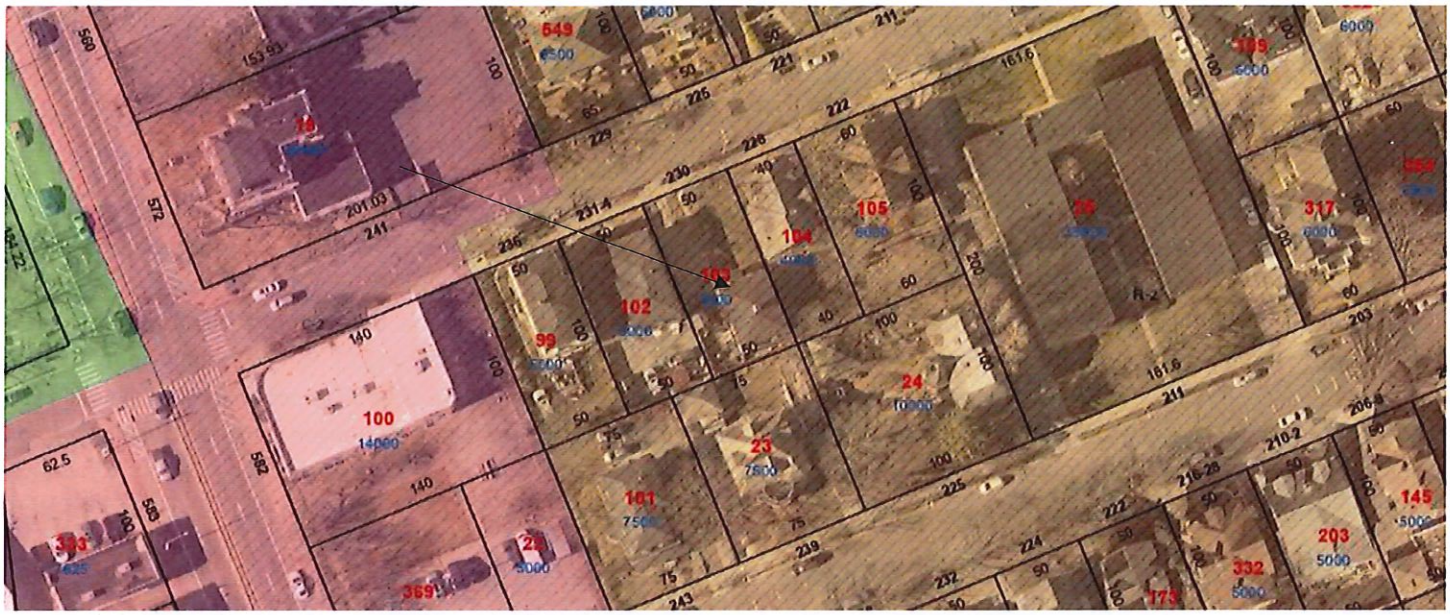
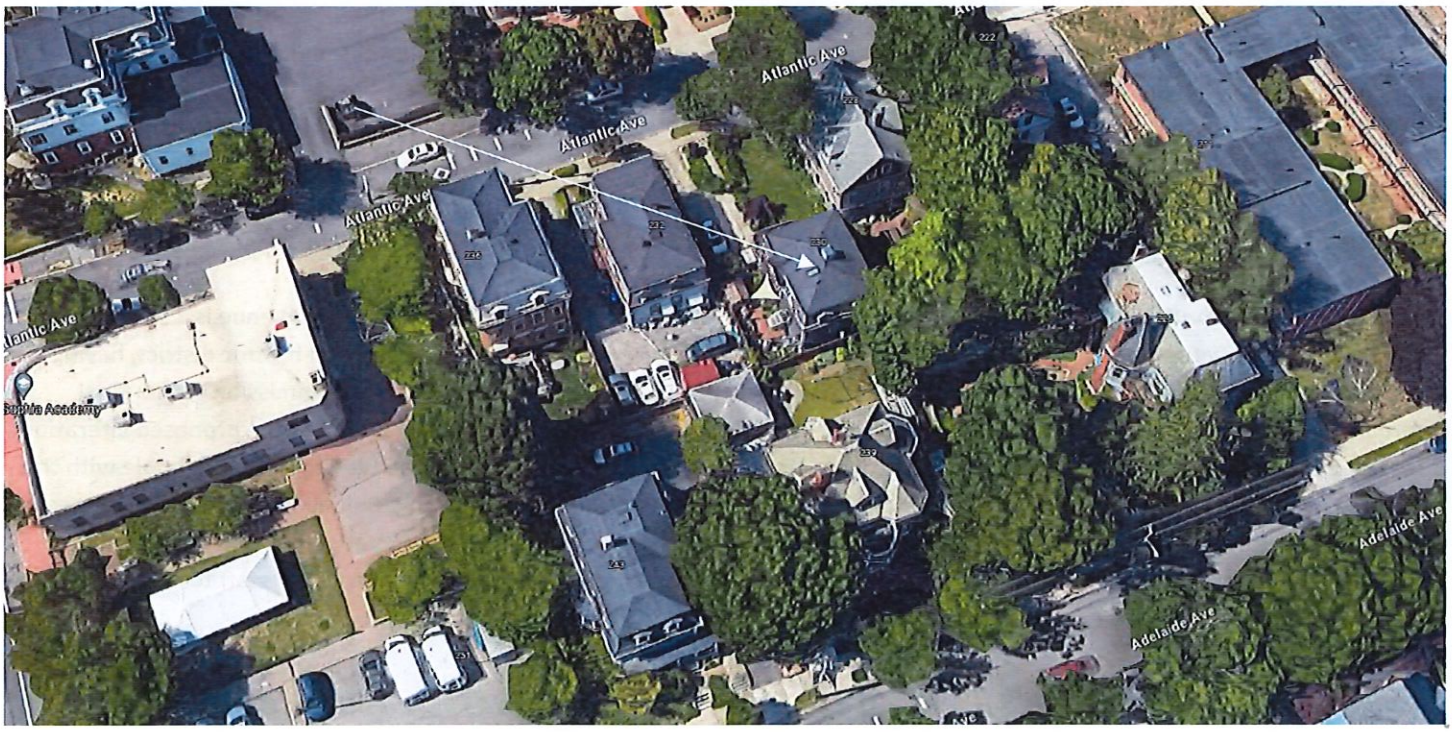
4. CASE 23.109, 230 ATLANTIC AVENUE, Joseph W. Padelford House, c1877 (SOUTH ELMWOOD)
Modest 14-story clapboarded mansard-roofed house built for one of the owners of the Padelford and Hopkins restaurant in downtown Providence.
CONTRIBUTING



Arrow indicates 230 Atlantic Avenue.



Arrow indicates project location, looking north.

Applicant/Contractor: NuWatt Energy LLC, PO Box 4464, Windham, NH 03087
Owner: Mary Sherlock, 230 Atlantic Avenue, Providence, RI 02907

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

- the installation of 16 solar panels to the sides (five: west slope & five: east slope) and rear (six: south slope) upper-hip roof atop the mansard roof.

Issues: The following issues are relevant to this application:

- The modifications as proposed will not 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) 230 Atlantic Avenue is a structure of historical and architectural significance that contributes to the significance of the South Elmwood local historic district, having been recognized as a contributing structure to the Elmwood National Register Historic 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. 230 Atlantic Avenue is a structure of historical and architectural significance that contributes to the significance of the South Elmwood local historic district, having been recognized as a contributing structure to the Elmwood National Register Historic 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.

Paul Zacher

Digitally signed by Paul Zacher
DN: CN=Paul Zacher, dnQualifier=A01410D0000017B122718FD00010A5A, O=California, C=US
Date: 2023.09.06 11:49:24-07'00'

FOR EXISTING STRUCTURE ONLY

PAUL K. ZACHER
230 ATLANTIC AVENUE
PROVIDENCE, RI 02907
No. 0011441
EXP. 06/30/2025
REGISTERED
PROFESSIONAL ENGINEER
(STRUCTURAL)

COA# 184.07562

Grid-Tied Photovoltaic System

DC Rating: 6.4 kW

MARY SHERLOCK
230 ATLANTIC AVENUE
PROVIDENCE, RI 02907

Jurisdiction: PROVIDENCE, RI

Scope of Work:

NuWatt Energy shall install a Grid-tied Photovoltaic ("PV") System using EVPV400H 400W Modules with EnPhase Energy IQ8PLUS-72-2-US microinverters. The Modules shall be flush mounted on the asphalt/comp. shingle roof and interconnected via line side breaker connection.

Equipment Specifications:

Modules: (16) EVPV400H 400W
Microinverters: (16) EnPhase Energy, IQ8PLUS-72-2-US Attachment
Flashing: Eco-Fasten Green-Fasten with CP-SQ-Slotted Bracket and Aluminum Flashing

Roof Mount System Specifications:

System as per attached engineered Structural Report.

Site Specifications:

Occupancy: II
Design Wind Speed: 133 MPH
Exposure Category: B
Snow Load: 30 PSF

All Work to be in Compliance with:

RI State Building Code with Amendments, Inclusive of the Referenced 2018 Codes: The International Building Code (IBC); International Residential Code (IRC); International Mechanical Code (IMC); and Portions of the International Fire Code (IFC).

2020 National Electrical Code (NEC)
ASCE/ANSI 7-16 Minimum Design Loads for Buildings and Other Structures

As amended and adopted by Town of PROVIDENCE.

General Notes:

1. System follows any/all Fire Code Setbacks per Ordinances of the Town of PROVIDENCE.
2. All projects will comply with the Ordinances of the Town of PROVIDENCE.
3. Construction Hours: 7am-8pm Monday-Friday, 9am-8pm Saturday, No time on Sunday or legal Holidays.
4. Product Data Sheets shall be included.
5. Rooftop penetrations shall be completed and sealed per code by a licensed contractor.
6. All Photovoltaic modules shall be tested and listed by a recognized laboratory.
7. Certifications shall include UL1703, IEC61646, IEC61730.
8. A continuous ground shall be provided for the Array and for all Photovoltaic Equipment.
9. DC Wiring shall be run in metal conduit or raceways within enclosed spaces in a building.
10. Conduit, Wire systems and Raceways shall be located as close as possible to ridges, hips, and outside walls.
11. Conduit between Sub Arrays and to DC Combiners/Disconnects shall use guidelines that minimize the total amount of conduit by taking the shortest path.
12. Space Requirements for electrical equipment shall comply with NEC Article 110.
13. Equipment grounding shall be sized in accordance with Table 250.122.
14. Connectors that are not readily accessible and that are used in the circuits operating at or over 30V AC or DC shall require a tool for opening and are required to be marked "Do not disconnect under load" or "Not for current interrupting", per 690.33 (c) & (e).
15. All signage to be placed in accordance with local building code.
16. Signs or Directories shall be attached to the electrical equipment or located adjacent to the identified equipment.
17. Signs should be of sufficient durability to withstand the environment.
18. Any plaques shall be metal or plastic with engraved or machine printed letters, or electro-plating, in a red background with white lettering, a minimum of 3/8" height and all capital letters.

Sheet List

Sheet No:-	Sheet Title:-
PV-000	COVER
PV-A01	SITE PLAN
PV-A02	MODULE LAYOUT
PV-A03	DETAILS
PV-E01	ELECTRICAL DIAGRAM
PV-E02	UTILITY METER

HOUSE VIEW

MAP VIEW

NuWatt Energy, LLC
400 Trade Center, Suite 2900
Woburn, MA 01801
(877) 772-6357
info@nuwattenergy.com
www.NuWattEnergy.com

Notes:

NOTES

MICHAEL AUGUSTINE MCGUIRE
No. 11801
REGISTERED
PROFESSIONAL ENGINEER

sealed 06jun2023 mike@h2dc.com
H2DC PLLC RI CoA#: 8402
ELECTRICAL ONLY

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: CONSTRUCTION ISSUE

CLIENT: MARY SHERLOCK
230 ATLANTIC AVENUE
PROVIDENCE, RI02907

DESIGNER: NuWatt Energy
400 Trade Center, Suite 2900
Woburn, MA 01801

SITE: 230 ATLANTIC AVENUE
PROVIDENCE, RI02907

TITLE: COVER PAGE

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
N.T.S	02-15-2023	DF	AA
PROJECT NO: 2023-02-15/2	DRAWING NO: PV-000		REVISION: A

FOR EXISTING STRUCTURE ONLY

PLAN VIEW

Array #	# of Panels	Pitch	Azimuth
1	6	14	158
2	5	14	68
3	5	14	248

PAUL K. ZACHER
230 ATLANTIC AVENUE
PROVIDENCE, RI 02907
STATE OF RHODE ISLAND
No. 0011441
HOPE
EXP. 06/30/2023
REGISTERED
PROFESSIONAL ENGINEER
(STRUCTURAL)
COA# 184.07562

NuWatt Energy, LLC
400 Trade Center, Suite 2900
Woburn, MA 01801
(877) 772-6357
info@nuwattenergy.com
www.NuWattEnergy.com

Notes:

NOTES

MICHAEL AUGUSTINE MCGUIRE
STATE OF NORTH DAKOTA
No. 11801
HOPE
REGISTERED
PROFESSIONAL ENGINEER

sealed 06jun2023 mike@h2dc.com
H2DC PLLC RI CoA#: 8402
ELECTRICAL ONLY

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: CONSTRUCTION ISSUE

CLIENT: MARY SHERLOCK
230 ATLANTIC AVENUE
PROVIDENCE, RI02907

DESIGNER: NuWatt Energy
400 Trade Center, Suite 2900
Woburn, MA 01801

SITE: 230 ATLANTIC AVENUE
PROVIDENCE, RI02907

TITLE: SITE PLAN

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
N.T.S	02-15-2023	DF	AA
PROJECT NO:	DRAWING NO:		REVISION:
2023-02-15/2	PV-A01		A

PV ARRAY 1-MECHANICAL LOADS			
Array Area:	119.50 sqft	Total Photovoltaic Dead Load	3.33 psf
Array Weight:	270 lbs	Avg. Dead Load per Anchor	11 lbs
Anchor Qty:	27		

Design Values by Roof Zone:	Corner	Edge	Interior
Max. Rail Span:	36in. O.C.	36in. O.C.	36in. O.C.
Max. Rail Cantilever:	12in. O.C.	12in. O.C.	12in. O.C.
Adjusted Anchor Span:	16in. O.C.	16in. O.C.	16in. O.C.
Downforce Point Load:	188.5lbs	188.5lbs	188.5lbs
Uplift Point Load:	-79.5lbs	-79.5lbs	-64.2lbs
Minimum Anchor Strength:	707lbs		
Average Safety Factor:	10.15		

PV ARRAY 2-MECHANICAL LOADS			
Array Area:	99.58 sqft	Total Photovoltaic Dead Load	3.33 psf
Array Weight:	225 lbs	Avg. Dead Load per Anchor	11 lbs
Anchor Qty:	22		

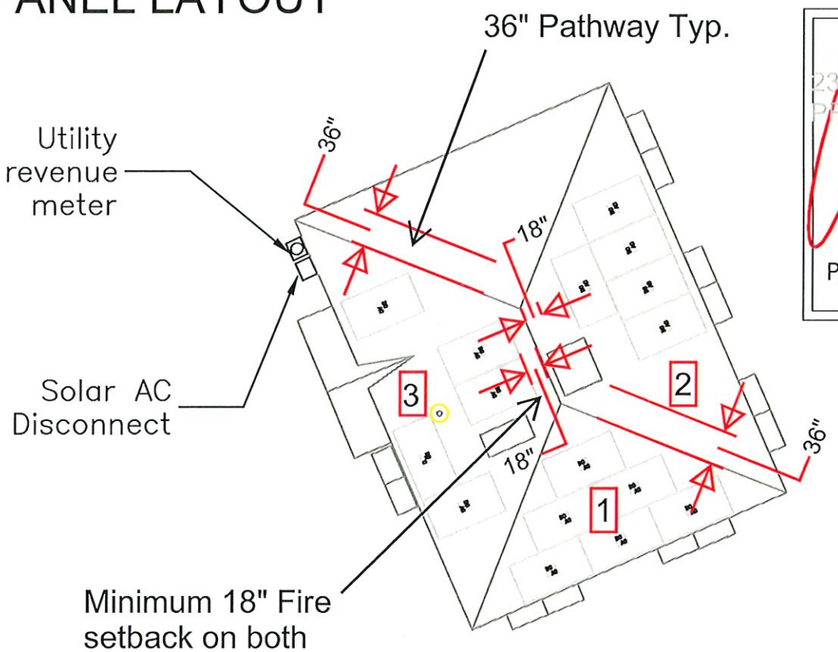
Design Values by Roof Zone:	Corner	Edge	Interior
Max. Rail Span:	36in. O.C.	36in. O.C.	36in. O.C.
Max. Rail Cantilever:	12in. O.C.	12in. O.C.	12in. O.C.
Adjusted Anchor Span:	16in. O.C.	16in. O.C.	16in. O.C.
Downforce Point Load:	188.5lbs	188.5lbs	188.5lbs
Uplift Point Load:	-79.5lbs	-79.5lbs	-64.2lbs
Minimum Anchor Strength:	707lbs		
Average Safety Factor:	10.15		

PV ARRAY 3-MECHANICAL LOADS			
Array Area:	99.58 sqft	Total Photovoltaic Dead Load	3.33 psf
Array Weight:	225.00 lbs	Avg. Dead Load per Anchor	11 lbs
Anchor Qty:	22		

Design Values by Roof Zone:	Corner	Edge	Interior
Max. Rail Span:	36in. O.C.	36in. O.C.	36in. O.C.
Max. Rail Cantilever:	12in. O.C.	12in. O.C.	12in. O.C.
Adjusted Anchor Span:	16in. O.C.	16in. O.C.	16in. O.C.
Downforce Point Load:	188.5lbs	188.5lbs	188.5lbs
Uplift Point Load:	-79.5lbs	-79.5lbs	-64.2lbs
Minimum Anchor Strength:	707lbs		
Average Safety Factor:	10.15		

PANEL LAYOUT

FOR EXISTING STRUCTURE ONLY



PAUL K. ZACHER
230 ATLANTIC AVENUE
PROVIDENCE, RI 02907
STATE OF RHODE ISLAND
No. 0011441
HOPE
EXP. 06/30/2025
REGISTERED
PROFESSIONAL ENGINEER
(STRUCTURAL)
COA# 184.07562

NOTE:

TheUtility revenue meter and VLLD are placed less than 10ft apart.
VLLD: Visible Lockable Labeled Disconnect

Array #	# of Panels	Pitch	Azimuth
1	6	14	158
2	5	14	68
3	5	14	248

Component	Qty	Model	Manufacturer
PV Panel	16	EVPV400H	Panasonic
Micro-Inverter	16	IQ8PLUS-72-2-US	EnPhase Energy

NOTES:

* Total Quantity of Attachments = 71
* Roof Zones are defined by dimension, a=3.0ft
* Attachment: Eco-Fasten Green-Fastenwith CP-SQ-SlottedBracket and Aluminum Flashing attached with 516"x3-12" Lag Bolt, HexHead,18-8SS
* All Dimensions shown are to module edges, including 1 in. Spacing between Modules required when using the Top Clamp Method.
* The Rails Extend 3 in. Beyond the module edges in order to support the End Clamps.
* Attachment Locations, If shown, are approximate. Final adjustment of attachment location may be necessary depending on field conditions. All attachments are staggered amongst the framing members.

NuWatt Energy
AFFORDABLE CLEAN ENERGY
400 Trade Center, Suite 2900
Woburn, MA 01801
(877) 772-6357
info@nuwattenergy.com
www.NuWattEnergy.com

Notes:

NOTES

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: CONSTRUCTION ISSUE

CLIENT: MARY SHERLOCK
230 ATLANTIC AVENUE
PROVIDENCE, RI 02907

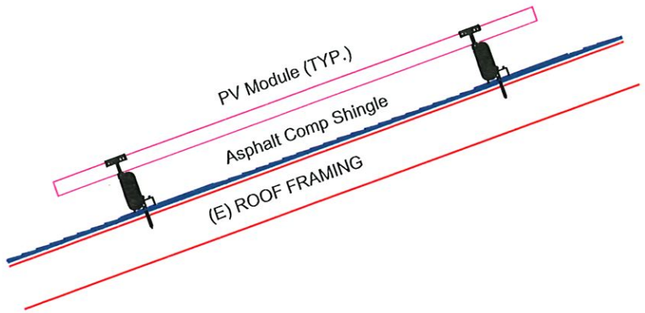
DESIGNER: NuWatt Energy
400 Trade Center, Suite 2900
Woburn, MA 01801

SITE: 230 ATLANTIC AVENUE
PROVIDENCE, RI 02907

TITLE: MECHANICAL LAYOUT

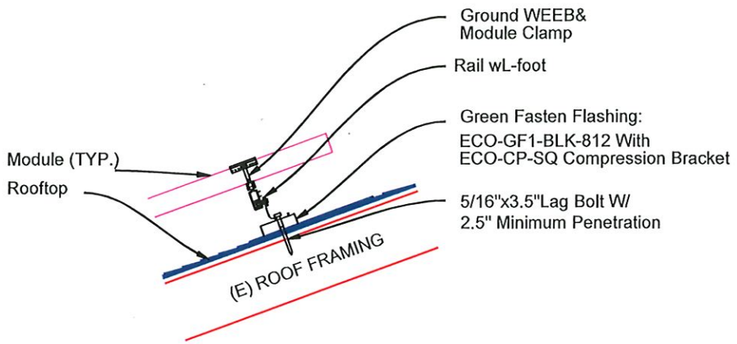
SCALE: AT A3:	DATE:	DRAWN:	CHECKED:
N.T.S	02-15-2023	DF	AA

PROJECT NO:	DRAWING NO:	REVISION:
023-02-15/2	PV-A02	A



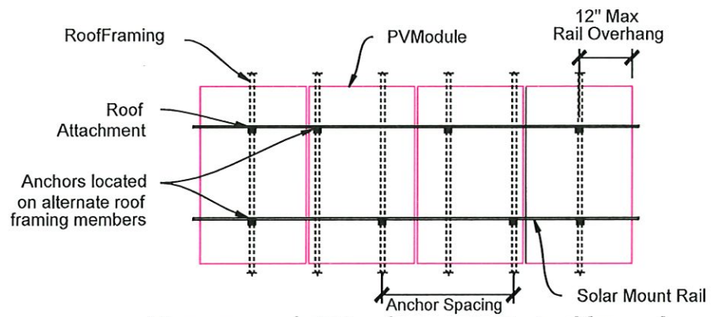
1 Attachment Profile

Scale:N.T.S.



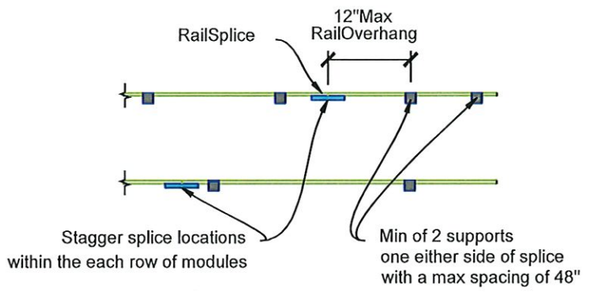
2 AttachmentDetail

Scale:N.T.S.



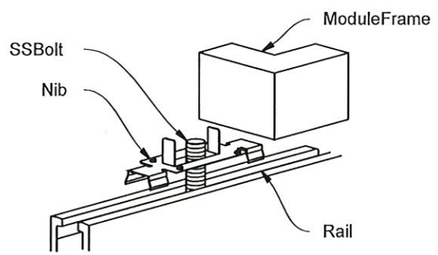
3 Staggered Attachment Detail(Typ.)

Scale:N.T.S.



4 RailSpliceDetail

Scale:N.T.S.



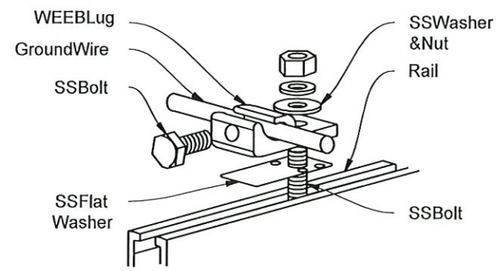
5 Grounding Clip & Module

Scale:N.T.S.

FOR EXISTING STRUCTURE ONLY

PAUL K. ZACHER
230 ATLANTIC AVENUE
PROVIDENCE, RI 02907
STATE OF RHODE ISLAND
No. 0011441
HOPE
EXP. 06/30/2025
REGISTERED
PROFESSIONAL ENGINEER
(STRUCTURAL)

COA# 184.07562



6 Grounding Lug & Rail

Scale:N.T.S.

NuWatt Energy, LLC
400 Trade Center, Suite 2900
Woburn, MA 01801
(877) 772-6357
info@nuwattenergy.com
www.NuWattEnergy.com

Notes:

NOTES

REV:	DESCRIPTION:	BY:	DATE:
C			
B			
A			

STATUS: CONSTRUCTION ISSUE

CLIENT: MARY SHERLOCK
230 ATLANTIC AVENUE
PROVIDENCE, RI02907

DESIGNER: NuWatt Energy
400 Trade Center, Suite 2900
Woburn, MA 01801

SITE: 230 ATLANTIC AVENUE
PROVIDENCE, RI02907

TITLE: MECHANICAL DETAILS

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
N.T.S	02-15-2023	DF	AA
PROJECT NO:	DRAWING NO:		REVISION:
023-02-15/2	PV-A03		A