




ABBREVIATIONS	ELECTRICAL NOTES	JURISDICTION NOTES																																				
<p>A AMPERE AC ALTERNATING CURRENT BLDG BUILDING CONC CONCRETE DC DIRECT CURRENT EGC EQUIPMENT GROUNDING CONDUCTOR (E) EXISTING EMT ELECTRICAL METALLIC TUBING FSB FIRE SET-BACK GALV GALVANIZED GEC GROUNDING ELECTRODE CONDUCTOR GND GROUND HDG HOT DIPPED GALVANIZED I CURRENT Imp CURRENT AT MAX POWER Isc SHORT CIRCUIT CURRENT kVA KILOVOLT AMPERE kW KILOWATT LBW LOAD BEARING WALL MIN MINIMUM (N) NEW NEUT NEUTRAL NTS NOT TO SCALE OC ON CENTER PL PROPERTY LINE POI POINT OF INTERCONNECTION PV PHOTOVOLTAIC SCH SCHEDULE S STAINLESS STEEL STC STANDARD TESTING CONDITIONS TYP TYPICAL UPS UNINTERRUPTIBLE POWER SUPPLY V VOLT Vmp VOLTAGE AT MAX POWER Voc VOLTAGE AT OPEN CIRCUIT W WATT 3R NEMA 3R, RAIN TIGHT</p>	<ol style="list-style-type: none"> THIS SYSTEM IS GRID-INTERTIED VIA A UL-LISTED POWER-CONDITIONING INVERTER. THIS SYSTEM HAS NO BATTERIES, NO UPS. A NATIONALLY-RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH ART. 110.3. WHERE ALL TERMINALS OF THE DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A SIGN WILL BE PROVIDED WARNING OF THE HAZARDS PER ART. 690.17. EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRE BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART. 210.5. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH ART. 250.97, 250.92(B). DC CONDUCTORS EITHER DO NOT ENTER BUILDING OR ARE RUN IN METALLIC RACEWAYS OR ENCLOSURES TO THE FIRST ACCESSIBLE DC DISCONNECTING MEANS PER ART. 690.31(E). ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY UL LISTING. 	<p>SOLAR ROOF WILL BE INSTALLED OVER BARE SOLID OR CLOSELY FITTED SHEATHING, AS FOLLOWS:</p> <ul style="list-style-type: none"> DOC PS-1 COMPLIANT / EXTERIOR GRADE PLYWOOD: MINIMUM 15/32" (11.9 MM) THICK OR DOC POS-2 OSB <p>SHEATHING: MINIMUM 7/16" THICK (11.1 MM) OR</p> <ul style="list-style-type: none"> CLOSELY-FITTED SHEATHING BOARDS: MINIMUM OF 3/4" (19.1 MM) THICK <p>SOLAR ROOF CAN ALSO BE INSTALLED OVER COMPATIBLE EXISTING ROOFS, AS FOLLOWS:</p> <ul style="list-style-type: none"> THREE-TAB COMPOSITION SHINGLE, SINGLE LAYER ARCHITECTURAL COMPOSITION SHINGLE, SINGLE LAYER <p>SOLAR ROOF WILL NOT BE INSTALLED OVER RAISED PRESIDENTIAL-STYLE COMPOSITION SHINGLE, ROOFS WITH MORE THAN ONE LAYER OF COMPOSITION SHINGLE, OR EXISTING NON-COMPOSITION SHINGLE ROOF TYPES LIKE TILED ROOFS.</p> <div data-bbox="2035 786 2595 997" style="border: 2px solid red; padding: 5px; margin-top: 20px;"> <p style="font-size: 8px;">NOTICE TO CONTRACTOR All construction must comply with current NC Building Codes and is subject to field inspection and verification.</p> <p style="color: red; font-weight: bold; font-size: 10px;">APPROVED</p> <p style="font-size: 8px;">Limited building only review Permit holder responsible for full compliance with the code</p> <p style="color: red; font-weight: bold; font-size: 12px;">09/09/2021</p>   </div>																																				
LICENSE	GENERAL NOTES	VICINITY MAP																																				
<p>AHJ: Harnett County</p> <p>UTILITY: Central Electric Membership Corp. (NC)</p>	<ol style="list-style-type: none"> ALL WORK SHALL COMPLY WITH THE 2018 NORTH CAROLINA STATE BUILDING CODE. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2017 NATIONAL ELECTRIC CODE. 	<div data-bbox="1258 1159 2439 1743" style="text-align: center;">  <p>Imagery ©2021 Maxar Technologies, USDA Farm Service Agency</p> </div> <div data-bbox="2455 1088 3030 1552" style="text-align: center;"> INDEX <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Sheet 1</td> <td>COVER SHEET</td> </tr> <tr> <td>Sheet 2</td> <td>SITE PLAN</td> </tr> <tr> <td>Sheet 3</td> <td>THREE LINE DIAGRAM</td> </tr> <tr> <td>Sheet 4</td> <td>ELECTRICAL LOAD CALCULATIONS</td> </tr> <tr> <td>Sheet 5</td> <td>SITE PLAN PLACARD</td> </tr> <tr> <td colspan="2">Cutsheets Attached</td> </tr> </table> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th>REV</th> <th>BY</th> <th>DATE</th> <th>COMMENTS</th> </tr> </thead> <tbody> <tr> <td>REV A</td> <td>NAME</td> <td>DATE</td> <td>COMMENTS</td> </tr> <tr> <td>*</td> <td>*</td> <td>*</td> <td>*</td> </tr> <tr> <td>*</td> <td>*</td> <td>*</td> <td>*</td> </tr> <tr> <td>*</td> <td>*</td> <td>*</td> <td>*</td> </tr> <tr> <td>*</td> <td>*</td> <td>*</td> <td>*</td> </tr> </tbody> </table>	Sheet 1	COVER SHEET	Sheet 2	SITE PLAN	Sheet 3	THREE LINE DIAGRAM	Sheet 4	ELECTRICAL LOAD CALCULATIONS	Sheet 5	SITE PLAN PLACARD	Cutsheets Attached		REV	BY	DATE	COMMENTS	REV A	NAME	DATE	COMMENTS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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JOB NUMBER: JB-275816 00

MOUNTING SYSTEM: TESLA SOLAR ROOF

MODULES: (163) Tesla # SR60T1

INVERTER: (1) 7.6 kW Tesla Inc 1538000-00-C (240V)

CUSTOMER: Kalim Hasan
77 Heatherwood Dr
Lillington, NC 27546

9109850182

DESCRIPTION: 9.53061 KW PV ARRAY

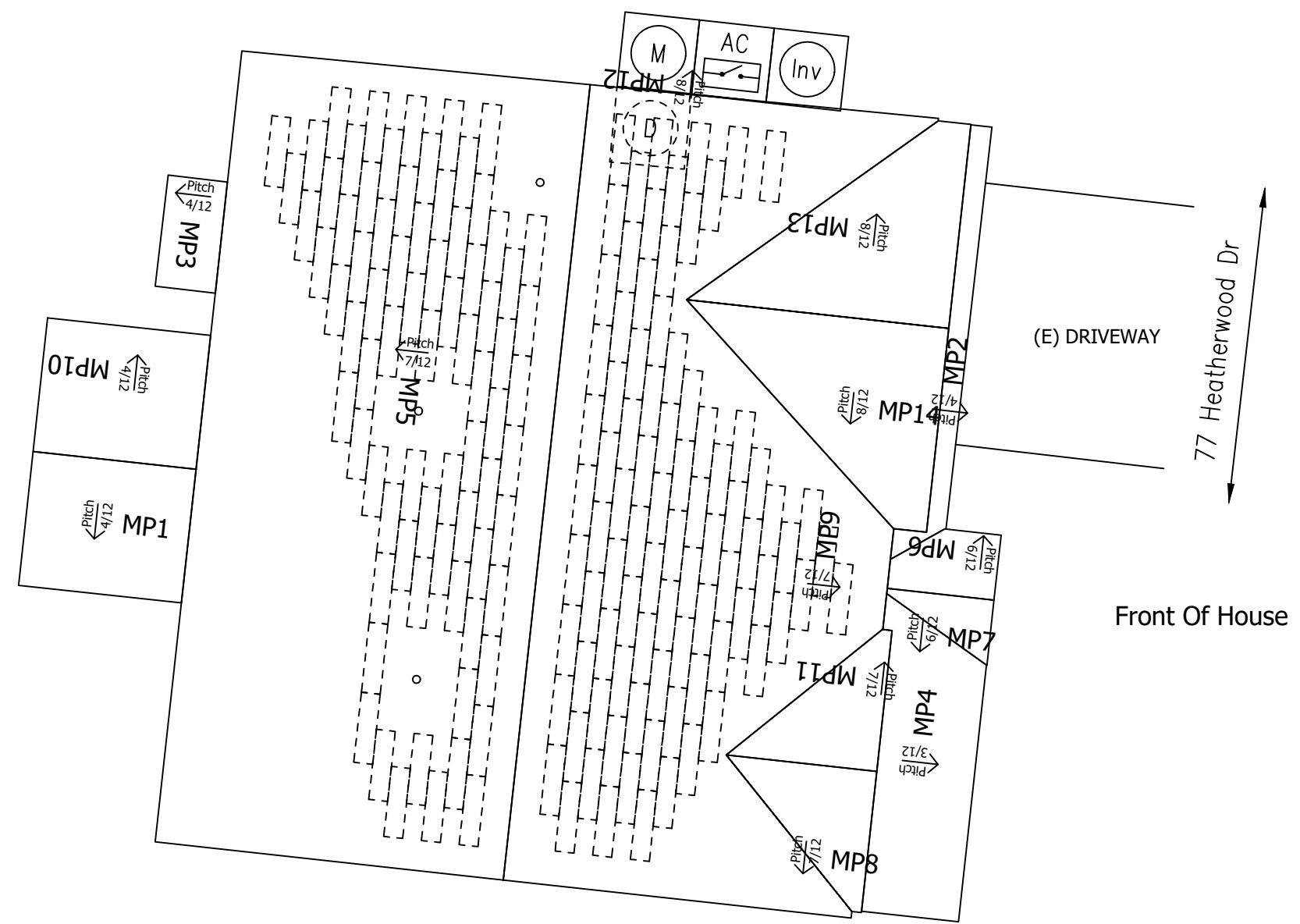
PAGE NAME: COVER SHEET

DESIGN: Mike Haugan
















SHEET: 1 REV: DATE: 9/2/2021



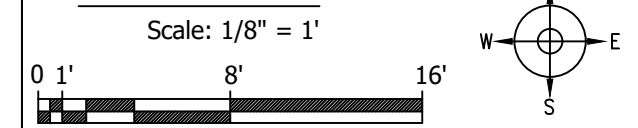
MP9	PITCH: 30° (7:12) ARRAY PITCH: 30° (7:12) AZIMUTH: 96 ARRAY AZIMUTH: 96 MATERIAL: Solar Roof STORY: Two
MP5	PITCH: 30° (7:12) ARRAY PITCH: 30° (7:12) AZIMUTH: 276 ARRAY AZIMUTH: 276 MATERIAL: Solar Roof STORY: Two



LEGEND

-  (E) UTILITY METER & WARNING LABEL
-  INVERTER W/ INTEGRATED DC DISCO & WARNING LABELS
-  DC DISCONNECT & WARNING LABELS
-  AC DISCONNECT & WARNING LABELS
-  DC JUNCTION/COMBINER BOX & LABELS
-  DISTRIBUTION PANEL & LABELS
-  LOAD CENTER & WARNING LABELS
-  DEDICATED PV SYSTEM METER
-  RAPID SHUTDOWN
-  STANDOFF LOCATIONS
-  CONDUIT RUN ON EXTERIOR
-  CONDUIT RUN ON INTERIOR
-  GATE/FENCE
-  HEAT PRODUCING VENTS ARE RED
-  INTERIOR EQUIPMENT IS DASHED

SITE PLAN



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JOB NUMBER:	JB-275816 00
MOUNTING SYSTEM:	TESLA SOLAR ROOF
MODULES:	(163) Tesla # SR60T1
INVERTER:	(1) 7.6 kW Tesla Inc 1538000-00-C (240V)

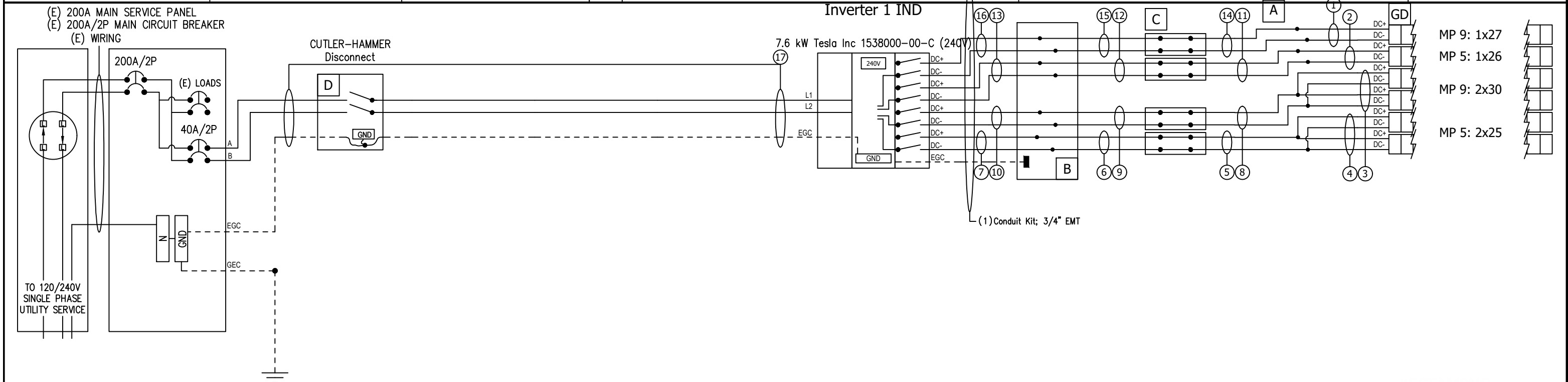
CUSTOMER:	Kalim Hasan 77 Heatherwood Dr Lillington, NC 27546
	9109850182

DESCRIPTION:	9.53061 KW PV ARRAY
PAGE NAME:	SITE PLAN

DESIGN:	Mike Haugan
SHEET:	2
REV:	
DATE:	9/2/2021



GROUND SPECS	MAIN PANEL SPECS	GENERAL NOTES	INVERTER SPECS	MODULE SPECS	LICENSE
BOND (N) #6 GEC TO (E) GROUND ROD AT PANEL WITH IRREVERSIBLE CRIMP	Panel Number: NoLabel Meter Number: Underground Service Entrance	Inv 1: DC Ungrounded	INV 1 - (1) 7.6 kW Tesla Inc 1538000-00-C (240V) INV 2 INV 3	(163) Tesla # SR60T1 Solar Roof PV Module; 58.47W, 52.11W PTC, Textured Voc: 13.34 Vpmax: 10.99 Isc AND Imp ARE SHOWN IN THE DC STRINGS IDENTIFIER	



TO 120/240V SINGLE PHASE UTILITY SERVICE	(E) 200A MAIN SERVICE PANEL (E) 200A/2P MAIN CIRCUIT BREAKER (E) WIRING	(E) LOADS 40A/2P	CUTLER-HAMMER Disconnect	7.6 kW Tesla Inc 1538000-00-C (240V)	Inverter 1 IND	(1) Conduit Kit; 3/4" EMT	MP 9: 1x27 MP 5: 1x26 MP 9: 2x30 MP 5: 2x25											
				<table border="0"> <tr> <td>B</td> <td>(4) Junction Box, Metal; 6"x6"x4", Box w/ cover; Nema 3R</td> </tr> <tr> <td>C</td> <td>(4) 1145820-00-A PASS THROUGH BOX, TWO STRING</td> </tr> <tr> <td>GD</td> <td>Please see MCI wiring detail page for more information</td> </tr> <tr> <td>A</td> <td>(2) MULTI-CONTACT PV-AZB4 32.0018; Branch Socket; MC4 U-Joint Connector, Female (2) MULTI-CONTACT PV-AZS4 32.0019; Branch Plug; MC4 U-Joint Connector, Male</td> </tr> <tr> <td>PV</td> <td>(18) 1550379-00-D MCI, TESLA, 600V, 13A</td> </tr> </table>		B	(4) Junction Box, Metal; 6"x6"x4", Box w/ cover; Nema 3R	C	(4) 1145820-00-A PASS THROUGH BOX, TWO STRING	GD	Please see MCI wiring detail page for more information	A	(2) MULTI-CONTACT PV-AZB4 32.0018; Branch Socket; MC4 U-Joint Connector, Female (2) MULTI-CONTACT PV-AZS4 32.0019; Branch Plug; MC4 U-Joint Connector, Male	PV	(18) 1550379-00-D MCI, TESLA, 600V, 13A			
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Voc* = MAX VOC AT MIN TEMP				<table border="0"> <tr> <td>8</td> <td>(2) PV Wire, AWG 10, Black</td> <td>Voc* = 450.61 VDC</td> <td>Isc = 11.3 ADC</td> <td>Vmp = 329.7 VDC</td> <td>Imp = 10.64 ADC</td> </tr> <tr> <td>9</td> <td>(2) PV Wire, AWG 10, Black (1) Conduit; 3/4" LFMC</td> <td>Voc* = 450.61 VDC</td> <td>Isc = 11.3 ADC</td> <td>Vmp = 329.7 VDC</td> <td>Imp = 10.64 ADC</td> </tr> </table>		8	(2) PV Wire, AWG 10, Black	Voc* = 450.61 VDC	Isc = 11.3 ADC	Vmp = 329.7 VDC	Imp = 10.64 ADC	9	(2) PV Wire, AWG 10, Black (1) Conduit; 3/4" LFMC	Voc* = 450.61 VDC	Isc = 11.3 ADC	Vmp = 329.7 VDC	Imp = 10.64 ADC	
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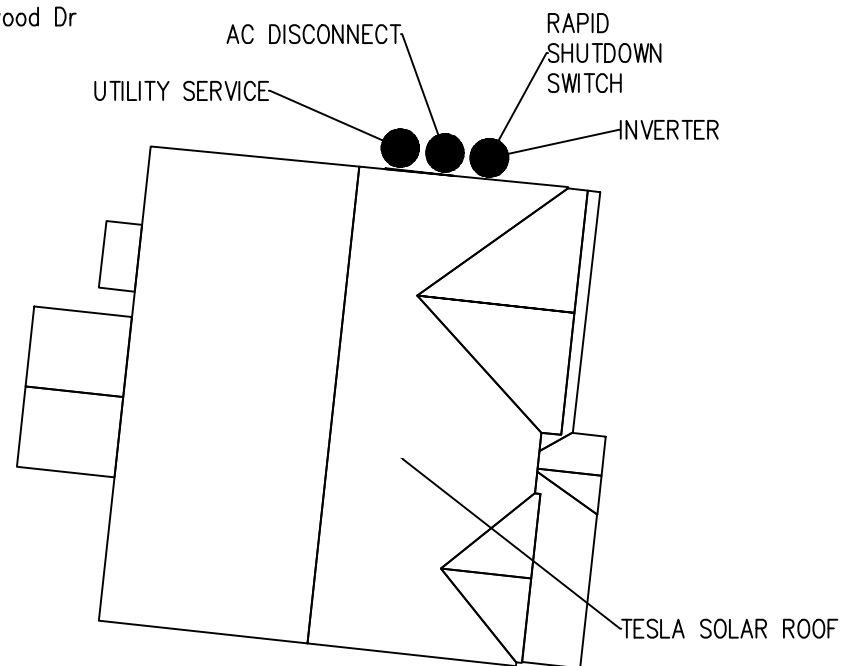
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				13	(1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, White (1) AWG #10, THWN-2, Green EGC (2) PV Wire, AWG 10, Black	Voc* = 390.53 VDC Vmp = 285.74 VDC	Isc = 5.65 ADC Imp = 5.32 ADC	4	(4) PV Wire, AWG 10, Black	Voc* = 375.51 VDC Vmp = 274.75 VDC	Isc = 5.65 ADC Imp = 5.32 ADC																																																																										
				14	(2) PV Wire, AWG 10, Black (1) Conduit; 3/4" LFMC	Voc* = 405.55 VDC Vmp = 296.73 VDC	Isc = 5.65 ADC Imp = 5.32 ADC	5	(2) PV Wire, AWG 10, Black (1) Conduit; 3/4" LFMC	Voc* = 375.51 VDC Vmp = 274.75 VDC	Isc = 11.3 ADC Imp = 10.64 ADC																																																																										
				15	(2) PV Wire, AWG 10, Black (1) Conduit; 3/4" LFMC	Voc* = 405.55 VDC Vmp = 296.73 VDC	Isc = 5.65 ADC Imp = 5.32 ADC	6	(2) PV Wire, AWG 10, Black (1) Conduit; 3/4" LFMC	Voc* = 375.51 VDC Vmp = 274.75 VDC	Isc = 11.3 ADC Imp = 10.64 ADC																																																																										
				16	(1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, White (1) AWG #10, THWN-2, Green EGC (1) Conduit Kit; 3/4" EMT	Voc* = 405.55 VDC Vmp = 296.73 VDC	Isc = 5.65 ADC Imp = 5.32 ADC	7	(1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, White (1) AWG #10, THWN-2, Green EGC (1) Conduit Kit; 3/4" EMT	Voc* = 375.51 VDC Vmp = 274.75 VDC	Isc = 11.3 ADC Imp = 10.64 ADC																																																																										

CONFIDENTIAL - THE INFORMATION HEREIN CONTAINED SHALL NOT BE USED FOR THE BENEFIT OF ANYONE EXCEPT TESLA INC., NOR SHALL IT BE DISCLOSED IN WHOLE OR IN PART TO OTHERS OUTSIDE THE RECIPIENT'S ORGANIZATION, EXCEPT IN CONNECTION WITH THE SALE AND USE OF THE RESPECTIVE TESLA EQUIPMENT, WITHOUT THE WRITTEN PERMISSION OF TESLA INC.	JOB NUMBER: JB-275816 00	CUSTOMER: Kalim Hasan 77 Heatherwood Dr Lillington, NC 27546	DESCRIPTION: 9.53061 KW PV ARRAY	DESIGN: Mike Haugan		
	MOUNTING SYSTEM: TESLA SOLAR ROOF					
	MODULES: (163) Tesla # SR60T1					
	INVERTER: (1) 7.6 kW Tesla Inc 1538000-00-C (240V)	9109850182	PAGE NAME: THREE LINE DIAGRAM	SHEET: 3 REV: 9/2/2021 DATE:		

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

Address: 77 Heatherwood Dr



OPERATING VOLTAGE = 240

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BENEFIT OF ANYONE EXCEPT TESLA INC., NOR
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PART TO OTHERS OUTSIDE THE RECIPIENT'S
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THE SALE AND USE OF THE RESPECTIVE
TESLA EQUIPMENT, WITHOUT THE WRITTEN
PERMISSION OF TESLA INC.

JOB NUMBER: JB-275816 00

MOUNTING SYSTEM:
TESLA SOLAR ROOF

MODULES:
(163) Tesla # SR60T1

INVERTER:
(1) 7.6 kW Tesla Inc 1538000-00-C (240V)

CUSTOMER:
Kalim Hasan
77 Heatherwood Dr
Lillington, NC 27546

9109850182

DESCRIPTION:
9.53061 KW PV ARRAY

PAGE NAME:
SITE PLAN PLACARD

DESIGN:
Mike Haugan

SHEET: 5 REV: DATE:
9/2/2021

TESLA

WARNING: PHOTOVOLTAIC POWER SOURCE

Label Location:
(C)(CB)(JB)
Per Code:
NEC 690.31.G.3

⚠ WARNING

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

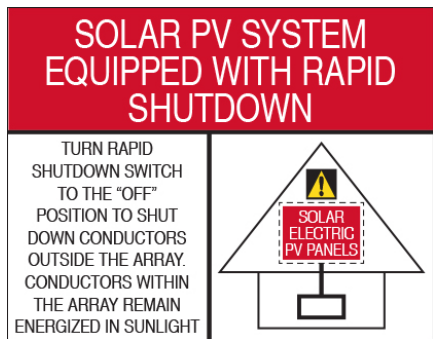
Label Location:
(MP)
Per Code:
NEC 705.12.B.2.3.C

**DC PHOTOVOLTAIC
DISCONNECT**

Label Location:
(DC)(INV)
Per Code:
NEC 690.13.B

MAXIMUM POWER-
POINT CURRENT (Imp) A
MAXIMUM POWER-
POINT VOLTAGE (Vmp) V
MAXIMUM SYSTEM
VOLTAGE (Voc) V
SHORT-CIRCUIT
CURRENT (Isc) A

Label Location:
(DC) (INV)
Per Code:
NEC 690.53



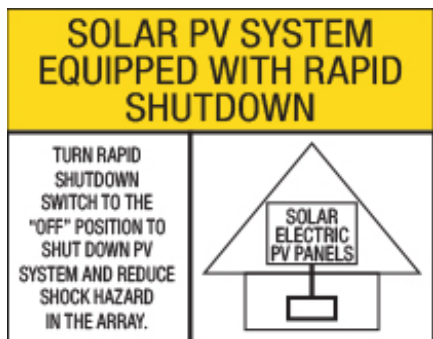
Label Location:
ABB/Delta Solivia Inverter
Per Code:
690.56(C)(1)(b)

**AC PHOTOVOLTAIC
DISCONNECT**

Label Location:
(AC)(POI)
Per Code:
NEC 690.13.B

MAXIMUM AC
OPERATING CURRENT A
MAXIMUM AC
OPERATING VOLTAGE V

Label Location:
(AC) (POI)
Per Code:
NEC 690.54



Label Location:
SolarEdge and,Delta M-Series and,Telsa Inverter
Per Code:
690.56(C)(1)(a)

⚠ WARNING

ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE
AND LOAD SIDES MAY BE
ENERGIZED IN THE OFF POSITION

Label Location:
(AC)(POI)
Per Code:
690.13.B

⚠ WARNING

INVERTER OUTPUT
CONNECTION
DO NOT RELOCATE
THIS OVERCURRENT
DEVICE

Label Location:
(POI)
Per Code:
NEC 705.12.B.2.3.B

(AC): AC Disconnect
(C): Conduit
(CB): Combiner Box
(D): Distribution Panel
(DC): DC Disconnect
(IC): Interior Run Conduit
(INV): Inverter With Integrated DC Disconnect
(LC): Load Center
(M): Utility Meter
(POI): Point of Interconnection

MCI WIRING DETAIL

GENERAL NOTES

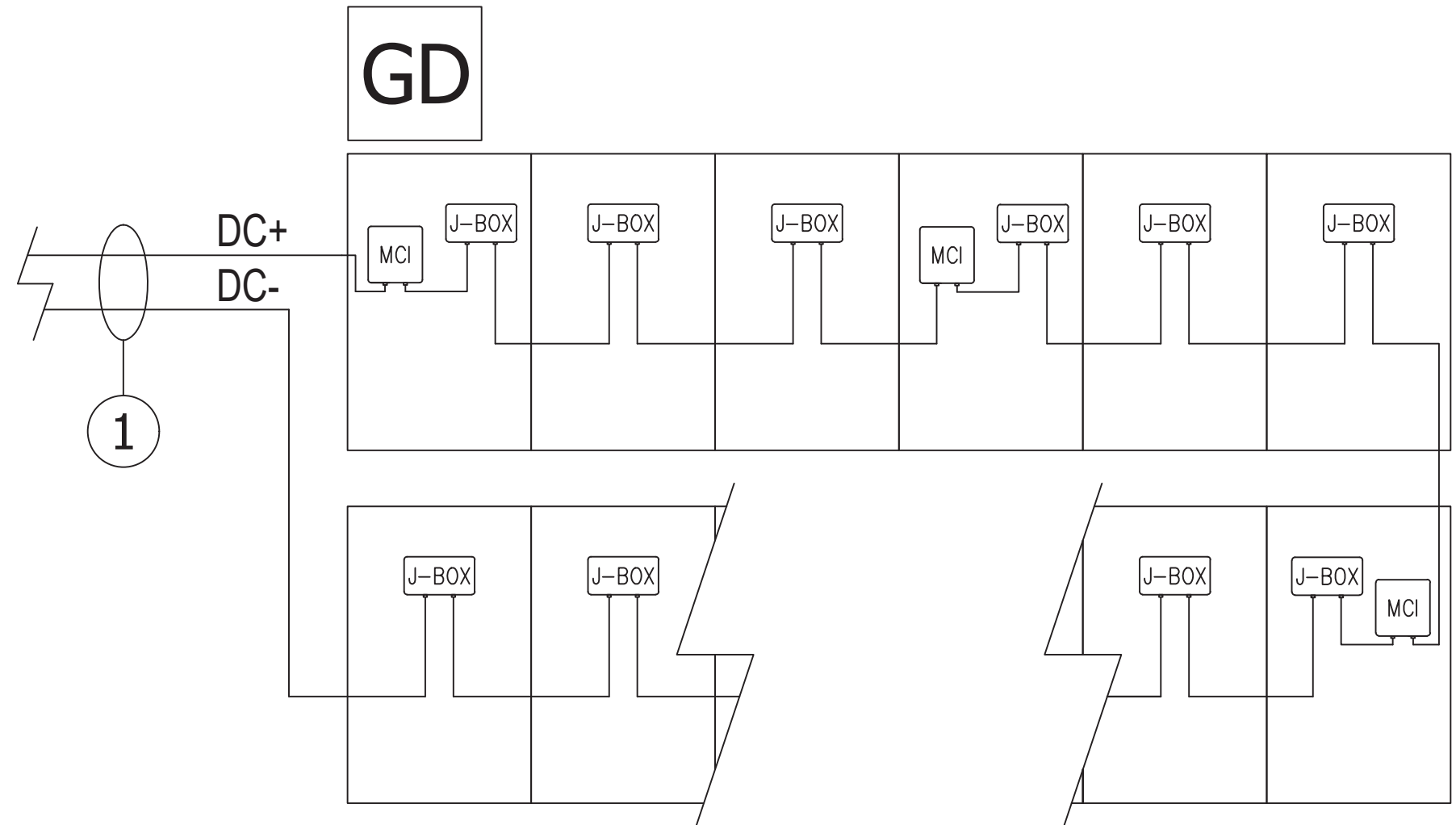
- DRAWING OF STANDARD MCI WIRING DETAIL FOR ANY GIVEN STRING LENGTH
- IF INITIATED, RAPID SHUTDOWN OCCURS WITHIN 30 SECONDS OF ACTIVATION AND LIMITS VOLTAGE ON THE ROOF TO NO GREATER THAN 165V (690.12.B.2.1)
- MID CIRCUIT INTERRUPTER (MCI) IS A UL 1741 PVRSE CERTIFIED RAPID SHUTDOWN DEVICE (RSD)

RETROFIT PV MODULES

- MCIS ARE LOCATED AT ROOF LEVEL, JUST UNDER THE PV MODULES IN ACCORDANCE WITH 690.12 REQUIREMENTS
- THE QUANTITY OF MCIS PER STRING IS DETERMINED BY STRING LENGTH
 - NUMBER OF MODULES BETWEEN MCI UNITS = 0-3
 - MAXIMUM NUMBER OF MODULES PER MCI UNIT = 3
 - MINIMUM NUMBER MCI UNITS = MODULE COUNT/3

*Exception: Tesla (Longi) modules installed in locations where the max Voc for 3 modules at low design temperature exceeds 165V shall be limited to 2 modules between MCIs.

PLEASE REFER TO MCI CUTSHEET AND PVRSA INSERT FOR MORE INFORMATION



① (2)AWG, PV Wire, 600V, Black

DC

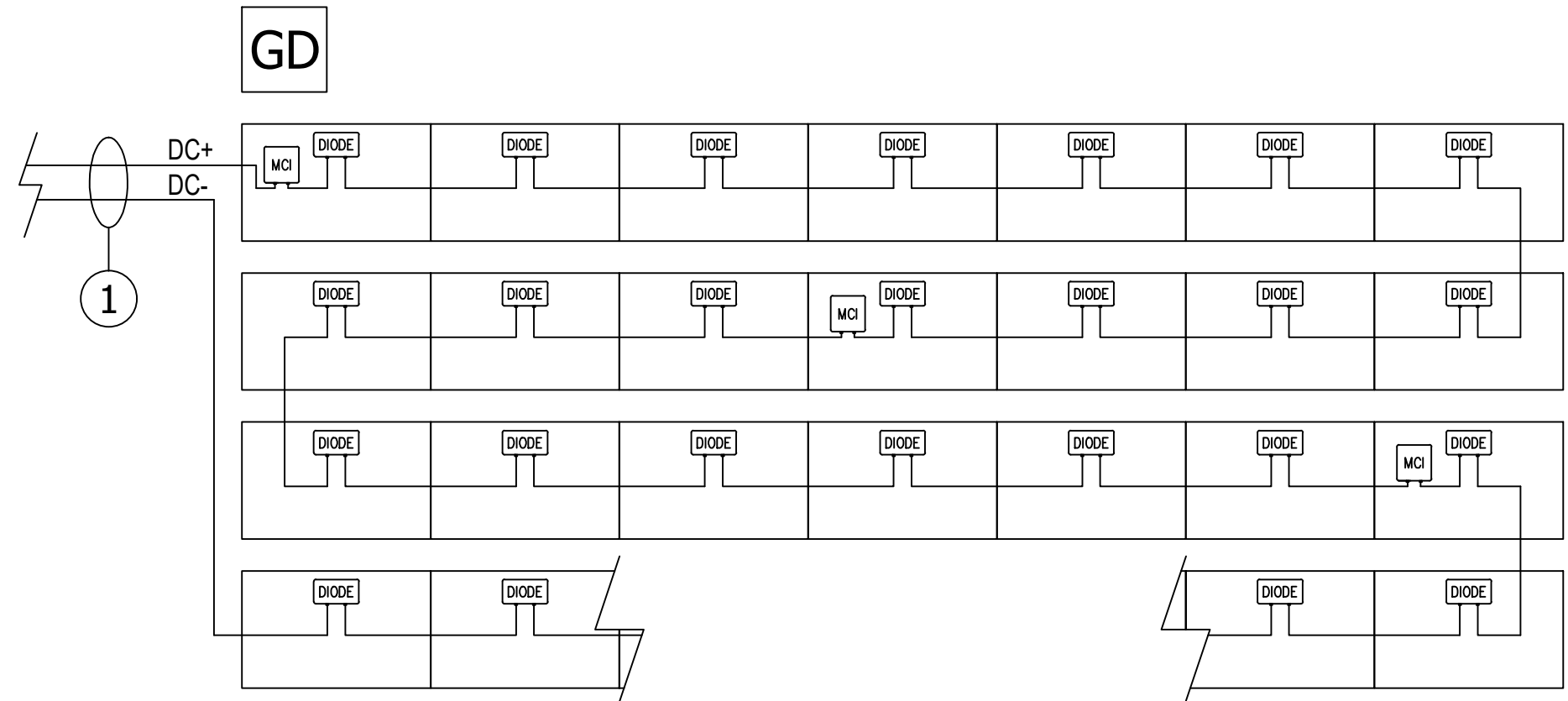
MCI WIRING DETAIL

GENERAL NOTES

- DRAWING OF STANDARD MCI WIRING DETAIL FOR ANY GIVEN STRING LENGTH
- IF INITIATED, RAPID SHUTDOWN OCCURS WITHIN 30 SECONDS OF ACTIVATION AND LIMITS VOLTAGE ON THE ROOF TO NO GREATER THAN 165V (690.12.B.2.1)
- MID CIRCUIT INTERRUPTER (MCI) IS A UL 1741 PVRSE CERTIFIED RAPID SHUTDOWN DEVICE (RSD)

SOLAR ROOF TILES

- MCIS ARE LOCATED AT DECK LEVEL, JUST UNDER THE TILES IN ACCORDANCE WITH 690.12 REQUIREMENTS
- THE QUANTITY OF MCIS PER STRING IS DETERMINED BY STRING LENGTH
 - NUMBER OF TILES BETWEEN MCI UNITS = 0-10
 - MAXIMUM NUMBER OF TILES PER MCI UNIT = 10
 - MINIMUM NUMBER MCI UNITS = TILE COUNT/10



PLEASE REFER TO MCI CUTSHEET AND PVRSA INSERT FOR MORE INFORMATION

① (2) AWG, PV Wire, 600V, Black

DC



TESLA

SOLAR INVERTER

3.8 kW | 7.6 kW

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 2 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
- 3.8 kW and 7.6 kW models available

SOLAR INVERTER

Tesla Solar Inverter provides DC to AC conversion and integrates with the Tesla ecosystem, including Solar Panels, Solar Roof, Powerwall, and vehicle charging, to provide a seamless sustainable energy experience.

KEY FEATURES

- Integrated rapid shutdown, arc fault, and ground fault protection
- No neutral wire simplifies installation
- 2x the standard number of MPPTs for high production on complex roofs



ELECTRICAL SPECIFICATIONS

MODEL NUMBER	1534000-xx-y	1538000-xx-y
OUTPUT (AC)	3.8 kW	7.6 kW
Nominal Power	3,800 W	7,600 W
Maximum Apparent Power	3,328 VA at 208 V 3,840 VA at 240 V	6,656 VA at 208 V 7,680 VA at 240 V
Maximum Continuous Current	16 A	32 A
Breaker (Overcurrent Protection)	20 A	40 A
Nominal Power Factor	1 - 0.9 (leading / lagging)	
THD (at Nominal Power)	<5%	
INPUT (DC)		
MPPT	2	4
Input Connectors per MPPT	1-2	1-2-1-2
Maximum Input Voltage	600 VDC	
DC Input Voltage Range	60 - 550 VDC	
DC MPPT Voltage Range	60 - 480 VDC ¹	
Maximum Current per MPPT (I _{mp})	13 A	
Maximum Short Circuit Current per MPPT (I _{sc})	15 A	

PERFORMANCE SPECIFICATIONS

Peak Efficiency	98% at 208 V 98.1% at 240 V	98.4% at 208 V 98.6% at 240 V
CEC Efficiency	97.5% at 208 V 97.5% at 240 V	97.5% at 208 V 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) ²	
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 60 Hz, 208 V Wye	

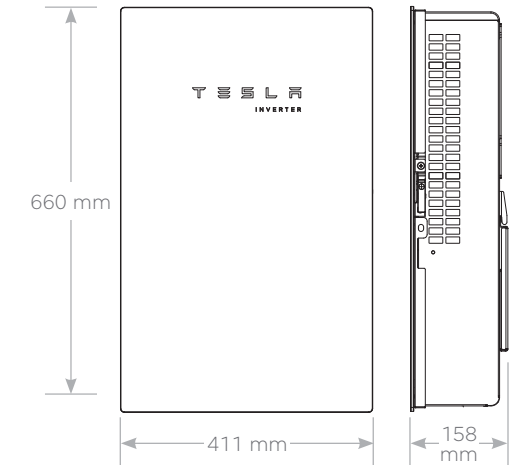
¹ Maximum current.

² Cellular connectivity subject to network operator service coverage and signal strength.

MECHANICAL SPECIFICATIONS

Dimensions	660 mm x 411 mm x 158 mm (26 in x 16 in x 6 in)
Weight	52 lb ³
Mounting options	Wall mount (bracket)

³ 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) ⁴
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

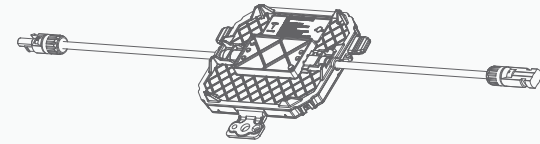
⁴ For the 7.6 kW Solar Inverter, performance may be de-rated to 6.2 kW at 240 V or 5.37 kW at 208 V when operating at temperatures greater than 45°C.

COMPLIANCE INFORMATION

Grid Certifications	UL 1741, UL 1741 SA, IEEE 1547, 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

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



ELECTRICAL SPECIFICATIONS

Nominal Input DC Current Rating (I_{MP})	12 A
Maximum Input Short Circuit Current (I_{SC})	15 A
Maximum System Voltage	600 V DC

RSD MODULE PERFORMANCE

Maximum Number of Devices per String	5
Control	Power Line Excitation
Passive State	Normally open
Maximum Power Consumption	7 W
Warranty	25 years

COMPLIANCE INFORMATION

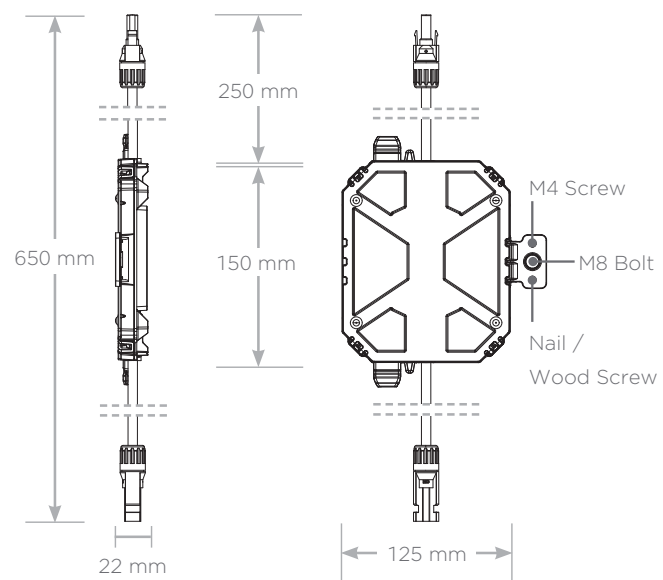
Certifications	UL 1741 PVRSE, UL 3741, PVRSA (Photovoltaic Rapid Shutdown Array)
RSD Initiation Method	PV System AC Breaker or Switch
Compatible Equipment	See <i>Compatibility Table</i> below

ENVIRONMENTAL SPECIFICATIONS

Ambient Temperature	-40°C to 50°C (-40°F to 122°F)
Storage Temperature	-30°C to 70°C (-22°F to 158°F)
Enclosure Rating	NEMA 4 / IP65

MECHANICAL SPECIFICATIONS

Electrical Connections	MC4 Connector
Housing	Plastic
Dimensions	125 mm x 150 mm x 22 mm (5 in x 6 in x 1 in)
Weight	350 g (0.77 lb)
Mounting Options	ZEP Home Run Clip M4 Screw (#10) M8 Bolt (5/16") Nail / Wood screw



UL 3741 PV HAZARD CONTROL (AND PVRSA) COMPATIBILITY

Tesla Solar Roof and Tesla/Zep ZS Arrays using the following modules are certified to UL 3741 and UL 1741 PVRSA when installed with the Tesla Solar Inverter and Solar Shutdown Devices. See the Tesla Solar Inverter Installation Manual for detailed instructions and for guidance on installing Tesla Solar Inverter and Solar Shutdown Devices with other modules.

Brand	Model	Required Solar Shutdown Devices
Tesla	Solar Roof V3	1 Solar Shutdown Device per 10 modules
Tesla	Tesla TxxxS (where xxx = 405 to 450 W, increments of 5)	1 Solar Shutdown Device per 3 modules ¹
Hanwha	Q.PEAK DUO BLK-G5	1 Solar Shutdown Device per 3 modules
Hanwha	Q.PEAK DUO BLK-G6+	1 Solar Shutdown Device per 3 modules

¹**Exception:** Tesla solar modules installed in locations where the max Voc for three modules at low design temperatures exceeds 165 V shall be limited to two modules between MCIs.

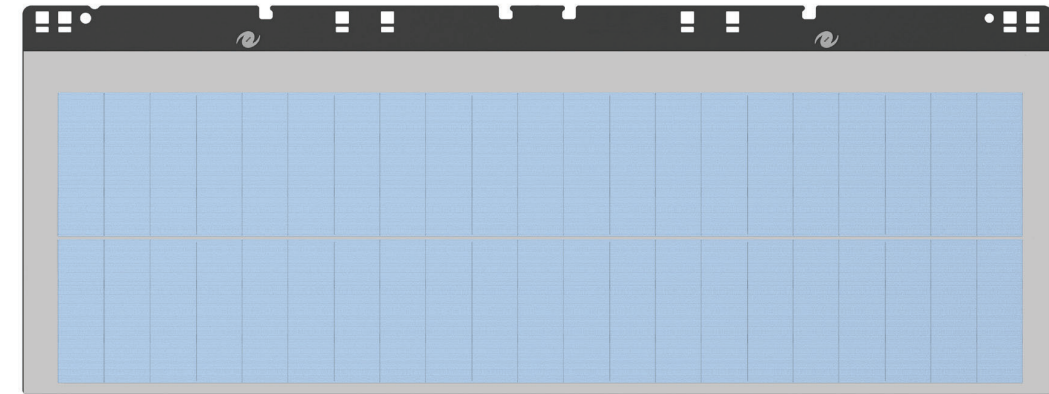
SOLAR ROOF DATASHEET

FOR FULL TEAR-OFF AND OVERLAY INSTALLATIONS



14-CELL PV MODULE

MODEL #: SR60T1



ELECTRICAL SPECIFICATIONS

Maximum open circuit voltage rating of connected branch circuits per diode (at STC): 13.34 V

Maximum series fuse rating: 10 A

Maximum system voltage: 600 V

Irradiance (W/m ²)	Temp. (Celsius)	Voc (V)	Vmp (V)	Isc (A)	Imp (A)	Pmax (W)
1000	25	13.34	10.99	5.65	5.32	58.47

These electrical characteristics are within $\pm 5\%$ of the indicated values of Isc, Voc, and Pmax under standard test conditions (irradiance of 1000 W/m², AM 1.5 spectrum, and a cell temperature of 25 °C or 77 °F).

MECHANICAL SPECIFICATIONS

Dimensions: 430 mm x 1140 mm

Thickness: Appx. 5 mm module thickness with 35.3 mm maximum height from deck

Principal Materials: Glass, Polymers, Fiberglass and Silicon

Installed System Weight: Textured Glass: 15 kg/m² or 3.1 psf

(Installed weight includes all components of system above roof sheathing or existing roof covering)

ROOF PITCH RANGE

2:12 - 24:12

Certain features can be installed up to 62:12

CERTIFICATIONS

UL 61730 (UL Listed); UL 9703 (UL Listed); UL 1741 (UL Listed)

UL 790 Class A (ETL Listed); ASTM D3161 Class F (ETL Listed); TAS100 (ETL Listed)

SHEATHING SPECIFICATIONS

Solar Roof will be installed over bare solid or closely fitted sheathing, as follows:

- DOC PS-1 compliant / exterior grade plywood: minimum 15/32" (11.9 mm) thick or
- DOC POS-2 OSB sheathing: minimum 7/16" thick (11.1 mm) or
- Closely-fitted sheathing boards: minimum of 3/4" (19.1 mm) thick

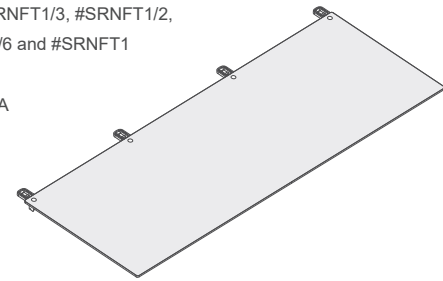
Solar Roof can also be installed over compatible existing roofs, as follows:

- Three-tab composition shingle, single layer
- Architectural composition shingle, single layer

Solar Roof will not be installed over raised presidential-style composition shingle, roofs with more than one layer of composition shingle, or existing non-composition shingle roof types like tiled roofs.

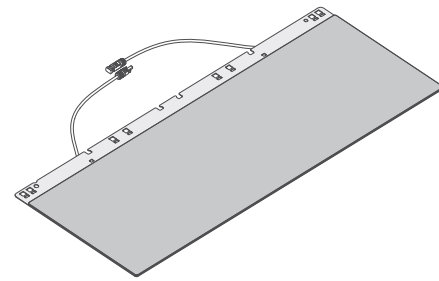
ROOFING MODULES, FULL AND PARTIAL

Model #SRNFT1/6, #SRNFT1/3, #SRNFT1/2,
#SRNFT2/3, #SRNFT5/6 and #SRNFT1
Listed to UL 61730
Listed to UL 790 Class A
ASTM D3161 Class F
TAS100



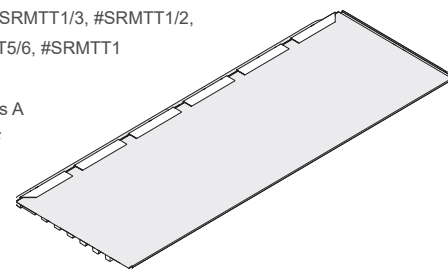
PV MODULE

Model #SR60T1
Listed to UL 61730
UL 790 Class A
ASTM D3161 Class F
TAS100



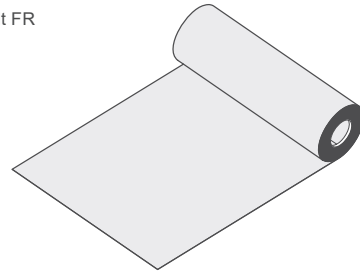
METAL TILES, FULL AND PARTIAL

Model #SRMTT1/6, #SRMTT1/3, #SRMTT1/2,
#SRMTT2/3, #SRMTT5/6, #SRMTT1
Listed to UL 1897
Listed to UL 790 Class A
ASTM D3161 Class F
TAS100



UNDERLAYMENT

Model #SR-SAUL-1 or FT Cobalt FR
ASTM D1970/ICC AC48
ICC AC188
ASTM E108 Class -A



DIODE HARNESS

Model #SRDTH
UL 9703
Listed (ZKLA) "PV Wire"
Short and long lead variants
interchangeable



PASS THROUGH BOX

Model #SRPTB-4
UL 1741, File #E318357

