## PV PROJECT - 10.95kWdc

## PHOTOVOLTAIC SYSTEM SPECIFICATIONS:

10.95kWdc SYSTEM SIZE:

(30) Q CELLS Q.PEAK DUO BLK-G10+ 365W **MODULE TYPE:** 

**MODULE DIMENSIONS:** (L/W/H) 67.60"/41.14"/1.26"

(14) CHILICON CP-720 MICRO-INVERTERS **INVERTER:** 

(02) CHILICON CP-250 MICRO-INVERTERS

INTERCONNECTION METHOD: LINE SIDE TAP

## **GOVERNING CODES:**

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES

- 2020 FL BUILDING CODE 7TH EDITION
- 2020 FL PLUMBING CODE 7TH EDITION
- 2020 FL MECHANICAL CODE 7TH EDITION
- 2020 FL FIRE PREVENTION CODE 7TH EDITION
- 2017 NATIONAL ELECTRICAL CODE
- ANY OTHER LOCAL AMENDMENTS

## SHEET INDEX:

**COVER PAGE** PV 01:

**ROOF PLAN & PV LAYOUT** PV 02:

**RACKING PLAN** PV 03:

MOUNTING DETAILS PV 04:

LINE DIAGRAM PV 05: PV 06: WARNING LABELS

DS 01 +: DATA SHEETS

## **DESIGN SPECS:**

WIND EXPOSURE: C **RISK CATEGORY:** 

WIND SPEED: 120 MPH

4 FT PZ2 (a): < 15 FT

**BLDG HGT:** 14.04° **ROOF PITCH:** 

**METAL SHEET ROOF TYPE:** 

2"X4"@24" C.C. AHJ: \*COLUMBIA COUNTY

UTILITY: FPL.

# Seclusion Dr 3050 SE Country Club Rd, Lake City, FL 32025 **AERIAL VIEW**



# **VICINITY VIEW**

## **GENERAL NOTES:**

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- APPLICABLE CODE: 2020 FLORIDA BUILDING CODE (7TH EDITION) & ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.
- LAG SCREW DIAMETER AND EMBEDMENT LENGTHS ARE DESIGNED PER 2020 FLORIDA BUILDING CODE (7TH EDITION) REQUIREMENTS. ALL BOLT CAPACITIES ARE BASED ON A SOUTHER YELLOW PINE (SYP) RESIDENTIAL WOOD ROOF TRUSS AS EMBEDMENT MATERIAL
- ROOF SEALANTS SHALL CONFORM TO ASTM C920AND A ASTM 6511, AND IS THE RESPONSIBILITY OF THE CONTRACTOR TO PILOT DRILL AND FILL ALL HOLES.
- ALL DISIMILAR MATERIALS SHALL BE SEPARATED WITH NEOPRENE WASHERS, PADS, ECT
- ALL ALUMINIUM COMPONENTS SHALL BE ANODIZED ALUMINIUM 6105-T5 UNLESS OTHERWISE

6. ALL LAG SCREW SHALL BE ASTM A276 STAINLESS STEEL UNLESS OTHERWISE NOTED.

**RAFTER SPACING:** 

- ALL SOLAR RAILING AND MODULES SHALL BE INSTALLED PER MANUFACTURER INSTRUCTIONS.
- 8. CONTRACTOR SHALL ENSURE ALL ROOF PENETRATION TO BE INSTALLED AND SEALED PER 2020 FLORIDA BUILDING CODE (7TH EDITION) OR LOCAL GOVERNING CODE

## **PROJECT ADDRESS**

ALVIN BELL RESIDENCE 3050 SE COUNTRY CLUB ROAD, LAKE CITY, FL 32025

Parcel Number: 15-4S-17-08360-173 (31031) Assessor Phone #: +1 (386)-758-1083

Chad E

Sheet Number and Title:

PV01 - COVER Digitally signed by Chad

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## Contractor Info:



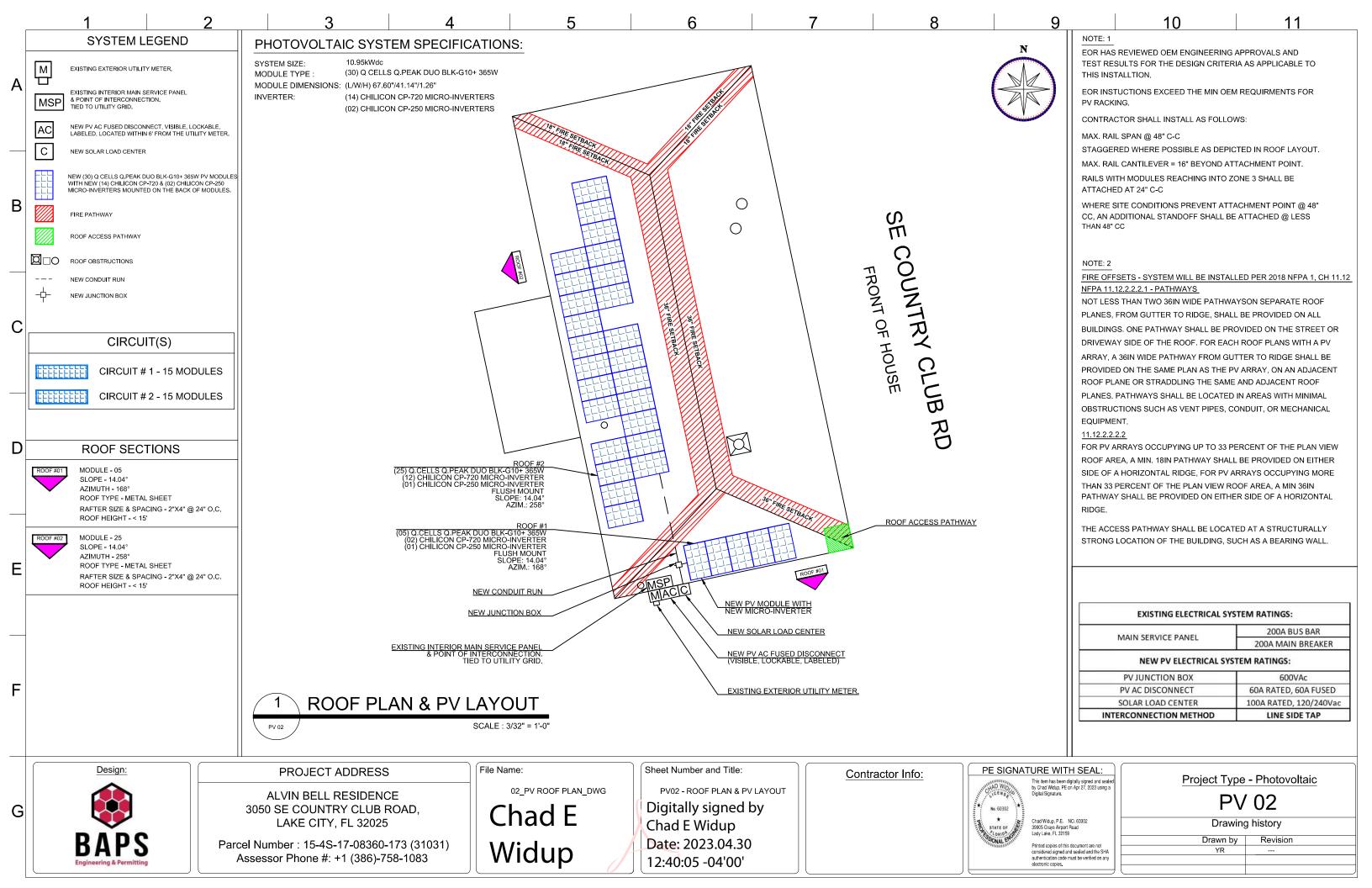
## Project Type - Photovoltaic PV 01

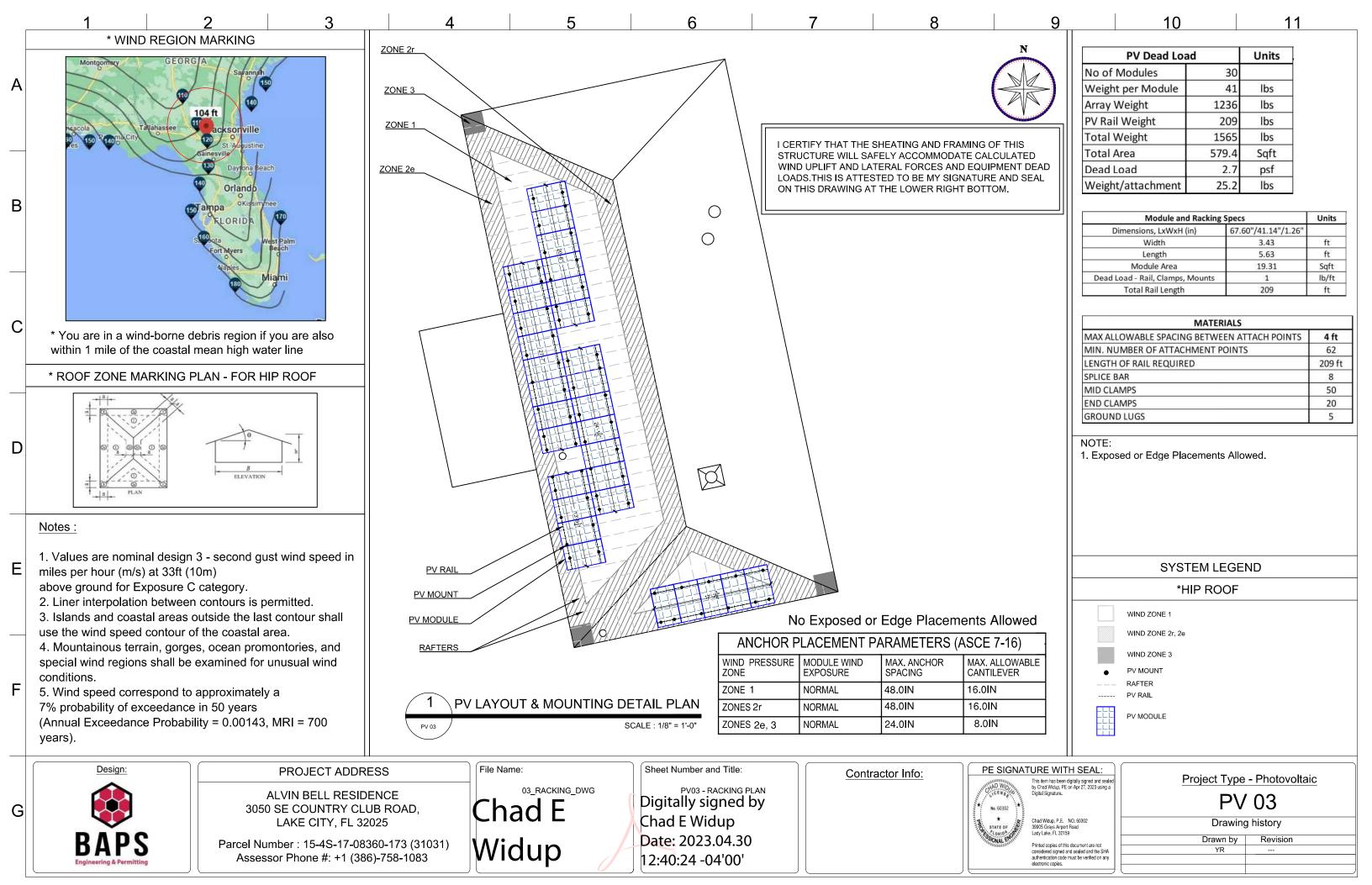
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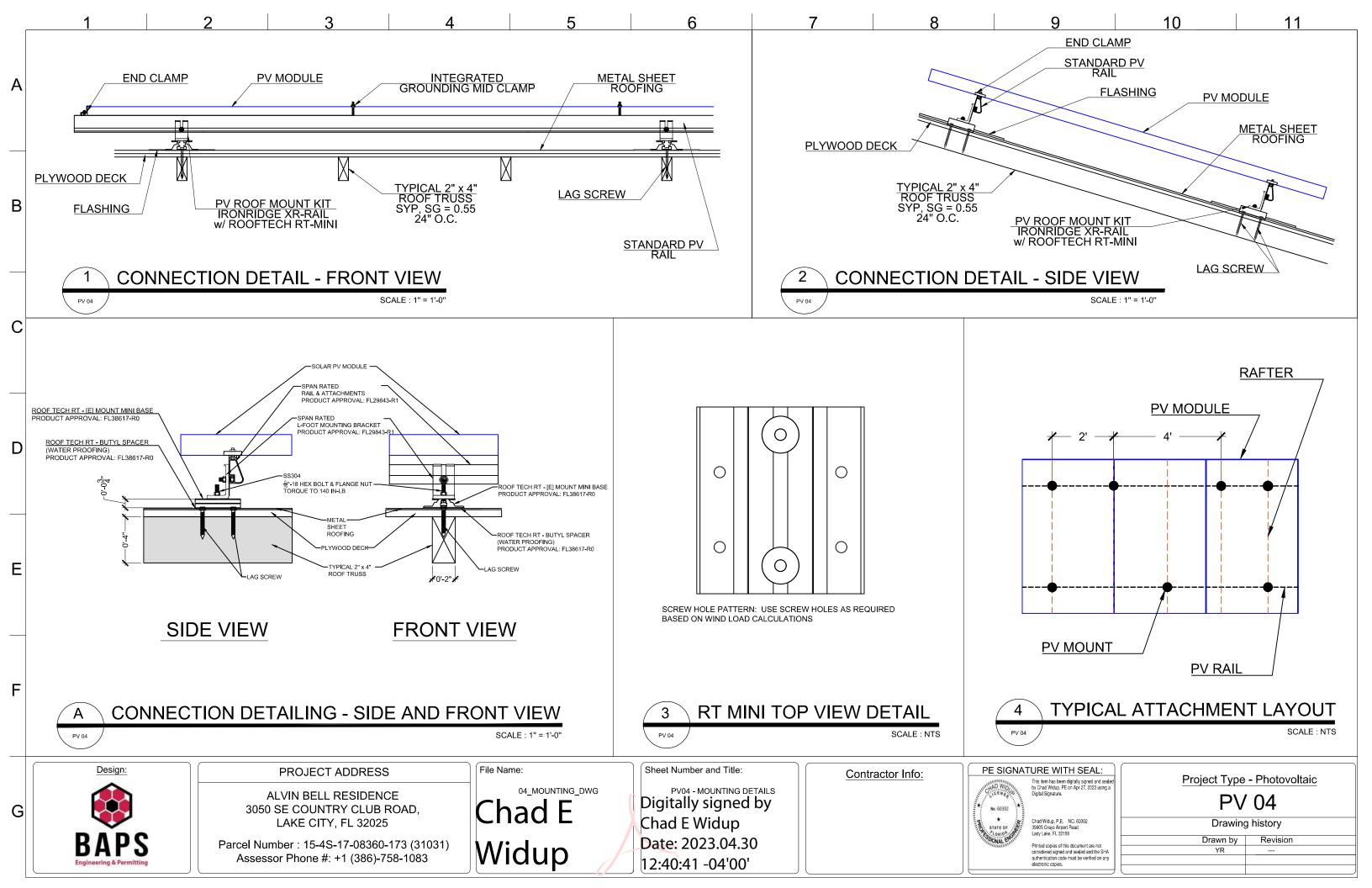
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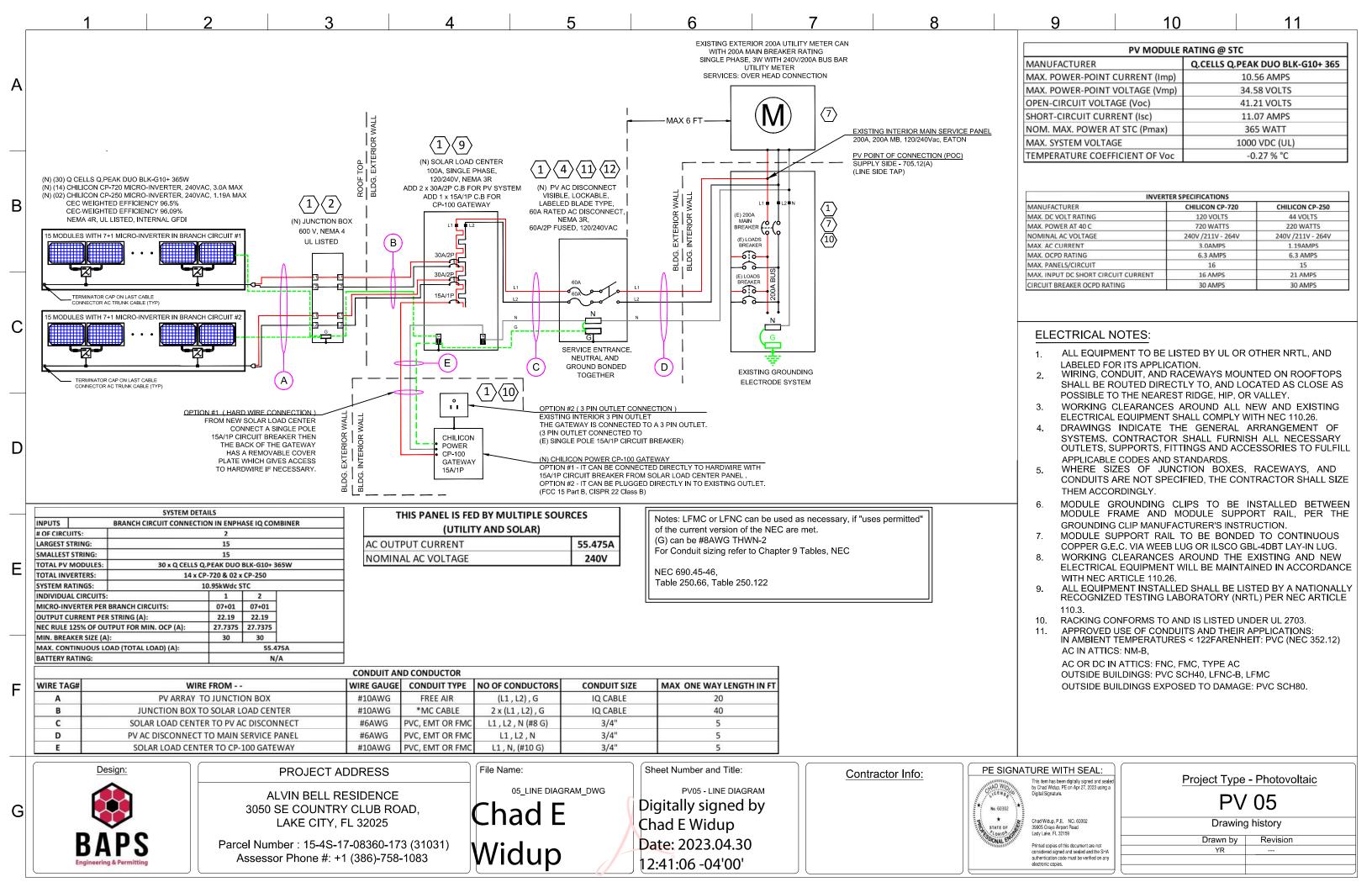
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E Widup Date: 2023.04.30









2 1.4 LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.

1.5 ALERTING WORDS TO BE COLOR CODED. "DANGER" WILL HAVE RED BACKGROUND; "WARNING" WILL HAVE ORANGE BACKGROUND; "CAUTION" WILL HAVE YELLOW BACKGROUND. [ANSI Z535]

## ! WARNING!

## **ELECTRIC SHOCK HAZARD**

TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE **OPEN POSITION** 

#### LABEL 1

В

AT EACH DISCONNECTIMG MEANS FOR PHOTOVOLTAIC EQUIPENT (2"X4") [NEC 690.13]

## ! WARNING

POWER SOURCE OUTPUT CONNECTION: DO NOT RELOCATE THIS OVERCURRENT DEVICE

#### LABEL 2

AT POINT OF INTERCONNECTION OVERCURRENT DEVICE(2"X4") [NEC 705.12(B)(2)(3)(B)].

## PHOTOVOLTAIC SYSTEM ! AC DISCONNECT!

RATED AC OUTPUT CURRENT: 14 x 3A = 42A & 02 x 1.19A = 2.38A NOMINAL OPERATING VOLTAGE: 240VAC

G

AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS (4" X 2"). [NEC 690.54]

## PHOTOVOLTAIC SOLAR

LABEL 4
AT EACH AC DISCONNECTING MEANS NEC 690.13(B)

## RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

## LABEL 5

AT RAPID SHUTDOWN DISCONNECT SWITCH (5 1/4" X 2"). [NEC 690.56(C)(3)].

## ! WARNING !

DUAL POWER SOURCES SOURCES: UTILITY GRID, PV SOLAR FLECTRIC SYSTEM

LABEL 7
AT POINT OF INTERCONNECTION NEC 705.12(B)(3)

#### ! WARNING!

SOLAR ELECTRIC CIRCUIT BREAKER IS BACKFED

#### LABEL 8

AT POINT OF INTERCONNECTION (2" X 1") NEC 705.12(B)(3)

#### WARNING: PHOTOVOLTAIC **POWER SOURCE**

AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10 FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS (5 3/4" X 1 1/8"). [NEC 690.31(G)] LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; [IFC 605.11.1.1]

## INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED PHOTOVOLTAIC SYSTEM DISCONNECT LOCATED SOUTH SIDE OF THE HOUSE

PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS IF NOT IN THE SAME LOCATION (5 3/4" X 1 1/8").

WHERE THE PV SYSTEMS ARE REMOTELY LOCATED FROM EACH OTHER, A DIRECTORY IN ACCORDANCE WITH 705.10 SHALL BE PROVIDED AT EACH PV SYSTEM DISCONNECTING MEANS, PV SYSTEM EQUIPMENT AND DISCONNECTING MEANS SHALL NOT BE INSTALLED IN BATHROOMS [NEC 690.4(D),(E)]

## **▲** CAUTION

SOLAR ELECTRIC SYSTEM CONNECTED

AT UTILITY METER (5.3/4" X 1.1/8") NEC 690 56(B)

## ERGENCY RESPONDER THIS I AR PV SYSTEM IS FOUIPPE WITH RAPID SHUTDOWN

TURN RAPID HUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN THE ENTIRE PV SYSTEM



AT RAPID SHUTDOWN SYSTEM (6" X 3 1/2"). [NEC 690.56(C)(1)] AND NFPA 111.12.2.1.1.1, 11.12.2.1.4

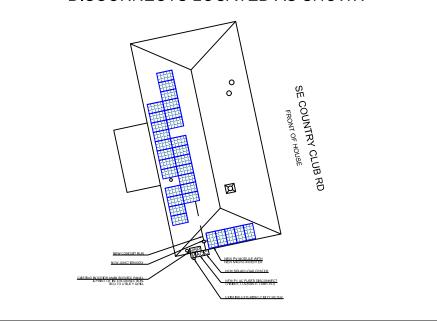
### IN CASE OF EMERGENCY CALL **INSTALLATION COMPANY**

LABEL 12 - NFPA 1, 11.12.2.1.5 INSTALLER INFORMATION LOCATED ADJACENT TO THE MAIN DISCONNECT, INDICATING THE NAME AND EMERGENCY TELEPHONE NUMBER OF THE COMPANY.(6" x 4")

# (N) SOLAR LOAD CE GRADE GRADE

# CAUTION:

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH **DISCONNECTS LOCATED AS SHOWN** 



MAP PLACARD

## **AC DISCONNECT**



### PROJECT ADDRESS

ALVIN BELL RESIDENCE 3050 SE COUNTRY CLUB ROAD, LAKE CITY, FL 32025

Parcel Number: 15-4S-17-08360-173 (31031) Assessor Phone #: +1 (386)-758-1083

Chad E Widup

### Sheet Number and Title:

Digitally signed by Chad E Widup Date: 2023.04.30

#### Contractor Info:

## PE SIGNATURE WITH SEAL: No. 60302 Chad Widup, P.E. NO. 60302 Lady Lake, FL 32159 Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

## Project Type - Photovoltaic

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PV 06

Drawing history

Revision Drawn by

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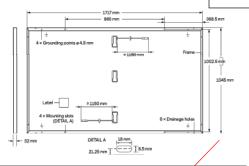
This item has been digitally signed and sealed by Chad Widup, PE on Apr 27, 2023 using a Digital Signature.

Chad Widup, P.E. NO. 60302 39905 Grays Airport Road Lady Lake, FL 32159

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#### MECHANICAL SPECIFICATION

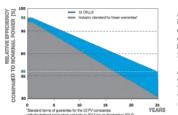
Format	1717 mm × 1045 mm × 32 mm (including frame)
Weight	19.9kg
Front Cover	3.2mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4mm² Solar cable; (+) ≥1150mm, (-) ≥1150mm
Connector	Stāubli MC4; IP68



#### **ELECTRICAL CHARACTERISTICS**

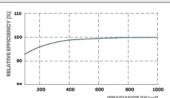
CLASS			350	355	360	365	37
M PERFORMANCE AT STANDARD TE	ST CONDITIO	NS, STC1 (P	OWER TOLERANCE	+5W/-0W			
ver at MPP <sup>1</sup>	P <sub>MPP</sub>	[W]	350	35 <mark>5</mark> 5	360	365	<b>1</b> 570
ort Circuit Current <sup>1</sup>	Isc	[A]	10.97	11,00	11/04	11.07	11.10
en Circuit Voltage¹	Voc	[V]	41.11	4.14	41.18	41.21	41.24
rent at MPP	I <sub>MPP</sub>	[A]	10.37	10.43	10.49	10.56	10.62
tage at MPP	$V_{MPP}$	[V]	33.76	34.03	34.31	34.58	34.84
ciency <sup>1</sup>	η	[%]	≥19.5	≥19.8	≥20.1	≥20.3	≥20.6
M PERFORMANCE AT NORMAL OPE	RATING CON	DITIONS, NA	MOT <sup>2</sup>				
ver at MPP	P <sub>MPP</sub>	[W]	262.6	266.3	270.1	273.8	277.0
ort Circuit Current	I <sub>sc</sub>	[A]	8.84	8.87	8.89	8.92	8.9
en Circuit Voltage	Voc	[V]	38.77	38.80	38.83	38.86	38.90
rent at MPP	MPP	[A]	8.14	8.20	8.26	8.31	8.3
tage at MPP	V <sub>MPP</sub>	[V]	32.24	32.48	32.71	32.94	33.17
nent tolerances P <sub>MPP</sub> ±3%; I <sub>SC</sub> ; V <sub>OC</sub> ±5% at	STC: 1000W/m <sup>2</sup>	, 25±2°C, AN	A 1.5 according to IEC	60904-3 • <sup>2</sup> 800W/r	m², NMOT, spectrum A	AM 1.5	
	M PERFORMANCE AT STANDARD TE rer at MPP¹ rt Circuit Current¹ en Circuit Voltage¹ rent at MPP age at MPP cliency¹ M PERFORMANCE AT NORMAL OPE rer at MPP rt Circuit Current en Circuit Voltage rent at MPP age at MPP age at MPP age at MPP	M PERFORMANCE AT STANDARD TEST CONDITIO  THE REPORT OF THE PROPERTY OF THE PRO	### PERFORMANCE AT STANDARD TEST CONDITIONS, STC¹ (Prer at MPP¹ P <sub>MPP</sub> [W]  ### Circuit Current¹ Isc [A]  ### Circuit Voltage¹ Voc [V]  ### REPORT	## PERFORMANCE AT STANDARD TEST CONDITIONS, STC¹ (POWER TOLEF ANCE FOR THE PROPERTY OF THE PR	M PERFORMANCE AT STANDARD TEST CONDITIONS, STC¹ (POWER TOLEF ANCE +5 W / -0 W)     Per at MPP¹	M PERFORMANCE AT STANDARD TEST CONDITIONS, STC¹ (POWER TOLE) ANCE +5 W / −0 W	## PERFORMANCE AT STANDARD TEST CONDITIONS, STC¹ (POWER TOLEFANCE +5W/-0W)    Per et MPP¹

#### Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power dur Ing first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to

All date within measurement toler-ences. Full warrenties in eccorden with the warrenty terms of the Q CELLS sales organisation of your



PERFORMANCE AT LOW IRRADIANCE

Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000W/m²).

TEMPERATURE COEFFICIENTS							
Temperature Coefficient of I <sub>SC</sub>	α	[%/K]	+0.04	Temperature Coefficient of Voc	β	[%/K]	-0.27
Temperature Coefficient of P <sub>MPP</sub>	γ	[%/K]	-0.34	Nominal Module Operating Temperature	NMOT	[°C]	43±3

#### PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V <sub>sys</sub>	[V]	1000	PV module classification	Class II
Maximum Reverse Current	IR	[A]	20	Fire Rating based on ANSI/UL 61730	C/TYPE 2
Max. Design Load, Push / Pull		[Pa]	3600/2660	Permitted Module Temperature	-40°C - +85°C
May Teet Load Rush / Pull		[Pa]	540074000	on Continuous Duty	

## **QUALIFICATIONS AND CERTIFICATES**

IEC 61215:2016; IEC 61730:2016. QCPV Certification ongoing





Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and

Sonnenallee 17-21, 06766 Bitterfeld-Wolfen, Germany | TEL +49 (0)3494 66 99-23444 | FAX +49 (0)3494 66 99-23000 | EMAIL sales@q-cells.com | WEB www.q-cells.com

**Engineered in Germany** 



Chad E Widup Digitally Signed by Chad E Widup Date: 2023.04.30 12:49:07 -04'00'

**Chilicon Power Microinverters** 

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## **CHILICON POWER CP-720**



**Maximum Energy Production** 

**Highest Power Density** 

**Enhanced Monitoring** 

**Modular Trunk Cabling** 

Single SKU All Major Module Types

**AC Coupling with Freq-Watt and Volt-Watt Modes** 



To learn more about Chilicon Power Microinverters,

## CP-720-60-72-208/240-MC4 Microinverter Specifications

INPUT DATA (DC)					
Recommended input power (STC)	(190 - 420 W) x 2; (380 - 840 W) x 1				
Maximum DC input voltage	120 V				
MPPT voltage tracking range	52 – 82 V				
Operating range	47 – 82 V				
Min./Max. start voltage	44 – 96 V				
Max. DC input short circuit current	16 A				
Max. DC input current	13.5 A				
Ground fault protection	Transformer isolated 2000 Vrms inp	ut/output/chassis			
OUTPUT DATA (AC)	@ 208 V	@ 240 V			
Max. continuous output power	713 W	720 W			
Max. continuous output current	3.43 A	3.0 A			
Nominal output voltage / range	208 / 183 – 229 V	240 / 211 – 264 V			
Extended output voltage range	133 / 150 / 166 – 250 V	153 / 173 / 192 – 288 V			
Nominal frequency / range	60.0 / 59.3 – 69.5 Hz	60.0 / 59.3 – 60.5 Hz			
Extended frequency range	54.22 – 66. <b>7</b> 5 Hz	54.22 – 66.75 Hz			
Power factor	-0.6 to 0.6 programmable	-0.6 to 0.6 programmable			
Maximum units per 30 A branch circuit	7 (14 modules)	8 (16 modules)			
Maximum output overcurrent protection	6.3 A	6.3 A			
EFFICIENCY					
CEC weighted efficiency	96.5 %				
Peak inverter efficiency	97 %				
Static MPPT efficiency (EN 50530)	99.5 % - 99.8 %				
Night time power consumption	50 mW @ 208V, 100 mW @ 240 V				
MECHANICAL DATA					
Ambient temperature range	-40°C to +65°C				
Dimension (W x H x D) including connectors	12" x 8" x 1.8"				
Weight	1.81 kg (4.0 lbs)				
Enclosure rating	NEMA 6				
FEATURES					
Communication	Mesh Networked Power Line (130.2	kHz carrier)			
Monitoring	Monitoring via CP-100 gateway and	Online Cloud			
Certifications	UL1741, IEEE std 1547, IEEE std C62.41.2, CSA C22.2 NO. 107.1 CISPR 22 Class B; HECO Rule14H (Advanced Inverter), HECO Rule 22 (Self-Supply) Rule 21 / UL1741SA				
Compatibility (Single SKU)	2 x Series 60/72 Cell Mono or Poly PV modules 2 x Parallel HV Panasonic Modules; 2 x Parallel 96/128 Cell SunPower Modules				



Chad Widup, P.E. NO. 60302 39905 Grays Airport Road Lady Lake, FL 32159

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**Chilicon Power Microinverters** 

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**CHILICON POWER CP-250** 



**Maximum Energy Production** 

Reliability by Design

**Enhanced Monitoring** 

Simplified Installation

Safety

## CP-250-60-208/240-MC4 Microinverter Specifications

INPUT DATA (DC)		
Recommended input power (STC)	190 - 300 W	
Maximum DC input voltage	44 V	
MPPT voltage range	22 – 38.5 V	
Operating range	18 – 38.5 V	
Min./Max. start voltage	22 – 40 V	
Max. DC input short circuit current	21 A	
Max. DC input current	12 A	
Ground fault protection	Integrated GFD; Transformer isolated 2	2000 Vrms input/output/chassis
OUTPUT DATA (AC)	@ 208 V	@ 240 V
Nominal output power	220 W	220 W
Max. continuous output power	285 W	285 W
Max. continuous output current	1.37 A (285 W @ 208 V)	1.19 A (285 W @ 240 V)
Nominal output voltage / range	208 / 183 – 229 V	240 / 211 – 264 V
Extended output voltage range	133 / 150 / 166 – 250 V	153 / 173 / 192 – 288 V
Nominal frequency / range	60.0 / 59.3 – 60.5 Hz	60.0 / 59.3 – 60.5 Hz
Extended frequency range	54.22 – 66.75 Hz	54.22 – 66.75 Hz
Power factor	> 0.95	> 0.95
Maximum units per 20 A branch circuit	13	15
Maximum output fault current & duration	1.6 A peak for > 10% of any cycle	1.6 A peak for > 10% of any cycle
Maximum output overcurrent protection	6.3 A	6.3 A
EFFICIENCY		
CEC weighted efficiency	96.09 %	
Peak inverter efficiency	96.6 %	
Static MPPT efficiency (EN 50530)	99.5 % - 99.8 %	
Night time power consumption	40 mW @ 208V, 80 mW @ 240 V	
MECHANICAL DATA		
Ambient temperature range	-40°C to +65°C	
Dimension (W x H x D) including connectors	12" x 8" x 1.8"	
Weight	1.55 kg (3.4 lbs)	
Enclosure rating	NEMA 4X	
FEATURES		
Communication	Power line (130.2 kHz carrier)	
Monitoring	Free monitoring via gateway or online	sof
Compliance	UL1741, IEEE std 1547, IEEE std C62.41	.2, CSA C22.2 NO. 107.1 & CISPR 22 CI



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Chilicon Power Microinverter System

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## CHILICON POWER CP-100 GATEWAY





http://www.chiliconpower.com/resources/videos

**On-Site Array Configuration** 

PLC, WiFi, Ethernet, and ZWave

**Production and Consumption Monitoring** 

In-Wall or On top of Wall Mounting

**Automatic Cloud Monitoring Support** 

The GATEWAY is a monitoring system for communicating with the inverters in your array that can be cloud interconnected or can run stand-alone. The GATEWAY provdes a 7" 800 x 480 LCD Touch Screen making it very informative and easy to use. Setup of your solar array's configuration occurs on the gateway screen and does not require interaction with remote servers or websites.

Powerline communications with the GATEWAY use a sophisticated multirate, error-resistant and encrypted powerline communications technology to connect to each microinverter without additional wiring.

In addition to the power line communications interface to inverters, the GATEWAY also has a zWave wireless interface that enables power consumption monitoring via current clamps placed in any utility panel. Cloud communication, if desired, is performed through an Ethernet or integrated Wi-Fi interface.

One GATEWAY can communicate with up to 255 microinverters. For larger commercial installations, multiple GATEWAY devices are used in combination with Line Communications Filters (LCF) to separate networking domains across the site.

## **CP-Gateway Operating Specifications**

INPUT (AC)	
120V single phase / 208V 3-phase	L1 and N (CP-100) / or L1,L2,L3,N (CP-100-3)
MECHANICAL DATA	
Ambient temperature range	-40°C to +65°C
Dimension (W x H x D) including connectors	$8.5" \times 6" \times 1.75"$ (or x $0.2"$ if flush mount to wall
Weight	0.63 kg (1.4 lbs)
Enclosure rating	Indoor by default / Outdoor with additional NEMA 4x enc
FEATURES	
Communication	Power line (130.2 kHz carrier)
Monitoring	Free monitoring via gateway or online software
Compliance	FCC 15 Part B, CISPR 22 Class B





Chad Widup, P.E. NO. 60302 39905 Grays Airport Road Lady Lake, FL 32159

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# XR Rail<sup>®</sup> Family

## // IRONRIDGE

## Solar Is Not Always Sunny

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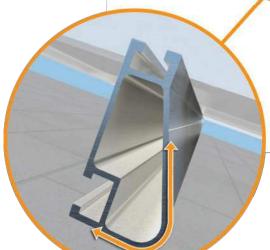
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Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails<sup>©</sup> are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.



Compatible with Flat & Pitched Roofs

XR Rails® are

compatible with

FlashFoot<sup>©</sup> and

attachments

## Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails® is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime

#### **Corrosion-Resistant Materials**



IronRidge<sup>©</sup> offers a range of tilt leg options for flat roof mounting applications

All XR Rails® are made of 6000-series aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.



Tech Brief

## XR Rail<sup>©</sup> Family

The XR Rail<sup>©</sup> Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail<sup>®</sup> to match.



XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves spans up to 6 feet. while remaining light and economical.

- 6' spanning capability
- · Moderate load capability
- · Clear & black anodized finish Internal splices available



XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 10 feet.

- · 10' spanning capability
- · Heavy load capability
- · Clear & black anodized finish · Internal splices available



#### XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans up to 12 feet for commercial applications

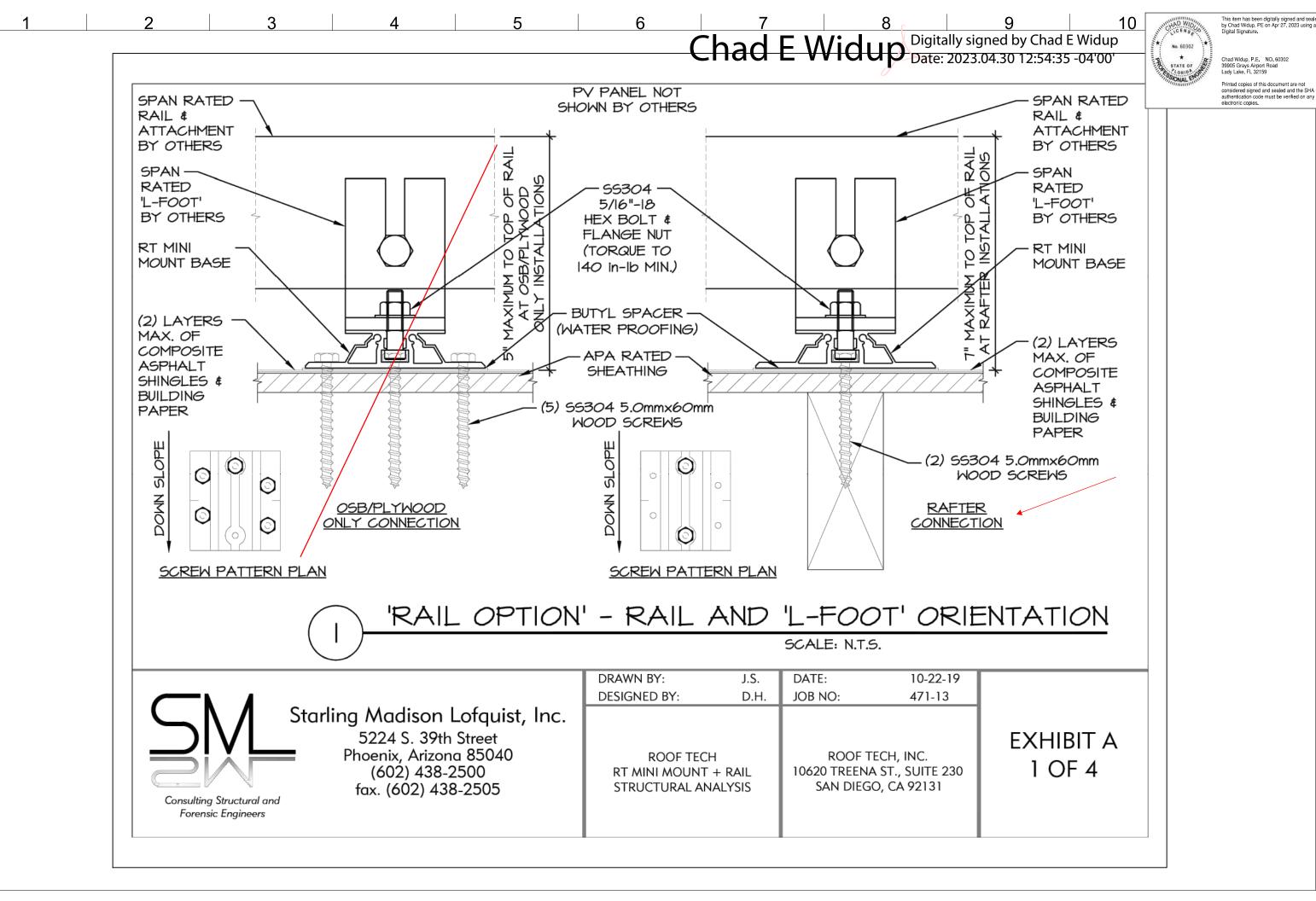
- · 12' spanning capability
- Extreme load capability
- Clear anodized finish
- · Internal splices available

## **Rail Selection**

The table below was prepared in compliance with applicable engineering codes and standards.\* Values are based on the following criteria: ASCE 7-16, Gable Roof Flush Mount, Roof Zones 1 & 2e, Exposure B, Roof Slope of 8 to 20 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed certification letters.

Lo	ad			Rail	Span		
Snow (PSF)	Wind (MPH)	41	5' 4"	6'	8'	10'	12'
	90						
None	120						
None	140	XR10		XR100		XR1000	
	160						
	90						
00	120						
20	140						
	160						
20	90						
30	160						
40	90						
40	160						
80	160						
120	160						

\*Table is meant to be a simplified span chart for conveying general rail capabilities. Use approved certification letters for actual design guidance.



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1/4" Hex Bolt

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## RT-MINI

Self-flashing base for asphalt & metal roof-top PV mounting systems

RT-MINI is suitable for mounting any rail system with a conventional L-Foot.

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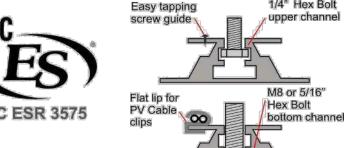
Dual bolt design: M8 or 5/16" for L-Foot & 1/4" for EMC



Installation Manua







## RT-MINI

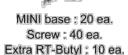
Flexible Flashing certified by the International Code Council (ICC)

## Engineered to ASTM D 1761 (Standard Test Methods for Mechanical Fasteners in Wood)

## Components

## RT2-00-MINIBK





5 x 60mm Mounting screw (RT2-04-SD5-60): 100 ea./Bag 5/16" Hex bolt, washer & nut set (RT-04-BN30SL-US): 100 ea./Bag RT-Butyl (RT2-04-BUTYLT): 10 ea./Box

RT-Butyl is Roof Tech's flexible flashing used in one million residential PV systems for the last 26 years. It is the first PV mounting system with Flexible Flashing certified by the ICC Engineered to withstand wind speeds up to 180 mph and ground snow up to 90 psf.

## Metal Flashing Retrofit Flexible Flashing





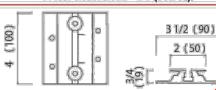


Shedding water? 100% Waterproof

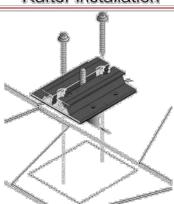




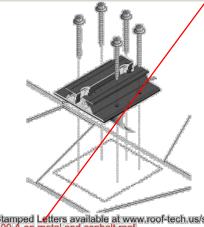




## Rafter installation



## Deck installation



P.E. Stamped Letters available at www.roof-tech.us/support TAS 100 A on metal and asphalt-roof.

March 2020

# www.roof-tech.us

Roof Tech Inc. ech.us info@roof-tech.us www.roof-tech.us info@roof-tech.us 10620 Treena Street, Suite 230, San Diego, CA 92131 858,935,6064

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ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS

Lake City, Florida

32025

3050 SE Country Club Rd

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## ASCE 7 Hazards Report

Standard: ASCI Risk Category: II Soil Class: C - V

ASCE/SEI 7-16 **Latitude:** 30.145812 : II **Longitude:** -82.605833

C - Very Dense Soil and Soft Rock Elevation: 105.08759151568997 ft (NAVD 88)



## Wind

#### Results:

Wind Speed 118 Vmph 10-year MRI 75 Vmph 25-year MRI 84 Vmph 50-year MRI 90 Vmph 100-year MRI 98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Mon Apr 24 2023

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143. MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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#### Snow

Results:

Ground Snow Load, pg: 0 lb/ft 1 Mapped Elevation: 105.1 ft

Data Source: ASCE/SEI 7-16, Table 7.2-8

Date Accessed: Mon Apr 24 2023

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow

loads at elevations not covered.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

## Rain

Results:

15-minute Precipitation Intensity: 8.23 in./h
60-minute Precipitation Intensity: 4.03 in./h

Data Source: NOAA National Weather Service, Precipitation Frequency Data Server, Atlas 14

(https://www.nws.noaa.gov/oh/hdsc/)

Date Accessed: Mon Apr 24 2023

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