



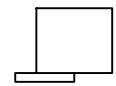


PV System Details

• System Size:	7.7kW-DC
• Module:	Hanwha Q.Cells, Q.Peak DUO-G6, 350W, UL1703, 22 units
• Inverters:	SMA, Sunny Boy 7.0-US-41, 7.0kW, UL1741, 1 unit
• Racking:	IronRidge, XR100
• Foundation:	IronRidge LFoot, FlashFoot 2, S-5! Clamps
• Orientation:	145° Azimuth, 19° Tilt

Notes:

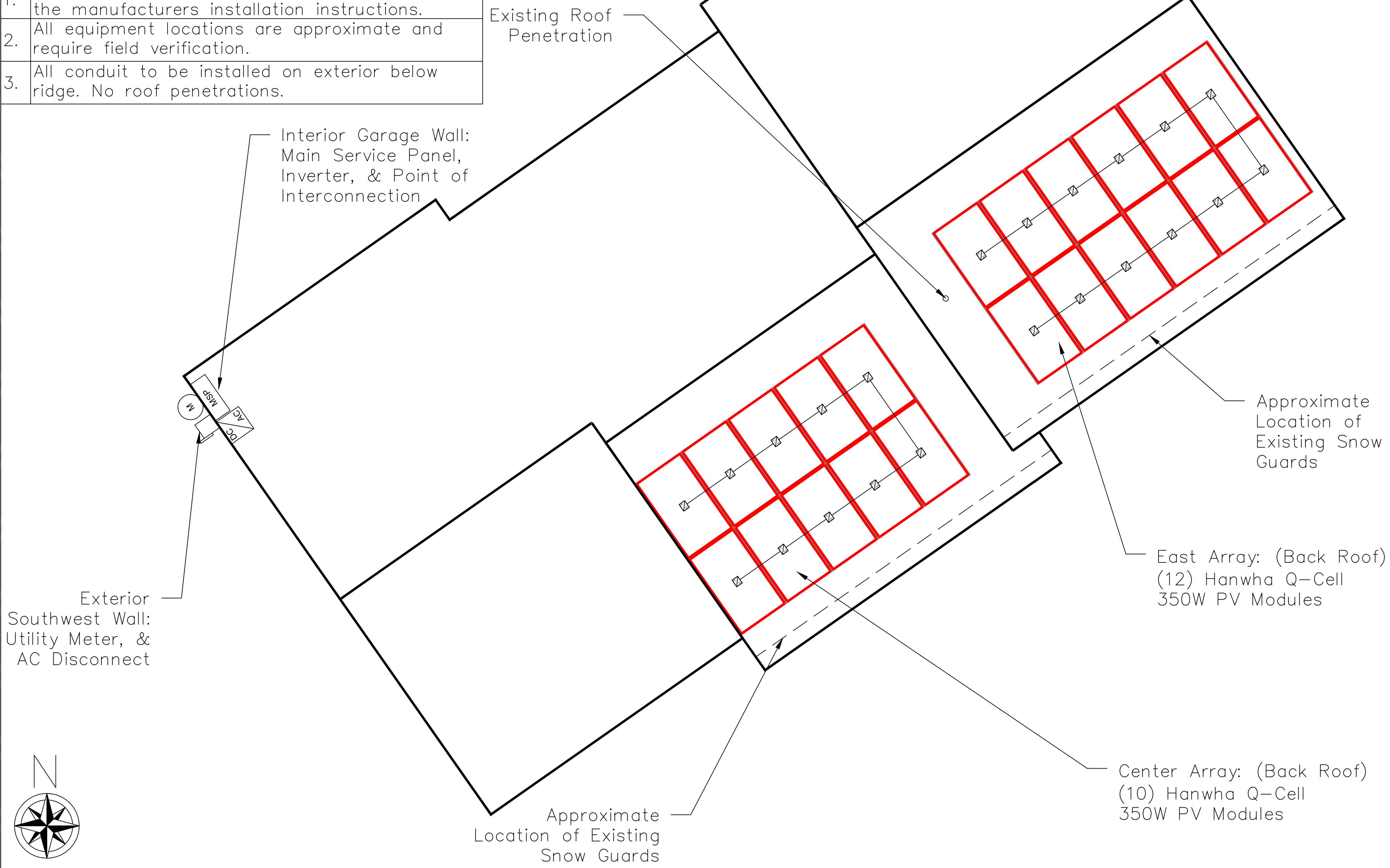
- All equipment to be installed in accordance with the manufacturers installation instructions.
- All equipment locations are approximate and require field verification.
- All conduit to be installed on exterior below ridge. No roof penetrations.

Key:

-  Solar Module
-  PV Inverter
-  PV AC Disconnect
-  Main Service Panel
-  Utility Meter



318 Timothy Lane
Ontario, NY 14519
Phone: 585-265-2384



REV #	DESCRIPTION	DATE	BY
0	INITIAL	03/10/21	CRP
1			
2			
3			
4			
5			

DRAWN BY:	CRP
ISSUE DATE:	03/10/21
SCALE:	1/4" = 1'

PROJECT:	[REDACTED]
ADDRESS:	[REDACTED]
SHEET TITLE:	Site Layout

1 of 2
DRAWING NUMBER
A101

Applicable 2018 International Fire Code



318 Timothy Lane
Ontario, NY 14519
Phone: 585-265-2384

- 1 Modules are located, at a minimum, 18" away from the ridge as in accordance with Section 1204.2.1.2 of the 2018 IFC. Roof Plane view square footage = 1700 sq ft. Array Roof Coverage = 424.6 sq ft. Array Roof Coverage % = 25%
- 2 Modules are located to provide a minimum 36" access pathway to Ridge on the array roof plane. A secondary 36" access pathway on opposite roof plane/driveway/street side shall be present in accordance with 2018 IFC.

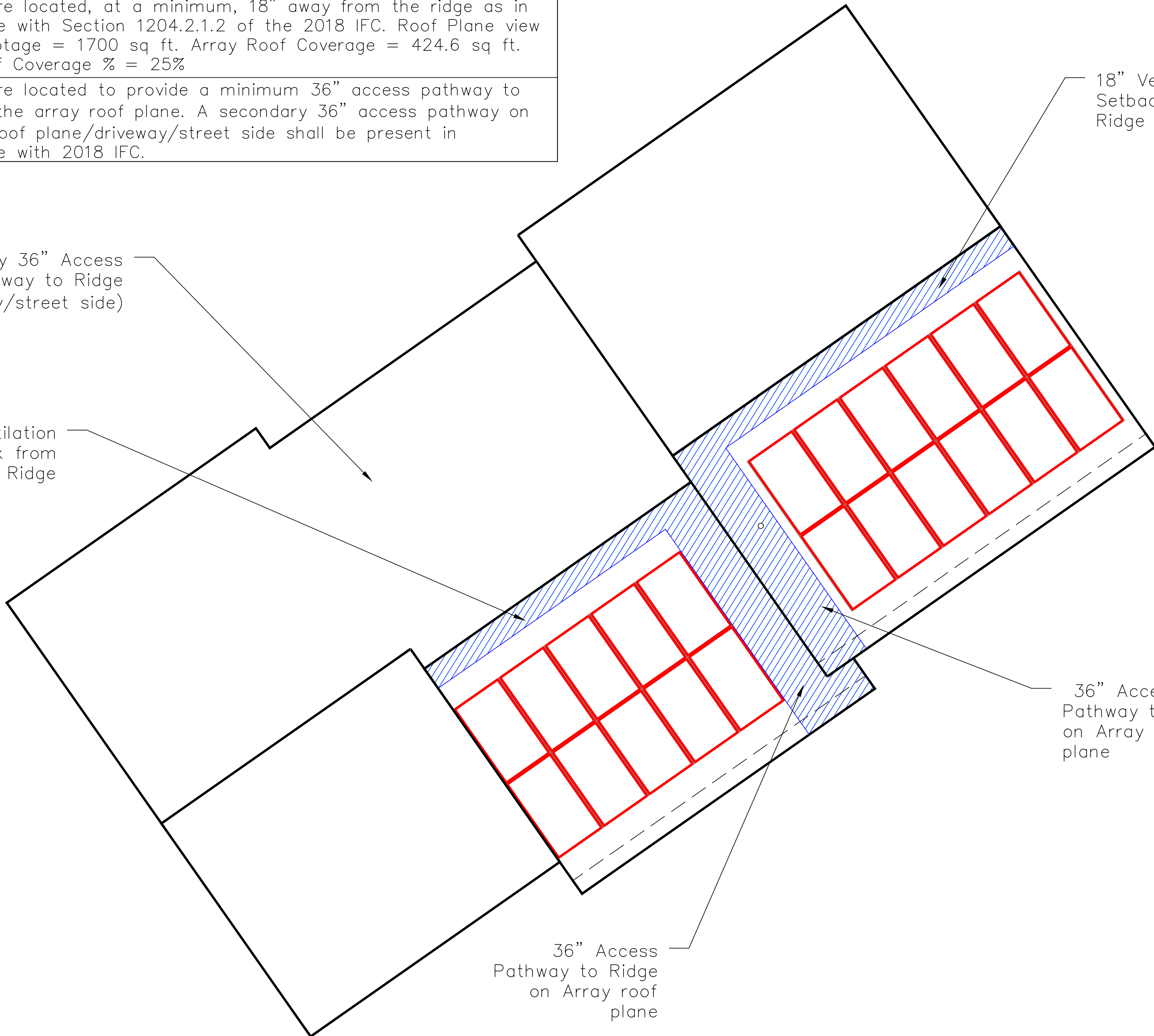
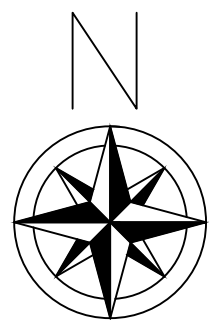
Secondary 36" Access Pathway to Ridge (driveway/street side)

18" Ventilation Setback from Ridge

18" Ventilation Setback from Ridge

36" Access Pathway to Ridge on Array roof plane

36" Access Pathway to Ridge on Array roof plane



REV #	DESCRIPTION	DATE	BY
0	INITIAL	03/10/21	CRP
1			
2			
3			
4			
5			

DRAWN BY:	CRP
ISSUE DATE:	03/10/21
SCALE:	1/4" = 1'

PROJECT:	[REDACTED]
ADDRESS:	[REDACTED]
SHEET TITLE:	Setbacks

CONDUCTOR SCHEDULE

PV System Details



Conductor Key:

- Positive DC (+)
- Negative DC (-)
- Line 1 AC
- Line 2 AC
- Neutral
- Equipment Grounding
- Grounding Electrode

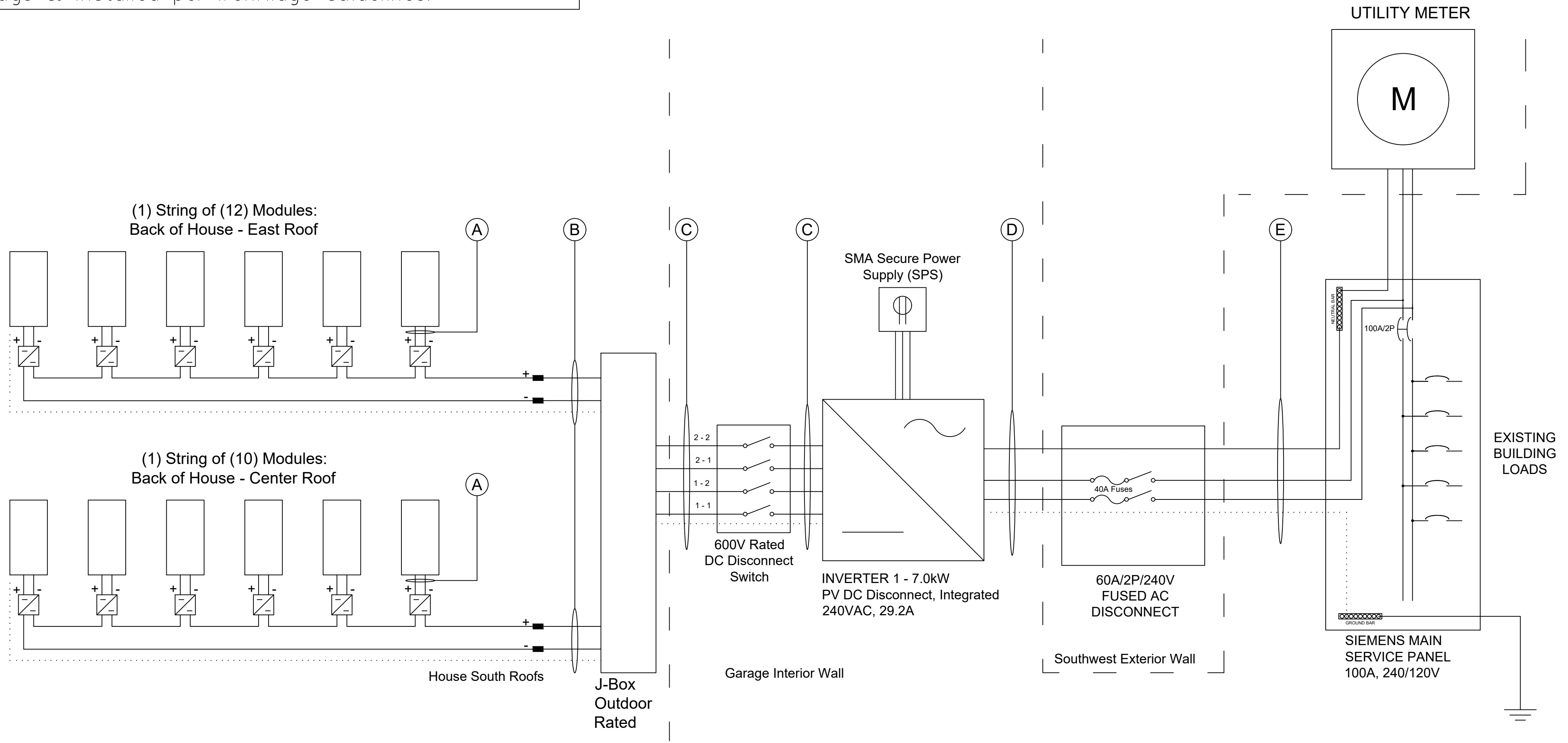
ITEM	CONDUCTOR TYPE	CONDUCTOR COUNT & SIZE	CONDUIT	NOTES
A	PV-Wire	(2) #10, (1) #10 EGC	Bundled in Free Air	Module Leads
B	PV Wire	(4) #10, (1) #10 EGC	Bundled in Free Air	Homeruns
C	THWN-2, 600V, CU	(4) #10, (1) #10 EGC	3/4" EMT	Strings
D	THWN-2, 600V CU	(2) #8 L1, L2, (2) #10 N, EGC	3/4" EMT	Inverter 1 Output
E	THWN-2, 600V CU	(2) #8 L1, L2, (2) #10 N, EGC	3/4" EMT	L1, L2, N

- System Size: 7.7kW-DC
- Module: Hanwah Q-Cell, Q.Peak Duo-G6, 350W, UL1703, 22 units
- Module Level Rapid Shutdown Device: SMA, JMS-F, UL1741, 22 units
- Inverter(s): SMA, SUNNY BOY 7.0-US-41, 7.0kW, UL1741, 1 unit
- DC Disconnect: 480V, Inverter Integrated
- AC Disconnect: 60A 240V/2P FUSED
- OCPD: 240V, 40A Fuses

Notes:

- 1 Solar PV Load Side Interconnection shall be installed in accordance with NEC 705.12(A).
- 2 Conduit has been sized to the minimum, installers may use their discretion in upsizing to accommodate an easier wire pull
- 3 Modules are equipped with SMA, JMS-F Sunspec Module level RapidShutdown device in Accordance with 690.12(B)(2)
- 4 All racking will be grounded with IronRidge Grounding Lugs & Installed per IronRidge Guidelines.

REV #	DESCRIPTION	DATE	BY
0	INITIAL	03/10/21	CRP
1			
2			
3			
4			
5			



DRAWN BY	ISSUE DATE	SCALE
CRP	03/10/21	N/A

THREE LINE CALCULATIONS		
PV MODULE RATINGS @ STC:		
MODULE MAKE	HANWAH Q.CELL	
MODULE MODEL	Q.PEAK DUO BLK-G6	
MAXIMUM POWER (Pmax)	350	W
RATED MAX POWER-POINT CURRENT (Imp)	10.27	A
RATED MAX POWER-POINT VOLTAGE (Vmp)	34.07	V
SHORT CIRCUIT CURRENT (Isc)	10.79	A
OPEN CIRCUIT VOLTAGE (Voc)	40.73	V
INVERTER RATINGS:		
INVERTER MAKE	SMA	
INVERTER MODEL	SB7.0-1SP-US-41	
MAX DC VOLT RATING	600	Vdc
MAX POWER @ 40°C	7000	W
NOMINAL AC VOLTAGE	240	Vac
MAX INPUT DC CURRENT PER MPPT	10	A
MAX AC OUTPUT CURRENT (Imax)	29.2	A
MIN OCPD = Imax X 1.25	36.5	A
OCPD USED	40	A
STRING CALCS: ARRAY 1		
# OF MODULES	22	
MAX STRING LENGTH	12	
# OF STRINGS	2	
RATED Mpp VOLTAGE	408.84	V
RATED Mpp CURRENT	20.54	A
MAXIMUM SYSTEM VOLTAGE	548.1443	V
MAXIMUM SYSTEM CURRENT	21.63179	A
SITE SPECIFICATIONS:		
LOCATION:	[REDACTED]	
1) LOWEST EXPECTED AMBIENT TEMP BASED ON ASHRAE MIN MEAN EXTREME DRY BULB TEMP FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION		
LOWEST EXPECTED AMBIENT TEMP	-20	°C
2) HIGHEST CONT. AMBIENT TEMP BASED ON ASHRAE HIGHEST MONTH 2% DRY BULB TEMP FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION		
HIGH CONT. TEMP	31	°C

REV #	DESCRIPTION	DATE	BY	
			CRP	
0	INITIAL	03/10/21		
1				
2				
3				
4				
5				

DRAWN BY:	CRP	ISSUE DATE:	03/10/21	SCALE:	N/A
PROJECT:	[REDACTED]	ADDRESS:	[REDACTED]	SHEET TITLE:	Electrical Calculation Details
2 of 2					
DRAWING NUMBER					
E-102					

Project Details			
Name	[REDACTED]	Date	03/10/2021
Location	[REDACTED]	Total modules	22
Module	Hanwha Q.Cells: Q.PEAK DUO-G6/SC 350 (40mm)	Total watts	7,700
Dimensions	68.5" x 40.55" x 1.57" (1740.0mm x 1030.0mm x 40.0mm)	Attachments	44
ASCE	7-10		

System Weight	
Total system weight	1,235.6 lbs
Weight/attachment	28.1 lbs
Racking weight	192.8 lbs
Distributed weight	2.9 psf

Load Assumptions	
Wind exposure	B
Wind speed	115 mph
Ground snow load	40 psf
Attachment spacing portrait	4.0'

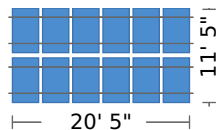
Roof Information			
Roof material	Metal	Building height	25 ft
Roof attachment	L-Foot Only	Roof slope	19 °
Attachment hardware	T Bolt	Risk category	II

Span Details XR100 - Portrait		
Zone	Max span	Max cantilever
1	6' 10"	2' 9"
2	6' 10"	2' 9"
3	6' 10"	2' 9"

Reaction Forces XR100 - Portrait			
Zone	Down (lbs)	Uplift (lbs)	Lateral (lbs)
1	285	102	89
2	285	212	89
3	285	336	89

Roof Section 1		
Definition	Roof Section Weights	Roof Section (all segments)
12 modules	Total weight: 666.4 lbs	Provided rail: 112' [8 x 14']
Portrait orientation	Weight/attachment: 27.8 lbs	Attachments: 24
Graphical entry	Total Area: 235.8 sq ft	Splices: 4
	Distributed weight: 2.8 psf	Clamps: 28

Diagram

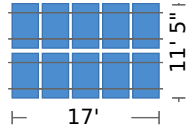


Segments							
Columns	Length	Cantilever	Cantilever Violations	Rail	Attachments	Splices	Clamps
6	20' 7"	4"	None	56' [4 x 14']	12	2	14
Row segment totals (x 2) →				112' [8 x 14']	24	4	28

Roof Section 2

Definition	Roof Section Weights	Roof Section (all segments)
10 modules	Total weight: 569.2 lbs	Provided rail: 112' [8 x 14']
Portrait orientation	Weight/attachment: 28.5 lbs	Attachments: 20
Graphical entry	Total Area: 196.8 sq ft	Splices: 4
	Distributed weight: 2.9 psf	Clamps: 24

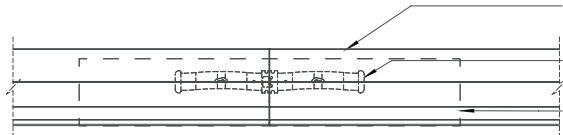
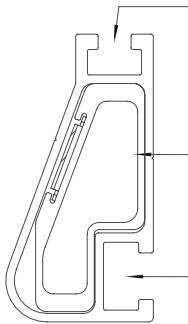
Diagram



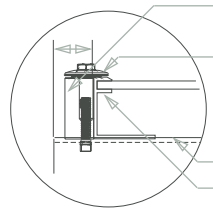
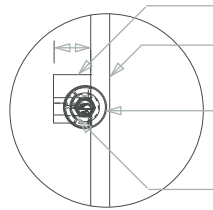
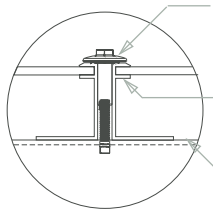
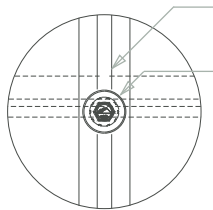
Segments

Columns	Length	Cantilever	Cantilever Violations	Rail	Attachments	Splices	Clamps
5	17' 2"	7"	None	56' [4 x 14']	10	2	12
Row segment totals (x 2) →				112' [8 x 14']	20	4	24

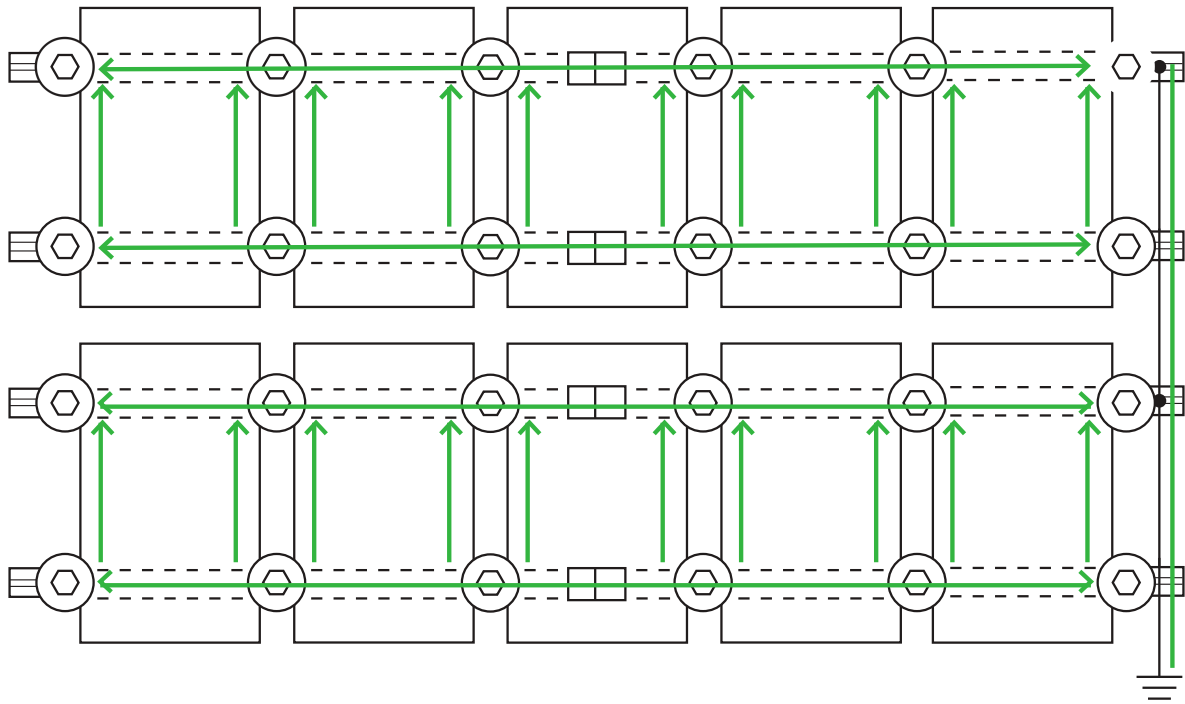
Splice Details



Clamp Detail



Grounding Diagram



UFO Clamp

● Grounding Lug *

→ Fault Current Ground Path

⏏ Min 10 AWG Copper Wire *

□ Bonded Splice (Rail Connection)

* Grounding Lugs and Wire are not required in systems using Enphase microinverters.

Bill of Materials

Part	Spares	Total Qty
Rails & Splices		
XR-100-168B XR100, Rail 168" (14 Feet) Black	0	16
XR100-BOSS-01-M1 Bonded Splice, XR100	0	8
Clamps & Grounding		
UFO-CL-01-B1 Universal Module Clamp, Black	0	52
UFO-STP-40MM-B1 Stopper Sleeve, 40MM, Black	0	16
XR-LUG-03-A1 Grounding Lug, Low Profile	0	4
Attachments		
LFT-03-B1 Slotted L-Foot, Black	0	44
BHW-TB-02-A1 T-Bolt Bonding Hardware	0	44

The right way to attach almost anything to metal roofs!

S-5![®]

The Right Way!

S-5-B Clamp

Architects and roof designers choose copper roofing for its timeless elegance and durability. The S-5-B (“B” for “Brass”) allows architects to maintain that theme with all equipment and accessories that must be mounted to the roof with permanence and durability consistent with the roof itself.

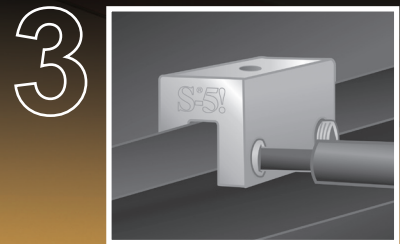
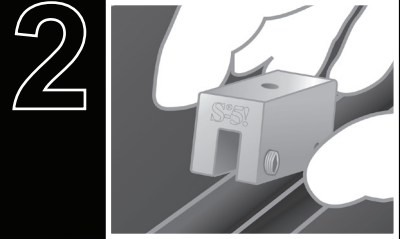
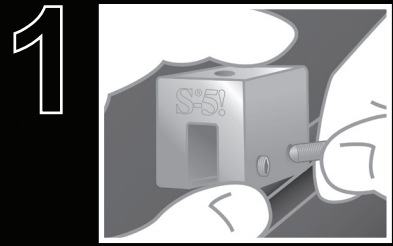
This clamp is specifically designed for double-folded copper standing seam paneling.

Installation is as simple as placing the clamp on the seam and tightening the patented round-point setscrews to the specified tension. Then, affix ancillary items using the bolt provided. Go to www.S-5.com/tools for information and tools available for properly attaching and tensioning S-5![®] clamps.

S-5-B Mini Clamp

The S-5-B Mini is a bit shorter than the original S-5-B and has one setscrew rather than two. The mini is the choice for attaching all kinds of rooftop accessories: signs, walkways, satellite dishes, antennas, rooftop lighting, lightning protection systems, solar arrays, conduit, rooftop mechanicals—just about anything!*

*S-5! mini clamps are not compatible with, and should not be used with S-5! SnoRail™/SnoFence™ or ColorGard® snow retention systems.



The brass S-5-B clamp is designed to complement the beauty of your copper roofing without piercing the panel, thereby preserving the roof manufacturer's warranty!

S-5-B and S-5-B Mini

888-825-3432 | www.S-5.com

S-5![®]

The Right Way!

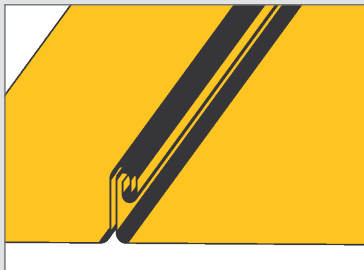
The strength of the S-5-B clamp is in its simple design. The patented setscrews will slightly dimple the metal seam material but will not puncture it—leaving the roof manufacturer's warranty intact.

The **S-5-B** and **S-5-B Mini clamps** are each furnished with the hardware shown to the right. The S-5-B standard clamp is provided with an M8-1.25 X 16.00 mm Hex Flange Bolt. Each box also includes a screw gun bit tip. All included hardware is stainless steel. Please visit www.S-5.com for more information including CAD details and specifications.

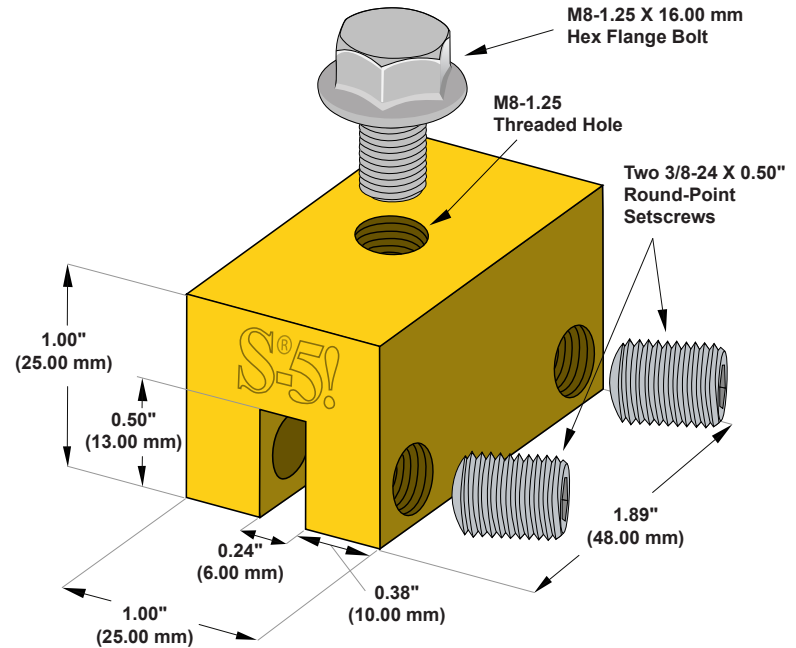
The S-5-B and S-5-B Mini clamps have been tested for load-to-failure results on cold-rolled standing seam copper. The independent lab test reports found on our website at www.S-5.com prove that S-5![®] holding strength is unmatched in the industry.

An S-5-B standard clamp compatible with an M10-1.5 X 16.00 mm Hex Flange Bolt is available upon request for an additional up charge.

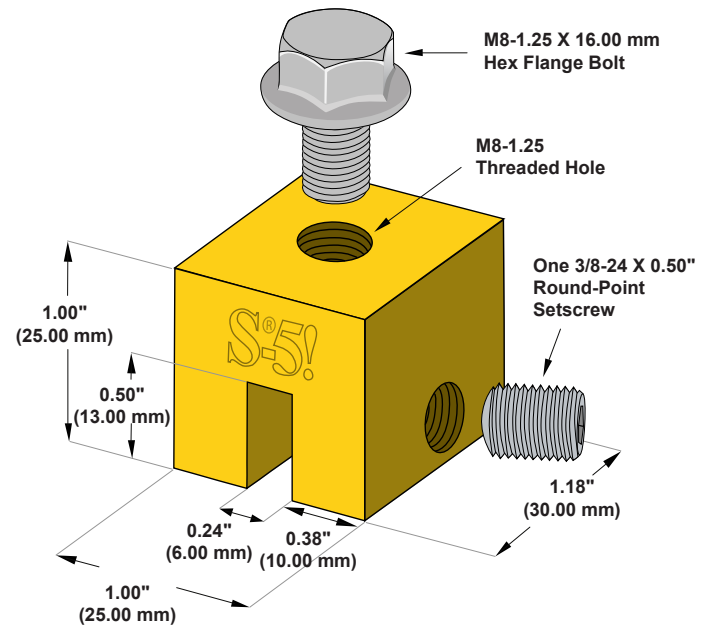
Example Profile



S-5-B Clamp



S-5-B Mini Clamp



S-5![®] Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

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Q.PEAK DUO-G5 305-330

Q.ANTUM SOLAR MODULE

The new **Q.PEAK DUO-G5** solar module from Q CELLS impresses thanks to innovative **Q.ANTUM DUO Technology**, which enables particularly high performance on a small surface. **Q.ANTUM's** world-record-holding cell concept has now been combined with state-of-the-art circuitry half cells and a six-busbar design, thus achieving outstanding performance under real conditions - both with low-intensity solar radiation as well as on hot, clear summer days.



Q.ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY

Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.9%.



INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behavior.



ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID and Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.



EXTREME WEATHER RATING

High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa) regarding IEC.



A RELIABLE INVESTMENT

Inclusive 12-year product warranty and 25-year linear performance guarantee².



STATE OF THE ART MODULE TECHNOLOGY

Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.



THE IDEAL SOLUTION FOR:



Rooftop arrays on residential buildings



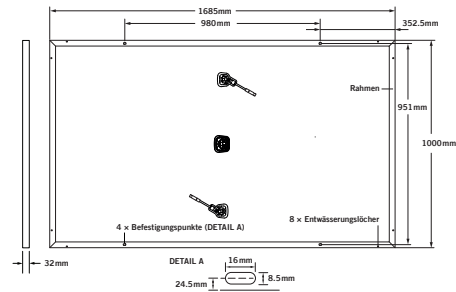
Rooftop arrays on commercial/industrial buildings

¹ APT test conditions according to IEC/TS 62804-1:2015, method B (-1500V, 168h)

² See data sheet on rear for further information.

MECHANICAL SPECIFICATION

Format	66.3 in × 39.4 in × 1.26 in (including frame) (1685 mm × 1000 mm × 32 mm)
Weight	41.2 lbs (18.7 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 20 monocrystalline Q.ANTUM solar half-cells
Junction box	2.76-3.35 in × 1.97-2.76 in × 0.51-0.83 in (70-85 mm × 50-70 mm × 13-21 mm), decentralized, IP67
Cable	4 mm ² Solar cable; (+) ≥ 43.3 in (1100 mm), (-) ≥ 43.3 in (1100 mm)
Connector	Multi-Contact MC4, IP65 and IP68



ELECTRICAL CHARACTERISTICS

POWER CLASS			305	310	315	320	325	330
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5 W / -0 W)								
Minimum	Power at MPP ²	P_{MPP} [W]	305	310	315	320	325	330
	Short Circuit Current*	I_{SC} [A]	9.93	9.98	10.04	10.09	10.14	10.20
	Open Circuit Voltage*	V_{OC} [V]	39.35	39.61	39.87	40.13	40.40	40.66
	Current at MPP*	I_{MPP} [A]	9.44	9.50	9.55	9.60	9.66	9.71
	Voltage at MPP*	V_{MPP} [V]	32.30	32.64	32.98	33.32	33.65	33.98
	Efficiency ²	η [%]	≥ 18.1	≥ 18.4	≥ 18.7	≥ 19.0	≥ 19.3	≥ 19.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NOC ³								
Minimum	Power at MPP ²	P_{MPP} [W]	226.0	229.7	233.4	237.2	240.9	244.6
	Short Circuit Current*	I_{SC} [A]	8.00	8.05	8.09	8.14	8.18	8.22
	Open Circuit Voltage*	V_{OC} [V]	36.80	37.05	37.30	37.54	37.79	38.04
	Current at MPP*	I_{MPP} [A]	7.43	7.47	7.51	7.56	7.60	7.64
	Voltage at MPP*	V_{MPP} [V]	30.43	30.75	31.07	31.39	31.70	32.01

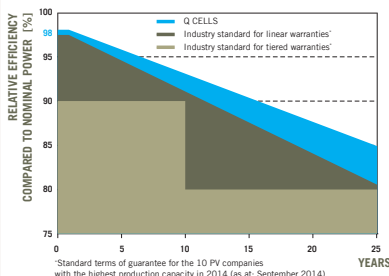
¹ 1000 W/m², 25 °C, spectrum AM 1.5 G

² Measurement tolerances STC ± 3 %; NOC ± 5 %

³ 800 W/m², NOCT, spectrum AM 1.5 G

* typical values, actual values may differ

Q CELLS PERFORMANCE WARRANTY

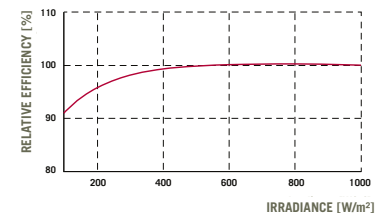


At least 98 % of nominal power during first year. Thereafter max. 0.54 % degradation per year. At least 93.1 % of nominal power up to 10 years. At least 85 % of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organization of your respective country.

*Standard terms of guarantee for the 10 PV companies with the highest production capacity in 2014 (as at: September 2014)

PERFORMANCE AT LOW IRRADIANCE



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

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	-0.28
Temperature Coefficient of P_{MPP}	γ	[%/K]	-0.37	Normal Operating Cell Temperature	NOCT	[°F]	113 ± 5.4 (45 ± 3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1000 (IEC) / 1000 (UL)	Safety Class	II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating	C (IEC) / TYPE 1 (UL)
Design load, push (UL) ²	[lbs/ft ²]	75 (3600 Pa)	Permitted module temperature on continuous duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Design load, pull (UL) ²	[lbs/ft ²]	55.6 (2666 Pa)		² see installation manual

QUALIFICATIONS AND CERTIFICATES

UL 1703; VDE Quality Tested; CE-compliant; IEC 61215 (Ed.2); IEC 61730 (Ed.1) application class A



PACKAGING INFORMATION

Number of Modules per Pallet	32
Number of Pallets per 53' Trailer	30
Number of Pallets per 40' High Cube Container	26
Pallet Dimensions (L × W × H)	69.3 in × 45.3 in × 46.9 in (1760 mm × 1150 mm × 1190 mm)
Pallet Weight	1415 lbs (642 kg)

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 use of this product.

Hanwha Q CELLS America Inc.

300 Spectrum Center Drive, Suite 1250, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

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



SB3.0-1 SP-US-40 / SB3.8-1 SP-US-40 / SB5.0-1 SP-US-40
SB6.0-1 SP-US-40 / SB7.0-1 SP-US-40 / SB7.7-1 SP-US-40



**WORLD'S FIRST
SECURE POWER SUPPLY**



OUTLET NOT INCLUDED

Value-Added Improvements

- World's first Secure Power Supply now offers up to 2,000 W
- Full grid management 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.

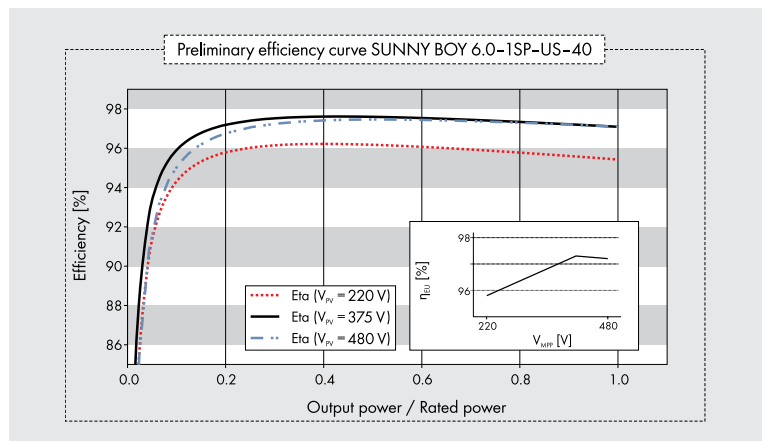
Technical data	Sunny Boy 3.0-US		Sunny Boy 3.8-US		Sunny Boy 5.0-US	
	208 V	240 V	208 V	240 V	208 V	240 V
Input (DC)						
Max. usable DC power	3100 W	3100 W	3450 W	4000 W	5150 W	5150 W
Max. DC voltage	600 V					
Rated MPP voltage range	155 - 480 V		195 - 480 V		220 - 480 V	
MPPT operating voltage range	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 A					
Number of MPPT tracker / string per MPPT tracker	2/1				3 / 1	
Output (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 / ●	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. output current	14.5 A	12.5 A	16.0 A	16.0 A	24.0 A	24.0 A
Power factor (cos φ)	1					
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						
DC disconnect device	●					
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)	●					
Protection class / overvoltage category	I / IV					
General data						
Dimensions (W / H / D) in mm (in)	535 x 730 x 198 (21.1 x 28.5 x 7.8)					
Packaging Dimensions (W / H / D) in mm (in)	600 x 800 x 300 (23.6 x 31.5 x 11.8)					
Weight	26 kg (57 lb)					
Packaging weight	30 kg (66 lb)					
Operating temperature range	- 25 °C ...+60 °C					
Noise emission (typical)	39 dB(A)					
Internal power consumption at night	< 5 W					
Topology	Transformerless					
Cooling concept	Convection					
Features						
Secure Power Supply	●					
Display (2 x 16 characters)	●					
Interfaces: Ethernet / WLAN	● / ●					
Sensor module / External WLAN antenna	○ / ○					
Warranty: 10 / 15 / 20 years	●/○/○					
Certificates and approvals	UL 1741, UL 1998, UL 1699B, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA V22.2 107.1-1					
● Standard features ○ Optional features – Not available	Data at nominal conditions NOTE: US inverters ship with gray lids.					
Type designation	SB3.0-1SP-US-40		SB3.8-1SP-US-40		SB5.0-1SP-US-40	



Sensor module
MD.SEN-US-40



External WLAN antenna
EXTANT-US-40



Technical data	Sunny Boy 6.0-US		Sunny Boy 7.0-US		Sunny Boy 7.7-US	
	208 V	240 V	208 V	240 V	208 V	240 V
Input (DC)						
Max usable DC power	5400 W	6200 W	6900 W	7200 W	6900 W	7950 W
Max. DC Voltage	600 V					
Rated MPP Voltage range	220 - 480 V		245 - 480 V		270 - 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 A					
Number of MPPT tracker / string per MPPT tracker	3 / 1					
Output (AC)						
AC nominal power	5200 W	6000 W	6660 W	7000 W	6660 W	7680 W
Max. AC apparent power	5200 VA	6000 VA	6660 VA	7000 VA	6660 VA	7680 VA
Nominal voltage / adjustable	208 V / ●	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 / 50 Hz					
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					
Output phases / line connections	1 / 2					
Harmonics	< 4 %					
Efficiency						
Max. efficiency	97.2 %	97.6 %	97.1 %	97.5 %	97.1 %	97.5 %
CEC efficiency	96.5 %	97 %	96.5 %	97 %	96.5 %	97 %
Protection devices						
DC disconnect device	●					
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)	●					
Protection class / overvoltage category	I / IV					
General data						
Dimensions (W / H / D) in mm (in)	535 x 730 x 198 (21.1 x 28.5 x 7.8)					
Packaging Dimensions (W / H / D) in mm (in)	600 x 800 x 300 (23.6 x 31.5 x 11.8)					
Weight	26 kg (57 lb)					
Packaging weight	30 kg (66 lb)					
Operating temperature range	- 25 °C ...+60 °C					
Noise emission (typical)	36 dB(A)		45 dB(A)			
Internal power consumption at night	< 5 W					
Topology	Transformerless					
Cooling concept	Convection			Fan		
Features						
Secure Power Supply	●					
Display (2 x 16 characters)	●					
Interfaces: Ethernet / WLAN	● / ●					
Sensor module / External WLAN antenna	○ / ○					
Warranty: 10 / 15 / 20 years	●/○/○					
Certificates and approvals	UL 1741, UL 1998, UL 1699B, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA V22.2 107.1-1					
● Standard features ○ Optional features – Not available	Data at nominal conditions NOTE: US inverters ship with gray lids.					
Type designation	SB6.0-1SP-US-40		SB7.0-1SP-US-40		SB7.7-1SP-US-40	

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 opportunity
- » 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