- 2025 CALIFORNIA ELECTRIC CODE
- 2025 CALIFORNIA BUILDING CODE
- 2025 CALIFORNIA RESIDENTIAL CODE
- 2025 CALIFORNIA FIRE CODE
- 2025 CALIFORNIA EXISTING BUILDING CODE
- 2025 CALIFORNIA ENERGY CODE
- 2025 CALIFORNIA MECHANICAL CODE
- 2025 CALIFORNIA PLUMBING CODE

AS ADOPTED BY LOS ANGELES COUNTY INCLUDING ANY AMENDMENTS OR ADDITIONAL LISTED REQUIREMENTS. DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF SOUTHERN CALIFORNIA EDISON UTILITY.

EQUIPMENT IS COMPATIBLE WITH UL2703, UL1741, UL1703 / UL61730, AND UL9540 AS APPLICABLE.

1. ALL WORK TO COMPLY WITH CEC ARTICLE 690
2. UTILITY SHALL BE NOTIFIED BEFORE ACTIVATION OF PV SYSTEM
3. REMOVAL OF A UTILITY-INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BUILDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR AND THE PV SOURCE AND/OR OUTPUT CIRCUIT GROUNDED CONDUCTOR
4. ALL PV SYSTEM COMPONENTS SHALL BE LISTED BY A RECOGNIZED TESTING AGENCY
5. WIRING MATERIALS SHALL COMPLY WITH MAXIMUM CONTINUOUS CURRENT OUTPUT AT 25° C; WIRE SHALL BE WET RATED AT 90°C
6. EXPOSED PHOTOVOLTAIC SYSTEM CONDUCTORS ON THE ROOF WILL BE USE-2 OR PV TYPE WIRE.
7. ALL EXTERIOR CONDUIT, FITTINGS, AND BOXES SHALL BE RAIN-TIGHT AND APPROVED FOR USE IN WET LOCATIONS (CEC 314.15)
8. ALL METALLIC RACEWAYS AND EQUIPMENT SHALL BE BONDED AND ELECTRICALLY CONTINUOUS (CEC 250.90, 250.96)
9. FOR UNGROUNDED SYSTEMS, THE PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUITS SHALL BE PROVIDED WITH A GROUND-FAULT PROTECTION DEVICE OR SYSTEM THAT DETECTS A GROUND FAULT, INDICATES THAT FAULT HAS OCCURED, AND AUTOMATICALLY DISCONNECTS ALL CONDUCTORS OR CAUSES THE INVERTER TO AUTOMATICALLY CEASE SUPPLYING POWER TO OUTPUT CIRCUITS
10. ANY REQUIRED GROUNDING ELECTRODE CONDUCTOR WILL BE CONTINUOUS, EXCEPT FOR SPLICES OR JOINTS AT BUSBARS WITHIN LISTED EQUIPMENT (CEC 250.64C)
11. ALL PV MODULES AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED FROM ANY PHYSICAL DAMAGE
12. ALL FIELD-INSTALLED JUNCTION, PULL, AND OUTLET BOXES SHALL BE LOCATED IN A READILY ACCESSIBLE LOCATION DIRECTLY OR BY DISPLACEMENT OF A MODULE SECURED BY REMOVABLE FASTENERS
13. FOR GROUNDED SYSTEMS, THE INVERTER IS EQUIPPED WITH GROUND FAULT PROTECTION AND A GFI FUSE PORT FOR GROUND FAULT INDICATION
14. WHEN BACKFED BREAKER IS THE METHOD OF UTILITY INTERCONNECTION, THE BREAKERS SHALL NOT READ "LINE AND LOAD"
15. THE INSTALLED SOLAR SYSTEM HAS A DISTRIBUTED WEIGHT OF LESS THAN 4 PSF
16. THE CONCENTRATED LOAD FOR EACH VERTICAL SUPPORT IS LESS THAN 45 LBS
17. AC DISCONNECT IS A "KNIFE BLADE" TYPE DISCONNECT
18. THE WORKING CLEARANCES AROUND THE EXISTING ELECTRICAL EQUIPMENT AS WELL AS THE NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH CEC 110.26
19. THE PHOTOVOLTAIC INVERTER WILL BE LISTED AS UL 1741 COMPLIANT
20. SMOKE ALARMS AND CARBON MONOXIDE ALARMS ARE REQUIRED TO BE RETROFITTED ONTO THE EXISTING DWELLING AS PER THE 2025 CRC. 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. (CRC R314, R315)
21. SMOKE AND CARBON MONOXIDE ALARMS ARE REQUIRED PER CRC SECTIONS R314 AND R315 TO BE VERIFIED AND INSPECTED BY THE INSPECTOR IN THE FIELD.
22. WHEN APPLYING THE 120% RULE OF CEC 705.12(B) , THE SOLAR BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUS FROM THE MAIN BREAKER PER 705.12(B)
23. PLUMBING AND MECHANICAL VENTS THROUGH THE ROOF SHALL NOT BE COVERED BY SOLAR MODULES - NO BUILDING, PLUMBING, OR MECHANICAL VENTS TO BE COVERED OR OBSTRUCTED

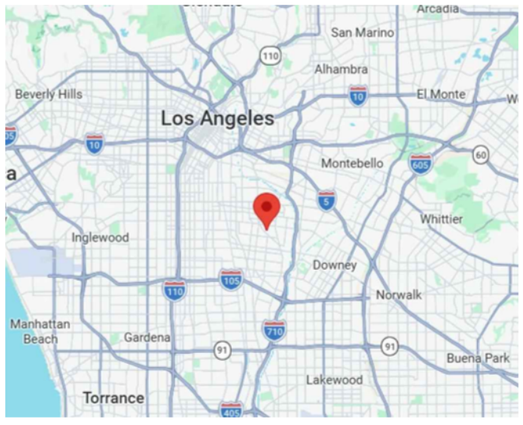
SCOPE OF WORK

NEW INSTALLATION OF GRID-TIED ROOFTOP MOUNTED SOLAR PHOTOVOLTAIC SYSTEM

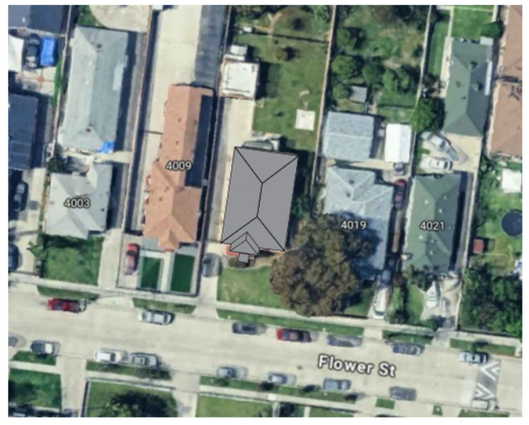
24	HANWHA Q CELLS	410	W	Q.PEAK DUO BLK ML-G10+ 410W
24	ENPHASE ENERGY	290	W	IQ8PLUS-72-2-US MICROINVERTERS
2	ENPHASE ENERGY	5.0	KWh	IQBATTERY-5P-1P-NA BATTERY
1	ENPHASE ENERGY	IQ COMBINER 5 W/ IQ GATEWAY (X2-IQ-AM1-240-5)		
	SYSTEM NAMEPLATE POWER	9.840	KW DC	
	SYSTEM GROSS AC POWER	6.960	KW AC	
	SYSTEM CEC-AC POWER	8.984	KW CEC-AC	
	CONSTRUCTION TYPE		V-B	
	OCCUPANCY TYPE		R-3	

SHEET INDEX

VICINITY MAP



AERIAL MAP



CONTRACTOR:

CLIENT:

COVER SHEET

REV: ---- 06/09/2026 PV-1

NOTES:

1. CONDUCTORS NORMALLY USED TO CARRY CURRENT SHALL BE OF COPPER. FOR ALUMINUM AND COPPER-CLAD ALUMINUM #6 AWG AND LARGER, SEE SEC. 310.15 CEC. EXCEPTION: ALUMINUM CONDUCTORS SMALLER THAN #6 AWG MAY BE USED PROVIDED THE METHOD OF CONNECTION IS APPROVED IN ADVANCE BY THE BUILDING OFFICIAL AND THE INSTALLATION IS MADE UNDER CONTINUOUS SPECIAL INSPECTION.
2. 250.53(A)(2). SUPPLEMENTAL ELECTRODE REQUIRED. A SINGLE ROD, PIPE, OR PLATE ELECTRODE SHALL BE SUPPLEMENTED BY AN ADDITIONAL ELECTRODE OF A TYPE SPECIFIED IN 250.52(A)(2) THROUGH (A)(8). THE SUPPLEMENTAL ELECTRODE SHALL BE PERMITTED TO BE BONDED LO ONE OF THE FOLLOWING:

A. ROD, PIPE, OR PLATE ELECTRODE
B. GROUNDING ELECTRODE CONDUCTOR
C. GROUNDED SERVICE-ENTRANCE CONDUCTOR
D. NONFLEXIBLE GROUNDED SERVICE RACEWAY
E. ANY GROUNDED SERVICE ENCLOSURE

EXCEPTION: IF A SINGLE ROD, PIPE, OR PLATE GROUNDING ELECTRODE HAS A RESISTANCE TO EARTH OF 25 OHM OR LESS THE SUPPLEMENTAL ELECTRODE SHALL NOT BE REQUIRED.

F. SUPPLEMENTAL ELECTRODE, IF MULTIPLE ROD, PIPE, OR PLATE ELECTRODES ARE INSTALLED TO MEET THE REQUIREMENTS OF THIS SECTION THEY SHALL NOT BE LESS THAN 1.8 M (6 FT) APART.

3. A SMOKE DETECTOR, APPROVED AND LISTED BY THE STATE FIRE MARSHAL, SHALL BE INSTALLED IN EACH DWELLING WHEN A PERMIT FOR ALTERATIONS, REPAIRS OR ADDITIONS EXCEEDS $1,000.00. A BATTERY POWERED SMOKE DETECTOR SATISFIES THE REQUIREMENTS FOR A SMOKE DETECTOR. (R314.6.2 CRC)
4. PROVIDE SMOKE ALARMS AT THE FOLLOWING LOCATIONS AND NOTE ON THE PLANS; (R314.3 CRC)

A. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS.
B. IN EACH ROOM USED FOR SLEEPING PURPOSES.
C. IN EACH STORY, INCLUDING BASEMENTS. IN SPLIT LEVEL UNITS WITHOUT AN INTERVENING DOOR BETWEEN ADJACENT
D. ALARMS SHALL BE INTERCONNECTED SUCH THAT THE ACTUATION OF ONE ALARM SHALL ACTIVATE ALL ALARMS.
E. ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING WITH BATTERY BACKUP.
F. APPROVED COMBINED SMOKE ALARMS AND CARBON DIOXIDE ALARMS SHALL BE ACCEPTABLE. LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.

5. A CARBON MONOXIDE DETECTOR SHALL BE INSTALLED IN THE SPECIFIC EXISTING DWELLING UNIT THAT HAVE ATTACHED GARAGES OR FUEL-BURNING APPLIANCES FOR WHICH A PERMIT IS ISSUED FOR ALTERATIONS, REPAIRS OR ADDITIONS EXCEEDING $1,000.00. LISTED SINGLE- OR MULTI-STATION CARBON MONOXIDE ALARMS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS AND ON EVERY LEVEL OF A DWELLING UNIT INCLUDING BASEMENTS. COMBINED SMOKE/CARBON MONOXIDE ALARMS MAY BE USED. THE ALARM SHALL RECEIVE ITS PRIMARY POWER FROM THE BUILDING WIRING EXCEPT IT IS PERMITTED TO BE SOLELY BATTERY OPERATED WHERE REPAIRS OR ALTERATIONS DO NOT RESULT IN THE REMOVAL OF WALL AND CEILING FINISHES OR THERE IS NO ACCESS BY MEANS OF AN ATTIC. SHOW ON THE PLANS. (R315 CRC)
6. APPLICATIONS FOR WHICH NO PERMIT IS ISSUED WITHIN 180 DAYS FOLLOWING THE DATE OF APPLICATION SHALL AUTOMATICALLY EXPIRE.
7. EVERY PERMIT ISSUED SHALL BECOME INVALID UNLESS WORK AUTHORIZED IS COMMENCED WITHIN 180 DAYS, A SUCCESSFUL INSPECTION IS NOT OBTAINED WITHIN 180 DAYS, OR IF WORK IS SUSPENDED OR ABANDONED FOR A PERIOD OF 180 DAYS. PERMITS WHICH HAVE BECOME INVALID SHALL PAY A RENEWAL FEE OF 50% OF THE ORIGINAL PERMIT FEE AMOUNT WHEN THE PERMIT HAS BEEN EXPIRED FOR UP TO ONE (1) YEAR. WHEN A PERMIT HAS BEEN EXPIRED FOR A PERIOD IN EXCESS OF ONE (1) YEAR, THE RENEWAL FEE SHALL BE 100% OF THE ORIGINAL PERMIT FEE.
8. THE CONTRACTOR SHALL PROVIDE A WRITTEN LETTER TO THE BUILDING INSPECTOR STATING THAT ALL INACCESSIBLE STRUCTURAL CONNECTIONS HAVE BEEN
INSTALLED IN CONFORMANCE WITH THE REQUIREMENTS OF THE APPROVED PLANS

CONTRACTOR:

CLIENT:

COVER SHEET

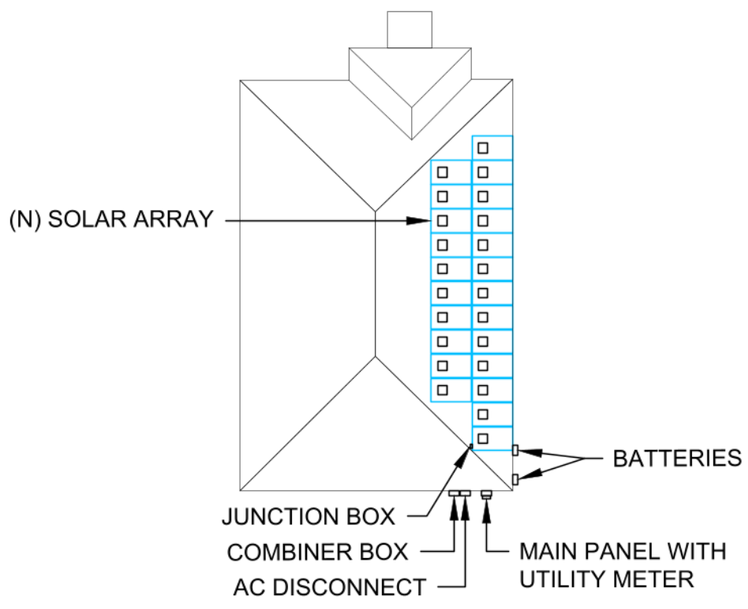
REV: ---- 06/09/2026 PV-1.1

NOTES AND SPECIFICATIONS:

- SIGNS AND LABELS SHALL MEET THE REQUIREMENTS OF THE 2008 ARTICLE 110.21(B), UNLESS SPECIFIC INSTRUCTIONS ARE REQUIRED BY SECTION 690, OR IFREQUESTED BY THE LOCAL AHJ.
- SIGNS AND LABELS SHALL ADEQUATELY WARN OF HAZARDS USING EFFECTIVE WORDS, COLORS AND SYMBOLS.
- LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HAND WRITTEN.
- LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
- SIGNS AND LABELS SHALL COMPLY WITH ANSI Z535.4-2011, PRODUCT SAFETY SIGNS AND LABELS, UNLESS OTHERWISE SPECIFIED.
- DO NOT COVER EXISTING MANUFACTURER LABELS.

CAUTION:

MULTIPLE SOURCES OF POWER



WEATHER RESISTANT PLASTIC PLACARD
PLACEMENT: MAIN PANEL (COVER)
PER CODE: 110.21(B) [2025 CEC 705.10]

⚠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: 29.04 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)

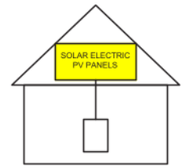
PV SYSTEM
DISCONNECT
LABEL LOCATION: AC DISCONNECT
PER CODE: CEC 690.13(B)

⚠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 FOR SOLAR PV SYSTEM
LABEL LOCATION: RSD INITIATION DEVICE, AC DISCONNECT
PER CODE: CEC 690.56(C)(2)

DO NOT ENERGIZE – UTILITY AND BATTERY SOURCES PRESENT
LABEL LOCATION: LABEL SHALL BE PERMANENTLY AFFIXED AT THE ESS AC DISCONNECT LOCATION.

ENERGY STORAGE SYSTEM DISCONNECT
LABEL LOCATION: LABEL SHALL BE PERMANENTLY AFFIXED AT THE ESS AC DISCONNECT LOCATION.
(PER CODE : CEC 706.15(C)).

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
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED
LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: CEC 705.12(D), CEC 690.59

CONTRACTOR:

CLIENT:

SIGNAGE

REV: ---- 06/09/2026 PV-2

SITE PLAN

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

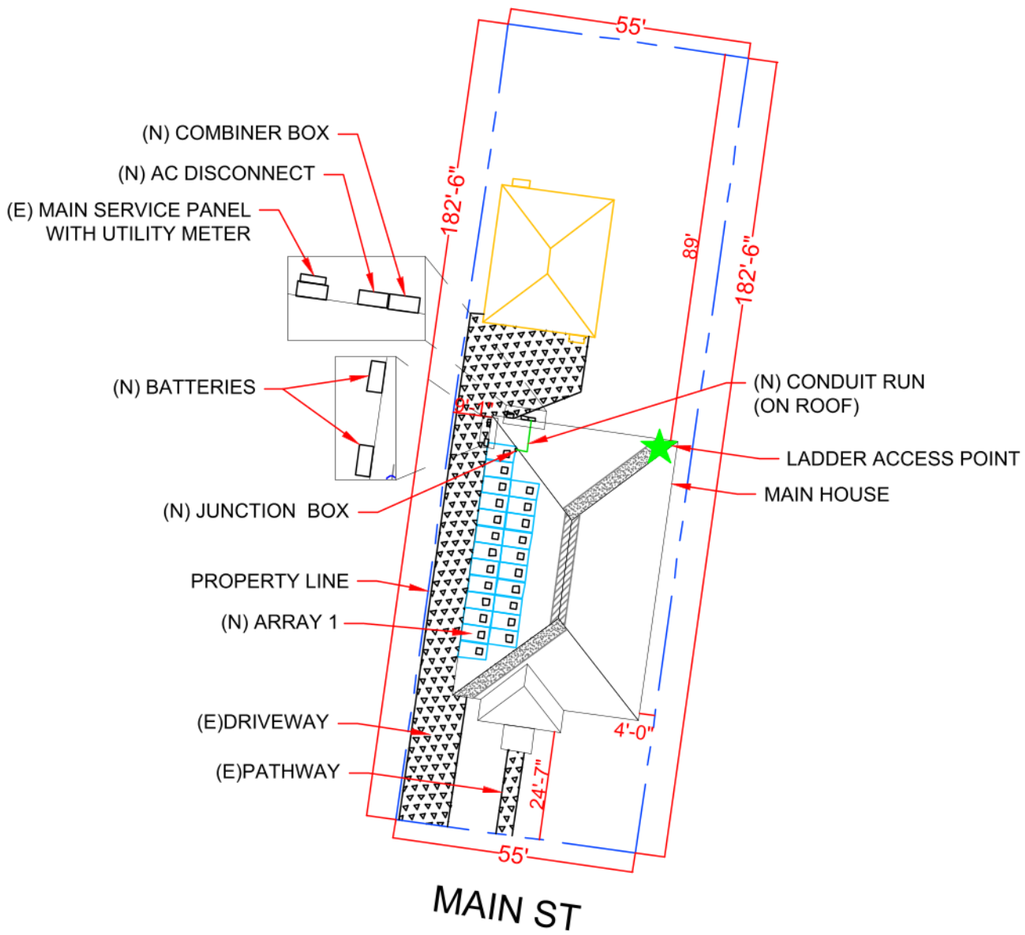
ESS DISCONNECT NOTE :
A lockable Energy Storage System disconnect shall be installed at a readily accessible exterior location within three (3) feet of the utility meter, in compliance with CEC 705.23 and 2025 CFC §1207.

ESS CLEARANCE NOTE :
Energy Storage Systems shall be installed not less than three (3) feet from doors and windows directly entering the dwelling unit in accordance with 2025 CFC §1207.11.3.

3FT SETBACK

18IN SETBACK

	ROOF PITCH (DEG)	AZIMUTH (DEG)	PV AREA (SQ. FT)	NO. OF MODS
#1	18°	278°	506.88	24



MODULE	HANWHA Q CELLS Q.PEAK DUO BLK ML-G10+ 410W
MODULE DIMENSIONS	74.0" X 41.1" X 1.26"
MODULE WEIGHT	48.5 LBS (22.0 KG)
TOTAL ARRAY AREA SQ.FT.	506.88
TOTAL ROOF AREA SQ.FT	2777
ROOF TYPE	S TILE
NO. OF STORIES	1
%ROOF COVERAGE	18.25 %

BILL OF MATERIALS

EQUIPMENT	QTY.	DESCRIPTION
SOLAR PV MODULE	24	HANWHA Q CELLS Q.PEAK DUO BLK ML-G10+ 410W MODULES
MICROINVERTER	24	ENPHASE ENERGY IQ8PLUS-72-2-US MICROINVERTERS
AC DISCONNECT	1	100A NON-FUSED AC DISCONNECT LOCKABLE,VISIBLE BLADE TYPE,NEMA 3R, 240V, 1Ø
JUNCTION BOX	1	4"X4"X4" JUNCTION BOX PVC JCT BOX W/CVR
COMBINER BOX	1	ENPHASE IQ COMBINER 5C W/ IQ GATEWAY (X2-IQ-AM1-240-5)
ENERGY STORAGE SYSTEM	2	ENPHASE ENERGY INC. / (N) ENPHASE ENERGY INC. IQBATTERY-5P-1P-NA
ATTACHMENT	45	ALL TILE HOOK
RAILS	12	IRONRIDGE XR-100-168 RAIL 168"
RAIL SPLICE	10	RAIL SPLICE
MID CLAMPS	44	MID CLAMPS
END CLAMPS	8	END CLAMPS
GROUNDING LUG	2	WEB LUG

N

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

CONDUIT NOTES	
CONDUIT TO BE RUN ON CONDUIT BLOCKS MIN. 1" ABOVE ROOF SURFACE AND UNDER EAVES; AND CLOSE TO RIDGELINES, LABELED AT MAX. 10' INTERVALS. CONDUIT TO BE PAINTED TO MATCH EXTERIOR/EXISTING BACKGROUND COLOR OF ITS LOCATION	

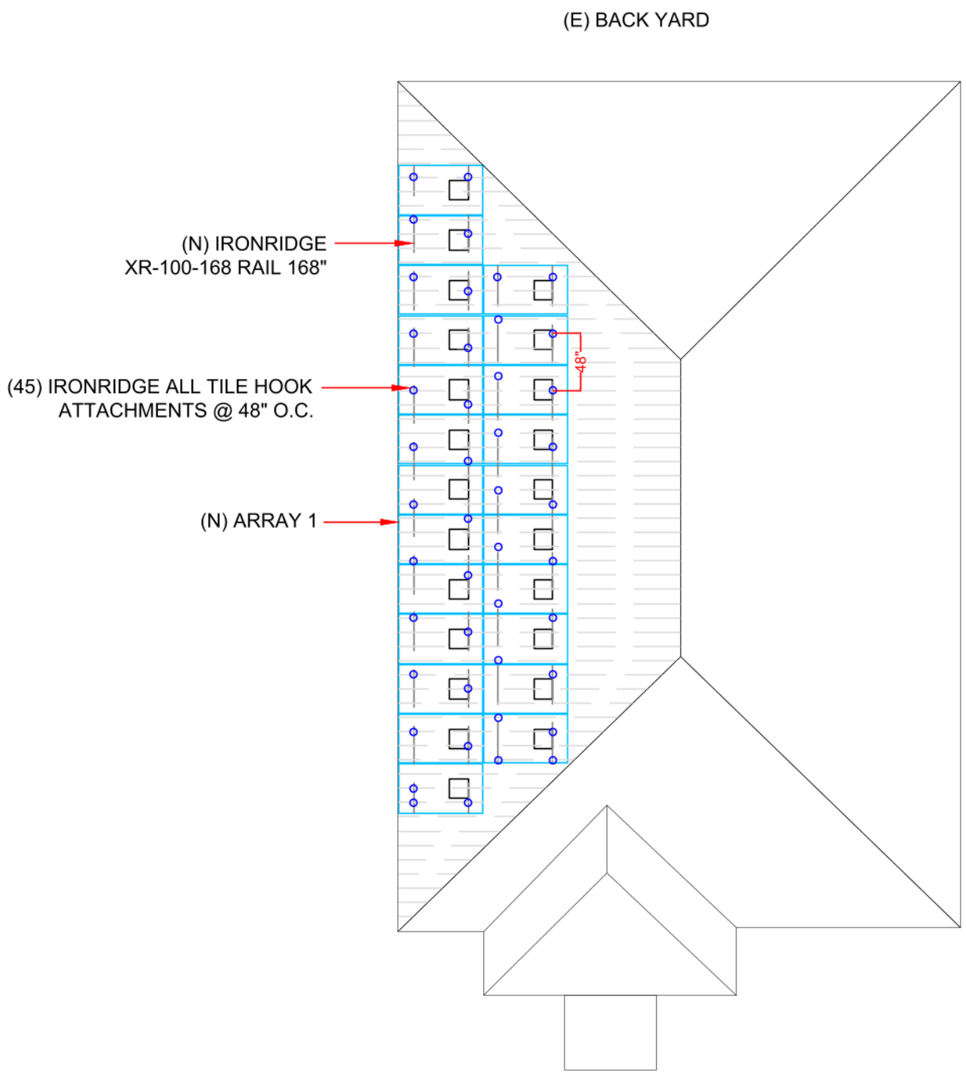
CONTRACTOR:

CLIENT:

SITE PLAN

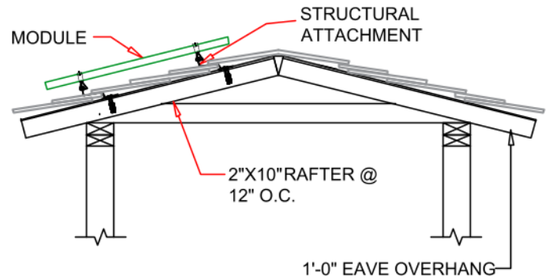
REV: ---- 06/09/2026 PV-3

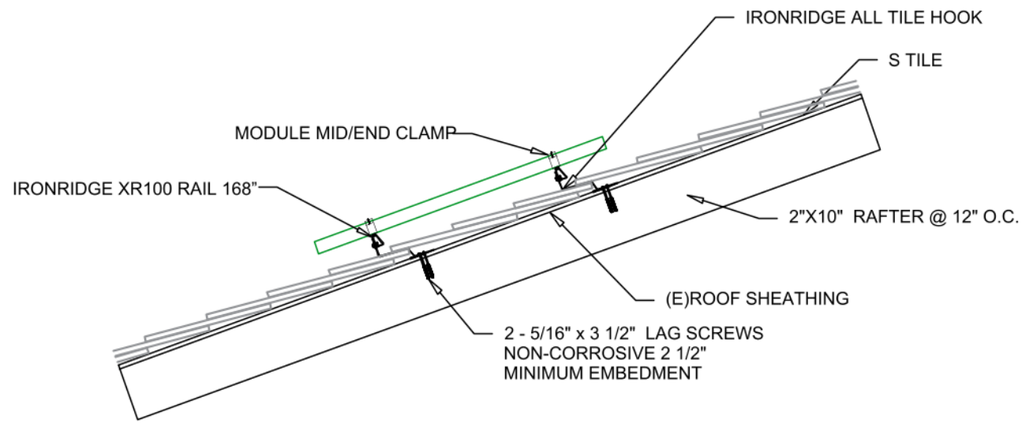
	ROOF PITCH (DEG)	AZIMUTH (DEG)	PV AREA (SQ. FT)	NO. OF MODS	ROOF TYPE	ROOF ATTACHMENT	ROOF HEIGHT	EXPOSURE	MATERIAL	CONSTRUCTION	RAFTER SIZE	RAFTER SPAN	RAIL ATTACHMENT SPACING	MAX CANTILEVER LENGTH
ARRAY 1	18°	278°	506.88	24	S TILE	ALL TILE HOOK	1 - STORY	ATTIC	WOOD	RAFTER	2"X10"	12" O.C.	48" OC	1' - 4"



MODULE	HANWHA Q CELLS Q.PEAK DUO BLK ML-G10+ 410W
MODULE DIMENSIONS	74.0" X 41.1" X 1.26"
MODULE WEIGHT	48.5 LBS (22.0 KG)
TOTAL ARRAY AREA	506.88 SQ. FT.
TOTAL ROOF AREA	2777 SQ. FT.
ROOF TYPE	S TILE
MAX DISTRIBUTED LOAD	3 PSF
SNOW LOAD	3 PSF
WIND SPEED	95 MPH, 3 SEC GUST
WIND EXPOSURE	C

ROOF FRAMING DETAIL - SCALE: NTS





NOTE:
CONTRACTOR/INSTALLER TO VERIFY COMPATIBILITY OF ANY BRANDS OR PRODUCTS SUBSTITUTED OR USED AS ALTERNATES WITHIN ANY BRAND-SPECIFIC SYSTEMS. CONTRACTOR SHALL SUPPLY AND PRESENT CERTIFICATES OF COMPATIBILITY TO THE BUILDING OFFICIAL UPON INSPECTION.

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

PLUMBING AND OR MECHANICAL VENTS SHALL NOT BE COVERED, OBSTRUCTED OR RE-ROUTED AROUND SOLAR MODULES.
ALL CONDUITS AND EQUIPMENT SHALL BE PAINTED TO MATCH THE EXISTING BACKGROUND MATERIAL COLOR OF THEIR LOCATION.

CONTRACTOR:

CLIENT:

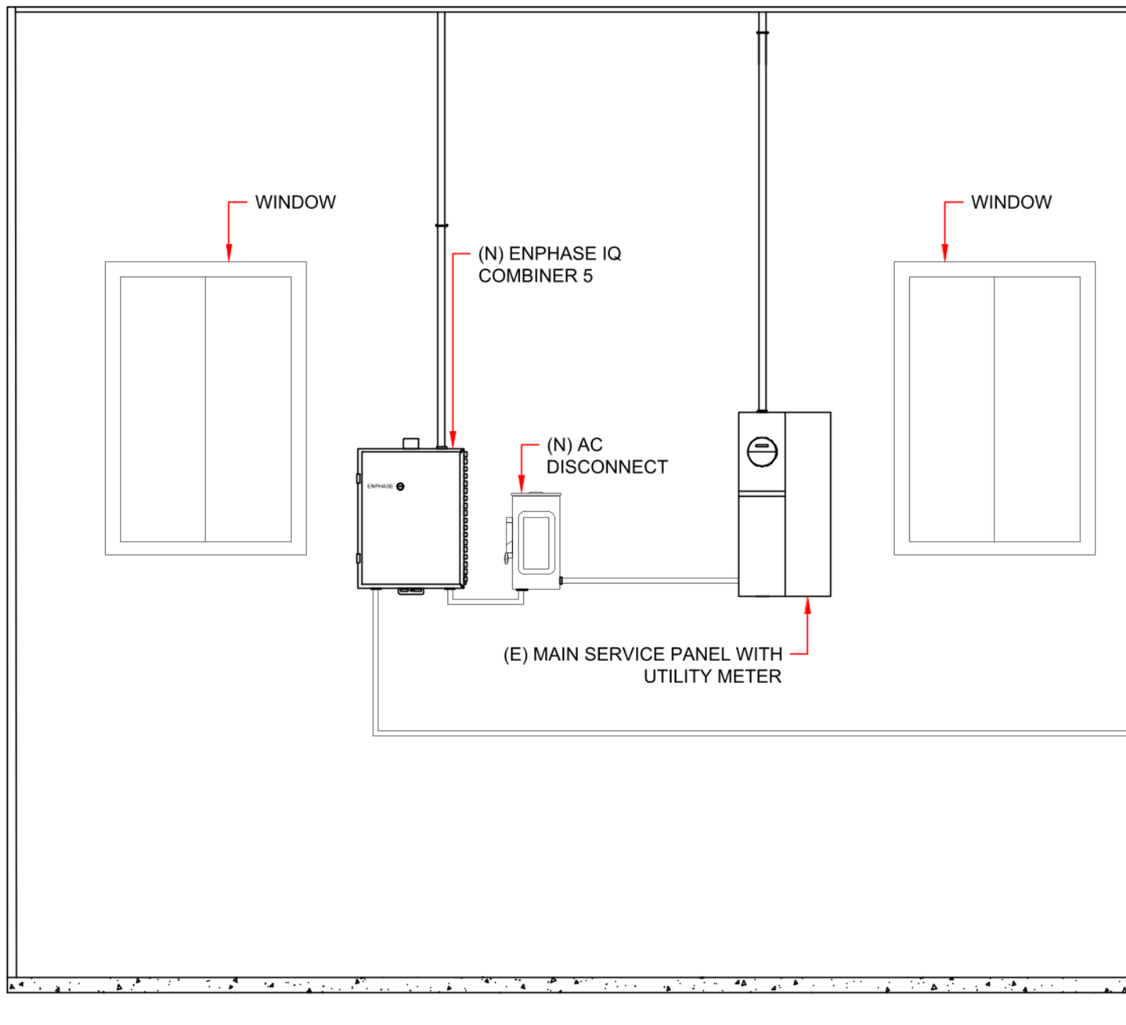
ROOF PLAN

REV: ---- 06/09/2026 | PV-4

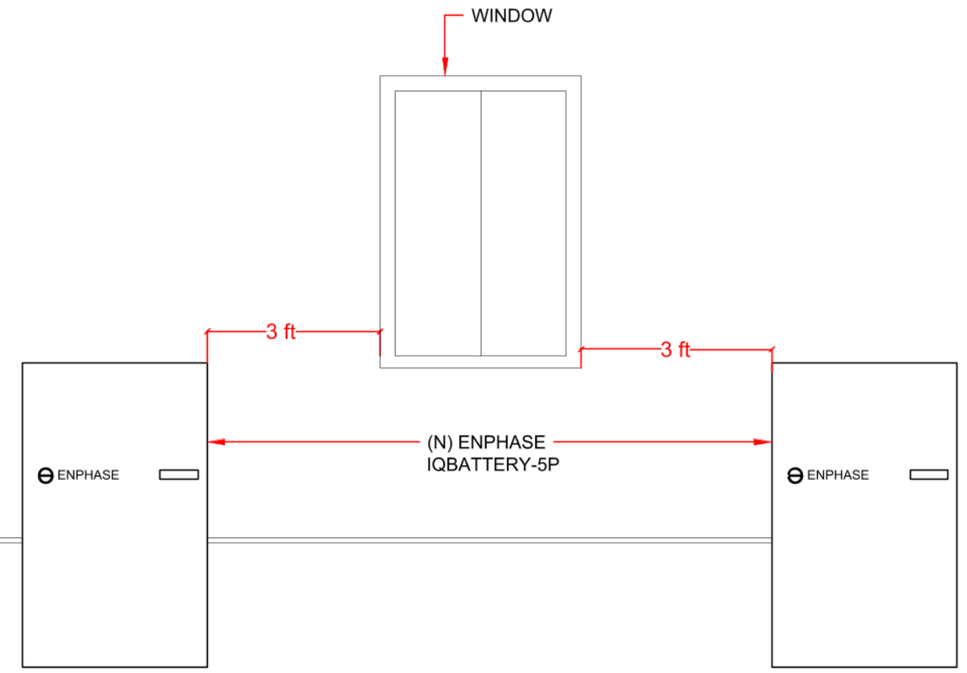
ESS DISCONNECT NOTE :
A lockable Energy Storage System disconnect shall be installed at a readily accessible exterior location within three (3) feet of the utility meter, in compliance with CEC 705.23 and 2025 CFC §1207.

ESS CLEARANCE NOTE :
Energy Storage Systems shall be installed not less than three (3) feet from doors and windows directly entering the dwelling unit in accordance with 2025 CFC §1207.11.3.

NORTH SIDE WALL OF HOUSE



WEST SIDE WALL OF HOUSE



EQUIPMENT ELEVATION
SCALE: NTS

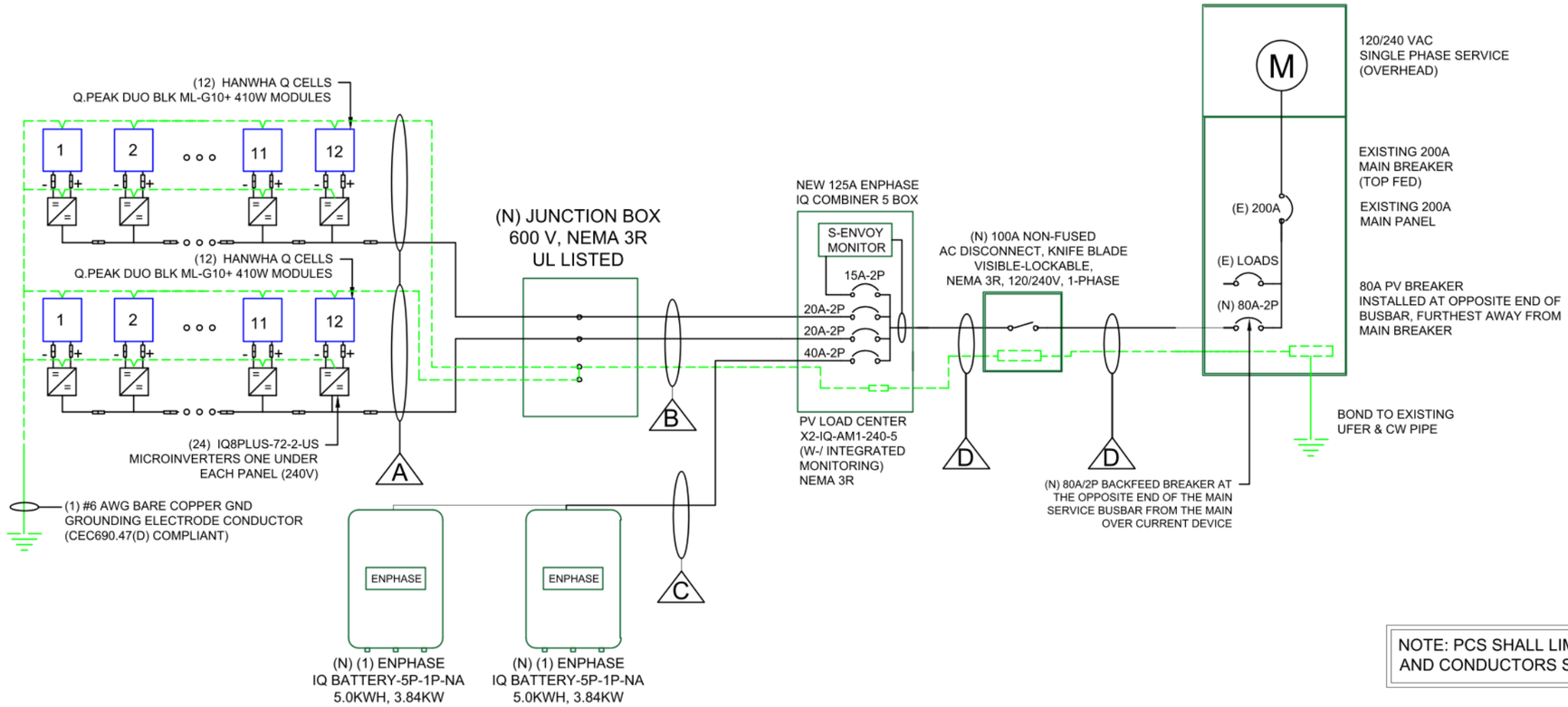
CONTRACTOR:

CLIENT:

EQUIPMENT ELEVATION

REV: ---- 06/09/2026 | PV-5

ELECTRICAL



NOTE: PCS SHALL LIMIT CURRENT AND LOADING ON THE BUSBARS AND CONDUCTORS SUPPLIED BY PCS. PER NEC 705.13(B) (E)

CONDUCTOR / CONDUIT SCHEDULE

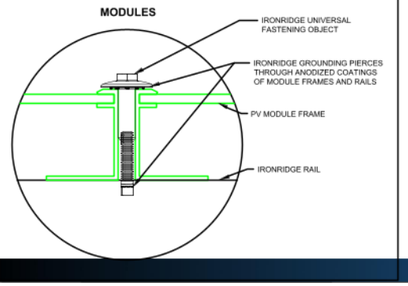
Δ TAG	CONDUCTOR	CONDUCTOR SIZE	NUMBER OF CONDUCTORS	CONDUIT/CABLE TYPE	CONDUIT SIZE
A	Q CABLE	12 AWG	4	FREE AIR	N/A
	EGC/GEC: BARE COPPER	6 AWG	1		
B	LINE: THHN/THWN-2	10 AWG	4	EMT	3/4"
	EGC/GEC: THHN/THWN-2	8 AWG	1		
C	LINE: THHN/THWN-2	8 AWG	2	EMT	3/4"
	NEUTRAL: THHN/THWN-2	8 AWG	1		
D	LINE: THHN/THWN-2	4 AWG	2	EMT	1"
	NEUTRAL: THHN/THWN-2	4 AWG	1		
	EGC/GEC: THHN/THWN-2	6 AWG	1		

SYSTEM NOTES:

1. ENPHASE IQ 8 / 8PLUS/ IQ8A MICROINVERTERS DO NOT REQUIRE GROUNDING ELECTRODE CONDUCTORS OR EQUIPMENT GROUNDING CONDUCTORS. THE MICROINVERTERS ITSELF HAS CLASS II DOUBLE-INSULATED RATING, WHICH INCLUDES GROUND FAULT PROTECTION.
2. ENPHASE Q CABLE HAS NO NEUTRAL WIRE - (2 WIRE DOUBLE INSULATED CABLING)
3. MODULES ARE BONDED TO RAIL.
4. RAILS ARE BONDED WITH UL 2703 RATED LAY-IN LUGS
5. BARE COPPER IS TRANSITIONED TO THHN/THWN-2 VIA IRREVERSIBLE CRIMP; GEC TO BE CONTINUOUS PER CEC 250.64(C)
6. SUB-BRANCHES ARE CENTER-FED AT JBOX TO MAKE ONE TOTAL BRANCH CIRCUIT.
7. ENPHASE IQ ENVOY INSIDE IQ COMBINER REQUIRES A NEUTRAL TO BE LANDED AT THE NEUTRAL BUSS AT MAIN PANEL PER ENPHASE INSTALLATION INSTRUCTIONS.
8. **ENPHASE MICROINVERTERS ARE ALL RAPID SHUTDOWN READY PER CEC 690.12**

GROUNDING DETAIL

SCALE: NTS



CONTRACTOR:

CLIENT:

ELECTRICAL

REV: ---- 06/09/2026 PV-6

MODULE CHARACTERISTICS - HANWHA Q CELLS Q.PEAK DUO BLK ML-G10+ 410W		
MAX POWER (PMAX) @ STC	410	W
OPEN CIRCUIT VOLTAGE (VOC)	45.37	V
SHORT CIRCUIT CURRENT (ISC)	11.20	A
MAX POWER VOLTAGE (VMP)	37.64	V
MAX POWER CURRENT (IMP)	10.89	A
SERIES FUSE RATING	20	A

INVERTER CHARACTERISTICS - ENPHASE ENERGY IQ8PLUS-72-2-US		
MAX OUTPUT POWER	290	W
SYSTEM OPERATING VOLTAGE	16-58	V
MAX CONTINOUS OUTPUT CURRENT	1.21	A
MAX INPUT VOLTAGE	60	V
SYSTEM SHORT CIRCUIT CURRENT	25	A
CEC MAX EFFICIENCY	97.0	%

BATTERY SPECIFICATION	
MODEL	ENPHASE ENERGY INC./ENPHASE ENCHARGE 5P (ENCHARGE-5P-1-P-NA [240V] [S11-SB])
AMBIENT TEMPERATURE RANGE	-15°C TO 55°C
RATED OUTPUT CURRENT	16 A
NOMINAL VOLTAGE	240 V
USABLE CAPACITY	5 KWh
INTERCONNECTION	SINGLE-PHASE
CHEMISTRY	LITHIUM IRON PHOSPHATE (LFP)

TEMPERATURE ADDERS		
CONDUIT TO BE INSTALLED MIN. OF 7/8" ABOVE ROOF		
HIGH TEMPERATURE	60	°C
LOW TEMPERATURE	-6	°C
TEMP ADDER FOR ROOF RUN	0	°C
TEMP ADDER FOR ATTIC RUN	7	°C

AC WIRE SIZING CALCULATIONS			
AT ARRAY	QCable = 12 AWG, 30 A @90ºC		
BRANCH CIRCUITS	(Max Micro Inverter Output) x (Continuous Load)[210.19(A)(1)] x (# Micros In Branch Circuit)=	1.21 A X1.25 X 12	18.15
TOTAL AMPACITY	(High Temp)[Table 310(B)(2)(A) x (Conductor Ampacity)[Table 310.15(B)(16)] x (Conduit Fill)[Table 310.15(B)(3)(a)]	0.71 X 30 A X 1.0	21.30 A
18.15 A < 21.30 A **Therefore 12 AWG/ Q CABLE is sufficient**			
AFTER JBOX	Wire = 10 AWG, 40 A @ 90ºC		
BRANCH CIRCUITS	(Max Micro Inverter Output) x (Continuous Load)[210.19(A)(1)] x (# Micros In Branch Circuit)=	1.21 A X 1.25 X12	18.15
TOTAL AMPACITY	(High Temp)[Table 310(B)(2)(A) x (Conductor Ampacity)[Table 310.15(B)(16)] x (Conduit Fill)[Table 310.15(B)(3)(a)]	1.00 X 40 A X 1.0	40.00 A
18.15 A < 40.00 A **Therefore** 10 **AWG is sufficient**			
AC WIRE SIZING CALCULATIONS			
AFTER COMBINER BOX	Wire = 4 AWG, 95 A @ 90ºC		
MAX AC OUTPUT CURRENT	(Σ of Micros in Branch Circuits) x (Max Micro Inverter Output Current) x (Continuous Load)[210.19(A)(1)]+ ESS Load	(24 X 1.21 A X 1.25)+40	76.30
TOTAL AMPACITY	(High Temp)[Table 310(B)(2)(A) x (Conductor Ampacity)[Table 310.15(B)(16)] x (Conduit Fill)[Table 310.15(B)(3)(a)]	1.00 X 95 A X 1.0	95.00 A
76.30 A < 95.00 A **Therefore** 4 **AWG is sufficient**			
OCPD CALCULATIONS			
MAX AC OUTPUT CURRENT	(Σ of Micros in Branch Circuits) x (Max Micro Inverter Output Current) x (Continuous Load)[210.19(A)(1)]+ ESS Load	(24 X 1.21 A X 1.25)+40	76.30
76.30 A ---> **80 A Overcurrent Protection**			

CONTRACTOR:

CLIENT:

CALCS

REV: ---- 06/09/2026 PV-7

Q.PEAK DUO BLK ML-G10+ SERIES

395 - 415 Wp | 132 Cells
21.1 % Maximum Module Efficiency
Domestic Content Option Available

MODEL *Q.PEAK DUO BLK ML-G10+
Q.PEAK DUO BLK ML-G10.C+

Includes Domestic Content

This product contains U.S. manufactured components which can contribute to qualifying for the 10% domestic content bonus to applicable tax credits under the Inflation Reduction Act of 2022.[1]

Breaking the 21% efficiency barrier

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 21.1%.

A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty.[2]

Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology[3] and Hot-Spot Protect.

Extreme weather rating

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

Far beyond the standard

Qcells' comprehensive quality program ensures high long-term yields and the reliability of your solar system.

[1] This statement should not be relied on as tax advice and is subject to change based on changes made to the Inflation Reduction Act and its implementing rules and regulations. Please consult a qualified tax professional for specific guidance.
[2] See data sheet on rear for further information.
[3] 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

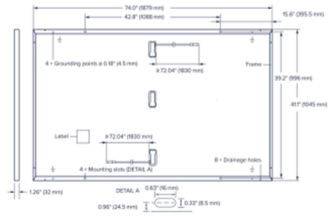
***DCA Module Option:**

DCA 17 module has material code 'MD06G100A-017' printed on the module power label.

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 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 mm² Solar cable; (+) ≥ 72.04 in (1830 mm), (−) ≥ 72.04 in (1830 mm)
Connector	Stäubli MC4; IP68

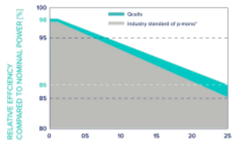


Electrical Characteristics

POWER CLASS			395	400	405	410	415
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)							
Minimum	Power at MPP[1]	P_{MPP} [W]	395	400	405	410	415
Minimum	Short Circuit Current[1]	I_{SC} [A]	11.10	11.14	11.17	11.20	11.23
Minimum	Open Circuit Voltage[1]	V_{OC} [V]	45.27	45.30	45.34	45.37	45.41
Minimum	Current at MPP	I_{MPP} [A]	10.71	10.77	10.83	10.89	10.95
Minimum	Voltage at MPP	V_{MPP} [V]	36.88	37.13	37.39	37.64	37.89
Minimum	Efficiency[1]	η [%]	≥20.1	≥20.4	≥20.6	≥20.9	≥21.1
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]							
Minimum	Power at MPP	P_{MPP} [W]	296.3	300.1	303.8	307.6	311.3
Minimum	Short Circuit Current	I_{SC} [A]	8.95	8.97	9.00	9.03	9.05
Minimum	Open Circuit Voltage	V_{OC} [V]	42.69	42.72	42.76	42.79	42.83
Minimum	Current at MPP	I_{MPP} [A]	8.46	8.51	8.57	8.62	8.68
Minimum	Voltage at MPP	V_{MPP} [V]	35.03	35.25	35.46	35.68	35.89

[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

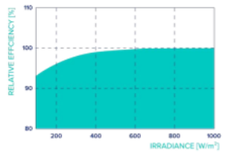


At least 98 % of nominal power during first year. Thereafter max. 0.5 % degradation per year. At least 93.5 % of nominal power up to 10 years. At least 86 % of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organization 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

UL61730-1 & UL61730-2, CE-compliant, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells),

*Contact your Qcells Sales Representative for details regarding the module's eligibility to be Buy American Act (BAA) compliant.

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. 300 Spectrum Center Drive, Suite 500, Irvine, CA 92618, USA | TEL +1 (949) 748 5996 | EMAIL na.support@qcells.com | WEB www.qcells.com

CONTRACTOR:

CLIENT:

SPEC. SHEETS

REV: ---- 06/09/2026 PV-8

ENPHASE

DATA SHEET

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 using advanced 55 nm technology with high-speed digital logic and has superfast 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 IQ Battery, 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-and-play MC4 connectors.

CERTIFIED SAFETY

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

Easy to install

- Lightweight and compact with plug-and-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) and IEEE 1547:2018 (UL 1741-SB 3rd Ed.)

Note:

IQ8 Microinverters cannot be mixed together with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, etc) in the same system.

*Meets UL 1741 only when installed with IQ System Controller 2.
**IQ8 and IQ8+ support split-phase, 240 V installations only.

IQ8 and IQ8+ Microinverters

INPUT DATA (DC)	UNITS	IQ8-60-2-US	IQ8PLUS-72-2-US
Commonly used module pairings[1]	W	235–350	235–440
Module compatibility		To meet compatibility, PV modules must be within maximum input DC voltage and maximum module I_{sc} listed below. Module compatibility can be checked at https://enphase.com/installers/microinverters/calculator	
MPPT voltage range	V	27–37	27–45
Operating range	V	16–48	16–58
Minimum/Maximum start voltage	V	22/48	22/58
Maximum input DC voltage	V	50	60
Maximum continuous input DC current	A	10	12
Maximum input DC short-circuit current	A	25	
Maximum module I_{sc}	A	20	
Overvoltage class DC port		II	
DC port backfeed current	mA	0	
PV array configuration		1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max. 20 A per branch circuit	

OUTPUT DATA (AC)	UNITS	IQ8-60-2-US	IQ8PLUS-72-2-US
Peak output power	VA	245	300
Maximum continuous output power	VA	240	290
Nominal grid voltage (L-L)	V	240, split-phase (L-L), 180°	
Minimum and Maximum grid voltage[2]	V	211-264	
Maximum continuous output current	A	1.0	1.21
Nominal frequency	Hz	60	
Extended frequency range	Hz	47–68	
AC short circuit fault current over three cycles	Arms	2	
Max. units per 20 A (L-L) branch circuit[3]		16	13
Total harmonic distortion	%	<5	
Overvoltage class AC port		III	
AC port backfeed current	mA	30	
Power factor setting		1.0	
Grid-tied power factor (adjustable)		0.85 leading–0.85 lagging	
Peak efficiency	%	97.7	
CEC weighted efficiency	%	97	
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 (H x W x D)	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
Environmental category/UV exposure rating	NEMA Type 6/outdoor

(1) Pairing PV modules with wattage above the limit may result in additional clipping losses.
(2) Nominal voltage range can be extended beyond nominal if required by the utility.
(3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

CONTRACTOR:

CLIENT:

SPEC. SHEETS

REV: ---- 06/09/2026 PV-9

ENPHASE

DATA SHEET

X-IQ-AM1-240-5-HDK
X-IQ-AM1-240-5C-HDK
X-IQ-AM1-240-5
X-IQ-AM1-240-5C

IQ Combiner 5/5C

The IQ Combiner 5/5C consolidates interconnection equipment into a single enclosure and streamlines IQ Series Microinverters and IQ Gateway installation by providing a consistent, pre-wired solution for residential applications. IQ Combiner 5/5C uses wired control communication and is compatible with IQ System Controller 3/3G and IQ Battery 5P.

The IQ Combiner 5/5C, IQ Series Microinverters, IQ System Controller 3/3G, and IQ Battery 5P provide a complete grid-agnostic Enphase Energy System.

IQ Series Microinverters
The high-powered smart grid-ready IQ Series Microinverters (IQ6, IQ7, and IQ8 Series) simplify the installation process.

IQ System Controller 3/3G
Provides microgrid interconnection device (MID) functionality by automatically detecting grid failures and seamlessly transitioning the home energy system from grid power to backup power.

IQ Battery 5P
Fully integrated AC battery system. Includes six field-replaceable IQ8D-BAT Microinverters.

IQ Load Controller
Helps prioritize essential appliances during a grid outage to optimize energy consumption and prolong battery life.

Enphase 5 year limited warranty

NOM

UL CERTIFIED SAFETY US-CA SÉCURITÉ US-CA E341166

5-year limited warranty

Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect (CELLMODEM-07-NA-05), only with IQ Combiner 5C
- Supports flexible networking: Wi-Fi, Ethernet, or cellular
- Provides production metering (revenue grade) and consumption monitoring

Easy to install

- Mounts to one stud with centered brackets
- Supports bottom, back, and side conduit entries
- Supports up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV branch circuits
- Factory installed hold-down kit
- Bluetooth-based Wi-Fi provisioning for easy Wi-Fi setup

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- 5-year limited warranty
- 2-year labor reimbursement program coverage included for IQ Combiner SKUs*
- UL 1741 Listed

*For country-specific warranty information, see the https://enphase.com/installers/resources/warranty page.

IQ Combiner 5/5C

MODEL NUMBER	
IQ Combiner 5 (X-IQ-AM1-240-5/X-IQ-AM1-240-5-HDK)	IQ Combiner 5 with IQ Gateway printed circuit board for integrated revenue-grade PV production metering (ANSI C12.20 ±0.5%), consumption monitoring (±2.5%), and IQ Battery monitoring (±2.5%). Includes a silver solar shield to deflect heat. IQ-AM1-240-5-HDK includes a factory-installed hold-down kit compatible with all the circuit breakers mentioned in the **Accessories and Replacement Parts** section.
IQ Combiner 5C (X-IQ-AM1-240-5C/X-IQ-AM1-240-5C-HDK)	IQ Combiner 5C with IQ Gateway printed circuit board for integrated revenue-grade PV production metering (ANSI C12.20 ±0.5%), consumption monitoring (±2.5%), and IQ Battery monitoring (±2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-07-NA-05)[1]. Includes a silver solar shield to deflect heat. IQ-AM1-240-5C-HDK includes a factory-installed hold-down kit compatible with all the circuit breakers mentioned in the **Accessories and Replacement Parts** section.
WHAT'S IN THE BOX	
IQ Gateway printed circuit board	IQ Gateway is the platform for total energy management for comprehensive, remote maintenance, and management of the Enphase Energy System
Busbar	80 A busbar with support for one IQ Gateway breaker and four 20 A breakers for installing IQ Series Microinverters and IQ Battery 5P
IQ Gateway breaker	Circuit breaker, 2-pole, 10 A/15 A
Production CT	Pre-wired revenue-grade solid-core CT, accurate up to ±0.5%
Consumption CT	Two consumption metering clamp CTs, shipped with the box, accurate up to ±2.5%
IQ Battery CT	One battery metering clamp CT, shipped with the box, accurate up to ±2.5%
CTRL board	Control board for wired communication with IQ System Controller 3/3G and the IQ Battery 5P
Enphase Mobile Connect (only with IQ Combiner 5C)	LTE CAT 4-based cellular modem with a 5-year data plan (CELLMODEM-07-NA-05 for AT&T, T-Mobile).
Accessories kit	Spare control headers for the COMMS-KIT-2 board
ACCESSORIES AND REPLACEMENT PARTS (NOT INCLUDED, ORDER SEPARATELY)	
CELLMODEM-07-NA-05	LTE CAT 4-based cellular modem with a 5-year data plan (for AT&T, T-Mobile)
CELLMODEM-M1-06-SP-05	4G-based LTE-M1 cellular modem with a 5-year T-Mobile data plan
CELLMODEM-M1-06-AT-05	4G-based LTE-M1 cellular modem with a 5-year AT&T data plan
Circuit breakers (off-the-shelf)	Supports Eaton BR2XX, Siemens Q2XX, and GE/ABB THQL21XX Series circuit breakers (XX represents 10, 15, 20, 30, 40, 50, or 60). Also supports Eaton BR220B, BR230B, and BR240B circuit breakers compatible with the hold-down kit.
Circuit breakers (provided by Enphase)	BRK-10A-2-240V, BRK-15A-2-240V, BRK-20A-2P-240V, BRK-15A-2P-240V-B, and BRK-20A-2P-240V-B (more details in the "Accessories" section)
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 5/5C
XA-ENV2-PCBA-5	IQ Gateway replacement printed circuit board (PCB) for IQ Combiner 5/5C
X-IQ-NA-HD-125A	Hold-down kit compatible with Eaton BR-B Series circuit breakers (with screws). Not required for X-IQ-AM1-240-5-HDK/X-IQ-AM1-240-5C-HDK.
XA-COMMS2-PCBA-5	Replacement COMMS-KIT-2 printed circuit board (PCB) for IQ Combiner 5/5C
ELECTRICAL SPECIFICATIONS	
Rating	80 A
System voltage and frequency	120/240 VAC or 120/208 VAC, 60 Hz
Busbar rating	125 A
Fault current rating	10 kAIC
Maximum continuous current rating (input from PV/storage)	64 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR, Siemens Q, or GE/ABB THQL Series distributed generation (DG) breakers only (not included)
Maximum total branch circuit breaker rating (input)	80 A of distributed generation/95 A with IQ Gateway breaker included
IQ Gateway breaker	10 A or 15 A rating GE/Siemens/Eaton included

[1] A plug-and-play industrial-grade cell modem for systems of up to 60 microinverters. Available in the United States, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.

IQC-5-5C-DSH-00007-8.0-EN-US-2025-12-29

ACCESSORIES AND REPLACEMENT PARTS (NOT INCLUDED, ORDER SEPARATELY)		
Production metering CT		200 A solid-core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-CLAMP)		A pair of 200 A clamp-style current transformers is included with the box
IQ Battery metering CT		200 A clamp-style current transformer for IQ Battery metering, included with the box
MECHANICAL DATA		
Dimensions (W × H × D)		37.5 cm × 49.5 cm × 16.8 cm (14.75" × 19.5" × 6.63"). Height is 53.5 cm (21.06") with mounting brackets.
Weight		7.5 kg (16.5 lb)
Ambient temperature range		-40°C to 46°C (-40°F 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
Communication (in-premise connectivity)		Built-in CTRL board for wired communication with the IQ Battery 5P and the IQ System Controller 3/3G. Integrated power line communication for IQ Series Microinverters.
Altitude		Up to 2600 meters (8530 feet)
COMMUNICATION INTERFACES		
Integrated Wi-Fi		802.11b/g/n (dual band 2.4 GHz/5 GHz) for connecting to the Enphase Cloud through the internet
Wi-Fi range (recommended)		10 m (32.8 feet)
Bluetooth		BLE4.2, 10 m range to configure Wi-Fi SSID
Ethernet		Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included) for connecting to the Enphase Cloud through the internet.
Cellular/Mobile Connect		CELLMODEM-07-NA-05; CELLMODEM-M1-06-SP-05 or CELLMODEM-M1-06-AT-05[2] (included with the IQ Combiner 5C)
Digital I/O		Digital input/output for grid operator control
USB 2.0		Mobile Connect, COMMS-KIT-01 for IQ Battery 3/3T/10/10T, COMMS-KIT-02 for IQ Battery 5P
Access point (AP) mode		For connection between the IQ Gateway and a mobile device running the Enphase Installer App
Metering ports		Up to two Consumption CTs, one IQ Battery CT, and one Production CT
Power line communication		90–110 kHz
Web API		See https://developer-v4.enphase.com
Local API		See Guide for local API
COMPLIANCE		
IQ Combiner with IQ Gateway		UL 1741, CAN/CSA C22.2 No. 107.1, Title 47 CFR, Part 15, Class B, ICES 003, NOM-208-SCFI-2016, UL 61010-1, CAN/CSA 22.2 No. 61010-1, IEEE 1547: 2018 (UL 1741-SB, 3rd Ed.), IEEE 2030.5/CSIP Compliant, Production metering: ANSI C12.20 accuracy class 0.5 (PV production)
COMPATIBILITY		
PV	Microinverters	IQ6, IQ7, and IQ8 Series Microinverters
COMMS-KIT-01[3]	IQ System Controller	EP200G101-M240US00
	IQ System Controller 2	EP200G101-M240US01
	IQ Battery	ENCHARGE-3-1P-NA, ENCHARGE-10-1P-NA, ENCHARGE-3T-1P-NA, ENCHARGE-10T-1P-NA
COMMS-KIT-02[4]	IQ System Controller 3	SC200D111C240US01, SC200G111C240US01
	IQ Battery	IQBATTERY-5P-1P-NA

[2] Older IQ Combiner 5C units may have Cell Modem 06 as Enphase Mobile Connect.
[3] For information about IQ Combiner 5/5C compatibility with the 2nd-generation batteries, refer to the compatibility matrix.
[4] IQ Combiner 5/5C comes pre-equipped with COMMS-KIT-02.

IQC-5-5C-DSH-00007-8.0-EN-US-2025-12-29

CONTRACTOR:

CLIENT:

SPEC. SHEETS

REV: ---- 06/09/2026 PV-10

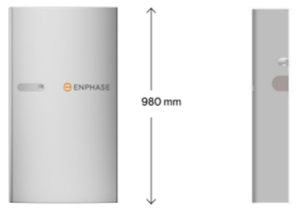
ENPHASE

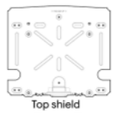
DATA SHEET | NA | PRELIMINARY

IQ Battery 5P

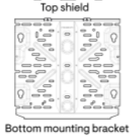
The IQ Battery 5P all-in-one AC-coupled system is powerful, reliable, simple, and safe. It has a total usable energy capacity of 5.0 kWh and includes six embedded grid-forming microinverters with a 3.84 kVA continuous power rating. It provides backup capability and installers can quickly design the right system size to meet the customer needs.

Dimensions





Top shield



Bottom mounting bracket

15-year limited warranty

LISTED

UL 9540A Certified

Powerful

- Provides 3.84 kVA continuous and 7.68 kVA peak power
- Doubles the available power per kWh of prior generations of IQ Battery 5P
- Includes six embedded IQ8D-BAT Microinverters

Reliable

- 15-year limited warranty
- Cools passively with no moving parts or fans
- Uses wired communication for fast and consistent connection
- Updates software and firmware remotely

Simple

- Fully integrated AC battery system
- Installs and commissions easily
- Supports Backup, Self-Consumption, and time-of-use (TOU) modes
- Offers homeowners remote monitoring and control from the Enphase App
- Field replaceable components

Safe

- Tested to meet UL 9540A, the highest industry standard for battery safety
- Uses lithium iron phosphate (LFP) chemistry for maximum safety and longevity

IQ Battery 5P

MODEL NUMBER	
IQBATTERY-5P-1P-NA	The IQ Battery 5P system with integrated IQ Microinverters and battery management system (BMS) with battery controller.
WHAT'S IN THE BOX	
IQ Battery 5P unit	IQ Battery 5P unit (B05-T02-US00-1-3)
ID cover and conduit cover	IQ Battery 5P cover with two conduit covers for left-side and right-side of the unit
Bottom mounting bracket and top shield	Bottom mounting bracket for mounting bracket on the wall. One top shield required for UL9540A
M5 seismic screws	Two M5 seismic screws for securing battery unit on bottom bracket
M4 grounding screws	Two M4 grounding screws to secure top shield on bottom wall-mount bracket
M5 ID cover grounding screws	Two M5 ID Cover grounding screws for EMI/EMC requirement
Cable ties	Six cable ties for securing field cables to the unit
CTRL connector	Spare CTRL connector without resistor for CTRL wiring
CTRL connector with resistor	Spare CTRL connector with resistor for CTRL wiring
Quick Install Guide (QIG)	QIG for instructions on IQ Battery unit installation
OPTIONAL ACCESSORIES AND REPLACEMENT PARTS	
IQ8D-BAT-RMA	IQ8D-BAT Microinverter for field replacement
B05-T02-US00-1-3-RMA	IQ Battery 5P Battery unit for field replacement
B05-CX-0550-O	IQ Battery 5P cover for field replacement
B05-PI-0550-O	IQ Battery 5P pedestal mount
B05-CP-096-O	IQ Battery 5P conduit plates for field replacement. Includes one left-side and one right-side conduit plate
B05-WB-0543-O	IQ Battery 5P wall bracket for field replacement. Includes one wall-mount bracket and one top shield
IQBATTERY-HNDL-5	IQ Battery 5P lifting handles. Includes one left-side and one right-side lifting handle
B05-ACFB-080-O	IQ Battery 5P AC filter board for field replacement
B05-BMSNA-0490-O	IQ Battery 5P BMS board for field replacement
B05-CANB-063-O	IQ Battery 5P control communication board for field replacement
B05-NICS-0524-O, B05-NUCS-0524-O	IQ Battery 5P control switch preinstalled on the wiring cover for field replacement
OUTPUT (AC)	**@240 VAC[1]**
Rated (continuous) output power	3.84 kVA
Peak output power	7.68 kVA (3 seconds), 6.14 kVA (10 seconds)
Nominal voltage/Range	240/211-264 VAC
Nominal frequency/Range	60/57-63 Hz
Rated output current (@240 VAC)	16 A
Peak output current (@240 VAC)	32 A (3 seconds), 25.6 A (10 seconds)
Power factor (adjustable)	0.85 leading...0.85 lagging
Maximum output overcurrent protection	20 A per unit
Interconnection	Single-phase
AC round-trip efficiency[2]	90%
Chemistry	Lithium iron phosphate (LFP)
Altitude	Up to 2,500 meters (8,202 feet)
Mounting	Wall-mount or pedestal-mount (sold separately)

[1] Supported in both grid-connected and backup/off-grid operation
[2] AC to the battery to AC at 50% power rating

IQ Battery 5P

BATTERY	
Total capacity	5.0 kWh
Usable capacity	5.0 kWh
DC round-trip efficiency	96%
Nominal DC voltage	76.8 V
Maximum DC voltage	86.4 V
Ambient operating temperature range (charging)	-20°C to 50°C (-4°F to 122°F) non-condensing
Ambient operating temperature range (discharging)	-20°C to 55°C (-4°F to 131°F) non-condensing
Optimum operating temperature range	0°C to 30°C (32°F to 86°F)
Chemistry	Lithium iron phosphate (LFP)
MECHANICAL DATA	
Dimensions (HxWxD)	980 mm x 550 mm x 188 mm (38.6 in x 21.7 in x 7.4 in)
Lifting weight	66.3 kg (146.1 lbs)
Total installed weight	78.9 kg (174 lbs)
Enclosure	Outdoor–NEMA 3R
IQ8D-BAT Microinverter enclosure	NEMA type 6
Cooling	Natural convection
FEATURES AND COMPLIANCE	
Compatibility	Compatible with IQ and M Series Microinverters, IQ System Controller 3/3G, IQ Combiner 5/5C, IQ Gateway for grid-tied and backup operation
Communication	Wired control communication
Services	Backup, Self-Consumption, TOU, and NEM Integrity
Monitoring	Enphase Installer Platform and Enphase App monitoring options; API integration
Compliance	CA Rule 21 (UL 1741-SA), IEEE 1547:2018 (UL 1741-SB, 3rd Ed.) CAN/CSA C22.2 No. 107.1-16 UL 9540, UL 9540A, UN 38.3, UL 1998, UL 991, NEMA Type 3R, AC156 EMI: 47 CFR, Part 15, Class B, ICES 003 Cell Module: UL 1973, UN 38.3 Inverters: UL 62109-1, IEC 62109-2
LIMITED WARRANTY	
Limited warranty	>60% capacity, up to 15 years or 6,000 cycles[3]

[3] Whichever occurs first. Restrictions apply

CONTRACTOR:

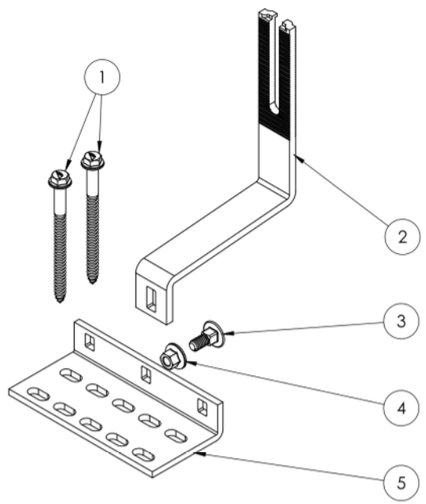
CLIENT:

SPEC. SHEETS

REV: ---- 06/09/2026 PV-11

Cut Sheet

IRONRIDGE QuickMount® All Tile Hook (Universal)



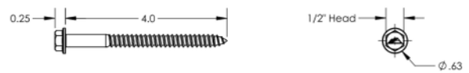
ITEM NO.	DESCRIPTION	QTY.
1	SCREW, LAG, 1/2" HEX, W/FLANGE, 5/16-9 4"	2
2	ARM, UNIVERSAL TILE HOOK	1
3	BOLT, CARRIAGE 5/16 X 1"	1
4	7/16 HEX HEAD, 5/16-18 UNC THREAD FLANGE NUT	1
5	BASE, TILE HOOK	1

PART NUMBER	DESCRIPTION
QM-ATH-02-M1	ALL TILE HOOK (INCL. 2 LAGS)

Cut Sheet

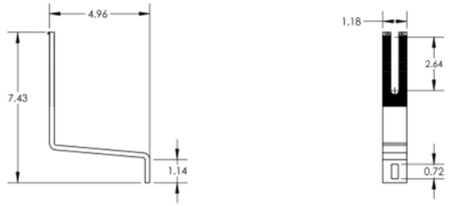
IRONRIDGE QuickMount® All Tile Hook (Universal)

1) SCREW, LAG, 1/2" HEX, W/FLANGE, 5/16-9 4"



PROPERTY	VALUE
MATERIAL	300 SERIES STAINLESS STEEL
FINISH	CLEAR

2) ARM, UNIVERSAL TILE HOOK



PROPERTY	VALUE
MATERIAL	300 SERIES STAINLESS STEEL
FINISH	CLEAR

3) BOLT, CARRIAGE 5/16 X 1"

PROPERTY	VALUE
MATERIAL	300 SERIES STAINLESS STEEL
FINISH	CLEAR

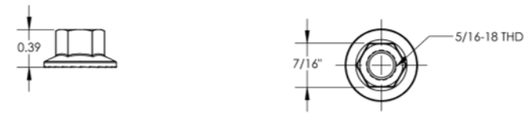
© 2025 IronRidge, Inc. All rights reserved. Visit www.ir-patents.com for patent information.

QM-ATH-02-M1 Cut Sheet Rev 1.0

Cut Sheet

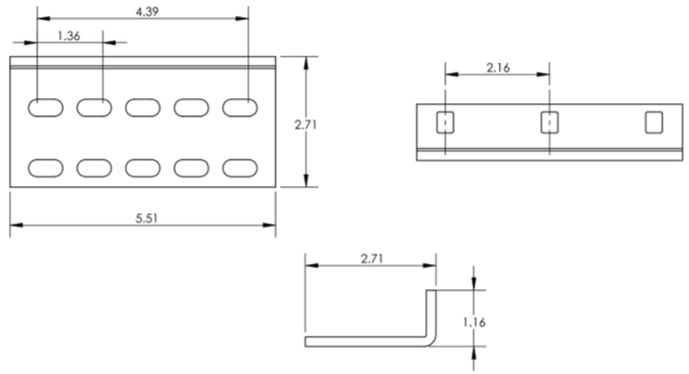
IRONRIDGE QuickMount® All Tile Hook (Universal)

4) 7/16 HEX HEAD, 5/16-18 UNC THREAD FLANGE NUT



PROPERTY	VALUE
MATERIAL	300 SERIES STAINLESS STEEL
FINISH	CLEAR

5) BASE, TILE LOOK



PROPERTY	VALUE
MATERIAL	300 SERIES STAINLESS STEEL
FINISH	CLEAR

© 2025 IronRidge, Inc. All rights reserved. Visit www.ir-patents.com for patent information.

QM-ATH-02-M1 Cut Sheet Rev 1.0

CONTRACTOR:

CLIENT:

SPEC. SHEETS

REV: ---- 06/09/2026 PV-12

Tech Brief

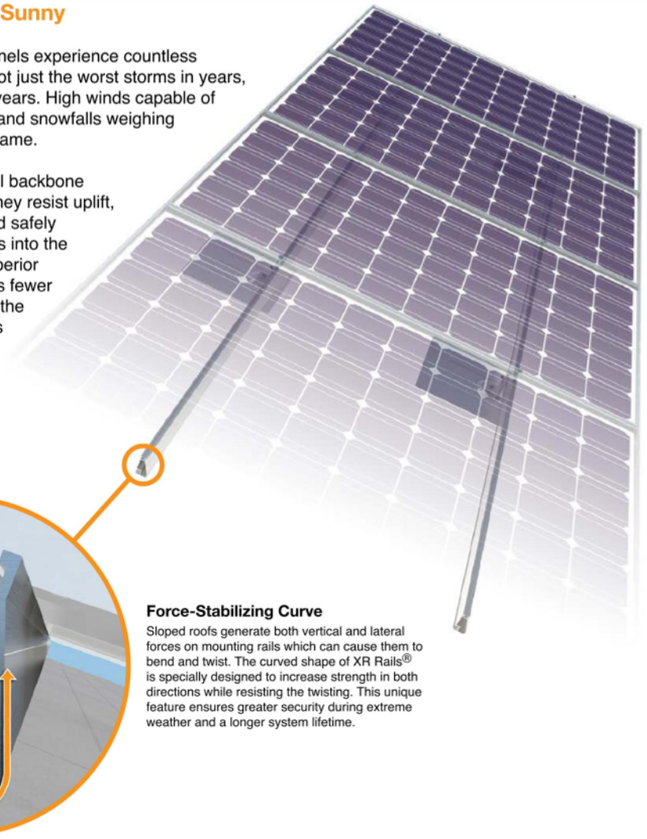
IRONRIDGE

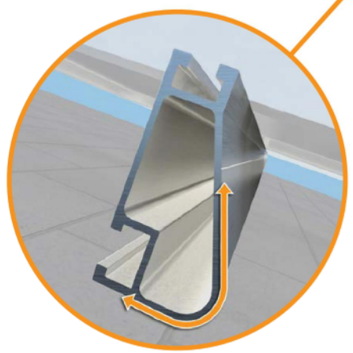
XR Rail® Family

Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails® are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.





Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails® is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

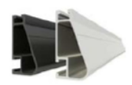
Compatible with Flat & Pitched Roofs

XR Rails® are compatible with FlashFoot® and other pitched roof attachments.

IronRidge® offers a range of tilt leg options for flat roof mounting applications.

6000-Series Aluminum

All XR Rails® are made of 6000-series aluminum alloy, with anodized options. Anodizing prevents corrosion, while also providing a more attractive appearance. Available in mill and black-anodized finish.



Tech Brief

XR Rail® Family

The XR Rail® Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail® to match.

XR10

XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves spans up to 6 feet, while remaining light and economical.

- 6' spanning capability
- Moderate load capability
- Mill & black-anodized finish
- Internal splices available

XR100

XR100 is a residential and commercial mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 10 feet.

- 10' spanning capability
- Heavy load capability
- Mill & black-anodized finish
- Internal splices available

XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans up to 12 feet for commercial applications.

- 12' spanning capability
- Extreme load capability
- Mill, non-anodized finish
- Internal splices available

Rail Selection

The table below was prepared in compliance with applicable engineering codes and standards.* Values are based on the following criteria: ASCE 7-16, Gable Roof Flush Mount, Roof Zones 1 & 2e, Exposure B, Roof Slope of 8 to 20 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed certification letters.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	90	XR10	XR10	XR100	XR100	XR1000	XR1000
	120	XR10	XR10	XR100	XR100	XR1000	XR1000
	140	XR10	XR10	XR100	XR100	XR1000	XR1000
	160	XR10	XR100	XR100	XR1000	XR1000	
20	90	XR10	XR10	XR100	XR100		
	120	XR10	XR10	XR100	XR100		
	140	XR10	XR10	XR100	XR100		
	160	XR10	XR100	XR100	XR1000		
30	90	XR10	XR10	XR100	XR100		
	160	XR10	XR100	XR100	XR1000		
40	90	XR10	XR100	XR100	XR100		
	160	XR10	XR100	XR100	XR1000		
80	160	XR10	XR100	XR100			
120	160	XR10	XR100				

*Table is meant to be a simplified span chart for conveying general rail capabilities. Use approved certification letters for actual design guidance.

CONTRACTOR:

CLIENT:

SPEC. SHEETS

REV: ---- 06/09/2026 PV-13