



PLAN DETAILED REPORT PL-ADR-2025-0115
FOR CITY OF CONCORD

Plan Type:	PLAN - Architectural Design Review	Project:		App Date:	07/17/2025
Work Class:	Architectural Design Review	District:	City of Concord, NH	Exp Date:	NOT AVAILABLE
Status:	Fees Due	Square Feet:	0.00	Completed:	NOT COMPLETED
Valuation:	\$0.00	Assigned To:	Alec Bass	Approval Expire Date:	
Description:	Install 32 roof mounted solar panels.				

Parcel:	2322	Main	Address:	4 Blake St Concord, NH	Main	Zone:	CVP(Civic Performance District)
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Owner	Applicant/Agent	Contractor
Mandy Hopkins	Mandy Hopkins	Brian Roy
Home: (603) 225-7376	Home: (603) 225-7376	781 Hopkinton Rd
Business: (_60) 322-5737	Business: (_60) 322-5737	Hopkinton, NH 03229
Mobile: (603) 225-7376	Mobile: (603) 225-7376	Business: 6034912702

Invoice No.	Fee	Fee Amount	Amount Paid
INV-00015410	PD - Application Fee - \$150	\$150.00	\$0.00
Total for Invoice INV-00015410		\$150.00	\$0.00
Grand Total for Plan		\$150.00	\$0.00



City of Concord
37 Green St
Concord, NH 03301
www.concordnh.gov

Permit

Permit NO. **BPSE-0111-2025**

Permit Type: **CD - Solar Electric**

Work Classification: **CD - Solar Electric**

Permit Status: **Submitted - Online**

Issue Date:

Expiration:

Location Address

4 Blake St, Concord, NH

Parcel Number

2322

Contacts

Mandy Hopkins

Owner

(_60)322-5737

mandy@thrivenh.org

Brian Roy

Applicant

781 Hopkinton Rd, Hopkinton, NH 03229

(603)491-2702

brian@bigskysolar.com

Mandy Hopkins

Applicant

(_60)322-5737

mandy@thrivenh.org

Description: Install 32 roof mounted solar panels.

Valuation: \$0.00

Total Sq Feet: 0.00

Inspection Requests:

603-225-8580

Fees	Amount
CD - Building Permit Application Fee \$30	\$30.00
CD - Building Permit Fee Const Cost	\$364.80
CD - Solar Arrays & Energy Storage Systems	\$50.00
Total:	\$444.80

Payments	Amt Paid
Total Fees	
Amount Due:	

Available Inspections:

Inspection Type	
CD - Rough Framing Inspection- WCL	
CD - Electrical Rough	215
CD - Electrical Final-WCL	220

Applicant certifies that all the information given is correct and true and that all work performed will comply with applicable City of Concord and State of New Hampshire, Building and Fire Codes, Ordinances, Laws and Regulations.

Issued By: Timothy LeBlanc

Date

SYSTEM SIZE: DC - 13.92 KW
AC - 10.40 KW

MODULES: (32) QCELLS Q.TRON BLK M-G2+ (435W) MODULES
INVERTERS: (32) ENPHASE IQ8M-72-2-US (240V) MICRO-INVERTERS

(02) CIRCUITS OF 11 MODULES &
(01) CIRCUIT OF 10 MODULES

NOTE: VISIBLE, LOCKABLE, LABELED AC DISCONNECT
LOCATED WITHIN 10' OF UTILITY METER



BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	32	QCELLS Q.TRON BLK M-G2+ (435W) MODULES
INVERTER	32	ENPHASE IQ8M-72-2-US (240V) MICRO-INVERTERS
AC DISCONNECT	1	60A FUSED AC DISCONNECT WITH 60A FUSES, 240V NEMA 3R, UL LISTED
IQ COMBINER BOX	1	IQ COMBINER BOX X-IQ-AM1-240-5/5C
RAIL	18	IRONRIDGE XR-100 RAIL
SPLICE KIT	12	SPLICE KIT
GROUNDING LUG	6	GROUNDING LUG
ATTACHMENT	74	PV ROOF ATTACHMENT @ 48" O.C.
MID CLAMPS	52	MID CLAMPS
END CLAMPS	24	END CLAMPS

BIGSKY RENEWABLE ENERGY LLC

781 HOPKINTON RD.,
HOPKINTON, NH 03229
PHONE #: (603) 491-2702

REVISIONS

DESCRIPTION	DATE	REV
CLIENT COMMENT	06/26/2025	A
CLIENT COMMENT	06/30/2025	B

DATE: 06/24/2025

Signature with Seal

PROJECT NAME & ADDRESS

THRIVE RESIDENCE

4 BLAKE ST.,
CONCORD, NH 03301

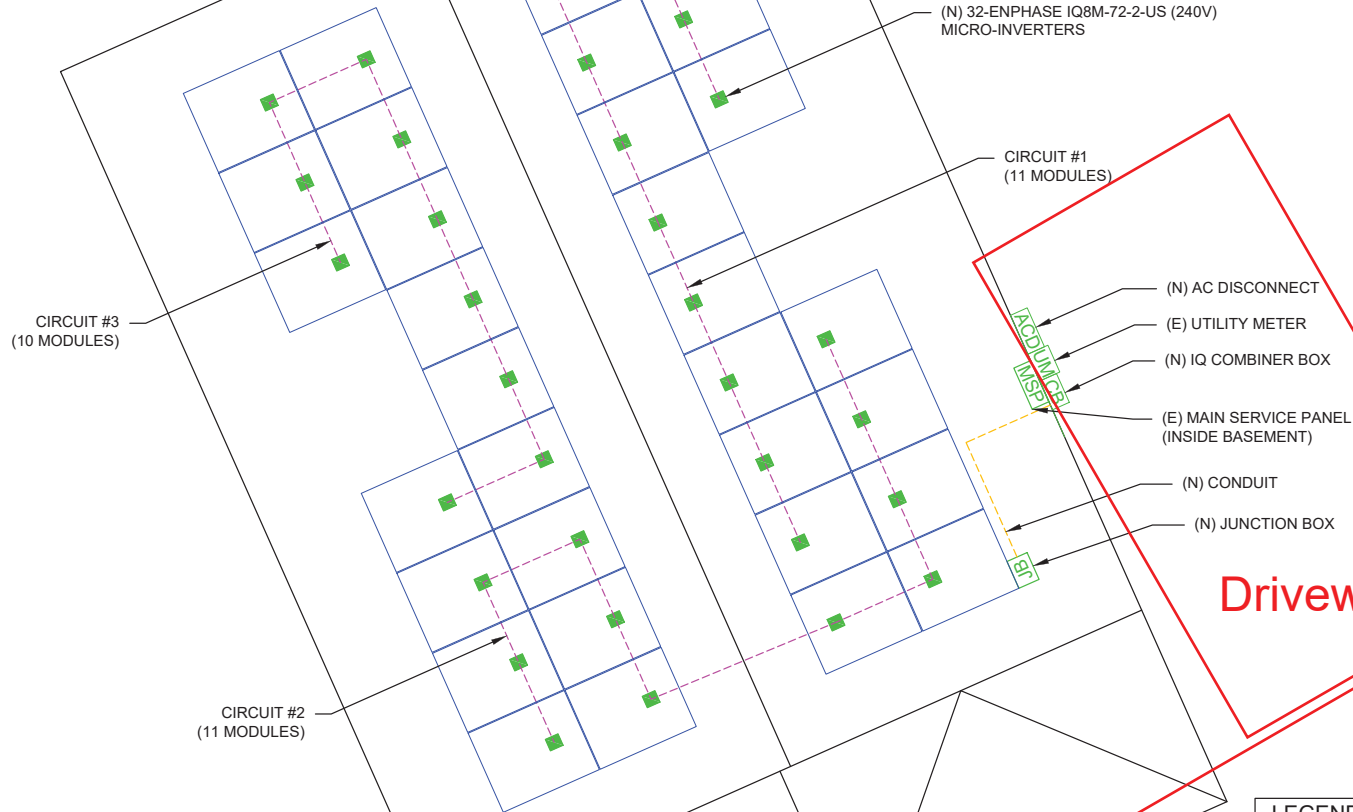
SHEET NAME
ELEC. SITE PLAN

SHEET SIZE

**ANSI B
11" X 17"**

SHEET NUMBER

PV-4



LEGEND

ACD	- AC DISCONNECT	■	- MICRO-INVERTER
JB	- JUNCTION BOX	---	- CIRCUIT
CB	- IQ COMBINER BOX	---	- CONDUIT
UM	- UTILITY METER		
MSP	- MAIN SERVICE PANEL		

1 ELEC. SITE PLAN

PV-4

SCALE: 3/16" = 1'-0"

SCOPE OF WORK

PHOTOVOLTAIC SYSTEM SUMMARY

SYSTEM SIZE: DC - 13.92 KW
AC - 10.40 KW

MODULES: (32) QCELLS Q.TRON BLK M-G2+ (435W) MODULES
INVERTERS: (32) ENPHASE IQ8M-72-2-US (240V) MICRO-INVERTERS

ELECTRICAL INFORMATION
UTILITY NAME: UNITIL
AHJ NAME: CITY OF CONCORD NH
SERVICE AMPERAGE: 200A

GOVERNING CODES & STANDARDS

2018 INTERNATIONAL BUILDING CODE (IBC)
2018 INTERNATIONAL RESIDENTIAL CODE (IRC)
2018 INTERNATIONAL PLUMBING CODE (IPC)
2018 INTERNATIONAL MECHANICAL CODE (IMC)
2018 INTERNATIONAL FIRE CODE (IFC)
2020 NATIONAL ELECTRICAL CODE (NEC)

SHEET INDEX

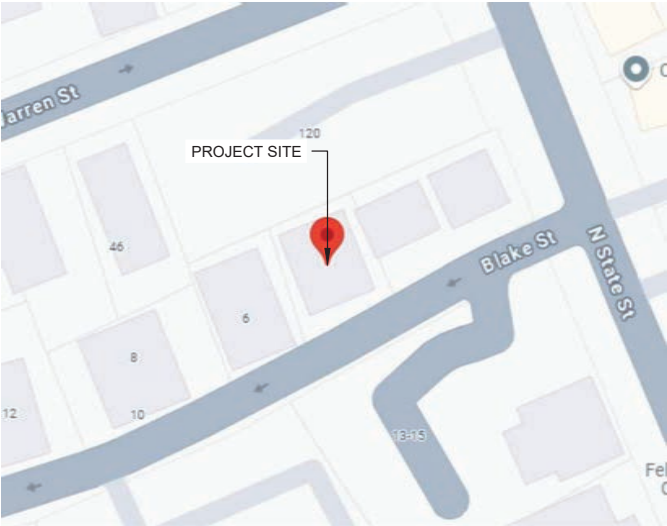
PV-1	COVER SHEET
PV-2	SITE PLAN AND ROOF PLAN
PV-3	ROOF PLAN & MODULES
PV-4	ELECTRICAL SITE PLAN
PV-5	ATTACHMENT DETAIL
PV-6	ELECTRICAL LINE DIAGRAM
PV-7	WIRING CALCULATIONS
PV-8	PLACARDS
PV-9+	EQUIPMENT SPECIFICATION

GENERAL NOTES:

- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO INITIATING CONSTRUCTION.
- CONTRACTOR SHALL REVIEW ALL MANUFACTURER INSTALLATION DOCUMENTS PRIOR TO INITIATING CONSTRUCTION.
- ALL EQUIPMENT SHALL BE LISTED BY U.L. (OR EQUAL) AND LISTED FOR ITS SPECIFIC APPLICATION.
- ALL EQUIPMENT SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED.
- ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- ACCESS TO ELECTRICAL COMPONENTS OVER 150 VOLTS TO GROUND SHALL BE RESTRICTED TO QUALIFIED PERSONNEL.
- WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, CONTRACTOR SHALL SIZE THEM ACCORDING TO APPLICABLE CODES.
- PV MODULE FRAMES SHALL BE BONDED TO RACKING RAIL OR BARE COPPER G.E.C. PER THE MODULE MANUFACTURER'S LISTED INSTRUCTION SHEET.
- PV MODULE RACKING RAIL SHALL BE BONDED TO BARE COPPER G.E.C. VIA WEEB LUG, ILSCO GBL-4DBT LAY-IN LUG, OR EQUIVALENT LISTED LUG.
- GROUNDING ELECTRODE CONDUCTOR (G.E.C.) SHALL BE CONTINUOUS AND/OR IRREVERSIBLY SPLICED/WELDED.
- ALL JUNCTION BOXES, COMBINER BOXES, AND DISCONNECTS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.
- WORKING SPACE AROUND ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26



1 AERIAL VIEW
PV-1 SCALE: NTS



2 VICINITY MAP
PV-1 SCALE: NTS

BIGSKY RENEWABLE ENERGY LLC

781 HOPKINTON RD.,
HOPKINTON, NH 03229
PHONE #: (603) 491-2702

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DATE: 06/24/2025		

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PROJECT NAME & ADDRESS

THRIVE RESIDENCE
4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME
COVER SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-1

SYSTEM SIZE: DC - 13.92 KW
AC - 10.40 KW

MODULES: (32) QCELLS Q.TRON BLK M-G2+ (435W) MODULES
INVERTERS: (32) ENPHASE IQ8M-72-2-US (240V) MICRO-INVERTERS



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4 BLAKE ST.,
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SHEET NAME

**SITE PLAN &
ROOF PLAN**

SHEET SIZE

ANSI B
11" X 17"

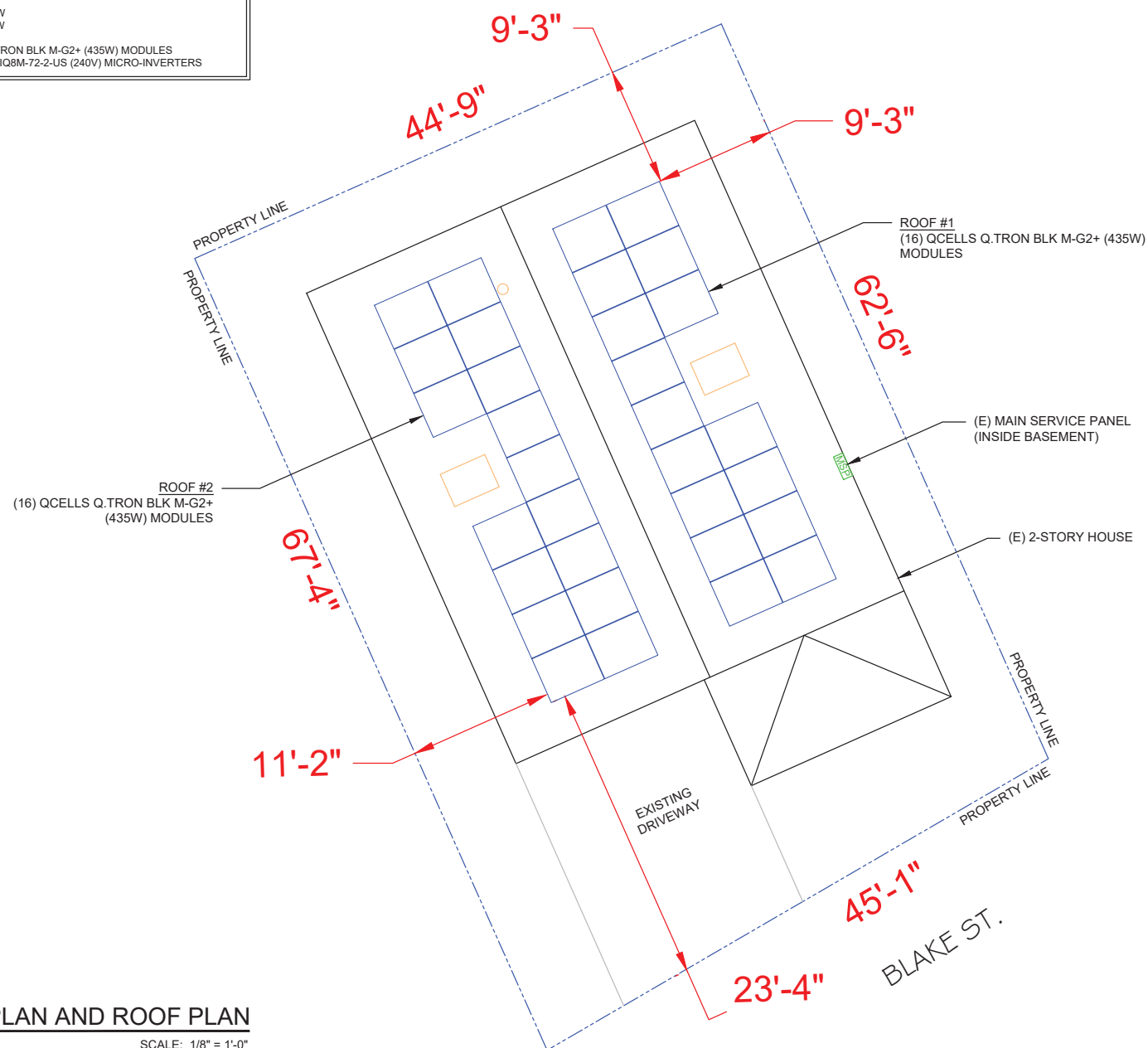
SHEET NUMBER

PV-2

1 SITE PLAN AND ROOF PLAN

PV-2

SCALE: 1/8" = 1'-0"



MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 32 MODULES
MODULE TYPE = QCELLS Q.TRON BLK M-G2+ (435W) MODULES
MODULE WEIGHT = 46.7 LBS / 21.2 KG.
MODULE DIMENSIONS = 67.8" x 44.6" = 21.00 SF
UNIT WEIGHT OF ARRAY = 2.22 PSF

SYSTEM SIZE: DC - 13.92 KW
AC - 10.40 KW

MODULES: (32) QCELLS Q.TRON BLK M-G2+ (435W) MODULES
INVERTERS: (32) ENPHASE IQ8M-72-2-US (240V) MICRO-INVERTERS



(74) PV ROOF ATTACHMENT @ 48" O.C.

(N) IRONRIDGE XR-100 RAIL (TYP.)

ROOF #2
PITCH - 37°
AZIM. - 246°

ROOF #2
(16) QCELLS Q.TRON BLK M-G2+ (435W)
MODULES

ROOF #1
PITCH - 37°
AZIM. - 66°

ROOF #1
(16) QCELLS Q.TRON BLK M-G2+ (435W)
MODULES

(E) MAIN SERVICE PANEL
(INSIDE BASEMENT)

ROOF ACCESS POINT

44.6"
67.8"
QCELLS Q.TRON
BLK M-G2+
(435W) MODULES

LEGEND

- MSP - MAIN SERVICE PANEL
- - VENT, ATTIC FAN (ROOF OBSTRUCTION)
- - ROOF ATTACHMENT
- - RAFTER
- - RAIL

ROOF DESCRIPTION

ROOF TYPE		SLATE TILE ROOF		
ROOF	ROOF TILT	AZIMUTH	RAFTER SIZE	RAFTER SPACING
#1	37°	66°	2"X8"	16" O.C.
#2	37°	246°	2"X8"	16" O.C.

ARRAY AREA & ROOF AREA CALC'S

ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	16	335.99	660.00	51
#2	16	335.99	660.00	51
#TOTAL	32	671.97	1473.00	46

ROOF ACCESS POINT SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF 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.

BIGSKY RENEWABLE ENERGY LLC

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PROJECT NAME & ADDRESS

THRIVE RESIDENCE

4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME

ROOF PLAN & MODULES

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-3

SYSTEM SIZE: DC - 13.92 KW
AC - 10.40 KW

MODULES: (32) QCELLS Q.TRON BLK M-G2+ (435W) MODULES
INVERTERS: (32) ENPHASE IQ8M-72-2-US (240V) MICRO-INVERTERS

(02) CIRCUITS OF 11 MODULES &
(01) CIRCUIT OF 10 MODULES

NOTE: VISIBLE, LOCKABLE, LABELED AC DISCONNECT
LOCATED WITHIN 10' OF UTILITY METER



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IQ COMBINER BOX	1	IQ COMBINER BOX X-IQ-AM1-240-5/5C
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SPLICE KIT	12	SPLICE KIT
GROUNDING LUG	6	GROUNDING LUG
ATTACHMENT	74	PV ROOF ATTACHMENT @ 48" O.C.
MID CLAMPS	52	MID CLAMPS
END CLAMPS	24	END CLAMPS

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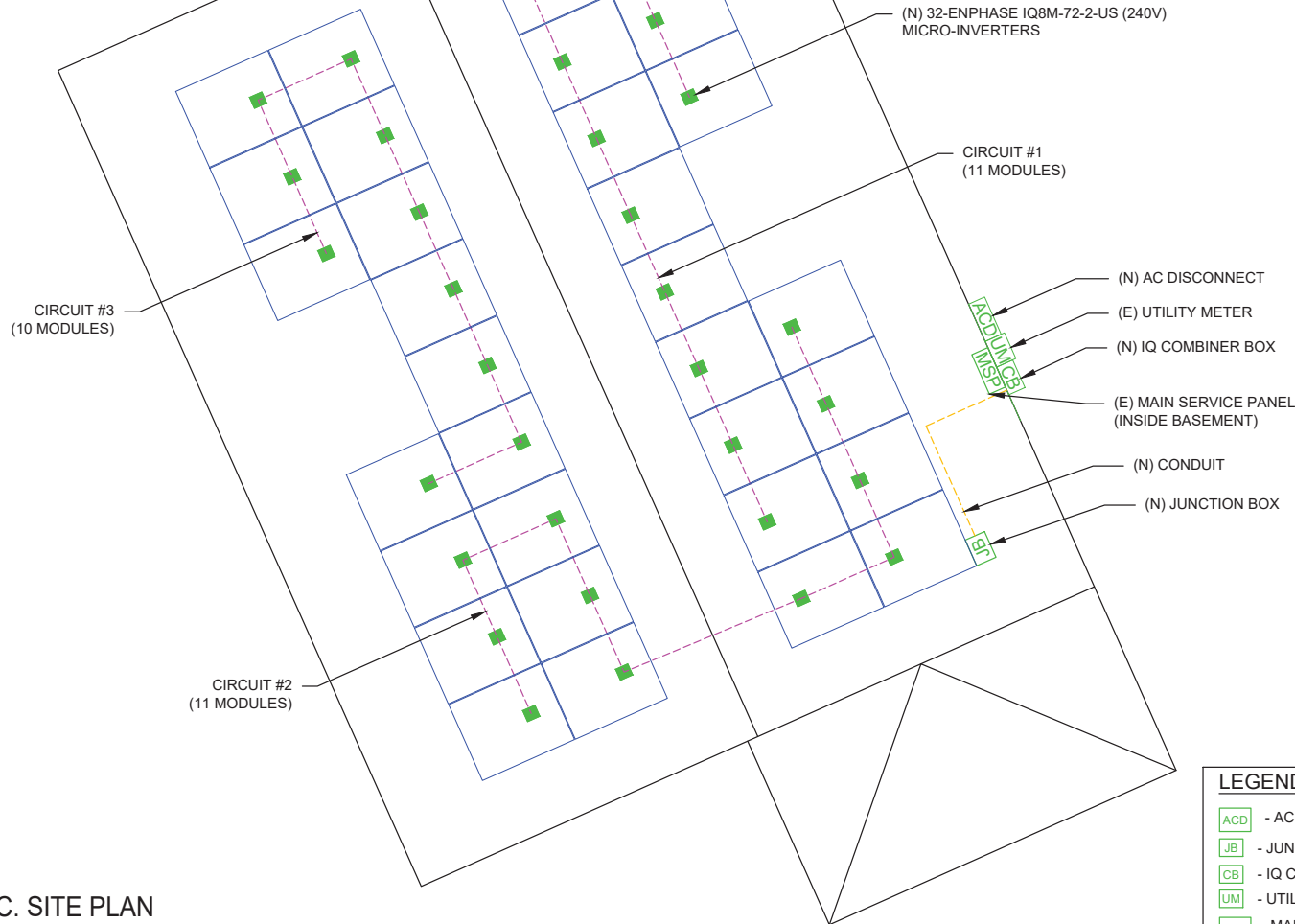
PROJECT NAME & ADDRESS

THRIVE RESIDENCE
4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME
**ELEC. SITE
PLAN**

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

SHEET NUMBER
PV-4

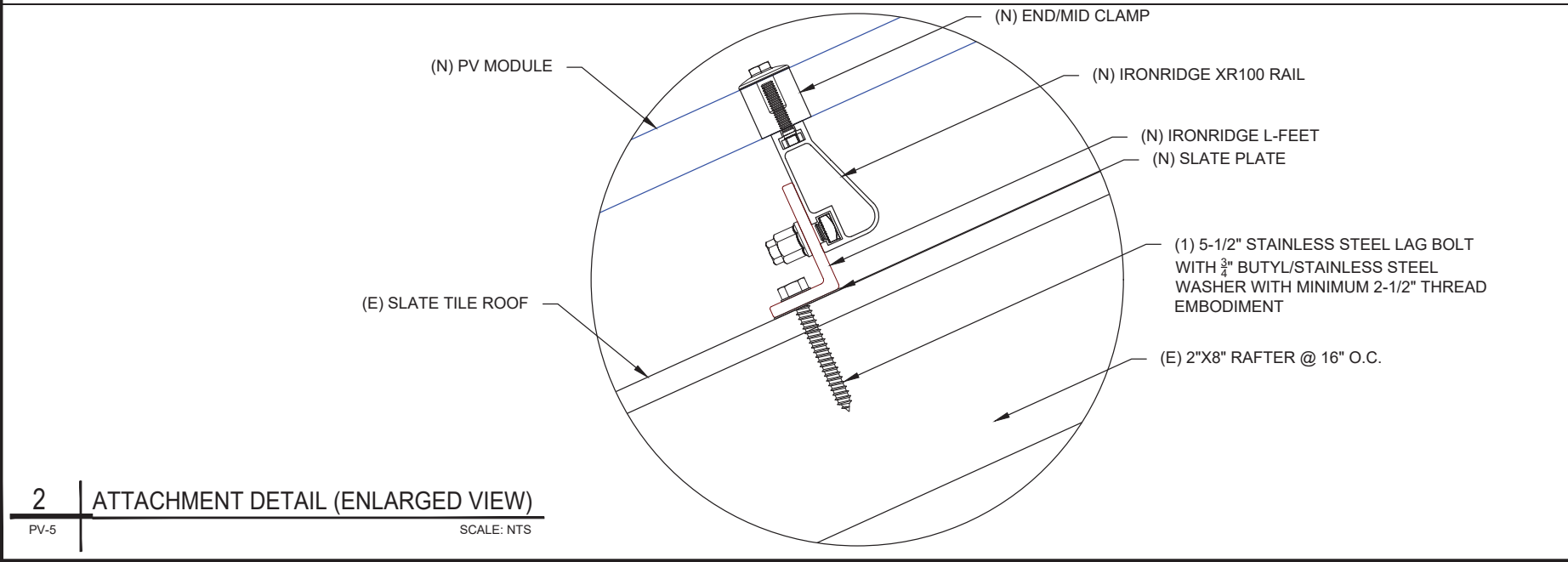
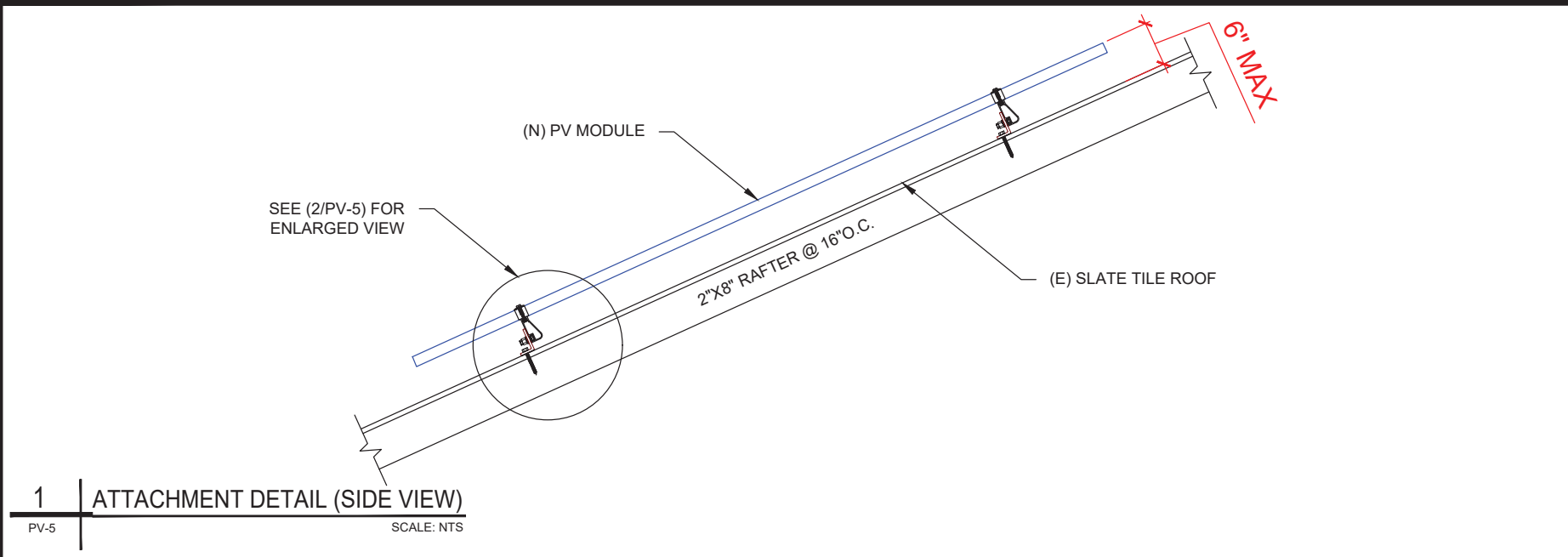


LEGEND

ACD	- AC DISCONNECT	■	- MICRO-INVERTER
JB	- JUNCTION BOX	- - -	- CIRCUIT
CB	- IQ COMBINER BOX	- - - - -	- CONDUIT
UM	- UTILITY METER		
MSP	- MAIN SERVICE PANEL		

1 ELEC. SITE PLAN

PV-4 SCALE: 3/16" = 1'-0"



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PROJECT NAME & ADDRESS

THRIVE RESIDENCE
4 BLAKE ST.,
CONCORD, NH 03301

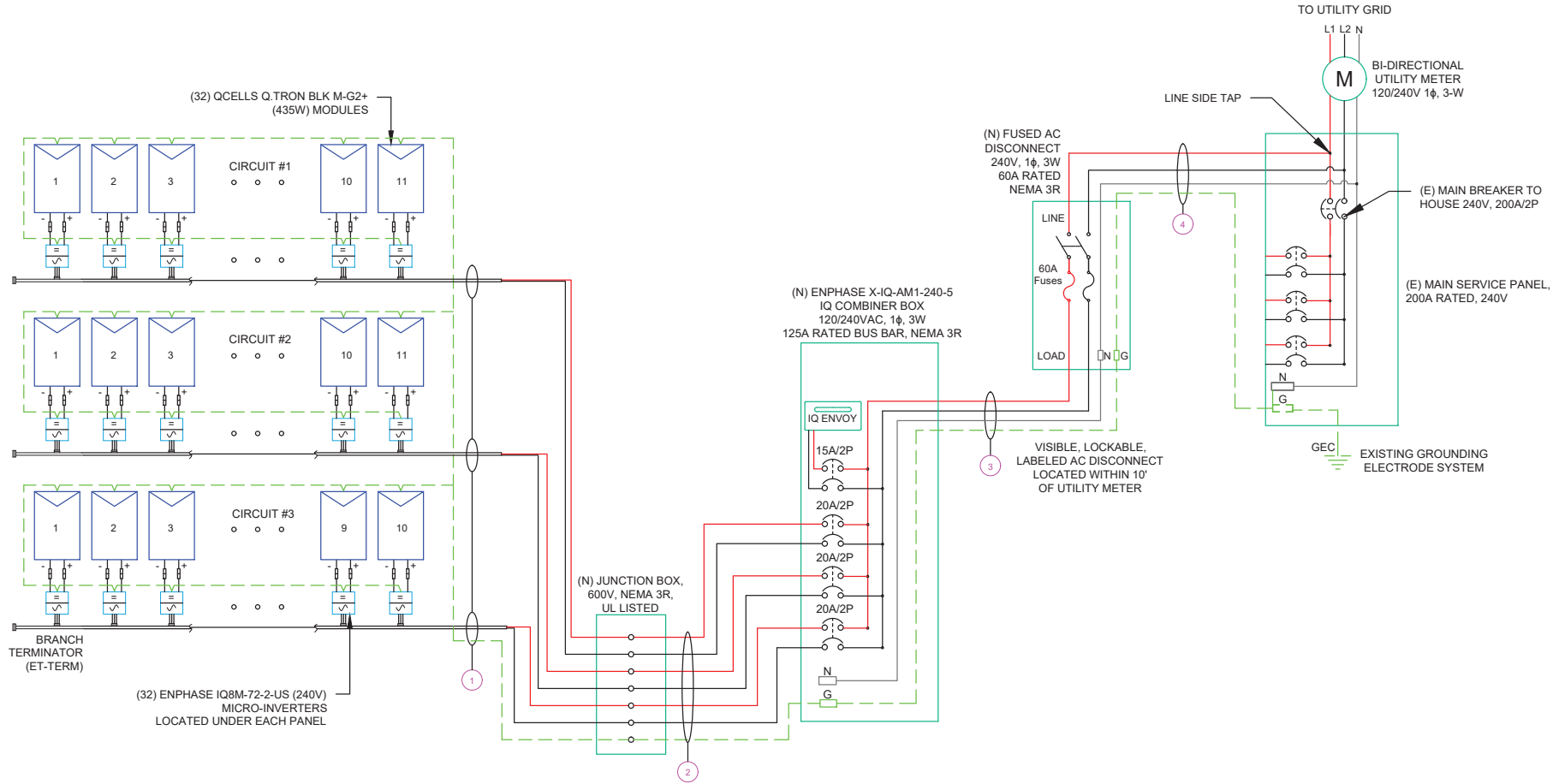
SHEET NAME
ATTACHMENT DETAIL
SHEET SIZE
ANSI B 11" X 17"
SHEET NUMBER
PV-5

SYSTEM SIZE: DC - 13.92 KW
AC - 10.40 KW

MODULES: (32) QCELLS Q.TRON BLK M-G2+ (435W) MODULES
INVERTERS: (32) ENPHASE IQ8M-72-2-US (240V) MICRO-INVERTERS

(02) CIRCUITS OF 11 MODULES &
(01) CIRCUIT OF 10 MODULES

NOTE: VISIBLE, LOCKABLE, LABELED AC DISCONNECT
LOCATED WITHIN 10' OF UTILITY METER



QTY	CONDUCTOR INFORMATION		CONDUIT TYPE	CONDUIT SIZE
(3)	CU #12AWG -	ENPHASE Q CABLE (L1, L2 & NO NEUTRAL)	N/A	N/A
(1)	CU #6AWG -	BARE COPPER IN FREE AIR		
(6)	CU #10AWG -	THWN-2 (L1,L2)	EMT IN ATTIC	3/4"
(1)	CU #6AWG -	THWN-2 GND		
(3)	CU #6AWG -	THWN-2 (L1,L2,N)	EMT	3/4"
(1)	CU #6AWG -	THWN-2 GND		
(3)	CU #6AWG -	THWN-2 (L1,L2,N)	EMT	3/4"
(1)	CU #6AWG -	THWN-2 GND		

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PROJECT NAME & ADDRESS

THRIVE RESIDENCE
4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME
ELECTRICAL
LINE DIAGRAM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-6

1

ELECTRICAL LINE DIAGRAM

PV-6

SCALE: NTS

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	QCELLS Q.TRON BLK M-G2+ (435W) MODULES
VMP	33.14V
IMP	13.13A
VOC	39.60V
ISC	13.82A
TEMP. COEFF. VOC	-0.24%/K
MODULE DIMENSION	67.8"L x 44.6"W x 1.18"D (In Inch)

MICRO-INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	ENPHASE IQ8M-72-2-US (240V) MICRO-INVERTERS
MIN/MAX DC VOLT RATING	22V MIN/ 58V MAX
MAX INPUT POWER	260W-460W
MAX AC CURRENT	1.35A
MAX MODULES PER CIRCUIT	11 (SINGLE PHASE)
MAX OUTPUT POWER	325 VA

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-24°
AMBIENT TEMP (HIGH TEMP 2%)	27°
CONDUCTOR TEMPERATURE RATE	90°
MODULE TEMPERATURE COEFFICIENT OF Voc	-0.24%/K

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
.80	4-6
.70	7-9
.50	10-20

AC FEEDER CALCULATIONS																						
CIRCUIT ORIGIN	CIRCUIT DESTINATION	VOLTAGE (V)	FULL LOAD AMPS "FLA" (A)	FLA*1.25 (A)	OC PD SIZE (A)	NEUTRAL SIZE	GROUND SIZE	CONDUCTOR SIZE	75°C AMPACITY (A)	AMPACITY CHECK #1	AMBIENT TEMP. (°C)	TOTAL CC CONDUCTORS IN RACEWAY	90°C AMPACITY (A)	DERATION FACTOR FOR AMBIENT TEMPERATURE NEC 310.15(B)(2)(a)	DERATION FACTOR FOR CONDUCTORS PER RACEWAY NEC 310.15(B)(3)(a)	90°C AMPACITY DERATED (A)	AMPACITY CHECK #2	FEEDER LENGTH (FEET)	CONDUCTOR RESISTANCE (OHM/KFT)	VOLTAGE DROP AT FLA (%)	CONDUIT SIZE	CONDUIT FILL (%)
CIRCUIT 1	JUNCTION BOX	240	14.85	18.56	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	27	2	30	1	1	30	PASS			0.62	N/A	#N/A
CIRCUIT 2	JUNCTION BOX	240	14.85	18.56	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	27	2	30	1	1	30	PASS			0.62	N/A	#N/A
CIRCUIT 3	JUNCTION BOX	240	13.50	16.88	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	27	2	30	1	1	30	PASS			0.52	N/A	#N/A
JUNCTION BOX	IQ COMBINER BOX	240	14.85	18.56	20	N/A	CU #6 AWG	CU #10 AWG	35	PASS	27	6	40	1	0.8	32	PASS	34	1.24	0.522	3/4" EMT	33.26454034
IQ COMBINER BOX	AC DISCONNECT	240	43.20	54.00	60	CU #6 AWG	CU #6 AWG	CU #6 AWG	65	PASS	27	2	75	1	1	75	PASS	5	0.491	0.088	3/4" EMT	38.04878049
AC DISCONNECT	POI	240	43.20	54.00	60	CU #6 AWG	CU #6 AWG	CU #6 AWG	65	PASS	27	2	75	1	1	75	PASS	5	0.491	0.088	3/4" EMT	38.04878049

Circuit 1 Voltage Drop	1.318
Circuit 2 Voltage Drop	1.318
Circuit 3 Voltage Drop	1.218

ELECTRICAL NOTES

- ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
- ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.
- WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
- WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
- DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
- WHERE SIZES OF SOLADECK, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
- ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
- MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
- MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
- TEMPERATURE RATINGS OF ALL CONDUCTORS, TERMINATIONS, BREAKERS, OR OTHER DEVICES ASSOCIATED WITH THE SOLAR PV SYSTEM SHALL BE RATED FOR AT LEAST 75 DEGREE C.

BIGSKY RENEWABLE ENERGY LLC

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PROJECT NAME & ADDRESS

THRIVE RESIDENCE
4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME
WIRING
CALCULATIONS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-7

CAUTION:
AUTHORIZED SOLAR
PERSONNEL ONLY!

LABEL LOCATION:
AC DISCONNECT

WARNING: PHOTOVOLTAIC
POWER SOURCE

EVERY 10' ON CONDUIT & ENCLOSURES
LABEL LOCATION:
EMT/CONDUIT RACEWAY
SOLADECK / JUNCTION BOX
CODE REF: NEC 690.31 (D)(2)

⚠ WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY
BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:
AC DISCONNECT
COMBINER
MAIN SERVICE PANEL
SUBPANEL
MAIN SERVICE DISCONNECT
CODE REF: NEC 706.15(C)(4) AND NEC 690.13(B)

⚠ WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
UTILITY METER
MAIN SERVICE PANEL
SUBPANEL
CODE REF: NEC 705.12(C) & NEC 690.59

⚠ WARNING
TURN OFF PHOTOVOLTAIC AC
DISCONNECT PRIOR TO
WORKING INSIDE PANEL

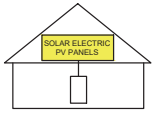
LABEL LOCATION:
MAIN SERVICE PANEL
SUBPANEL
MAIN SERVICE DISCONNECT
COMBINER
CODE REF: NEC 110.27(C) & OSHA 1910.145 (f) (7)

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

LABEL LOCATION:
MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED)
SUBPANEL (ONLY IF SOLAR IS BACK-FED)
CODE REF: NEC 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:
AC DISCONNECT
CODE REF: IFC 605.11.3.1(1) & 690.56(C)

RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM

LABEL LOCATION:
AC DISCONNECT
CODE REF: NEC 690.56(C)(2)

PHOTOVOLTAIC
AC DISCONNECT

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

PHOTOVOLTAIC AC DISCONNECT

NOMINAL OPERATING AC VOLATGE **240 V**
RATED AC OUTPUT CURRENT **43.20 A**

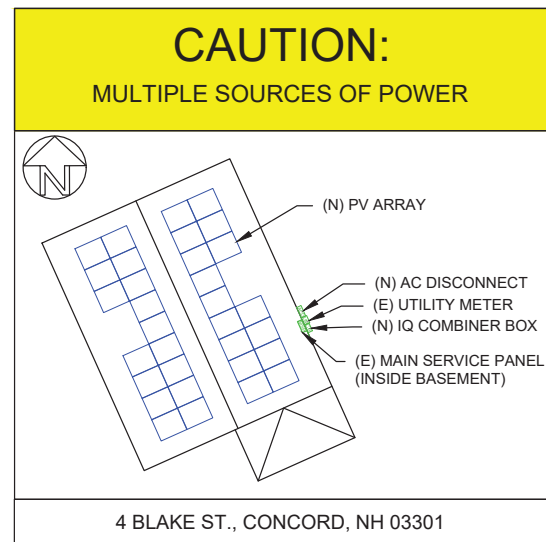
LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC 690.54)

MAIN PHOTOVOLTAIC
SYSTEM DISCONNECT

LABEL LOCATION:
MAIN SERVICE DISCONNECT (ONLY IF MAIN SERVICE
DISCONNECT IS PRESENT)
CODE REF: NEC 690.13(B)

NOTICE
PV SYSTEM COMBINER PANEL
DO NOT ADD LOADS TO THIS PANEL

LABEL LOCATION:
LOAD CENTER
[Only use when applicable for PV load center]



DIRECTORY
PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE
SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM.

(ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS OUTLINED WITHIN:
NEC 690.56(A)&(B), [NEC 705.10])

ADHESIVE FASTENED SIGNS:
• THE LABEL SHALL BE SUITABLE FOR THE ENVIRONMENT
WHERE IT IS INSTALLED.
• WHERE REQUIRED ELSEWHERE IN THIS CODE, ALL FIELD
APPLIED LABELS, WARNINGS, AND MARKINGS SHOULD
COMPLY WITH ANSI Z535.4 [NEC 110.21(B) FIELD MARKING].
• ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF
PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER
RESISTANT [IFC 605.11.1.3]

BIGSKY RENEWABLE
ENERGY LLC

781 HOPKINTON RD.,
HOPKINTON, NH 03229
PHONE #: (603) 491-2702

REVISIONS		
DESCRIPTION	DATE	REV
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DATE: 06/24/2025		

Signature with Seal

PROJECT NAME & ADDRESS

THRIVE RESIDENCE

4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME
PLACARDS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-8

Q.TRON BLK M-G2+ SERIES

415-440 Wp | 108 Cells
22.5% Maximum Module Efficiency

MODEL: Q.TRON BLK M-G2+



High performance Qcells N-type solar cells

Q. ANTUM NEO Technology with optimized module layout boosts module efficiency up to 22.5%.



A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty¹.



Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology², Hot-Spot Protect.



Extreme weather rating

High-tech aluminium alloy frame, certified for high snow (8100 Pa) and wind loads (3600 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 62904-12:05, method A1(-1500V, 96h).

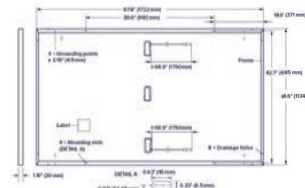
The ideal solution for:
Rooftop arrays on residential buildings



Q.TRON BLK M-G2+ SERIES

Mechanical Specification

Format	678 in × 44.5 in × 1.18 in (including frame) (1722 mm × 1134 mm × 30 mm)
Weight	46.7 lbs (21.2 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 × 18 monocrystalline Q. ANTUM NEO 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), Protection class IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 68.9 in (1750 mm), (-) ≥ 68.9 in (1750 mm)
Connectivity	Stalder MC4, IP68



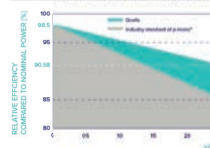
Electrical Characteristics

POWER CLASS		415	420	425	430	435	440	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5W/-0W)								
Minimum	Power at MPP ¹	P _{MPP} [W]	415	420	425	430	435	440
	Short Circuit Current ¹	I _{SC} [A]	13.49	13.58	13.66	13.74	13.82	13.90
	Open Circuit Voltage ¹	V _{OC} [V]	38.47	38.75	39.03	39.32	39.60	39.88
	Current at MPP	I _{MPP} [A]	12.83	12.91	12.98	13.05	13.13	13.20
	Voltage at MPP	V _{MPP} [V]	32.34	32.54	32.74	32.94	33.14	33.33
	Efficiency ¹	η [%]	≥21.3	≥21.5	≥21.8	≥22.0	≥22.3	≥22.5
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²								
Minimum	Power at MPP	P _{MPP} [W]	313.7	317.5	321.2	325.0	328.8	332.6
	Short Circuit Current	I _{SC} [A]	10.87	10.94	11.00	11.07	11.14	11.20
	Open Circuit Voltage	V _{OC} [V]	36.50	36.77	37.04	37.31	37.58	37.84
	Current at MPP	I _{MPP} [A]	10.10	10.15	10.21	10.27	10.33	10.38
	Voltage at MPP	V _{MPP} [V]	31.07	31.26	31.46	31.65	31.84	32.03

¹ Measured power tolerances: P_{MPP} ±3%; I_{SC} V_{OC} ±5%; STC: 1000W/m², 25 ±2°C, AM 1.5 according to IEC 60904-3, -500W/m²; NMOT, spectrum AM 1.5

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 - "1000 W/m²", NMOT: spectrum AM 1.5

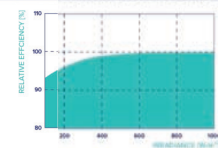
Qcells PERFORMANCE WARRANTY



At least 98.5% of nominal power during first year. Thereafter max. 0.3% degradation per year. At least 95.5% of nominal power up to 10 years. At least 90.58% 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.

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]	-0.24
Temperature Coefficient of P _{MPP}	γ [%/K]	-0.30	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]	25	Fire Rating based on ANSI/UL 61730	C / TYPE 2
Max. Design Load, Push / Pull ³	[lbs / ft]	113 (5400 Pa) / 50 (2400 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push / Pull ³	[lbs / ft]	169 (8100 Pa) / 75 (3600 Pa)		

³ See Installation Manual

Qualifications and Certificates

UL 61730-1 & UL 61730-2, CE compliant, Quality Controlled PV - TÜV Rheinland, IEC 61215-2:2016, IEC 61730-2:2016, U.S. Patent No. 9,893,216 (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.
Headquarters: Q. CELL, 300 Spectrum Center Drive, Suite 500, Irvine, CA 92618, USA | Tel: +1 949 748 59 98 | Email: us.support@qcells.com | Website: www.qcells.com/us

qcells



Specifications subject to technical changes. © Qcells, Q. TRON, BLK, M-G2+, series, 415-440, 2024-08, Rev04_Mk.

BIGSKY RENEWABLE ENERGY LLC

781 HOPKINTON RD.,
HOPKINTON, NH 03229
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4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME EQUIPMENT SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-9



DATA SHEET



IQ8M and IQ8A 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 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.



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



IQ8 Series Microinverters 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.



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-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) 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.

IQ8M and IQ8A Microinverters

INPUT DATA (DC)		IQ8M-72-2-US	IQ8A-72-2-US
Commonly used module pairings ¹	W	260 – 460	295 – 500
Module compatibility		54-cell / 108 half-cell, 60-cell / 120 half-cell, 66-cell / 132 half-cell and 72-cell / 144 half-cell	
MPP ² voltage range	V	30 – 45	32 – 45
Operating range	V		16 – 58
Min. / Max. start voltage	V		22 / 58
Max. input DC voltage	V		60
Max. continuous input DC current	A		12
Max. input DC short-circuit current	A		25
Max. 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. 20A per branch circuit	
OUTPUT DATA (AC)		IQ8M-72-2-US	IQ8A-72-2-US
Peak output power	VA	330	366
Max. continuous output power	VA	325	349
Nominal (L-L) voltage / range ³	V		240 / 211 – 264
Max. continuous output current	A	1.35	1.45
Nominal frequency	Hz		60
Extended frequency range	Hz		47 – 68
AC short circuit fault current over 3 cycles	Amps		2
Max. units per 20 A (L-L) branch circuit ³			11
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	%	97.8	97.7
CEC weighted efficiency	%	97.5	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	
Environ. category / UV exposure rating		NEMA Type 6 / outdoor	
COMPLIANCE			
Certifications		CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547-2018 (UL 1741-SB 3 rd Ed.), FCC Part 15 Class B, ICES-0003 Class B, CAN / CSA-C22.2 NO. 1071-01 This product is UL Listed as PV Rapid Shutdown Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C221-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.	

(1) Pairing PV modules with wattage above the limit may result in additional clipping losses. See the compatibility calculator at <https://enphase.com/module-compatibility>. (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.

IQ8MA-12A-05-0069-03-CN-US-2022-12-27

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BIGSKY RENEWABLE ENERGY LLC

781 HOPKINTON RD.,
HOPKINTON, NH 03229
PHONE #: (603) 491-2702

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PROJECT NAME & ADDRESS

THRIVE RESIDENCE

4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME EQUIPMENT SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-10



DATASHEET



X-IQ-AMI-240-5
X-IQ-AMI-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, along with IQ Series Microinverters, IQ System Controller 3/3G, and IQ Battery 5P provides you with a complete grid-agnostic Enphase Energy System.



IQ Series Microinverters
The high-powered smart grid-ready IQ Series Microinverters (IQ6, IQ7, and IQ8 Series) dramatically 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 IQBD-BAT Microinverters.



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



5-year
limited
warranty



LISTED

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IQC-5-5C-05H-00007-2.0-EN-US-2023-09-27

IQ Combiner 5/5C

MODEL NUMBER

IQ Combiner 5 (X-IQ-AMI-240-5)
IQ Combiner 5C (X-IQ-AMI-240-5C)

IQ Combiner 5 with IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSIC12.20 ±0.5%), consumption monitoring (±2.5%) and IQ Battery monitoring (±2.5%). Includes a silver solar shield to deflect heat.

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-MI-06-SP-05)¹. Includes a silver solar shield to deflect heat.

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 IQ System.
Busbar	125A busbar with support for 1x IQ Gateway breaker and 4x 20A breaker 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)	4G-based LTE-M cellular modem (CELLMODEM-MI-06-SP-05) with a 5-year T-Mobile data plan.
Accessories kit	Spare control headers for CTRL board.

ACCESSORIES AND REPLACEMENT PARTS (NOT INCLUDED, ORDER SEPARATELY)

CELLMODEM-MI-06-SP-05	4G-based LTE-M cellular modem with a 5-year T-Mobile data plan.
CELLMODEM-MI-06-AT-05	4G-based LTE-M cellular modem with a 5-year AT&T data plan.
Circuit breakers (off-the-shelf)	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Supports Eaton BR220B, BR230B, and BR240B circuit breakers compatible with 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 "Accessories" section).
XA-SOLARSHIELD-E5	Replacement solar shield for IQ Combiner 5/5C.
XA-ENV2-PCBA-5	IQ Gateway replacement printed circuit board (PCB) for Combiner 5/5C.
X-IQ-NA-HD-125A	Hold-down kit compatible with Eaton BR-B series circuit breakers (with screws).

ELECTRICAL SPECIFICATIONS

Rating	80 A
System voltage	120/240 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 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.
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.

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

IQC-5-5C-05H-00007-2.0-EN-US-2023-09-27

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4 BLAKE ST.,
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SHEET NAME EQUIPMENT SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-11

MECHANICAL DATA	
Dimensions (WxHxD)	37.5 cm x 49.5 cm x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brackets
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40°C to 46°C (-40°F to 115°F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	<ul style="list-style-type: none">• 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 IQ Battery 5P and IQ System Controller 3/3G. Integrated Power Line Communication for IQ Series Microinverters
Altitude	Up to 2,600 meters (8,530 feet)
COMMUNICATION INTERFACES	
Integrated Wi-Fi	802.11b/g/n (dual band 2.4 GHz/5 GHz), for connecting the Enphase cloud via the Internet
Wi-Fi range (recommended)	10 m
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 via the Internet
Mobile Connect	CELLMODEM-MI-06-SP-05 or CELLMODEM-MI-06-AT-05 (included with IQ Combiner 5C)
Digital I/O	Digital input/output for grid operator control
USB 2.0	For Mobile Connect
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	Refer to https://developer.v4.enphase.com
Local API	Refer to guide for local API
COMPLIANCE	
IQ Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, Title 47 CFR, Part 15, Class B, ICES 003
IQ Gateway	UL 60601-1/CANCSA 22.2 No. 60601-1, IEEE 1547: 2018 (UL 1741-SB, 3 rd Ed.) IEEE 2030.5/CSIP Compliant Production metering: ANSI C12.20 accuracy class 0.5 (PV production)
COMPATIBILITY	
IQ System Controller 3/3G	SC200D111C240US01, SC200G111C240US01
IQ Battery 5P	IQBATTERY-5P-1P-NA
Microinverter	IQ6, IQ7, and IQ8 Series Microinverters

Accessories



Enphase Mobile Connect

4G-based LTE-M cellular modem with a 5-year data plan
(CELLMODEM-MI-06-SP-05 for Sprint and CELLMODEM-MI-06-AT-05 for AT&T)



Circuit breakers

BRK-10A-2-240V Circuit breaker, 2-pole, 10 A, Eaton BR210
BRK-15A-2-240V Circuit breaker, 2-pole, 15 A, Eaton BR215
BRK-20A-2P-240V Circuit breaker, 2-pole, 20 A, Eaton BR220
BRK-15A-2P-240V-B Circuit breaker, 2-pole, 15 A, Eaton BR215B with hold-down kit support
BRK-20A-2P-240V-B Circuit breaker, 2-pole, 20 A, Eaton BR220B with hold-down kit support



CT-200-SOLID

200 A revenue grade solid core Production CT with <0.5% error rate (replacement SKU)



CT-200-CLAMP

200 A clamp-style consumption and battery metering CT with <2.5% error rate (replacement SKU)

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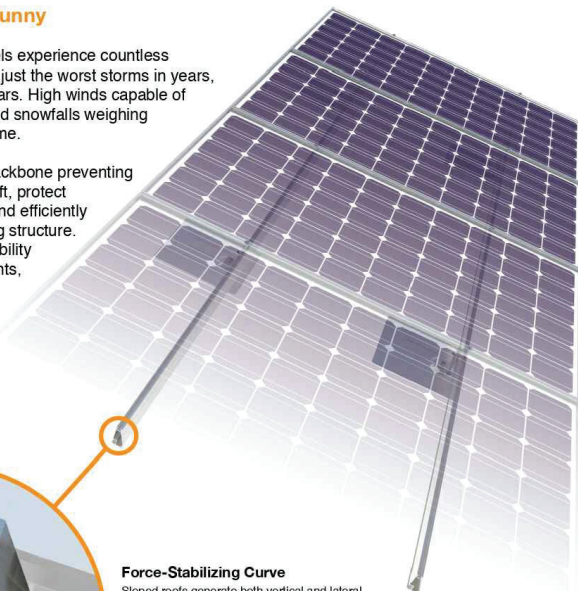
Tech Brief

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.

Corrosion-Resistant Materials

All XR Rails are made of 6000-series aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.



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.

Tech Brief



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
- Clear & black anodized finish
- Internal splices available



XR100

XR100 is the ultimate residential 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
- Clear & 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
- Clear 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		XR100		XR1000	
	120						
	140						
	160						
20	90						
	120						
	140						
	160						
30	90						
	160						
40	90						
	160						
80	160						
120	160						

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

BIGSKY RENEWABLE ENERGY LLC

781 HOPKINTON RD.,
HOPKINTON, NH 03229
PHONE #: (603) 491-2702

REVISIONS

DESCRIPTION	DATE	REV
CLIENT COMMENT	06/26/2025	A
CLIENT COMMENT	06/30/2025	B

DATE: 06/24/2025

Signature with Seal

PROJECT NAME & ADDRESS

THRIVE RESIDENCE

4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-13



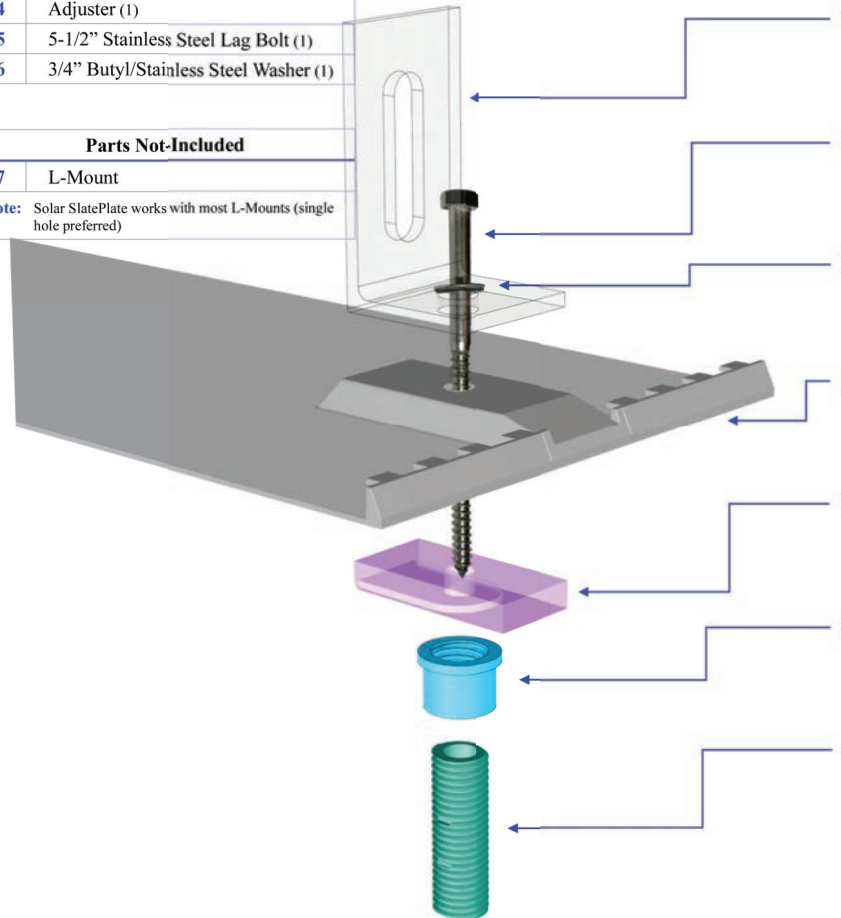
SlatePlate™ Installation & Specifications Guide

For Customer Service: (781) 838-0789

Parts Included	
1	SlatePlate (1)
2	Base w/Notch (1)
3	Spacer (1)
4	Adjuster (1)
5	5-1/2" Stainless Steel Lag Bolt (1)
6	3/4" Butyl/Stainless Steel Washer (1)

Parts Not-Included	
7	L-Mount

Note: Solar SlatePlate works with most L-Mounts (single hole preferred)



The SlatePlate™ System is protected under U.S. Patent No's. 10,451,641 & 10,601,361 and other patents pending and in Europe under Patent No. EP3704791

Solar Slate Solutions, LLC • 77 Alexander Road, Suite 14, Billerica MA 01821 • (781) 838-0789 • www.SolarOnSlate.com

BIGSKY RENEWABLE ENERGY LLC

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HOPKINTON, NH 03229
PHONE #: (603) 491-2702

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Signature with Seal

PROJECT NAME & ADDRESS

THRIVE RESIDENCE
4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-14

CERTIFICATE OF COMPLIANCE

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

SB

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

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

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

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

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

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

Standard(s) for Safety: See Page 2

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

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

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

Look for the UL Certification Mark on the product.

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

B. Mahrenholz

Bruce Mahrenholz, Director North American Certification Program

UL LLC

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contact a local UL Customer Service Representative at http://www.ul.com/aboutus/contact-us



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HOPKINTON, NH 03229
PHONE #: (603) 491-2702

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DATE: 06/24/2025

Signature with Seal

PROJECT NAME & ADDRESS

THRIVE RESIDENCE

4 BLAKE ST.,
CONCORD, NH 03301

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-15