

	1	2	3	4	5	6	7
A	ZACHARY MEARS 356 SW PAUL ALLISON LAKE CITY, FL 32024			SOLAR CONTRACTOR: SOLAR IMPACT, INC 4509 NW 23RD AVE., STUITE 20 GAINESVILLE, FL 32606 352.338.8221 WWW.SOLARIMPACT.COM SOLAR CONTRACTOR LICENSE: CVC56761 EC13012442 PROJECT MANAGER: JEFF BROSS 386.227.1167 JEFF.BROSS@SOLARIMPACT.COM PROJECT DESIGNER: RICHIE WILHOIT 352.226.7271 RICHIE.WILHOIT@SOLARIMPACT.COM ENGINEER OF RECORD: BARRY M. JACOBSON PE#51402 SOLAR IMPACT, INC 352.338.8221 BARRY@SOLARIMPACT.COM	CLIENT: ZACHARY MEARS GENERAL CONTRACTOR: N/A AUTHORITY HAVING JURISDICTION: COLUMBIA COUNTY BUILDING DEPARTMENT UTILITY: CLAY ELECTRIC COOPERATIVE (CEC)		
B	DC:	13.965 KW-DC MODULE STC RATING		PARTICIPANTS			
	AC:	11.87 kW-AC GROSS POWER RATING					
	AC:	11.4 kW-AC INVERTER					
C	THIS IS AN EXPANSION OF AN EXISTING BATTERY BACKUP/PV ARRAY. THE EXPANSION CONSISTS OF 4.365 KW OF NEW MODULES. THE 9 NEW Q.PEAK DUO XL-G10.3 BFG/485 TUFF RIB ROOF MOUNTED MODULES HAVE NEW IRONRIDGE A1 RACKING WITH THE MODULES PARALLEL TO THE SURFACE WITH THE SURFACE AND MODULE FACING EAST. THERE WILL BE 9 NEW SOLAREEDGE P505 OPTIMIZERS.		G01: GENERAL NOTES A01: EQUIP. LOCATIONS A02: ELECTRICAL RISER A03: FIRE SAFETY E01: LINE DIAGRAM E02: PLACARDS E03: ELECTRICAL CALCS E04: MODULE DATA E05: RSD DATA E06: INVERTER DATA S01: ROOF ZONES S02: ROOF CALCS S03: ATTACHMENT DATA S04: RACKING DATA	2023 8TH EDITION FLORIDA BUILDING CODE : BUILDING 2023 8TH EDITION FLORIDA BUILDING CODE : RESIDENTIAL 2023 8TH EDITION FLORIDA BUILDING CODE : MECHANICAL 2023 8TH EDITION FLORIDA BUILDING CODE : PLUMBING 2023 8TH EDITION FLORIDA BUILDING CODE : FUEL GAS 2023 8TH EDITION FLORIDA BUILDING CODE : ENERGY CONSERVATION 2023 8TH EDITION FLORIDA BUILDING CODE : EXISTING BUILDING 2023 8TH EDITION FLORIDA BUILDING CODE : ACCESSIBILITY 2023 8TH EDITION FLORIDA FIRE PREVENTION CODE (NFPA) 2020 NATIONAL ELECTRIC CODE (NEC)			
D							
E	DOCUMENTS SIZED FOR 11"X17" PAPER						
	SUMMARY		PAGE INDEX	CODE REFERENCES		SITE LOCATION	
	1	2	3	4	5	6	7

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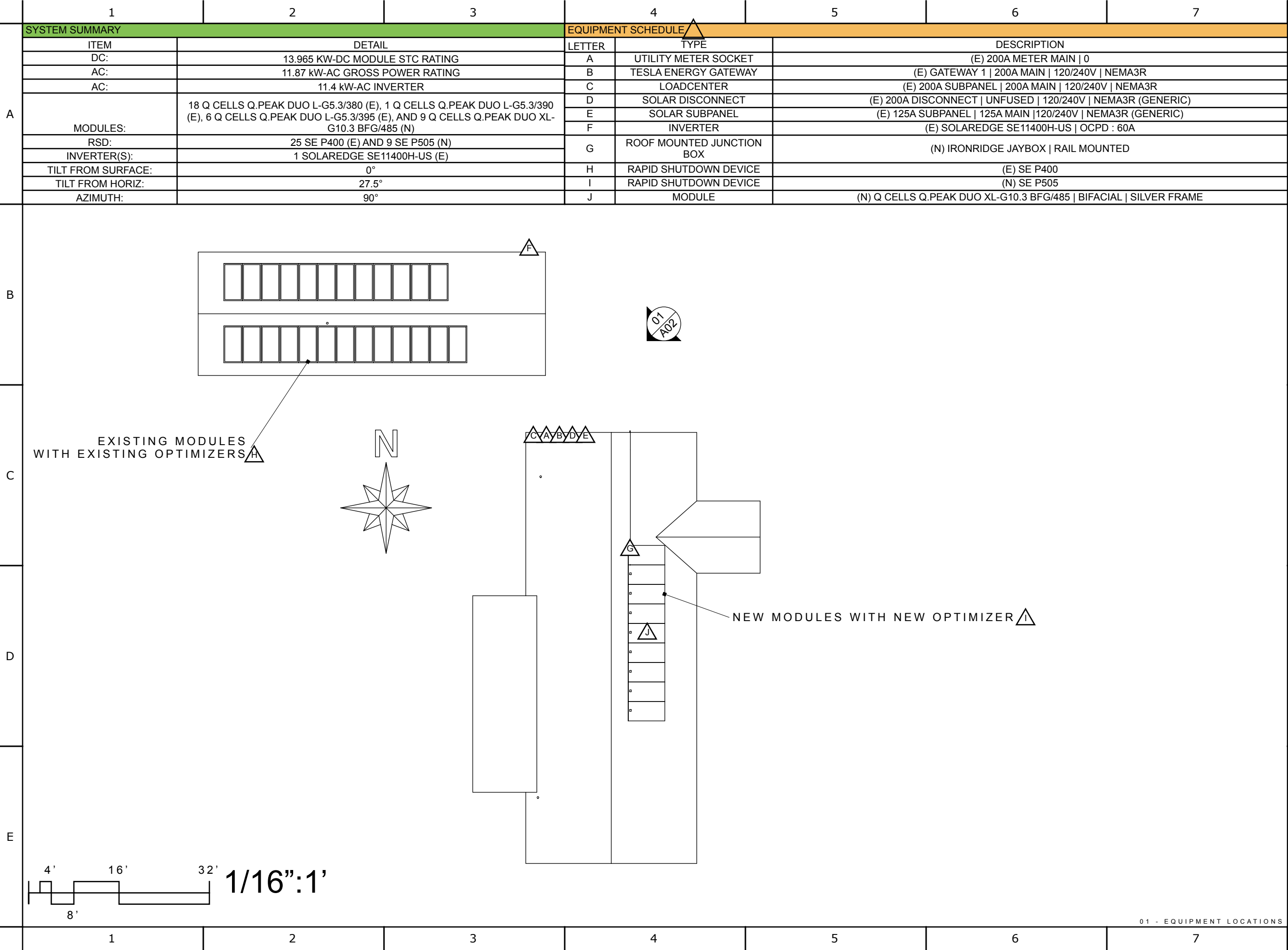
REV#	DATE	REVISION NOTES

Project Name:
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PAGE TITLE:
GENERAL NOTES

PAGE # :
G01



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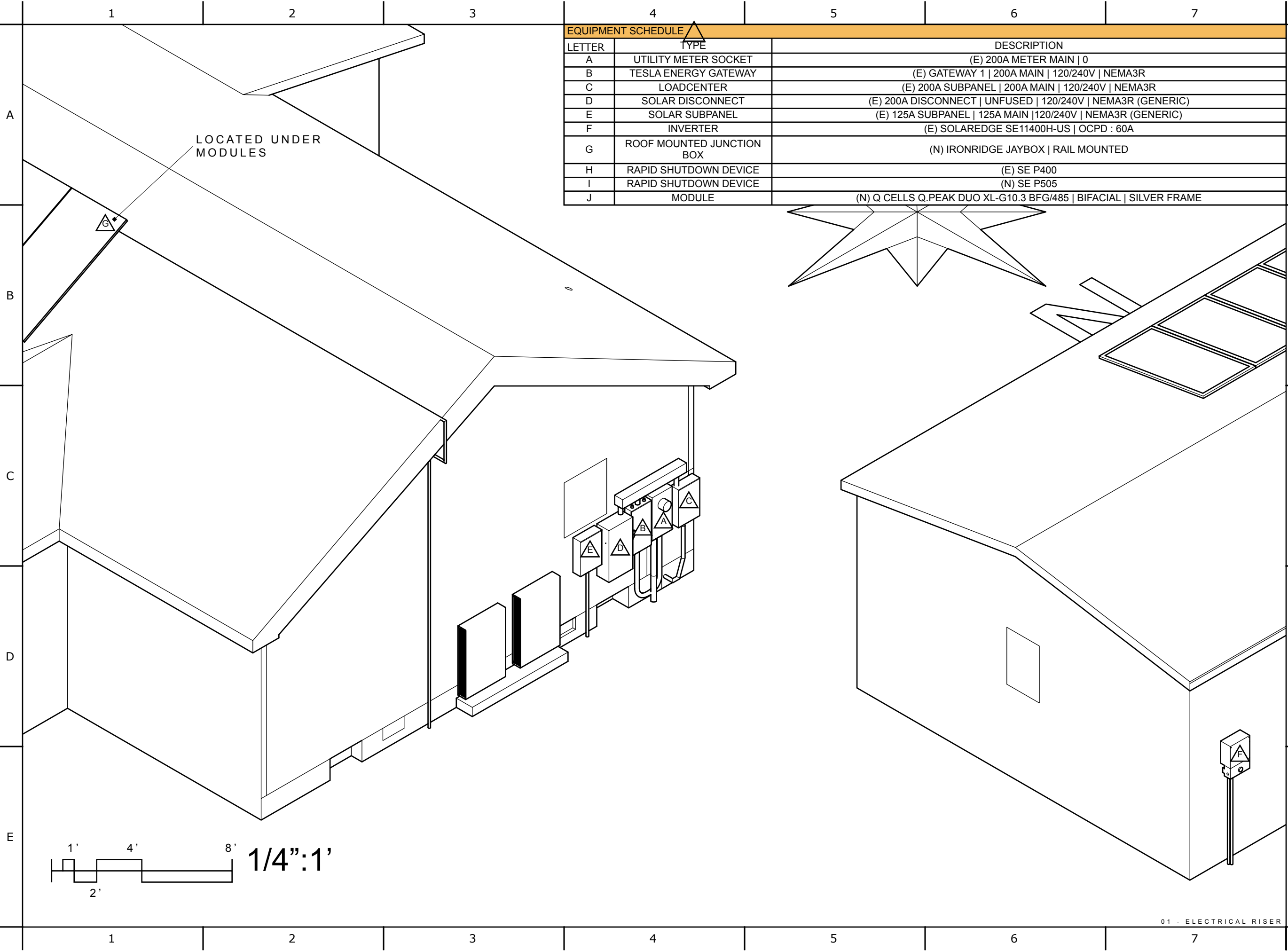
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PAGE TITLE:

EQUIPMENT LOCATIONS

PAGE #:

A01

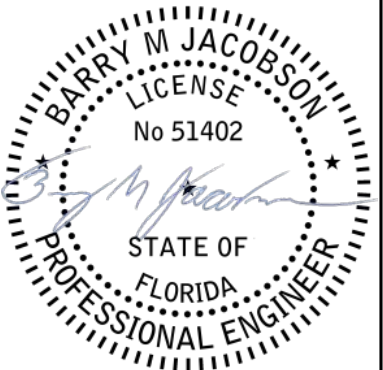


EQUIPMENT SCHEDULE		
LETTER	TYPE	DESCRIPTION
A	UTILITY METER SOCKET	(E) 200A METER MAIN 0
B	TESLA ENERGY GATEWAY	(E) GATEWAY 1 200A MAIN 120/240V NEMA3R
C	LOADCENTER	(E) 200A SUBPANEL 200A MAIN 120/240V NEMA3R
D	SOLAR DISCONNECT	(E) 200A DISCONNECT UNFUSED 120/240V NEMA3R (GENERIC)
E	SOLAR SUBPANEL	(E) 125A SUBPANEL 125A MAIN 120/240V NEMA3R (GENERIC)
F	INVERTER	(E) SOLAREEDGE SE11400H-US OCPD : 60A
G	ROOF MOUNTED JUNCTION BOX	(N) IRONRIDGE JAYBOX RAIL MOUNTED
H	RAPID SHUTDOWN DEVICE	(E) SE P400
I	RAPID SHUTDOWN DEVICE	(N) SE P505
J	MODULE	(N) Q CELLS Q.PEAK DUO XL-G10.3 BFG/485 BIFACIAL SILVER FRAME

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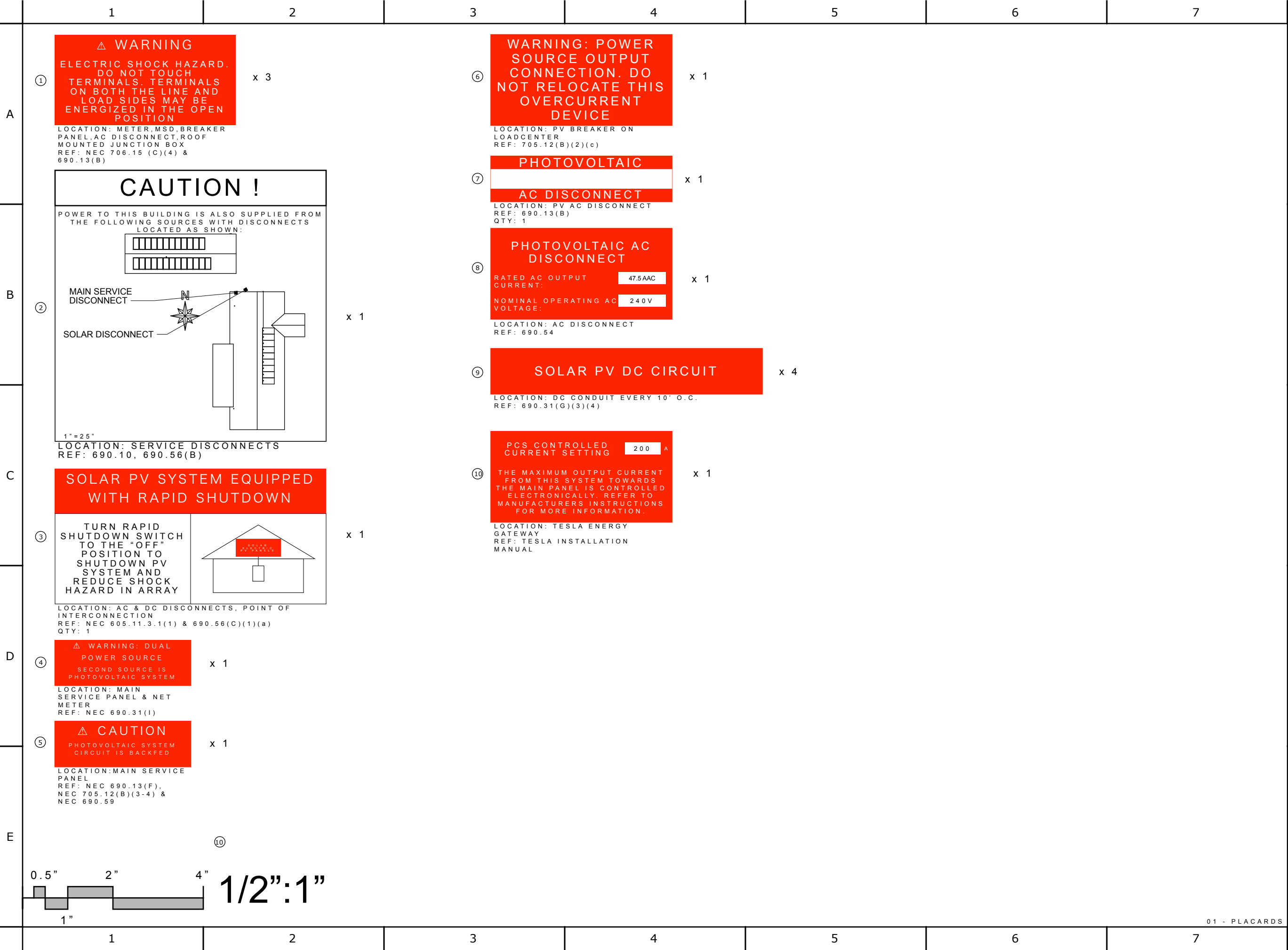
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PAGE TITLE:

ELECTRICAL RISER

PAGE #:

A02



	1	2	3	4	5	6	7		
A	LOCATION INFORMATION		CONDUCTOR, CONDUIT, & OCD SIZES 310.10(H)						
			Conductor ID in Oneline				A	B	
	Location	Gainesville AP	Current-carrying Conductor				#10	#10	
	Temp, Ambient High (ASHRAE 2%)	34.0 C	Insulation Type				THWN-2	PV Wire	
	Temp, Ambient Low (ASHRAE Extreme)	-5.0 C	Side of Service				Load	Load	
	Temp, Module Test	25.0 C	Insulation Temp Rating				90 C	90 C	
	Temp, Delta Low	-30.0 C	Conductor Material				CU	CU	
	Temp, Below Ground	25.0 C	Neutral Sizing				#N/A	#N/A	
			Over-current Device Type				#N/A	#N/A	
B	MODULE SPECIFICATIONS AND CALCULATIONS		CURRENT SOURCE						
	ITEM	MODULE 1	Current Type				DC	DC	
	Module Manufacturer	Q Cells	Current Source				Optimizer 1	Optimizer 1	
	Module Model	Q.Peak Duo XL-G10.3 BFG/485	Parallel Sources Combined				Not Combined	Not Combined	
	Module Power STC	485 W	# Parallel Sources				1	1	
	Module Operating Volt	45.63 VDC	# Sets of Conductors				1	1	
	Module Open-circuit Volt	53.63 VDC	# Conduits				1	1	
	Module Coeff Volt/Temp	-0.27 %/C	# Sets Conductors per OCD				1	1	
			# Conductors per Conduit				3	#N/A	
C	Module Max Volt (Voc*(1+Td*VTCoef))	57.97 VDC	# Current-Carrying Conductors per Conduit				2	2	
	Module Operating Current	10.63 A	# Grounds per Conduit				1	1	
	Module Short-Circuit Current	11.16 A	# Neutrals per Conduit				0	0	
	Module Max-Current (Isc*125%)	13.95 A	# Sources per Conductor				1	1	
	INVERTER SPECIFICATIONS AND CALCULATIONS		Source Maximum Current					17.5 A	17.5 A
	ITEM	INVERTER 1	Conductor Maximum Current					17.5 A	17.5 A
	Inverter Make	SolarEdge	CONDITIONS OF USE CALCULATION 310.15 690.8(B)(2)(b)						
	Inverter Model	SE11400H-US	Bottom of Conduit Distance Above Roof (or Below Ground)					4"	4"
	Inverter Qnty	1	Temperature Ambient High					34.0 C	34.0 C
D	Inverter Power	11,400 W	Temperature Adjustment (roof/sun)					0.0 C	0.0 C
	Inverter Input Voltage, Max DC	480	Total Temperature					1.0 C	1.0 C
	Inverter Input Voltage, Nominal DC	400	Derate for Temp					96%	96%
	Inverter Output Voltage, AC	240 VAC	Derate for Fill / Bundled					100%	100%
	Inverter Input Current, Max DC	30.5 ADC	Conductor Ampacity, w/o derates					40.0 A	55.0 A
	Inverter Output Current, AC	47.5 AAC	Min Ampacity required >= Imax conductor*125% 690.8(B)(1)					21.8 A	21.8 A
	Inverter Output Frequency	60 Hz	Conductor Ampacity, with derates and 240.4(D)					30.0 A	30.0 A
	Inverter Phase Qnty	1 Phase	Min Ampacity required >= Imax conductor 690.8(B)(2)					17.5 A	17.5 A
	Inverter UL Listing	UL1741	TERMINAL CALCULATION 110.14 310.15 690.8(B)(2)(a)						
E	Inverter Grounding	Ungrounded	Terminal Temp Rating					75 C	75 C
	Modules in Series	9	Conductor Ampacity at terminals					30.0 A	30.0 A
	String Max Open Circuit Voltage	522 VDC	Min Ampacity required >= Imax conductor*1.25 690.8(B)(1)					21.8 A	21.8 A
			OVER-CURRENT 690.8, 690.9, 240.4B						
			# of Parallel Sources per OCD					1	1
			Min Ampacity required >= # parallel sources*Imax source x 1.25					21.8 A	21.8 A
			Over-current Device					#N/A	#N/A
			CONDUIT ANNEX C, CHAPTER 9 TABLE 1, 376.22						
			Conduit Type					PVC Sch 40/HPDE	Free Air
		Nipple (less than or equal to 24-inches)					Not Nipple	Not Nipple	
		Conduit diameter					0.75"	#N/A	
		Max Allowable Conduit Fill					40%	#N/A	
		Conduit Fill					12%	#N/A	
		VOLTAGE DROP (WORST CASE), CHAPTER 9, TABLES 8 & 9							
		Conductor Length One-Way					110.2'	31.4'	
		Power Factor					#N/A	#N/A	
		Resistance					1.24 ohm/kft	1.24 ohm/kft	
		Reactance					#N/A	#N/A	
		Impedance					#N/A	#N/A	
		Source Operating Current					10.9 A	10.9 A	
		Conductor Operating Current,					10.9 A	10.9 A	
		Nominal Operating Voltage					400.0 V	400.0 V	
		Voltage Drop, total					2.98 V	0.85 V	
		Voltage Drop, percentage					0.74%	0.21%	
	1	2	3	4	5	6	7		

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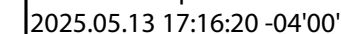
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PAGE TITLE:

ELECTRICAL CALCULATIONS

PAGE #:

E03



Project Name: ZACHARY MEARS

Project Address: 356 SW PAUL ALLISON COURT
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E04

E05

Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US /
SE7600H-US / SE10000H-US / SE11400H-US



Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: embedded consumption metering and production revenue grade metering, ANSI C12.20 Class 0.5 (0.5% accuracy)

solaredge.com

solaredge

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US /
SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEX00XH-XXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 ¹⁾							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, adjustable -0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380				400			Vdc
Maximum Input Current @240V ²⁾	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V ²⁾	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600k Ω Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99				99 @ 240V 98.5 @ 208V			%
Nighttime Power Consumption	< 2.5							W

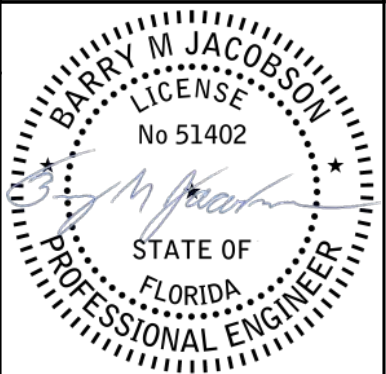
¹⁾ For other regional settings please contact SolarEdge support

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

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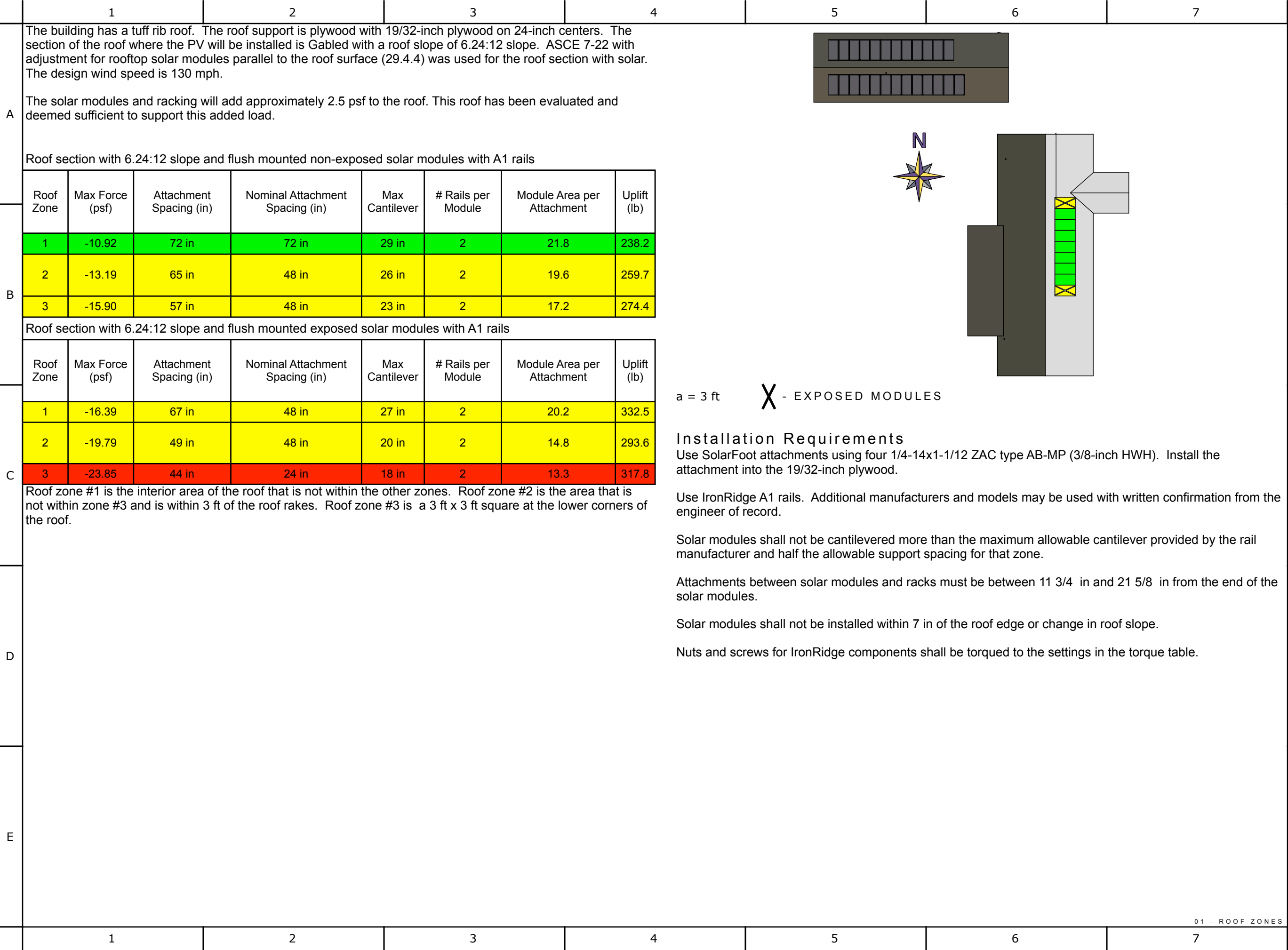


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PAGE TITLE: SOLAREGE INVERTER
PAGE #: E06



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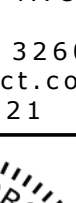
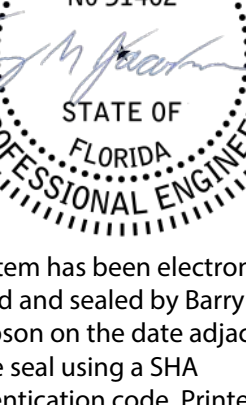
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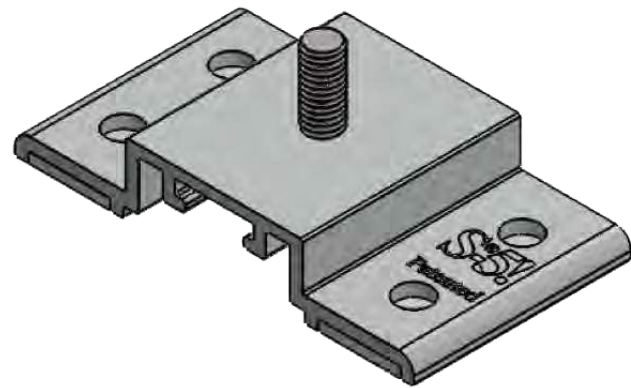
ROOF ZONES

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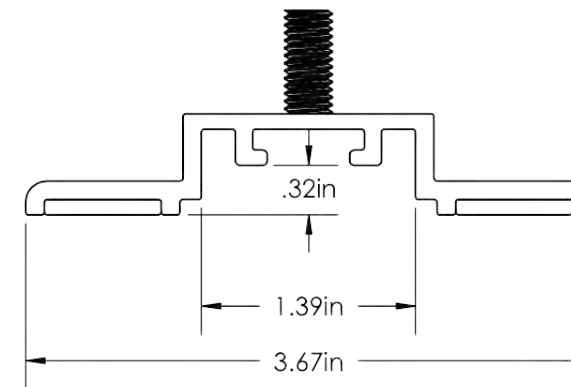
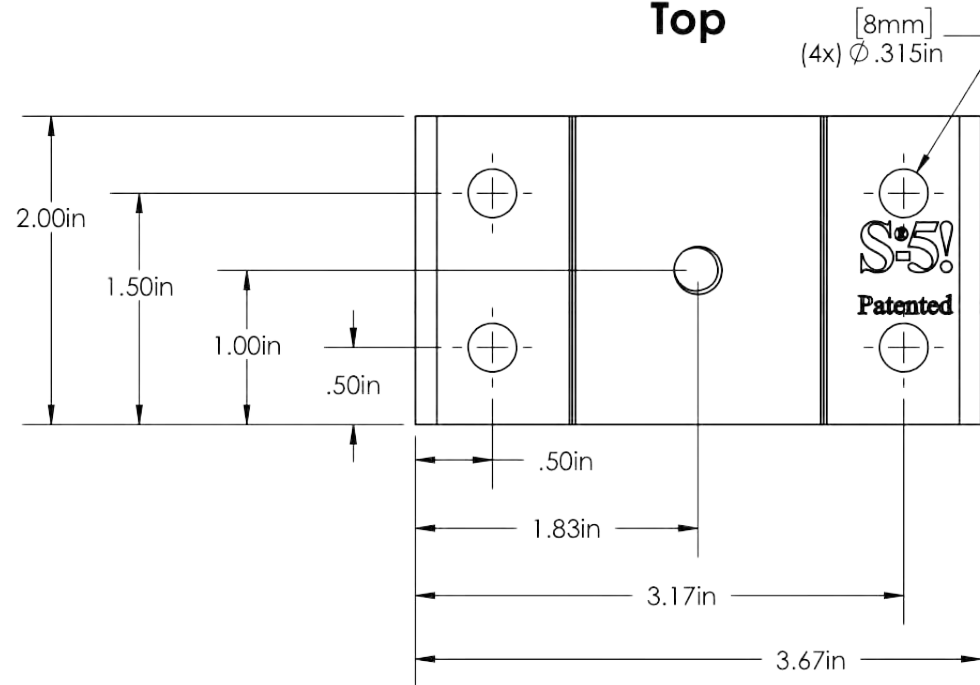
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ROOF ZONE CALCS		S02

SolarFoot

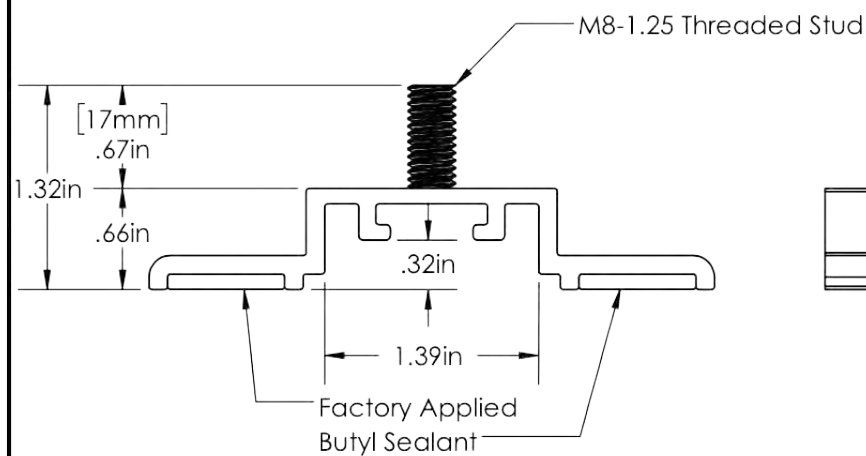


Top

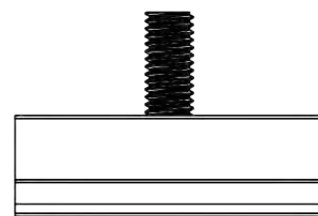


Scale 2:3

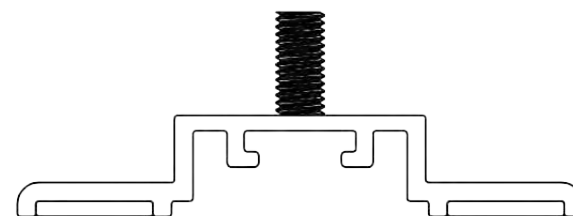
Back



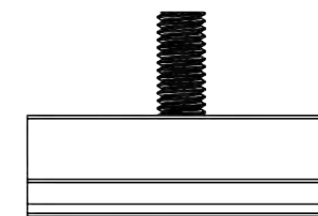
Left



Front



Right



General Notes:

1. SolarFoot
2. M8-1.25 Stainless Steel Hex Flange Nut (13mm Socket)
3. Metal to Metal: 1/4-14 Self Drilling Screw 1-1/2" to 2-1/2"
Metal to Wood: 1/4-14 Type 17 AB Milled Point 1-1/2" to 2-1/2"
4. Example roof

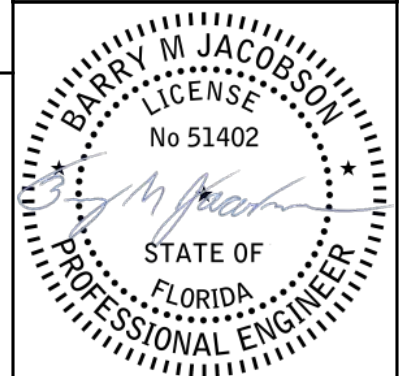
**FOR STANDING SEAM SPECIFIC MECHANICAL LOAD TEST
INFORMATION AND CLAMP INSTALLATION INFORMATION
PLEASE VISIT: WWW.S-5.COM**

MATERIAL: 6005A T61 Al	 The Right Way!		METAL ROOF INNOVATIONS, LTD. 8655 TABLE BUTTE RD COLORADO SPRINGS, CO 80908 719-495-0518 719-495-0045(FAX)	
EST ASSEMBLY WEIGHT: 0.248 lbs				
SUPPLIED HARDWARE: M8-1.25 Hex Flange Nut	TITLE SolarFoot [CCD]			
SCALE: 2:3	DRAWING NO. LP66-A-0-A	DRAWN BY Paul Leitch	DATE 09/20/2017	
EST. WEIGHT: Bracket: 0.129 lbs Fastener: 0.026 lbs Nut: 0.015 lbs	S-5!® PRODUCTS ARE PROTECTED BY MULTIPLE U.S. AND FOREIGN PATENTS. VISIT OUR WEBSITE AT WWW.S-5.COM FOR COMPLETE INFORMATION ON PATENTS AND TRADEMARKS.			

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ATTACHMENT DATA (CONT) **S03**



Aire® Flush Mount System



Breathe easy with accelerated installations.

The Aire® racking system has been carefully engineered to streamline every part of the installation process. We've eliminated tiresome hassles, so that you get off the roof and on to your next project faster than ever.

Aire® retains the strength and reliability that IronRidge installers depend on. It also takes wire management to the next level with the first (and only) NEC-compliant rail, formally approved and listed as a cable tray.



Strength Tested

All components have been evaluated for superior structural performance.



PE Certified

Pre-stamped engineering letters are available online for most states.



Class A Fire Rating

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



Approved Cable Tray

Open channel listed to NEMA VE 1, certified to hold PV and DG cables.



UL 2703 Listed System

Entire system and components meet the latest effective UL 2703 standards.



25-Year Warranty

Products are guaranteed to arrive without any impairing defects.

Datasheet

One-Tool System - 1/2" Hex-Head Components

Datasheet

Rails

Aire® A1 Rail



The lighter, open Aire® rail for standard conditions.

- 6' spanning capability
- Wire management tray
- Mill or anodized black

Aire® A2 Rail



The tougher, open Aire® rail for higher load capacity.

- 8' spanning capability
- Wire management tray
- Mill or anodized black

Aire® Rail Ties



Structurally connect and bond Aire® Rails together.

- Reinstallable, up to 5x
- Internal splice design
- No more splice rules

Aire® Dock



Connects Aire® Rails to attachments with ease.

- Clicks on, slides easily
- Drops into open slots
- Anodized assembly

Clamps & Grounding

Aire® Lock Mids



Securely bond between modules to Aire® Rails.

- Fits 30-40mm modules
- Utilizes UFO® design
- Minimal 1/2" gap

Aire® Lock Ends



Securely bond modules to Aire® Rails along ends.

- Fits 30-40mm modules
- Easy rail engagement
- Clean aesthetics

Aire® Lock Stealth®



Securely bonds modules to rail ends, entirely hidden.

- Angled for easy install
- Robust tether leash
- Fits most modules

Aire® Lug



Bonds Aire® Rails to grounding conductors.

- Simplified with single bolt
- Low-profile form factor
- Works with 10-6 AWG

Accessories

Aire® Caps



Block entry and provide a finished look to Aire® Rails.

- Stay secure on rail ends
- Symmetrical, with drain
- Cover rough-cut ends

Aire® Clip



Keeps wiring contained in open Aire® Rail channels.

- No module interference
- Simple press-in design
- Slot for easy removal

Aire® MLPE Mount



Securely bonds MLPE and accessories to Aire® Rails.

- Glove-friendly installation
- Lays flush in rail channel
- Low profile form factor

Aire® All Tile Hook



Attaches rails to tile roofs, with Aire® Dock included.

- Works on flat, S, & W tiles
- Single-socket installation
- Optional deck flashing

Resources



Design Assistant

Quickly go from rough layout to fully engineered system.
Go to [IronRidge.com/design](https://www.ironridge.com/design)



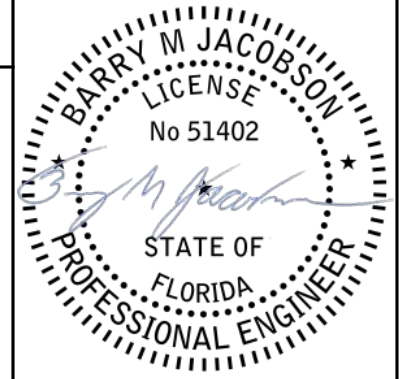
Approved for FL Hurricane Zones

Aire® has Florida Product Approval. Additional details can be found on the Florida Building Code website.
[Learn More at fbc.com](https://www.fbc.com)

Designed By:



4509 NW 23rd Ave.
Suite 20
Gainesville, FL 32606
www.solarimpact.com
352.338.8221



This item has been electronically signed and sealed by Barry M Jacobson on the date adjacent to the seal using a SHA authentication code. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

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REV#	DATE	REVISION NOTES

Project Name:
ZACHARY MEARS

Project Address:
**356 SW PAUL ALLISON COURT
LAKE CITY, FL 32024**

PAGE TITLE: RACKING DATA

PAGE #: S04