ABBREVIATIONS

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, RAINTIGHT

ELECTRICAL NOTES

1. THIS SYSTEM IS GRID-INTERTIED VIA A UL-LISTED POWER-CONDITIONING INVERTER.
2. A NATIONALLY - RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH ART. 110.3.
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.
4. EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRE BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART. 210.5.
5. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH ART. 250.97, 250.92(B).
6. 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).
7. ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY UL LISTING.
8. MODULE FRAMES SHALL BE GROUNDED AT THE UL - LISTED LOCATION PROVIDED BY THE MANUFACTURER USING UL LISTED GROUNDING HARDWARE.
9. MODULE FRAMES, RAIL, AND POSTS SHALL BE BONDED WITH EQUIPMENT GROUND CONDUCTORS.

JURISDICTION NOTES

ALL WORK TO COMPLY WITH SECTION R327 OF THE 2020 RESIDENTIAL CODE OF NYS.

LICENSE

MODULE GROUNDING METHOD: ZEP SOLAR

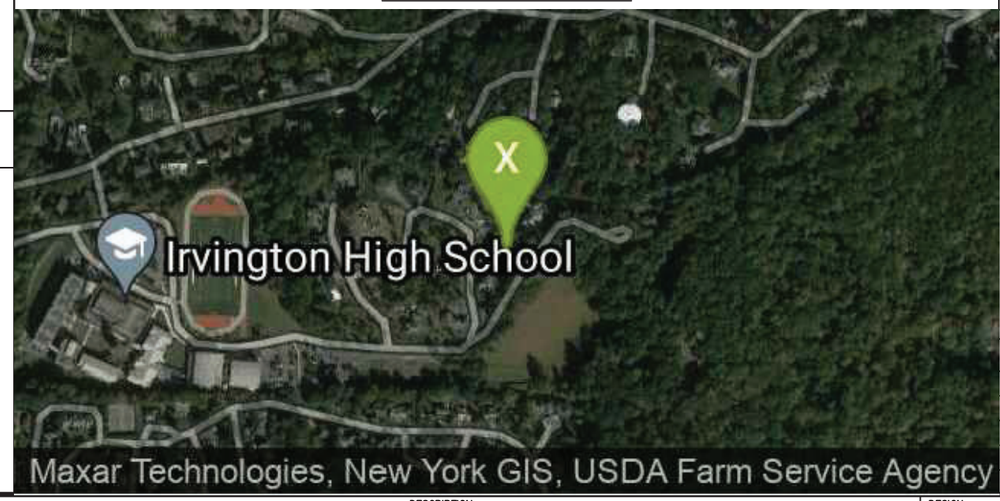
AHJ: Irvington Village

UTILITY: Consolidated Edison

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE 2020 NYS UNIFORM CODE.
2. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2017 NATIONAL ELECTRIC CODE.
3. ALL WORK SHALL COMPLY WITH THE 2020 NYS FIRE CODE.
4. ALL WORK SHALL COMPLY WITH THE 2020 BUILDING CODE OF NYS.
5. ALL WORK SHALL COMPLY WITH THE 2020 RESIDENTIAL CODE OF NYS.
6. ALL WORK SHALL COMPLY WITH THE 2020 EXISTING BUILDING CODE OF NYS.

VICINITY MAP



INDEX

REV BY DATE COMMENTS

REV	NAME	DATE	COMMENTS
REV A	NAME	DATE	COMMENTS
REV B	DG	6/15/2022	ADDED PV RENDERINGS
REV C	UAI	12/5/2022	PWs relocated to the same wall with utility meter
*	*	*	*
*	*	*	*

JOB NUMBER: JB-1055036 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing-Insert

MODULES: (40) Tesla # T425S

INVERTER: Multiple Inverters

CUSTOMER:
Eric Siegel
29 Dearman Cl Pd
Irvington, NY 10533

9178479553

DESCRIPTION:
17 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME: COVER SHEET

DESIGN: Usman Ali Iftikhar

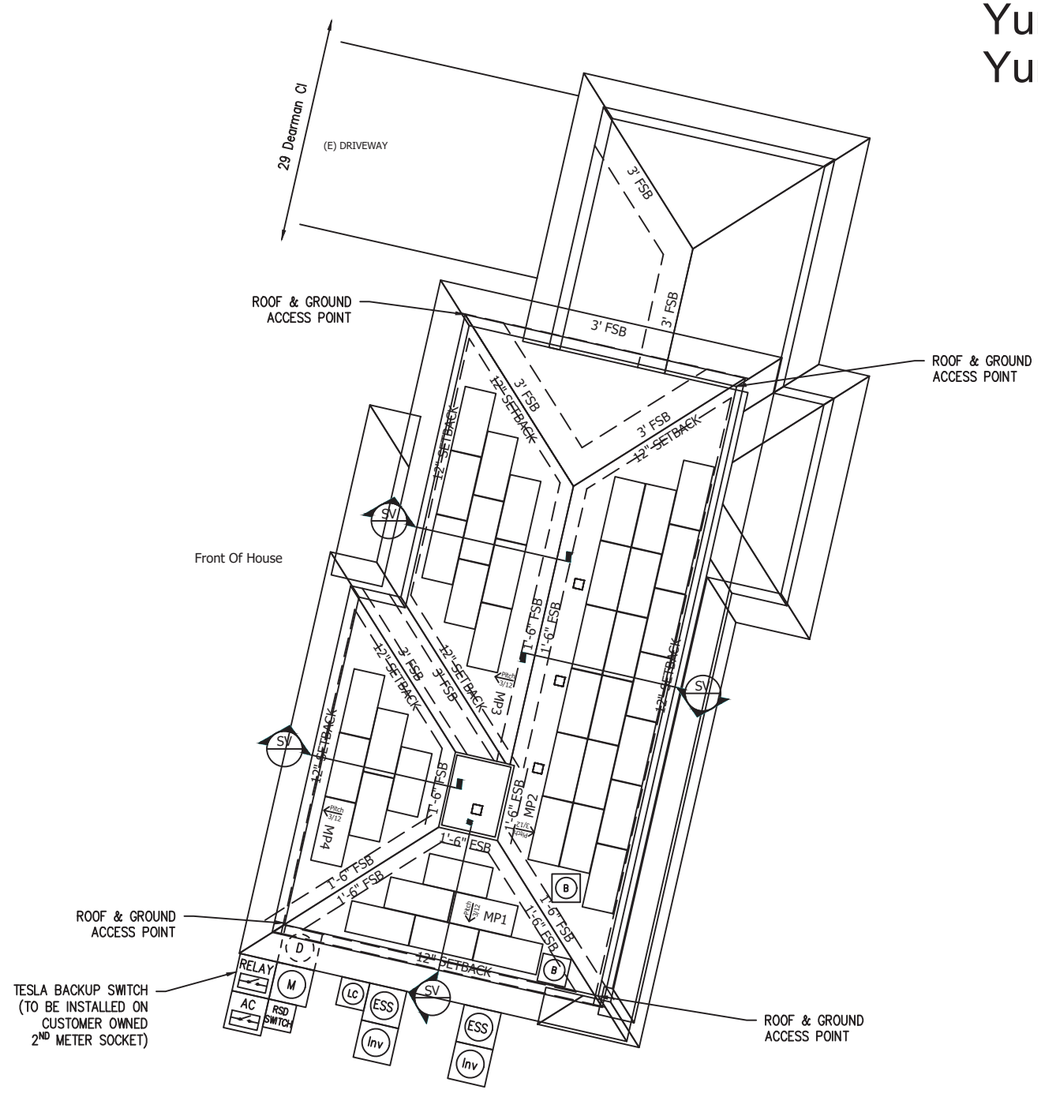
SHEET: 1 REV: C DATE: 12/5/2022

TESLA

PV CIRCUIT BREAKER OR SWITCH MUST BE LABELED '89L' OR 'GENERATOR DISCONNECT SWITCH'

ESS UNITS WILL BE 3FT. FROM FROM ALL WINDOWS AND DOORS.

ESS UNITS WILL BE 10FT. FROM EACH OTHER PER UL9540A TESTING DOCUMENTATION.



Yurianto Yurianto

Digitally signed by Yurianto Yurianto
DN: cn=Yurianto Yurianto c=US o=Unaffiliated ou=A01410D00[illegible]176B0 7CBF250000A7[illegible]
Reason: I am the author of this document
Location:
Date: 2022-12-06 20:10-06:00

NY

STATE OF NEW YORK
YURIANTO YURIANTO
101980
LICENSED PROFESSIONAL ENGINEER

By Yuri at 8:10:22 PM, 12/6/2022

MP1	PITCH: 14° (3:12) ARRAY PITCH: 14° (3:12) AZIMUTH: 193 ARRAY AZIMUTH: 193 MATERIAL: Comp Shingle STORY: 2 Stories
MP2	PITCH: 14° (3:12) ARRAY PITCH: 14° (3:12) AZIMUTH: 103 ARRAY AZIMUTH: 103 MATERIAL: Comp Shingle STORY: 2 Stories
MP3	PITCH: 14° (3:12) ARRAY PITCH: 14° (3:12) AZIMUTH: 283 ARRAY AZIMUTH: 283 MATERIAL: Comp Shingle STORY: 2 Stories
MP4	PITCH: 14° (3:12) ARRAY PITCH: 14° (3:12) AZIMUTH: 283 ARRAY AZIMUTH: 283 MATERIAL: Comp Shingle STORY: 2 Stories

LEGEND

- (M) (E) UTILITY METER & WARNING LABEL
- (Inv) INVERTER W/ INTEGRATED DC DISCO & WARNING LABELS
- (RELAY) AUTOMATIC RELAY
- (DC) DC DISCONNECT & WARNING LABELS
- (AC) AC DISCONNECT & WARNING LABELS
- (B) DC JUNCTION/COMBINER BOX & LABELS
- (ESS) ENERGY STORAGE SYSTEM FOR STAND ALONE OPERATION
- (D) DISTRIBUTION PANEL & LABELS
- (LC) LOAD CENTER & WARNING LABELS
- (M) DEDICATED PV SYSTEM METER
- (RSD) RAPID SHUTDOWN
- STANDOFF LOCATIONS
- CONDUIT RUN ON EXTERIOR
- CONDUIT RUN ON INTERIOR
- GATE/FENCE
- HEAT PRODUCING VENTS ARE RED
- INTERIOR EQUIPMENT IS DASHED

TOTAL ARRAY AREA (SF): 953
TOTAL ROOF AREA (SF): 5053

TOTAL ARRAY AREA IS ≈ 18.86 PERCENT OF TOTAL ROOF AREA

SITE PLAN

Scale:1/16" = 1'

01' 16' 32'

N W E S

JOB NUMBER: JB–1055036 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing–Insert

MODULES: (40) Tesla # T425S

INVERTER: Multiple Inverters

CUSTOMER:
Eric Siegel
29 Dearman Cl Pd
Irvington, NY 10533

Account number:
9178479553 51–1702–2298–1400–2

DESCRIPTION:
17 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME: SITE PLAN

DESIGN: Usman Ali Iftikhar

SHEET: 2 REV: C DATE: 12/5/2022

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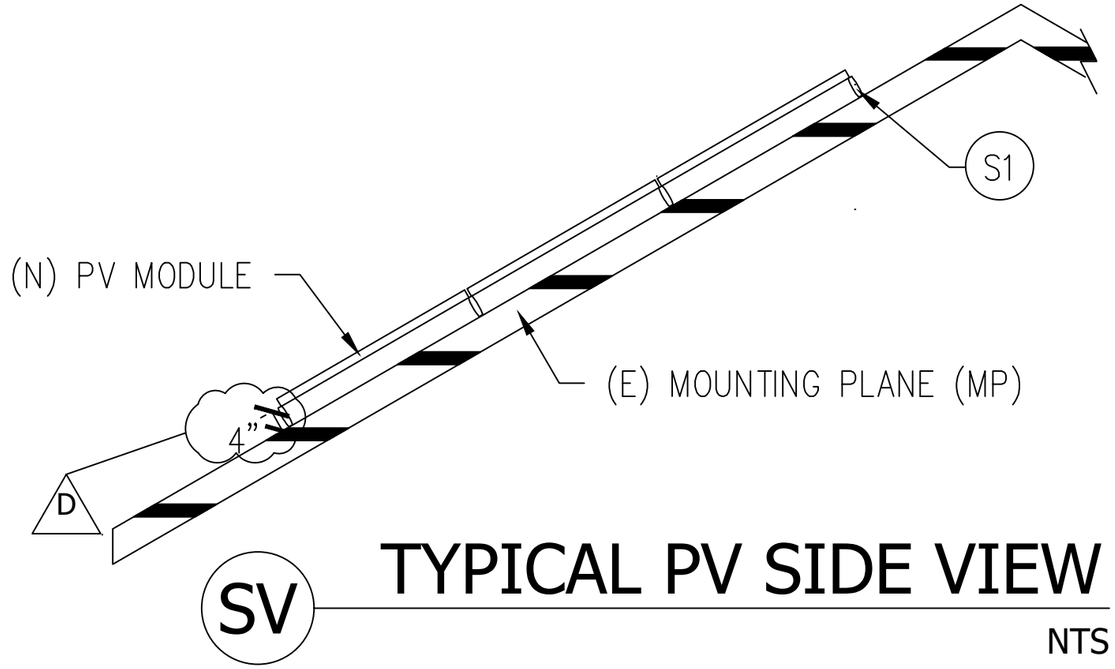
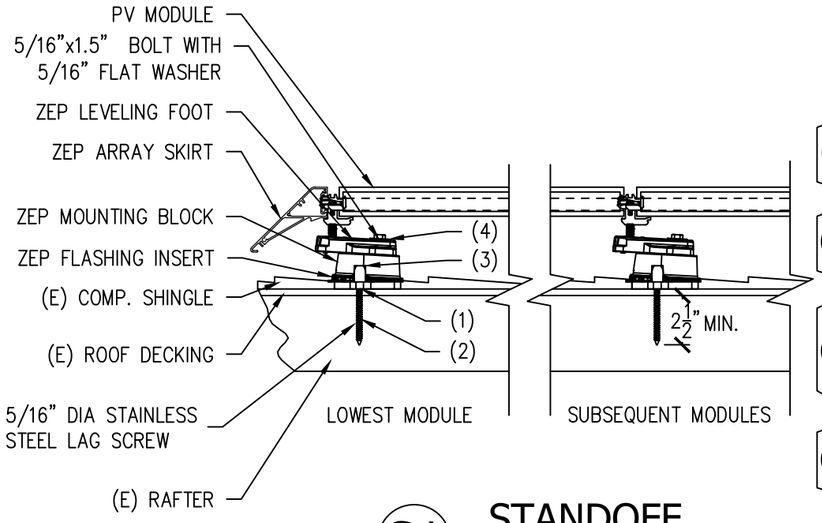


SV TYPICAL PV SIDE VIEW

NTS

HEIGHT OF PANELS (ROOF FROM STANDOFF) IS TO BE 4".
THICKNESS OF A SINGLE PANEL IS 1.57".



INSTALLATION ORDER

(1) LOCATE RAFTER, MARK HOLE LOCATION, AND DRILL PILOT HOLE.

(2) ATTACH FLASHING INSERT TO MOUNTING BLOCK AND ATTACH TO RAFTER USING LAG SCREW.

(3) INJECT SEALANT INTO FLASHING INSERT PORT, WHICH SPREADS SEALANT EVENLY OVER THE ROOF PENETRATION.

(4) INSTALL LEVELING FOOT ON TOP OF MOUNTING BLOCK & SECURELY FASTEN WITH BOLT.

S1 STANDOFF

Scale: 1 1/2" = 1'

JOB NUMBER: JB–1055036 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing–Insert

MODULES: (40) Tesla # T425S

INVERTER: Multiple Inverters

CUSTOMER:
Eric Siegel
29 Dearman Cl Pd
Irvington, NY 10533

9178479553

DESCRIPTION:
17 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME: STRUCTURAL VIEWS

DESIGN: Usman Ali Iftikhar

SHEET: 3 REV: D DATE: 3/17/2023

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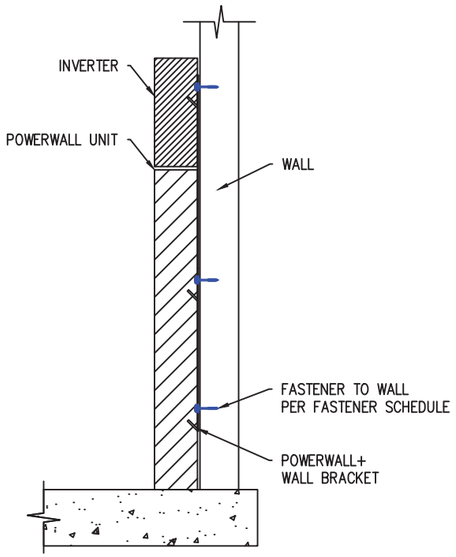
POWERWALL INSTALLATION INFORMATION:

1. POWERWALLS TO BE INSTALLED PER FASTENER SCHEDULE BASED ON WALL TYPE AND SITE SPECIFIC CONDITIONS.
2. DO NOT MOUNT BELOW OR ABOVE WINDOWS OF THE SAME STORY.
3. IF LOCATION NEEDS TO BE CHANGED, PLEASE CONTACT DESIGN TEAM.
4. ANY UNUSUAL FRAMING NEAR THE POWERWALL THAT MAY COMPROMISE THE WALL STRUCTURAL INTEGRITY SHALL BE RELAYED TO THE DESIGN TEAM PRIOR TO INSTALL.
5. WHEN INSTALLING POWERWALL+ THE INVERTER IS A SINGLE UNIT AND CANNOT BE STACKED. WHEN INSTALLING A STACKED ARRANGMENT, ONLY ONE POWERWALL+ AND ONE ADDITIONAL POWERWALL CAN BE INSTALLED. THE LARGEST STACKING CONFIGURATIONS ALLOWED BY THE MOUNTING BRACKETS ARE 3 POWERWALL UNITS OR 1 POWERWALL+ AND 1 POWERWALL UNIT

POWERWALL FASTENER SCHEDULE[1]						
WALL TYPE	MODEL	DIAMETER	EMBEDMENT	FASTENERS PER CORNER	ESR#	UNISTRUT REQUIRED?
WOOD STUD	WOOD SCREW	¼"ø	2½"	1	NA	YES ☐ NO ☑
CONCRETE OR CMU	CONCRETE SCREW	¼"ø	1½"	2[2]	NA	NA
CONCRETE OR CMU	SIMSPON TITEN HD	⅜"ø	2¾"	2[3]	ESR-2713 (CONCRETE) ESR-1056 (CMU)	NA
CONCRETE OR CMU	HILTI KH-EZ	⅜"ø	1⅝"	2[3]	ESR-3027 (CONCRETE) ESR-3056 (CMU)	NA
BRICK	HILTI KWIK CONN II	¼"ø	1¾"	1	NA	NA
BRICK	HIT MESH SLEEVE	¼"ø	3⅜"	1	ESR-4143 (BRICK)	NA
COLD FORMED STEEL	SHEET METAL SCREWS	¼"ø	1½"	3[4]	NA	YES ☐ NO ☑

1. INSTALLER TO CHOOSE FASTENER BASED ON FIELD CONDITIONS, WALL TYPE, AND EASE OF INSTALL
2. 1 CONCRETE & CMU NON-ESR FASTENER CAN BE USED WHEN UNIT(S) ARE MOUNTED ON THE GROUND AND SEISMIC S_S (SRA AT SHORT PERIOD) IS AT OR BELOW S_s = 1.25.
3. 1 CONCRETE & CMU ESR FASTENER CAN BE USED WHEN UNIT(S) ARE MOUNTED ON THE GROUND AND SEISMIC S_S (SRA AT SHORT PERIOD) IS AT OR BELOW S_S = 2.5 AND REGIONAL WIND SPEED (3-SECOND GUST) IS AT OR BELOW 170MPH
4. COLD FORMED STEEL MINIMUM 25 GAUGE REQUIRES 3 FASTENERS PER CORNER, BUT 1 FASTENER PER CORNER CAN BE USED WHEN STEEL STUDS ARE 8 GAUGE OR THICKER

☑ WHEN BOX IS CHECKED DIVERSITECH PAD ACP24362 IS APPROVED FOR A SINGLE OUTDOOR POWERWALL GROUND MOUNT AND DIVERSITECH PAD ACP36362 IS APPROVED FOR UP TO 2 STACKED USING A POWERWALL+ AND A POWERWALL UNIT OR 2 POWERWALL UNITS



WALL ATTACHMENT: GROUND MOUNT
SIDE VIEW ONE POWERWALL+ NTS

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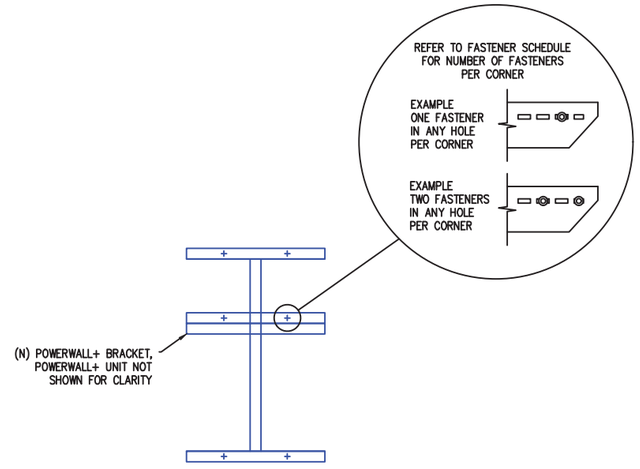
YURIANTO YURIANTO
101980
LICENSED PROFESSIONAL ENGINEER

By Yuri at 8:10:28 PM, 12/6/2022



ATTACHMENT: FRONT VIEW
POWERWALL+ NTS

JOB NUMBER: JB-1055036 00
MOUNTING SYSTEM: ZS Comp V4 w Flashing-Insert
MODULES: (40) Tesla # T425S
INVERTER: Multiple Inverters

CUSTOMER:
Eric Siegel
29 Dearman Cl Pd
Irvington, NY 10533

9178479553

DESCRIPTION:
17 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME:
POWERWALL MOUNTING DETAILS

DESIGN: Usman Ali Iftikhar

SHEET: 4 REV: C DATE: 12/5/2022

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NY

By Yuri at 8:10:31 PM, 12/6/2022

Jobsite Specific Design Criteria			
Design Code		ASCE 7-16	
Risk Category		II	Table 1.5-1
Ultimate Wind Speed	V-Ult	120	Fig. 1609A
Exposure Category		C	Section 26.7
Ground Snow Load	pg	35	Table 7-1
Edge Zone Width	a	6.7 ft	Fig. 30.3-2A to I

MP Specific Design Information				
MP Name	MP1	MP2	MP3	MP4
Roofing	Comp Shingle	Comp Shingle	Comp Shingle	Comp Shingle
Standoff	ZS Comp V4 w Flashing-Insert	ZS Comp V4 w Flashing-Insert	ZS Comp V4 w Flashing-Insert	ZS Comp V4 w Flashing-Insert
Pitch	14	14	14	14
SL/RLL: PV	22.6	22.6	22.6	22.6
SL/RLL: Non-PV	24.3	24.3	24.3	24.3

Standoff Spacing and Layout				
MP Name	MP1	MP2	MP3	MP4
Landscape X-Spacing	72	72	72	72
Landscape X-Cantilever	24	24	24	24
Landscape Y-Spacing	41	41	41	41
Landscape Y-Cantilever	-	-	-	-
Portrait X-Spacing	48	48	48	48
Portrait X-Cantilever	18	18	18	18
Portrait Y-Spacing	82	82	82	82
Portrait Y-Cantilever	-	-	-	-
Layout	Staggered	Staggered	Staggered	Staggered
X and Y are maximums that are always relative to the structure framing that supports the PV. X is across rafters and Y is along rafters.				

JOB NUMBER: JB-1055036 00

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29 Dearman Cl Pd
Irvington, NY 10533

9178479553

DESCRIPTION:
17 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

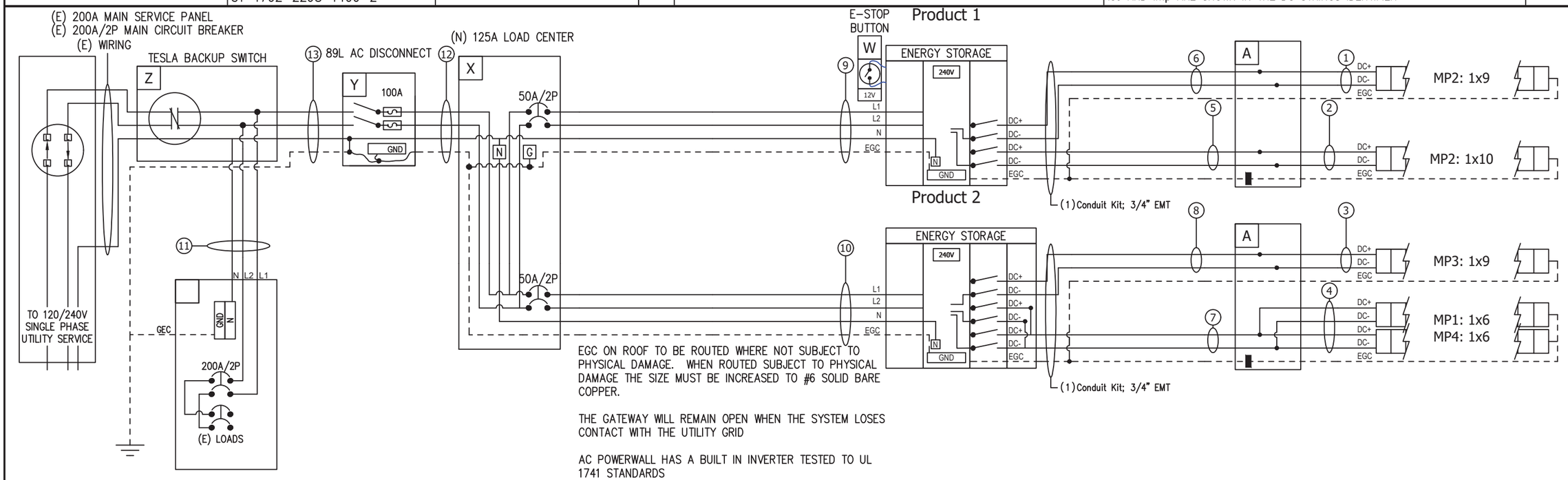
PAGE NAME: UPLIFT CALCULATIONS

DESIGN: Usman Ali Iftikhar

SHEET: 5 REV: C DATE: 12/5/2022

TESLA

MAIN PANEL SPECS	GENERAL NOTES	PRODUCT SPECS	MODULE SPECS	LICENSE
Panel Number: Meter Number: 009673529 Underground Service Entrance Account number: 51-1702-2298-1400-2	Inv 1: DC Ungrounded Inv 2: DC Ungrounded Tie-In: Supply Side Connection	1 – (1) Powerwall+ [240V] #1850000-00-C / PVI Assy. 1538000-25-F 2 – (1) Powerwall+ [240V] #1850000-00-C / PVI Assy. 1538000-35-F 3	– (40) Tesla # T425S PV Module, 425W, 397 PTC, 40MM, Black Frame, MC4/MC4-EVO2, ZEP, 1000V Voc: 48.65 Vpmax: 41.05 Isc AND Imp ARE SHOWN IN THE DC STRINGS IDENTIFIER	



EGC ON ROOF TO BE ROUTED WHERE NOT SUBJECT TO PHYSICAL DAMAGE. WHEN ROUTED SUBJECT TO PHYSICAL DAMAGE THE SIZE MUST BE INCREASED TO #6 SOLID BARE COPPER.

THE GATEWAY WILL REMAIN OPEN WHEN THE SYSTEM LOSES CONTACT WITH THE UTILITY GRID

AC POWERWALL HAS A BUILT IN INVERTER TESTED TO UL 1741 STANDARDS

MAIN SERVICE PANEL ENERGIZED FROM UTILITY AND BATTERY STORAGE

POWERWALL MODES OF OPERATION ARE TIME BASED CONTROL OR BACK UP ONLY.

Up to (3) Powerwall+ units can be wired to the emergency stop button (e-stop) for rapid shutdown initiation. Low voltage wiring of connection(s) to additional units is not shown.

Voc* = MAX VOC AT MIN TEMP

POI
- (1) Ground Rod 5/8" x 8', Copper

Z
- (1) 1624171-00-G Backup Switch
- (1) Eaton 204 MS68 B-Line Meter Socket, 200A, AW Hub top, Overhead, 4 jaws, Ring type
- (3) ILSCO # IPC 4/0-2/0 Insulation Piercing Connector; Main 4/0-2, Tap 2/0-6

Y
- (1) CUTLER-HAMMER # DG100RB Class R Fuse Kit
- (2) FERRAZ SHAWMUT # TR100R Fuse; 100A, 250V, Class RK5
- (1) CUTLER-HAMMER # DG100NB Ground/Neutral Kit; 60-100A, General Duty (DG)

X
- (1) CUTLER-HAMMER # DG223NRB Disconnect; 100A, 240Vac, Fusible, NEMA 3R
- (1) SQUARE D #HOM1224L125PRB Load Center;125A,Convertible,NEMA3R,12sp/24Cir,120v/240v,10kAIC,Surface
- (2) SQUARE D # HOM250 Breaker; 50A/2P, 2 Spaces

W
- (1) UL 508 Emergency Stop Device – NEMA 4X

AC

9	10ft	(1) AWG #8, THWN-2, Black (1) AWG #8, THWN-2, White (1) AWG #8, THWN-2, Red (1) AWG #8, THWN-2, Green EGC (1) Conduit Kit; 3/4" EMT	Vmp = 240 VAC	Imp= 32 AAC
10	10ft	(1) AWG #8, THWN-2, Black (1) AWG #8, THWN-2, White (1) AWG #8, THWN-2, Red (1) AWG #8, THWN-2, Green EGC (1) Conduit Kit; 3/4" EMT	Vmp = 240 VAC	Imp= 32 AAC
11	2ft	(3) AWG #2/0, THWN-2, Black (1) AWG #4, THWN-2, Green (1) Conduit 2" PVC; Schedule 80		
12	2ft	(1) AWG #3, THWN-2, White (1) AWG #3, THWN-2, Red (1) AWG #3, THWN-2, Black (1) AWG #8, THWN-2, Green – (1) Conduit Kit; 1-1/4" EMT		
13	10ft	(1) AWG #3, THWN-2, White (1) AWG #3, THWN-2, Red (1) AWG #3, THWN-2, Black (1) AWG #6, Solid Bare Copper – (1) Conduit Kit; 1" EMT		

DC

5	50ft	(1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, Red (1) AWG #10, THHN/THWN-2, Green EGC – (1) Conduit Kit; 3/4" EMT	Voc* = 562.39 VDC Vmp = 410.5 VDC	Isc = 11.24 ADC Imp= 10.36 ADC
6	50ft	(1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, Red (1) AWG #10, THHN/THWN-2, Green EGC – (1) Conduit Kit; 3/4" EMT	Voc* = 506.15 VDC Vmp = 369.45 VDC	Isc = 11.24 ADC Imp= 10.36 ADC
7	50ft	(1) AWG #8, THWN-2, Black (1) AWG #8, THWN-2, Red (1) AWG #10, THHN/THWN-2, Green EGC – (1) Conduit Kit; 3/4" EMT	Voc* = 337.44 VDC Vmp = 246.3 VDC	Isc = 22.48 ADC Imp= 20.72 ADC
8	50ft	(1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, Red (1) AWG #10, THHN/THWN-2, Green EGC – (1) Conduit Kit; 3/4" EMT	Voc* = 506.15 VDC Vmp = 369.45 VDC	Isc = 11.24 ADC Imp= 10.36 ADC
1	25ft	(2) PV Wire, AWG 10 (1) AWG #6, Solid Bare Copper EGC	Voc* = 506.15 VDC Vmp = 369.45 VDC	Isc = 11.24 ADC Imp= 10.36 ADC
2	25ft	(2) PV Wire, AWG 10 (1) AWG #6, Solid Bare Copper EGC	Voc* = 562.39 VDC Vmp = 410.5 VDC	Isc = 11.24 ADC Imp= 10.36 ADC
3	25ft	(2) PV Wire, AWG 10 (1) AWG #6, Solid Bare Copper EGC	Voc* = 506.15 VDC Vmp = 369.45 VDC	Isc = 11.24 ADC Imp= 10.36 ADC
4	15ft	(4) PV Wire, AWG 10 (1) AWG #6, Solid Bare Copper EGC	Voc* = 337.44 VDC Vmp = 246.3 VDC	Isc = 11.24 ADC Imp= 10.36 ADC

GD – Please see MCI wiring detail page for more information

A
- (2) Tesla 4J 4-String Combiner Box UNFUSED, GROUNDED, Black, Diag DIN Rail with Bracket/ Cord Grip

PV
- (21) Tesla MCI, 650V, 12A

JOB NUMBER: JB-1055036 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing-Insert

MODULES: (40) Tesla # T425S

INVERTER: Multiple Inverters

CUSTOMER:
Eric Siegel
29 Dearman Cl Pd
Irvington, NY 10533

9178479553

DESCRIPTION:
17 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME: THREE LINE DIAGRAM

DESIGN: Usman Ali Iftikhar

SHEET: 6 REV: C DATE: 12/5/2022

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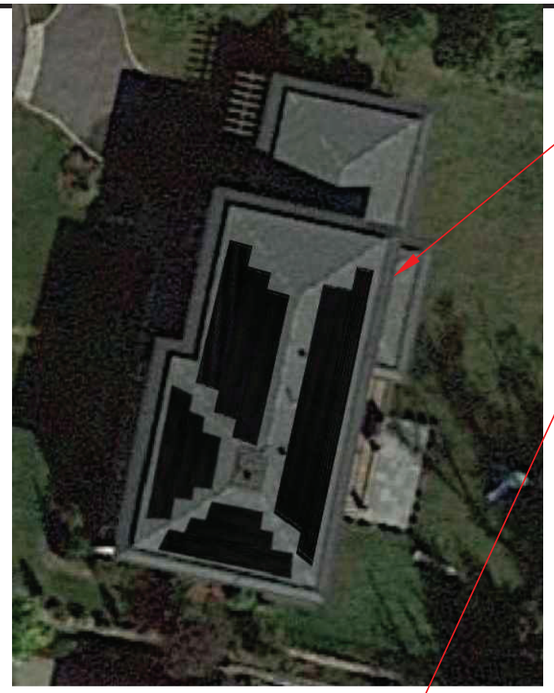

ARIEL RENDERING
OF MODULES

GROUND RENDERINGS OF MODULES

CLEARER VIEW OF MP1
AND MP2

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JOB NUMBER: JB–1055036 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing–Insert

MODULES: (40) Tesla # T425S

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CUSTOMER:
Eric Siegel
29 Dearman Cl Pd
Irvington, NY 10533

9178479553

DESCRIPTION:
17 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME: BOS LOCATION

DESIGN: Usman Ali Iftikhar

SHEET:	REV:	DATE:
8	C	12/5/2022

TESLA

ESS UNITS WILL BE 3FT. FROM FROM ALL WINDOWS AND DOORS.

ESS UNITS WILL BE 10FT. FROM EACH OTHER PER UL9540A TESTING DOCUMENTATION.

JOB NUMBER: JB–1055036 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing–Insert

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17 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME: ESS LOCATION

DESIGN: Usman Ali Iftikhar

SHEET: 9 REV: C DATE: 12/5/2022

TESLA

WARNING: PHOTOVOLTAIC POWER SOURCE

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

PHOTOVOLTAIC DC DISCONNECT

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

MAXIMUM VOLTAGE

MAXIMUM CIRCUIT CURRENT

MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED)

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

WARNING

ELECTRIC SHOCK HAZARD
IF A GROUND FAULT IS INDICATED
NORMALLY GROUNDED
CONDUCTORS MAY BE
UNGROUNDED AND ENERGIZED

Label Location:
(DC) (INV)
Per Code:
690.41.B

PHOTOVOLTAIC AC 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

WARNING

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

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

CAUTION

DUAL POWER SOURCE
SECOND SOURCE IS
PHOTOVOLTAIC SYSTEM

Label Location:
(POI)
Per Code:
NEC 705.12.B.3

WARNING

INVERTER OUTPUT
CONNECTION
DO NOT RELOCATE
THIS OVERCURRENT
DEVICE

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

PHOTOVOLTAIC SYSTEM
EQUIPPED WITH RAPID
SHUTDOWN

Label Location:
(INV)
Per Code:
NEC 690.56.C.3

WARNING

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

Label Location:
(DC) (INV)

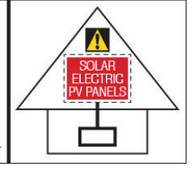
SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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

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

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS WITHIN THE ARRAY REMAIN ENERGIZED IN SUNLIGHT



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

Label Set

BACKUP LOAD CENTER

Label Location:
(BLC)
Per Code:
NEC 408.4

CAUTION
DO NOT ADD NEW LOADS

Label Location:
(BLC)
Per Code:
NEC 220

CAUTION
THIS PANEL HAS SPLICED FEED-THROUGH CONDUCTORS.
LOCATION OF DISCONNECT AT ENERGY STORAGE BACKUP LOAD PANEL

Label Location:
(MSP)
Per Code:
NEC 312.8.A(3)

CAUTION
DUAL POWER SOURCE
SECOND SOURCE IS
ENERGY STORAGE SYSTEM

Label Location:
(MSP)
Per Code:
NEC 705.12(B)(3)

ENERGY STORAGE SYSTEM ON SITE
LOCATED WITHIN LINE OF SIGHT

Label Location:
(MSP)
Per Code:

ENERGY STORAGE SYSTEM ON SITE
LOCATED ON ADJACENT WALL

Label Location:
(MSP)
Per Code:

ENERGY STORAGE SYSTEM ON SITE
LOCATED ON OPPOSITE WALL

Label Location:
(MSP)
Per Code:

ENERGY STORAGE SYSTEM ON SITE
LOCATED INSIDE

Label Location:
(MSP)
Per Code:

CAUTION
TRI POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM
THIRD SOURCE IS ENERGY STORAGE SYSTEM

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

NOMINAL ESS VOLTAGE: 120/240V
MAX AVAILABLE SHORT-CIRCUIT FROM ESS: 32A
ARC FAULT CLEARING TIME FROM ESS: 67ms
DATE OF CALCULATION:

Label Location:
(MSP)
Per Code:
Per 706.7(D) label to be marked in field

(AC): AC Disconnect
(BLC): Backup Load Center
(MSP): Main Service Panel

	Label Set		

MCI WIRING DETAIL

GENERAL NOTES

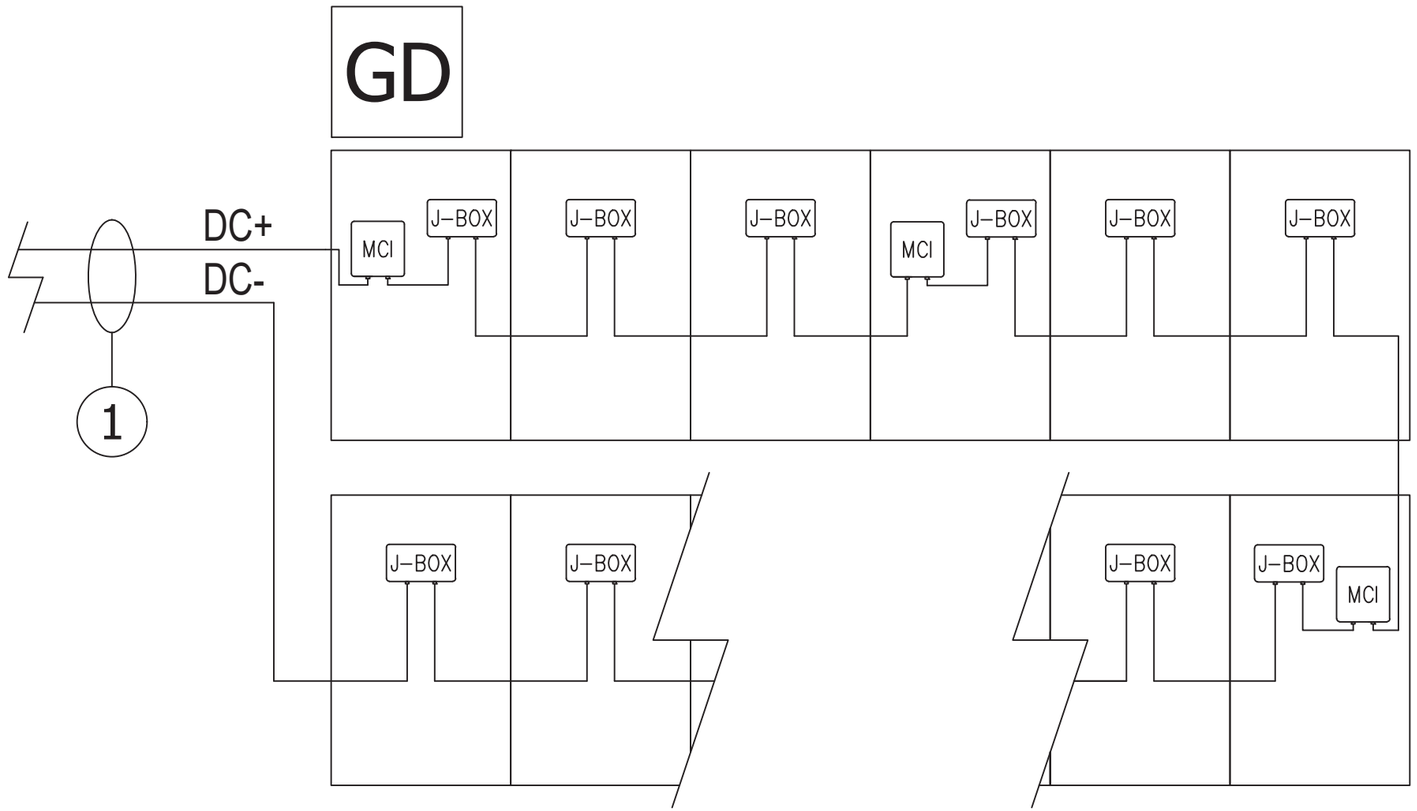
- DRAWING OF STANDARD MCI WIRING DETAIL FOR ANY GIVEN STRING LENGTH
- IF INITIATED, RAPID SHUTDOWN OCCURS WITHIN 30 SECONDS OF ACTIVATION AND LIMITS VOLTAGE ON THE ROOF TO NO GREATER THAN 165V (690.12.B.2.1)
- MID CIRCUIT INTERRUPTER (MCI) IS A UL 1741 PVRSE CERTIFIED RAPID SHUTDOWN DEVICE (RSD)

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

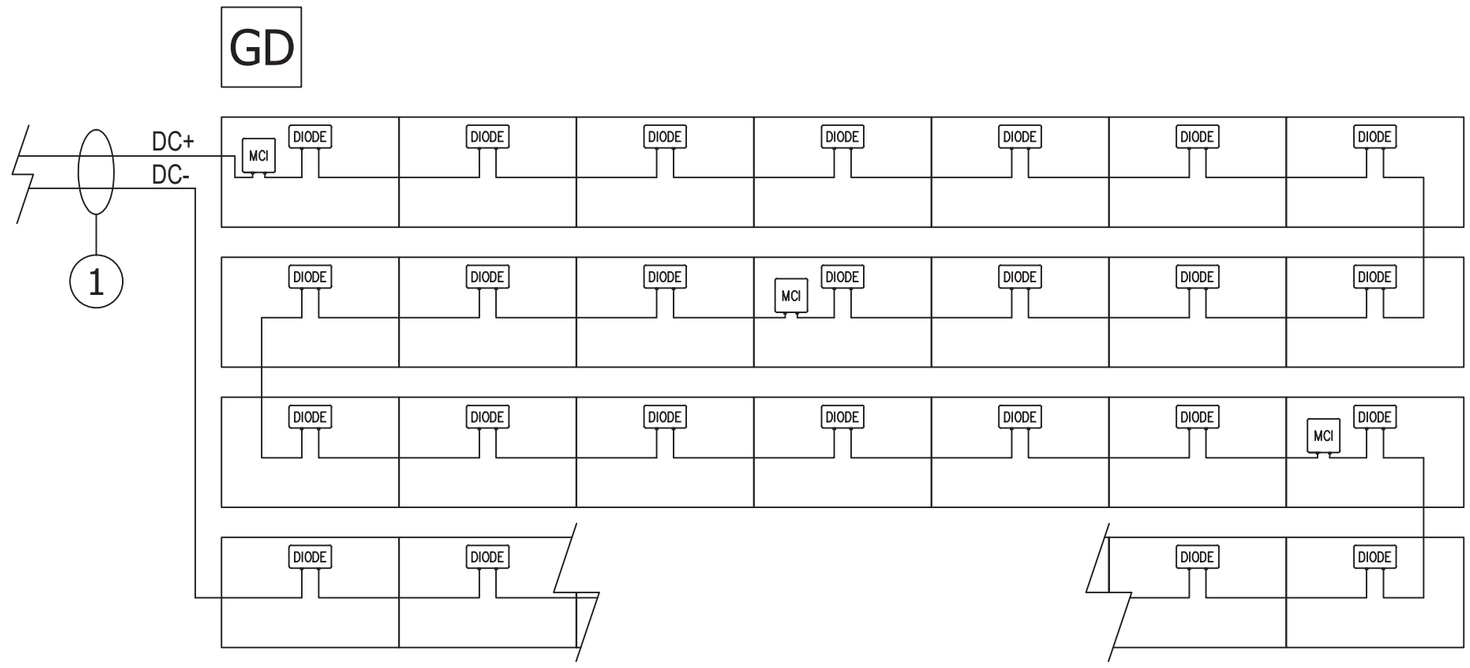
GENERAL NOTES

- 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

BACKUP SWITCH

The Tesla Backup Switch controls connection to the grid in a Powerwall system, and can be easily installed behind the utility meter or in a standalone meter panel downstream of the utility meter.

The Backup Switch automatically detects grid outages, providing a seamless transition to backup power. It communicates directly with Powerwall, allowing home energy usage monitoring from any mobile device with the Tesla app.

PERFORMANCE SPECIFICATIONS

Model Number	1624171-xx-y
Continuous Load Rating	200A, 120/240V Split phase
Short Circuit Current Rating	22 kA with breaker[1]
Communication	CAN
Product Compatibility	Powerwall 2 with Backup Gateway 2, Powerwall+
Expected Service Life	21 years
Warranty	10 years

[1] Breaker size must be equal to or greater than the available fault current.

COMPLIANCE INFORMATION

Safety Standards	USA: UL 414, UL 2735, UL 916 CA Prop 65
Emissions	FCC, ICES

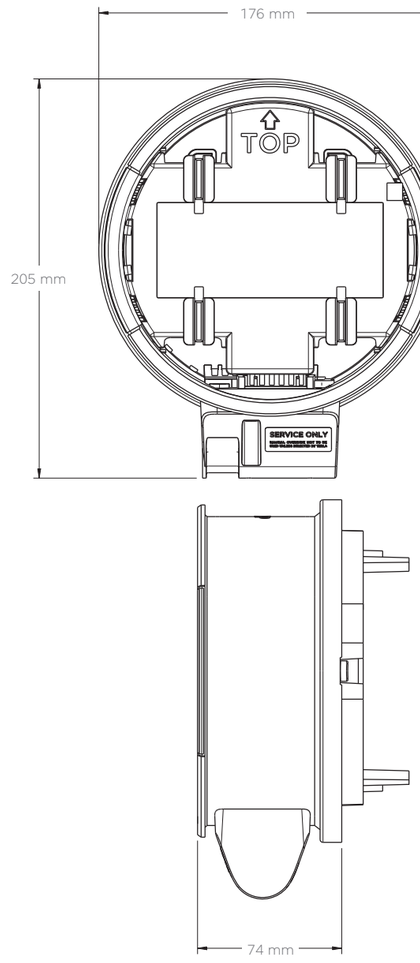
ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°C to 50°C (-40°F to 122°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Enclosure Rating	NEMA 3R
Pollution Rating	PD3

MECHANICAL SPECIFICATIONS

Dimensions	176 mm x 205 mm x 74 mm (6.9 in x 8.1 in x 2.9 in)
Weight	2.8 lbs
Meter and Socket Compatibility	ANSI Type 2S, ringless or ring type
External Service Interface	Contactor manual override[2] Reset button
Conduit Compatibility	1/2-inch NPT

[2] Manually overrides the contactor position during a service event.



POWERWALL+

Powerwall+ is an integrated solar battery system that stores energy from solar production. Powerwall+ has two separate inverters, one for battery and one for solar, that are optimized to work together. Its integrated design and streamlined installation allow for simple connection to any home, and improved surge power capability brings whole home backup in a smaller package. Smart system controls enable owners to customize system behavior to suit their renewable energy needs.

KEY FEATURES

- Integrated battery, inverter, and system controller for a more compact install
- A suite of application modes, including self-powered, time-based control, and backup modes
- Wi-Fi, Ethernet, and LTE connectivity with easy over-the-air updates

PHOTOVOLTAIC (PV) AND BATTERY ENERGY STORAGE SYSTEM (BESS) SPECIFICATIONS

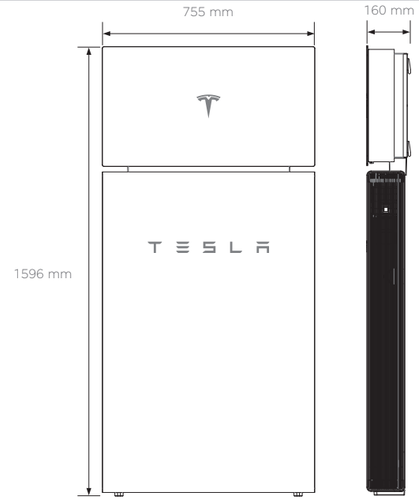
Powerwall+ Model Number	1850000-xx-y
Solar Assembly Model Number	1538000-xx-y
Nominal Battery Energy	13.5 kWh
Nominal Grid Voltage (Input / Output)	120/240 VAC
Grid Voltage Range	211.2 - 264 VAC
Frequency	60 Hz
Phase	240 VAC: 2W+N+GND
Maximum Continuous Power On-Grid	7.6 kVA full sun / 5.8 kVA no sun[1]
Maximum Continuous Power Off-Grid	9.6 kW full sun / 7 kW no sun[1]
Peak Off-Grid Power (10 s)	22 kW full sun / 10 kW no sun[1]
Maximum Continuous Current On-Grid	32 A output
Maximum Continuous Current Off-Grid	40 A output
Load Start Capability	98 - 118 A LRA[2]
PV Maximum Input Voltage	600 VDC
PV DC Input Voltage Range	60 - 550 VDC
PV DC MPPT Voltage Range	60 - 480 VDC
MPPTs	4
Input Connectors per MPPT	1-2-1-2
Maximum Current per MPPT (I_{mp})	13 A[3]
Maximum Short Circuit Current per MPPT (I_{sc})	17 A[3]
Allowable DC/AC Ratio	1.7
Overcurrent Protection Device	50 A breaker
Maximum Supply Fault Current	10 kA
Output Power Factor Rating	+/– 0.9 to 1[4]
Round Trip Efficiency	90%[5]
Solar Generation CEC Efficiency	97.5% at 208 V 98.0% at 240 V
Customer Interface	Tesla Mobile App
Internet Connectivity	Wi-Fi, Ethernet, Cellular LTE/4G)[6]
PV AC Metering	Revenue grade (+/-0.5%)
Protections	Integrated arc fault circuit interrupter (AFCI), PV Rapid Shutdown
Warranty	10 years

COMPLIANCE INFORMATION

PV Certifications	UL 1699B, UL 1741, UL 3741, UL 1741 SA, UL 1998 (US), IEEE 1547, IEEE 1547.1
Battery Energy Storage System Certifications	UL 1642, UL 1741, UL 1741 PCS, UL 1741 SA, UL 1973, UL 9540, IEEE 1547, IEEE 1547.1, UN 38.3
Grid Connection	United States
Emissions	FCC Part 15 Class B
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)

MECHANICAL SPECIFICATIONS

Dimensions	1596 x 755 x 160 mm (62.8 x 29.7 x 6.3 in)
Total Weight	140 kg (310 lb)[7]
Battery Assembly	118 kg (261 lb)
Solar Assembly	22 kg (49 lb)
Mounting options	Floor or wall mount



ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	–20°C to 50°C (–4°F to 122°F)[8]
Recommended Temperature	0°C to 30°C (32°F to 86°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Conditions	–20°C to 30°C (–4°F to 86°F) Up to 95% RH, non-condensing State of Energy (SoE): 25% initial
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	Type 3R
Solar Assembly Ingress Rating	IP55 (Wiring Compartment)
Battery Assembly Ingress Rating	IP56 (Wiring Compartment) IP67 (Battery & Power Electronics)
Noise Level @ 1 m	< 40 db(A) optimal, < 50 db(A) maximum

[1]Values provided for 25°C (77°F).
[2]Load start capability may vary.
[3]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}.
[4]Power factor rating at max real power.
[5]AC to battery to AC, at beginning of life.
[6]Cellular connectivity subject to network service coverage and signal strength.
[7]The total weight does not include the Powerwall+ bracket, which weighs an additional 9 kg (20 lb).
[8]Performance may be de-rated at operating temperatures below 10°C (50°F) or greater than 43°C (109°F).

SOLAR SHUTDOWN DEVICE

The Tesla 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 Powerwall+, solar array shutdown is initiated by pushing the System Shutdown Switch if one is present.

ELECTRICAL SPECIFICATIONS

Model Number	MCI-1
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

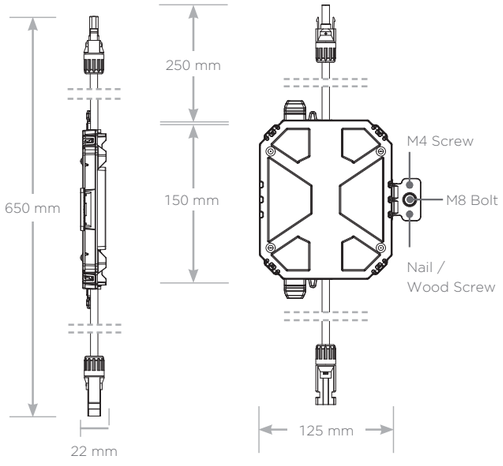
Certifications	UL 1741 PVRSE, UL 3741, PVRSA (Photovoltaic Rapid Shutdown Array)
RSD Initiation Method	External System Shutdown Switch
Compatible Equipment	*See Compatibility Table below*

ENVIRONMENTAL SPECIFICATIONS

Ambient Temperature	-40°C to 50°C (-40°F to 122°F)
Storage Temperature	-30°C to 60°C (-22°F to 140°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

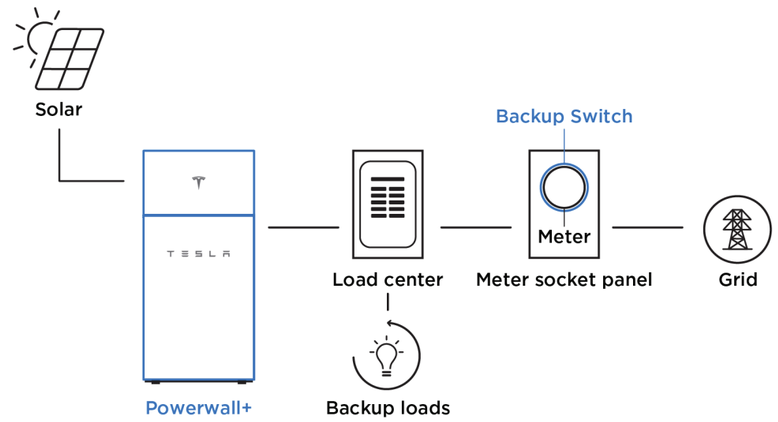
Tesla Solar Roof and Tesla/Zep ZS Arrays using the following modules are certified to UL 3741 and UL 1741 PVRSA when installed with the Powerwall+ and Solar Shutdown Devices. See the Powerwall+ Installation Manual for detailed instructions and for guidance on installing Powerwall+ and Solar Shutdown 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]
Tesla	Tesla TxxxH (where xxx = 395 to 415 W, increments of 5)	1 Solar Shutdown Device per 3 modules
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

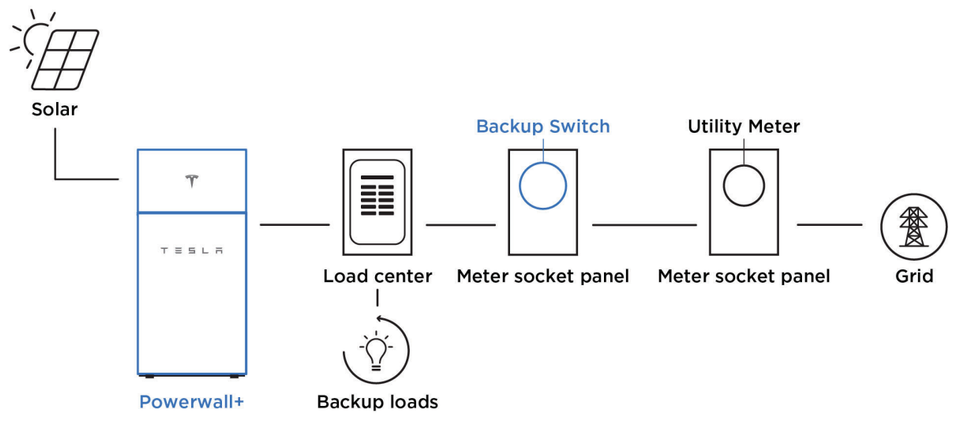
[1]**Exception**: Tesla solar modules installed in locations where the max Voc for three modules at low design temperatures exceeds 165 V shall be limited to two modules between Solar Shutdown Devices.

SYSTEM LAYOUTS

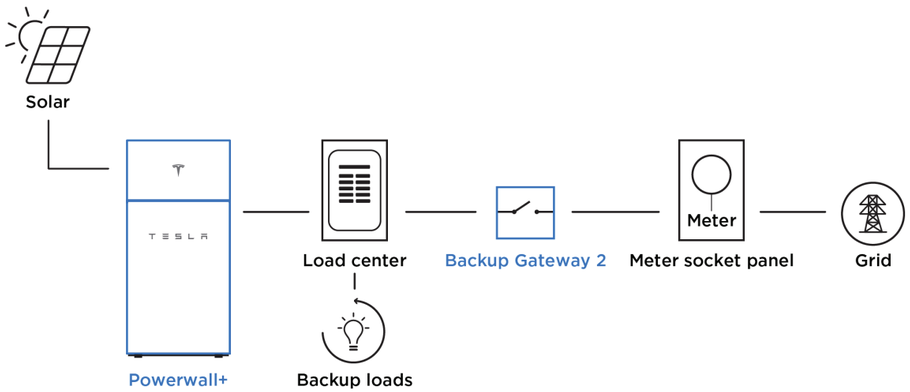
Powerwall+ with Backup Switch Installed Behind Utility Meter



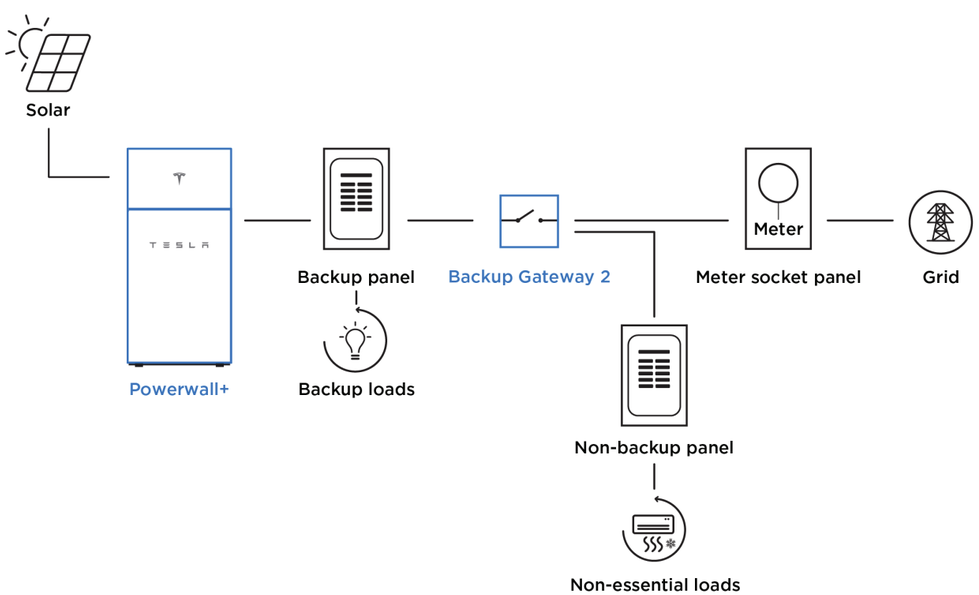
Powerwall+ with Backup Switch Installed Downstream of Utility Meter



Powerwall+ with Backup Gateway 2 for Whole Home Backup



Powerwall+ with Backup Gateway 2 for Partial Home Backup



Tesla
Photovoltaic Module

T420S, T425S, and T430S

Maximum Power
The Tesla module is one of the most powerful residential photovoltaic modules available. Our system requires up to 20 percent fewer modules to achieve the same power as a standard system. The module boasts a high conversion efficiency and a half-cell architecture that improves shade tolerance.

Beautiful Solar
Featuring our proprietary Zep Groove design, the all-black module connects easily with Tesla ZS components to keep panels close to your roof and close to each other for a blended aesthetic with simple drop-in and precision quarter-turn connections.

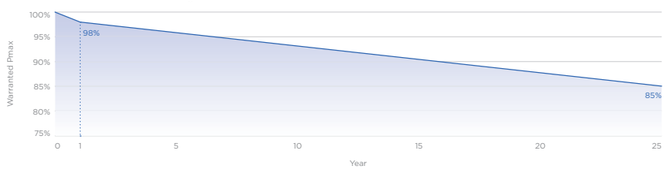
Reliability
Tesla modules are subject to automotive-grade engineering scrutiny and quality assurance, far exceeding industry standards. Modules are certified to IEC / UL 61730 - 1, IEC / UL 61730 - 2 and IEC 61215.

Limited Warranty

Materials and Processing	25 years
Extra Linear Power Output	25 years

The maximum Pmax degradation is 2% in the 1st year and 0.54% annually from the 2nd to 25th year.

Linear Power Warranty



Module Specifications

Electrical Characteristics

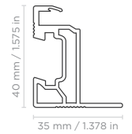
Power Class	T420S		T425S		T430S	
Test Method	STC	NOCT	STC	NOCT	STC	NOCT
Max Power, P_{MAX} (W)	420	313.7	425	317.4	430	321.1
Open Circuit Voltage, V_{OC} (V)	48.5	45.47	48.65	45.61	48.8	45.75
Short Circuit Current, I_{SC} (A)	11.16	9.02	11.24	9.09	11.32	9.15
Max Power Voltage, V_{MP} (V)	40.90	38.08	41.05	38.22	41.20	38.36
Max Power Current, I_{MP} (A)	10.27	8.24	10.36	8.3	10.44	8.37
Module Efficiency (%)	19.3		19.6		19.8	
STC	1000 W/m², 25°C, AM1.5					
NOCT	800 W/m², 20°C, AM1.5, wind speed 1m/s					

Mechanical Loading

Front Side Test Load	6120 Pa | 128 lb/ft²
Rear Side Test Load	5190 Pa | 108 lb/ ft²
Front Side Design Load	4080 Pa | 85 lb/ft²
Rear Side Design Load	3460 Pa | 72 lb/ft²
Hailstone Test	25 mm Hailstone at 23 m/s

Temperature Rating (STC)

Temperature Coefficient of Isc	+0.040% / °C
Temperature Coefficient of V_{OC}	-0.260% / °C
Temperature Coefficient of P_{MAX} (W)	-0.331% / °C

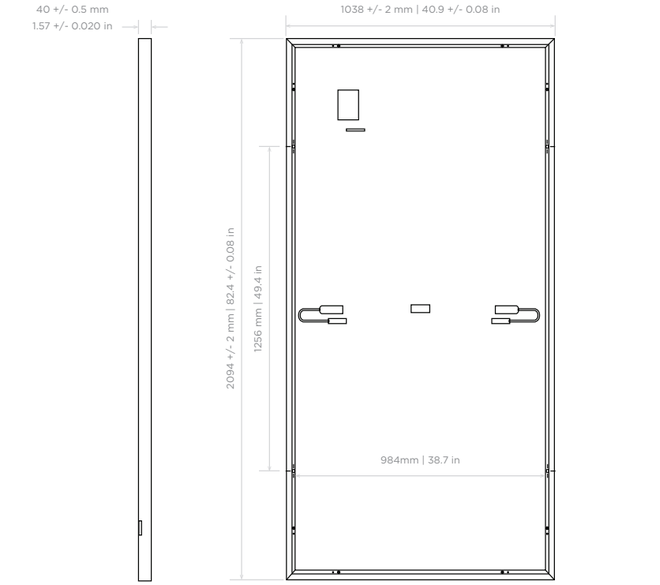


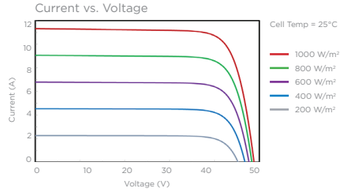
Mechanical Parameters

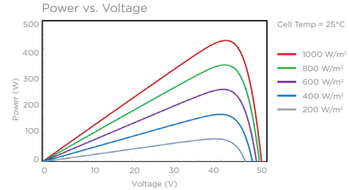
Cell Orientation	144 (6 x 24)
Junction Box	IP68, 3 diodes
Cable	4 mm² | 12 AWG, 1400 mm | 55.1 in. Length
Connector	Staubli MC4 or EVO2
Glass	3.2 mm ARC Glass
Frame	Black Anodized Aluminum Alloy
Weight	25.3 kg | 55.8 lb
Dimension	2094 mm x 1038 mm x 40 mm 82.4 in x 40.9 in x 1.57 in

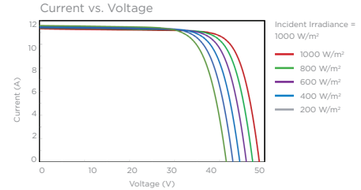
Operation Parameters

Operational Temperature	-40°C up to +85°C
Power Output Tolerance	-0 /+5 W
V_{OC} & I_{SC} Tolerance	+/- 3%
Max System Voltage	DC 1000 V (IEC/UL)
Max Series Fuse Rating	20 A
NOCT	45.7 +/- 2°C
Safety Class	Class II
Fire Rating	UL Type 1 or 2









ROOFING SYSTEM SPECIFICATIONS

DESCRIPTION

PV mounting solution for composition shingle roofs.

Works with all Zep Compatible Modules.

Auto bonding UL-listed hardware creates structural and electrical bond.

SPECIFICATIONS

Designed for pitched roofs.

Installs in portrait and landscape orientations.

Engineered for spans up to 72” and cantilevers up to 24”.

ZS Comp has a UL 1703 Class “A” Fire Rating when installed using modules from any manufacturer certified as “Type 1” or “Type 2”.

Attachment method UL listed to UL 2582 for Wind Driven Rain.

ZS Comp supports 50 psf (2400 Pa) front and up to 72 psf (3450 Pa) rear side design load rating for Portrait module orientation per UL 2703.

ZS Comp supports 50 psf (2400 Pa) front side and up to 72 psf (3450 Pa) rear side design load rating for Landscape module orientation.

Engineered for compliance with ASCE 7-05, 7-10, and 7-16 wind load requirements.

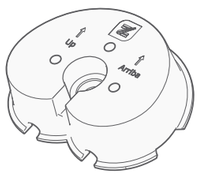
Zep wire management products listed to UL 1565 for wire positioning devices.

ZS Comp grounding products are listed to UL 2703 and UL 467.

ZS Comp bonding products are listed to UL 2703.

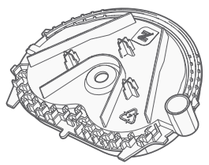
MOUNTING BLOCK

Listed to UL 2703
Part #850-1633



FLASHING INSERT

Listed to UL 2703 and UL 2582 for Wind Driven Rain
Part #850-1628



CAPTURED WASHER LAG

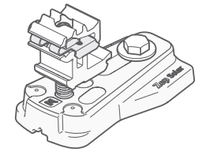
Part #850-1631-002 and #850-1631-004

GROUND ZEP

Listed to UL 2703
Part #850-1511

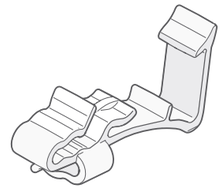
LEVELING FOOT

Listed to UL 2703
Part #850-1397



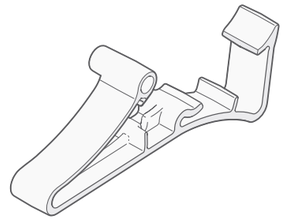
DC WIRE CLIP

Listed to UL 1565
Part #850-1509



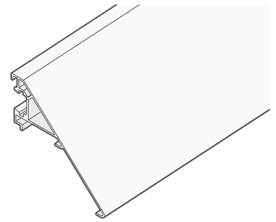
HOME RUN CLIP

Listed to UL 1565
Part #850-1510



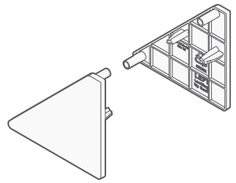
ARRAY SKIRT

Listed to UL 2703
Part #850-1608



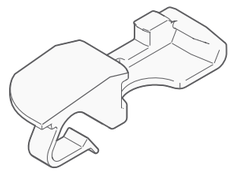
END CAP

Listed to UL 2703
Part #850-1586 (Left)
Part #850-1588 (Right)



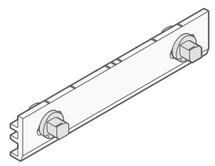
SKIRT GRIP

Listed to UL 2703
Part #850-1606



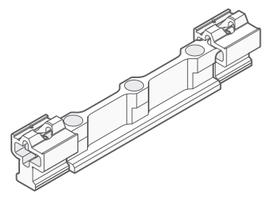
INTERLOCK

Listed to UL 2703
Part #850-1613



HYBRID INTERLOCK

Listed to UL 2703
Part #850-1281



PV HAZARD CONTROL SYSTEM | ZS PVHCS

UL 3741 REPORT DATE 10-20-21 (APPLICABLE TO ZS COMP, ZS SPAN, ZS RAMP, AND ZS SEAM)
PV RAPID SHUTDOWN ARRAY, UL 1741 CATEGORY QIJR

WARNING: To reduce the risk of injury, read all instructions.

PV HAZARD CONTROL EQUIPMENT AND COMPONENTS

Function	Manufacturer	Model No.	Firmware Versions and Checksums	Certification Standard
PVRSE Mid Circuit Interrupter (MCI)	Tesla	MCI-1	N/A	UL 1741 PVRSE
Inverter or Powerwall+	Tesla	7.6 kW: 1538000 [1] 3.8 kW: 1534000 [1] 7.6 kW: 1850000 [1]	V4, CEA4F802 V4, FF7BE4E1 V4, CEA4F802	UL 1741, 1998 PVRSS/PVRSE
PV Module	Hanwha/ Q-CELLS Tesla	Q.PEAK DUO BLK-G5/SC310-320 Q.PEAK DUO BLK G6+/SC330-345 Tesla TxxxS (xxx = 405 to 450) Tesla TxxxH (xxx = 395 to 415)	N/A	UL 1703 UL 61730
PVHCS Initiator (PV Inverter)	Dedicated PV system AC circuit breaker or AC disconnect switch, labeled per NEC 690.12 requirements.			N/A
PVHCS Initiator (Powerwall+)	Emergency stop device (NISD)- Listed "Emergency Stop Button" or "Emergency Stop Device" or "Emergency Stop Unit".			UL 508 or UL 60947 Parts 1, 5-1 and 5-5

[1] Applies to variations of this part number with suffix of two numbers and one letter.

Note: PVHCS installation requirements may reduce the effective equipment and component ratings below the individual equipment and component PVRSE ratings in order to achieve PVHCS shock hazard reduction requirements.

PVHCS INSTALLATION REQUIREMENTS

Max System Voltage	600 VDC
PVHCS Maximum Circuit Voltage (Array Internal Voltage After Actuation)	165 VDC (cold weather open circuit)
Max Series-Connected Modules Between MCIs: *Exception: Tesla S-Series (TxxxS) 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.	3*

OTHER INSTALLATION INSTRUCTIONS

1. An MCI must be connected to one end of each series string or mounting plane sub-array string.

2. Verification that MCIs are installed with 3 or fewer modules between MCIs shall be documented for inspection, by voltage measurement logs and/or as-built string layout diagrams.

3. For PV Inverter: The PVHCS initiator (AC breaker or switch) shall be sized and installed in accordance with NEC requirements. The specific part shall be identified on the as-built system drawings.

4. For Powerwall+: The PVHCS emergency stop initiator shall have the following minimum ratings: Outdoor (Type 3R or higher), 12V, 1A, and shall be installed in accordance with NEC requirements. The specific part shall be identified on the as-built system drawings. Refer to the Powerwall+ installation manual for further details.

Certification Mark of UL on the installation instructions is the only method provided by UL to identify products manufactured under its Certification and Follow-Up Service. The Certification Mark for these products includes the UL symbol, the words "CERTIFIED" and "SAFETY," the geographic identifier(s), and a file number.

PV HAZARD CONTROL SYSTEM PVHCS | CERTIFICATION

UL 3741 REPORT DATE 8-12-21
PV RAPID SHUTDOWN ARRAY, UL 1741 CATEGORY QIJR, REPORT DATE: 2021-06-11 (REV 8-10-21)

WARNING: To reduce the risk of injury, read all instructions.

PV HAZARD CONTROL EQUIPMENT AND COMPONENTS

Function	Manufacturer	Model No.	Firmware Versions and Checksums	Certification Standard
PVRSE Mid Circuit Interrupter (MCI)	Tesla	MCI-1 1550379[1]	N/A	UL 1741 PVRSE
Inverter or Powerwall+	Tesla	7.6 kW: 1538000 [1] 3.8 kW: 1534000 [1] 7.6 kW: 1850000 [1]	V4, CEA4F802 V4, FF7BE4E1 V4, CEA4F802	UL 1741, 1998 PVRSS/PVRSE
PV Module	Tesla	SR60T1, SR72T1 SR72T2	N/A	UL 61730
Diode Harness (Not applicable to SR72T2)	Tesla	SRDTH	N/A	UL 9703
PV Wire Jumper(s)	Tesla	SR-BJ2X, SR-BJ3X, SR-BJ4X, SR-BJMini	N/A	UL 9703
Pass-Through Box	Tesla	SRPTB-4	N/A	UL 1741
PVHCS Initiator : (PV Inverter)	Dedicated PV system AC circuit breaker or AC disconnect switch, labeled per NEC 690.12 requirements.			N/A
PVHCS Initiator : (Powerwall+)	Emergency stop device (NISD)- Listed "Emergency Stop Button" or "Emergency Stop Device" or "Emergency Stop Unit"			UL 508 or UL 60947 Parts 1, 5-1 and 5-5

[1] Applies to variations of this part number with suffix of two numbers and one letter.

Note: PVHCS installation requirements may reduce the effective equipment and component ratings below the individual equipment and component PVRSE ratings in order to achieve PVHCS shock hazard reduction requirements.

PVHCS INSTALLATION REQUIREMENTS

Max System Voltage	600 VDC
PVHCS Maximum Circuit Voltage (Array Internal Voltage After Actuation)	165 VDC (cold weather open circuit)
Max Series-Connected Panels between MCIs	10

OTHER INSTALLATION INSTRUCTIONS

1. An MCI must be connected to one end of each series string or mounting plane sub-array string.

2. Verification that MCIs are installed with 10 or fewer modules between MCIs shall be documented for inspection, by voltage measurement logs and/or as-built string layout diagrams.

3. For PV Inverter: The PVHCS initiator (AC breaker or switch) shall be sized and installed in accordance with NEC requirements. The specific part shall be identified on the as-built system drawings.

4. For Powerwall+: The PVHCS emergency stop initiator shall have the following minimum ratings: Outdoor (Type 3R or higher), 12V, 1A, and shall be installed in accordance with NEC requirements. The specific part shall be identified on the as-built system drawings. Refer to the Powerwall+ installation manual for further details.

Certification Mark of UL on the installation instructions is the only method provided by UL to identify products manufactured under its Certification and Follow-Up Service. The Certification Mark for these products includes the UL symbol, the words "CERTIFIED" and "SAFETY," the geographic identifier(s), and a file number.