

HISTORIC AND DESIGN REVIEW COMMISSION

April 20, 2016

Agenda Item No: 17

HDRC CASE NO: 2016-137
ADDRESS: 726 E WOODLAWN
LEGAL DESCRIPTION: NCB 6204 BLK 5 LOT E 44 FT OF 7, W 4 FT OF 8
ZONING: R4 H RIO-1
CITY COUNCIL DIST.: 1
DISTRICT: River Road Historic District
APPLICANT: Kaylyn Randolph
OWNER: John Roby
TYPE OF WORK: Installation of solar panels
REQUEST:

The applicant is requesting a Certificate of Appropriateness for approval to install 15 solar panels on the rear accessory building.

APPLICABLE CITATIONS:

Historic Design Guidelines, Chapter 3, Guidelines for Additions

6. Designing for Energy Efficiency

C. SOLAR COLLECTORS

- i. Location*—Locate solar collectors on side or rear roof pitch of the primary historic structure to the maximum extent feasible to minimize visibility from the public right-of-way while maximizing solar access. Alternatively, locate solar collectors on a garage or outbuilding or consider a ground-mount system where solar access to the primary structure is limited.
- ii. Mounting (sloped roof surfaces)*—Mount solar collectors flush with the surface of a sloped roof. Select collectors that are similar in color to the roof surface to reduce visibility.
- iii. Mounting (flat roof surfaces)*—Mount solar collectors flush with the surface of a flat roof to the maximum extent feasible. Where solar access limitations preclude a flush mount, locate panels towards the rear of the roof where visibility from the public right-of-way will be minimized.

FINDINGS:

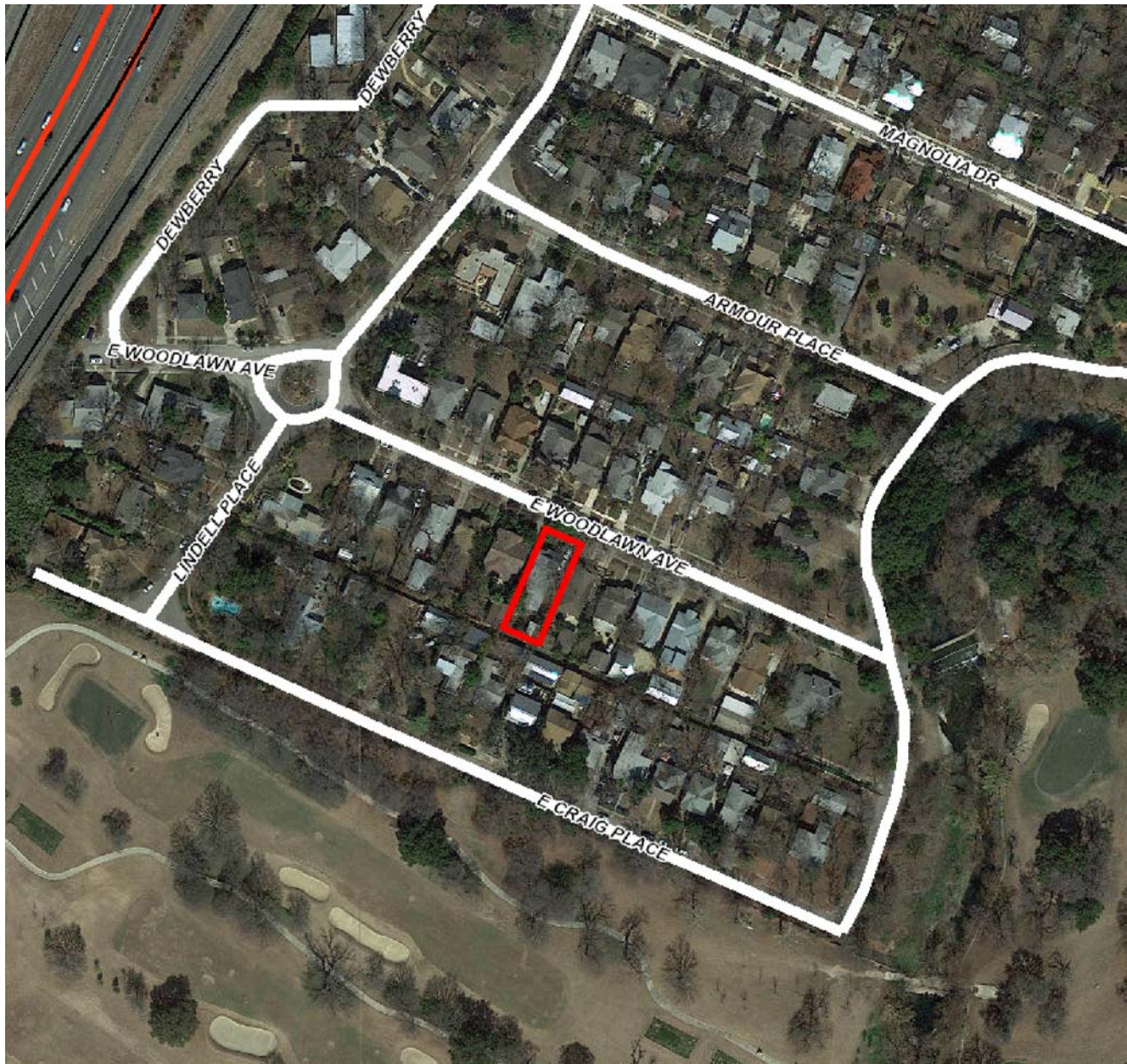
- a. The applicant has proposed to install 15 solar panels on the standing seam metal roof of the two-story accessory structure located to the rear of the primary structure. Staff visited the site on April 12, 2016, and found that given the set back and orientation of the accessory structure and the neighboring structures, the proposed solar installation will not be seen from the public right of way. This is consistent with Guidelines for Additions 6.C., which states installations, should be in locations that minimize visibility from the public right-of-way.
- b. There will be two sub-arrays, both mounted on pitched roof with clamps screwed into the roof membrane. Each clamp consists of an ironbridge flashfoot attached to a rail that connects the PV module frame. The panels will be flush mounted on each pitch; the clamps and rail system forces the panels to sit about 4" above the standing seam metal roof. This is consistent with Guidelines for Additions 6.C.ii, which states solar collectors should be flush with the roof surface.

RECOMMENDATION:

Staff recommends approval based on findings a and b.

CASE MANAGER:

Lauren Sage



Flex Viewer

Powered by ArcGIS Server

Printed: Apr 13, 2016

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**CITY of SAN ANTONIO
NOTICE of HEARING
HISTORIC & DESIGN
REVIEW COMMISSION**



ADDRESS: 124 E. Waco, Austin

REQUEST: HISTORIC DESIGN REVIEW COMMISSION

HEARING DATE: 4-20-20

TIME: 3:00 P.M.

FOR MORE INFORMATION CONTACT
(210) 215-9274

ALL HDRC MEETINGS TAKE PLACE AT 1901 S. ALAMO













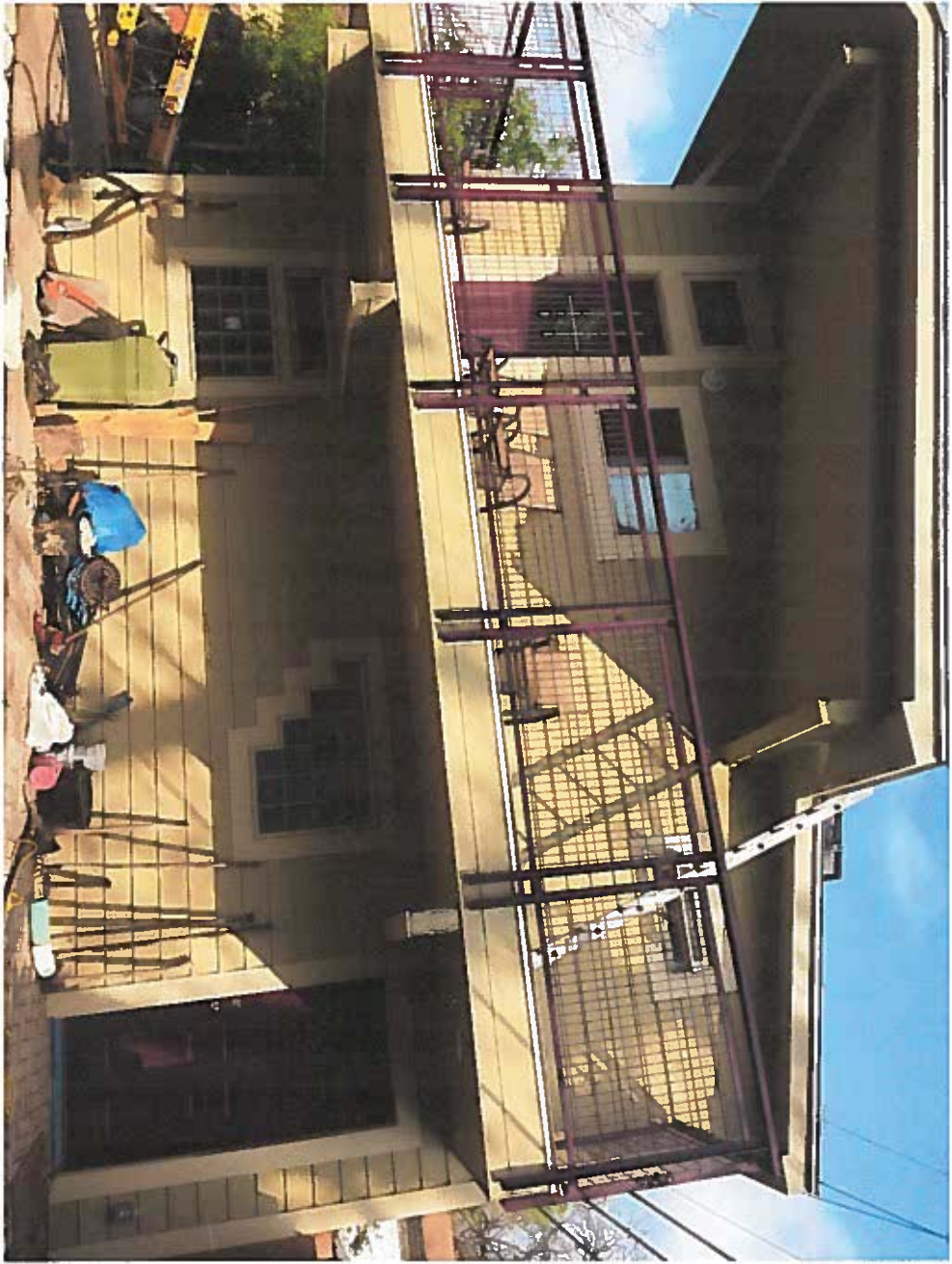
726 E Woodlawn
SA, TX 78212

15 X 208°













March 16, 2015

Historic Design and Review Commission
Development and Business Services Center
1901 S. Alamo
San Antonio, TX 7820

Esteemed Members of the HDRC,

Please allow Mr. John Roby at 726 E. Woodlawn, San Antonio, TX 78212 to install a solar system on the accessory house of his residence. We intend to install 15 solar modules to roof space facing alley at approximately 208°. The solar system is not visible from street, and is accompanied by other solar systems adjacent to shared alley.

Thank you,

Kyle Randolph

Technical drawing of a roof layout showing a grid of panels. The drawing includes the following labels and dimensions:

- S-5-U** (Label pointing to the top edge of the grid)
- STANDING SEAM CLAMP ATTACHMENT POINT TO STRUCTURAL MEMBER (24 TOTAL)** (Label pointing to the top edge of the grid)
- RENESOLA JC260M-24/8bh 260W MODULES** (Label pointing to the top edge of the grid)
- EVEREST CROSSRAIL 48 RAIL SYSTEM** (Label pointing to the top edge of the grid)
- METAL STANDING SEAM RAIL (STANDING BEAM 18" O.C.) (3:12) PITCH** (Label pointing to the top edge of the grid)
- 11-7/8" BCI I-JOIST 24" O.C. UNDERNEATH S.S. ROOF** (Label pointing to the top edge of the grid)
- 16'-8"** (Dimension line across the top of the grid)
- 16'-8"** (Dimension line across the middle of the grid)
- 16'-8"** (Dimension line across the bottom of the grid)

DETAIL

8.6 FLANGE NUT
8.6 HEX BOLT

MODULE

MODULE

MODULE

EVEREST CROSSRAIL 48

EVEREST CROSSRAIL 48

END CLAMP

8.6 FLANGE NUT

[illegible]

1. VERIFY ALL MEASUREMENTS AND CHALK INSTALLATION AREA PRIOR TO INSTALLATION
2. SECURE HARDWARE FOLLOWING MANUFACTURER'S SPECIFIED TORQUE STRENGTHS
3. FOLLOW MANUFACTURER'S RECOMMENDATIONS REGARDING NAIL SPLICE POINTS FOR THROUGH JOINTS
4. THROUGH JOINTS: EXPANSION CONSERVATION
5. FINISH JOINTS: FINISH
6. WIND SPEED: 12 MPH
7. SNOW LOAD: 5 PSF
8. EXPOSURE CATEGORY: B
9. SEISMIC CATEGORY: A

JOHN W. BARNES
738 E. WOODLAND AVE
SAY BROOK, N.Y. 11790
417 346 4444
LUTHER: 094

SECRET
L-2

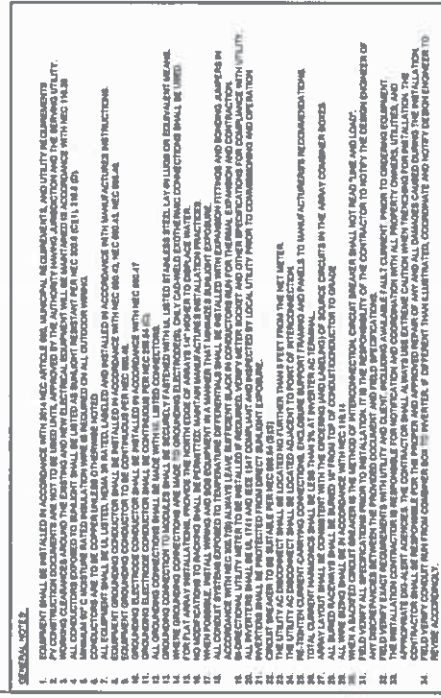


1102 E. ALAMO ST.
SAN ANTONIO, TX 78204
PHONE: 214.222.7439

PHONE: 116.347.2153

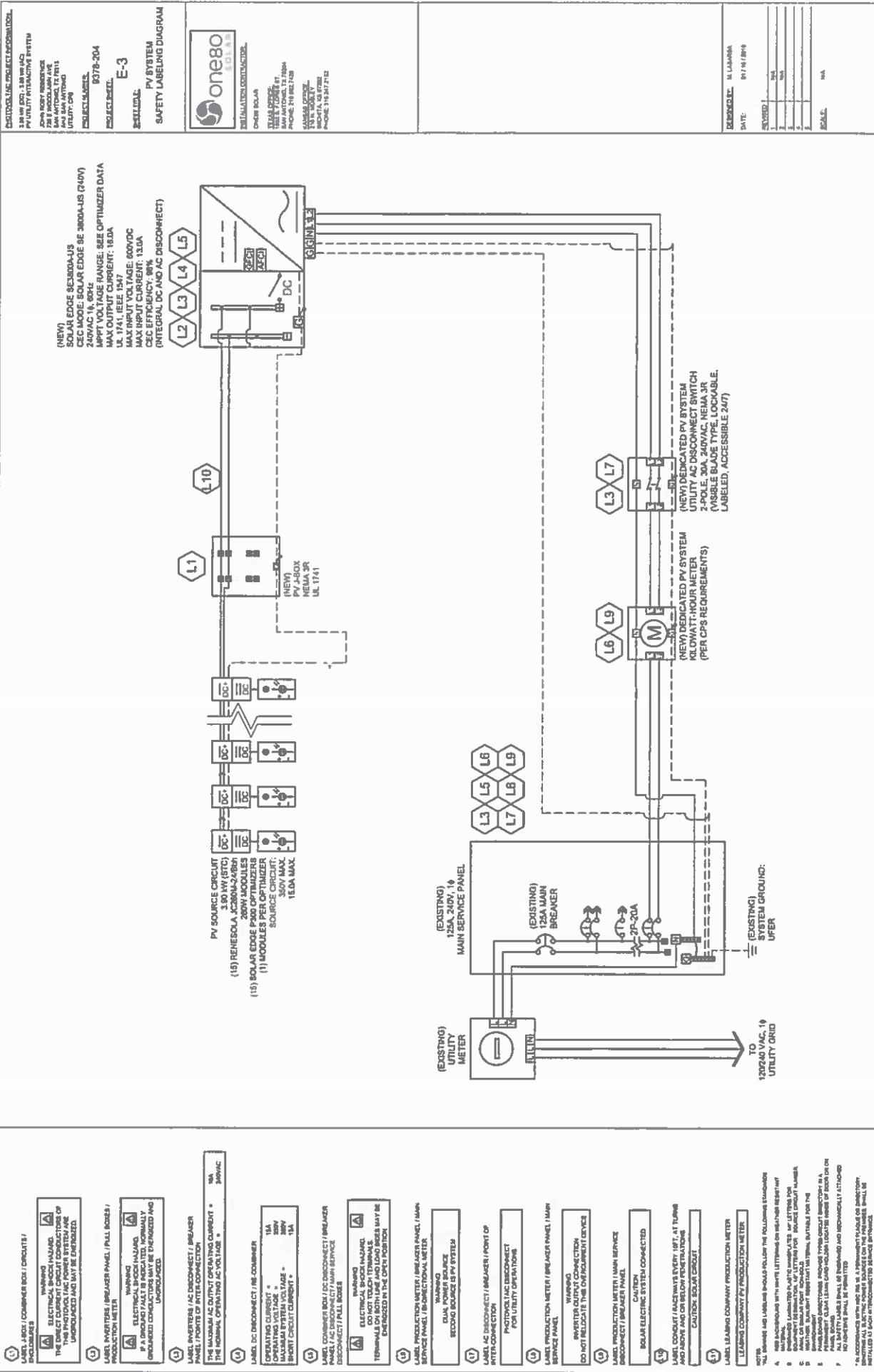
DATE: 01/10/2010

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0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

[illegible]

1. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC ARTICLE AND NATIONAL REQUIREMENTS.
2. ALL ELECTRICAL DOCUMENTS ARE NOT TO BE USED UNTIL APPROVED BY THE AUTHORITY HAVING JURISDICTION.
3. WORKING CLEARANCES AROUND THE EXISTING AND NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH THE NEC.
4. ALL CONDUITS SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC.
5. ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC.
6. ALL ELECTRICAL CONNECTIONS ARE TO BE COMPLETED BEFORE ANY OTHER WORK IS STARTED.
7. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC.
8. ALL ELECTRICAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE NEC.
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30. ALL ELECTRICAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE NEC.





ReneSola

Virtus^{II}

156 Series Polycrystalline
Solar Module

250W, 255W, 260W



High Module Conversion Efficiencies



Easy Installation and Handling for Various Applications



Mechanical Load Capability of up to 5400 Pa



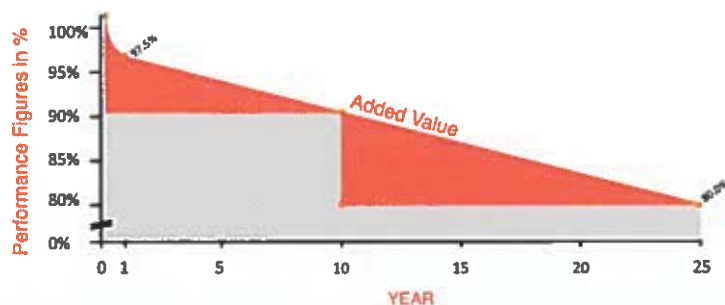
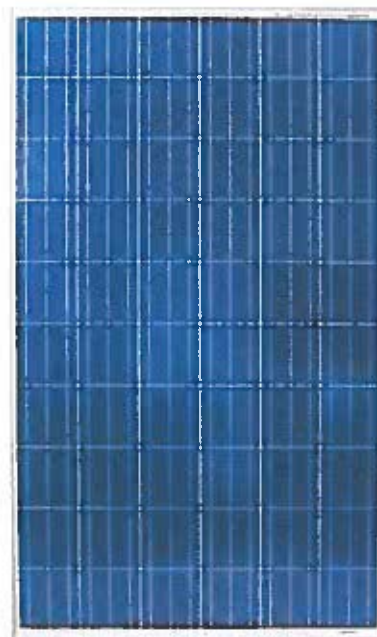
Conforms with IEC 61215:2005,
IEC 61730: 2004, UL 1703 PV Standards



ISO9001, OHSAS18001, ISO14001 Certified



Application Class A, Safety Class II, Fire Rating C



10-year
material & workmanship

25-year
linear power output



APPROVED PRODUCT



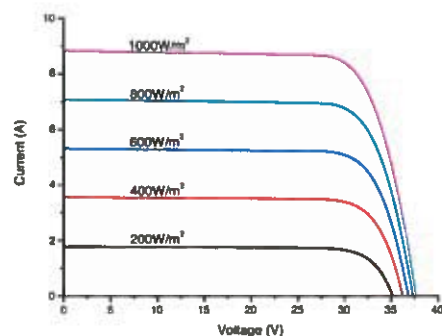
ReneSola.com

Dimensions



Drawing Only for Reference

I-V Curves



Varied Irradiation Efficiencies

Irradiance	200W/m²	400W/m²	600W/m²	800W/m²	1000W/m²
Efficiency	15.8%	16.2%	16.2%	16.1%	16.0%

Electrical Characteristics STC

	JC250M 24/Bb	JC255M 24/Bb	JC260M 24/Bb
Maximum Power (Pmax)	250 W	255 W	260 W
Power Tolerance	0 ~ +5W	0 ~ +5W	0 ~ +5W
Module Efficiency	15.4%	15.7%	16.0%
Maximum Power Current (Imp)	8.31 A	8.39 A	8.53 A
Maximum Power Voltage (Vmp)	30.1 V	30.4 V	30.5 V
Short Circuit Current (Isc)	8.83 A	8.86 A	8.95 A
Open Circuit Voltage (Voc)	37.4 V	37.5 V	37.6 V

Values at Standard Test Conditions STC (Air Mass AM1.5, Irradiance 1000W/m², Cell Temperature 25°C)

Electrical Characteristics NOCT

	JC250M-24/Bb	JC255M 24/Bb	JC260M 24/Bb
Maximum Power (Pmax)	185 W	189 W	193 W
Maximum Power Current (Imp)	6.57 A	6.63 A	6.74 A
Maximum Power Voltage (Vmp)	28.2 V	28.5 V	28.6 V
Short Circuit Current (Isc)	7.12 A	7.20 A	7.27 A
Open Circuit Voltage (Voc)	35.0 V	35.1 V	35.2 V

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

Mechanical Characteristics

Cell Type	156 x156 mm Polycrystalline, 60 (6x10) pcs in series
Glass	High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminum Alloy
Junction Box	IP65/IP67 rated, with bypass diodes
Dimension	*64.6 x 39.1 x 1.6 inches
Output Cable	12 AWG, 39.4 inches
Weight	41.9 lbs
Installation Hole Location	See Drawing Above

Characteristics

Temperature Coefficient of Voc	-0.30%/°C
Temperature Coefficient of Isc	0.04%/°C
Temperature Coefficient of Pmax	-0.40%/°C
Nominal Operating Cell Temperature (NOCT)	45°C±2°C

Packing Information

Container	20' GP	40' GP	40' HQ
Pallets per Container	12	28	28
Pieces per Container	300	700	770

Rev 100 JC/TDS/2013.03 *Contact demands for information specification
CAUTION: All rights reserved. Design and specification are subject to change without prior notice.

Maximum Ratings

Operating Temperature	-40°F ~ +125°F
Maximum System Voltage	1000VDC (EU) / 600VDC (US)
Maximum Series Fuse Rating	20A (EU) / 20A (US)



SolarEdge Single Phase Inverters

For North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US



INVERTERS

The best choice for SolarEdge enabled systems

- Integrated arc fault protection (Type 1) for NEC 2011 690.11 compliance
- Superior efficiency (98%)
- Small, lightweight and easy to install on provided bracket
- Built-in module-level monitoring
- Internet connection through Ethernet or Wireless
- Outdoor and indoor installation
- Fixed voltage inverter, DC/AC conversion only
- Pre-assembled Safety Switch for faster installation
- Optional -- revenue grade data, ANSI C12.1



Single Phase Inverters for North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US

	SE3000A-US	SE3800A-US	SE5000A-US	SE6000A-US	SE7600A-US	SE10000A-US	SE11400A-US	
OUTPUT								
Nominal AC Power Output	3000	3800	5000	6000	7600	9980 @ 208V 10000 @240V	11400	VA
Max. AC Power Output	3300	4150	5400 @ 208V 5450 @240V	6000	8350	10800 @ 208V 10950 @240V	12000	VA
AC Output Voltage Min.-Nom.-Max. ⁽¹⁾ 183 - 208 - 229 Vac	-	-	✓	-	-	✓	-	
AC Output Voltage Min.-Nom.-Max. ⁽¹⁾ 211 - 240 - 264 Vac	✓	✓	✓	✓	✓	✓	✓	
AC Frequency Min.-Nom.-Max. ⁽¹⁾	59.3 - 60 - 60.5 (with HI country setting 57 - 60 - 60.5)							Hz
Max. Continuous Output Current	12.5	16	24 @ 208V 21 @ 240V	25	32	48 @ 208V 42 @ 240V	47.5	A
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds				Yes			Yes	
INPUT								
Maximum DC Power (STC)	4050	5100	6750	8100	10250	13500	15350	W
Transformer-less, Ungrounded	Yes							
Max. Input Voltage	500							Vdc
Nom. DC Input Voltage	325 @ 208V / 350 @ 240V							Vdc
Max. Input Current ⁽²⁾	9.5	13	16.5 @ 208V 15.5 @ 240V	18	23	33 @ 208V 30.5 @ 240V	34.5	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600ke Sensitivity							
Maximum Inverter Efficiency	97.7	98.2	98.3	98.3	98	98	98	%
CEC Weighted Efficiency	97.5	98	97.5 @ 208V 98 @ 240V	97.5	97.5	97 @ 208V 97.5 @ 240V	97.5	%
Nighttime Power Consumption	< 2.5					< 4		W
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, RS232, Ethernet, ZigBee (optional)							
Revenue Grade Data, ANSI C12.1	Optional ⁽³⁾							
Rapid Shutdown – NEC 2014 690.12	Functionality enabled when SolarEdge rapid shutdown kit is installed ⁽⁴⁾							
STANDARD COMPLIANCE								
Safety	UL1741, UL1699B, UL1998, CSA 22.2							
Grid Connection Standards	IEEE1547							
Emissions	FCC part15 class B							
INSTALLATION SPECIFICATIONS								
AC output conduit size / AWG range	3/4" minimum / 16-6 AWG					3/4" minimum / 8-3 AWG		
DC input conduit size / # of strings / AWG range	3/4" minimum / 1-2 strings / 16-6 AWG					3/4" minimum / 1-2 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	30.5 x 12.5 x 7.2 / 775 x 315 x 184					30.5 x 12.5 x 10.5 / 775 x 315 x 260		in / mm
Weight with Safety Switch	51.2 / 23.2		54.7 / 24.7			88.4 / 40.1		lb / kg
Cooling	Natural Convection				Natural convection and internal fan (user replaceable)	Fans (user replaceable)		
Noise	< 25				< 50		dBA	
Min.-Max. Operating Temperature Range	-13 to +140 / -25 to +60 (-40 to +60 version available ⁽⁵⁾)							°F / °C
Protection Rating	NEMA 3R							

⁽¹⁾ For other regional settings please contact SolarEdge support.

⁽²⁾ A higher current source may be used; the inverter will limit its input current to the values stated.

⁽³⁾ Revenue grade inverter P/N: SExxxxA-US000NNR2 (for 7600W inverter: SE7600A-US002NNR2).

⁽⁴⁾ Rapid shutdown kit P/N: SE1000-RSD-S1.

⁽⁵⁾ -40 version P/N: SExxxxA-US000NNU4 (for 7600W inverter: SE7600A-US002NNU4).



RoHS

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SolarEdge Power Optimizer

Module Add-On

P300 / P350 / P404 / P405 / P500



POWER OPTIMIZER

PV power optimization at the module-level

- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of modules mismatch-loss, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module level monitoring
- Module-level voltage shutdown for installer and firefighter safety



SolarEdge Power Optimizer Module Add-On

P300 / P350 / P404 / P405 / P500

	P300 (for 60-cell modules)	P350 (for high-power 60-cell and for 72-cell modules)	P500 (for 96-cell modules)	P404 (for 60-cell and 72-cell, short strings)	P405 (for thin film modules)	
INPUT						
Rated Input DC Power ⁽¹⁾	300	350	500	405	405	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48	60	80	80	125	Vdc
MPPT Operating Range	8 - 48	8 - 60	8 - 80	12.5 - 80	12.5 - 105	Vdc
Maximum Continuous Input Current (Isc)	10	11		10.1		Adc
Maximum Efficiency			99.5			%
Weighted Efficiency			98.8			%
Overvoltage Category			II			
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)						
Maximum Output Current			15			Adc
Maximum Output Voltage		60		85		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)						
Safety Output Voltage per Power Optimizer			1			Vdc
STANDARD COMPLIANCE						
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3					
Safety	IEC62109-1 (class II safety), UL1741					
RoHS	Yes					
Fire Safety	VDE-AR-E 2100-712:2013-05					
INSTALLATION SPECIFICATIONS						
Maximum Allowed System Voltage			1000			Vdc
Dimensions (W x L x H)	128 x 152 x 27.5 / 5 x 5.97 x 1.08	128 x 152 x 35 / 5 x 5.97 x 1.37	128 x 152 x 43 / 5 x 5.97 x 1.69	128 x 152 x 50 / 5 x 5.97 x 1.96		mm / in
Weight (including cables)	760 / 1.7	830 / 1.8	994 / 2.1	1064 / 2.3		gr / lb
Input Connector		MC4 ⁽²⁾				
Output Connector		MC4				
Output Wire Length	0.95 / 3.0		1.2 / 3.9			m / ft
Operating Temperature Range		-40 - +85 / -40 - +185				°C / °F
Protection Rating		IP68 / NEMA6P				
Relative Humidity		0 - 100				%

⁽¹⁾ Rated STC power of the module. Module of up to +5% power tolerance allowed.

⁽²⁾ For other connector types please contact SolarEdge.

PV SYSTEM DESIGN USING A SOLAREEDGE INVERTER ⁽³⁾		SINGLE PHASE	THREE PHASE	
Minimum String Length (Power Optimizers)	P300,P350,P500 P404,P405	8 6	16 13	
Maximum String Length (Power Optimizers)		25	50	
Maximum Power per String		5250	11250	W
Parallel Strings of Different Lengths or Orientations		Yes		

⁽³⁾ It is not allowed to mix P404/P405 with P300/P350/P500/P600/P700 in one string.



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The IronRidge (rail based) Roof Mount System is a reliable, comprehensive and feature rich photovoltaic mounting solution. Anchored by IronRidge Standard or IronRidge Light rails, our Roof Mount platform includes every component necessary for supporting virtually any commercial or residential roof mount installation, regardless of roof type or pitch. With this system, you will leave behind a professional installation, everytime, backed by a 20 year manufacturing warranty on every IronRidge part.

Key Features

Longest Spans In The Industry Means Fewest Required Attachment Points

Fewest Attachment Points Reduce Total Installed Costs And Liability

Unique Curved Profile Of The Standard Rail Increases Strength And Enhances Aesthetic Design

Fully Integrated with the IronRidge Design Assistant™

Backed By Industry Leading Warranty 20 yr. Limited Product, 3 yr. Finish

PE Certified For Most States

Universal Clamping Components Work With Most Solar Module Brands

Versatile Design Allows For Use In Ground Mount, Roof Mount, or Large Array Applications

Best Customer Service And Support

IronRidge Standard Rails Less Material, Faster Install, Minimized Risk of Leaks



IronRidge Standard Rail

- Engineered profile allows for spans over 12'
- Cantilever can be 40% of span length
- Attractive structural design, ideal for residential and commercial applications



IronRidge Light Rail

- Light, cost effective rail system supports spans over 7'
- Cantilever can be 40% of span length



Splices (Internal)

- Can be installed at same location as an attachment
- Does not require additional attachments to support the splice



Maximum Span Chart:		IronRidge Standard Rail								IronRidge Light Rail				
Wind Speed	Snow Loads													
	0 psf	10 psf	20 psf	30 psf	40 psf	50 psf	60 psf	70 psf	0 psf	10 psf	20 psf	30 psf	40 psf	
90 mph	147"	123"	103"	94"	83"	75"	69"	64"	88"	75"	63"	59"	52"	
100 mph	147"	123"	103"	94"	83"	75"	69"	64"	88"	75"	63"	59"	52"	
110 mph	147"	123"	103"	94"	83"	75"	69"	64"	88"	75"	63"	59"	52"	
120 mph	147"	123"	103"	94"	83"	75"	69"	64"	88"	75"	63"	59"	52"	
130 mph	138"	123"	103"	94"	83"	75"	69"	64"	81"	75"	63"	59"	52"	
140 mph	129"	120"	101"	94"	83"	75"	69"	64"	75"	73"	62"	58"	52"	
150 mph	120"	117"	99"	93"	83"	75"	69"	64"	70"	70"	61"	57"	52"	

Roof Zone 1, Flush Mount Only
 Roof slope = 7 to 27 deg.
 Exposure category B
 Module length = 67.5"

Building mean roof height = 30'
 Clearance between roof and rail: 2"
 End Cant Span: 0.40 x adjacent interior span
 No rail splices in end spans.

No rail splices in middle 1/3 of interior span.
 Single simple span(s). Tabulated values may be increased for multiple continuous spans.*

*For more information visit ironridge.com to download certification letters, installation guides, and use our Design Assistant software.

Attachments

- Adjustable L feet (4 pack kits)
- Adjustable tilt leg kits (5° to 45°)
- Flush mount aluminum standoffs (3", 4", 6", 7")
- Tilt mount aluminum standoffs (3.75", 7", 9")



Clamps

- Panel Sizes 1.22" to 2.30"
- Mid clamps (require only 1/4" between panels)
- Mid clamps available in hex or t-bolt
- All hardware stainless steel



End Caps

Protect against debris while providing a finished look for both standard and light rails



Wire Clips

Accommodate up to eight 6mm panel wires or an Enphase wire harness



Why IronRidge?



Experience - Designing/manufacturing solar mounting products since 1996

Single Source - Roof mounts, ballasted mounts, ground and pole mounts; *a solution for your specific application*

Customer Satisfaction - Customer service and technical support to help you succeed

On-line Resources Available:

- Online Design Assistant™
- 360 Interactive Environments
- Engineering Design Guides
- Product Certifications
- Installation Guides
- Reseller Locator



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