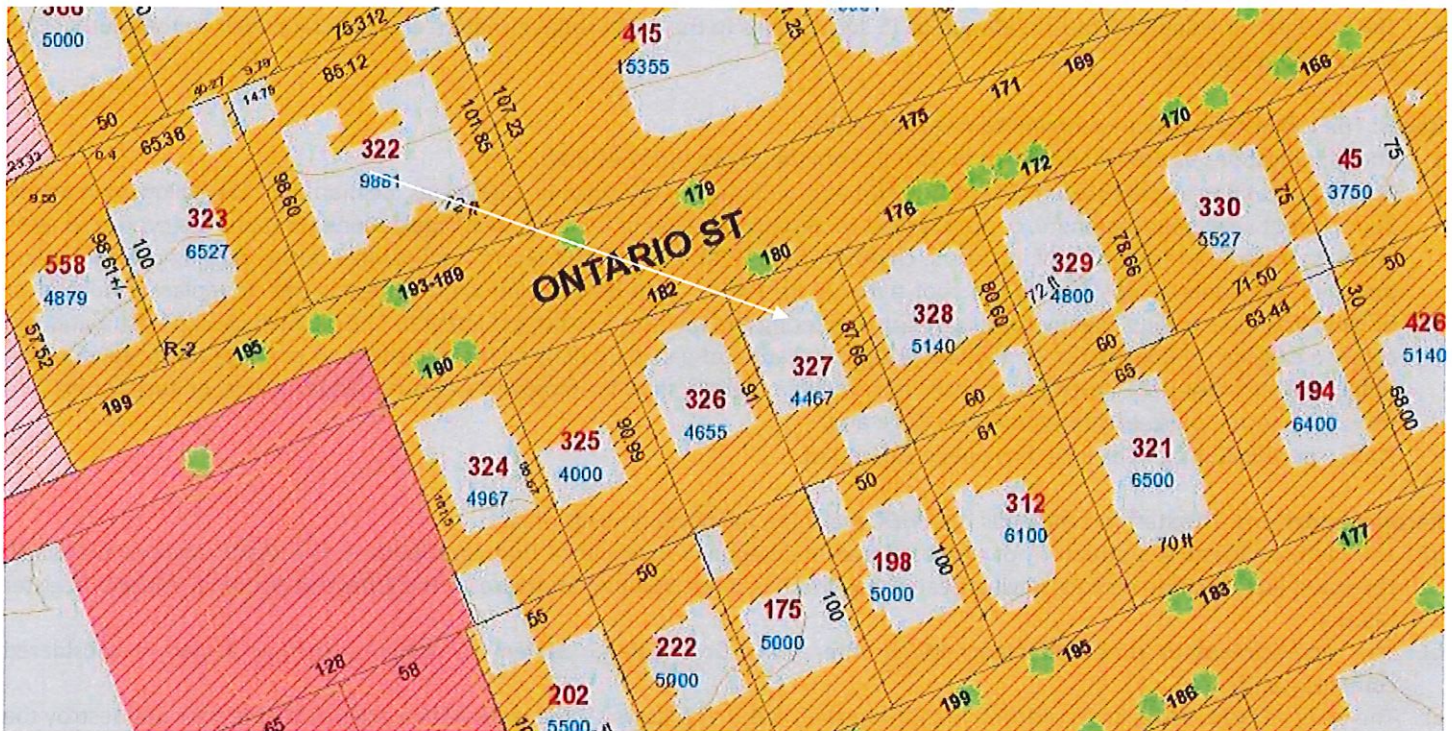
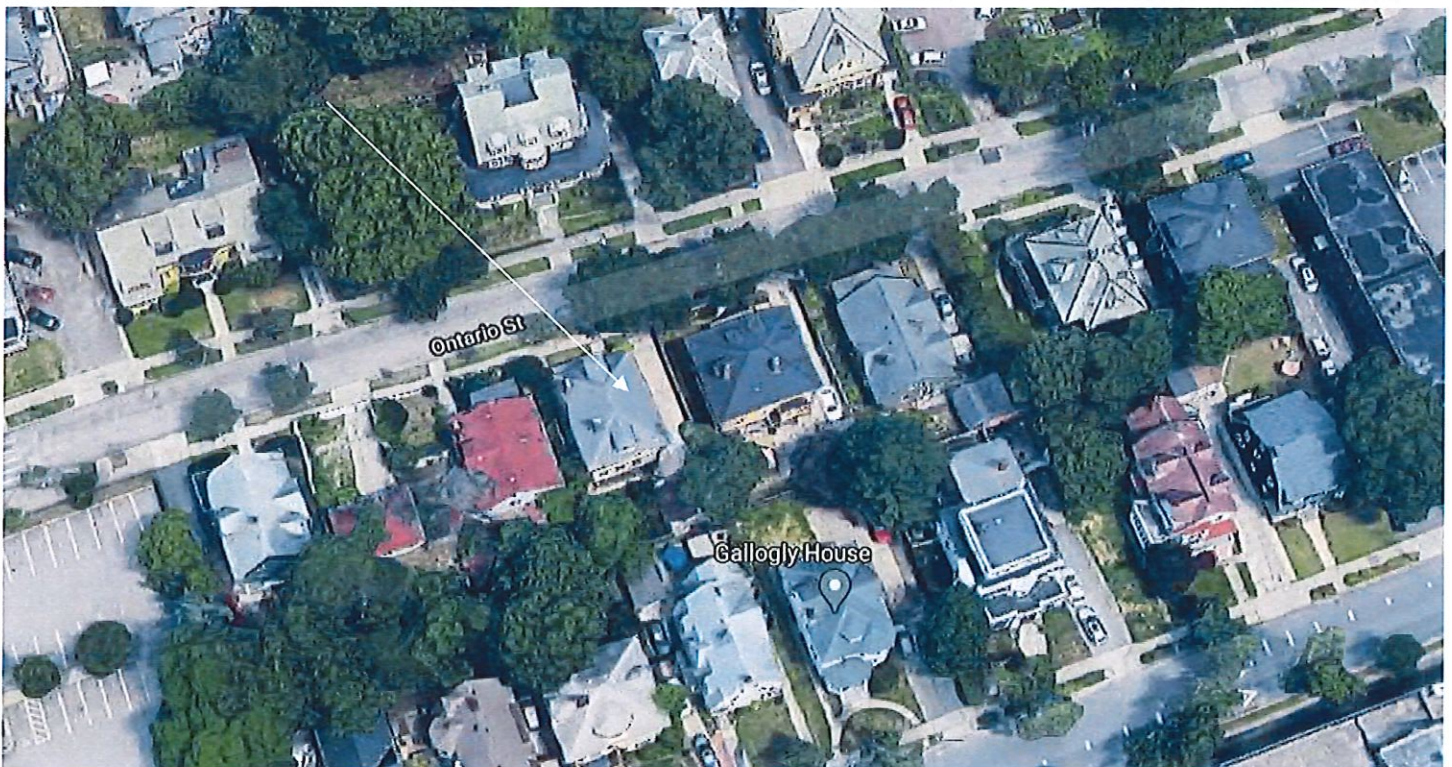


- 2. CASE 21.002, 180 ONTARIO STREET, Henry L. Lippitt House, c1910 (SOUTH ELMWOOD)
Square two-story hip-roofed weather boarded and shingled structure, with a small entrance porch.
CONTRIBUTING



Arrow indicates 180 Ontario Street.



Arrow indicates project location.

Applicant/Contractor: Skyline Solar LLC, 95 Ryan Drive, Suite 3, Raynham, MA 02767
Owner: Lynn Prentiss, 180 Ontario Street, Providence, RI 02907

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

- The applicant is requesting the installation of 15 solar panels to the north (side) elevation and 13 solar panels to the south (side) slopes of the hip 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) 180 Ontario Street is a structure of historical and architectural significance that contribute to the significance of the South Elmwood local historic district, having been recognized as a contributing structure to the Elmwood National Historic Register District;
- b) The modifications as proposed meets Minor Alterations: Solar Energy Systems Guidelines, Section 2, and 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 being 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. 180 Ontario Street 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 Historic Register 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 minimally-to-not visible from the public rights-of-way, is reversible and will not have an adverse effect on the property or district, and the recommendations in the staff report, with staff to review any additional required details.



160 Ontario St

180 Ontario St



130 Ontario St



Q. PEAK DUO BLK-G5 300-320

Q. ANTUM SOLAR MODULE

The new Q. PEAK DUO BLK-G5 solar module from Q CELLS impresses with its outstanding visual appearance and particularly high performance on a small surface thanks to the innovative Q. ANTUM DUO Technology. Q. ANTUM's world-record-holding cell concept has now been combined with state-of-the-art circuitry half cells and a six-busbar design, thus achieving outstanding performance under real conditions — both with low-intensity solar radiation as well as on hot, clear summer days.

- Q. ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY**
Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.3%.
- 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.Q™.
- EXTREME WEATHER RATING**
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa) regarding IEC.
- A RELIABLE INVESTMENT**
Inclusive 12-year product warranty and 25-year linear performance guarantee².
- STATE OF THE ART MODULE TECHNOLOGY**
Q. ANTUM DUO combines cutting edge cell separation and innovative wiring with Q. ANTUM Technology.

THE IDEAL SOLUTION FOR:
Residential areas on residential buildings

Engineered in Germany

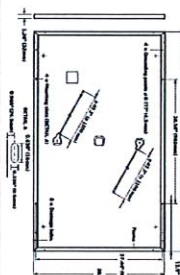


1. APT test conditions according to IEC/TS 62804-1:2015, method B (1-1500V, 1.88h)
2. See data sheet on rear for further information.

Q CELLS

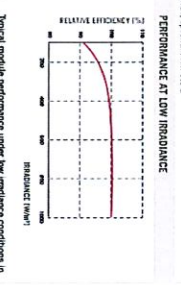
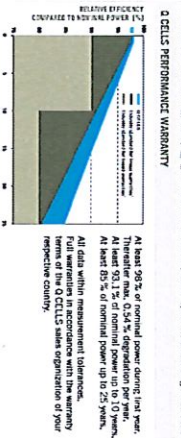
MECHANICAL SPECIFICATION

Format	66.3 in x 39.4 in x 1.26 in (including frame) (1685 mm x 1000 mm x 32 mm)
Weight	41.2 lbs (18.7 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 20 monocrystalline Q. ANTUM solar half-cells
Junction box	2.76 x 3.35 in x 1.97 x 2.6 in x 0.51 x 0.43 in (70.89 mm x 85.70 mm x 1.52 mm), desiccant-free, IP67
Cable	4 mm² Solar cable: (+) 2x43.3 in (1100 mm), (-) 2x43.3 in (1100 mm)
Connectors	Multi-Contact MCA, IP68



ELECTRICAL CHARACTERISTICS

MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC (POWER TOLERANCE ±5W / ±0.1V)	POWER CLASS					
	300	305	310	315	320	
Power at MPP¹	P_{MPP}	300	305	310	315	320
Short Circuit Current¹	I_{sc}	9.72	9.78	9.83	9.89	9.94
Open Circuit Voltage¹	V_{oc}	39.48	39.75	40.02	40.29	40.56
Current at MPP¹	I_{MPP}	9.31	9.31	9.35	9.41	9.47
Voltage at MPP¹	V_{MPP}	32.43	32.78	33.12	33.46	33.80
Efficiency¹	η	21.78	21.84	21.87	21.90	21.90
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT²						
Power at MPP	P_{MPP}	224.1	227.8	231.6	235.3	239.1
Short Circuit Current	I_{sc}	7.83	7.88	7.92	7.97	8.01
Open Circuit Voltage	V_{oc}	37.40	37.66	37.92	38.17	38.47
Current at MPP	I_{MPP}	7.28	7.32	7.37	7.41	7.45
Voltage at MPP	V_{MPP}	30.78	31.11	31.44	31.76	32.08



TEMPERATURE COEFFICIENTS	
Temperature Coefficient of I_{sc}	α [K/K]
Temperature Coefficient of P_{MPP}	γ [K/K]
Temperature Coefficient of V_{oc}	β [K/K]
Temperature Coefficient of V_{MPP}	τ [K/K]

PROPERTIES FOR SYSTEM DESIGN	
Maximum System Voltage V_{sys}	[V]
Maximum Series Fuse Rating (A DC)	[A DC]
Max. Bridge Load, Push / Pull (IU) ³	[kVA/W]
Max. Vertical, Push / Pull (IU) ³	[kVA/W]

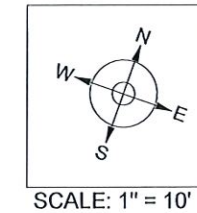
PACKAGING INFORMATION	
Number of Modules per Pallet	32
Number of Pallets per 40' High Cube Container	30
Pallet Dimensions (L x W x H)	11760 mm x 11900 mm x 1415 mm (642kg)

QUALIFICATIONS AND CERTIFICATIONS
UL 1703, VDE Quality System, CE Compliance, IEC 61213:2016, IEC 61730:2016, Application class A

PACKAGING INFORMATION
Number of Modules per Pallet: 32
Number of Pallets per 40' High Cube Container: 30
Pallet Dimensions (L x W x H): 11760 mm x 11900 mm x 1415 mm (642kg)

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.

Hanasa & CELLS America Inc., Suite 1250, Irvine, CA 92618, USA | TEL: +1 949 748 59 94 | EMAIL: info@q-cells.com | www.q-cells.com
300 Spectrum Center Drive, Suite 1250, Irvine, CA 92618, USA | TEL: +1 949 748 59 94 | EMAIL: info@q-cells.com | www.q-cells.com



SCALE: 1" = 10'

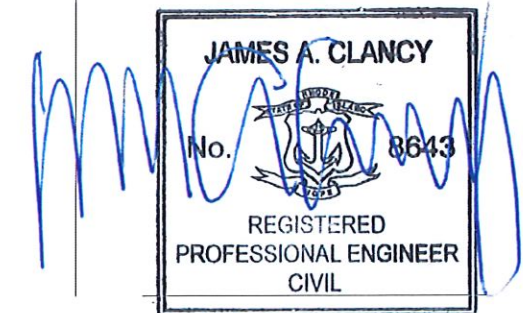
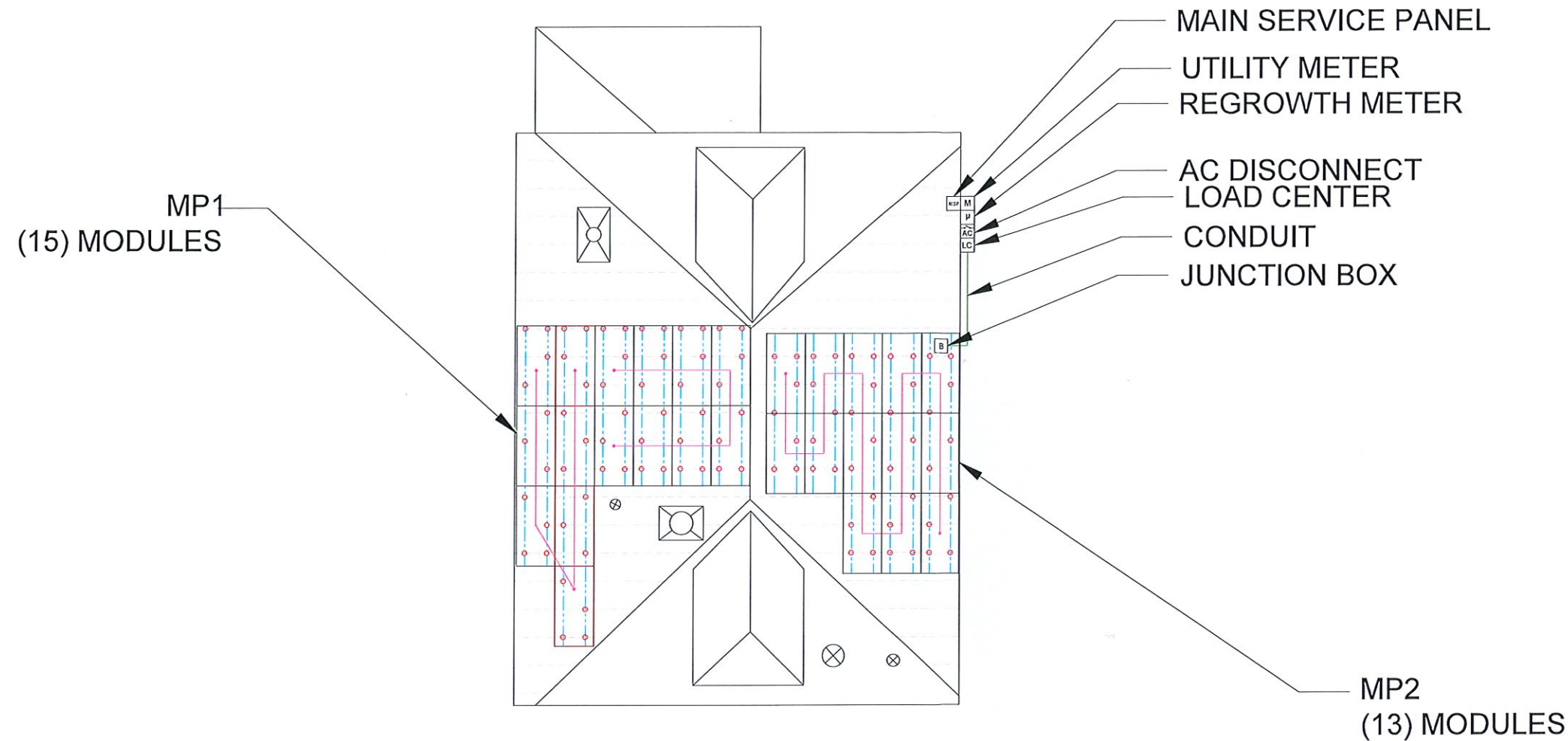
LEGEND

- ROOF
- RAFTERS
- RAIL
- MOUNT
- ⊗ ⊗ OBSTRUCTION

TOTAL PENETRATION COUNT 117

MP1	
RAFTER PROFILE	2X8
RAFTER SPACING	20"
C.J. SPACING	20"
ATTACHMENT SPACING	48"
ROOF PITCH	35°
ARRAY PITCH	35°
ROOF AZIMUTH	248°
ARRAY AZIMUTH	248°
ROOF SURFACE TYPE	COMP SHINGLE
STORIES	2

MP2	
RAFTER PROFILE	2X8
RAFTER SPACING	20"
C.J. SPACING	20"
ATTACHMENT SPACING	48"
ROOF PITCH	35°
ARRAY PITCH	35°
ROOF AZIMUTH	68°
ARRAY AZIMUTH	68°
ROOF SURFACE TYPE	COMP SHINGLE
STORIES	2



**ROOF LEAD
SIGN OFF:**



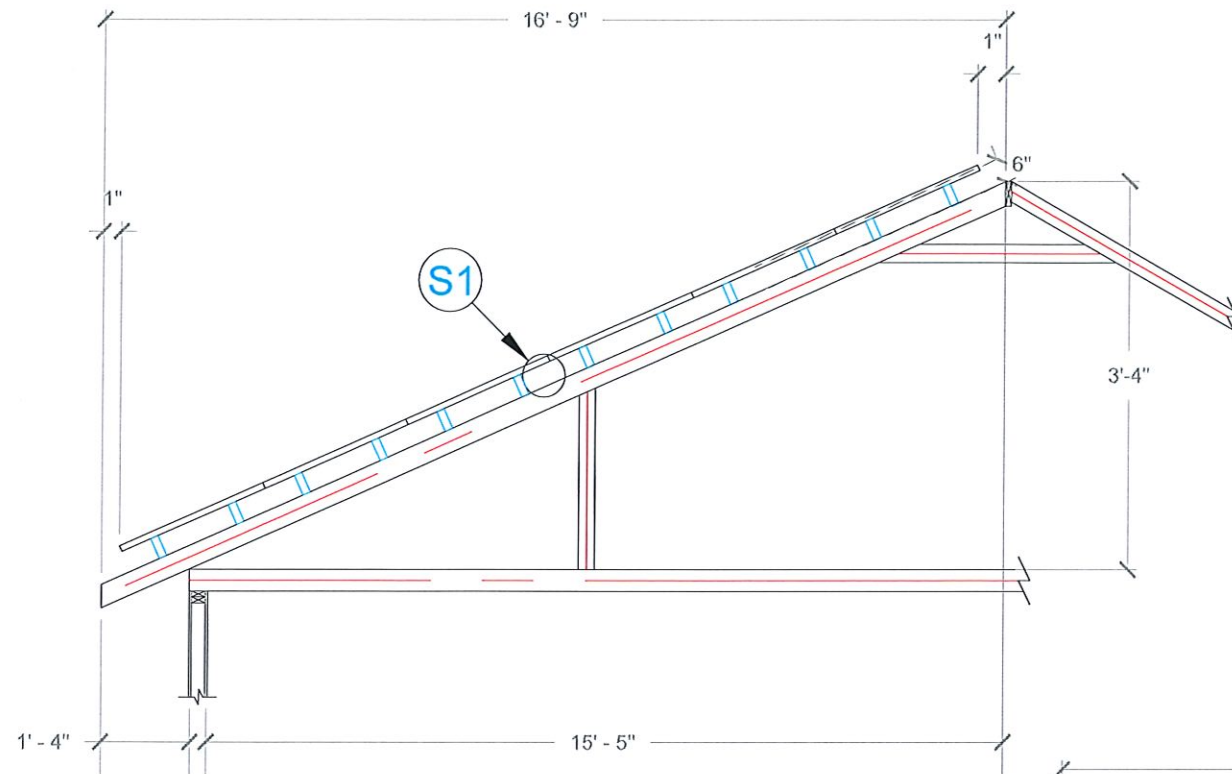
JOB NUMBER: 198892 UTILITY: NG
 RACKING: IRONRIDGE XR-100 UTILITY ACCT #: 50969-09040
 MODULES: (28) HANWHA Q.PEAK DUO BLK-G5 320
 INVERTER: (28) ENPHASE IQ7-60-2-US

OWNER:
PRENTISS, LYNN
 180 ONTARIO ST
 PROVIDENCE, RI 02907
 401-263-8899

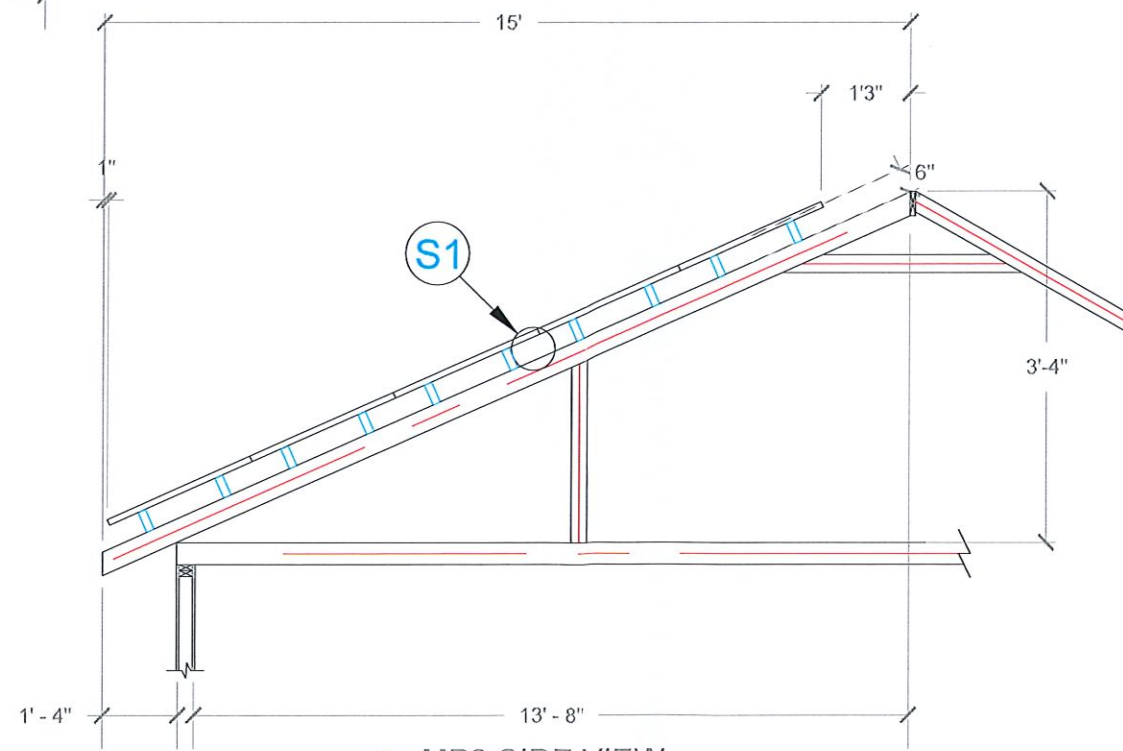
DESCRIPTION:
PRENTISS RESIDENCE
 8.96 kW DC ROOF SOLAR SYSTEM
 AC SYSTEM SIZE: 6.72 KWAC

DESIGNED BY:
HA
 REV: DATE:
 20/10/2020

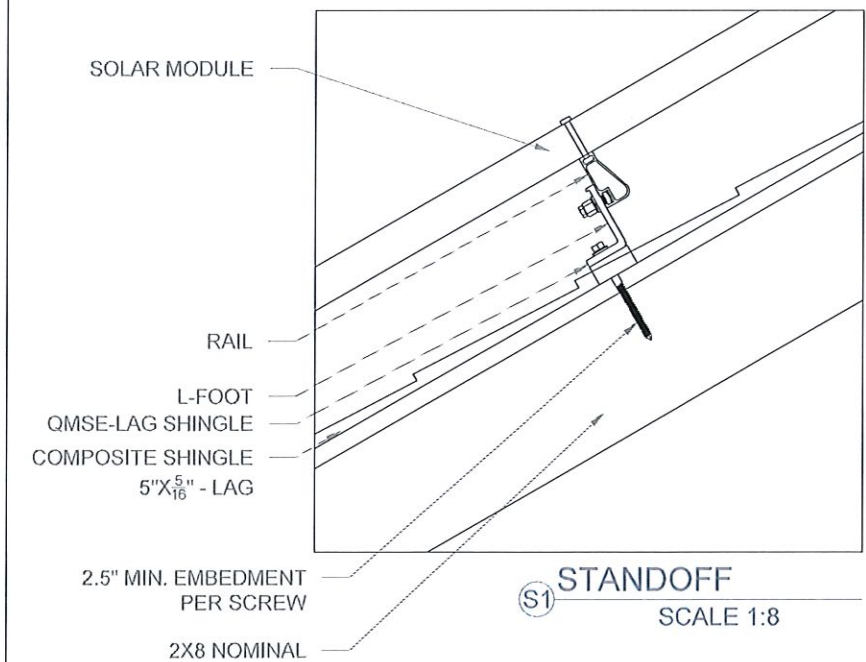
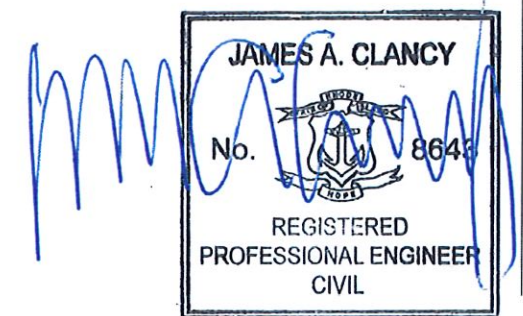
PAGE:
PV3
 PAGE NAME: ARRAY DETAIL



MP1 SIDE VIEW
NTS
RAFTERS: 2X8 @ 20" O.C.
MAX SPAN: 15'-5"



MP2 SIDE VIEW
NTS
RAFTERS: 2X8 @ 20" O.C.
MAX SPAN 13'-8"



JOB NUMBER: 198892
RACKING: IRONRIDGE XR-100
MODULES: (28) HANWHA Q.PEAK DUO BLK-G5 320
INVERTER: (28) ENPHASE IQ7-60-2-US

UTILITY: NG
UTILITY ACCT #: 50969-09040

OWNER:
PRENTISS, LYNN
180 ONTARIO ST
PROVIDENCE, RI 02907
401-263-8899

DESCRIPTION:
PRENTISS RESIDENCE
8.96 KW DC ROOF SOLAR SYSTEM
AC SYSTEM SIZE: 6.72 KWAC

DESIGNED BY: HA
REV: DATE: 20/10/2020

PAGE: PV4
PAGE NAME: STRUCTURAL VIEWS