

PV SYSEEM

STRUCTURAL PLAN

Contractor is responsible to verify the fit of this array prior to installation. The solar module array shown is based on the field data provided by the contractor. Contractor shall contact the engineer if the array may not fit as projected. Satellite imagery shown may not correctly indicate potential current shading of property. Contractor is responsible to verify sun exposure and shading of installation prior to installation.

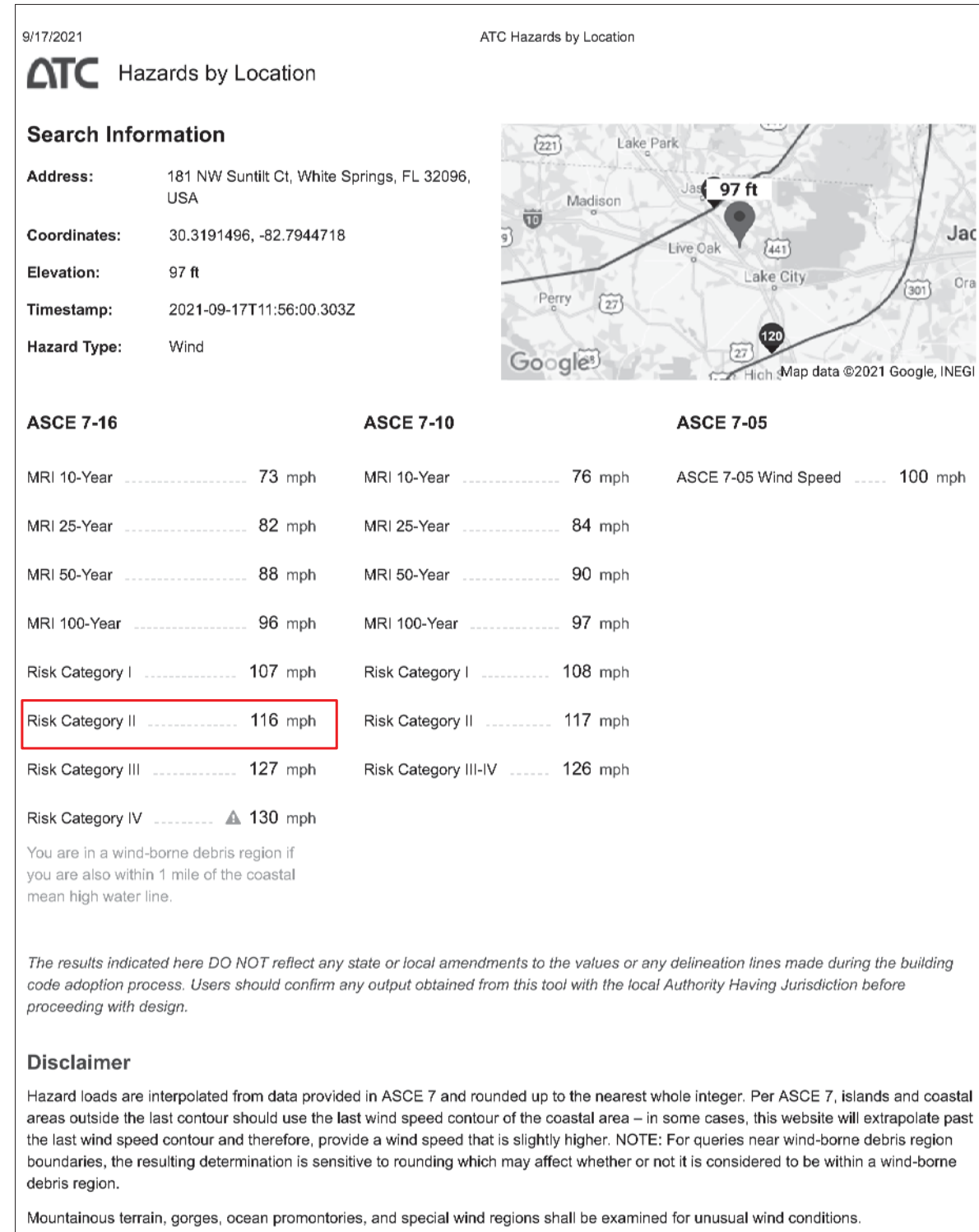
INSTALLATION NOTES

- THIS PAPER PLAN IS INTENDED TO PROVIDE THE ESSENTIAL INFORMATION NEEDED BY AHJ (AUTHORITY HAVING JURISDICTION) AND INSTALLERS.
 - THIS IS A COMBINED SET OF STRUCTURAL AND ELECTRICAL PLANS.
 - SOLAR EQUIPMENT ADDS LESS THAN 3 PSF (UNFACTORED) GRAVITY LOAD TO STRUCTURE.
 - MODULE GRAVITY & WIND LOADS SHALL BE TRANSMITTED TO RIBS OF PURLIN BEARING 'R' (PBR) ROOFING METAL OR STANDING SEAMS OF ROOFING METAL USING S-5 CLAMPS/BRAKETS SHOWN HEREON.
 - SEE DRAWINGS FOR MEANS & METHODS INFORMATION IN ADDITION TO THESE NOTES.
 - CONTRACTOR SHALL INSTALL S5 CLAMPS PER OEM INSTRUCTIONS.
 - CONTRACTOR SHALL INSTALL RAILS PERPENDICULAR TO STANDING SEAMS OR PBR RIBS ON IRONRIDGE XR100 RAILS ON TOP OF S5 CLAMPS.
 - CONTRACTOR TO ENSURE CONTINUITY OF ALL METAL PARTS AND CONNECTIONS OF THIS INSTALLATION TO BE ELECTRICALLY GROUNDED AND BONDED TOGETHER. TORQUE ALL S-5 SET SCREWS TO 115-INCH-POUNDS.
 - ADJUST C-C SPACING PLUS MINUS UP TO 4-INCHES TO HIT PBR METAL ROOF RIDGES.
 - CONTRACTOR SHALL NOT INSTALL ROOF ATTACHMENTS ON ROOF AREAS OVER OVERHANGS.
 - THERE SHALL BE A PV MODULE TO RAIL MOUNTING CLAMP AT EVERY MODULE/RAIL CROSSING POINT WITH MINIMUM 4 CLAMPS PER MODULE.
 - ADJOINING MODULES ON SAME RAIL SHALL SHARE CLAMPS.
 - MODULES SHALL BE PORTRAIT.
 - ROOF IS ASSUMED TO BE COMPLIANT WITH FBC (FLORIDA BUILDING CODE) AS OF TIME OF CONSTRUCTION.
 - THERE SHALL BE A MINIMUM OF TWO RAILS UNDER EACH PV MODULE.
 - ROOF ATTACHMENT SPACING SHALL BE AS SHOWN IN FIGURE 08.
 - RAILS SHALL NOT CANTILEVER BEYOND OUTSIDE END OF ROOF ATTACHMENT BY MORE THAN 1-FOOT.
 - CONTRACTOR/INSTALLER SHALL COMPLY WITH OEM INSTALLATION INSTRUCTIONS.
 - IF A CONFLICT SHOULD OCCUR BETWEEN A DRAWING AND/OR SPECIFICATION HEREON AND AN OEM DETAIL, OEM SHALL PREVAIL.
 - CONTRACTOR SHALL PROVIDE AHJ WITH ADDITIONAL INFORMATION AS REQUIRED.
 - ENGINEER OF RECORD (EOR) PREFERS EMAIL COMMUNICATION: alper@iceli-pe.com
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01 NOTES
SCALE: N/A

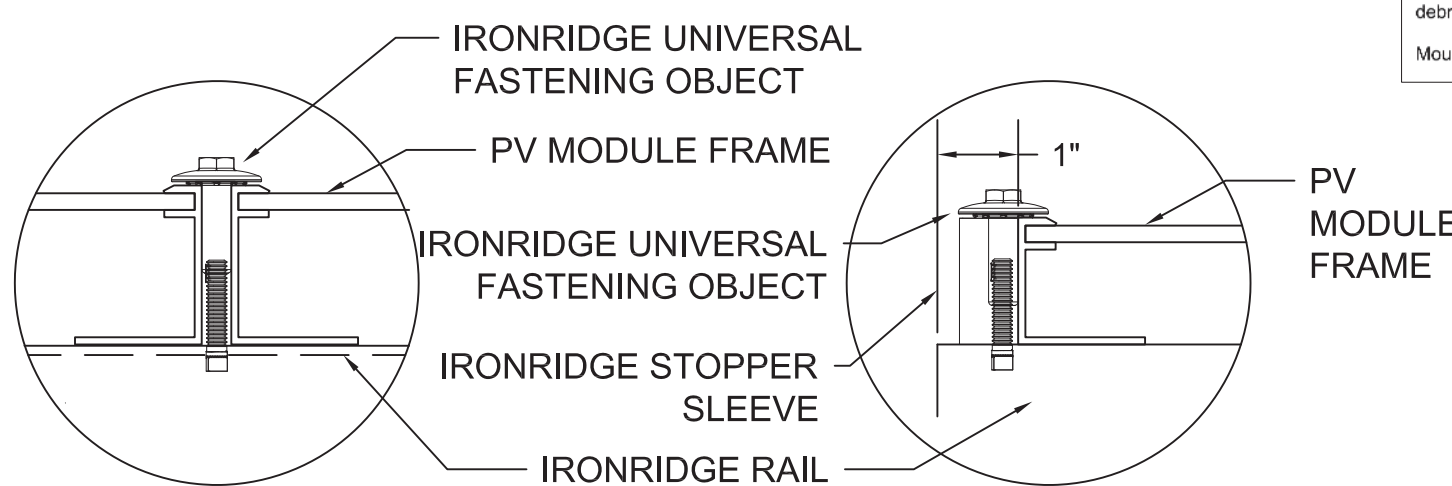


ASCE 7-16, 29.4-7		GABLE ROOF 7 < Θ < 20		Θ	12	*		·13.26 kW DC SYSTEM. ·39-69," X 40," PV MODULES. ·753 SF PV ARRAY INSTALLATION ·PV MODULE UPLIFT LOAD CAPACITY: 55 PSF (AS REPORTED BY MANUFACTURER) ·UNFACTORED AVERAGE ADDITIONAL GRAVITY LOAD: 2.5 PSF ·TOTAL NUMBER OF ROOF ATTACHMENTS: 85
Exposure Category:		B		h2	0.38	FT.		
Risk Category:	2			Lp	5.71	FT.		
Mean Roof Height:	h	12	FT.	1.5 Lp	8.56	FT.		
Basic Wind Speed (mph):	V	116	MPH	Wp	3.38	FT.		
Ground elevation factor:	Ke	1		ω	0	*		
Topographic Factor:	Kzt	1		B	30	FT.		
Gust Effect Factor:	G	0.85		L	65	FT.		
Directionality Factor:	Kd	0.85		A	19.3	SF.		
Velocity Pressure Exposure Coefficient:	Kz	0.57		Ya	0.67			
	qh	16.7	PSF	a	5	FT.		
ZONE	d1 (ft.)	d2 (ft.)						p (PSF)
ALL	-	-	-	GCp	0.45	YE	1	5.0
1, 2e	1	0.25	d1<h/2	GCp	-2.00	YE	1	-22.4
2n, 2r, 3e	10	0.25	d1>h/2	GCp	-2.60	YE	1.5	-43.6
3r	3	0.25	d1<h/2	GCp	-3.15	YE	1	-35.2

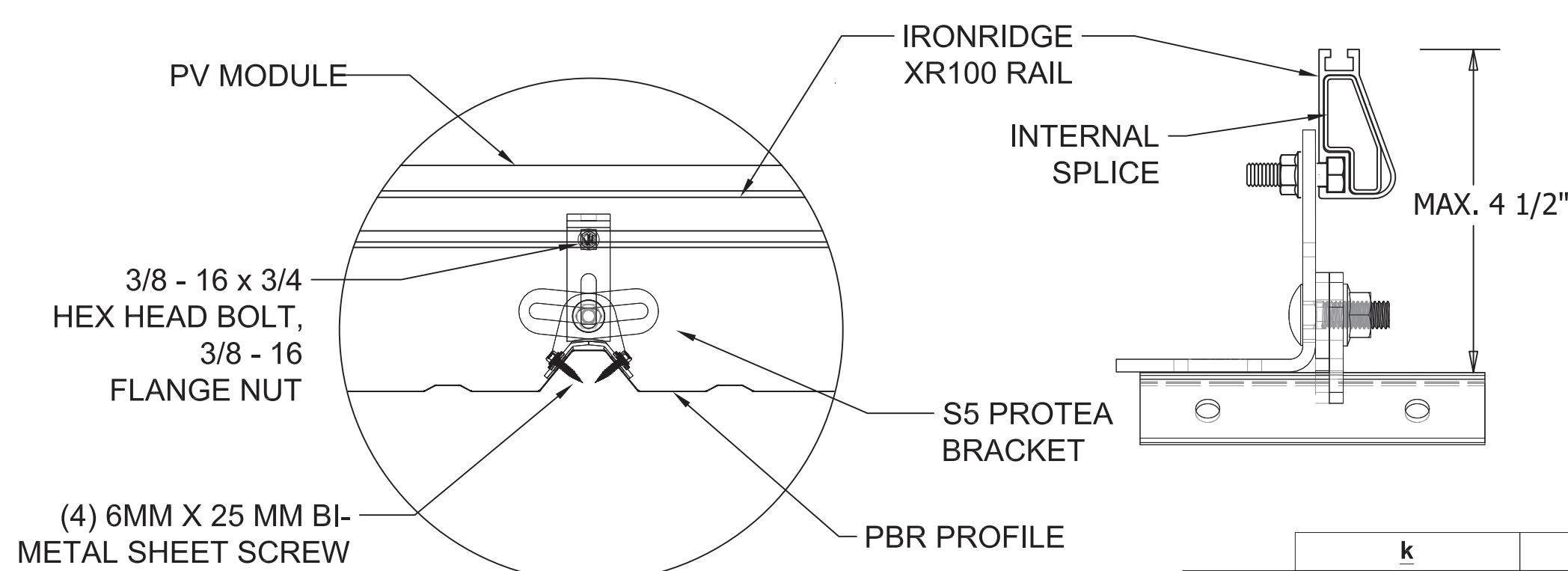


02 WIND LOAD CALCULATIONS

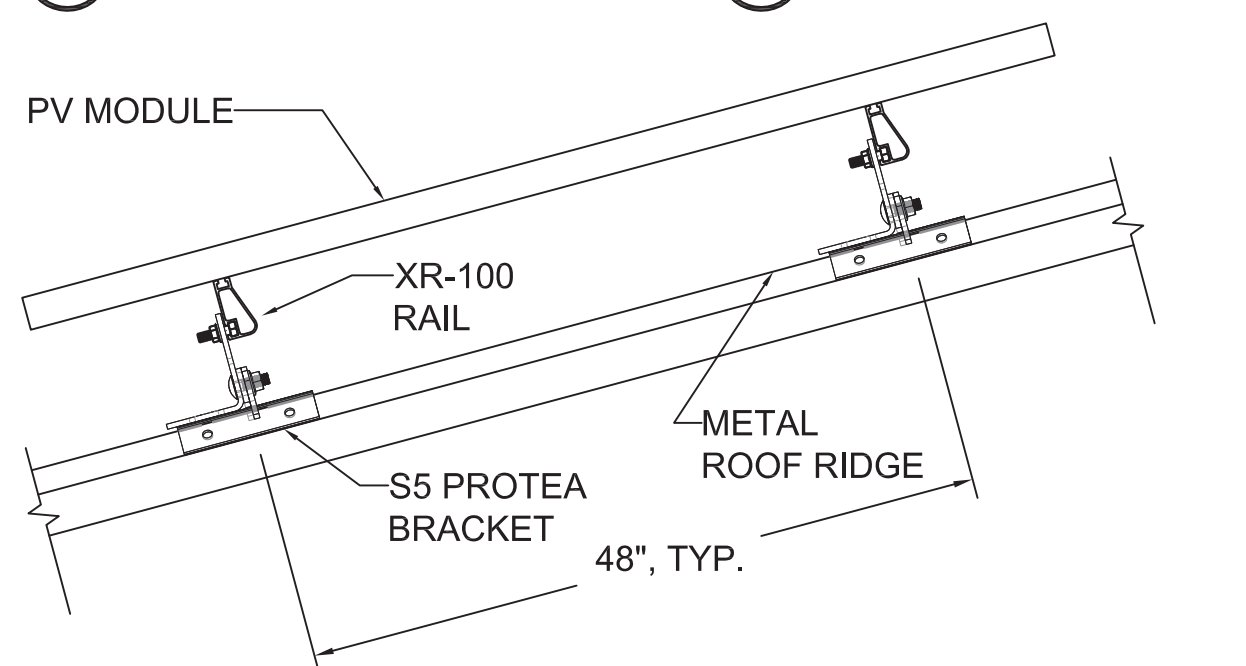
SCALE: N/A



05 DESIGN WIND SPEED
SCALE: NTS



03 DETAIL, MID CLAMP FRONT
SCALE: NTS



04 DETAIL, END CLAMP FRONT
SCALE: NTS

06 MODULE, RAIL, ROOF ATTACHMENT CROSS SECTION
SCALE: NTS

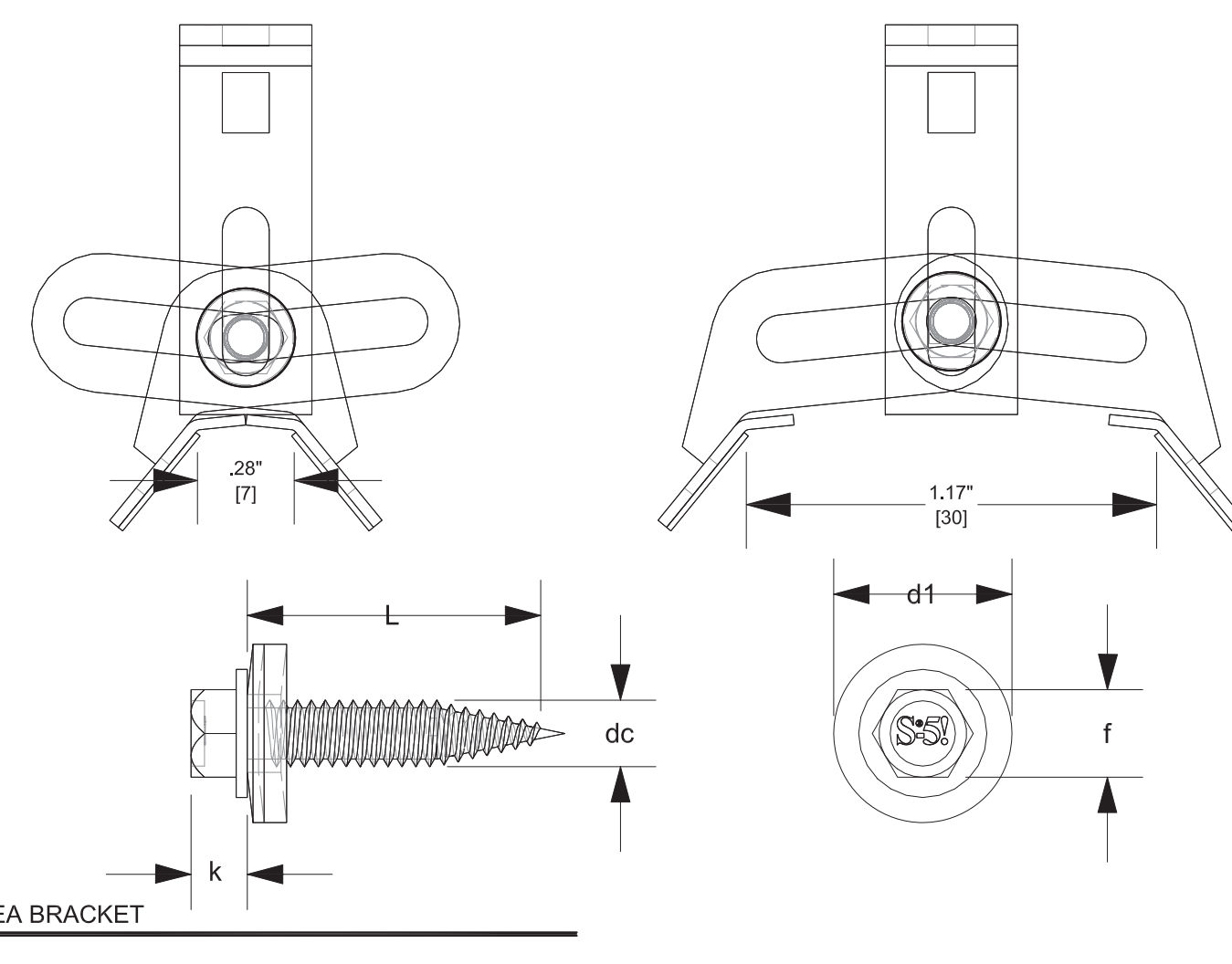
07 ROOF ATTACHMENT DETAIL
SCALE: NTS

	<u>k</u>	<u>dc</u>	<u>L</u>	<u>d1</u>	<u>f</u>
MM	5.5	6	25	16	8
NCH	.22	.24	1	.63	.30

6mm X 25mm (8mm Hex W/16mm Washer)

A: ELECT. SVC. ENTRANCE
B: SUB-PANEL
C: MAIN SVC. PANEL
D: AC DISCONNECT
E: INVERTERS
F: BATTERY

08 PLAN VIEW
SCALE: 1/4" = 1'-0"



09 S5 PROTEA BRACKET
SCALE: NTS

FBC 2020 (7TH EDITION) FLORIDA BUILDING CODE

I CERTIFY THAT THE SHEATHING & FRAMING OF THIS STRUCTURE WILL SAFELY ACCOMMODATE PV SYSTEM MOUNTING, RACKING, AND MODULES AND WITHSTAND WIND UPLIFT / LATERAL FORCES AND EQUIPMENT DEAD LOADS WITH THE CONDITION THAT CONTRACTOR'S INSTALLATION OF THE PV SYSTEM IS IN ACCORDANCE WITH THE INSTRUCTIONS ON THIS PLAN . THIS IS ATTESTED TO BY MY SIGNATURE AND SEAL ON THIS PLAN AT THE UPPER RIGHT.

ENGINEER
ALPER ICELI
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NAME OF OWNER:ZIMMERMAN ROBERT A
ADDRESS:181 NW SUNTILT CT
WHITE SPRINGS, FL 32096
PROPERTY ID#:14-2S-15-00053-000 (99)

CONTRACTOR:

Sky Solar Energy Inc.
40415 Chancey Rd.
Unit #104 Zephyrhills, FL
33542
352-443-6580
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SKYSOLAR-
ZIMMERMAN

STRUCTURAL
SEP.17-21

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A

B

C

D

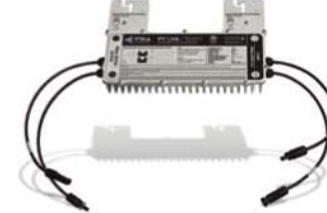
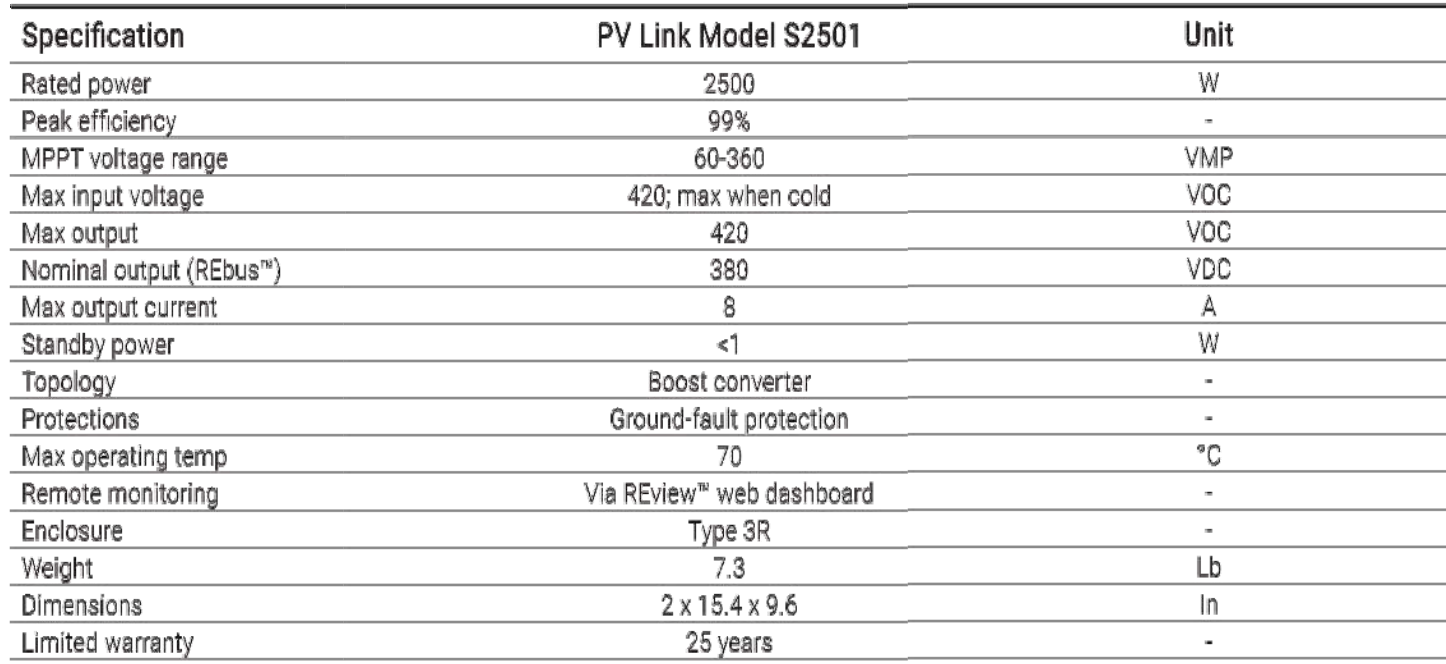
E

F

MECHANICAL SPECIFICATION

Format	1760mm x 1050mm x 32mm (including frame)
Weight	12.9kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Conductive film
Frame	Black anodized aluminum
Cell	6 x 20 monocrystalline Q-ANTUM solar half cells
Junction box	68-101 mm x 52-60 mm x 15-18 mm Protector class IP67, with bypass diodes
Cable	4 mm ² Solar cable (V ₁ ±110mm, V ₂ ±110mm)
Connector	Stäubli MC4, Asphand LTX, Rave OS-6, Tongsh TL-CableCLS, JMH-Y JMB01, IP68 or Friends IP67

01 PV MODULE SPEC. SHEET
SCALE: N/A

		PV Link™ S2500 Series substrung optimizer	
		Advantages: - Fast, simple installation - Lower failure risk than module-level optimizers - Rapid Shutdown compliant - Accurate monitoring for each substrung - Ground-fault protection - Robust ceramic capacitors	
		Features: - Quick connections with MC4 connectors 2500W capacity - Compatible with high-voltage smart batteries - Cost-effective solution for high-performance PV 25-year limited warranty	
Fast. Flexible. Safe. PV Link is the simple solar optimizer for quick installation and long-lasting performance. Connect as few as two or as many as nine PV modules to each PV Link to overcome shading and challenging roof lines.			

03 POWER OPTIMIZER SPEC. SHEET
SCALE: N/A

GENERAC

PWRCELL

7.8kW (10 HP) PWRcell Inverter with CTS
 Model #: X7602 (Ordering SKU: APWEC0004)
 11.4 kW (20 HP) PWRcell Inverter with CTS
 Model #: X11402 (Ordering SKU: APWEC0005)

Solar + storage is simple with the Generac PWRcell™ Inverter. This bi-directional, REBus™-powered Inverter offers a simple, efficient design for integrating smart batteries with solar. Ideal for self-supply, backup power, zero-export and energy cost management, the PWRcell Inverter is the industry's most feature-rich line of inverters, available in single-phase and three-phase models.

FEATURES & BENEFITS

- Single inverter for grid-tied solar with smart battery integration
- Simplified system design: No autotransformer or battery inverter needed
- User-selectable modes for backup power, self-supply, time-of-use, zero-import and export limiting
- Free system monitoring included via PWRview™ Web Portal and Mobile App

AC OUTPUT/GRID-TIE	MODEL X7602	MODEL X11402
MAX. CONT. GRID-TIED AC POWER @ 50°C (122°F)	7800 W	11400 W
AC OUTPUT VOLTAGE	120/240, 1Ø VAC	120/208, 3Ø VAC
AC FREQUENCY	60 Hz	60 Hz
MAXIMUM CONTINUOUS OUTPUT CURRENT	33 A, RMS	33 A, RMS
GROUND-FAULT ISOLATION DETECTION	Included	Included
CHARGE BATTERY FROM AC	Yes	Yes
THD CURRENT	<2%	<2%
TYPICAL NIGHTTIME POWER CONSUMPTION	<7 W	<7 W

AC OUTPUT/ISLANDED	MODEL X7602	MODEL X11402
MAX. CONT. AC POWER @ 40°C (104°F) W/ SINGLE 6-MODULE BATTERY CABINET	8,000 W	8,000 W
MAX. CONT. AC POWER @ 40°C (104°F) W/ 2 BATTERY CABINETS 6-MODULES MINIMUM	11,000 W	9,600-11,000 W
MAX. CONT. AC POWER @ 50°C (122°F)	8,800 W	7,900-8,800 W
PEAK MOTOR STARTING CURRENT (3 SEC)	50 A, RMS	
AC BACKUP OUTPUT VOLTAGE	120/240, 1Ø VAC	120/208, 3Ø VAC
AC FREQUENCY	60 Hz	60 Hz
THD VOLTAGE	<2%	<2%
AUTOMATIC SWITCHOVER TIME	<1 Second	<1 Second

DC INPUT	MODEL X7602	MODEL X11402
DC INPUT VOLTAGE RANGE	390-420 VDC	390-420 VDC
NOMINAL DC BUS VOLTAGE	390 VDC	390 VDC
DC DISTRIBUTION INPUT BREAKERS	4 x 2P30 A	4 x 2P30 A
MAX INPUT CURRENT PER DC INPUT	30 A	30 A
REVERSE-POLARITY PROTECTION	Yes	Yes
TRANSFORMERLESS, UNBYPASSABLE	Yes	Yes
TYPICAL NIGHTTIME POWER CONSUMPTION	<7 W	<7 W
DC BUS EXPORT FUSES (1+3)	40 A	40 A
3-POLE DISCONNECTION	Yes	Yes

EFFICIENCY	MODEL X7602	MODEL X11402
PEAK EFFICIENCY	97.9%	97.9%
CIC WEIGHTED EFFICIENCY	96.9%	97.9%

Peak Performance

In island mode X11402 protected loads only supply 2 phases 120 VAC L-N, 208 VAC L-L which results in lower power than in grid tied 3 phase mode. The low value of the range is for full L-L loading while high value of the range is full L-N loading

02 INVERTER SPEC. SHEET
SCALE: N/A

Specifications

PWRcell™ BATTERY CONFIGURATIONS

BATTERY MODULE SERIES:

BATTERY MODULES:	3	4	5	6
USABLE ENERGY:	9 kWh	12 kWh	15 kWh	18 kWh
NOMINAL CONT. AC POWER ¹	3.4 kW	4.5 kW	5.6 kW	6.7 kW
MAX. CONT. AC POWER ²	4.5 kW	6 kW	7.5 kW	9 kW
PEAK MOTOR STARTING CURRENT (2 SEC) - A, RMS	25	33	42	50
REBUS™ VOLTAGE - INPUT/OUTPUT:	360-420 VDC			
NOMINAL VOLTAGE:	46.8 VDC			
DC-DC ROUND-TRIP EFFICIENCY:	96.5%			
MAXIMUM AMBIENT OPERATING TEMPERATURE:	14 TO 122 °F (-10 TO 50 °C)			
RECOMMENDED AMBIENT OPERATING TEMPERATURE:	41 to 104 °F (5 to 40 °C)			
MAXIMUM INSTALLATION ALTITUDE - FT (M):	8934 (3000)			
DIMENSIONS, L x W x H - IN (MM):	22" x 10" x 68" (559 x 254 x 1727)			
WEIGHT, ENCLOSURE - LB (KG):	115 (52)			
WEIGHT, INSTALLED - LB (KG):	280 (127)	335 (152)	390 (177)	445 (202)
WEIGHT, ACCESSORY MOUNTING HARDWARE - LB (KG):	21 (10)			
ENCLOSURE TYPE:	Type 3R			
WARRANTY - LITHIUM MODULES:	10 Years, (7.56MWh)			
WARRANTY - ELECTRONICS AND ENCLOSURE:	10 Years			
COMMUNICATION PROTOCOL:	REbus™ DC Nanogrid™			
COMPLIANCE:	UL 9540, UL 1973, UL 1642, CSA 22.2 #107.1			

¹Average AC power over a complete discharge cycle.

²Peak Performance, values provided for 40°C (104°F).

Note: Charge/discharge rate may be reduced at temperature extremes

PWRcell ACCESSORIES

Inside of the PWRcell Battery Cabinet, battery modules are stacked two deep on three levels, allowing for up to six modules to be connected in series. You can upgrade an existing PWRcell Battery Cabinet by adding Battery Modules and a Module Spacer (APKE0000). A Module Spacer is only required for battery configurations with an odd number of modules (i.e. 3 or 5).

Generac offers a convenient PWRcell Battery Upgrade Kit (APKE0000) to help replace lost or misplaced hardware.

PWRcell MODEL BUILDER

PRODUCT SERIES	ENCLOSURE TYPE	# OF MODULES	BATTERY SERIES
PWRcell	OR	M3	DCB
	1R (Indoor-Rated) OR (Outdoor-Rated)	3 Modules 4 Modules 5 Modules 6 Modules	DCB

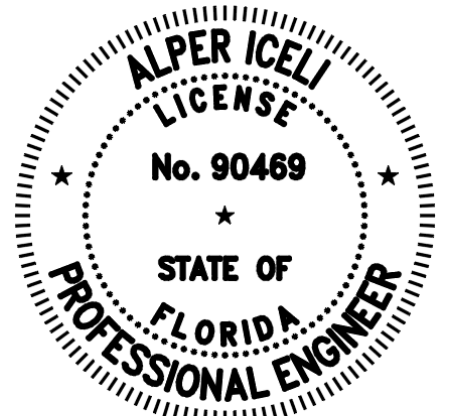
Sample Model Name: PWRcell OR M3 DCB

Generac Power Systems, Inc.
545 W29290 Hwy. 59, Waukesha, WI 53189
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A000094945 REV C

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Specifications are subject to change without notice.

GENERAC

05 BATTERY SPEC. SHEET
SCALE: N/A

NATIONAL ELECTRICAL CODE, NEC (2017)
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This item has been digitally signed and sealed by Alper Iceli, PE, on date shown above.
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NAME OF OWNER: ZIMMERMAN ROBERT A
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PROPERTY ID#: 14-2S-15-00053-000 (99)

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