

June 29, 2023

EcoFasten  
4141 West Van Buren St.  
Phoenix, AZ 85009

Attn: John Hudson, Senior Director of Engineering, EcoFasten

**Re:** EcoFasten *CorruSlide* Allowable Capacity

This letter certifies the structural capacity of EcoFasten's *CorruSlide* for use as a roof attachment with flush mounted PV solar systems on corrugated metal roofs. *Corruslide* is a three-piece aluminum mount that is attached to a corrugated metal roof using five ¼" self-tapping screws. Full assembly details and component dimensions are shown in Exhibit A.

The stated capacities in this letter apply to the assembly of *Corruslide* when used with a compatible bracket with no consideration of the connection of the assembly to the above supported solar system. The capacities are based on mechanical load testing using a Universal Test Machine or by using structural design code based analysis. The testing and analytical work conform to the following building codes and design standards:

ASTM B 557-10, Standard Test Method for Tension Testing Wrought and Cast Aluminum and Magnesium-Alloy Products

ASTM D1761-06 "Standard Test Methods for Mechanical Fasteners in Wood."

ICC-AC428, Acceptance Criteria for Modular framing Systems Used to Support Photovoltaic (PV) Modules

AISI S100-16, North American Specification for the Design of Cold-Formed Steel Structural Members

ADM 2020, The Aluminum Association Aluminum Design Manual

The structural capacities of *CorruSlide* are reviewed along the uplift and lateral load directions, on three different metal roof thicknesses as shown in Fig. 1. The capacity ratings are based on structural load tests performed by PFS Laboratory Services, PFS Test report 14-122 R1 and by analytical methods. For each load test, *CorruSlide* was installed onto a sample roof deck composed of a 24 or 26 gauge galvanized metal panel which was attached to 3/4" plywood. For 28 gauge metal sheathing structural capacities of *CorruSlide* are reviewed analytical per AISI S-100-16.

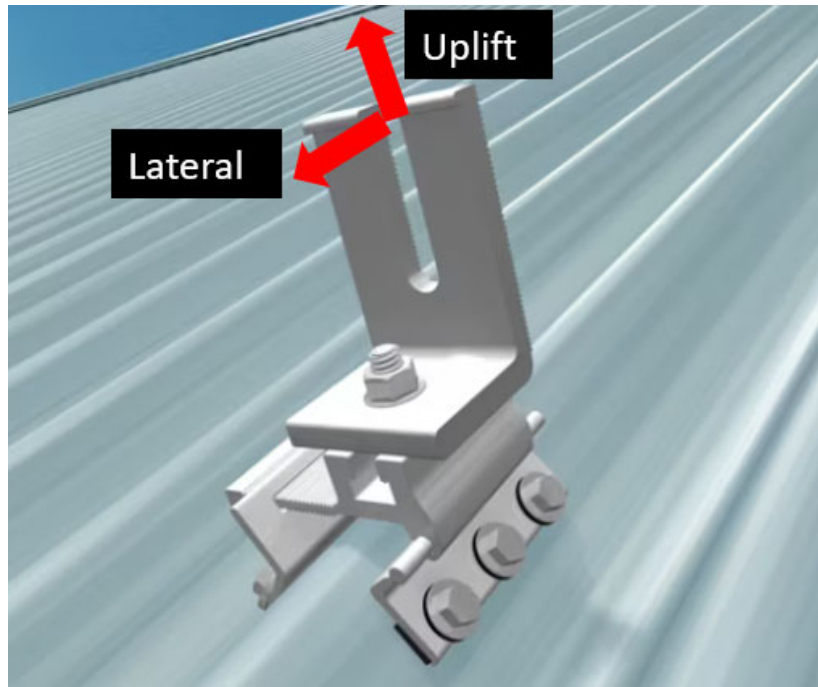


Figure 1

For each load direction reported for the CorruSlide assembly shown in Figures 1, the tabulated nominal capacities based on mechanical load testing were the average of peak loads observed in the specified load direction. The witnessed ultimate failure mode was also documented accordingly. The calculated nominal resistances per analysis are defined by the referenced structural code for the most critical failure mode described in the table below. The safety factor provided is associated with the reported failure mode and used to derive the allowable capacity for the specified load direction.

Please note the results of the test and analytical investigations described herein were based on load tests or analysis performed on CorruSlide as a stand-alone roof attachment. The certified capacities in table 1 shall be used when all EcoFasten provided components are installed with no generic replacement parts. It is not the intention of this letter to rate or certify the selected system level performance or structural components other than those specifically delineated in this letter. This evaluation excludes the structural adequacy of the chosen PV modules, or underlying roof supporting members. For those, it shall be the responsibility of the designated system designer or project engineer to verify the structural capacity and adequacy regarding the applied or resultant loads of the chosen array configuration.

Table 1: EcoFasten CorruSlide Capacities <sup>(1)</sup>						
Corrugated Roof Gauge	Load Direction <sup>(2) (3)</sup>	Critical Failure Mode	Safety Factor <sup>(4)</sup>	Avg Ultimate Capacity per Load Test (lb.)	Avg Ultimate Capacity per analysis (lb.)	Allowable Capacity (lb.) <sup>(5)</sup>
24	Uplift	Base metal Shear	3.0	848	-	283
	Lateral	Base metal Shear	3.0	673	-	224
26	Uplift	Base metal Shear	3.0	731	-	244
	Lateral	Base metal Shear	3.0	496	-	165
28	Uplift	Base metal Shear	3.0	-	630	210
	Lateral	Base metal Shear	3.0	-	360	120

Table Notes

(1) Capacities apply to the EcoFasten CorruSlide attached to 24, 26 or 28 Ga corrugated metal roof with a minimum yield stress of 33ksi, installed using (5) ¼” screws per the EcoFasten CorruSlide Installation Manual.

(2) The uplift direction is upward perpendicular to the roof surface.

(3) The lateral direction is parallel to the roof surface, is applicable both down slope and cross slope and acts at the CorruSlide interface with a compatible bracket. Lateral load shall be reduced for eccentricity of chosen solar attachment bracket.

(4) Safety Factor is associated with the respective failure mode recorded and determined by AISI S100-16

(5) Allowable Capacity is equal to Average Ultimate Capacity divided by its associated Safety Factor.

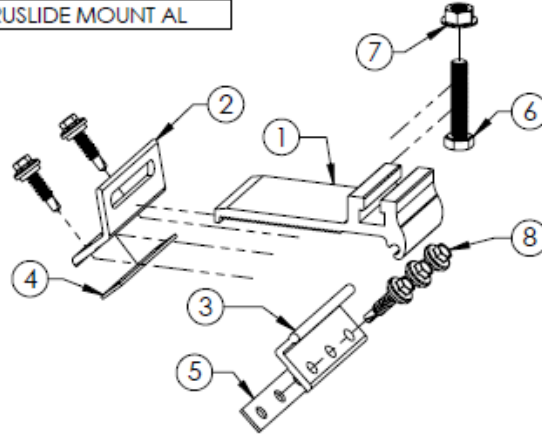
Sincerely,

Matthew S Kuzila, PE

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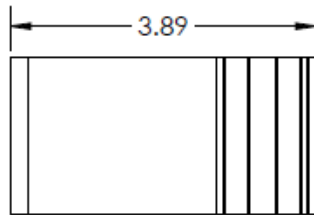
## Exhibit A

PART NUMBER	DESCRIPTION
3014010	CORRUSLIDE MOUNT AL

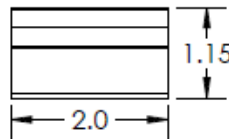


ITEM NO.	DESCRIPTION
1	CORRUSLIDE-TOP-LONG
2	SLOT BRACKET-SIMPLIFIED MACHINING OPERATION
3	CORRUSLIDE-FLIPPER MACHINING OPERATION
4	EPDM GASKET SEAL
5	EPDM GASKET SEAL CORRUSLIDE FLIPPER
6	SS HEX HD CAP SCREW, FULL THREAD, 5/16-18UNC X 1.50 LONG
7	SS SERRATED FLANGE LOCK NUT, 5/16-18
8	1/4"-14 X 7/8" DP1/LAP W/VRT BLAZER STAINLESS CAP HEAD W/ SEALING WASHER

### 1) CORRUSLIDE-TOP-LONG

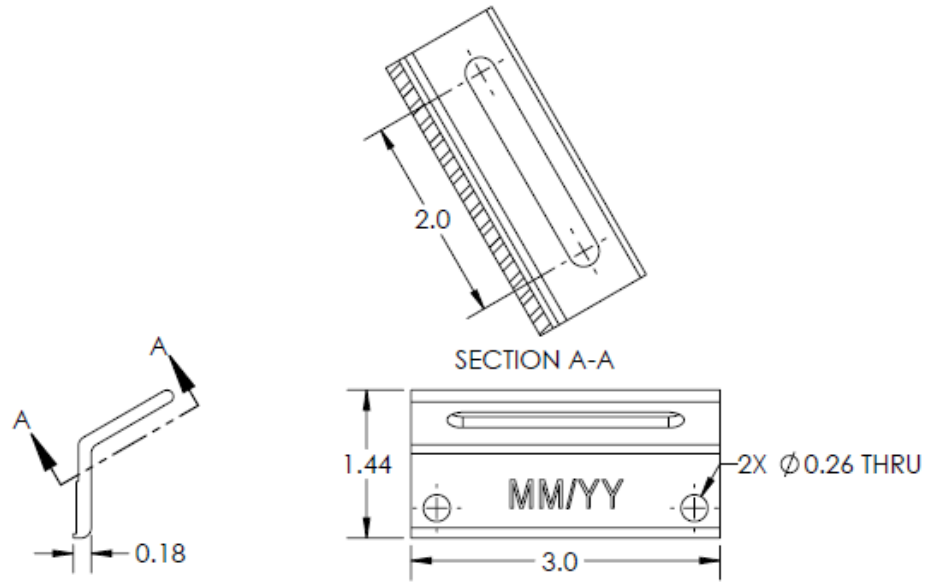


Material	Aluminum
Finish	Mill



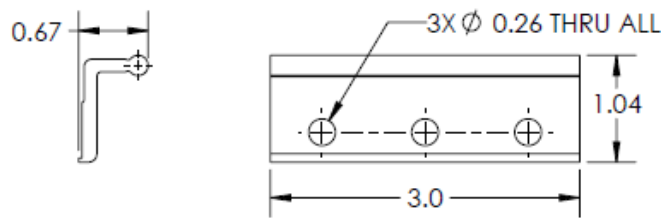
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2) SLOT BRACKET-SIMPLIFIED MACHINING OPERATION



Material	Aluminum
Finish	Mill

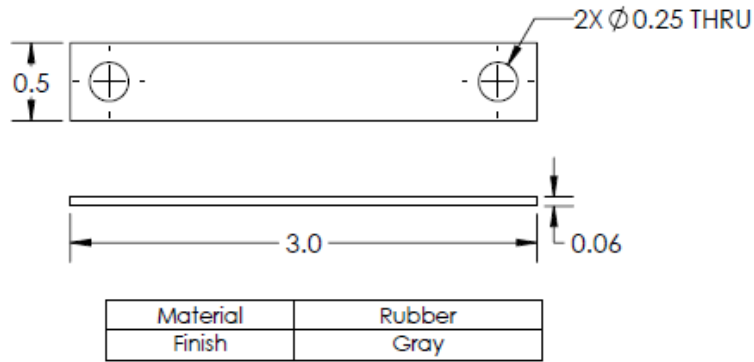
3) CORRUSLIDE-FLIPPER MACHINING OPERATION



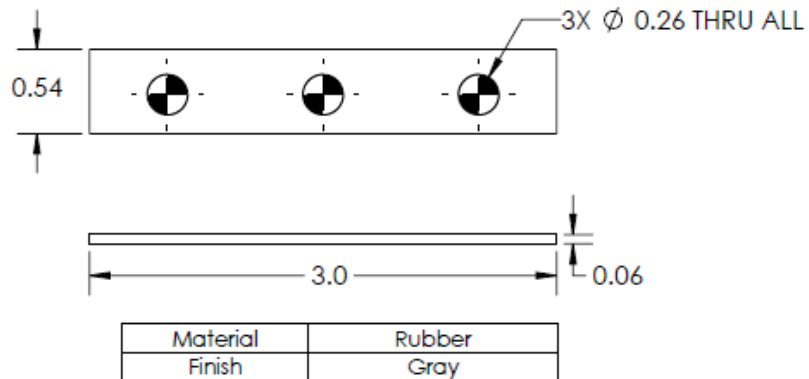
Material	Aluminum
Finish	Mill

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4) EPDM GASKET SEAL

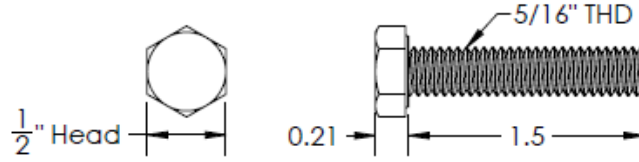


5) EPDM GASKET SEAL CORRUSLIDE FLIPPER



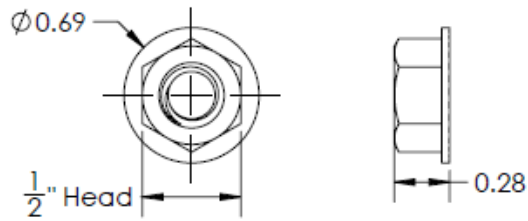
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6) SS HEX HD CAP SCREW, FULL THREAD, 5/16-18UNC X 1.50 LONG



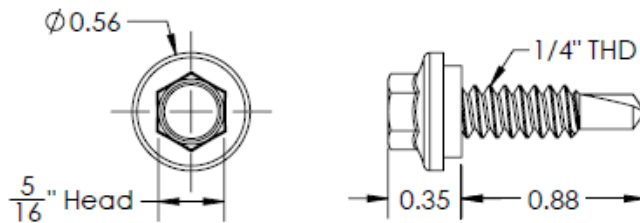
Material	Stainless Steel
Finish	Mill

7) SS SERRATED FLANGE LOCK NUT, 5/16-18



Material	Stainless Steel
Finish	Mill

8) 1/4"-14 X 7/8" DP1/LAP W/VRT BLAZER STAINLESS CAP HEAD W/ SEALING WASHER



Material	Stainless Steel
Finish	Mill

REV.- CS1