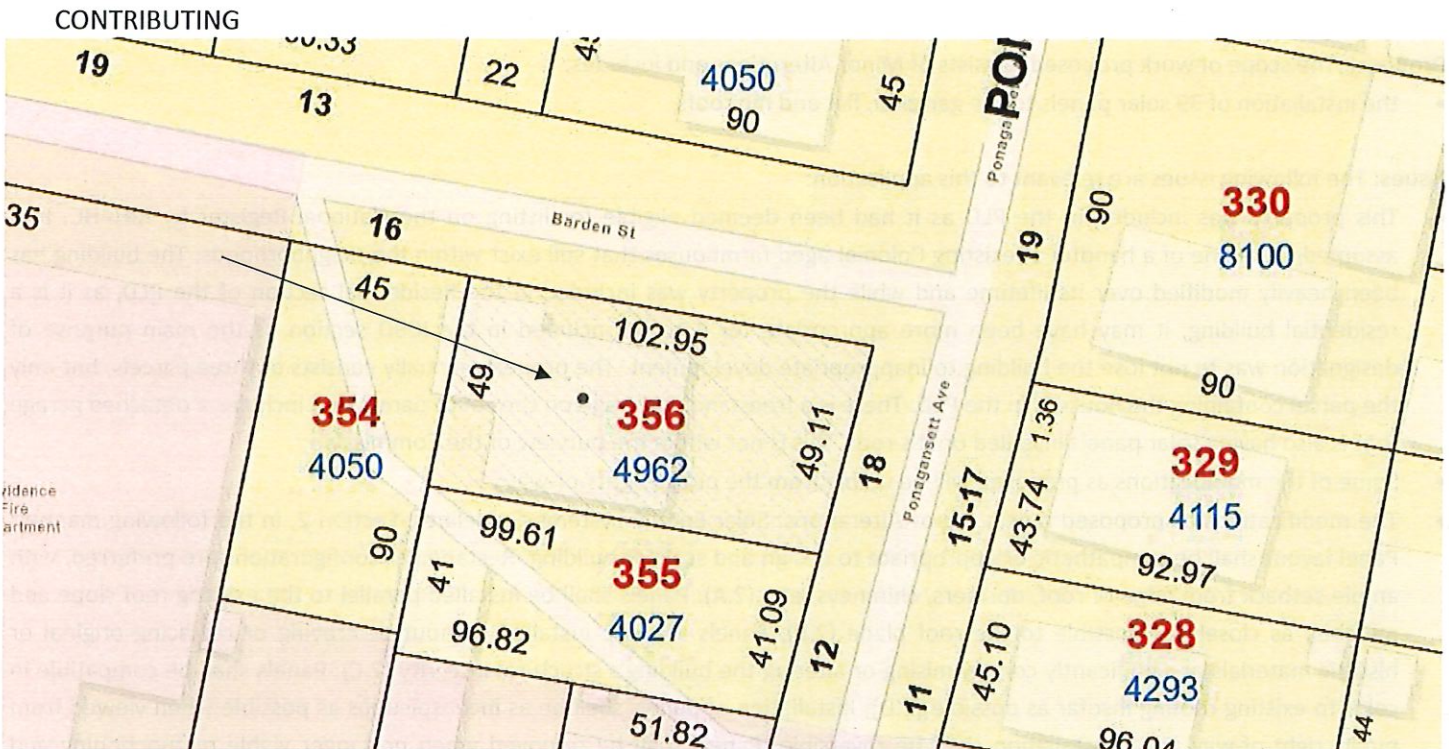
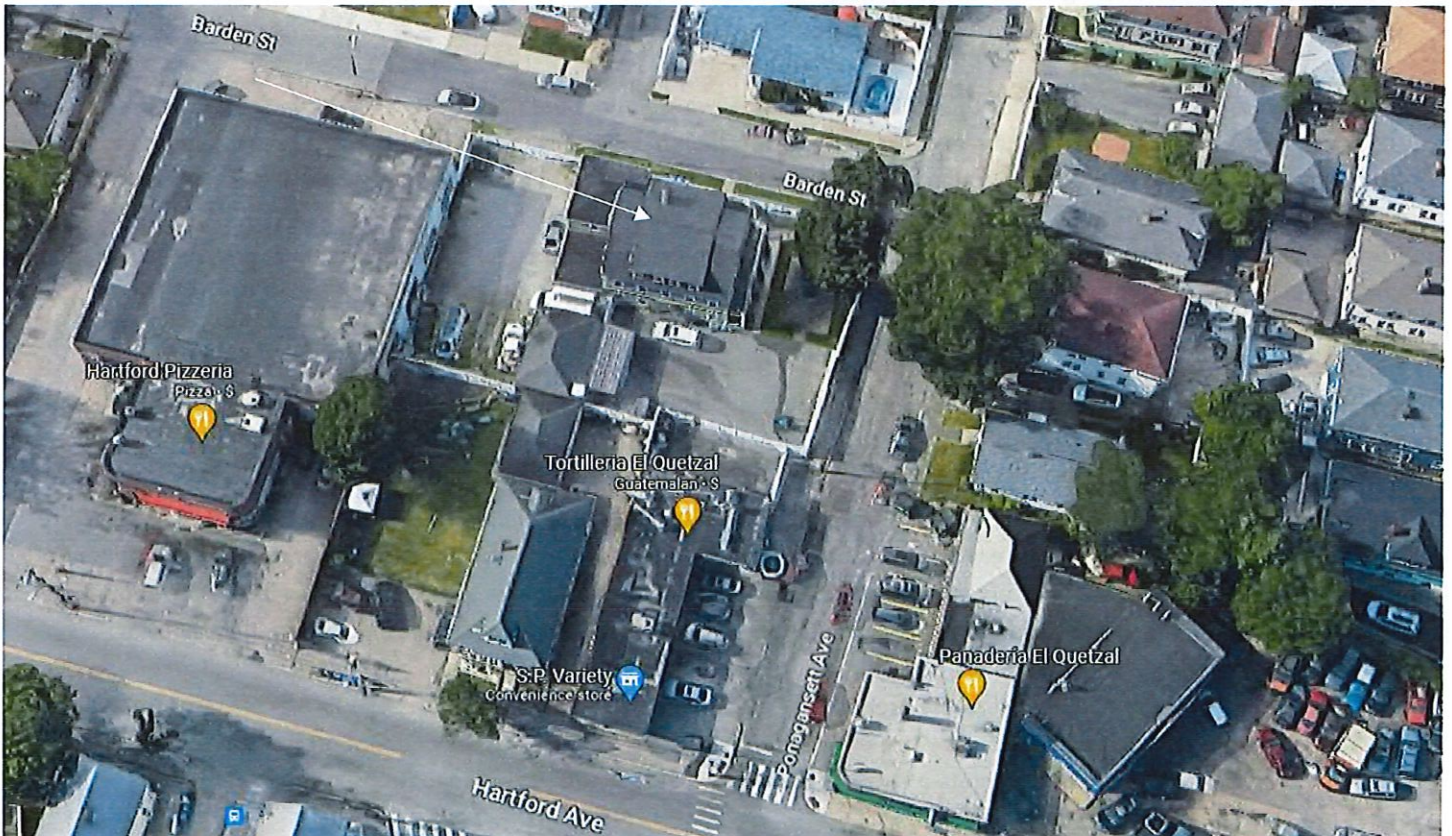


3. CASE 23.045, 18 PONAGANSETT AVENUE, John Waterman House, 1796 (PLD-RESIDENTIAL)



Arrow indicates 18 Ponagansett Avenue.



Arrow indicates project location, looking north.

Applicant/Contractor: SmartGreenSolar, 33 Broad Street, Providence, RI 02903

Owner: Vilma Duarte-Cartagena, 18 Ponagansett Avenue, Unit 1, Providence, RI 02909

Proposal: The scope of work proposed consists of Minor Alterations and includes:

- the installation of 39 solar panels to the gambrel, flat and hip roofs.

Issues: The following issues are relevant to this application:

- This property was included in the PLD as it had been deemed eligible for listing on the National Register by RIHPHC. It is assumed to be one of a handful of existing Colonial-aged farmhouses that still exist within the neighborhoods. The building has been heavily modified over its lifetime and while the property was included in the Residential section of the PLD, as it is a residential building, it may have been more appropriate for it to be included in the ICBD section as the main purpose of designation was to not lose the building to inappropriate development. The property actually consists of three parcels, but only the parcel containing the house is in the PLD. There is a freestanding garage on the south parcel that includes a detached garage that is also having solar panels installed on it's roof. This is not within the purview of the Commission;
- Some of the modifications as proposed will be visible from the public rights-of-way;
- The modifications as proposed meets Minor Alterations: Solar Energy Systems Guidelines, Section 2, in the following manner: Panel layout shall be sympathetic or appropriate to design and scale of building. Rectangular configurations are preferred, with ample setback from edge of roof, dormers, chimneys, etc. (2.A); Panels shall be installed parallel to the existing roof slope and matched as closely as possible to the roof plane (2.B); Panels shall be installed without destroying or replacing original or historic materials or significantly compromising or altering the building's structural integrity (2.C); Panels shall be compatible in color to existing roofing insofar as possible (2.D); Installation of panels shall be as inconspicuous as possible when viewed from public right-of-way (2.E); Installation shall be reversible. Panels shall be removed when no longer viable or functioning and roofing restored to pre-existing conditions (2.F); and,
- Plans, specifications and pictures have been submitted.

Recommendations: The staff recommends the PHDC make the following findings of fact:

- a) 18 Ponagansett Avenue is a structure of historical and architectural significance that contributes to the significance of the Providence Landmarks District – Residential local historic district having been determined to be eligible for listing on the National Register of Historic Places;
- b) The modifications as proposed meets Minor Alterations: Solar Energy Systems Guidelines, Section 2, and the application is considered complete; and,
- c) The work as proposed is in accord with PHDC Standards 8 & 9 as follows: 8) the work will be done so that it does not destroy the historic character of the property or the district as they are not on the primary elevation and will be minimally-to-not visible from the public rights-of-way; and, 9) Whenever possible... alterations to structures shall be done in such a manner that if removed in the future, the essential form and integrity of the structure and the site will be unimpaired.

Staff recommends a motion be made stating that: The application is considered complete. 18 Ponagansett Avenue is a structure of historical and architectural significance that contributes to the significance of the Providence Landmarks District – Residential local historic district having been determined to be eligible for listing on the National Register of Historic Places. The Commission grants Final Approval of the proposal as submitted as the proposed alteration is appropriate having determined that the proposed alteration does not destroy the historic character of the property or the district and are historically and architecturally compatible with the property and district as the proposed alteration meets Minor Alterations: Solar Energy Systems Guidelines, Section 2, is reversible and will not have an adverse effect on the property or district as they are not on the primary elevation and will be minimally visible from the public rights-of-way (Standards 8 & 9), and the recommendations in the staff report, with staff to review any additional required details.

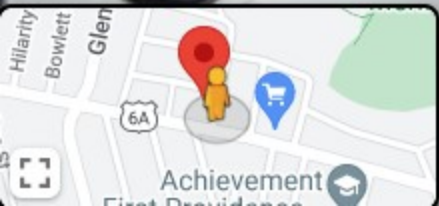
12 Ponagansett Ave

Providence, Rhode Island

Google Street View

Jul 2019

[See more dates](#)



Google

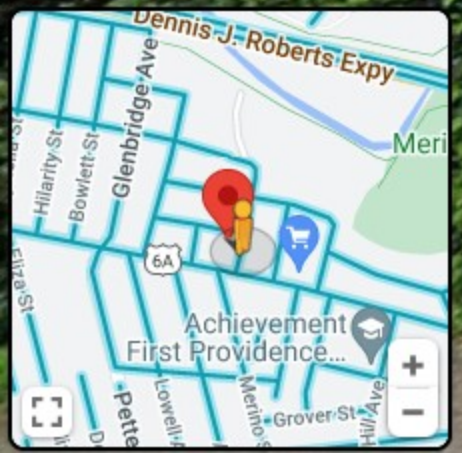


11 Ponagansett Ave

Providence, Rhode Island

Google Street View

Jul 2019 See more dates



Google



1 Barden St

Providence, Rhode Island

Google Street View

Jul 2019 See more dates



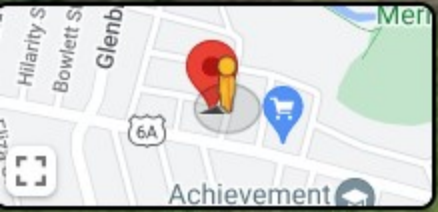
1 Barden St

Providence, Rhode Island

Google Street View

Jul 2019

See more dates



Google

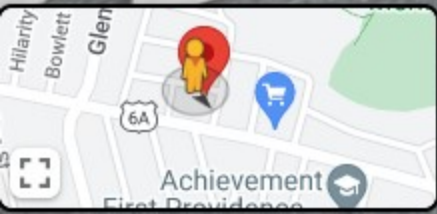
13 Barden St

Providence, Rhode Island

Google Street View

Jul 2019

[See more dates](#)



Google

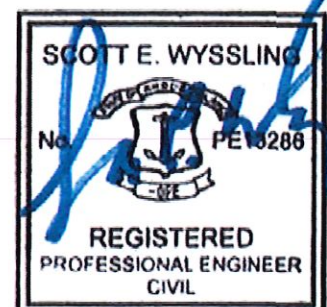
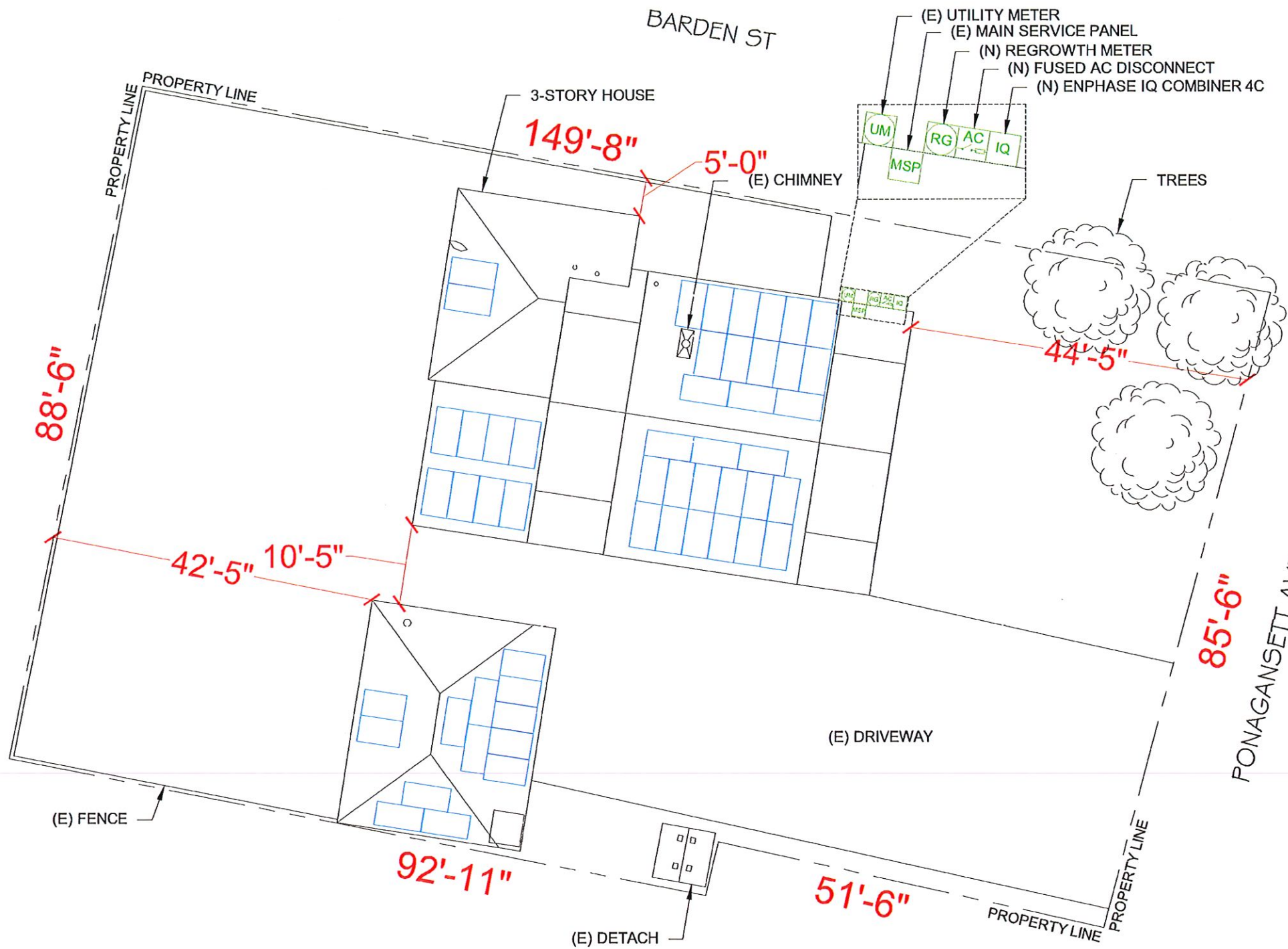


SITE NOTES

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

LEGEND

- JB (N) JUNCTION BOX
- UM (E) UTILITY METER
- MSP (E) MAIN SERVICE PANEL
- RM (N) RE-GROWTH METER
- IQ (N) ENPHASE IQ COMBINER
- AC (N) FUSED AC DISCONNECT
- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- ROOF ATTACHMENT
- CONDUIT
- ENPHASE IQ8PLUS -72-2-US (240V) MICROINVERTER
- Q CELLS Q.PEAK DUO BLK ML-G10+ (400W) MODULES
- IRONRIDGE BLACK XR-100 RAIL 168
- TRENCH



Wysling Consulting, PLLC
 76 N Meadowbrook Drive Alpine UT 84004
 Rhode Island COA # 8841
 Signed 3/31/2023

SmartGreenSolar
 SMART GREEN
 33 BROAD ST SUITE 500,
 PROVIDENCE, RI 02903, USA
 PH#: (774) 502-5948

SYSTEM INFO

(52) Q CELLS Q.PEAK DUO BLK ML-G10+ (400W)
(52) ENPHASE IQ8PLUS -72-2-US (240V)
DC SYSTEM SIZE: 20.800 KWDC
AC SYSTEM SIZE: 15.080 KWAC
METER: 05891144

REVISIONS

DESCRIPTION	DATE	REV

PROJECT NAME & ADDRESS

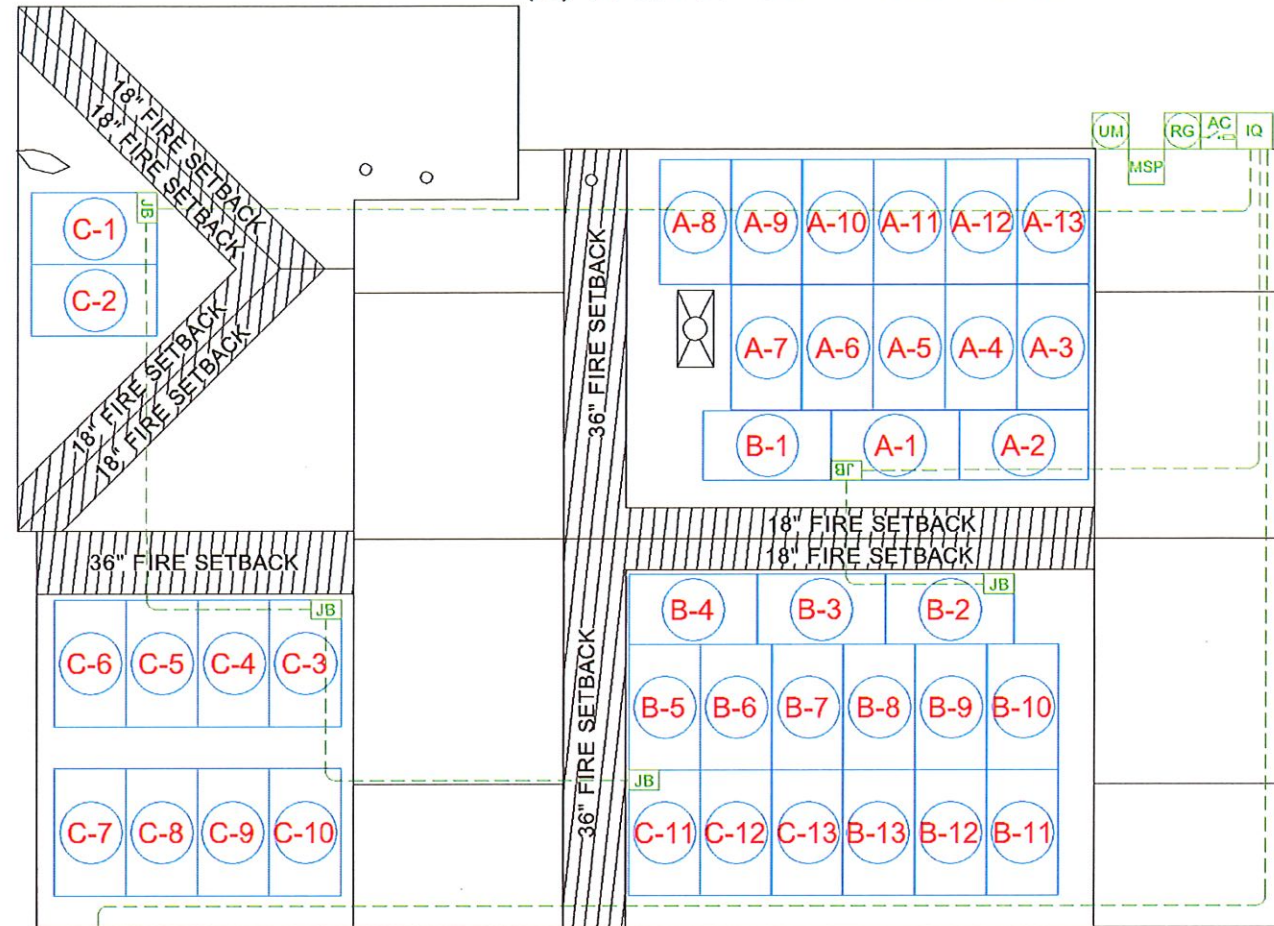
VILMA DUARTE-CARTAGENA
 RESIDENCE
 18 PONAGANSETT AVE APT 1, PROVIDENCE, RI
 02909, USA
 EMAIL ID: DVILMA621@GMAIL.COM
 PHONE NO. (401) 403-3165

DATE: 3/29/2023
SHEET NAME SITE PLAN
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-2

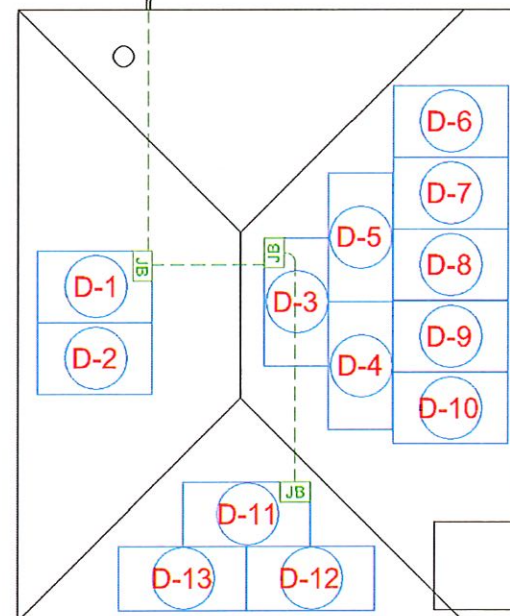
METER NO#: 05891144

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	52	Q CELLS Q.PEAK DUO BLK ML-G10+ (400W)
INVERTER	52	ENPHASE IQ8PLUS -72-2-US (240V)
JUNCTION BOX	8	JUNCTION BOX, NEMA 3R, UL LISTED
IQ COMBINER BOX	1	ENPHASE IQ COMBINER 4C W/IQ GATEWAY (X-IQ-AM1-240-4C)
FUSED AC DISCONNECT	1	100A FUSED AC DISCONNECT, (2) 80A FUSES, 240V, NEMA 3R, UL LISTED
PRODUCTION METER	1	RE-GROWTH METER, 240V
ATTACHMENT	119	ASSY, FLASHING, ASSY, CAP, WASHER, EPDM BACKED, BOLT LAG 5/16 X 4.75"
ATTACHMENT	119	ASSY, CAPFOOT
ATTACHMENT	119	ASSY, FLASHING 9" X 12"
ATTACHMENT	18	5/16" SERRATED FLANGE NUTROOF LEVEL MASTIC
ATTACHMENT	18	5/16" EPDM BONDED SEALING WASHER
ATTACHMENT	18	L-FOOT SCL-101 MLL 3"
ATTACHMENT	18	SIMPLEGRIP BASE ASSEMBLY AL (FLASHING)
ATTACHMENT	18	ADHESIVE TOP
ATTACHMENT	72	#15-13 SELF DRILLING FASTENER
ATTACHMENT	18	SIMPLEGRIP BASE ASSEMBLY AL (BASE PLATE)
ATTACHMENT	18	ADHESIVE BOTTOM
ENPHASE Q CABLE	52	ENPHASE Q CABLE 240V (PER CONNECTOR)
BRANCH TERMINATOR	4	BRANCH TERMINATOR
IQ WATER TIGHT CAP	11	IQ WATER TIGHT CAPS
RAILS	33	IRONRIDGE BLACK XR-100 RAIL 168
BONDED SPLICE	14	SPLICE KIT
CLAMPS	134	UNIVERSAL FASTENING OBJECT (UFO)
CLAMP	60	STOPPER SLEEVE
GROUNDING LUG	15	GROUNDING LUG

BARDEN ST
(E) FRONT OF RESIDENCE



PONAGANSETT AVE



(E) BACK OF RESIDENCE



SMART GREEN
33 BROAD ST SUITE 500,
PROVIDENCE, RI 02903, USA
PH#: (774) 502-5948

SYSTEM INFO

(52) Q CELLS
Q.PEAK DUO BLK ML-G10+
(400W)

(52) ENPHASE
IQ8PLUS -72-2-US (240V)

DC SYSTEM SIZE: 20.800 KWDC

AC SYSTEM SIZE: 15.080 KWAC

METER: 05891144

REVISIONS

DESCRIPTION	DATE	REV

PROJECT NAME & ADDRESS

VILMA DUARTE-CARTAGENA
RESIDENCE
18 PONAGANSETT AVE APT 1, PROVIDENCE, RI
02909, USA
EMAIL ID: DVILMA621@GMAIL.COM
PHONE NO. (401) 403-3165

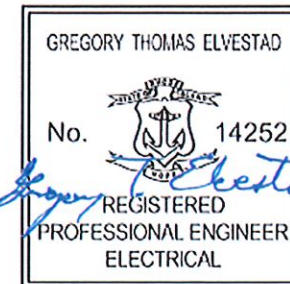
DATE: 3/29/2023

SHEET NAME
STRING LAYOUT
& BOM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER

PV-5



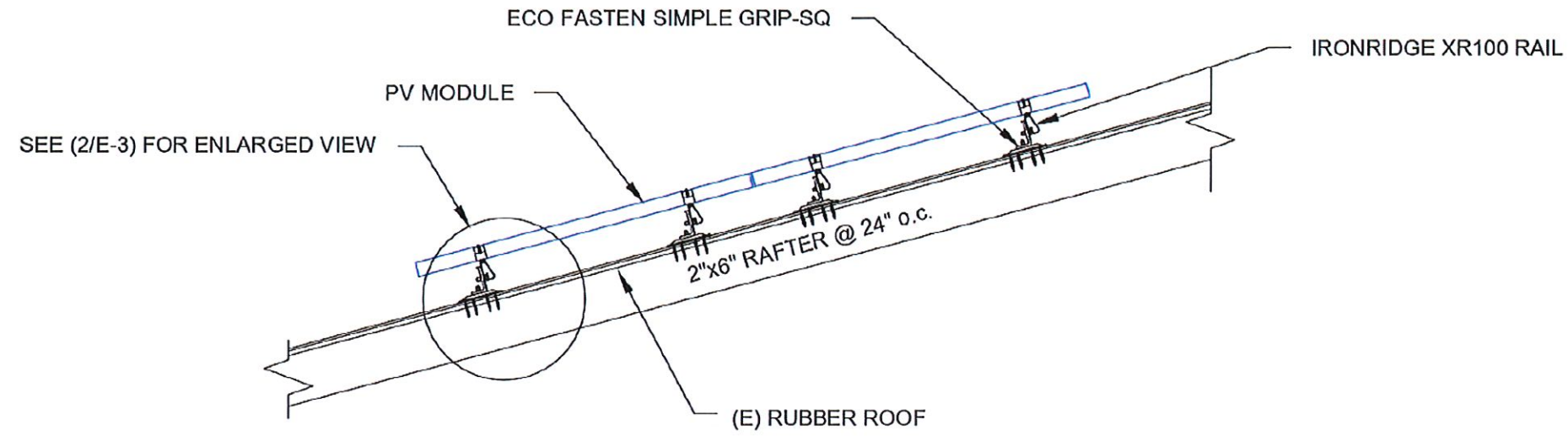
Wyssling Consulting, PLLC
76 N Meadowbrook Drive, Alpine UT 84004
Rhode Island COA #8841
Signed 03-31-23



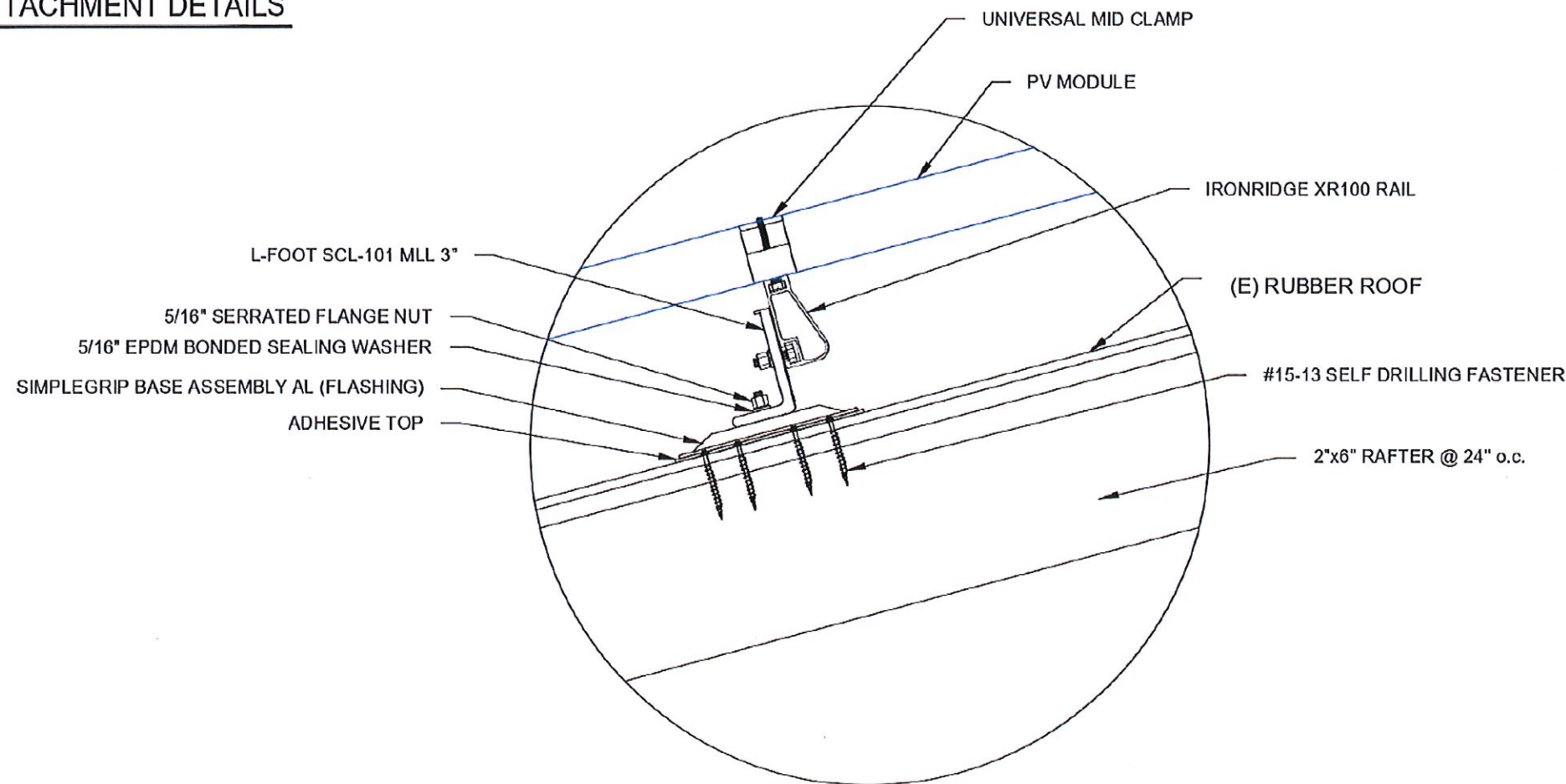
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- MODULE STRINGING



1 ATTACHMENT DETAILS



2 ENLARGED VIEW FOR ATTACHMENT DETAILS

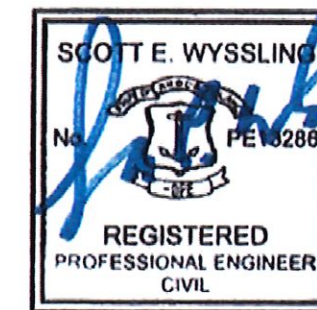
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SYSTEM INFO
(52) Q CELLS Q.PEAK DUO BLK ML-G10+ (400W)
(52) ENPHASE IQ8PLUS-72-2-US (240V)
DC SYSTEM SIZE: 20.800 KWDC
AC SYSTEM SIZE: 15.080 KWAC
METER: 05891144

REVISIONS		
DESCRIPTION	DATE	REV

PROJECT NAME & ADDRESS

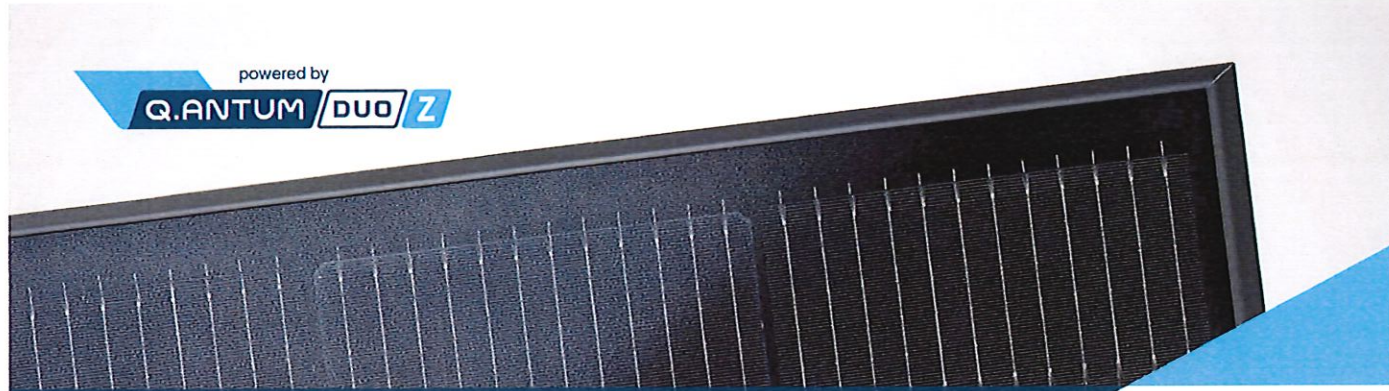
VILMA DUARTE-CARTAGENA
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EMAIL ID: DVILMA621@GMAIL.COM
PHONE NO. (401) 403-3165



Wyssling Consulting, PLLC
76 N Meadowbrook Drive Alpine UT 84004
Rhode Island COA # 8841
Signed 3/31/2023

DATE: 3/29/2023
SHEET NAME ATTACHMENT DETAILS
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-7

powered by
Q.ANTUM DUO Z



Q.PEAK DUO BLK ML-G10+

385-405

ENDURING HIGH PERFORMANCE



BREAKING THE 20% EFFICIENCY BARRIER
Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.



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



INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behavior.



ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID Technology, Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.QTM.



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



A RELIABLE INVESTMENT
Inclusive 25-year product warranty and 25-year linear performance warranty².

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

THE IDEAL SOLUTION FOR:

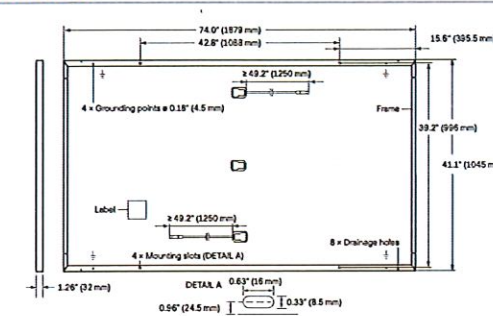


Engineered in Germany



MECHANICAL SPECIFICATION

Format	74.0 in x 41.1 in x 1.26 in (including frame) (1879 mm x 1045 mm x 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 x 22 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98 in x 1.26-2.36 in x 0.59-0.71 in (53-101 mm x 32-60 mm x 15-18 mm), IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 49.2 in (1250 mm), (-) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4; IP68

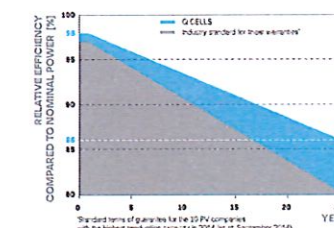


ELECTRICAL CHARACTERISTICS

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

¹ Measurement tolerances P_{MPP} ±3%; I_{SC} V_{OC} ±5% at STC: 1000W/m², 25±2°C, AM 1.5 according to IEC 60904-3 • *800W/m², NMOT, spectrum AM 1.5

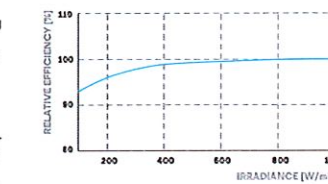
Q CELLS PERFORMANCE WARRANTY



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

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

PERFORMANCE AT LOW IRRADIANCE



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

TEMPERATURE COEFFICIENTS

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

PROPERTIES FOR SYSTEM DESIGN

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

³ See Installation Manual

QUALIFICATIONS AND CERTIFICATES

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



PACKAGING INFORMATION

Horizontal packaging	76.4 in 1940 mm	43.3 in 1100 mm	48.0 in 1220 mm	1656 lbs 751 kg	24 pallets	24 pallets	32 modules
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Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

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



SMART GREEN
33 BROAD ST SUITE 500,
PROVIDENCE, RI 02903, USA
PH#: (774) 502-5948

SYSTEM INFO

(52) Q CELLS Q.PEAK DUO BLK ML-G10+ (400W)
(52) ENPHASE IQBPLUS-72-2-US (240V)
DC SYSTEM SIZE: 20.800 kWDC
AC SYSTEM SIZE: 15.080 kWAC
METER: 05891144

REVISIONS

DESCRIPTION	DATE	REV

PROJECT NAME & ADDRESS

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RESIDENCE
18 PONAGANSETT AVE APT 1, PROVIDENCE, RI
02909, USA
EMAIL ID: DVILMA621@GMAIL.COM
PHONE NO. (401) 403-3165

DATE: 3/29/2023

SHEET NAME
EQUIPMENT
SPECIFICATIONS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-13

Specifications subject to technical changes © Q CELLS Q.PEAK DUO BLK ML-G10+ 385-405_2021-05_Rev01_NA