PROJECT DESCRIPTION:

(18) 415W ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
SYSTEM SIZE: 7.47 kW DC STC

EQUIPMENT SUMMARY
(18) MAXEON3 SPR-MAX3-415-BLK-R MODULES
(1) SOLAREDGE HOME HUB SE7600H-US (240) INVERTER
(1) TESLA POWERWALL ESS UNIT, 5.0 kW AC, 13.5 kWH RATED

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651 W. GALENA PARK BLVD. STE. 101
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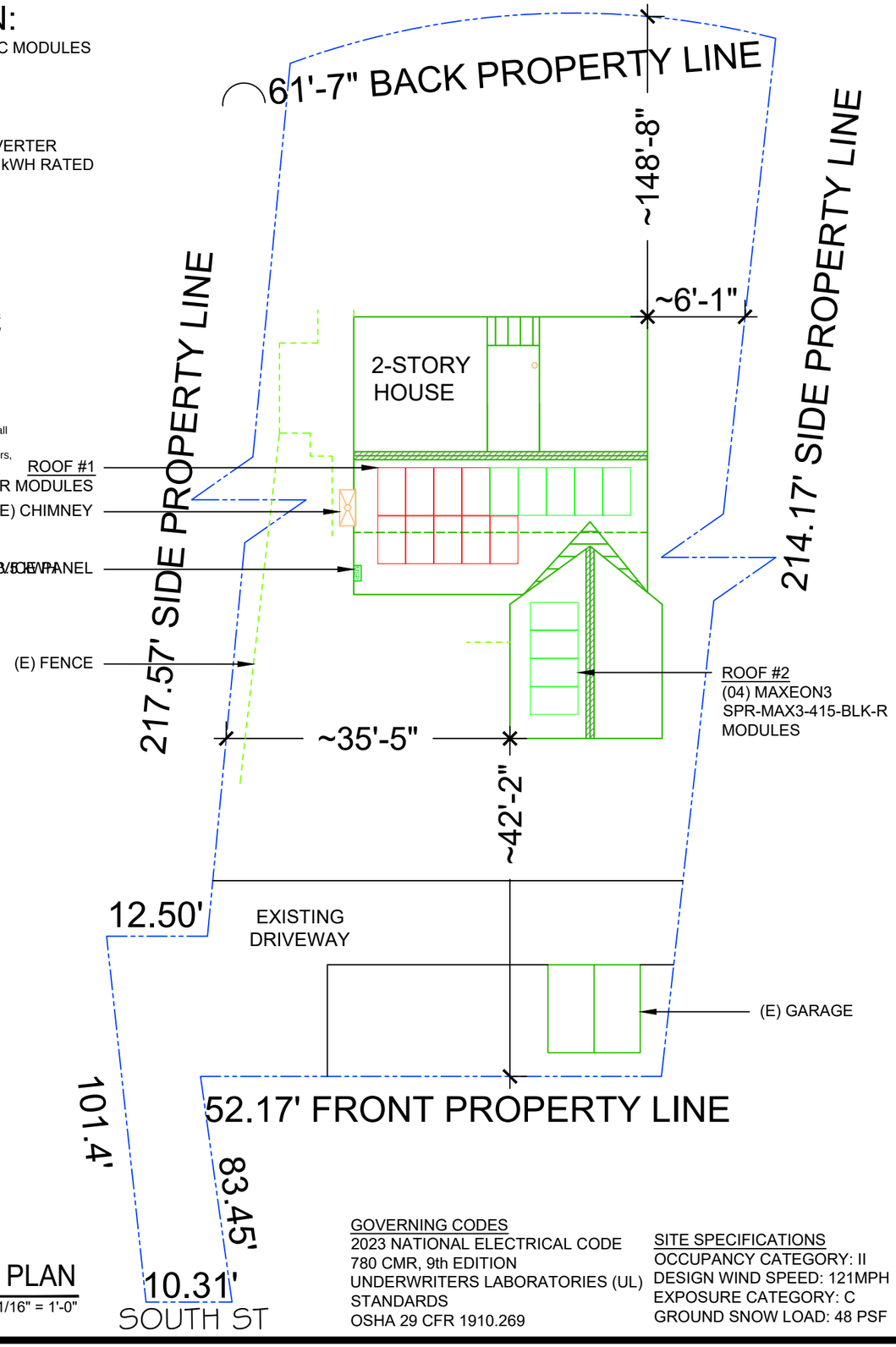
WWW.VECTORSE.COM

Firm License Number: COA 01838

VSE Project Number: U1883-1948-231

Vector Structural Engineering has reviewed the existing structure with loading from the solar array and screw connections to the existing framing. The design of the racking system, racking connections, and all other structural is by others. Mechanical, architectural, and all other nonstructural aspects of the design are by others. Electrical is by others, unless stamped by Dean Levorsen.



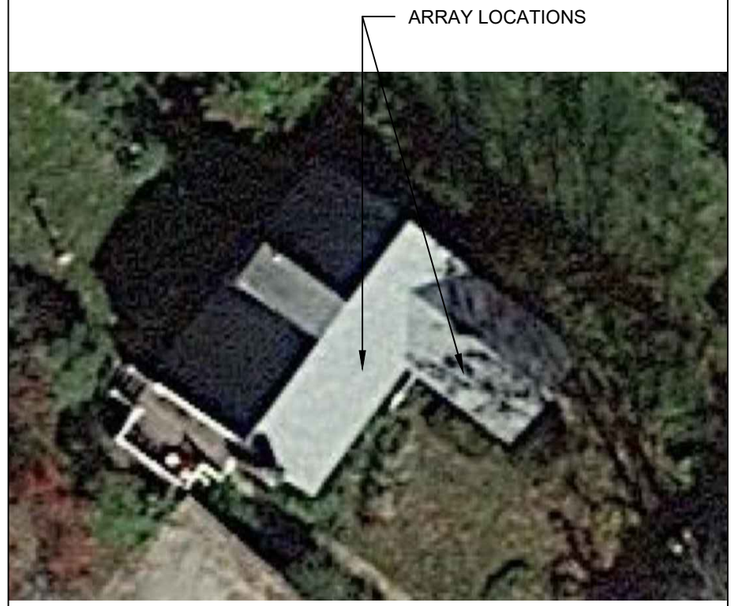
ROOF DESCRIPTION		
ROOF	ROOF TILT	AZIMUTH
#1	40°	126°
#2	36°	216°

SHEET INDEX

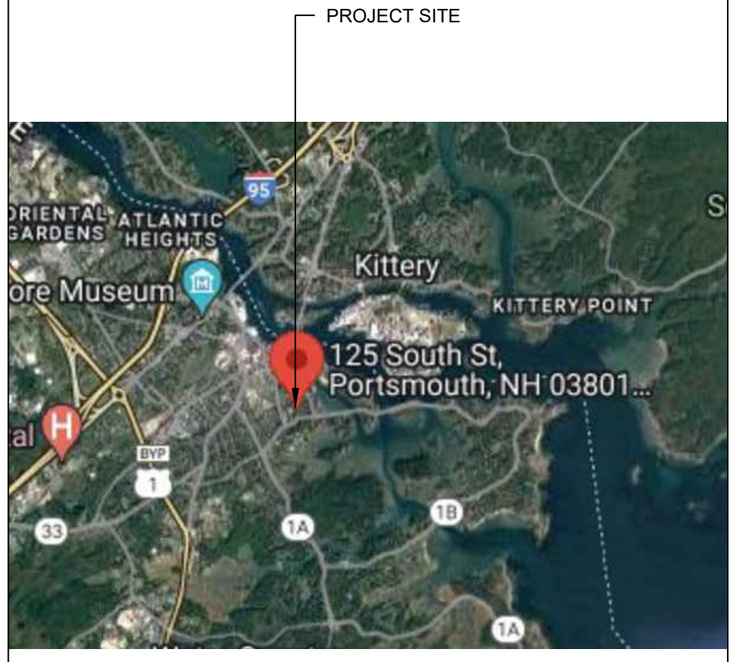
1 SITE PLAN WITH ROOF PLAN
PV-1
SCALE: 1/16" = 1'-0"

GOVERNING CODES
2023 NATIONAL ELECTRICAL CODE
780 CMR, 9th EDITION
UNDERWRITERS LABORATORIES (UL) STANDARDS
OSHA 29 CFR 1910.269

SITE SPECIFICATIONS
OCCUPANCY CATEGORY: II
DESIGN WIND SPEED: 121MPH
EXPOSURE CATEGORY: C
GROUND SNOW LOAD: 48 PSF



HOUSE PHOTO
SCALE: NTS



VICINITY MAP
SCALE: NTS

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

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CONTRACTOR INFORMATION

SOLARIS RENEWABLES
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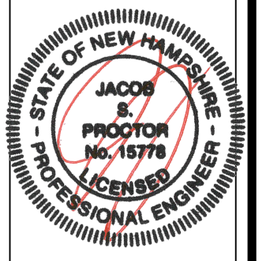
WWW.SOLARISRENEWABLES.COM
MA REG #178137

DATE: 11/21/2023

PROJECT NAME
JAMES SPARRELL & KATHERINE TOWLER
125 SOUTH STREET
PORTSMOUTH, NH 03801
JOB#: MA02-24-0004
APN NO: M0110 B0009L

PROJECT DETAIL
7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL



12/05/2023

SHEET NAME
SITE PLAN & VICINITY MAP

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-1

MODULE TYPE, DIMENSIONS & WEIGHT

MODULE TYPE = MAXEON3 SPR-MAX3-415-BLK-R
MODULE WEIGHT = 46.7 LBS
MODULE DIMENSIONS = 71.34"x 41.18" = 20.40 SF

ROOF DESCRIPTION

ROOF TYPE - COMP SHINGLE ROOF
TOTAL ROOF AREA = 1609.22
367.2/1609.22 = 23% OF ROOF
FACE AREA COVERED BY ARRAY

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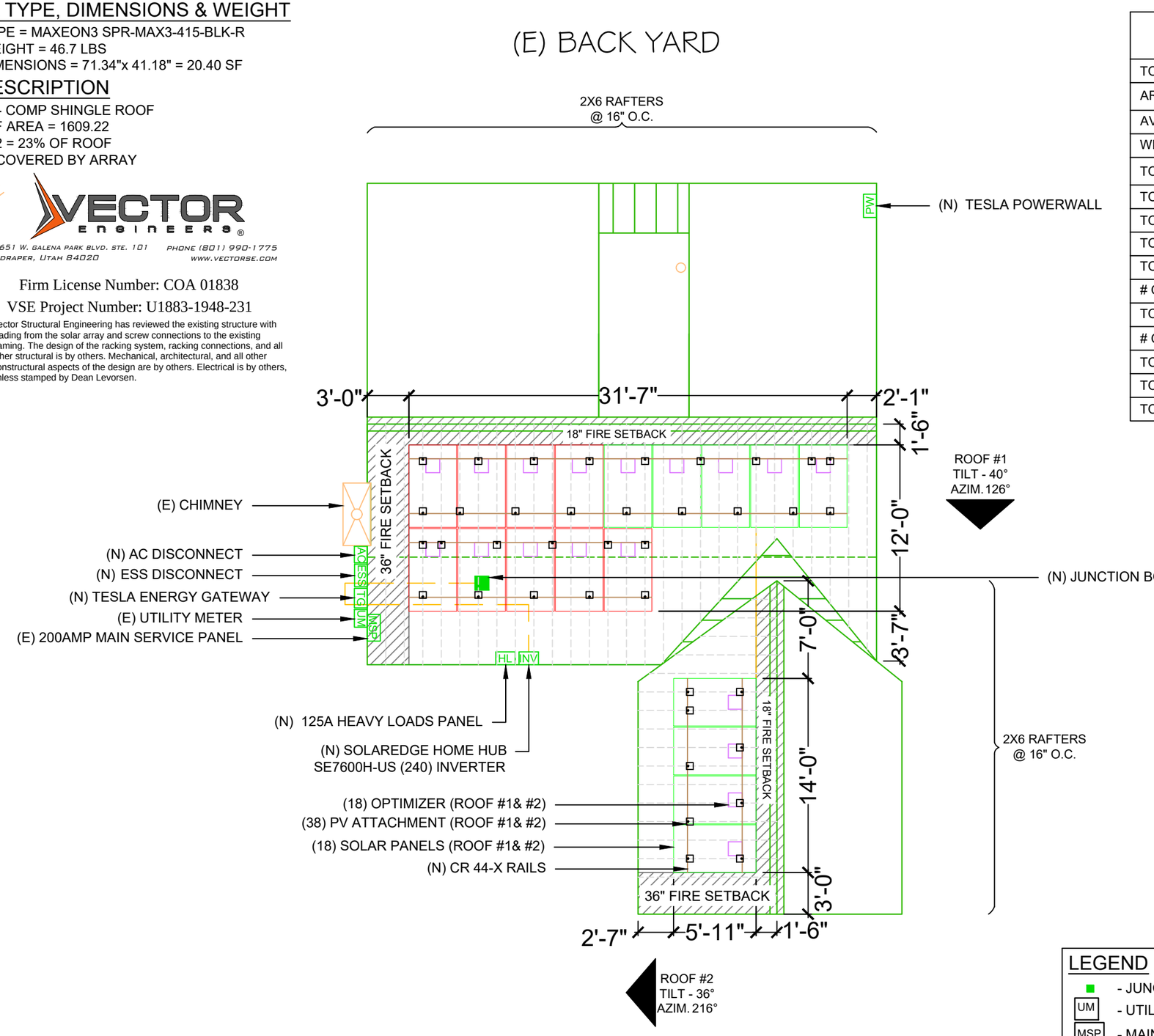
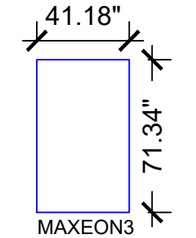


LOAD CALCULATION

TOTAL # OF PANELS	18
AREA COVERED (SQ. FT.)	350.46
AVG. LOAD PER CONNECTION POINT (LBS)	21.30
WEIGHT PER SQ. FT. OF SOLAR ARRAY (PSF)	2.31
TOTAL WEIGHT OF MODULES	734.58
TOTAL WEIGHT OF OPTIMIZERS	37.80
TOTAL WEIGHT OF RACKING COMPONENTS	36.92
TOTAL SYSTEM WEIGHT (LBS)	809.30
TOTAL RAIL LENGTH (FT.)	124
# OF 13'-10" CR-44-X RAILS (166")	9
TOTAL RAIL LENGTH FIELD (FT)	124.50
# OF CR-44-X RAIL SPLICES	6
TOTAL # OF MID-CLAMPS	30
TOTAL # OF END-CLAMPS	12
TOTAL # OF L-FOOT ASSEMBLIES	38



MAXEON3
SPR-MAX3-415-BLK-R
MODULE

LEGEND

- JUNCTION BOX
- UM - UTILITY METER
- MSP - MAIN SERVICE PANEL
- INV - INVERTER
- HL - HEAVY LOADS PANEL
- AC - AC DISCONNECT
- RAFTER
- ¾" EMT CONDUIT
- ROOF OBSTRUCTION
- EXTERIOR CONDUIT
- CHIMNEY
- PW - TESLA POWERWALL
- GW - TESLA ENERGY GATEWAY
- ED - ESS DISCONNECT

1 ROOF PLAN & MODULES
PV-2
SCALE: 1/8" = 1'-0"

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

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CONTRACTOR INFORMATION

SOLARIS RENEWABLES
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WWW.SOLARISRENEWABLES.COM
MA REG #178137

DATE: 11/21/2023

PROJECT NAME
JAMES SPARRELL & KATHERINE TOWLER
125 SOUTH STREET
PORTSMOUTH, NH 03801
JOB#: MA02-24-0004
APN NO: M0110 B0009L

PROJECT DETAIL
7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

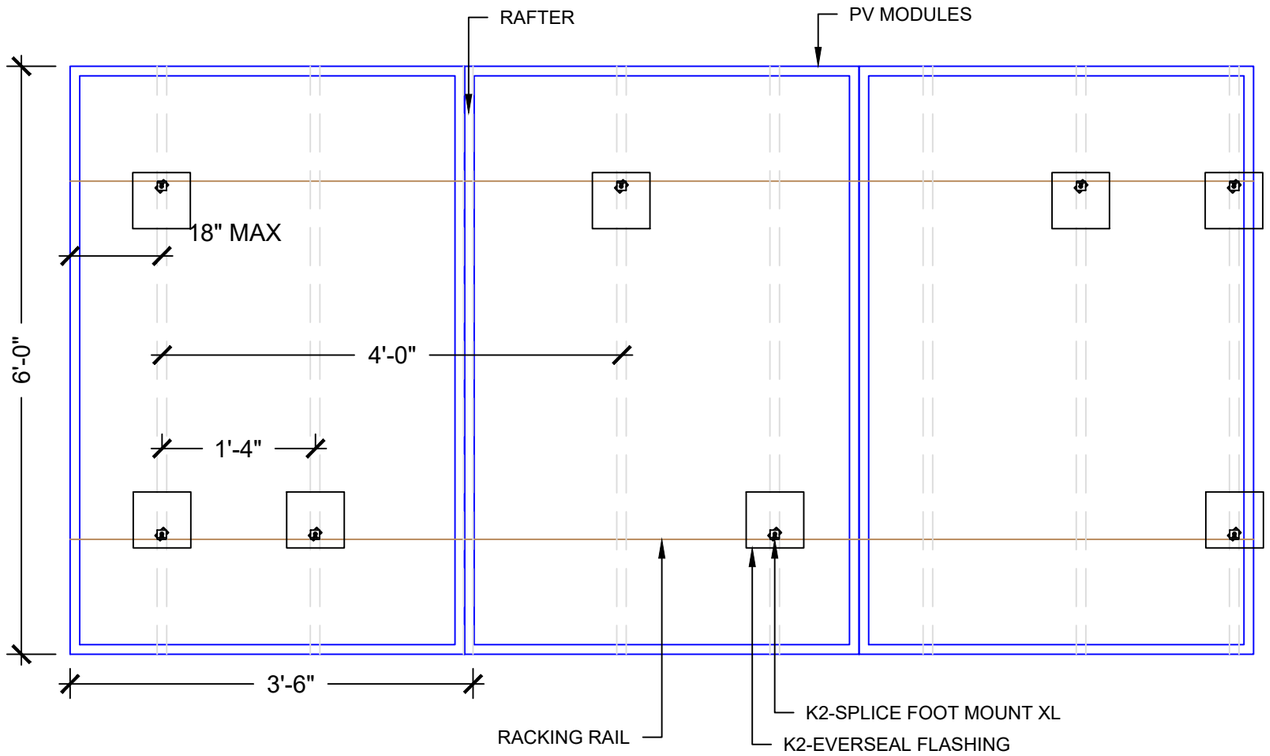
STATE OF NEW HAMPSHIRE – JACOB S. PROCTOR No. 15778 LICENSED PROFESSIONAL ENGINEER

12/05/2023

SHEET NAME
ROOF PLAN & MODULES

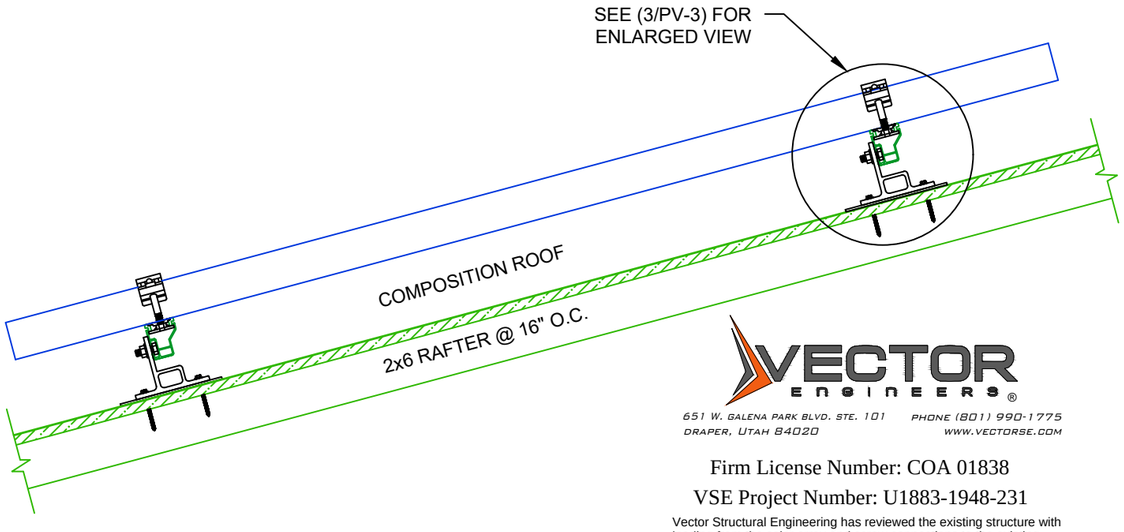
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-2



1 MOUNTING PLAN VIEW

PV-3 SCALE: NTS



2 MOUNTING METHOD

PV-3 SCALE: NTS

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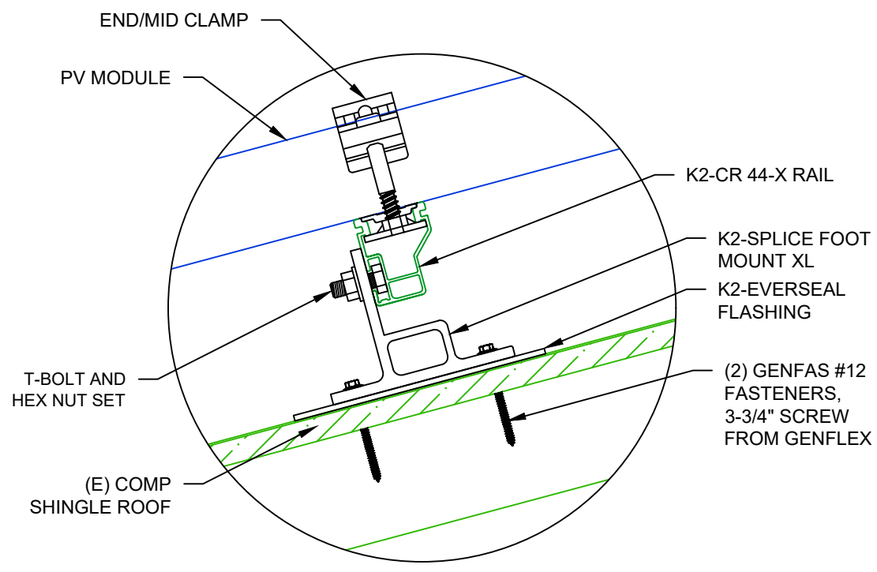
CONSTRUCTION NOTES

1.) CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO INITIATING CONSTRUCTION.
2.) CONTRACTOR SHALL REVIEW ALL MANUFACTURER INSTALLATION DOCUMENTS PRIOR TO INITIATING CONSTRUCTION.
3.) ALL EQUIPMENT SHALL BE LISTED BY U.L. (OR EQUAL) AND LISTED FOR ITS SPECIFIC APPLICATION.
4.) ALL EQUIPMENT SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED.
5.) ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6.) ACCESS TO ELECTRICAL COMPONENTS OVER 150 VOLTS TO GROUND SHALL BE RESTRICTED TO QUALIFIED PERSONNEL.
7.) ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 VOLTS AND 90°C WET ENVIRONMENT, UNLESS OTHERWISE NOTED.
8.) WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, CONTRACTOR SHALL SIZE THEM ACCORDING TO APPLICABLE CODES.
9.) PV MODULE FRAMES SHALL BE BONDED TO RACKING RAIL OR BARE COPPER G.E.C. PER THE MODULE MANUFACTURER'S LISTED INSTRUCTION SHEET.
10.) PV MODULE RACKING RAIL SHALL BE BONDED TO BARE COPPER G.E.C. VIA WEEB LUG, ILSCO GBL-4DBT LAY-IN LUG, OR EQUIVLENT LISTED LUG.
11.) GROUNDING ELECTRODE CONDUCTOR (G.E.C.) SHALL BE CONTINUOUS AND/OR IRREVERSIBLY SPLICED/WELDED.
12.) ALL JUNCTION BOXES, COMBINER BOXES, AND DISCONNECTS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.
13.) ROOF ACCESS POINTS SHALL BE AT A STRONG POINT ON THE BUILDING AND NOT REQUIRE THE PLACEMENT OF LADDERS OVER EXTERIOR WALL OPENINGS.
14.) WORKING SPACE AROUND ELECTRIAL EQUPMENT SHALL COMPLY WITH NEC 110.26



3 MOUNTING METHOD

PV-3 SCALE: NTS

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

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CONTRACTOR INFORMATION

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MA REG #178137

DATE: 11/21/2023

PROJECT NAME

JAMES SPARRELL & KATHERINE TOWLER

125 SOUTH STREET
PORTSMOUTH, NH 03801

JOB#: MA02-24-0004

APN NO: M0110 B0009L

PROJECT DETAIL

7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

STATE OF NEW HAMPSHIRE - JACOB S. PROCTOR No. 15778 LICENSED PROFESSIONAL ENGINEER -

12/05/2023

SHEET NAME

MOUNTING & POC DETAIL

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-3

ARRAY CONFIGURATION	
SYSTEM: 7.47 KWSTC, 7.6 KW AC	
TOTAL PV MODULE QTY: 18	
INVERTER I.D. #	INV#1
INVERTER AC POWER (KW):	7.6
PV POWER (KW STC)	7.47
MODULE TOTAL QTY	18
DC:AC RATIO	0.98

INPUT 'A' & 'B'	
STRING QTY:	2
STRING LENGTH	9
MAX. OPEN CIRCUIT VOLTAGE	480
OPERATING VOLTAGE	380
MAX. SHORT CIRCUIT CURRENT	37.5
OPERATING CURRENT	30

PV MODULE SPECIFICATIONS	
MODEL NO.	MAXEON3 SPR-MAX3-415-BLK-R
WEIGHT:	46.7 LBS
DIMENSIONS:	71.34"X41.18"X1.57" INCH
MODULE POWER @ STC:	415 W
VOC (OPEN-CIRCUIT VOLTAGE):	40.7 V
VMP (MAX-POWER VOLTAGE):	35.3 V
ISC (SHORT-CIRCUIT CURRENT):	12.64 A
IMP (MAX-POWER CURRENT):	11.75 A

INVERTER SPECIFICATIONS	
MODEL NO.	SOLAREDGE HOME HUB: SE7600H-US
POWER RATING:	7.6 KW AC
NOMINAL VOLTAGE:	240 V
MAX OUTPUT CURRENT:	32A
CEC WEIGHTED EFFICIENCY:	99%
MAXIMUM DC VOLTAGE:	480 V
INVERTER QUANTITY:	1

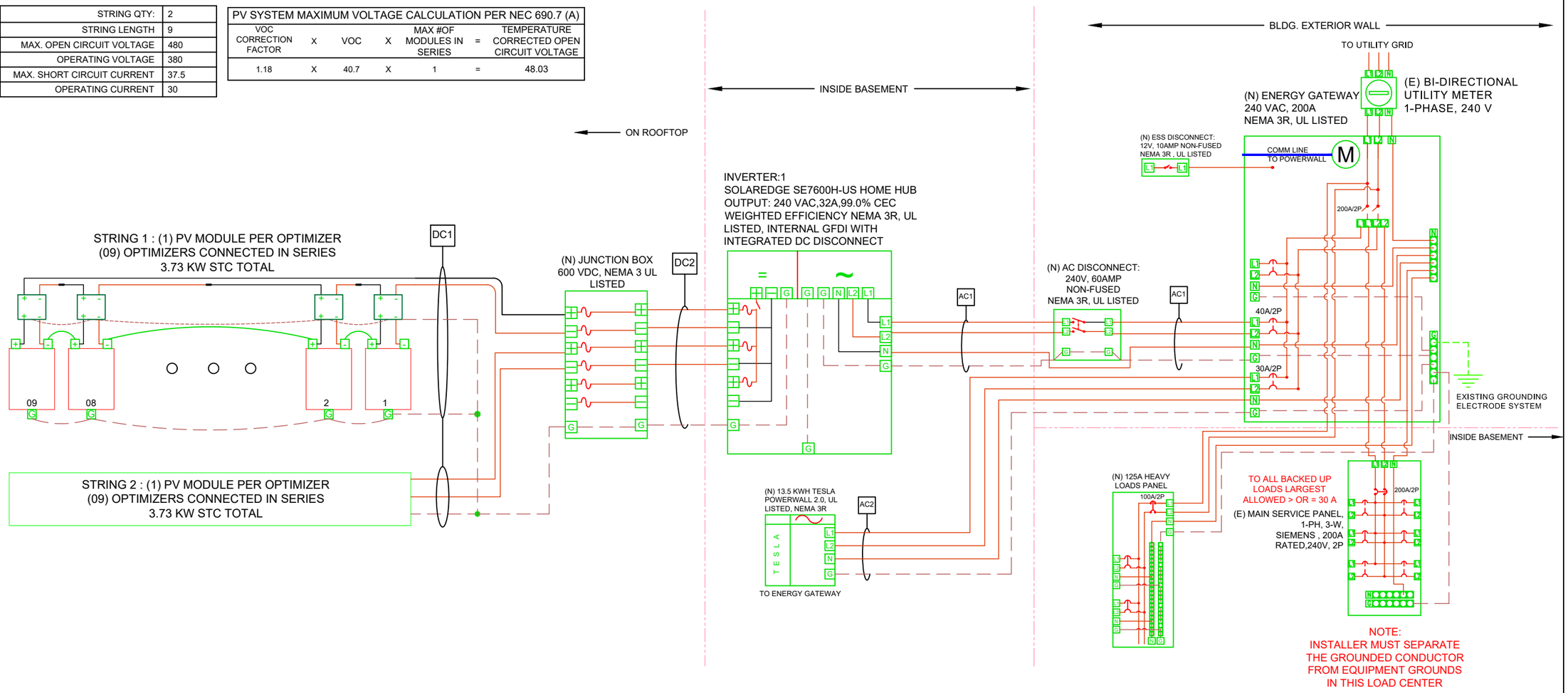
POWER OPTIMIZER SPECIFICATIONS	
MODEL NO.	SOLAREDGE: S440
MAX INPUT POWER:	440 W
MAX VOC:	60 V
OUTPUT CURRENT:	15 A
OUTPUT VOLTAGE:	60 V
MIN. STRING LENGHT:	8
MAX. STRING LENGHT:	25
MAX. STRING POWER:	6800 W

PV SYSTEM MAXIMUM VOLTAGE CALCULATION PER NEC 690.7 (A)						
VOC CORRECTION FACTOR	X	VOC	X	MAX #OF MODULES IN SERIES	=	TEMPERATURE CORRECTED OPEN CIRCUIT VOLTAGE
1.18	X	40.7	X	1	=	48.03

WIRE AND CONDUIT SCHEDULE						
TAG	COND QTY	COND SIZE	COND TYPE	GND QTY	GND SIZE	GND TYPE
DC1	2/STRINGS	AWG#10	PV-WIRE	1	AWG#6	BARE CU
DC2	4	AWG#10	THWN-2	1	AWG#10	THWN-2
AC1	3	AWG#8	THWN-2	1	AWG#10	THWN-2
AC2	3	AWG#8	THWN-2	1	AWG#10	THWN-2

AC SYSTEM SUMMARY	
NOMINAL SYSTEM VOLTAGE:	240 VOLTS AC
MAX.CURRENT PER 690.8(A)(3):	32 A
MAX.CURRENT PER 690.8(B)(1):	40.00 A

NOTE:
STORAGE CHARGING CAPABILITY:
GENERATION ONLY STORAGE
DISCHARGING CAPABILITY:ONSITE LOAD ONLY



TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY							AMPACITY CHECK #1		
			MATERIAL	TEMP. RATING	TRADE SIZE	AMPACITY @ 30°C PER 310.15(B)(16)	OPTIMIZER OUTPUT CURRENT	X	#OF PARALLEL STRINGS	=	MAX CURRENT PER 690.8(A)(3)	X 125% PER 690.8(B)(1)	= MAX CURRENT PER 690.8(B)(1)	MAX CURRENT PER 690.8(B)(1)	<	CONDUCTOR AMPACITY
DC1	PV STRING	JUNCTION BOX	COPPER	90°	AWG#10	40 AMPS	15.0	X	1	=	15.0 AMPS	X 1.25	= 18.75	18.75 AMPS	<	40 AMPS
DC2	JUNCTION BOX	INVERTER	COPPER	90°	AWG#10	40 AMPS	15.0	X	1	=	15.0 AMPS	X 1.25	= 18.75	18.75 AMPS	<	40 AMPS

AMPACITY CHECK FOR AC DISCONNECT CONDUCTORS	
CONDUCTOR # of c.c.c 's	3
AMPACITY	DERATE PER 310.15(B)(3)(a) 1.00
55 AMPS	
55 AMPS X 1.00 = 55A	
55 A X .94(temp) = 51.70A > 40.00A	

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY							AMPACITY CHECK #1			CORRECTED AMPACITY CALCULATION					AMPACITY CHECK #2		
			MATERIAL	TEMP. RATING	TRADE SIZE	AMPACITY @ 30°C PER 310.15(B)(16)	INVERTER OUTPUT CURRENT	X	#OF INVERTERS	=	MAX CURRENT PER 690.8(A)(3)	X 125% PER 690.8(B)(1)	= MAX CURRENT PER 690.8(B)(1)	MAX CURRENT PER 690.8(B)(1)	<	CONDUCTOR AMPACITY	CONDUCTOR AMPACITY	X	TEMP DERATE	X CONDUIT FILL DERATE	=	DERATED CONDUCTOR AMPACITY	MAX CURRENT PER 690.8(B)(1)	<	DERATED CONDUCTOR AMPACITY
AC1	INVERTER	TESLA ENERGY GATEWAY	COPPER	90°	AWG#8	55 AMPS	32	X	1	=	32.0 AMPS	X 1.25	= 40.00	40.00 AMPS	<	55 AMPS	55	X	0.94	X 1.00	=	51.70	40.00 AMPS	<	51.70 AMPS

PROJECT ENGINEER
BROCK NOYES

REVISIONS		
DESCRIPTION	DATE	REV

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CONTRACTOR INFORMATION

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125 SOUTH STREET
PORTSMOUTH, NH 03801

JOB#: MA02-24-0004

APN NO: M0110 B0009L

PROJECT DETAIL
7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

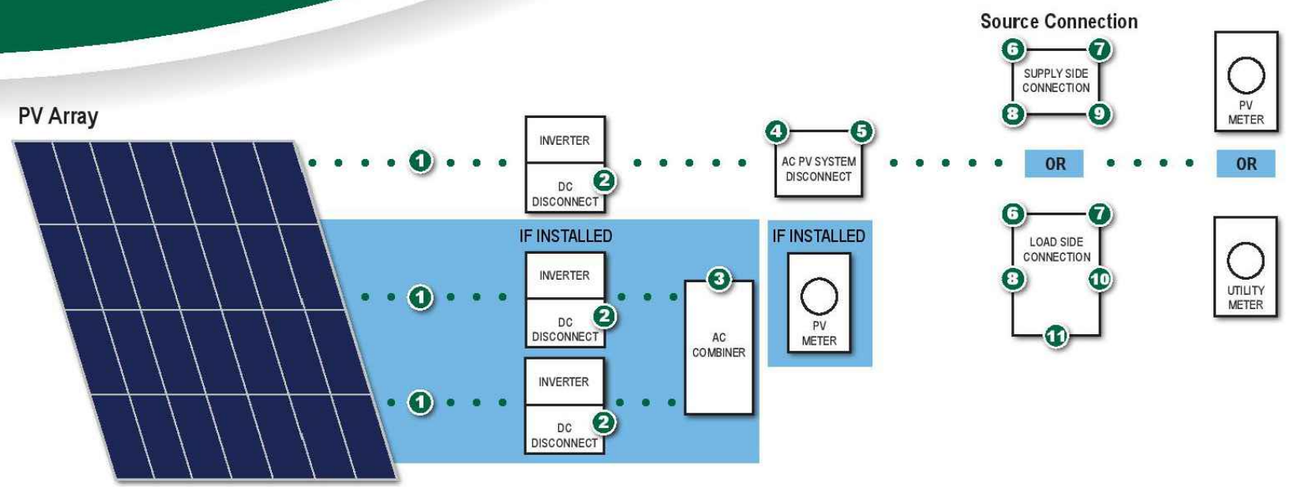
SHEET NAME
ELECTRICAL LINE DIAGRAM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4

PV SYSTEM **LABELING**

Requirements for the 2020 Massachusetts Electrical Code[1]



General Labeling Guidance

There are several marking and labeling requirements for PV systems and a variety of interpretations. This document provides a summary of the most common requirements and an example of each location. Because of the wide range of installations, systems may require fewer labels, or additional labels not outlined here.

When providing code-required markings, consideration should be given to environmental conditions and overall clarity of the content relative to its location. Excessive labeling may be confusing. Red and white labels should only be used when required by a specific code or ANSI standard. Section 110.21(B) requires permanent labels, not handwritten, and suitable for the environment in which they are installed. It also recommends the labels to follow ANSI Z535.4-2011 Product Safety Signs and Labels.

DANGER | WARNING | CAUTION | NOTICE

Example of ANSI Z535.4-2011 markings

Although placards are generally the most durable option, they need to be designed for exposure

Excessive labeling may be confusing

[1]The Massachusetts Electrical Code (MEC) is based on the National Electrical Code (NEC), with specific amendments. All code references in this document are to the 2020 edition of the MEC unless otherwise noted.

1 DC Raceway Label
Section 690.31(D)(2)
- On or in a building, unless location/purpose is evident
- Raceways, enclosures, every 10', suitable for environment
- Minimum 3/8" CAPS White on Red, Reflective

PHOTOVOLTAIC POWER SOURCE
OR
SOLAR PV DC CIRCUIT

2 DC PV Circuits
Section 690.53
- Maximum system voltage calculated in accordance with 690.7
- At one of the following locations:
  - DC PV system disconnect
  - PV system electronic power conversion equipment
  - Distribution equipment associated with the PV system

PV MAX SYSTEM VOLTAGE ☐ Vdc

3 Section 705.12(B)(3)(3) "AC Combiner Panel"
- Sum of ampere ratings, excluding source OCPD
- Label applied adjacent to distribution equipment
- The following or equivalent wording:

WARNING
THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR.

4 PV System Disconnect
Section 690.13(B):
- See Figure 690.1(b) diagrams for location in system
- Disconnects PV from all other wiring systems
- Installed in a readily accessible location
- Permanently marked: PV SYSTEM DISCONNECT, or equivalent
- Where line/load may be energized in open (off) position:
  - Marked with the following or equivalent:

PV SYSTEM DISCONNECT
Example of PV System Disconnect Identification

WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION
Example of Line/Load Energized marking

5 Buildings with Rapid Shutdown
Section 690.56(C)(2)
- Switch label that includes the following:
  - Minimum 3/8" CAPS, White on Red, Reflective
- *Required for all system types!*

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

6 AC Power Source
Section 690.54
- "All interactive system(s) points of interconnection with other sources shall be marked…"
- Accessible location at disconnecting means, as a power source:
  - Rated AC output current
  - Nominal operating AC voltage

PHOTOVOLTAIC POWER SOURCE
RATED AC OUTPUT CURRENT 40.00 Aac
NOMINAL OPERATING VOLTAGE 240 Vac

7 Identification of Power Sources
Section 690.56 (Informational Note)
- MA Fire Code (527 CMR 1) requires signage:
  - Adjacent to building or service disconnect
  - Identifies responsible party for operation of system
  - Provides contact information

PV SYSTEM INSTALLATION BY:
ABC SOLAR
CONTACT PHONE: 857-600-8995
IN CASE OF EMERGENCY DIAL 911

8 Buildings with Rapid Shutdown
Section 690.56(C)
- Located at each service equipment location where PV is connected "or approved readily visible location"
- Shall indicate location of initiation device
- Shall include simple diagram of building and roof

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

9 Service Disconnect Directory
Sections 690.56(B)/705.10/712.10
- Permanent plaque or directory installed at either:
  - Each service equipment location
  - Approved readily visible location
- Marked with the following wording:
- Denote location of each power source disconnect
- Grouped with other plaques or directories
- Correctly oriented with respect to diagram's location

CAUTION
THIS BUILDING IS POWERED BY MULTIPLE SOURCES. UTILITY AND SOLAR PHOTOVOLTAIC SYSTEM. DISCONNECT LOCATIONS ARE SHOWN BELOW

10 Load-Side Source Connections
Section 705.12(C) Power Source Identification
- Equipment containing overcurrent devices supplying power to busbar or conductor
- Supplied from multiple sources
- "Marked to indicate the presence of all sources"

WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

11 Section 705.12(B)(3)(2) "Do Not Relocate"
- Two sources, opposite ends of busbar
- Label applied adjacent to back-fed breaker
- The following or equivalent wording:

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

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

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APN NO: M0110 B0009L

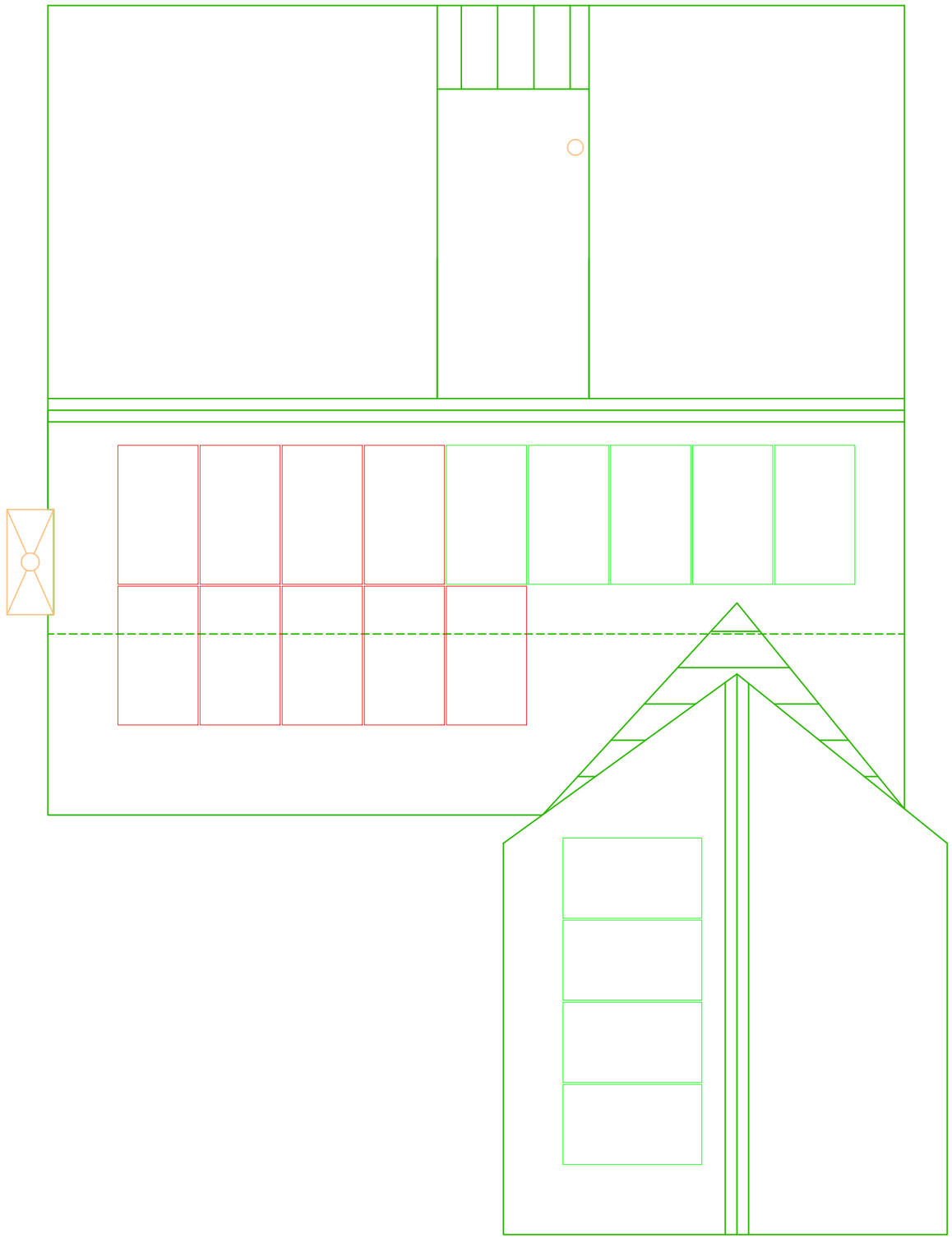
PROJECT DETAIL
7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
PLACARDS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-5



ROOF DESCRIPTION		
ROOF	ROOF TILT	AZIMUTH
#1	40°	126°
#2	36°	216°

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APN NO: M0110 B0009L

PROJECT DETAIL

7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
LAYOUT MAP

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-6

maxeon

PRELIMINARY DATASHEET

MAXEON 3 SOLAR PANEL

410–420 W | Up to 22.2% Efficient

Ideal for residential applications

Black backsheet, black frame

More Lifetime Energy

Designed to maximise energy generation through leading efficiency, enhanced performance in high temperatures, and higher energy conversion in low-light conditions like mornings, evenings and cloudy days.

Uncompromising Durability

Engineered to power through all types of weather conditions with crack-resistant cells and reinforced connections that protect against fatigue and corrosion, to an electrical architecture that mitigates the impact of shade and prevents hot-spot formation.

HOT-SPOT PROTECTED

Superior Sustainability

Clean ingredients, responsible manufacturing, and lasting energy production for 40 years make Maxeon panels the most sustainable choice in solar.

maxeon 40 YEAR WARRANTY Power | Product | Service

The Industry's Longest Warranty

Maxeon panels are covered by a 40-year warranty[1] backed by extensive third-party testing and field data from more than 33 million panels deployed worldwide.

Product and power coverage	40 Years
Year 1 minimum warranted output	98.0%
Maximum annual degradation	0.25%

Learn more about the SPR-MAX3-XXX-BLK-R
maxeon.com/us

MAXEON 3 POWER: 410–420 W | EFFICIENCY: Up to 22.2%

PRELIMINARY DATASHEET

Electrical Data

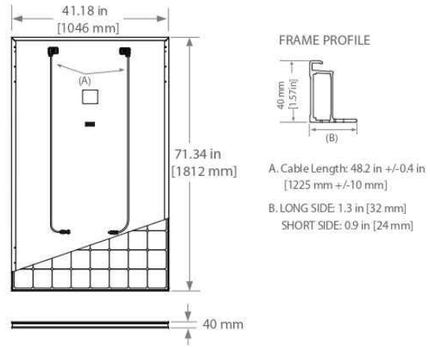
	SPR-MAX3-420-BLK-R	SPR-MAX3-415-BLK-R	SPR-MAX3-410-BLK-R
Nominal Power (Pnom)[2]	420 W	415 W	410 W
Power Tolerance	+5/0%	+5/0%	+5/0%
Panel Efficiency	22.2%	21.9%	21.6%
Rated Voltage (Vmpp)	35.5 V	35.3 V	35.1 V
Rated Current (Impp)	11.82 A	11.75 A	11.68 A
Open-Circuit Voltage (Voc)	40.7 V	40.7 V	40.7 V
Short-Circuit Current (Isc)	12.65 A	12.64 A	12.63 A
Max. System Voltage	1000 V UL		
Maximum Series Fuse	20 A		
Power Temp Coef.	−0.27% / °C		
Voltage Temp Coef.	−0.236% / °C		
Current Temp Coef.	0.058% / °C		

Warranties, Certifications and Compliance

Standard Tests[3]	UL1703 (Type 2 Fire Rating) (Pending)
Quality Management Certs	ISO 9001:2015, ISO 14001:2015
Ammonia Test	IEC 62716 (Pending)
Desert Test	IEC 60068-2-68, MIL-STD-810G (Pending)
Salt Spray Test	IEC 61701 (maximum severity) (Pending)
PID Test	1000 V: IEC 62804 (Pending)
Available Listings	UL (Pending)
IFLI Declare Label	First solar panel labeled for ingredient transparency and LBC-compliance.[4]
Cradle to Cradle Certified™ Bronze	First solar panel line certified for material health, water stewardship, material reutilization, renewable energy & carbon management, and social fairness.[5]
Green Building Certification Contribution	Panels can contribute additional points toward LEED and BREEAM certifications.
EHS Compliance	RoHS, OHSAS 18001:2007, Recycle Scheme, REACH SVHC-163

Operating Condition And Mechanical Data

Temperature	−40°F to +185°F (−40°C to +85°C)
Impact Resistance	1 inch (25 mm) diameter hail at 52 mph (23 m/s)
Solar Cells	112 Monocrystalline Maxeon Gen 3
Tempered Glass	High-transmission tempered anti-reflective
Junction Box	IP-68, Stäubli (MC4), 2 bypass diodes
Weight	46.7 lbs (21.2 kg)
Max. Load[6]	Wind: 50 psf, 2400 Pa, 244 kg/m² back Snow: 112 psf, 5400 Pa, 550 kg/m² front
Frame	Class 1 black anodized (highest AAMA rating)



LEAD FREE RoHS COMPLIANT

Declare.

CERTIFIED cradle to cradle BRONZE

Please read the safety and installation instructions.
Visit Visit www.maxeon.com/us/InstallGuideUL.
Paper version can be requested through
techsupport.ROW@maxeon.com.

1 40-year warranty is not available in all countries or all installations and requires registration, otherwise our 25-year warranty applies. Service availability varies by country and installation provider.
2 Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25° C). NREL calibration Standard: SOMS current, LACCS FF and Voltage.
3 Type 2 fire rating per UL1703:2013, Class C fire rating per UL1703:2002.
4 Maxeon DC panels first received the International Living Future Institute Declare Label in 2016.
5 Maxeon DC panels are Cradle to Cradle Certified™ Bronze - www.c2ccertified.org. Cradle to Cradle Certified™ is a certification mark licensed by the Cradle to Cradle Products Innovation Institute.
6 Safety factor 1.5 included.

Made in Philippines (Cells)
Assembled in Mexico (Module)
Specifications included in this datasheet are subject to change without notice.

maxeon

545906 REV A / LTR_US
Publication Date: June 2022

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

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CONTRACTOR INFORMATION

SOLARIS RENEWABLES
781.270.6555 OFFICE
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WWW.SOLARISRENEWABLES.COM
MA REG #178137

DATE: 11/21/2023

PROJECT NAME
JAMES SPARRELL & KATHERINE TOWLER
125 SOUTH STREET
PORTSMOUTH, NH 03801
JOB#: MA02-24-0004
APN NO: M0110 B0009L

PROJECT DETAIL
7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
MODULE SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-7

SolarEdge Home Hub Inverter

For North America

SE3800H-US / SE5700H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US[1]

HOME BACKUP

Optimized battery storage with HD-Wave technology

- Record-breaking 99% weighted efficiency with 200% DC oversizing
- Small, lightweight, and easy to install
- Modular design, future ready with optional upgrades to:
  - DC-coupled storage for full or partial home backup
  - Built-in consumption monitoring
  - Direct connection to the SolarEdge Home EV Charger
- Multi-inverter, scalable storage solution, with enhanced battery power up to 10kW
- Integrated arc fault protection and rapid shutdown for NEC 2014 – 2023, per article 690.11 and 690.12
- Embedded revenue grade production data, ANSI C12.20 Class 0.5

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SolarEdge Home Hub Inverter

For North America

SE3800H-US / SE5700H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US[1]

Applicable to inverters with part number	SEXXXXH-USMNBBXXX / SEXXXXH-USSNBBXXX						
	SE3800H-US	SE5700H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	Units
OUTPUT – AC ON GRID							
Rated AC Power	3800 @ 240V 3300 @ 208V	5760 @ 240V 5000 @ 208V	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	W
Maximum AC Power Output	3800 @ 240V 3300 @ 208V	5760 @ 240V 5000 @ 208V	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208	W
AC Output Voltage (Nominal)	208 / 240						Vac
AC Output Voltage (Range)	183 – 264						Vac
AC Frequency Range (min - nom - max)	59.3 – 60 – 60.5[2]						Hz
Maximum Continuous Output Current @ 240V	16	24	25	32	42	47.5	A
Maximum Continuous Output Current @ 208V	16	24	24	-	-	48	A
GFDI Threshold	1						A
Total Harmonic Distortion (THD)	< 3						%
Power Factor	1, adjustable -0.85 to 0.85						
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes						
Charge Battery from AC (if allowed)	Yes						
Typical Nighttime Power Consumption	< 2.5						W
OUTPUT – AC BACKUP[3]							
Rated AC Power in Backup Operation[4]	7600	5760	6000	7600 11400*	10000 11400*	11400	W
AC L-L Output Voltage Range in Backup	211 – 264						Vac
AC L-N Output Voltage Range in Backup	105 – 132						Vac
AC Frequency Range in Backup (min - nom - max)	55 – 60 – 65						Hz
Maximum Continuous Output Current in Backup Operation	32	24	25	32 47.5	42 47.5	47.5	A
GFDI	1						A
THD	< 5						%
OUTPUT – SOLAREDGE HOME EV CHARGER AC							
Rated AC Power	9600						W
AC Output Voltage Range	211 – 264						Vac
On-Grid AC Frequency Range (min - nom - max)	59.3 – 60 – 60.5						Hz
Maximum Continuous Output Current @240V (grid, PV and battery)	40						Aac
INPUT – DC (PV AND BATTERY)							
Transformer-less, Ungrounded	Yes						
Max Input Voltage	480						Vdc
Nom DC Input Voltage	380						Vdc
Reverse-Polarity Protection	Yes						
Ground-Fault Isolation Detection	600kΩ Sensitivity						
INPUT – DC (PV)							
Maximum DC Power @ 240V	7600	11520	12000	15200	20000	22800	W
Maximum DC Power @ 208V	6600	10000	10000	-	-	20000	W
Maximum Input Current[5] @ 240V	20	16	16.5	20 30	30	30	Adc
Maximum Input Current[5] @ 208V	9	13.5	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45						
Maximum Inverter Efficiency	99.2						%
CEC Weighted Efficiency	99					99 @ 240V 98.5 @ 208V	%
2-pole Disconnection	Yes						

* Supported with P/N SExxxxH-USMNxxxxxx.

(1) These specifications apply to inverters with part numbers SExxxxH-USMNxxxxx or SExxxxH-USSNxxxxxx and connection unit model number DCD-1PH-US-PxH-F-x.

(2) For other regional settings please contact SolarEdge support.

(3) Not designed for standalone applications and requires AC for commissioning. Backup functionality is only supported for 240V grid.

(4) Rated AC power in Backup Operation is valid for installations with multiple inverters. For a single backup inverter operation, rated AC power in Backup is 90% of the value stated.

(5) A higher current source may be used; the inverter will limit its input current to the values stated.

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

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JAMES SPARRELL & KATHERINE TOWLER

125 SOUTH STREET
PORTSMOUTH, NH 03801

JOB#: MA02-24-0004

APN NO: M0110 B0009L

PROJECT DETAIL

7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
INVERTER SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-8

SolarEdge Home Hub Inverter

For North America

SE3800H-US / SE5700H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US[1]

Applicable to inverters with part number	SEXXXXH-USMNBBXXX / SEXXXXH-USSNBBXXX						
	SE3800H-US	SE5700H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	Units
OUTPUT – DC (BATTERY)							
Supported Battery Types	SolarEdge Home Battery, LG RESU Prime						
Number of Batteries per Inverter	Up to 3 SolarEdge Home Battery, up to 2 LG RESU Prime						
Continuous Power[6]	7600 @ 240V 3800 @ 208V	5760 @ 240V 5000 @ 208V	6000	11400		11400 @ 240V 10000 @ 208V	W
Peak Power[6]	7600 @ 240V 3800 @ 208V	5760 @ 240V 5000 @ 208V	6000	11400		11400 @ 240V 10000 @ 208V	W
Max Input Current	20	26.5					Adc
2-pole Disconnection	Up to inverter rated backup power						
SMART ENERGY CAPABILITIES							
Consumption Metering	Built-in[7]						
Backup & Battery Storage	With Backup Interface (purchased separately) for service up to 200A; up to 3 inverters						
EV Charging	Direct connection to SolarEdge Home EV Charger						
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, Cellular[8,9], Wi-Fi[8], SolarEdge Home Network						
Revenue Grade Metering, ANSI C12.20	Built-in[7]						
Integrated AC, DC and Communication Connection Unit	Yes						
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi Access Point for local connection						
DC Voltage Rapid Shutdown (PV and Battery)	Yes, according to NEC 2014 – 2023 per article 690.11 and 690.12						
STANDARD COMPLIANCE							
Safety	UL1741, UL1741 SA, UL1741 SB, UL1741 PCS, UL1699B, UL1998, UL9540, CSA 22.2						
Grid Connection Standards	IEEE1547-2018, Rule 21, Rule 14H, CSA C22.3 No. 9						
Emissions	FCC part 15 class B						
INSTALLATION SPECIFICATIONS							
AC Output and EV AC Output Conduit Size / AWG Range	1" maximum / 14-4 AWG						
DC Input (PV and Battery) Conduit Size / AWG Range	1" maximum / 14-6 AWG						
Dimensions with Connection Unit (H x W x D)	17.7 x 14.6 x 6.8 / 450 x 370 x 174			17.7 x 14.6 x 6.8 / 450 x 370 x 174**	21.06 x 14.6 x 7.3 / 535 x 370 x 185**	21.06 x 14.6 x 8.2 / 535 x 370 x 208***	in / mm
				21.06 x 14.6 x 8.2 / 535 x 370 x 208***			
Weight with Connection Unit	30.8 / 14			30.8 / 14**	41.7 / 18.9**	44.9 / 20.3***	lb / kg
				44.9 / 20.3***			
Noise	< 50						dBA
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60[10]						°F / °C
Protection Rating	NEMA 4X						

** Supported with PN SEXXXXH-USSNBBXX4 or SEXXXXH-USMNBBXX4.
*** Supported with PN SEXXXXH-USSNBBXX5 or SEXXXXH-USMNBBXX5.
(6) Discharge power is limited up to the inverter rated AC power for on-grid and backup applications, as well as up to the installed batteries' rating.
(7) For consumption metering current transformers should be ordered separately: SECT-SPL-225A-T-20 or SEACT0750-400NA-20 units per box. Revenue grade metering is only for production metering.
(8) Information concerning the Data Plan's terms & conditions is available in the following link: SolarEdge Communication Plan Terms and Conditions.
(9) The part number SEXXXXH-USXNBB**X**XX only supports the Wi-Fi communication interface, and the part number SEXXXXH-USXNBB**L**XX only supports the cellular communication interface.
(10) Full power up to at least 50°C / 122°F; for power de-rating information refer to the Temperature Derating Technical Note for North America.

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

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CONTRACTOR INFORMATION

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WWW.SOLARISRENEWABLES.COM
MA REG #178137

DATE: 11/21/2023

PROJECT NAME

JAMES SPARRELL & KATHERINE TOWLER

125 SOUTH STREET
PORTSMOUTH, NH 03801

JOB#: MA02-24-0004

APN NO: M0110 B0009L

PROJECT DETAIL

7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
INVERTER SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-8.1

Residential Power Optimizer

For North America

S440 / S500B / S650B

POWER OPTIMIZER

PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Detects abnormal PV connector behavior, preventing potential safety issues
- Module-level voltage shutdown for installer and firefighter safety
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Faster installations with simplified cable management and easy assembly using a single bolt
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)

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Residential Power Optimizer

For North America

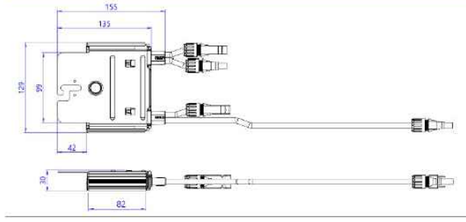
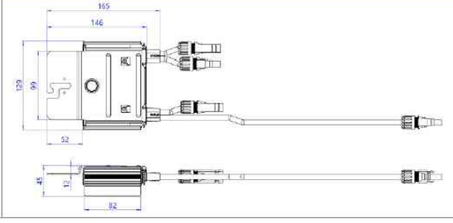
S440 / S500B / S650B

	S440	S500B	S650B	
INPUT				
Rated Input DC Power(1)	440	500	650	W
Absolute Maximum Input Voltage (Voc)	60	125	85	Vdc
MPPT Operating Range	8 – 60	12.5 – 105	12.5 – 85	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5	15		Adc
Maximum Efficiency	99.5			%
Weighted Efficiency	98.6			%
Overvoltage Category	II			
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)				
Maximum Output Current	15			Adc
Maximum Output Voltage	60	80		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR INVERTER OFF)				
Safety Output Voltage per Power Optimizer	1 ± 0.1			Vdc
STANDARD COMPLIANCE				
Photovoltaic Rapid Shutdown System	NEC 2014 – 2023			
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3			
Safety	IEC62109-1 (class II safety), UL1741			
Material	UL94 V-0, UV Resistant			
RoHS	Yes			
Fire Safety	VDE-AR-E 2100-712:2013-05			
INSTALLATION SPECIFICATIONS				
Maximum Allowed System Voltage	1000			Vdc
Dimensions (W x L x H)	129 x 155 x 30 / 5.07 x 6.10 x 1.18	129 x 165 x 45 / 5.07 x 6.49 x 1.77		mm / in
Weight	720 / 1.6	790 / 1.74		gr / lb
Input Connector	MC4[2]			
Input Wire Length	0.1 / 0.32			m / ft
Output Connector	MC4			
Output Wire Length	(+) 2.3; (-) 0.10 / (+) 7.54; (-) 0.32			m / ft
Operating Temperature Range(3)	-40 to +85			°C
Protection Rating	IP68 / NEMA6P			
Relative Humidity	0 – 100			%

(1) Rated power of the module at STC will not exceed the power optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed.
(2) For other connector types please contact SolarEdge.
(3) Power de-rating is applied for ambient temperatures above +85°C / +185°F for S440, and for ambient temperatures above +75°C / 167°F for S500B. Refer to the Power Optimizers Temperature Derating Technical Note for more details.

PV System Design Using a SolarEdge Inverter(4)		SolarEdge Home Wave/Hub Single Phase	Three Phase for 208V Grid	Three Phase for 277/480V Grid	
Minimum String Length (Power Optimizers)	S440	8	10	18	
	S500B, S650B	6	8	14	
Maximum String Length (Power Optimizers)		25		50(5)	
Maximum Nominal Power per String		5700	6000	12,750	W
Maximum Allowed Connected Power per String(6) (In multiple string designs, the maximum is permitted only when the difference in connected power between strings is 1,000W or less)		6800(7)	One string: 7200	15,000	W
			Two strings or more: 7800		
Parallel Strings of Different Lengths or Orientations		Yes			

(4) It is not allowed to mix S-series and P-series Power Optimizers in new installations in the same string.
(5) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement.
(6) If the inverter's rated AC power ≤ maximum nominal power per string, then the maximum connected power per string will be able to reach up to the inverters maximum input DC power. Refer to the Single String Design Guidelines Application Note for more details.
(7) For inverters with a rated AC power ≥ 7600W that are connected to at least two strings.

S440 (Flat Bracket)	S500B, S650B (Bent Bracket)
	

Intertek RoHS

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

solaris RENEWABLES

CONTRACTOR INFORMATION

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3 ELECTRONICS AVENUE | DANVERS MA 019234
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JAMES SPARRELL & KATHERINE TOWLER

125 SOUTH STREET
PORTSMOUTH, NH 03801

JOB#: MA02-24-0004

APN NO: M0110 B0009L

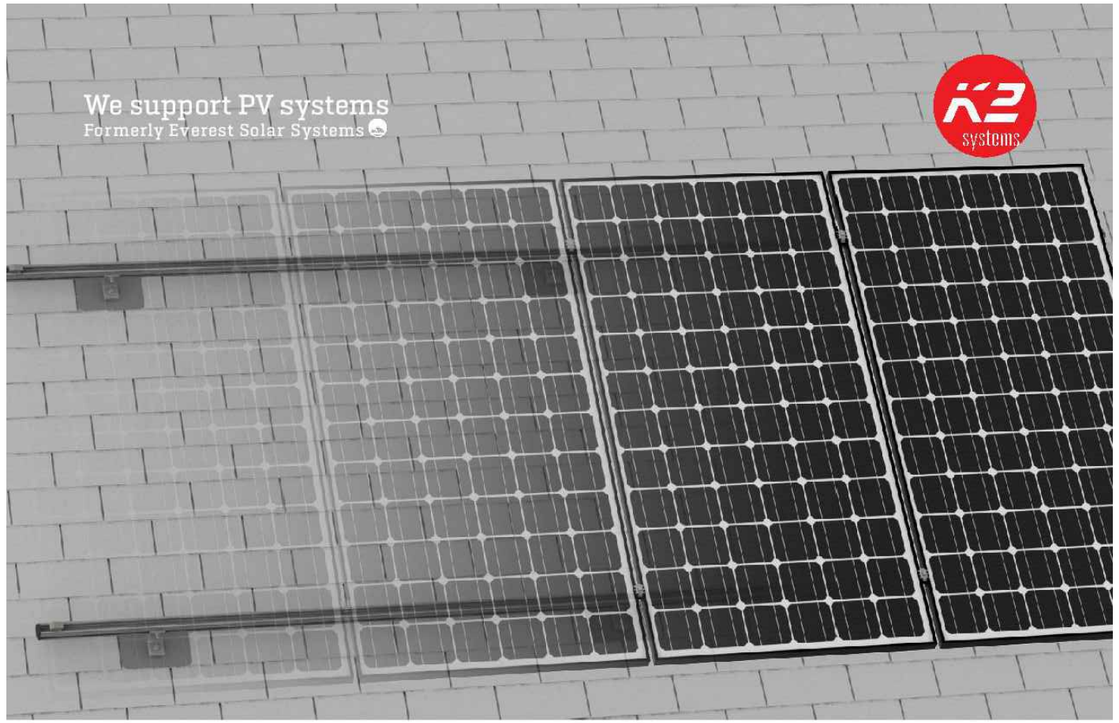
PROJECT DETAIL
7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
OPTIMIZER SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

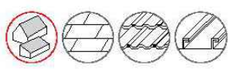
SHEET NUMBER
PV-9



CrossRail System

PRODUCT SHEET

- High quality, German-engineered system for residential and commercial installations
- 4 rail sizes available to suit all structural conditions
- Universal components for all rail types
- Use 2 innovative components to turn this system into Shared Rail or Tilt Up
- MK3 technology provides highest rail engagement
- Roof attachments for all roof types
- 100% code compliant, structural validation for all solar states
- Fast installation with minimal component count result in low total installed cost



Components

CrossRail 44-X

Part Number	Description
4000019	CrossRail 44-X, 166", Mill
4000020	CrossRail 44-X, 166", Dark
4000021	CrossRail 44-X, 180", Mill
4000022	CrossRail 44-X, 180", Dark

CrossRail 48-X

Part Number	Description
4000662	CrossRail 48-X, 166", Mill
4000663	CrossRail 48-X, 166", Dark

CrossRail 48-XL

Part Number	Description
4000695	CrossRail 48-XL, 166", Mill
4000705	CrossRail 48-XL, 166", Dark

CrossRail 80

Part Number	Description
4000508	CrossRail 80 168" Rail Mill

CrossRail Mid Clamp

Part Number	Description
4000601-H	CR MC Silver, 30-47mm, Shared RL 30-37mm 13mm Hex
4000602-H	CR MC Dark, 30-47mm, Shared RL 30-37mm 13mm Hex
4000688-H	SR MC Silver, 38-50mm, Shared RL 28-46mm 13mm Hex
4000689-H	SR MC Silver, 38-50mm, Shared RL 28-46mm 13mm Hex

CrossRail End Clamp

Part Number	Description
4000429	CR EC Silver 35-50mm, SR 33-40mm
4000430	CR EC Dark 35-50mm, SR 33-40mm
4000003	SR EC Silver 46-50mm
4000004	SR EC Dark 46-50mm

Yeti Clamp

Part Number	Description
4000050-H	Yeti Hidden EC for CR, 13mm Hex Set

Aluminum End Clamp

Part Number	Description
4005344	CrossRail EC Silver, AL 32-33mm
4005169	CrossRail EC Silver, AL 34-36mm
4005290	CrossRail EC Silver, AL 37-38mm
4005170	CrossRail EC Silver, AL 39-41mm
4005291	CrossRail EC Silver, AL 42-44mm
4005171	CrossRail EC Silver, AL 45-47mm
4005292	CrossRail EC Silver, AL 48mm
4005172	CrossRail EC Silver, AL 49-50mm

CrossRail Rail Connector

Part Number	Description
4000051	Rail Connector CR 44-X, Set, Mill
4000052	Rail Connector CR 44-X, Set, Dark
4000385	RailConn CR48-X,48-XL Struct Set, Mill
4000386	RailConn CR48-X,48-XL Struct Set, Dark
4001196	Rail Connecctor UL 2703 Set, CR80, Mill

L-Foot & T-Foot

Part Number	Description
4000630	L-Foot Slotted Set, Mill
4000631	L-Foot Slotted Set, Dark
4000080	T-Foot X 6" Kit, Mill

Tile Hooks

Part Number	Description
4000034	Flat Tile Hook Set, w/Lags
4001294	Tile Hook 3S Wide Base w/Hardware

Standing Seam PowerClamps

Part Number	Description
4000016	Standing Seam PowerClamp, Mini, Set
4000017	Standing Seam PowerClamp, Standard, Set

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

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JOB#: MA02-24-0004

APN NO: M0110 B0009L

PROJECT DETAIL
7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
RAIL SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-10

EverFlash Flashings

Part Number	Description
4000366	EverFlash eComp Kit, Dark
4000367	EverFlash eComp Kit, Mill
4000679	EverFlash eComp Kit, Mill LF, Dark Flash

Everest Ground Lug

Part Number	Description
4000006-H	Everest Ground Lug, 13mm Hex

CR Microinverter & Opt Mounting Kit

Part Number	Description
4000629-H	CR Microinverter & Opt, 13mm Hex Kit

Wire Management

Part Number	Description
4000069	Wire Management Clip, TC
4000382	HEYClip SunRunner Cable Slip SS, S6404
4005394	Wire Mangement Clip, Omega, Black

End Caps

Part Number	Description
4000176	EndCap 44-X, K2
4000431	CrossRail Flat EndCap, CR 48-X, 48-XL
4001221	EndCap, Black, CR80

CR 48-X/48-XL Sleeve

Part Number	Description
4000177	Sleeve CR 44-X
4000583	CrosRail 3" Black Sleeve 48-X, 48-XL

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

solaris RENEWABLES

CONTRACTOR INFORMATION

SOLARIS RENEWABLES
781.270.6555 OFFICE
3 ELECTRONICS AVENUE | DANVERS MA 019234
WWW.SOLARISRENEWABLES.COM
MA REG #178137

DATE: 11/21/2023

PROJECT NAME

JAMES SPARRELL & KATHERINE TOWLER

125 SOUTH STREET
PORTSMOUTH, NH 03801

JOB#: MA02-24-0004

APN NO: M0110 B0009L

PROJECT DETAIL
7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
RAIL SPECIFICATION

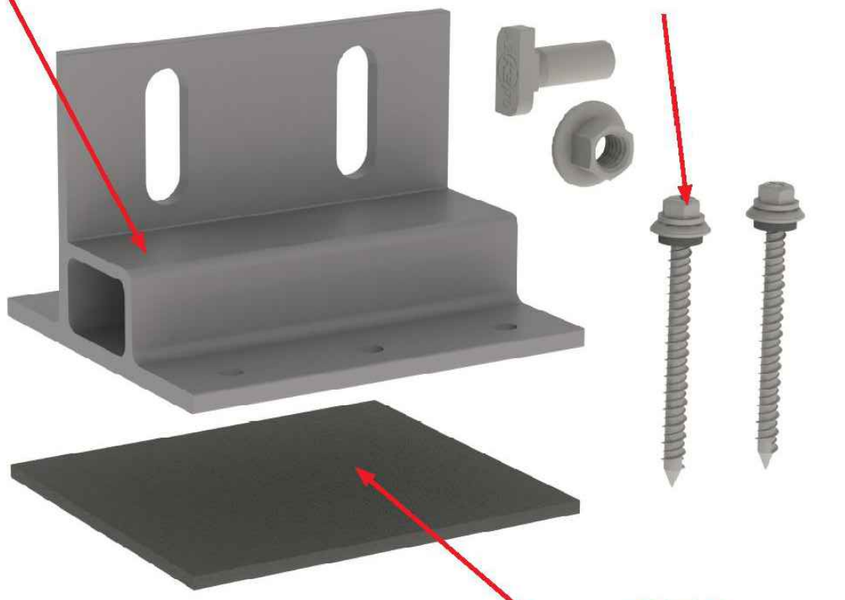
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-10.1

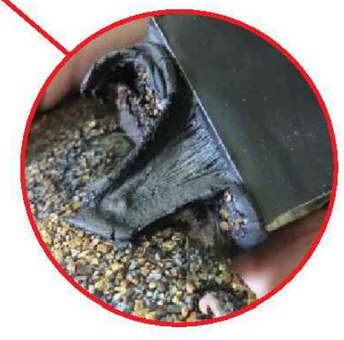
We support PV systems
Formerly Everest Solar Systems

Rail Shelf
- Allows for easier rail support
- Aligns CrossRail T-Bolt channel

Self-Tapping Screws
- Self-sealing; no sealant required
- Self-tapping; no pilot holes required
- 2 screws included per mount



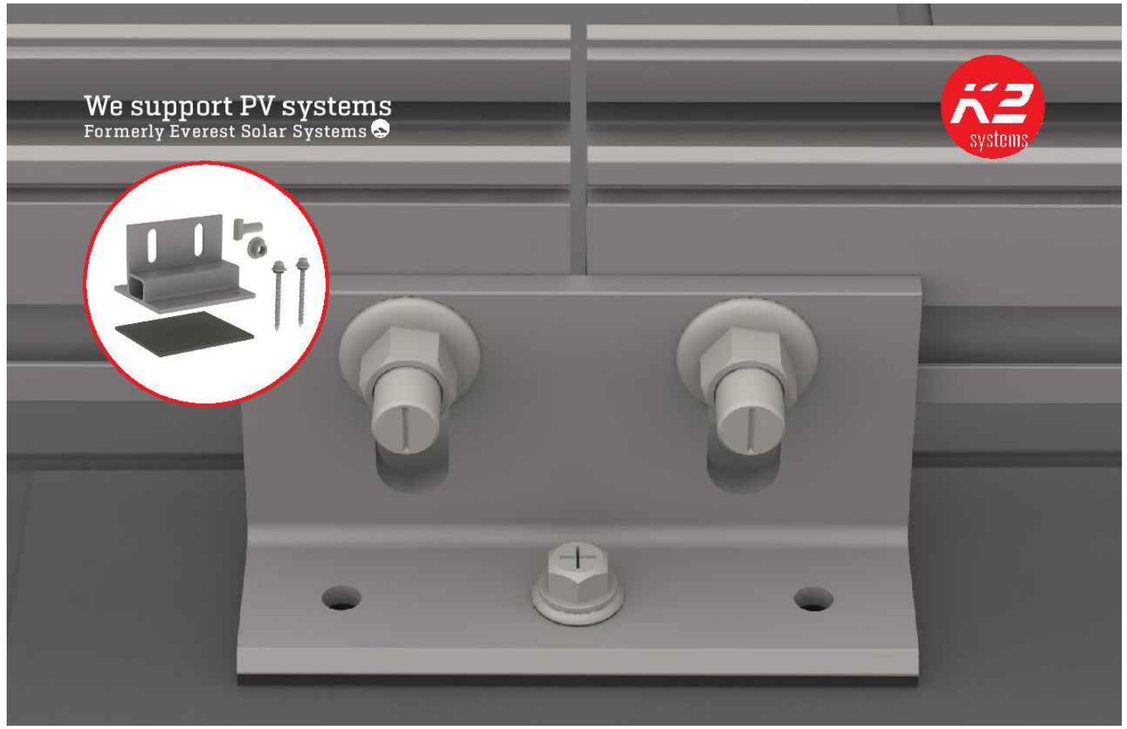
K2 EverSeal
- Pre-installed butyl flexible flashing
- 20+ years of proven water sealing technology
- TAS 100(A) and Wind Driven Rain tested and approved



Splice Foot X & XL

Patent Pending

PRODUCT SHEET



Splice Foot X & XL

Patent Pending

PRODUCT SHEET

Part Number	Description
4000113	Splice Foot X Kit,Mill
4000162	Splice Foot XL Kit, Mill

- All-in-one mount and splice foot
- K2 EverSeal technology
- 20+ years of proven water sealing technology on asphalt
- Self drilling lag screws = less tools needed
- Optimized for CrossRail systems and components
- No L-Foot needed
- T-Bolt hardware included

PROJECT ENGINEER
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7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
ATTACHMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-11

GENFLEX Roofing Systems

Effective July 1, 2012
Replaces All Previous

Fastening Accessories Product List

Fasteners (Stocked)

Description	Product Number	Size	Unit Quantity	Ship Wt (lb)
GenFast™ #12 Fastener (For Insulation Attachment Only)	W590051200	1-5/8"	1000/bkt	11
	W590051201	2-1/4"	1000/bkt	15
	W590051202	2-7/8"	1000/bkt	19
	W590051203	3-1/4"	1000/bkt	21
	W590051204	3-3/4"	1000/bkt	24
	W590051205	4-1/2"	1000/bkt	28
	W590051206	5"	1000/bkt	32
	W590051207	6"	1000/bkt	38
	W590051208	7"	1000/bkt	44
	W590051209	8"	1000/bkt	50
GenFast™ #14 Fastener	W590051412	1-1/4"	1000/bkt	12
	W590051413	1-3/4"	1000/bkt	16
	W590051401	2"	1000/bkt	18
	W590051402	3"	1000/bkt	26
	W590051403	4"	1000/bkt	34
	W590051415	5"	**500/bkt**	22
	W590051416	6"	**500/bkt**	26
	W590051406	7"	500/bkt	30
	W590051407	8"	500/bkt	34
	W590051408	10"	500/bkt	40
	W590051419	12"	**250/bkt**	25
	W590051420	14"	**250/bkt**	29
	W590051411	16"	250/bkt	37
GenFast™ #15 WH (Washer Head) Fastener	W590051500	1-1/4"	1000/bkt	14
	W590051501	2"	1000/bkt	20
	W590051502	3"	1000/bkt	30
	W590051503	4"	1000/bkt	38
	W590051504	5"	500/bkt	24
	W590051505	6"	500/bkt	29
	W590051506	7"	500/bkt	34
	W590051507	8"	500/bkt	38
	W590051508	10"	500/bkt	47
	W590051509	12"	500/bkt	56
GenFast™ #12 Preassembled Fastener & Plate	W590055114	2-1/4"	250/ctn	13
	W590055115	2-7/8"	250/ctn	14
	W590055116	3-1/4"	250/ctn	15
	W590055117	3-3/4"	250/ctn	16
	W590055118	4-1/2"	250/ctn	17
	W590055119	5"	250/ctn	18
	W590055120	6"	250/ctn	19
	W590055121	7"	250/ctn	21
	W590055122	8"	250/ctn	22
	W590055123	9"	250/ctn	26
	W590055124	10"	200/ctn	23
	W590055125	11"	200/ctn	25
	W590055126	12"	200/ctn	27
	W590055127	14"	150/ctn	23
GenFast™ #15 Preassembled Fastener & Plate	W590055141	2"	250/ctn	19
	W590055142	3"	250/ctn	21
	W590055143	4"	250/ctn	24
	W590055144	5"	250/ctn	26
	W590055145	6"	250/ctn	28
	W590055146	7"	250/ctn	30
	W590055147	8"	250/ctn	32
	W590055148	10"	200/ctn	30
	W590055149	12"	200/ctn	37

PROJECT ENGINEER
BROCK NOYES

REVISIONS

DESCRIPTION	DATE	REV

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CONTRACTOR INFORMATION

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WWW.SOLARISRENEWABLES.COM
MA REG #178137

DATE: 11/21/2023

PROJECT NAME
JAMES SPARRELL & KATHERINE TOWLER
125 SOUTH STREET
PORTSMOUTH, NH 03801
JOB#: MA02-24-0004
APN NO: M0110 B0009L

PROJECT DETAIL
7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
ATTACHMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-12

GENFAST™ #12 FASTENER

Item Description	Item Number
1⅝"	W590051200
2¼"	W590051201
3"	W590051210
4"	W590051211
5"	W590051206
6"	W590051207
7"	W590051208
8"	W590051209

Product Information

Description

GenFast #12 Fasteners may be used in any GenFlex system for attachment of roofing insulation using GenFlex 3" Insulation Plates to steel and wood roof decks. GenFast #12 Fasteners can not be used to secure or attach membrane systems to approved decks.

GenFlex GenFast Insulation Fasteners are manufactured to conform to the physical property requirements of Factory Mutual Speecification #4470.

Method of Application

1. GenFast #12 Fasteners can be installed using a #3 Phillips tip provided with every bucket and a variable speed drill. Each fastener must be installed in combination with a FenFlex 3" Round Insulation Plate taking care not to over or under drive the fastener. Threads from the fastener must engage and penetrate the decking material per current GenFlex Technical Specifications. Fastener length can be determined by using the following deck penetration requirements:
   - Steel Deck: Minimum of ¾" (19.1 mm) required penetration
   - Wood Deck: Minimum of 1" (25 mm) required penetration
   - Concrete Deck: Not Acceptable
2. Each fastener must be installed in combination with the appropriate plate taking care not to over or under drive the fastener.
3. Threads from the fastener must engage and penetrate the decking material per GenFlex current Technical Specifications.
4. Check current GenFlex specifications for exceptions and/or changes.

Storage

Fasteners should be protected from moisture and kept dry at all times. If stored out of doors, place on skids in a dry area and cover with a breathable tarp.

Product Data Sheets

Precautionary Data

- Eye protection is recommended when installing the fasteners.
- Refer to Safety Data Sheet (SDS) for additional information.

*LEED® Information

Post Consumer Recycled Content: 25%
Pre Consumer Recycled Content: 0%
*NOTE: LEED® is a registered trademark of the U.S. Green Building Council.

FM APPROVED

Product Data

Typical Properties	
Property	**Typical Values**
Material	SAE 1022 Heat Treated Steel
Diameter	Nominal 0.2135" (5.42 mm): Major Dia., 15½" Thread
Thread	Modified Buttress
Head Style	Deep #3 Phillips Pan Head
Head Outside Diameter	0.448" (11.4 mm)
Corrosion Coating	CR-10
Fastener Tip	Drill Point Design

Packaging

Screw Length	Thread Length	Pieces/Bucket
1⅝" (41.3 mm)	1⅜" (35 mm)	1000
2¼" (57 mm)	1⅞" (47.6 mm)	1000
3" (76 mm)	3" (76 mm)	1000
4" (101.6 mm)	3" (76 mm)	1000
5" (127 mm)	3½" (88.9 mm)	1000
6" (152 mm)	3½" (88.9 mm)	1000
7" (178 mm)	3½" (88.9 mm)	1000
8" 203 mm)	3½" (88.9 mm)	1000

Please contact Quality Building Services Technical Department at 1-800-443-4272 option 1, for further information.

PROJECT ENGINEER
BROCK NOYES

REVISIONS

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125 SOUTH STREET
PORTSMOUTH, NH 03801

JOB#: MA02-24-0004

APN NO: M0110 B0009L

PROJECT DETAIL
7.47 KW STC
7.6 KW AC

ENGINEERING APPROVAL

SHEET NAME
ATTACHMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-12.1

POWERWALL

Tesla Powerwall is a fully-integrated AC battery system for residential or light commercial use. Its rechargeable lithium-ion battery pack provides energy storage for solar self-consumption, time-based control, and backup.

Powerwall's electrical interface provides a simple connection to any home or building. Its revolutionary compact design achieves market-leading energy density and is easy to install, enabling owners to quickly realize the benefits of reliable, clean power.

PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240 V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Total Energy	14 kWh[1]
Usable Energy	13.5 kWh[1]
Real Power, max continuous	5 kW (charge and discharge)
Real Power, peak (10 s, off-grid/backup)	7 kW (charge and discharge)
Apparent Power, max continuous	5.8 kVA (charge and discharge)
Apparent Power, peak (10 s, off-grid/backup)	7.2 kVA (charge and discharge)
Maximum Continuous Current	24 A
Maximum Output Fault Current	32 A
Overcurrent Protection Device	30 A
Load Start Capability	88 - 106 A LRA[2]
Imbalance for Split-Phase Loads	100%
Power Factor Output Range	+/- 1.0 adjustable
Power Factor Range (full-rated power)	+/- 0.85
Internal Battery DC Voltage	50 V
Maximum Supply Fault Current	10 kA
Round Trip Efficiency	90%[1,3]
Warranty	10 years

[1]Values provided for 25°C (77°F), 3.3 kW charge/discharge power.
[2]Load start capability may vary.
[3]AC to battery to AC, at beginning of life.

COMPLIANCE INFORMATION

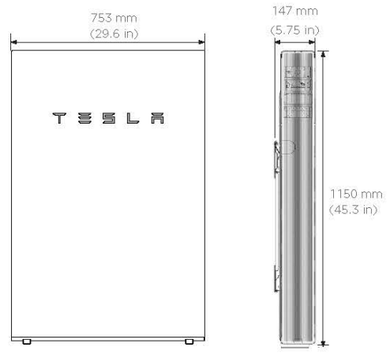
Certifications	UL 1642, UL 1741, UL 1741 SA, UL 1741 SB, UL 1973, UL 9540, IEEE 1547-2018, UN 38.3
Grid Connection	Worldwide Compatibility
Emissions	FCC Part 15 Class B, ICES 003
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)
Fire Testing	Meets the unit level performance criteria of UL 9540A

TESLA

MECHANICAL SPECIFICATIONS

Dimensions	1150 x 753 x 147 mm (45.3 x 29.6 x 5.75 in)[4]
Weight	114 kg (251.3 lbs)[4]
Mounting options	Floor or wall mount

[4]Dimensions and weight differ slightly if manufactured before March 2019. Contact Tesla for additional information.



ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-20°C to 50°C (-4°F to 122°F)[5]
Operating Humidity (RH)	Up to 100%, condensing
Storage Conditions	-20°C to 30°C (-4°F to 86°F) Up to 95% RH, non-condensing State of Energy (SoE): 25% initial
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R
Ingress Rating	IP67 (Battery & Power Electronics) IP56 (Wiring Compartment)
Wet Location Rating	Yes
Noise Level @ 1m	< 40 dBA at 30°C (86°F)

[5]Performance may be de-rated at operating temperatures below 10°C (50°F) or greater than 43°C (109°F).

PROJECT ENGINEER
JORDON HALL

REVISIONS

DESCRIPTION	DATE	REV

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CONTRACTOR INFORMATION

SOLARIS RENEWABLES
781.270.6555 MAIN
103 ELECTRONICS AVENUE
DANVERS, MA 01923
WWW.SOLARISRENEWABLES.COM
MA REG #178137

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JAMES SPARRELL & KATHERINE TOWLER
125 SOUTH STREET
PORTSMOUTH, NH 03801
JOB#: MA02-24-0004
APN NO: M0110 B0009L

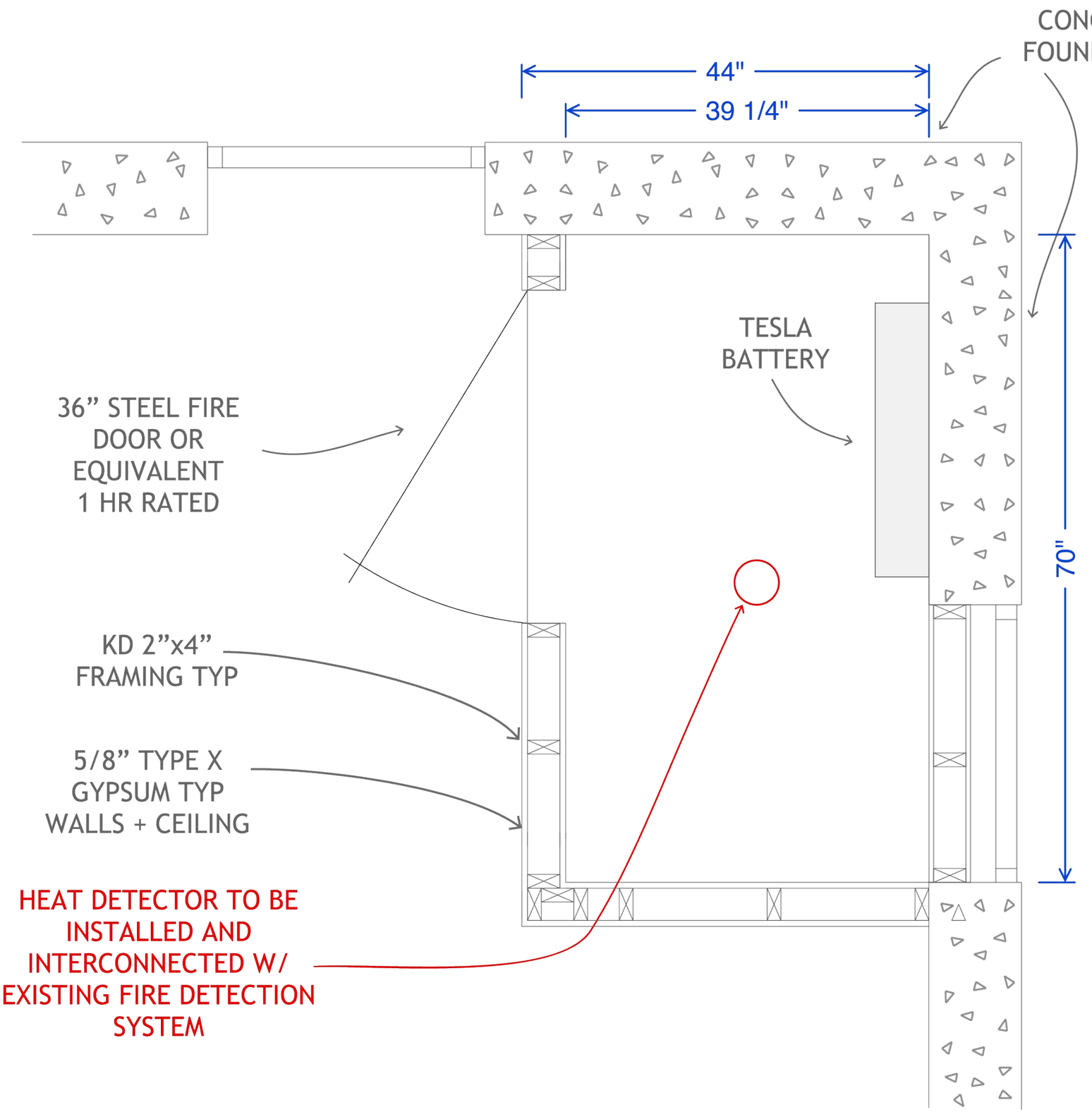
PROJECT DETAIL
5.0 KW AC

ENGINEERING APPROVAL

SHEET NAME
ESS SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-13



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JORDON HALL

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125 SOUTH STREET
PORTSMOUTH, NH 03801

JOB#: MA02-24-0004

APN NO: M0110 B0009L

PROJECT DETAIL

5.0 KW AC

ENGINEERING APPROVAL

SHEET NAME
FIRE ROOM DETAIL

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-14

Rooftop Solar Array Mock-up photos

SPARRELL James & TOWLER Katherine • 125 South Street, Portsmouth, NH

Fig. 1: Aerial view

Fig. 2: Ground view

Arrays shown are not to scale.