CITY OF WASHINGTON

PLANNING & DEVELOPMENT DEPARTMENT

301 Walnut St. Washington, IL 61571
Ph. 309-444-1135 Fax 309-444-9779
http://www.washington-illinois.org
joliphant@ci.washington.il.us

MEMORANDUM

TO: Chairman Burdette and Planning & Zoning Commission FROM: Jon R. Oliphant, AICP, Planning & Development Director

SUBJECT: Public Hearing - StraightUp Solar Special Use Request, 320 N. Summit Drive

DATE: April 24, 2018

<u>Summary</u>: StraightUp Solar has submitted a special use application on behalf of Ryan Riech, who is the property owner at 320 N. Summit Drive. The special use is required in order to install a roof-mount solar array on the roof of an accessory structure per the recently approved solar energy ordinance. It would be located on the detached garage on the southern portion of the property. Staff recommends approval of this request.

Background: The property is approximately 3.48 acres and is zoned R-1A (Single-Family Residential). A detached garage was constructed on the south side of the property in 2017, directly north of where Roxbury Lane is stubbed. A 19.32 KW solar photovoltaic array is proposed to be located on the south-facing garage roof. It would be comprised of 56 345-watt panels and cover approximately 49.12% of the roof, which is slightly less than the maximum allowable 50% coverage. Please note that the application was submitted with an original intention of having 63 345-watt panels, which exceeded the 50% coverage requirement. It was later reduced in order to comply with that regulation. This is proposed to be located on the garage in order to maximize exposure on the primary south-facing roof on the property.

A licensed structural engineer has attested that the roof is capable of supporting the proposed array. The City's electrical inspector has reviewed the attachments and has consented to this construction if the special use is approved. While a building permit would need to be issued if the special use is approved, the submitted attachments are thus far in conformance with the solar energy regulations. It would be installed in accordance with the adopted 2012 International Building Code.

Staff anticipates seeing more demand for solar projects, particularly roof-mount residential arrays. This follows approval of the Illinois Future Energy Jobs Act, which provides incentives for the installation of renewable energy projects. The proposed use would not appear to be detrimental to the public's health, safety, or general welfare nor would it diminish property values or the use and enjoyment of properties in the vicinity. Based on all of these factors, <u>staff would recommend that the</u> special use request be approved.

A public hearing has been scheduled on this topic at the May 2 Planning and Zoning Commission meeting.

Enclosures

CITY OF WASHINGTON, ILLINOIS APPLICATION FOR SPECIAL USE

To have a complete application for a special use, you must sub-	mit the following:
Signed and completed application Plat showing subject property and all adjacent properties – See below for plat requirements	Ownership documentation (lease, deed, mortgage, etc.) Accurate legal description obtained from the Warranty Deed Application fee of \$100 payable to the City of Washington
Address or location of property: 320 N Summit Drive Wa	shington, IL 61571
Property Tax ID (PIN) number: 02 - 02 - 20 - 100 .	- 056
Current zoning classification of the property: 40 Improved R	esidential
Current use of the property: Single Family Residential	
What is the Special Use for? Installation of a grid-tied, re	oof mount, 24.84 KW solar PV array.
How will you meet other requirements of the zoning code (such a	as parking or landscaping, if applicable)?
Name of Applicant: StraightUp Solar	Phone Number of Applicant: (314) 218-2663 x 283
Address of Applicant: 10330 Page Industrial Blvd. St. L	ouis, MO 63132
Owner of Property: Robert Ryan Riech	, , , , , , , , , , , , , , , , , , , ,
Address of Owner: 320 N Summit Drive Washington, I	I. 61571
I would like to receive correspondence by: Mail X _ E	
p.m at the Washington District Library meeting room at 380 N. Will present your request. A special use cannot be recommended included in the application and evidence presented at the property along the injurious to the use and enjoyment of other property values; 3) The special use will not impede develop drainage, or necessary facilities will be provided; 5) Adequate streets; 6) The special use will conform to all other application otherwise be acceptable the Planning Commission.	ommendation to the next regularly scheduled Planning and Zoning commission meets the first Wednesday of every month at 6:30 Wilmor Road. At the Planning and Zoning Commission meeting, you
Certification: To the best of my knowledge, the information contand substantially represents the existing features and proposed fact or expression of material fact, with or without intention, sh proposed Special Use.	tained herein, and on the attachments, is true, accurate, and correct, features. Any error, misstatement, or misrepresentation of material all constitute sufficient grounds for the revocation or denial of the
Valerie A. Cores	4-5-18
Signature of Applicant	Date
Signature of Applicant R. Ryan Risch	4-5-18
Signature of Owner	Date
After receiving a completed application, the City Clerk will file not property owners. If you have any questions, please contact Jon Oli	tice of your request with the local newspaper and with the adjoining phant, Planning & Development Director at (309) 444-1135.
FOR OFFICE USE ONLY Case No.:	Fee Paid? Y / N / N/A Amount: Date:
Plat Submitted? Y / N Date:	Landscaping Plan Submitted? Y / N / N/A Date:
Documentation of Authority Submitted:	Date to go before the Planning and Zoning Commission:
Commission Action:	Ordinance Review: (first reading) (second reading)

Parcel

Parcel ID 02-02-20-100-056

Alt. PIN

Parcel Address 320 N SUMMIT DR, WASHINGTON

Data as of 3/31/2018

Tax Payer Information

Tax Payer

RIECH ROBERT R & MORRELL-RIECH TERESA J

Tax Payer Address 320 N SUMMIT DR

WASHINGTON IL 615710000

08/04/2015

Transfer Date

Location Information

GIS

02021

Section & Plat

District No. Township No.

002,

State Assigned District No. 020

Routing No.

Parcel Address

320 N SUMMIT DR, WASHINGTON

Legal Desc.

SEC 20 T26N R3W TRACT I PT OF LOT C (EXC 42.18 X 125 & 42.18 X 137.1 TRACTS) NW 1/4 3.48 AC

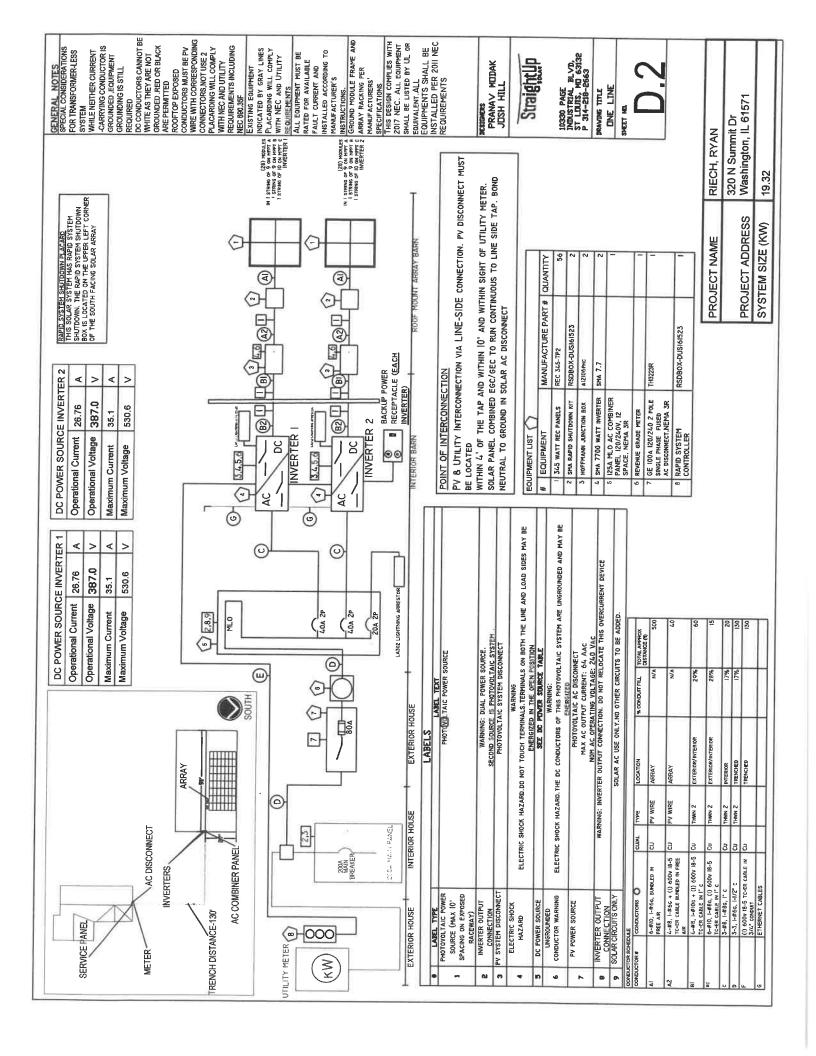
Par	cel Information	Topography		Service	es
Property Class Code Neighborhood Code Neighborhood Factor Neighborhood Type Street or Road Code	40 IMPROVED RESIDENTIAL LOT 213 108.00	Level High Low Rolling Swampy Flood Hazard	N N N N	Water Sewer Gas Electricity Sidewalk	N
		Waterfront Property Type		Alley	N





(56) REC 345 WATT PANELS

DAK SPEET NO.	RIECH, RYAN	320 N Summit Dr Washington, IL 61571	
DESIGNERS PRANAV MODAK JOSH HILL	RIECH		۷) 19.32
1030 PAGE 1030 PAGE INDUSTRIAL BLVD, ST LDJTS, MD 63132 P 314-218-2663	PROJECT NAME	PROJECT ADDRESS	SYSTEM SIZE (KW)





1 LAYER OF CORRUGATED METAL ON 2X4 24" O.C PURLINS. ROOF SLOPE-18"

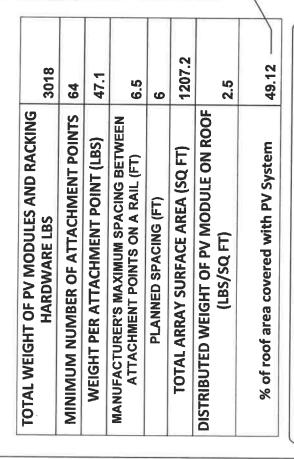
SOUTH

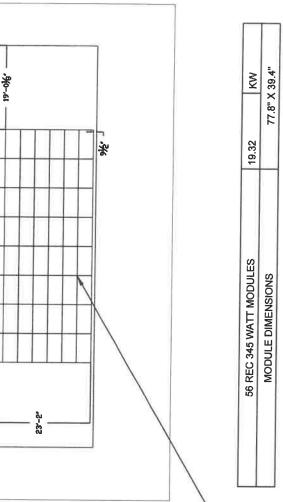
MOUNTING SYSTEM INFORMATION:

IRONRIDGE SOLARMOUNT ENGINEERED RACKING SYSTEM WITH S5 VERSA ATTACHMENTS

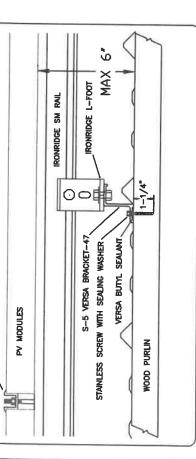
3-0%

19'-2'





CUSTOMER CONTACT INFO: RYAN RIECH-317-345-8738



RONRIDGE UFO

S-5-VERSA

320 N Summit Dr Washington, IL 61571

> PROJECT ADDRESS SYSTEM SIZE (KW)

19.32

RIECH, RYAN

PROJECT NAME

SHEET NO.

DESIGNERS
PRANAV MODAK
JOSH HILL

10330 PAGE INDUSTRIAL BLVD, ST LOUIS, MD 63132 P 314-218-2663

DETAILED ROOF LAYOUT

StraightUp



AL-IMAN Group, LLC Engineering • Construction • Management

Ms. Valerie Corey Straight Up Solar 10330 Page Industrial Ct. St. Louis, MO 63132 O: 314-218-2663

January 15, 2018

RE: Riech Residence – 320 N Summit Drive, Washington, IL 61571 AIG Job # 18.803

Ms. Corey:

We have reviewed the proposed solar array drawings and the structure(s) at the above referenced address. The array consists of (63) solar modules on the structure, mounted on an Iron Ridge racking system with attachments to the structure at 6'- 6" on center, maximum.

We hereby certify that the existing structure, with the addition of the proposed solar energy devices, is capable of supporting the design loads in accordance with the 2012 International Building Code (and all previous versions) and ASCE 7-10.

We have attached the calculation for the critical roof member - a 2" x 4" purlin, checked for bending stress and deflection in accordance with ASCE 7-10.

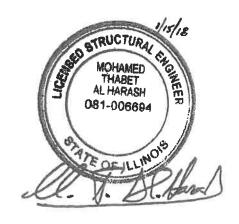
Please feel free to contact us should you have any comments or questions

Respectfully yours,

Mohamed T. AL HARASH

Dr. Mohamed T. AL HARASH, Sc.D., P.E., S.E. - NCEES Director of Operations

CC: Matthew Boyce, PE Project Structural Engineer



Riech Residence **Critical Roof Member** 2x4 Purlin

Dead Load 11 psf (with solar)

Title: Dsgnr: Description:

Job# Date: 11:23AM, 15 JAN 18

Scope:

Ground Snow 20 psf
Rev: 580006
User: KW-0603478, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Timber Beam & Joist

Page

Description

Timber Member	morm	ALION	Base allowables are user defined
Timber Section Beam Width Beam Depth Le: Unbraced Lengt Timber Grade Fb - Basic Allow Fv - Basic Allow Elastic Modulus Load Duration Facto Member Type Repetitive Status	psi psi ksi	4,000 8.00 Mixed Southern Pine, No.2 2 to 4 1,300.0 175.0	
Center Span Data	ı		
Span Dead Load Live Load	ft #/ft #/ft	8.00 22.00 28.00	
Results	Ratio =	0.5374	
Mmax @ Center @ X = fb : Actual	in-k ft psi	4.80 4.00 900.0	
Fb : Allowable fv : Actual Fv : Allowable	psi psi psi	1,674.8 Bending OK 34.5 201.3 Shear OK	
Reactions			
@ Left End DL LL Max. DL+LL @ Right End DL LL Max. DL+LL	lbs lbs lbs lbs lbs	88.00 112.00 200.00 88.00 112.00 200.00	
Deflections		Ratio OK	
Center DL Defi L/Defi Ratio Center LL Defi L/Defi Ratio Center Total Defi Location	in In in ft	-0.136 707.1 -0.173 555.6 -0.309 4.000	

REC TWINPEAK 25 72 SERIES

PREMIUM SOLAR PANELS WITH SUPERIOR PERFORMANCE

REC TwinPeak 25 72 Series solar panels feature an innovative design with the higher panel efficiency of polycrystalline cells, enabling customers to get the most out of the space used for the installation.

Combined with industry-leading product quality and the reliability of a strong and established European brand, REC TwinPeak 2S 72 panels are ideal for commercial rooftops worldwide.



REDUCES BALANCE OF SYSTEM COSTS



IMPROVED PERFORMANCE IN SHADED CONDITIONS

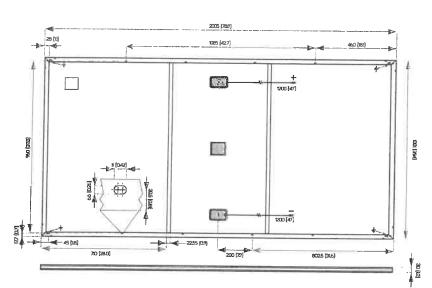


INDUSTRY-LEADING
LIGHTWEIGHT 72-CELL PANEL



100% PID FREE

RECOUNTRAK 25 72 SERIES



Measurements in mm [in]

ELECTRICAL DATA @ STC	Product code*: RECxxxTP2S 72						
Nominal Power-P _{MPP} (Wp)	330	335	340	345	350	355	
Watt Class Sorting - (W)	-0/+5	-0/+5	-0/+5	-0/+5	-0/+5	-0/+5	
Nominal Power Voltage - $V_{MPP}(V)$	38.1	38.3	38.5	38.7	38.9	39.1	
Nominal Power Current - $I_{MPP}(A)$	8.67	8.75	8.84	8.92	9.00	9.09	
Open Circuit Voltage - V _{oc} (V)	46.0	46.2	46.3	46.5	46.7	46.8	
Short Circuit Current-I _{sc} (A)	9.22	9.52	9.58	9.64	9.72	9.78	
Panel Efficiency (%)	16.5	16.7	16.9	17.2	17.4	17.7	

Values at standard test conditions (STC: air mass AM 1.5, irradiance $1000\,W/m^2$, temperature $25^{\circ}C$), based on a production spread with a tolerance of $V_{\rm CE}\,\&\,I_{\rm KE}\,\pm3\%$ within one watt class. At low irradiance of $200\,W/m^2$ at least 95% of the STC module efficiency will be achieved. *Where xxx indicates the nominal power class $\{P_{\rm MPP}\}$ at STC indicated above, and can be followed by the suffix XV for 1500 V rated modules.

ELECTRICAL DATA @ NMOT	F1 4 52	Product code*: RECxxxTP25 72				5.018
Nominal Power - P _{MPP} (Wp)	244	252	257	260	264	268
Nominal Power Voltage $\sim V_{MPP}(V)$	34.9	35.5	35.7	35.8	36.0	36.2
Nominal Power Current $-I_{MPP}(A)$	6.99	7.10	7.19	7.25	7.32	7.39
Open Circuit Voltage - V _{oc} (V)	42.3	42.8	42.9	43.1	43.2	43.3
Short Circuit Current-I _{sc} (A)	7.44	7.74	7.79	7.84	7.90	7.95

Nominal module operating temperature (NMOT: air mass AM1.5, irradiance 800 W/m², temperature 20°C, windspeed I m/s). "Where xxx indicates the nominal power class ($P_{\rm Npp}$) at STC indicated above, and can be followed by the suffix XV for 1500 V rated modules



IEC 61215, IEC 61730 & UL 1703; MCS 005, IEC 62804 (PID) IEC 62716 (Ammonia Resistance), IEC 60068-2-68 (Blowing Sand) IEC 61701 (Salt Mist level 6), UNI 8457/9174 (Class A), ISO 11925-2 (Class E) ISO 9001: 2015, ISO 14001: 2004, OHSAS 18001: 2007

take way take-e-way WEEE-compliant recycling scheme

WARRANTY

10 year product warranty 25 year linear power output warranty (max. degression in performance of 0.7% p.a.) See warranty conditions for further details.

EFFICIENCY

YEAR PRODUCT WARRANTY

YEAR LINEAR POWER DUTPUT WARRANTY

GENERAL DATA

144 half-cut multicrystalline PERC cells 6 strings of 24 cells in series Cell type: Glass; 3.2 mm solar glass with anti-reflection surface treatment Backsheet: Highly resistant polymeric construction

Frame: Anodized aluminum Support bars Anodized aluminum Junction box: 3-part, 3 bypass diodes, IP67 rated in accordance with IEC 62790

Cable: 4 mm² solar cable, 1.2 m + 1.2 m in accordance with EN 50618

Tonglin TL-CableO1S-F (4 mm²) (1500V) Tonglin TL-CableO1S-FR (4 mm²) (1000V) cordance with IEC 62852, P68 only when connected Connectors:

Orlgin: Made in Singapore

MAXIMUMRATINGS

Operational temperature:	-40+85°C
Maximum system voltage:	1000 V / 1500 V
Design load (+); snow Maximum test load (+);	367 kg/m² (3600 Pa)* 550 kg/m² (5400 Pa)
Design load (-): wind Maximum test load (-):	163 kg/m² (1600 Pa)* 244 kg/m² (2400 Pa)
Max series fuse rating:	25 A

25 A *Safety factor 1.5

Specifications subject to

Ref: NE-05-07-13 Rev - C-07:17

TEMPERATURE RATINGS*

Max reverse current:

THE RESERVE THE PERSON NAMED IN COLUMN 2 I	
Nominal Module Operating Temperature:	44.6°C(±2°C)
Temperature coefficient of P _{MPP}	-0.36%/℃
Temperature coefficient of V _{oc} :	-0.30 %/°C
Temperature coefficient of I _{sc} :	0.066%/°C
#The temperature as At at a second	

MILCHANICALDAIA	
Dimensions:	2005×1001×30 mm
Area:	2.01 m ²
Weight:	27 kg

Founded in Norway in 1996, REC is a leading vertically integrated solar energy company. Through integrated manufacturing from silicon to wafers, cells, high-quality panels and extending to solar solutions, REC provides the world with a reliable source of clean energy. REC's renowned product quality is supported by the lowest warranty claims rate in the industry. REC is a Bluestar Elkem company with headquarters in Norway and operational headquarters in Singapore. REC employs more than 2,000 people worldwide, producing 1.4 GW of solar panels annually.







Value-Added Improvements

- World's first Secure Power Supply now offers up to 2,000 W
- Full grid monagement capabilities ensure a utility-compliant solution for any market

Reduced Labor

- New Installation Assistant with direct access via smartphone minimizes time in the field
- Integrated disconnect simplifies equipment stocking and speeds installation

Unmatched Flexibility

- SMA's proprietary OptiTrac™
 Global Peak technology mitigates
 shade with ease
- Multiple independent MPPTs accommodate hundreds of stringing possibilities

Trouble-Free Servicing

- Two-part enclosure concept allows for simple, expedited servicing
- Enhanced AFCI technology reduces false tripping while improving sensitivity in real arcs

SUNNY BOY 3.0-US / 3.8-US / 5.0-US / 6.0-US / 7.0-US / 7.7-US

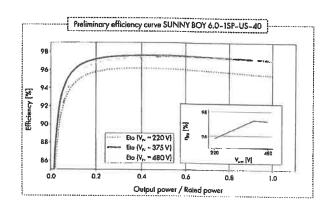
Reduce costs across your entire residential business model

The residential PV market is changing rapidly, and we understand that your bottom line matters more than ever. That's why we've designed a superior residential solution that will help you decrease costs throughout all stages of your business operations. The Sunny Boy 3.0-US/3.8-US/5.0-US/6.0-US/7.0-US/7.7-US join the SMA lineup of field-proven solar technology backed by the world's #1 service team, along with a wealth of improvements. Simple design, improved stocking and ordering, value driven sales support and streamlined installation are just some of the ways that SMA is working to help your business operate more efficiently.

Technical data	Sunny £	loy 3.0-US	Sunny Bo	by 3.8-U5	Sunny B	oy 5.0-US
	208 V	240 V	208 V	240 Y	208 Y	240 V
Input (DC)						
Max. usable DC power	3100 W	3100 W	3450 W	4000 W	5150 W	5150 W
Max. DC voltage	_		-	Dγ		
Raied MPP voliage range	155	- 480 V		480 V	220 -	480 V
MPPT operating voltage range			100 -	550 V		
Min. DC voltage / start voltage			100 V ,	/ 125 V		
Max. operating input current per MPPT			10	A		
Max. short circuit current per MPPT			18	I A		
Number of MPPT tracker / string per MPPT tracker		2	2/1		3 .	/1
Oulpul (AC)						
AC nominal power	3000 W	3000 W	3330 W	3800 W	5000 W	5000 W
Max. AC apparent power	3000 VA	3000 VA	3330 VA	3800 VA	5000 VA	5000 VA
Nominal voltage / adjustable	208 V / 🖷	240 V / 🖷	208 V / •	240 V / 📦	208 V / e	240 V / •
AC voltage range	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V
AC grid frequency			60 Hz /	50 Hz		
Max. oulput current	14.5 A	12.5 A	16.0 A	16.0 A	24.0 A	24.0 A
Power factor (cos φ)			1		5.05	24.571
Output phases / line connections			1/	' 2		
Harmonics			<.4	%		
Efficiency						
Max. efficiency	97.2 %	97.6 %	97.2 %	97.5 %	97.2 %	97.5 %
CEC efficiency	96 %	96.5 %	96.5 %	96.5 %	96.5 %	97 %
Protection devices					70.5 %	7/ /6
DC disconnect device				i		
DC reverse polarity protection						
Ground fault monitoring / Grid monitoring						
AC short circuit protection						
All-pole sensitive residual current monitoring unit (RCMU)						
Arc fault circuit interrupter (AFCI)				1		
Protection class / overvoltage category			1/	lv .		
General data			• 7	,,		
Dimensions (W / H / D) in ram (in)			535 x 730 x 198 ()		
Packaging Dimensions (W / H / D) in mm (in)			600 x 800 x 300 (2			
Weight			26 kg (
Packaging weight			30 kg (
Operating temperature range			- 25°C			
Noise emission (typical)			39 di			
Internal power consumption at night			< 5			
Topology			Transfor			
Cooling concept			Conve			
Features			Colive	Cilon		
Secure Power Supply			•			
Display (2 x 16 characters)			•			
Interfaces: Ethernet / WLAN			• /			
Sensor module / External WLAN antenna			0/			
Warranty: 10 / 15 / 20 years			⊕/ 0			
Certificates and approvals	III 174	1 111 1992 111 140	9B, IEEE 1547, FCC P		CANLICCA MODICIN	7711
Standard features	vailable Datactor	minul conditions	NOTE: US inverters shi	in with arms tid-	CAN/CSA Y22.2 1	U/. I-I
Type designation	SB3.0-15		SB3.8-1S		505 0 10	0146.40
Accessories	000.010	n -9-9-90	303.0-13	-0.40	\$85.0-1\$1	r-U3-40
C Johnson I (A)						

Sensor module MD.SEN-US-40





reamen agra	nical data Sunny Boy 6.0-US		Sunny B	•	Sunny Boy 7.7-US	
L- w Incl	208 V	240 V	208 V	240 V	208 V	240 V
Input (DC)	* 100 111					
Max usable DC power	5400 W	6200 W	6900 W	7200 W	6900 W	7950 W
Max. DC Voltage				0 V		
Rated MPP Voltage ronge	220 -	- 480 V		480 Y	270 -	480 Y
MPPT operating voltage range			100 -	550 V		
Min. DC voltage / start voltage			100 V ,	/ 125 V		
Max. operating input current per MPPT			10) A		
Max, short circuit current per MPPT			18	3 A		
Number of MPPT tracker / string per MPPT tracker			3,	/1		
Oulput (AC)						
AC nominal power	5200 W	6000 W	6660 W	7000 W	6660 W	7680 W
Max. AC apparent power	5200 VA	AV 0006	6660 VA	7000 VA	6660 VA	7680 VA
Nominal valtage / adjustable	208 V / e	240 V / ®	208 V / ●	240 V / 🖜	208 V / •	240 V / •
AC voltage range	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V
AC grid frequency			60 Hz /		100 227 7	211 - 204 Y
Max. output current	25.0 A	25.0 A	32.0 A	29.2 A	32.0 A	32.0 A
Power factor (cos φ)			1		32.0 A	32.0 A
Output phases / line connections			1/			
Harmonics			< 4			
Efficiency			`4	//0		
Max. efficiency	97.2 %	97.6 %	97.1 %	97.5 %		
CEC efficiency	96.5 %	97.6 %	96.5 %		97.1%	97.5 %
Protection devices	70.3 %	97 %	Y0.3 %	97 %	96.5 %	97 %
DC disconnect device						
			•			
DC reverse polarity protection			•			
Ground fault manitoring / Grid manitoring			•			
AC short circuit protection			•			
All-pole sensitive residual current monitoring unit (RCMU)			•			
Arc fault circuit Interrupter (AFCI)			•			
Protection class / overvoltage category			1/	IV		
General data						
Dimensions (W / H / D) in mm (in)			535 x 730 x 198 (2	21.1 x 28.5 x 7.8)		
Packaging Dimensions (W / H / D) in mm (in)			600 x 800 x 300 (2	3.6 × 31.5 × 11.8)		
Weighl			26 kg (57 l b}		
Packaging weight			30 kg (66 lb]		
Operating temperature range			- 25°C	.+60°C		
Noise emission (typical)	36 d	B(A)		45 di	B(A)	
Internal power consumption at night			< 5	W		
Topology			Transform	merless		
Cooling concept	Conve	ection		Fa	n	
Features						
Secure Power Supply						
Display (2 x 16 characters)			•			
Interfaces: Ethernet / WLAN			•/	•		
e di dei luniari			0/			
Sensor module / External WLAN antenna			•			
Sensor module / Externol WLAN antenno Warranty: 10 / 15 / 20 years			●/ 0	/0		
•	UL 174	1, UL 1998. UL 169	●/0 9B. IEEE1547. FCC Pa		CAN/CSA VOO O 11	071.1
Warranty: 10 / 15 / 20 years	UL 174		●/0 9B, IEEE1547, FCC Po NOTE: US inverters shi	ort 15 (Class A & B),	CAN/CSA V22.2 10	07.1-1

SAME NAME, NEW GAME

The Sunny Boy 3.0-US through 7.7-US are once again raising the bar by offering improved performance, enhanced features, and most importantly, an economical approach to residential solar. Your business model is a value chain. The new Sunny Boy-US series can help you stay competitive in an increasingly price sensitive residential market by driving down costs across all of your business operations.





SIMPLE, FLEXIBLE DESIGN

Speed the completion of customer proposals and maximize the efficiency of your design team with the Sunny Boy-US series, which provides a new level of flexibility in system design by offering:

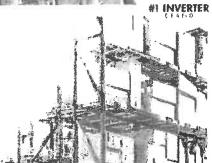
- » Hundreds of stringing configurations and multiple independent MPPTs
- » SMA's proprietary OptiTrac™ Global Peak shade mitigation technology
- » Diverse application options including on- and off-grid compatibility



VALUE-DRIVEN SALES ENABLEMENT

SMA wants to enable your sales team by arming them with an abundance of feature/ benefit support. Show your customers the value of the Sunny Boy-US series by utilizing:

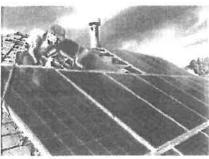
- » Secure Power Supply, now with 2,000 W of opportunity power in the event of a grid outage, as an increased value-add or upsell apportunity
- » SMA's 35 year history and status as the #1 global inverter manufacturer instills homeowners with peace of mind and the long-term security they demand from a PV investment
- » An economical solution for shade mitigation and the challenges of complex roofs



IMPROVED STOCKING AND ORDERING

Ensure that your back office business operations run smoothly and succinctly while mitigating potential errors. The Sunny Boy-US series can help achieve cost savings in these areas by providing:

- » An integrated DC disconnect that simplifies equipment stocking and allows for a single inverter part number
- » All communications integrated into the inverter, eliminating the need to order additional equipment



STREAMLINED INSTALLATION AND COMMISSIONING

Expedite your operations in the field by taking advantage of the new Sunny Boy's installer-friendly feature set including:

- » Direct access via smartphone and utilization of SMA's Installation Assistant, which minimizes time/labor spent in the field and speeds the path to commissioning
- » Improved communication-no need to install additional equipment
- » Integrated DC disconnect that simplifies onsite logistics and eliminates the need to install a separate disconnect unit, speeding overall installation time



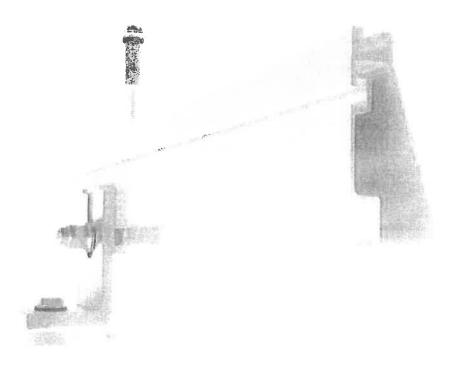
SUPERIOR SERVICE

SMA understands the factors that contribute to lifetime PV ownership cost, that's why the Sunny Boy-US series was designed for maximum reliability and backstopped by an unmatched service offering. Benefit from:

- » The new Sunny Boy's two-part enclosure concept that separates the connection unit from the power unit, which allows for simple, expedited servicing
- » The #1 service team in the PV industry, as recognized by IMS research, with experience servicing an installed base of more than 40 GW

IRONRIDGE

Flush Mount System



IronRidge builds the strongest mounting system for pitched roofs in solar. Every component has been tested to the limit and proven in extreme environments.

Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 20-year warranty.

Strength Tested

All components evaluated for superior structural performance.

Class A Fire Rating

Certified to maintain the fire resistance rating of the existing roof.

UL 2703 Listed System

Meets newest effective UL 2703 standard.

PE Certified

Pre-stamped engineering letters available in most states.

Design Assistant

Online software makes it simple to create, share, and price projects.

20-Year Warranty

Twice the protection offered by competitors.

XR10 Rail



A low-profile mounting rail for regions with light snow.

- · 6' spanning capability
- · Moderate load capability
- · Clear & black anod, finish

XR100 Rail



The ultimate residential solar mounting rail.

- 8' spanning capability
- · Heavy load capability
- · Clear & black anod. finish

XR1000 Rail



A heavyweight mounting rail for commercial projects.

- 12' spanning capability
- Extreme load capability
- · Clear anodized finish

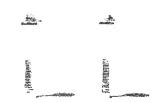
Bonded Splices



All rails use internal splices for seamless connections.

- · Self-drilling screws
- · Varying versions for rails
- · Forms secure bonding

UFOs



Universal Fastening Objects bond modules to rails.

- · Fully assembled & lubed
- · Single, universal size
- · Clear & black finish

Stopper Sleeves



Snap onto the UFO to turn into a bonded end clamp.

- · Bonds modules to rails
- · 6 different sizes
- · Clear & black anod. finish

Grounding Lugs



Connects array to equipment ground.

- · Low profile
- · Single tool installation
- · Mounts in any direction

Microinverter Kit



Mount MIs or POs to XR Rails.

- Bonds devices to rails
- · Kit comes assembled
- Listed to UL 2703

FlashFoot



Anchor, flash, and mount with all-in-one attachments.

- Ships with all hardware
- · IBC & IRC compliant
- Certified with XR Rails

Bonded L-Feet





Drop-in design for rapid rail attachment.

- · Bonding hardware included
- · Forms secure rail connection
- · Clear & black anod. finish

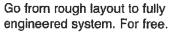
Standoffs



Raise Flush Mount System to various heights.

- Works with vent flashing
- · Ships assembled
- · 4" and 7" Lengths

Design Assistant



NABCEP Certified Training

Earn free continuing education credits, while learning more about our systems.



The Right Way!

VersaBracket™

VersaBracket™ can be used to mount almost anything to an exposed-fastened roof system and is compatible with almost any trapezoidal exposed-fastened profile. No messy sealants to apply! No chance for leaks! The VersaBracket comes with factory-applied butyl sealant already in the base, and the S-5!® patented reservoir conceals the sealant from UV exposure, preventing drying and cracks.

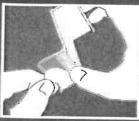
Installation is simple! VersaBracket is mounted in the flat of the panel, directly into the supporting structure of the roof, i.e. wood decking, wood or steel purlins or trusses. No surface preparation is necessary; simply wipe away excess oil and debris, peel the release paper from the base, align, and apply. Secure through the pre-punched holes using the appropriate screws for the supporting structure.

VersaBracket is so strong, it will even support heavy-duty applications like snow retention. For exposed-fastened trapezoidal profiles, the VersaBracket is the perfect match for our ColorGard® snow retention systems (for corrugated roofs use CorruBracket™). VersaBracket is extremely economical and facilitates quick and easy installation.

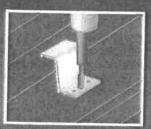
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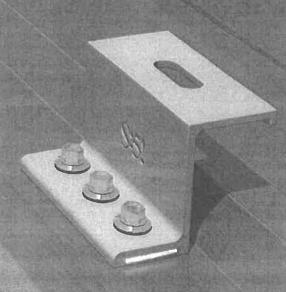


2



3





S-5!® VersaBracket™ is the right way to attach almost anything to exposed-fastened roof profiles, including PV through rail methods. 888-825-3432 | www.S-5.com



VersaBracket[™] can be used for almost any attachment need, including S-5![®] ColorGard[®], on all types of exposed-fastened metal roofing. No messy sealants to apply. The factory-applied butyl sealant waterproofs and makes installation a snap!

To accommodate various rib heights, VersaBracket™ comes in two heights—the 2.65" VersaBracket-67™ and the 1.86" VersaBracket-47™. The VersaBracket-67 mounting face has no holes or slots; thus, ancillary items are typically secured using self-tapping screws. The VersaBracket-47 comes with a 1" slot on top as the standard part. Other hole and slot configurations available with minimum purchase requirements (contact your distributor for available configurations). Each VersaBracket comes with factory-applied butyl sealant in the base. A structural aluminum attachment bracket, VersaBracket is compatible with most common metal roofing materials. For design assistance, ask your distributor, or use our web-based calculator at www.S-5.com for job-specific system engineering and design of your next snow retention project. Also, please visit our website for more information including CAD details, metallurgical compatibilities, and specifications.

The VersaBracket has been tested for load-to-failure results on wood decking, metal, and wood purlins. The independent lab test data found at www.S-5.com can be used for load-critical designs and applications. S-5!* holding strength is unmatched in the industry.

Example Profile



Example Applications

ColorGard

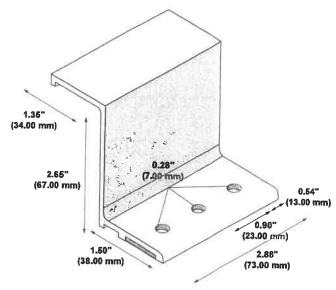


S-5!° Warning! Please use this product responsibly!

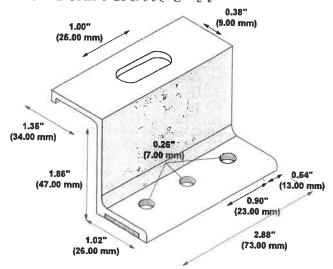
Products are protected by multiple U.S. and foreign patents. For published data regarding holding strength, bolt torque, patents and trademarks visit the S-5I website at www.S-5.com.

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VersaBracket-67™



VersaBracket-47™



3 holes are provided for versatility. Some installations require only 2 fasteners. See the load table on the S-5I website and the installation instructions for more details.

Due to varied applications, mounting hardware is not furnished with part.

Please note: All measurements are rounded to the second decimal place.

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