




PHOTOVOLTAIC ROOF MOUNT SYSTEM			SR.#	PROJECT INFORMATION		
<div><b><u>CODE AND STANDARDS</u></b></div> <p>THE INSTALLATION OF SOLAR ARRAYS AND PHOTOVOLTAIC POWER SYSTEMS SHALL COMPLY WITH THE FOLLOWING CODES:</p> <ul style="list-style-type: none"><li>2020 NATIONAL ELECTRICAL CODE</li><li>2018 NORTH CAROLINA RESIDENTIAL CODE</li><li>2018 NORTH CAROLINA BUILDING CODE</li><li>ALL OTHER ORDINANCE ADOPTED BY THE LOCAL GOVERNING AGENCIES</li></ul> <div><b><u>SITE NOTES / OSHA REGULATION</u></b></div> <ol style="list-style-type: none"><li>A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.</li><li>THE SOLAR PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.</li><li>ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED AND IDENTIFIED BY RECOGNIZED ELECTRICAL TESTING LABORATORY.</li><li>MODULES AND SUPPORT STRUCTURES SHALL BE GROUNDED</li><li>SOLAR INVERTER SHALL BE LISTED TO UL1741</li><li>ALL CONDUCTORS SHALL BE COPPER AND SHOULD BE 75 AND 90 DEG RATED</li><li>REMOVAL OF AN INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BONDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR, THE PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT GROUNDED CONDUCTORS.</li><li>LIVE PARTS OF PV SOURCE CIRCUITS AND PV OUTPUT CIRCUITS OVER 150V TO GROUND SHALL NOT BE ACCESSIBLE TO OTHER THAN QUALIFIED PERSONS WHILE ENERGIZED.</li><li>ALL PV MODULES AND ASSOCIATED EQUIPMENT AND WIRING SHALL BE PROTECTED FROM PHYSICAL DAMAGE.</li></ol> <div><b><u>SOLAR CONTRACTOR</u></b></div> <ol style="list-style-type: none"><li>MODULE CERTIFICATIONS INCLUDE UL1703, IEC61646, IEC61370.</li><li>IF APPLICABLE, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE MARKED GROUNDING LUG HOLES PER THE MANUFACTURERS INSTALLATION REQUIREMENTS.</li><li>AS INDICATED BY DESIGN, OTHER NRTL LISTED MODULE GROUNDING DEVICES MAY BE USED IN PLACE OF STANDARD GROUNDING LUGS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ.</li><li>ALL MICROINVERTERS, PHOTOVOLTAIC MODULES, AC COMBINERS, DC-AC CONVERTERS AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER NEC690.4(B).</li><li>ALL SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH LOCAL BUILDING CODE.</li><li>TERMINALS AND LUGS WILL BE TIGHTENED TO MANUFACTURER TORQUE SPECIFICATIONS (WHEN PROVIDED) IN ACCORDANCE WITH NEC CODE 110.14(D) ON ALL ELECTRICAL CONNECTIONS.</li><li>MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC UNLESS NOT AVAILABLE.</li></ol>			1	PV MODULES	19 x Canadian Solar CS6.2-48TM-445H	
				2	INVERTER	01 x Tesla Inverter 7.6 kW
				3	ROOF TYPE	ASPHALT SHINGLES
				4	RACKING	PSR-B84 RAILS (BLACK)
				5	MOUNTING TYPE	INSTAFLASH2 (BLACK)
				6	DC SIZE	8.455 KW
				7	AC SIZE	7.6 KVA
				SR.#	PROJECT INFORMATION	
				1	PV1	DRAWING INDEX
				2	PV2	SITE LAYOUT
				3	PV3	STRING MAPPING
				4	PV4	ELECTRICAL ONE LINE DIAGRAM
				5	PV5	DETAILED ELECTRICAL WIRING SCHEMATIC
				6	PV6	PV LABELS
			7	PV7	BILL OF MATERIALS	
			8	PV8	ATTACHMENT DETAILS	
						
<b>DESIGN CRITERIA</b> WIND SPEED: 120 MPH GROUND SNOW LOAD: 15 PSF WIND EXPOSURE FACTOR: B	<b>UTILITY COMPANY:</b> DUKE ENERGY  <b>PERMIT ISSUER (AHJ):</b> HARNETT COUNTY	<b>SCOPE OF WORK</b> INSTALLATION OF UTILITY INTERACTIVE PHOTOVOLTAIC SOLAR SYSTEM.	<b>VICINITY MAP</b>		<b>TOP VIEW OF THE BUILDING</b>	



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**Sheet Name:**  
  
Drawing Index


**JOB NUMBER:**  
  
25-767-MS


**Date:**  
  
10/09/2025

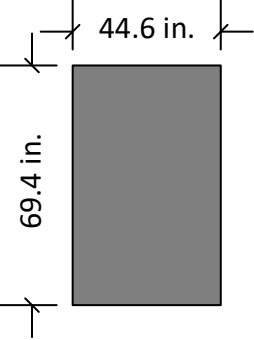

**Revision:**  
  
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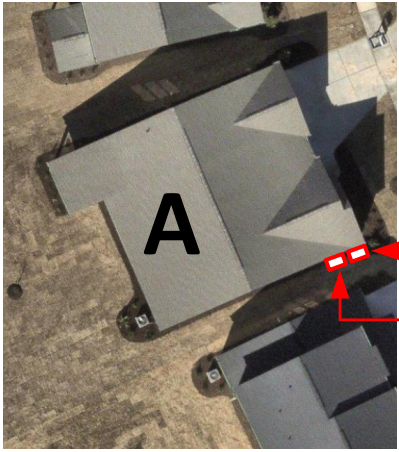
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ANSI C  
17" X 22"

**Sheet Number:**  
  
PV1



  
  
11-06-2025

ROOF DESCRIPTION				MODULE DIMENSIONS	PV System Dead Load (Panel + Racking weight) / PV System Area (No. of panels x Weight of panel(lbs.) +Length of racking(ft.) x 1.15 lb.ft) / (No. of panels x Height x Width) = Total psf			
ROOF	PITCH	AZIMUTH	NO. OF MODULES		ROOF	A		
A	27°	247°	19		DEAD LOAD (PSF)	2.73		
Vent		<ul style="list-style-type: none"><li>No vents will be covered by PV modules during the installation.</li></ul>						



AC  
DISCONNECT

UTILITY  
METER + MSP



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Site Layout

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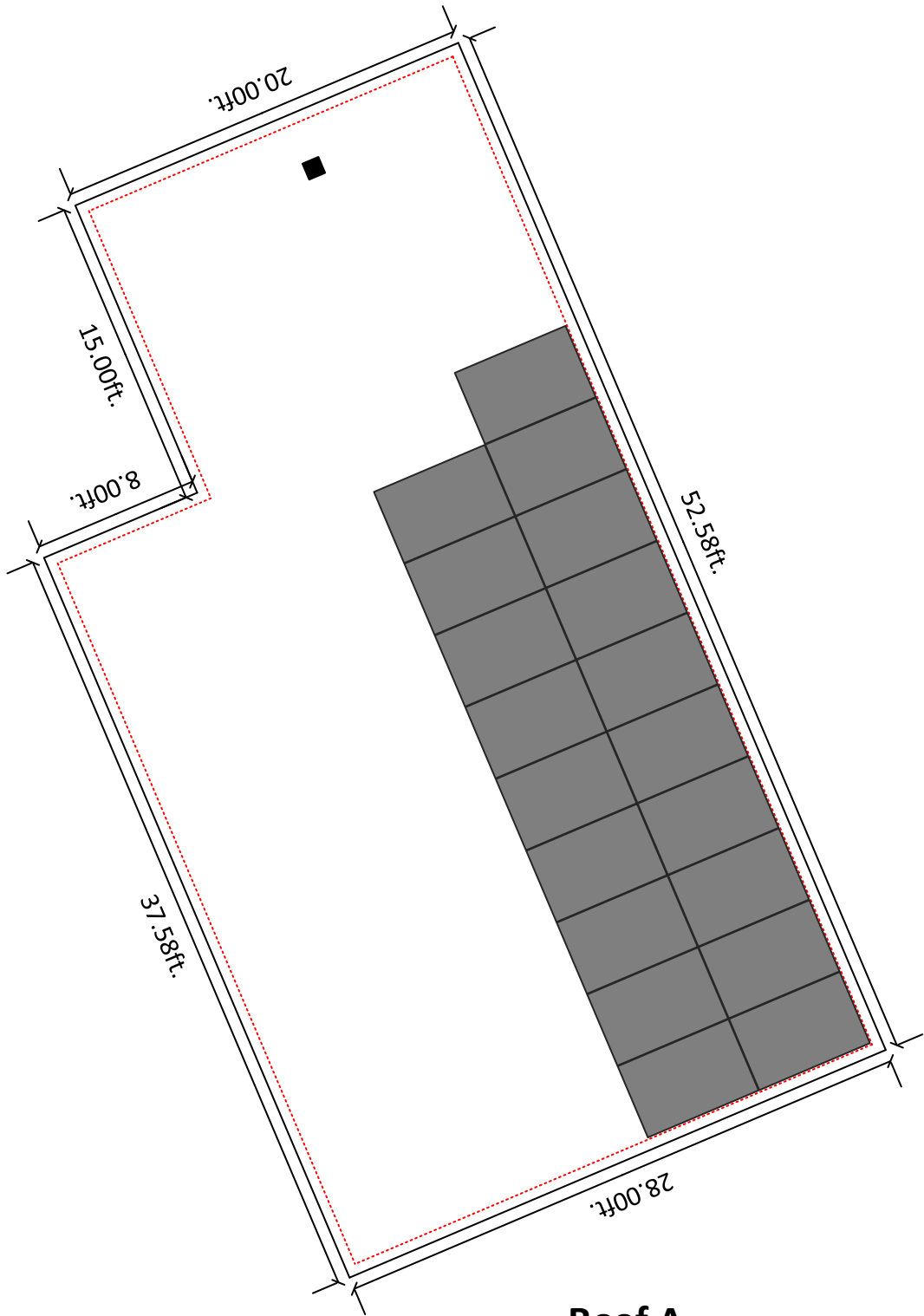
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Sheet Number:

PV2



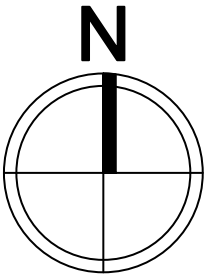
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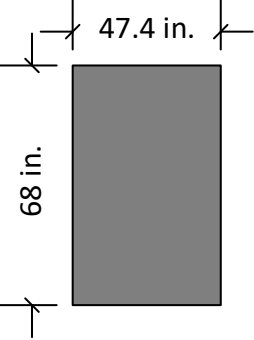


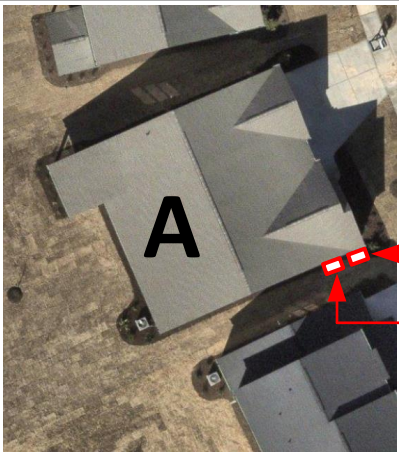
Roof A  
19 Modules

6in setback from  
sides of the roof

SITE LAYOUT  
SCALE: 1/8" - 1'



ROOF DESCRIPTION				MODULE DIMENSIONS	STRING LAYOUT					
ROOF	PITCH	AZIMUTH	NO. OF MODULES		TESLA 7.6KW					
A	27°	247°	19		Strings #	No. of Modules	Color	Strings #	No. of Modules	Color
					String 1	10				
					String 2	09				



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Sheet Name:

String Mapping

JOB NUMBER:

25-767-MS

Date:

10/09/2025

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Sheet Number:

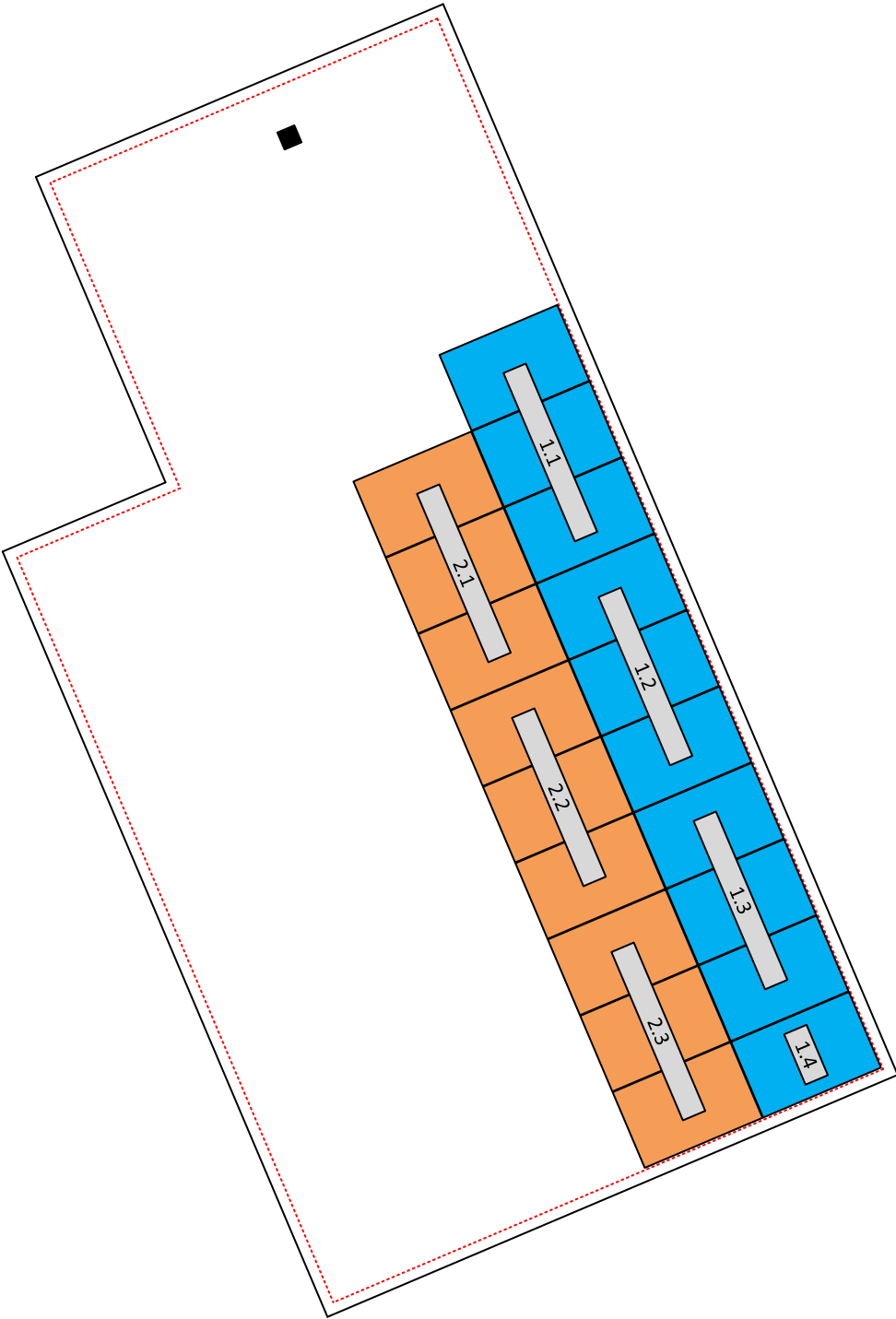
PV3



11-06-2025

SYSTEM DETAILS

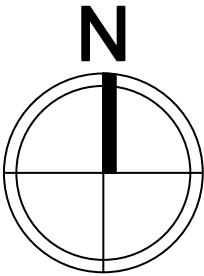
NUMBER OF PANELS : 19  
PANELS MODEL : CANADIAN SOLAR CS6.2-48TM-445H  
DC SIZE : 8.455 KW  
AC SIZE : 7.6 KVA



Roof A  
19 Modules

6in setback from  
sides of the roof

STRING MAPPING  
SCALE: 1/8" - 1'



STRING CALCULATION						
String #	No of Modules	Estimated Power	I <sub>max</sub>	I <sub>mpp</sub>	V <sub>oc</sub>	V <sub>mpp</sub>
1	10	4,450 W	22.84 Adc	14.64 Adc	356 Vdc	550 Vdc
2	09	4,005 W	22.84 Adc	14.64 Adc	320.4 Vdc	550 Vdc

19 X CANADIAN SOLAR CS6.2-48TM-445H  
445W  
TESLA MCI-2 HIGH CURRENT  
RAPID SHUTDOWN EQUIPPED

String 1

String 2

Sola Deck

Attic

Tesla Inverter 7.6kW

60A NON-FUSIBLE AC DISCONNECT

METER COMBINATION PANEL  
B.B RATING: 200A

UTILITY METER

40A BREAKER WILL BE USED FOR SOLAR CONNECTION

SUB LOAD PANEL  
B.B RATING: 200A

Note: 40A breaker will be installed at the end of bus bar for solar connection.

Note: There will be no consumption monitoring.

- System Size: 8,455W DC
- (19) CANADIAN SOLAR CS6.2-48TM-445H
- (07) Tesla MCI-2 High Current
- (01) Tesla Solar Inverter 7.6kW
- Inverter Output: 32A max @ 240 VAC
- 7.6 kVA AC output max

- Grounding will be done via Pegasus grounding lugs and mid-clamps to ensure the rail and panels are continuously grounded.
- Rapid Shutdown is included in the Mid Circuit Interrupter , refer to Mid Circuit Interrupter and Inverter attached datasheets.
- The load center / disconnect will be visible, lockable accessible to utility linesmen and will be properly labelled as per NEC requirements. It will be located on the exterior wall of the building, next to the utility meter.

Sr.No	#Wire	Conduit Size	Ground Wire	Amperage (A)
1	2 x #10 PV		#10 Bare CU	22.84
2	4 x #10 THHN Cu	3/4" LFMC	#10 Green Cu	22.84
3	4 x #10 THHN Cu	3/4" EMT	#10 Green Cu	22.84
4	3 x #8 THHN Cu	3/4" EMT	#6 Green Cu	40
5	3 x #8 THHN Cu	3/4" LFNC	#6 Green Cu	40

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Electrical One Line Diagram

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10/09/2025

**Revision:**

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**Sheet Size:**

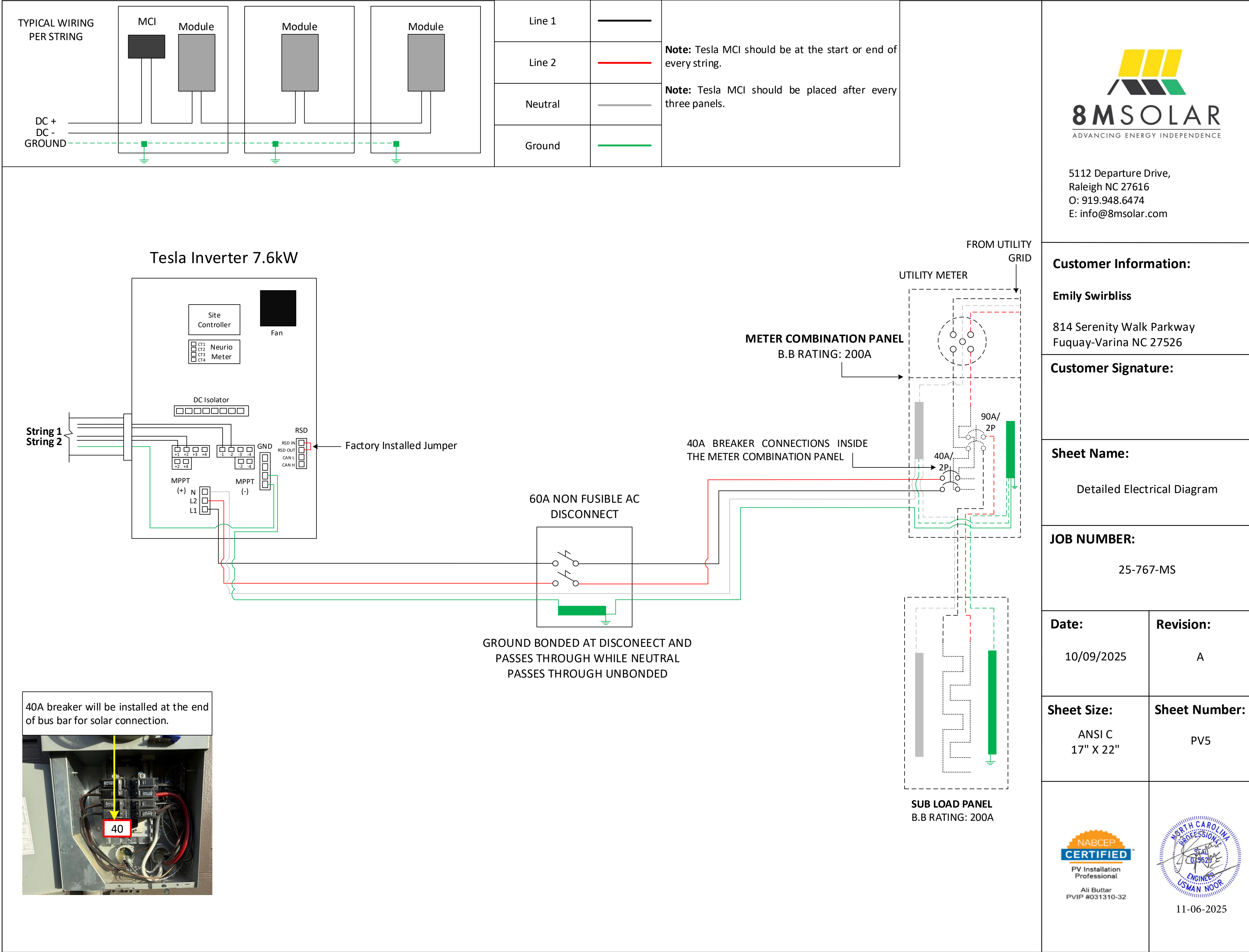
ANSI C  
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**Sheet Number:**

PV4

PV Installation Professional  
Ali Buttar  
PVIP #031310-32

11-06-2025



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Sheet Name:

Detailed Electrical Diagram

JOB NUMBER:

25-767-MS

Date:

10/09/2025

Revision:

A

Sheet Size:

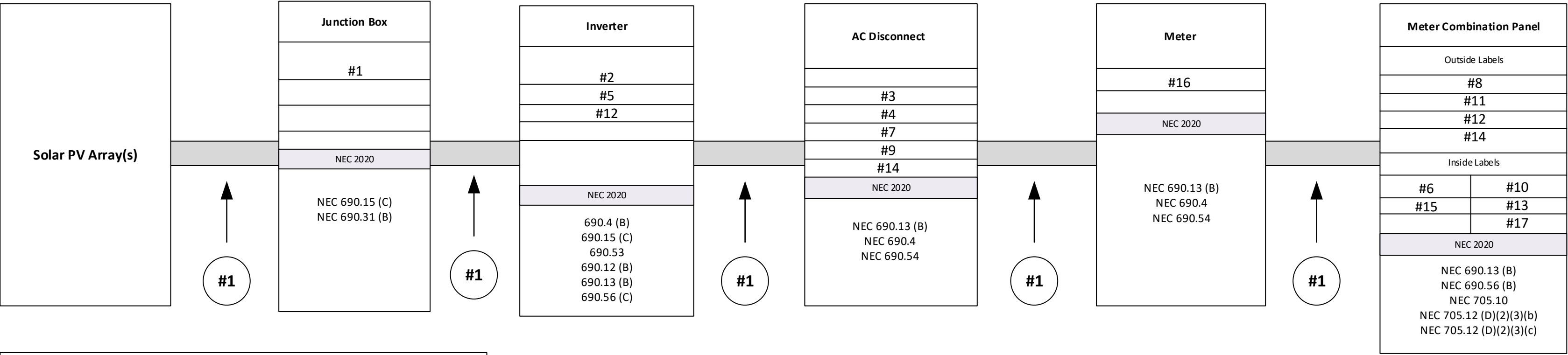
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17" X 22"

Sheet Number:

PV5



11-06-2025



# Labeling and Warning Signs: NEC 2020

A. PURPOSE  
PROVIDE EMERGENCY RESPONDERS WITH APPROPRIATE WARNING AND GUIDANCE WITH RESPECT TO ISOLATING THE SOLAR ELECTRIC SYSTEM. THIS CAN FACILITATE IDENTIFYING ENERGIZED ELECTRICAL LINES THAT CONNECT THE SOLAR PANELS TO THE INVERTER, AS SHOULD NOT BE CUT WHEN VENTING FOR SMOKE REMOVAL.

B. MAIN SERVICE DISCONNECT:

1. RESIDENTIAL BUILDINGS- THE MARKING MAY BE PLACED WITHIN THE MAIN SERVICE DISCONNECT. THE MARKING SHALL BE PLACED ON THE OUTSIDE COVER IF THE MAIN SERVICE DISCONNECT IS OPERABLE WITH THE SERVICE PANEL CLOSED.

2. COMMERCIAL BUILDINGS- THE MARKINGS SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT CLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED

3. MARKINGS, VERBIAGE, FORMAT AND TYPE OF MATERIAL

a. VERBIAGE: CAUTION; SOLAR ELECTRIC SYSTEM CONNECTED  
b. FORMAT:

(1) WHITE LETTERING ON A RED BACKGROUND  
(2) MINIMUM 3/8 INCH LETTER HEIGHT  
(3) ALL LETTERS SHALL BE CAPITALIZED  
(4) ARIAL OR SIMILAR FONT, NON-BOLD

c. MATERIAL:

(1) REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (USE UL-969) AS STANDARD FOR WEATHER RATING); DURABLE ADHESIVE MATERIALS MEET THIS REQUIREMENT.

C. MARKING REQUIREMENTS ON CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES, COMBINERS AND JUNCTION BOXES;

1. MARKING: PLACEMENT, VERBIAGE, FORMAT AND TYPE OF MATERIAL

a. PLACEMENT: MARKINGS SHALL BE PLACED EVERY 10 (TEN) FEET ON ALL INTERIOR AND EXTERIOR DC CONDUITS, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLIES, AT TURNS ABOVE AND/OR BELOW PENETRATIONS, ALL COMBINERS AND JUNCTION BOXES.  
b. VERBIAGE: CAUTION SOLAR CIRCUIT  
c. THE FORMAT AND TYPE OF MATERIAL SHALL ADHERE TO SECTION B-3.B & C ABOVE

D. INVERTERS ARE NOT REQUIRED TO HAVE CAUTION MARKINGS

#1

WARNING: PHOTOVOLTAIC POWER SOURCE

#2

PHOTOVOLTAIC

DC DISCONNECT

#3

PHOTOVOLTAIC

AC DISCONNECT

#4

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

#5

MAXIMUM VOLTAGE 550Vdc  
MAX. RATED CIRCUIT CURRENT 14.64Adc  
OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED)

#6

PHOTOVOLTAIC POWER SOURCE

OPERATING AC VOLTAGE 240 V  
MAXIMUM OPERATING AC OUTPUT CURRENT 32 A

#7

AC DISCONNECT PHOTOVOLTAIC SYSTEM POWER SOURCE

RATED AC OUTPUT CURRENT 32  
NOMINAL OPERATING AC VOLTAGE 240

#8

SOLAR AC DISCONNECT LOCATED AT SOUTH-EAST SIDE WALL OF THE HOUSE BESIDE THE METER COMBINATION PANEL

#9

SERVICE DISCONNECT LOCATED INSIDE THE METER COMBINATION PANEL

#10

WARNING

POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

#11

WARNING

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

#12

WARNING

DUAL POWER SUPPLY SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

#13

WARNING

TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

#14

WARNING

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

#15

WARNING

SOLAR ELECTRIC CIRCUIT BREAKER IS BACKFEED

#16

WARNING

THIS SERVICE METER IS ALSO SERVED BY A PHOTOVOLTAIC SYSTEM

#17

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



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PV Labels

## JOB NUMBER:

25-767-MS

## Date:

10/09/2025

## Revision:

A

## Sheet Size:

ANSI C  
17" X 22"

## Sheet Number:

PV6



11-06-2025

ROOF DESCRIPTION				MODULE DIMENSIONS	<div>Rails and Splices : PSR-B84 (BLACK)</div> <div>Roof Attachment: InstaFlash 2</div> <div></div> <div></div>	
ROOF	PITCH	AZIMUTH	NO. OF MODULES	<div></div>		
A	27°	146°	20			
					<div>Rafter Spacing : 24 in</div> <div>There is one layer of shingles Roofing material is asphalt shingles</div>	
					<div>Attachment Span: 4ft</div> <div>The roof is located in 120mph wind zone</div>	

AC  
DISCONNECT

UTILITY  
METER + MSP



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Bill of Material

JOB NUMBER:

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Revision:

A

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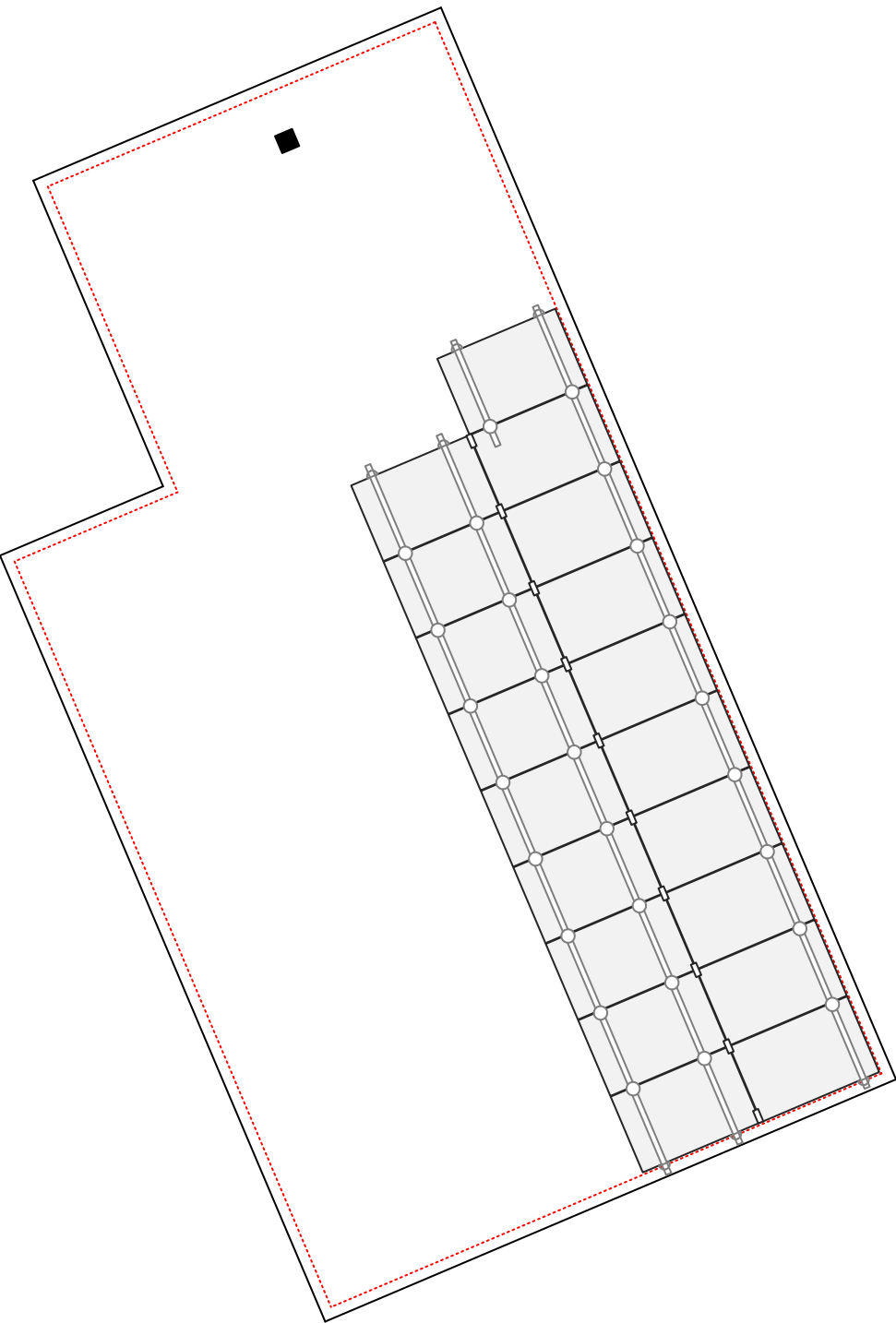
ANSI C  
17" X 22"

Sheet Number:

PV7



11-06-2025



Roof A  
19 Modules

PV LABELS		
Sr No	Code	Qty
01	02-314	12
02	03-301	01
03	03-302	01
04	02-316	01
05	03-308	01
06	03-390	01
07	03-306	01
08	8M-001	01
09	8M-002	01
10	05-216	01
11	05-108	01
12	05-211	02
13	05-372	01
14	05-215	02
15	05-342	01
16	07-359	01
17	07-111	01

RAILS AND MOUNTING SYSTEM

- 17 x PSR-B84: Pegasus Rail, Black, 84" (7 Feet)
- 13 x PSR-SPLS: Pegasus - Bonded, Structural Splice
- 26 x PSR-MCB: Pegasus - Multiclamp, Mid/End, 30 to 40 mm, Black
- 07 x PSR-HEC: Pegasus - Hidden End Clamp
- 09 x PSR-SRC: Pegasus - Skiprail Clamp
- 03 x PSR-LUG: Pegasus - Grounding Lug
- 48 x PSR-WMC: Pegasus - Wire Management Clip
- 04 x PSR-CBG: Pegasus - Cable Grip
- 07 x PSR-CAP: Pegasus - End Cap
- 35 x PIF2-BDT: InstaFlash2- Deck or Rafter Attach – With Dovetail T-Bolt
- 100 x PF-DRW85: Pegasus Fastener – Deck-Rafter 85mm
- 38 x S6405: Heyco Wire Clips
- 01 x GEOC GC66100: SEALANT 2300 10.3OZ CLEAR (20) GEOCEL 230 TRIPOLY CLEAR
- 05 x MULTI 32.0017P0001-UR: PV MC4 MALE (10) [1000]
- 05 x MULTI 32.0016P0001-UR: PV MC4 FEMALE (10) [1000]

SOLAR MODULES

- 19 x CANADIAN SOLAR CS6.2-48TM-445H

WIRE

- 01 x WIRPV 2KVPV10STRBLK500: #10 PV WIRE BLK (Cu) 500ft

INVERTER & SUPPORTING ITEMS

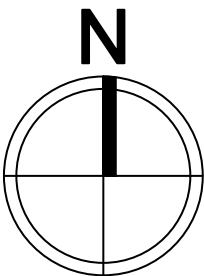
- 01 x 1538000-45-y: Tesla Solar Inverter 7.6kW
- 07 x 1879359-15-B: Tesla MCI-2 High Current

ELECTRICAL ITEMS

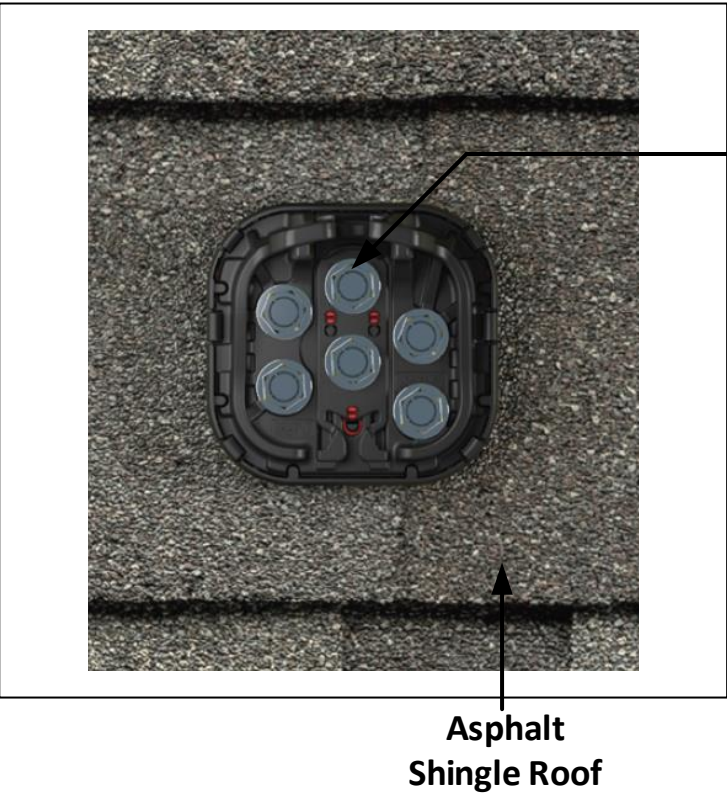
- 01 x DG222URB: 250volt/60amp/2pole non fusible disconnect (NEMA 3R)
- 01 x BR240 - Eaton 40A/2P BR-Type Circuit Breaker
- 01 x EZSLR JB-1.2: SolaDeck

6in setback from  
sides of the roof

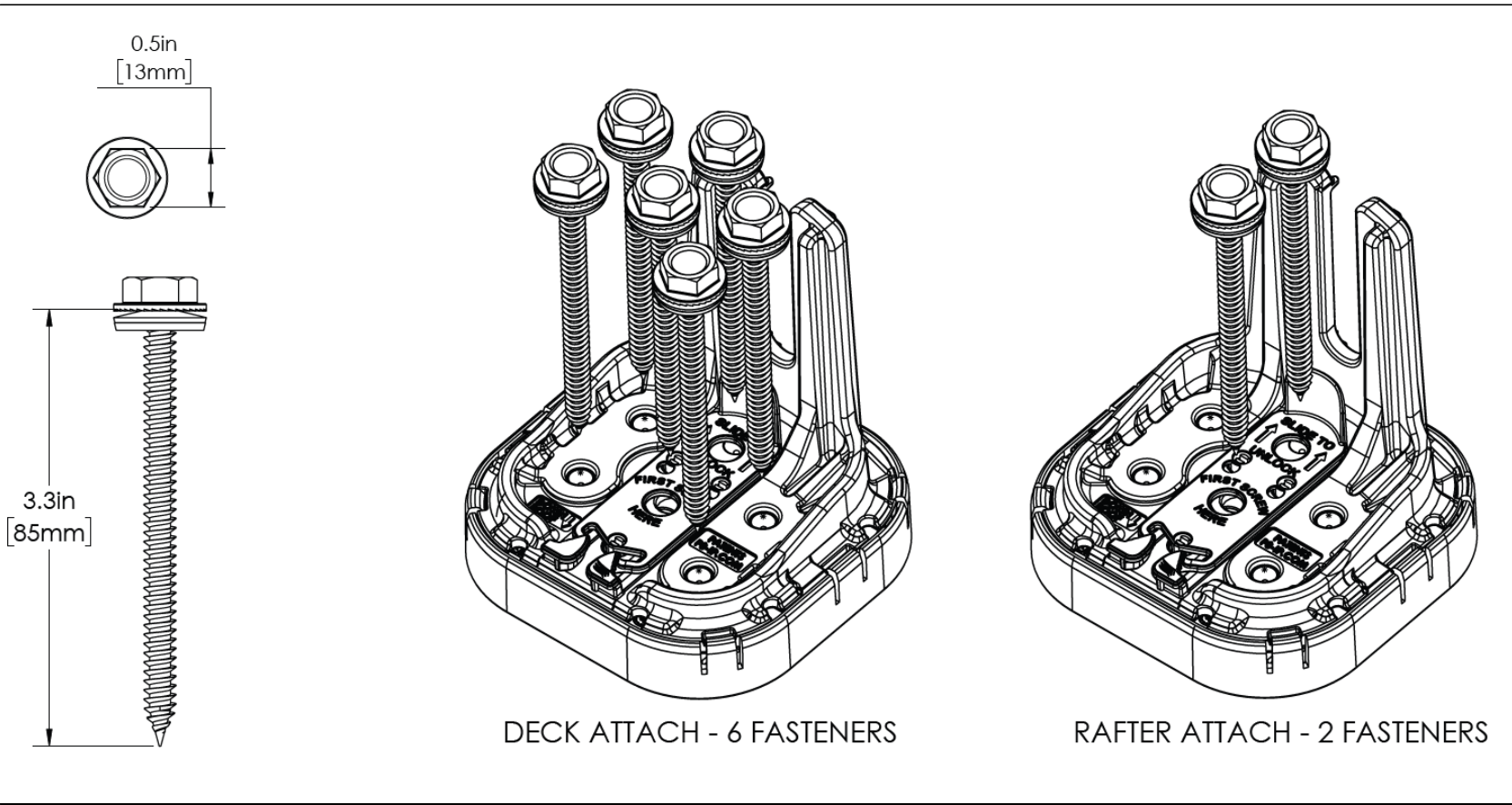
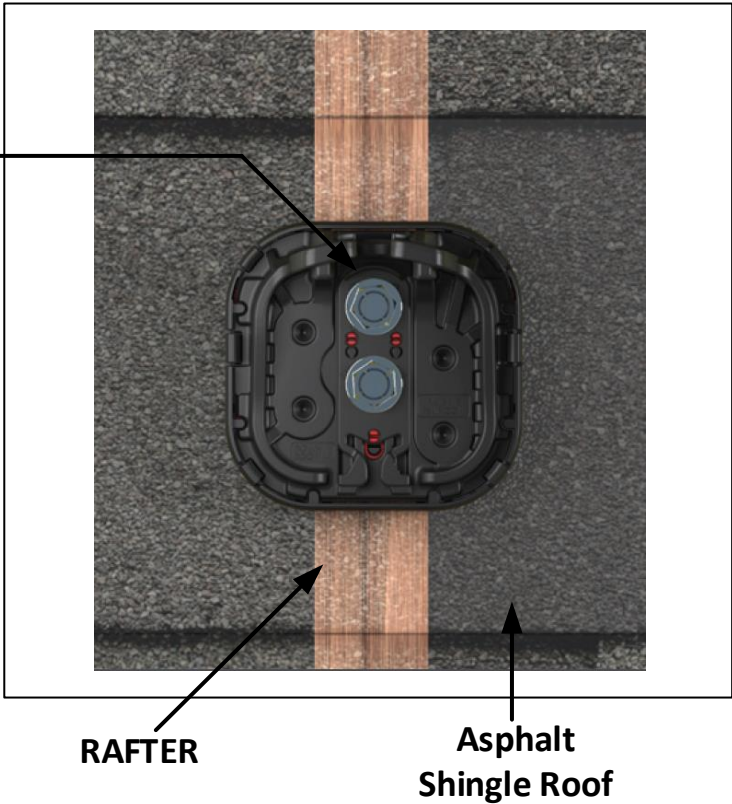
BILL OF MATERIAL  
SCALE: 1/8" - 1'



Deck Attach – 6 Fasteners



Rafter Attach – 2 Fasteners



**8MSOLAR**  
ADVANCING ENERGY INDEPENDENCE

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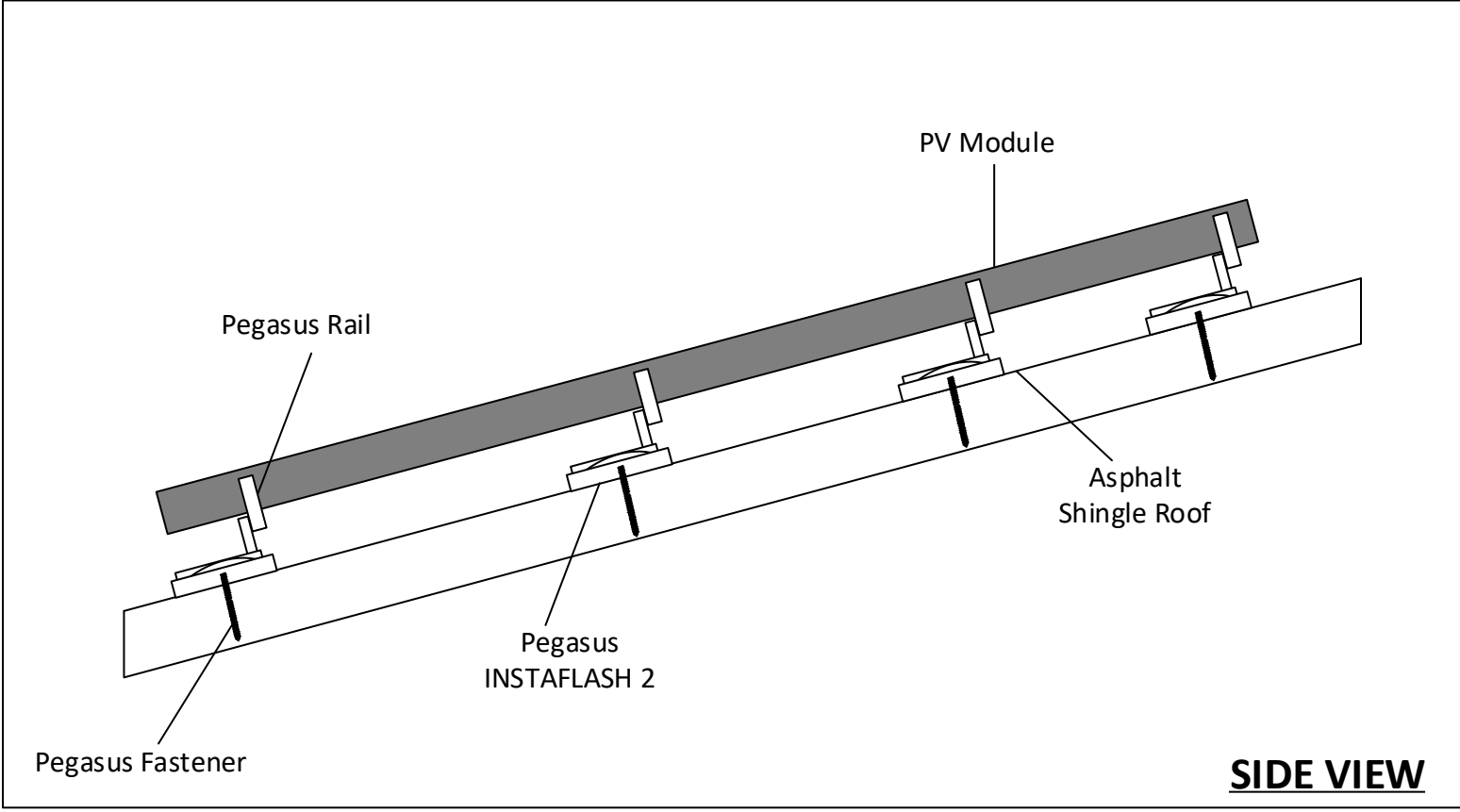
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PV8

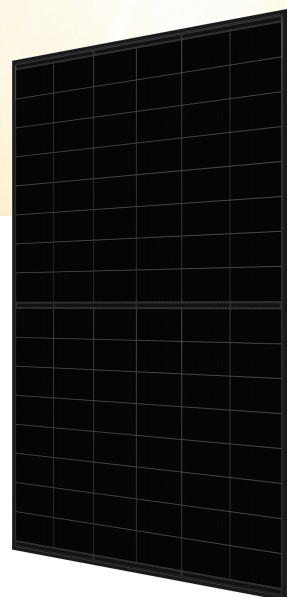
Multi-Clamp	Hidden End Clamp	MLPE Mount	Dovetail T-Bolt	Ground Lug	Cable Grip
Torque Value 100 in-lbs.	Torque Value 135 in-lbs.	Torque Value 135 in-lbs.	Torque Value 300 in-lbs.	Torque Value 135 in-lbs.	Torque Value 135 in-lbs.



PV Dead Load	
Roof A	<p><b>PV System Dead Load</b> <b>(Panel + Racking weight) / PV System Area</b> (19 panels x 47.2 lbs./panel + 143 ft. of racking x 1.17 lb.ft) / (19 panels x 5.65' x 3.71') = 2.73 psf</p>



11-06-2025



# TOPHiKu6 (All-Black)

N-type TOPCon Technology

440 W ~ 470 W

CS6.2-48TM-440 | 445 | 450 | 455 | 460 | 465 | 470H

## MORE POWER



Module power up to 470 W  
Module efficiency up to 23.5 %



Excellent anti-LeTID & anti-PID performance.  
Low power degradation, high energy yield



Lower temperature coefficient (Pmax):  $-0.29\%/^{\circ}\text{C}$ ,  
increases energy yield in hot climate



Lower LCOE & system cost

## MORE RELIABLE



Tested up to ice ball of 45 mm diameter  
according to IEC 61215 standard



Minimizes micro-crack impacts



Heavy snow load up to 8100 Pa,  
wind load up to 5600 Pa\*

## TRACEABLE SUPPLY CHAIN



Independently audited by STS



Industry Leading Product Warranty on Materials  
and Workmanship\*



Linear Power Performance Warranty\*

1<sup>st</sup> year power degradation no more than 1%  
Subsequent annual power degradation no more than 0.4%

\*Subject to the terms and conditions contained in the applicable Canadian Solar Limited Warranty Statement. Also this 25-year limited product warranty is available only for products installed and operating on rooftops in certain regions.

## MANAGEMENT SYSTEM CERTIFICATES\*

ISO 9001: 2015 / Quality management system  
ISO 14001: 2015 / Standards for environmental management system  
ISO 45001: 2018 / International standards for occupational health & safety  
IEC 62941: 2019 / Photovoltaic module manufacturing quality system

## PRODUCT CERTIFICATES\*

IEC 61215 / IEC 61730  
UL 61730 / IEC 61701 / IEC 62716



\* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates available for your Product and applicable in the regions in which the products will be used.

**Canadian Solar (USA) Inc.** is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 23 years, it has successfully delivered over 133 GW of premium-quality solar modules across the world.

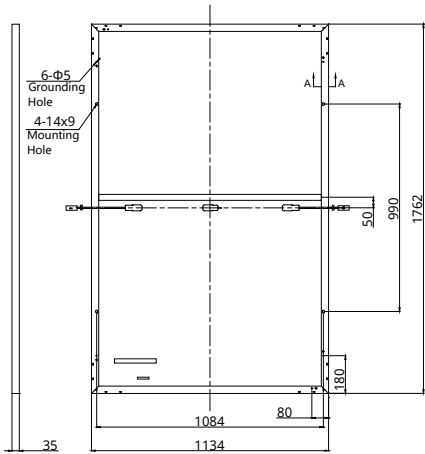
\* For detailed information, please refer to the Installation Manual.

**Canadian Solar (USA) Inc.**

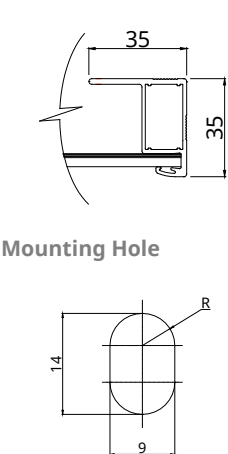
1350 Treat Blvd. Suite 500, Walnut Creek, CA 94597 | [www.csisolar.com/na](http://www.csisolar.com/na) | [service.ca@csisolar.com](mailto:service.ca@csisolar.com)

ENGINEERING DRAWING (mm)

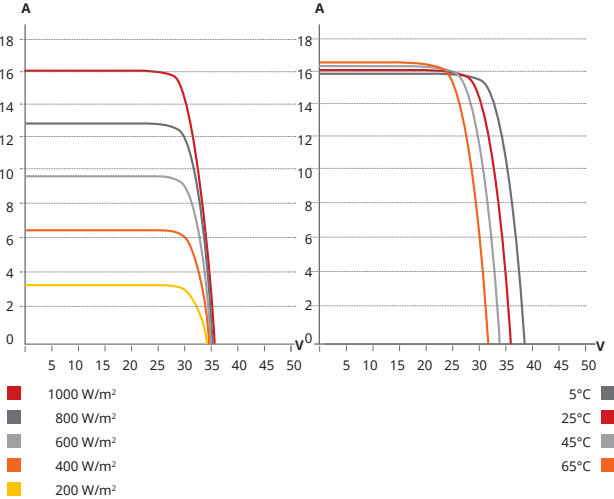
Rear View



Frame Cross Section A-A



CS6.2-48TM-455H / I-V CURVES



ELECTRICAL DATA | STC\*

CS6.2-48TM	440H	445H	450H	455H	460H	465H	470H
Nominal Max. Power (Pmax)	440 W	445 W	450 W	455 W	460 W	465 W	470 W
Opt. Operating Voltage (Vmp)	30.2 V	30.4 V	30.6 V	30.8 V	31.0 V	31.2 V	31.4 V
Opt. Operating Current (Imp)	14.58 A	14.64 A	14.71 A	14.78 A	14.84 A	14.91 A	14.98 A
Open Circuit Voltage (Voc)	35.4 V	35.6 V	35.8 V	36.0 V	36.2 V	36.4 V	36.6 V
Short Circuit Current (Isc)	15.88 A	15.95 A	16.02 A	16.09 A	16.16 A	16.23 A	16.30 A
Module Efficiency	22.0%	22.3%	22.5%	22.8%	23.0%	23.3%	23.5%
Operating Temperature	-40°C ~ +85°C						
Max. System Voltage	1500V (IEC/UL)						
Module Fire Performance	TYPE 1 (UL 61730 1500V) or TYPE 2 (UL 61730 1000V) or CLASS C (IEC 61730)						
Max. Series Fuse Rating	30 A						
Protection Class	Class II						
Power Tolerance	0 ~ + 10 W						

\* Under Standard Test Conditions (STC) of irradiance of 1000 W/m<sup>2</sup>, spectrum AM 1.5 and cell temperature of 25°C.

ELECTRICAL DATA | NMOT\*

CS6.2-48TM	440H	445H	450H	455H	460H	465H	470H
Nominal Max. Power (Pmax)	332 W	336 W	339 W	343 W	347 W	351 W	354 W
Opt. Operating Voltage (Vmp)	28.5 V	28.7 V	28.8 V	29.0 V	29.2 V	29.4 V	29.6 V
Opt. Operating Current (Imp)	11.66 A	11.71 A	11.77 A	11.82 A	11.87 A	11.93 A	11.98 A
Open Circuit Voltage (Voc)	33.4 V	33.6 V	33.8 V	34.0 V	34.2 V	34.4 V	34.6 V
Short Circuit Current (Isc)	12.80 A	12.86 A	12.91 A	12.97 A	13.03 A	13.08 A	13.14 A

\* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m<sup>2</sup> spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

MECHANICAL DATA

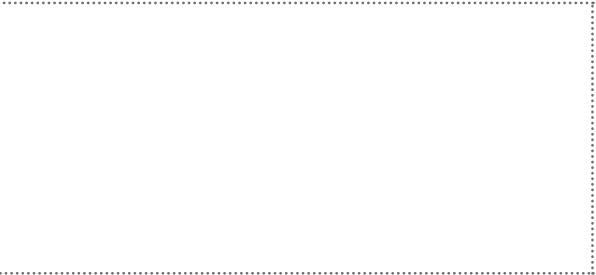
Specification	Data
Cell Type	TOPCon cells
Cell Arrangement	96 [2 x (8 x 6)]
Dimensions	1762 × 1134 × 35 mm (69.4 × 44.6 × 1.38 in)
Weight	21.8 kg (48.1 lbs)
Front Glass	3.2 mm tempered glass with anti-reflective coating
Frame	Anodized aluminium alloy
J-Box	IP68, 3 bypass diodes
Cable	4 mm <sup>2</sup> (IEC), 12 AWG (UL)
Cable Length (Including Connector)	1550 mm (61.0 in) (+) / 1100 mm (43.4 in) (-)*
Connector	MC4
Per Pallet	31 pieces
Per Container (40' HQ)	806 pieces

\* For detailed information, please contact your local Canadian Solar sales and technical representatives.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.29 % / °C
Temperature Coefficient (Voc)	-0.25 % / °C
Temperature Coefficient (Isc)	0.045 % / °C
Nominal Module Operating Temperature	42 ± 3°C

PARTNER SECTION



\* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. CSI Solar Co., Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice. Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

# Tesla Solar Inverter with Site Controller

Tesla Solar Inverter completes the Tesla home solar system, converting DC power from solar to AC power for home consumption. Tesla's renowned expertise in power electronics has been combined with robust safety features and a simple installation process to produce an outstanding solar inverter that is compatible with both Solar Roof and traditional solar panels. Once installed, homeowners use the Tesla mobile app to manage their solar system and monitor energy consumption, resulting in a truly unique ecosystem experience.

## KEY FEATURES

- Built on Powerwall technology for exceptional efficiency and reliability
- Wi-Fi, Ethernet, and cellular connectivity with easy over-the-air updates
- Designed to integrate with Tesla Powerwall and Tesla App
- 0.5% revenue-grade metering for Solar Renewable Energy Credit (SREC) programs included



# Tesla Solar Inverter Technical Specifications

Electrical Specifications: Output (AC)	Model Number	1538000-xx-y
	Output (AC)	7.6 kW
	Nominal Power	7,600 W
	Maximum Apparent Power	7,680 VA at 240 V
	Maximum Continuous Current	32 A
	Breaker (Overcurrent Protection)	40 A
	Nominal Power Factor	1 - 0.9 (leading / lagging)
	THD (at Nominal Power)	<5%

Electrical Specifications: Input (DC)	MPPT	4
	Input Connectors per MPPT	1-2-1-2
	Maximum Input Voltage	600 VDC
	DC Input Voltage Range	60 - 550 VDC
	DC MPPT Voltage Range	60 - 480 VDC <sup>1</sup>
	Maximum Current per MPPT ( $I_{MP}$ )	13 A <sup>2</sup>
	Maximum Short Circuit Current per MPPT ( $I_{SC}$ )	17 A <sup>2</sup>

<sup>1</sup>Maximum current.

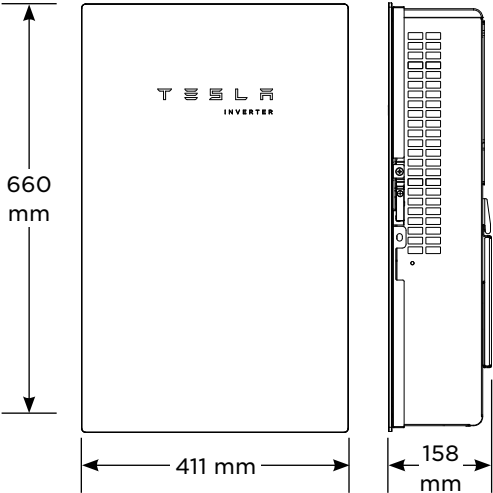
<sup>2</sup>Where the DC input current exceeds an MPPT rating, jumpers can be used to allow a single MPPT to intake additional DC current up to 26 A  $I_{MP}$  / 34 A  $I_{SC}$ .

Performance Specifications	Peak Efficiency	98.6% at 240 V
	CEC Efficiency	98.0% at 240 V
	Allowable DC/AC Ratio	1.7
	Customer Interface	Tesla Mobile App
	Internet Connectivity	Wi-Fi (2.4 GHz, 802.11 b/g/n), Ethernet, Cellular (LTE/4G) <sup>3</sup>
	Revenue Grade Meter	Revenue Accurate (+/- 0.5%)
	AC Remote Metering Support	Wi-Fi (2.4 GHz, 802.11 b/g/n), RS-485
	Protections	Integrated arc fault circuit interrupter (AFCI), Rapid Shutdown
	Supported Grid Types	60 Hz, 240 V Split Phase

<sup>3</sup>Cellular connectivity subject to network operator service coverage and signal strength.

# Tesla Solar Inverter Technical Specifications

## Mechanical Specifications

Dimensions	660 mm x 411 mm x 158 mm (26 in x 16 in x 6 in)
	
Weight	52 lb <sup>4</sup>
Mounting Options	Wall mount (bracket)
<sup>4</sup> Door and bracket can be removed for a mounting weight of 37 lb.	

## Environmental Specifications

Operating Temperature	-30°C to 45°C (-22°F to 113°F) <sup>5</sup>
Operating Humidity (RH)	Up to 100%, condensing
Storage Temperature	-30°C to 70°C (-22°F to 158°F)
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Rating	Type 3R
Ingress Rating	IP55 (Wiring compartment)
Pollution Rating	PD2 for power electronics and terminal wiring compartment, PD3 for all other components
Operating Noise @ 1 m	< 40 db(A) nominal, < 50 db(A) maximum

<sup>5</sup>Performance may be de-rated to 6.2 kW at 240 V when operating at temperatures greater than 45°C.

## Compliance Information

Grid Certifications	UL 1741, UL 1741 SA, UL 1741 SB, IEEE 1547-2018, IEEE 1547.1
Safety Certifications	UL 1741 PVRSS, UL 1699B, UL 1998 (US), UL 3741
Emissions	EN 61000-6-3 (Residential), FCC 47CFR15.109 (a)

# Solar Shutdown Device Technical Specifications

The Solar Shutdown Device is a Mid-Circuit Interrupter (MCI) and is part of the PV system rapid shutdown (RSD) function in accordance with Article 690 of the applicable NEC. When paired with Tesla Solar Inverter, solar array shutdown is initiated by any loss of AC power.

Electrical Specifications	Model	MCI-1	MCI-2
	Nominal Input DC Current Rating ( $I_{MP}$ )	12 A	13 A
	Maximum Input Short Circuit Current ( $I_{SC}$ )	19 A	17 A
	Maximum System Voltage (PVHCS)	600 V DC	1000 V DC <sup>6</sup>
<sup>6</sup> Maximum System Voltage is limited by Tesla Solar Inverter to 600 V DC.			
RSD Module Performance	Maximum Number of Devices per String	5	5
	Control	Power Line Excitation	Power Line Excitation
	Passive State	Normally Open	Normally Open
	Maximum Power Consumption	7 W	7 W
	Warranty	25 years	25 years
Environmental Specifications	Operating Temperature	-40°C to 50°C (-40°F to 122°F)	-45°C to 70°C (-49°F to 158°F)
	Storage Temperature	-30°C to 70°C (-22°F to 158°F)	-30°C to 70°C (-22°F to 158°F)
	Enclosure Rating	NEMA 4X / IP65	NEMA 4X / IP65
Mechanical Specifications	Electrical Connections	MC4 Connector	MC4 Connector
	Housing	Plastic	Plastic
	Dimensions	125 x 150 x 22 mm (5 x 6 x 1 in)	173 x 45 x 22 mm (6.8 x 1.8 x 1 in)
	Weight	350 g (0.77 lb)	120 g (0.26 lb)
	Mounting Options	ZEP Home Run Clip M4 Screw (#10) M8 Bolt (5/16") Nail / Wood screw	Wire Clip
Compliance Information	Certifications	UL 1741 PVRSE, UL 3741, PVRSA (Photovoltaic Rapid Shutdown Array)	
	RSD Initiation Method	PV System AC Breaker or Switch	

## UL 3741 PV Hazard Control (and PVRSA) Compatibility

The following categories of solar module meet the UL 3741 PVHCS listing when installed with Tesla Solar Inverter and Solar Shutdown Devices.

Tesla Solar Roof	<a href="#">PV Hazard Control System: BIPV compliance document</a>
Tesla or Hanwha (Q.Peak Duo BLK or BLK-G6+) Modules certified for use with ZEP racking	<a href="#">PV Hazard Control System: ZS PVHCS compliance document</a>
Other module and racking combinations	<a href="#">PV Hazard Control System: Generic PV Array compliance document</a>

## One Clamp Anywhere

The Multi-Clamp works as mid- or end-clamp, and fits standard 30-40mm frames.

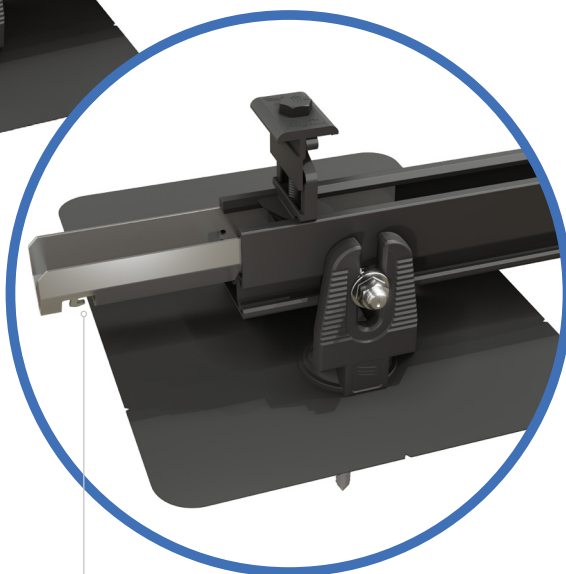
## Instant Bonding

The N-S Bonding Jumper bonds row to row with no tools.



## Lifetime Wire Management

Open rail channel holds and protects wires. Clamps won't pinch wires after tightening.



## Bonding Structural Splice

Connect rails instantly, without tools, interference or limitations.

## Next-Level Solar Mounting

A complete system for hassle-free rooftop installation, from watertight mounts to lifetime wire management.



### Simplicity

1/2" socket for everything.  
One clamp for mid or end.  
No tool splicing and bonding.  
Easy wire management.



### Code Compliant

UL 2703 listed  
LTR-AE-001-2012 listed  
Class A fire rating for any slope  
ASCE 7-16 PE Certified



### Premium Aesthetics

The narrowest panel gap available. Optional Hidden End Clamps and End Caps provide a flush look on the edge of the array.



### Watertight for Life

Secured on industry-leading Pegasus Mounts, for composite shingle and tile roofs. Backed by a 25-year warranty.



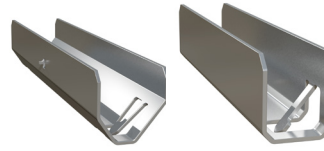
**Pegasus Rail**

Available in 14' and 7' lengths for easy layout and shipping.  
Open-channel design holds MC4 connectors, PV wire and trunk cables.  
Black and Mill finish



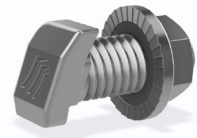
**Pegasus Max Rail**

Maximum-strength design.  
Meets specifications for high snow-load and hurricane zones.  
Black and Mill finish



**Splice and Max Splice**

Installs by hand.  
Works over mounts.  
Structurally connects and bonds rails automatically; UL2703 listed as reusable.



**Dovetail T-bolt**

Dovetail shape for extra strength.  
Uses 1/2" socket.



**Multi-Clamp**

Fits 30-40mm PV frames, as mid- or end-clamp.  
Twist-locks into position; doesn't pinch wires in rail.  
Bonds modules to rail; UL2703 listed as reusable



**Hidden End Clamp**

Offers premium edge appearance.  
Preinstalled pull-tab grips rail edge, allowing easy, one-hand installation.  
Tucks away for reuse.



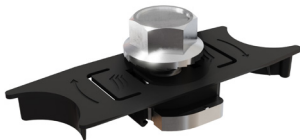
**Ground Lug**

Holds 6 or 8 AWG wire.  
Mounts on top or side of rail.  
Assembled on MLPE Mount.  
UL2703 listed as reusable.



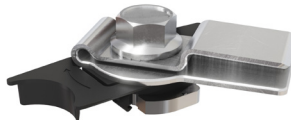
**N-S Bonding Jumper**

Installs by hand, eliminates row-to-row copper wire.  
UL2703 listed as reusable only with Pegasus Rail.



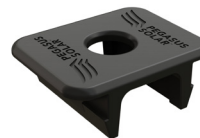
**MLPE Mount**

Secures and bonds most micro-inverters and optimizers to rail.  
Connectors and wires easily route underneath after installation.  
UL2703 listed as reusable.



**Cable Grip**

Secures four PV wires or two trunk cables.  
Stainless-steel backing provides durable grip.  
Eliminates sagging wires.



**Wire Clip**

Hand operable.  
Holds wires in channel.  
Won't slip.



**End Cap and Max End Cap**

Fits flush to PV module and hides raw or angled cuts.  
Hidden drain quickly clears water from rail.

## Certifications:

- UL 2703, Edition 1
- LTR-AE-001-2012
- ASCE 7-16 PE certified
- Class A fire rating for any slope roof



**FREE**  
PEGASUS SOLAR  
Design Tool

Quickly calculate the most efficient layout, spans and materials needed to suit your job. Visit the Pegasus Customer Portal. [pegasussolar.com/portal](https://www.pegasussolar.com/portal)

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LOAD		SPAN			
SNOW (PSF)	WIND (MPH)	32"	4'	6'	8'
0	120	PEGASUS RAIL			
	160				
	190				
15	140	PEGASUS RAIL			
	160				
	190				
30	160	PEGASUS RAIL			
	190				
45	190	PEGASUS RAIL			
70	190	PEGASUS RAIL			
110	190	PEGASUS RAIL			

For reference only. Spans above are calculated using ASCE 7-16 for a Gable Roof, Exposure Category B, 7-20deg roof angle, 30ft mean roof height with non-exposed modules. For PE certified span tables, visit [www.pegasussolar.com/spans](https://www.pegasussolar.com/spans).

## Rafter or Deck Attach!

- No pilot holes
- Pre-installed sealant
- No caulking, no ripping shingles



## Pre-installed sealant

**Before:** Sealant contained by protective cage. No contact with hands or tools.



## Instant, watertight seal

**After:** Non-hardening sealant automatically fills all gaps, overlays and butt joints.



## Install in any season

Install in 0 to 170° F weather, including rain and sleet. Watertight for life.

# The Ultimate Comp Roof Attachment

Simple to use. Works for rafter or deck attach. No caulking, no ripped shingles, no mess. Pre-installed sealant acts as a chemical flashing and fills all gaps, voids, and butt joints for an instant, watertight seal.



## 25-Year Warranty

Manufactured with advanced materials and coatings to outlast the roof itself



## Code Compliant

Fully IBC/CBC code compliant  
Exceeds ASCE 7-22 standards  
UL2703 certified



## Self-Healing

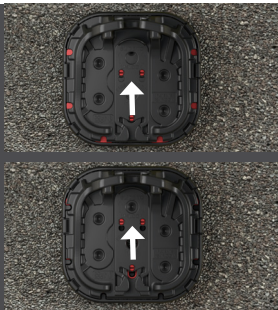
Proprietary non-hardening sealant will flex and reseal over years of thermal expansion and contraction




## Larger Spans

Extra-large L-foot and proprietary screws result in larger spans between mounts


**1**  
Release Safety.



**2**  
Install screw through center hole, and drive into roof until InstaFlash2 pushes through cage and seats onto the roof.




**3**  
If screw hits rafter, drive second screw in hole above. Ensure screws are embedded at least 2.5" into rafter. Installation complete.



**4**  
If first screw misses rafter, install second screw into the left or right screw holes over rafter.

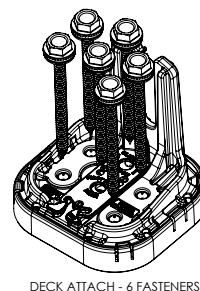
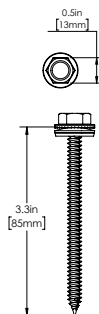
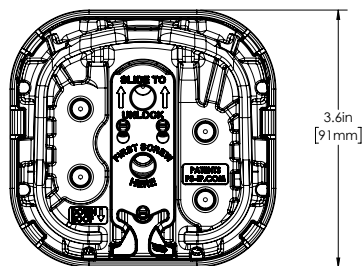
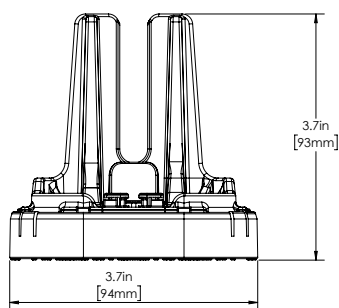


**5**  
Continue until 2 screws are embedded at least 2.5" into rafter.

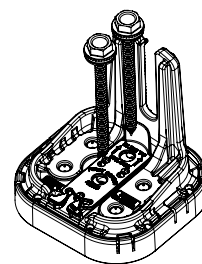


**6**  
For deck attach, use 6 screws.  
*Note: Deck attach may reduce max span.*





DECK ATTACH - 6 FASTENERS



RAFTER ATTACH - 2 FASTENERS

SPECIFICATIONS		INSTAFLASH KITS		
	PIF2-B0	PIF2-BDT	PIF2-M0	PIF2-MDT
Finish	Black		Mill	
Kit Contents	Black InstaFlash2	Black InstaFlash2, Dovetail T-bolt	Mill InstaFlash2	Mill InstaFlash2, Dovetail T-bolt
Attachment Type	Rafter & Deck Attach			
Roof Fasteners	1/2" Socket Driven; PF-DRW85 (sold separately in boxes of 24)			
Roof Type	Sloped Roof: Composition Shingle, Rolled Asphalt   Flat Roof: Modified Bitumen Roof, Built-Up Roof			
Flashing Type	Factory Installed Non-Drying, Non-Skinning Butyl Based Chemical Flashing			
Installation Temperature	0° F to 170° F			
Cure Time	Instantly Waterproof; Non-Hardening			
Service Temperature	-40° F to 195° F			
Certifications	IBC, ASCE/SEI 7-16 & 7-22, UL2703			
Install Application	Most Railed Systems			
Kit Quantity	24			
Boxes Per Pallet	36			



SCAN FOR  
INSTALLATION  
VIDEO



SCAN FOR  
FREE TRIAL

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# SolaDeck

## PV ROOF-MOUNT ENCLOSURE



**UL50 Type 3R Enclosure • Stamped 18 gauge gal. steel • Powder coated finish • Weather tight**

**INTRODUCED AT  
*SOLAR POWER 2007***



### **Enclosure Includes:**

- Dual ground lug
- Universal DIN rail
- 1/2", 3/4" & 1" knockouts
- Wire strain relief clip
- Complete hardware package

### **PV Roof-Mount Combiner/Enclosure**

### **Benefits**

- The ability to prep the building is now possible
- Replaces several parts used today
- Provides professional looking install
- Saves time on install
- Allows for easy access
- Guaranteed seal to roof
- Low profile design

***For product information contact us at  
(866) 367-7782***

**[www.commdeck.com](http://www.commdeck.com)**



RSTC Enterprises, Inc  
2219 Heimstead Road  
Eau Claire, WI 54703  
1 (866) 367 - 7782



## **SolaDeck    Part # 780**

### **Specifications:**

18 Gauge Steel Base (1) and Cover (2)  
Pre Punched 7 holes in base (1) for roof deck  
Pre Punched 4 holes in base (1) and cover (2) for match  
Draw Process both parts  
Powder Coated to withstand 1000 hours Salt Spray (Primer Gray)  
High UV resistance  
15" x 15" flashing dimension  
Cavity dimension 8"W x 9" L x 2.5"D  
Approx. 162 Cubic inch equipment cavity  
Norloked steel base plate (3) to drawn base (2)  
Three knockout locations .5", .75" and 1"  
3" DIN rail installed  
Grounding Lug- Installed (In Equipment Cavity)  
Wire Strain Relief Clip –Installed (In Equipment Cavity)  
Hardware pack withstands 500 hours Salt Spray  
    7 - 2" Trusshead Screws  
    4 - .5" 8-32 thread cutting screws  
    4 - #10 Bonded Seal washers  
    1 – Foam closed Cell Seal  
ETL Listed UL50 Type 3R

**Total Weight 6.9 pounds each**

### **Packaging:**

Individually bagged and boxed  
Box dimension 15.5"w x 16" L x 3" D  
White Carton labeled with Cut out template  
Print One Color - Black

**Master Cartons of 6 Units each**  
**Master Carton dimension 18.75"x16"x16.375"**  
**Master Carton Weight – 42 pounds**  
**18 Master Cartons per skid Approx 800 pounds with skid**

# Eaton DG222URB

Catalog Number: DG222URB

Eaton General duty non-fusible safety switch, single-throw, 60 A, NEMA 3R, Rainproof, Painted galvanized steel, Two-pole, Two-wire, 240 V

Photo is representative

## General specifications

Product Name

Eaton general duty non-fusible safety switch

Catalog Number

DG222URB

UPC

782113144238

Product Length/Depth

7.38 in

Product Height

14.38 in

Product Width

8.69 in

Product Weight

9 lb

Warranty

Eaton Selling Policy 25-000, one (1) year NEC 230.62 (C) Compliant Barrier from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first.

Compliances

Certifications

UL Listed

Catalog Notes

WARNING! Switch is not approved for service entrance unless a neutral kit is installed.



Type

Non-fusible, single-throw

Amperage Rating

60A

Number Of Poles

Two-pole

Product Category

General duty safety switch

Voltage rating

240V

Enclosure

NEMA 3R

Enclosure material

Painted galvanized steel

Fuse configuration

Non-fusible

Number of wires

2

Catalogs

[Eaton's Volume 2—Commercial Distribution](#)

Multimedia

[Double Up on Safety](#)

[Switching Devices Flex Center](#)

Specifications and datasheets

[Eaton Specification Sheet - DG222URB](#)

Warranty guides

[Selling Policy 25-000 - Distribution and Control Products and Services](#)



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