

HISTORIC AND DESIGN REVIEW COMMISSION

June 21, 2017

HDRC CASE NO: 2017-291
ADDRESS: 211 BROOKLYN AVE
LEGAL DESCRIPTION: NCB 442 BLK 6 LOT 5, 7, 9, 11, A, B & S 93 FT OF W 17.4 FT OF 3
ZONING: FBZ T4-2, HS
CITY COUNCIL DIST.: 1
LANDMARK: Hoefgen House
APPLICANT: Nicole Morales
OWNER: Nicole Morales/Mission Park - Simplicity
TYPE OF WORK: Installation of solar panels
REQUEST:

The applicant is requesting a Certificate of Appropriateness for approval to install a solar panel array on the rooftop of the historic structure at 211 Brooklyn.

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 lot at 211 Brooklyn features historic structures, including the Hoefgen House that have are first found on the 1904 Sanborn Maps. Over time, these structures have been modified and expanded. This property was designated as a historic landmark by Ordinance 68210 on October 27, 1988. The property currently features a two story structure on which the applicant has proposed to install a roof mounted solar panel system.
- b. SOLAR INSTALLATION – On the rooftop of the two story structure, the applicant has proposed to install a solar panel system. Per the Guidelines for Additions 6.C.iii. solar collectors should be mounted flush with the surfaces of flat roofs to the maximum extent feasible. Staff finds that the applicant should mount the proposed solar system in a manner that will not be visible from the public right of way.

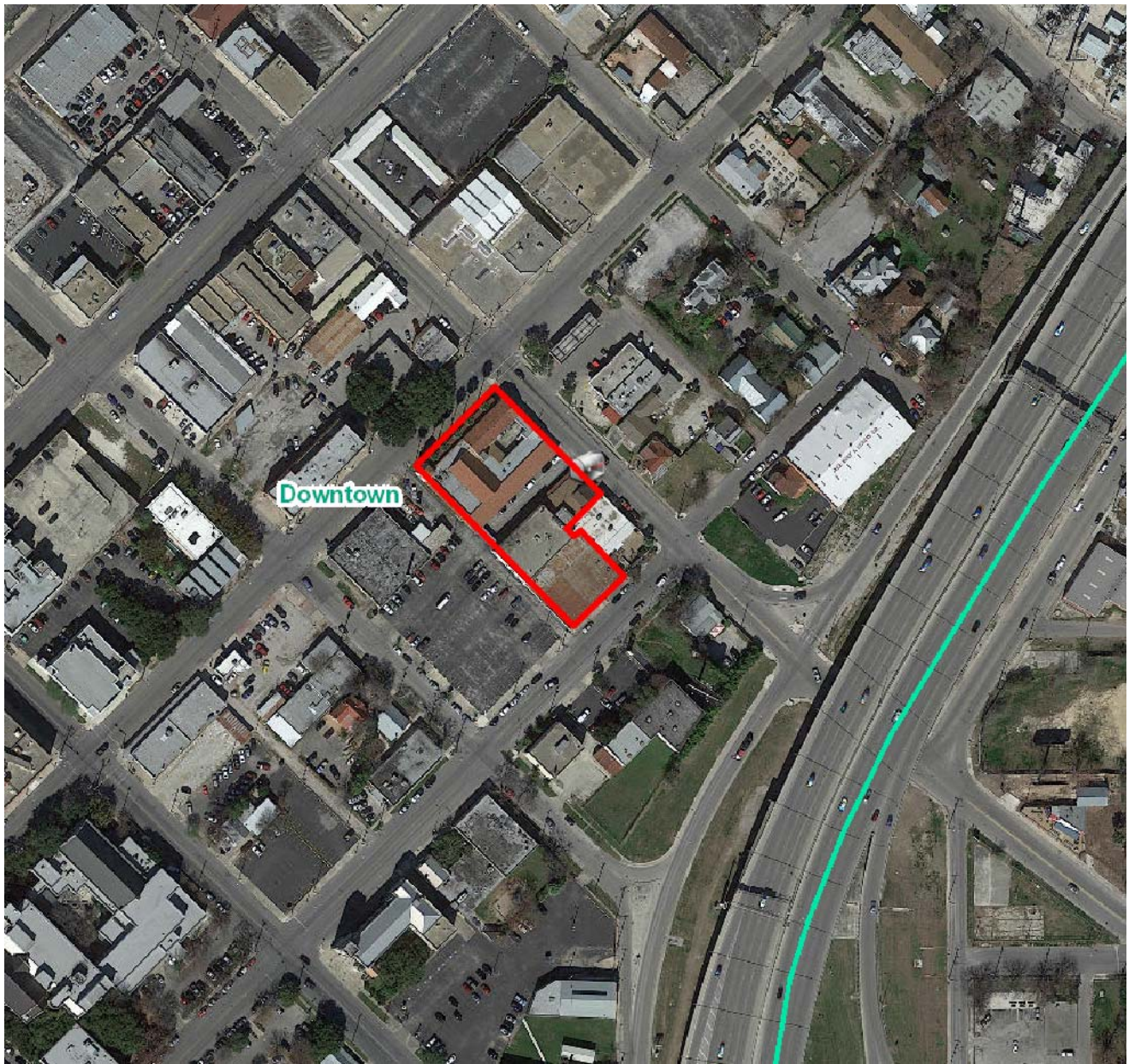
RECOMMENDATION:

Staff recommends approval based on finding b with the following stipulations:

- i. That the proposed solar panels be mounted flush with the surface of the flat roof to not be visible from the public right of way.

CASE MANAGER:

Edward Hall



Flex Viewer

Powered by ArcGIS Server

Printed: Jun 09, 2017

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SPRING GARDEN

231
FLOWER SHOP





CONSTRUCTION SUMMARY

- (106) (SUNPOWER SPR-E20-327-COM) SOLAR MODULES, 34.7 kW DC STC
- MODULE DIMENSIONS = 41.2" X 61.4" X 1.81"
- (03) (SE10000A-US) PV INVERTERS @ 30.0 kW AC
- COMBINED INVERTER OUTPUT = 30.0 kW AC.

SITE DETAILS

ROOF TYPE: TAR AND GRAVEL
ARRAY #1 - TILT = 10°, AZIMUTH = 136°



CONSTRUCTION NOTES

- 1.) ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 2.) ALL OUTDOOR EQUIPMENT SHALL BE RAINTIGHT WITH MINIMUM NEMA 3R RATING.
- 3.) ALL LOCATIONS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION.
- 4.) ROOF ATTACHMENT SPACING SHALL BE 6'-0" MAX FOR LAG BOLT TYPE ROOF ATTACHMENTS ANCHORED TO RAFTERS
- 5.) ROOF ATTACHMENT SPACING SHALL BE 4'-6" MAX FOR S-5! CLAMPS ANCHORED TO STANDING SEAM ROOF PANELS



DESIGN & DRAFTING BY:
JOSH MEADE
NABCEP

REVISIONS		
DESCRIPTION	DATE	REV
ORIGINAL	04/14/2017	A

CONTRACTOR

FREEDOM
SOLAR POWER

FREEDOM SOLAR POWER
4111 TODD LN, STE 100
AUSTIN, TX 78744
TECL # 28621

PROJECT NAME

MISSION PARK SIMPLICITY,
211 BROOKLYN AVE
SAN ANTONIO, TX, 78215

SHEET NAME

SITE MAP &
PV LAYOUT

SHEET SIZE

ANSI B
11" x 17"

SHEET NUMBER

PV-1

F-17690
18APR2017

PV Installation
Professional
Gordon Gunn
Certification # 091209-69
18APR2017

Mission Park -
Simplicity



SPRING GARDEN

ALA



Mission Park -
Simplicity



Mission Park -
Simplicity





- **20.4% efficiency**

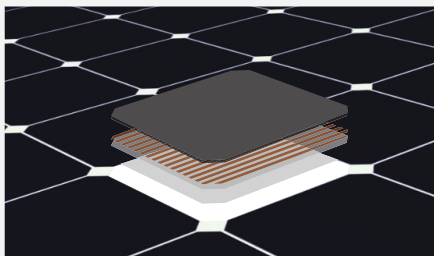
Captures more sunlight and generates more power than conventional panels.

- **High performance**

Delivers excellent performance in real world conditions, such as high temperatures, clouds and low light.^{1, 2, 3}

- **Commercial grade**

Optimized to maximize returns and energy production, the E-Series panel is a bankable solution for commercial solar applications.



Moxeon® Solar Cells: Fundamentally better.

Engineered for performance, designed for reliability.

Engineered for peace of mind

Designed to deliver consistent, trouble-free energy over a very long lifetime.^{4, 5}

Designed for reliability

The SunPower® Moxeon Solar Cell is the only cell built on a solid copper foundation. Virtually impervious to the corrosion and cracking that degrade Conventional Panels.^{4, 5}

#1 Ranked in Fraunhofer durability test.¹⁰

100% power maintained in Atlas 25+ comprehensive PVDI Durability test.¹¹

HIGH PERFORMANCE & EXCELLENT RELIABILITY



E20 - 327 PANELS

HIGH EFFICIENCY⁶

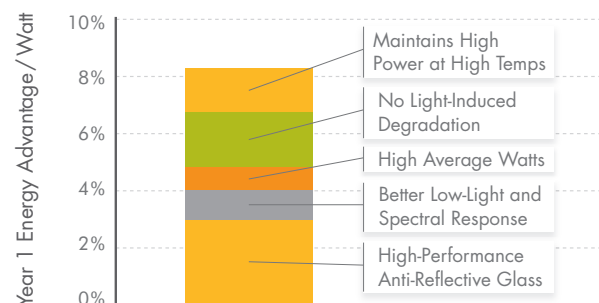
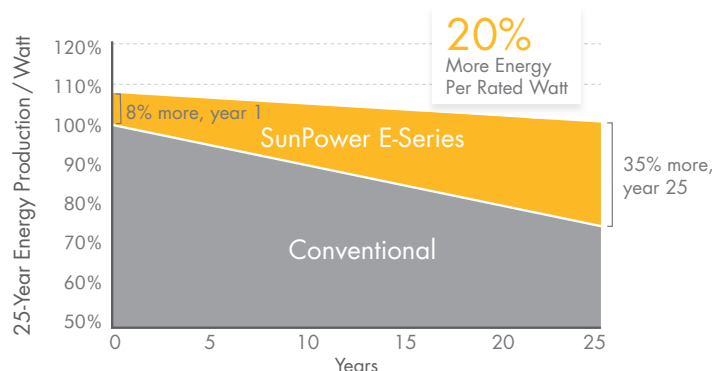
Generate more energy per square foot

E-Series commercial panels convert more sunlight to electricity producing 36% more power per panel,¹ and 60% more energy per square foot over 25 years.^{3, 4}

HIGH ENERGY PRODUCTION⁷

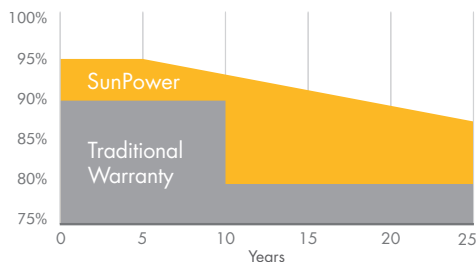
Produce more energy per rated watt

More energy to power your operations. High year one performance delivers 7-9% more energy per rated watt.³ This advantage increases over time, producing 20% more energy over the first 25 years to meet your needs.⁴



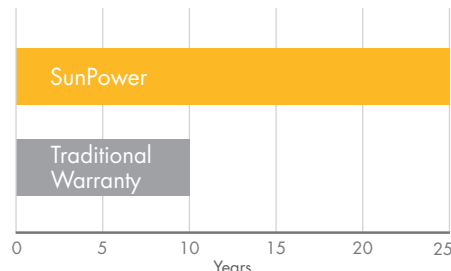
SUNPOWER OFFERS THE BEST COMBINED POWER AND PRODUCT WARRANTY

POWER WARRANTY



More guaranteed power: 95% for first 5 years, -0.4%/yr. to year 25.⁸

PRODUCT WARRANTY



Combined Power and Product Defect 25 year coverage that includes panel replacement costs.⁹

ELECTRICAL DATA

	E20-327-COM	E19-310-COM
Nominal Power ¹² (P _{nom})	327 W	310 W
Power Tolerance	+5/-3%	+5/-3%
Avg. Panel Efficiency ¹³	20.4%	19.3%
Rated Voltage (V _{mpp})	54.7 V	54.7 V
Rated Current (I _{mpp})	5.98 A	5.67 A
Open-Circuit Voltage (V _{oc})	64.9 V	64.4 V
Short-Circuit Current (I _{sc})	6.46 A	6.05 A
Maximum System Voltage	1000 V UL & 1000 V IEC	
Maximum Series Fuse	20 A	
Power Temp Coef. (P _{mpp})	-0.38% / °C	
Voltage Temp Coef. (V _{oc})	-176.6 mV / °C	
Current Temp Coef. (I _{sc})	3.5 mA / °C	

OPERATING CONDITION AND MECHANICAL DATA

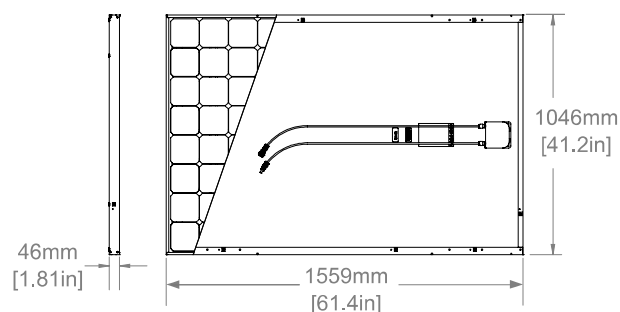
Temperature	-40°F to +185°F (-40°C to +85°C)
Max load	Wind: 50 psf, 2400 Pa, 245 kg/m ² front & back Snow: 112 psf, 5400 Pa, 550kg/m ² front
Impact resistance	1 inch (25 mm) diameter hail at 52 mph (23 m/s)
Appearance	Class B
Solar Cells	96 Monocrystalline Maxeon Gen II Cells
Tempered Glass	High Transmission Tempered Anti-Reflective
Junction Box	IP-65 Rated
Connectors	MC4 Compatible
Frame	Class 2 silver anodized
Weight	41 lbs (18.6 kg)

TESTS AND CERTIFICATIONS

Standard tests	UL 1703, IEC 61215, IEC 61730
Quality tests	ISO 9001:2008, ISO 14001:2004
EHS Compliance	RoHS, OHSAS 18001:2007, lead-free, PV Cycle
Ammonia test	IEC 62716
Salt Spray test	IEC 61701 (passed maximum severity)
PID test	Potential-Induced Degradation free: 1000V ¹⁰
Available listings	CEC, JET, KEMCO, MCS, FSEC, CSA, UL, TUV

REFERENCES:

- 1 All comparisons are SPR-E20-327 vs. a representative conventional panel: 240W, approx. 1.6 m², 15% efficiency.
- 2 PVEvolution Labs "SunPower Shading Study," Feb 2013.
- 3 Typically 7-9% more energy per watt, BEW/DNV Engineering "SunPower Yield Report," Jan 2013.
- 4 SunPower 0.25%/yr degradation vs. 1.0%/yr conv. panel. Campeau, Z. et al. "SunPower Module Degradation Rate," SunPower white paper, Feb 2013; Jordan, Dirk "SunPower Test Report," NREL, Oct 2012.
- 5 "SunPower Module 40-Year Useful Life" SunPower white paper, Feb 2013. Useful life is 99 out of 100 panels operating at more than 70% of rated power.
- 6 Out of all 2600 panels listed in Photon International, Feb 2012.
- 7 8% more energy than the average of the top 10 panel companies tested in 2012 (151 panels, 102 companies), Photon International, March 2013.
- 8 Compared with the top 15 manufacturers. SunPower Warranty Review, Feb 2013.
- 9 Some exclusions apply. See warranty for details.
- 10 5 of top 8 panel manufacturers were tested by Fraunhofer ISE, "PV Module Durability Initiative Public Report," Feb 2013.
- 11 Compared with the non-stress-tested control panel. Atlas 25+ Durability test report, Feb 2013.
- 12 Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25° C).
- 13 Based on average of measured power values during production.



See <http://www.sunpowercorp.com/facts> for more reference information.

For further details, see supplementary specs: www.sunpowercorp.com/datasheets. Read safety and installation instructions before using this product.

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Document # 505701 Rev B /LTR_EN



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	1							A	
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							Yes	
INPUT									
Recommended Max. DC Power ⁽²⁾ (STC)	3750	4750	6250	7500	9500	12400	14250	W	
Transformer-less, Ungrounded	Yes								
Max. Input Voltage	500							Vdc	
Nom. DC Input Voltage	325 @ 208V / 350 @ 240V							Vdc	
Max. Input Current ⁽³⁾	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	600 μ s 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 ⁽⁴⁾								
Rapid Shutdown – NEC 2014 690.12	Functionality enabled when SolarEdge rapid shutdown kit is installed ⁽⁵⁾								
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 / 775 x 315 x 172		30.5 x 12.5 x 7.5 / 775 x 315 x 191		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				Fans (user replaceable)				
Noise	< 25				< 50				dBA
Min.-Max. Operating Temperature Range	-13 to +140 / -25 to +60 (-40 to +60 version available ⁽⁶⁾)							°F / °C	
Protection Rating	NEMA 3R								

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

⁽²⁾ Limited to 125% for locations where the yearly average high temperature is above 77°F/25°C and to 135% for locations where it is below 77°F/25°C.
For detailed information, refer to http://www.solaredge.us/files/pdfs/inverter_dc_oversizing_guide.pdf.

⁽³⁾ A higher current source may be used; the inverter will limit its input current to the values stated.

⁽⁴⁾ Revenue grade inverter P/N: SExxxxA-US000NNR2

⁽⁵⁾ Rapid shutdown kit P/N: SE1000-RSD-S1

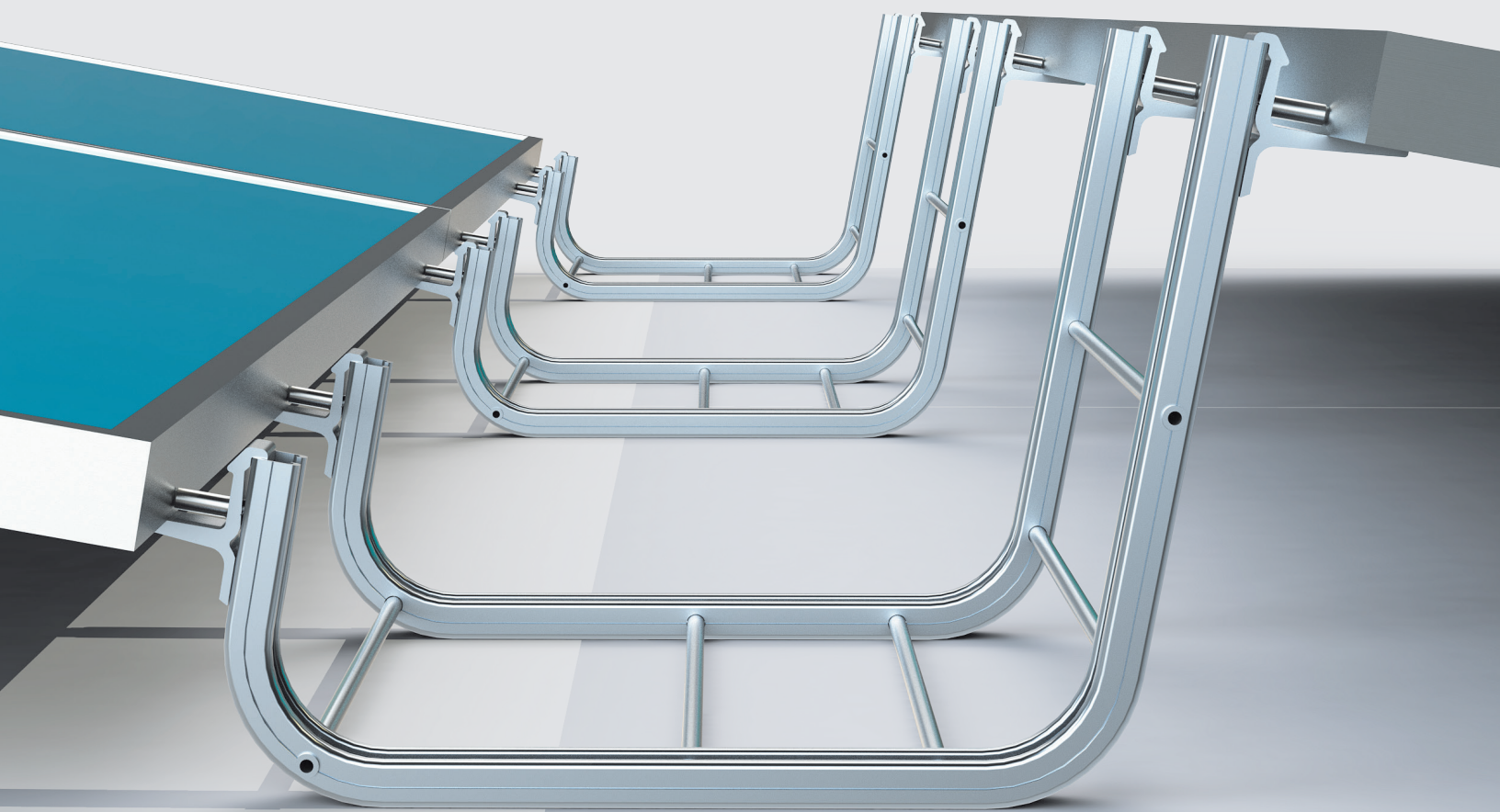
⁽⁶⁾ -40 version P/N: SExxxxA-US000NNU4



RoHS

ROOF MOUNT introduces the Power of Simplicity to the ballasted flat roof solar industry. The system consists of only two major components, minimizing preparation work and installation time. Seamlessly design around roof obstacles, support most framed modules and bond the system with just the turn of a wrench. Industry leading installation speed metrics have been verified by a third party, DNV GL.

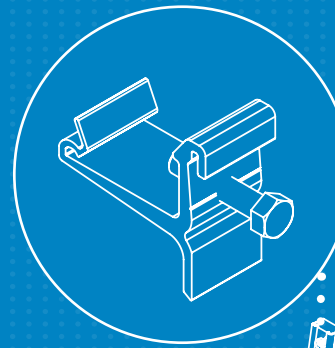
UL2703 | **BONDING & GROUNDING
SYSTEM FIRE CLASSIFICATION**
CLASS A - TYPE 1, 2 & 3 MODULES



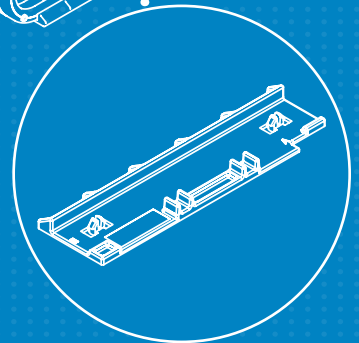
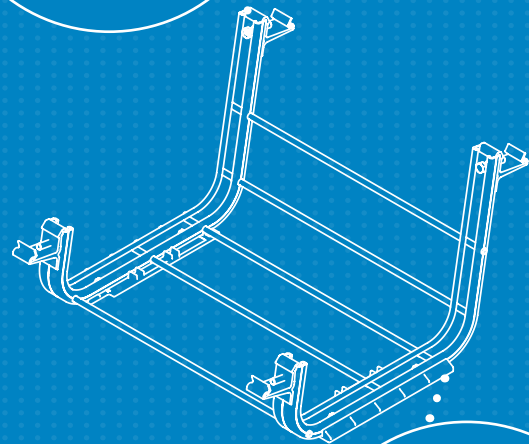
SIMPLE DESIGN

TWO MAJOR COMPONENTS. ONE TOOL

RM supports most framed PV modules at 10 degree tilt. The component list consists of only two major components – a fully assembled ballast bay and a universal module clip. Our engineers specified a chemical locking hex bolt, providing a UL2703 certified grounding path from module to ballast bay, with just the turn of a wrench. RM is accessory-rich to support your specific installation needs, because it was designed to conveniently work with off the shelf wire management products. A snap into place, membrane-friendly, rubber roof pad is also available as a low-cost option for roof protection.



INTEGRATED
BONDING
CLIP



OPTIONAL
ROOF PAD

AVAILABILITY

NATIONWIDE NETWORK

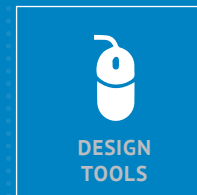
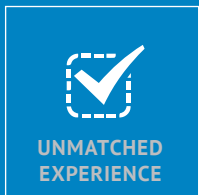
Unirac maintains the largest network of stocking distributors for our racking solutions. Our partners have distinguished their level of customer support, availability, and overall value, thereby providing the highest level of service to users of Unirac products. Count on our partners for fast and accurate delivery to meet your project needs. Visit Unirac.com for a list of distributors.

AUTOMATED DESIGN TOOL

DESIGN PLATFORM AT YOUR SERVICE

Creating a bill of materials is just a few clicks away with U-Builder, a powerful online tool that streamlines the process of designing a code compliant solar mounting system. Save time by creating a user profile, and recall preferences and projects automatically when you log in. You will enjoy the ability to share projects with customers; there's no need to print results and send to a distributor, just click and share.

UNIRAC CUSTOMER SERVICE MEANS THE HIGHEST LEVEL OF PRODUCT SUPPORT



TECHNICAL SUPPORT

Unirac's technical support team is dedicated to answering questions & addressing issues in real time. An online library of documents including engineering reports, stamped letters and technical data sheets greatly simplifies your permitting and project planning process.

CERTIFIED QUALITY PROVIDER

Unirac is the only PV mounting vendor with ISO certifications for 9001:2008, 14001:2004 and OHSAS 18001:2007, which means we deliver the highest standards for fit, form, and function. These certifications demonstrate our excellence and commitment to first class business practices.

BANKABLE WARRANTY

As a Hilti Group Company, Unirac has the financial strength to back our products and reduce your risk. Have peace of mind knowing you are receiving products of exceptional quality. ROOFMOUNT is covered by a 20-year manufacturing warranty on all parts.

PROTECT YOUR REPUTATION WITH QUALITY RACKING SOLUTIONS BACKED BY ENGINEERING EXCELLENCE AND A SUPERIOR SUPPLY CHAIN