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Colorado Springs, CO 80908
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PVKIT 2.0 WITH S-5! STANDING SEAM CLAMPS

CSI Sections:
05 00 00 METALS
05 05 23 Metal Fastenings

1.0 RECOGNITION

The S-5! PVKIT 2.0 recognized in this report has been evaluated for an attachment method of photovoltaic (PV) arrays with standing seam roofs. The PVKIT is attached using S-5! Standing Seam clamps. The S-5! Standing Seam clamps have been evaluated for attachment methods to standing seam roofs with photovoltaic mounting system including the PVKIT 2.0. The structural performance properties of the S-5! PVKIT 2.0 and Standing Seam Clamps comply with the intent of the provisions of the following codes and regulations:

- 2024, 2021, 2018, 2015, and 2012 International Building Code® (IBC)
- 2024, 2021, 2018, 2015, and 2012 International Residential Code® (IRC)
- 2023 Florida Building Code, Building (FBC, Building) – Supplement attached (Includes HVHZ)
- 2023 Florida Building Code, Residential (FBC, Residential) – Supplement attached (Includes HVHZ)

2.0 LIMITATIONS

Use of the S-5! PVKIT 2.0 system and S-5! Standing Seam clamps recognized in this report are subject to the following limitations:

2.1 The S-5! PVKIT 2.0 and S-5! Standing Seam Clamps shall be installed in accordance with the applicable code, the manufacturer's published installation instructions,–and this report. Where there is a conflict, the most restrictive requirements shall govern.

2.2 The registered design professional shall prepare calculations and drawings to be presented to and approved by the building official when required by the statutes of the jurisdiction in which the project is to be constructed.

2.3 The S-5! PVKIT 2.0 and S-5! Standing Seam Clamps used for attachment, shall be structurally compatible with the standing seam metal roof. Compatibility shall be determined by an independent engineering review. Galvanic compatibility shall be determined based on engineering judgment, the solar attachment system and the standing seam metal roof system, the building configuration, and in-service environmental conditions. The independent engineering review shall include, but is not limited to, verification of the panel material properties specified and the panel material properties values found in this report for compatibility. Schematics and drawings for S-5! products are the responsibility of the design engineer and shall be presented to the building official for approval.

2.4 System components, including attachment fasteners, shall be fabricated from corrosion-resistant metals having a service life expectancy at least equivalent to the roof itself.

2.5 Linear thermal expansion of the system shall be considered and accommodated by the system design. Thermal cycling of the metal roof system shall not be impeded by the system or accessories.

2.6 Electrical performance is outside the scope of this report.

2.7 The S-5! PVKIT 2.0 and S-5! Standing Seam Clamps recognized in this report are represented by S-5! in Colorado Springs, Colorado, and produced by S-5! manufacturing facility in Iowa Park, TX.

3.0 PRODUCT USE

3.1 General: Design wind, dead, and snow load forces imposed on metal roof assemblies, panels and their connections are assumed to be accounted for in the structural design and attachment of the roof panels. The installation of products or systems attached to the S-5! PVKIT 2.0 and the S-5! Clamps may impart new loads, such as downslope drag loads, or concentrated point loads, not accounted for during the original roof structural design and attachment of the roof panel design. These loads shall be accounted for by the design engineer.

The S-5! PVKIT 2.0 is used to retain photovoltaic arrays in a system. The system consists of the PVKIT 2.0 MidGrab and EdgeGrab clamps, PV Disk, StandOff, M8/30mm Bolt (T30 Drive), S-5! Standing Seam Clamps and the roofs which they attach to.

The S-5! Standing Seam Clamps are used to transfer loads as detailed in Table 2 of this report to metal standing seam roofing.

3.2 Design with PV KIT 2.0 and S-5! Standing Seam Clamps: The S-5! PVKIT 2.0 used with S-5! Standing Seam Clamps allowable stress design (ASD) capacities and

deflections are indicated in Tables 1 and 2 of this report. The system design capacity shall be limited to the least design capacity of the S-5! Standing Seam Clamps and the S-5! PVKIT 2.0. The S-5! PVKIT 2.0 capacities described in Table 1 include the attachment of the grab to Standoff. The Standoff attachment to the clamp capacities is included in the clamp capacities. The design of the attachment of the modules to the PVKIT 2.0 system shall be completed in accordance with Section 2.2 of this report and its limitations.

3.3 Design with the S-5! Clamps used without the PVKIT 2.0: S-5! Clamps used for the attachment of other PV mounting systems shall meet the requirements of this report and be presented to the building official for approval.

3.4 Fire Classification: Data in accordance with UL 2703 can be provided to the building official for approval for recognition of use of the PVKIT 2.0 on a classified roof. Each assembly shall include the standing seam clamps, including current certifications on assemblies using the specified clamps, PVKIT 2.0 and PV module.

3.5 Mechanical Loading Testing and Corrosion Resistance; UL 2703 :

3.5.1 Mechanical Load Testing: Mechanical load testing performance in Clause 21 of UL 2703 was completed with Jinko Eagle 72 HM-G5 PV Modules with a maximum size module of 30.54 ft^2 (10% greater than tested module size as detailed in Appendix B Item A of UL2703 27.76 ft^2). Two adjacent PV modules were secured using S-5-E Mini clamps with the PVKIT 2.0 MidGrab and EdgeGrab, with a maximum cantilever of 24 inches (610 mm). Two PVKIT 2.0 and clamps are used per side of the PV modules. The clamps are spaced at a maximum of 48-inches (1,219 mm) on-center. The assembly achieved a design load in accordance with UL 2703 of 50 psf (2.4 kN/m^2) downward, 30 psf (1.4 kN/m^2) upward and 10 psf (0.48 kN/m^2) downslope (90°).

3.5.2 Corrosion Resistance: The aluminum and stainless-steel components used in the PVKIT 2.0 and S-5! Clamps meet the corrosion resistance requirements of Clause 10 of UL 2703.

3.6 Installation: The installation of the Standing Seam Clamps is specific to seam configurations found in Table 2 of this report. Submittals which require additional instructions sheets may detail "PVKIT 2.0 PV Metal Rooftop Mounting Systems" dated July 1, 2025 " as detailed in the associated installation instructions.

3.6.1 S-5! PVKIT 2.0: The T-30 Torx Drive Low Profile Bolt is used to attach the grab to the StandOff. The StandOff shall be driven into the S-5! Clamp until the PV Disk is seated against the clamp. The Low Profile Bolt shall be driven until it breaks the thread locking seal between the StandOff and Low Profile Bolt and then torqued to 120-130 in-lbs (13.6-14.7 Nm).

3.6.2 Clamps: Clamps' set screws shall be installed to the torque specified in Table 2 of this report. The calibration certificate of the torque wrench installing clamp set screws shall be available at the job site for review.

4.0 PRODUCT DESCRIPTION

4.1 S-5! PVKIT 2.0: The S-5! PVKIT 2.0® system is used to attach PV Module Frames through the use of electrically bonded clamps, the MidGrab and EdgeGrap, which attach using a standoff with the PV Disk into a standing seam clamp. The PVKIT 2.0 assemblies are detailed in Figure 1 of this report. The EdgeGrab 2.0 and MidGrab 2.0 components are manufactured from 6000 series aluminum and the standoff and PV disc are manufactured from 300 series stainless steel. The S-5! PVKIT 2.0 is attached to the standing seam clamps using the standoff which is fabricated with an M8 x 0.58 in (14.7 mm) threaded post to attach to each clamp. The T-30 Torx Drive screw used to make the attachment of the PV Module Frame to the PVKIT 2.0 are 300 stainless steel M8-1.25x 30 mm.

4.2 S-5! Clamps and Mini Clamps: The S-5! Clamps are manufactured from 6000 series Aluminum with a minimum yield strength of 35 ksi (241 Mpa). The clamps utilize set screws to attach the clamp to the standing seam of metal roofs. Clamps are illustrated in Figure 4 of this report.

4.2.1 S-5-E and S-5-E Mini Clamps: The S-5-E and S-5-E Mini are the S-5! Clamps used on double folded standing seam metal roof profiles commonly used in Europe and other countries. The "E" in the product name stands for "European".

4.2.2 S-5-H and H Mini Clamps: The S-5-H and S-5-H mini are the S-5! Clamps used on standing seam panels with single folded seams having a horizontal seam dimension less than ¾ inches (19 mm). The "H" in the product name stands for "horizontal seam".

4.2.3 S-5-H90 and S-5-H90 Mini Clamps: The S-5-H90 and S-5-H90 Mini are the S-5! Clamps used on standing seam panels with single folded seams having a horizontal seam dimension greater than 0.65 inches (16.5 mm). The "H" in the product name stands for "horizontal seam".

4.2.4 S-5-MX and S-5-MX Mini Clamps: The S-5-MX and S-5-MX Mini Clamps are the S-5! Clamps used on standing seam panels with single folded horizontal seams of 1 inch (25 mm) and 1½-inches (38 mm) seam height dimensions. This clamp can be used on standing seam double fold seams having vertical dimensions of 1½-inches (38 mm) and 1¾ inches (44 mm).

4.2.5 S-5-N and S-5-N Mini Clamp: The S-5-N and S-5-N Mini Clamps are the S-5! Clamps used on standing seam panels with 1-inch (25 mm) nail strip profiles. The "N" in the product name stands for "nail strip".

4.2.6 S-5-N1.5 and S-5-N1.5 Mini Clamp: The S-5-N1.5 and S-5-N1.5 Mini Clamps are the S-5! Clamp used on standing seam panels with 1½-inches (38 mm) nail strip profiles. The "N" in the product name stands for "nail strip".

4.2.7 S-5-NH1.5 and S-5-NH1.5 Mini Clamp: The S-5-NH1.5 and S-5-NH1.5 Mini Clamps are the S-5! Clamps used on standing seams panels with popular 1½-inches (38 mm) nail strip profiles that have a horizontal base dimension greater than 0.475 inches (12.065 mm) and less than 0.801 inches (20.345 mm) using a hinge insert to form to the shape of the seam. The "N" in the product name stands for "nail strip".

4.2.8 S-5-S and S-5-S Mini Clamps: The S-5-S and S-5-S Mini are the S-5! Clamps designed for vertical snap together profiles with vertical dimensions of 1½-inches (38 mm) and 1¾ inches (44 mm). This clamp can be used for traditional single-folded (angle-seam) horizontal profiles of 1 inch (25 mm) and 1½-inches (38 mm) seam height dimensions. The "S" in the product name stands for "snap-lock".

4.2.9 S-5-T and S-5-T Mini Clamps: The S-5-T and S-5-T Mini are the S-5! Clamps specifically designed for profiles featuring a "T shaped seam configuration. The two-piece design allows it to be installed anywhere along the seam.

4.2.10 S-5-V and S-5-V Mini Clamps: The S-5-V and the S-5-V Mini are the S-5! Clamps designed for most machine-folded seams in the vertical orientation. The "V" in the product name stands for "vertical".

4.2.11 S-5-Z and S-5-Z Mini Clamps: The S-5-Z and S-5-Z Mini are the S-5! Clamps designed for round "bulb" seam configurations. The "Z" stands for "Zip Rib".

5.0 IDENTIFICATION

The S-5! PVKIT 2.0 and S-5! Standing Seam Clamps are identified by the (S-5!) name and trademark (S-5!), product name, and evaluation report number (IAPMO UES ER-945). The IAPMO Uniform Evaluation Service Mark of Conformity may also be used as shown below:

IAPMO UES ER-945

6.0 SUBSTANTIATING DATA

6.1 Test reports are from laboratories in compliance with ISO/IEC 17025.

6.2 Data in accordance with IAPMO UES Evaluation Criteria for Photovoltaic Module Mounting Systems, Snow Retention Systems, and Other Accessories, (EC-29), Reapproved March 2025. Load testing in accordance with ASTM D7147 (Section 4.2 of EC-29)

6.3 Engineering Analysis.

6.4 Load testing for standing seam clamps.

6.5 Mechanical load testing performance in Clause 21 and Corrosion Resistance of Clause 10 of UL 2703

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on the S-5! PVKIT 2.0 and S-5! Standing Seam Clamps to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. Products are manufactured at locations noted in Section 2.7 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org

TABLE 1–S-5! PVKIT 2.0 Allowable Loads

Grab Component	Maximum Displacement[2]	Allowable Connection Capacity of PV Clamp Perpendicular to Seams - Uplift (lbs)	Allowable Connection Capacity Shear Resistance between PVKIT 2.0 and PV Clamps (lbs)
EdgeGrab	0.125	353	934
MidGrab	0.125	861	611

For **SI**: 1-inch=25.4 mm;

[1] Values in this table shall be used in the system capacity and general performance as defined in Section 3.2 of this report.
[2] Displacement refers to displacement of the grab portion of the clamp which interfaces with PV module.

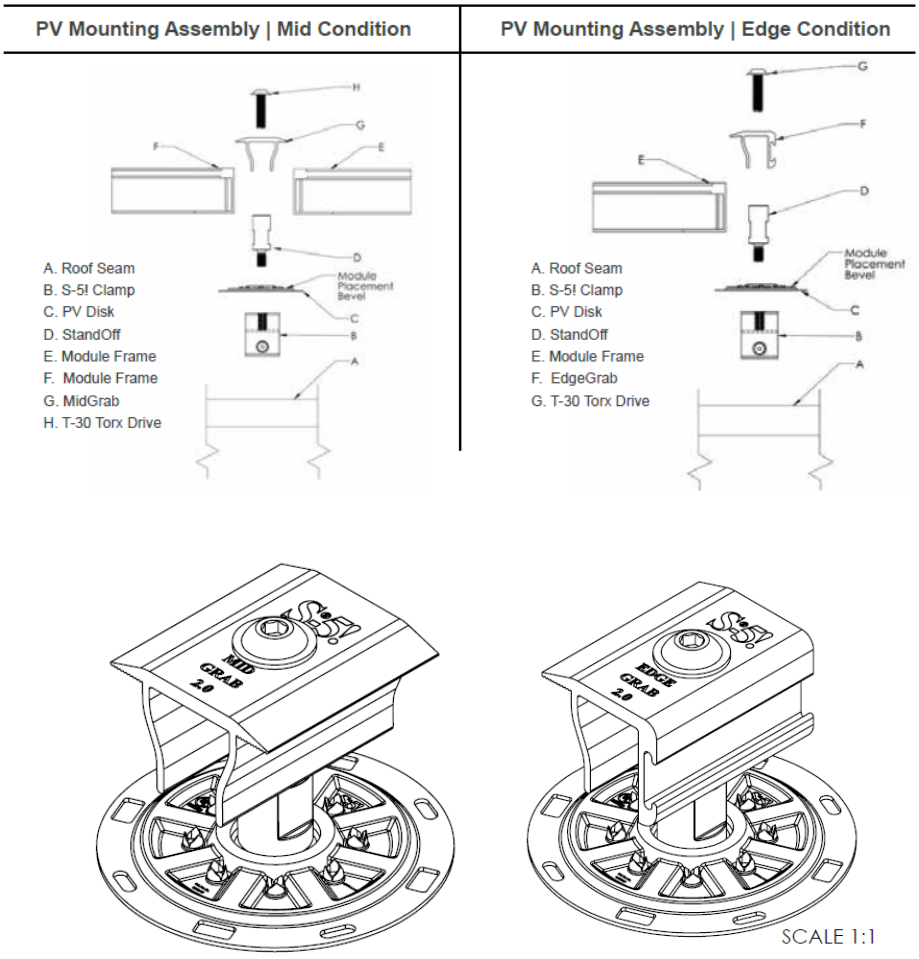
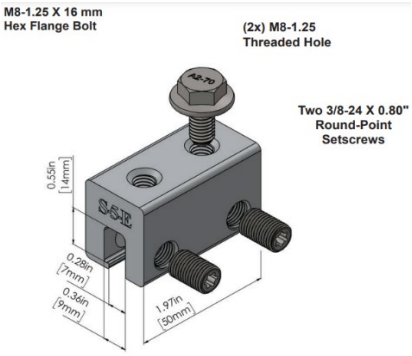
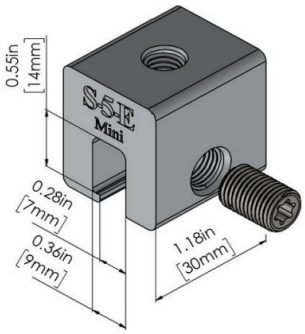


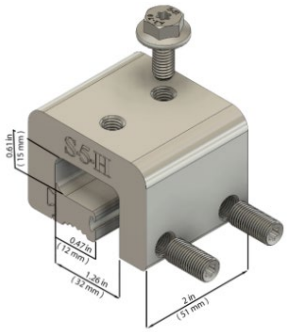
FIGURE 1 – PVKIT 2.0 Components and Mountings



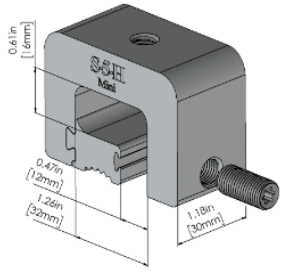
S-5-E



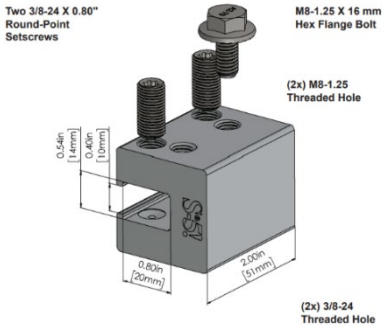
S-5-E Mini



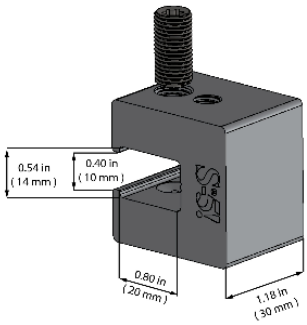
S-5-H



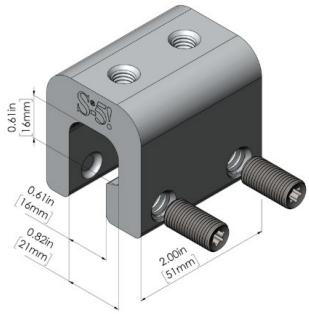
S-5-H Mini



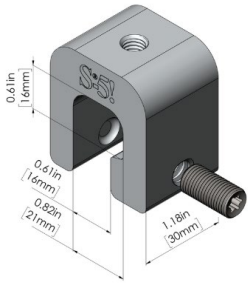
S-5-H90



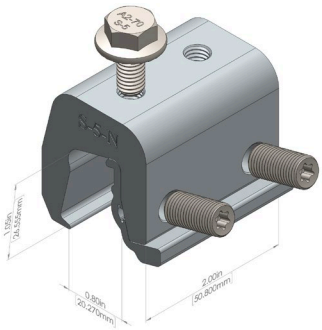
S-5-H90 Mini



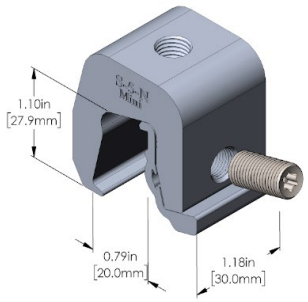
S-5-MX



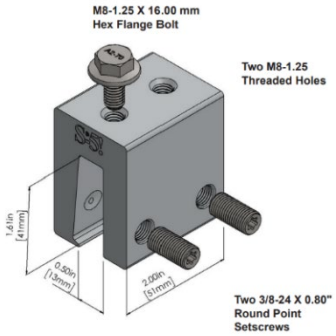
S-5-MX Mini



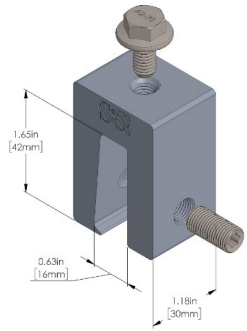
S-5-N



S-5-N Mini

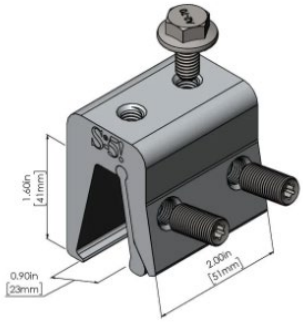


S-5-N1.5

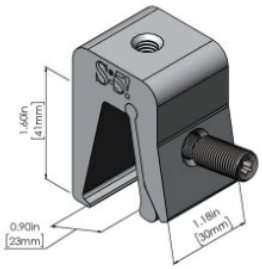


S-5-N1.5 Mini

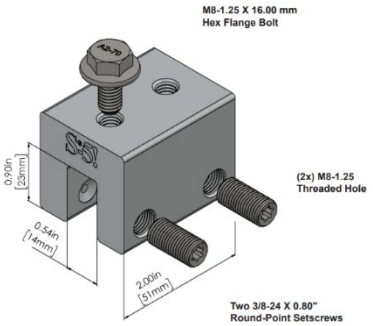
FIGURE 2 S-5! Clamps **(cont'd next page)**



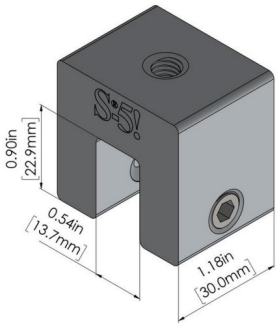
S-5-NH1.5



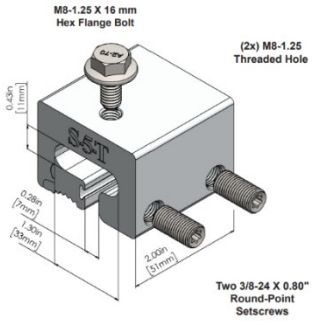
S-5-NH1.5 Mini



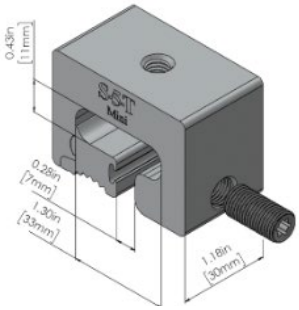
S-5-S



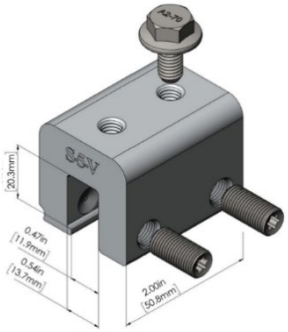
S-5-S Mini



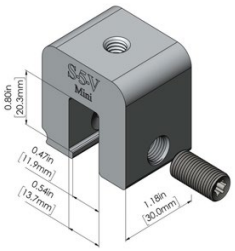
S-5-T



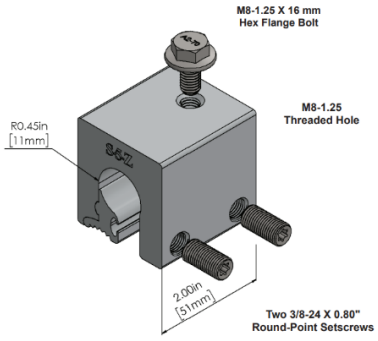
S-5-T Mini



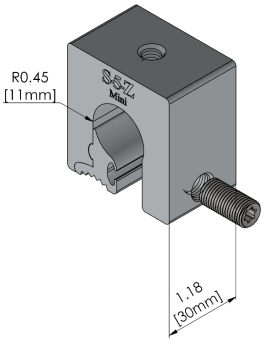
S-5-V



S-5-V Mini



S-5-Z



S-5- Z Mini

FIGURE 2 – S-5! Clamps (continued)

TABLE 2 - S-5! Seam Clamps Allowable Loads
(continued next page)

S-5! Clamp	Standing Seam Metal Roof Information			Uncoated Base Metal Thickness (inches)	Installed Torque (in-lb)	Allowable Connection Capacity Parallel to Seam (lbs)	Allowable Connection Capacity Perpendicular to Seams - Uplift (lbs)
	Roof Manufacturer	Manufacturer Product Designation	Yield Strength (ksi)				
S-5-N	ASC Building Products	Skyline Roofing 26 Ga	48.4	0.0208	130-150	552	-
S-5-N	Agway	NS25 26 Ga Steel	52.0	0.0161	130-150	389	-
S-5-N	Berridge	Tee Panel 24 Ga	55.9	0.0223	130-150	418	-
S-5-S	Bridger Steel	Tru Snap 24 Ga	57.1	0.0258	130-150	741	560
S-5-S		Tru Snap 26 Ga	45.8	0.0203	130-150	637	-
S-5-N		SL-16 24Ga	56.3	0.0259	130-150	685	-
S-5-N		SL-16 26Ga	45.1	0.0207	130-150	578	-
S-5-H	Dynamic Metals	DM1500(SF)-0.032 Alum PVDF	18.7	0.032	130-150	481	528
S-5-H		DM1500(SF) 24Ga Steel AZ50	47.1	0.022	130-150	-	1095
S-5-N	Englert	A1101 24 24Ga	57	0.0223	130-150	492	-
S-5-N 1.5	The Bryer Company	Truloc 24 Ga	45.8	0.023	130-150	480	900
S-5-N 1.5		Truloc 26 Ga	53.5	0.0174	130-150	407	581-
S-5-N		Proseam 24 Ga	53.5	0.0216	130-150	626	1147-
S-5-N		Proseam 26 Ga	56.8	0.017	130-150	445	753-
S-5-T	Garland	R-mer Span 0.04 inch Aluminum	25.9	0.04	130-150	1125	862
S-5-T		R-Mer Span 24 Ga G90 PVDF	52.3	0.024	130-150	845	-
S-5-MX	Knudson Building Systems	KR-18 Single Fold 24 Ga	48.4	0.0208	130-150	880	1446
S-5-MX		KR-18 Double Fold 24 Ga	48.4	0.0208	130-150	1024	1546
S-5-H90	MBCI	BattenLok HS 22ga Steel w AZ55 and Galvalume Plus	54.1	0.0304	160-180	953	1436
S-5-H90		BattenLok HS 24ga Steel w AZ55 and Galvalume Plus	62.3	0.024	130-150	866	1427
S-5-V		UltaDeck 24Ga Steel w AZ55 and Galvalume Plus	54.8	0.024	130-150	808	915
S-5-V		UltaDeck 22Ga Steel w AZ55 and Galvalume Plus	54	0.03	160-180	788	-
S-5-V		SuperLok 22ga Steel w AZ55 and Galvalume Plus	54	0.03	160-180	1151	1692
S-5-V		SuperLok 24ga Steel w AZ55 and Galvalume Plus	63.2	0.024	130-150	916	-
S-5-V		Double-Lok 22ga Steel w AZ55 and Galvalume Plus	55.2	0.03	160-180	1324	1261
S-5-V		Double-Lok 24ga Steel w AZ55 and Galvalume Plus	60.1	0.024	130-150	1173	-
S-5-S		LokSeam 22Ga W/AZ55	53.1	0.03	160-180	1205	1081
S-5-S		LokSeam 24Ga W/AZ55	54.5	0.024	130-150	910	941
S-5-N	McElroy Metals	Meridian 26 ga	50.2	0.0207	130-150	495	488
S-5-N		Meridian 24 ga	58	0.0253	130-150	578	708
S-5-E	Merchant and Evans	Ziplock 1.5” 0.04 Aluminum	20	0.04	130-150	720	840
S-5-E		Ziplock 1.5” 0.032 Aluminum	25	0.0328	130-150	647	-
S-5-V		Ziplock 2” 22 Ga	52.9	0.0318	160-180	1132	1934
S-5-V		Ziplock 2” 24Ga	53.6	0.0245	130-150	996	1254
S-5-V		Ziplock 2” 0.04 Aluminum	20.4	0.0397	130-150	872	-
S-5-V		Ziplock 2” 0.032 Aluminum	25	0.0328	130-150	696	-
S-5-Z		Zip Rip 20 Ga Steel	50.6	0.0393	160-180	1249	1680
S-5-Z		Zip Rip 22 Ga Steel PVDF	51.4	0.0333	160-180	1161	1382
S-5-Z		Zip Rip 24 Ga Galvalume Steel	51.9	0.0248	130-150	948	921
S-5-Z		Zip Rip 0.050 Al	31.2	0.0495	130-150	1243	1298
S-5-Z		Zip Rip 0.04 Al	30.4	0.0413	130-150	1079	1093
S-5-Z		Zip Rip 0.032 Al	29.7	0.0321	130-150	-	897
S-5-N	Metal Sales	Image II 26 Ga Steel	53.8	0.0161	130-150	413	553

For SI: 1-inch=25.4 mm; 1psf =0.0479 kPa, 1 lb=4.45 N, 1 in-lb =112.98 Nmm

[1] Values in this table shall be used in the system capacity and general performance as defined in Section 3.2 of this report.

TABLE 2 –S-5! Seam Clamps Allowable Loads- Mini Clamps (continued)

(continued next page)

S-5! Clamp	Standing Seam Metal Roof Information			Uncoated Base Metal Thickness (inches)	Installed Torque (in-lb)	Allowable Connection Capacity Parallel to Seam (lbs)	Allowable Connection Capacity Perpendicular to Seams - Uplift (lbs)
	Roof Manufacturer	Manufacturer Product Designation	Yield Strength (ksi)				
S-5-N	New Tech Machinery Corp.	FF 100 24 Ga	60.8	0.024	130-150	561	540
S-5-N		FF 100 26 Ga	60.8	0.0143	130-150	459	-
S-5-NH 1.5	Scheffe Roofing	FF150 26 Ga Steel AZ55	55	0.016	130-150	324	512
S-5-1.5		FF150 24 Ga Steel AZ50	55	0.0163	130-150	-	780.5
S-5-N	Sheet Metal Supply	NS-1 24 Ga Steel w/G90 and PVDF	45.8	0.024	130-150	676	862
S-5-NH1.5	Vicwest	Prestige 24 Ga Steel	49.8	0.0208	130-150	-	329
S-5-NH1.5		Prestige 26 Ga Steel	48.4	0.0143	130-150	460	335
S-5-T		Tradition 150 22 Ga	47.1	0.0306	160-180	1303	-
S-5-S		Tradition 150 24 Ga	57	0.0246	130-150	545	-
S-5-N Mini	The Bryer Company	Proseam 24 Ga	53.5	0.0210	130-150	-	767
S-5-N Mini		Proseam 26 Ga	56.8	0.0150	130-150	329	522
S-5-N 1.5 Mini		Truloc 24 Ga	45.8	0.0210	130-150	-	730
S-5-N 1.5 Mini		Truloc 26 Ga	53.5	0.0150	130-150	329	455
S-5-H Mini	Dynamic Metals	DM1500(SF_)0.032 Aluminum	18.7	0.032	130-150	364	265
S-5-N Mini	Englert	A1101 24 24Ga	57	0.0223	130-150	-	372
S-5-N Mini		A1101 0.040 Aluminum	26.4	0.04	130-150	-	267
S-5-N Mini	Agway	NS25 26 Ga Steel	52.1	0.0161	130-150	-	377
S-5-T Mini	Garland	R-mer Span 0.04 inch Aluminum	25.9	0.04	130-150	798	693
S-5-T-Mini		R-Mer Span 24 Ga G90 PVDF	52.3	0.021	130-150		658
S-5-N Mini	New Tech Machinery	FF 100 22 Ga Steel	53.2	0.0268	160-180	-	405
S-5-MX Mini	Knudson Building Systems	KR-18 Single Fold 24 Ga	48.4	0.0208	130-150	635	680
S-5-MX Mini		KR-18 Double Fold 24 Ga	48.4	0.0208	130-150	854	769
pleS-5-H90 Mini	MBCI	BattenLok HS 22ga Steel w AZ55 and Galvalume Plus	54.1	0.0304	160-180	711	1309
S-5-H90 Mini		BattenLok HS 24ga Steel w AZ55 and Galvalume Plus	62.3	0.024	130-150	657	1149
S-5-V Mini		UltaDeck 24Ga Steel w AZ55 and Galvalume Plus	54.8	0.024	130-150	-	559
S-5-V Mini		SuperLok 22ga Steel w AZ55 and Galvalume Plus	54	0.03	160-180	787	1398
S-5-V Mini		SuperLok 24ga Steel w AZ55 and Galvalume Plus	63.2	0.024	130-150	638	1170
S-5-V Mini		Double-Lok 22ga Steel w AZ55 and Galvalume Plus	55.2	0.03	160-180	893	-
S-5-V Mini		Double-Lok 24ga Steel w AZ55 and Galvalume Plus	60.1	0.024	130-150	762	-
S-5-S Mini		LokSeam 22Ga W/AZ55	53.1	0.03	160-180	805	-
S-5-S Mini		LokSeam 24Ga W/AZ55	54.5	0.024	130-150	-	660
S-5-N Mini	McElroy Metals	Meridian 26 ga	50.2	0.0163	130-150	342	-
S-5-N Mini		Meridian 24 ga	58	0.0223	130-150	464	533
S-5-E Mini	Merchant and Evans	Ziplock 1.5” 0.04 Aluminum	20	0.04	130-150	-	557
S-5-E Mini		Ziplock 1.5” 0.032 Aluminum	25	0.0328	130-150	556	607
S-5-V Mini		Ziplock 2” 22 Ga	52.9	0.0318	160-180	724	1580
S-5-V Mini		Ziplock 2” 0.04 Aluminum	20.4	0.0397	130-150	713	728
S-5-V Mini		Ziplock 2” 0.032 Aluminum	25	0.0328	130-150	527	-
S-5-Z Mini		Zip Rip 20 Ga steel	50.6	0.0393	160-180	1015	937
S-5-Z Mini		Zip Rip 22 Ga steel PVDF	51.4	0.0333	160-180	-	769
S-5-Z Mini		Zip Rip 24 Ga Galvalume Steel	51.9	0.0248	130-150	-	633
S-5-Z Mini		Zip Rip 0.050 Al	31.2	0.0495	130-150	854	766
S-5-Z Mini		Zip Rip 0.04 Al	30.4	0.0413	130-150	820	689

S-5! Clamp	Standing Seam Metal Roof Information			Uncoated Base Metal Thickness (inches)	Installed Torque (in-lb)	Allowable Connection Capacity Parallel to Seam (lbs)	Allowable Connection Capacity Perpendicular to Seams - Uplift (lbs)
	Roof Manufacturer	Manufacturer Product Designation	Yield Strength (ksi)				
S-5-Z Mini		Zip Rip 0.032 Al	29.7	0.0321	130-150	726	554
S-5-N Mini	Metal Sales	Image II 26 Ga Steel	53.8	0.0161	130-150	344	370
S-5-S Mini	Sheet Metal Supply	Tradition 100 22 Ga	57	0.0246	130-150	-	285
S-5-N Mini		NS-1 24 Ga Steel w/G90 and PVDF	45.8	0.0208	130-150	415	-
S-5_NH 1.5-Mini	Vicwest	Prestige 24 Ga Steel	49.8	0.0208	130-150	384	325
S-5_NH 1.5-Mini		Prestige 26 Ga Steel	48.4	0.0143	130-160	305	244

For **SI:** 1-inch=25.4 mm; 1psf =0.0479 kPa, 1 lb=4.45 N, 1 in-lb =112.98 Nmm

[1] Values in this table shall be used in the system capacity and general performance as defined in Section 3.2 of this report.

FLORIDA SUPPLEMENT

S-5! METAL ROOF INNOVATIONS, LTD.
12730 Black Forest Rd
Colorado Springs, CO 80908
(888)-825-3432
www.S-5.com

PVKIT 2.0 WITH S-5! STANDING SEAM CLAMPS

CSI Sections:
05 00 00 METALS
05 05 23 Metal Fastenings

1.0 RECOGNITION

The S-5! PVKIT 2.0 system and S-5! Standing Seam Clamps evaluated in IAPMO UES ER-945 are a satisfactory alternative-to the following codes and regulations including locations in the High-velocity Hurricane Zone (HVHZ):

- 2023 Florida Building Code, Building (FBC, Building)
- 2023 Florida Building Code, Residential (FBC, Residential)

2.0 LIMITATIONS

The S-5! PVKIT 2.0 system and S-5! Standing Seam Clamps described in this report supplement are subject to the following limitations:

2.1 Use of the S-5! PVKIT 2.0 system and S-5! Standing Seam Clamps shall comply with the provisions of the applicable codes, the manufacturer's published installation instructions, and this report. Where conflicts occur in these provisions, the most restrictive shall govern.

2.2 For products falling under Section 5(d) of Florida Rule 61G20-3.008, it has been verified that the report holder's quality assurance program is audited by a quality assurance entity, approved by the Florida Building Commission, to provide oversight and determine that the products are being manufactured as described in this evaluation report to establish continual product performance.

2.3 This supplement expires concurrently with IAPMO UES ER-945.

3.0 PRODUCT USE

The S-5! PVKIT 2.0 system and S-5! Standing Seam Clamps evaluated in IAPMO UES ER-945 comply with the HVHZ testing requirements based on performance testing detail in Section 4 of this supplement and as defined in Sections 1512.2.2 of the FBC, Building and R4402.1 of the FBC, Residential.

4.0 SUBSTANTIATING DATA

4.1 Test reports are from laboratories in compliance with ISO/IEC 17025.

4.2 Data in accordance with IAPMO UES Evaluation Criteria for Photovoltaic Module Mounting Systems, Snow Retention Systems, and Other Accessories, (EC-29), Reapproved March 2025. Load testing in accordance with ASTM D7147 (Section 4.2 of EC 29)

4.3 Engineering Analysis.

4.4 Load testing for standing seam clamps.

4.5 Mechanical load testing performance in Clause 21 and Corrosion Resistance of Clause 10 of UL 2703