Evaluation Report

"SOLAR STACK"

Roof Solar Pedestal

Manufacturer:

SOLAR STACK INC.

1071 SW 30th Avenue
Deerfield Beach, Florida 33442

for

Florida Product Approval

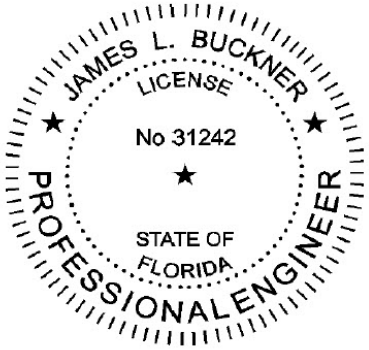
 # FL 21074.2 R8

Florida Building Code 8th Edition (2023)

Method:	**2 - B**
Category:	**Roofing**
Sub - Category:	**Roofing Accessories that are an Integral Part of the Roofing System**

Product Name:	"SOLAR STACK"
Product Description:	Roof Solar Pedestal
Product Material:	Aluminum

This item has been digitally signed and sealed by James L. Buckner, P.E., on this date below. Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.



James L. Buckner, P.E.
FL31242

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Prepared by:
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Florida Professional Engineer # 31242
Florida Evaluation ANE ID: 1916
Project Manager: Diana Galloway
Report No. 22-525-SS-G4-hz-ER.2
(Revises 20-230-SS-G4-HVHZ-ER, FL21074.4 R6, R7)
Date: 2/14/2024

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1.0 Manufacturer: **SOLAR STACK INC.**
1071 SW 30th Avenue
Deerfield Beach, Florida 33442
(561) 276-9745
https://solarstack.com/

2.0 Product:

2.1 Product Name: "SOLAR STACK"

2.2 Product Description: Roof Solar Mounting Pedestal

3.0 Evaluation Scope:

3.1 Compliance with the following

Florida Building Code 8th Edition (2023), High Velocity Hurricane Zone (HVHZ)
Florida Building Code 8th Edition (2023), Outside High Velocity Hurricane Zone (Non-HVHZ)

3.2 Evaluation Method:

Florida Product Approval Rule: Method 2
Per Florida Administrative Code 61G20-3.005 (2) (b)

3.3 Evaluation Classification:

Category: Roofing
Subcategory: Roofing Accessories that are an Integral part of the Roofing System

3.4 Properties Evaluated

Structural (Wind Resistance) Properties: for one load path connection

3.5 Limits of Evaluation:

This product assembly evaluation is limited to compliance with section 3.1 to section 3.4 of this report.

4.0 Evaluated Uses:

SOLAR STACK INC. "SOLAR STACK" is used as a roof solar mounting pedestal,
Adhered to the Top of approved adhesives listed in this report.

5.0 Product Assembly Description:

5.1 General:

The SOLAR STACK INC. "SOLAR STACK" roof solar mounting pedestals are aluminum roof solar mounting pedestals that are adhered to the Top of foam adhesives list in this report.

6.0 Connection Assembly as Evaluated:

"SOLAR STACK" pedestal
Adhered to Top of Foam Adhesive

7.0 One Structural Connection Performance:

7.1 Uplift Resistance:

Table 7.1
SOLAR STACK attached to Adhesive
Ultimate Uplift Resistance Loads (LBF)[1,2]

#	Uplift Load applied to the Top of "SOLAR STACK" Assembly (90° To Roof Surface)				
	Adhesive Type:	Pedestal Size: (Length)	Paddy Dimensions: (minimum)	Paddy Weight: Per pedestal (nominal)	Ultimate Load **Tension** (LBF)[1,2]
1	ICP AH-160 Blue	12"	4" dia. x 12" long x 1" high	83.6 grams	**-1025**
2	ICP AH-160 Blue	8"	4" dia. x 8" long x 1" high	51.7 grams	**-758**
3	ICP AH-160	6"	5"- 6" dia. x 6" long x 1-1/2" high	57.3 grams	**-600**
4	ICP AH-160	4"	4" dia. x 4" long x 1" high	49.9 grams	**-325**
5	DAP Stormbond 2 (fka Touch 'N Seal Storm Bond 2)	8"	6" dia. x 8" long x 1-1/2" high	44.2 grams	**-750**
6	DAP SmartBond	8"	6" dia. x 8" long x 1-1/2" high	49.5 grams	**-575**
7	DUPONT Tile Bond	12"	4" dia. x 12" long x 1" high	50.1 grams	**-1233**
8	DUPONT Tile Bond	8"	6" dia. x 8" long x 1-1/2" high	35.5 grams	**-875**
9	ICP APOC Polyset RTA-1	8"	5" dia. x 8" long x 1-1/2" high	47.3 grams	**-882**
10	ICP APOC Polyset RTA-1	6"	5" dia. x 6" long x 1-1/2" high	40.4 grams	**-432**
11	ICP APOC Polyset RTA-1	4"	5" dia. x 4" long x 1-1/2" high	27.1 grams	**-320**

Notes:
1. Ultimate Loads (LBF) with 0 margin of safety applied to the test loads.
2. Assembly was tested for vertical up.

8.0 Performance Standard:

The following Modified Test Standard was used to demonstrate compliance with the intent of the code per Method 2 of the Florida Administrative Code FAC 61G20-3005 (2) (b).

Modified-TAS 114-11 – *Test Procedure for Simulated Uplift Pressure Resistance of Adhered Roof System Assemblies. Testing Application Standard, (TAS) 114-95, Appendix D,*

Primary modifications;

The product tested was not a roof assembly.

The product was tested for one structural connection: Pedestal base to top of adhesive.

The intent of the test was to provide design load path resistance of a structural connection.

9.0 Code Compliance:

The product assembly described herein has demonstrated compliance with the intent of the Florida Building Code 8th Edition (2023), Section 1708.2.

10.0 Limitations and Conditions of Use:

10.1 This report evaluates the solar pedestal adhered to top of foam adhesive. This report is intended to be part of a complete load path design. Structural capacities of the bottom side of adhesive patty, other components and systems need to be combined for code wind design. Attachment to the top plate of the "SOLAR STACK" pedestal is outside the scope of this report.

10.2 Design of the roof adhesive to the building structure is outside the scope of this report.

10.3 Assembly was not evaluated for lateral loads.

10.4 Scope of "Limitations and Conditions of Use" for this evaluation:
This evaluation report for "State Approval" contains technical documentation, specifications and installation method(s) which include "Limitations and Conditions of Use" throughout the report in accordance with Rule 61G20-3.005. Per Rule 61G20-3.004, the Florida Building Commission is the authority to approve products under "State Approval".

10.5 This report is a building code product evaluation per FLPE rule (FAC) 61G15-36 to comply with Florida product approval rule (FAC) 61G20-3. This evaluation report is part of the Florida Building Commission approval for the listed code related criteria. This report by James Buckner, P.E. and CBUCK Engineering is not a design certification of code compliance construction submittal documentation, per FBC section 107, for any individual structure, site specific or permit design.

10.6 All metal components and fasteners shall be corrosion resistant in accordance with applicable sections of FBC, including but not limited to Sections 1504.3.2, 1506.6 and 1507.4.4. For HVHZ areas, all roofing accessories shall comply with FBC Sections 1517.5 and 1517.6.

10.7 Fire Classification is outside the scope of Rule 61G20-3 and is therefore not included in this evaluation.

10.8 All pedestals shall be permanently labeled with the manufacturer's name and/or logo, and/or model.

10.9 This evaluation report approves the product assembly as described in this report for use in the High Velocity Hurricane Zone (HVHZ) code section. (Dade & Broward Counties)

10.10 Option for application outside "Limitations and Conditions of Use"
Rule 61G20-3.005(1)(e) allows engineering analysis for "project specific approval by the local authorities having jurisdiction in accordance with the alternate methods and materials authorized in the Code". Any modification of the product as evaluated in this report and approved by the Florida Building Commission is outside the scope of this evaluation and will be the responsibility of others.

11.0 Quality Assurance:

The manufacturer has demonstrated compliance of products in accordance with the Florida Building Code and Rule 61G20-3.005 (3) for manufacturing under a quality assurance program audited by an approved quality assurance entity through Keystone Certifications, Inc., (FBC Organization #QUA ID:1824).

12.0 System/Components

12.1 "SOLAR STACK" Solar Pedestal

Attachment of solar panels to SOLAR STACK solar pedestals is outside the scope of this evaluation and shall be designed by others.

12.1.1 "SOLAR STACK" Solar Pedestal

Material Specifications:

Type:	Aluminum
Thickness:	0.095" (min.)
Alloy Type:	6005A T5

12.1.2 "SOLAR STACK" Solar Pedestal Sizes:

12.1.2.1 4" SOLAR STACK" Solar Pedestal

Overall Product Dimensions:

Length:	4.00 in.
Width:	5.00 in.
Height:	4.50 in.

12.1.2.2 6" SOLAR STACK" Solar Pedestal

Overall Product Dimensions:

Length:	6.00 in.
Width:	5.00 in.
Height:	4.50 in.

12.1.2.3 8" SOLAR STACK" Solar Pedestal

Overall Product Dimensions:

Length:	8.00 in.
Width:	5.00 in.
Height:	4.50 in.

12.1.2.4 12" SOLAR STACK" Solar Pedestal

Overall Product Dimensions:

Length:	12.00 in.
Width:	5.00 in.
Height:	4.50 in.

12.2 Roof Foam Adhesive:

Adhesion of "SOLAR STACK" system to top of foam adhesive shall have the following minimum characteristics and be in compliance with this report, FBC Chapter 15, applicable code sections, product approvals, and in accordance with roof adhesive manufacturer's limitations and recommendations.

12.2.1 Adhesive Option 1:

Product Name:	Polyset AH-160
Manufactured by:	ICP Adhesives and Sealants, Inc.
Type:	Two-Component Adhesive
Material:	Polyurethane froth
Current Approvals:	Florida Building Code: FL#6332.1 R10
	Miami-Dade County: NOA# 22-0614.10

12.2.2 Adhesive Option 2:

Product Name:	Polyset AH-160 Blue
Manufactured by:	ICP Adhesives and Sealants, Inc.
Type:	Two-Component Adhesive
Material:	Polyurethane froth
Current Approvals:	Florida Building Code: FL#6332.1 R10
	Miami-Dade County: NOA# 22-0614.10

12.2.3 Adhesive Option 3:

Product Name:	Storm Bond 2K
Manufactured by:	DAP Products, Inc.
Type:	Two-Component Adhesive
Material:	Polyurethane froth
Current Approvals:	Miami-Dade County: NOA# 21-0928.02

12.2.4 Adhesive Option 4:

Product Name:	Storm Bond
Manufactured by:	DAP Products, Inc.
Type:	Single-Component Adhesive
Material:	Polyurethane froth
Current Approvals:	Florida Building Code: FL#14506.1
	Miami-Dade County: NOA# 21-0928.04

12.2.5 Adhesive Option 5:

Product Name:	Tile Bond
Manufactured by:	DuPont de Nemours, Inc.
Type:	Single-Component Adhesive
Material:	Polyurethane froth
Current Approvals:	Florida Building Code: FL#22525.1 R7
	Miami-Dade County: NOA# 22-0614.05

12.2.6 Adhesive Option 6:

Product Name:	APOC Polyset RTA-1
Manufactured by:	ICP Adhesives and Sealants, Inc.
Type:	Single-Component Adhesive
Material:	Polyurethane froth
Current Approvals:	Florida Building Code: FL#6276.1
	Miami-Dade County: NOA# 22-0618.08

13.0 Installation Method:

"SOLAR STACK" Pedestal to Top of Roof Adhesive:

Install the "SOLAR STACK" Solar Pedestal into the paddy of roof foam adhesive per above Table 7.1. SOLAR STACK Pedestals shall be firmly pressed into adhesive so that pedestal base and base perimeter is encapsulated in adhesive. (Refer to Table 7.1 and drawings at the end of this evaluation report.)

1. **Apply Roof adhesive:**
   Adhesive Type: **Refer to Table 7.1**
   Paddy weight: **Refer to Table 7.1**
   Adhesive Size: **Refer to Table 7.1**
   Paddy placement of roof tile adhesive shall be applied on clean, dry approved surface.
2. **"SOLAR STACK" Solar Pedestal**
   Install the "SOLAR STACK" Solar Pedestal into the paddy of Adhesive.
   Pedestal Size: **Refer to Table 7.1**

The SOLAR STACK INC. "SOLAR STACK" solar roof pedestal shall be installed in compliance with the installation method listed in this report and applicable code sections of FBC 8th Edition (2023). The installation method described herein is in accordance with the scope of this evaluation report. Refer to manufacturer's installation instructions as a supplemental guide.

14.0 Evaluation Reference Data:

14.1 Modified TAS 114-95 Appendix D Uplift Test
By American Test Lab of South Florida (ATL) (FBC Organization #TST ID: 3782)
Report #: 1215.01.21, Dated: 12/22/21 (Syst 1,2)

14.2 Modified TAS 114-95 Appendix D Uplift Test
By American Test Lab of South Florida (ATL) (FBC Organization #TST ID: 3782)
Report #: 0222.02-19, Dated: 2/26/19 (Syst 5)

14.3 Modified TAS 114-95 Appendix D Uplift Test
By American Test Lab of South Florida (ATL) (FBC Organization #TST ID: 3782)
Report #: 0309.01-23, Dated: 3/15/23 (Syst 9)

14.4 Modified TAS 114-95 Appendix D Uplift Test
By American Test Lab of South Florida (ATL) (FBC Organization #TST ID: 3782)
Report #: 1105.01-21, Dated: 11/13/21 (Syst 7,8)

14.5 Modified TAS 114-95 Appendix D Uplift Test
By American Test Lab of South Florida (ATL) (FBC Organization #TST ID: 3782)
Report #: 0712.01-23, Dated: 7/17/23 (Sys 10,11)

14.6 Modified TAS 114-95 Appendix D Uplift Test
By American Test Lab of South Florida (ATL) (FBC Organization #TST ID: 3782)
Report #: 1003.01-22, Dated: 10/7/22 (Syst 3,4 12)

14.7 Quality Assurance
By Keystone Certifications, Inc., (FBC Organization #QUA ID:1824)
SOLAR STACK INC, Licensee #: 448
(FBC Organization #QUA ID:1824)

14.8 Engineering Analysis
By James L. Buckner, P.E. @ CBUCK Engineering
(FBC Organization # ANE 1916)

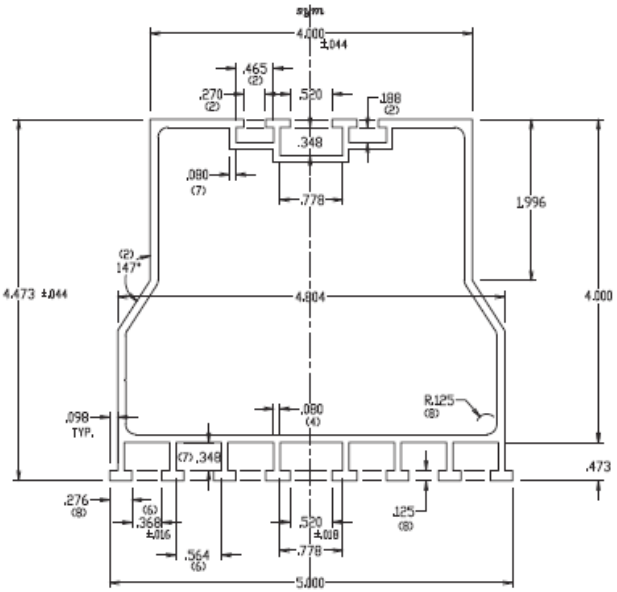
14.9 Test Standard Equivalency
By James L. Buckner, P.E. @ CBUCK Engineering
(FBC Organization # ANE 1916)

14.10 Letter Re: Product Name Change
By Tim Graboski with Ridged Systems LLC, dated 11/20/2018

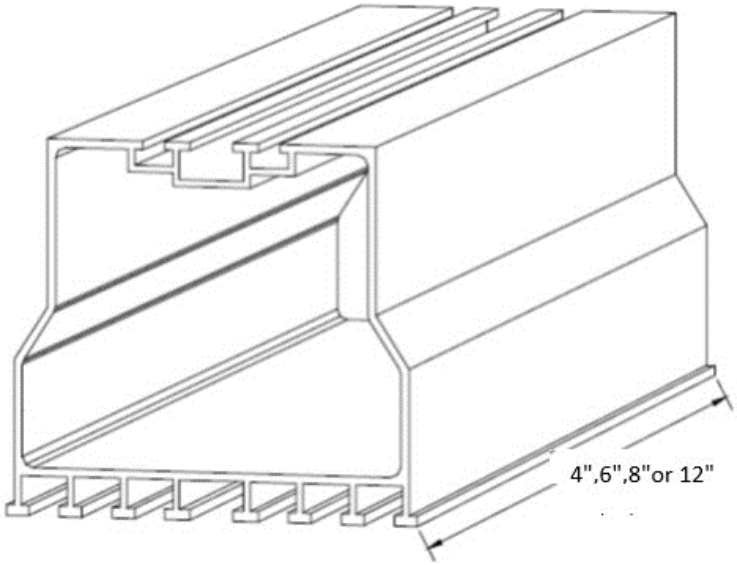
14.11 Letter Re: Manufacture Name Change
By Tim Graboski with Ridged Systems LLC, dated 06/23/2023

14.12 Certification of Independence
By James L. Buckner, P.E. @ CBUCK Engineering
(FBC Organization # ANE 1916)

Installation Method
SOLAR STACK INC.
"SOLAR STACK" Roof Pedestal

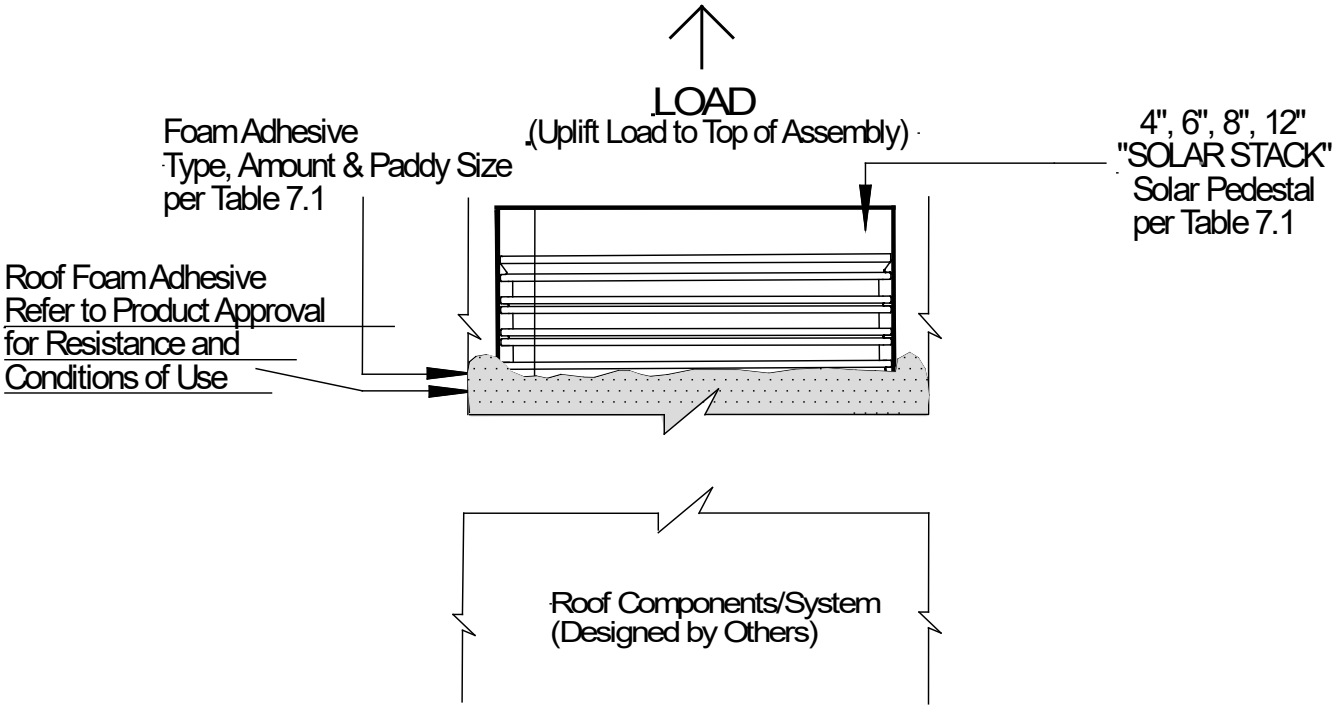


"SOLAR STACK "
Typical Profile View



"SOLAR STACK "
Isometric Profile View

Installation Method
SOLAR STACK INC.
"SOLAR STACK" Roof Pedestal



Typical Assembly
Section View