



June 28, 2023

EcoFasten
4141 West Van Buren St.
Phoenix, AZ 85009
TEL:

Attn.: Engineering Department

Re: Engineering Certification for the EcoFasten – SimpleBlock

Ecofasten – Simple Block

The SimpleBlock is an extruded aluminum clamp intended to secure PV modules to existing standing seam roofs.

PZSE, Inc. – Structural Engineers has reviewed the Ecofasten - SimpleBlock and specifically the Martin Testing Laboratories – *Standing Seam PV Mount* tests (MJO: 3888-01) for Uplift and Lateral strength. This letter certifies the allowable capacities for EcoFasten - SimpleBlock and all information, data and analysis within follows the structural requirements of the following Reference Documents:

1. Minimum Design Loads for Buildings and other Structures, ASCE/SEI 7-10/7-16
2. 2015, 2018, & 2021 International Building Code, by International Code Council, Inc
3. 2022 California Building Code, by the California Building Standards Commission
4. AC 428, Acceptance criteria for modular framing systems used to support Photovoltaic (PV) Panels.

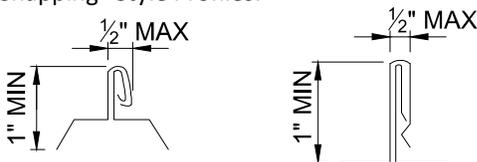
Standing Seam Roof Profiles & Limitations

The EcoFasten- Simple Block may be attached to any standing seam roof (“Folding” Styles Profile, “Snapping” Style Profiles, etc.) where the vertical seam height is at least 1.0” and the horizontal seam width is a maximum of 0.5”.

“Folding” Styles Profiles:



“Snapping” Style Profiles:





The Ultimate Load Values based on the Martin Testing Laboratories Uplift and Lateral tests and adjusted per the Reference Documents listed above are as follows:

Table 1: EcoFasten - SimpleBlock Ultimate and Allowable Values for uplift, lateral-normal to the seam and lateral-parallel to the seam

EcoFasten SimpleBlock		Ultimate Values			Allowable Values ^{1,2}		
Standing Seam Profile	GA. Thickness	Uplift Z+, lbs	Lateral - Normal to the seam Y+/-, lbs	Lateral - Parallel to the seam X +/-, lbs	Uplift Z+, lbs	Lateral - Normal to the seam Y+/-, lbs	Lateral - Parallel to the seam X +/-, lbs
"Folding" Style	22	1500	300	600	750	120	240
	24	1500	200	600	750	80	240
	26	1000	200	600	500	80	240
"Snapping" Style	24	862	500	825	431	200	330
	26	862	350	425	431	140	170
Other ³	24	300	100	80	150	40	32

1. The Allowable Values are applicable to the PV system with a Module height not exceeding 6" from the roof surface.
2. The Allowable Values utilize the Factor of Safeties listed in Table 2. It is the responsibility of the designer to employ a factor of safety appropriate for the project.
3. Standing seam roof profiles not shown that meet the dimensions limitations may use the ultimate load values for 'Other'.

Table 2: Manufacturer's Recommended Minimum Factor of Safety

Manufacturer's Recommended Minimum Factor of Safety, Ω	Uplift	Lateral – Normal to seam	Lateral – Parallel to seam
	2.0	2.5	2.5

Failure Modes

Table 3: Summary of Failure Modes

Standing Seam Profile:	Uplift	Lateral – Normal to Seam	Lateral – Parallel to Seam
"Folding" Style	Tearing/yielding of the seam	Breakage of a clamp component	Tearing/yielding of the seam
"Snapping" Style	Tearing/yielding of the seam	Breakage of a clamp component	Tearing/yielding of the seam



Designer Responsibility

The EcoFasten- SimpleBlock standing seam roof clamp is intended to be used under the responsible charge of a registered design professional where required by the authority having jurisdiction. In all cases, the Ultimate Values shall be reduced by an appropriate Factor of Safety under the direction of a design professional with sufficient structural engineering knowledge and experience to be able to:

- Evaluate whether the SimpleBlock is applicable to the project, based on the characteristics of the project, and
- Understand and determine the appropriate environmental loading conditions.

The user or design professional in responsible charge assumes full design responsibility. Refer to the Manufacturer's Installation manual for more information.

The capacity of the building structure to support the loads imposed on the building by the SimpleBlock including the fasteners, attachment to underlying structure, and the capacity of the underlying members are outside the scope of this certification. This capacity of the building is outside the scope of our review.

If you have any questions on the above, do not hesitate to call.

Prepared By:
PZSE, Inc – Structural Engineers
Roseville, CA

DIGITALLY SIGNED

