



Scott E. Wyssling, PE  
Coleman D. Larsen, SE, PE  
Gregory T. Elvestad, PE

76 North Meadowbrook Drive  
Alpine, UT 84004  
office (201) 874-3483  
swyssling@wysslingconsulting.com

April 10, 2023  
Revised June 1, 2023

Titan Solar Power  
210 North Sunway Drive  
Gilbert, AZ 85233

Scott  
Wyssling, PE

Digitally signed by Scott Wyssling, PE  
DN: cn=Scott Wyssling, o=Wyssling Consulting  
c=US, email=swyssling@wysslingconsulting.com  
Reason: I am the author of this document  
Location: your signing location here  
Date: 2023.06.01 09:32:04-0600  
Full PDF Editor Version: 11.1.0

Re: Engineering Services  
Lewis Residence  
185 Sherwood Hills Court, Cameron NC  
6.000 kW System

To Whom It May Concern:

We have received information regarding solar panel installation on the roof of the above referenced structure. Our evaluation of the structure is to verify the existing capacity of the roof system and its ability to support the additional loads imposed by the proposed solar system.

#### A. Site Assessment Information

1. Site visit documentation identifying attic information including size and spacing of framing for the existing roof structure.
2. Design drawings of the proposed system including a site plan, roof plan and connection details for the solar panels. This information will be utilized for approval and construction of the proposed system.

#### B. Description of Structure:

**Roof Framing:** Assumed 2x6 dimensional lumber at 24" on center.  
**Roof Material:** Composite Asphalt Shingles  
**Roof Slope:** 26 degrees  
**Attic Access:** Inaccessible  
**Foundation:** Permanent

#### C. Loading Criteria Used

- **Dead Load**
  - Existing Roofing and framing = 7 psf
  - New Solar Panels and Racking = 3 psf
  - TOTAL = 10 PSF
- **Live Load** = 20 psf (reducible) – 0 psf at locations of solar panels
- **Ground Snow Load** = 15 psf
- **Wind Load** based on ASCE 7-10
  - Ultimate Wind Speed = 119 mph (based on Risk Category II)
  - Exposure Category C

*Analysis performed of the existing roof structure utilizing the above loading criteria is in accordance with the 2018 NCRS (2015 IRC), including provisions allowing existing structures to not require strengthening if the new loads do not exceed existing design loads by 105% for gravity elements and 110% for seismic elements. This analysis indicates that the existing framing will support the additional panel loading without damage, if installed correctly.*

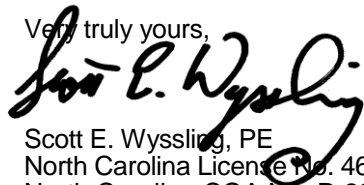
**D. Solar Panel Anchorage**

1. The solar panels shall be mounted in accordance with the most recent K2 installation manual. If during solar panel installation, the roof framing members appear unstable or deflect non-uniformly, our office should be notified before proceeding with the installation.
2. The maximum allowable withdrawal force for a M5 x 60mm lag screw is 158 lbs per inch of penetration as identified in the National Design Standards (NDS) of timber construction specifications. Based on two (2) screws with a minimum penetration depth of 1.25", the allowable capacity per connection is greater than the design withdrawal force (demand). Considering the variable factors for the existing roof framing and installation tolerances, the connection using two (2) M5 x 60mm lag screw with a minimum of 1.25" embedment will be adequate and will include a sufficient factor of safety.
3. Considering the roof slopes, the size, spacing, condition of roof, the panel supports shall be placed no greater than 48" o/c.

Based on the above evaluation, this office certifies that with the racking and mounting specified, the existing roof system will adequately support the additional loading imposed by the solar system. This evaluation is in conformance with the 2018 NCRC (2015 IRC), current industry standards, and is based on information supplied to us at the time of this report.

Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

Very truly yours,



Scott E. Wyssling, PE  
North Carolina License No. 46546  
North Carolina COA No. P-2308

THIS PLAN HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY SCOTT WYSSLING, PE USING A DIGITAL SIGNATURE AND DATE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES



Wyssling Consulting, PLLC  
76 N Meadowbrook Drive Alpine UT 84004  
North Carolina COA # P-2308

Signed 06-01-23

05/31/2023

**Project Information:**

TSP153990 LaPrei T Lewis

185 Sherwood Hills Ct  
Cameron NC 28326

Senior Manager - Design  
manish@wattmonk.com

**Comments:**

- We have revised the module layout as per the installed layout.

**No Further Changes.**



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**SCOPE OF WORK**

TO INSTALL A ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM AT THE OWNER RESIDENCE LOCATED AT 185 SHERWOOD HILLS CT, CAMERON, NC 28326, USA. THE POWER GENERATED BY THE PV SYSTEM WILL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ELECTRICAL SERVICE EQUIPMENT. THE PV SYSTEM DOES NOT INCLUDE STORAGE BATTERIES.

**EQUIPMENT SUMMARY**

15 HYPERION SOLAR HY-DH108P8 (400W) MODULES
1 SOLAREEDGE SE5000H-US [240V] INVERTER
15 SOLAREEDGE POWER OPTIMIZER S440

**GENERAL NOTES**

- THESE CONSTRUCTION DOCUMENTS HAVE BEEN BASED ON FIELD INSPECTIONS AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS IN CONSTRUCTION DETAILS.
- ARCHITECT HAS NOT BEEN RETAINED TO SUPERVISE ANY CONSTRUCTION OR INSTALLATION OF ANY EQUIPMENT AT SITE.
- CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, TOOLS, OBTAINS ALL PERMITS, LICENSES AND PAY ALL REQUIRED FEES AND COMPLETE INSTALLATION.
- CONTRACTOR HAS THE FULL RESPONSIBILITY TO CHECK AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. ANY WORK STARTED BEFORE CONSULTATION AND ACCEPTANCE BY THE ENGINEER SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBJECT TO CORRECTION BY THEM WITHOUT ADDITIONAL COMPENSATION.
- DAMAGE CAUSED TO THE EXISTING STRUCTURE, PIPES, DUCTS, WINDOWS, WALL, FLOORS, ETC. SHALL BE REPAIRED TO THE ORIGINAL CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE PROPER INSTALLATION AND COMPLETION OF THE WORK WITH APPROVED MATERIALS.
- NO CHANGES ARE TO BE MADE WITHOUT THE CONSULTATION AND APPROVAL OF THE ARCHITECT.
- CONTRACTOR SHALL OBTAIN BULDING PERMIT. NO WORK TO START UNLESS BUILDING PERMIT IS PROPERLY DISPLAYED.
- ALL WORKMANSHIP AND MATERIALS SHALL BE OF FIRST QUALITY AND IN COMPLIANCE WITH THE REQUIREMENTS OF THE NATIONAL BUILDING CODE, THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ALL PERTINENT AGENCIES.
- IT IS ESSENTIAL THAT ALL WORK PROCEED WITH THE MAXIMUM COOPERATION OF ALL PARTIES AND WITH MINIMUM INTERFERENCE TO THE OCCUPANTS WITHIN THE BUILDING. THE OWNER'S DIRECTIONS IN THIS REGARD SHALL BE FULLY COMPLIED WITH.
- THE CONTRACTOR SHALL PERFORM THE WORK IN STRICT CONFORMANCE WITH THE LOCAL LAWS, REGULATIONS AND THE NATIONAL ELECTRIC CODE.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS, APPROVALS, AFFIDAVITS, CERTIFICATIONS, ETC. AND PAY ALL FEES AS REQUIRED BY THE LOCAL AUTHORITIES.
- CONTRACTORS SHALL OBTAIN FIRE CERTIF. UPON COMPLETION OF WORK.

**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 NEC 110.26.
- 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 MANUFACTURERS INSTRUCTION.
- MODULE SUPPORT RAIL SHALL BE BONDED TO THE MODULE

**GOVERNING CODES**

2018 NORTH CAROLINA FIRE CODE  
 2018 NORTH CAROLINA BUILDING CODE  
 2018 NORTH CAROLINA RESIDENTIAL CODE  
 2018 NORTH CAROLINA ENERGY CONSERVATION CODE  
 2018 NORTH CAROLINA EXISTING BUILDING CODE  
 2018 NORTH CAROLINA SWIMMING POOL AND SPA CODE  
 2017 NORTH CAROLINA ELECTRICAL CODE

AHJ NAME : HARNETT COUNTY

**WIRING AND CONDUIT NOTES**

- ALL CONDUIT SIZES AND TYPES SHALL BE LISTED FOR ITS PURPOSE AND APPROVAL FOR THE SITE APPLICATIONS
- ALL PV CABLES AND HOMERUN WIRES BE #10AWG \*USE-2, PV WIRE, OR PROPRIETARY SOLAR CABLING SPECIFIED BY MFR, OR EQUIVALENT; ROUTED TO SOURCE CIRCUIT COMBINER BOXES AS REQUIRED
- ALL PV DC CONDUCTORS IN CONDUIT EXPOSED TO SUNLIGHT SHALL BE DERATED ACCORDING TO AS PER LATEST NEC CODE.
- EXPOSED ROOF PV DC CONDUCTORS SHALL BE USE-2, 90°C RATED, WET AND UV RESISTANT, AND UL LISTED RATED FOR 600V, UV RATED SPIRAL WRAP SHALL BE USED TO PROTECT WIRE FROM SHARP EDGES
- PHASE AND NEUTRAL CONDUCTORS SHALL BE DUAL RATED THHN/THWN-2 INSULATED, 90°C RATED, WET AND UV RESISTANT, RATED FOR 1000V AS PER APPLICABLE NEC
- 4-WIRE DELTA CONNECTED SYSTEMS HAVE THE PHASE WITH THE HIGHER VOLTAGE TO GROUND MARKED ORANGE OR IDENTIFIED BY OTHER EFFECTIVE MEANS
- ALL SOURCE CIRCUITS SHALL HAVE INDIVIDUAL SOURCE CIRCUIT PROTECTION
- VOLTAGE DROP LIMITED TO 2%
- AC CONDUCTORS >4AWG COLOR CODED OR MARKED: PHASE A OR L1- BLACK, PHASE B OR L2- RED, PHASE C OR L3- BLUE, NEUTRAL- WHITE/GRAY



REV 2



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<b>SYSTEM RATING</b>
6.000 kWDC
5.000 kWAC

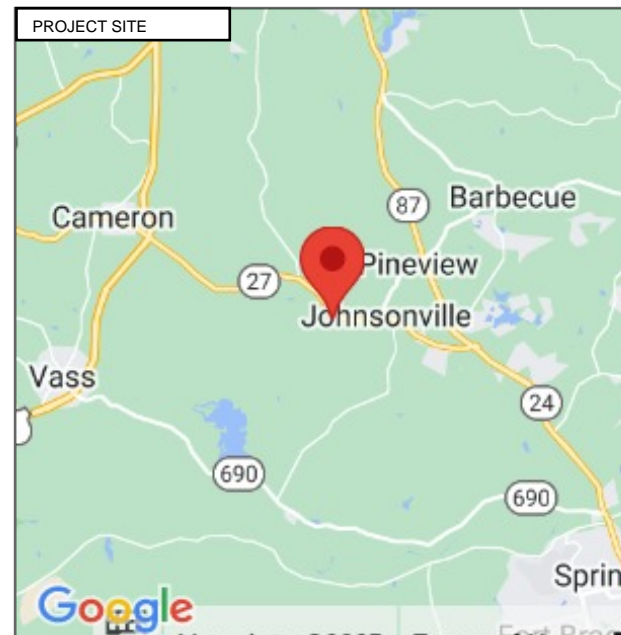
PHOTOVOLTAIC SYSTEM FIRE CLASSIFICATION LISTING IN ACCORDANCE WITH UL 1703 STANDARD.

SHEET INDEX	
PV1	COVER PAGE
PV2	SITE PLAN
PV3	ROOF PLAN
PV4	STRING LAYOUT & BOM
PV5-PV6	ATTACHMENT DETAILS
PV7-PV8	ELECTRICAL LINE & CALCS.
PV9	SPECIFICATIONS & NOTES
PV10-PV11	SIGNAGE
PV12	JOB SAFETY PLAN
PV13-PV19	EQUIPMENT SPECIFICATIONS



HOUSE PHOTO

SCALE: NTS



VICINITY MAP

SCALE: NTS



TITAN SOLAR POWER  
 160 N MCQUEEN RD,  
 GILBERT, AZ 85233, USA  
 PH# : (808) 371-5338  
 Electrical LIC# : U.33714

SYSTEM INFO
(15) HYPERION SOLAR HY-DH108P8 (400W)
(1) SOLAREEDGE SE5000H-US [240V]
DC SYSTEM SIZE: 6.000 kWDC
AC SYSTEM SIZE: 5.000 kWAC
METER: 162 809 049

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	05/23/2023	A
REVISION	06/01/2023	B

PROJECT NAME & ADDRESS

LAPREI T LEWIS  
 RESIDENCE  
 185 SHERWOOD HILLS CT, CAMERON, NC 28326,  
 USA  
 EMAIL ID: LEWI\_LOVE2004@YAHOO.COM  
 PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME  
**COVER PAGE**

SHEET SIZE  
**ANSI B  
 11" X 17"**

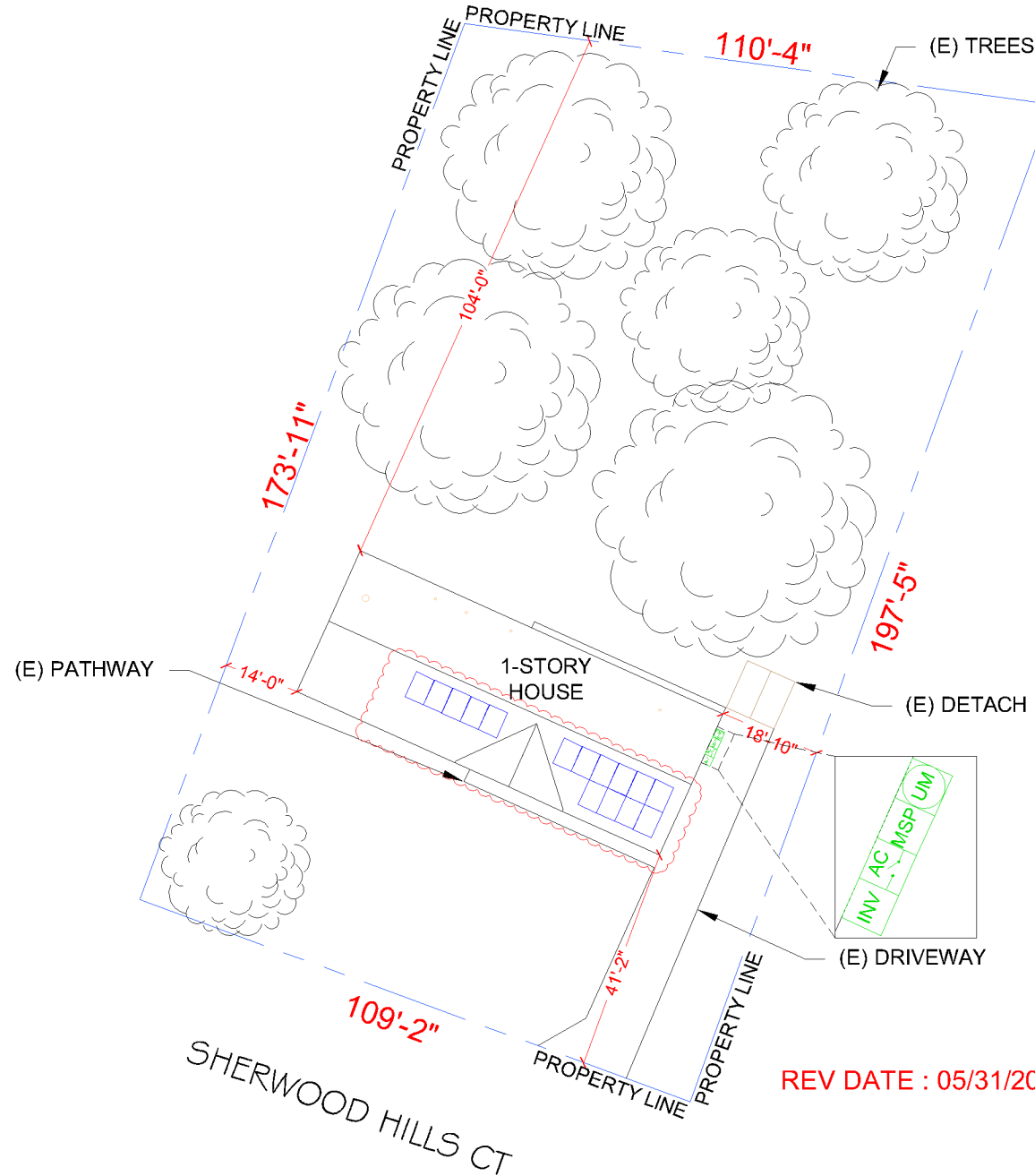
SHEET NUMBER  
**PV-1**

**SITE NOTES**

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

**LEGEND**

- JB (N) JUNCTION BOX
- UM (E) UTILITY METER
- MSP (E) MAIN SERVICE PANEL
- AC (N) NON FUSED AC DISCONNECT
- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- ROOF ATTACHMENT
- CONDUIT
- S440 OPTIMIZER
- INV SOLAREEDGE SE5000H-US [240V] INVERTER
- HYPERION SOLAR HY-DH108P8 (400W) MODULES
- K2 CROSSRAIL 44-X
- TRENCH



REV DATE : 05/31/2023



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DC SYSTEM SIZE: 6.000 KWDC
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 PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME  
**SITE PLAN**

SHEET SIZE  
**ANSI B  
 11" X 17"**

SHEET NUMBER  
**PV-2**



SCALE: 1/32" = 1'-0

METER NO#: 162 809 049

DESIGN SPECIFICATION	
RISK CATEGORY:	II
CONSTRUCTION:	SFD
ZONING:	RESIDENTIAL
SNOW LOAD (ASCE7-10):	15 PSF
EXPOSURE CATEGORY:	C
WIND SPEED (ASCE7-10):	119 MPH

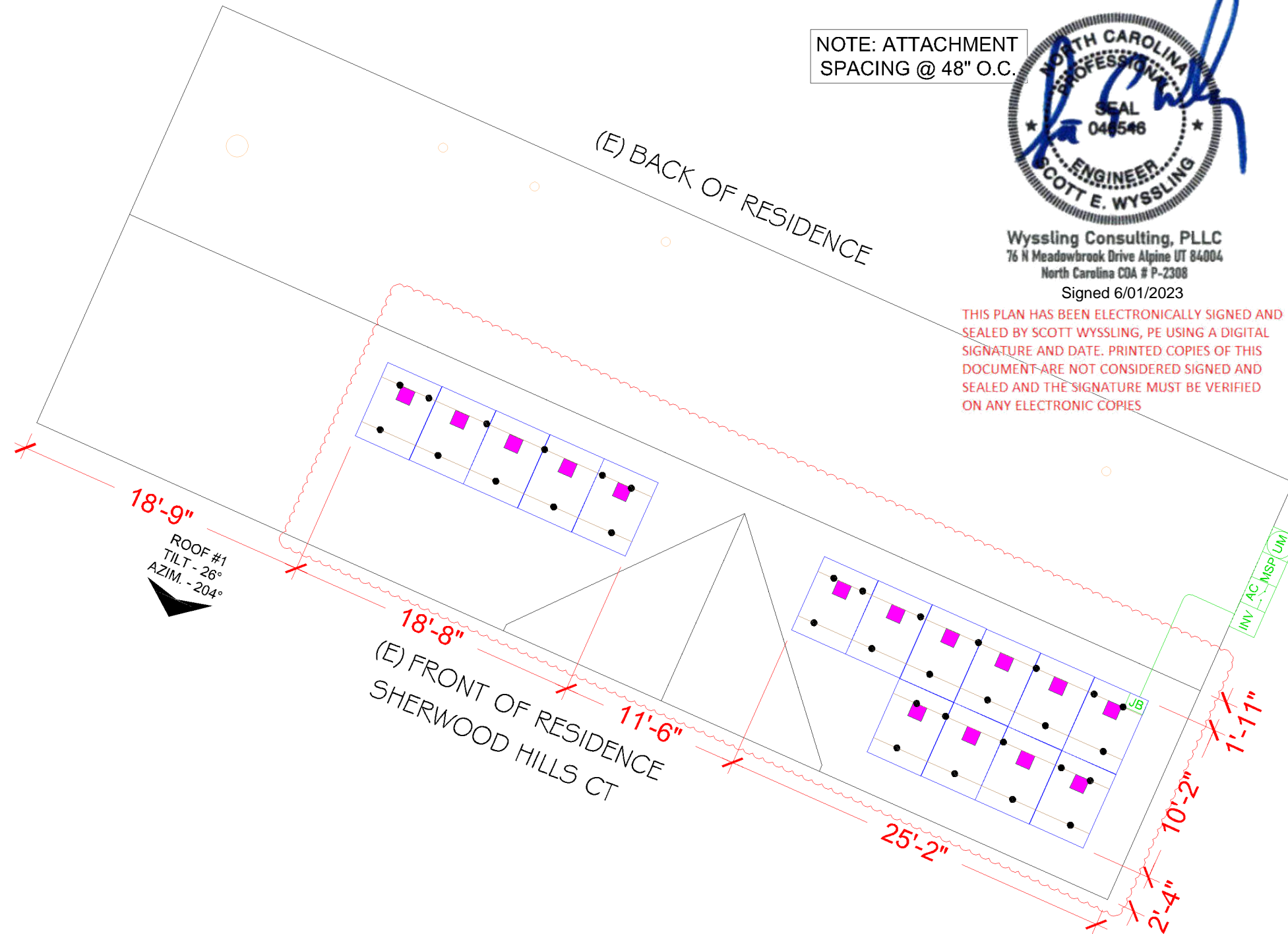
MODULE TYPE, DIMENSIONS & WEIGHT	
NUMBER OF MODULES:	15 MODULES
MODULE TYPE:	HYPERION SOLAR HY-DH108P8 (400W)
MODULE WEIGHT:	55.5 LBS
MODULE DIMENSIONS:	67.08" X 44.65" = 20.80 SF
UNIT WEIGHT OF AREA:	2.67 PSF

ROOF DESCRIPTION					
ROOF	ROOF TILT	AZIMUTH	RAFTER SIZE	RAFTER SPACING	ROOF MATERIAL
#1	26°	204°	2" x 6"	24" o.c.	COMP SHINGLE

ARRAY AREA & ROOF AREA CALC'S		
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)
#1	15	312
(TOTAL ARRAY AREA/TOTAL ROOF AREA) X 100%		
= (312/2380) X 100% = 13.11%		

LEGEND	
	(N) JUNCTION BOX
	(E) UTILITY METER
	(E) MAIN SERVICE PANEL
	(N) NON FUSED AC DISCONNECT
	VENT. ATTIC FAN (ROOF OBSTRUCTION)
	ROOF ATTACHMENT
	CONDUIT
	S440 OPTIMIZER
	SOLAREEDGE SE5000H-US [240V] INVERTER
	HYPERION SOLAR HY-DH108P8 (400W) MODULES
	K2 CROSSRAIL 44-X
	TRENCH
PANEL HEIGHT OFF ROOF	8"

DEAD LOAD CALCULATION			
EQUIPMENT'S DESCRIPTIONS	QTY	LBS/UNIT	TOTAL WEIGHT
MODULES	15	55.5	832.5
MID CLAMP	26	0.3	7.8
END CLAMP	8	0.31	2.48
K2 CROSSRAIL 44-X	9	10	90.00
SPLICE BAR	6	0.65	3.91
SPLICE FOOT X	33	0.9	29.70
K2 SOLAR SEAL BUTYL PAD	33	0.42	13.86
M5 X 60 LAG SCREWS	66	0.08	5.28
T BOLT AND HEX NUT SET	33	0.05	1.65
TOTAL WEIGHT OF THE SYSTEM (LBS)			987.18
TOTAL ARRAY AREA ON THE ROOF (SQ. FT.)			312
WEIGHT PER SQ. FT. (LBS)			3.17
WEIGHT PER PENETRATION (LBS)			5.99



TITAN SOLAR POWER  
160 N MCQUEEN RD,  
GILBERT, AZ 85233, USA  
PH# : (808) 371-5338  
Electrical LIC# : U.33714

SYSTEM INFO	
(15) HYPERION SOLAR HY-DH108P8 (400W)	
(1) SOLAREEDGE SE5000H-US [240V]	
DC SYSTEM SIZE: 6.000 KWDC	
AC SYSTEM SIZE: 5.000 KWAC	
METER: 162 809 049	

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DATE: 6/1/2023

SHEET NAME  
ROOF PLAN

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-3



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

REV DATE : 05/31/2023

METER NO#: 162 809 049

**BILL OF MATERIALS**

EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	15	HYPERION SOLAR HY-DH108P8 (400W)
INVERTER	1	SOLAREEDGE SE5000H-US [240V]
OPTIMIZER	15	SOLAREEDGE POWER OPTIMIZER S440
JUNCTION BOX	1	JB-1.XL, JUNCTION BOX, NEMA 3R, UL LISTED
NON FUSED AC DISCONNECT	1	EATON DG221URB PV SYSTEM AC DISCONNECT SWITCH NON FUSED VISIBLE OPEN 30A, 120/240V 2P NEMA 3R
ATTACHMENT	33	SPLICE FOOT X
ATTACHMENT	33	K2 SOLAR SEAL BUTYL PAD
ATTACHMENT	66	M5 X 60 LAG SCREWS
ATTACHMENT	33	T BOLT AND HEX NUT SET
RAILS	9	K2 CROSSRAIL 44-X
BONDED SPLICE	6	SPLICE KIT
MID CLAMP	26	MODULE MID CLAMPS
END CLAMP	8	MODULE END CLAMPS
GROUNDING LUG	2	GROUNDING LUG



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(1) SOLAREEDGE SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 KWDC

AC SYSTEM SIZE: 5.000 KWAC

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SHEET NAME

**STRING LAYOUT & BOM**

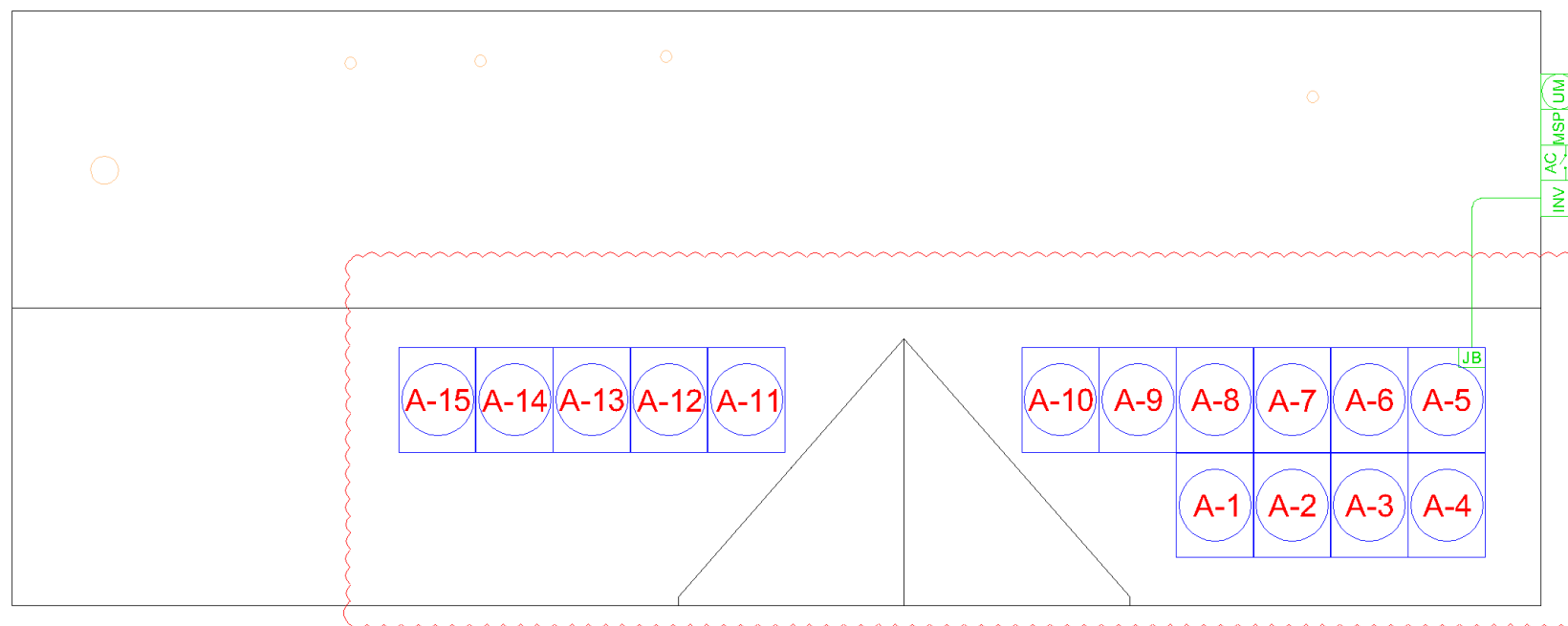
SHEET SIZE

**ANSI B  
 11" X 17"**

SHEET NUMBER

**PV-4**

(E) BACK OF RESIDENCE



(E) FRONT OF RESIDENCE  
 SHERWOOD HILLS CT

**REV DATE : 05/31/2023**



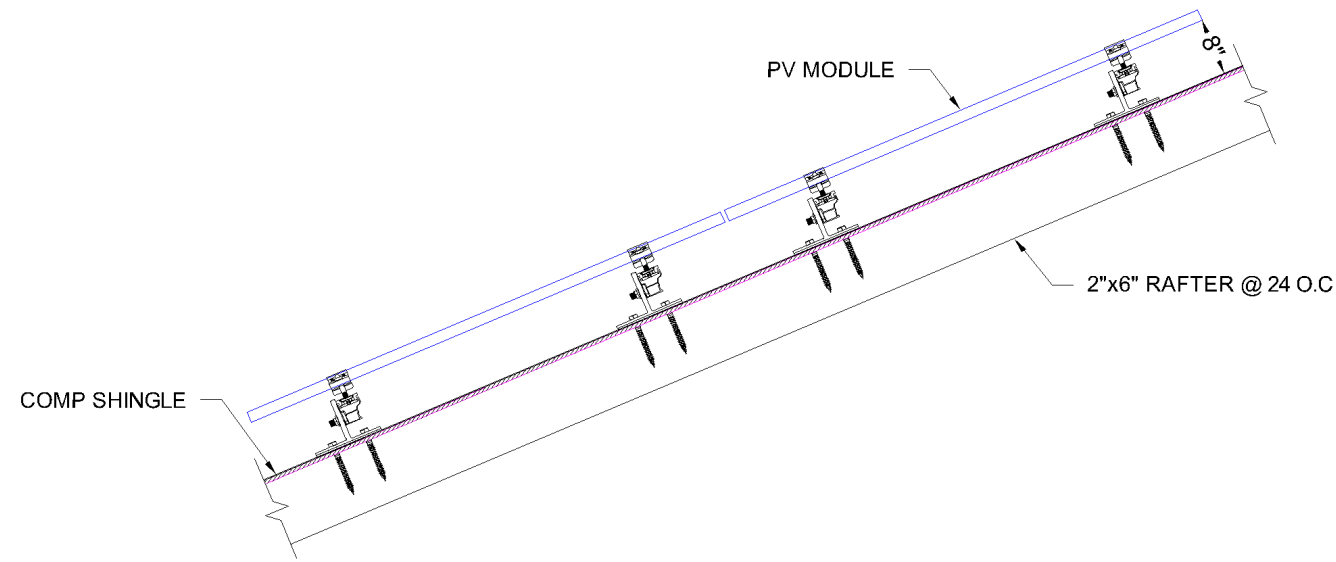
SCALE: 1/16" = 1'-0"



- MODULE STRINGING

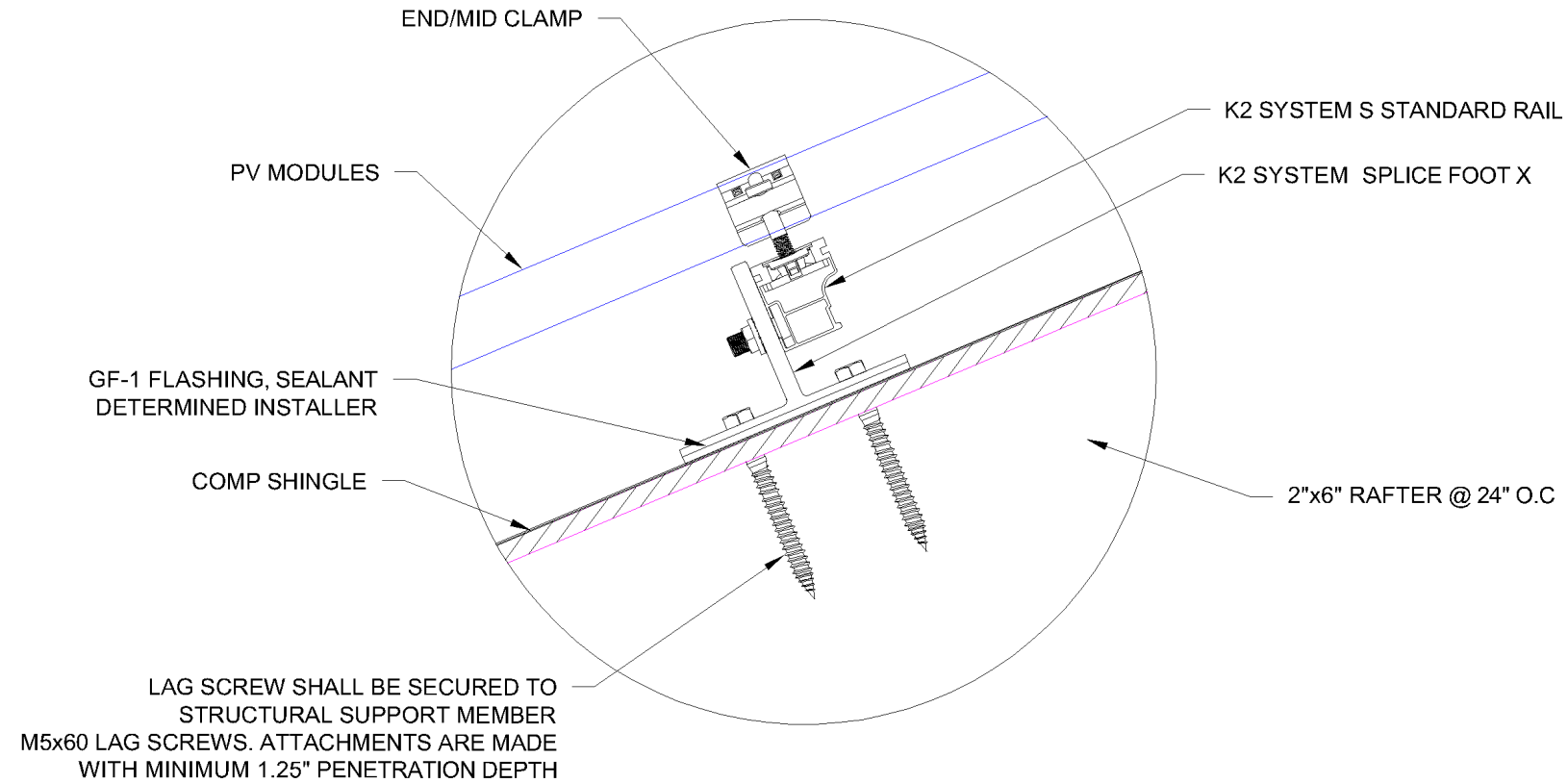


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SYSTEM INFO

(15) HYPERION SOLAR  
 HY-DH108P8 (400W)

(1) SOLAREEDGE  
 SE5000H-US (240V)

DC SYSTEM SIZE: 6.000 kWDC  
 AC SYSTEM SIZE: 5.000 kWAC

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SHEET NAME

ATTACHMENT  
 DETAILS

SHEET SIZE

ANSI B  
 11" X 17"

SHEET NUMBER

PV-5





TITAN SOLAR POWER  
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(1) SOLAREGE  
SE5000H-US [240V]

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AC SYSTEM SIZE: 5.000 KWAC

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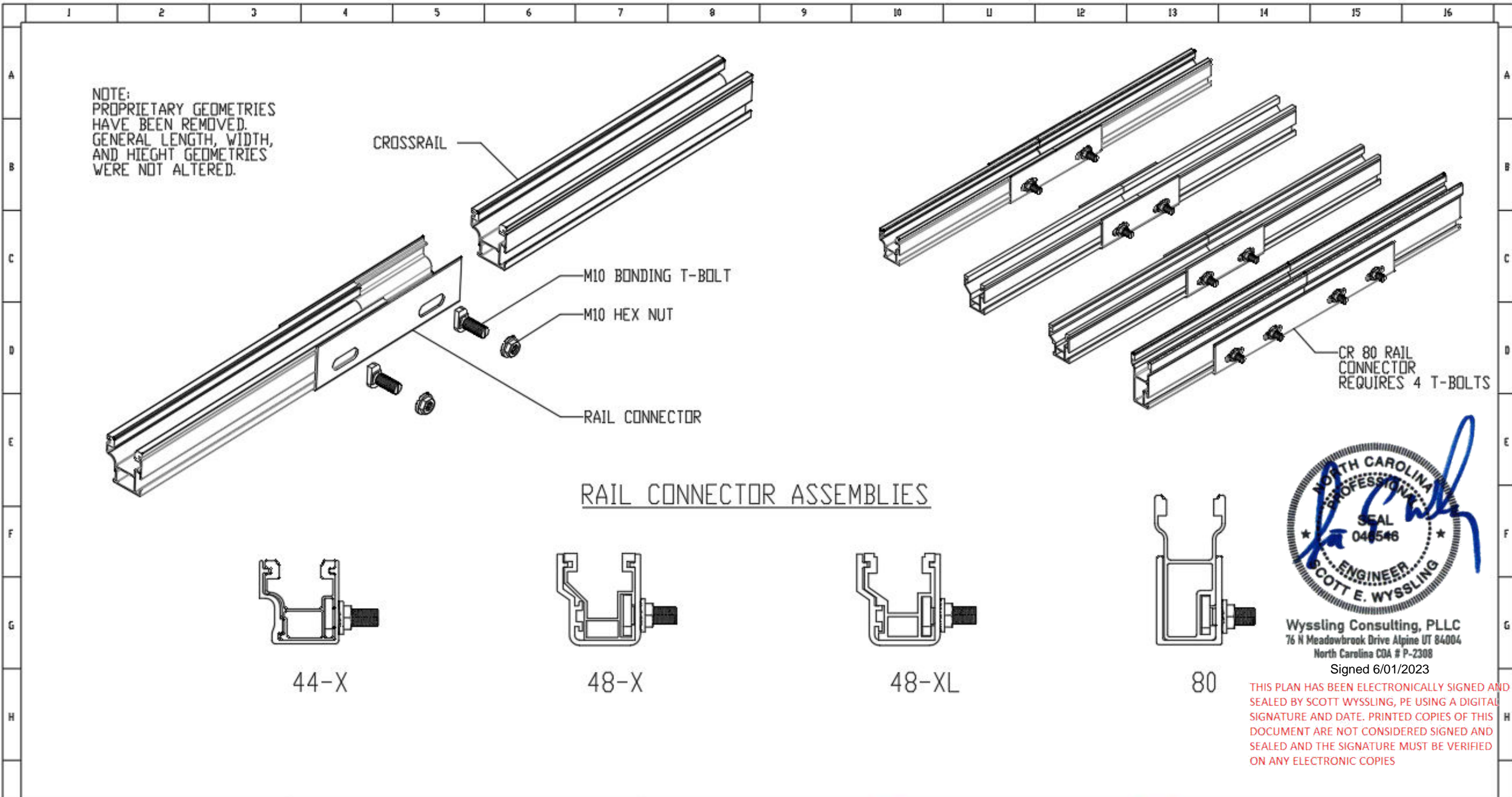
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DETAILS

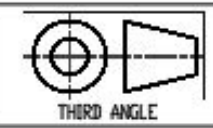
SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-6



REVISION HISTORY		
Revision	Date	Description
01		
02		
03		
04		
05		

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Everest Solar Systems, LLC.  
a division of K2 Systems International  
2835 La Mirada Dr Suite A  
Vista, CA 92081  
phone 760.301.5300



	Name	Date
Drawn	I. WIGGINS	07/29/2020
Checked	R. HAGEN	08/07/2020
Approved	I. WIGGINS	08/07/2020
Last Revision		

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1116

CROSSRAIL RAIL  
CONNECTOR ASSEMBLIES

1117

B

Scale: 1:100

Revision: 00

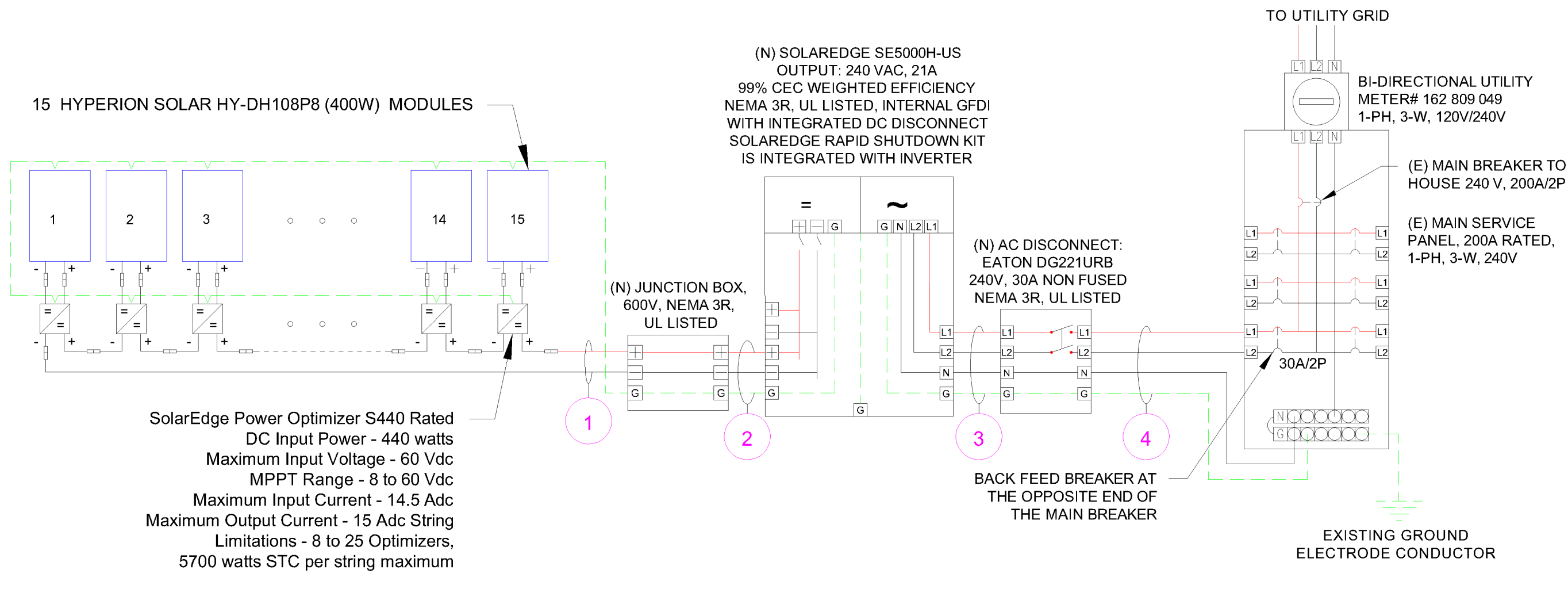
#1 Dimensions are mm

Sheet 2 of 2



TITAN SOLAR POWER  
160 N MCQUEEN RD,  
GILBERT, AZ 85233, USA  
PH# : (808) 371-5338  
Electrical LIC# : U.33714

ID	TYPICAL	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION	CONDUCTOR			CONDUIT	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CIRCUIT	CONDUIT FILL PERCENT	OC PD	EGC		TEMP. CORR. FACTOR		CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	LENGTH	VOTAGE DROP
				6 AWG	BARE COPPER																		
1	2	ARRAY	JUNCTION BOX	10 AWG	PV WIRE	COPPER	OPEN AIR	1	2	N/A	N/A	6 AWG	BARE COPPER	0.71	(58°C)	N/A	15.00A	18.75A	N/A	N/A	75°C	29FT	0.22%
2	1	JUNCTION BOX	INVERTER	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	2	4	21.76%	N/A	8 AWG	THWN-2 COPPER	0.91	(36°C)	0.8	15.00A	18.75A	40A	29.12A	75°C	60FT	0.47%
3	1	INVERTER	NON FUSED AC DISCONNECT	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	18.01%	N/A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	21.00A	26.25A	40A	36.40A	75°C	5FT	0.11%
4	1	NON FUSED AC DISCONNECT	MSP	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	18.01%	30A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	21.00A	26.25A	40A	36.40A	75°C	5FT	0.11%



SolarEdge Power Optimizer S440 Rated  
DC Input Power - 440 watts  
Maximum Input Voltage - 60 Vdc  
MPPT Range - 8 to 60 Vdc  
Maximum Input Current - 14.5 Adc  
Maximum Output Current - 15 Adc String  
Limitations - 8 to 25 Optimizers,  
5700 watts STC per string maximum

SYSTEM RATING
6.000 kWDC
5.000 kWAC

SERVICE INFO	
UTILITY PROVIDER:	CENTRAL ELECTRIC MEMBERSHIP CORPORATION
AHJ NAME:	HARNETT COUNTY
MAIN SERVICE VOLTAGE:	240V
MAIN PANEL BRAND:	SQUARE D
MAIN SERVICE PANEL:	200 A
MAIN BREAKER RATING:	200 A
MAIN SERVICE LOCATION:	EAST
SERVICE FEED SOURCE:	UNDERGROUND

INTERCONNECTION 120% RULE - NEC 705.12(B)(2)(3)(b)
UTILITY FEED + SOLAR BACKFEED 200A + 30A = 230A
BUSS RATING X 120% 200A x 120% = 240A

METER NO#: 162 809 049

SYSTEM INFO
(15) HYPERION SOLAR HY-DH108P8 (400W)
(1) SOLAREEDGE SE5000H-US [240V]
DC SYSTEM SIZE: 6.000 kWDC
AC SYSTEM SIZE: 5.000 kWAC
METER: 162 809 049

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	05/23/2023	A
REVISION	06/01/2023	B

PROJECT NAME & ADDRESS

LAPREI T LEWIS  
RESIDENCE  
185 SHERWOOD HILLS CT, CAMERON, NC 28326,  
USA  
EMAIL ID: LEWI\_LOVE2004@YAHOO.COM  
PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME  
**ELECTRICAL  
LINE & CALCS.**

SHEET SIZE  
**ANSI B  
11" X 17"**

SHEET NUMBER  
**PV-7**

SCALE: NTS



TITAN SOLAR POWER  
160 N MCQUEEN RD,  
GILBERT, AZ 85233, USA  
PH# : (808) 371-5338  
Electrical LIC# : U.33714

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				6 AWG	BARE COPPER	0.71						(58°C)	15.00A	18.75A									
1	2	ARRAY	JUNCTION BOX	10 AWG	PV WIRE	COPPER	OPEN AIR	1	2	N/A	N/A	6 AWG	BARE COPPER	0.71	(58°C)	N/A	15.00A	18.75A	N/A	N/A	75°C	29FT	0.22%
2	1	JUNCTION BOX	INVERTER	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	2	4	21.76%	N/A	8 AWG	THWN-2 COPPER	0.91	(36°C)	0.8	15.00A	18.75A	40A	29.12A	75°C	60FT	0.47%
3	1	INVERTER	NON FUSED AC DISCONNECT	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	18.01%	N/A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	21.00A	26.25A	40A	36.40A	75°C	5FT	0.11%
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SYSTEM INFO	
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(1) SOLAREEDGE SE5000H-US [240V]	
DC SYSTEM SIZE: 6.000 kWDC	
AC SYSTEM SIZE: 5.000 kWAC	
METER: 162 809 049	

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REVISION	06/01/2023	B

PROJECT NAME & ADDRESS

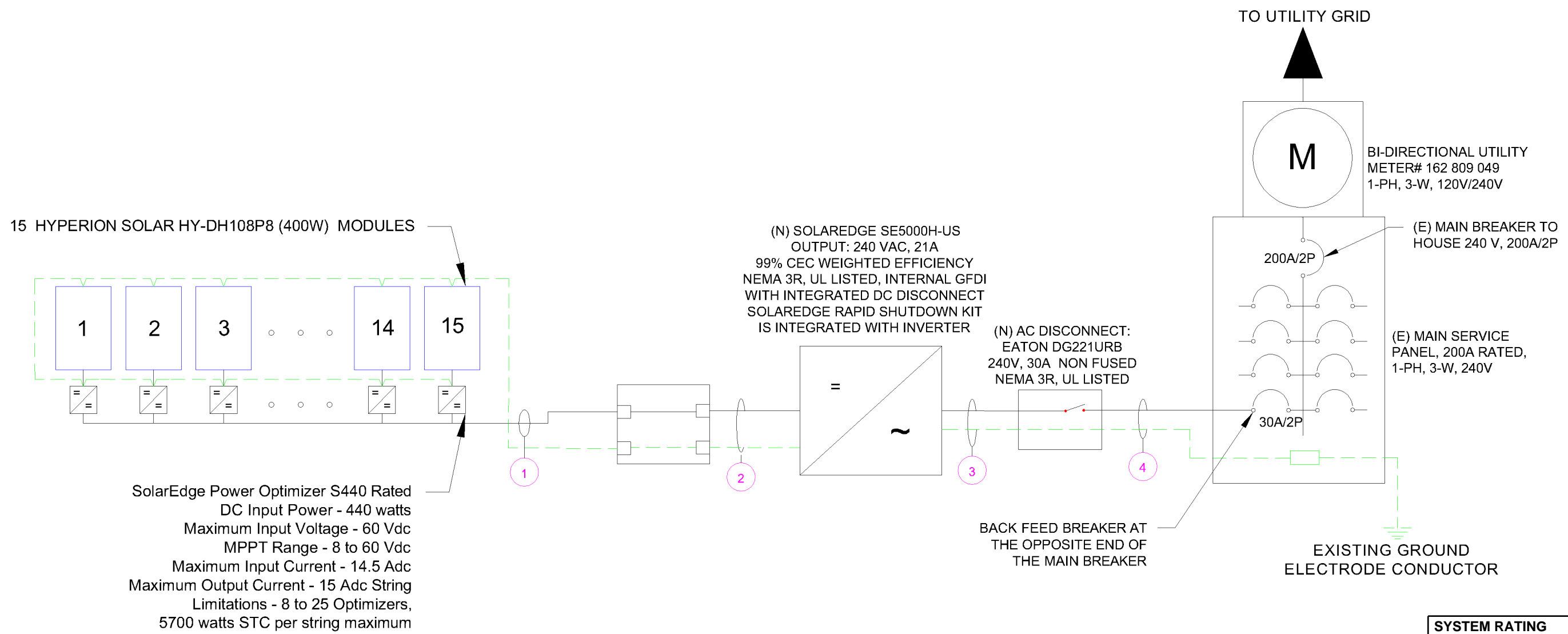
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EMAIL ID: LEWI\_LOVE2004@YAHOO.COM  
PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME  
**ELECTRICAL  
LINE & CALCS.**

SHEET SIZE  
**ANSI B  
11" X 17"**

SHEET NUMBER  
**PV-8**



SolarEdge Power Optimizer S440 Rated  
DC Input Power - 440 watts  
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MPPT Range - 8 to 60 Vdc  
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5700 watts STC per string maximum

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AHJ NAME:	HARNETT COUNTY
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MAIN PANEL BRAND:	SQUARE D
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MAIN BREAKER RATING:	200 A
MAIN SERVICE LOCATION:	EAST
SERVICE FEED SOURCE:	UNDERGROUND

INTERCONNECTION 120% RULE - NEC 705.12(B)(2)(3)(b)
UTILITY FEED + SOLAR BACKFEED 200A + 30A = 230A
BUSS RATING X 120% 200A x 120% = 240A

METER NO#: 162 809 049

SCALE: NTS

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL	HYPERION SOLAR HY-DH108P8 (400W)
VMP	31.01 V
IMP	12.9 A
VOC	37.07 V
ISC	13.79 A
TEMP. COEFF. VOC	-0.27%/K
PTC RATING	302.5 W
MODULE DIMENSION	67.08"(L) x 44.65"(W)
PANEL WATTAGE	400 W

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL	SOLAREEDGE SE5000H-US [240V]
NOMINAL AC POWER	5000 W
NOMINAL OUTPUT VOLTAGE	240 VAC
NOMINAL OUTPUT CURRENT	21 A

POWER OPTIMIZER (SOLAREEDGE S440)	
MAXIMUM INPUT POWER	440 W
MAXIMUM INPUT VOLTAGE	60 VDC
MAXIMUM INPUT ISC	14.5 ADC
MAXIMUM OUTPUT CURRENT	15 ADC
WEIGHTED EFFICIENCY	98.6%

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-10°C
AMBIENT TEMP (HIGH TEMP 2%)	36°C
CONDUIT HEIGHT	7/8"
ROOF TOP TEMP	90°C
CONDUCTOR TEMPERATURE RATE	58°C
MODULE TEMPERATURE COEFFICIENT OF VOC	-0.27%/K

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
0.80	4-6
0.70	7-9
0.50	10-20



TITAN SOLAR POWER  
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 GILBERT, AZ 85233, USA  
 PH# : (808) 371-5338  
 Electrical LIC# : U.33714

SYSTEM INFO
(15) HYPERION SOLAR HY-DH108P8 (400W)
(1) SOLAREEDGE SE5000H-US [240V]
DC SYSTEM SIZE: 6.000 KWDC
AC SYSTEM SIZE: 5.000 KWAC
METER: 162 809 049

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DESCRIPTION	DATE	REV
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PROJECT NAME & ADDRESS

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 RESIDENCE  
 185 SHERWOOD HILLS CT, CAMERON, NC 28326,  
 USA  
 EMAIL ID: LEWI\_LOVE2004@YAHOO.COM  
 PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME  
**SPECIFICATIONS & NOTES**

SHEET SIZE  
**ANSI B  
 11" X 17"**

SHEET NUMBER  
**PV-9**

**1** **PHOTOVOLTAIC AC DISCONNECT**  
 RATED AC OUTPUT CURRENT 21 AMPS  
 NOMINAL OPERATING AC VOLTAGE 240 VOLTS

LABEL LOCATION:  
 MAIN SERVICE PANEL/MAIN SERVICE DISCONNECT/AC DISCONNECT  
 PER CODE: NEC 690.13(B)

**2** **RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM**

LABEL LOCATION:  
 INVERTER AT OR WITHIN 3' OF THE DC COMBINER SWITCH  
 PER CODE: NEC 690.56(C)(3)

**3** **WARNING**  
**ELECTRIC SHOCK HAZARD**  
 TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

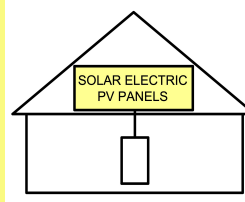
LABEL LOCATION:  
 POINT OF INTERCONNECTION, MAIN SERVICE DISCONNECT, AC DISCONNECT, AC COMBINER, INVERTER  
 PER CODE: NEC 690.13(B)

**4** **WARNING**  
**INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE**

LABEL LOCATION:  
 PLACE THIS LABEL AT P.O.C. TO SERVICE DISTRIBUTION EQUIPMENT (I.E. MAIN PANEL (AND SUBPANEL IF APPLICABLE))  
 PER CODE: NEC705.12(D)(2)(b)

**5** **SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN**

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY



LABEL LOCATION:  
 MAIN SERVICE DISCONNECT IF MSD IS OUTSIDE PLACE IT THERE / IF MSD IS INSIDE PLACE ON THE AC DISCONNECT  
 PER CODE: NEC 690.56(C)(1)(a)

**6** **CAUTION : SOLAR CIRCUIT**

LABEL LOCATION:  
 MARKINGS PLACED ON ALL INTERIOR AND EXTERIOR CONDUIT, RACEWAYS, ENCLOSURES, AND CABLE ASSEMBLIES AT LEAST EVERY 10 FT, AT TURNS AND ABOVE/BELOW PENETRATIONS AND ALL COMBINER/JUNCTION BOXES  
 PER CODE: IFC 606.11.1.4

**7** **SERVICE DISCONNECT**  
**SECTIONNEUR PRINCIPALE**  
**SERVICIO DE DESCONEXION**

LABEL LOCATION:  
 AC DISCONNECT  
 2017 NEC 230.66

**8** **MAXIMUM VOLTAGE 480 VDC**  
**MAXIMUM CIRCUIT CURRENT 13.5 ADC**  
**MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC-CONVERTER(IF INSTALLED) 30 ADC**

LABEL LOCATION:  
 DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE  
 PER CODE: 2017 NFPA 70, NEC 690.53

**9** **PHOTOVOLTAIC**  
**AC DISCONNECT**

LABEL LOCATION:  
 AC DISCONNECT/BREAKER/POINTS OF CONNECTION  
 PER CODE: NEC2017, 690.13(B)

**10** **WARNING**  
**ELECTRIC SHOCK HAZARD**  
**THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED**

LABEL LOCATION:  
 PLACE THIS LABEL AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT AND DEVICE WHERE ENERGIZED, UNGROUNDED BE EXPOSED DURING SERVICE:  
 PER CODE: NEC 690.35 (F)

**11** **CAUTION : SOLAR ELECTRIC SYSTEM CONNECTED**

LABEL LOCATION:  
 POINT OF INTERCONNECTION & INVERTER  
 PER CODE: NEC 690.15 & 690.13(B)

**12** **WARNING - Electric Shock Hazard**  
**No user serviceable parts inside**  
 Contact authorized service provider for assistance

LABEL LOCATION:  
 INVERTER & JUNCTION BOXES (ROOF)  
 PER CODE: NEC 690.13 (G)(3) & 690.13 (G)(4)

**13** **WARNING: PHOTOVOLTAIC POWER SOURCE**

LABEL LOCATION:  
 CONDUIT  
 PER CODE: 2017 NEC 690.31(G)(3)

**14** **CAUTION**  
**DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC**

LABEL LOCATION:  
 MAIN SERVICE DISCONNECT/ AC DISCONNECT/ MAIN SERVICE PANEL/ REVENUE METER/ AC COMBINER  
 PER CODE: NEC 705.12(B)(3)

**15** **PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH**

LABEL LOCATION:  
 AC DISCONNECT  
 PER CODE: NEC 690.56(C)(3)

**ADHESIVE FASTENED SIGNS**

- THE LABEL SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE IT IS INSTALLED.
- WHERE REQUIRED ELSEWHERE IN THIS CODE, ALL FIELD APPLIED LABELS, WARNING AND MARKINGS SHOULD COMPLY WITH ANSI 2535.4 [NEC 110.21(B) FIELD MARKING].
- ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER RESISTANT [IFC 605.11.1.3]



TITAN SOLAR POWER  
 160 N MCQUEEN RD,  
 GILBERT, AZ 85233, USA  
 PH# : (808) 371-5338  
 Electrical LIC# : U.33714

SYSTEM INFO	
(15) HYPERION SOLAR HY-DH108P8 (400W)	
(1) SOLAREEDGE SE5000H-US [240V]	
DC SYSTEM SIZE: 6.000 KWDC	
AC SYSTEM SIZE: 5.000 KWAC	
METER: 162 809 049	

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	05/23/2023	A
REVISION	06/01/2023	B

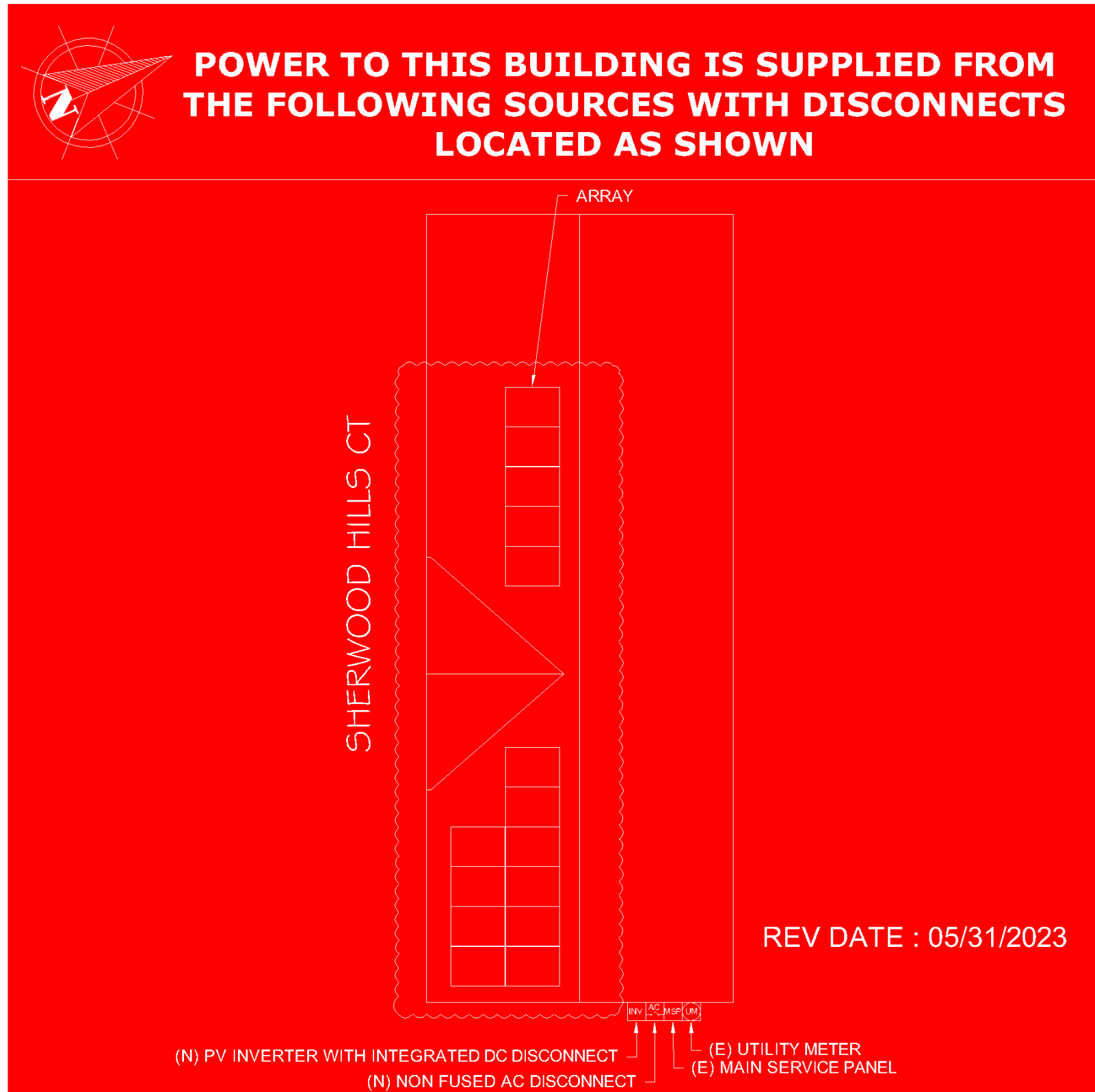
PROJECT NAME & ADDRESS

LAPREI T LEWIS  
 RESIDENCE  
 185 SHERWOOD HILLS CT, CAMERON, NC 28326,  
 USA  
 EMAIL ID: LEWI\_LOVE2004@YAHOO.COM  
 PHONE NO. (919) 579-0977

DATE: 6/1/2023
SHEET NAME <b>SIGNAGE</b>
SHEET SIZE <b>ANSI B 11" X 17"</b>
SHEET NUMBER <b>PV-10</b>



TITAN SOLAR POWER  
 160 N MCQUEEN RD,  
 GILBERT, AZ 85233, USA  
 PH# : (808) 371-5338  
 Electrical LIC# : U.33714



(N) PV INVERTER WITH INTEGRATED DC DISCONNECT  
 (N) NON FUSED AC DISCONNECT  
 (E) UTILITY METER  
 (E) MAIN SERVICE PANEL

**LABEL LOCATION:**  
 EACH SERVICE EQUIPMENT LOCATION AND AT THE LOCATION(S) OF THE SYSTEM DISCONNECT(S)  
 FOR ALL ELECTRIC POWER PRODUCTION SOURCES CAPABLE OF BEING INTERCONNECTED  
 (PER CODE: NEC 705.10)

SYSTEM INFO
(15) HYPERION SOLAR HY-DH108P8 (400W)
(1) SOLAREEDGE SE5000H-US [240V]
DC SYSTEM SIZE: 6.000 kWDC
AC SYSTEM SIZE: 5.000 kWAC
METER: 162 809 049

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	05/23/2023	A
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PROJECT NAME & ADDRESS

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 185 SHERWOOD HILLS CT, CAMERON, NC 28326,  
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 EMAIL ID: LEWI\_LOVE2004@YAHOO.COM  
 PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME  
**SIGNAGE**

SHEET SIZE  
**ANSI B  
 11" X 17"**

SHEET NUMBER  
**PV-11**





# BLACK DH108P8

## HY-DH108P8-390/410B

**TITAN SOLAR POWER**  
 525 W BASELINE RD  
 MESA, AZ 85210  
 TEL 855 SAY-SOLAR  
 INFO@TITANSOLARPOWER  
 TITANSOLARPOWER.COM

# 390-410W

### HIGH CONVERSION EFFICIENCY

Module efficiency up to 21.0% through advanced cell technology and manufacturing process

### EXCELLENT WEAK LIGHT PERFORMANCE

More power output in weak light condition, such as cloudy days, morning and sunset

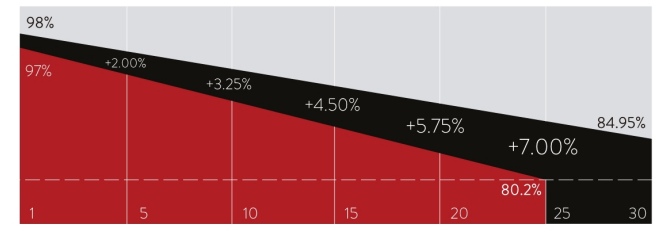
### EXTENDED MECHANICAL PERFORMANCE

Module certified to withstand extreme wind (2400 Pa) and snow loading (5400 Pa)

### QUALITY GUARANTEE

High module quality ensures long-term reliability

## HY-DH108P8 108 HALF-CELL BIFACIAL MODULE



■ Conventional Module ■ Hyperion Performance

**25 Years** warranty for materials and workmanship  
**30 Years** warranty for extra linear power output



IEC61215 / IEC61730 / UL61730  
 IEC61701 / IEC62716  
 ISO9001: Quality Management System

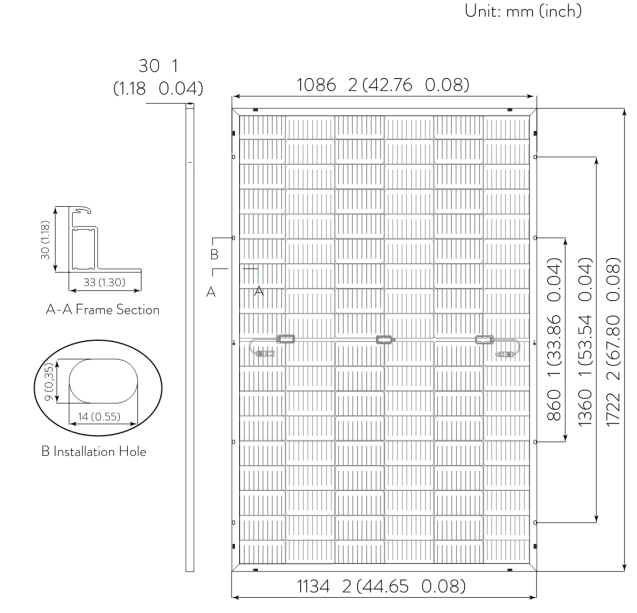
### Mechanical Parameters

Solar Cell	Mono PERC 182mm
No. of Cells	108 (6 × 18)
Dimensions	1722 × 1134 × 30mm (67.08 × 44.65 × 1.18in.)
Weight	25.2kg (55.55lbs)
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4mm <sup>2</sup> (IEC), 12 AWG (UL) (-/+1200mm (47.24in.) or customized)
Connector	EVO2 or customized
Front Cover	2.0mm (0.079in.) semi-tempered AR glass
Back Cover	2.0mm (0.079in.) semi-tempered glass
Container	36 pcs/Pallet, 792 pcs/40' HC

### Operating Parameters

Max. System Voltage	DC 1500V (IEC/UL)
Operating Temperature	-40°C ~ +85°C (-40°F ~ +185°F)
Max. Fuse Rating	30A
Frontside Max. Loading	5400Pa (112lb/ft <sup>2</sup> )
Backside Max. Loading	2400Pa (50lb/ft <sup>2</sup> )
Bifaciality	70% 10%
Fire Resistance	IEC Class A, UL Type 29

### Engineering Drawing



### Electrical Characteristics - STC

	Irradiance 1000 W/m <sup>2</sup> , ambient temperature 25 °C, AM1.5.				
Maximum Power at STC (Pmax/W)	410	405	400	395	390
Power Tolerance (W)	0 ~ +5				
Optimum Operating Voltage (Vmp/V)	31.45	31.21	31.01	30.84	30.64
Optimum Operating Current (Imp/A)	13.04	12.98	12.90	12.81	12.73
Open Circuit Voltage (Voc/V)	37.32	37.23	37.07	36.98	36.85
Short Circuit Current (Isc/A)	13.95	13.87	13.79	13.70	13.61
Module Efficiency	21.0%	20.7%	20.5%	20.2%	20.0%

### Electrical Characteristics - NMOT

	Irradiance 800 W/m <sup>2</sup> , ambient temperature 20 °C, AM1.5, wind speed 1 m/s.				
Maximum Power at NMOT (Pmax/W)	310.2	306.4	302.5	298.8	295.0
Optimum Operating Voltage (Vmp/V)	29.82	29.60	29.41	29.25	29.15
Optimum Operating Current (Imp/A)	10.40	10.35	10.29	10.22	10.15
Open Circuit Voltage (Voc/V)	35.39	35.31	35.15	35.07	34.95
Short Circuit Current (Isc/A)	11.25	11.19	11.13	11.05	10.98

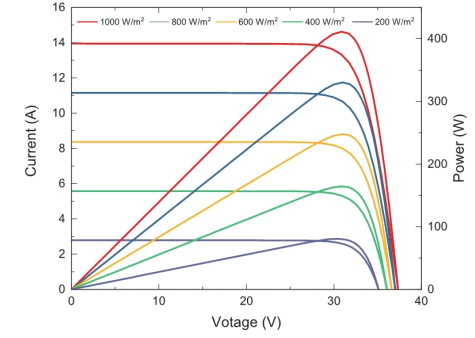
### Rearside Power Gain (Reference to 410W Front)

	5%	15%	25%
Rearside Power Gain	5%	15%	25%
Maximum Power (Pmax/W)	431.4	472.3	514.8
Optimum Operating Voltage (Vmp/V)	31.57	31.57	31.65
Optimum Operating Current (Imp/A)	13.66	14.96	16.27
Open Circuit Voltage (Voc/V)	37.46	37.46	37.46
Short Circuit Current (Isc/A)	14.57	15.96	17.35
Module Efficiency	22.1%	24.2%	26.4%

### Temperature Characteristics

Nominal Module Operating Temperature	42 °C
Nominal Cell Operating Temperature	45 °C
Temperature Coefficient of Pmax	-0.35%/°C
Temperature Coefficient of Voc	-0.27%/°C
Temperature Coefficient of Isc	0.05%/°C

Current-Voltage & Power-Voltage Curve (410W)



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 HY-DH108P8-EN-V1.4 US  
 www.hyperion-usa.com



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DATE: 6/1/2023
SHEET NAME EQUIPMENT SPECIFICATIONS
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-13

INFO@HYPERION-USA.COM  
 7/559 MOO.6, MAPYANGPHON SUBDISTRICT,  
 PLUAK DAENG DISTRICT, RAYONG PROVINCE,  
 21140, THAILAND



# SolarEdge Home Wave Inverter For North America

SE3800H-US / SE5000H-US / SE6000H-US /  
SE7600H-US / SE10000H-US / SE11400H-US



INVERTERS

## Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014, NEC 2017 and NEC 2020 per articles 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

[solaredge.com](http://solaredge.com)



# SolarEdge Home Wave Inverter

## For North America

SE3800H-US / SE5000H-US / SE6000H-US /  
SE7600H-US / SE10000H-US / SE11400H-US

Applicable to inverters with part number	SEXXXXH-XXXXBXX4					SE11400H-XXXXBXX5	Units
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
<b>OUTPUT</b>							
Rated AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 <sup>(1)</sup>						Hz
Maximum Continuous Output Current @240V	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85						
GFDI Threshold	1						A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes						
<b>INPUT</b>							
Maximum DC Power @240V	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes						
Maximum Input Voltage	480						Vdc
Nominal DC Input Voltage	380						Vdc
Maximum Input Current @240V <sup>(2)</sup>	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V <sup>(2)</sup>	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45						Adc
Reverse-Polarity Protection	Yes						
Ground-Fault Isolation Detection	600k Sensitivity						
Maximum Inverter Efficiency	99.2						%
CEC Weighted Efficiency	99					99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5						W

(1) For other regional settings please contact SolarEdge support.  
(2) A higher current source may be used; the inverter will limit its input current to the values stated.



TITAN SOLAR POWER  
160 N MCQUEEN RD,  
GILBERT, AZ 85233, USA  
PH# : (808) 371-5338  
Electrical LIC# : U.33714

**SYSTEM INFO**

(15) HYPERION SOLAR  
HY-DH108P8 (400W)

(1) SOLAREEDGE  
SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC  
AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

**REVISIONS**

DESCRIPTION	DATE	REV
REVISION	05/23/2023	A
REVISION	06/01/2023	B

**PROJECT NAME & ADDRESS**

LAPREI T LEWIS  
RESIDENCE  
185 SHERWOOD HILLS CT, CAMERON, NC 28326,  
USA  
EMAIL ID: LEWI\_LOVE2004@YAHOO.COM  
PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME  
**EQUIPMENT  
SPECIFICATIONS**

SHEET SIZE  
**ANSI B  
11" X 17"**

SHEET NUMBER  
**PV-14**

# / SolarEdge Home Wave Inverter

## For North America

SE3800H-US / SE5000H-US / SE6000H-US /

SE7600H-US / SE10000H-US / SE11400H-US

Applicable to inverters with part number	SEXxxxH-XXXXBXX4					SE11400H-XXXXBXX5
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US
<b>ADDITIONAL FEATURES</b>						
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), wireless SolarEdge Home Network (optional) <sup>(3)</sup> , Wi-Fi (optional), Cellular (optional)					
Revenue Grade Metering, ANSI C12.20	Optional <sup>(4)</sup>					
Consumption Metering						
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection					
Rapid Shutdown - NEC 2014, NEC 2017 and NEC 2020, 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect					
<b>STANDARD COMPLIANCE</b>						
Safety	UL1741, UL1741 SA, UL1741 SB, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07					
Grid Connection Standards	IEEE1547-2018, Rule 21, Rule 14 (HI)					
Emissions	FCC Part 15 Class B					
<b>INSTALLATION SPECIFICATIONS</b>						
AC Output Conduit Size / AWG Range	1" Maximum / 14 – 6 AWG			1" Maximum / 14 – 4 AWG		
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1 – 2 strings / 14 – 6 AWG			1" Maximum / 1 – 3 strings / 14 – 6 AWG		
Dimensions with Safety Switch (H x W x D)	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 <sup>(5)</sup>	in / mm
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9	38.8 / 17.6	44.9 / 20.4 <sup>(5)</sup>	lb / kg
Noise	< 25			< 50		dBA
Cooling	Natural Convection					
Operating Temperature Range	-40 to +140 / -40 to +60 <sup>(6)</sup>					°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)					

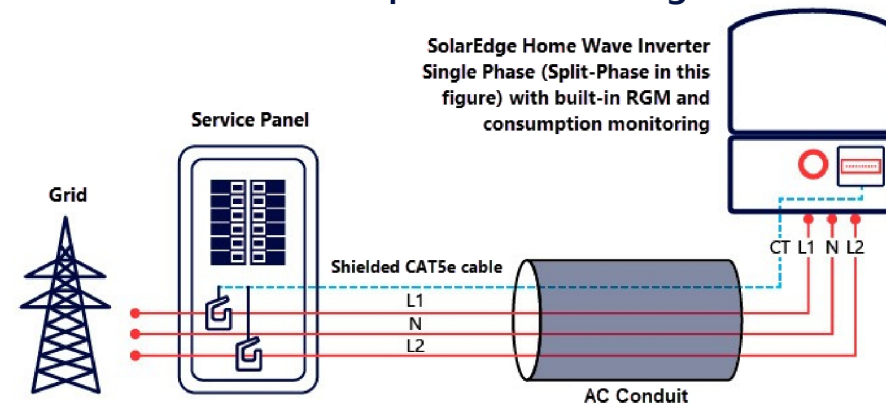
(3) For more information, refer to the [SolarEdge Home Network](#) datasheet

(4) Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxH-US000BE14. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20, 20 units per box.

(5) SE11400H-USxxxBxx5 is the updated PN, though SE11400H-USxxxBxx4 will still be available. All specifications are similar for both models, EXCLUDING the weight and dimensions [HxWxD]. The weight and dimensions of SE11400H-USxxxBxx4 are 17.6 [kg] and 21.06-14.6-7.3 / 535-370-185 [in/mm], accordingly.

(6) Full power up to at least 50°C / 122°F; for power de-rating information refer to the [Temperature De-rating Technical Note for North America](#).

## How to Enable Consumption Monitoring



By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills.



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Electrical LIC# : U.33714

### SYSTEM INFO

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HY-DH108P8 (400W)

(1) SOLAREEDGE  
SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

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USA  
EMAIL ID: LEWI\_LOVE2004@YAHOO.COM  
PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME

EQUIPMENT  
SPECIFICATIONS

SHEET SIZE

ANSI B  
11" X 17"

SHEET NUMBER

PV-15

# Power Optimizer

S440, S500



POWER OPTIMIZER

## PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- 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
- Detects abnormal PV connector behavior, preventing potential safety issues\*
- Module-level voltage shutdown for installer and firefighter safety
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules

\* Functionality subject to inverter model and firmware version

solaredge.com



## Power Optimizer

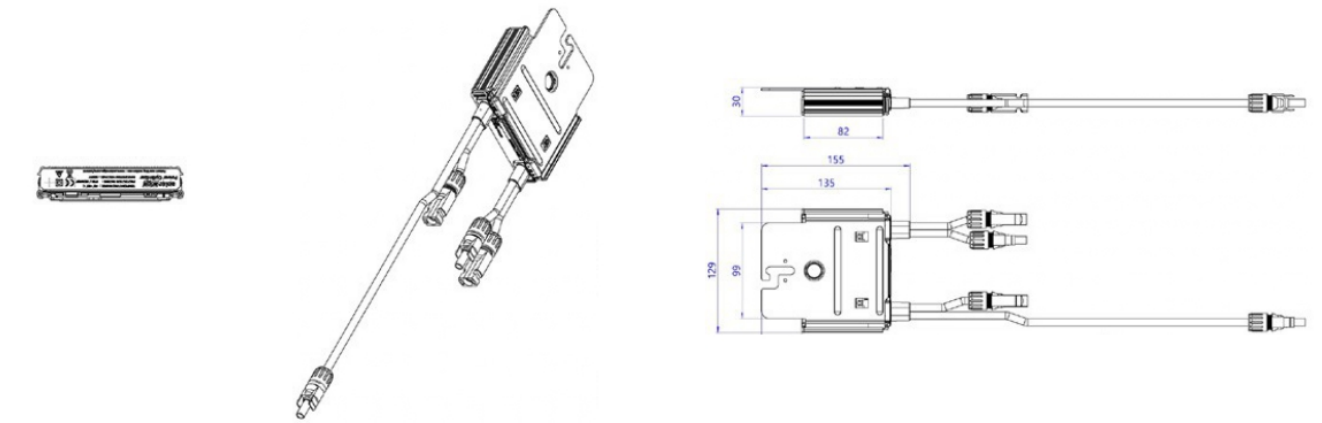
S440, S500

	S440	S500	UNIT
<b>INPUT</b>			
Rated Input DC Power <sup>(1)</sup>	440	500	W
Absolute Maximum Input Voltage (Voc)		60	Vdc
MPPT Operating Range		8 - 60	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module		14.5	Adc
Maximum Efficiency		99.5	%
Weighted Efficiency		98.6	%
Overtoltage Category		II	
<b>OUTPUT DURING OPERATION</b>			
Maximum Output Current		15	Adc
Maximum Output Voltage		60	Vdc
<b>OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)</b>			
Safety Output Voltage per Power Optimizer		1	Vdc
<b>STANDARD COMPLIANCE</b>			
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3, CISPR11, EN-55011		
Safety	IEC62109-1 (class II safety), UL1741		
Material	UL94 V-0, UV Resistant		
RoHS	Yes		
Fire Safety	VDE-AR-E 2100-712:2013-05		
<b>INSTALLATION SPECIFICATIONS</b>			
Maximum Allowed System Voltage		1000	Vdc
Dimensions (W x L x H)		129 x 153 x 30	mm
Weight (including cables)		655 / 1.5	gr / lb
Input Connector		MC4 <sup>(2)</sup>	
Input Wire Length		0.1	m
Output Connector		MC4	
Output Wire Length		(+) 2.3, (-) 0.10	m
Operating Temperature Range <sup>(3)</sup>		-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) For ambient temperature above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details

PV System Design Using a SolarEdge Inverter	Single Phase HD-Wave	Single Phase	Three Phase	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	S440, S500	8	16	18	
Maximum String Length (Power Optimizers)		25		50	
Maximum Nominal Power per String <sup>(4)</sup>		5700	5250	11250 <sup>(5)</sup>	12750 <sup>(6)</sup>
Parallel Strings of Different Lengths or Orientations			Yes		W

(4) If the inverters rated AC power ≤ maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power. Refer to: <https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf>  
 (5) For the 230/400V grid, it is allowed to install up to 13,500W per string when the maximum power difference between each string is 2,000W  
 (6) For the 277/480V grid, it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W  
 (7) It is not allowed to mix S-series and P-series power optimizers in new installations



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 160 N MCQUEEN RD,  
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 PH# : (808) 371-5338  
 Electrical LIC# : U.33714

SYSTEM INFO
(15) HYPERION SOLAR HY-DH108P8 (400W)
(1) SOLAREEDGE SE5000H-US [240V]
DC SYSTEM SIZE: 6.000 kWDC
AC SYSTEM SIZE: 5.000 kWAC
METER: 162 809 049

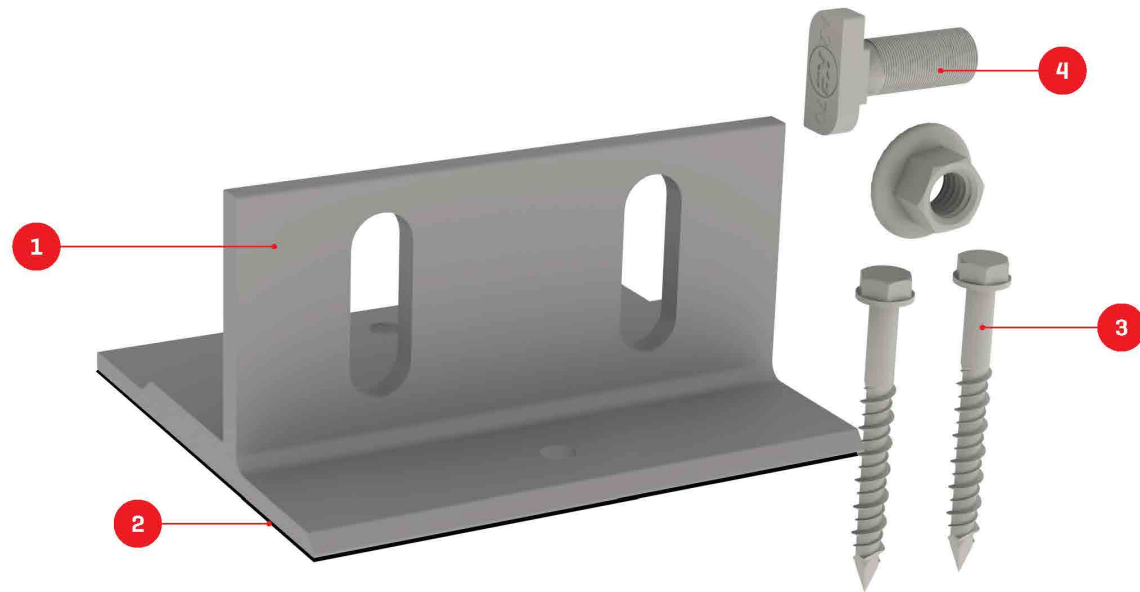
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 PHONE NO. (919) 579-0977

DATE: 6/1/2023
SHEET NAME EQUIPMENT SPECIFICATIONS
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-16

We support PV systems  
Formerly Everest Solar Systems



# Splice Foot X

## TECHNICAL SHEET

Item Number	Description	Part Number
1	Splice Foot X	4000113   Splice Foot X Kit, Mill
2	K2 Solar Seal Butyl Pad	
3	M5 x 60 lag screws	
4	T-Bolt & Hex Nut Set	

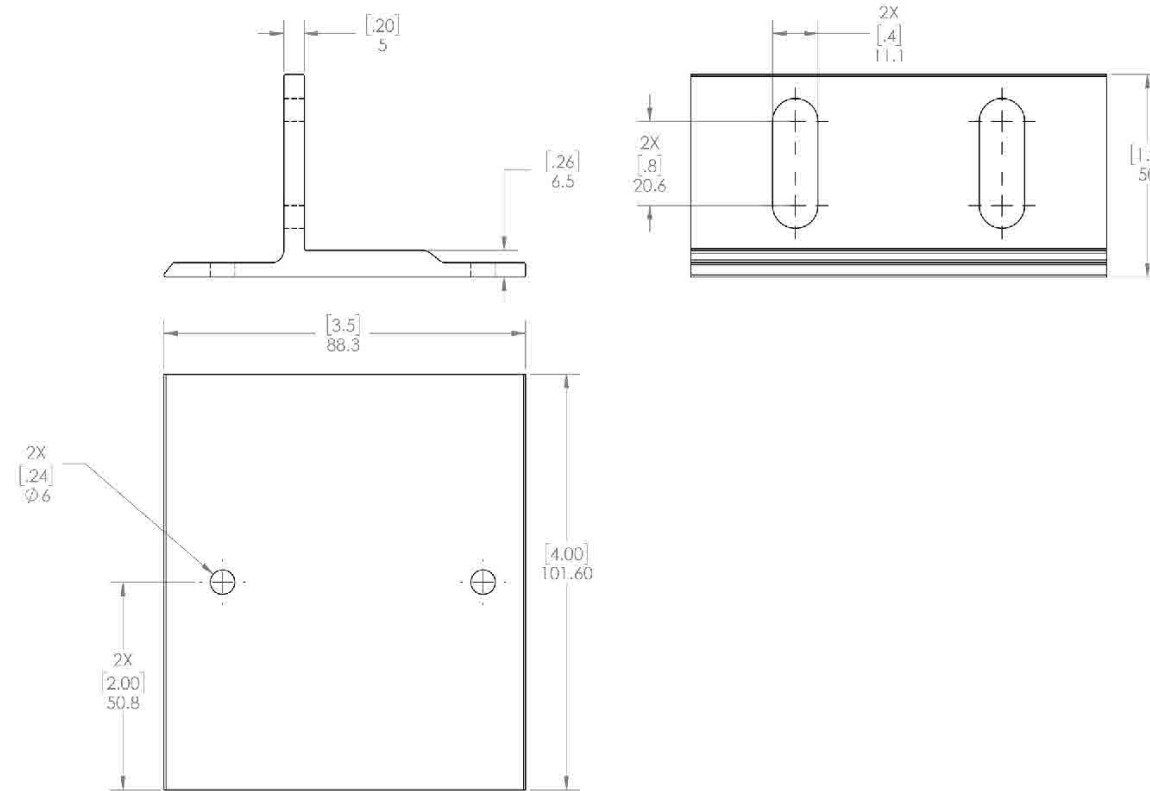
### Technical Data

	Splice Foot X
Roof Type	Composition shingle
Material	Aluminum with stainless steel hardware
Finish	Mill
Roof Connection	M5 x 60 lag screws
Code Compliance	UL 2703
Compatibility	CrossRail 44-X, 48-X, 48-XL, 80

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Units: [in] mm



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AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

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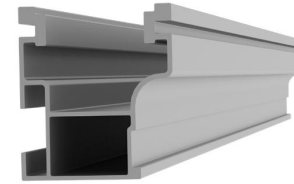
SHEET NUMBER

PV-17

We support PV systems  
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# CROSSRAIL 44-X



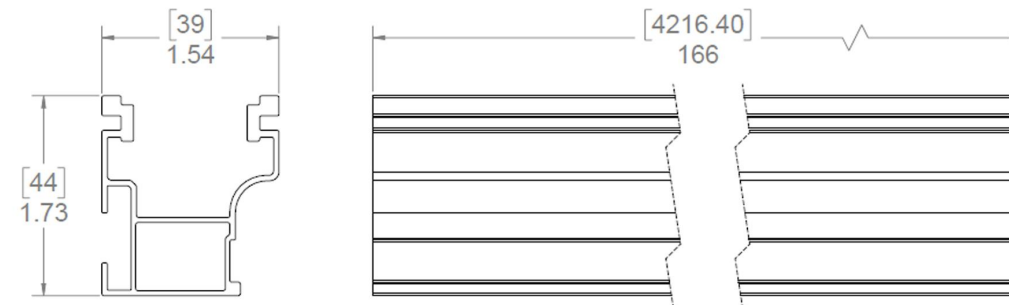
## Mechanical Properties

CrossRail 44-X	
Material	6000 Series Aluminum
Ultimate Tensile Strength	37.7 ksi [260 MPa]
Yield Strength	34.8 ksi [240 MPa]
Weight	0.47 lbs/ft [0.699 kg/m]
Finish	Mill or Dark Anodized

## Sectional Properties

CrossRail 44-X	
Sx	0.1490 in <sup>3</sup> [0.3785 cm <sup>3</sup> ]
Sy	0.1450 in <sup>3</sup> [0.3683 cm <sup>3</sup> ]
A [X-Section]	0.4050 in <sup>2</sup> [1.0287 cm <sup>2</sup> ]

Units: [mm] in



Notes:

- ▶ Structural values and span charts determined in accordance with Aluminum Design Manual and ASCE 7-16
- ▶ UL2703 Listed System for Fire and Bonding



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SHEET NAME

**EQUIPMENT  
SPECIFICATIONS**

SHEET SIZE

**ANSI B  
11" X 17"**

SHEET NUMBER

**PV-18**

## A. System Specifications and Ratings

- Maximum Voltage: 1,000 Volts
- Maximum Current: 120 Amps
- Allowable Wire: 14 AWG – 6 AWG
- Spacing: Please maintain a spacing of at least ½” between uninsulated live parts and fittings for conduit, armored cable, and uninsulated live parts of opposite polarity.
- Enclosure Rating: Type 3R
- Roof Slope Range: 2.5 – 12:12
- Max Side Wall Fitting Size: 1”
- Max Floor Pass-Through Fitting Size: 1”
- Ambient Operating Conditions: (-35°C) - (+75°C)
- Compliance:
  - JB-1.XL: UL1741
  - Approved wire connectors: must conform to UL1741
- System Marking: **Interek Symbol and File #5019942**
- Periodic Re-inspections: If re-inspections yield loose components, loose fasteners, or any corrosion between components, components that are found to be affected are to be replaced immediately.

**Table 1: Typical Wire Size, Torque Loads and Ratings**

	1 Conductor	2 Conductor	Torque				
			Type	NM	Inch Lbs	Voltage	Current
ABB ZS6 terminal block	10-24 awg	16-24 awg	Sol/Str	0.5-0.7	6.2-8.85	600V	30 amp
ABB ZS10 terminal block	6-24 awg	12-20 awg	Sol/Str	1.0-1.6	8.85-14.16	600V	40 amp
ABB ZS16 terminal block	4-24 awg	10-20 awg	Sol/Str	1.6-2.4	14.6-21.24	600V	60 amp
ABB M6/8 terminal block	8-22 awg		Sol/Str	.08-1	8.85	600V	50 amp
Ideal 452 Red WING-NUT Wire Connector	8-18 awg		Sol/Str			600V	
Ideal 451 Yellow WING-NUT Wire Connector	10-18 awg		Sol/Str			600V	
Ideal, In-Sure Push-In Connector Part #39	10-14 awg		Sol/Str			600V	
WAGO, 221-612	10-14 awg		Sol/Str			600V	
International Hydraulics 2S2/0	10-14 awg		Sol/Str	4	35		
	8 awg		Sol/Str	4.5	40		
Brumall 4-5,3	4-6 awg		Sol/Str		45	2000V	
	10-14 awg		Sol/Str		35		
Blackburn LL414	4-14 awg		Sol/Str				

**Table 2: Minimum wire-bending space for conductors through a wall opposite terminals in mm (inches)**

Wire size, AWG or	Wires per terminal (pole)			
	1	2	3	4 or More
kcmil (mm2)	mm (inch)	mm (inch)	mm (inch)	mm (inch)
14-10 (2.1-5.3)	Not specified	-	-	-
8 (8.4)	38.1 (1-1/2)	-	-	-
6 (13.3)	50.8 (2)	-	-	-



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**EQUIPMENT SPECIFICATIONS**

SHEET SIZE

**ANSI B  
11" X 17"**

SHEET NUMBER

**PV-19**