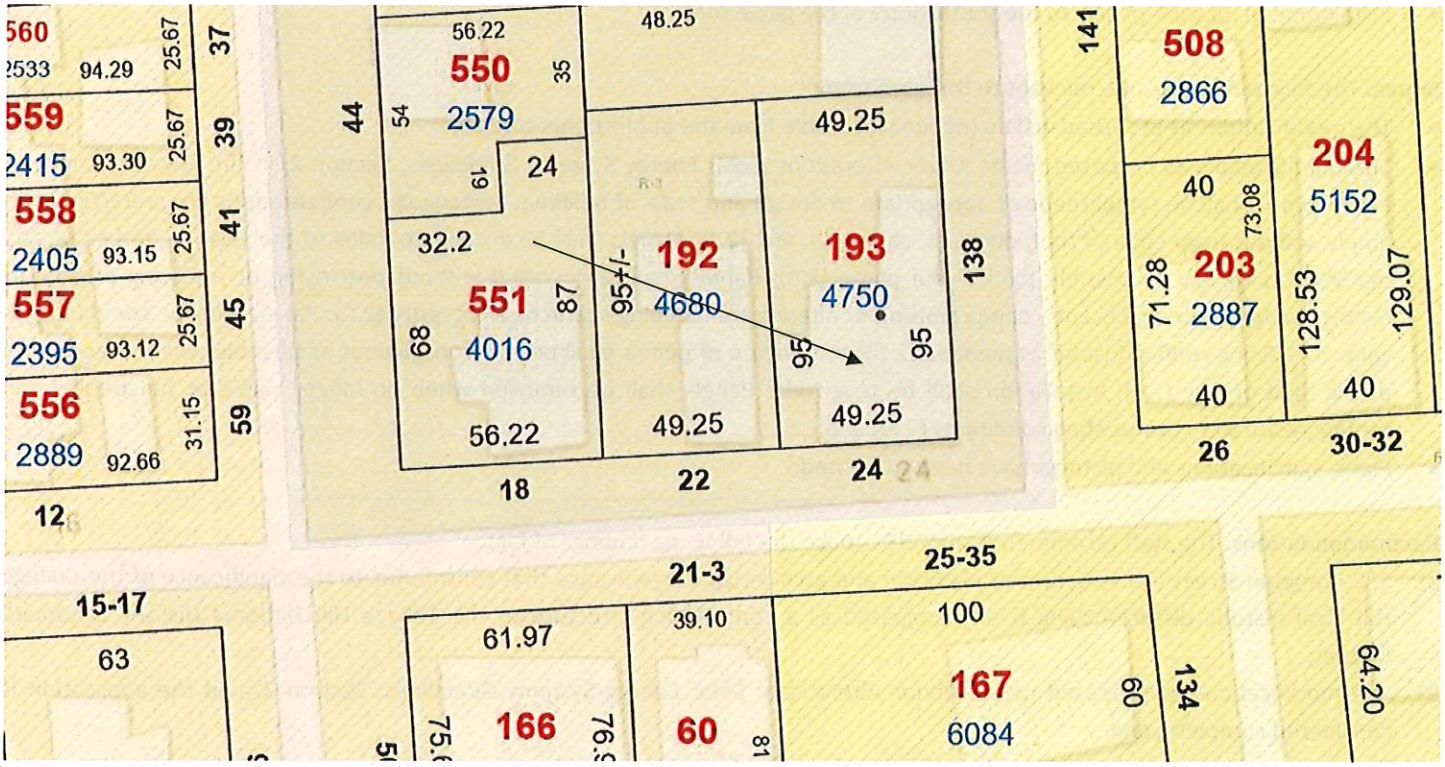
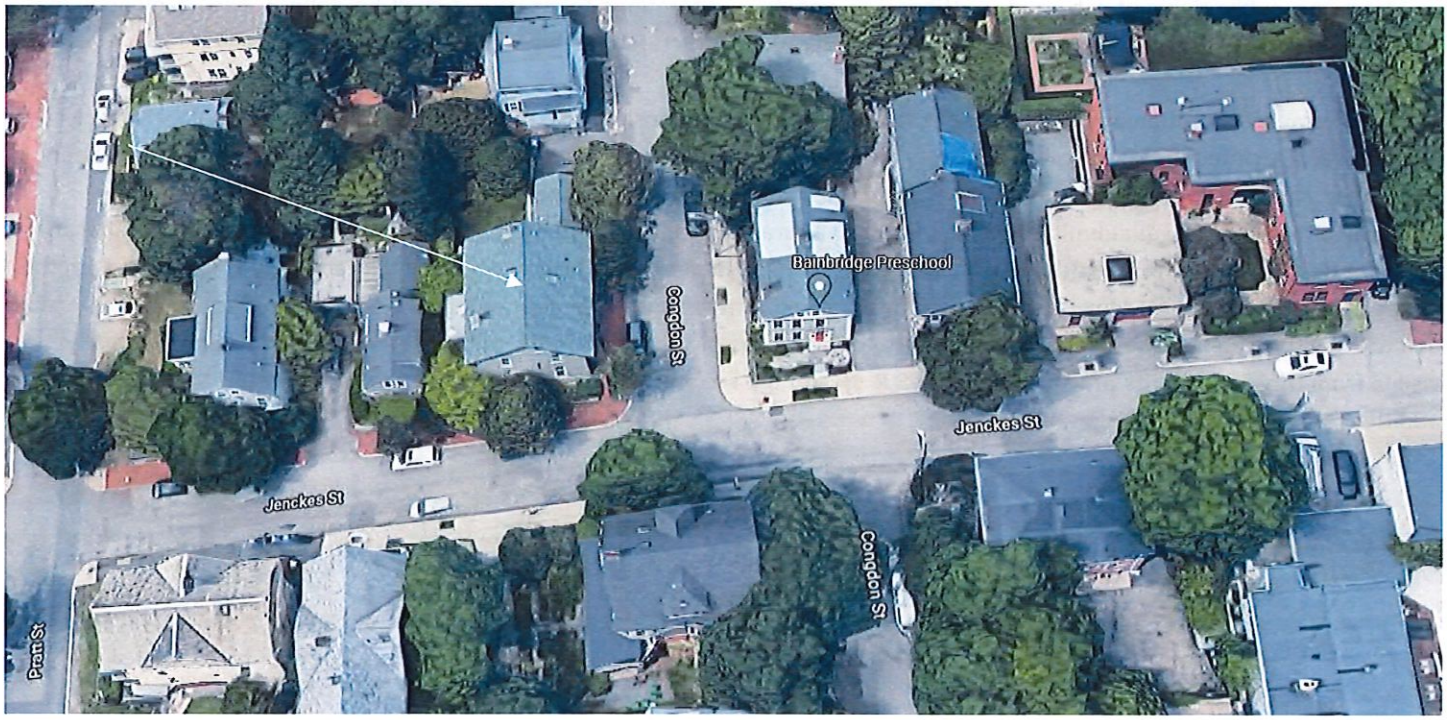
6. CASE 23.004, 138 CONGDON STREET, Stephen Atwater House, 1853 (COLLEGE HILL)

2 ½ stories; flank gable stucco; 4 bays with L to north; entrance under flat roofed porch with iron balustrade above; entrance has round-arched sidelights and door panels; bracketed Italianate eaves.
CONTRIBUTING



Arrow indicates 138 Congdon Street.



Arrow indicates project location, looking north.

Applicant/Contractor: Rooftop Solar, 275 W Natick Rd, Ste 800, Warwick, RI 02886
Owner: Debbie Gordon, 138 Congdon Street, Providence, RI 02906

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

- installation of 28 solar panels to the south-slope of the gable roof.

Issues: The following issues are relevant to this application:

- The modifications as proposed will be (minimally) 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) 138 Congdon Street is a structure of historical and architectural significance that contributes to the significance of the College Hill local historic district having been recognized as a contributing structure to the College Hill National Historic Landmark District;
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. 138 Congdon Street is a structure of historical and architectural significance that contributes to the significance of the College Hill local historic district having been recognized as a contributing structure to the College Hill National Historic Landmark District. 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.

PHOTOVOLTAIC ROOF MOUNT SYSTEM

28 MODULES-ROOF MOUNTED - 11.20 kWDC, 8.12 kWAC

138 CONGDON ST, PROVIDENCE, RI 02906 USA

SYSTEM SUMMARY:

(N) 28 - REC SOLAR REC400AA PURE BLACK (400W) MODULES
(N) 28 - ENPHASE ENERGY IQ8PLUS-72-2-US MICRO-INVERTERS
(N) JUNCTION BOX
(E) 200A MAIN SERVICE PANEL WITH (E) 200A MAIN BREAKER
(N) 60A FUSED AC DISCONNECT
(N) ENPHASE IQ COMBINER BOX 4

DESIGN CRITERIA:

ROOF TYPE: - COMP SHINGLE
NUMBER OF LAYERS: - 01
ROOF FRAME: - 3"X5" RAFTERS @32" O.C.
STORY: - THREE STORY
SNOW LOAD : - 35 PSF
WIND SPEED :- 125 MPH
WIND EXPOSURE:- C
EXPOSURE CATEGORY:- II
COORDINATE: 41.832851, -71.407684

GOVERNING CODES:

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

SHEET INDEX

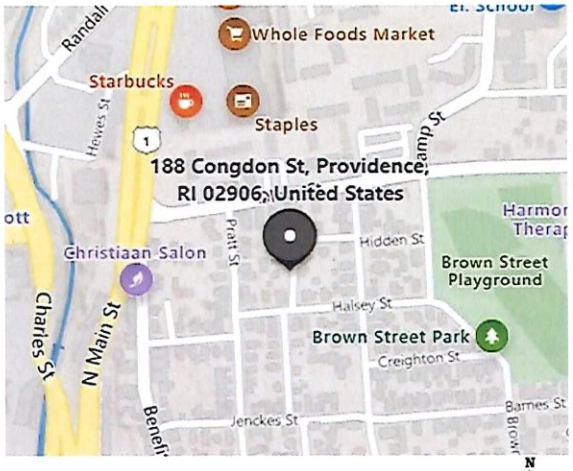
CONSTRUCTION NOTE:

- A LADDER SHALL BE IN PLACE FOR INSPECTION THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY GRID INTERACTIVE SYSTEM
- A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC 690-47 AND 250-50 THROUGH 60 250-166 SHALL BE PROVIDED PER NEC, GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO AT THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, OR IS ONLY METALLIC WATER PIPING. A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO GREATER THAN #8 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE OR A COMPLETE GROUND.
- EACH MODULE WILL BE GROUNDED USING THE SUPPLIED GROUNDING POINTS IDENTIFIED BY THE MANUFACTURER.
- EXPOSED NON-CURRENT CARRYING METAL PARTS OF MODULE FRAMES, EQUIPMENT, AND CONDUCTOR ENCLOSURES SHALL BE GROUNDED, REGARDLESS OF VOLTAGE.
- PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED
- ALL SIGNAGE WILL BE INSTALLED AS REQUIRED BY AND 2020 NEC.
- HEIGHT OF INTEGRATED AC/DC DISCONNECT SHALL NOT EXCEED 6' 7" THE GROUNDING ELECTRODE CONDUCTOR SHALL BE PROTECTED FROM PHYSICAL DAMAGE BETWEEN THE GROUNDING ELECTRODE AND THE PANEL (OR INVERTER) IF SMALLER THAN #6 AWG COPPER WIRE. THE GROUNDING ELECTRODE CONDUCTOR WILL BE CONTINUOUS, EXCEPT FOR SPLICES OR JOINTS AT BUSBARS WITHIN LISTED EQUIPMENT.
- ALL EXTERIOR CONDUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACES.
- THE PV CONNECTION IN THE PANEL BOARD SHALL BE POSITIONED AT THE OPPOSITE (LOAD) END FROM THE INPUT FEEDER LOCATION OR MAIN CIRCUIT LOCATION.
- SITE CONDITIONS SHALL PREVAIL IF NO SCALE IS GIVEN. DRAWINGS ARE NOT NECESSARILY TO SCALE. ALL DIMENSIONS SHALL BE VERIFIED BY SUBCONTRACTOR UPON COMMENCEMENT OF CONSTRUCTION.

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 CEC 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 JUNCTION BOXES, 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.
- THE POLARITY OF THE GROUNDED CONDUCTORS IS NEGATIVE

1 AERIAL PHOTO
PV-0 SCALE: NTS



2 VICINITY PHOTO
PV-0 SCALE: NTS

N W E S

41.832851, -71.407684

ROOF TOP POWER
275 W NATICK RD
WARWICK, RI, 02886
TEL: (833) 767-7687
LIC#: A-004027
EMAIL: design@rooftoppowerco.com

RICHARD PANTEL
No. 11237
REGISTERED PROFESSIONAL ENGINEER (CIVIL)

Reviewed and approved
Richard Pantel, P.E.
RI Lic. No. 11237

DESCRIPTION	DATE	REV
INITIAL RELEASE	10/04/2022	UR

Richard Pantel
Digitally signed by Richard Pantel
DN: c=US, o=TECTONICORP PC, ou=QuietFarmA01410D0000017E0D0C0FCA00007095, cn=Richard Pantel
Date: 2022.10.25 19:52:37 -04'00'

PROJECT NAME

DEBORAH GORDON
138 CONGDON ST,
PROVIDENCE, RI 02906 USA
APN# PROVM9L193
UTILITY: RHODE ISLAND ENERGY
AHJ: CITY OF PROVIDENCE

SHEET NAME
COVER SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-0

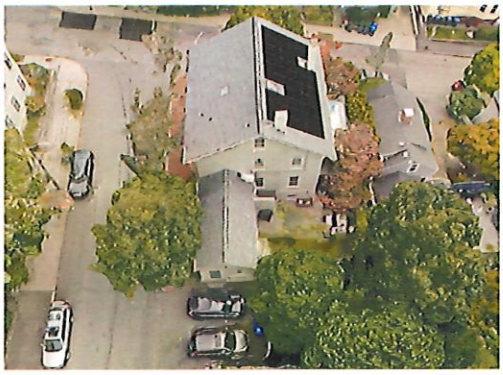
Deborah Gordon

Prepared For:

138 Congdon Street,
Providence, Rhode Island
02906, United States

PV System Info

Size: 11.200kW DC STC - Annual Production: 0kWh - Annual Solar Access: 0% - Offset: 0%

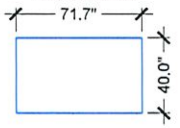


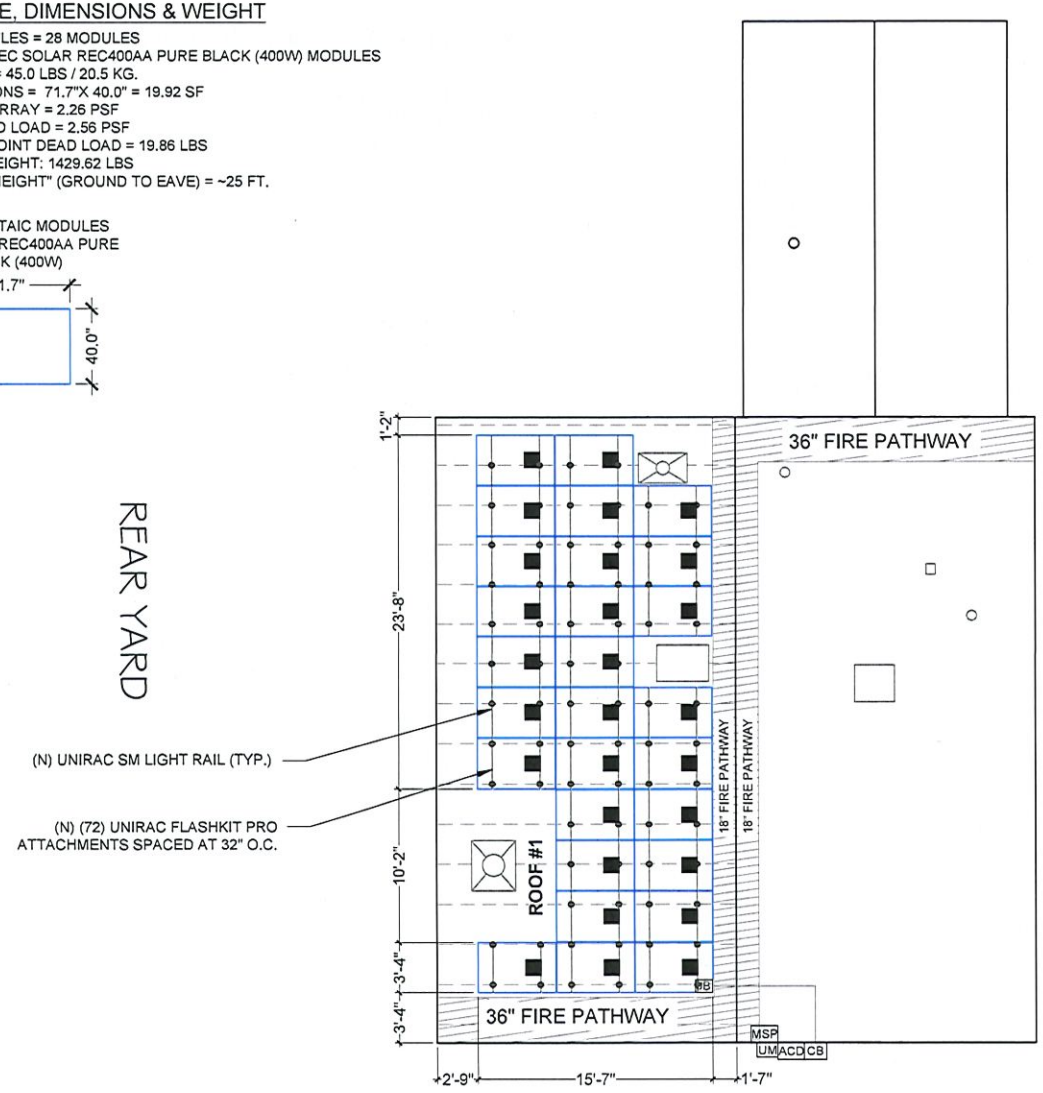
GO TO 3D MODEL OF DESIGN

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 28 MODULES
MODULE TYPE = REC SOLAR REC400AA PURE BLACK (400W) MODULES
MODULE WEIGHT = 45.0 LBS / 20.5 KG.
MODULE DIMENSIONS = 71.7"X 40.0" = 19.92 SF
UNIT WEIGHT OF ARRAY = 2.26 PSF
DISTRIBUTED DEAD LOAD = 2.56 PSF
AVERAGE ROOF POINT DEAD LOAD = 19.86 LBS
TOTAL SYSTEM WEIGHT: 1429.62 LBS
"AVERAGE ROOF HEIGHT" (GROUND TO EAVE) = ~25 FT.

PHOTOVOLTAIC MODULES
REC SOLAR REC400AA PURE BLACK (400W)





ROOF DESCRIPTION					
ROOF TYPE				COMP SHINGLE ROOF	
ROOF	# OF MODULES	ROOF TILT	AZIMUTH	RAFTERS SIZE	RAFTERS SPACING
#1	28	30°	269°	3"x5"	32" O.C.

ARRAY AREA & ROOF AREA CALC'S		
AREA OF NEW ARRAY (Sq. Ft.)	AREA OF ROOF(PLAN VIEW) (Sq. Ft.)	TOTAL ROOF AREA COVERED BY ARRAY %
557.67	2127.57	26.21%
26.21%	ROOF AREA (ARRAY <33% OF ROOF AREA)	

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
RAIL	14	UNIRAC SM LIGHT RAIL 168" DARK (315168D)
SPLICE	08	BND SPLICE BAR PRO SERIES MILL
MID CLAMP	46	UNIVERSAL AF SERIES MID CLAMPS DRK (302045D)
END CLAMP	20	PRO SERIES END CLAMPS (302035M)
FLASHING	72	UNIRAC FLASHKIT PRO ,DRK 10PK
GROUNDING LUG	05	ILSCO LAY IN LUG (GBL4DBT)

LEGEND	
UM	UTILITY METER
MSP	MAIN SERVICE PANEL
ACD	AC DISCONNECT
CB	ENPHASE COMBINER BOX 4
JB	JUNCTION BOX
-------	CONDUIT
■	ENPHASE IQ8PLUS-72-2-US
●	ATTACHMENTS
○□	VENT, ATTIC FAN (ROOFOBSTRUCTION)
⊠	CHIMNEY

- PLUMBING VENTS, SKYLIGHTS AND MECHANICAL VENTS SHALL NOT BE COVERED, MOVED, RE-ROUTED OR RE-LOCATED.

NOTE: ACTUAL ROOF CONDITIONS AND RAFTERS (OR SEAM) LOCATIONS MAY VARY. INSTALL PER MANUFACTURER(S) INSTALLATION GUIDELINES AND ENGINEERED SPANS FOR ATTACHMENTS

N

41.832851, -71.407684

1 ROOF PLAN WITH MODULES

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

RTP Rooftop Power
ROOF TOP POWER
275 W NATICK RD
WARWICK, RI, 02886
TEL: (833) 787-7687
LIC#: A-004027
EMAIL: design@rooftoppowerco.com

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VERSION		
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