

ESDEC, INC.

UL441 TEST REPORT

SCOPE OF WORK

UL 441 TESTING ON ECOFASTEN'S CLICKFIT UNIVERSAL TILE HOOK ROOF ATTACHMENT

REPORT NUMBER

104962197LAX-003

ISSUE DATE

14-MARCH-2022

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SUMMARY REPORT

14-MARCH-2022

Intertek Report No.: 104962197LAX-003

Intertek Project No.: G104962197

Yann Schwarz
ESDEC, Inc.
28357 Industrial Blvd.
Hayward, CA 94545

Ph: 510 225-0973
Email: y.schwarz@us.esdecgroup.com

Subject: Project Summary of the Rain Testing per UL 441 on Ecofasten's Clickfit Universal Tile Hook Roof Attachment

Dear Mr. Yann Schwarz

Intertek was contracted by ESDEC, Inc. to perform testing in general accordance with UL 441 on Ecofasten's Clickfit Universal Tile Hook photovoltaic (PV) module roof attachment. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at ESDEC's test facility at 28357 Industrial BLVD, Hayward, CA 94545.

This letter report represents the summary of our evaluation of the above referenced product(s).

UL 441, Safety for Gas Vents, Section 27: Rain Test

This letter report does not constitute certification of this product or any opinion or endorsement by this laboratory. If there are any questions regarding the results contained in this report, or any of the other services offered by Intertek, please do not hesitate to contact your dedicated Intertek Project Manager.

Completed by:	Deep Vora	Reviewed by:	Samantha Doshi
Title:	Project Engineer	Title:	Reviewer
Signature:		Signature	
Date	March 14, 2022	Date:	March 28, 2022

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SUMMARY REPORT

SECTION 1

MATERIAL SOURCE/INSTALLATION

The test specimen was provided by the client. The specimen was installed onto a Spruce-Pine-Fir wood deck. The test deck measured 3' wide by 3' high and was constructed of #2 Spruce Pine Fir nominal 2x6 lumber. One stud was centered on deck for bolt attachment. The studs were attached to the top and bottom plates with 3" long drywall screws. A sheet of nominal 15/32" thick plywood was secured to the studs with #8 x 1-5/8" drywall screws. The test deck was then covered with #30 felt paper and nominal 1x2 wood battens spaced at 12" on center.

Description/Installation (Clickfit Tile Hook by Ecofasten): The test specimen was composed of an extruded aluminum base measuring 4" long by 3-1/2" wide with a 1-1/8" high leg. The bracket utilized a 1-1/8" long threaded bolt in the center of the leg with a 13/16" diameter rubber cone washer. The specimen was installed directly over the felt paper, centered over the 2x6 stud and secured with two 5/16" x 4" lag screws (without EPDM washer) through the center of the extrusion and into the rafter. Ratings obtained in this test are applicable to the alternate base with single 5/16" x 4" lag (4" long by 2" wide base).

Ecofasten Clickfit Tile Hook Part numbers covered by this test report are as follows:

Part Number	Description
2012026	CLICKFIT UNIVERSAL TILE HOOK

SECTION 3

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Jae Hendrickson	ESDEC, Inc.

SECTION 4

TEST RESULTS

The temperature during testing was 25°C (77°F). The results are tabulated as follows:

Test Specimen #1 (Clickfit Tile Hook by Ecofasten):

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Water Penetration, Per UL 441 - One hour of water spray	Pass	No leakage	1, 2

General Note: All testing was performed in accordance with the referenced standard(s).

Note 1: Tested at 2:12 pitch

Note 2: Test results are applicable for tile roofs having a slope of 2:12 or greater

SUMMARY REPORT

SECTION 5
PHOTOGRAPHS

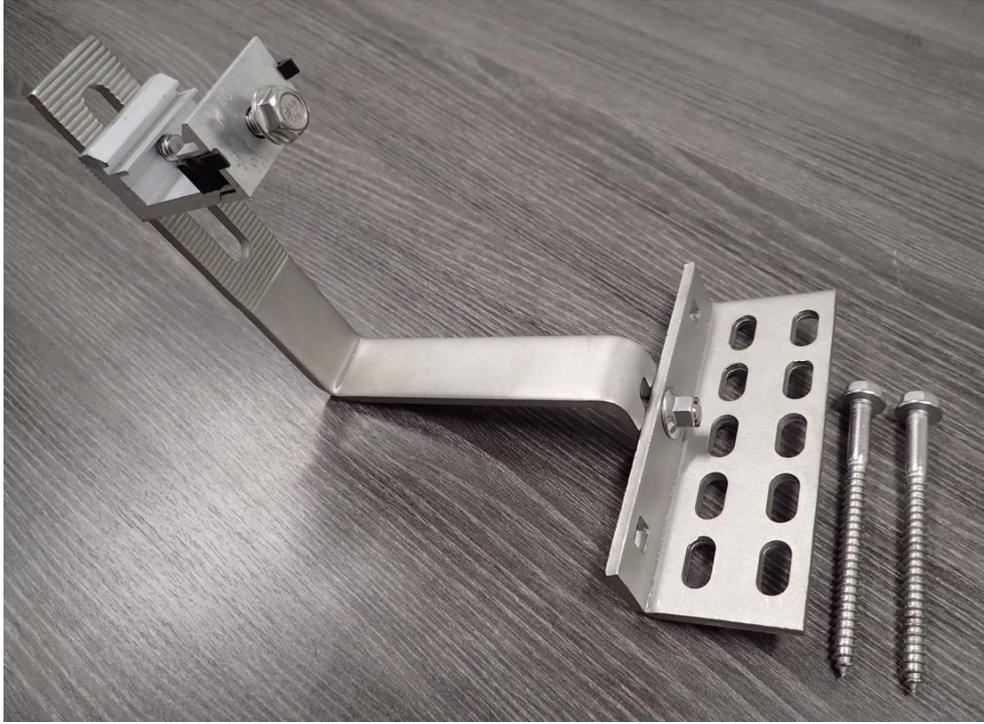


Photo No. 1

Unassembled Test Specimen (including 1 Clickfit Universal Tile Hook, 2 lag screws)



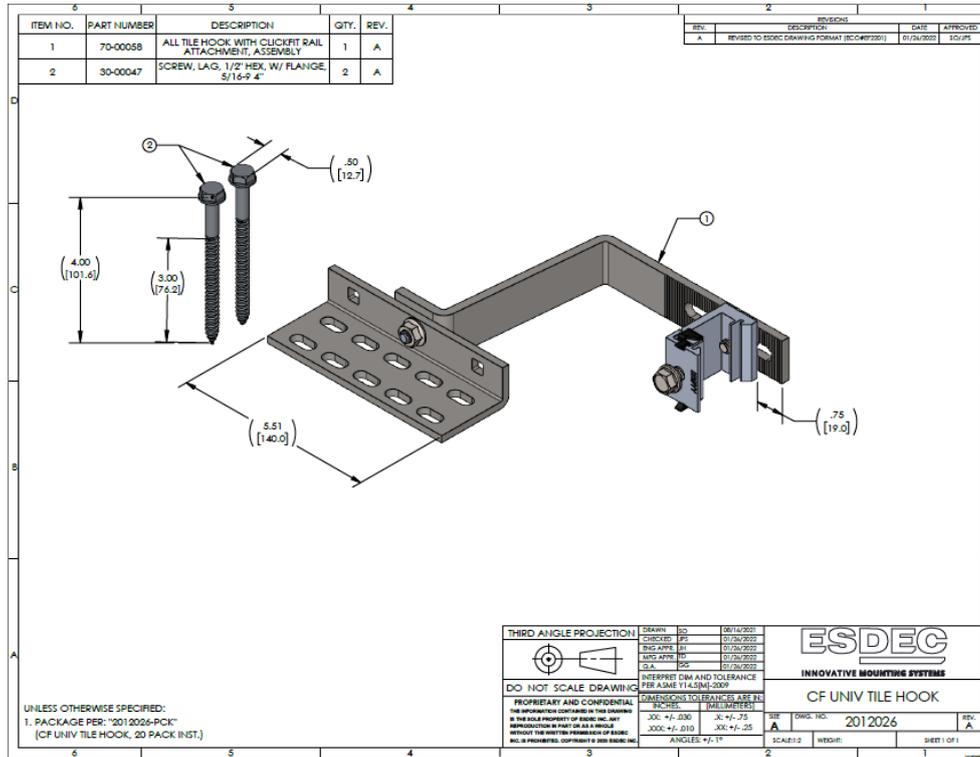
Photo No. 2

Test Specimen Under Test

SUMMARY REPORT

**SECTION 6
DRAWINGS**

The test specimen drawings have been reviewed by Intertek and are representative of the test specimen(s) reported herein. Any deviations are documented herein or on the drawings.



**Drawing No. 1
Ecofasten's Clickfit Universal Tile Hook**