

SCOPE OF WORK

TO INSTALL A ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM AT THE OWNER RESIDENCE LOCATED AT 41 NUTMEG CIR SPRING LAKE NC 28390. 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

22 Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN) MODULES
1 SOLAREEDGE SE7600H-US [240V] INVERTER
22 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 FLORIDA 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.
- ALL EXPOSED PLUMBING, HVAC, ELECTRICAL DUCTWORK, PIPING AND CONDUITS ARE TO BE PAINTED BY GENERAL CONTRACTOR.
- 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
 2018 UNIFORM MECHANICAL CODE
 2018 UNIFORM PLUMBING CODE
 2017 NATIONAL 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



SYSTEM RATING
8.800 kWDC
7.600 kWAC

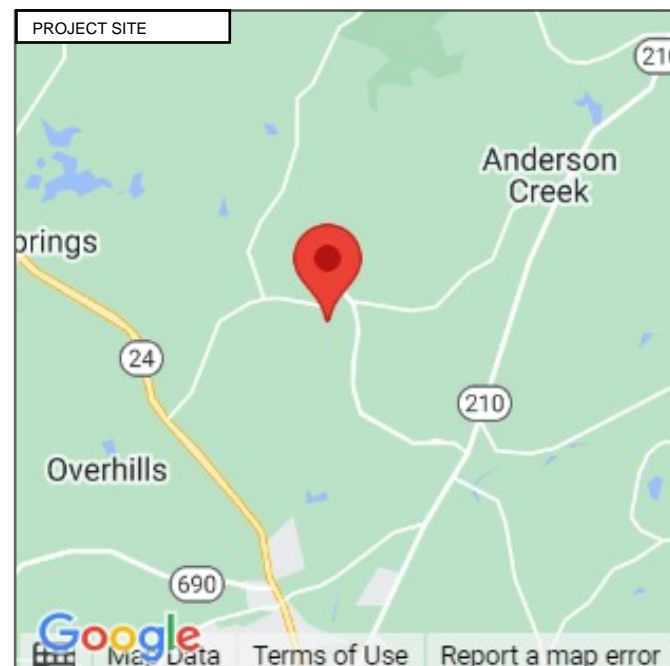
PHOTOVOLTAIC SYSTEM FIRE CLASSIFICATION LISTING IN ACCORDANCE WITH UL 1703 STANDARD.

SHEET INDEX	
PV1	COVER PAGE
PV2	SITE PLAN
PV3	ROOF PLAN
PV4	DEAD LOAD CALCULATION
PV5	STRING LAYOUT & BOM
PV6-PV8	ATTACHMENT DETAILS
PV9-PV10	ELECTRICAL LINE & CALCS.
PV11	SPECIFICATIONS & NOTES
PV12-PV13	SIGNAGE
PV14	JOB SAFETY PLAN
PV15-PV21	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
(22) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
(1) SOLAREEDGE SE7600H-US [240V]
DC SYSTEM SIZE: 8.800 kWDC
AC SYSTEM SIZE: 7.600 kWAC
METER: 108 191 285

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	12/13/2022	A

PROJECT NAME & ADDRESS

JHAVAL CAIN
 RESIDENCE
 41 NUTMEG CIR SPRING LAKE NC 28390
 EMAIL ID: JHAVALCAIN@GMAIL.COM
 PHONE NO. (910) 568-9906

DATE: 12/13/2022

SHEET NAME
COVER PAGE

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

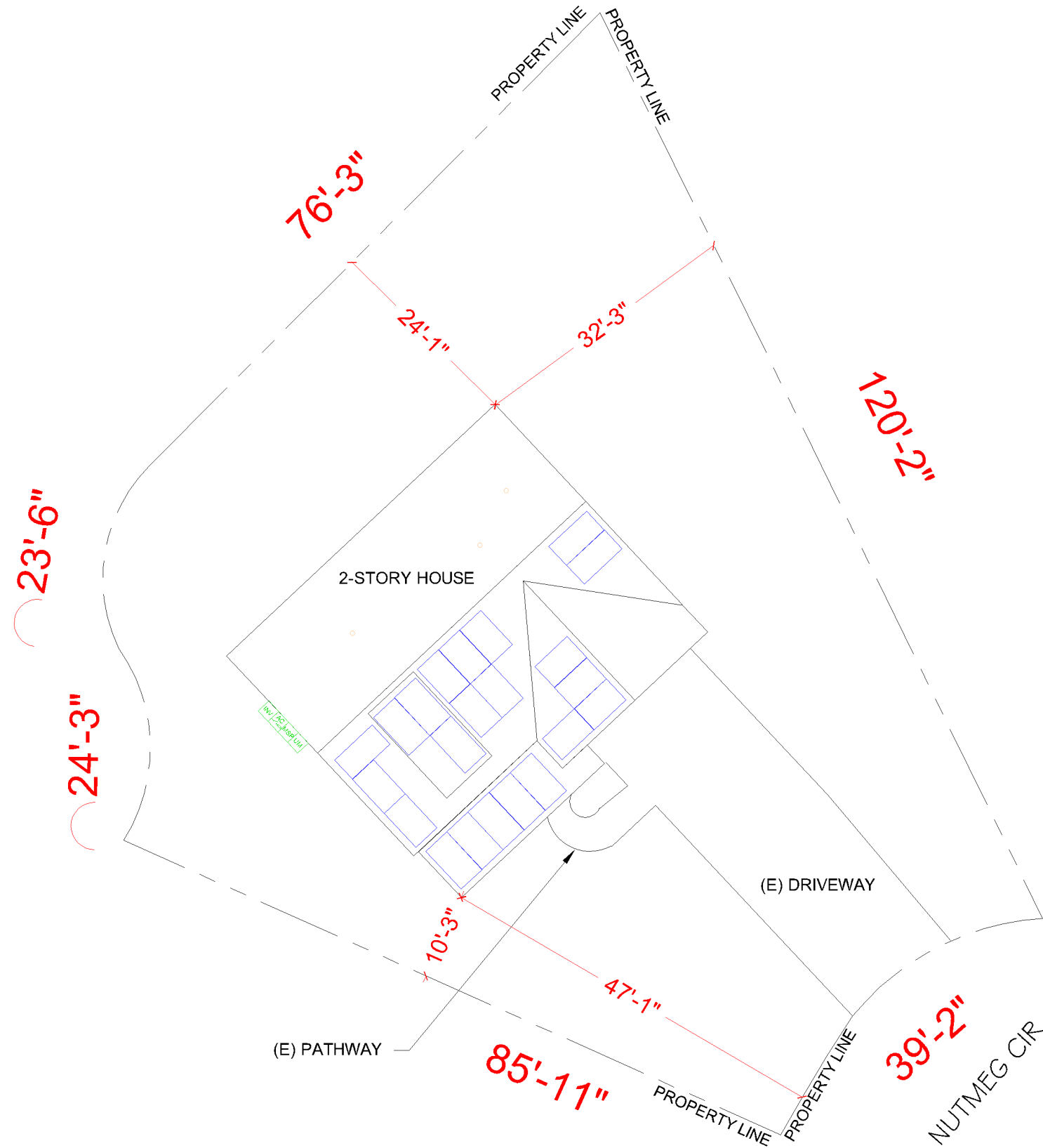
SHEET NUMBER
PV-1

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.
- INSTALLER TO ENSURE MINIMUM CLEARANCES HAVE BEEN MET PER MANUFACTURERS RECOMMENDATION FOR ALL ROOF VENTING.
- 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 SE7600H-US [240V] INVERTER
- Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN) MODULES
- K2 CROSSRAIL 44-X
- TRENCH



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SHEET NAME
SITE PLAN

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

SHEET NUMBER
PV-2



SCALE: 1/16"= 1'-0

METER NO#: 108 191 285

DESIGN SPECIFICATION	
RISK CATEGORY:	II
CONSTRUCTION:	SFD
ZONING:	RESIDENTIAL
SNOW LOAD (ASCE7-10):	10 PSF
EXPOSURE CATEGORY:	B
WIND SPEED (ASCE7-10):	118 MPH

MODULE TYPE, DIMENSIONS & WEIGHT	
NUMBER OF MODULES:	22 MODULES
MODULE TYPE:	Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
MODULE WEIGHT:	48.5 LBS
MODULE DIMENSIONS:	74" X 41.1" = 21.12 SF
UNIT WEIGHT OF AREA:	2.3 PSF

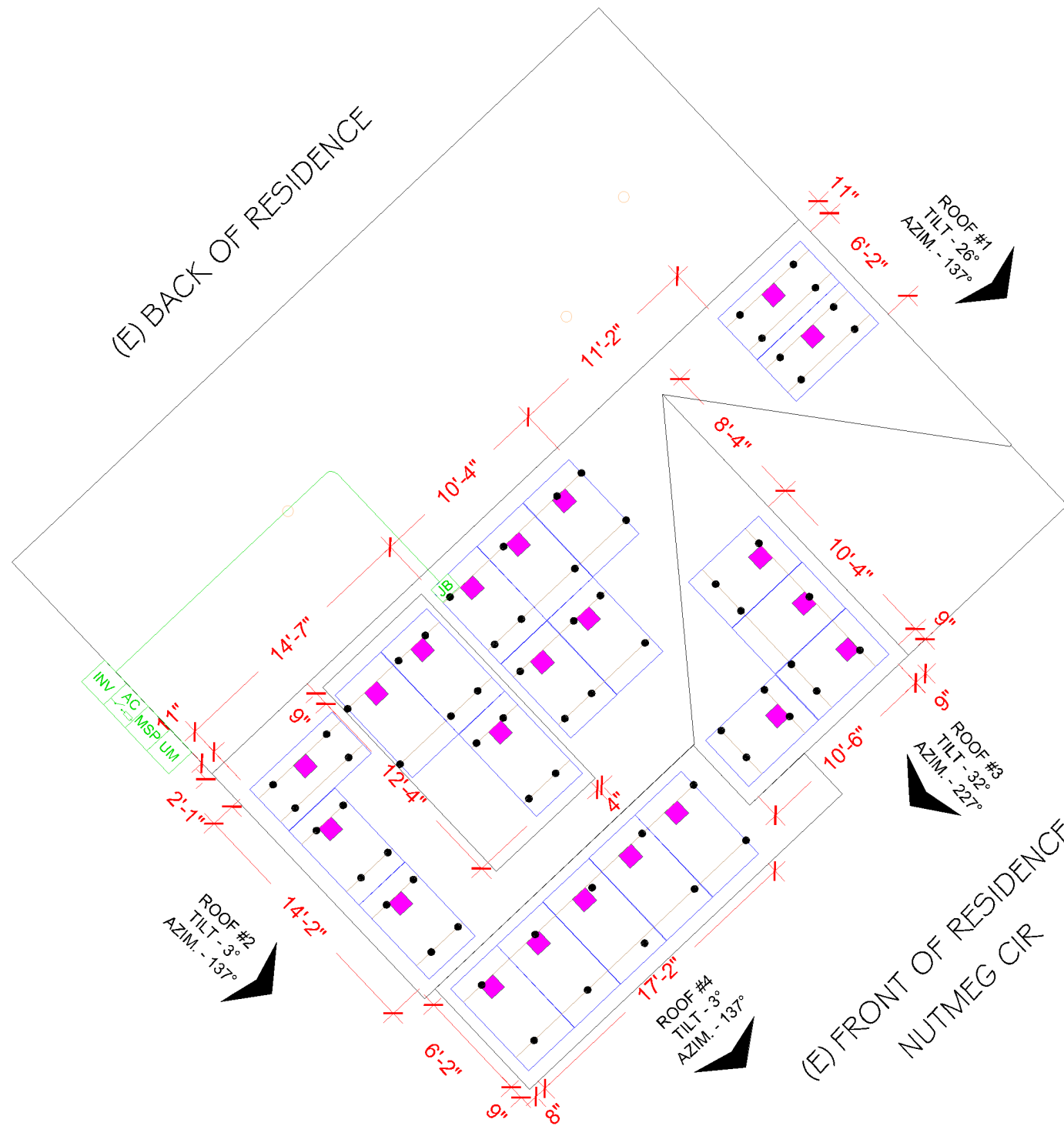
ROOF DESCRIPTION					
ROOF	ROOF TILT	AZIMUTH	TRUSS SIZE	TRUSS SPACING	ROOF MATERIAL
#1	26°	137°	2" x 4"	24" o.c.	COMP SHINGLE
#2	3°	137°	2" x 4"	24" o.c.	Comp Shingle Roofs-Low Slop
#3	32°	227°	2" x 4"	24" o.c.	COMP SHINGLE
#4	3°	137°	2" x 4"	24" o.c.	Comp Shingle Roofs-Low Slop

ARRAY AREA & ROOF AREA CALC'S		
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)
#1	10	211.21
#2	3	63.37
#3	4	84.49
#4	5	105.61
(TOTAL ARRAY AREA/TOTAL ROOF AREA) X 100%		
= (464.66/1697.67) X 100% = 27.38%		

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
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- K2 CROSSRAIL 44-X
- TRENCH

PANEL HEIGHT OFF ROOF	4"
-----------------------	----



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(1) SOLAREEDGE SE7600H-US [240V]	
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AC SYSTEM SIZE: 7.600 KWAC	
METER: 108 191 285	

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EMAIL ID: JHAVALCAIN@GMAIL.COM
PHONE NO. (910) 568-9906

DATE: 12/13/2022

SHEET NAME
ROOF PLAN

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

SHEET NUMBER
PV-3



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

METER NO#: 108 191 285



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

DEAD LOAD CALCULATION			
EQUIPMENT'S DESCRIPTIONS	QTY	LBS/UNIT	TOTAL WEIGHT
MODULES	22	48.5	1067
MID CLAMP	20	0.3	6
END CLAMP	48	0.31	14.88
K2 CROSSRAIL 44-X	16	10	160.00
SPLICE BAR	2	0.65	1.3
SPLICE FOOT X	45	0.9	40.50
K2 SOLAR SEAL BUTYL PAD	45	0.42	18.90
M5 X 60 LAG SCREWS	90	0.08	7.20
T BOLT AND HEX NUT SET	45	0.05	2.25
E-CURB	10	1.19	11.90
TOTAL WEIGHT OF THE SYSTEM (LBS)			1329.93
TOTAL ARRAY AREA ON THE ROOF (SQ. FT.)			464.66
WEIGHT PER SQ. FT. (LBS)			2.87
WEIGHT PER PENETRATION (LBS)			5.66

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 Q.PEAK DUO BLK ML-G10+ 400
 (TITAN)

(1) SOLAREEDGE
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DC SYSTEM SIZE: 8.800 kWDC

AC SYSTEM SIZE: 7.600 kWAC

METER: 108 191 285

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DATE: 12/13/2022

SHEET NAME

**DEAD LOAD
 CALCULATION**

SHEET SIZE

**ANSI B
 11" X 17"**

SHEET NUMBER

PV-4

BILL OF MATERIALS

EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	22	Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
INVERTER	1	SOLAREEDGE SE7600H-US [240V]
OPTIMIZER	22	SOLAREEDGE POWER OPTIMIZER S440
JUNCTION BOX	1	JB-1.XL, JUNCTION BOX, NEMA 3R, UL LISTED
NON FUSED AC DISCONNECT	1	EATON DG222URB PV SYSTEM AC DISCONNECT SWITCH NON FUSED VISIBLE OPEN 60A, 120/240V 2P NEMA 3R
ATTACHMENT	45	SPLICE FOOT X
ATTACHMENT	45	K2 SOLAR SEAL BUTYL PAD
ATTACHMENT	90	M5 X 60 LAG SCREWS
ATTACHMENT	45	T BOLT AND HEX NUT SET
ATTACHMENT	10	E-CURB
RAILS	16	K2 CROSSRAIL 44-X
BONDED SPLICE	2	SPLICE KIT
MID CLAMP	20	MID CLAMP
END CLAMP	48	END CLAMP
GROUNDING LUG	12	GROUNDING LUG



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Q.PEAK DUO BLK ML-G10+ 400
(TITAN)

(1) SOLAREEDGE
SE7600H-US [240V]

DC SYSTEM SIZE: 8.800 KWDC

AC SYSTEM SIZE: 7.600 KWAC

METER: 108 191 285

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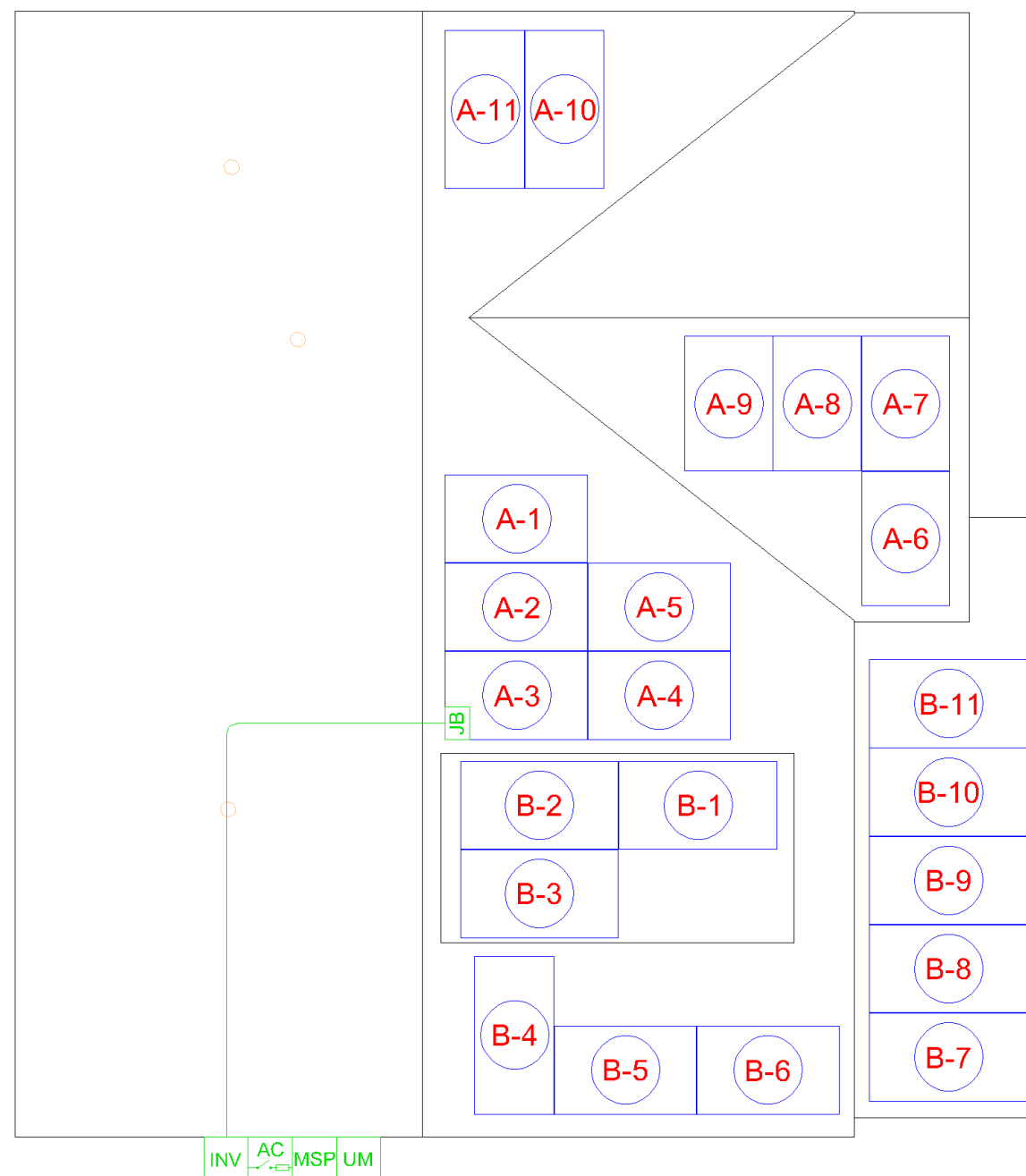
DATE: 12/13/2022

SHEET NAME
**STRING LAYOUT
& BOM**

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

SHEET NUMBER
PV-5

(E) BACK OF RESIDENCE



(E) FRONT OF RESIDENCE

NUTMEG CIR

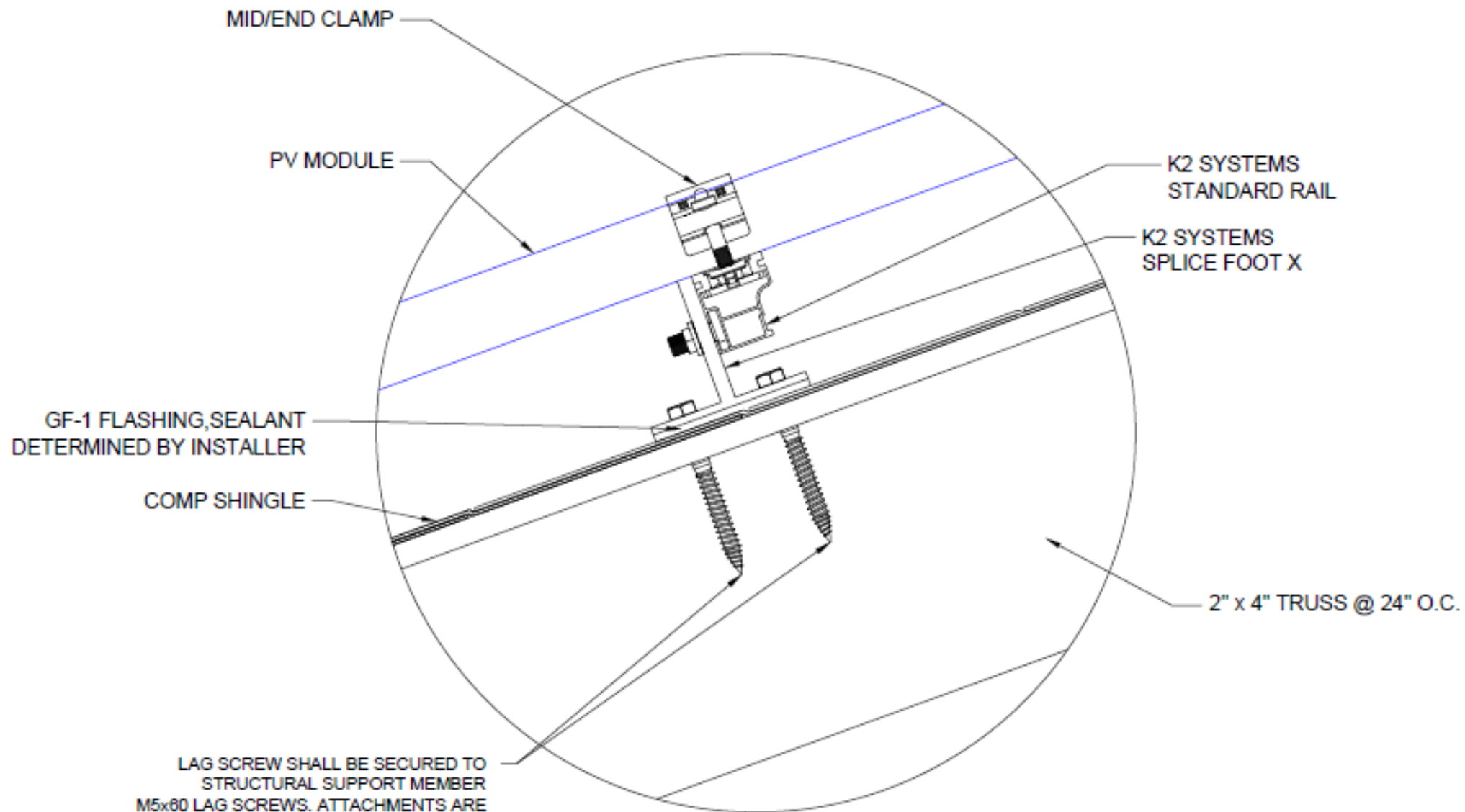
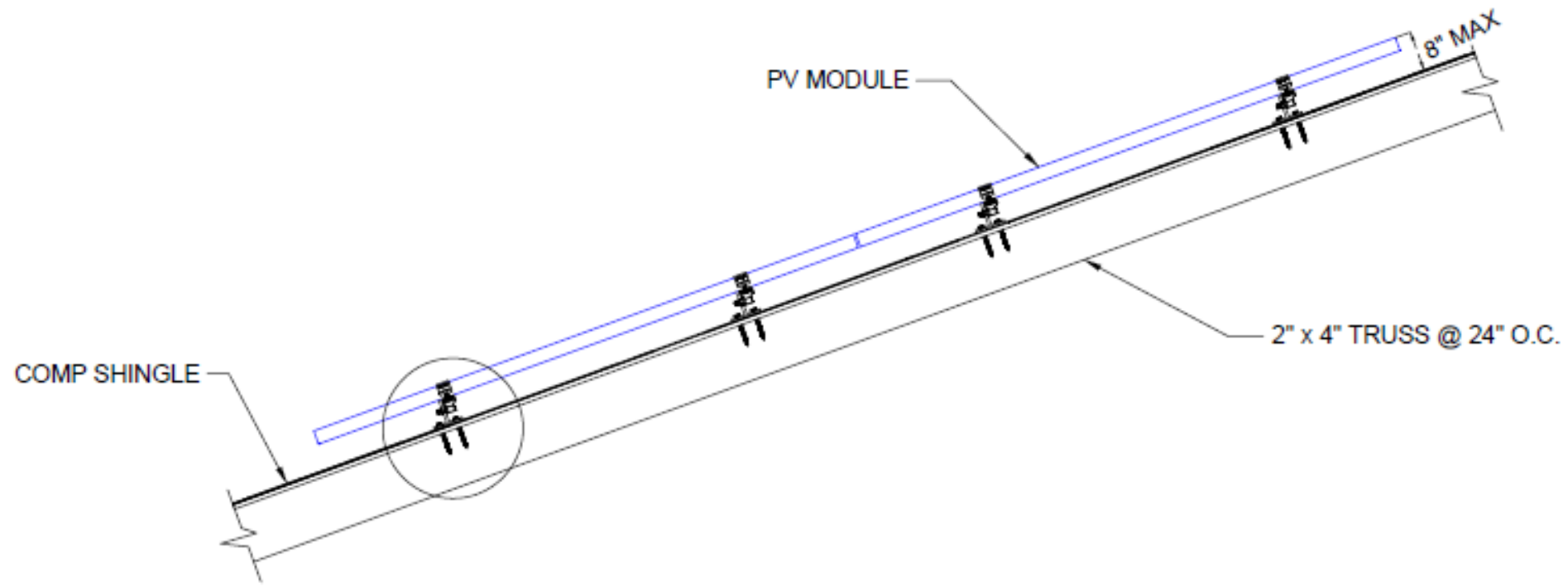


SCALE: 1/8" = 1'-0"

A B - MODULE STRINGING



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LAG SCREW SHALL BE SECURED TO
 STRUCTURAL SUPPORT MEMBER
 M5x60 LAG SCREWS. ATTACHMENTS ARE
 MADE WITH MINIMUM 5/16\"/>

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AC SYSTEM SIZE: 7.600 kWAC	
METER: 108 191 285	

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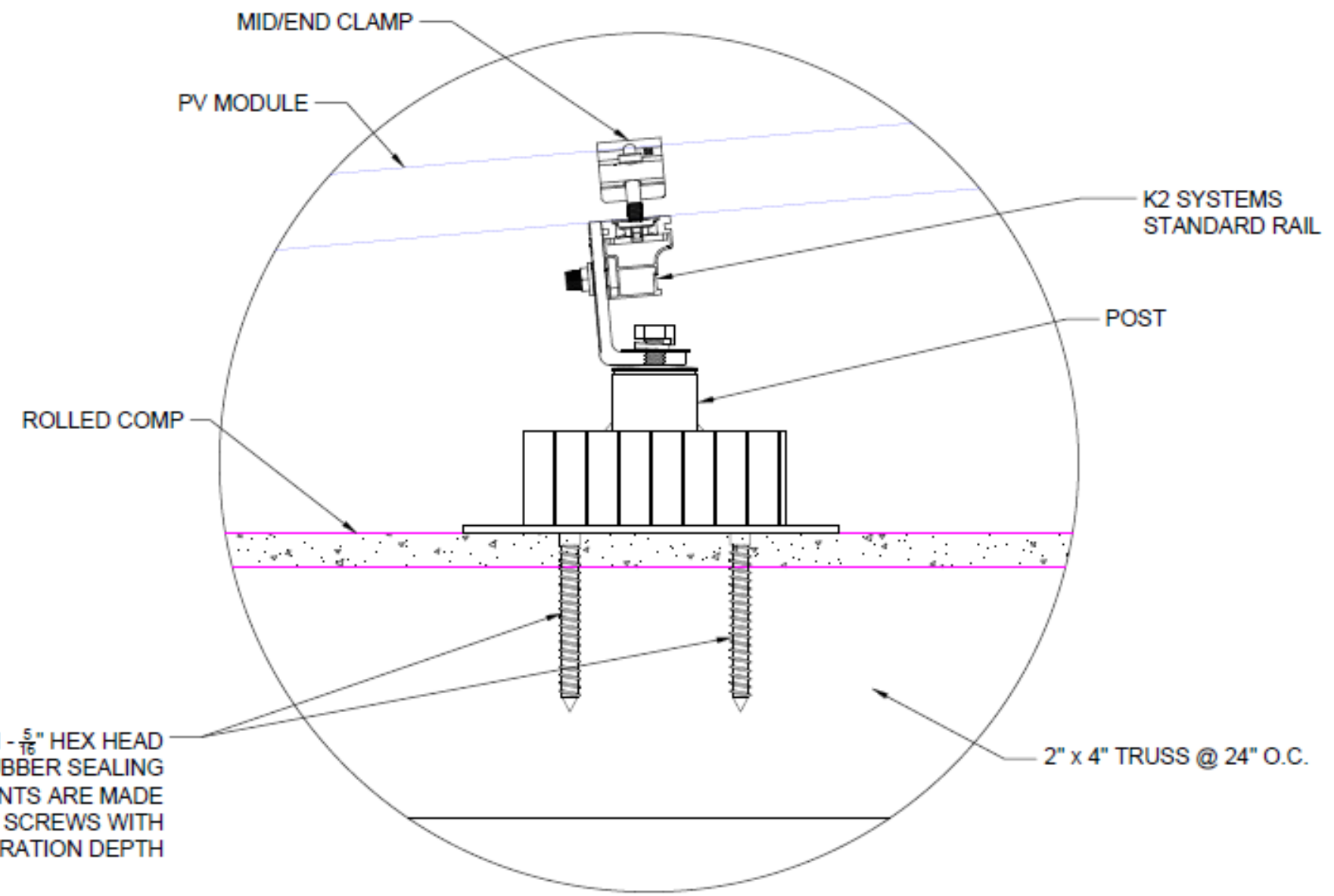
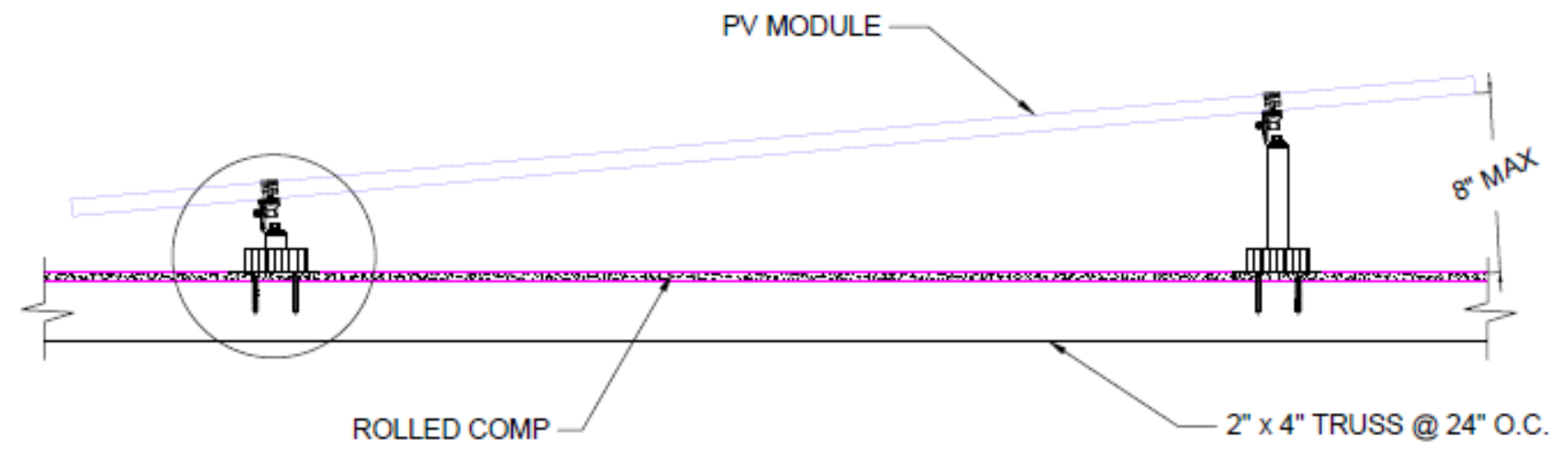
PROJECT NAME & ADDRESS

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 EMAIL ID: JHAVALCAIN@GMAIL.COM
 PHONE NO. (910) 568-9906

DATE: 12/13/2022
SHEET NAME ATTACHMENT DETAILS
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-6



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$\frac{1}{4}$ " DIAMETER - 1" LENGTH - $\frac{5}{16}$ " HEX HEAD
 WITH EPDM RUBBER SEALING
 WASHER. ATTACHMENTS ARE MADE
 WITH MINIMUM $\frac{5}{16}$ " LAG SCREWS WITH
 MINIMUM 2-1/2" PENETRATION DEPTH

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SHEET NAME
**ATTACHMENT
 DETAILS**

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

SHEET NUMBER
PV-7



TITAN SOLAR POWER
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Electrical LIC# : U.33714

SYSTEM INFO

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Q.PEAK DUO BLK ML-G10+ 400
(TITAN)

(1) SOLAREGE
SE7600H-US [240V]

DC SYSTEM SIZE: 8.800 KWDC

AC SYSTEM SIZE: 7.600 KWAC

METER: 108 191 285

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PHONE NO. (910) 568-9906

DATE: 12/13/2022

SHEET NAME
ATTACHMENT
DETAILS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-8

NOTE:
PROPRIETARY GEOMETRIES
HAVE BEEN REMOVED.
GENERAL LENGTH, WIDTH,
AND HEIGHT GEOMETRIES
WERE NOT ALTERED.

CROSSRAIL

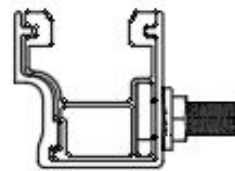
M10 BONDING T-BOLT

M10 HEX NUT

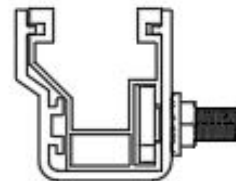
RAIL CONNECTOR

CR 80 RAIL
CONNECTOR
REQUIRES 4 T-BOLTS

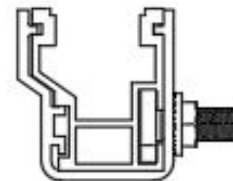
RAIL CONNECTOR ASSEMBLIES



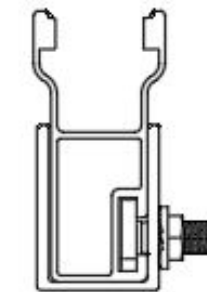
44-X



48-X



48-XL

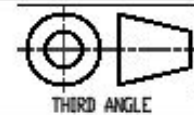


80

REVISION HISTORY

Revision	Date	Description
01		
02		
03		
04		
05		

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

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TITLE
CROSSRAIL RAIL
CONNECTOR ASSEMBLIES

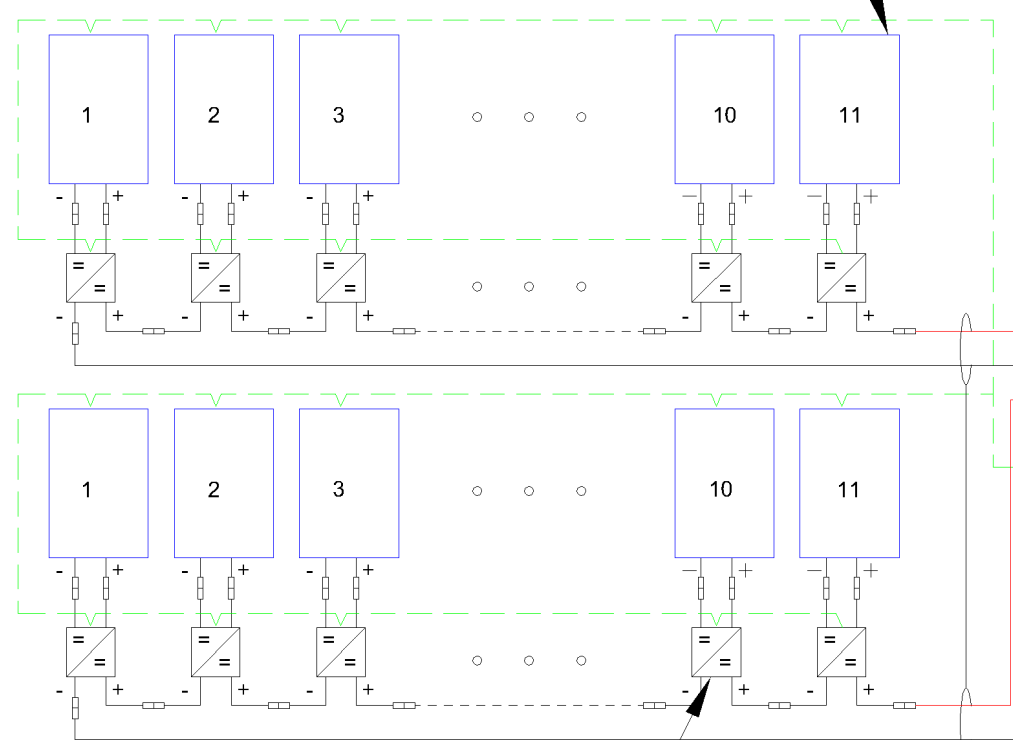
Size	Scale	Revision	Sheet 2 of 2
B	1:1	01	



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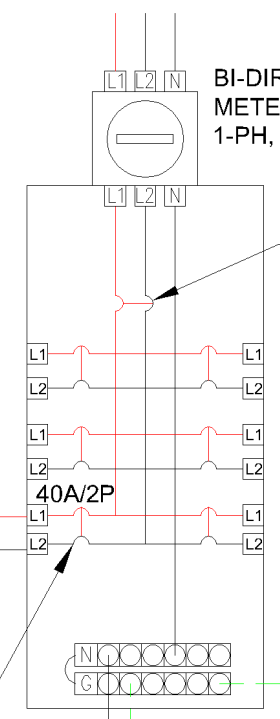
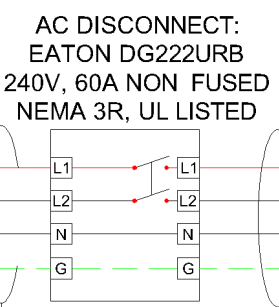
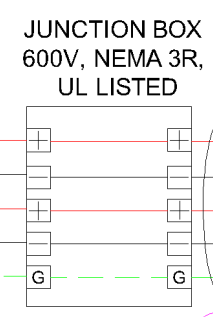
ID	TYPICAL	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION	CONDUCTOR			CONDUIT	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CIRCUIT	CONDUIT FILL PERCENT	OC PD	EGC		TEMP. CORR. FACTOR		CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	LENGTH	VOTAGE DROP
1	2	ARRAY	JUNCTION BOX	10 AWG	PV WIRE	COPPER	NULL NULL	1	2	N/A	N/A	8 AWG	BARE COPPER	0.71	(58°C)	N/A	15.00A	18.75A	40A	28.40A	90°C	60FT	0.47%
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	90°C	5FT	0.04%
3	1	INVERTER	NON FUSED AC DISCONNECT	6 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	27.02%	N/A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	32.00A	40A	55A	50.05A	90°C	5FT	0.10%
4	1	NON FUSED AC DISCONNECT	MSP	6 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	27.02%	40A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	32.00A	40A	55A	50.05A	90°C	5FT	0.10%

22 Q.PEAK DUO BLK ML-G10+ (400W) MODULES MODULES

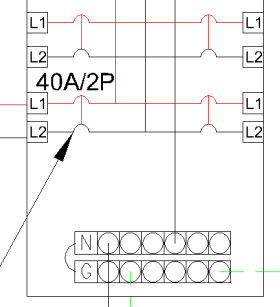


SolarEdge Power Optimizer S440 Rated
DC Input Power - 440 watts
Maximum Input Voltage - 60 Vdc
MPPT Range - 8 to 60 Vdc
Maximum Input Current - 14.5 Adc
Maximum Output Current - 15 Adc String
Limitations - 8 to 25 Optimizers,
5700 watts STC per string maximum

(N) SOLAREEDGE SE7600H-US
OUTPUT: 240 VAC, 32A
99% CEC WEIGHTED EFFICIENCY
NEMA 3R, UL LISTED, INTERNAL GFDI
WITH INTEGRATED DC DISCONNECT
SOLAREEDGE RAPID SHUTDOWN KIT
IS INTEGRATED WITH INVERTER



(E) MAIN BREAKER TO HOUSE 240 V, 200A/2P
(E) MAIN SERVICE PANEL, 200A RATED, 1-PH, 3-W, 240V



BACK FEED BREAKER AT THE OPPOSITE END OF THE MAIN BREAKER

EXISTING GROUND ELECTRODE CONDUCTOR

SYSTEM RATING
8.800 kWDC
7.600 kWAC

SERVICE INFO	
UTILITY PROVIDER:	SOUTH RIVER 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:	WEST
SERVICE FEED SOURCE:	UNDERGROUND

INTERCONNECTION 120% RULE - NEC 705.12(B)(2)(3)(b)
UTILITY FEED + SOLAR BACKFEED 200A + 40A = 240A
BUSS RATING X 120% 200A x 120% = 240A

METER NO#: 108 191 285

SCALE: NTS

SYSTEM INFO
(22) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
(1) SOLAREEDGE SE7600H-US [240V]
DC SYSTEM SIZE: 8.800 kWDC
AC SYSTEM SIZE: 7.600 kWAC
METER: 108 191 285

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	12/13/2022	A

PROJECT NAME & ADDRESS

JHAVAL CAIN
RESIDENCE
41 NUTMEG CIR SPRING LAKE NC 28390
EMAIL ID: JHAVALCAIN@GMAIL.COM
PHONE NO. (910) 568-9906

DATE: 12/13/2022
SHEET NAME ELECTRICAL LINE & CALCS.
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-9



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	OCPD	EGC		TEMP. CORR. FACTOR		CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	LENGTH	VOTAGE DROP
				8 AWG	BARE COPPER							(58°C)											
1	2	ARRAY	JUNCTION BOX	10 AWG	PV WIRE	COPPER	NULL NULL	1	2	N/A	N/A	8 AWG	BARE COPPER	0.71	(58°C)	N/A	15.00A	18.75A	40A	28.40A	90°C	60FT	0.47%
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	90°C	5FT	0.04%
3	1	INVERTER	NON FUSED AC DISCONNECT	6 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	27.02%	N/A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	32.00A	40A	55A	50.05A	90°C	5FT	0.10%
4	1	NON FUSED AC DISCONNECT	MSP	6 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	27.02%	40A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	32.00A	40A	55A	50.05A	90°C	5FT	0.10%

SYSTEM INFO		
(22) Q CELLS	Q.PEAK DUO BLK ML-G10+ 400 (TITAN)	
(1) SOLAREEDGE	SE7600H-US [240V]	
DC SYSTEM SIZE:	8.800 kWDC	
AC SYSTEM SIZE:	7.600 kWAC	
METER:	108 191 285	

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	12/13/2022	A

PROJECT NAME & ADDRESS

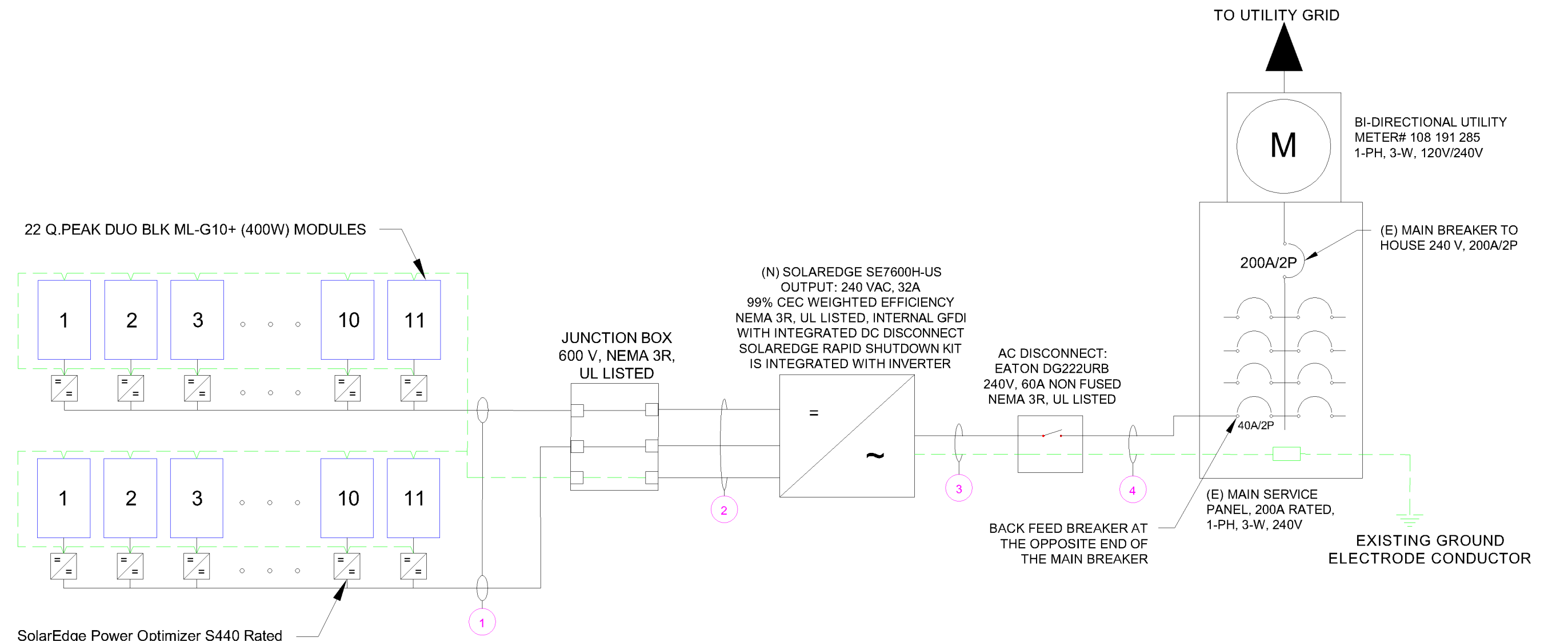
JHAVAL CAIN
RESIDENCE
41 NUTMEG CIR SPRING LAKE NC 28390
EMAIL ID: JHAVALCAIN@GMAIL.COM
PHONE NO. (910) 568-9906

DATE: 12/13/2022

SHEET NAME
**ELECTRICAL
LINE & CALCS.**

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

SHEET NUMBER
PV-10



SYSTEM RATING
8.800 kWDC
7.600 kWAC

SERVICE INFO	
UTILITY PROVIDER:	SOUTH RIVER 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:	WEST
SERVICE FEED SOURCE:	UNDERGROUND

INTERCONNECTION 120% RULE - NEC 705.12(B)(2)(3)(b)
UTILITY FEED + SOLAR BACKFEED 200A + 40A = 240A
BUSS RATING X 120% 200A x 120% = 240A

METER NO#: 108 191 285

SCALE: NTS

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL	Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
VMP	37.13 V
IMP	10.77 A
VOC	45.3 V
ISC	11.14 A
TEMP. COEFF. VOC	-0.27%/K
PTC RATING	376.55 W
MODULE DIMENSION	74"(L) x 41.1"(W)
PANEL WATTAGE	400 W

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL	SOLAREEDGE SE7600H-US [240V]
NOMINAL AC POWER	7600 W
NOMINAL OUTPUT VOLTAGE	240 VAC
NOMINAL OUTPUT CURRENT	32 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
160 N MCQUEEN RD,
GILBERT, AZ 85233, USA
PH# : (808) 371-5338
Electrical LIC# : U.33714

SYSTEM INFO
(22) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
(1) SOLAREEDGE SE7600H-US [240V]
DC SYSTEM SIZE: 8.800 kWDC
AC SYSTEM SIZE: 7.600 kWAC
METER: 108 191 285

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	12/13/2022	A

PROJECT NAME & ADDRESS

JHAVAL CAIN
RESIDENCE
41 NUTMEG CIR SPRING LAKE NC 28390
EMAIL ID: JHAVALCAIN@GMAIL.COM
PHONE NO. (910) 568-9906

DATE: 12/13/2022

SHEET NAME
**SPECIFICATIONS
& NOTES**

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

SHEET NUMBER
PV-11

1

PHOTOVOLTAIC AC DISCONNECT
RATED AC OUTPUT CURRENT 32 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

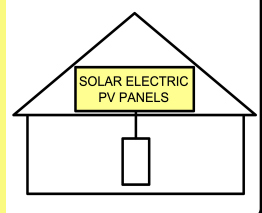
WARNING
INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

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 20 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

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)

10

CAUTION : SOLAR ELECTRIC SYSTEM CONNECTED

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

11

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)

12

WARNING: PHOTOVOLTAIC POWER SOURCE

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

13

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)

14

PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH

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



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

SYSTEM INFO		
(22) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)		
(1) SOLAREEDGE SE7600H-US [240V]		
DC SYSTEM SIZE: 8.800 kWDC		
AC SYSTEM SIZE: 7.600 kWAC		
METER: 108 191 285		

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	12/13/2022	A

PROJECT NAME & ADDRESS

JHAVAL CAIN
RESIDENCE
41 NUTMEG CIR SPRING LAKE NC 28390
EMAIL ID: JHAVALCAIN@GMAIL.COM
PHONE NO. (910) 568-9906

DATE: 12/13/2022
SHEET NAME SIGNAGE
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-12

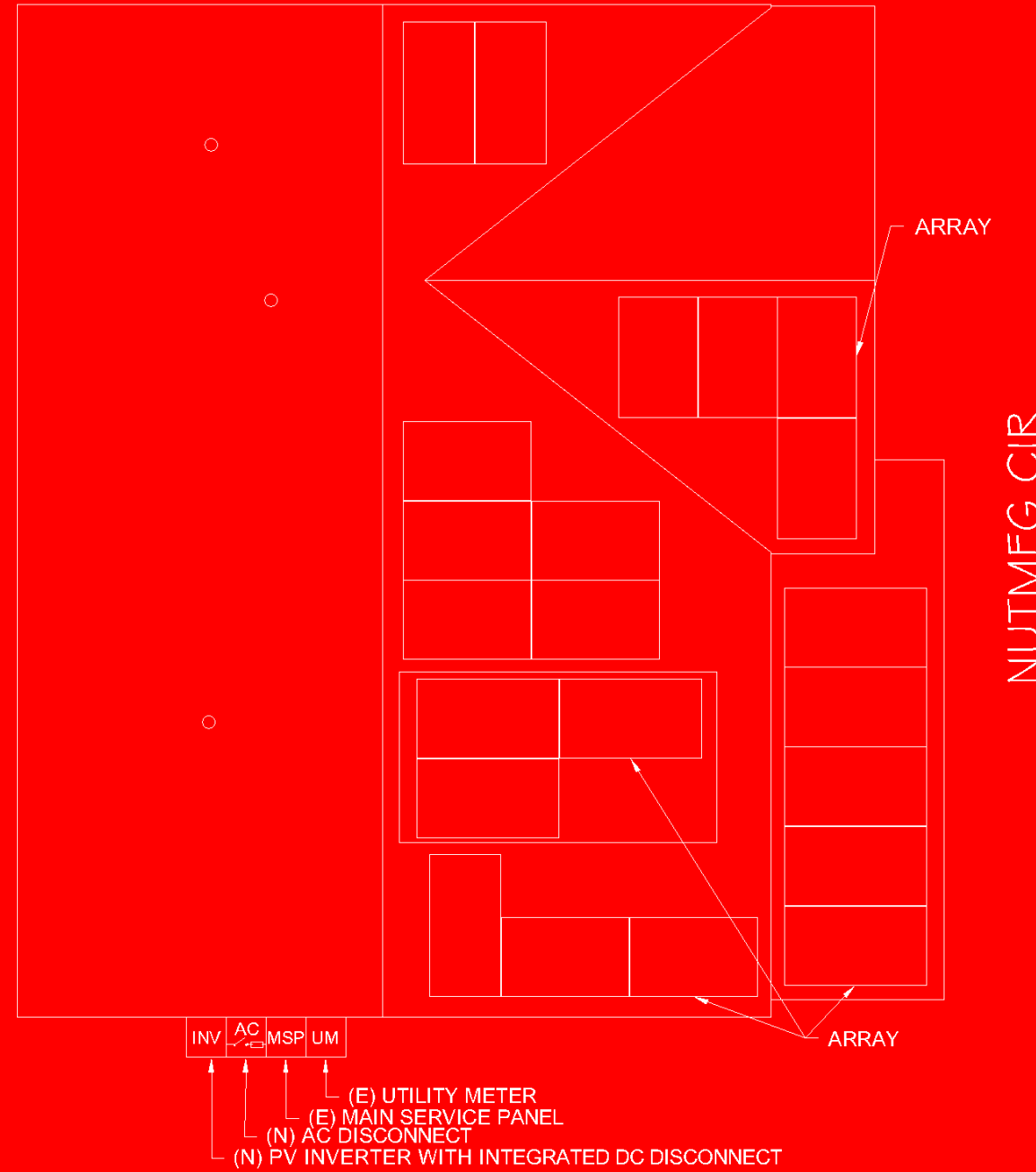
- ADHESIVE FASTENED SIGNS**
- THE LABEL SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE IT IS INSTALLED.
 - WHERE REQUIRED ELSEWHERE IN THIS CODE, ALL FIELD APPLIED LABELS, WARNING AND MARKINGS SHOULD COMPLY WITH ANSI 2535.4 [NEC 110.21(B) FIELD MARKING].
 - ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY 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
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POWER TO THIS BUILDING IS SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN



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

(22) Q CELLS
 Q.PEAK DUO BLK ML-G10+ 400
 (TITAN)

(1) SOLAREEDGE
 SE7600H-US [240V]

DC SYSTEM SIZE: 8.800 kWDC

AC SYSTEM SIZE: 7.600 kWAC

METER: 108 191 285

REVISIONS

DESCRIPTION	DATE	REV
REVISION	12/13/2022	A

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DATE: 12/13/2022

SHEET NAME
SIGNAGE

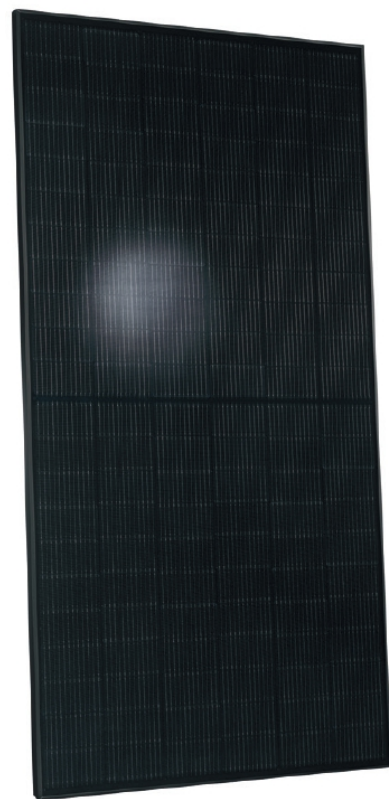
SHEET SIZE
**ANSI B
 11" X 17"**

SHEET NUMBER
PV-13



TITAN

SOLAR PANEL



BREAKING THE 20% EFFICIENCY BARRIER
Q. ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.

INDUSTRY'S MOST THOROUGH TESTING
Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry:
The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID Technology, Anti PID Technology, Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

A RELIABLE INVESTMENT
Inclusive 25-year product warranty and 25-year linear performance warranty².

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

¹APT test conditions according to IEC / TS 62804-1:2015, method A (-1500 V, 96 h)
²See data sheet on rear for further information.



Q PEAK DUO BLK ML-G10+

395-400

ENDURING HIGH PERFORMANCE

THE IDEAL SOLUTION FOR:
Rooftop arrays on residential buildings



400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA
TEL: +1 949 748 5996
EMAIL: sales@q-cells.com

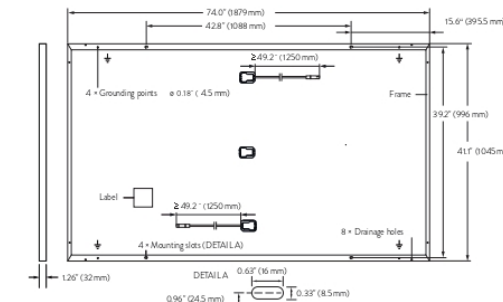


525 W Baseline Rd., Mesa, AZ, 85210
TEL: 855.SAY.SOLAR
EMAIL: info@titansolarpower.com

Specifications subject to technical changes © Q CELLS Q PEAK DUO BLK ML-G10+-395-400-2021-05_Rev.01_NA

MECHANICAL SPECIFICATION

FORMAT	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
WEIGHT	48.5 lbs (22.0 kg)
FRONT COVER	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
BACK COVER	Composite film
FRAME	Black anodized aluminum
CELL	6 × 22 monocrystalline Q. ANTUM solar half cells
JUNCTION BOX	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
CABLE	4 mm ² Solar cable; (+) ≥ 49.2 in (1250 mm), (-) ≥ 49.2 in (1250 mm)
CONNECTOR	Stäubli MC4; IP68

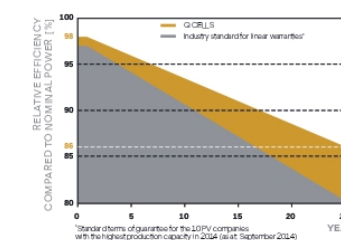


ELECTRICAL CHARACTERISTICS

POWER CLASS		385	390	395	400	405	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5 W / -0 W)							
MINIMUM	POWER AT MPP	P _{MPP} [W]	385	390	395	400	405
	SHORT CIRCUIT CURRENT	I _{SC} [A]	11.04	11.07	11.10	11.14	11.17
	OPEN CIRCUIT VOLTAGE	V _{OC} [V]	45.19	45.23	45.27	45.30	45.34
	CURRENT AT MPP	I _{MPP} [A]	10.59	10.65	10.71	10.77	10.83
	VOLTAGE AT MPP	V _{MPP} [V]	36.36	36.62	36.88	37.13	37.39
EFFICIENCY		η [%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²							
MINIMUM	POWER AT MPP	P _{MPP} [W]	288.8	292.6	296.3	300.1	303.8
	SHORT CIRCUIT CURRENT	I _{SC} [A]	8.90	8.92	8.95	8.97	9.00
	OPEN CIRCUIT VOLTAGE	V _{OC} [V]	42.62	42.65	42.69	42.72	42.76
	CURRENT AT MPP	I _{MPP} [A]	8.35	8.41	8.46	8.51	8.57
	VOLTAGE AT MPP	V _{MPP} [V]	34.59	34.81	35.03	35.25	35.46

¹Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25 ±2°C, AM 1.5 according to IEC 60904-3 • • 800 W/m², NMOT, spectrum AM 1.5

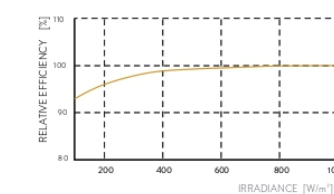
Q CELLS PERFORMANCE WARRANTY



At least 98 % of nominal power during first year. Thereafter max. 0.5 % degradation per year. At least 93.5 % of nominal power up to 10 years. At least 86 % of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

TEMPERATURE COEFFICIENT OF I _{SC}	α [%/K]	+0.04	TEMPERATURE COEFFICIENT OF V _{OC}	β [%/K]	-0.27
TEMPERATURE COEFFICIENT OF P _{MPP}	γ [%/K]	-0.34	NOMINAL MODULE OPERATING TEMPERATURE	NMOT [°F]	109 ± 5.4 (43 ± 3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{sys} [V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating [A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Push / Pull ¹ [lbs/ft ²]	75 (3600 Pa)/55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push / Pull ¹ [lbs/ft ²]	113 (5400 Pa)/84 (4000 Pa)		

¹ See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant, Quality Controlled PV - TÜV Rheinland, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells), QCPV Certification ongoing.



PACKAGING INFORMATION

Horizontal packaging	76.4 in 1940 mm	43.3 in 1100 mm	48.0 in 1220 mm	1656 lbs 751 kg	24 pallets	24 pallets	32 modules
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Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.



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

SYSTEM INFO		
(22) Q CELLS Q. PEAK DUO BLK ML-G10+ 400 (TITAN)		
(1) SOLAREGE SE7600H-US [240V]		
DC SYSTEM SIZE: 8.800 KWDC		
AC SYSTEM SIZE: 7.600 KWAC		
METER: 108 191 285		

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	12/13/2022	A

PROJECT NAME & ADDRESS

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41 NUTMEG CIR SPRING LAKE NC 28390
EMAIL ID: JHAVALCAIN@GMAIL.COM
PHONE NO. (910) 568-9906

DATE: 12/13/2022

SHEET NAME
EQUIPMENT SPECIFICATIONS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-15



/ Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / **SE7600H-US** / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US		
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXX (BXX4)								
OUTPUT									
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA	
Maximum AC Power Output	3000	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 ⁽¹⁾							Hz	
Maximum Continuous Output Current @240V	12.5	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								
INPUT									
Maximum DC Power @240V	4650	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 ⁽²⁾	8.5	10.5	13.5	16.5	20	27	30.5	Adc	
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	-	-	27	Adc	
Max. Input Short Circuit Current	45							Adc	
Reverse-Polarity Protection	Yes								
Ground-Fault Isolation Detection	600ka Sensitivity								
Maximum Inverter Efficiency	99					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

/ Single Phase Inverter with HD-Wave Technology for North America

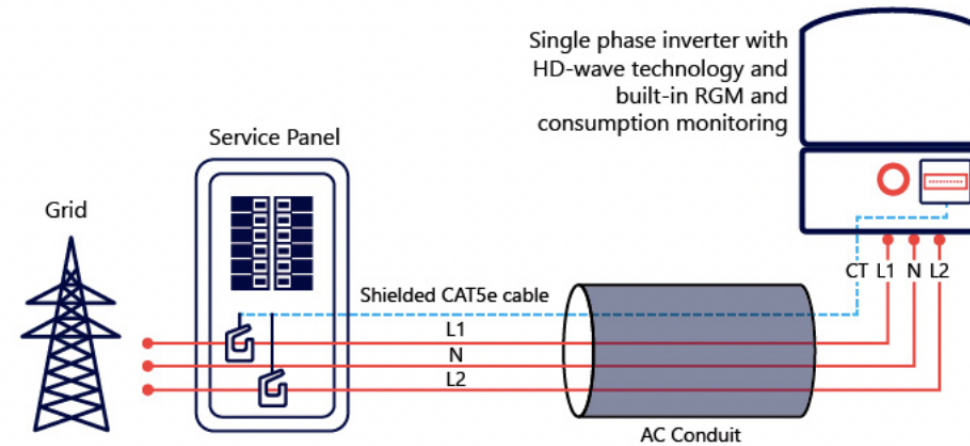
SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / **SE7600H-US** / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)						
Revenue Grade Metering, ANSI C12.20	Optional ⁽³⁾						
Consumption metering	Optional ⁽³⁾						
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						
STANDARD COMPLIANCE							
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07						
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (H)						
Emissions	FCC Part 15 Class B						
INSTALLATION SPECIFICATIONS							
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 (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174				21.3 x 14.6 x 7.3 / 540 x 370 x 185		
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9	38.8 / 17.6		lb / kg	
Noise	< 25				<50		
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁴⁾						
Protection Rating	NEMA 4X (Inverter with Safety Switch)						

(3) Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BN14. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box
 (4) Full power up to at least 50°C / 122°F; for power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

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



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

SYSTEM INFO		
(22) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)		
(1) SOLAREGE SE7600H-US [240V]		
DC SYSTEM SIZE: 8.800 KWDC		
AC SYSTEM SIZE: 7.600 KWAC		
METER: 108 191 285		

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	12/13/2022	A

PROJECT NAME & ADDRESS

JHAVAL CAIN
 RESIDENCE
 41 NUTMEG CIR SPRING LAKE NC 28390
 EMAIL ID: JHAVALCAIN@GMAIL.COM
 PHONE NO. (910) 568-9906

DATE: 12/13/2022

SHEET NAME
EQUIPMENT SPECIFICATIONS

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

SHEET NUMBER
PV-16

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

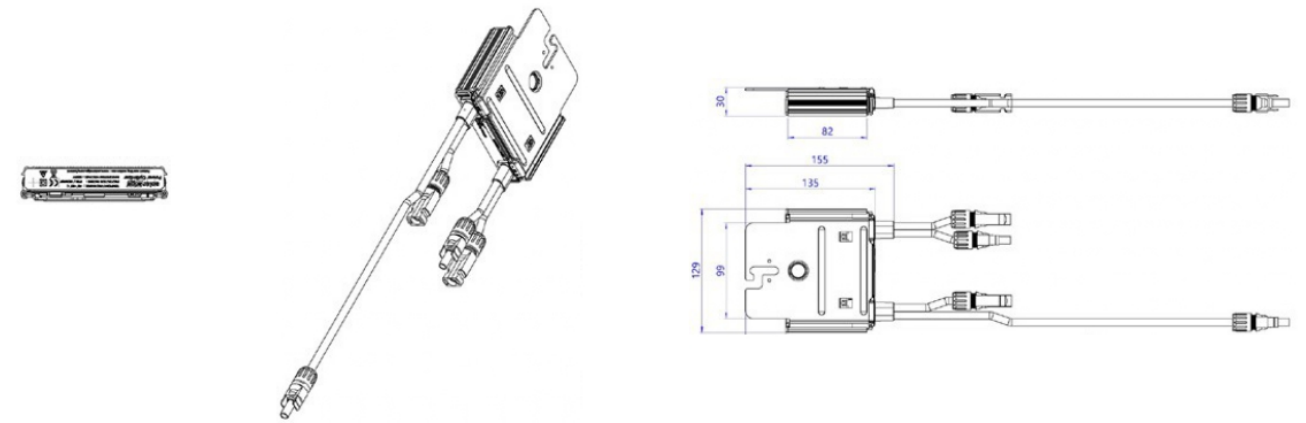
S440, S500

	S440	S500	UNIT
INPUT			
Rated Input DC Power ⁽¹⁾	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	
OUTPUT DURING OPERATION			
Maximum Output Current		15	Adc
Maximum Output Voltage		60	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)			
Safety Output Voltage per Power Optimizer		1	Vdc
STANDARD COMPLIANCE			
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		
INSTALLATION SPECIFICATIONS			
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 ⁽²⁾	
Input Wire Length		0.1	m
Output Connector		MC4	
Output Wire Length		(+) 2.3, (-) 0.10	m
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) 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 ⁽⁴⁾		5700	5250	11250 ⁽⁵⁾	12750 ⁽⁶⁾
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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 PH# : (808) 371-5338
 Electrical LIC# : U.33714

SYSTEM INFO		
(22) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)		
(1) SOLAREEDGE SE7600H-US [240V]		
DC SYSTEM SIZE: 8.800 KWDC		
AC SYSTEM SIZE: 7.600 KWAC		
METER: 108 191 285		

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	12/13/2022	A

PROJECT NAME & ADDRESS

JHAVAL CAIN
 RESIDENCE
 41 NUTMEG CIR SPRING LAKE NC 28390
 EMAIL ID: JHAVALCAIN@GMAIL.COM
 PHONE NO. (910) 568-9906

DATE: 12/13/2022
SHEET NAME EQUIPMENT SPECIFICATIONS
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-17

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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(TITAN)

(1) SOLAREEDGE
SE7600H-US [240V]

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**EQUIPMENT
SPECIFICATIONS**

SHEET SIZE

**ANSI B
11" X 17"**

SHEET NUMBER

PV-18

E-CURB™ SYSTEM
PENETRATION SEALS

Technical Data Guide

Polyether Technology

CSI Section No. 07 12 13

CHEM LINK Products, LLC

Distributed by: **BEST MATERIALS**®
Ph: 800-474-7570, 602-272-8128
Fax: 602-272-8014
www.BestMaterials.com
Email: Sales@BestMaterials.com

Product Description

E-Curb penetration seals replace old-style metal pitch pans with versatile, precast components and pourable sealants. CHEM LINK's **E-Curb** System can usually be installed in under 15 minutes and never requires flashing or mechanical attachment.

E-Curbs are designed for use on granulated modified bitumen, asphalt and coal tar B.U.R. (built up roofing). **E-Curbs** are specified for PVC, EPDM, PIB, and TPO single ply roofing membranes. **E-Curbs** are highly versatile for sealing penetrations around solar panel mounts, HVAC, Electrical, and any type of structural supports. TPO Primer is required for use with TPO single-ply roof membrane.

When installed properly, this system forms a durable, waterproof rubber seal around penetrations. An extended manufacture warranty against leaks is activated with submittal of a completed warranty card.

Special Characteristics

- Rapid installation - "Slip-fit" light weight curb design reduces labor significantly.
- Excellent adhesion to most roofing materials.
- No flashing or mechanical attachment required.
- Service Temperature -40°F to 200°F (-40°C to 93°C)
- **1-Part**® accommodates movement and is suggested for use on all granulated membranes and details with excessive movement.
- For sloped roof applications, substitute **DuraLink**™ non-slump adhesive/sealant for **1-Part** and **M-1**®

Restrictions

- Do not apply below 30°F (-1°C)
- Do not install if rain is anticipated within 4 hours
- Do not use on Hypalon or smooth APP modified bitumen membrane. For smooth APP, torch down a target of granulated APP before installation.
- TPO Primer must be used for TPO applications.
- Do not prime bonding surfaces with asphalt primer!
- Do not use asphalt cement as a "night sealant." Use **M-1** for this purpose.
- **E-Curb** kits are designed to contain enough 1-Part to fill each curb with displacement in consideration. Refer to our penetration calculator under contractor resources at chemlink.com to verify volumes.



E-Curb System Components

- **E-Curb** exterior rings, straights, and corners.
- **M-1** Structural Adhesive/Sealant used for bonding the **E-Curb** components, sealing and priming the penetration.
- **1-Part** "moisture cure" pourable sealer, used to form a durable, water-tight seal around the roof penetration.

E-Curb precast form components are composed of light weight nylon resin. The E-Curb is 2-inches high and is available in a variety of shapes and sizes. Sizes available include: bi-sected circular pieces having inside diameters of 3, 4, 6, or 9 inches. Corner pieces having a 2-inch radius, and 8-inch straight pieces are also available to create larger sizes. The outer surface is impervious to ice, corrosion, UV (ultraviolet) light and ponding water.

M-1 Structural Adhesive/Sealant is a durable, self-fixturing moisture cure mastic. Cartridges of **M-1** are supplied in each E-Curb Kit. Components are also sold separately.

1-Part is a highly flexible, self-leveling moisture cure pourable sealer that eliminates mixing. It is also 100% solid rubber, has a very low VOC content, will not melt or shrink, and is resistant to deterioration. It is supplied in 10.1-oz and 28-oz cartridges or 1/2 gallon pouches. Unused sealant can be capped and reused.



Last Revision: 02/20/13
Document No. L1350

Step 1

Remove all previously applied caulk, mastic, cement, asphalt, and other contaminants from penetrations with a wire brush. Clean all smooth substrates with isopropyl or denatured alcohol. Brush away all gravel or loose granules. Seal the base of each penetration with **M-1**. Coat penetrations with **M-1** to 3" above the roof line.



Step 2

Hold a section of **E-Curb**, flat side up, and apply a 1/4" bead of **M-1** to the entire bottom perimeter. Apply 1 additional 1/4" bead of **M-1** down the center of the section. Do not tool the beads flat. Place the **E-Curb** section on the roof surface to form a half circle around the penetration(s). Press down firmly until **M-1** extrudes from the outside edges.



Step 3

Apply **M-1** to the second section of **E-Curb** as described above. Place the second section of curb on the roof surface to form a circle with the first section. Press firmly in place until excess adhesive extrudes from the outside edges. Apply a bead of **M-1** around the outside base of the installed **E-Curb**, and tool to form a smooth fillet. For non **E-Curb** penetrations seals, add **M-1** to scarf joint surfaces and tool smooth.



Step 4

Cut tip off **1-Part** cartridge at widest point on plastic nozzle and pierce the foil seal. Insert into caulking gun and pump **E-Curb** full. When using a **1-Part** pouch, remove cap, pour, squeeze out excess air, and reseal. **Note:** To provide an adequate rubber seal, maintain a 1" distance between penetrations and inside edge of the E-Curb.



All properties described in this document are derived from testing conducted in laboratory conditions. Properties and performance will vary depending on environmental conditions and application technique. Test and evaluate to determine appropriate usage. Visit www.chemlink.com for the Material Safety Data Sheet, Technical Data Guides and full warranty for this product.

LIMITED WARRANTY: **CHEM LINK Products, LLC** warrants this product's performance, provided it is properly stored and applied within 1 year. If not satisfied, return remaining product and purchase receipt for refund or replacement of product exclusive of labor or cost of labor. This is the sole and exclusive remedy for defects or failure of this product. User must read and follow the direction of the current Technical Data Guide and MSDS prior to product use. User determines suitability of product for intended use and assumes all risks. Manufacturer shall not be liable for damages (including consequential or incidental damages) in excess of the purchase price, except where such exclusion or limitation is prohibited by state law. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE; except for the above express warranty given by manufacturer, the product is sold with all faults. **CHEM LINK PRODUCTS, LLC** SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS. This warranty gives you specific legal rights, and you may also have other rights in the U.S. which vary from state to state. For warranty claim information, call 800-826-1681.



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

SYSTEM INFO

(22) Q CELLS
Q.PEAK DUO BLK ML-G10+ 400
(TITAN)

(1) SOLAREEDGE
SE7600H-US [240V]

DC SYSTEM SIZE: 8.800 KWDC

AC SYSTEM SIZE: 7.600 KWAC

METER: 108 191 285

REVISIONS

DESCRIPTION	DATE	REV
REVISION	12/13/2022	A

PROJECT NAME & ADDRESS

JHAVAL CAIN
RESIDENCE
41 NUTMEG CIR SPRING LAKE NC 28390
EMAIL ID: JHAVALCAIN@GMAIL.COM
PHONE NO. (910) 568-9906

DATE: 12/13/2022

SHEET NAME
**EQUIPMENT
SPECIFICATIONS**

SHEET SIZE

ANSI B
11" X 17"

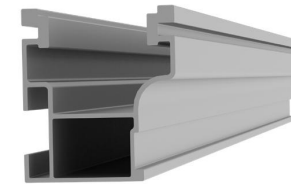
SHEET NUMBER

PV-19

We support PV systems
Formerly Everest Solar Systems



CROSSRAIL 44-X



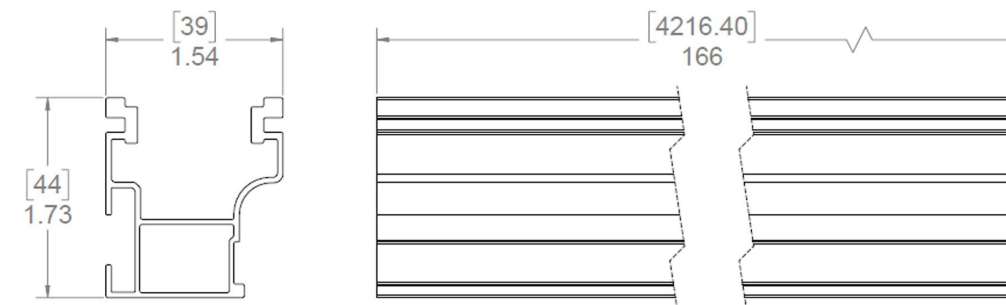
Mechanical Properties

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 ³ [0.3785 cm ³]
Sy	0.1450 in ³ [0.3683 cm ³]
A [X-Section]	0.4050 in ² [1.0287 cm ²]

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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DATE: 12/13/2022

SHEET NAME

**EQUIPMENT
SPECIFICATIONS**

SHEET SIZE

**ANSI B
11" X 17"**

SHEET NUMBER

PV-20

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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PHONE NO. (910) 568-9906

DATE: 12/13/2022

SHEET NAME

EQUIPMENT SPECIFICATIONS

SHEET SIZE

**ANSI B
11" X 17"**

SHEET NUMBER

PV-21