

PHOTOVOLTAIC ROOF MOUNT SYSTEM

21 MODULES-ROOF MOUNTED - 9.240 kWDC, 7.700 kWAC
2619 SW FIREFLY LN, LEE'S SUMMIT, MO 64082, USA



Reviewed and approved
Richard Pantel, P.E.
MO Lic. No. PE-2023043867
10/29/2025



DESIGNED BY
RICKY KAMERON
ricky@rscadgroup.com



Ricky Kameron

VERSION

DESCRIPTION	DATE	REV
INITIAL RELEASE	10/22/2025	UR

PROJECT NAME

DON LENNARD
2619 SW FIREFLY LN,
LEE'S SUMMIT, MO 64082 USA
APN# 6920011080000000
UTILITY: N/A
AHJ: LEE'S SUMMIT CITY

SYSTEM SUMMARY:

- (N) 21 - VSUN SOLAR VSUN 440N-108BMH-BB (440W) MODULES
- (N) 11 - HOYMILES HMS-700-2T [240V] MICRO-INVERTERS
- (N) JUNCTION BOX
- (E) 225A MAIN SERVICE PANEL WITH (E) 200A MAIN BREAKER
- (N) 125A SOLAR LOAD CENTER
- (N) 60A NON-FUSED AC DISCONNECT

INTERCONNECTION METHOD : BACKFEED BREAKER

DESIGN CRITERIA:

- ROOF TYPE: - COMP SHINGLE
- NUMBER OF LAYERS: - 02
- ROOF FRAME: - 2"X8" RAFTER @16" O.C.
- STORY: - ONE STORY
- SNOW LOAD : - 20 PSF
- WIND SPEED :- 109 MPH
- WIND EXPOSURE:- B
- RISK CATEGORY:- II
- COORDINATE:- 38.873720, -94.420840

NOTE: INSTALLER TO DETERMINE OPTIMAL CONDUIT RUN ON SITE. ATTIC RUN IS OPTIONAL UNLESS REQUIRED BELOW.
ATTIC RUN: OPTIONAL

GOVERNING CODES:

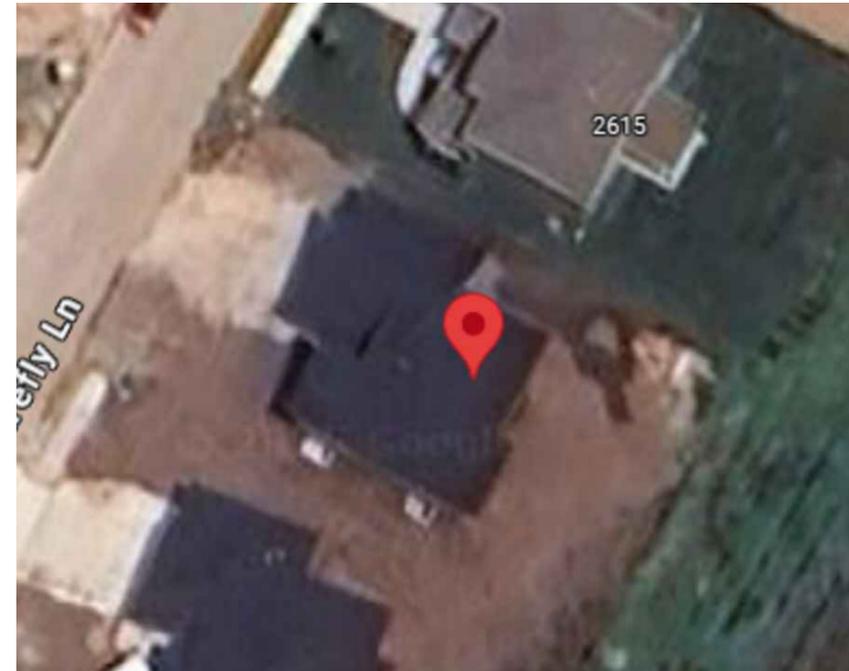
- 2018 INTERNATIONAL BUILDING CODE
- 2018 INTERNATIONAL PLUMBING CODE
- 2018 INTERNATIONAL MECHANICAL CODE
- 2018 INTERNATIONAL FUEL GAS CODE
- 2018 INTERNATIONAL RESIDENTIAL CODE
- 2018 INTERNATIONAL FIRE CODE
- 2017 NATIONAL ELECTRICAL CODE

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GENERAL NOTES:

- THE CONTRACTOR/INSTALLER OF THE SOLAR PV SYSTEM OVER EXISTING ROOF SHALL CONFORM TO OSHA REQUIREMENTS DURING THE CONSTRUCTION PHASE. JOB SAFETY AND CONSTRUCTION PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR/INSTALLER. REFER TO ELECTRICAL DRAWING PV-4 FOR PANEL DETAILED INFORMATION.
- IN CASE OF CONFLICT BETWEEN STRUCTURAL DRAWINGS AND ELECTRICAL DRAWINGS, THE MOST RIGID REQUIREMENTS SHALL GOVERN. THE CONTRACTOR/INSTALLER SHALL VERIFY ALL EXISTING BUILDING INFORMATION SHOWN (DIMENSIONS, ROOF TOP PROJECTIONS, ETC.) AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO INSTALLATIONS OF PV SYSTEM.
- THE CONTRACTOR/INSTALLER SHALL VERIFY AND COORDINATE EXISTING OPENINGS, ROOF TOP UNITS, VENT PIPES, ETC. SHOWN ON DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN DRAWINGS, IT IS THE CONTRACTORS/INSTALLER'S RESPONSIBILITY TO NOTIFY ENGINEER PRIOR TO PERFORMING THE WORK.
- ALL CONSTRUCTION IS TO BE PERFORMED IN STRICT CONFORMANCE WITH ALL APPLICABLE TOWN, COUNTY & STATE REGULATIONS AND/OR ANY OTHER GOVERNING BODIES. DO NOT SCALE THESE DRAWINGS, USE DIMENSIONS. CONTRACTOR MUST CONDUCT ROOF SURVEY TO VERIFY DIMENSIONS SHOWN ON PLAN PRIOR TO INSTALLATION. IF THERE IS A DISCREPANCY IT IS CONTRACTOR/INSTALLER'S RESPONSIBILITY TO NOTIFY THE ENGINEER IMMEDIATELY.
- LOCATED IN AREAS NOT REQUIRING PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS DOORS OR WINDOWS.
- LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES, OR SIGNS.
- DISCONNECT MEANS MUST HAVE DEDICATED CLEAR UNOBSTRUCTED WORKING SPACE NOT LESS THAN 3' DEEP BY 2.5' WIDE TO NOT LESS THAN 6.5' ABOVE WALKABLE SURFACES IN FRONT OF DISTRIBUTION PANEL. ALL SOLAR MODULES, EQUIPMENT, AND METALLIC COMPONENTS TO BE BONDED.
- PV ARRAY NOT TO EXCEED HIGHEST POINT OF THE ROOF. RAPID SHUTDOWN IS ACTIVATED AT THE INVERTER BY THE DC DISCONNECT



1 | AERIAL PHOTO
PV-0 | SCALE: NTS



2 | VICINITY MAP
PV-0 | SCALE: NTS



SHEET NAME

COVER SHEET

SHEET SIZE

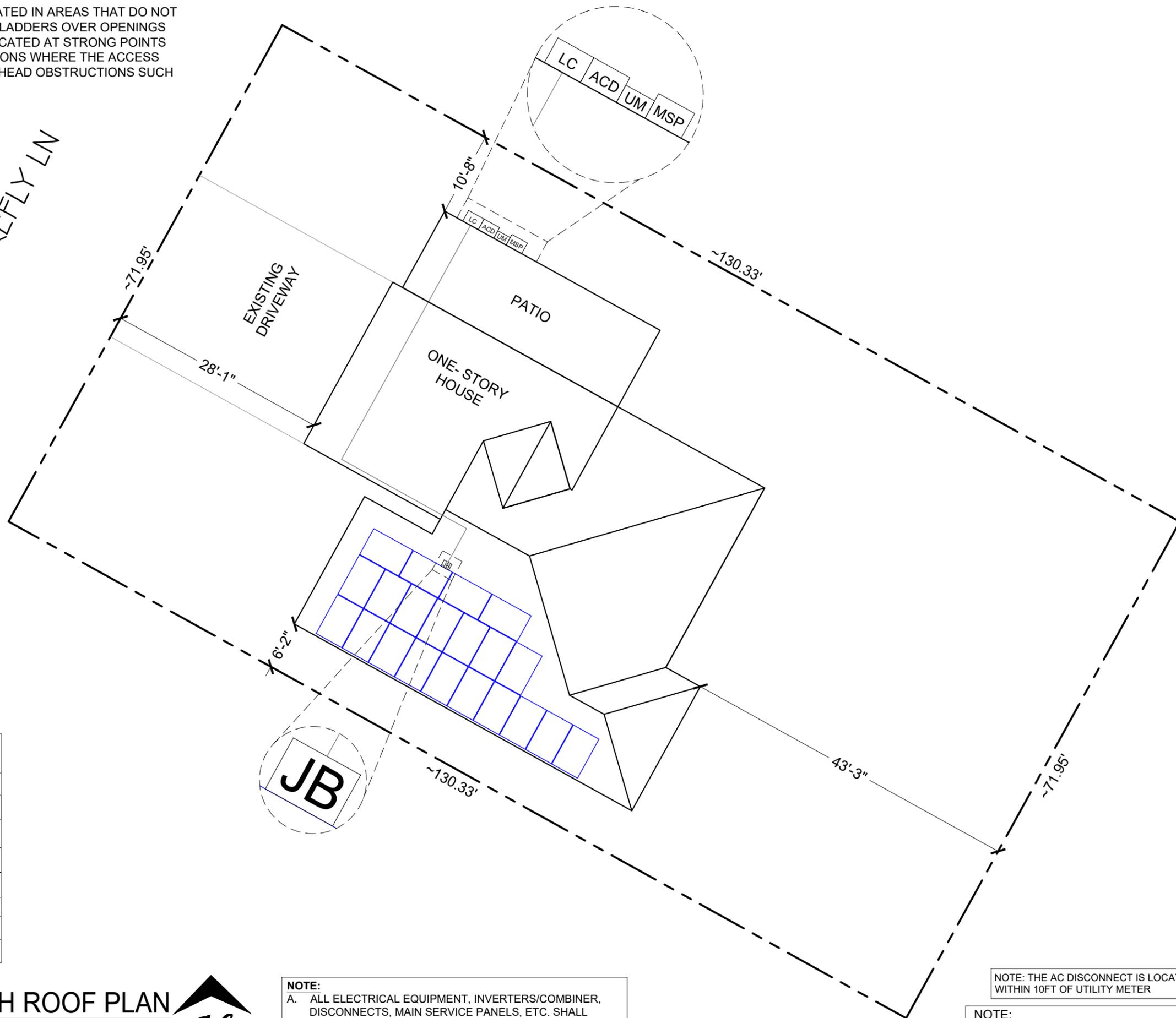
ANSI B
11" X 17"

SHEET NUMBER

PV-0

● **ROOF ACCESS POINT** SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS.

SW FIREFLY LN



LEGEND	
UM	UTILITY METER
MSP	MAIN SERVICE PANEL
ACD	AC DISCONNECT
SLC	SOLAR LOAD CENTER
JB	JUNCTION BOX
—	PROPERTY LINE
-x-	GATE
----	FENCE

1 **SITE PLAN WITH ROOF PLAN** 

SCALE: 5/64" = 1'-0"

NOTE:
 A. ALL ELECTRICAL EQUIPMENT, INVERTERS/COMBINER, DISCONNECTS, MAIN SERVICE PANELS, ETC. SHALL NOT BE INSTALLED WITHIN 3' OF THE GAS METERS' SUPPLY OR DEMAND PIPING.

NOTE: THE AC DISCONNECT IS LOCATED WITHIN 10FT OF UTILITY METER

NOTE: 3/4" OR GREATER EMT CONDUIT RUN (7/8" ABOVE ROOF)



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SHEET NAME
 SITE PLAN WITH
 ROOF PLAN

SHEET SIZE
 ANSI B
 11" X 17"

SHEET NUMBER
 PV-1

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 21 MODULES
 MODULE TYPE = VSUN SOLAR VSUN 440N-108BMH-BB (440W) MODULES
 MODULE WEIGHT = 47.18 LBS / 21.4 KG.
 MODULE DIMENSIONS = 67.80X 44.65 = 21.02 SF
 UNIT WEIGHT OF ARRAY = 2.24 PSF

NOTE:
 3/4" OR GREATER EMT CONDUIT
 RUN (7/8" ABOVE ROOF)

NOTE: THE AC DISCONNECT IS LOCATED
 WITHIN 10FT OF UTILITY METER

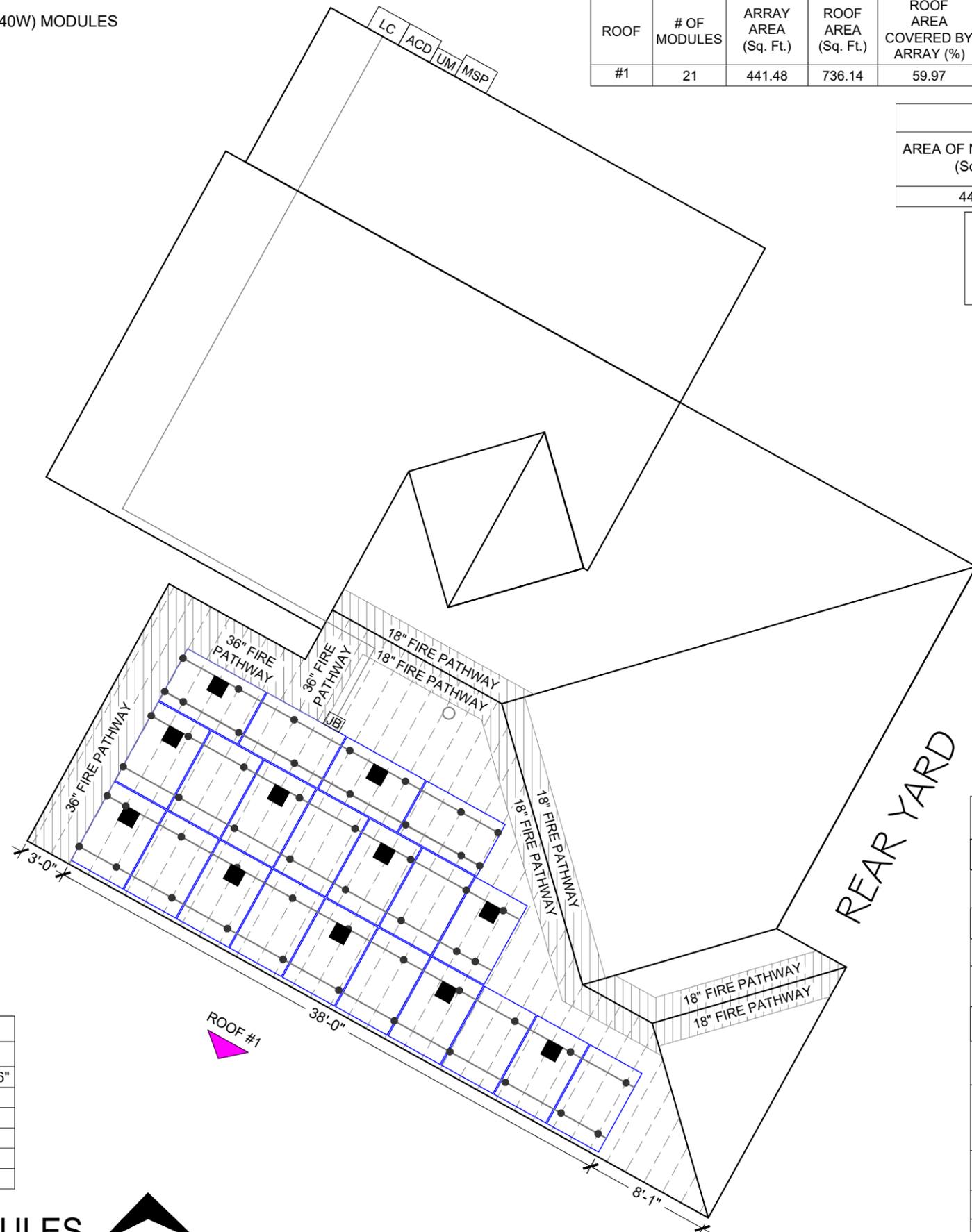
SW FIREFLY LN
 FRONT YARD

ARRAY AREA & ROOF AREA CALC'S				
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	21	441.48	736.14	59.97

ROOF DESCRIPTION				
ROOF TYPE			COMP SHINGLE ROOF	
ROOF	ROOF TILT	AZIMUTH	RAFTER SIZE	RAFTER SPACING
#1	18°	209°	2"X8"	16" O.C.

ARRAY AREA & ROOF AREA CALC'S		
AREA OF NEW ARRAY (Sq. Ft.)	AREA OF ROOF (PLAN VIEW) (Sq. Ft.)	TOTAL ROOF AREA COVERED BY ARRAY %
441.48	2581.18	17.10%

NOTE: ACTUAL ROOF CONDITIONS AND RAFTER (OR SEAM) LOCATIONS MAY VARY. INSTALL PER MANUFACTURER(S) INSTALLATION GUIDELINES AND ENGINEERED SPANS FOR ATTACHMENTS



BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
RAIL	12	K2 CROSS RAIL 44-X MAX DARK186"
SPLICE	08	EVEREST SPLICE KIT
MID CLAMP	36	EVEREST MID CLAMP
END CLAMP	12	EVEREST END CLAMP
ATTACHMENT	53	EVERFLASH XP L-FOOT
GROUNDING LUG	03	EVEREST GROUND LUG

1 ROOF PLAN WITH MODULES
 SCALE: 1/8"=1'-0"



LEGEND	
UM	UTILITY METER
MSP	MAIN SERVICE PANEL
ACD	AC DISCONNECT
JB	JUNCTION BOX
■	HOYMILES HMS-700-2T [240V] MICRO-INVERTER
SLC	SOLAR LOAD CENTER
—	K2 CROSS RAIL 44-X MAX DARK RAIL
●	ROOF ATTACHMENT EVERFLASH XP L-FOOT @ 48" O.C.
○ □	VENT, ATTIC FAN (ROOF OBSTRUCTION)
⊠	CHIMNEY
---	RAFTER
▨	FIRE SETBACK



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 APN# 69200110800000000
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SHEET NAME ROOF PLAN WITH MODULES
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-2



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UTILITY: N/A
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SHEET NAME

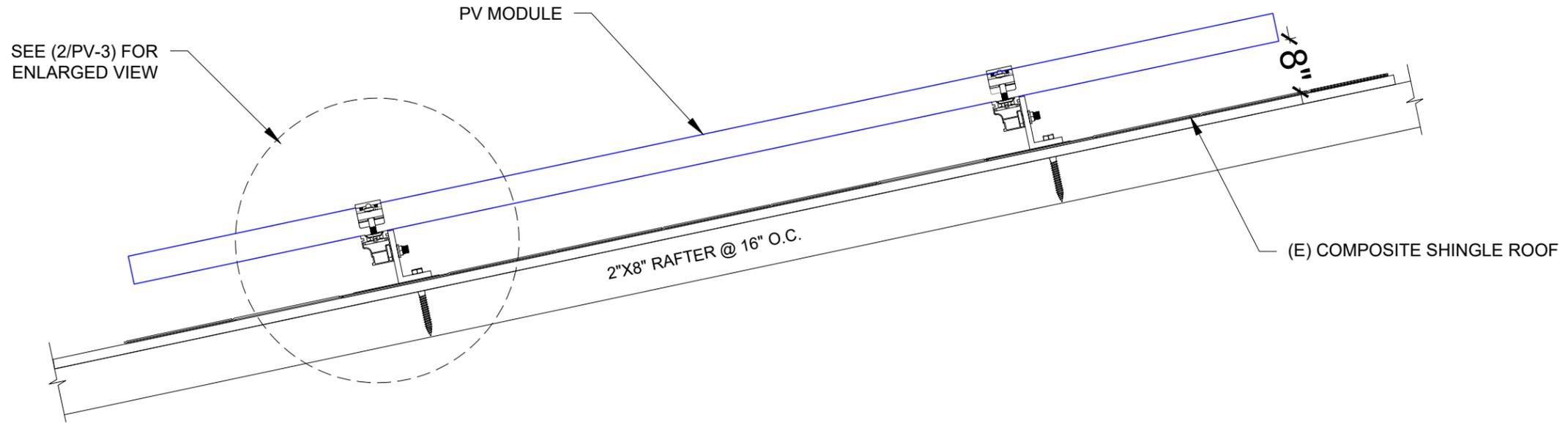
ATTACHMENT
DETAIL

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

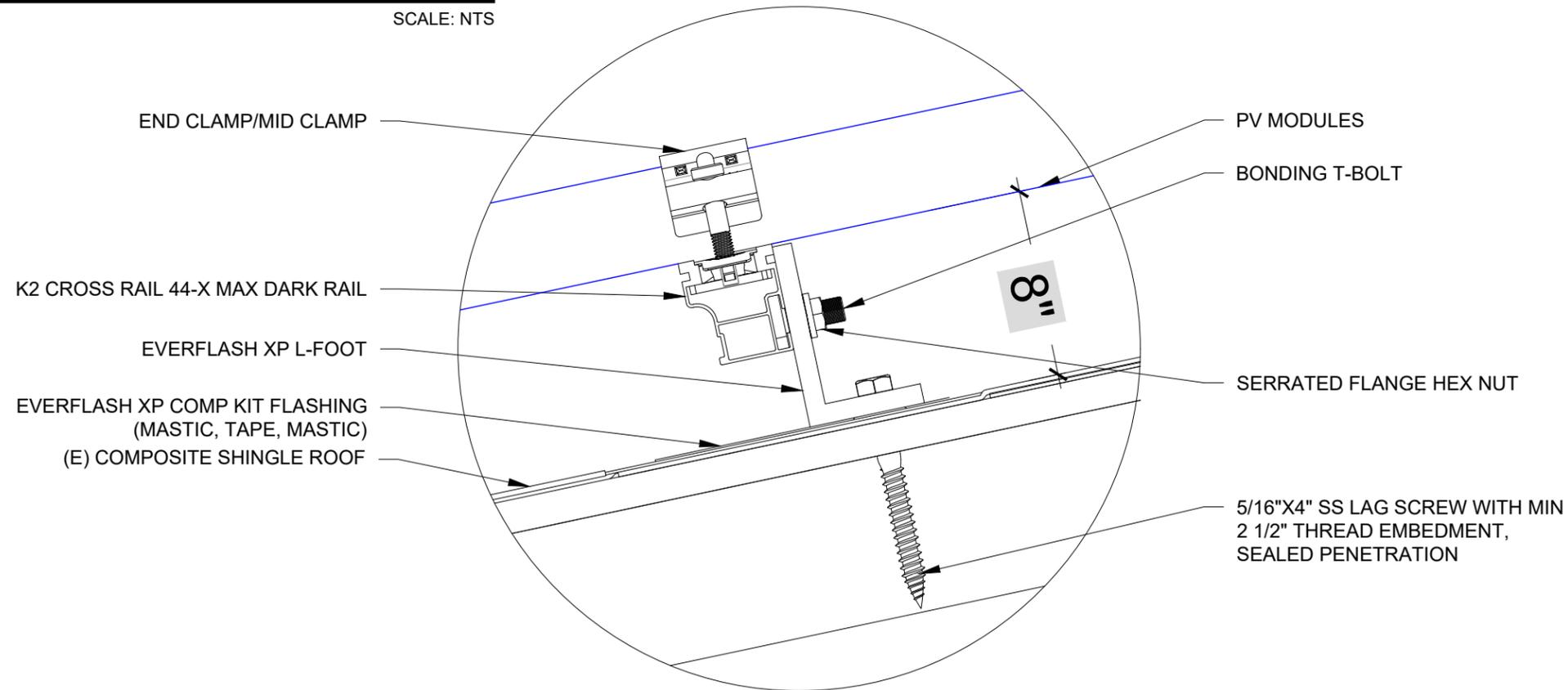
PV-3



1 ATTACHMENT DETAIL (SIDE VIEW)

PV-3

SCALE: NTS



2 ATTACHMENT DETAIL ENLARGED VIEW

PV-3

SCALE: NTS

SOLAR MODULE SPECIFICATIONS

MANUFACTURER / MODEL #	VMP	IMP	VOC	ISC	TEMPERATURE COEFFICIENT OF Voc	# OF MODULES
VSUN SOLAR VSUN 440N-108BMH-BB (440W)	33.37	13.18	39.38	13.85	-0.26%/°C	21
MODULE DIMENSION	67.80" L x 44.65" W x 1.18"D					

SYSTEM SIZE:- 21 x 440W = 9.240 kWDC
11 x 700W = 7.700 kWAC

NOTE:
3/4" OR GREATER EMT CONDUIT RUN (7/8" ABOVE ROOF)

NOTE: THE AC DISCONNECT IS LOCATED WITHIN 10FT OF UTILITY METER

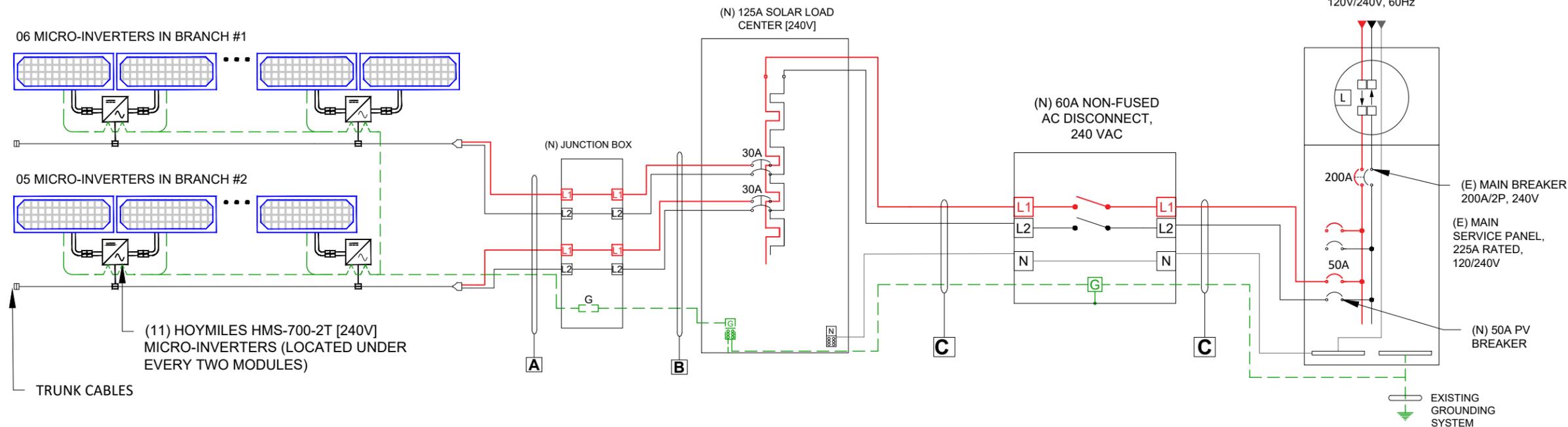
AMBIENT TEMPERATURE SPECIFICATIONS

RECORD LOW TEMP	AMBIENT TEMP (HIGH TEMP 2%)	CONDUCTOR TEMPERATURE RATE (ON ROOF)	CONDUCTOR TEMPERATURE RATE (OFF ROOF)
-19°	35°	90°	75°

INVERTER SPECIFICATIONS

MANUFACTURER / MODEL #	QUANTITY	NOMINAL OUTPUT VOLTAGE	NOMINAL OUTPUT CURRENT
HOYMILES HMS-700-2T [240V]	11	240 VAC	3.04A

INTERCONNECTION
120% RULE - NEC 705.12(B)(2)(3)(b)
UTILITY FEED + SOLAR BACKFEED
200A + 50A = 250A
BUSS RATING x 120%
225A x 120% = 270A



WIRE TAG	CONDUIT	WIRE QTY	WIRE GAUGE	WIRE TYPE	TEMP. RATING	WIRE AMPACITY (A)	TEMP. DERATE	CONDUIT FILL DERATE	DERATED AMPACITY (A)	INVERTER QTY.	DESIGN CURRENT (A)	GROUND SIZE	GROUND WIRE TYPE
A	OPEN AIR	2	10 AWG	TRUNK CABLES	90°C	30	0.96	N/A	28.80	06	22.80	06 AWG	BARE CU GND
B	3/4" EMT	4	10 AWG 12 AWG	THWN-2 NM-B CABLES WHERE RUN INDOORS	90°C	40 30	0.96	0.8	30.72 23.04	06	22.80	10 AWG	THWN-2
C	3/4" EMT	3	08 AWG	THWN-2	75°C	50	0.94	1.0	47.00	11	41.80	10 AWG	THWN-2



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SHEET NAME
ELECTRICAL LINE
DIAGRAM WITH
CALCULATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4

1 ELECTRICAL LINE DIAGRAM WITH CALCULATION
SCALE: NTS

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

LABEL LOCATION:
 AC & DC DISCONNECT AND SUB PANEL
 (PER CODE: NEC 690.13(B))

⚠ WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
 MAIN SERVICE PANEL & NET METER
 (PER CODE: NEC 705.12(D)(3), NEC 705.12(B)(3-4) & NEC 690.59)

PHOTOVOLTAIC
AC DISCONNECT

LABEL LOCATION:
 AC DISCONNECT
 NEC 690.13(B)

⚠ CAUTION
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL LOCATION:
 MSP
 (PER CODE: NEC 690.13 (F), NEC 705.12(B)(3-4) & NEC 690.59)

RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM

LABEL LOCATION:
 RAPID SHUTDOWN
 (PER CODE: NEC 690.56(C)(3))

PHOTOVOLTAIC SYSTEM AC DISCONNECT
 RATED AC OPERATING CURRENT 33.44 AMPS
 AC NOMINAL OPERATING VOLTAGE 240 VOLTS

LABEL LOCATION:
 AC DISCONNECT & INVERTER
 (PER CODE: NEC690.54)

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

LABEL LOCATION:
 SERVICE PANEL IF SUM OF BREAKERS EXCEEDS PANEL RATING
 (PER CODE: NEC 705.12 (B)(2)(3)(B))

WARNING:PHOTOVOLTAIC POWER SOURCE

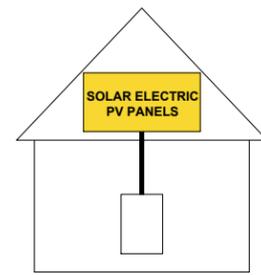
LABEL LOCATION:
 CONDUIT, COMBINER BOX
 (PER CODE: NEC 690.31(G)(3))

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

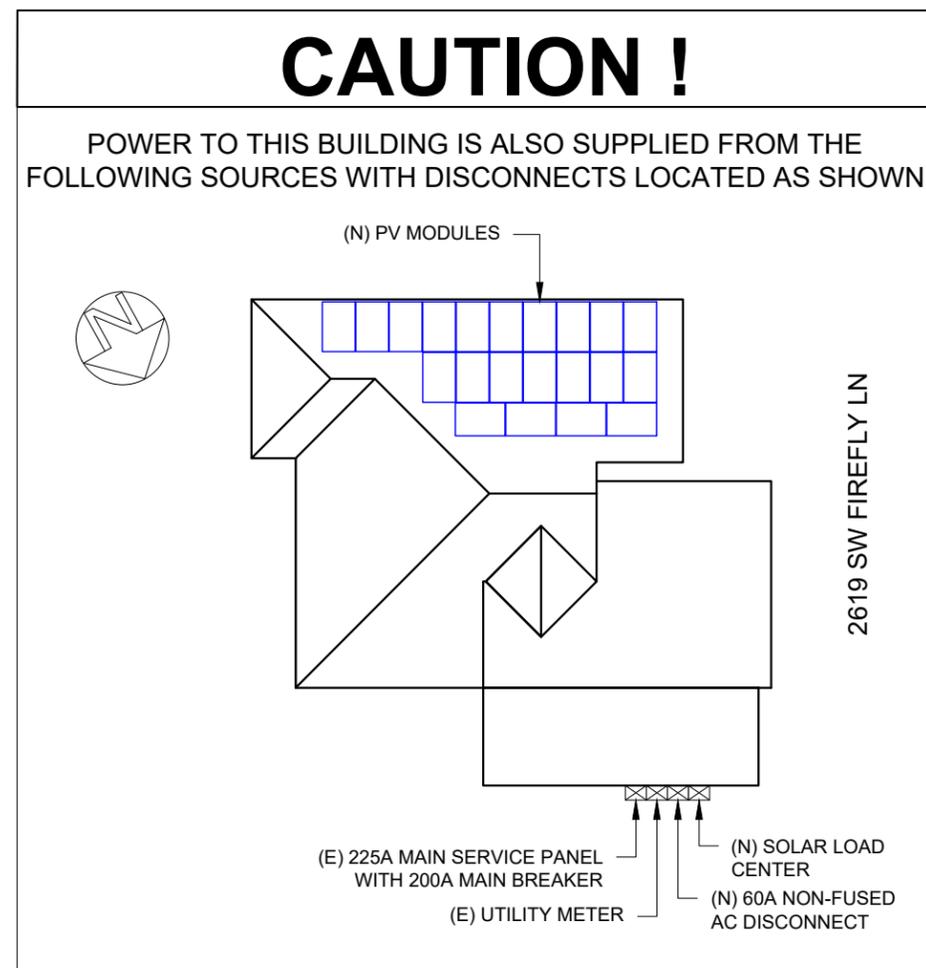
LABEL LOCATION:
 MAIN SERVICE DISCONNECT / UTILITY METER
 (PER CODE: NEC 690.13(B))

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



LABEL LOCATION:
 AC DISCONNECT, DC DISCONNECT, POINT OF INTERCONNECTION
 (PER CODE: 605.11.3.1(1) & 690.56(C)(1)(a))



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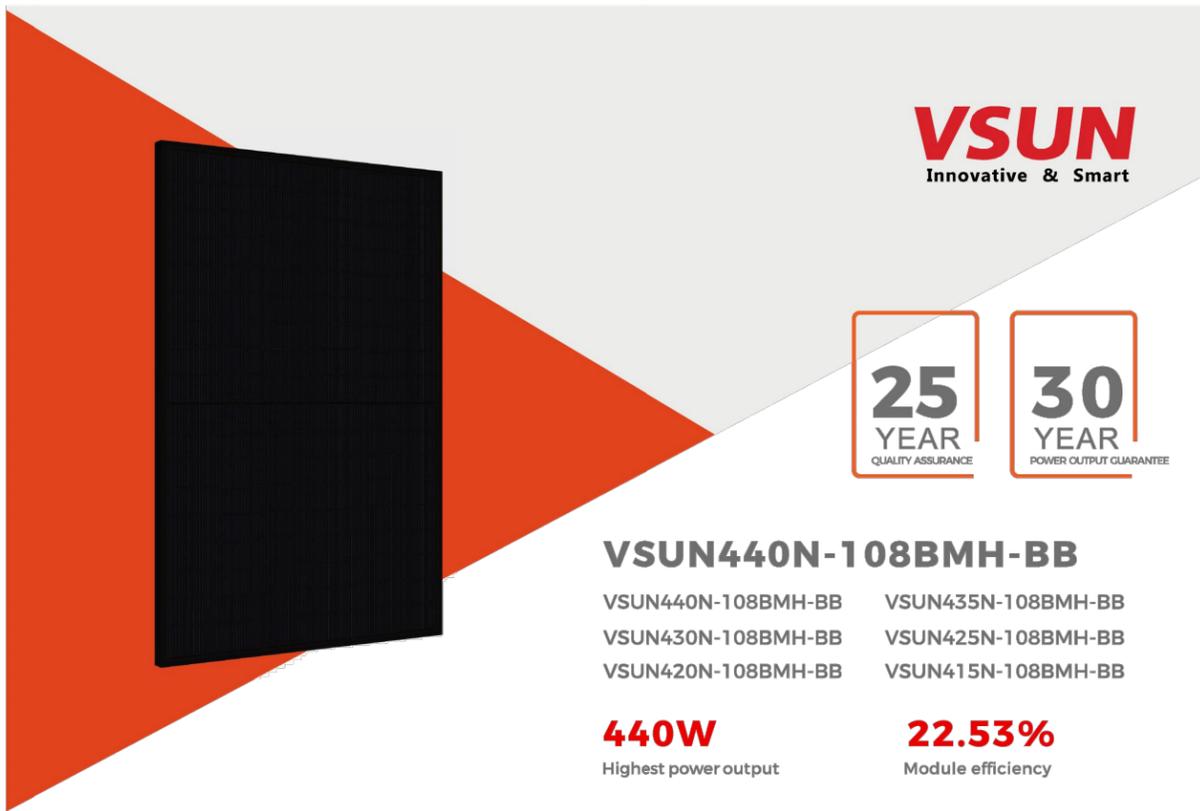
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SHEET NAME	WARNING LABELS & PLACARD
SHEET SIZE	ANSI B 11" X 17"
SHEET NUMBER	PV-5



25
YEAR
QUALITY ASSURANCE

30
YEAR
POWER OUTPUT GUARANTEE

VSUN440N-108BMH-BB

VSUN440N-108BMH-BB VSUN435N-108BMH-BB
 VSUN430N-108BMH-BB VSUN425N-108BMH-BB
 VSUN420N-108BMH-BB VSUN415N-108BMH-BB

440W

Highest power output

22.53%

Module efficiency

1.0%

First-year degradation warranty

0.40%

Annual degradation over 30 years

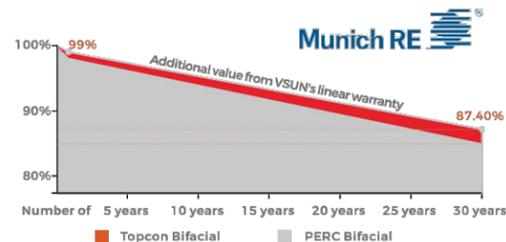
ABOUT VSUN

Invested by Fuji Solar, VSUN SOLAR is a solar solution provider with headquartered in Tokyo, Japan that offers reliability, high efficiency solar products and technology globally. VSUN is rated as BNEF Tier 1 PV module manufacturer, PVEL Lab "Best performer" and EcoVadis "Bronze Award".

PRODUCT CERTIFICATION



WARRANTY



Update Time:2024.05.14

Electrical Characteristics at Standard Test Conditions(STC)

Module Type	VSUN440N-108BMH-BB	VSUN435N-108BMH-BB	VSUN430N-108BMH-BB	VSUN425N-108BMH-BB	VSUN420N-108BMH-BB	VSUN415N-108BMH-BB
Maximum Power - Pmax (W)	440	435	430	425	420	415
Open Circuit Voltage - Voc (V)	39.38	39.12	38.84	38.56	38.27	38
Short Circuit Current - Isc (A)	13.85	13.8	13.75	13.7	13.65	13.6
Maximum Power Voltage - Vmpp (V)	33.37	33.13	32.88	32.64	32.38	32.13
Maximum Power Current - Imp (A)	13.18	13.13	13.08	13.02	12.97	12.92
Module Efficiency	22.53%	22.28%	22.02%	21.76%	21.51%	21.25%

Standard Test Conditions (STC): irradiance 1,000 W/m²; AM 1.5; module temperature 25°C. Pmax Sorting: 0~5W. Measuring Tolerance: ±3%.
 Remark: Electrical data do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

Electrical Characteristics with different rear side power gain(reference to 435 front)

Pmax (W)	Voc (V)	Isc (A)	Vmpp (V)	Imp (A)	Pmax gain
457	39.12	14.49	33.13	13.79	5%
478	39.12	15.18	33.13	14.44	10%
521	39.20	16.56	33.05	15.76	20%
542	39.20	17.25	33.05	16.41	25%

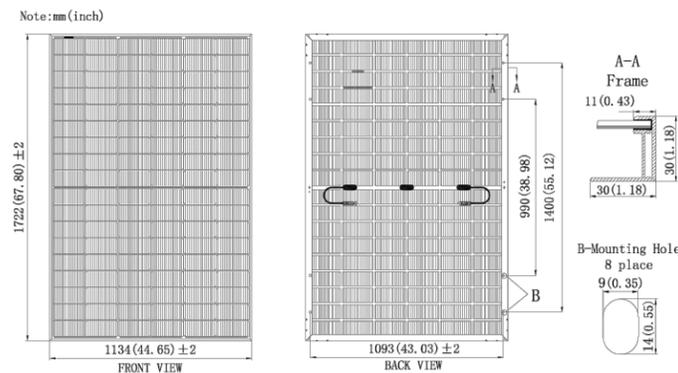
Material Characteristics

Dimensions	1722×1134×30mm (L×W×H) 67.80×44.65×1.18 inches (L×W×H)
Weight	21.4kg / 47.18lbs
Frame	Black anodized aluminum profile
Front Glass	AR-Coating toughened glass, 3.2 mm
Back sheet	Transparent black-mesh backsheet
Cells	12×9 pcs mono solar cells series strings
Junction Box	IP68, 3 diodes
Cable	Potrait: 1300 mm Staubli MC4 connector, 1×4 mm ² or 12AWG

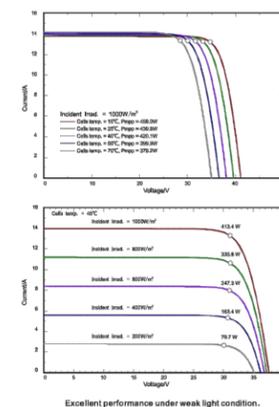
Packaging

Dimensions(L×W×H)	1760×1125×1253mm / 69.29×44.29×49.33inches
Quantity per pallet	36 pcs
Container 20'	216
Container 40'	468
Container 40'HC	936 or 828 for US

Dimensions



IV-Curves



Update Time:2024.05.14



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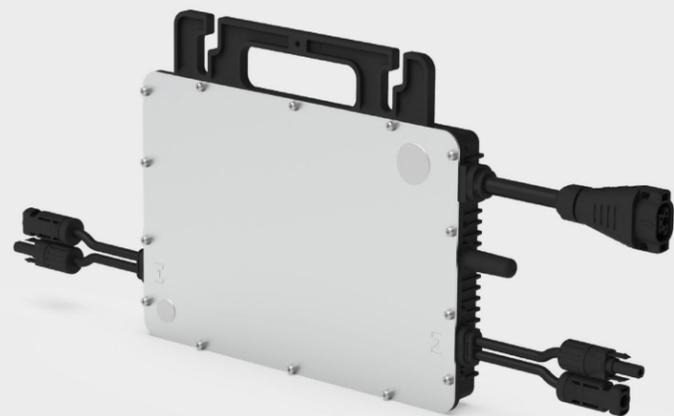
SPEC SHEETS

SHEET SIZE

ANSI B
 11" X 17"

SHEET NUMBER

PV-6



Microinverter Datasheet

- HMS-600-2T
- HMS-700-2T
- HMS-800-2T
- HMS-900-2T
- HMS-1000-2T

Description

With the output power up to 1000 VA, Hoymiles new microinverter HMS-1000-2T series rank among the highest for 2-in-1 microinverters.

Each microinverter can connect up to 2 panels, with independent MPPT and monitoring maximizing the power production of your installation.

The new Sub-1G wireless solution enables more stable communication with Hoymiles gateway DTU.

Features

- 01 High-powered microinverter for 2-in-1 with output power up to 1000 VA
- 02 With Reactive Power Control, compliant with EN 50549-1:2019, VDE-AR-N 4105:2018, VFR2019, etc.
- 03 Safer for rooftop solar stations with rapid shutdown compliance and isolated transformer
- 04 Independent MPPT and monitoring ensure greater energy harvest and easier maintenance
- 05 2-in-1 design enables faster installation
- 06 Sub-1G wireless solution allows stable communication in commercial and industrial settings

Technical Specifications

Model	HMS-600-2T	HMS-700-2T	HMS-800-2T	HMS-900-2T	HMS-1000-2T
Input Data (DC)					
Commonly used module power (W)	240 to 405+	280 to 470+	320 to 540+	360 to 600+	400 to 670+
Maximum input voltage (V)	60	60	65	65	65
MPPT voltage range (V)	16-60				
Start-up voltage (V)	22				
Maximum input current (A)	2 × 11.5	2 × 11.5	2 × 12.5	2 × 13.3	2 × 14
Maximum input short circuit current (A)	2 × 16	2 × 16	2 × 20	2 × 20	2 × 20
Number of MPPTs	2				
Number of inputs per MPPT	1				
Output Data (AC)					
Rated output power (VA)	600	700	800	900	1000
Rated output current (A)	2.61	3.04	3.48	3.91	4.35
Nominal output voltage/range (V)*	230/180-275				
Nominal frequency/range (Hz)*	50/45-55				
Adjustable power factor (@nominal power)	> 0.99 default 0.8 leading ... 0.8 lagging				
Total harmonic distortion (@nominal power)	< 3%				
Maximum units per 10AWG branch**	12	10	9	8	7
Maximum units per 12AWG branch**	7	6	5	5	4
Efficiency					
CEC peak efficiency	96.7%	96.7%	96.7%	96.5%	96.5%
Nominal MPPT efficiency	99.8%				
Night power consumption (mW)	< 50				
Mechanical Data					
Ambient temperature range (°C)	-40 to +65				
Dimensions (W × H × D [mm])	261 × 180 × 35.1				
Weight (kg)	3.2				
Enclosure rating	Outdoor-IP67				
Cooling	Natural convection-No fans				
Features					
Communication	Sub-1G				
Type of isolation	Galvanically Isolated HF Transformer				
Monitoring	S-Miles Cloud (Hoymiles Monitoring Platform)				
Compliance	EN 50549-1: 2019, VDE-AR-N 4105: 2018, VFR2019, IEC/EN 62109-1/-2, IEC/EN 61000-6-1/-2/-3/-4, IEC/EN 61000-3-2/-3				

* : Nominal voltage/frequency range can vary depending on local requirements.
 ** : Refer to local requirements for exact number of microinverters per branch.



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VERSION		
DESCRIPTION	DATE	REV
INITIAL RELEASE	10/22/2025	UR

PROJECT NAME

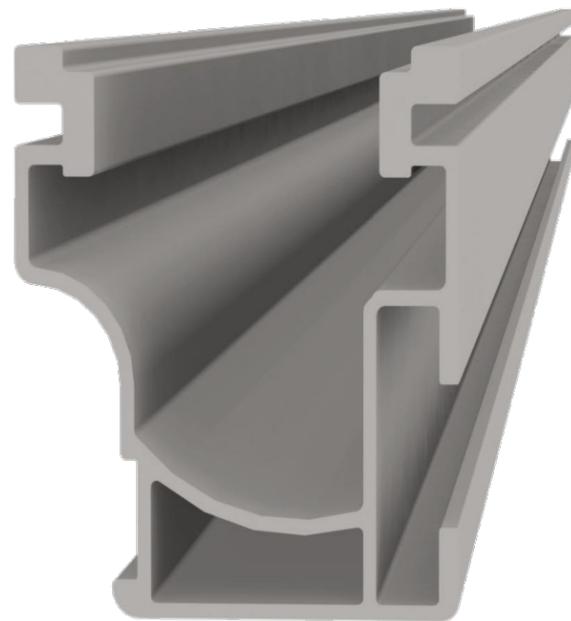
DON LENNARD
2619 SW FIREFLY LN,
LEE'S SUMMIT, MO 64082 USA
APN# 69200110800000000
UTILITY: N/A
AHJ: LEE'S SUMMIT CITY

SHEET NAME
SPEC SHEETS
SHEET SIZE
ANSI B 11" X 17"
SHEET NUMBER
PV-7

CrossRail 44-X Max



DATA SHEET



TECHNICAL DATA



	CrossRail 44-X Max
Material	Series 6000 Aluminum
Flexibility	Modular construction, suitable for any system size, height adjustable
Weight	0.50lbs/ft (0.746kg/m)
Finish	Mill or Dark
Certifications	UL 2703, ASCE 7-16, Class A Fire Rating
Warranty	25 years

CROSS-SECTIONAL PROPERTIES

	CrossRail 44-X Max
Sx	0.175 in ³ (2.861 cm ³)
Sy	0.147 in ³ (2.410 cm ³)
A (Section X)	0.428 in ² (2.763 cm ²)

LOAD		RAIL SPAN								
SNOW (psf)	WIND (mph)	32"	4'	64"	6'	80"	8'	112"	10'	12'
0	120									
0	140									
0	160									
10	120									
10	140									
10	160									
20	140									
20	160									
30	160									
40	160									
80	160									
100	160									

44X/MAX 48X 48XL CR80

Part Number	Description
4000819	CrossRail 44-X Max 172", Mill
4000819-US	CrossRail 44-X Max 172", Mill, DC
4000820	CrossRail 44-X Max 172", Dark
4000820-US	CrossRail 44-X Max 172", Dark, DC
4000919	CrossRail 44-X Max 185", Mill
4000920	CrossRail 44-X Max 185", Dark



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SHEET NAME

SPEC SHEETS

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-8



EverFlash XP Comp



Components



EverFlash XP Comp Flashing

- ▶ Material: galvalume
- ▶ Finish: mill or dark

Part Number	Description
4000037	EverFlash XP Flashing 24ga Galv, Dark
4000056	EverFlash XP Flashing 24ga Galv, Mill



EverFlash XP L-Foot and Butyl Gasket

- ▶ Material: aluminum
- ▶ Finish: mill or dark
- ▶ T-Bolt for CrossRail included

Part Number	Description
4000036	EverFlash XP L-Foot Mill
4000038	EverFlash XP L-Foot Dark
4000063	XP Butyl Gasket, Lfoot



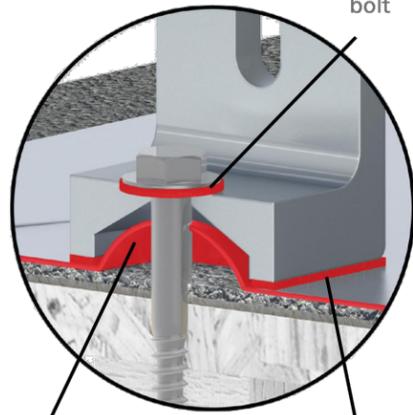
Lag Bolt and Washer

- ▶ Material: stainless steel
- ▶ EPDM backed washer
- ▶ Preassembled



Part Number	Description
4000057	EverFlash XP Kit, Mill LF, Dark Flash
4000060	EverFlash XP Comp Kit, Dark
4000061	EverFlash XP Comp Kit, Mill

- ▶ Everest's very own comp shingle flashing and mount!
- ▶ Best in class - 3 stages of waterproofing
- ▶ All CrossRail hardware included and preassembled
- ▶ UL 441 Section 27 Rain test
- ▶ TAS 100-95 Wind driven rain test



Dome provides fully encapsulated raised seal

Butyl gasket seals L-Foot - Flashing connection

EPDM sealing washer on lag bolt

www.everest-solarsystems.com

EverFlash XP Comp Product Sheet U503 | 0120 · Subject to change · Product illustrations are exemplary and may differ from the original.



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SHEET NAME

SPEC SHEETS

SHEET SIZE

ANSI B
11" X 17"

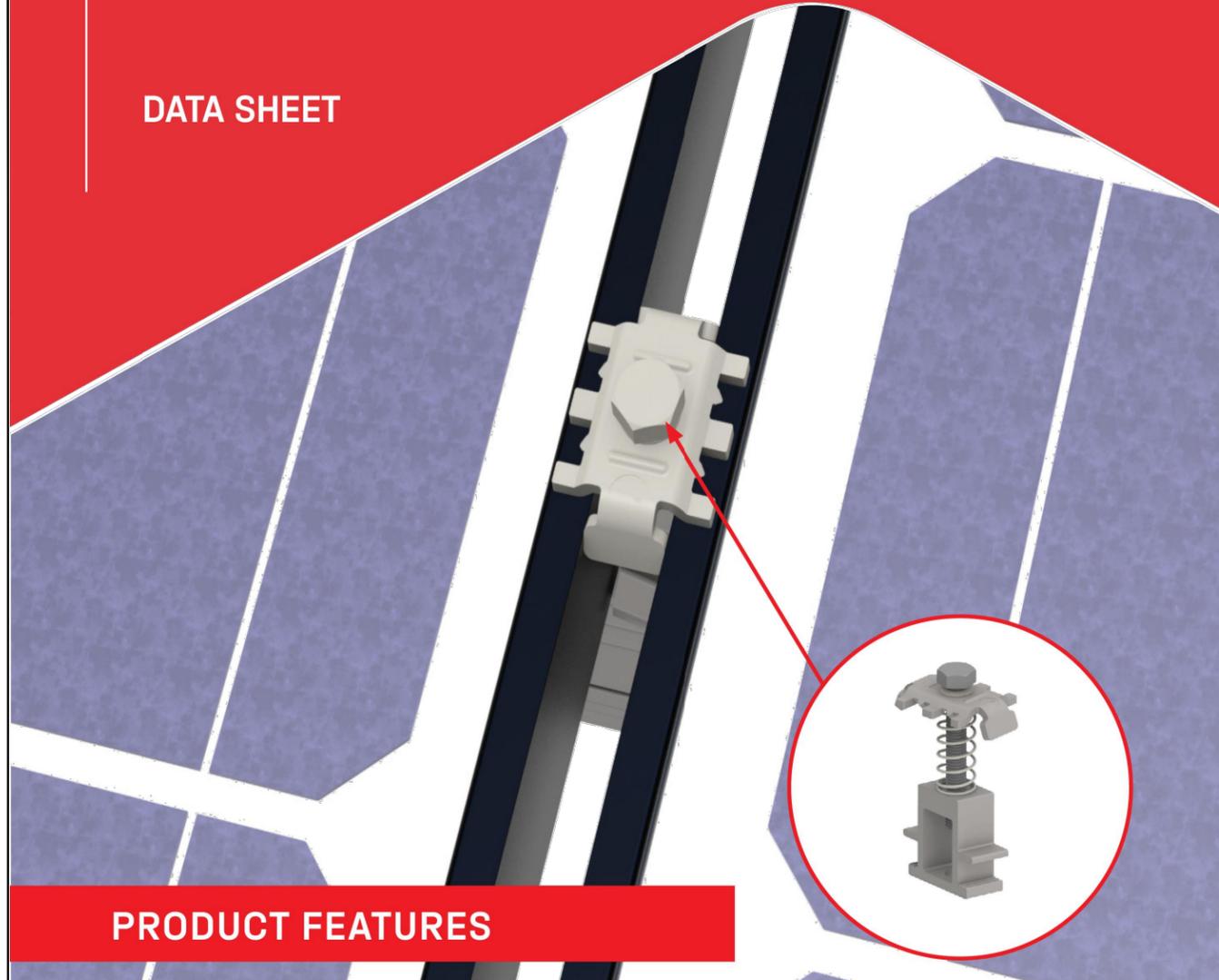
SHEET NUMBER

PV-9

K2 Mid Clamp



DATA SHEET



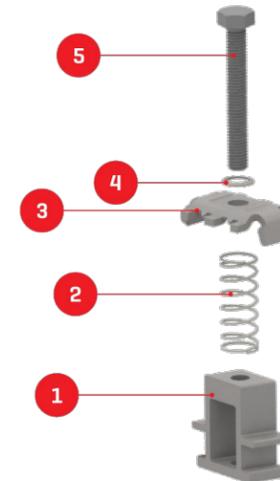
PRODUCT FEATURES

- / New and improved design
- / One handed and one tool installation
- / Clamp naturally provides module gaps
- / UL 2703 listed for mounting and bonding
- / Self aligns in rail

TECHNICAL DATA



	K2 Mid Clamp
Compatible module frame size	27-40mm
Material	Stainless steel and aluminum
Finish	Mill or dark
Compatibility	CrossRail 44-X, 48-X, 48-XL, 80, MiniRail
Box quantity	20



Item Number	Description	Part Number
1	South Face Clamp Bottom, Mill	4000229 K2 Mid Clamp Set, M8×40, Dark 4000230 K2 Mid Clamp Set, M8×40, Mill
2	Clamp Spring, 38mm length	4000251 K2 Mid Clamp Set, M8×60, Mill 4000252 K2 Mid Clamp Set, M8×60, Dark
3	Mid Clamp Top	
4	Lock Washer	
5	Steel Hex Head Cap Screw, Mill	



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SPEC SHEETS

SHEET SIZE

ANSI B
11" X 17"

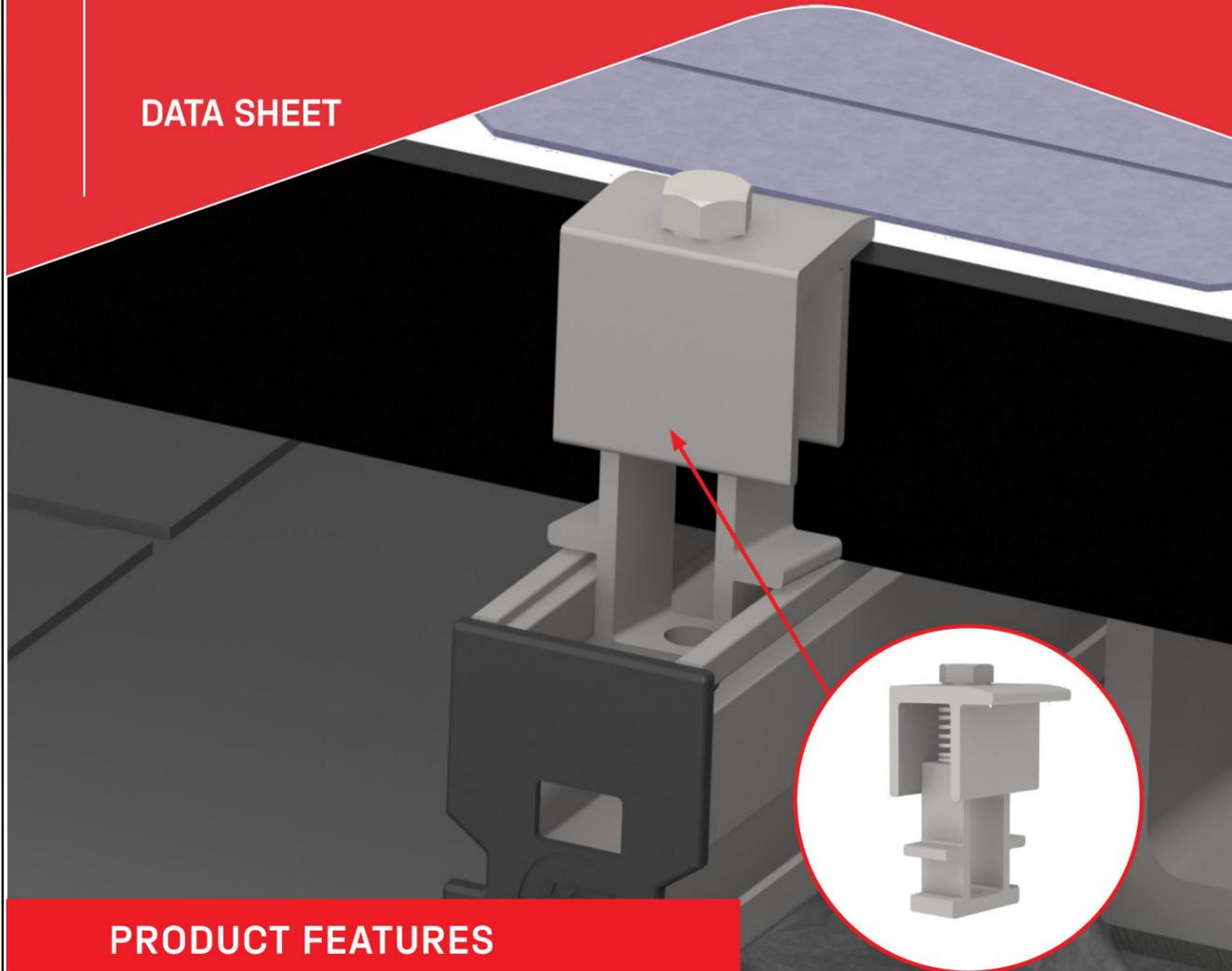
SHEET NUMBER

PV-10

K2 End Clamp



DATA SHEET



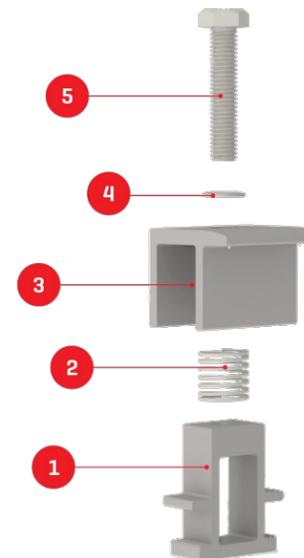
PRODUCT FEATURES

- / New and improved design
- / One handed and one tool installation
- / UL 2703 listed for mounting and bonding
- / Self aligns in rail

TECHNICAL DATA



	K2 End Clamp
Compatible module frame size	27-40mm
Material	Stainless steel and aluminum
Finish	Mill or dark
Compatibility	CrossRail 44-X, 48-X, 48-XL, 80, MiniRail
Box quantity	20



Item Number	Description	Part Number
1	K2 End Clamp Bottom, Mill	4000197 K2 End Clamp Set, Mill 4000233 K2 End Clamp Set, Dark
2	Clamp Springs, 26.0 mm Length	
3	K2 End Clamp Top, Mill	
4	Lock Washer S8 13x8.4x8 mm SS	
5	Hex Head Bolt, M8x40	



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SHEET NAME

SPEC SHEETS

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-11

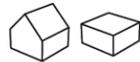
K2 Ground Lug



DATA SHEET



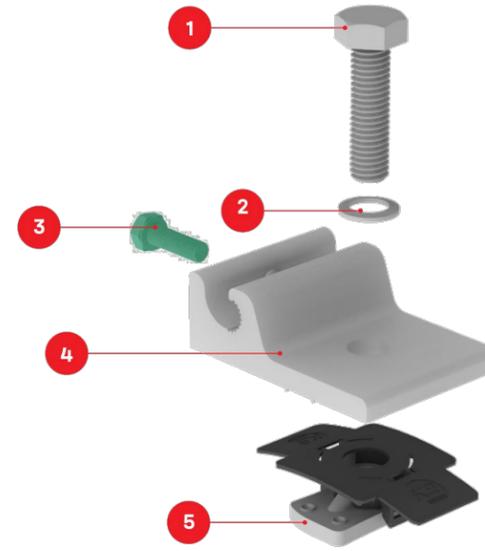
PRODUCT FEATURES



Part Number	Description
4000006-H	K2 Ground Lug, 13mm Hex Set

- / Top mount configuration
- / No copper wire bending makes for simple installation
- / MK3 technology provides highest rail engagement
- / UL 2703 Listed
- / Compatible with 8AWG and 6AWG solid copper wire
- / Works with all CrossRail profiles

TECHNICAL DATA



Item Number	Description	Part Number
1	13mm Hex Bolt	4000006-H K2 Ground Lug, 13mm Hex Set
2	Lock Washer	
3	Grounding Bolt	
4	Ground Lug	
5	MK3 Slot Nut	

	K2 Ground Lug
Material	Aluminum with stainless steel hardware
Finish	Tin-plated
Roof connection	Rail channel insert
Code compliance	UL 2703
Compatibility	All CrossRail Systems and MiniRail



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APN# 69200110800000000
UTILITY: N/A
AHJ: LEE'S SUMMIT CITY**

SHEET NAME	SPEC SHEETS
SHEET SIZE	ANSI B 11" X 17"
SHEET NUMBER	PV-12



Supplement to Certificate of Compliance

Certificate: 80035475

Master Contract: 261002

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80037987	2021-01-29	Update report 80035475 to add new models and include UL1741CRD SA17-18 requirements.
80035475	2020-04-03	Grid Support Utility Interactive Inverter, HM-500, HM-500T, HM-600, HM-600T, HM-700, HM-700T, HM-800, HM-800T, HM-500N, HM-500NT, HM-600N, HM-600NT, HM-700N, HM-700NT, HM-800N and HM-800NT.(C/US)



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PROJECT NAME

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SHEET NAME

SPEC SHEETS

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-14

CERTIFICATE OF COMPLIANCE

Certificate Number E467724
 Report Reference E467724-20140829
 Date 2021-June-24

Issued to: K2 Systems LLC
 2835 La Mirada Dr, Suite A
 Vista CA, 92081 US

This is to certify that representative samples of

MOUNTING SYSTEMS, MOUNTING DEVICES, CLAMPING DEVICES AND GROUND LUGS FOR USE WITH PHOTOVOLTAIC MODULES AND PANELS - COMPONENT

See Addendum Page for Product Designation(s).

Have been investigated by UL in accordance with the component requirements in the Standard(s) indicated on this Certificate. UL Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for installation in complete equipment submitted for investigation to UL LLC.

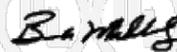
Standard(s) for Safety: UL 2703 Standard for Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for use with Flat-Plate Photovoltaic Modules and Panels.

Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information

This Certificate of Compliance does not provide authorization to apply the UL Recognized Component Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.


 Bruce Mahrenholz, Director North American Certification Program



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CERTIFICATE OF COMPLIANCE

Certificate Number E467724
 Report Reference E467724-20140829
 Date 2021-June-24

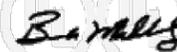
This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

USR – Component pieces:

- CrossRail 48
- CrossRail 80
- Rail Connector CrossRail 48
- Rail Connector CrossRail 80
- L-foot
- Bonding T-bolt
- Standard T-bolt
- CrossRail Tuk Bracket
- Climber
- 44-X Climber
- Rail Connector CR48
- Slide Bracket
- Stand Off
- Shared Rail Slide Hook
- CrossRail 48-S, 48, 80 Tilt Connector
- Single Hook
- Everest Ground Lug
- Simple Tilt Knee Connector assembly
- Splice Foot X
- Splice Foot XL
- Alternate MK2 Alu Slot Nut
- MLPE Module Frame Mount

Evaluated for Bonding Only

For use only in (or with) complete equipment where the acceptability of the combination is determined by UL LLC.


 Bruce Mahrenholz, Director North American Certification Program



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PROJECT NAME
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 APN# 6920011080000000
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SHEET NAME	
SHEET SIZE	ANSI B 11" X 17"
SHEET NUMBER	PV-15