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

LICENSE

MODULE GROUNDING METHOD: ZEP SOLAR

AHJ: Orland Park village

UTILITY: Commonwealth Edison Co (ComEd)

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE 2015 IBC AND 2015 IRC.
2. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2014 NATIONAL ELECTRIC CODE.

VICINITY MAP

INDEX

Sheet 1 COVER SHEET
Sheet 2 GLARE STUDY
Sheet 3 PROPERTY PLAN
Sheet 4 SITE PLAN
Sheet 5 UPLIFT CALCULATIONS
Sheet 6 STRUCTURAL VIEWS
Sheet 7 THREE LINE DIAGRAM
Cutsheets Attached

REV	BY	DATE	COMMENTS
REV A	KL	4/28/18	One Powerwall added
REV B	CRM	5/22/18	REMOVED PW AND CHANGED LAYOUT
*	*	*	*
*	*	*	*
*	*	*	*

JOB NUMBER: JB-604008 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing-Insert

MODULES: (36) SC Std SC315B2

INVERTER: Multiple Inverters

CUSTOMER:
JIM GUZINSKI
8917 WHEELER DR
ORLAND PARK, IL 60462

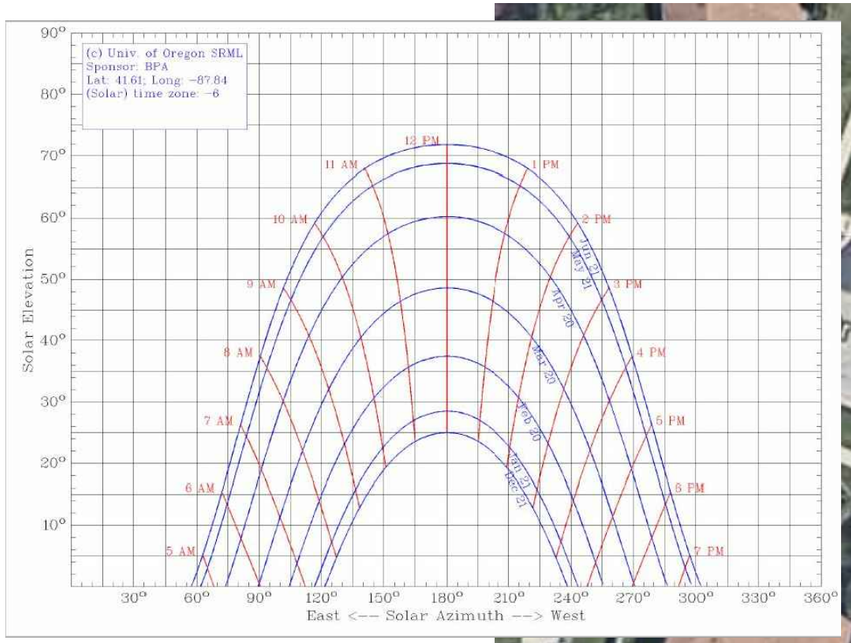
DESCRIPTION: 11.34 KW PV ARRAY

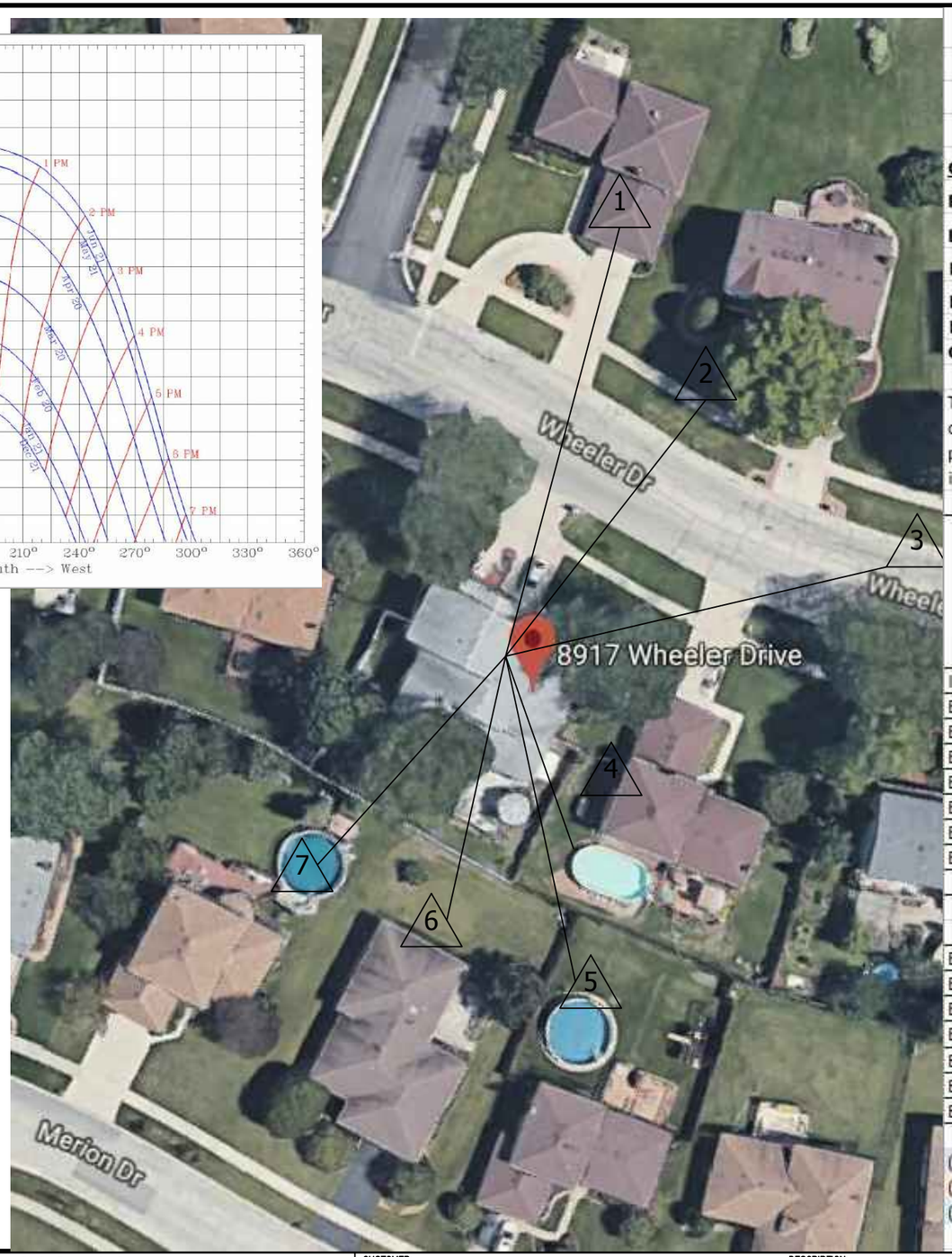
PAGE NAME: COVER SHEET

DESIGN: Christian Dalsgaard

SHEET: 1 REV: d DATE: 11/2/2018

TESLA





	Job	604008			
	Sheet	1	of	1	
	Calculated b	Daniel Wise	Date	11/1/2018	
	Checked by				

Glare Study

Project name:	Jim Guzinski Residence Solar Installation	
Location:	Orland Park, IL	
Installation Azimuth:	118; 208	deg
Installation Slope	26	deg
Installation Height	22	ft above grade
Grade elevation:	0	ft

The proposed solar collectors are equipped with an anti-reflective coating that reflects only about 10% of incident sunlight, so any glare effects will be minimal. In addition, properties more distant from the array will be more obstructed and will be decreased in intensity due to scattering by the atmosphere. Houses across the street have obstructed

Location	Azimuth (deg)	(1) Sun Azim Reqd for Reflection (deg)	Distance Away (ft)	Elevation (ft)	(2) Elevation Angle (deg)	(3) Sun Angle Abv Horiz Reqd for Reflection (deg)
Installation	217	~	~	22	~	~
Building 1	12	422	152	0	7.556089644	139.5560896
Building 2	45	389	140	0	6.952316038	138.952316
Building 3	68	366	193	0	9.615432931	141.6154329
Building 4	160	274	82	0	4.018374919	136.0183749
Building 5	172	262	144	0	7.153644057	139.1536441
Building 6	195	239	110	0	5.43925995	137.43926
Building 7	224	210	108	0	4.624448954	136.624449

Location	Sun Azim (1)	Min Sun Elev	Max Sun Elev	Glare Sun Elev. (3)	Reflection
Building 1	12	10	66	134.7	No
Building 2	45	17	69	138.4	No
Building 3	68	23	72	137.4	No
Building 4	160	10	66	134.7	No
Building 5	172	17	69	138.4	No
Building 6	195	23	72	137.4	No
Building 7	224	0	8	136.9	No

(1) = Installation Azi + (installation Azi -Building of Concern Azimuth)
(2) = Vertical Angle Between Installation and Building of Concern due to Elevation Difference
(3) = (90 - Installation Slope) x 2 + Elevation Angle

JOB NUMBER: JB–604008 00
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MODULES: (36) SC Std SC315B2
INVERTER: Multiple Inverters

CUSTOMER:
JIM GUZINSKI
8917 WHEELER DR
ORLAND PARK, IL 60462

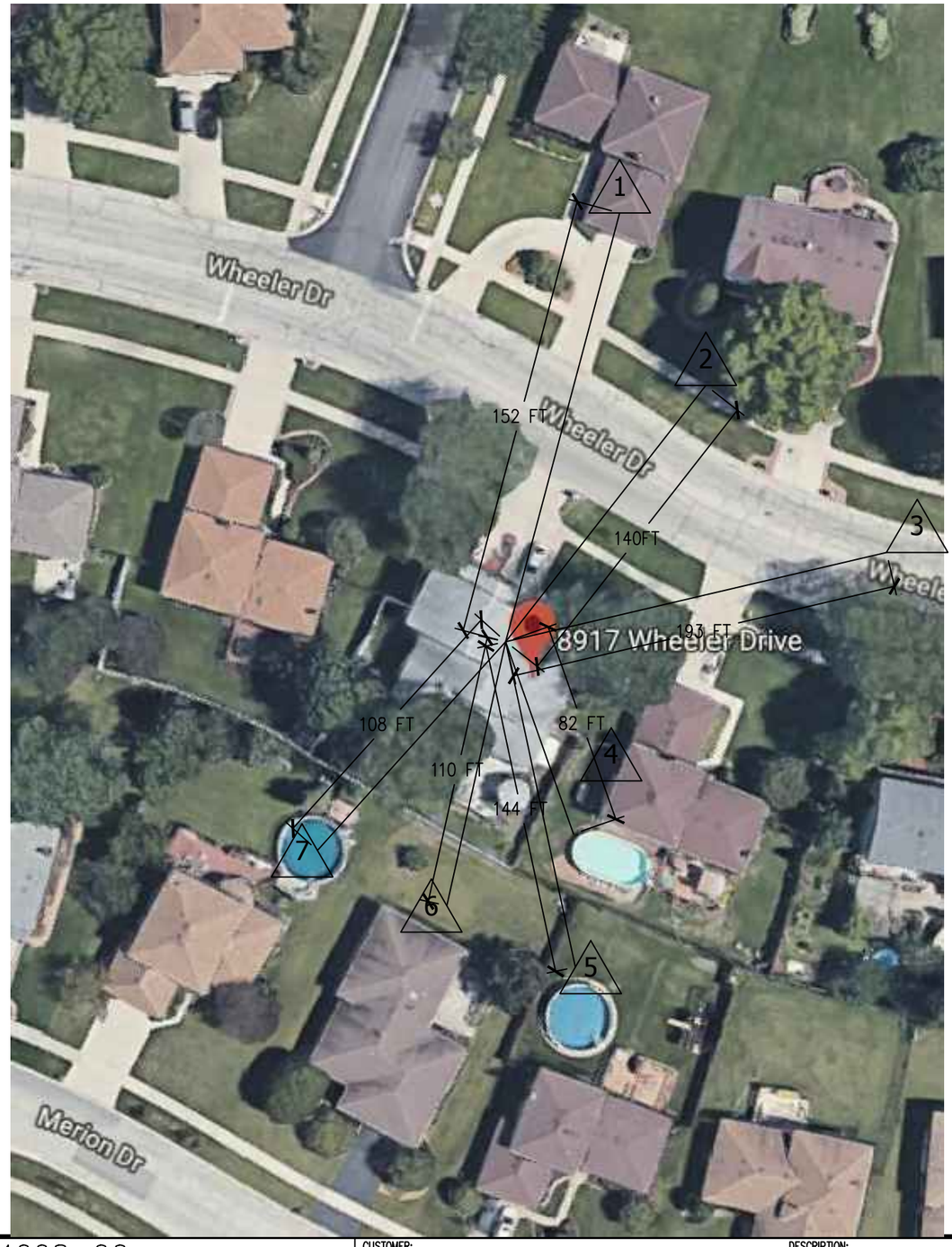
DESCRIPTION: 11.34 KW PV ARRAY

PAGE NAME: GLARE STUDY

DESIGN: Christian Dalsgaard

SHEET: 2 REV: d DATE: 11/2/2018

TESLA



JOB NUMBER: JB–604008 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing–Insert

MODULES: (36) SC Std SC315B2

INVERTER: Multiple Inverters

CUSTOMER:
JIM GUZINSKI
8917 WHEELER DR
ORLAND PARK, IL 60462

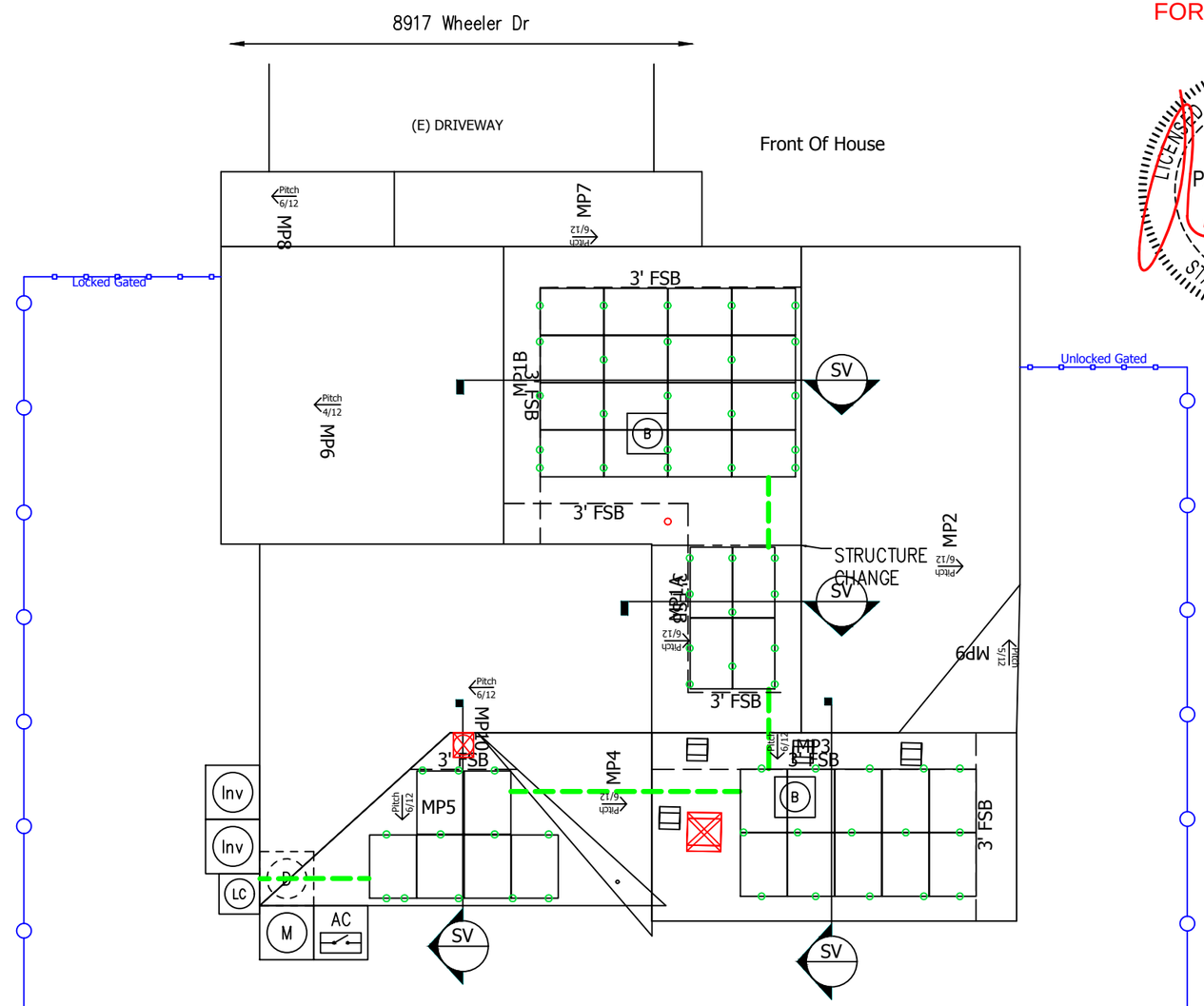
DESCRIPTION: 11.34 KW PV ARRAY

PAGE NAME: PROPERTY PLAN

DESIGN: Christian Dalsgaard

SHEET: 3 REV: d DATE: 11/2/2018

TESLA



FOR STRUCTURAL ONLY

LICENSED STRUCTURAL ENGINEER
PAUL K. ZACHER
081.007690
EXP. 11/30/2018
STATE OF ILLINOIS

MP1	PITCH: 26 AZIMUTH: 118 MATERIAL: Comp Shingle	ARRAY PITCH: 26 ARRAY AZIMUTH: 118 STORY: 2 Stories
MP2	PITCH: 26 AZIMUTH: 118 MATERIAL: Comp Shingle	ARRAY PITCH: 26 ARRAY AZIMUTH: 118 STORY: 1 Story
MP3	PITCH: 26 AZIMUTH: 208 MATERIAL: Comp Shingle	ARRAY PITCH: 26 ARRAY AZIMUTH: 208 STORY: 1 Story
MP5	PITCH: 26 AZIMUTH: 208 MATERIAL: Comp Shingle	ARRAY PITCH: 26 ARRAY AZIMUTH: 208 STORY: 1 Story

LEGEND

- (M) (E) UTILITY METER & WARNING LABEL
- (Inv) INVERTER W/ INTEGRATED DC DISCO & WARNING LABELS
- (RELAY) AUTOMATIC RELAY
- (AC) AC DISCONNECT & WARNING 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
- (P) INTERIOR EQUIPMENT IS DASHED

TOTAL ARRAY AREA (SF): 662
TOTAL ROOF AREA (SF): 3048

TOTAL ARRAY AREA IS ≈ 21.71
PERCENT OF TOTAL ROOF AREA

SITE PLAN

Scale: 3/32" = 1'

0 1' 10' 21'

JOB NUMBER: JB–604008 00
MOUNTING SYSTEM: ZS Comp V4 w Flashing–Insert
MODULES: (36) SC Std SC315B2
INVERTER: Multiple Inverters

CUSTOMER:
JIM GUZINSKI
8917 WHEELER DR
ORLAND PARK, IL 60462

DESCRIPTION:
11.34 KW PV ARRAY

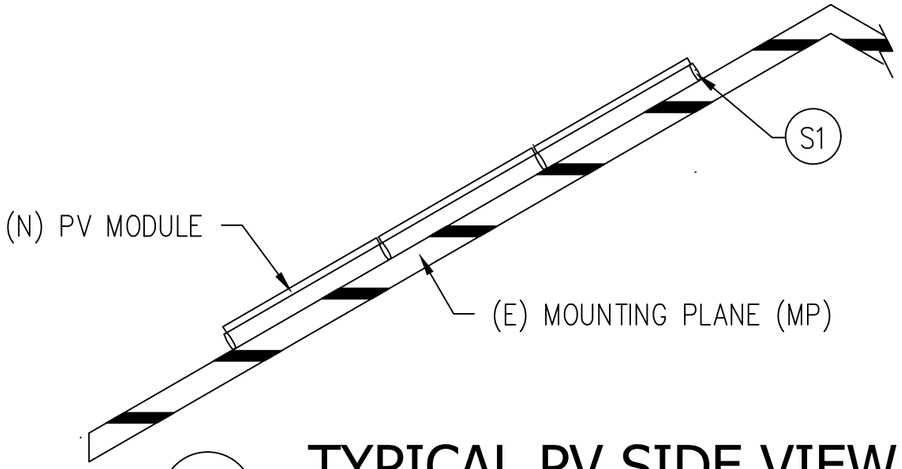
PAGE NAME:
SITE PLAN

DESIGN:
Christian Dalsgaard

SHEET: 4
REV: d
DATE: 11/2/2018

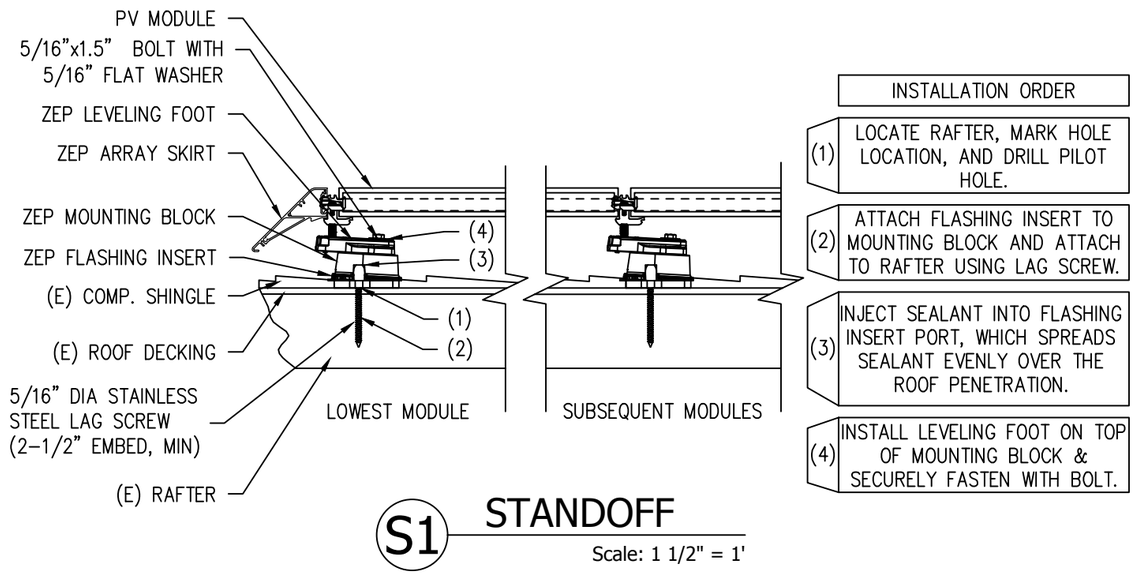
TESLA

FOR ROOF ATTACHMENT ONLY



SV TYPICAL PV SIDE VIEW

NTS



S1 STANDOFF

Scale: 1 1/2" = 1'

08.21.2018
Version #74.1
Job# 604008

DESIGN SUMMARY

Jobsite Specific Design Criteria			
Design Code		ASCE 7-10	
Importance Factor	I	1.0	
Ultimate Wind Speed	V-Ult	115 mph	Fig. 1609A
Exposure Category		C	Section 26.7
Ground Snow Load	pg	30.0 psf	ASCE Table 7-1

MP Specific Design Information

	MP Name	MP1	MP3	MP5
Design Info	Roofing	Comp Roof	Comp Roof	Comp Roof
	Standoff	Comp Mount SRT	Comp Mount SRT	Comp Mount SRT
	Pitch	26°	26°	26°
	SL/RLL: PV	30.0 psf	30.0 psf	30.0 psf
	SL/RLL: Non-PV	30.0 psf	30.0 psf	30.0 psf

Standoff Spacing and Layout

	MP Name	MP1	MP3	MP5
Landscape	X-Spacing	48"	48"	48"
	X-Cantilever	24"	24"	24"
	Y-Spacing	41"	41"	41"
	Y-Cantilever	NA	NA	NA
Portrait	X-Spacing	48"	48"	48"
	X-Cantilever	20"	20"	20"
	Y-Spacing	62"	62"	62"
	Y-Cantilever	NA	NA	NA
	Layout	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-604008 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing-Insert

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CUSTOMER:
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8917 WHEELER DR
ORLAND PARK, IL 60462

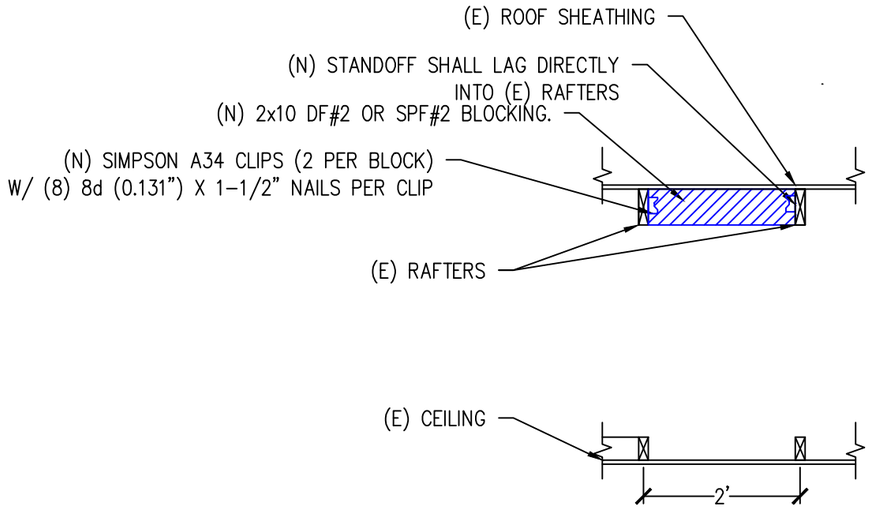
DESCRIPTION: 11.34 KW PV ARRAY

PAGE NAME: UPLIFT CALCULATIONS

DESIGN: Christian Dalsgaard

SHEET: 5 REV: d DATE: 11/2/2018

TESLA



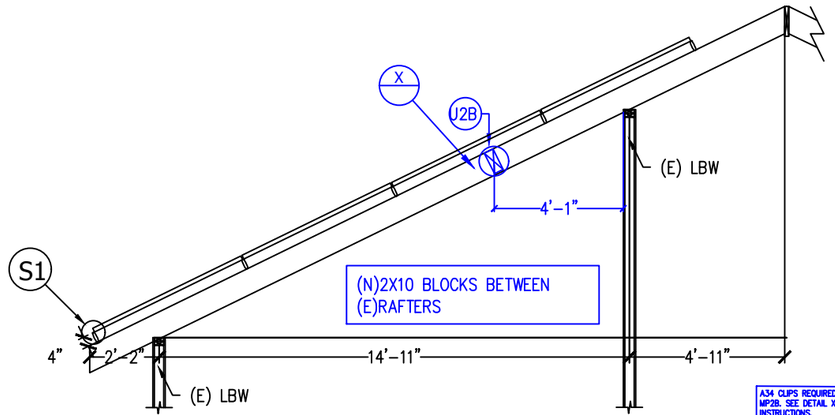
INSTALLATION NOTES:

1. CUT (N) BLOCKING TO FIT TIGHT BETWEEN (E) RAFTERS AND KEEP FLUSH TO ROOF SHEATHING. ENSURE THERE ARE NO GAPS BETWEEN MEMBERS.
2. INSTALL (N) BLOCKING WITH TWO A34 CLIPS, ONE AT EACH END OF BLOCKING.
3. NAIL A34 CLIPS TO EXISTING RAFTERS WITH (8) 8D (0.131") X 1.5" NAILS, FILLING ALL HOLES. ENSURE ALL NAILS ARE LOCATED AWAY FROM EDGE OF MEMBERS TO AVOID SPLITTING WOOD.

* INSTALL BLOCKING BETWEEN ALL RAFTERS OF MP1

U2B NEW BLOCKING REAR VIEW

Scale: 1/2" = 1'

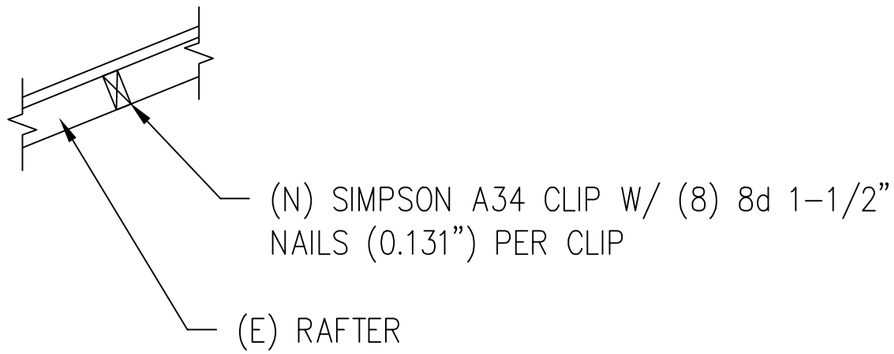


A34 CLIPS REQUIRED FOR ALL RAFTERS UNDER MP2B. SEE DETAIL X FOR INSTALLATION INSTRUCTIONS.

THIS STRUCTURE WILL RECEIVE A BLOCKING UPGRADE.

SV SIDE VIEW OF MP1B NTS

MP1B	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	48"	24"	41"	0"	STAGGERED
PORTRAIT	48"	21"	62"	0"	
RAFTER 2x10 @ 16" OC C.J. None @16" OC			ROOF AZI 118 PITCH 26 ARRAY AZI 118 PITCH 26 Comp Shingle		STORIES: 2
X AND Y ARE ALWAYS RELATIVE TO THE STRUCTURE FRAMING THAT SUPPORTS THE PV. X IS ACROSS RAFTERS AND Y IS ALONG RAFTERS.					



X CLIP INSTALLATION DETAIL

NTS

JOB NUMBER: JB-604008 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing-Insert

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INVERTER: Multiple Inverters

CUSTOMER:
JAMES GUZINSKI
8917 WHEELER DR
ORLAND PARK, IL 60462

DESCRIPTION: 11.34 KW PV ARRAY

PAGE NAME: STRUCTURAL VIEWS

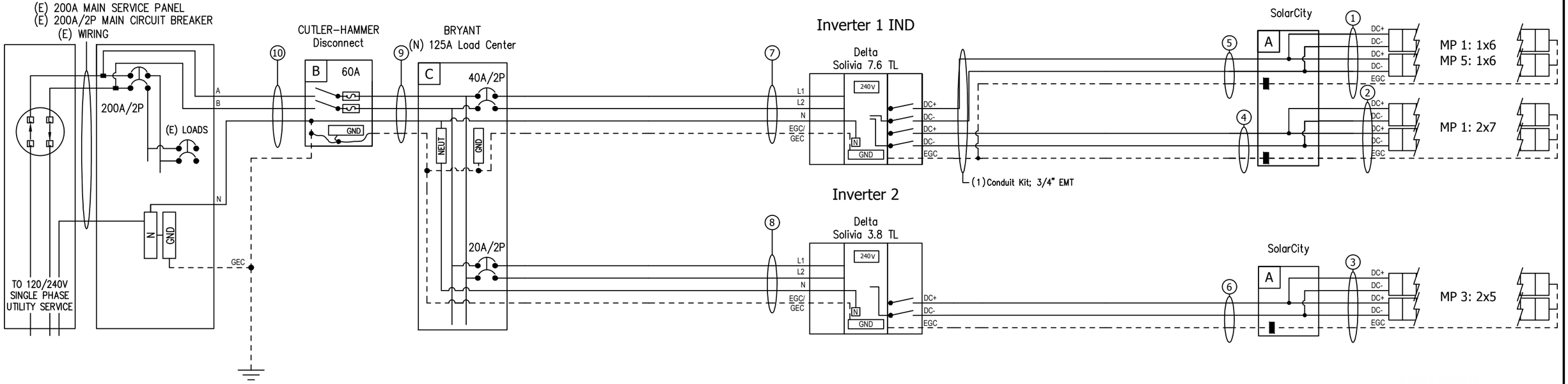
DESIGN: Christian Dalsgaard

SHEET: 6 REV: d DATE: 11/2/2018

TESLA

LICENSED STRUCTURAL ENGINEER
PAUL K. ZACHER
081.007690
EXP. 11/30/2018
STATE OF ILLINOIS

GROUND SPECS	MAIN PANEL SPECS	GENERAL NOTES	INVERTER SPECS	MODULE SPECS	LICENSE
BOND (N) #8 GEC TO (N) GROUND ROD AT PANEL WITH IRREVERSIBLE CRIMP	Panel Number: G3030MB1200 Meter Number: 271 730 428 Underground Service Entrance	Inv 1: DC Ungrounded Inv 2: DC Ungrounded Tie-In: Supply Side Connection	INV 1 – (1) Delta # Solivia 7.6 TL LABEL: A Inverter; 7600W, 240V, 97.5%, Zigbee, PLC INV 2 – (1) Delta # Solivia 3.8 TL LABEL: B Inverter; 3800W, 240V, 97.5%, Zigbee, PLC INV 3	– (36) SC Std SC315B2 PV Module; 315W, 294.4 PTC, 40MM, Blk Backsheet w/ Blk Interconnects, Voc: 70.2 Vpmax: 58.4 Isc AND Imp ARE SHOWN IN THE DC STRINGS IDENTIFIER	MC4, 600v, ZE



Voc* = MAX VOC AT MIN TEMP

POI
- (1) Ground Rod 5/8" x 8', Copper
- (2) ILSCO # IPC 4/0–#6 Insulation Piercing Connector; Main 4/0–4, Tap 6–14

SSC
- SUPPLY SIDE CONNECTION. DISCONNECTING MEANS SHALL BE SUITABLE AS SERVICE EQUIPMENT AND SHALL BE RATED PER NEC.

AC

B
- (1) CUTLER–HAMMER # DG222NRB Disconnect; 60A, 240Vac, Fusible, NEMA 3R
- (1) CUTLER–HAMMER # DG100NB Ground/Neutral Kit; 60–100A, General Duty (DG)
- (1) CUTLER–HAMMER #DS16FK Class R Fuse Kit
- (2) FERRAZ SHAWMUT # TR60R Fuse; 60A, 250V, Class RK5 — PV BACKFEED OCP

C
- (1) BRYANT # BR48L125RP Load Center; 125A, 120/240V, NEMA 3R
- (1) CUTLER–HAMMER # BR240 Breaker; 40A/2P, 2 Spaces
- (1) CUTLER–HAMMER # BR220 Breaker; 20A/2P, 2 Spaces

DC

A
- (2) SolarCity # 4-J; 4 STRING JUNCTION BOX UNFUSED, GROUNDED, Grey

9 10ft
- (1) AWG #6, THWN–2, Black
- (1) AWG #6, THWN–2, Red
- (1) AWG #6, THWN–2, White NEUTRAL Vmp = 240 VAC Imp = 47.5 AAC
- (1) AWG #8, THWN–2, Green EGC/GEC – (1) Conduit Kit; 3/4" EMT

10 5ft
- (1) AWG #6, THWN–2, Black
- (1) AWG #6, THWN–2, Red
- (1) AWG #6, THWN–2, White NEUTRAL Vmp = 240 VAC Imp = 47.5 AAC
- (1) AWG #6, Solid Bare Copper GEC – (1) Conduit Kit; 3/4" EMT

7 10ft
- (1) AWG #8, THWN–2, Black
- (1) AWG #8, THWN–2, Red
- (1) AWG #10, THWN–2, White NEUTRAL Vmp = 240 VAC Imp = 31.7 AAC
- (1) AWG #8, THWN–2, Green EGC/GEC – (1) Conduit Kit; 3/4" EMT

8 10ft
- (1) AWG #10, THWN–2, Black
- (1) AWG #10, THWN–2, Red
- (1) AWG #10, THWN–2, White NEUTRAL Vmp = 240 VAC Imp = 15.8 AAC
- (1) AWG #8, THWN–2, Green EGC/GEC – (1) Conduit Kit; 3/4" EMT

4 50ft
- (1) AWG #10, THWN–2, Black Voc* = 549.14 VDC Isc = 11.66 ADC
- (1) AWG #10, THWN–2, Red Vmp = 408.8 VDC Imp = 10.8 ADC
- (1) AWG #10, THHN/THWN–2, Green EGC – (1) Conduit Kit; 3/4" EMT

5 50ft
- (1) AWG #10, THWN–2, Black Voc* = 470.69 VDC Isc = 11.66 ADC
- (1) AWG #10, THWN–2, Red Vmp = 350.4 VDC Imp = 10.8 ADC
- (1) AWG #10, THHN/THWN–2, Green EGC – (1) Conduit Kit; 3/4" EMT

6 50ft
- (1) AWG #10, THWN–2, Black Voc* = 392.24 VDC Isc = 11.66 ADC
- (1) AWG #10, THWN–2, Red Vmp = 292 VDC Imp = 10.8 ADC
- (1) AWG #10, THHN/THWN–2, Green EGC – (1) Conduit Kit; 3/4" EMT

1 15ft
- (4) AWG #10, PV Wire, 600V, Black Voc* = 470.69 VDC Isc = 5.83 ADC
- (1) AWG #10, Solid Bare Copper EGC Vmp = 350.4 VDC Imp = 5.4 ADC

2 20ft
- (4) AWG #10, PV Wire, 600V, Black Voc* = 549.14 VDC Isc = 5.83 ADC
- (1) AWG #10, Solid Bare Copper EGC Vmp = 408.8 VDC Imp = 5.4 ADC

3 15ft
- (4) AWG #10, PV Wire, 600V, Black Voc* = 392.24 VDC Isc = 5.83 ADC
- (1) AWG #10, Solid Bare Copper EGC Vmp = 292 VDC Imp = 5.4 ADC

JOB NUMBER: JB–604008 00

MOUNTING SYSTEM: ZS Comp V4 w Flashing–Insert

MODULES: (36) SC Std SC315B2

INVERTER: Multiple Inverters

CUSTOMER:
JIM GUZINSKI
8917 WHEELER DR
ORLAND PARK, IL 60462

DESCRIPTION: 11.34 KW PV ARRAY

PAGE NAME: THREE LINE DIAGRAM

DESIGN: Christian Dalsgaard

SHEET: 7 REV: d DATE: 11/2/2018

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 690.14.C.2

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

WARNING

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

Label Location:
(DC) (INV)
Per Code:
NEC 690.5(C)

WARNING

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

DC VOLTAGE IS
ALWAYS PRESENT WHEN
SOLAR MODULES ARE
EXPOSED TO SUNLIGHT

Label Location:
(DC) (CB)
Per Code:
NEC 690.17(4)

PHOTOVOLTAIC AC DISCONNECT

Label Location:
(AC) (POI)
Per Code:
NEC 690.14.C.2

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 690.17.E

PHOTOVOLTAIC POINT OF INTERCONNECTION

WARNING: ELECTRIC SHOCK HAZARD. DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION. FOR SERVICE DE-ENERGIZE BOTH SOURCE AND MAIN BREAKER.

PV POWER SOURCE

MAXIMUM AC OPERATING CURRENT ____ A
MAXIMUM AC OPERATING VOLTAGE ____ V

Label Location:
(POI)
Per Code:
NEC 690.17.4; NEC 690.54

CAUTION

DUAL POWER SOURCE
SECOND SOURCE IS
PHOTOVOLTAIC SYSTEM

Label Location:
(POI)
Per Code:
NEC 690.64.B.4

CAUTION

PHOTOVOLTAIC SYSTEM
CIRCUIT IS BACKFED

Label Location:
(D) (POI)
Per Code:
NEC 690.64.B.4

WARNING

INVERTER OUTPUT
CONNECTION
DO NOT RELOCATE
THIS OVERCURRENT
DEVICE

Label Location:
(POI)
Per Code:
NEC 690.64.B.7

WARNING

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

Label Location:
(DC) (INV)
Per Code:
NEC 690.35(F)
TO BE USED WHEN
INVERTER IS
UNGROUNDED

(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		

Solar Inverters

Transformerless (TL): 3.8 kW, 5.2 kW, 6.6 kW, 7.6 kW

- Wide Operating Voltage Range: 85 ~ 550V
- Wide Operating Temperature Range: -13 ~ 158°F (-25 ~ 70°C)
- High CEC Efficiency: 97.5%
- Integrated AFCI (Arc Fault Circuit Interruption)
- NEMA 4X plus Salt Mist Corrosion Protection
- Natural Convection Cooling
- Dual MPPT (5.2kW / 6.6kW / 7.6kW)
- Compact and Lightweight
- UL 1741 / IEEE 1547 / IEEE 1547.1 / CEC Listed /UL 1699B(Type 1) / NEC 690.11

C US

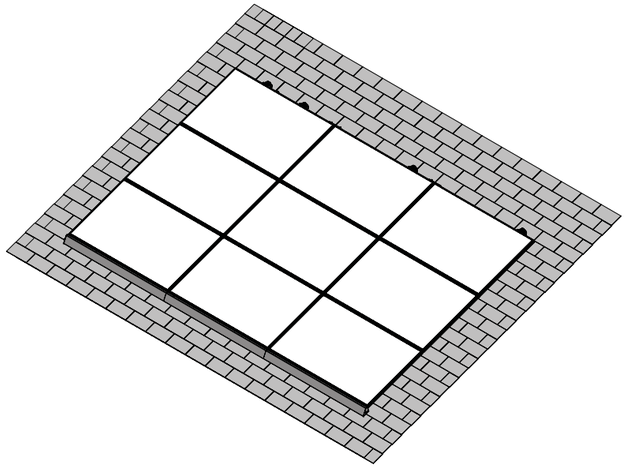
Delta Solar Inverters Datasheet for SolarCity

	SOLIVIA 3.0 TL	SOLIVIA 3.8 TL	SOLIVIA 5.2 TL	SOLIVIA 6.6 TL	SOLIVIA 7.6 TL
INPUT (DC)					
Max. System Voltage	600 V				
Nominal Voltage	380 V				
Operating Voltage Range	85 ~ 550 V				
Full Power MPPT Range	200 - 500 V				
Max. Usable Current	18.0 A	20.0 A	20.0 A per MPP tracker		
Max. Short Circuit Current @ STC	25.0 A per MPP tracker				
Max. Allowable Imbalance Power	-		4200 W	5000 W	5600 W
Allowed DC Loading Ratio	1.5				
DC Disconnect	Internal				
MPP Tracker	1		2		
Total Input Strings Available	2		4		
OUTPUT (AC)					
Nominal Power	3000 W	3800 W	5200 W	6600 W	7600 W
Max. Continuous Power	3000 W @ 208 V / 3000 W @ 240 V	3300 W @ 208 V / 3800 W @ 240 V	5200 W @ 208 V / 5200 W @ 240 V	6600 W @ 208 V / 6600 W @ 240 V	6600 W @ 208 V / 7600 W @ 240 V
Voltage Range	183 ~ 228 V @ 208 V / 211 ~ 264 V @ 240 V				
Nominal Current	14.4 A @ 208 V / 12.5 A @ 240 V	15.8 A @ 208 V / 15.8 A @ 240 V	24.0 A @ 208 V / 21.6 A @ 240 V	31.7 A @ 208 V / 27.5 A @ 240 V	31.7 A @ 208 V / 31.7 A @ 240 V
Nominal Frequency	60 Hz				
Frequency Range	59.3 ~ 60.5 Hz				
Adjustable Frequency Range	57.0 ~ 63.0 Hz				
Night Consumption	< 1.5 W				
Total Harmonic Distortion @ Nominal Power	< 3%				
Power Factor @ Nominal Power	> 0.99				
Adjustable Power Factor Range	0.85i ~ 0.85c				
Acourtic Noise Emission	<50 db(A) @ Im				
GENERAL SPECIFICATION					
Max. Efficiency	98%				
CEC Efficiency	97.5% @ 208V / 97.5% @ 240V				
Operating Temperature Range	-13 ~ 158°F (-25~70°C) | derating above 122°F (50°C)				
Storage Temperature Range	-40 ~ 185°F (-40 ~ 85°C)				
Humidity	0 ~ 100%				
Max. Operating Altitude	2000m above sea level				
MECHANICAL DESIGN					
Size L x W x D inches (L x W x D mm)	19.5 x 15.8 x 8.5 in (495 x 401 x 216 mm)		26.8 x 15.8 x 8.5 in (680 x 401 x 216 mm)		
Weight	43.0 lbs (19.5 kg)		65.0 lbs (29.5 kg)		
Cooling	Natural Convection				
AC Connectors	Spring terminals in connection box				
Compatible Wiring Guage in AC	AWG 12 ~ AWG 6 Copper (According to NEC 310.15)				
DC Connectors	2 pairs of spring terminals in connection box		4 pairs of spring terminals in connection box		
Compatible Wiring Guage in DC	AWG 12 ~ AWG 6 Copper (According to NEC 690.8)				
Communication Interface	ZigBee				
Display	3 LEDs, 4-Line LCD				
Enclosure Material	Diecast Aluminum				
STANDARDS / DIRECTIVES					
Enclosure Protection Rating	NEMA 4X, IEC 60068-2-11 Salt mist				
Safety	UL 1741 Second Edition, CSA C22.2 No.107.1-01				
SW Approval	UL 1998				
Ground-Fault Protection	NEC 690.35, UL 1741 CRD				
Anti-Islanding Protection	IEEE 1547, IEEE 1547.1				
EMC	FCC part 15 Class B				
AFCI	UL 1699B (Type 1), NEC 690.11				
PV Rapid Shutdown	UL 1741 CRD PVRSS, NEC 690.12 (with SMART RSS)				
Integrated Meter	ANSI C12.1 (meet 1% Accuracy)				
Regulation of Grid Support	California Rule 21, HECO Compliant, IEEE1547				
WARRANTY					
Standard Warranty	10 years				

Delta Products Corporation, Inc.
46101 Fremont Blvd,
Fremont, CA 94538
Sales Email: inverter.sales@deltaww.com
Support Email: inverter.support@deltaww.com
Sales Hotline: +1-877-440-5851 or +1-626-369-8021
Support Hotline: +1-877-442-4832
Support (Intl.): +1-626-369-8019
Monday to Friday from 7 am to 5 pm PST (apart from Holidays)

ZS Comp

for composition shingle roofs



ZEP COMPATIBLE

UL LISTED

Description

- PV mounting solution for composition shingle roofs
- Works with all Zep Compatible Modules
- Auto bonding UL-listed hardware creates structural and electrical bond
- ZS Comp has a UL 1703 Class “A” Fire Rating when installed using modules from any manufacturer certified as “Type 1” or “Type 2”

Specifications

- Designed for pitched roofs
- Installs in portrait and landscape orientations
- ZS Comp supports module wind uplift and snow load pressures to 50 psf per UL 2703
- Wind tunnel report to ASCE 7-05 and 7-10 standards
- ZS Comp grounding products are UL listed to UL 2703 and UL 467
- ZS Comp bonding products are UL listed to UL 2703
- Engineered for spans up to 72” and cantilevers up to 24”
- Zep wire management products listed to UL 1565 for wire positioning devices

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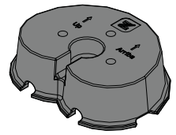
SolarCity | ZepSolar

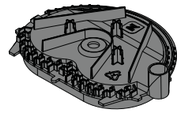
Next-Level PV Mounting Technology

Components



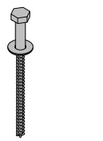
Mounting Block

Part No. 850-1633
Listed to UL 2703



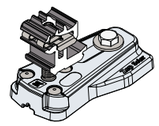
Flashing Insert

Part No. 850-1628
Listed to UL 2703



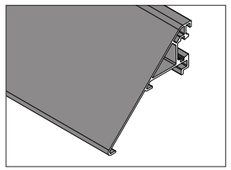
Captured Washer Lag

Part No. 850-1631-001
850-1631-002
850-1631-003
850-1631-004



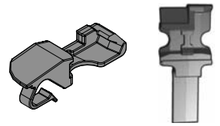
Leveling Foot

Part No. 850-1397
Listed to UL 2703



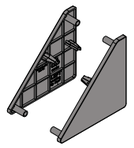
Array Skirt

Part No. 850-1608 or 500-0113
Listed to UL 2703



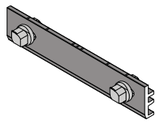
Grip

Part No. 850-1606 or 850-1421
Listed to UL 2703



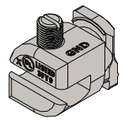
End Cap

Part No.
(L) 850-1586 or 850-1460
(R) 850-1588 or 850-1467



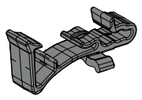
Interlock

Part No. 850-1388 or 850-1613
Listed to UL 2703



Ground Zep V2

Part No. 850-1511
Listed to UL 467 and UL 2703



DC Wire Clip

Part No. 850-1509
Listed to UL 1565

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This document does not create any express warranty by Zep Solar or about its products or services. Zep Solar's sole warranty is contained in the written product warranty for each product. The end-user documentation shipped with Zep Solar’s products constitutes the sole specifications referred to in the product warranty. The customer is solely responsible for verifying the suitability of ZepSolar’s products for each use. Specifications are subject to change without notice. Patents and Apps: zspats.com.

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SC-B2 SERIES MODULE

SC315B2 AND SC310B2 BLACK MODULE

Zep Compatible 96-Cell Black-on-Black PV Module
For use in residential and commercial PV installations

MORE POWER PER MODULE

Our 315W module generates 16% more power than a standard 270 W module.

MORE ENERGY EVERY YEAR

More yearly energy (kWh) compared to other modules as they perform better in the heat.

MORE LAYERS, MORE POWER

Manufactured by Panasonic for SolarCity, the module uses Heterojunction cell technology, which adds a layer of thin film silicon on top of high efficiency crystalline silicon.

OUTSTANDING DURABILITY

With more than 20 additional tests performed beyond what is currently mandated, these modules far exceed industry standards.

MORE POWER, FEWER MODULES

With a sunlight to electricity conversion efficiency of over 18.8%, the module ranks amongst the highest in the industry. That means our modules can harvest more energy from the sun, which means it takes fewer of our modules to power your home. Plus, they generate more power output during the hottest times of the day, even in warmer climates.

LEADING WARRANTY

Our modules rank among the best in warranty coverage, with workmanship that extends to 15 years.

IEC61215 IEC61730-1 IEC61730-2 UL1703 | UL LISTED E490111 | Electrical Protection Class I | RoHS COMPLIANT

LIMITED WARRANTY	Power Output	10 years (90% of P_{MIN}) 25 years (80% of P_{MIN})
	Workmanship	15 years
MATERIALS	Cell Material	5 inch photovoltaic cells
	Glass Material	AR coated tempered glass
	Frame Materials	Black anodized aluminum
CAUTION	Please read the installation manual carefully before using the product.	

Modules are manufactured by Panasonic to the specification of SolarCity. Modules are only warranted by Panasonic if the modules are included in a PV system sold by SolarCity or Tesla. SolarCity and Tesla make no warranties related to the modules, which are sold as-is. SolarCity will handle any warranty claims on behalf of any purchaser.

MODULE SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

Model	SC315B2	SC310B2
Max Power (W)	315	310
Max Power Voltage, V_{MP} (V)	58.4	58.1
Max Power Current, I_{MP} (A)	5.40	5.34
Open Circuit Voltage, V_{OC} (V)	70.2	69.9
Short Circuit Current, I_{SC} (A)	5.83	5.78
System Voltage (V)	600	600
Max Series Fuse Rating (A)	15	15
Solar Module Efficiency (%)	18.8	18.5
Power Tolerance (%)	+5 / -0	+5 / -0

TEMPERATURE CORRECTION

NOCT (°C)	49
P_{MAX} (%/°C)	-0.29
V_{OC} (%/°C)	-0.25
I_{SC} (%/°C)	0.03

Electrical characteristics are within -5/+10% of the indicated values of I_{SC}, V_{OC}, and P_{MAX} under standard test conditions (irradiance of 100 mW/cm, AM 1.5 spectrum, and a cell temperature of 25 degrees Celsius or 77 degrees Fahrenheit).

AT NOCT (NORMAL OPERATING CONDITIONS)

Model	SC315B2	SC310B2
Max Power (W)	234.6	230.7
Max Power Voltage, V_{MP} (V)	53.6	53.3
Max Power Current, I_{MP} (A)	4.37	4.33
Open Circuit Voltage, V_{OC} (V)	65.7	65.4
Short Circuit Current, I_{SC} (A)	4.70	4.66

AT LOW IRRADIANCE (20%)

Model	SC315B2	SC310B2
Max Power (W)	59.7	58.6
Max Power Voltage, V_{MP} (V)	55.7	55.2
Max Power Current, I_{MP} (A)	1.07	1.06
Open Circuit Voltage, V_{OC} (V)	65.4	65.0
Short Circuit Current, I_{SC} (A)	1.17	1.16

MECHANICAL DATA

Weight	19.5kg (42.99 lbs)
Dimensions	1590 mm (62.60") / 1053 mm (41.46") / 40 mm (1.57")
Connector	MC4
Frame Color	Black
Wind and Snow Load	2400 Pa (50 lbs/ft²)
Fire Type	UL 1703 Type 2