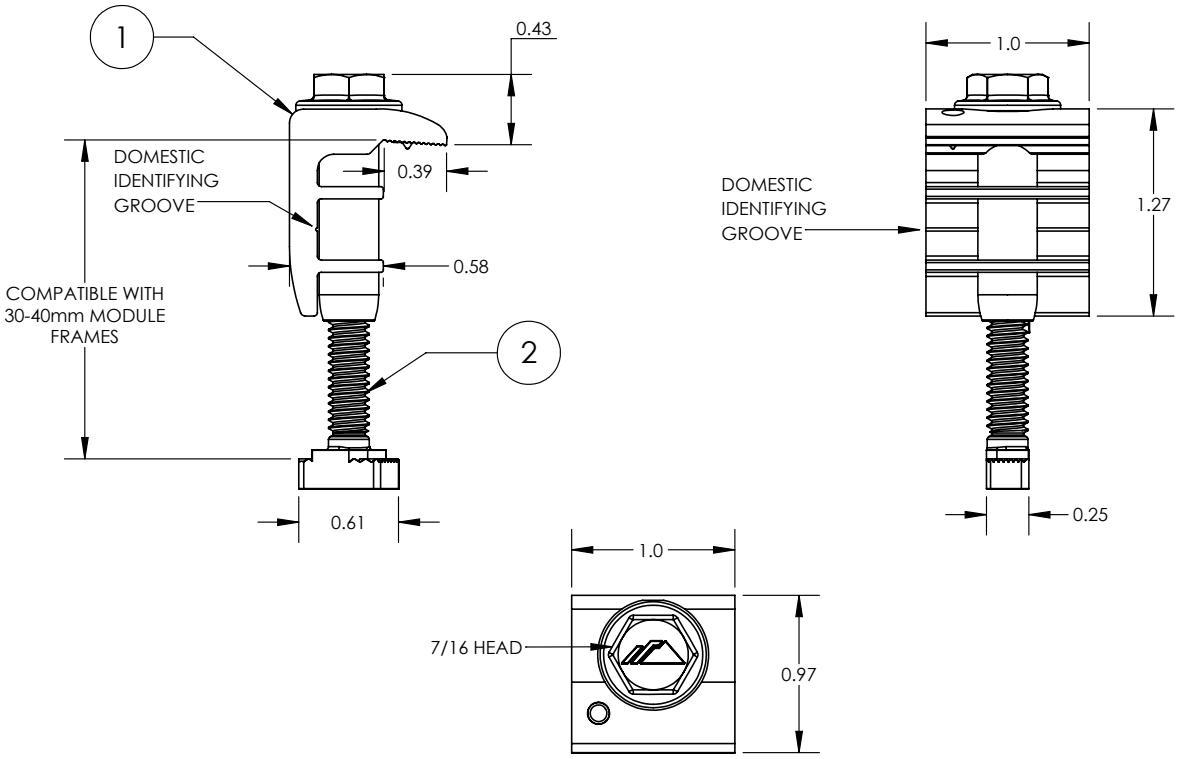
PROPERTY	VALUE
MATERIAL	300 SERIES STAINLESS STEEL
FINISH	CLEAR

IRONRIDGE

End Fastening Object (US)



PART NUMBER	DESCRIPTION
UFO-END-01-A1-US	END FASTENING OBJECT (END CLAMP, 30-40mm), MILL, US
UFO-END-01-B1-US	END FASTENING OBJECT (END CLAMP, 30-40mm), BLACK, US

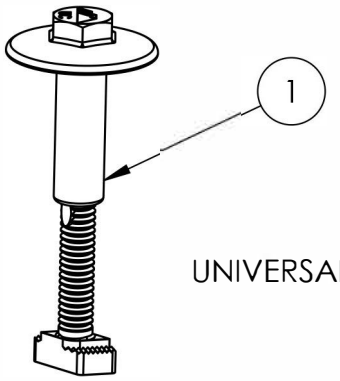


ITEM NO	MATERIAL	FINISH
1	6000 SERIES ALUMINUM	MILL AND BLACK
2	300 SERIES STAINLESS STEEL	CLEAR AND BLACK

Cut Sheet

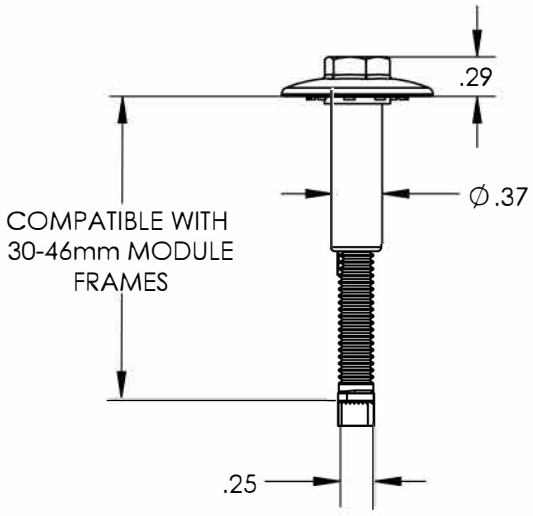
Universal Fastening Object®

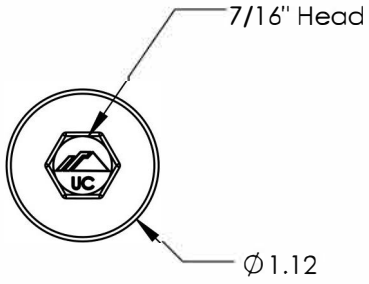
Only for installation and use with IronRidge products in accord with written instructions see IronRidge.com/UFO



UNIVERSAL FASTENING OBJECT®

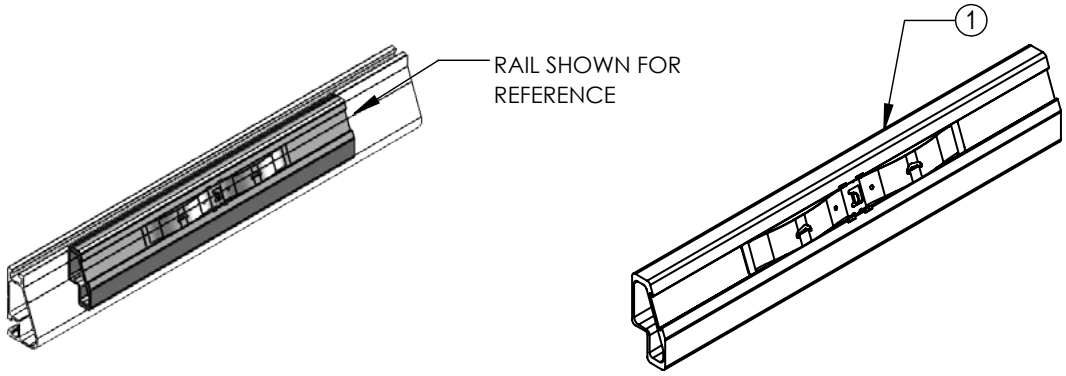
ITEM NO.	DESCRIPTION
UFO-CL-01-A1	UNIVERSAL MODULE CLAMP, CLEAR
UFO-CL-01-B1	UNIVERSAL MODULE CLAMP, BLACK





Property	Value
Material	300 Series Stainless Steel
Finish	Clear and Black

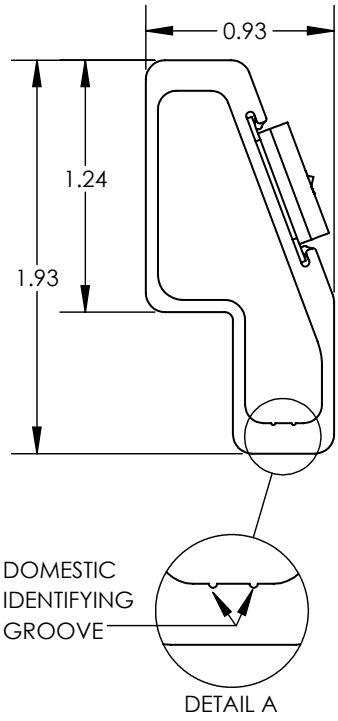
Bonded Splice, XR100®, US

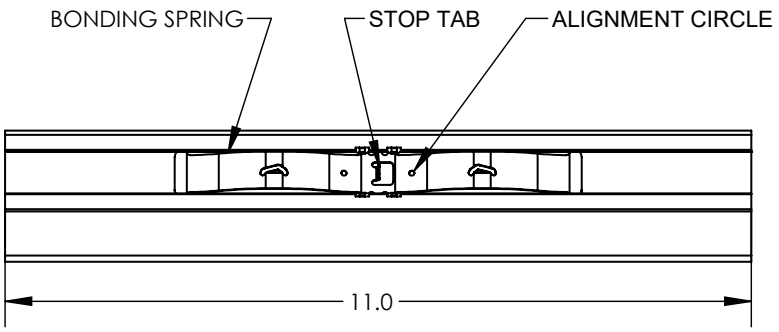


ITEM NO	DESCRIPTION	QTY IN KIT
1	BONDED SPLICE, XR100, US	1

PART NUMBER	DESCRIPTION
XR100-BOSS-01-M1-US	BONDED SPLICE, XR100, US PRODUCTION

1) BONDED SPLICE, XR100





PROPERTY	VALUE
MATERIAL	6000 SERIES ALUMINUM
FINISH	MILL

Q.PEAK DUO BLK ML-G10+ SERIES

385 - 410 Wp | 132 Cells
20.9 % Maximum Module Efficiency

MODEL Q.PEAK DUO BLK ML-G10+

6 busbar
cell technology

12 busbar
cell technology

Breaking the 20 % efficiency barrier

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

A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty[1].

Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology[2] and Hot-Spot Protect.

Extreme weather rating

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

Innovative all-weather technology

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

The most thorough testing programme in the industry

Qcells 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.

[1] See data sheet on rear for further information.
[2] APT test conditions according to IEC / TS 62804-1:2015, method A (–1500 V, 96 h)

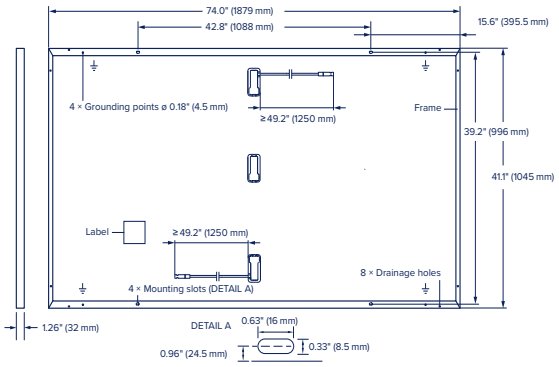
The ideal solution for:

Rooftop arrays on residential buildings

Q.PEAK DUO BLK ML-G10+ SERIES

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 anodised aluminium
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 mm² Solar cable; (+) ≥ 49.2 in (1250 mm), (−) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4; IP68

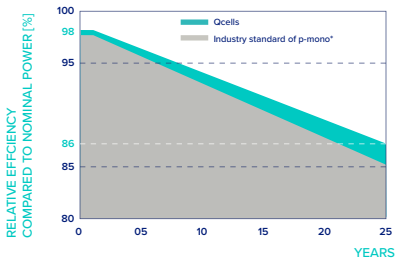


Electrical Characteristics

POWER CLASS				385	390	395	400	405	410
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)									
Minimum	Power at MPP[1]	P_{MPP}	[W]	385	390	395	400	405	410
	Short Circuit Current[1]	I_{SC}	[A]	11.04	11.07	11.10	11.14	11.17	11.20
	Open Circuit Voltage[1]	V_{OC}	[V]	45.19	45.23	45.27	45.30	45.34	45.37
	Current at MPP	I_{MPP}	[A]	10.59	10.65	10.71	10.77	10.83	10.89
	Voltage at MPP	V_{MPP}	[V]	36.36	36.62	36.88	37.13	37.39	37.64
	Efficiency[1]	η	[%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6	≥20.9
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]									
Minimum	Power at MPP	P_{MPP}	[W]	288.8	292.6	296.3	300.1	303.8	307.6
	Short Circuit Current	I_{SC}	[A]	8.90	8.92	8.95	8.97	9.00	9.03
	Open Circuit Voltage	V_{OC}	[V]	42.62	42.65	42.69	42.72	42.76	42.79
	Current at MPP	I_{MPP}	[A]	8.35	8.41	8.46	8.51	8.57	8.62
	Voltage at MPP	V_{MPP}	[V]	34.59	34.81	35.03	35.25	35.46	35.68

[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 • [2]800 W/m², NMOT, spectrum AM 1.5

Qcells PERFORMANCE WARRANTY

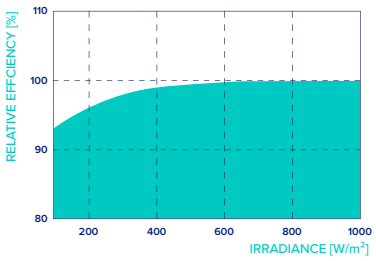


At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

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

*Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

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 / ft²]	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 / ft²]	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),

C Certified US UL 61730 CE TÜVRheinland CERTIFIED www.tuv.com ID 1111220277

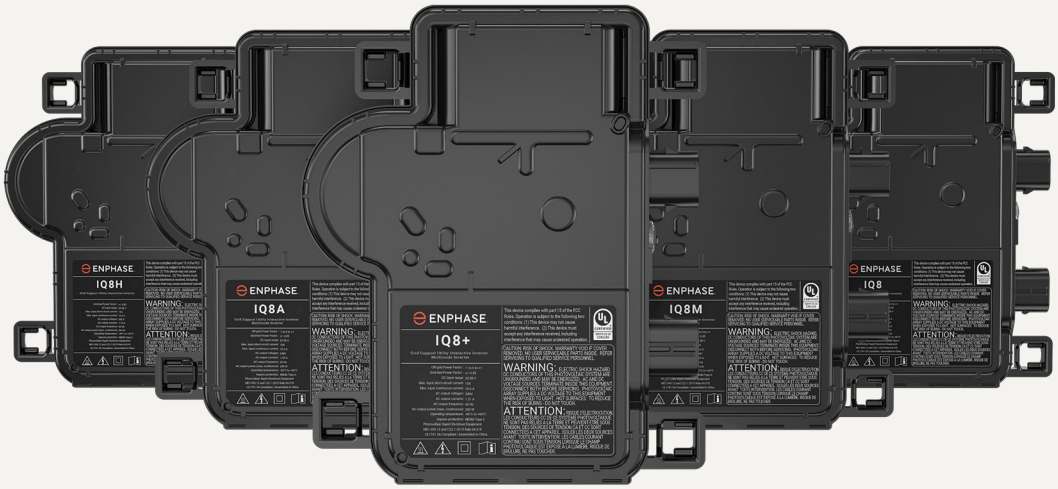
Qcells pursues minimizing paper output in consideration of the global environment.

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation 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 hqc-inquiry@qcells.com | WEB www.qcells.com

ENPHASE

DATA SHEET



IQ8 Series 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.

Enphase 25 year limited warranty

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.

UL CERTIFIED SAFETY

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

IQ8SE-DS-0001-01-EN-US-2022-03-17

* Only when installed with IQ System Controller 2, meets UL 1741. IQ8H-208V operates only in grid-tied mode.

** IQ8 Series Microinverters supports split phase, 240V. IQ8H-208 supports split phase, 208V only.

IQ8 Series Microinverters

INPUT DATA (DC)		IQ8-60-2-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US[1]
Commonly used module pairings[2]	W	235 – 350	235 – 440	260 – 460	295 – 500	320 – 540+	295 – 500+
Module compatibility		60-cell/120 half-cell	60-cell/120 half-cell, 66-cell/132 half-cell and 72-cell/144 half-cell				
MPPT voltage range	V	27 – 37	29 – 45	33 – 45	36 – 45	38 – 45	38 – 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[3] [module Isc]	A	15					
Overvoltage 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	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US[1]
Peak output power	VA	245	300	330	366	384	366
Max continuous output power	VA	240	290	325	349	380	360
Nominal (L-L) voltage/range[4]	V	240 / 211 – 264					208 / 183 – 250
Max continuous output current	A	1.0	1.21	1.35	1.45	1.58	1.73
Nominal frequency	Hz	60					
Extended frequency range	Hz	50 – 68					
AC short circuit fault current over 3 cycles	Arms	2					4.4
Max units per 20 A (L-L) branch circuit[5]		16	13	11	11	10	9
Total harmonic distortion		<5%					
Overvoltage class AC port		III					
AC port backfeed current	mA	30					
Power factor setting		1.0					
Grid-tied power factor (adjustable)		0.85 leading – 0.85 lagging					
Peak efficiency	%	97.5	97.6	97.6	97.6	97.6	97.4
CEC weighted efficiency	%	97	97	97	97.5	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
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) The IQ8H-208 variant will be operating in grid-tied mode only at 208V AC. (2) No enforced DC/AC ratio. See the compatibility calculator at https://link.enphase.com/module-compatibility (3) Maximum continuous input DC current is 10.6A (4) Nominal voltage range can be extended beyond nominal if required by the utility. (5) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.