March 1, 2024

K2 Systems, LLC
4665 North Ave Suite G
Oceanside, CA 92056

RE: ***Splice Foot XL Deck Mounting Evaluation***

To whom it may concern:

Per your request, Moment Engineering + Design has performed a comprehensive structural review of the K2 Systems Splice Foot XL in Deck Mounting scenarios. When installed per the conditions and design criteria described herein, the Splice Foot XL specified is compliant with the applicable sections of the design reference documents noted below.

Design Reference Documents

- ASCE/SEI 7-16 & 7-10 – *Minimum Design Loads for Buildings and Other Structures*
- AA ADM - *2015 Aluminum Design* Manual, by the Aluminum Association
- 2018 NDS – *National Design Specification for Wood Construction*
- TT-051C – *Screw Withdrawal from the Face of APA-Trademarked Structural Panels*
- Technical Bulleting #11b -*Screw Fastener Capacities in OSB,* published by Premier SIPS, dated 6/15/11

Overview

The purpose of this analysis is to provide allowable shear, compression and tensile loads for the K2 Systems Splice Foot XL in various attachment configurations including deck mounting. K2 Systems has provided in-house load testing data of the K2 Splice Foot XL in shear, compression, and tension. Fastener analysis was completed to provide accurate allowable loads for the K2 Splice Foot XL in deck mounting configurations.

Moment Engineering + Design has reviewed the testing materials and reports provided by K2 Systems as well as applicable design codes and has derived allowable shear, compression and tensile loads per mounting configuration based on the results.

Methods & Design Parameters

Calculated allowable loads were based on the following data:

- *Section and materials data provided by K2 Systems*
- *Load/deflection test data provided by K2 Systems*

Section Properties

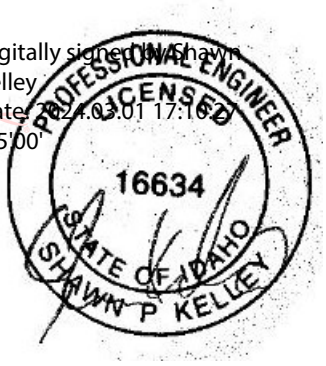
Tested assembly was based the following:

Property	Splice Foot XL
Sx (horizontal axis)	0.354 in^3
Sy (vertical axis)	0.425 in^3
A (x-Section)	1.299 in^2

We appreciate the opportunity to have assisted you with this project. Should you have any further questions regarding this analysis, please feel free to contact us by phone or email.
Best Regards,

Shawn Kelley

Digitally signed by Shawn Kelley
Date: 2024.03.01 17:16:27 -05'00'



Expires: 11/30/25

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Attachments:
1. Figure 1.1: Splice Foot XL – Force loading diagram
2. Table 1.1: Splice Foot XL – Deck Mounting Options

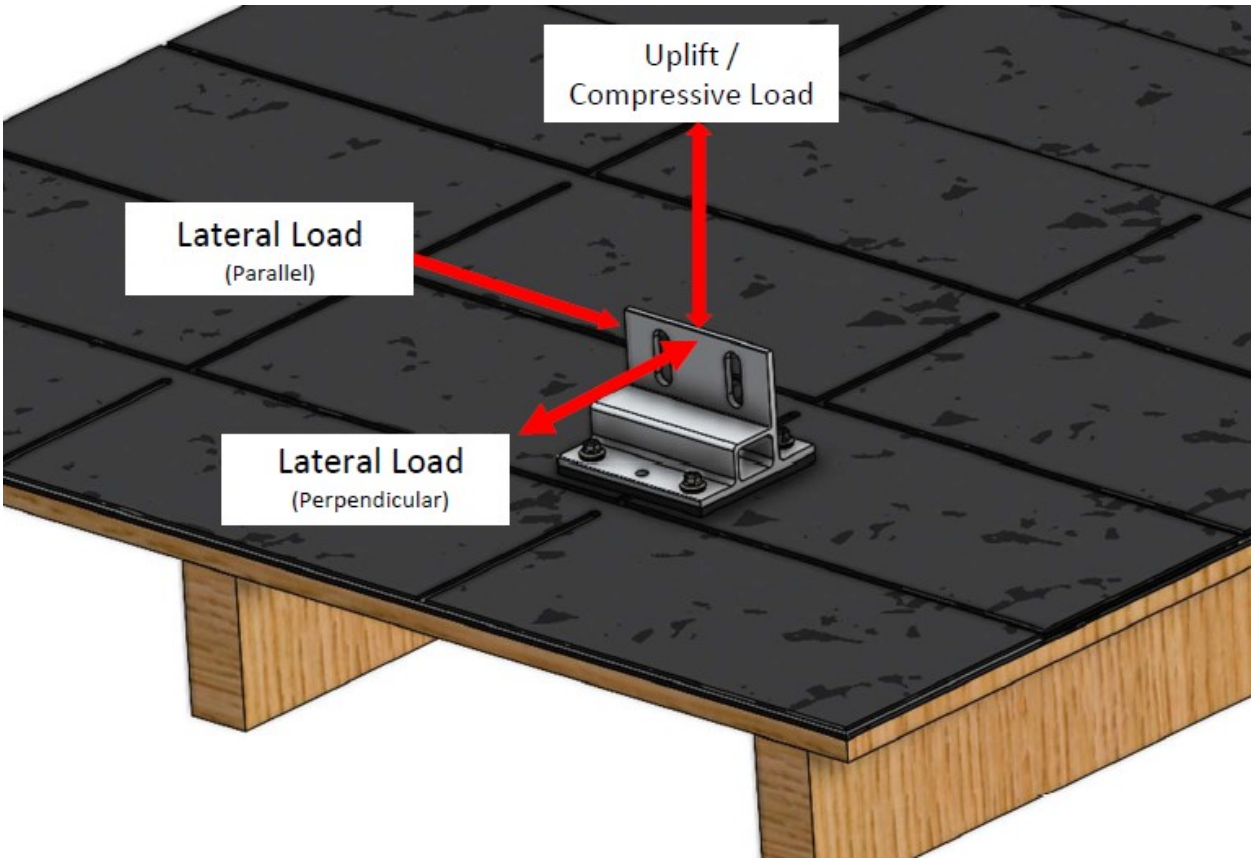
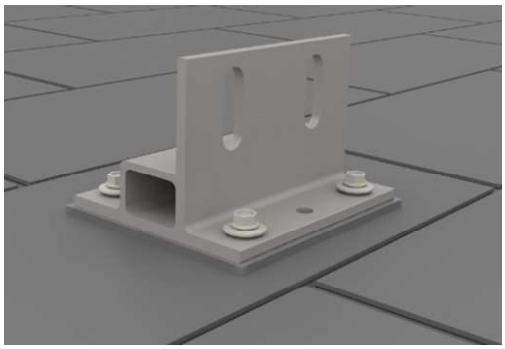


Figure 1.1: Splice Foot XL: Force Loading Diagram

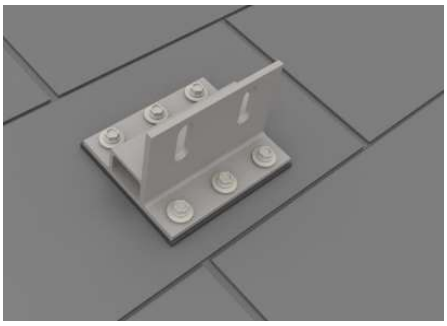
Table 1.1: Splice Foot XL - Deck Mounting Options

Bracket attached to 7/16" OSB sheathing (G=0.42) with (4) #10 wood screws fully embedded through OSB sheathing. Assumes min. 8" distance from all OSB panel edges and 24" O.C. maximum rafter spacing.

CONFIGURATION	ALLOWABLE LOADS[3,4]
	ALLOWABLE UPLIFT LOAD (LBS)[1]: 265 ALLOWABLE COMPRESSIVE LOAD (LBS.)[4]: 265 ALLOWABLE LATERAL LOAD (LBS)[1,2]: (PERPENDICULAR) 120 ALLOWABLE LATERAL LOAD (LBS)[1,2]: (PARALLEL) 125

1. Determined using NDS Eq. 12.2-2 with full thread engagement through 7/16" OSB. Includes 1.6 Cd for wind loads. Additional load duration factors may not be applied.
2. Allowable lateral load assumes worst case loading at top of slots. Additional load duration factors may not be applied.
3. Reference Figure 1.1 for load direction and application.
4. The effect of bolt slippage has not been evaluated.

Bracket attached to 7/16" OSB sheathing (G=0.42) with (6) #10 wood screws fully embedded through OSB sheathing. Assumes min. 8" distance from all OSB panel edges and 24" O.C. maximum rafter spacing.

CONFIGURATION	ALLOWABLE LOADS[3,4]
	ALLOWABLE UPLIFT LOAD (LBS)[1]: 375 ALLOWABLE COMPRESSIVE LOAD (LBS.)[4]: 375 ALLOWABLE LATERAL LOAD (LBS)[1,2]: (PERPENDICULAR) 180 ALLOWABLE LATERAL LOAD (LBS)[1,2]: (PARALLEL) 185

1. Determined using NDS Eq. 12.2-2 with full thread engagement through 7/16" OSB. Includes 1.6 Cd for wind loads. Additional load duration factors may not be applied.
2. Allowable lateral load assumes worst case maximum height above roof deck. Additional load duration factors may not be applied.
3. Reference Figure 1.1 for load direction and application.
4. The effect of bolt slippage has not been evaluated.