



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 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 SS 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>	<p>1. 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. 2. EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRE BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART. 210.5. 3. A NATIONALLY-RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH ART. 110.3. 4. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH ART. 250.97, 250.92(B) 5. 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). 6. ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY UL LISTING. 7. MODULE FRAMES SHALL BE GROUNDED AT THE UL-LISTED LOCATION PROVIDED BY THE MANUFACTURER USING UL LISTED GROUNDING HARDWARE. 8. MODULE FRAMES, RAIL, AND POSTS SHALL BE BONDED WITH EQUIPMENT GROUND CONDUCTORS AND GROUNDED AT THE MAIN ELECTRIC PANEL. 9. THE DC GROUNDING ELECTRODE CONDUCTOR SHALL BE SIZED ACCORDING TO ART. 250.166(B) & 690.47.</p>	<p style="text-align: center;">VICINITY MAP</p>  <p style="text-align: center;">INDEX</p> <p>PV1 COVER SHEET PV2 SITE PLAN PV3 STRUCTURAL VIEWS PV4 STRUCTURAL VIEWS PV5 UPLIFT CALCULATIONS PV6 THREE LINE DIAGRAM Cutsheets Attached</p> <table border="1" data-bbox="2439 1562 3039 1743"> <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>2/11/2014</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>	REV	BY	DATE	COMMENTS	REV A	NAME	2/11/2014	COMMENTS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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<p style="text-align: center;">LICENSE</p> <p>TYPE EC # 27006</p> <p>MODULE GROUNDING METHOD: ZEP SOLAR</p> <p>AHJ: Farmers Branch</p> <p>UTILITY: TXU Energy</p>	<p style="text-align: center;">GENERAL NOTES</p> <p>1. THIS SYSTEM IS GRID-INTERTIED VIA A UL-LISTED POWER-CONDITIONING INVERTER. 2. THIS SYSTEM HAS NO BATTERIES, NO UPS. 3. SOLAR MOUNTING FRAMES ARE TO BE GROUNDED. 4. ALL STRUCTURAL WORK SHALL COMPLY WITH THE 2009 INTERNATIONAL BUILDING CODE. 5. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2005 NATIONAL ELECTRIC CODE.</p>	<p style="text-align: center;">VICINITY MAP</p>  <p style="text-align: center;">INDEX</p> <p>PV1 COVER SHEET PV2 SITE PLAN PV3 STRUCTURAL VIEWS PV4 STRUCTURAL VIEWS PV5 UPLIFT CALCULATIONS PV6 THREE LINE DIAGRAM Cutsheets Attached</p> <table border="1" data-bbox="2439 1562 3039 1743"> <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>2/11/2014</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>	REV	BY	DATE	COMMENTS	REV A	NAME	2/11/2014	COMMENTS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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JOB NUMBER: JB-752227 00

MOUNTING SYSTEM:
Comp Mount Type C

MODULES:
(45) CANADIAN SOLAR # CS6P-250PX

INVERTER:
POWER-ONE # AURORA PVI-4.2-OUTD-S-US

PREMISE OWNER:
KUILE, ROBERT TER
3116 SPUR TRAIL
FARMERS BRANCH, TX 75234

DESCRIPTION:
KUILE RESIDENCE
11.25 KW PV Array

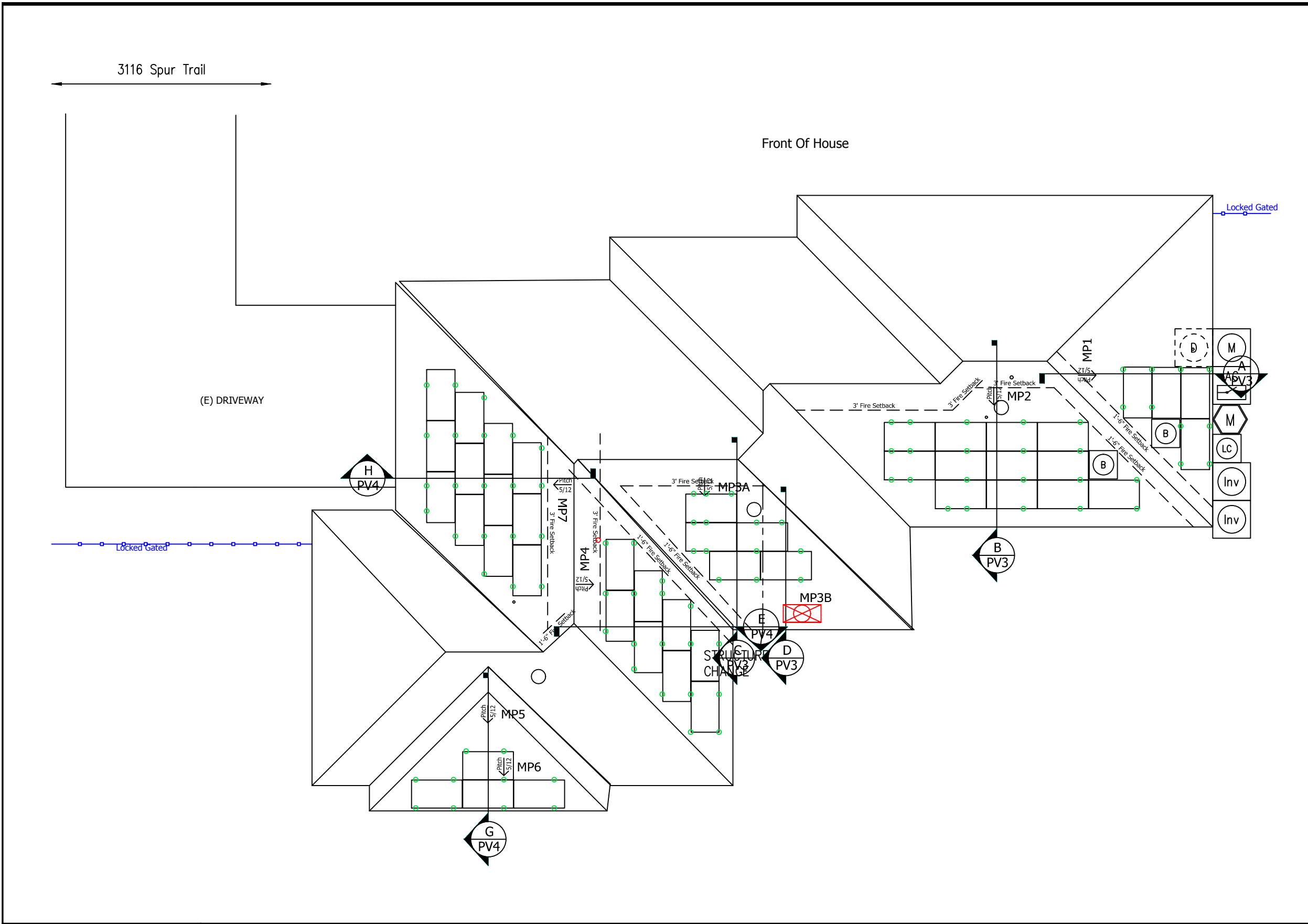
PAGE NAME:
COVER SHEET

DESIGN:
Lindsay Stone

SHEET: PV 1 REV: 1 DATE: 2/11/2014



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MP1	PITCH: 19 AZIMUTH: 90 MATERIAL: Comp Shingle	ARRAY PITCH: 19 ARRAY AZIMUTH: 90 STORY: 1 Story
MP2	PITCH: 19 AZIMUTH: 180 MATERIAL: Comp Shingle	ARRAY PITCH: 19 ARRAY AZIMUTH: 180 STORY: 1 Story
MP3	PITCH: 19 AZIMUTH: 180 MATERIAL: Comp Shingle	ARRAY PITCH: 19 ARRAY AZIMUTH: 180 STORY: 1 Story
MP4	PITCH: 19 AZIMUTH: 90 MATERIAL: Comp Shingle	ARRAY PITCH: 19 ARRAY AZIMUTH: 90 STORY: 1 Story
MP5	PITCH: 19 AZIMUTH: 180 MATERIAL: Comp Shingle	ARRAY PITCH: 19 ARRAY AZIMUTH: 180 STORY: 1 Story
MP6	PITCH: 19 AZIMUTH: 180 MATERIAL: Comp Shingle	ARRAY PITCH: 19 ARRAY AZIMUTH: 180 STORY: 1 Story
MP7	PITCH: 19 AZIMUTH: 270 MATERIAL: Comp Shingle	ARRAY PITCH: 19 ARRAY AZIMUTH: 270 STORY: 1 Story

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
- CONDUIT RUN ON EXTERIOR
- CONDUIT RUN ON INTERIOR
- GATE/FENCE
- INTERIOR EQUIPMENT

SITE PLAN

Scale: 3/32" = 1'



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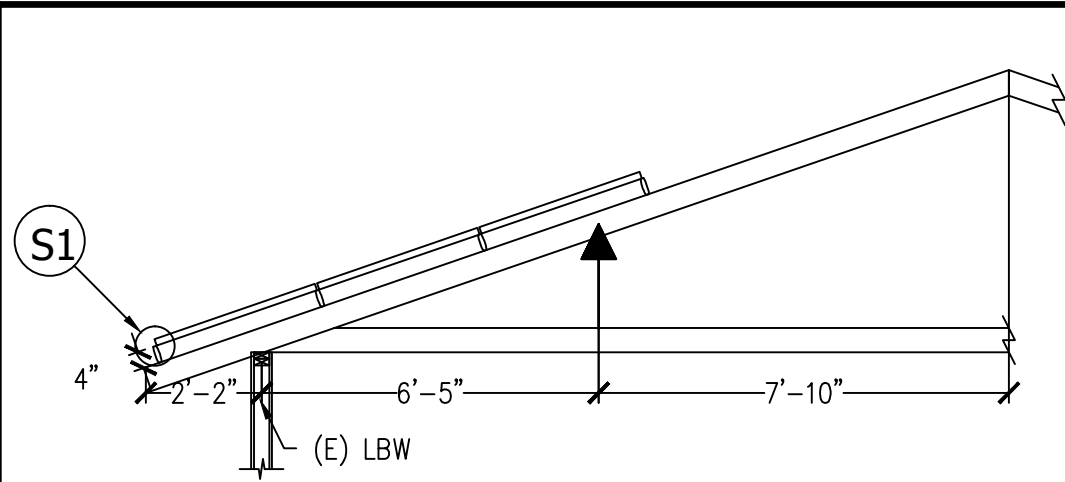
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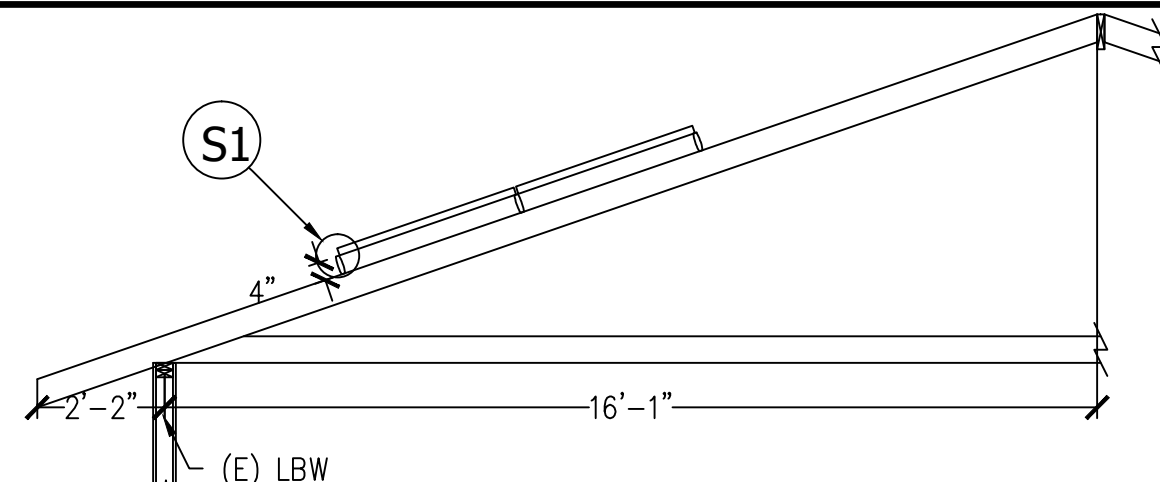
SHEET: PV 2
 REV: 2
 DATE: 2/11/2014





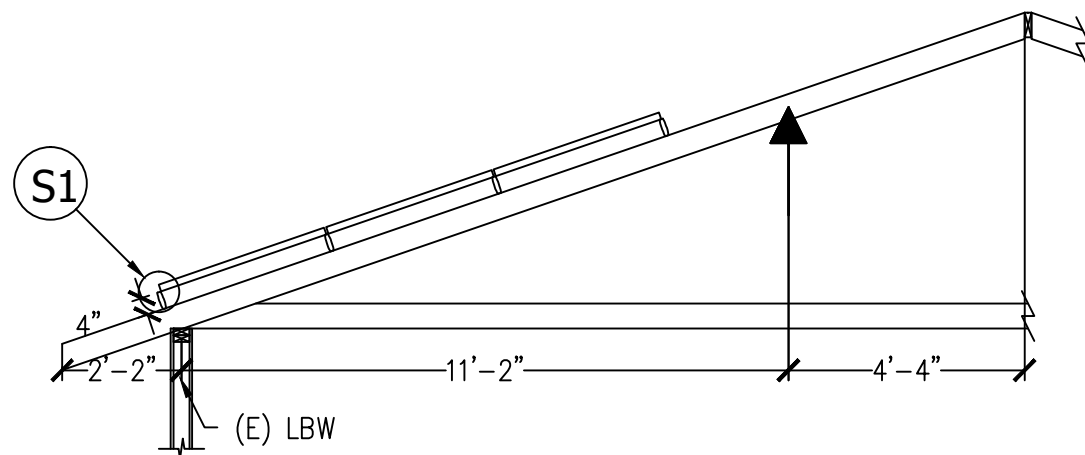
A SIDE VIEW OF MP1 NTS

MP1	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	72"	24"			
PORTRAIT	48"	19"			
RAFTER: 2x6 @ 24" OC			ROOF AZI 90	PITCH 19	STORIES: 1
C.J.: 2x6 @16" OC			ARRAY AZI 90	PITCH 19	
Comp Shingle					



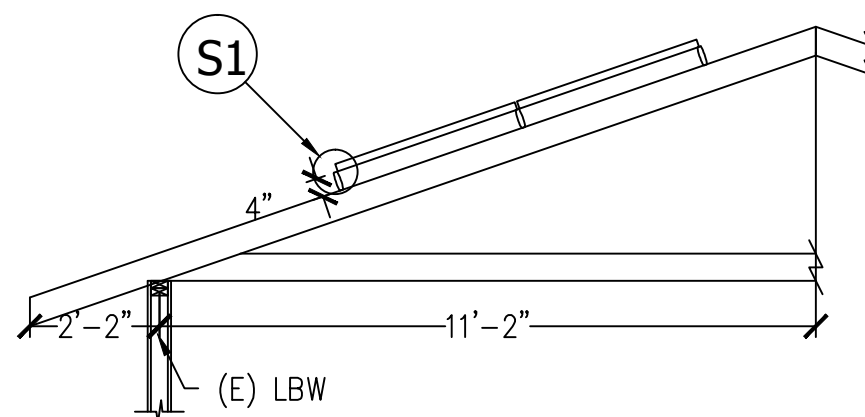
C SIDE VIEW OF MP3A NTS

MP3A	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	64"	24"			
PORTRAIT	48"	19"			
RAFTER: 2x6 @ 16" OC			ROOF AZI 180	PITCH 19	STORIES: 1
C.J.: 2x6 @16" OC			ARRAY AZI 180	PITCH 19	
Comp Shingle					



B SIDE VIEW OF MP2 NTS

MP2	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	72"	24"			
PORTRAIT	48"	19"			
RAFTER: 2x6 @ 24" OC			ROOF AZI 180	PITCH 19	STORIES: 1
C.J.: 2x6 @16" OC			ARRAY AZI 180	PITCH 19	
Comp Shingle					



D SIDE VIEW OF MP3B NTS

MP3B	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	72"	24"			
PORTRAIT	48"	19"			
RAFTER: 2x6 @ 24" OC			ROOF AZI 180	PITCH 19	STORIES: 1
C.J.: 2x6 @16" OC			ARRAY AZI 180	PITCH 19	
Comp Shingle					

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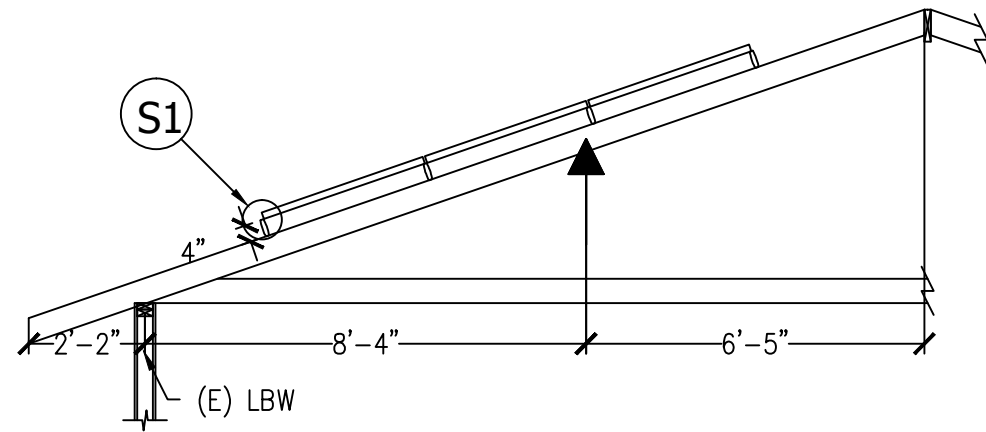
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DESIGN:
 Lindsay Stone

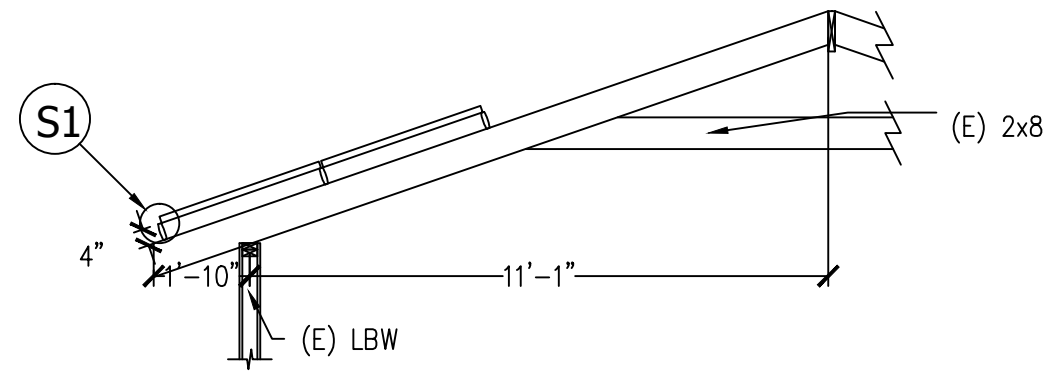
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 REV: 3
 DATE: 2/11/2014





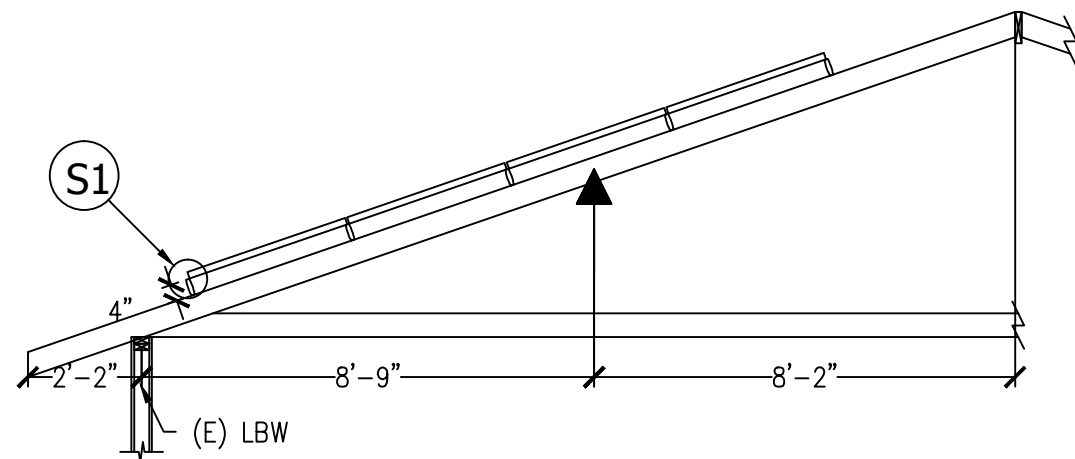
E SIDE VIEW OF MP4 NTS

MP4	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	64"	24"			
PORTRAIT	48"	19"			
RAFTER: 2x6 @ 16" OC			ROOF AZI 90 PITCH 19		STORIES: 1
C.J.: 2x6 @16" OC			ARRAY AZI 90 PITCH 19		
Comp Shingle					



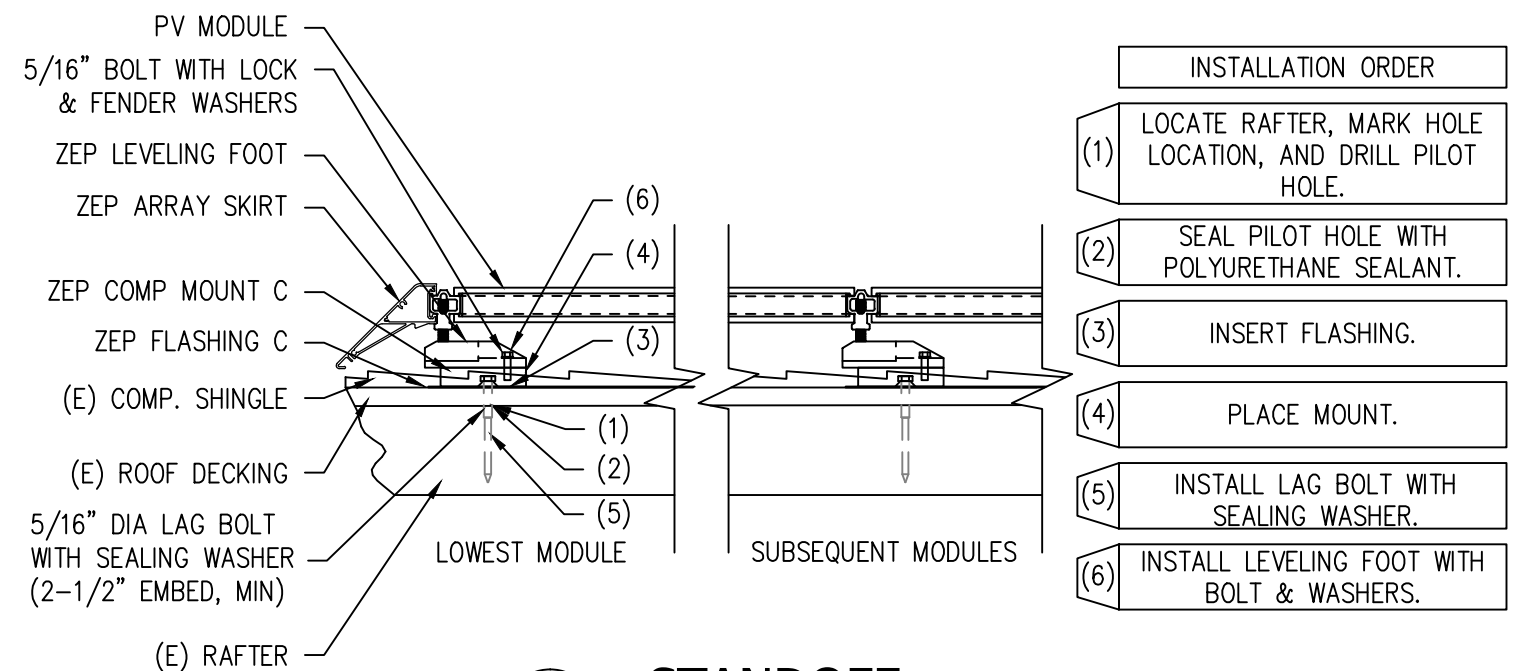
F SIDE VIEW OF MP6 NTS

MP6	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	64"	24"			
PORTRAIT	48"	19"			
RAFTER: 2x8 @ 16" OC			ROOF AZI 180 PITCH 19		STORIES: 1
C.J.: 2x8 @16" OC			ARRAY AZI 180 PITCH 19		
Comp Shingle					



G SIDE VIEW OF MP7 NTS

MP7	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	64"	24"			
PORTRAIT	48"	19"			
RAFTER: 2x6 @ 16" OC			ROOF AZI 270 PITCH 19		STORIES: 1
C.J.: 2x6 @16" OC			ARRAY AZI 270 PITCH 19		
Comp Shingle					



S1 STANDOFF
Scale: 1 1/2" = 1'

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Lindsay Stone

SHEET: PV 4
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UPLIFT CALCULATIONS

NEC 2008 220.82 - Residential Load Calculation Version 2.1
L1/L2 **240 V**

NEC 220.82(B) "The general calculated load shall be not less than 100% of the first 10 kVA plus 40% of the remainder of the following loads..."

NEC 220.82(B)(1) "The calculated floor area shall not include open porches, garages, or unused ... spaces..."
Floor Area: **2,750** square feet x 3VA/sq ft = **8,250 VA**

NEC 220.82(B)(2) "1500 volt-amperes for each 2-wire, 20-ampere small appliance branch circuit and each laundry branch circuit..."
Small Appliance Circuits: **3** circuits x 1500VA/circuit = **4,500 VA**
Laundry Circuits: **1** circuits x 1500VA/circuit = **1,500 VA**
Bathroom Circuits: **1** circuits x 1500VA/circuit = **1,500 VA**

NEC 220.82(B)(3) & 220.82(B)(4) "The nameplate rating of all appliances... ranges, wall-mounted ovens, counter-mounted cooking units... clothes dryers that are not connected to the laundry branch circuit... [and] water heaters"

	2P Breaker	VA	
Oven	50	9,600	
Stove	30	5,760	
Dryer	30	5,760	
Water Heater	50	9,600	
Pool	0	0	
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
Total of non air-conditioning loads:			46,470 total VA
First 10 kVA of load at 100%			10,000
Remainder of load at 40%			14,588
Adjusted total of non air-conditioning load			24,588 VA

NEC 220.82(C) "Heating and air-conditioning load..."

	2P Breaker	VA	
Sum of A/C Equipment Units	80	15,360	
Sum of Electric Furnaces	0	0	
Total of A/C Loads and All Other Loads:			39,948 total VA
Total Proposed Calculated Load:			166.45 Amps

JB - 752227



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SleekMount™ PV System Structural Design Software 02.11.2014
Version #27.9

Project Information & Table Of Contents

Risk Category:	II	
PV System Type	SolarCity SleekMount™	
Comp Roof	Comp Roof	
Layers of Comp Roofing	1	
Roof Slope	19°	
Rafter Spacing	16" O.C.	
PV System Module Orientation	Landscape and Portrait	
PV Module Area	779 sf	
PV Module Width	39"	
PV Module Length	64"	
Standoff (Attachment Hardware)	Comp Mount Type C	

Ground/Roof Live/Snow Loads

Ground Snow Load	pg	0.0 psf	ASCE Table 7-1
Surrounding Roof Snow		0.0 psf	ASCE Eq: 7.4-1
Roof Snow Over PV Modules		0.0 psf	ASCE Eq: 7.4-1

Wind Design Criteria

Wind Design Code	ASCE 7-05		
Wind Design Method	Partially/Fully Enclosed Method		
Basic Wind Speed	V	115 mph	Fig. 6-1
Exposure Category		C	Section 6.5.6.3
Roof Style		Gable/Hip Roof	Fig. 6-11B/C/D-14A/B
Mean Roof Height	h	15 ft	Section 6.2
Effective Wind Area (1 Module)	A	17.3 sf	IBC 1509.7.1

Wind Pressure Calculation Coefficients

Wind Pressure Exposure	Kz	0.85	Table 6-3
Topographic Factor	Kzt	1.00	Section 6.5.7
Wind Directionality Factor	Kd	0.85	Table 6-4
Importance Factor	I	1.0	Table 6-1

Velocity Pressure	qh	qh = 0.00256 (Kz) (Kzt) (Kd) (V^2) (I)	Equation 6-15
		24.4 psf	
Ext. Pressure Coefficient (Up)	GCp (Up)	-0.88	Fig. 6-11B/C/D-14A/B
Ext. Pressure Coefficient (Down)	GCp (Down)	0.45	Fig. 6-11B/C/D-14A/B
Design Wind Pressure	p	p = qh (GCp)	Equation 6-22
Wind Pressure Up	p(up)	-21.4 psf	
Wind Pressure Down	p(down)	11.0 psf	

Allowable Standoff Spacings

		X-Direction	Y-Direction
Max Allowable Standoff Spacing	Landscape	64"	39"
Max Allowable Cantilever	Landscape	24"	NA
Standoff Configuration	Landscape	Not-Staggered	
Max Standoff Tributary Area	Trib	17 sf	
PV Assembly Dead Load	W-PV	3 psf	
Net Wind Uplift at Standoff	T-actual	-339 lbs	
Uplift Capacity of Standoff	T-allow	500 lbs	
Standoff Demand/Capacity	DCR	67.7%	
Max Allowable Standoff Spacing	Portrait	48"	64"
Max Allowable Cantilever	Portrait	19"	NA
Standoff Configuration	Portrait	Not-Staggered	
Max Standoff Tributary Area	Trib	21 sf	
PV Assembly Dead Load	W-PV	3 psf	
Net Wind Uplift at Standoff	T-actual	-424 lbs	
Uplift Capacity of Standoff	T-allow	500 lbs	
Standoff Demand/Capacity	DCR	84.7%	

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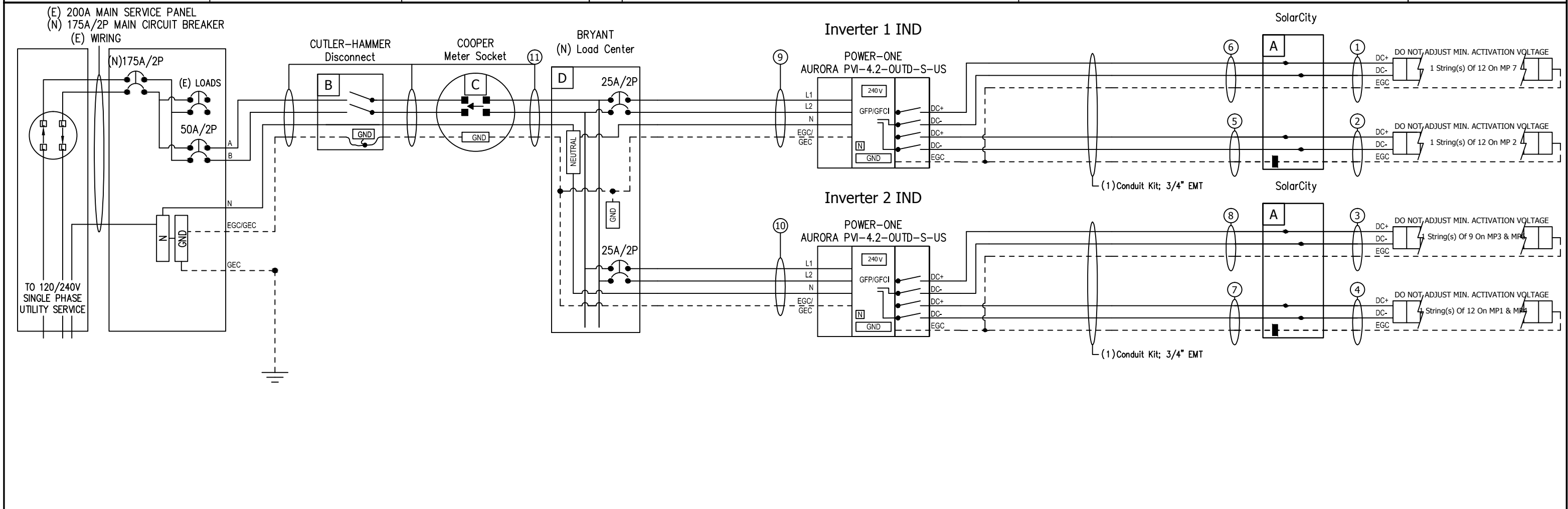


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PAGE NAME:
UPLIFT CALCULATIONS

SHEET: PV 5
REV: 5
DATE: 2/11/2014

GROUND SPECS	MAIN PANEL SPECS	GENERAL NOTES	INVERTER SPECS	MODULE SPECS	LICENSE
BOND (N) #8 GEC TO (E) GROUND ROD AT PANEL WITH IRREVERSIBLE CRIMP	Panel Number: Cutler-Hammer Meter Number: 111 628 019	Inv 1: DC Ungrounded Inv 2: DC Ungrounded Downsizing Main Breaker For Tie-In	INV 1 - (1)POWER-ONE # AURORA PVI-4.2-OUTD-S-US LABEL: A Inverter; Zigbee 4200W, 240V, 96% INV 2 - (1)POWER-ONE # AURORA PVI-4.2-OUTD-S-US LABEL: B Inverter; Zigbee 4200W, 240V, 96% INV 3	(45) CANADIAN SOLAR # CS6P-250PX PV Module; 250W, 227.6W PTC, Black Frame, MC4, ZEP Enabled Voc: 37.2 Vpmax: 30.1 Isc AND Imp ARE SHOWN IN THE DC STRINGS IDENTIFIER	TYPE EC # 27006



Voc* = MAX VOC AT MIN TEMP

POI (1) CUTLER-HAMMER # BQC2502115 Breaker; 15A/1P-50A/2P-15A/1P, 2 Spaces, Quadplex PV BACKFEED BREAKER	B (1) CUTLER-HAMMER # DG222URB Disconnect; 60A, 240Vac, Non-Fusible, NEMA 3R (1) CUTLER-HAMMER # DG100NB Ground/Neutral Kit; 60-100A, General Duty (DG)	AC	A (2) SolarCity # 4 STRING JUNCTION BOX 2x2 STRINGS, UNFUSED, GROUNDED (2) ZEP # 850-1196-002 Universal Box Bracket; [PKG B]	DC
11 (1) AWG #6, THWN-2, Black (1) AWG #6, THWN-2, Red (1) AWG #6, THWN-2, White (1) AWG #8, THWN-2, Green NEUTRAL Vmp = 240 VAC Imp = 40 AAC EGC/GEC - (1) Conduit Kit; 3/4" EMT	C (1) COOPER # B-Line Meter Socket 011 Meter Socket; 125A, 4-14AWG, Ring Type (1) AW CAP; B-Line Meter Socket Accessory (1) MILBANK # CL200 Meter; FORM 2S (1) BRYANT # BR816L125RP Load Center; 125A, 120/240V, NEMA 3R (2) CUTLER-HAMMER # BR225 Breaker; 25A/2P, 2 Spaces	9 (1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, Red (1) AWG #10, THWN-2, White (1) AWG #8, THWN-2, Green NEUTRAL Vmp = 240 VAC Imp = 20 AAC EGC/GEC - (1) Conduit Kit; 3/4" EMT	5 (1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, Red (1) AWG #10, THWN-2, Green EGC Voc* = 510.49 VDC Isc = 8.87 ADC Vmp = 361.2 VDC Imp = 8.3 ADC	1 (2) AWG #10, PV WIRE, Black (1) AWG #10, Solid Bare Copper EGC Voc* = 510.49 VDC Isc = 8.87 ADC Vmp = 361.2 VDC Imp = 8.3 ADC
	D (1) BRYANT # BR816L125RP Load Center; 125A, 120/240V, NEMA 3R (2) CUTLER-HAMMER # BR225 Breaker; 25A/2P, 2 Spaces	10 (1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, White (1) AWG #8, THWN-2, Green NEUTRAL Vmp = 240 VAC Imp = 20 AAC EGC/GEC - (1) Conduit Kit; 3/4" EMT	6 (1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, Red (1) AWG #10, THWN-2, Green EGC Voc* = 510.49 VDC Isc = 8.87 ADC Vmp = 361.2 VDC Imp = 8.3 ADC	2 (2) AWG #10, PV WIRE, Black (1) AWG #10, Solid Bare Copper EGC Voc* = 510.49 VDC Isc = 8.87 ADC Vmp = 361.2 VDC Imp = 8.3 ADC
			7 (1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, Red (1) AWG #10, THWN-2, Green EGC Voc* = 510.49 VDC Isc = 8.87 ADC Vmp = 361.2 VDC Imp = 8.3 ADC	3 (2) AWG #10, PV WIRE, Black (1) AWG #10, Solid Bare Copper EGC Voc* = 382.87 VDC Isc = 8.87 ADC Vmp = 270.9 VDC Imp = 8.3 ADC
			8 (1) AWG #10, THWN-2, Black (1) AWG #10, THWN-2, Red (1) AWG #10, THWN-2, Green EGC Voc* = 382.87 VDC Isc = 8.87 ADC Vmp = 270.9 VDC Imp = 8.3 ADC	4 (2) AWG #10, PV WIRE, Black (1) AWG #10, Solid Bare Copper EGC Voc* = 510.49 VDC Isc = 8.87 ADC Vmp = 361.2 VDC Imp = 8.3 ADC

CONFIDENTIAL - THE INFORMATION HEREIN CONTAINED SHALL NOT BE USED FOR THE BENEFIT OF ANYONE EXCEPT SOLARCITY 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 SOLARCITY EQUIPMENT, WITHOUT THE WRITTEN PERMISSION OF SOLARCITY INC.

JOB NUMBER: JB-752227 00
MOUNTING SYSTEM: Comp Mount Type C
MODULES: (45) CANADIAN SOLAR # CS6P-250PX
INVERTER: POWER-ONE # AURORA PVI-4.2-OUTD-S-US

PREMISE OWNER: KUILE, ROBERT TER
3116 SPUR TRAIL
FARMERS BRANCH, TX 75234

DESCRIPTION: KUILE RESIDENCE
11.25 KW PV Array
PAGE NAME: THREE LINE DIAGRAM

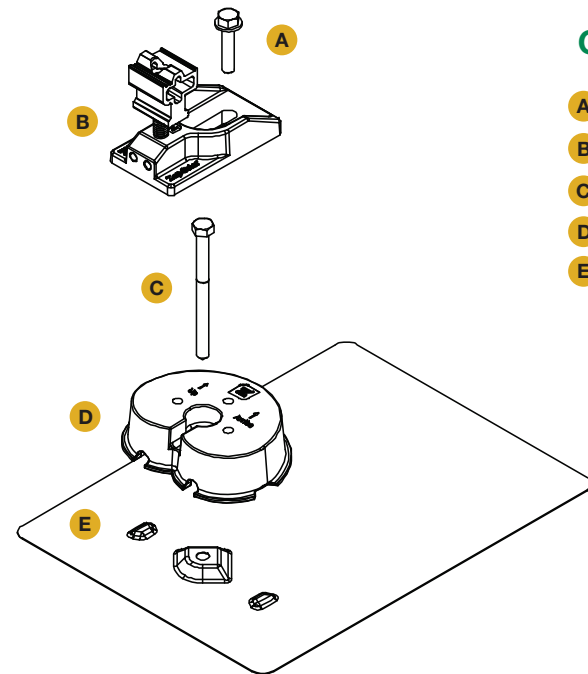
DESIGN: Lindsay Stone
SHEET: PV 6
REV: 2/11/2014
DATE:



SolarCity SleekMount™ – Comp

The SolarCity SleekMount hardware solution is optimized to achieve superior strength and aesthetics while minimizing roof disruption and labor. The elimination of visible rail ends and mounting clamps, combined with the addition of array trim and a lower profile all contribute to a more visually appealing system. SleekMount utilizes Zep Compatible™ modules with strengthened frames that attach directly to Zep Solar standoffs, effectively eliminating the need for rail and reducing the number of standoffs required. In addition, composition shingles are not required to be cut for this system, allowing for minimal roof disturbance.

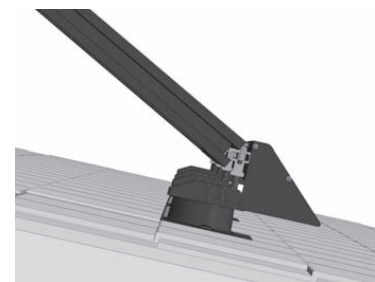
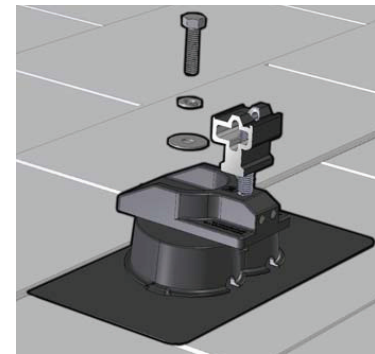
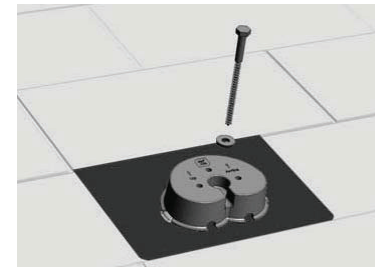
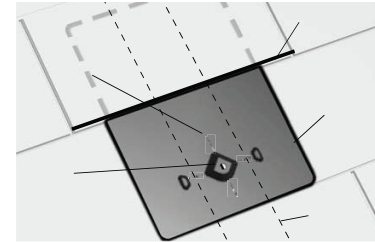
- Utilizes Zep Solar hardware and UL 1703 listed Zep Compatible™ modules
- Interlock and grounding devices in system UL listed to UL 2703
- Interlock and Ground Zep ETL listed to UL 1703 as “Grounding and Bonding System”
- Ground Zep UL and ETL listed to UL 467 as grounding device
- Painted galvanized waterproof flashing
- Anodized components for corrosion resistance
- Applicable for vent spanning functions



Components

- A** 5/16" Machine Screw
- B** Leveling Foot
- C** Lag Screw
- D** Comp Mount
- E** Comp Mount Flashing

SolarCity SleekMount™ – Comp



Installation Instructions

- 1 Drill Pilot Hole of Proper Diameter for Fastener Size Per NDS Section 1.1.3.2
- 2 Seal pilot hole with roofing sealant
- 3 Insert Comp Mount flashing under upper layer of shingle
- 4 Place Comp Mount centered upon flashing
- 5 Install lag pursuant to NDS Section 11.1.3 with sealing washer.
- 6 Secure Leveling Foot to the Comp Mount using machine Screw
- 7 Place module

PVI-3.0-TL PVI-3.6-TL PVI-4.2-TL

GENERAL SPECIFICATIONS OUTDOOR MODELS

The most common residential inverter is the ideal size for an average-sized family home. This family of single-phase string inverter complements the typical number of rooftop solar panels, allowing home-owners to get the most efficient energy harvesting for the size of the property. This rugged outdoor inverter has been designed as a completely sealed unit to withstand the harshest environmental conditions.

One of the key benefits of the Uno family of single-phase inverters is the dual input section to process two strings with independent MPPT especially useful for rooftop installations with two different orientations (ie East and West). The high speed MPPT offers real-time power tracking and improved energy harvesting.

The transformerless operation gives the highest efficiency of up to 97.0%. The wide input voltage range makes the inverter suitable to low power installations with reduced string size.



AURORA UNO

Features

- Each inverter is set on specific grid codes which can be selected in the field
- Single phase output
- Dual input sections with independent MPPT, allows optimal energy harvesting from two sub-arrays oriented in different directions
- Wide input range
- High speed and precise MPPT algorithm for real time power tracking and improved energy harvesting
- Flat efficiency curves ensure high efficiency at all output levels ensuring consistent and stable performance across the entire input voltage and output power range
- Outdoor enclosure for unrestricted use under any environmental conditions
- Integrated DC disconnect switch in compliance with international Standards (-S Version)
- RS-485 communication interface (for connection to laptop or datalogger)
- Compatible with PVI-RADIOMODULE for wireless communication with Aurora PVI-DESKTOP

TECHNICAL DATA	VALUES	PVI-3.0-OUTD-US	PVI-3.6-OUTD-US	PVI-4.2-OUTD-US
Nominal Output Power	W	3000	3600	4200
Maximum Output Power	W	3000	3600	4200
Rated Grid AC Voltage	V	208	240	277
Input Side (DC)				
Number of Independent MPPT Channels		2	2	2
Maximum Usable Power for Each Channel	W	2000	3000	3000
Absolute Maximum Voltage (Vmax)	V	600	600	600
Start-Up Voltage (Vstart)	V	200 (adj. 120-350)	200 (adj. 120-350)	200 (adj. 120-350)
Full Power MPPT Voltage Range	V	160-530	120-530	140-530
Operating MPPT Voltage Range	V	0.7xVstart-580	0.7xVstart-580	0.7xVstart-580
Maximum Current (Idcmax) for both MPPT in Parallel	A	20	32	32
Maximum Usable Current per Channel	A	10	16	16
Maximum Short Circuit Current Limit per Channel	A	12.5	20	20
Number of Wire Landing Terminals Per Channel		2 Pairs (1 on -S version)	2 Pairs (1 on -S version)	2 Pairs (1 on -S version)
Array Wiring Termination		Terminal block, Pressure Clamp, AWG10-AWG4		
Output Side (AC)				
Grid Connection Type		1Ø/2W	Split-Ø/3W	1Ø/2W
Adjustable Voltage Range (Vmin-Vmax)	V	183-228	211-264	244-304
Grid Frequency	Hz	60	60	60
Adjustable Grid Frequency Range	Hz	57-60.5	57-60.5	57-60.5
Maximum Current (Iacmax)	A _{RMS}	14.5	14.5	12
Power Factor		> 0.995	> 0.995	> 0.995
Total Harmonic Distortion At Rated Power	%	< 2	< 2	< 2
Grid Wiring Termination Type		Terminal block, Pressure Clamp, AWG10-AWG4		
Protection Devices				
Input				
Reverse Polarity Protection		Yes	Yes	Yes
Over-Voltage Protection Type		Varistor, 2 for each channel	Varistor, 2 for each channel	Varistor, 2 for each channel
PV Array Ground Fault Detection		Pre start-up Riso and dynamic GFDI (Requires Floating Arrays)		
Output				
Anti-Islanding Protection		Meets UL 1741/IEE1547 requirements	Meets UL 1741/IEE1547 requirements	Meets UL 1741/IEE1547 requirements
Over-Voltage Protection Type		Varistor, 2 (L ₁ - L ₂ / L ₁ - G)	Varistor, 2 (L ₁ - L ₂ / L ₁ - G)	Varistor, 2 (L ₁ - L ₂ / L ₁ - G)
Maximum AC OCPD Rating	A	20	20	25
Efficiency				
Maximum Efficiency	%	96.9	97	97
CEC Efficiency	%	96	96	96
Operating Performance				
Stand-by Consumption	W _{RMS}	< 8	< 8	< 8
Night time consumption	W _{RMS}	< 0.6	< 0.6	< 0.6
Communication				
User-Interface		16 characters x 2 lines LCD display		
Remote Monitoring (1xRS485 incl.)		AURORA-UNIVERSAL (opt.)		
Wired Local Monitoring (1xRS485 incl.)		PVI-USB-RS485_232 (opt.), PVI-DESKTOP (opt.)		
Wireless Local Monitoring		PVI-DESKTOP (opt.) with PVI-RADIOMODULE (opt.)		
Environmental				
Ambient Air Operating Temperature Range	°F (°C)	-13 to +140 (-25 to +60) with derating above 131 (55)	-13 to +140 (-25 to +60) with derating above 131 (55)	-13 to +140 (-25 to +60) with derating above 113 (45)
Ambient Air Storage Temperature Range	°F (°C)	-40 to 176 (-40 to +80)	-40 to 176 (-40 to +80)	-40 to 176 (-40 to +80)
Relative Humidity	% RH	0-100 condensing	0-100 condensing	0-100 condensing
Acoustic Noise Emission Level	db (A) @1m	< 50	< 50	< 50
Maximum Operating Altitude without Derating	ft(m)	6560 (2000)	6560 (2000)	6560 (2000)
Mechanical Specifications				
Enclosure rating		NEMA 4X	NEMA 4X	NEMA 4X
Cooling		Natural Convection	Natural Convection	Natural Convection
Dimensions (H x W x D)	in (mm)	33.8 x 12.8 x 8.7 (859 x 325 x 222) -S Version		
Weight	lb/(kg)	< 47.3 (21.3) -S version	< 47.3 (21.3) -S version	< 47.3 (21.3) -S version
Mounting System		Wall bracket	Wall bracket	Wall bracket
Conduit Connections***		Trade size KOs: (2ea x 1/2") and (2ea x 1-1/4", 3 places side, front, rear)	Trade size KOs: (2ea x 1/2") and (2ea x 1-1/4", 3 places side, front, rear)	Trade size KOs: (2ea x 1/2") and (2ea x 1-1/4", 3 places side, front, rear)
DC Switch Rating-(Per Contact)	A/V	25 / 600	25 / 600	25 / 600
Safety				
Isolation Level		Transformerless (Floating Array)	Transformerless (Floating Array)	Transformerless (Floating Array)
Safety and EMC Standard		UL 1741, CSA - C22.2 N. 107.1-01	UL 1741, CSA - C22.2 N. 107.1-01	UL 1741, CSA - C22.2 N. 107.1-01
Safety Approval		cCSAus	cCSAus	cCSAus
Warranty				
Standard Warranty	years	10	10	10
Extended Warranty	years	15 & 20	15 & 20	15 & 20
Available Models				
Standard - Without DC Switch and Wiring Box		PVI-3.0-OUTD-US	PVI-3.6-OUTD-US	PVI-4.2-OUTD-US
With DC Switch and Wiring Box		PVI-3.0-OUTD-S-US	PVI-3.6-OUTD-S-US	PVI-4.2-OUTD-S-US

*All data is subject to change without notice

** Capability enabled at nominal AC voltage and with sufficient DC power available

*** When equipped with optional DC Switch and Wiring Box



Certificate of Compliance

Certificate: 2096477 **Master Contract:** 173688
Project: 2439385 **Date Issued:** July 19, 2011
Issued to: **Power-One, Inc**
740 Calle Plano
Camarillo, CA 93012
USA
Attention: Robert White

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Rob Hempstock
Issued by: Rob Hempstock, ASCT.

PRODUCTS

CLASS 5311 09 - POWER SUPPLIES - Distributed Generation Power Systems Equipment
CLASS 5311 89 - POWER SUPPLIES - Distributed Generation - Power Systems Equipment
- Certified to U.S. Standards

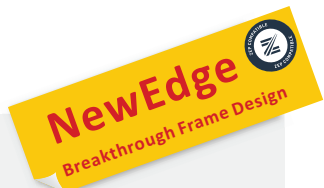
Utility Interactive Inverter, Models PVI-4.2-OUTD-US, PVI-3.6-OUTD-US, PVI-3.0-OUTD-US, PVI-4.2-OUTD-S-US, PVI-3.6-OUTD-S-US, PVI-3.0-OUTD-S-US, PVI-4.2-OUTD-US-W, PVI-3.6-OUTD-US-W and PVI-3.0-OUTD-US-W; provided with two DC input channels, permanently connected.

For details related to ratings, reference should be made to the CSA Certification Record, Appendix 1 or the Descriptive Report.

APPLICABLE REQUIREMENTS

CSA-C22.2 No.107.1-01 - General Use Power Supplies

UL Std No. 1741-Second Edition - Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources (January 28, 2010)



NewEdge Black-framed CS6P 235/240/245/250/255PX

Next Generation Solar Module

NewEdge, the next generation module designed for multiple types of mounting systems, offers customers the added value of minimal system costs, aesthetic seamless appearance, auto grounding and theft resistance.

The black-framed CS6P-PX is a robust 60 cell solar module incorporating the groundbreaking Zep compatible frame. The specially designed frame allows for rail-free fast installation with the industry's most reliable grounding system. The module uses high efficiency poly-crystalline silicon cells laminated with a white back sheet and framed with black anodized aluminum. The black-framed CS6P-PX is the perfect choice for customers who are looking for a high quality aesthetic module with lowest system cost.

Best Quality

- 235 quality control points in module production
- EL screening to eliminate product defects
- Current binning to improve system performance
- Accredited Salt mist resistant

Best Warranty Insurance

- 25 years worldwide coverage
- 100% warranty term coverage
- Providing third party bankruptcy rights
- Non-cancellable
- Immediate coverage
- Insured by 3 world top insurance companies

Comprehensive Certificates

- IEC 61215, IEC 61730, IEC61701 ED2, UL1703, CEC Listed, CE and MCS
- ISO9001:2008: Quality Management System
- ISO/TS16949:2009: The automotive quality management system
- ISO14001:2004: Standards for Environmental management system
- QC080000 HSPM: The Certification for Hazardous Substances Regulations
- OHSAS 18001:2007 International standards for occupational health and safety
- REACH Compliance



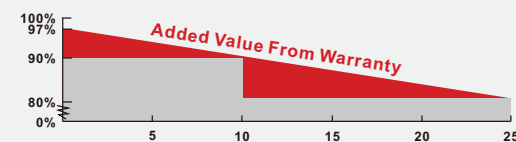
www.canadiansolar.com



Key Features

- Quick and easy to install - dramatically reduces installation time
- Lower system costs - can cut rooftop installation costs in half
- Aesthetic seamless appearance - low profile with auto leveling and alignment
- Built-in hyper-bonded grounding system - if it's mounted, it's grounded
- Theft resistant hardware
- Ultra-low parts count - 3 parts for the mounting and grounding system
- Industry first comprehensive warranty insurance by AM Best rated leading insurance companies in the world
- Industry leading plus only power tolerance: 0 ~+5W
- Backward compatibility with all standard rooftop and ground mounting systems

- **Backed By Our New 10/25 Linear Power Warranty Plus our added 25 year insurance coverage**



- 10 year product warranty on materials and workmanship
- 25 year linear power output warranty

CS6P-235/240/245/250/255PX Black-framed

Electrical Data

STC	CS6P-235PX	CS6P-240PX	CS6P-245PX	CS6P-250PX	CS6P-255PX
Nominal Maximum Power (Pmax)	235W	240W	245W	250W	255W
Optimum Operating Voltage (Vmp)	29.8V	29.9V	30.0V	30.1V	30.2V
Optimum Operating Current (Imp)	7.90A	8.03A	8.17A	8.30A	8.43A
Open Circuit Voltage (Voc)	36.9V	37.0V	37.1V	37.2V	37.4V
Short Circuit Current (Isc)	8.46A	8.59A	8.74A	8.87A	9.00A
Module Efficiency	14.61%	14.92%	15.23%	15.54%	15.85%
Operating Temperature	-40°C~+85°C				
Maximum System Voltage	1000V (IEC)/600V (UL)				
Maximum Series Fuse Rating	15A				
Application Classification	Class A				
Power Tolerance	0 ~ +5W				

Under Standard Test Conditions (STC) of irradiance of 1000W/m², spectrum AM 1.5 and cell temperature of 25°C

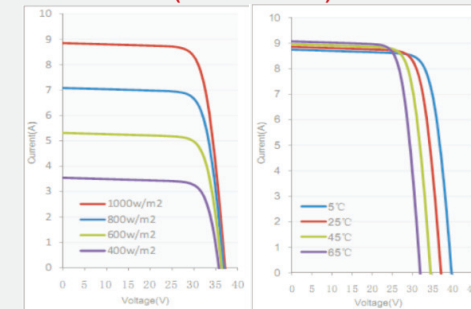
NOCT	CS6P-235PX	CS6P-240PX	CS6P-245PX	CS6P-250PX	CS6P-255PX
Nominal Maximum Power (Pmax)	170W	174W	178W	181W	185W
Optimum Operating Voltage (Vmp)	27.2V	27.3V	27.4V	27.5V	27.5V
Optimum Operating Current (Imp)	6.27A	6.38A	6.49A	6.60A	6.71A
Open Circuit Voltage (Voc)	33.9V	34.0V	34.1V	34.2V	34.4V
Short Circuit Current (Isc)	6.86A	6.96A	7.08A	7.19A	7.29A

Under Normal Operating Cell Temperature, Irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s

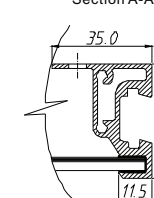
Mechanical Data

Cell Type	Poly-crystalline 156 x 156mm, 2 or 3 Busbars
Cell Arrangement	60 (6 x 10)
Dimensions	1638 x 982 x 40mm (64.5 x 38.7 x 1.57in)
Weight	20.5kg (45.2 lbs)
Front Cover	3.2mm Tempered glass
Frame Material	Anodized aluminium alloy
J-BOX	IP65, 3 diodes
Cable	4mm ² (IEC)/12AWG(UL), 1000mm
Connectors	MC4 or MC4 Comparable
Standard Packaging (Modules per Pallet)	24pcs
Module Pieces per container (40 ft. Container)	672pcs (40'HQ)

I-V Curves (CS6P-255PX)



Section A-A



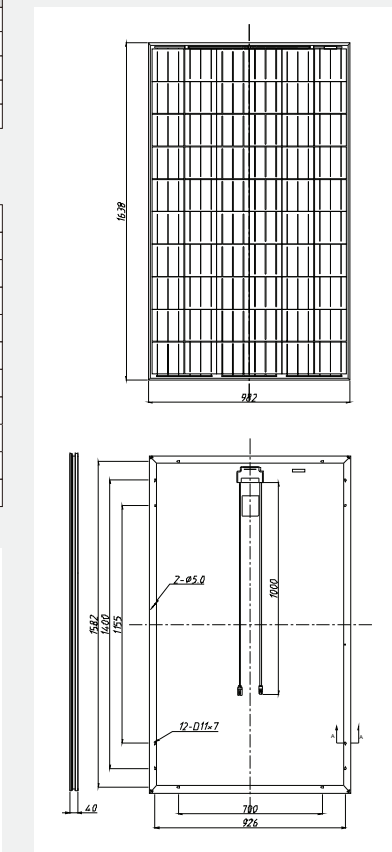
Temperature Characteristics

Temperature Coefficient	Pmax	-0.43%/°C
	Voc	-0.34%/°C
	Isc	0.065%/°C
Normal Operating Cell Temperature	45±2°C	

Performance at Low Irradiance

Industry leading performance at low irradiation environment, +95.5% module efficiency from an irradiance of 1000w/m² to 200w/m² (AM 1.5, 25 °C)

Engineering Drawings



*Specifications included in this datasheet are subject to change without prior notice.

About Canadian Solar

Canadian Solar Inc. is one of the world's largest solar companies. As a leading vertically-integrated manufacturer of ingots, wafers, cells, solar modules and solar systems, Canadian Solar delivers solar power products of uncompromising quality to worldwide customers. Canadian Solar's world class team of professionals works closely with our customers to provide them with solutions for all their solar needs.

Canadian Solar was founded in Canada in 2001 and was successfully listed on NASDAQ Exchange (symbol: CSIQ) in November 2006. Canadian Solar has module manufacturing capacity of 2.05GW and cell manufacturing capacity of 1.3GW.

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