

SOLAR ROOF HOOK – A DIVISION OF QUICKSCREWS INTERNATIONAL CORPORATION **TEST REPORT**

SCOPE OF WORK

WATER TESING ON LOW PROFILE QUICKBOLT, 5-1/4" WITH 3" WASHER

REPORT NUMBER

H4949.02-301-32 R1

TEST DATES

10/27/17 – 11/03/17

ISSUE DATE

11/08/17

REVISED DATE

11/30/17

RECORD RETENTION END DATE

11/03/22

PAGES

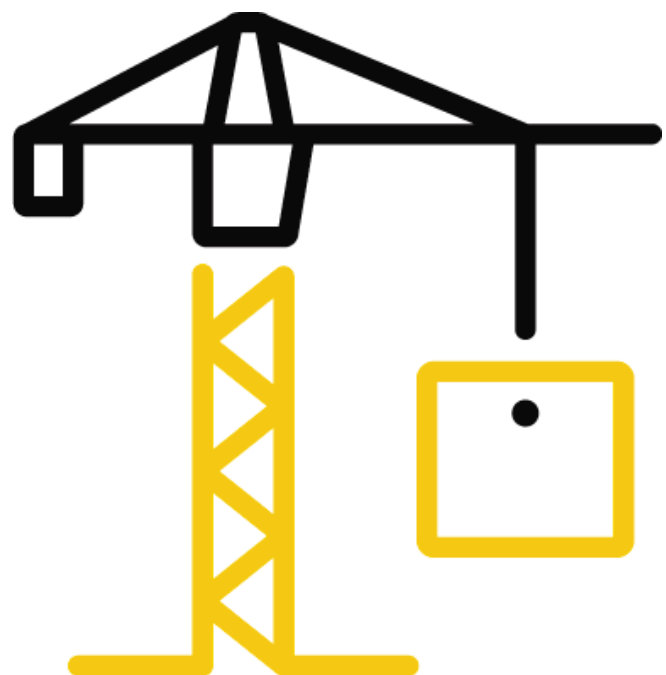
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DOCUMENT CONTROL NUMBER

ATI 00479 (07/24/17)

RT-R-AMER-Test-2805

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TEST REPORT FOR SOLAR ROOF HOOK – A DIVISION OF QUICKSCREWS INTERNATIONAL CORPORATION

Report No.: H4949.02-301-32 R1

Date: 11/30/17

REPORT ISSUED TO

SOLAR ROOF HOOK, A DIVISION OF QUICKSCREWS INTERNATIONAL CORP

5830 Las Positas Road

Livermore, CA 94551

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Quickscrews International Corporation, Livermore, CA to perform testing in accordance with ASTM E331, ASTM E331 (modified), and ASTM E2140 (modified), on their QuickBOLT with **three** inch HDPE backed washer. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at Intertek test facility in Fresno, CA

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

TITLE	RESULTS
ASTM E331 @ 15.00psf	No Leakage
ASTM E331 (modified), 120 min @ 30.0psf	No Leakage
ASTM E2124 (modified), 6" water column for 7 days	No Leakage

For INTERTEK B&C:

COMPLETED BY:	William Jay Ratliff	REVIEWED BY:	Tyler Westerling, P.E.
TITLE:	Structural Technician	TITLE:	Senior Project Engineer
SIGNATURE:	 Digitally Signed for: Jay Ratliff by Shannon Stein	SIGNATURE:	 Digitally Signed by: Tyler Westerling
DATE:	11/30/17	DATE:	11/30/17

WJR:ss

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SECTION 3

TEST METHODS

The specimens were evaluated in general accordance with the following:

ASTM E331-00(2016), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM E331-00(2016) - (modified), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*

Note: *the test time was extended beyond the time stated in the standard.*

ASTM E2140-01(2017) - (modified), *Standard Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head*

Note: *The test time was extended beyond the time stated in the standard.*

SECTION 4

INSTALLATION

Test specimen was provided by the client. Representative samples of the test specimens will be retained by Intertek B&C for a minimum of five years from the test completion date.

A test roof was constructed using 2 x 10 and 2 x 4 lumber with a piece of rigid, clear plastic over the top. The specimens were then installed through a piece of generic asphalt roof shingle according to the manufacturer's instructions with provisions to observe any water leakage.

SECTION 5

EQUIPMENT

Type	Manufacturer	Asset Number
Control Panel	Intertek-ATI	Y003301
Spray Rack	Intertek-ATI	63331

SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Tyler Westerling, P.E	Intertek B&C
William Jay Ratliff	Intertek B&C

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SECTION 7

TEST SPECIMEN DESCRIPTION

Product Type: Solar Panel Mounting Point for Asphalt Roofs

Name: QuickBOLT

Applicable Kit Numbers: 17666, 17667, 17668

COMPONENT	MATERIAL	DESCRIPTION
5.25 QuickBOLT (Part #17664)	Stainless Steel	5-1/4" overall length, stainless steel hanger bolt. One end was a 5/16" dia. X 4" Lag bolt, the other end was a 5/16 -18 bolt with a 6mm hex head. The ends of the bolt were separated by an integral 12mm dia. Flange.
Nut (Part # 15876)	Stainless Steel	5/16 – 18 Hex serrated flange nut.
Low Profile L-Foot (Part # 15894)	Aluminum	1-1/2 x 3-5/16" aluminium angle cut 1-1/2" wide. A 9mm countersunk hole was drilled on the bottom for mounting to the hanger bolt.
QuickBOLT Washer (Part # 17669)	Stainless Steel	3" diameter 1/32" thick dished washer painted and backed with a 1/8" thick layer of EDPM rubber. A 5/16" hole was punched through the center.

Optional/Alternative kit numbers: 17671, 17672, 17673, 17679, 17680, 17681, 17687, 17688

COMPONENT	PART NUMBER	DESCRIPTION
7 QuickBOLT	17670	7" QuickBOLT
8 QuickBOLT	17678	8" QuickBOLT
9 QuickBOLT	17686	9" QuickBOLT
L-Foot	15794	Low profile L-Foot, Black
L-Foot	15891	Aluminum offset L-Foot
L-Foot	15891blk	Aluminum offset L-Foot, Black

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SECTION 8
TEST RESULTS

The temperature during testing was 18-24°C (65-75°F). The results are tabulated as follows:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
ASTM E331 @ 15.0psf	No leakage	No Leakage	1
ASTM E331 (modified) @ 30.0psf	No leakage	No Leakage	2
ASTM E2140 (modified) @ 6" static water column	No leakage	No Leakage	3

Note 1: The test was conducted for a period of 15 minutes.

Note 2: The test was conducted for a period of 120 minutes.

Note 3: The test was conducted for a period of 7 days.

End of Test Results.

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SECTION 9 PHOTOS

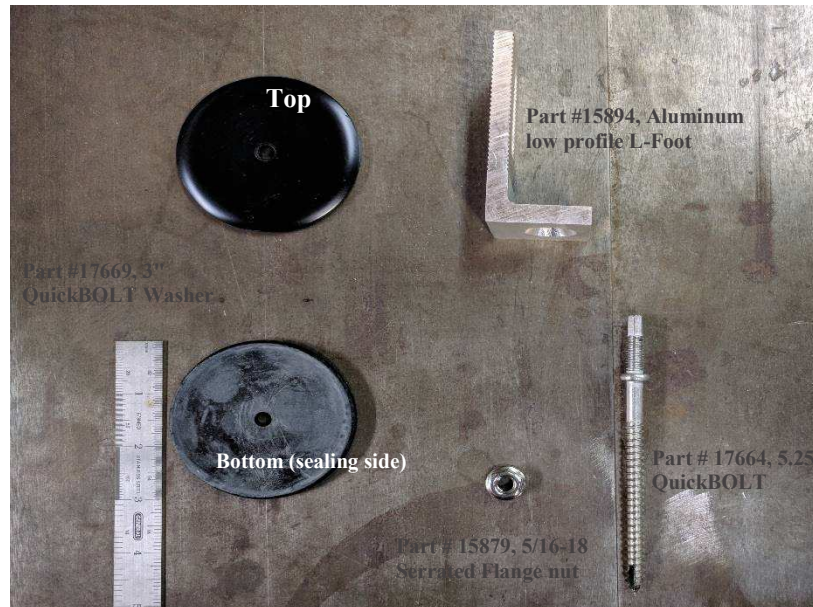


Photo No. 1

Contents of the kit tested (only includes one washer)

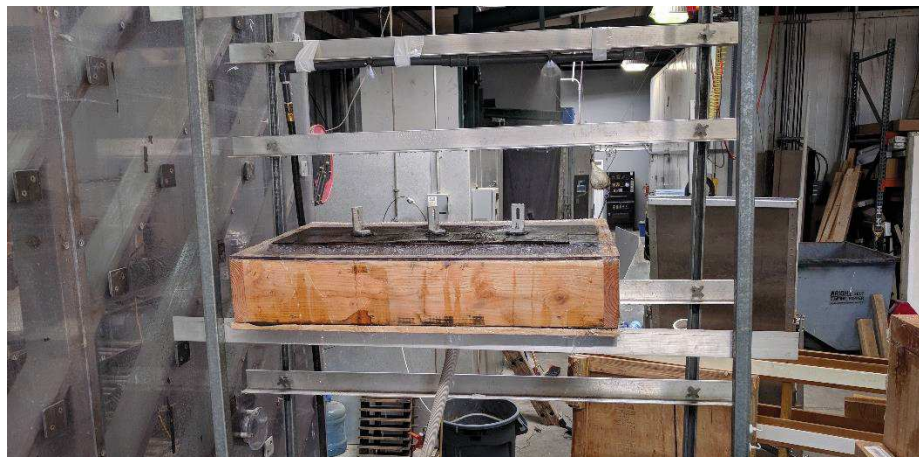


Photo No. 2

The specimen during ASTM E331 testing.

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Photo No. 3
ASTM E2140 testing

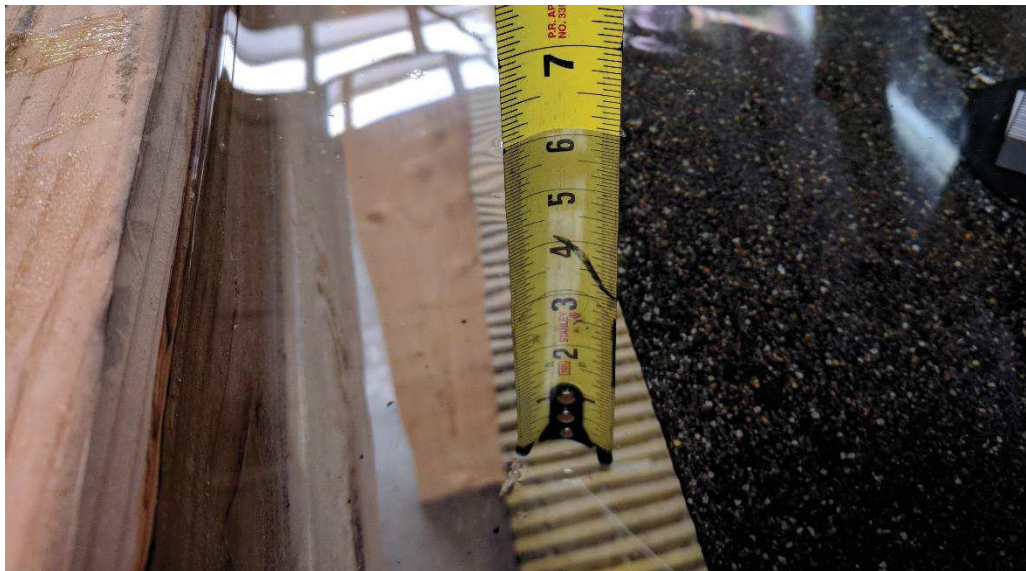


Photo No. 4
The water level was maintained at 6" for 7 days



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SECTION 10

INSTALLATION INSTRUCTIONS



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SECTION 11

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	11/08/17	N/A	Original Report Issue
1	11/30/17	8-22	Added correct installation drawings